



FCC TEST REPORT (WLAN 15.407)

REPORT NO.: RF140313E05B-1

MODEL NO.: QCNFA34AC

FCC ID: PPD-QCNFA34AC

RECEIVED: Aug. 07, 2014

TESTED: Aug. 19 to 25, 2014

ISSUED: Sep. 12, 2014

APPLICANT: Qualcomm Atheros, Inc.

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

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140313E05B-1	Original release	Sep. 12, 2014

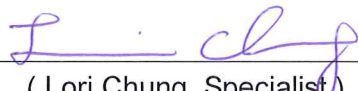


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1. CERTIFICATION

PRODUCT: 802.11 a/b/g/n/ac+ BT 4.1 M.2 Type Card
BRAND NAME: Qualcomm Atheros
MODEL NO.: QCNFA34AC
TEST SAMPLE: ENGINEERING SAMPLE
APPLICANT: Qualcomm Atheros, Inc.
TESTED: Aug. 19 to 25, 2014
STANDARDS: **FCC Part 15, Subpart E (Section 15.407)**
ANSI C63.10-2009

The above equipment (Model: QCNFA34AC) 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:** Sep. 12, 2014
(Lori Chung, Specialist)

APPROVED BY :  , **DATE:** Sep. 12, 2014
(May Chen, Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407)			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.407 (b)(1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -5.3dB at 15720.00MHz, 17010.00MHz & 16830.00MHz.
15.407(a/1/2/3)	Transmit Power	PASS	Meet the requirement of limit.
15.407(a/1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is IPEX not a standard connector.

- NOTE:** 1. The EUT was operating in 2400 ~ 2483.5MHz, 5.15~5.35GHz, 5.47~5.725GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 5.15~5.35GHz, 5.47~5.725GHz and 5.725~5.850GHz. For the 2400 ~ 2483.5MHz and 5.725~5.850GHz RF parameters was recorded in another test report.
2. This report is prepared for FCC class II permissive change. All test item needs to be performed, except for AC Power Conducted Emission.

2.1 MEASUREMENT UNCERTAINTY

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

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

Measurement	Value
Radiated emissions (30MHz-1GHz)	5.37 dB
Radiated emissions (1GHz -6GHz)	3.72 dB
Radiated emissions (6GHz -18GHz)	4.00 dB
Radiated emissions (18GHz -40GHz)	4.11 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT (WLAN)

PRODUCT	802.11 a/b/g/n/ac+ BT 4.1 M.2 Type Card
MODEL NO.	QCNFA34AC
POWER SUPPLY	DC 3.3V from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode and 11n (HT20), 11n (HT40) mode of 2.4GHz Band
MODULATION TECHNOLOGY	DSSS,OFDM
TRANSFER RATE	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n : up to 400Mbps 802.11ac: up to 866.7Mbps
OPERATING FREQUENCY	For 15.407 802.11a: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.5~5.72GHz For 15.247 2.4GHz: 2.412 ~ 2.462GHz 5GHz: 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	For 15.407 20 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 10 for 802.11n (HT40), 802.11ac (VHT40) 5 for 802.11ac (VHT80) For 15.247(2.4GHz) 11 for 802.11b, 802.11g, 802.11n (HT20), 802.11n_256QAM(BW20) 7 for 802.11n (HT40), 802.11n_256QAM(BW40) For 15.247(5GHz) 5 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80)
MAXIMUM OUTPUT POWER	See Note
ANTENNA TYPE	See item 3.2
ANTENNA CONNECTOR	See item 3.2
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. This report is prepared for FCC class II permissive change. The difference compared with the Report No.: RF140313E05 design is as the following:
 - ◆ Change Diplexier (this component will impact all the WLAN/BT Tx patch)
 - ◆ Upgrade Standard
2. According to above condition, all test items need to be performed, except for AC Power Conducted Emission. And all data was verified to meet the requirements.
3. There are Bluetooth technology and WLAN technology used for the EUT.
4. The modular has two variant designs as following table:

Variant No.	Description
SKU #1	NFA344: This SKU supports 2T2R MIMO.
SKU #2	NFA345: This SKU supports 1T2R.

5. The maximum output power(mW) table as below table:

15.247 (2.4GHz<WLAN>)			
SKU #2(NFA345) - 1Tx		SKU #1 (NFA344) - 2Tx	
802.11b	181.552	802.11b	390.963
802.11g	259.418	802.11g	500.770
802.11n (HT20)	273.527	802.11n (HT20)	589.439
802.11n (HT40)	250.035	802.11n (HT40)	326.780
802.11n_256QAM(BW20)	276.694	802.11n_256QAM(BW20)	593.015
802.11n_256QAM(BW40)	250.611	802.11n_256QAM(BW40)	478.987
15.247 (5GHz)			
SKU #2(NFA345) - 1Tx		SKU #1 (NFA344) - 2Tx	
802.11a	127.057	802.11a	264.540
802.11n (HT20)	138.357	802.11n (HT20)	286.951
802.11n (HT40)	107.647	802.11n (HT40)	213.817
802.11ac (VHT20)	146.218	802.11ac (VHT20)	298.623
802.11ac (VHT40)	105.682	802.11ac (VHT40)	208.958
802.11ac (VHT80)	106.414	802.11ac (VHT80)	208.743
15.407 (5GHz)			
SKU #2(NFA345) - 1Tx		SKU #1 (NFA344) - 2Tx	
802.11a	35.81	802.11a	66.341
802.11n (HT20)	33.266	802.11n (HT20)	65.323
802.11n (HT40)	29.242	802.11n (HT40)	54.017
802.11ac (VHT20)	35.975	802.11ac (VHT20)	66.834
802.11ac (VHT40)	29.717	802.11ac (VHT40)	54.085
802.11ac (VHT80)	28.642	802.11ac (VHT80)	47.064

6. The EUT incorporates a 2T2R function SKU #1 (NFA344), 1T2R function SKU #2 (NFA345).

SKU #1 (NFA344)			
MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11b	1 ~ 11Mbps	2Tx CDD	2Rx
802.11g	6 ~ 54Mbps	2Tx CDD	2Rx
802.11n (HT20) (2.4GHz)	MCS 0~7	2Tx CDD / beamforming	2Rx
	MCS 8~15	2Tx	2Rx
	MCS 0~8, Nss=1 (256QAM)	2Tx CDD / beamforming	2Rx
	MCS 0~8, Nss=2 (256QAM)	2Tx	2Rx
802.11n (HT40) (2.4GHz)	MCS 0~7	2Tx CDD / beamforming	2Rx
	MCS 8~15	2Tx	2Rx
	MCS 0~9, Nss=1 (256QAM)	2Tx CDD / beamforming	2Rx
	MCS 0~9, Nss=2 (256QAM)	2Tx	2Rx
802.11a	6 ~ 54Mbps	2Tx CDD / beamforming	2Rx
802.11n (HT20) (5GHz)	MCS 0~7	2Tx CDD / beamforming	2Rx
	MCS 8~15	2Tx	2Rx
802.11n (HT40) (5GHz)	MCS 0~7	2Tx CDD / beamforming	2Rx
	MCS 8~15	2Tx	2Rx
802.11ac (VHT20) (5GHz)	MCS 0~8, Nss=1	2Tx CDD / beamforming	2Rx
	MCS 0~8, Nss=2	2Tx	2Rx
802.11ac (VHT40) (5GHz)	MCS 0~9, Nss=1	2Tx CDD / beamforming	2Rx
	MCS 0~9, Nss=2	2Tx	2Rx
802.11ac (VHT80) (5GHz)	MCS 0~9, Nss=1	2Tx CDD / beamforming	2Rx
	MCS 0~9, Nss=2	2Tx	2Rx

SKU #2 (NFA345)			
MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11b	1 ~ 11Mbps	1Tx (Fix main port)	1Rx (Fix main port) or 2Rx
802.11g	6 ~ 54Mbps	1Tx (Fix main port)	1Rx (Fix main port) or 2Rx
802.11n (HT20) (2.4GHz)	MCS 0~7	1Tx (Fix main port)	1Rx (Fix main port) or 2Rx
	MCS 0~8, Nss=1 (256QAM)	1Tx (Fix main port)	1Rx (Fix main port) or 2Rx
802.11n (HT40) (2.4GHz)	MCS 0~7	1Tx (Fix main port)	1Rx (Fix main port) or 2Rx
	MCS 0~9, Nss=1 (256QAM)	1Tx (Fix main port)	1Rx (Fix main port) or 2Rx
802.11a	6 ~ 54Mbps	1Tx (Fix main port)	1Rx (Fix main port) or 2Rx
802.11n (HT20) (5GHz)	MCS 0~7	1Tx (Fix main port)	1Rx (Fix main port) or 2Rx
802.11n (HT40) (5GHz)	MCS 0~7	1Tx (Fix main port)	1Rx (Fix main port) or 2Rx
802.11ac (VHT20) (5GHz)	MCS 0~8, Nss=1	1Tx (Fix main port)	1Rx (Fix main port) or 2Rx
802.11ac (VHT40) (5GHz)	MCS 0~9, Nss=1	1Tx (Fix main port)	1Rx (Fix main port) or 2Rx
802.11ac (VHT80) (5GHz)	MCS 0~9, Nss=1	1Tx (Fix main port)	1Rx (Fix main port) or 2Rx

7. In original report, the EUT was pre-tested under the following modes:

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

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

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

Mode	Available Channel	Tested Channel	Modulation Technology
5 GHz (802.11ac(VHT20)) + Bluetooth (GFSK)	149 to 165	157	OFDM
	0 to 78	78	FHSS

9. WLAN/BT coexistence mode:

◆ **NFA344:**

2TX 5GHz WLAN (Main + Aux) + BT (Main) concurrent.

2TX 2.4GHz WLAN+ BT timely shared at Main antenna.

◆ **NFA345:**

1TX 2.4GHz WLAN+ BT timely shared at Main antenna.

1TX 5GHz WLAN+ BT concurrent

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

3.2 DESCRIPTION OF ANTENNA

The antenna provided to the EUT, please refer to the following table:

Brand	Model	Antenna Type	2.4G Gain with cable loss (dBi)	5G Gain with cable loss (dBi)	2.4G Cable Loss (dBi)	5G Cable Loss (dBi)	Connector Type	Cable Length (mm)
WNC	81.EBJ15.005	PIFA	3.62	Band 1&2: 3.08 Band 3: 4.76 Band 4: 4.76	1.15	Band1&2: 1.70 Band 3: 1.74 Band 4: 1.79	IPEX	300

Note: 1. Above antenna gains of antenna are Total (H+V).

2. All of antenna can be application for WLAN and Bluetooth.

3.3 DESCRIPTION OF TEST MODES

Operated in 5150MHz ~ 5350MHz bands:

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	52	5260 MHz
40	5200 MHz	56	5280 MHz
44	5220 MHz	60	5300 MHz
48	5240 MHz	64	5320 MHz

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

CHANNEL	FREQUENCY
38	5190 MHz
46	5230 MHz
54	5270 MHz
62	5310 MHz

2 channels are provided for 802.11ac (VHT80):

CHANNEL	FREQUENCY
42	5210 MHz
58	5290 MHz

Operated in 5470MHz ~ 5725MHz bands:

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz	144	5720 MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz	142	5710 MHz

3 channels are provided for 802.11ac (VHT80):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
106	5530 MHz	138	5690 MHz
122	5610 MHz		

- a. For FCC: The listed channels in the DFS band (5250~5350MHz and 5470~5725MHz) are passive scan only.

3.3.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO			DESCRIPTION
	UE < 1G	UE ≥ 1G	APCM	
1	-	√	√	SKU #2(NFA345) - 1Tx
2	√	√	√	SKU #1(NFA344) - 2Tx

Where **UE < 1G**: Unwanted Emission below 1GHz **UE ≥ 1G**: Unwanted Emission above 1GHz

APCM: Antenna Port Conducted Measurement

- Note
1. In original report, the EUT's antenna had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.
 2. In Unwanted Emission -Conducted measurement (below 1GHz) mode, Mode 2, the worse case one, was chosen for final test.
 3. In Unwanted Emission-Radiated measurement mode, Mode 2, the worse case one, was chosen for final test.

UNWANTED EMISSION TEST (BELOW 1 GHz):

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11a	36 to 144	116	OFDM	6

UNWANTED EMISSION TEST (ABOVE 1 GHz):

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11a	36 to 165	36, 40, 48, 52, 60, 64, 100, 120, 140, 144	OFDM	6
802.11ac (VHT20)	36 to 165	36, 40, 48, 52, 60, 64, 100, 120, 140, 144	OFDM	6.5
802.11ac (VHT40)	38 to 159	38, 46, 54, 62, 102, 118, 134, 142	OFDM	13.5
802.11ac (VHT80)	42 to 155	42, 58, 106, 122, 138	OFDM	29.3

ANTENNA PORT CONDUCTED MEASUREMENT:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11a	36 to 165	36, 40, 48, 52, 60, 64, 100, 120, 140, 144	OFDM	6
802.11ac (VHT20)	36 to 165	36, 40, 48, 52, 60, 64, 100, 120, 140, 144	OFDM	6.5
802.11ac (VHT40)	38 to 159	38, 46, 54, 62, 102, 118, 134, 142	OFDM	13.5
802.11ac (VHT80)	42 to 155	42, 58, 106, 122, 138	OFDM	29.3



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TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE<1G	23deg. C, 69%RH	120Vac, 60Hz	Gary Cheng
RE≥1G	23deg. C, 71%RH	120Vac, 60Hz	Gary Cheng
APCM	25deg. C, 60%RH	120Vac, 60Hz	James Chan

3.4 DUTY CYCLE OF TEST SIGNAL

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

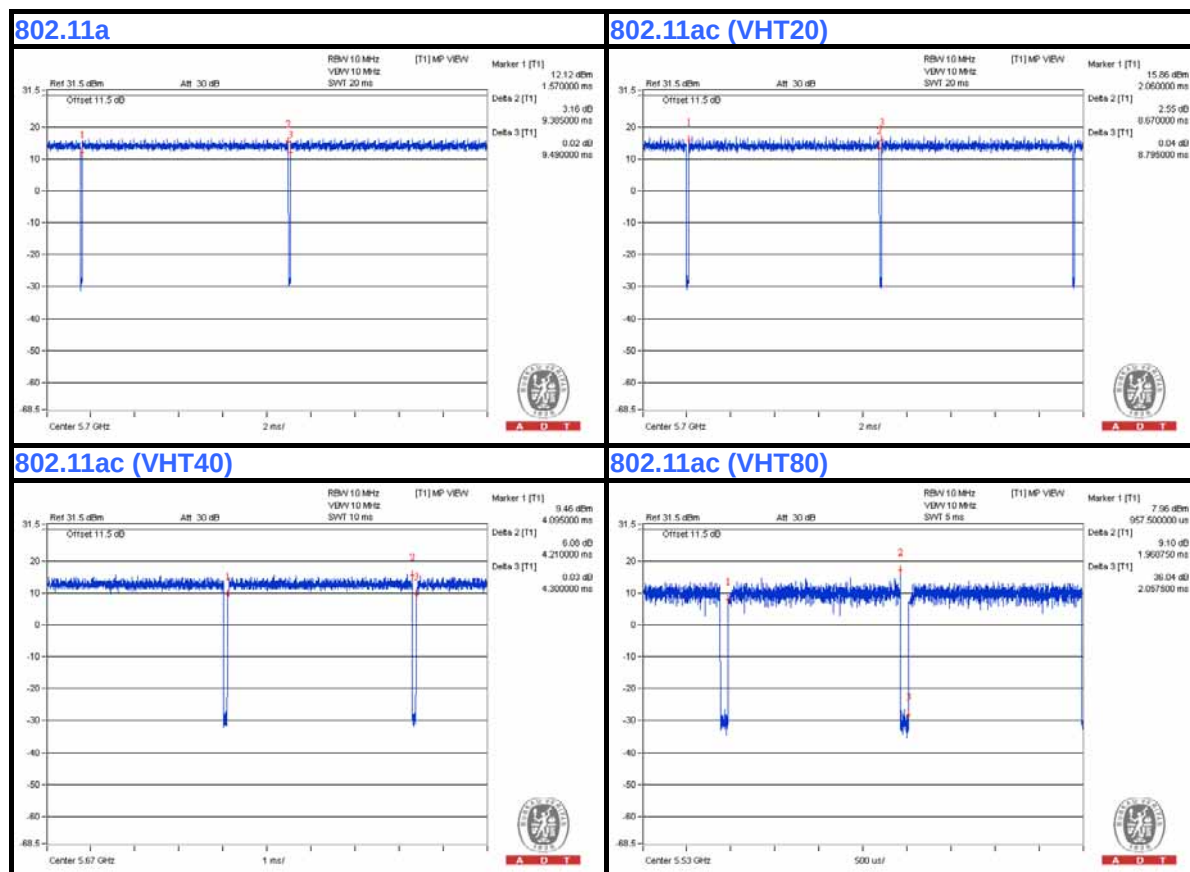
If duty cycle of test signal is $< 98\%$, duty factor shall be considered.

802.11a: Duty cycle = 9.385 ms/9.49 ms = 0.989

802.11ac (VHT20): Duty cycle = 8.67 ms/8.795 ms = 0.986

802.11ac (VHT40): Duty cycle = 4.21 ms/4.3 ms = 0.979, Duty factor = $10 * \log(1/0.979) = 0.09$

802.11ac (VHT80): Duty cycle = 1.96875 ms/2.0575 ms = 0.957, Duty factor = $10 * \log(1/0.957) = 0.19$



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 E (Section 15.407)

789033 D02 General UNII Test Procedures New Rules v01

662911 D01 Multiple Transmitter Output v02r01

644545 D01 Guidance for IEEE 802.11ac v01r02

ANSI C63.10-2009

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

3.6 DESCRIPTION OF SUPPORT UNITS

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

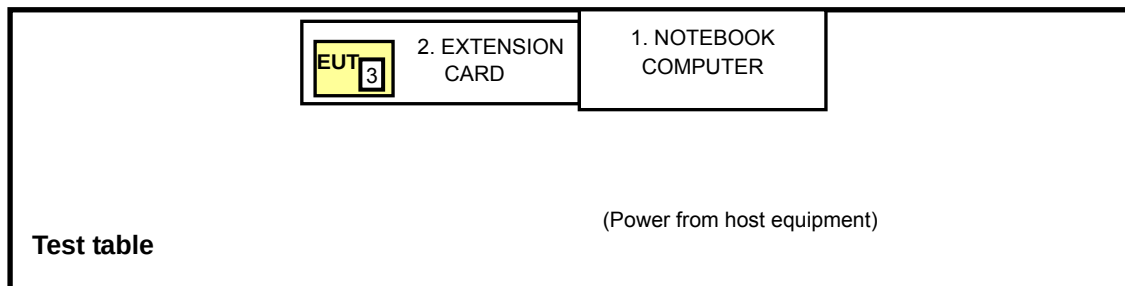
No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBOOK COMPUTER	DELL	E6420	H62T3R1	FCC DoC
2	EXTENSION CARD	Qualcomm Atheros	HPCBM194-0	NA	NA
3	50ohm terminal resistor	NA	NA	NA	NA

No.	Signal cable description
1	NA
2	NA
3	NA

Note: The power cords of the above support units were unshielded (1.8m).

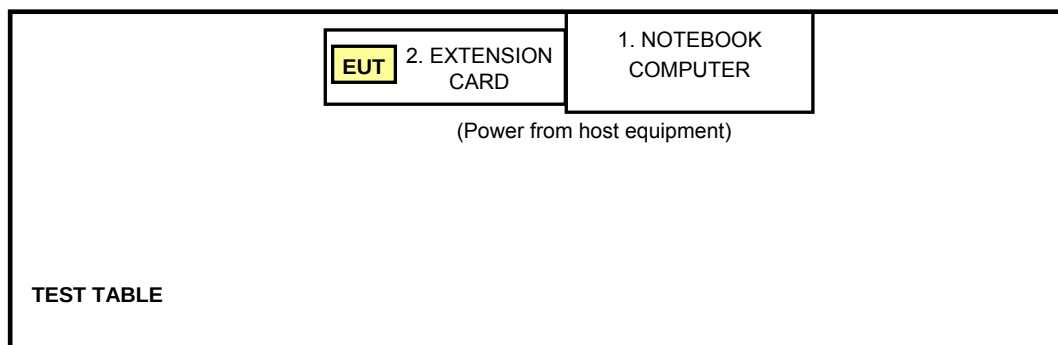
3.7 CONFIGURATION OF SYSTEM UNDER TEST

For Unwanted Emission test (Radiated Measurement)



Note: Support unit 3 is 50ohm terminal resistor.

For other test items:



4. TEST TYPES AND RESULTS

4.1 TRANSMIT POWER MEASUREMENT

4.1.1 LIMITS OF TRANSMIT POWER MEASUREMENT

Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p $\leq$ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
		Indoor Access Point	1 Watt (30 dBm)
	√	Mobile and Portable client device	250mW (24 dBm)
U-NII-2A	---		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	---		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	---		1 Watt (30 dBm)

Note: Where B is the 26dB emission bandwidth in MHz.

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

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

Array Gain = 0 dB (i.e., no array gain) for channel widths $\geq$ 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.



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4.1.2 TEST INSTRUMENTS

FOR POWER OUTPUT MEASUREMENT

For channel straddling 5725MHz:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSV 40	100964	July 05, 2014	July 04, 2015

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Aug. 25, 2014

For other channels:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power meter Anritsu	ML2495A	1014008	Apr. 30, 2014	Apr. 29, 2015
Power sensor Anritsu	MA2411B	0917122	Apr. 30, 2014	Apr. 29, 2015

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Aug. 25, 2014

FOR 26dB OCCUPIED BANDWIDTH

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSV 40	100964	July 05, 2014	July 04, 2015

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Aug. 25, 2014

4.1.3 TEST PROCEDURE

For channel straddling 5725MHz:

Follow FCC KDB 789033 UNII test procedure:

Method SA-1

1. Set span to encompass the 99% occupied bandwidth of the signal.
2. Set RBW = 1MHz.
3. Set the VBW $\geq 3 \times$ RBW.
4. Number of points in sweep ≥ 2 Span / RBW.
5. Sweep time = auto.
6. Set trigger to free run (duty cycle ≥ 98 percent) ; Set video trigger (duty cycle < 98 percent)
7. Detector = RMS.
8. Trace average at least 100 traces in power averaging mode
9. Compute power by integrating the spectrum across the 26 dB EBW of the signal.

For other channels:

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

FOR 26dB OCCUPIED BANDWIDTH

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW $>$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

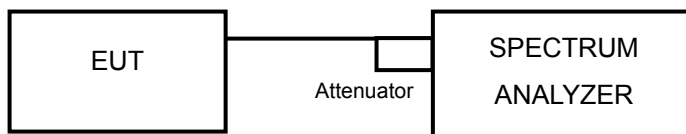
4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP

FOR POWER OUTPUT MEASUREMENT

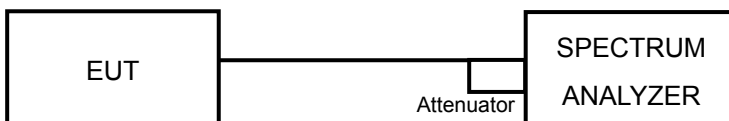
For channel straddling 5725MHz:



For other channels:



FOR 99% OCCUPIED BANDWIDTH



4.1.6 EUT OPERATING CONDITIONS

The software (QCRT Version: 3.0.29.0) provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

4.1.7 TEST RESULTS (MODE 1)

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	33.266	15.22	24.00	PASS
40	5200	31.769	15.02	24.00	PASS
48	5240	32.063	15.06	24.00	PASS
52	5260	31.623	15.00	24.00	PASS
60	5300	31.769	15.02	24.00	PASS
64	5320	33.037	15.19	24.00	PASS
100	5500	35.81	15.54	24.00	PASS
120	5600	30.13	14.79	24.00	PASS
140	5700	35.81	15.54	24.00	PASS
144 (UNII-2c Band)	5720	11.298	10.53	23.02	PASS
144 (UNII-3 Band)	5720	2.183	3.39	30.00	PASS

26dB OCCUPIED BANDWIDTH:

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)
36	5180	21.31
40	5200	20.21
48	5240	21.47
52	5260	22.97
60	5300	28.54
64	5320	20.03
100	5500	20.29
120	5600	22.85
140	5700	20.05
144 (UNII-2c Band)	5720	15.95
144 (UNII-3 Band)	5720	8.22

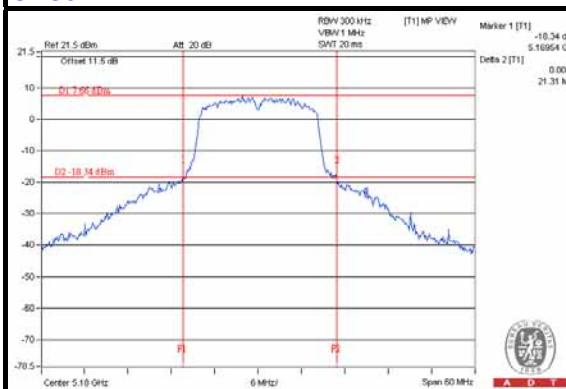
Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	22.97	24.61 > 24
60	5300	28.54	25.55 > 24
64	5320	20.03	24.01 > 24
100	5500	20.29	24.07 > 24
120	5600	22.85	24.58 > 24
140	5700	20.05	24.02 > 24
144 (UNII-2c Band)	5720	15.95	23.02 < 24

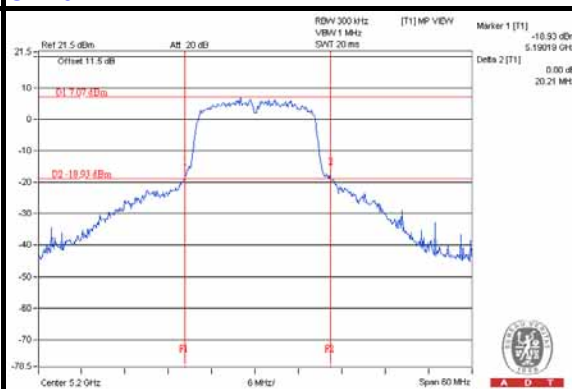


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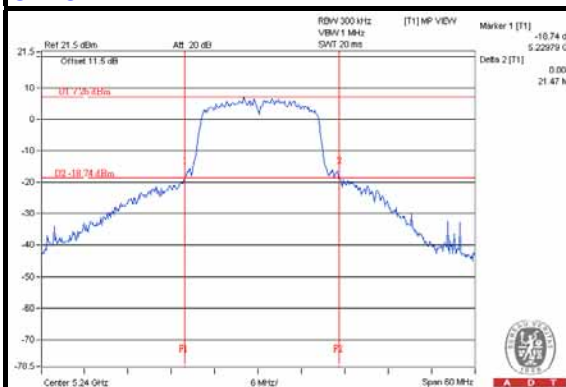
CH36



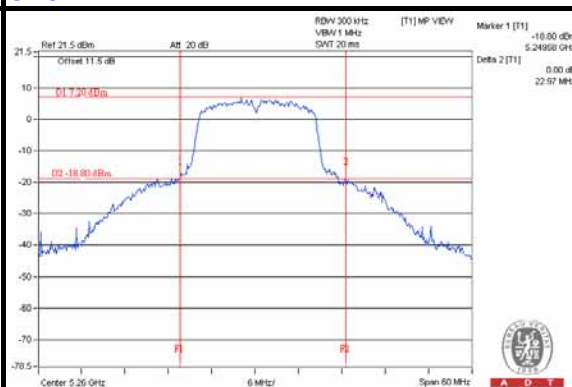
CH40



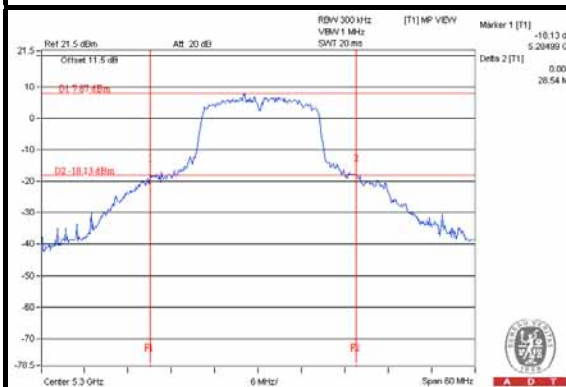
CH48



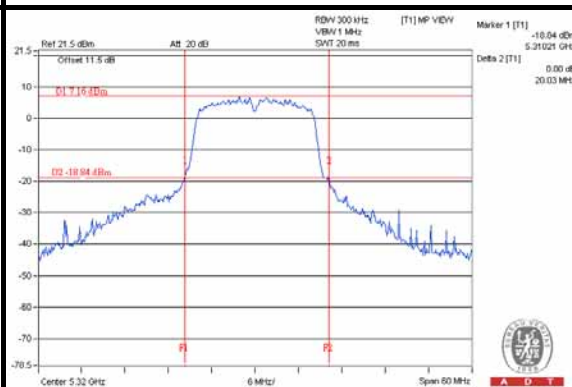
CH52



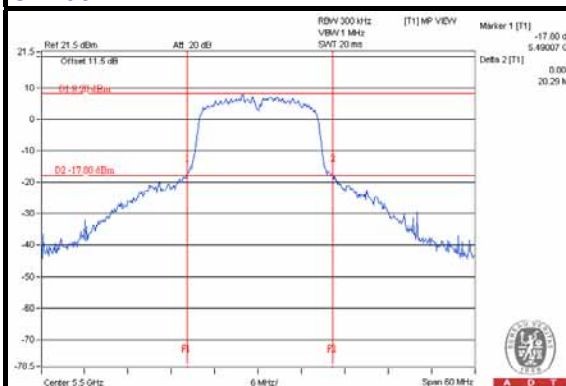
CH60



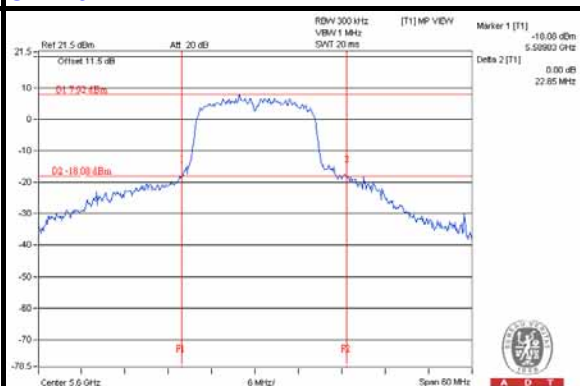
CH64



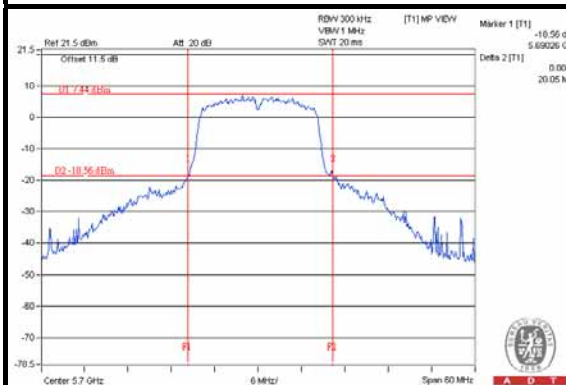
CH100



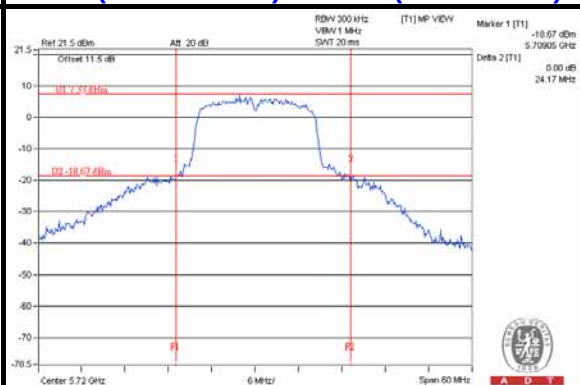
CH120



CH140



CH144 (UNII-2c Band) / CH144 (UNII-3 Band)



NOTE:

For CH144 (UNII-2c Band) = 5725 - Market 1

802.11n (HT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	32.885	15.17	24.00	PASS
40	5200	31.842	15.03	24.00	PASS
48	5240	30.269	14.81	24.00	PASS
52	5260	31.915	15.04	24.00	PASS
60	5300	30.409	14.83	24.00	PASS
64	5320	33.266	15.22	24.00	PASS
100	5500	31.696	15.01	24.00	PASS
120	5600	30.479	14.84	24.00	PASS
140	5700	25.177	14.01	24.00	PASS
144 (UNII-2c Band)	5720	11.246	10.51	22.92	PASS
144 (UNII-3 Band)	5720	2.438	3.87	30.00	PASS

26dB OCCUPIED BANDWIDTH:

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)
36	5180	20.98
40	5200	25.98
48	5240	33.67
52	5260	30.68
60	5300	26.22
64	5320	20.94
100	5500	25.91
120	5600	31.86
140	5700	20.84
144 (UNII-2c Band)	5720	15.56
144 (UNII-3 Band)	5720	9.91

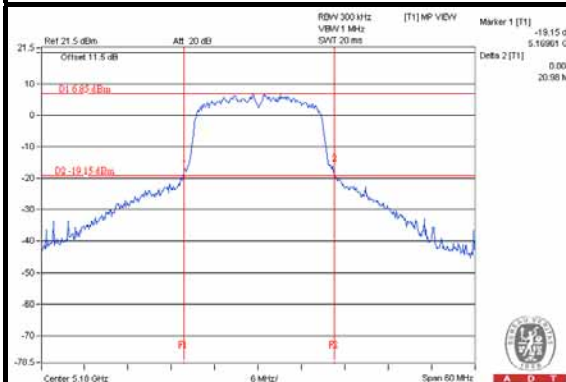
Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	30.68	25.86 > 24
60	5300	26.22	25.18 > 24
64	5320	20.94	24.2 > 24
100	5500	25.91	25.13 > 24
120	5600	31.86	26.03 > 24
140	5700	20.84	24.18 > 24
144 (UNII-2c Band)	5720	15.56	22.92 < 24

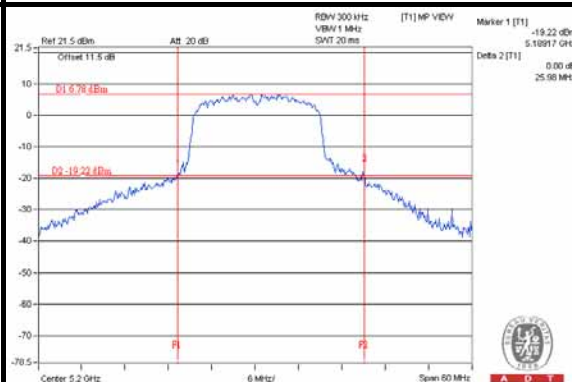


A D T

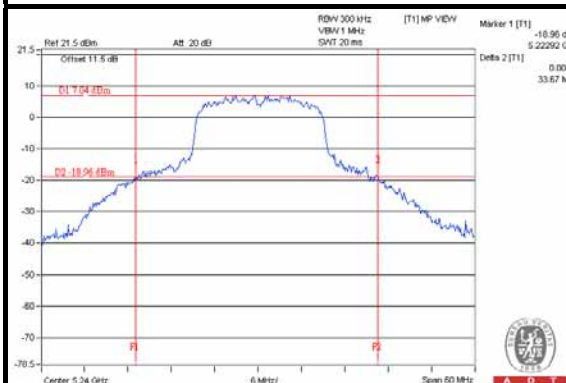
CH36



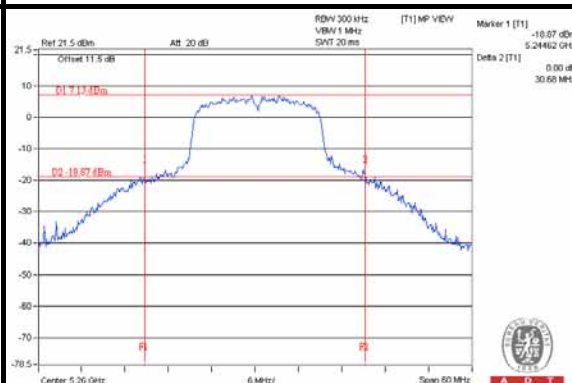
CH40



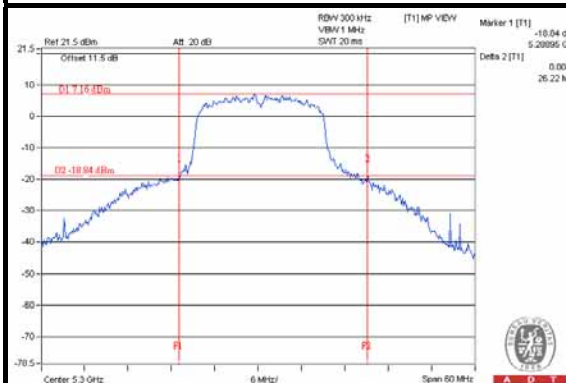
CH48



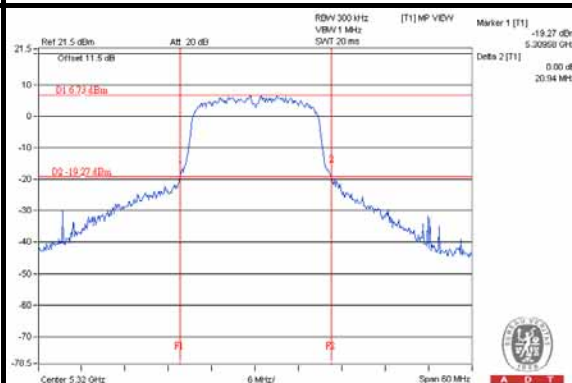
CH52



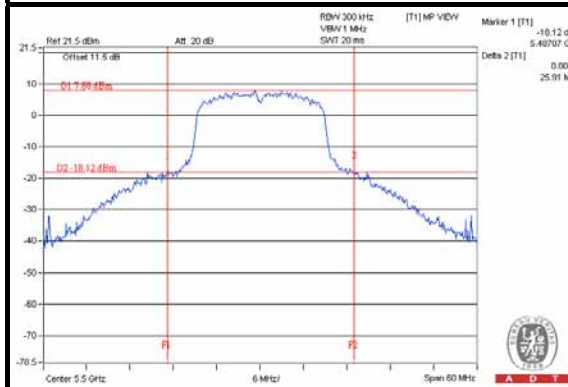
CH60



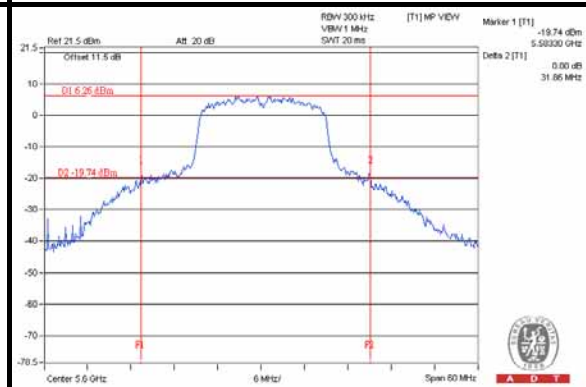
CH64



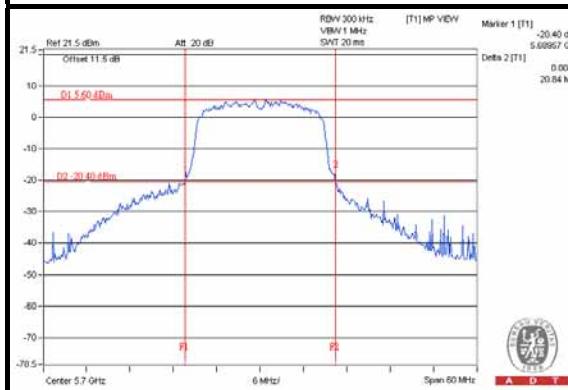
CH100



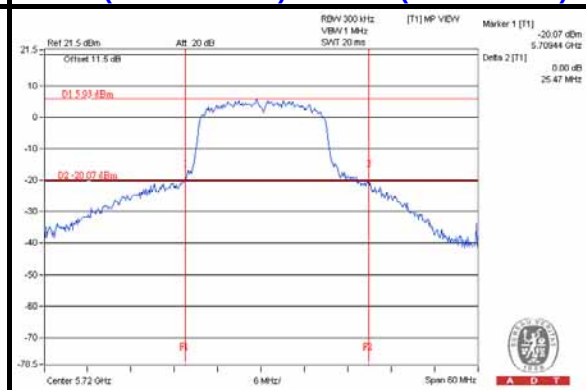
CH120



CH140



CH144 (UNII-2c Band) / CH144 (UNII-3 Band)



NOTE:

For CH144 (UNII-2c Band) = 5725 - Market 1

802.11n (HT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
38	5190	13.614	11.34	24.00	PASS
46	5230	25.823	14.12	24.00	PASS
54	5270	25.177	14.01	24.00	PASS
62	5310	20.941	13.21	24.00	PASS
102	5510	9.141	9.61	24.00	PASS
118	5590	26.853	14.29	24.00	PASS
134	5670	29.242	14.66	24.00	PASS
142 (UNII-2c Band)	5710	11.552	10.63	24.00	PASS
142 (UNII-3 Band)	5710	0.8763	-0.57	30.00	PASS

For CH142 : Average Power (dBm)= measured value(dBm) + Duty Factor (0.09dB)

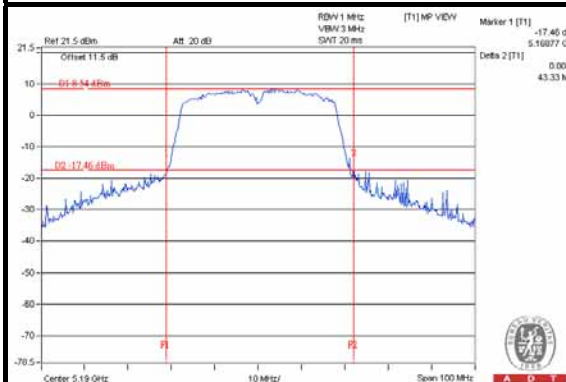
26dB OCCUPIED BANDWIDTH:

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)
38	5190	43.33
46	5230	49.70
54	5270	45.19
62	5310	42.54
102	5510	48.94
118	5590	70.44
134	5670	48.11
142 (UNII-2c Band)	5710	54.89
142 (UNII-3 Band)	5710	17.46

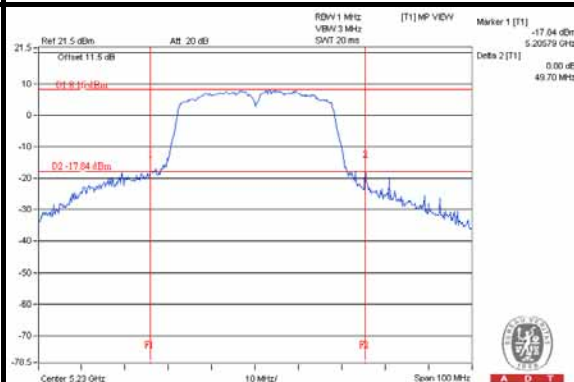
Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
54	5270	45.19	27.55 > 24
62	5310	42.54	27.28 > 24
102	5510	48.94	27.89 > 24
110	5550	70.44	29.47 > 24
134	5670	48.11	27.82 > 24
142 (UNII-2c Band)	5710	54.89	28.39 > 24

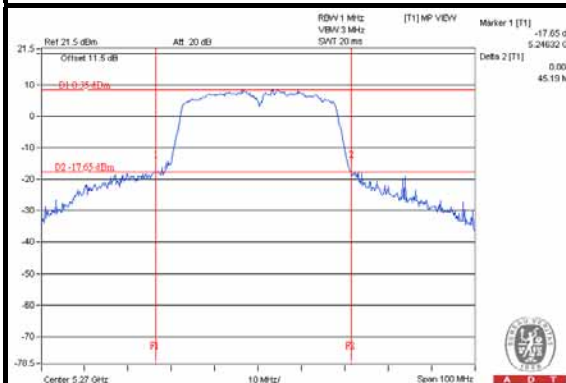
CH38



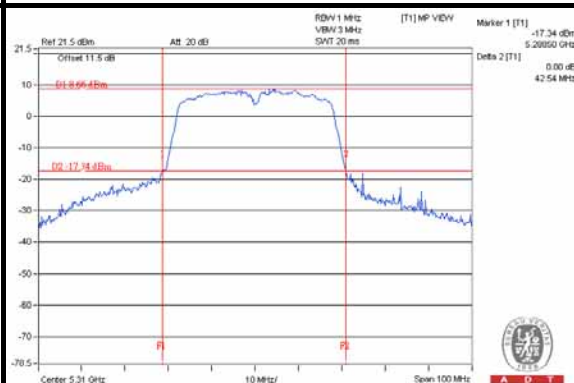
CH46



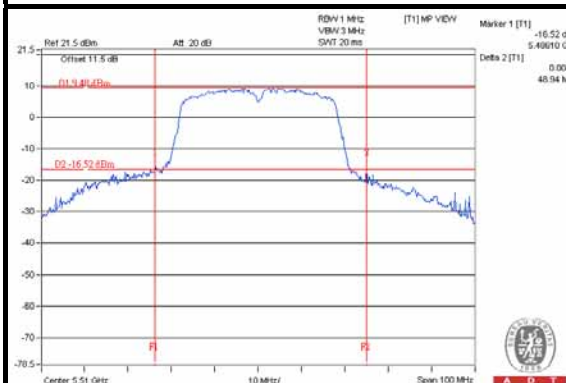
CH54



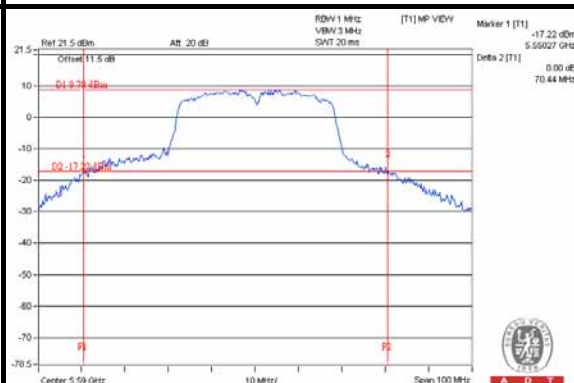
CH62



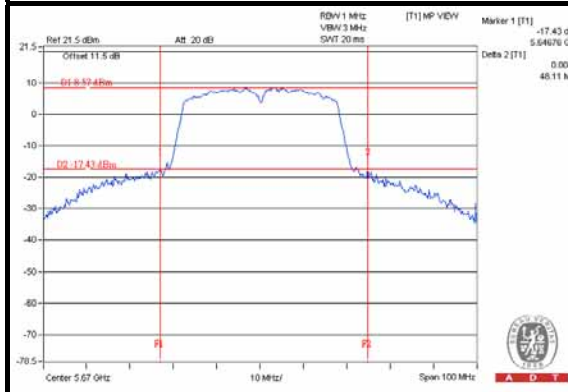
CH102



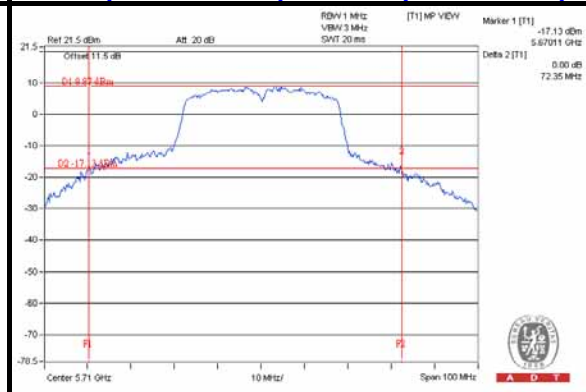
CH118



CH134



CH142 (UNII-2c Band) / CH142 (UNII-3 Band)



NOTE:

For CH142 (UNII-2c Band) = 5725 - Market 1

For CH142 (UNII-3 Band) = Delta 2 - CH142 (UNII-2c Band) BW

802.11ac (VHT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	33.497	15.25	24.00	PASS
40	5200	31.915	15.04	24.00	PASS
48	5240	31.117	14.93	24.00	PASS
52	5260	30.974	14.91	24.00	PASS
60	5300	31.915	15.04	24.00	PASS
64	5320	35.975	15.56	24.00	PASS
100	5500	32.734	15.15	24.00	PASS
120	5600	30.549	14.85	24.00	PASS
140	5700	25.763	14.11	24.00	PASS
144 (UNII-2c Band)	5720	10.568	10.24	22.92	PASS
144 (UNII-3 Band)	5720	2.371	3.75	30.00	PASS

26dB OCCUPIED BANDWIDTH:

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)
36	5180	20.98
40	5200	25.98
48	5240	33.67
52	5260	30.68
60	5300	26.22
64	5320	20.94
100	5500	25.91
120	5600	31.86
140	5700	20.84
144 (UNII-2c Band)	5720	15.56
144 (UNII-3 Band)	5720	9.91

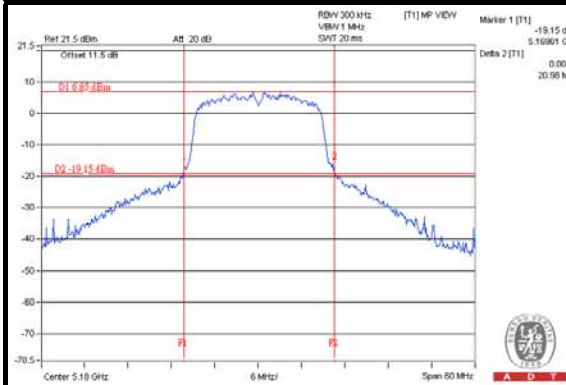
Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	30.68	25.86 > 24
60	5300	26.22	25.18 > 24
64	5320	20.94	24.2 > 24
100	5500	25.91	25.13 > 24
120	5600	31.86	26.03 > 24
140	5700	20.84	24.18 > 24
144 (UNII-2c Band)	5720	15.56	22.92 < 24

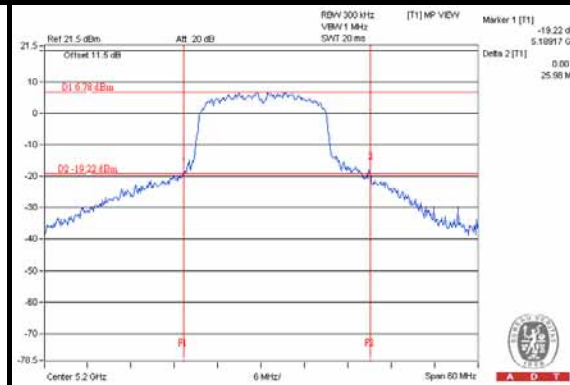


A D T

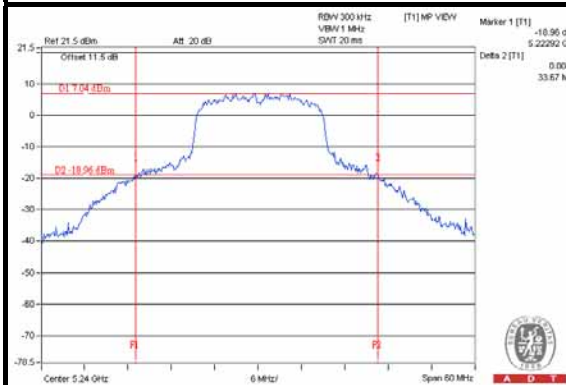
CH36



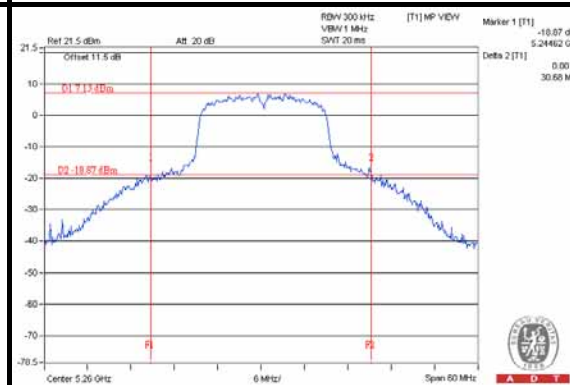
CH40



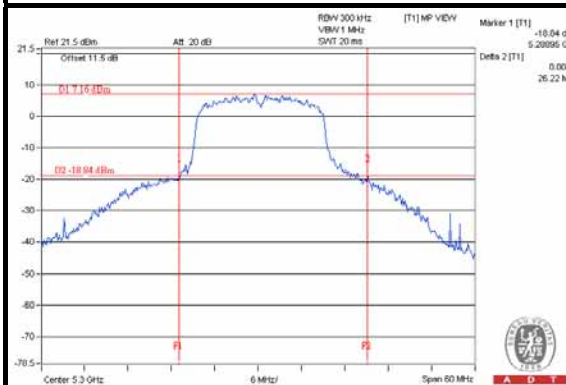
CH48



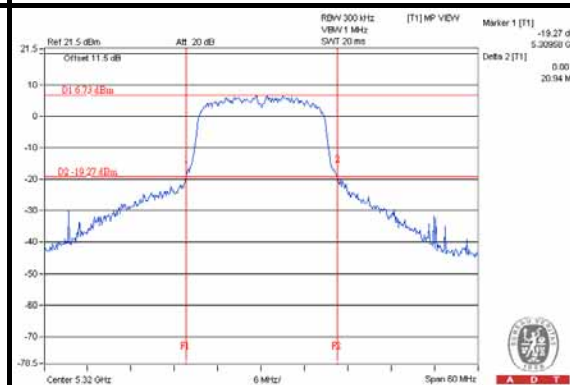
CH52



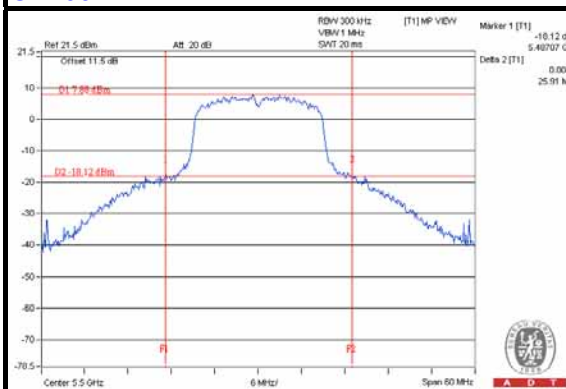
CH60



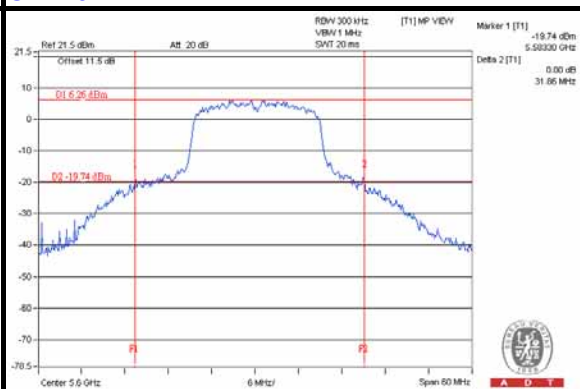
CH64



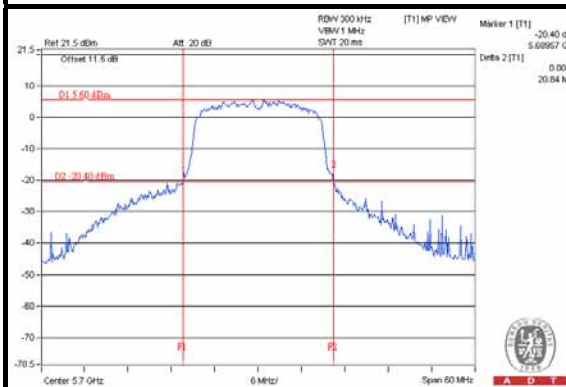
CH100



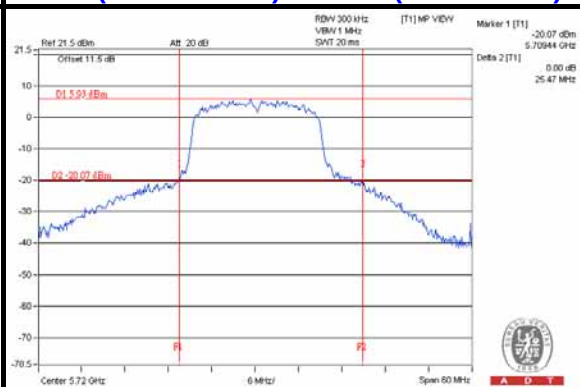
CH120



CH140



CH144 (UNII-2c Band) / CH144 (UNII-3 Band)



NOTE:

For CH144 (UNII-2c Band) = 5725 - Market 1

802.11ac (VHT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
38	5190	14.388	11.58	24.00	PASS
46	5230	26.122	14.17	24.00	PASS
54	5270	25.293	14.03	24.00	PASS
62	5310	21.677	13.36	24.00	PASS
102	5510	11.298	10.53	24.00	PASS
118	5590	27.416	14.38	24.00	PASS
134	5670	29.717	14.73	24.00	PASS
142 (UNII-2c Band)	5710	11.782	10.71	24.00	PASS
142 (UNII-3 Band)	5710	0.7198	-1.43	30.00	PASS

For CH142 : Average Power (dBm)= measured value(dBm) + Duty Factor (0.09dB)

26dB OCCUPIED BANDWIDTH:

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)
38	5190	43.33
46	5230	49.70
54	5270	45.19
62	5310	42.54
102	5510	48.94
118	5590	70.44
134	5670	48.11
142 (UNII-2c Band)	5710	54.89
142 (UNII-3 Band)	5710	17.46

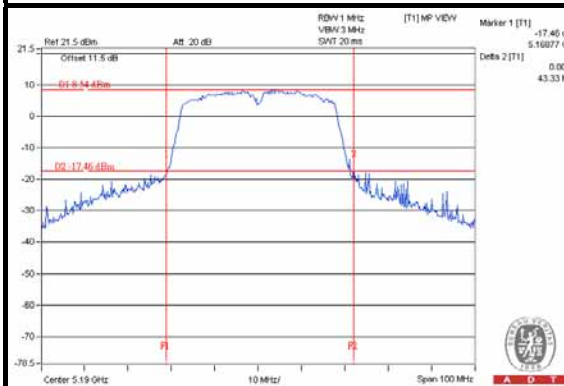
Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
54	5270	45.19	27.55 > 24
62	5310	42.54	27.28 > 24
102	5510	48.94	27.89 > 24
110	5550	70.44	29.47 > 24
134	5670	48.11	27.82 > 24
142 (UNII-2c Band)	5710	54.89	28.39 > 24

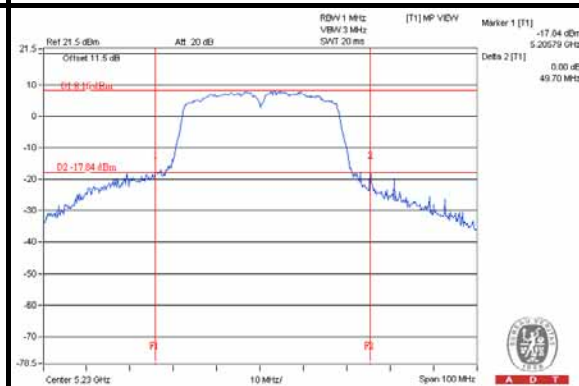


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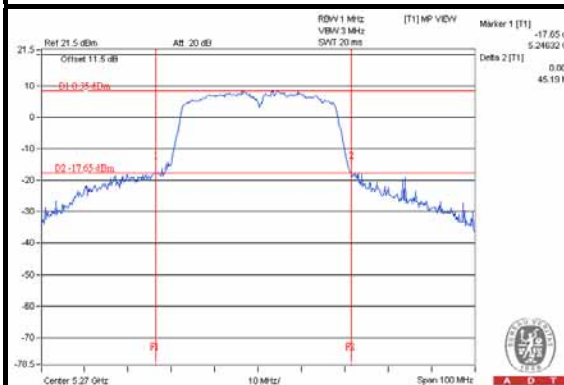
CH38



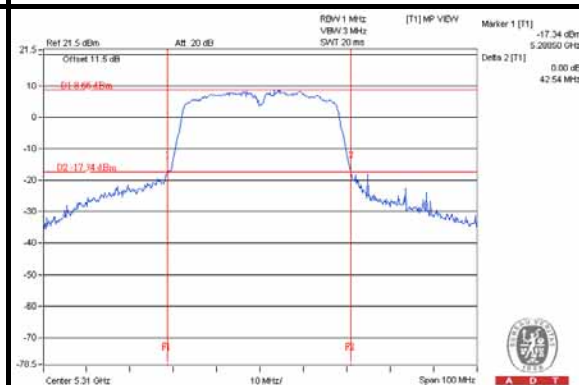
CH46



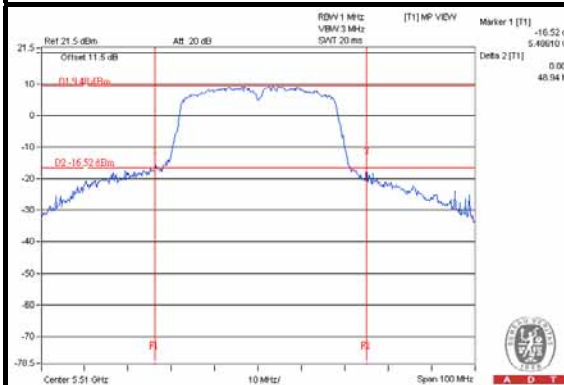
CH54



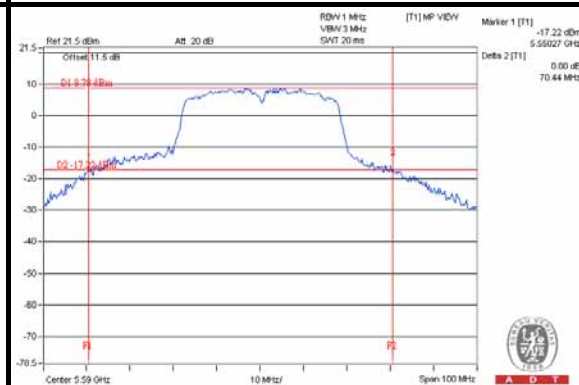
CH62



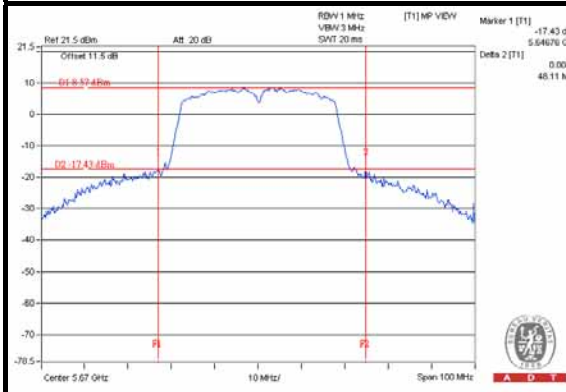
CH102



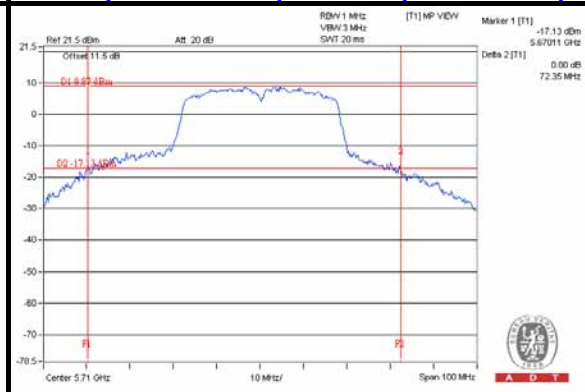
CH118



CH134



CH142 (UNII-2c Band) / CH142 (UNII-3 Band)



NOTE:

For CH142 (UNII-2c Band) = 5725 - Market 1

802.11ac (VHT80)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
42	5210	11.803	10.72	24.00	PASS
58	5290	15.596	11.93	24.00	PASS
106	5530	9.354	9.71	24.00	PASS
122	5610	28.642	14.57	24.00	PASS
138 (UNII-2c Band)	5690	10.377	10.16	24.00	PASS
138 (UNII-3 Band)	5690	0.2698	-5.69	30.00	PASS

26dB OCCUPIED BANDWIDTH:

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)
42	5210	84.07
58	5290	84.04
106	5530	84.00
122	5610	110.22
138 (UNII-2c Band)	5690	115.42
138 (UNII-3 Band)	5690	37.95

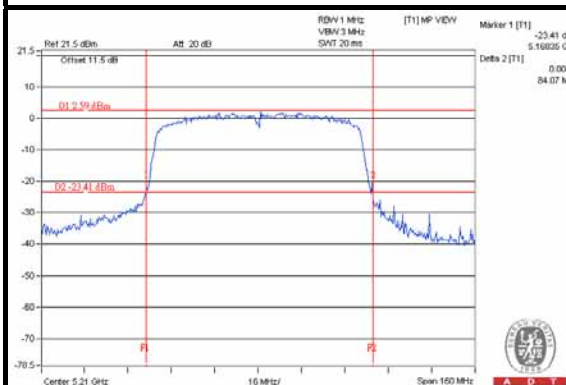
Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
58	5290	84.04	30.24 > 24
106	5530	84.00	30.24 > 24
122	5610	110.22	31.42 > 24
138 (UNII-2c Band)	5690	115.42	115.42 > 24

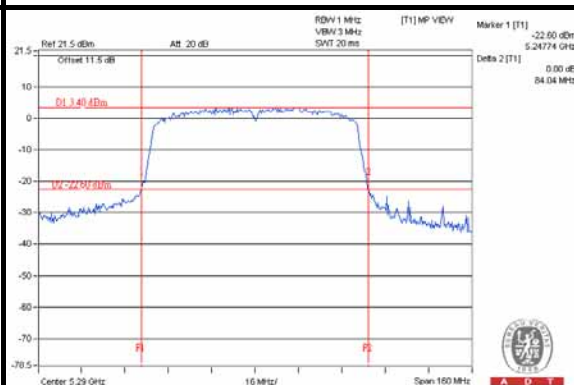


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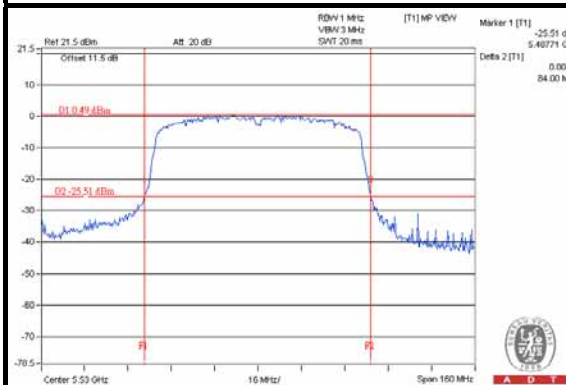
CH42



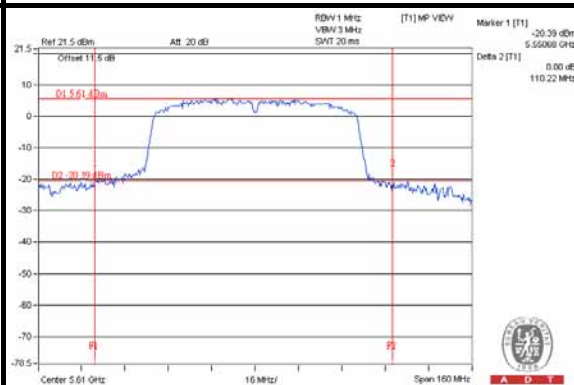
CH58



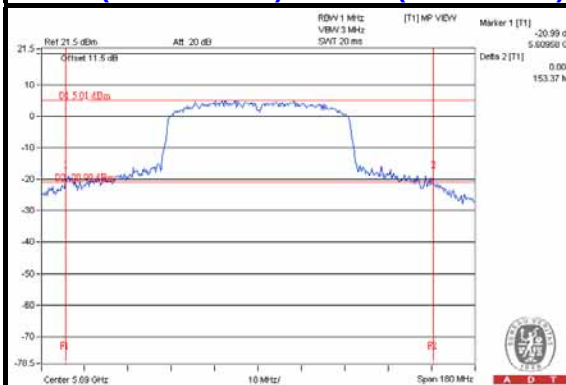
CH106



CH122



CH138 (UNII-2c Band) / CH138 (UNII-3 Band)



NOTE:

For CH138 (UNII-2c Band) = 5725 - Market 1

4.1.8 TEST RESULTS (MODE 2)

802.11a

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	11.03	11.11	25.589	14.08	23.91	PASS
40	5200	14.97	14.96	62.738	17.98	23.91	PASS
48	5240	14.98	14.99	63.027	18.00	23.91	PASS
52	5260	15.00	15.17	64.508	18.10	23.91	PASS
60	5300	14.80	15.58	66.341	18.22	23.91	PASS
64	5320	9.56	10.23	19.58	12.92	23.67	PASS
100	5500	8.59	8.73	14.692	11.67	22.02	PASS
120	5600	14.79	14.69	59.574	17.75	22.23	PASS
140	5700	7.24	7.71	11.199	10.49	22.01	PASS
144 (UNII-2c Band)	5720	10.53	10.37	22.187	13.46	21.25	PASS
144 (UNII-3 Band)	5720	3.39	3.53	4.437	6.47	28.23	PASS

Note:

5150~5250MHz: The directional gain is 6.09dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Conducted Limit-(6.09-6)".

5250~5350MHz: The directional gain is 6.09dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Determined Conducted Limit-(6.09-6)".

5470~5725MHz (Except for UNII-3 Band): The directional gain is 7.77dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Determined Conducted Limit-(7.77-6)".

5725~5825MHz (For UNII-3 Band): The directional gain is 7.77dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Conducted Limit-(7.77-6)".

26dB OCCUPIED BANDWIDTH:

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
36	5180	19.61	19.16
40	5200	20.21	31.51
48	5240	21.47	20.79
52	5260	22.97	20.35
60	5300	28.54	21.34
64	5320	19.24	18.89
100	5500	19.21	19.04
120	5600	22.85	20.91
140	5700	19.13	18.97
144 (UNII-2c Band)	5720	15.95	21.23
144 (UNII-3 Band)	5720	8.22	8.10

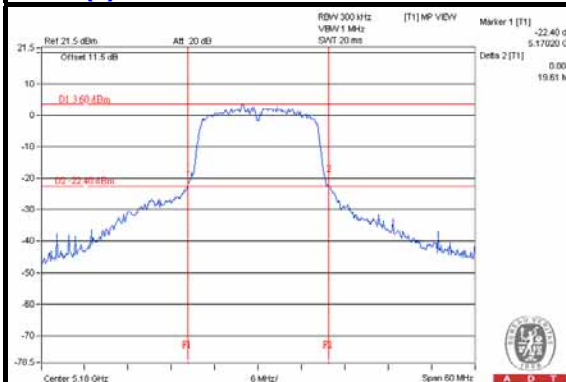
Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	20.35	24.08 > 24
60	5300	21.34	24.29 > 24
64	5320	18.89	23.76 < 24
100	5500	19.04	23.79 < 24
120	5600	20.91	24.2 > 24
140	5700	18.97	23.78 < 24
144 (UNII-2c Band)	5720	15.95	23.02 < 24

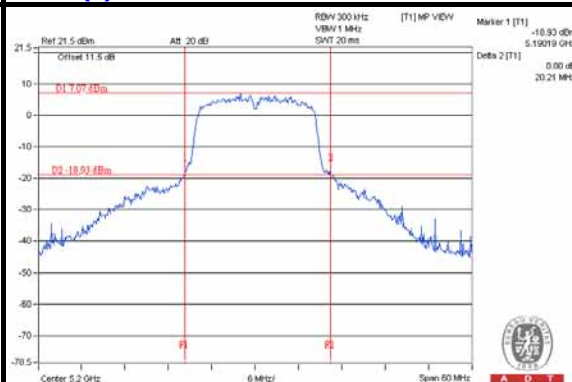


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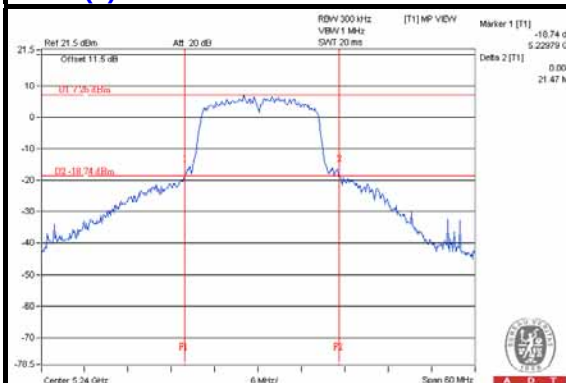
Chain(0) : CH36



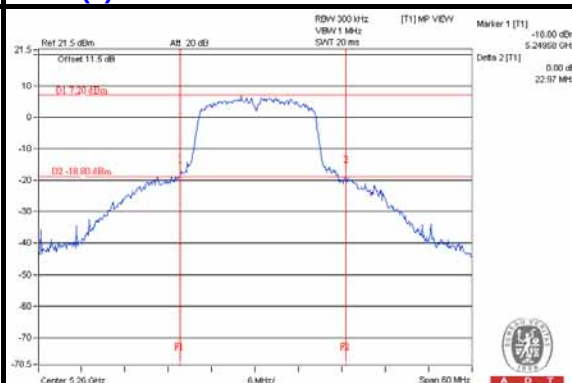
Chain(0) : CH40



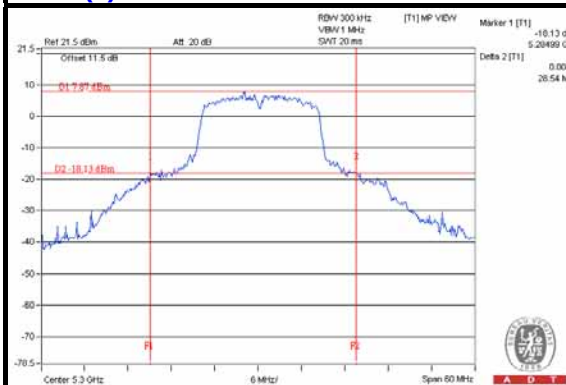
Chain(0) : CH48



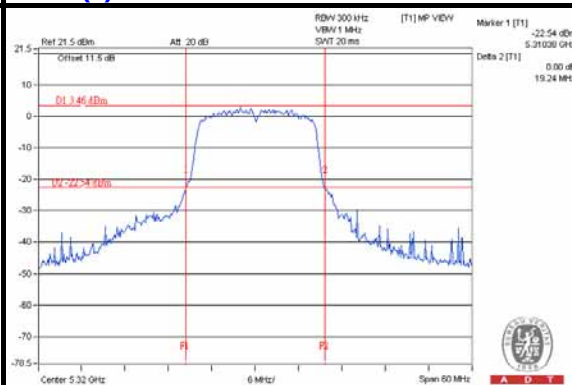
Chain(0) : CH52



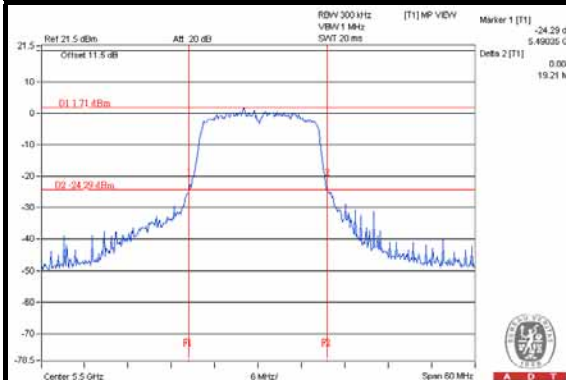
Chain(0) : CH60



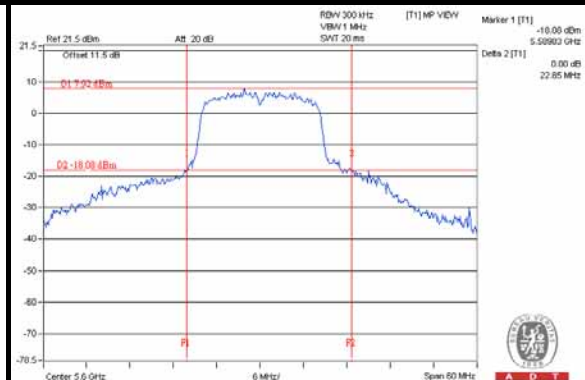
Chain(0) : CH64



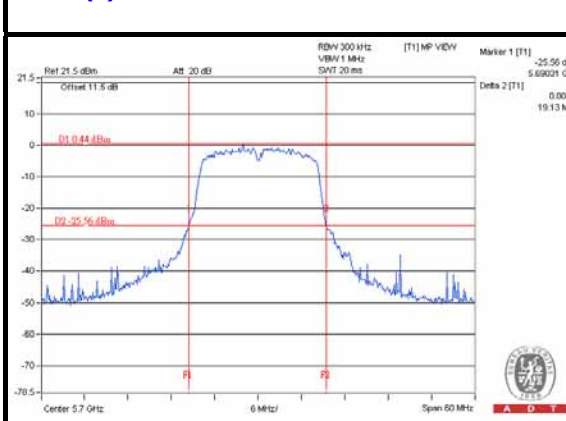
Chain(0) : CH100



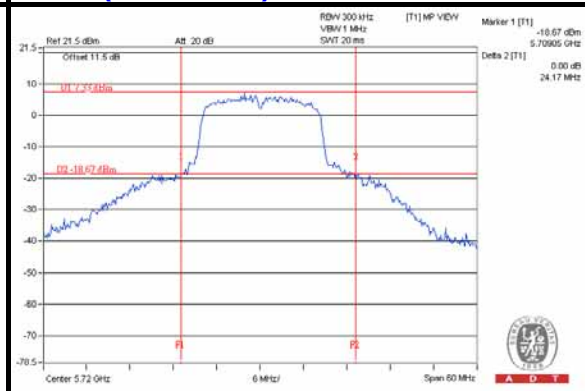
Chain(0) : CH120



Chain(0) : CH140



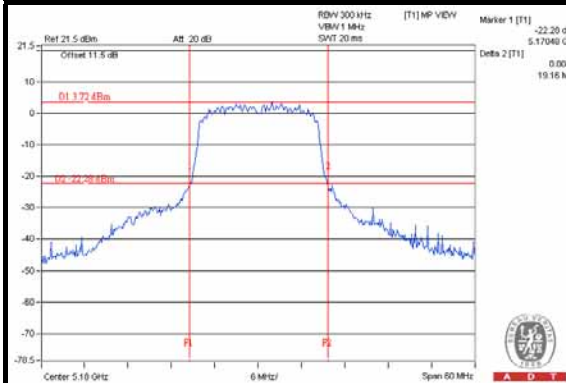
Chain(0) : CH144 (UNII-2c Band) / Chain(0) : CH144 (UNII-3 Band)



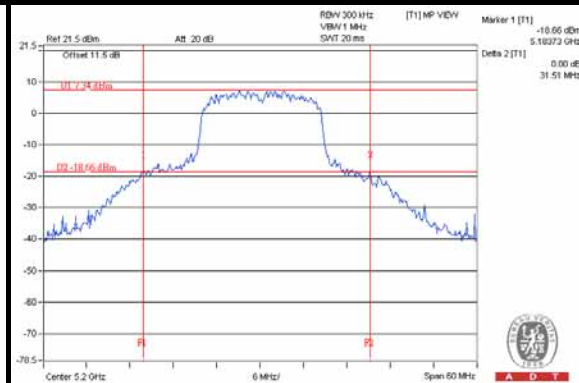
NOTE:

For CH144 (UNII-2c Band) = 5725 - Market 1

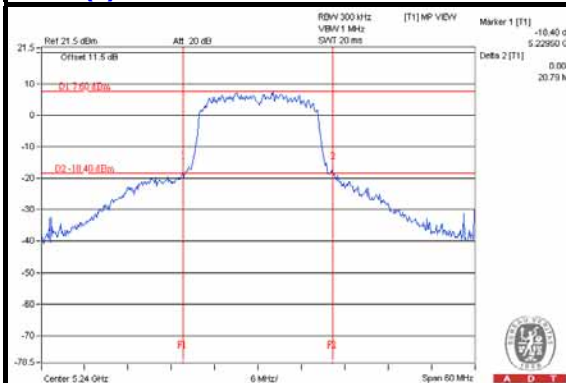
Chain(1) : CH36



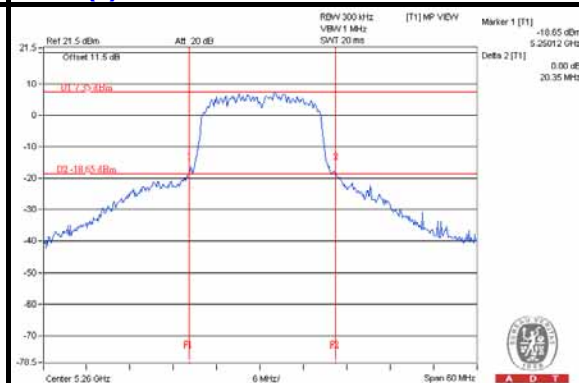
Chain(1) : CH40



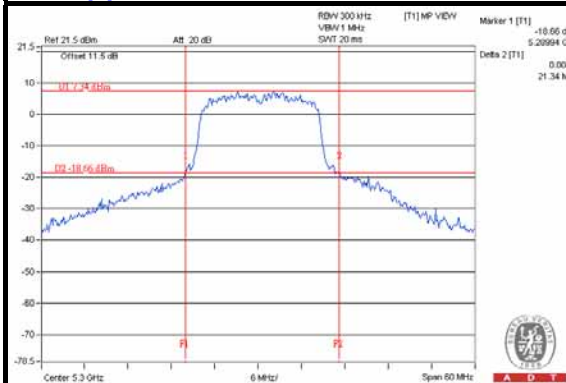
Chain(1) : CH48



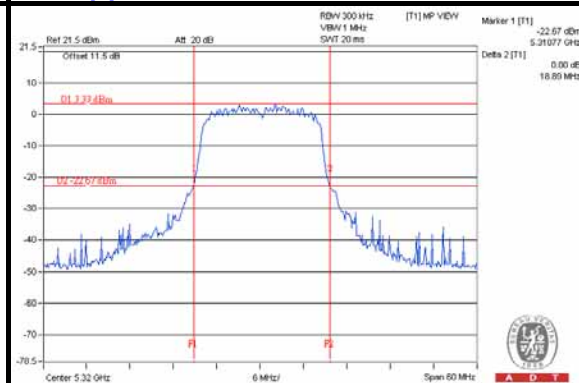
Chain(1) : CH52



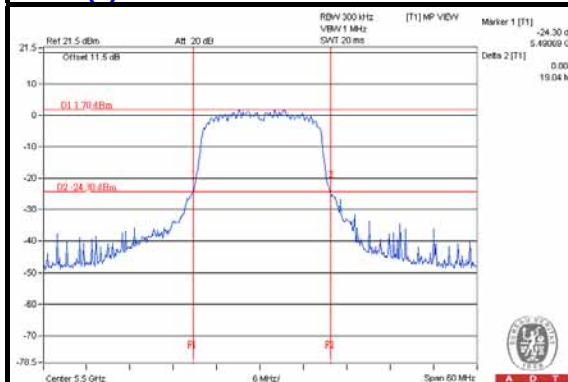
Chain(1) : CH60



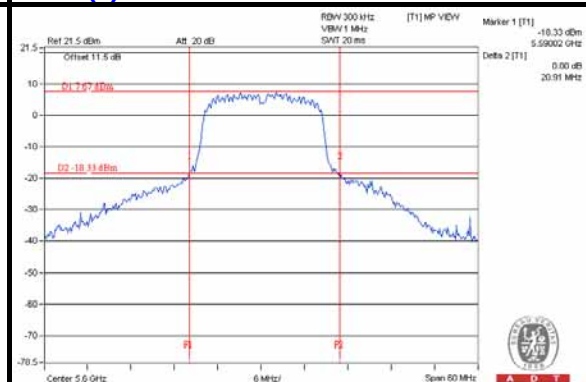
Chain(1) : CH64



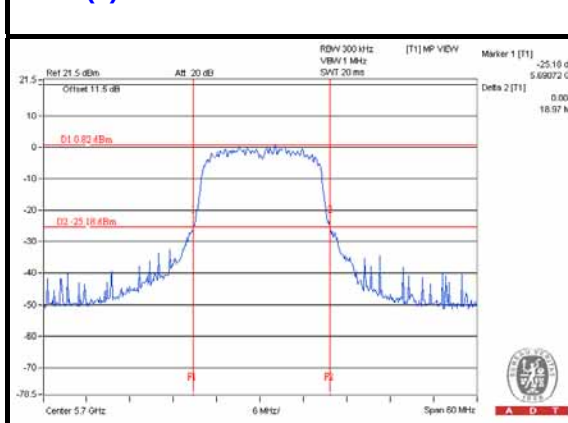
Chain(1) : CH100



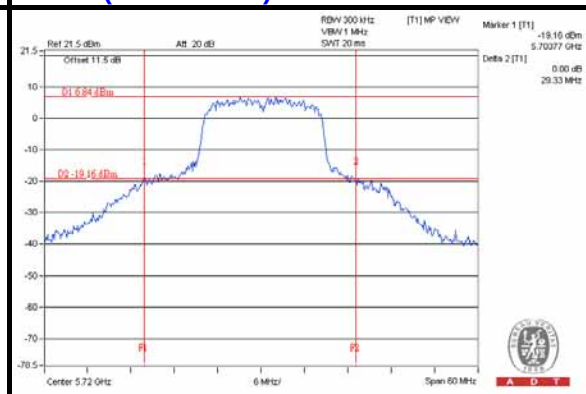
Chain(1) : CH120



Chain(1) : CH140



Chain(1) : CH144 (UNII-2c Band) / Chain(1) : CH144 (UNII-3 Band)



NOTE:

For CH144 (UNII-2c Band) = 5725 - Market 1

802.11n (HT20)

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	10.16	10.31	21.115	13.25	23.91	PASS
40	5200	14.63	14.98	60.517	17.82	23.91	PASS
48	5240	14.81	14.86	60.889	17.85	23.91	PASS
52	5260	14.84	14.89	61.311	17.88	23.91	PASS
60	5300	14.83	15.43	65.323	18.15	23.91	PASS
64	5320	8.34	8.27	13.537	11.32	23.91	PASS
100	5500	7.34	7.11	10.56	10.24	22.23	PASS
120	5600	14.84	14.67	59.788	17.77	22.23	PASS
140	5700	7.31	7.05	10.453	10.19	22.23	PASS
144 (UNII-2c Band)	5720	10.51	10.04	21.339	13.29	21.15	PASS
144 (UNII-3 Band)	5720	3.87	3.68	4.771	6.79	28.23	PASS

Note:

5150~5250MHz: The directional gain is 6.09dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Conducted Limit-(6.09-6)".

5250~5350MHz: The directional gain is 6.09dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Determined Conducted Limit-(6.09-6)".

5470~5725MHz (Except for UNII-3 Band): The directional gain is 7.77dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Determined Conducted Limit-(7.77-6)".

5725~5825MHz (For UNII-3 Band): The directional gain is 7.77dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Conducted Limit-(7.77-6)".

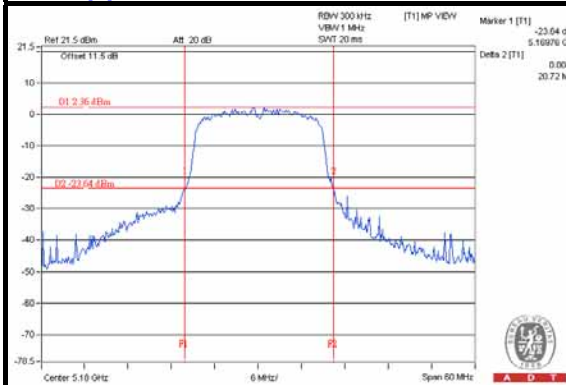
26dB OCCUPIED BANDWIDTH:

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
36	5180	20.72	20.55
40	5200	25.98	31.12
48	5240	33.67	37.34
52	5260	30.68	28.33
60	5300	26.22	22.27
64	5320	20.70	20.34
100	5500	20.70	20.39
120	5600	31.86	22.76
140	5700	20.43	20.38
144 (UNII-2c Band)	5720	15.56	21.93
144 (UNII-3 Band)	5720	9.91	7.43

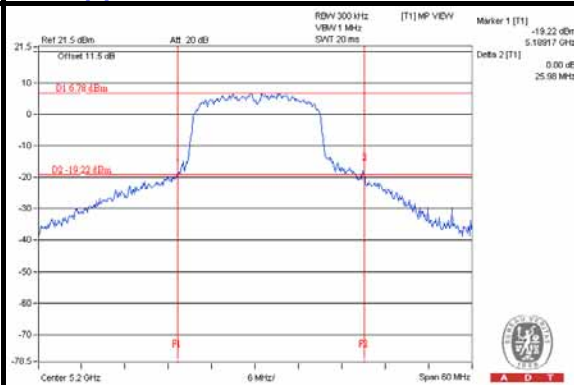
Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	28.33	25.52 > 24
60	5300	22.27	24.47 > 24
64	5320	20.34	24.08 > 24
100	5500	20.39	24.09 > 24
120	5600	22.76	24.57 > 24
140	5700	20.38	24.09 > 24
144 (UNII-2c Band)	5720	15.56	22.92 < 24

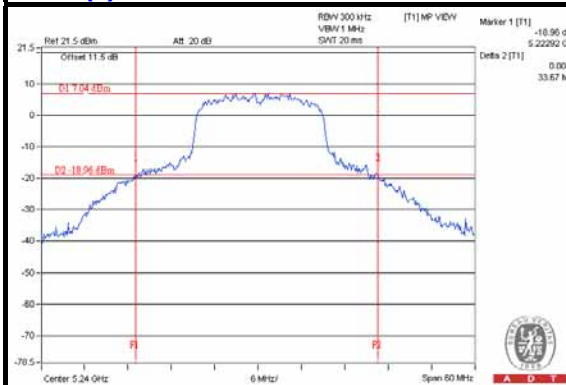
Chain(0) : CH36



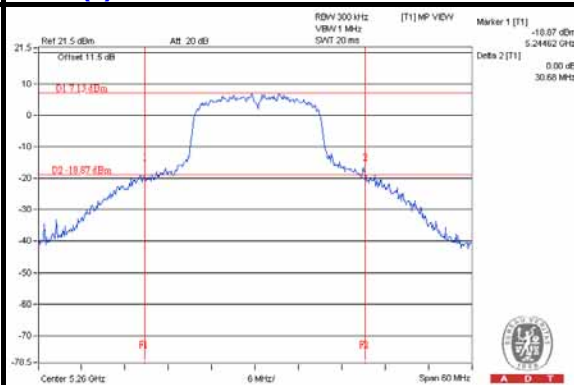
Chain(0) : CH40



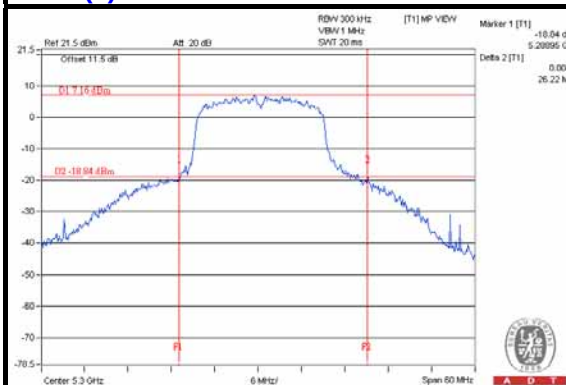
Chain(0) : CH48



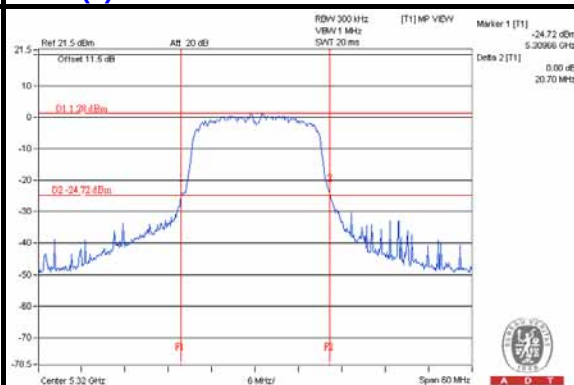
Chain(0) : CH52



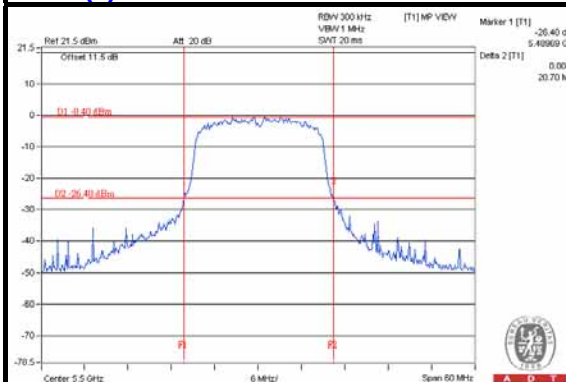
Chain(0) : CH60



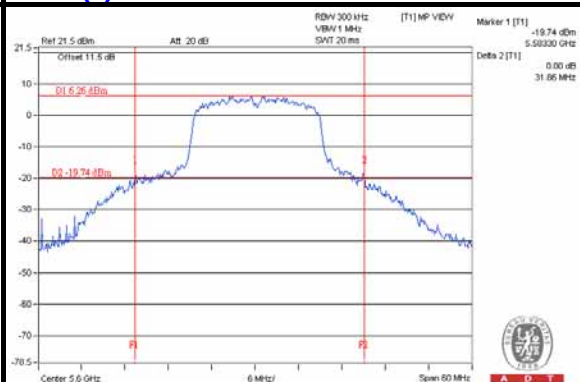
Chain(0) : CH64



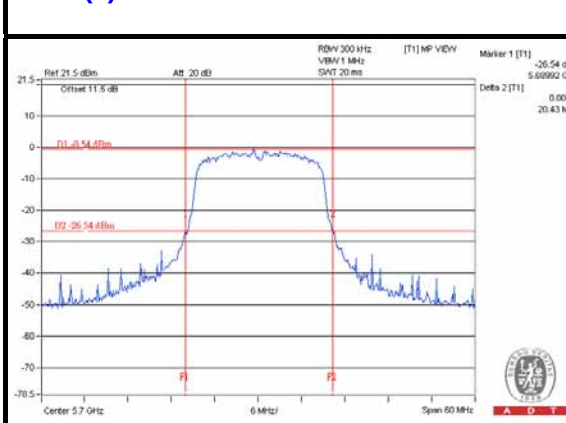
Chain(0) : CH100



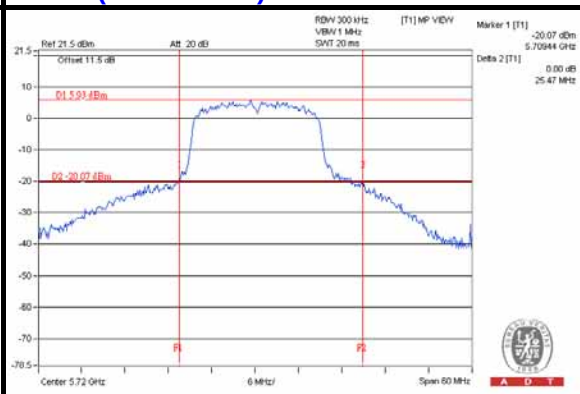
Chain(0) : CH120



Chain(0) : CH140



Chain(0) : CH144 (UNII-2c Band) / Chain(0) : CH144 (UNII-3 Band)



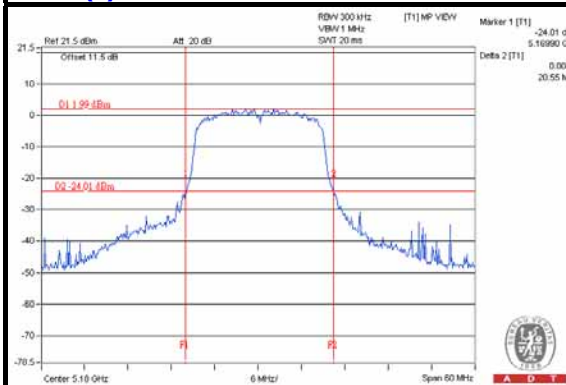
NOTE:

For CH144 (UNII-2c Band) = 5725 - Market 1

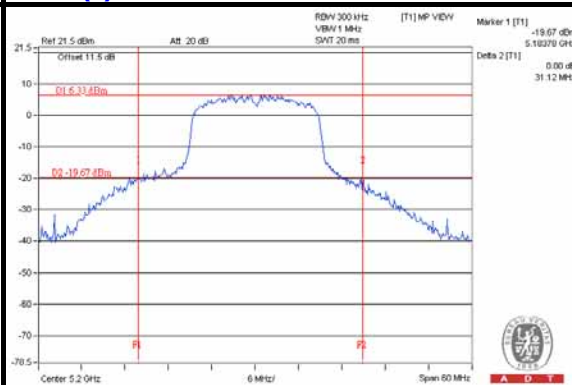


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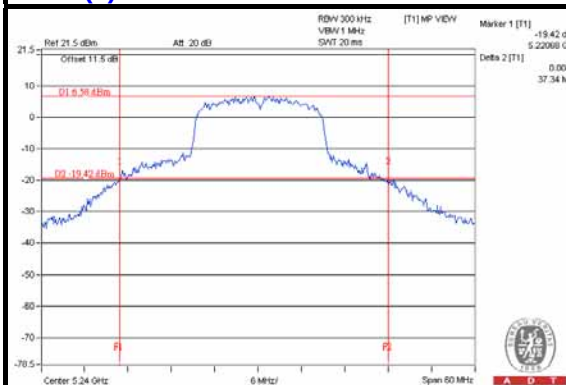
Chain(1) : CH36



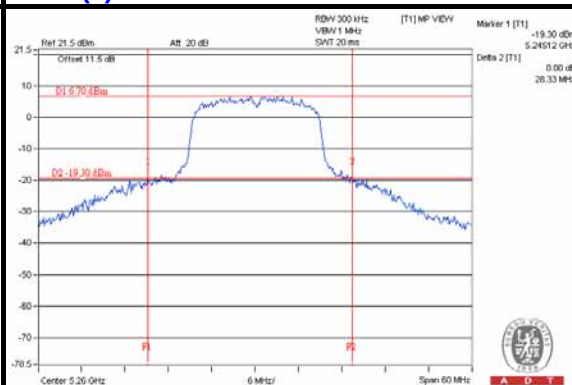
Chain(1) : CH40



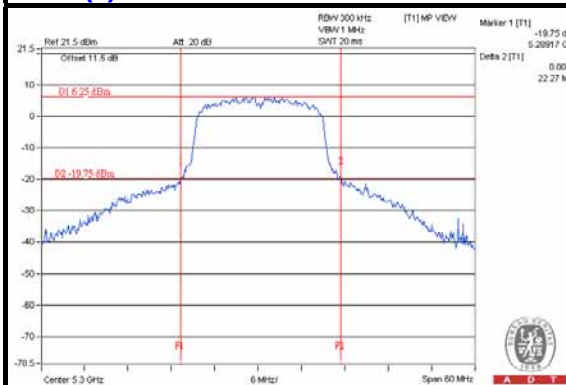
Chain(1) : CH48



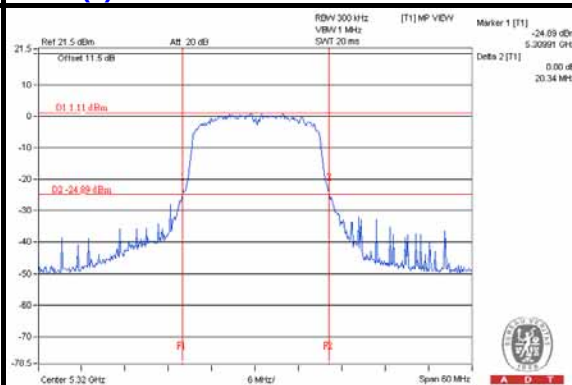
Chain(1) : CH52



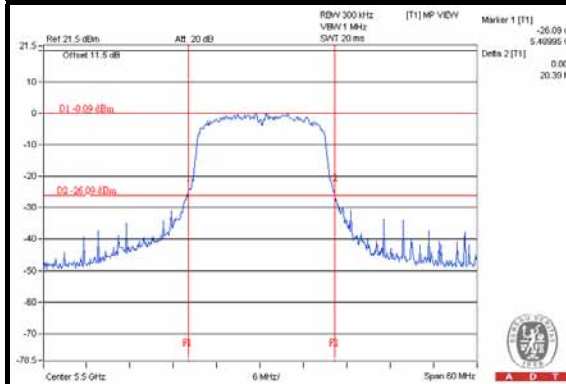
Chain(1) : CH60



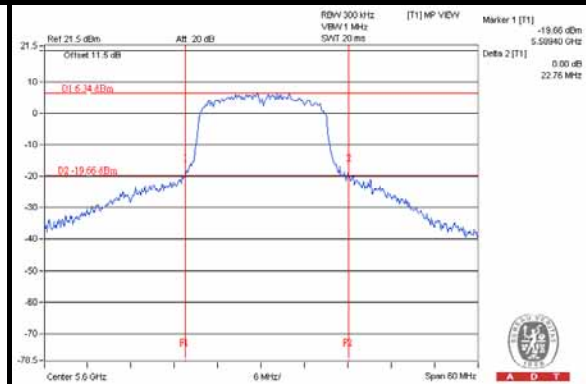
Chain(1) : CH64



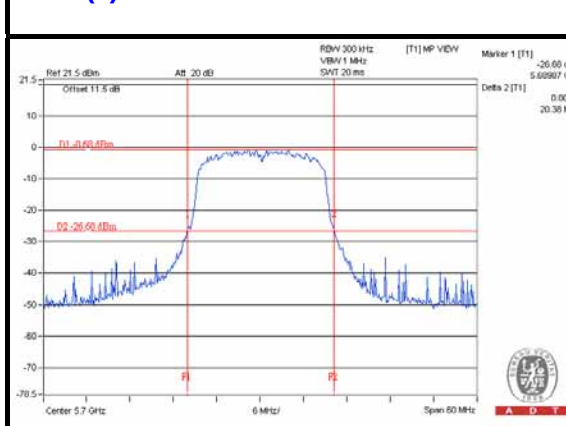
Chain(1) : CH100



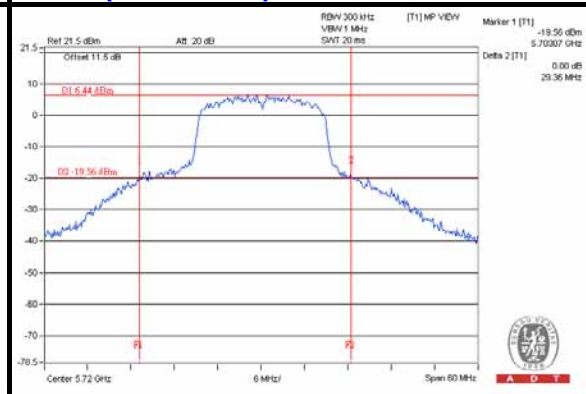
Chain(1) : CH120



Chain(1) : CH140



Chain(1) : CH144 (UNII-2c Band) / Chain(1) : CH144 (UNII-3 Band)



NOTE:

For CH144 (UNII-2c Band) = 5725 - Market 1

802.11n (HT40)

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	9.73	9.53	18.371	12.64	23.91	PASS
46	5230	14.12	14.16	51.885	17.15	23.91	PASS
54	5270	13.88	14.23	50.919	17.07	23.91	PASS
62	5310	10.43	10.01	21.064	13.24	23.91	PASS
102	5510	7.31	8.13	11.884	10.75	22.23	PASS
118	5590	14.29	14.34	54.017	17.33	22.23	PASS
134	5670	13.85	14.29	51.119	17.09	22.23	PASS
142 (UNII-2c Band)	5710	10.53	10.56	23.184	13.65	22.23	PASS
142 (UNII-3 Band)	5710	-0.67	-0.89	1.7093	2.33	28.23	PASS

Note:

5150~5250MHz: The directional gain is 6.09dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Conducted Limit-(6.09-6)".

5250~5350MHz: The directional gain is 6.09dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Determined Conducted Limit-(6.09-6)".

5470~5725MHz (Except for UNII-3 Band): The directional gain is 7.77dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Determined Conducted Limit-(7.77-6)".

5725~5825MHz (For UNII-3 Band): The directional gain is 7.77dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Conducted Limit-(7.77-6)".

For CH142: Total power (dBm)= Average power <Chain 0 +1>(dBm) + Duty Factor (0.09dB)

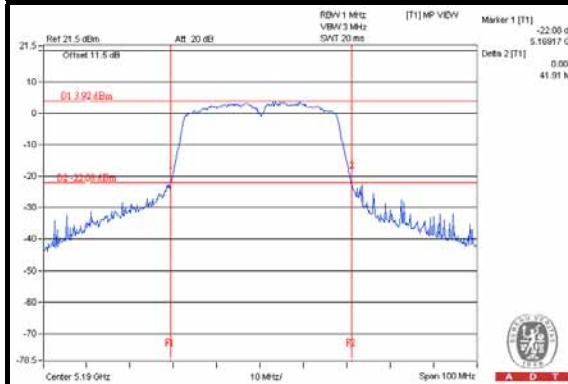
26dB OCCUPIED BANDWIDTH:

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
38	5190	41.91	42.45
46	5230	49.70	47.74
54	5270	45.19	46.23
62	5310	45.90	46.34
102	5510	41.84	41.89
118	5590	70.44	61.08
134	5670	53.30	51.86
142 (UNII-2c Band)	5710	54.89	48.99
142 (UNII-3 Band)	5710	17.46	17.22

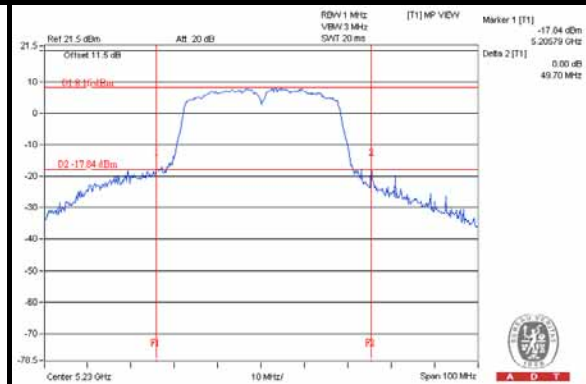
Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
54	5270	45.19	27.55 > 24
62	5310	45.90	27.61 > 24
102	5510	41.84	27.21 > 24
118	5590	61.08	28.85 > 24
134	5670	51.86	28.14 > 24
142 (UNII-2c Band)	5710	48.99	27.9 > 24

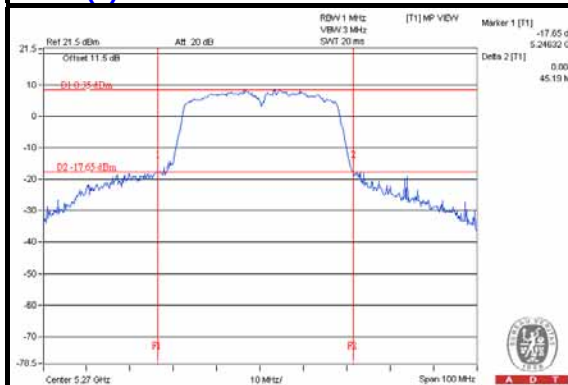
Chain(0) : CH38



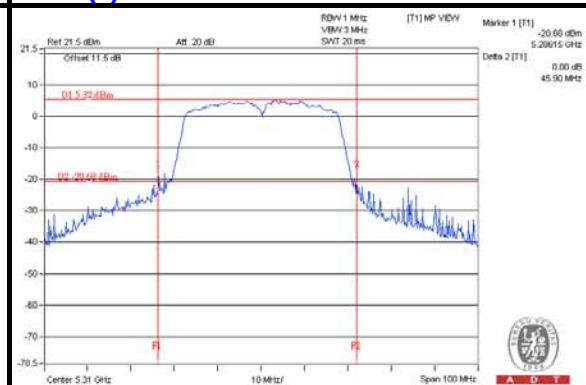
Chain(0) : CH46



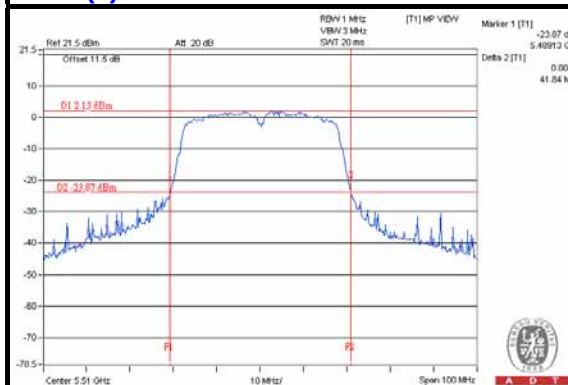
Chain(0) : CH54



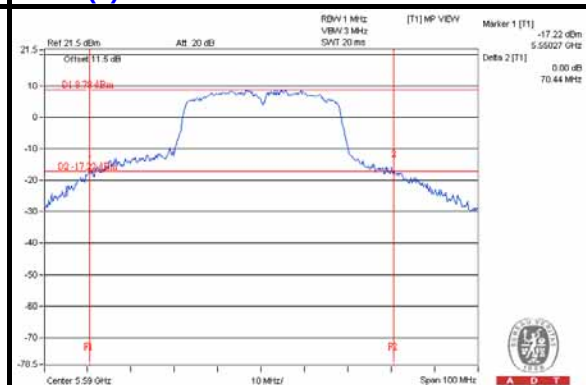
Chain(0) : CH62



Chain(0) : CH102



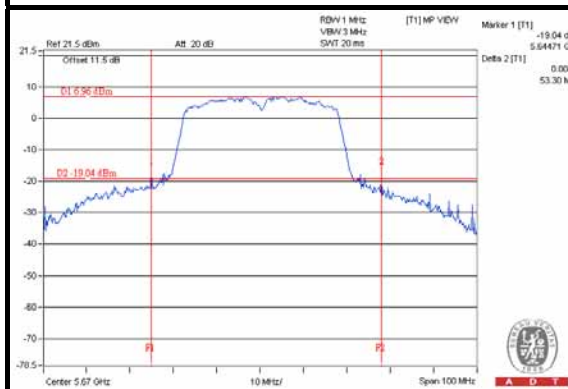
Chain(0) : CH118



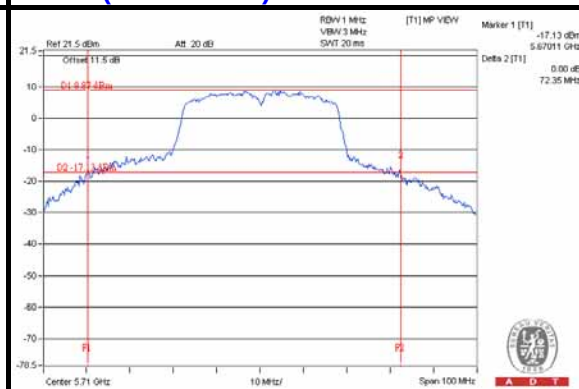


A D T

Chain(0) : CH134

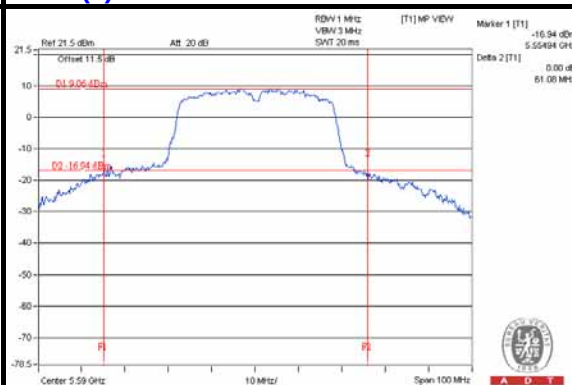


Chain(0) : CH142 (UNII-2c Band) / Chain(0) : CH142 (UNII-3 Band)

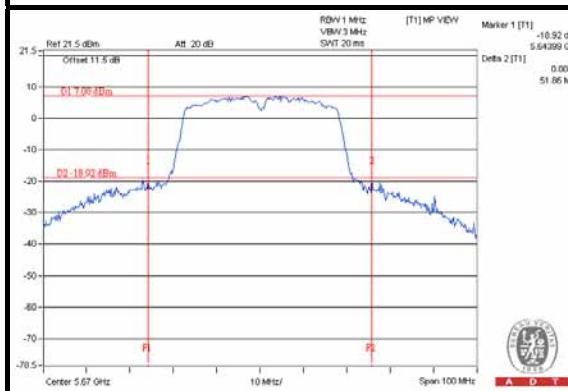


NOTE:

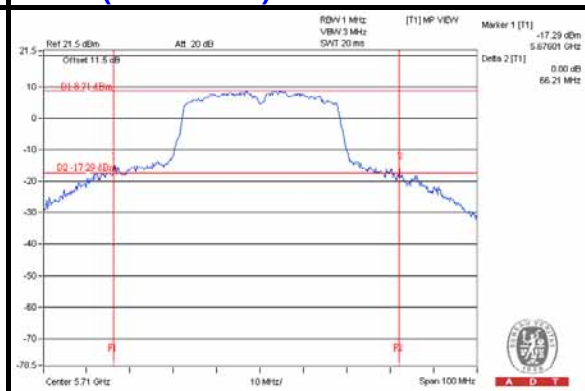
For CH142 (UNII-2c Band) = 5725 - Market 1



Chain(1) : CH134



Chain(1) : CH142 (UNII-2c Band) / Chain(1) : CH142 (UNII-3 Band)



NOTE:

For CH142 (UNII-2c Band) = 5725 - Market 1

802.11ac (VHT20)

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	10.29	10.43	21.732	13.37	23.91	PASS
40	5200	14.84	15.10	62.838	17.98	23.91	PASS
48	5240	14.93	15.02	62.886	17.99	23.91	PASS
52	5260	14.91	15.03	62.816	17.98	23.91	PASS
60	5300	14.94	15.52	66.834	18.25	23.91	PASS
64	5320	8.53	8.41	14.063	11.48	23.91	PASS
100	5500	7.57	7.27	11.048	10.43	22.23	PASS
120	5600	14.85	14.63	59.589	17.75	22.23	PASS
140	5700	7.53	7.17	10.874	10.36	22.23	PASS
144 (UNII-2c Band)	5720	10.24	10.63	22.129	13.45	21.15	PASS
144 (UNII-3 Band)	5720	3.75	4.01	4.889	6.89	28.23	PASS

Note:

5150~5250MHz: The directional gain is 6.09dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Conducted Limit-(6.09-6)".

5250~5350MHz: The directional gain is 6.09dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Determined Conducted Limit-(6.09-6)".

5470~5725MHz (Except for UNII-3 Band): The directional gain is 7.77dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Determined Conducted Limit-(7.77-6)".

5725~5825MHz (For UNII-3 Band): The directional gain is 7.77dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Conducted Limit-(7.77-6)".

26dB OCCUPIED BANDWIDTH:

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
36	5180	20.72	20.55
40	5200	25.98	31.12
48	5240	33.67	37.34
52	5260	30.68	28.33
60	5300	26.22	22.27
64	5320	20.70	20.34
100	5500	20.70	20.39
120	5600	31.86	22.76
140	5700	20.43	20.38
144 (UNII-2c Band)	5720	15.56	21.93
144 (UNII-3 Band)	5720	9.91	7.43

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	28.33	25.52 > 24
60	5300	22.27	24.47 > 24
64	5320	20.34	24.08 > 24
100	5500	20.39	24.09 > 24
120	5600	22.76	24.57 > 24
140	5700	20.38	24.09 > 24
144 (UNII-2c Band)	5720	15.56	22.92 < 24

Chain(0) : CH36

Chain(0) : CH40

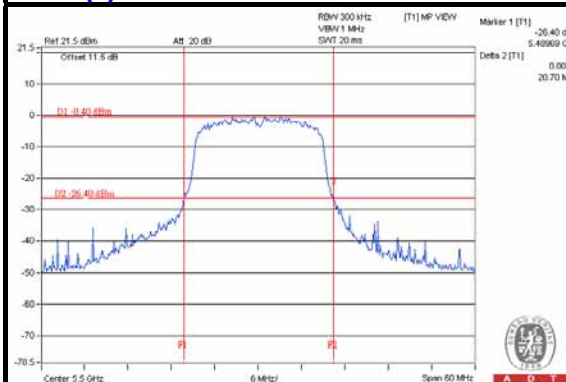
Chain(0) : CH48

Chain(0) : CH52

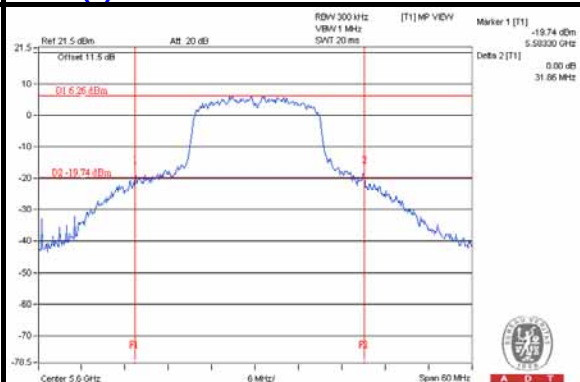
Chain(0) : CH60

Chain(0) : CH64

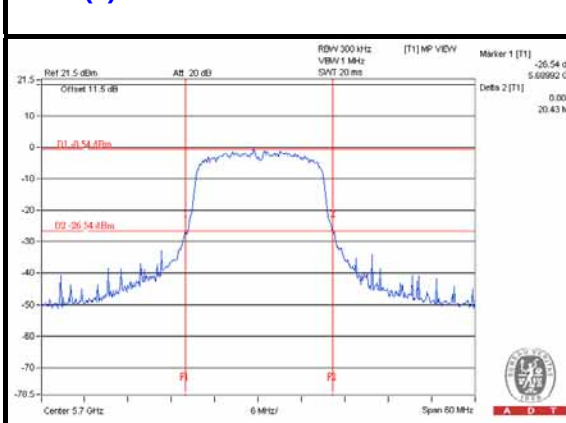
Chain(0) : CH100



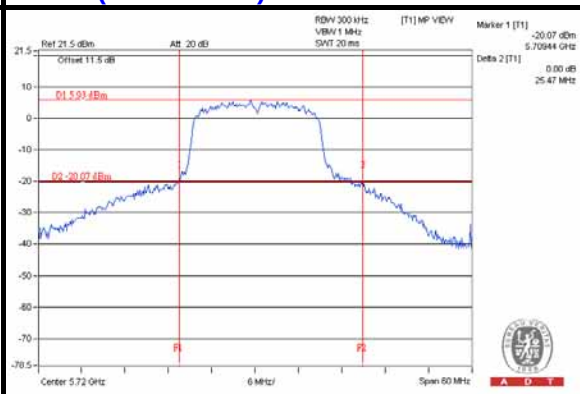
Chain(0) : CH120



Chain(0) : CH140



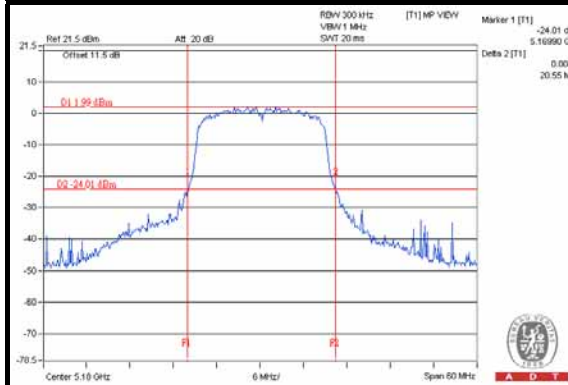
Chain(0) : CH144 (UNII-2c Band) / Chain(0) : CH144 (UNII-3 Band)



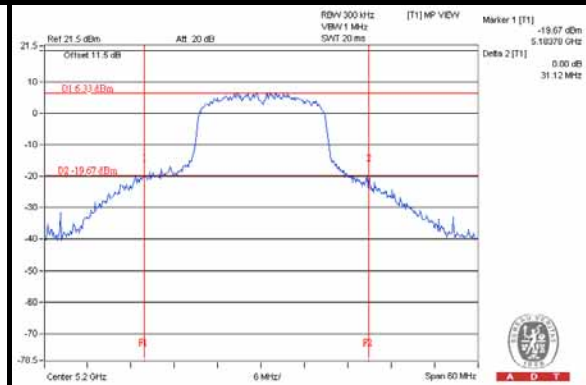
NOTE:

For CH144 (UNII-2c Band) = 5725 - Market 1

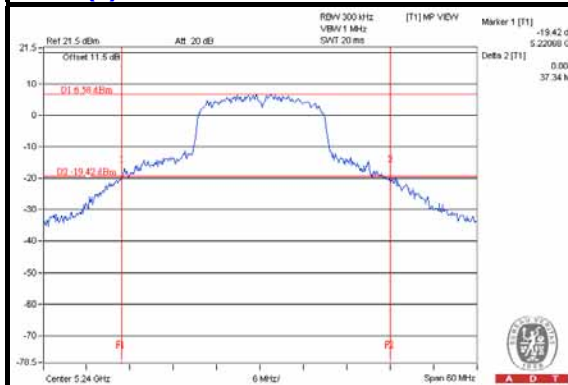
Chain(1) : CH36



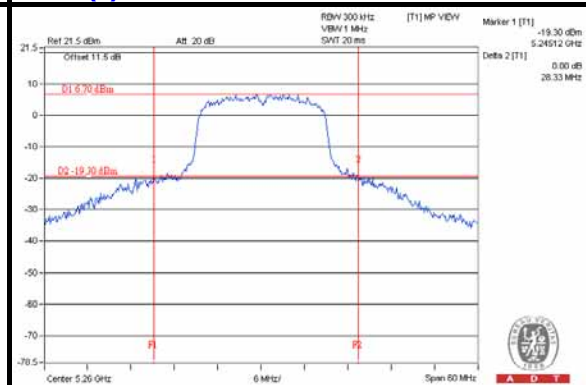
Chain(1) : CH40



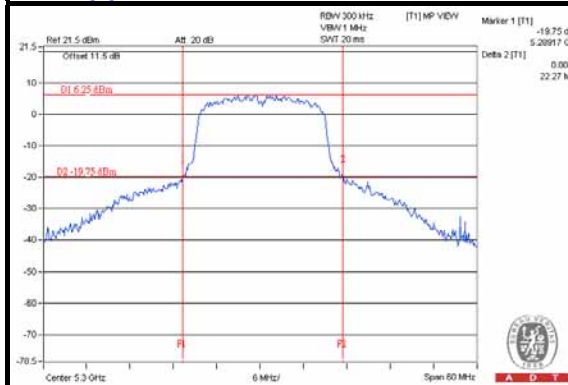
Chain(1) : CH48



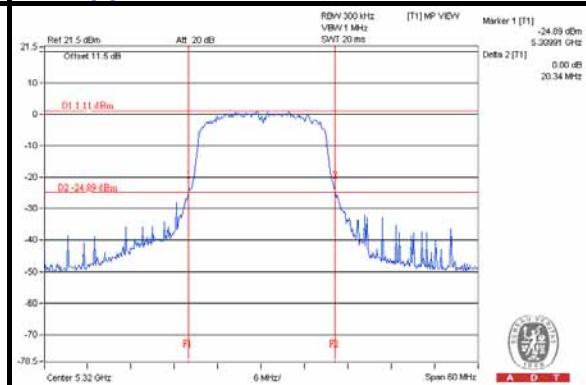
Chain(1) : CH52



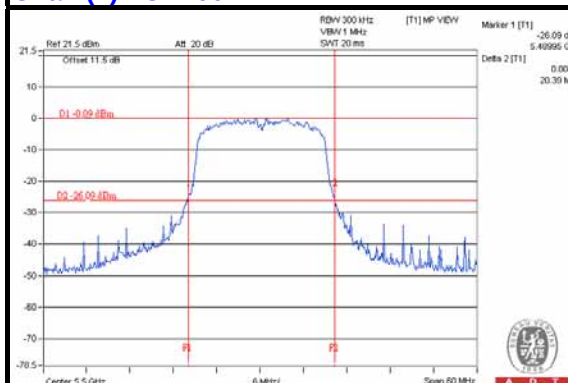
Chain(1) : CH60



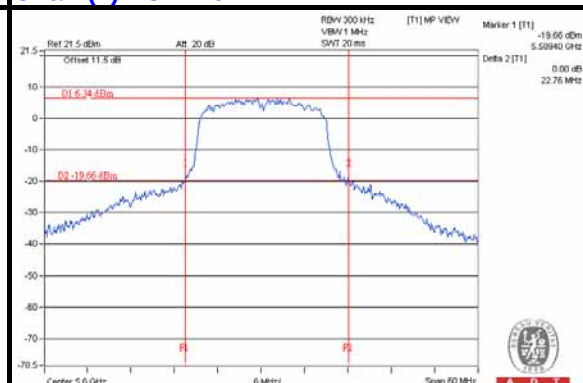
Chain(1) : CH64



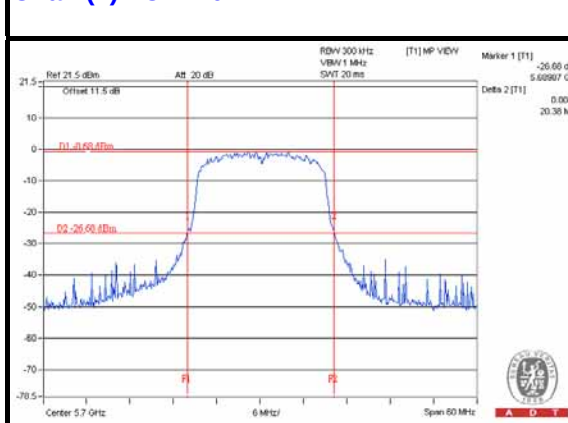
Chain(1) : CH100



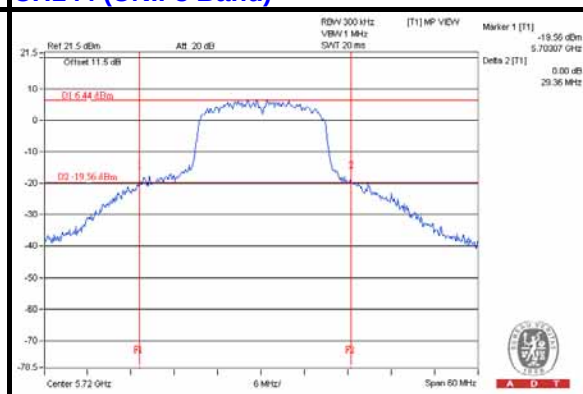
Chain(1) : CH120



Chain(1) : CH140



Chain(1) : CH144 (UNII-2c Band) / Chain(1) : CH144 (UNII-3 Band)



NOTE:

For CH144 (UNII-2c Band) = 5725 - Market 1

802.11ac (VHT40)

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	9.82	9.73	18.991	12.79	23.91	PASS
46	5230	14.17	14.24	52.668	17.22	23.91	PASS
54	5270	13.98	14.49	53.122	17.25	23.91	PASS
62	5310	10.64	10.12	21.868	13.40	23.91	PASS
102	5510	7.53	8.22	12.299	10.90	22.23	PASS
118	5590	14.38	14.26	54.085	17.33	22.23	PASS
134	5670	13.86	14.23	50.807	17.06	22.23	PASS
142 (UNII-2c Band)	5710	10.62	10.51	23.27	13.67	22.23	PASS
142 (UNII-3 Band)	5710	-1.52	-1.64	1.42	1.52	28.23	PASS

Note:

5150~5250MHz: The directional gain is 6.09dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Conducted Limit-(6.09-6)".

5250~5350MHz: The directional gain is 6.09dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Determined Conducted Limit-(6.09-6)".

5470~5725MHz (Except for UNII-3 Band): The directional gain is 7.77dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Determined Conducted Limit-(7.77-6)".

5725~5825MHz (For UNII-3 Band): The directional gain is 7.77dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Conducted Limit-(7.77-6)".

For CH142: Total power (dBm)= Average power <Chain 0 +1>(dBm) + Duty Factor (0.09dB)

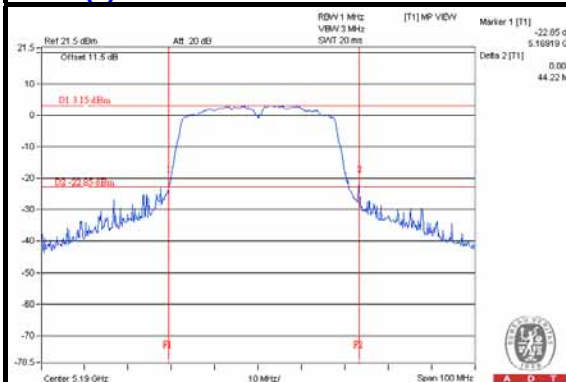
26dB OCCUPIED BANDWIDTH:

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
38	5190	41.91	42.45
46	5230	49.70	47.74
54	5270	45.19	46.23
62	5310	45.90	46.34
102	5510	41.84	41.89
118	5590	70.44	61.08
134	5670	53.30	51.86
142 (UNII-2c Band)	5710	54.89	48.99
142 (UNII-3 Band)	5710	17.46	17.22

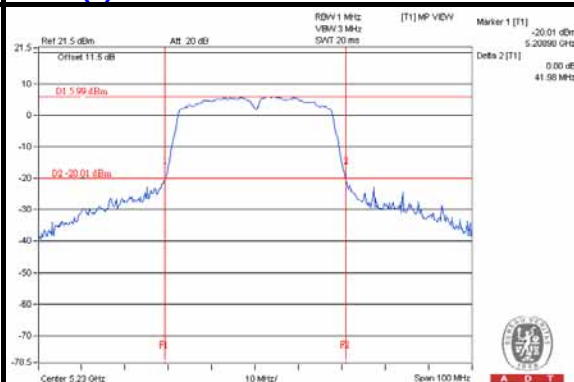
Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
54	5270	45.19	27.55 > 24
62	5310	45.90	27.61 > 24
102	5510	41.84	27.21 > 24
118	5590	61.08	28.85 > 24
134	5670	51.86	28.14 > 24
142 (UNII-2c Band)	5710	48.99	27.9 > 24

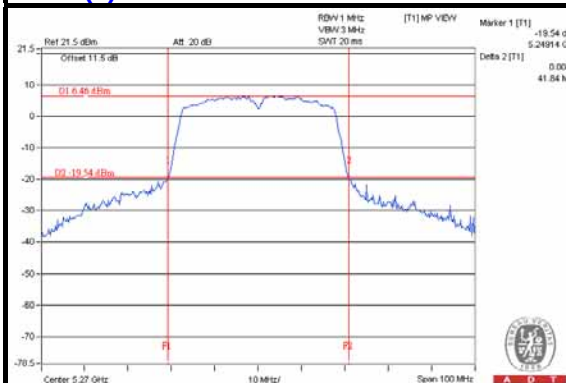
Chain(0) : CH38



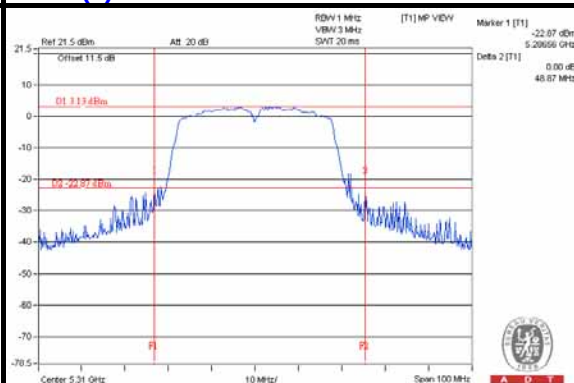
Chain(0) : CH46



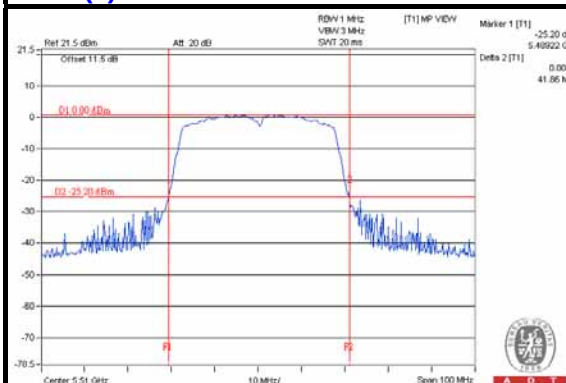
Chain(0) : CH54



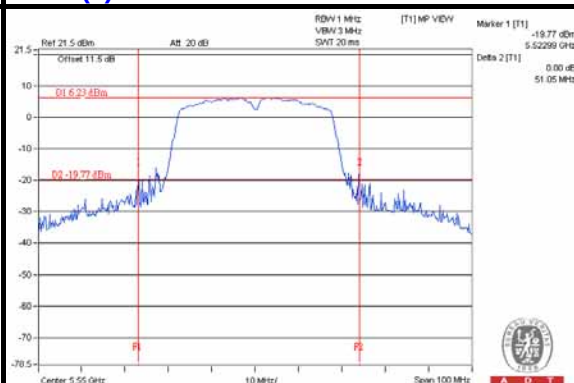
Chain(0) : CH62



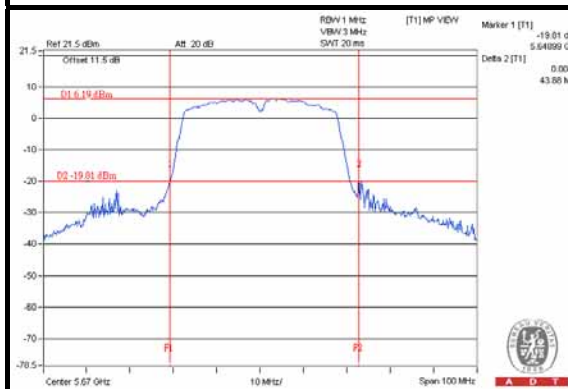
Chain(0) : CH102



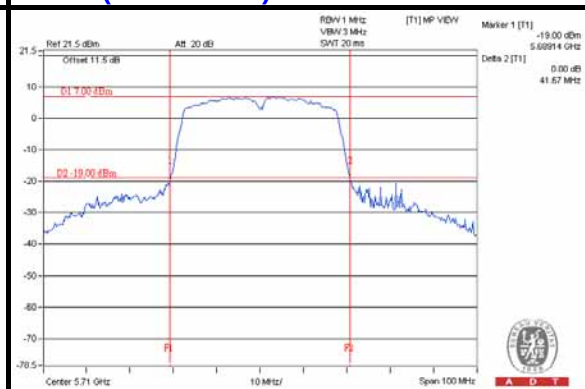
Chain(0) : CH118



Chain(0) : CH134



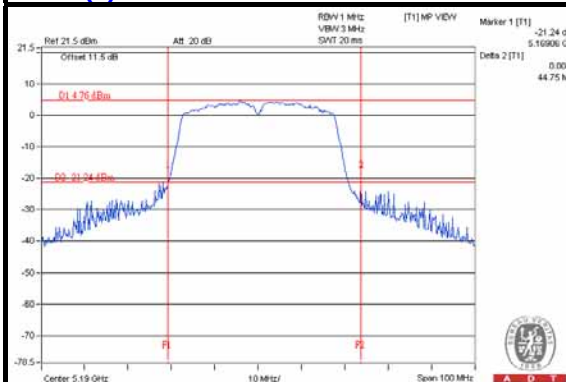
Chain(0) : CH142 (UNII-2c Band) / Chain(0) : CH142 (UNII-3 Band)



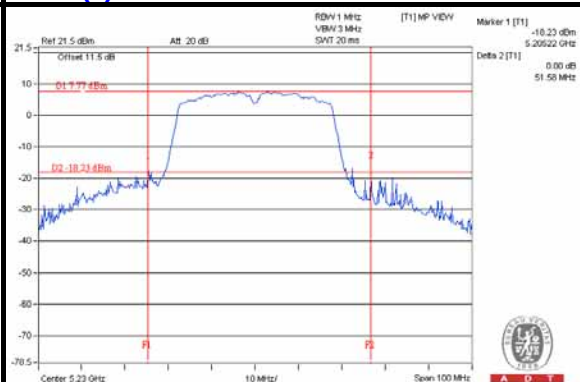
NOTE:

For CH142 (UNII-2c Band) = 5725 - Market 1

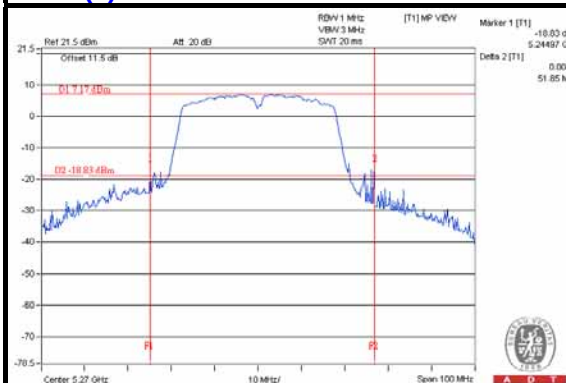
Chain(1) : CH38



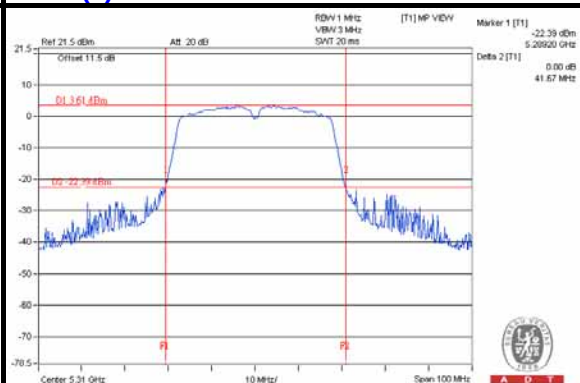
Chain(1) : CH46



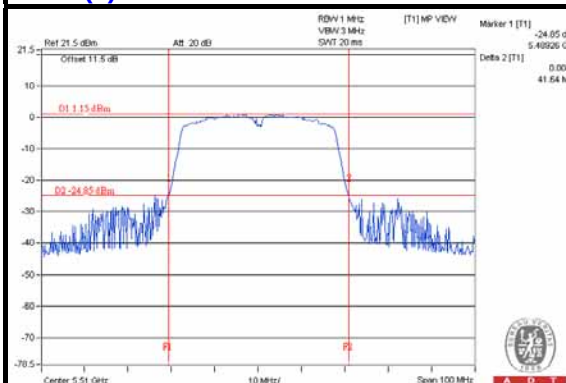
Chain(1) : CH54



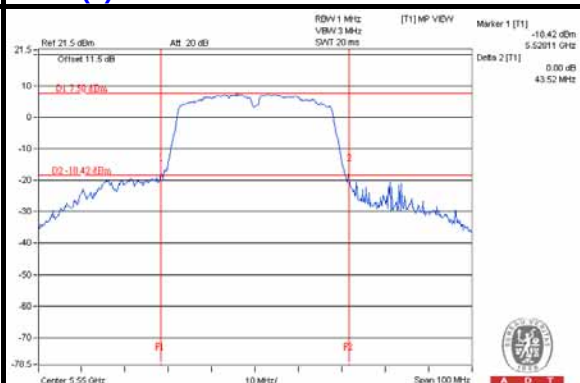
Chain(1) : CH62



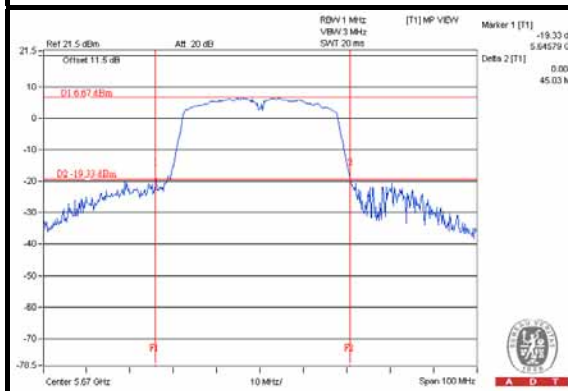
Chain(1) : CH102



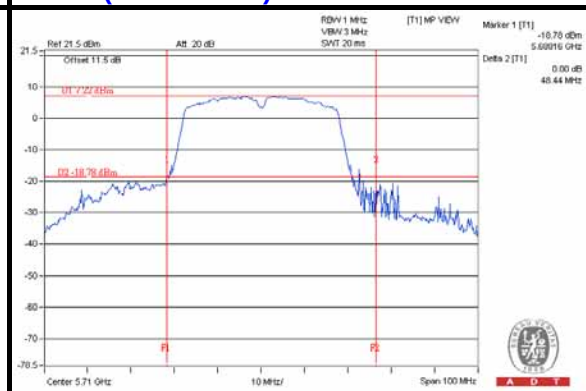
Chain(1) : CH118



Chain(1) : CH134



Chain(1) : CH142 (UNII-2c Band) / Chain(1) : CH142 (UNII-3 Band)



NOTE:

For CH142 (UNII-2c Band) = 5725 - Market 1

802.11ac (VHT80)

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
42	5210	9.21	8.88	16.064	12.06	23.91	PASS
58	5290	10.98	10.56	23.907	13.79	23.91	PASS
106	5530	9.47	10.27	19.492	12.90	22.23	PASS
122	5610	13.83	13.60	47.064	16.73	22.23	PASS
138 (UNII-2c Band)	5690	9.97	10.48	22.141	13.45	22.23	PASS
138 (UNII-3 Band)	5690	-5.88	-4.56	0.6381	-1.95	28.23	PASS

Note:

5150~5250MHz: The directional gain is 6.09dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Determined Conducted Limit-(6.09-6)".

5250~5350MHz: The directional gain is 6.09dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Determined Conducted Limit-(6.09-6)".

5470~5725MHz (Except for UNII-3 Band): The directional gain is 7.77dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Determined Conducted Limit-(7.77-6)".

5725~5825MHz (For UNII-3 Band): The directional gain is 7.77dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to "Determined Conducted Limit-(7.77-6)".

For CH138: Total power (dBm)= Average power <Chain 0 +1>(dBm) + Duty Factor (0.19dB)

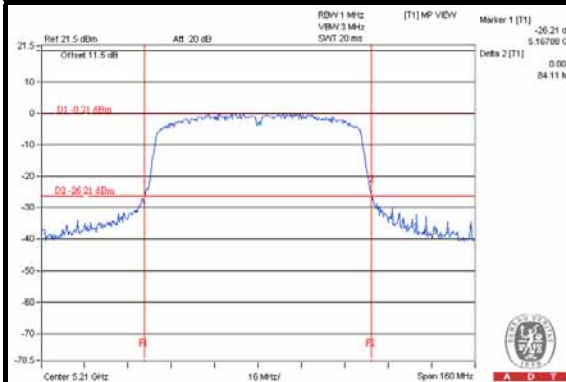
26dB OCCUPIED BANDWIDTH:

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
42	5210	84.11	83.25
58	5290	84.28	83.45
106	5530	83.36	82.34
122	5610	152.43	102.86
138 (UNII-2c Band)	5690	115.42	105.97
138 (UNII-3 Band)	5690	37.95	41.94

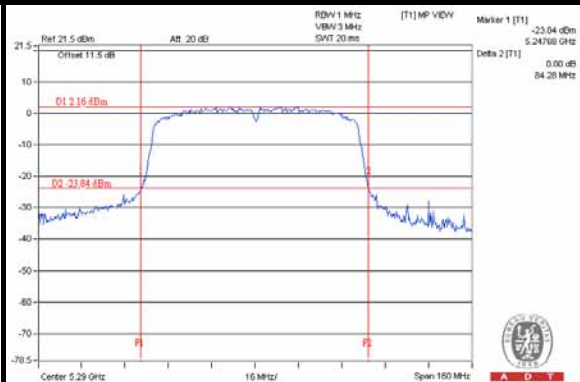
Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
58	5290	83.25	30.21 > 24
106	5530	83.45	30.15 > 24
122	5610	82.34	31.12 > 24
138 (UNII-2c Band)	5690	102.86	31.25 > 24

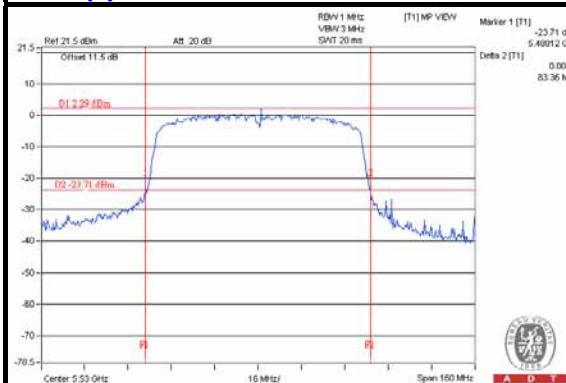
Chain(0) : CH42



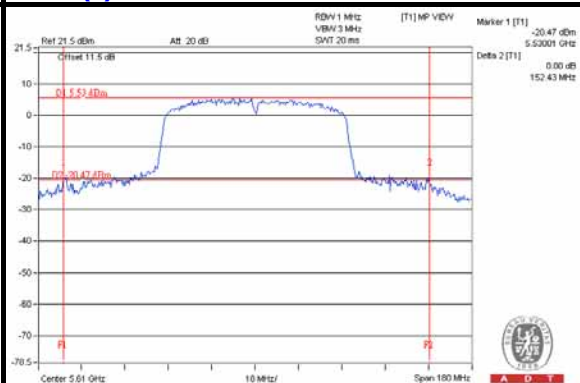
Chain(0) : CH58



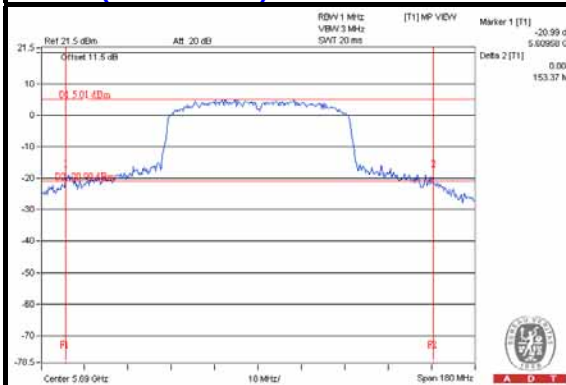
Chain(0) : CH106



Chain(0) : CH122



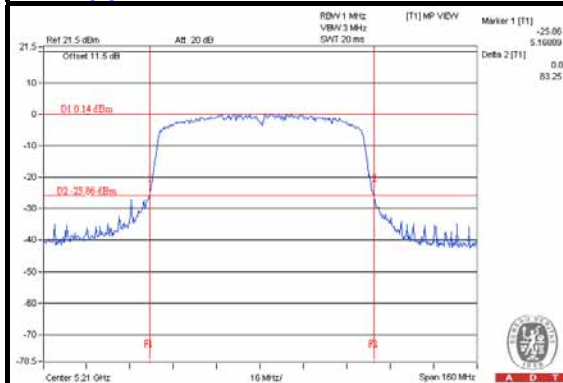
Chain(0) : CH138 (UNII-2c Band) / Chain(0) : CH138 (UNII-3 Band)



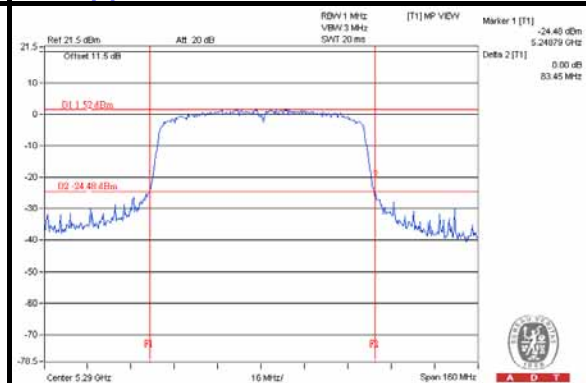
NOTE:

For CH138 (UNII-2c Band) = 5725 - Market 1

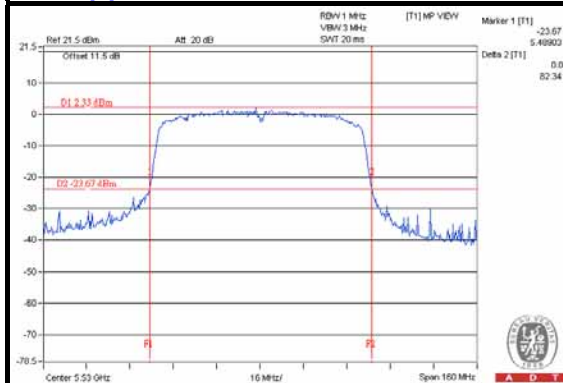
Chain(1) : CH42



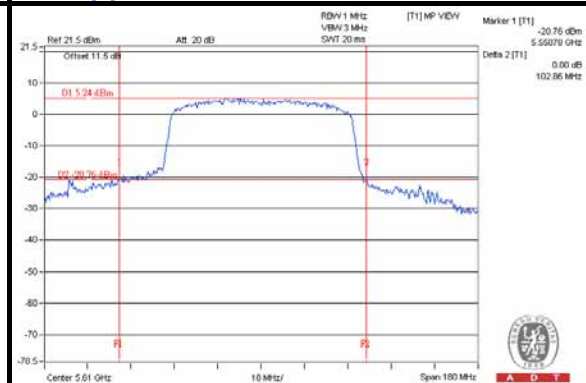
Chain(1) : CH58



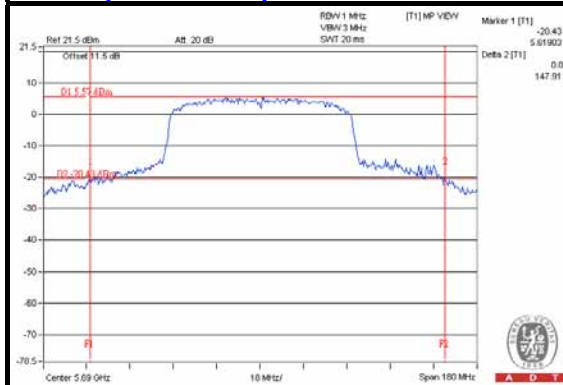
Chain(1) : CH106



Chain(1) : CH122



Chain(1) : CH138 (UNII-2c Band) / Chain(1) : CH138 (UNII-3 Band)



NOTE:

For CH138 (UNII-2c Band) = 5725 - Market 1