FCC TEST REPORT
(WLAN 15.407)

REPORT NO.:	RF140508E01-1
MODEL NO.:	QCNFA354
FCC ID:	PPD-QCNFA354
RECEIVED:	May 08, 2014
TESTED:	May 14 to July 02, 2014
ISSUED:	July 08, 2014

APPLICANT:	Qualcomm Atheros, Inc.
ADDRESS:	1700 Technology Drive, San Jose, CA 95110

ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
LAB ADDRESS :	No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan, R.O.C.
TEST LOCATION (1):	No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan, R.O.C.
TEST LOCATION (2):	No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan, R.O.C.

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

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140508E01-1	Original release	July 08, 2014

1. CERTIFICATION

PRODUCT:	802.11 a/b/g/n/ac+ BT 4.1 M.2 2226 Type Card
BRAND NAME:	Qualcomm Atheros
MODEL NO.:	QCNFA354
TEST SAMPLE:	ENGINEERING SAMPLE
APPLICANT:	Qualcomm Atheros, Inc.
TESTED:	May 14 to July 02, 2014
STANDARDS:	FCC Part 15, Subpart E (Section 15.407) ANSI C63.10-2009

The above equipment (Model: QCNFA354) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and was in compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : _____ , **DATE:** *July 08, 2014*
(Midoli Peng, Specialist)

APPROVED BY : _____ , **DATE:** *July 08, 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)(6)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -6.97dB at 0.17344MHz
15.407 (b)(1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -3.0dB at 16800.00MHz, 17160.00MHz & 17100.00MHz
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(e)	6dB bandwidth	PASS	Meet the requirement of limit. (U-NII-3 Band only)
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. For WLAN: 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 RF parameters was recorded in another test report.

2. The DFS report was recorded in another test report.

2.1 MEASUREMENT UNCERTAINTY

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

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

Measurement	Value
Conducted emissions	2.86 dB
Radiated emissions (30MHz-1GHz)	5.43 dB
Radiated emissions (1GHz -6GHz)	3.65 dB
Radiated emissions (6GHz -18GHz)	3.88 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 2226 Type Card
MODEL NO.	QCNFA354
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 (BW20), 11n (BW40) 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** 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.5~5.72GHz, 5.745 ~ 5.825GHz
	For 15.247 2.412 ~ 2.462GHz
NUMBER OF CHANNEL	**For 15.407** 25 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 12 for 802.11n (HT40), 802.11ac (VHT40) 6 for 802.11ac (VHT80)
	For 15.247 11 for 802.11b, 802.11g, 802.11n (HT20), 802.11n_256QAM(BW20) 7 for 802.11n (HT40), 802.11n_256QAM(BW40)
MAXIMUM OUTPUT POWER	**For 15.407** 802.11a: 146.102 mW 802.11n (HT20): 142.408mW 802.11n (HT40): 152.979mW 802.11ac (VHT20): 158.619mW 802.11ac (VHT40): 155.846mW 802.11ac (VHT80): 93.161mW **For 15.247** 802.11b: 358.275mW 802.11g: 559.82mW 802.11n (HT20): 561.421mW 802.11n (HT40) : 393.258mW 802.11n_256QAM(BW20): 574.596mW 802.11n_256QAM(BW40): 398.123mW

ANTENNA TYPE	See item 3.2
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	NA

NOTE:

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

2. The EUT incorporates a 2T2R function.

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

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

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

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

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

Mode	Available Channel	Tested Channel	Modulation Technology
5 GHz (802.11ac(VHT20)) + Bluetooth (GFSK)	36 to 165	120	OFDM
	0 to 78	78	FHSS

5. WLAN/BT coexistence mode:

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

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

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

3.2 DESCRIPTION OF ANTENNA

The antenna 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 and 802.11n (HT20), 802.11ac (VHT20):

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

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

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

3 channels are provided for 802.11ac (VHT80):

CHANNEL	FREQUENCY
106	5530 MHz
122	5610 MHz
138	5690 MHz

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

Operated in 5725 ~ 5850MHz band:

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

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

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

CHANNEL	FREQUENCY
151	5755 MHz
159	5795 MHz

1 channel is provided for 802.11ac (VHT80):

CHANNEL	FREQUENCY
155	5775 MHz

3.3.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	UE < 1G	UE ³ 1G	APCM	
-	√	√	√	√	-

Where **PLC:** Power Line Conducted Emission **UE < 1G:** Unwanted Emission below 1GHz

UE ³ 1G: Unwanted Emission above 1GHz **APCM:** Antenna Port Conducted Measurement

Note 1. The EUT's antenna had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane.**

AC POWER LINE CONDUCTED EMISSION TEST:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11ac (VHT20)	36 to 165	120	OFDM	6.5

UNWANTED EMISSION TEST (BELOW 1 GHz):

☒ Radiated versus Conducted Measurements

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11ac (VHT20)	36 to 165	120	OFDM	6.5

UNWANTED EMISSION TEST (ABOVE 1 GHz):

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11a	36 to 165	36, 40, 48, 52, 60, 64, 100, 120, 140, 144, 149, 157, 165	OFDM	6
802.11ac (VHT20)	36 to 165	36, 40, 48, 52, 60, 64, 100, 120, 140, 144, 149, 157, 165	OFDM	6.5
802.11ac (VHT40)	38 to 159	38, 46, 54, 62, 102, 118, 134, 142, 151, 159	OFDM	13.5
802.11ac (VHT80)	42 to 155	42, 58, 106, 122, 138, 155	OFDM	29.3

ANTENNA PORT CONDUCTED MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11a	36 to 144	36, 40, 48, 52, 60, 64, 100, 120, 140, 144, 149, 157, 165	OFDM	6
802.11n (HT20)	36 to 144	36, 40, 48, 52, 60, 64, 100, 120, 140, 144, 149, 157, 165	OFDM	6.5
802.11n (HT40)	38 to 142	38, 46, 54, 62, 102, 118, 134, 142, 151, 159	OFDM	13.5
802.11ac (VHT20)	36 to 144	36, 40, 48, 52, 60, 64, 100, 120, 140, 144, 149, 157, 165	OFDM	6.5
802.11ac (VHT40)	38 to 142	38, 46, 54, 62, 102, 118, 134, 142, 151, 159	OFDM	13.5
802.11ac (VHT80)	42 to 138	42, 58, 106, 122, 138, 155	OFDM	29.3

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
PLC	27deg. C, 56%RH	120Vac, 60Hz	Ping Liu
RE<1G	26deg. C, 69%RH	120Vac, 60Hz	Gary Cheng
RE≥1G	25deg. C, 70%RH 28deg. C, 73%RH	120Vac, 60Hz	Gary Cheng
APCM	25deg. C, 60%RH	120Vac, 60Hz	Chilin Lee

3.4 DUTY CYCLE OF TEST SIGNAL

If duty cycle of test signal is > 98 %, duty factor is not required.

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

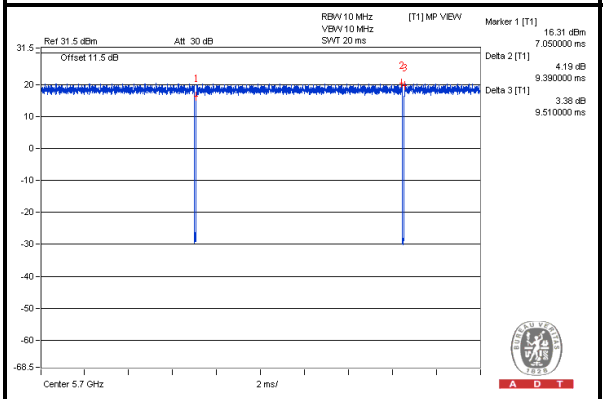
802.11a: Duty cycle = 9.39 ms/9.51 ms = 0.987

802.11ac (VHT20): Duty cycle = 8.68 ms/8.795 ms = 0.987

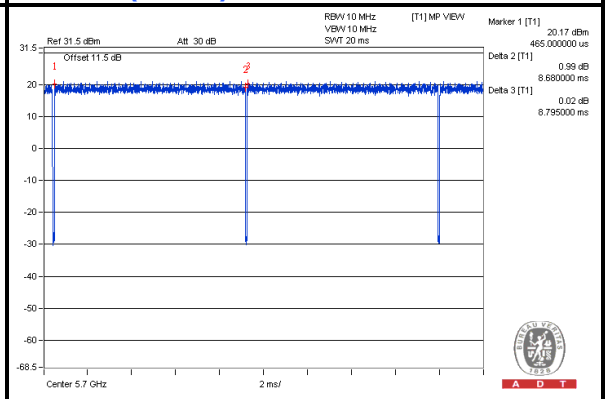
802.11ac (VHT40): Duty cycle = 4.207 ms/4.3 ms = 0.978, Duty factor = 10 * log(1/0.978) = 0.09

802.11ac (VHT80): Duty cycle = 1.966 ms/2.064 ms = 0.953, Duty factor = 10 * log(1/0.953) = 0.21

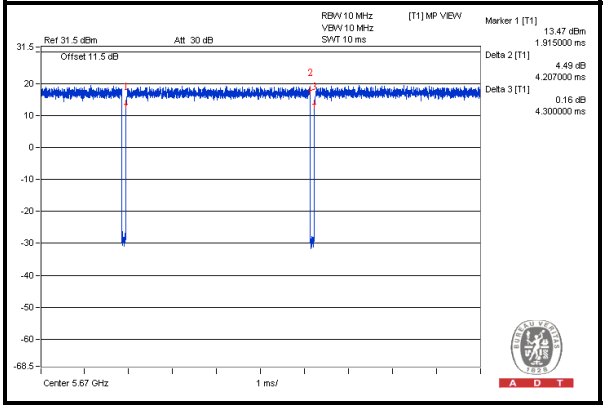
802.11a



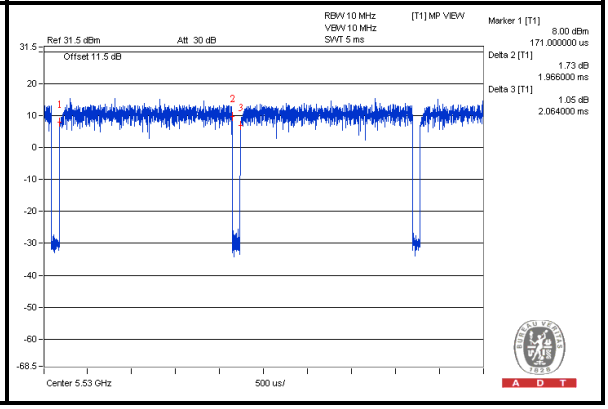
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



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

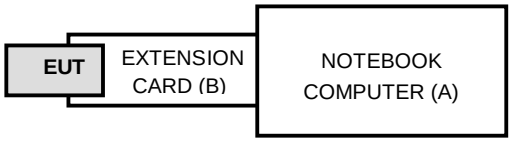
All test items have been performed and recorded as per the above standards.

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	Remark
A	NOTEBOOK COMPUTER	DELL	E5430	GM1SKV1	FCC DoC	Provided by Lab
B	EXTENSION CARD	Qualcomm Atheros	NA	NA	NA	Supplied by Client

3.7 CONFIGURATION OF SYSTEM UNDER TEST



Note: 1. For Unwanted Emission test item: used 50ohm terminator on antenna port
2. For other test items : used antenna on antenna port

4. TEST TYPES AND RESULTS

4.1 TRANSMIT POWER MEASUREMENT

4.1.1 LIMITS OF OUTPUT TRANSMIT POWER MEASUREMENT

Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 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 ≤ 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 ≥ 5.

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

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 15, 2013	July 14, 2014

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : July 02, 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 : July 02, 2014

FOR 26dB OCCUPIED BANDWIDTH

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSV 40	100964	July 15, 2013	July 14, 2014

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : July 02, 2014

4.1.3 TEST PROCEDURE

FOR AVERAGE POWER MEASUREMENT

For channel straddling 5725MHz:

Follow FCC KDB 789033 UNII test procedure:

Method SA-1

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW =1MHz.
3. Set the VBW ≥ 3 x 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:

An average power sensor was used on the output port of the EUT. A power meter was used to read the response of the average power sensor. Record the power level. Duty factor is not added to measured value.

FOR 26dB 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%.

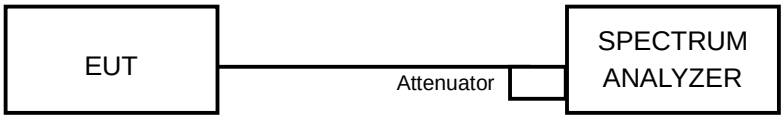
4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP

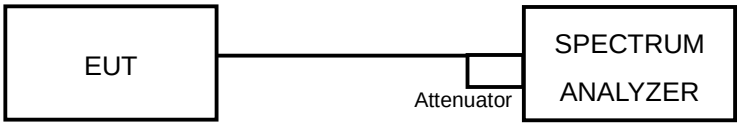
FOR POWER OUTPUT MEASUREMENT

For channel straddling 5725MHz:



For other channels:

FOR 26dB OCCUPIED BANDWIDTH



4.1.6 EUT OPERATING CONDITIONS

The software (QCRT Version3.0 29.0) provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

4.1.7 TEST RESULTS

802.11a

POWER OUTPUT

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	17.45	16.23	97.566	19.89	23.91	PASS
40	5200	18.91	18.06	141.777	21.52	23.91	PASS
48	5240	18.72	18.11	139.187	21.44	23.91	PASS
52	5260	18.53	18.04	134.965	21.30	23.80	PASS
60	5300	18.32	18.02	131.307	21.18	23.80	PASS
64	5320	15.83	15.31	72.245	18.59	23.66	PASS
100	5500	15.31	14.72	63.611	18.04	21.97	PASS
120	5600	18.74	18.07	138.938	21.43	22.15	PASS
140	5700	14.94	14.52	59.503	17.75	21.99	PASS
144 (UNII-2c Band)	5720	13.57	13.20	43.644	16.40	20.81	PASS
144 (UNII-3 Band)	5720	5.22	5.90	7.217	8.58	28.23	PASS
149	5745	15.94	15.46	74.42	18.72	28.23	PASS
157	5785	18.81	18.41	145.376	21.62	28.23	PASS
165	5825	18.74	18.53	146.102	21.65	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 24-(6.09-6) = 23.91dBm.

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: 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: The directional gain is 7.77dBi > 6dBi, , therefore the limit needs to reduce, so the power limit shall be reduced to 30-(7.77-6) = 28.23dBm.

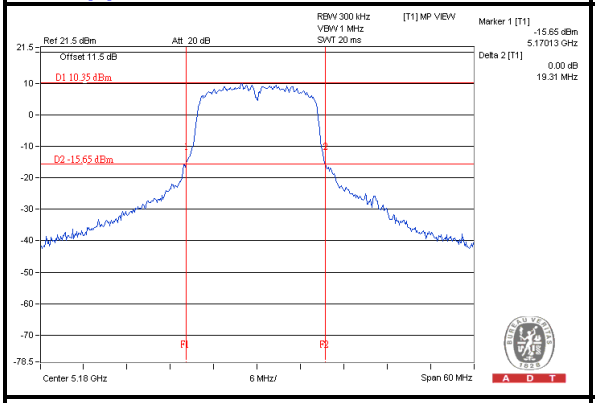
802.11a
26dB OCCUPIED BANDWIDTH

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
36	5180	19.31	18.99
40	5200	21.36	19.47
48	5240	22.00	19.49
52	5260	21.64	19.47
60	5300	23.98	19.49
64	5320	18.98	18.84
100	5500	19.05	18.80
120	5600	25.45	19.63
140	5700	19.08	18.92
144 (UNII-2c Band)	5720	14.74	14.40

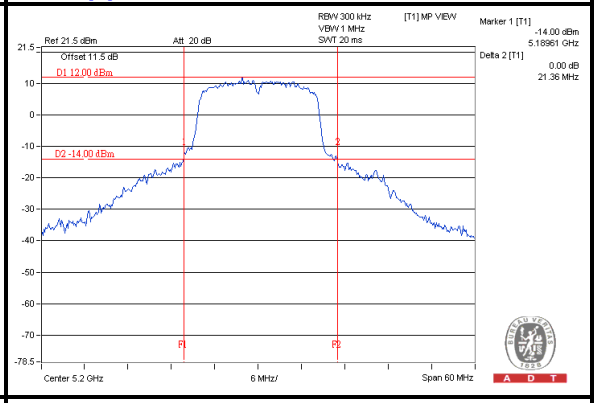
Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	19.47	23.89 < 24
60	5300	19.49	23.89 < 24
64	5320	18.84	23.75 < 24
100	5500	18.80	23.74 < 24
120	5600	19.63	23.92 < 24
140	5700	18.92	23.76 < 24
144 (UNII-2c Band)	5720	14.40	22.58 < 24

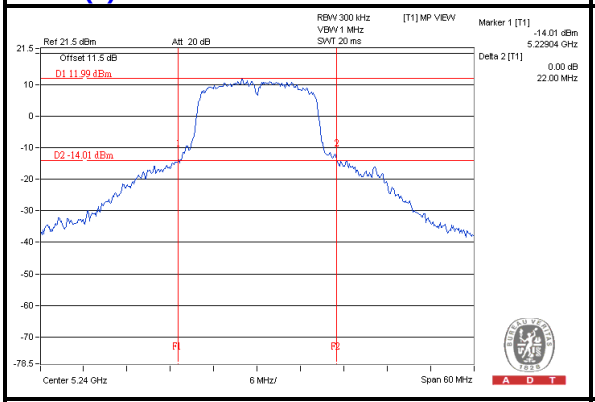
Chain(0) : CH36



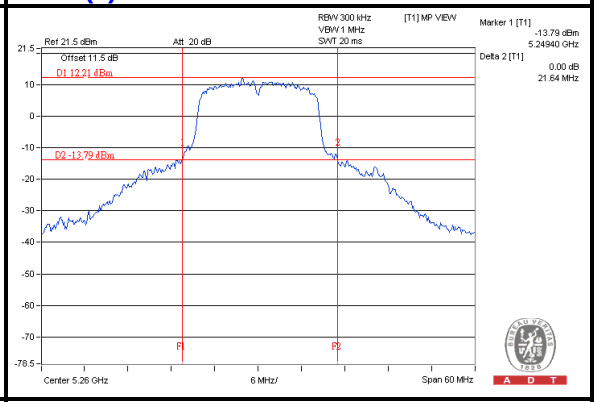
Chain(0) : CH40



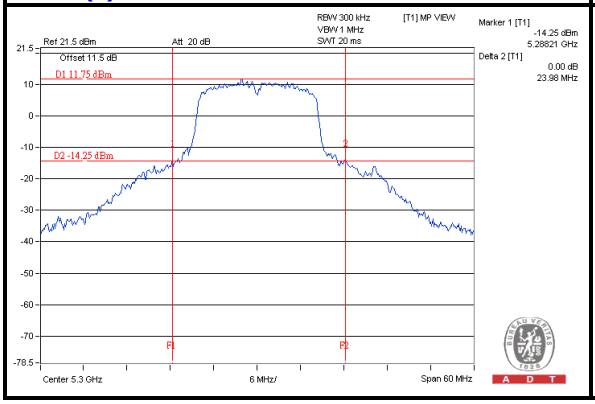
Chain(0) : CH48



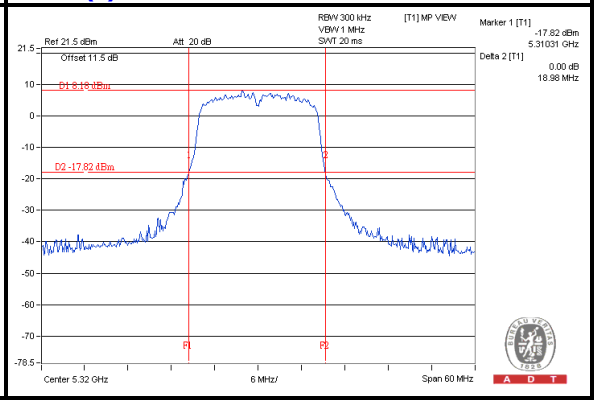
Chain(0) : CH52

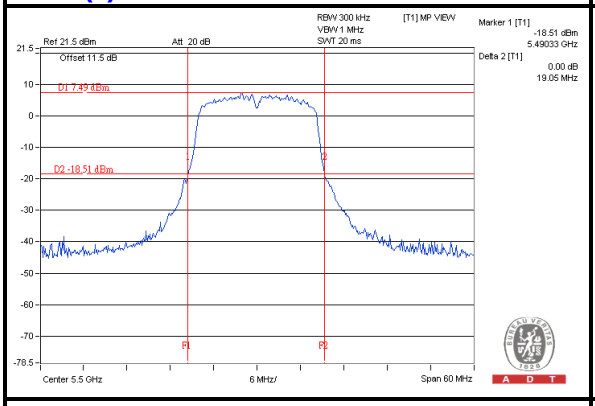
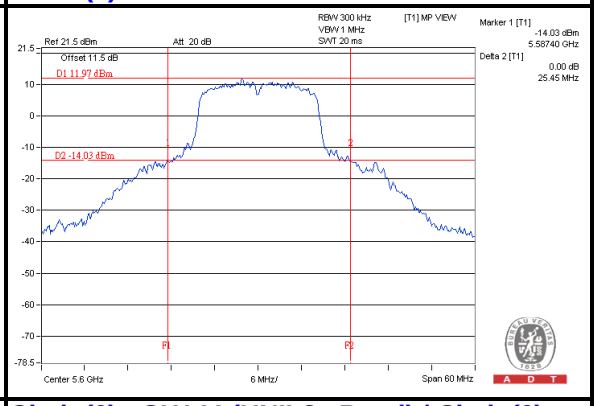
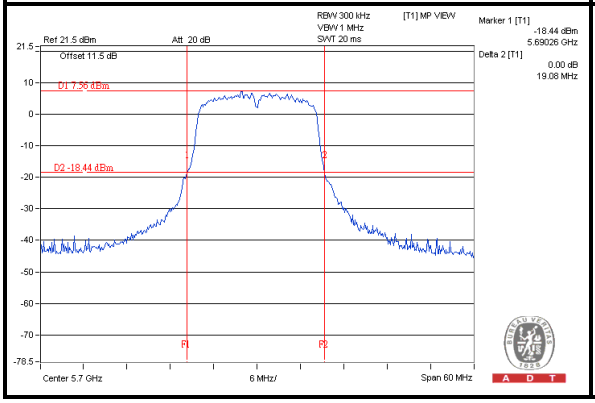
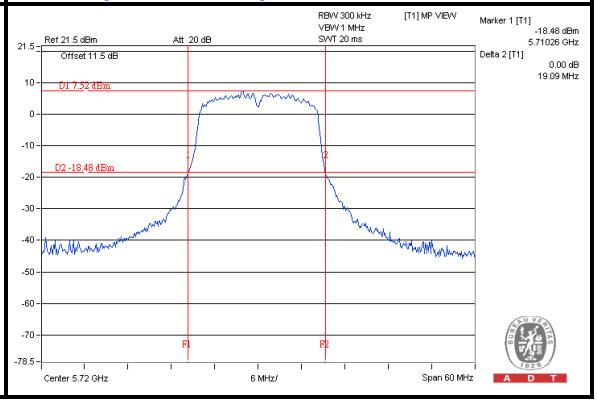


Chain(0) : CH60



Chain(0) : CH64



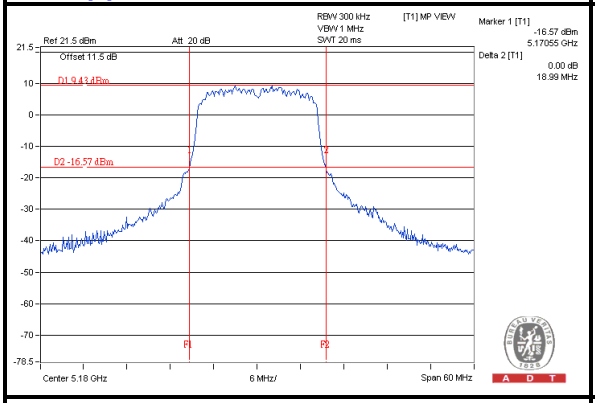
Chain(0) : CH100	Chain(0) : CH120
	
Chain(0) : CH140	**Chain(0) : CH144 (UNII-2c Band) / Chain(0) : CH144 (UNII-3 Band)**
	

NOTE:

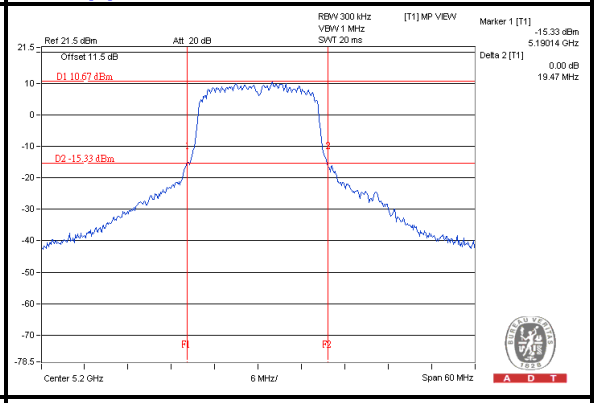
For CH144 (UNII-2c Band) = 5725 - Marker 1

For CH144 (UNII-3 Band) = Delta 2 - CH144 (UNII-2c Band) BW

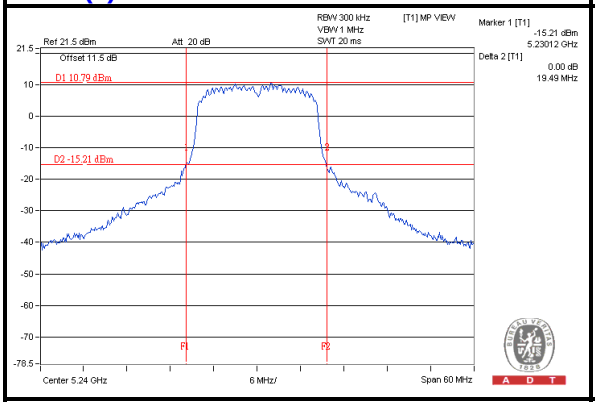
Chain(1) : CH36



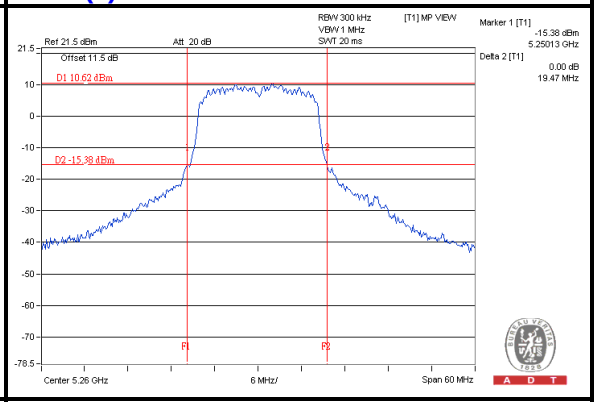
Chain(1) : CH40



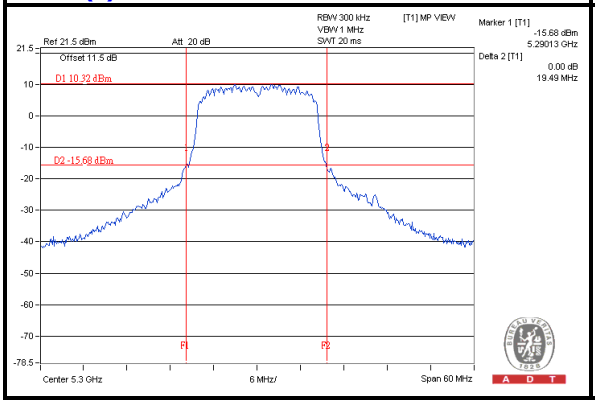
Chain(1) : CH48



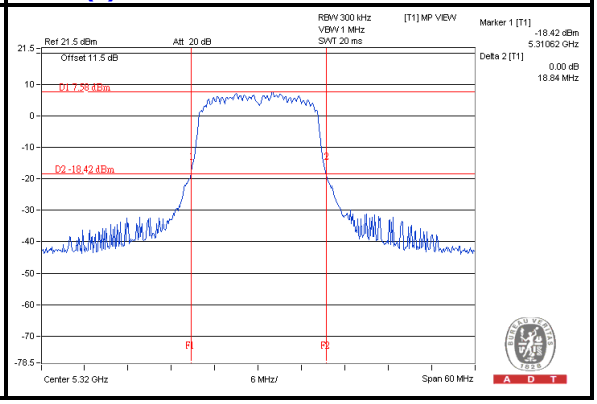
Chain(1) : CH52

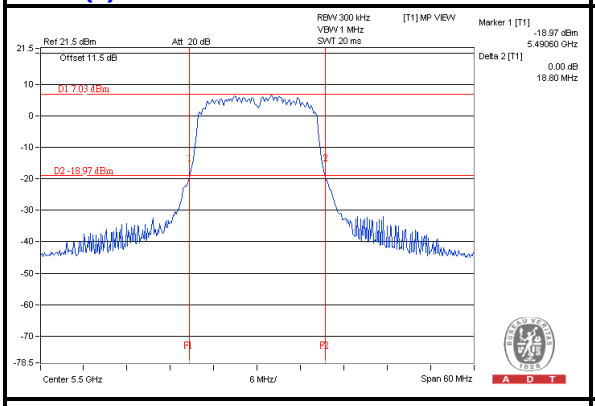
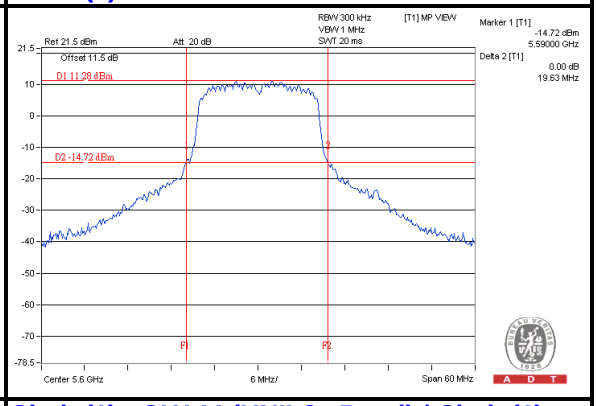
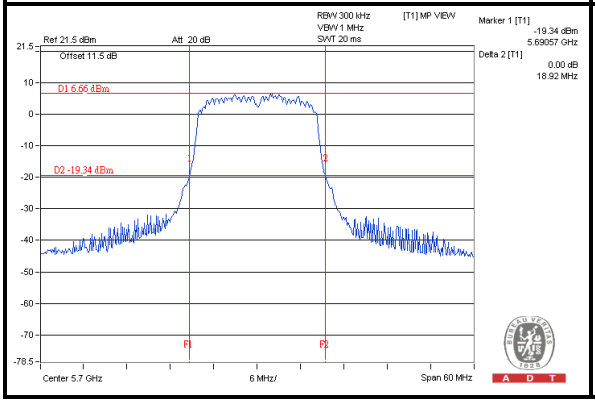
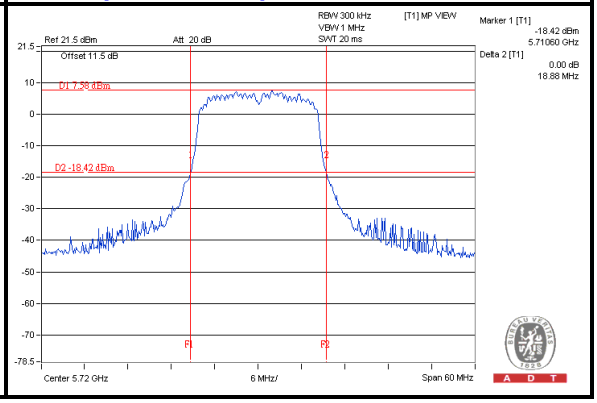


Chain(1) : CH60



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 - Marker 1

For CH144 (UNII-3 Band) = Delta 2 - CH144 (UNII-2c Band) BW

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	17.23	16.04	93.024	19.69	23.91	PASS
40	5200	18.76	18.11	139.876	21.46	23.91	PASS
48	5240	18.63	18.05	136.772	21.36	23.91	PASS
52	5260	18.31	18.14	132.927	21.24	23.91	PASS
60	5300	18.24	18.11	131.395	21.19	23.91	PASS
64	5320	14.87	15.03	62.532	17.96	23.91	PASS
100	5500	15.26	14.68	62.95	17.99	22.00	PASS
120	5600	18.63	18.01	136.187	21.34	22.23	PASS
140	5700	15.02	14.34	58.933	17.70	22.23	PASS
144 (UNII-2c Band)	5720	15.36	14.43	62.089	17.93	21.01	PASS
144 (UNII-3 Band)	5720	15.36	14.43	62.089	17.93	28.23	PASS
149	5745	15.73	15.31	71.374	18.54	28.23	PASS
157	5785	18.62	18.31	140.542	21.48	28.23	PASS
165	5825	18.51	18.54	142.408	21.54	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 24-(6.09-6) = 23.91dBm.

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: 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: The directional gain is 7.77dBi > 6dBi, , therefore the limit needs to reduce, so the power limit shall be reduced to 30-(7.77-6) = 28.23dBm.

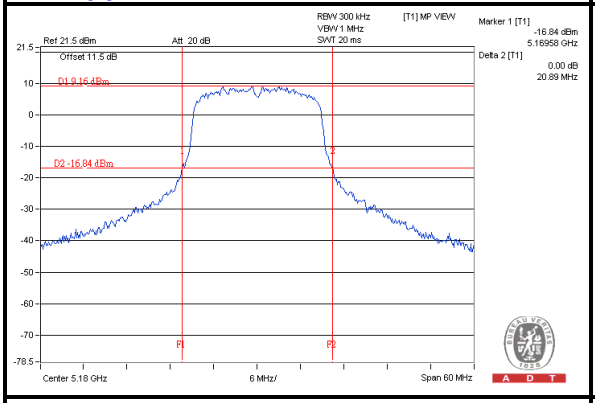
802.11n (HT20)
26dB OCCUPIED BANDWIDTH

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
36	5180	20.89	20.19
40	5200	22.57	20.65
48	5240	22.96	21.05
52	5260	22.67	20.94
60	5300	23.13	20.85
64	5320	20.00	20.09
100	5500	20.06	18.95
120	5600	29.10	20.67
140	5700	20.40	20.16
144 (UNII-2c Band)	5720	15.21	15.09

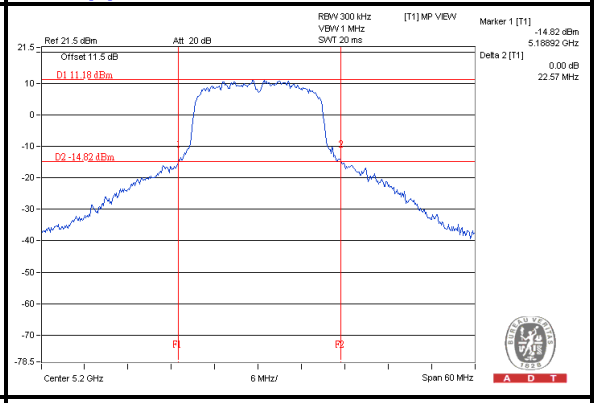
Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	20.94	24.2 > 24
60	5300	20.85	24.19 > 24
64	5320	20.00	24.01 > 24
100	5500	18.95	23.77 < 24
120	5600	20.67	24.15 > 24
140	5700	20.16	24.04 > 24
144 (UNII-2c Band)	5720	15.09	22.78 < 24

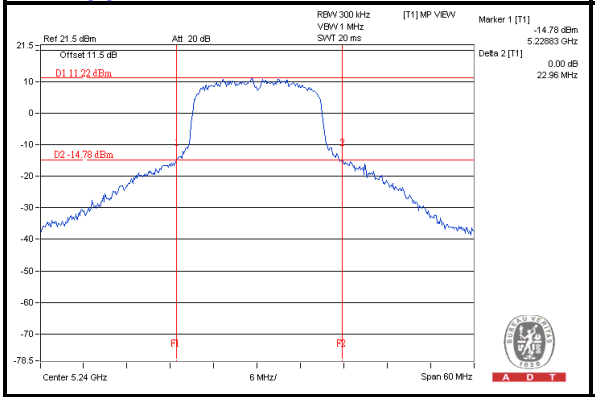
Chain(0) : CH36



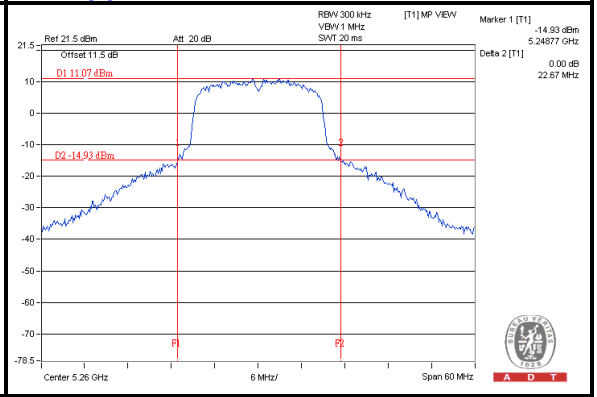
Chain(0) : CH40



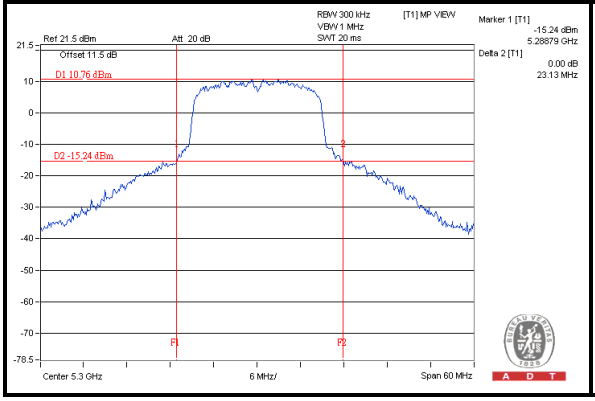
Chain(0) : CH48



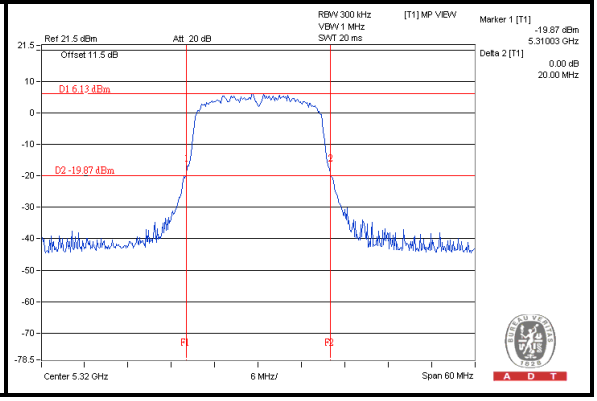
Chain(0) : CH52

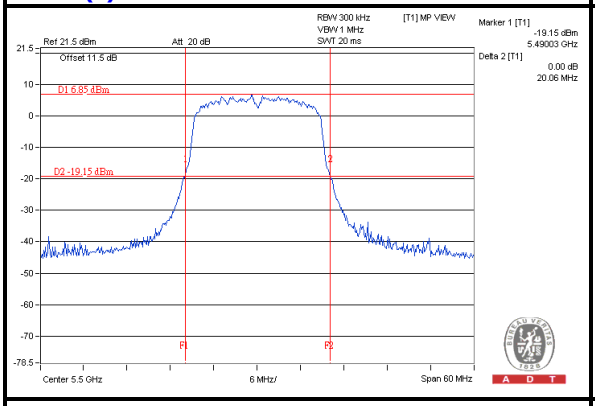
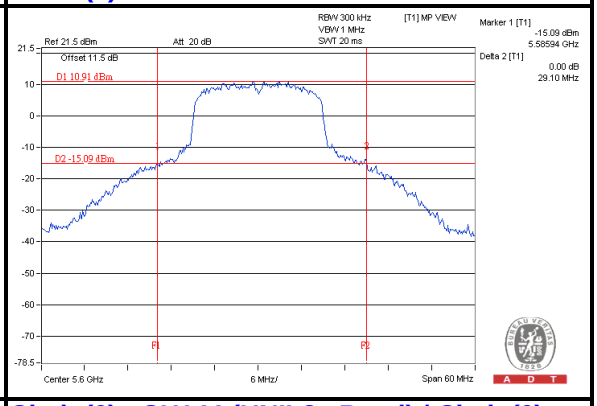
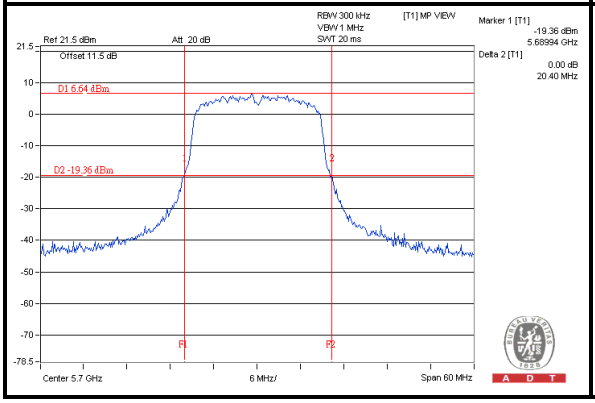
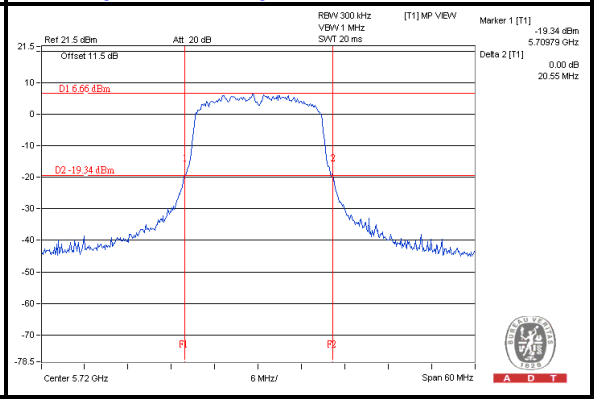


Chain(0) : CH60



Chain(0) : CH64



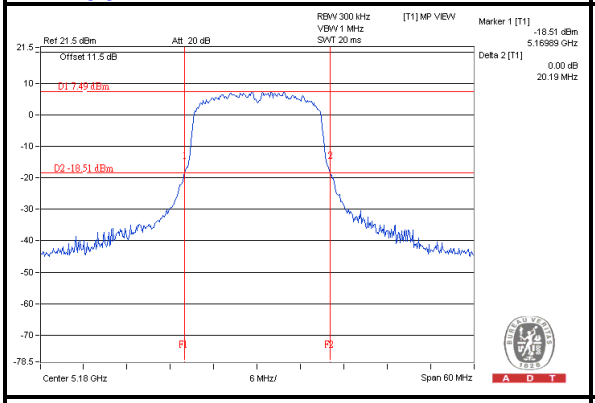
Chain(0) : CH100	Chain(0) : CH120
	
Chain(0) : CH140	**Chain(0) : CH144 (UNII-2c Band) / Chain(0) : CH144 (UNII-3 Band)**
	

NOTE:

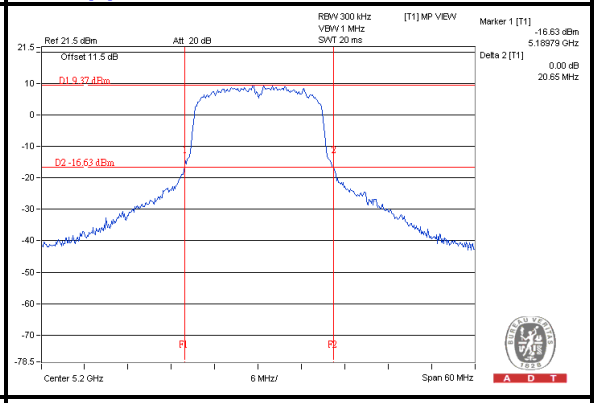
For CH144 (UNII-2c Band) = 5725 - Marker 1

For CH144 (UNII-3 Band) = Delta 2 - CH144 (UNII-2c Band) BW

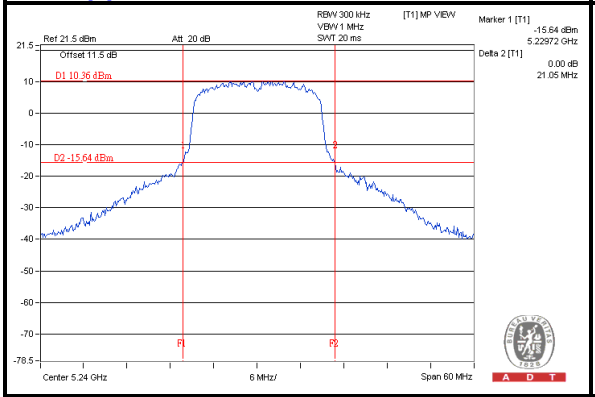
Chain(1) : CH36



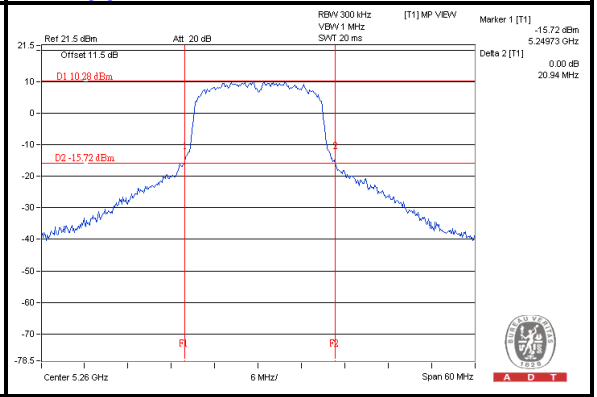
Chain(1) : CH40



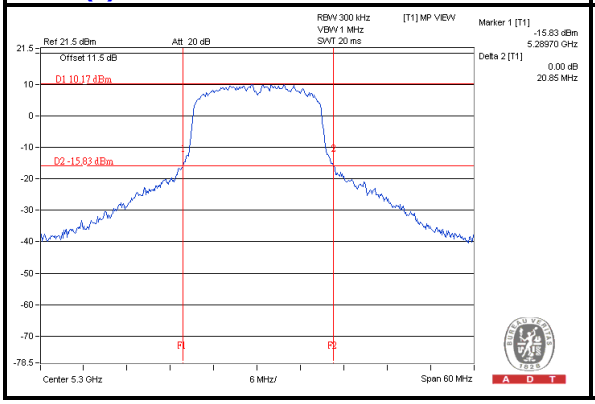
Chain(1) : CH48



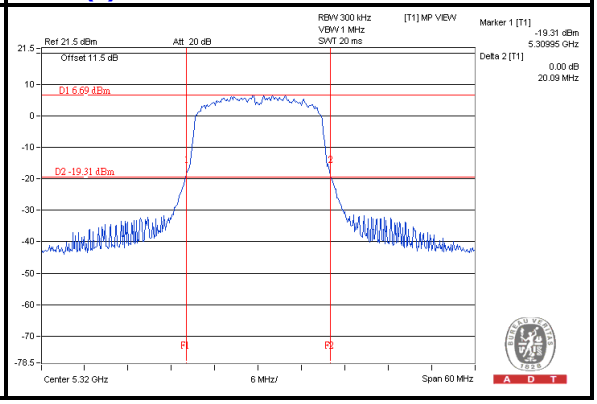
Chain(1) : CH52

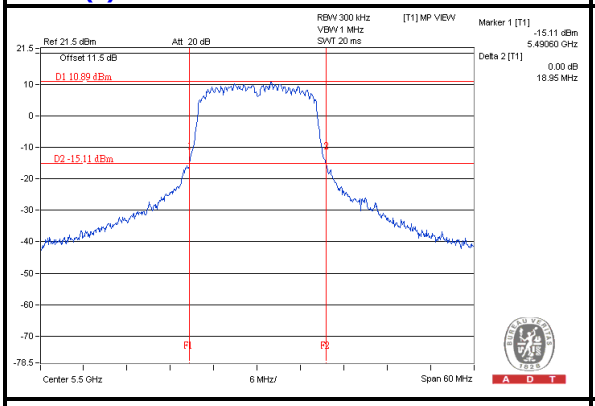
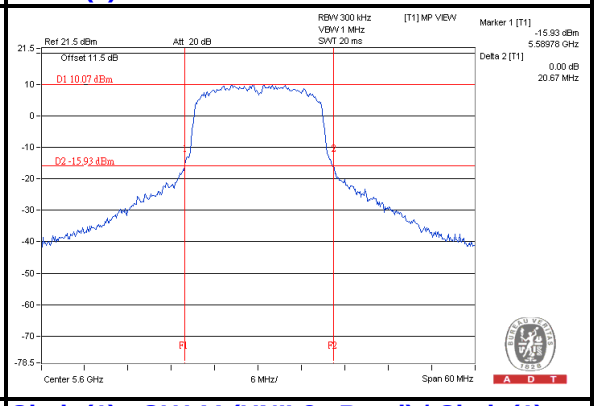
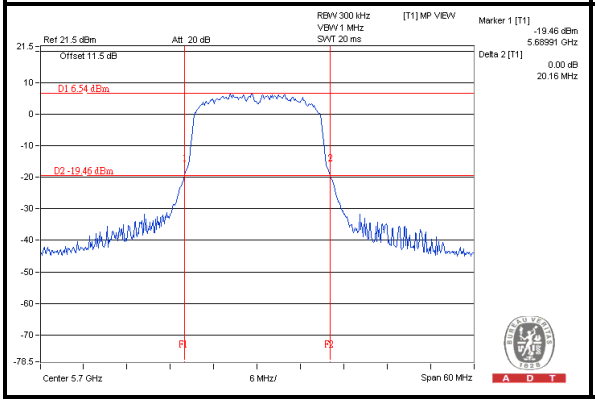
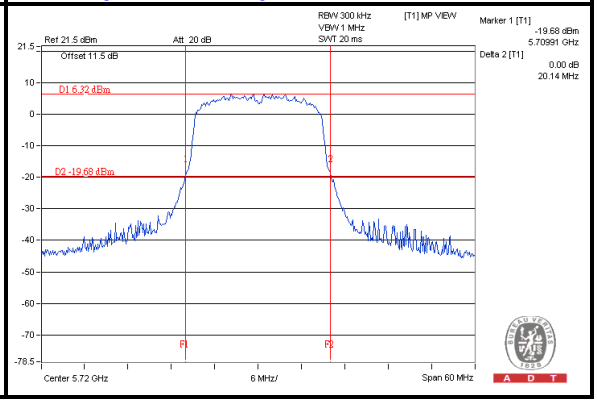


Chain(1) : CH60



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 - Marker 1

For CH144 (UNII-3 Band) = Delta 2 - CH144 (UNII-2c Band) BW

802.11n (HT40)

POWER OUTPUT

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	14.03	13.24	46.379	16.66	23.91	PASS
46	5230	19.36	18.24	152.979	21.85	23.91	PASS
54	5270	18.73	18.42	144.147	21.59	23.91	PASS
62	5310	15.20	15.17	65.998	18.20	23.91	PASS
102	5510	15.05	15.00	63.612	18.04	22.23	PASS
118	5590	19.01	18.26	146.604	21.66	22.23	PASS
134	5670	16.32	15.73	80.266	19.05	22.23	PASS
142 (UNII-2c Band)	5710	16.14	15.65	79.594	19.01	22.23	PASS
142 (UNII-3 Band)	5710	16.14	15.65	79.594	19.01	28.23	PASS
151	5755	14.65	14.15	55.176	17.42	28.23	PASS
159	5795	18.43	18.07	133.784	21.26	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 24-(6.09-6) = 23.91dBm.

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: 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: The directional gain is 7.77dBi > 6dBi, , therefore the limit needs to reduce, so the power limit shall be reduced to 30-(7.77-6) = 28.23dBm.

For CH142: Total power (dBm)= Average power <Chain 0 +1>(dBm) + Duty Factor (0.1dB)

802.11n (HT40)

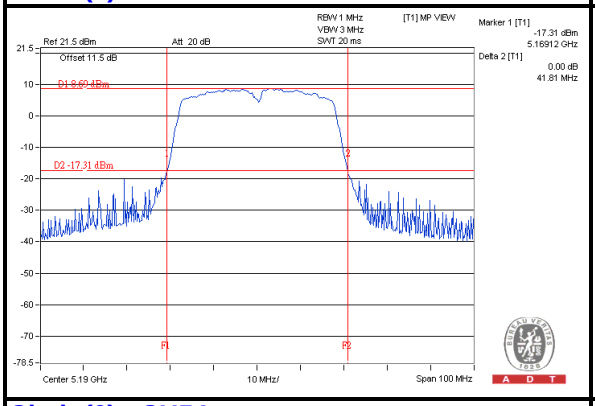
26dB OCCUPIED BANDWIDTH

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
38	5190	41.81	41.89
46	5230	44.18	42.81
54	5270	46.88	42.59
62	5310	42.06	43.35
102	5510	41.80	41.64
118	5590	56.21	42.17
134	5670	41.94	43.28
142 (UNII-2c Band)	5710	36.03	35.98

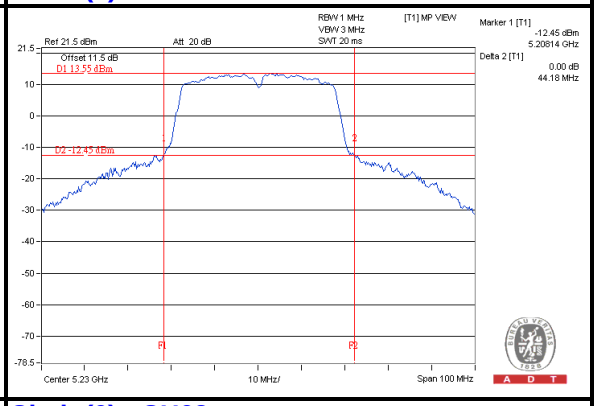
Note: For FCC output power limitation is determined based on 26dB bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
54	5270	42.59	27.29 > 24
62	5310	42.06	27.23 > 24
102	5510	41.64	27.19 > 24
110	5550	42.17	27.25 > 24
134	5670	41.94	27.22 > 24
142 (UNII-2c Band)	5710	35.98	26.56 > 24

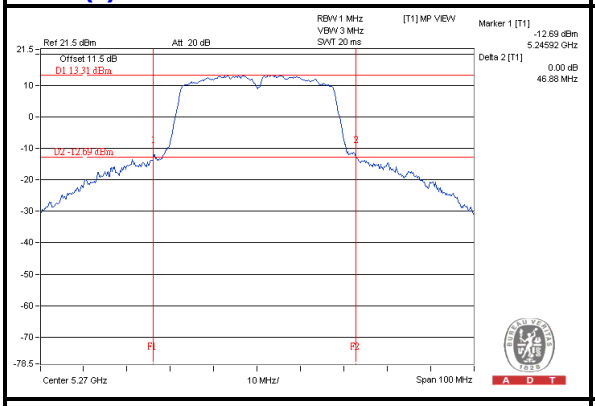
Chain(0) : CH38



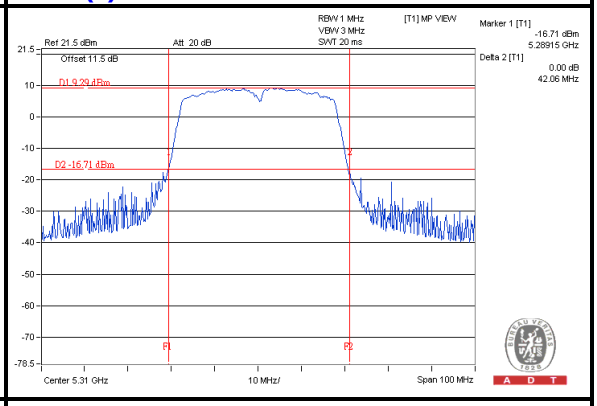
Chain(0) : CH46



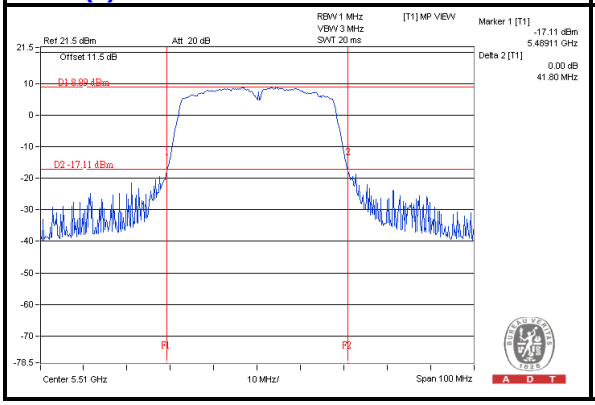
Chain(0) : CH54



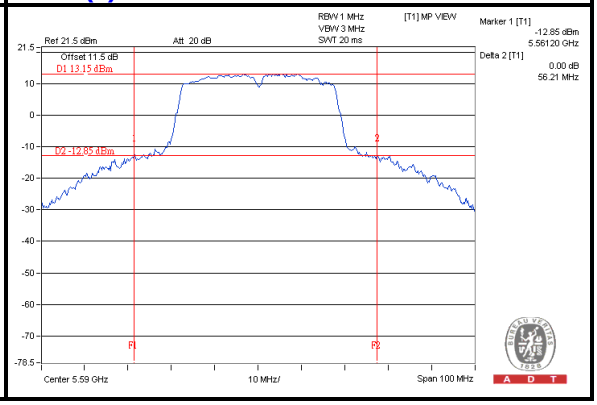
Chain(0) : CH62

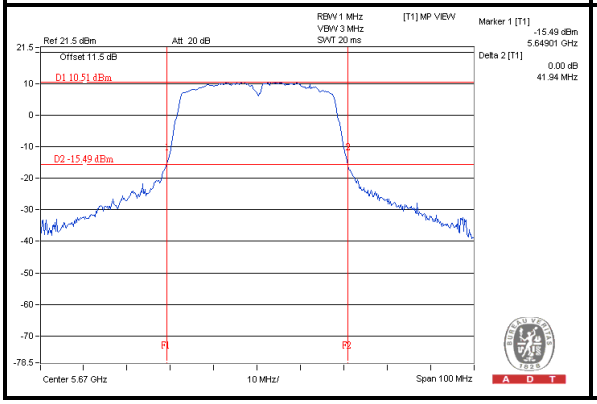
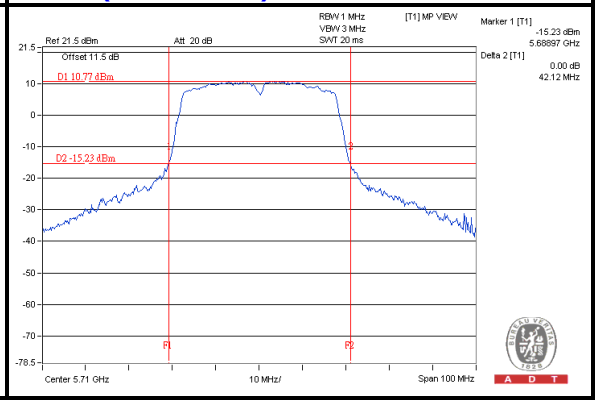


Chain(0) : CH102



Chain(0) : CH118



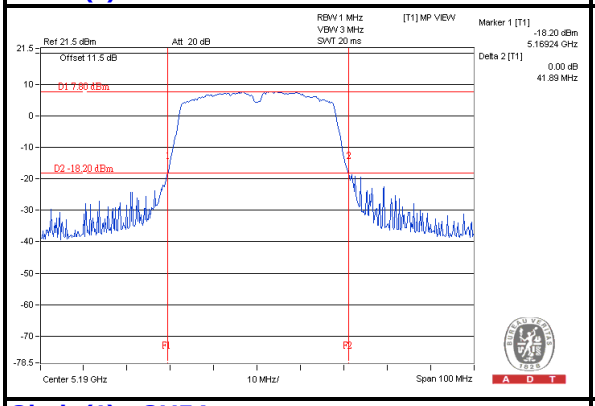
Chain(0) : CH134	Chain(0) : CH142 (UNII-2c Band) / Chain(0) : CH142 (UNII-3 Band)
	

NOTE:

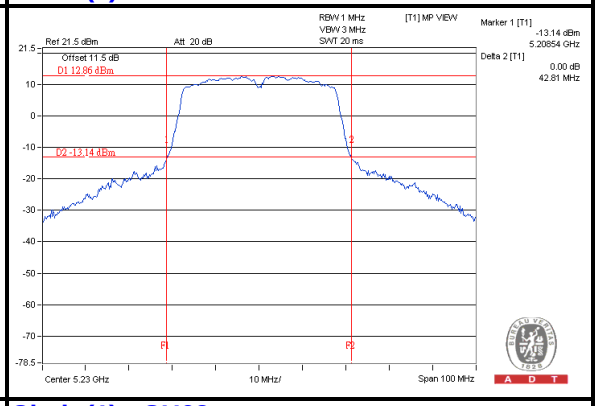
For CH142 (UNII-2c Band) = 5725 - Marker 1

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

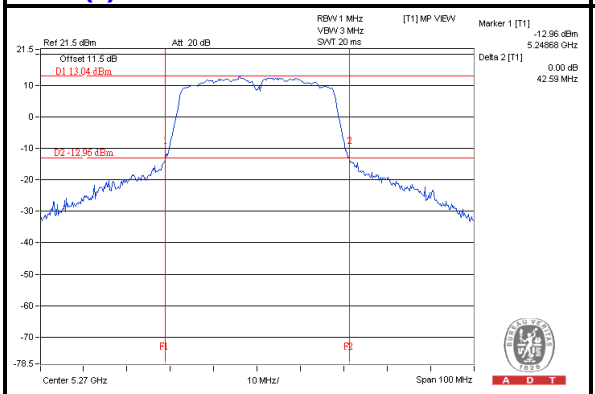
Chain(1) : CH38



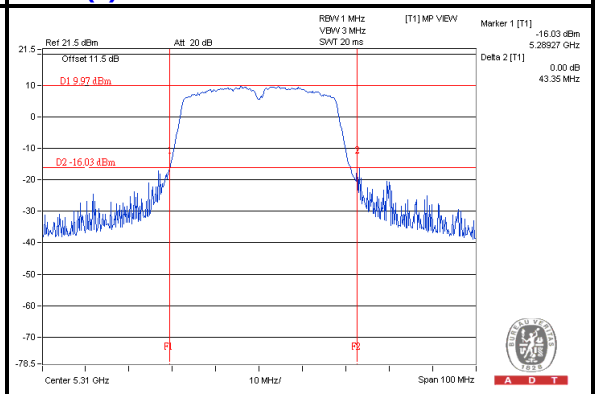
Chain(1) : CH46



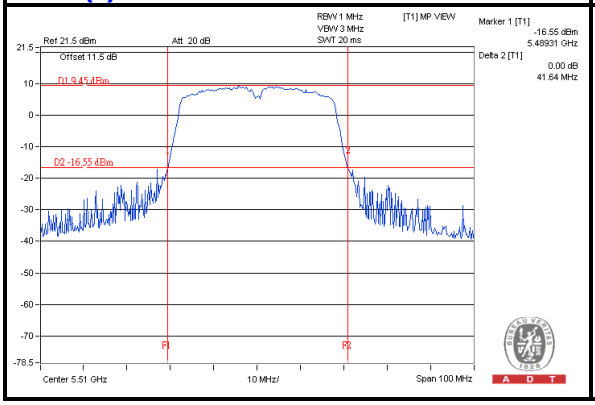
Chain(1) : CH54



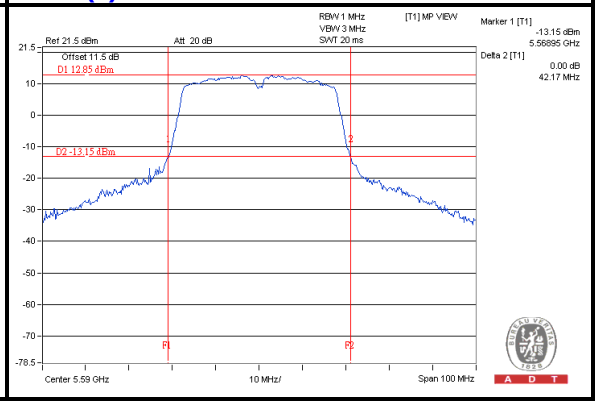
Chain(1) : CH62

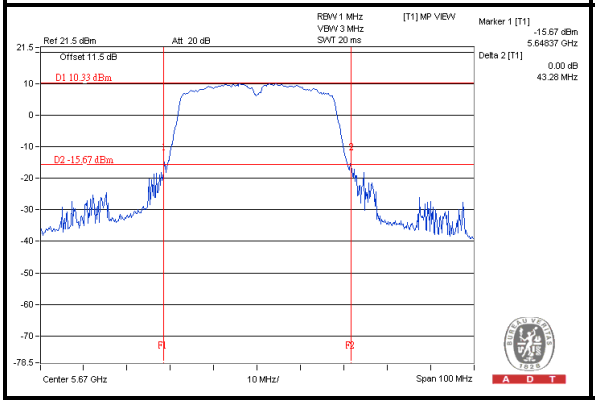
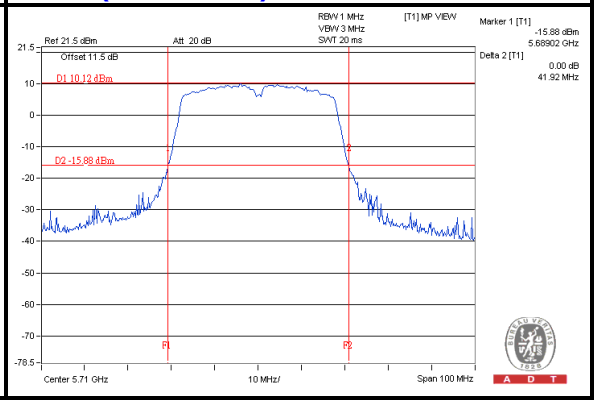


Chain(1) : CH102



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 - Marker 1

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

802.11ac (VHT20)

POWER OUTPUT

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	17.21	16.14	93.717	19.72	23.91	PASS
40	5200	19.42	18.52	158.619	22.00	23.91	PASS
48	5240	19.25	18.57	156.085	21.93	23.91	PASS
52	5260	19.03	18.64	153.097	21.85	23.91	PASS
60	5300	18.84	18.61	149.171	21.74	23.91	PASS
64	5320	15.03	15.14	64.501	18.10	23.91	PASS
100	5500	15.07	14.43	59.87	17.77	22.00	PASS
120	5600	19.22	18.62	156.338	21.94	22.23	PASS
140	5700	14.74	14.38	57.201	17.57	22.23	PASS
144 (UNII-2c Band)	5720	13.31	12.92	41.017	16.13	21.01	PASS
144 (UNII-3 Band)	5720	5.92	5.82	7.727	8.88	28.23	PASS
149	5745	16.06	15.26	73.939	18.69	28.23	PASS
157	5785	18.71	18.51	145.26	21.62	28.23	PASS
165	5825	18.47	18.33	138.384	21.41	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 24-(6.09-6) = 23.91dBm.

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: 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: The directional gain is 7.77dBi > 6dBi, , therefore the limit needs to reduce, so the power limit shall be reduced to 30-(7.77-6) = 28.23dBm.

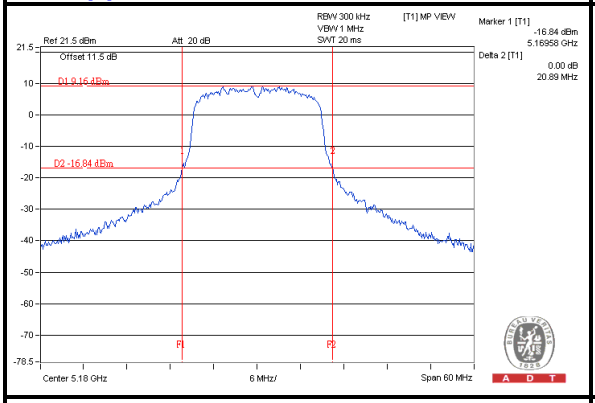
802.11ac (VHT20)
26dB OCCUPIED BANDWIDTH

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
36	5180	20.89	20.19
40	5200	22.57	20.65
48	5240	22.96	21.05
52	5260	22.67	20.94
60	5300	23.13	20.85
64	5320	20.00	20.09
100	5500	20.06	18.95
120	5600	29.10	20.67
140	5700	20.40	20.16
144 (UNII-2c Band)	5720	15.21	15.09

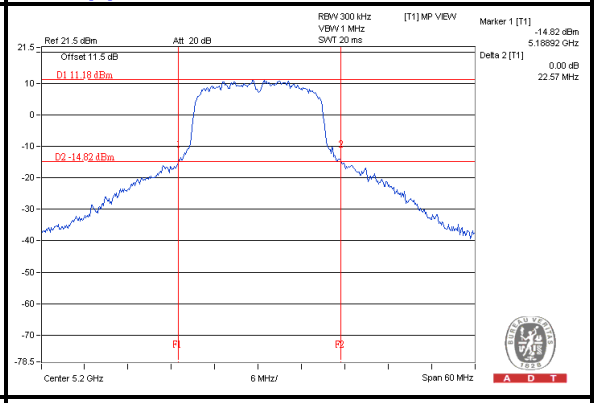
Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	20.94	24.2 > 24
60	5300	20.85	24.19 > 24
64	5320	20.00	24.01 > 24
100	5500	18.95	23.77 < 24
120	5600	20.67	24.15 > 24
140	5700	20.16	24.04 > 24
144 (UNII-2c Band)	5720	15.09	22.78 < 24

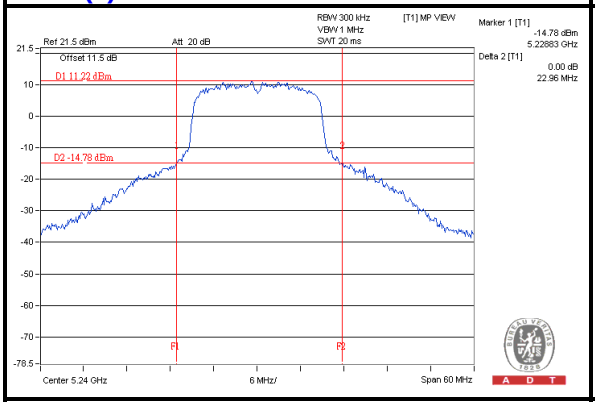
Chain(0) : CH36



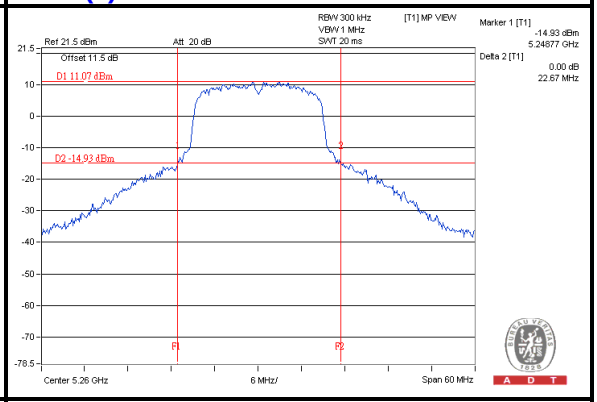
Chain(0) : CH40



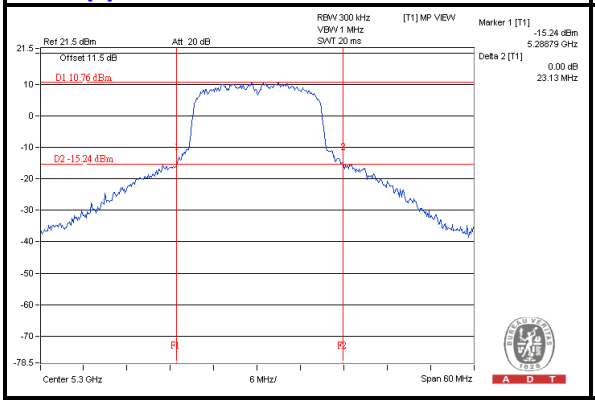
Chain(0) : CH48



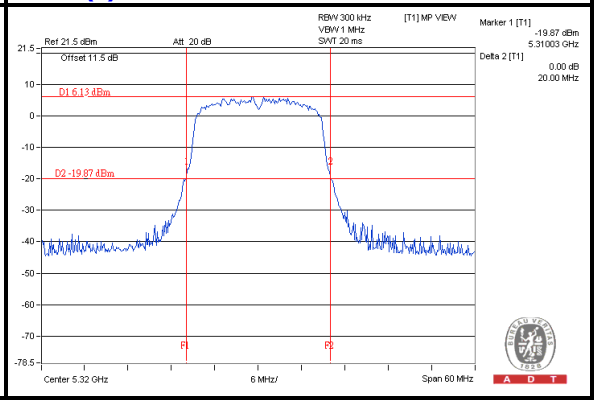
Chain(0) : CH52

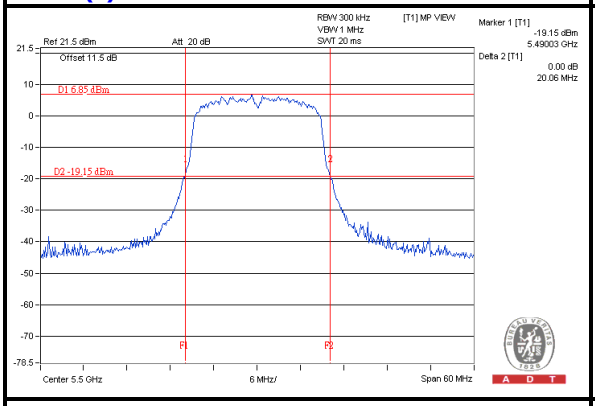
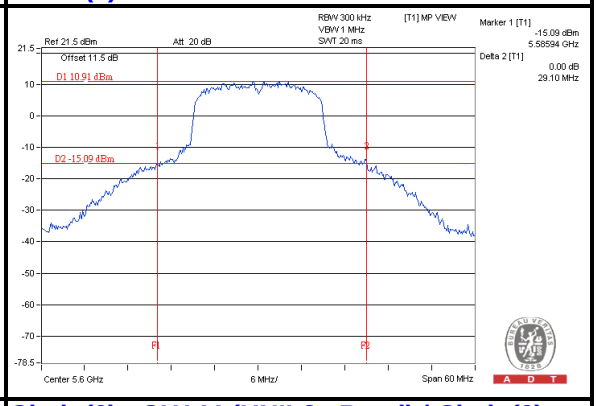
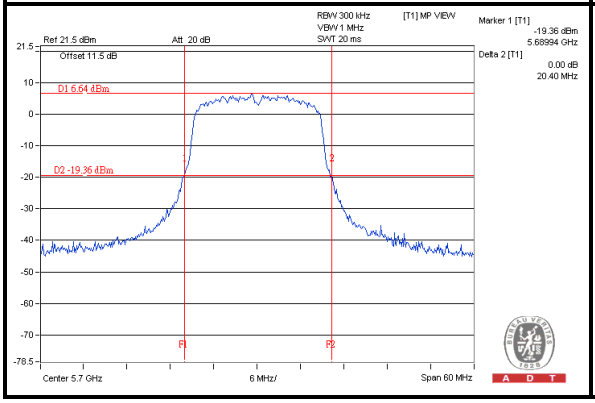
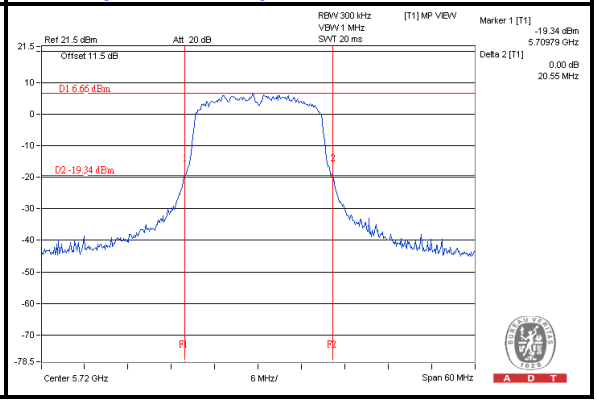


Chain(0) : CH60



Chain(0) : CH64



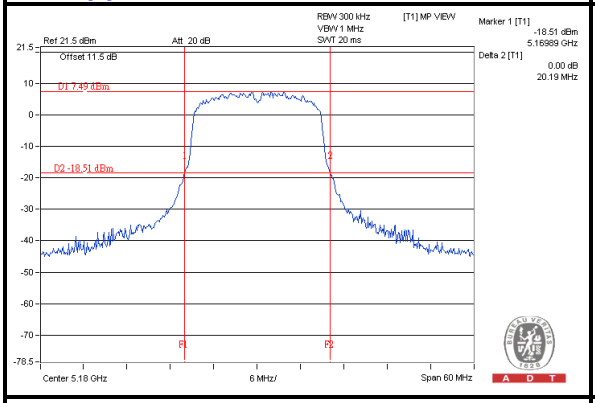
Chain(0) : CH100	Chain(0) : CH120
	
Chain(0) : CH140	**Chain(0) : CH144 (UNII-2c Band) / Chain(0) : CH144 (UNII-3 Band)**
	

NOTE:

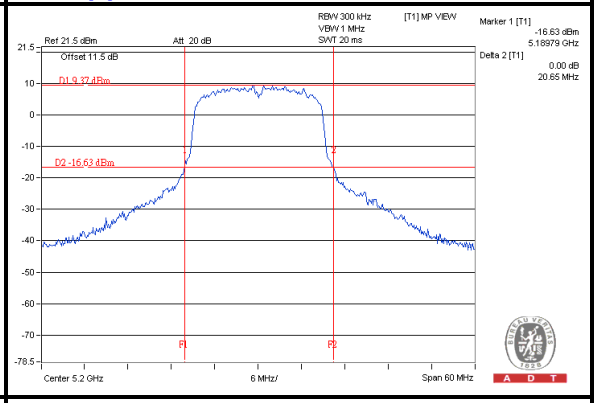
For CH144 (UNII-2c Band) = 5725 - Marker 1

For CH144 (UNII-3 Band) = Delta 2 - CH144 (UNII-2c Band) BW

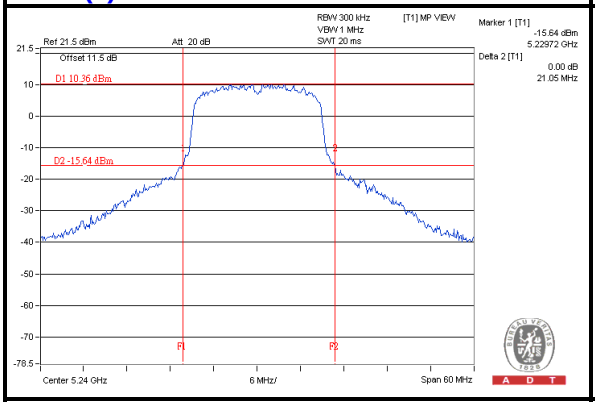
Chain(1) : CH36



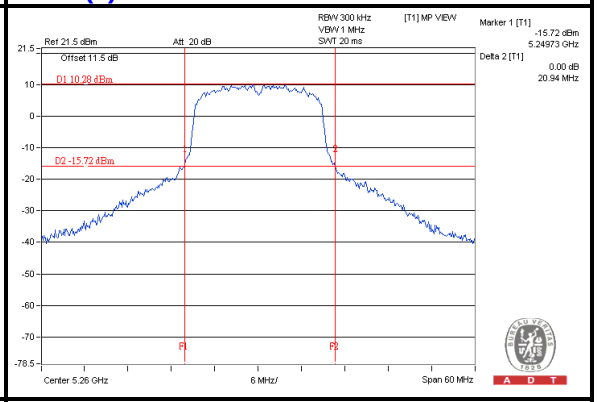
Chain(1) : CH40



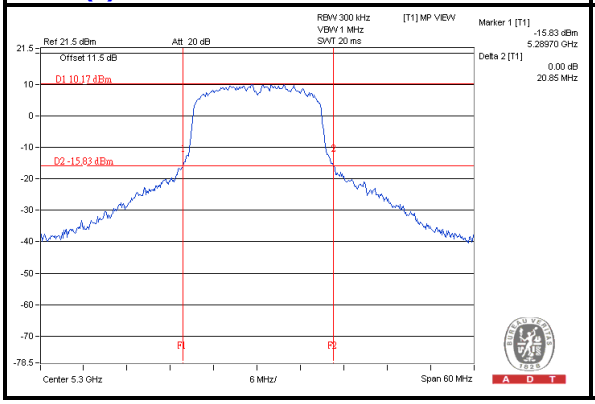
Chain(1) : CH48



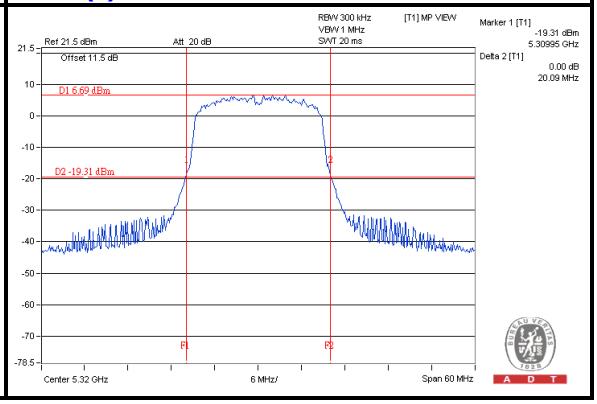
Chain(1) : CH52

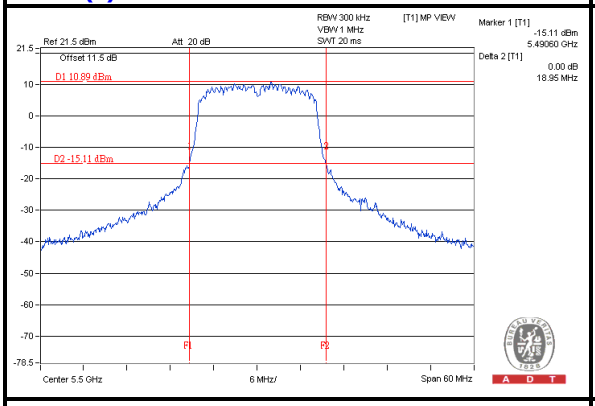
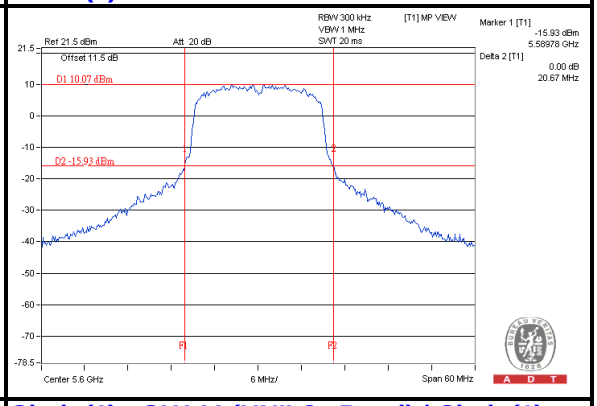
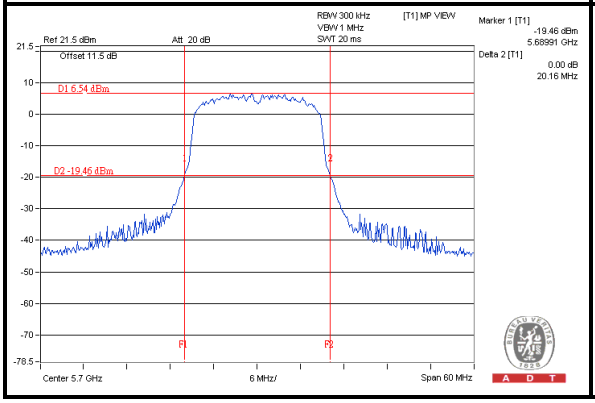
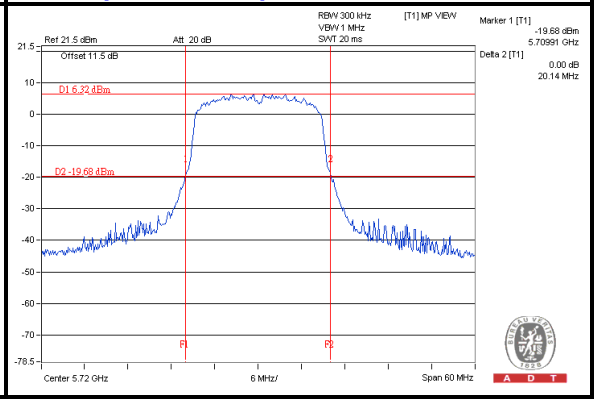


Chain(1) : CH60



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 - Marker 1

For CH144 (UNII-3 Band) = Delta 2 - CH144 (UNII-2c Band) BW

802.11ac (VHT40)

POWER OUTPUT

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	14.33	13.01	47.101	16.73	23.91	PASS
46	5230	19.41	18.36	155.846	21.93	23.91	PASS
54	5270	18.91	18.34	146.038	21.64	23.91	PASS
62	5310	15.21	15.34	67.387	18.29	23.91	PASS
102	5510	15.10	15.02	64.128	18.07	22.23	PASS
118	5590	19.14	18.45	152.019	21.82	22.23	PASS
134	5670	16.52	15.84	83.246	19.20	22.23	PASS
142 (UNII-2c Band)	5710	14.49	13.35	50.865	17.06	22.23	PASS
142 (UNII-3 Band)	5710	1.91	1.50	3.032	4.82	28.23	PASS
151	5755	14.45	14.25	54.468	17.36	28.23	PASS
159	5795	18.58	18.17	137.726	21.39	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 24-(6.09-6) = 23.91dBm.

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: 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: The directional gain is 7.77dBi > 6dBi, , therefore the limit needs to reduce, so the power limit shall be reduced to 30-(7.77-6) = 28.23dBm.

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

802.11ac (VHT40)

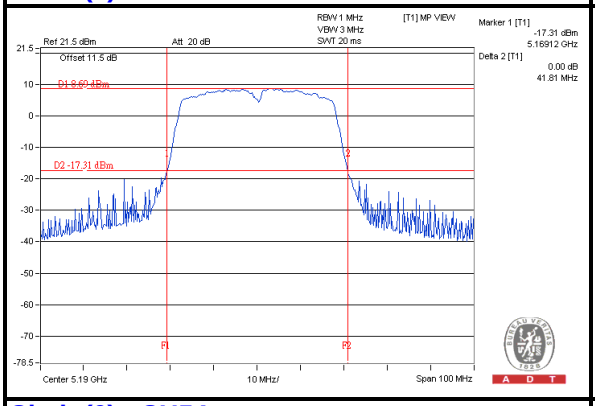
26dB OCCUPIED BANDWIDTH

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
38	5190	41.81	41.89
46	5230	44.18	42.81
54	5270	46.88	42.59
62	5310	42.06	43.35
102	5510	41.80	41.64
118	5590	56.21	42.17
134	5670	41.94	43.28
142 (UNII-2c Band)	5710	36.03	35.98

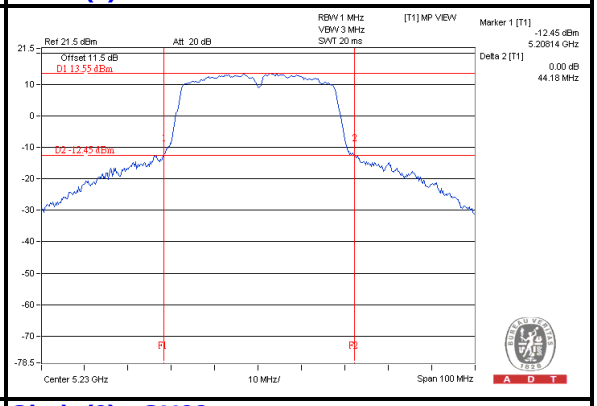
Note: For FCC output power limitation is determined based on 26dB bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
54	5270	42.59	27.29 > 24
62	5310	42.06	27.23 > 24
102	5510	41.64	27.19 > 24
110	5550	42.17	27.25 > 24
134	5670	41.94	27.22 > 24
142 (UNII-2c Band)	5710	35.98	26.56 > 24

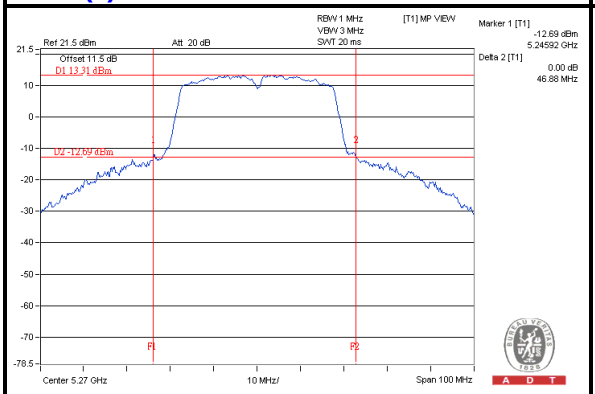
Chain(0) : CH38



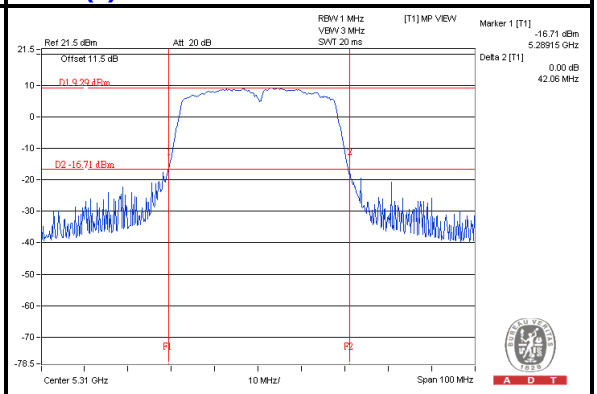
Chain(0) : CH46



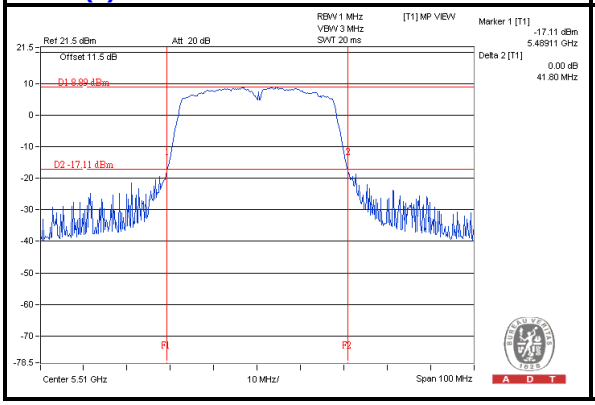
Chain(0) : CH54



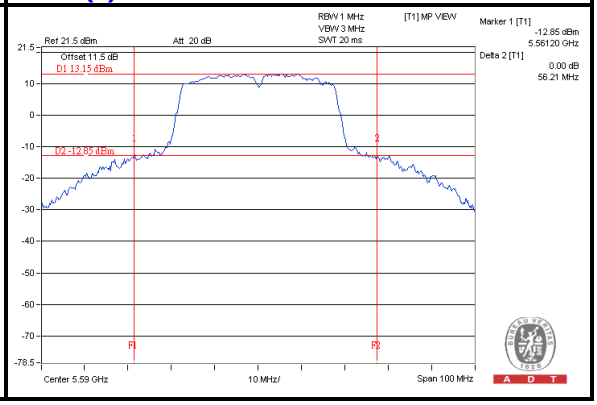
Chain(0) : CH62

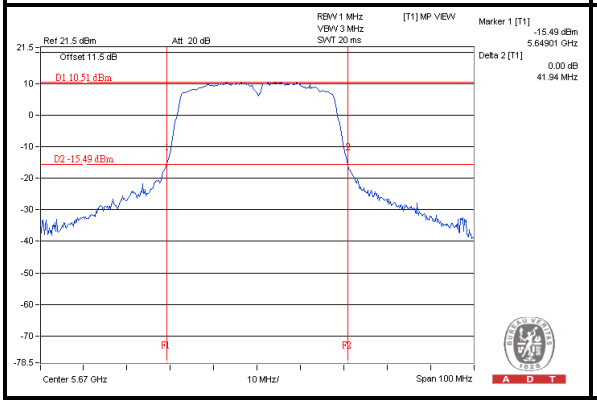
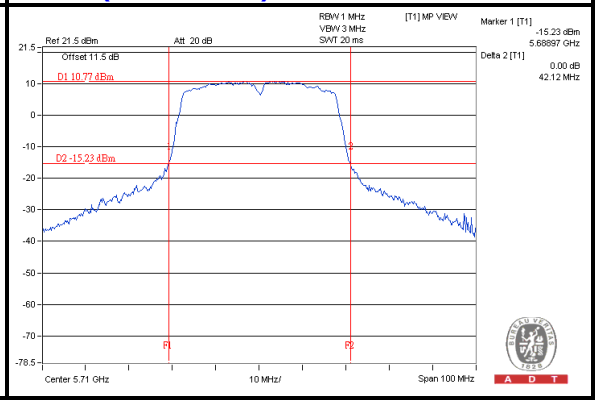


Chain(0) : CH102



Chain(0) : CH118



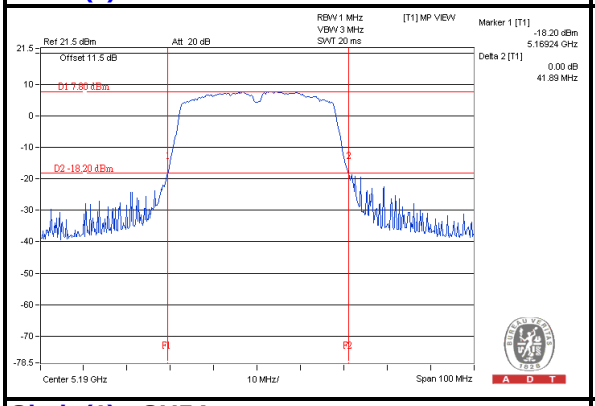
Chain(0) : CH134	Chain(0) : CH142 (UNII-2c Band) / Chain(0) : CH142 (UNII-3 Band)
	

NOTE:

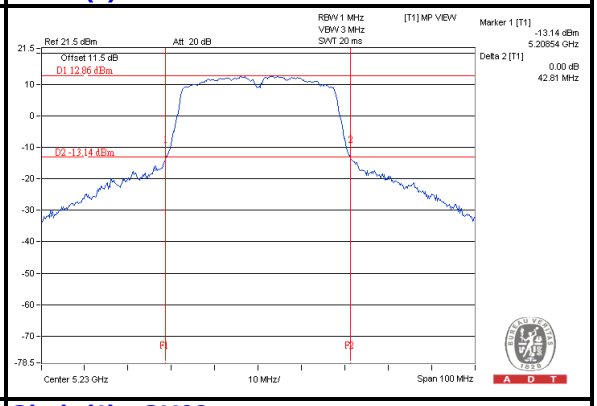
For CH142 (UNII-2c Band) = 5725 - Marker 1

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

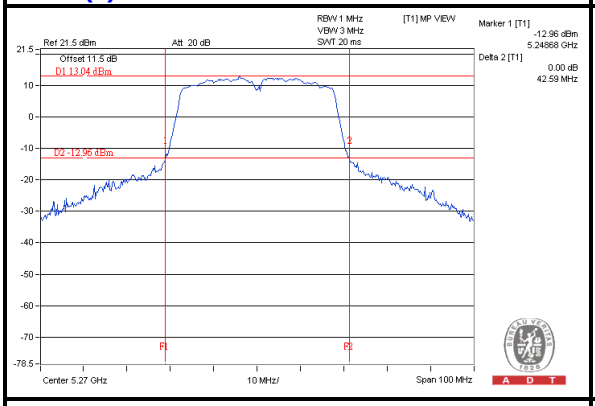
Chain(1) : CH38



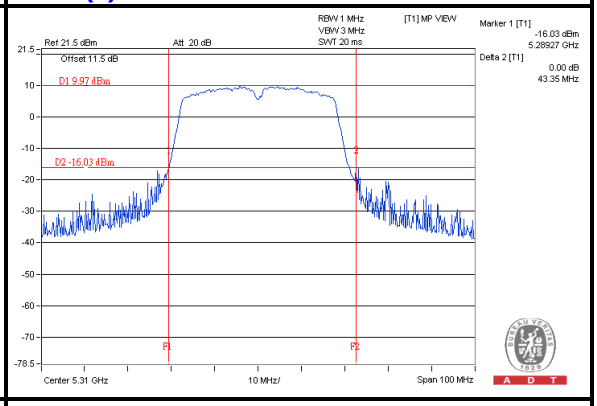
Chain(1) : CH46



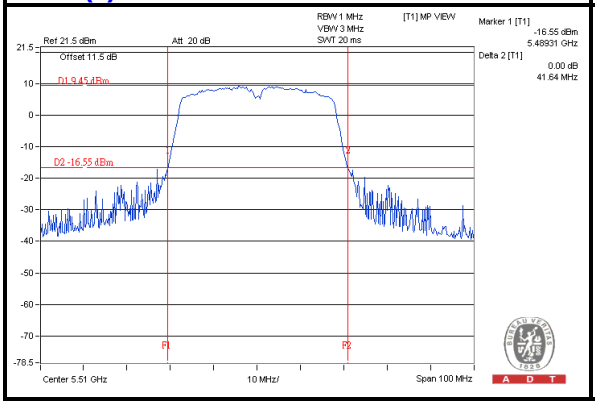
Chain(1) : CH54



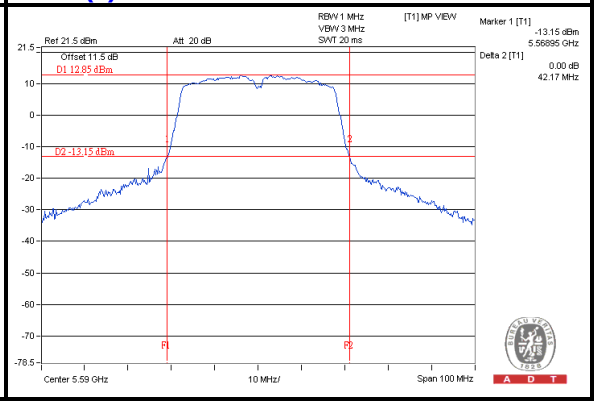
Chain(1) : CH62

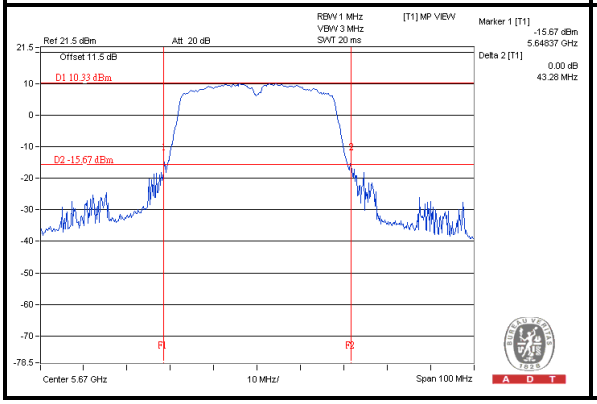
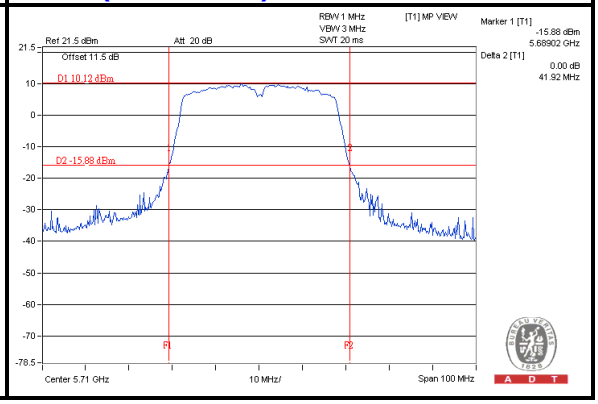


Chain(1) : CH102



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 - Marker 1

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

802.11ac (VHT80)

POWER OUTPUT

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
42	5210	13.37	12.01	37.612	15.75	23.91	PASS
58	5290	12.95	12.05	35.756	15.53	23.91	PASS
106	5530	12.61	11.83	33.48	15.25	22.23	PASS
122	5610	17.14	16.17	93.161	19.69	22.23	PASS
138 (UNII-2c Band)	5690	14.31	14.43	57.408	17.59	22.23	PASS
138 (UNII-3 Band)	5690	-2.11	-2.49	1.2369	0.92	28.23	PASS
155	5775	13.31	13.83	45.584	16.59	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 24-(6.09-6) = 23.91dBm.

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: 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: The directional gain is 7.77dBi > 6dBi, , therefore the limit needs to reduce, so the power limit shall be reduced to 30-(7.77-6) = 28.23dBm.

For CH138: Total power (dBm)= Average power <Chain 0 +1>(dBm) + Duty Factor (0.21dB)

802.11ac (VHT80)

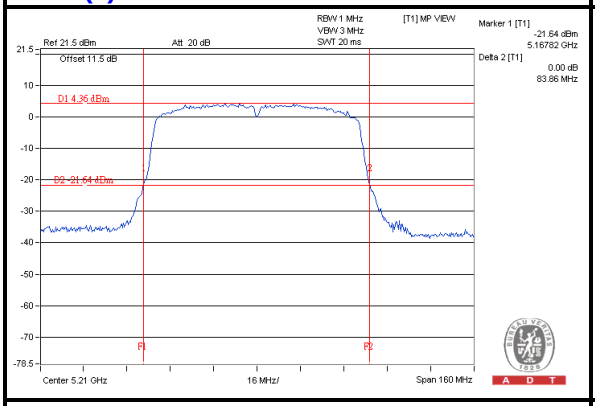
26dB OCCUPIED BANDWIDTH

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
42	5210	83.86	83.45
58	5290	83.98	82.96
106	5530	83.86	82.66
122	5610	84.14	83.47
138 (UNII-2c Band)	5690	77.32	76.84

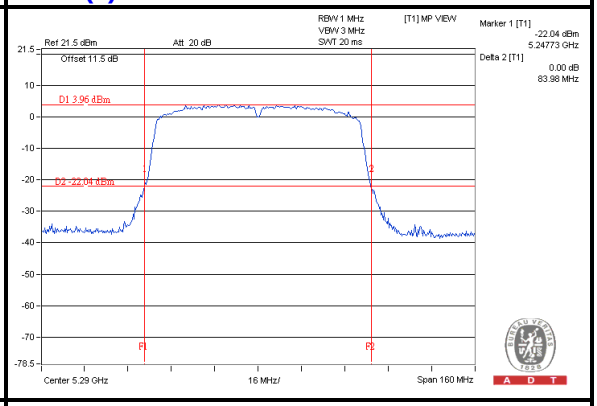
Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
58	5290	82.96	30.18 > 24
106	5530	82.66	30.17 > 24
122	5610	83.47	30.21 > 24
138 (UNII-2c Band)	5690	76.84	29.85 > 24

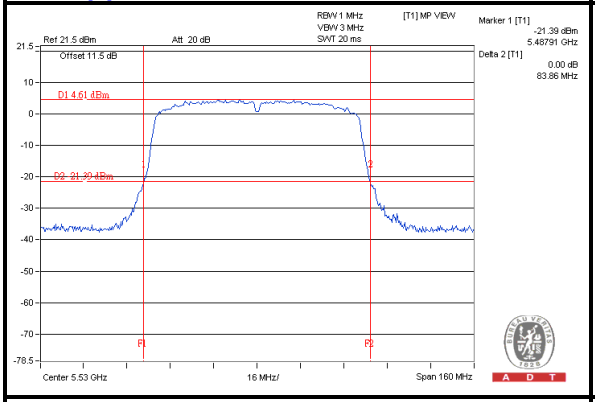
Chain(0) : CH42



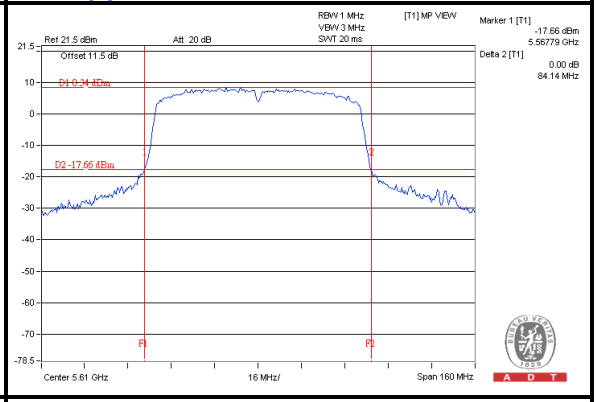
Chain(0) : CH58



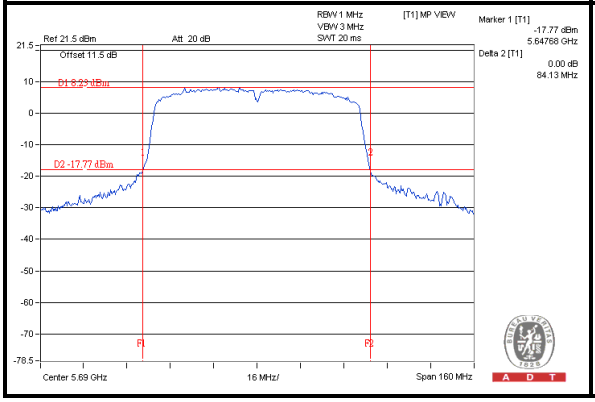
Chain(0) : CH106



Chain(0) : CH122



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

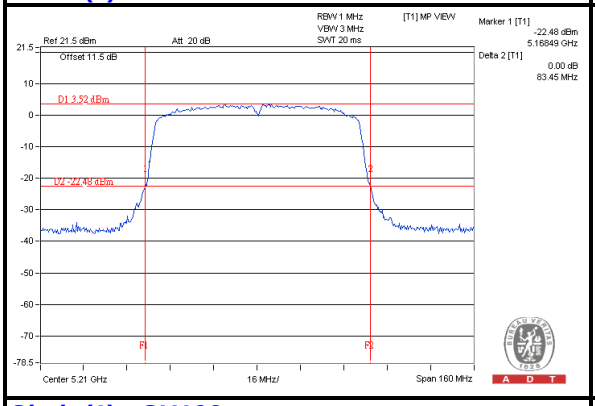


NOTE:

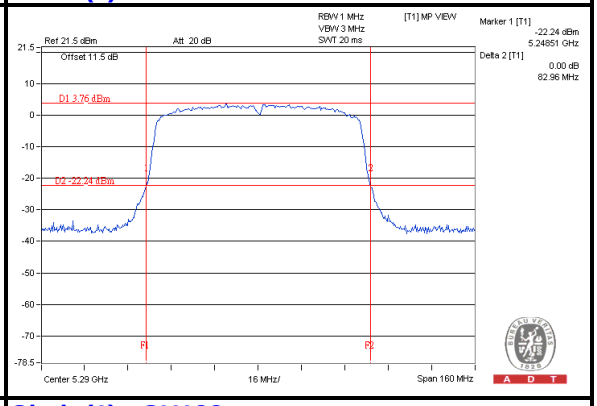
For CH138 (UNII-2c Band) = 5725 - Marker 1

For CH138 (UNII-3 Band) = Delta 2 - CH138 (UNII-2c Band) BW

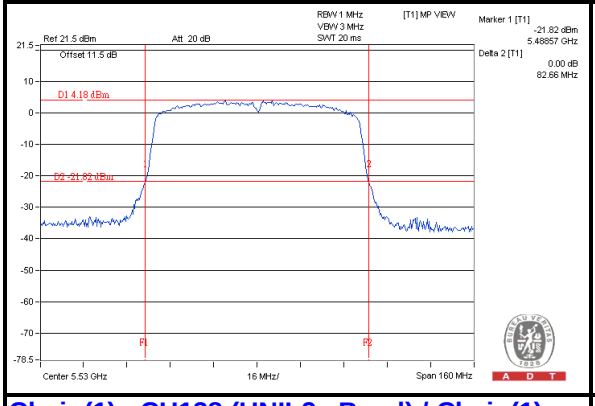
Chain(1) : CH42



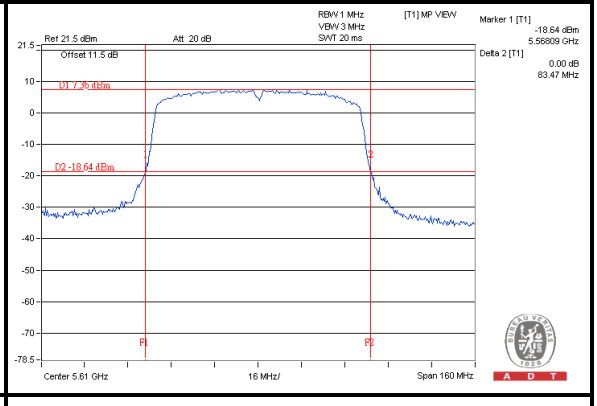
Chain(1) : CH58



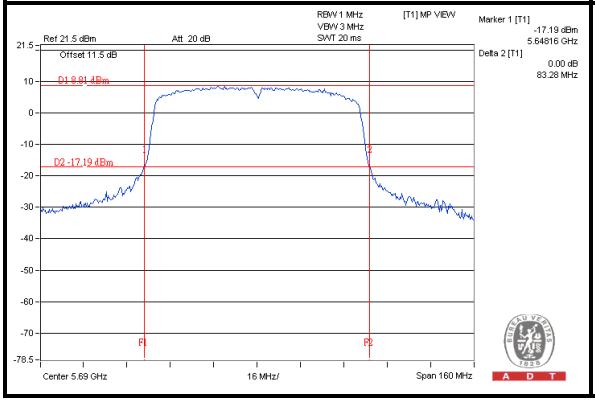
Chain(1) : CH106



Chain(1) : CH122



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



NOTE:

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

For CH138 (UNII-3 Band) = Delta 2 - CH138 (UNII-2c Band) BW

4.2 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.2.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	
		Indoor Access Point	
	√	Mobile and Portable client device	11dBm/ MHz
U-NII-2A	---		11dBm/ MHz
U-NII-2C	---		11dBm/ MHz
U-NII-3	---		30dBm/ 500kHz

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSV 40	100964	July 15, 2013	July 14, 2014

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : July 02, 2014

4.2.3 TEST PROCEDURES

For U-NII-1, U-NII-2A & U-NII-2C:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
3. Sweep time = auto, trigger set to “free run”.
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value and for duty cycle of test signal is < 98% add 10 log (1/duty cycle)

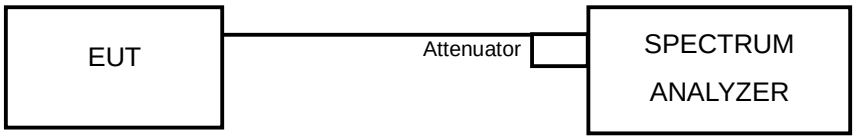
For U-NII-3:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(500 kHz/300kHz)
5. Sweep time = auto, trigger set to “free run”.
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value and for duty cycle of test signal is < 98% add 10 log (1/duty cycle)

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



4.2.6 EUT OPERATING CONDITIONS

Same as the 4.1.6

4.2.7 TEST RESULTS

For U-NII-1, U-NII-2A & U-NII-2C:

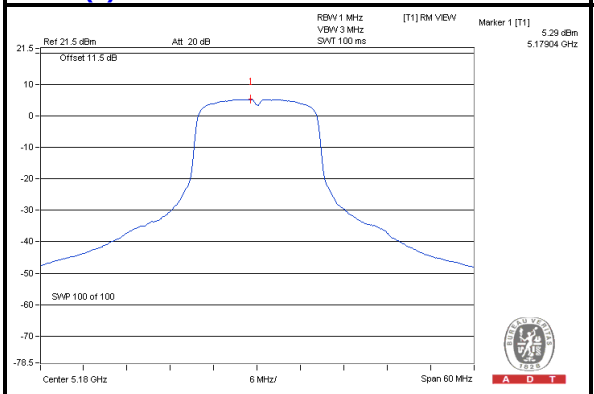
802.11a

CHAN.	CHANNEL FREQUENCY (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
36	5180	5.29	4.30	7.83	10.91	PASS
40	5200	6.82	5.13	9.07	10.91	PASS
48	5240	6.77	5.27	9.09	10.91	PASS
52	5260	6.81	5.23	9.10	10.91	PASS
60	5300	6.61	5.09	8.93	10.91	PASS
64	5320	2.91	2.37	5.66	10.91	PASS
100	5500	2.44	1.63	5.06	9.23	PASS
120	5600	5.04	5.97	8.54	9.23	PASS
140	5700	2.28	1.52	4.93	9.23	PASS
144 (UNII-2c Band)	5720	2.26	2.31	5.30	9.23	PASS

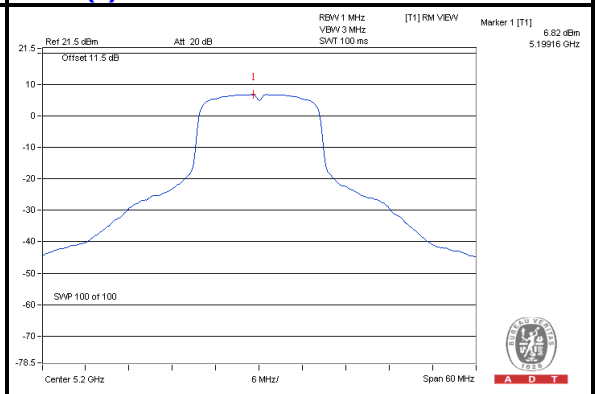
NOTE:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. 5150~5250MHz: Directional gain = 3.08dBi + 10log(2) = 6.09dBi > 6dBi , so the power density limit shall be reduced to 11-(6.09-6) = 10.91dBm.
3. 5250~5350MHz: Directional gain = 3.08dBi + 10log(2) = 6.09dBi > 6dBi, so the power density limit shall be reduced to 11-(6.09-6) = 10.91dBm.
4. 5470~5725MHz: Directional gain = 4.76dBi + 10log(2) = 7.77dBi > 6dB, so the power density limit shall be reduced to 11-(7.77-6) = 9.23dBm.

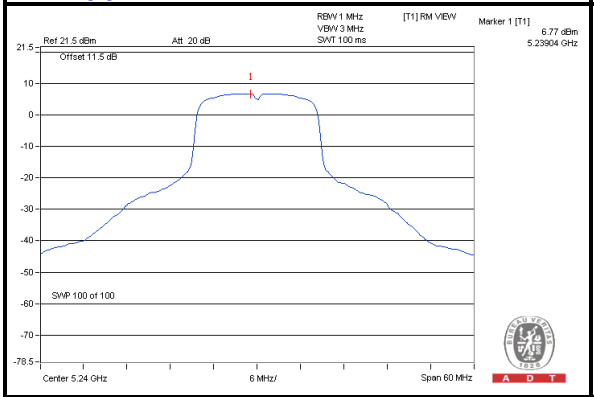
Chain(0) : CH36



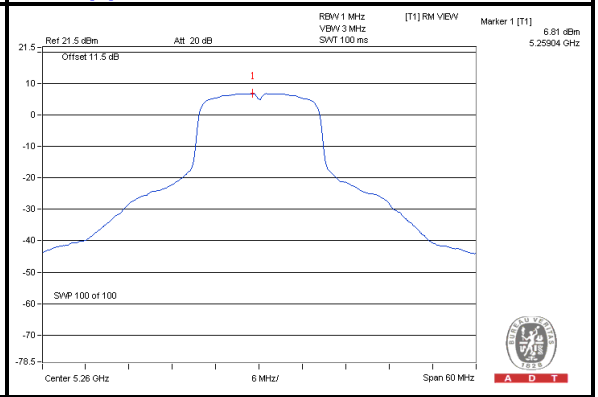
Chain(0) : CH40



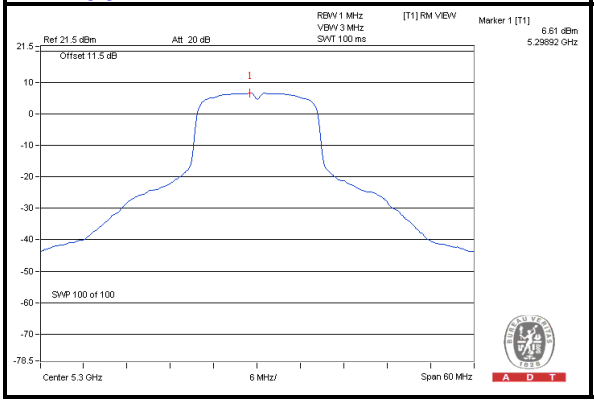
Chain(0) : CH48



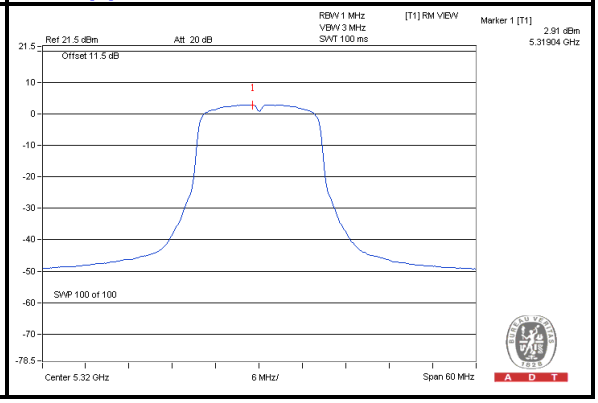
Chain(0) : CH52



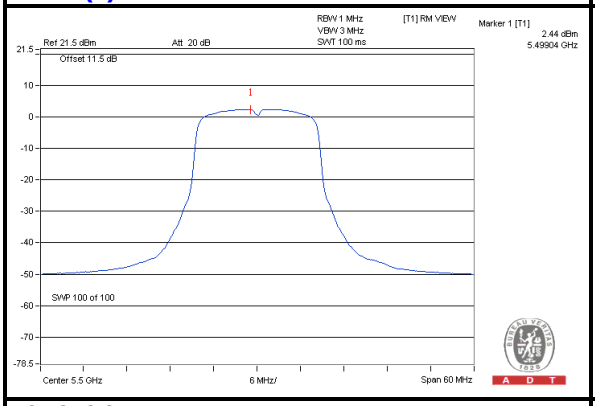
Chain(0) : CH60



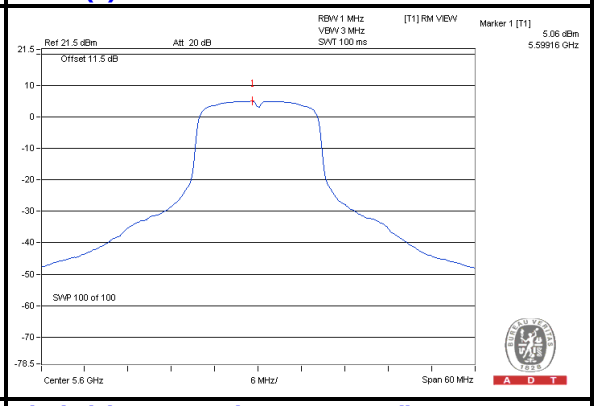
Chain(0) : CH64



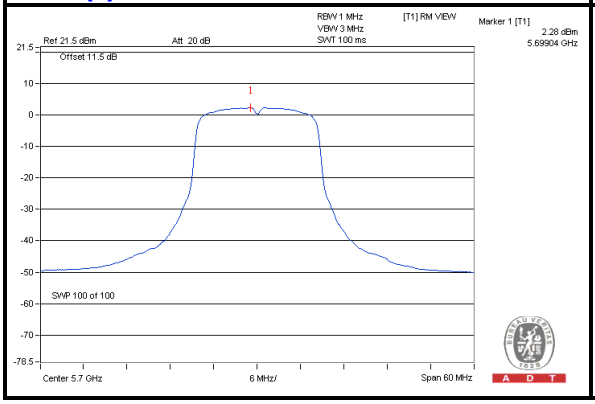
Chain(0) : CH100



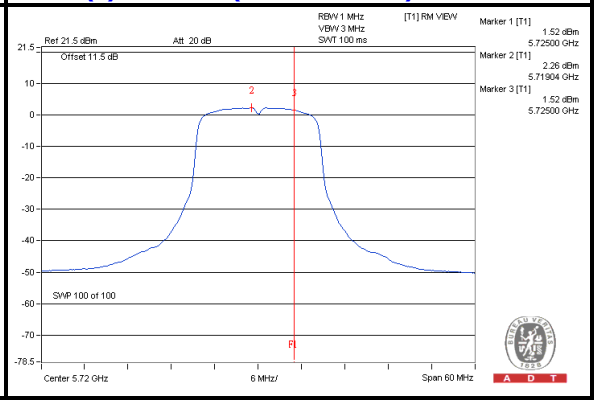
Chain(0) : CH120



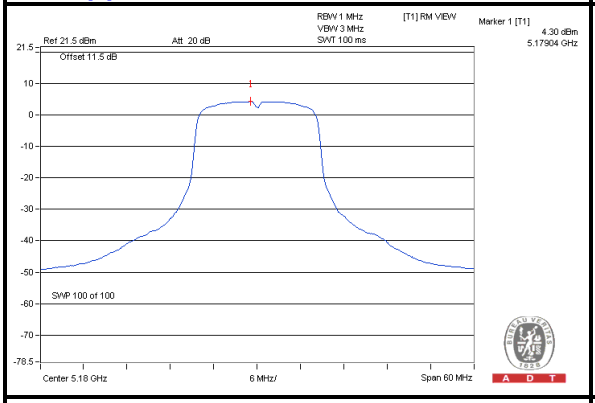
Chain(0) : CH140



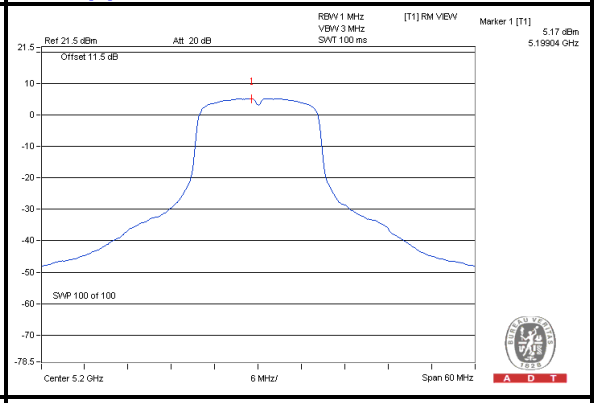
Chain(0) : CH144 (UNII-2c Band)



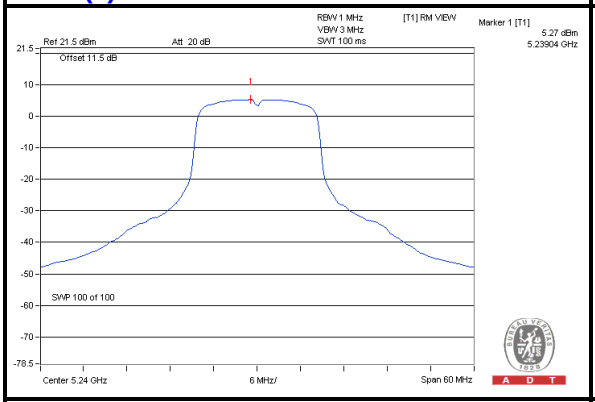
Chain(1) : CH36



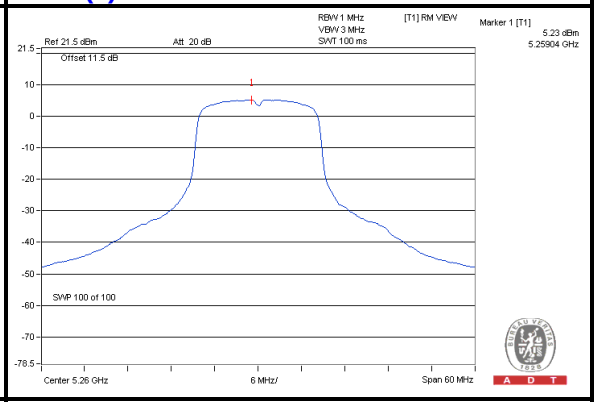
Chain(1) : CH40



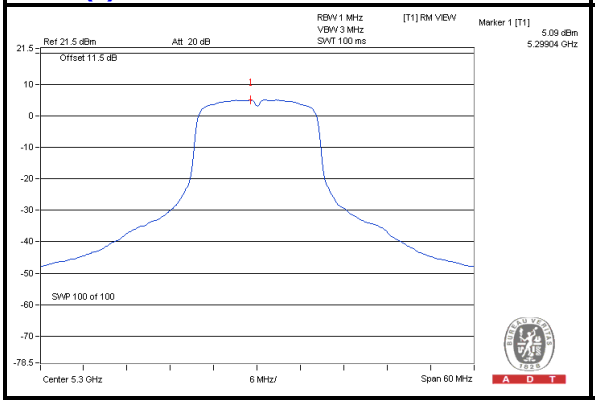
Chain(1) : CH48



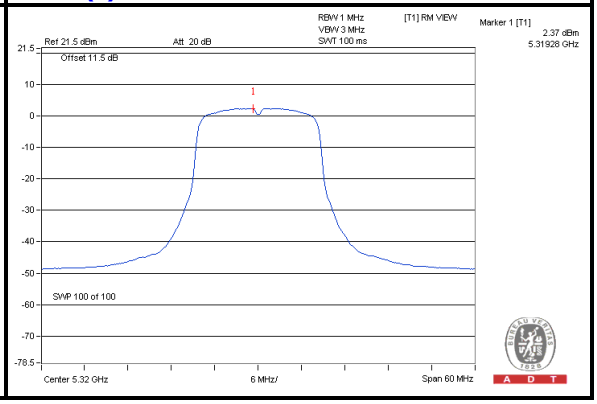
Chain(1) : CH52



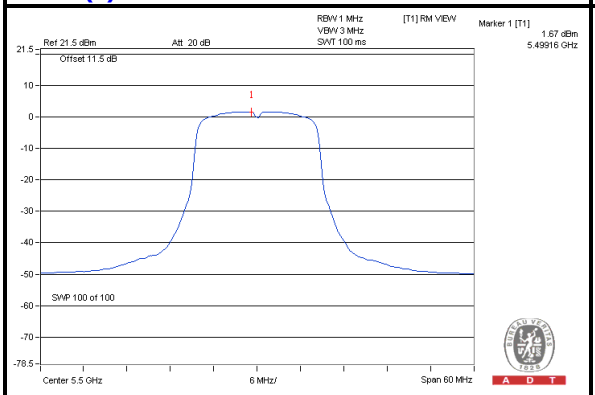
Chain(1) : CH60



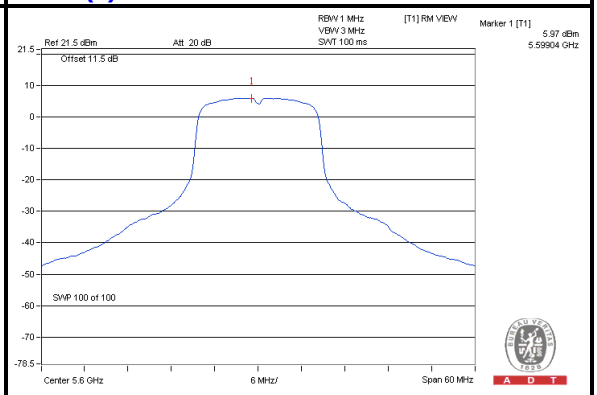
Chain(1) : CH64



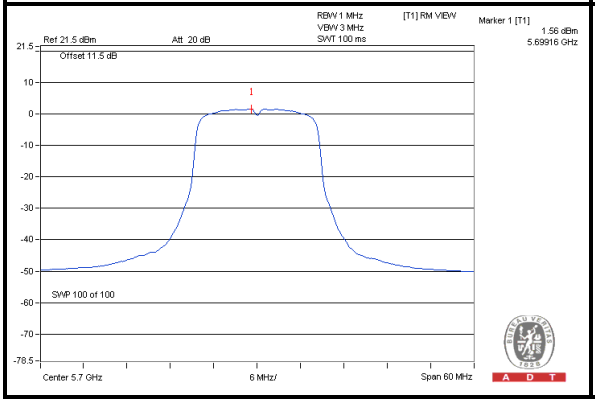
Chain(1) : CH100



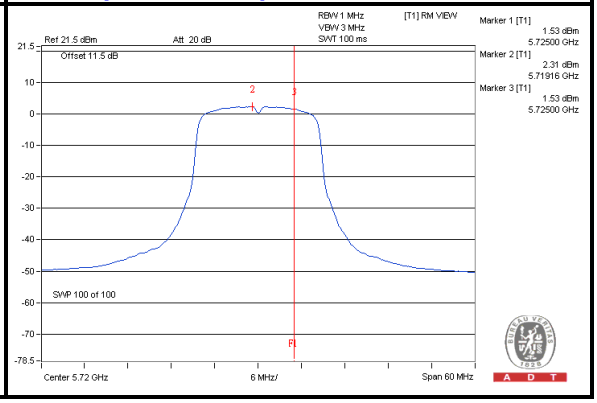
Chain(1) : CH120



Chain(1) : CH140



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



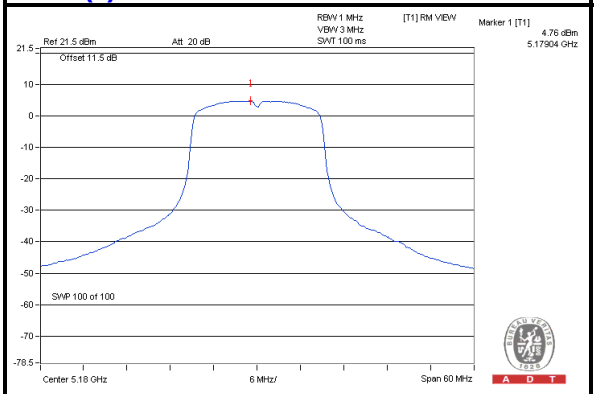
802.11ac (VHT20)

CHAN.	CHANNEL FREQUENCY (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
36	5180	4.76	2.83	6.91	10.91	PASS
40	5200	6.27	4.84	8.62	10.91	PASS
48	5240	6.46	5.78	9.14	10.91	PASS
52	5260	6.16	5.64	8.92	10.91	PASS
60	5300	6.15	5.58	8.88	10.91	PASS
64	5320	1.51	2.03	4.79	10.91	PASS
100	5500	1.96	2.27	5.13	9.23	PASS
120	5600	6.34	5.59	8.99	9.23	PASS
140	5700	1.82	2.09	4.97	9.23	PASS
144 (UNII-2c Band)	5720	1.76	1.97	4.88	9.23	PASS

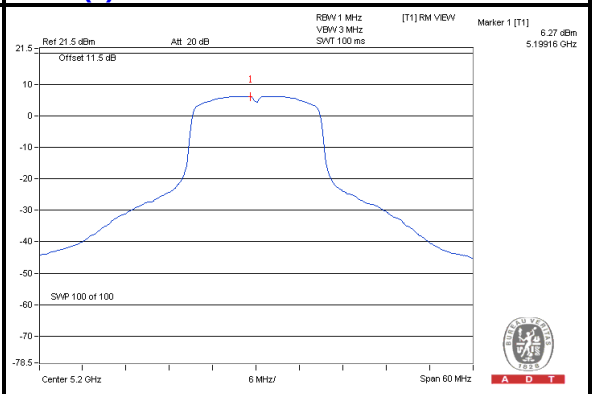
NOTE:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. 5150~5250MHz: Directional gain = 3.08dBi + 10log(2) = 6.09dBi > 6dBi , so the power density limit shall be reduced to 11-(6.09-6) = 10.91dBm.
3. 5250~5350MHz: Directional gain = 3.08dBi + 10log(2) = 6.09dBi > 6dBi, so the power density limit shall be reduced to 11-(6.09-6) = 10.91dBm.
4. 5470~5725MHz: Directional gain = 4.76dBi + 10log(2) = 7.77dBi > 6dB, so the power density limit shall be reduced to 11-(7.77-6) = 9.23dBm.

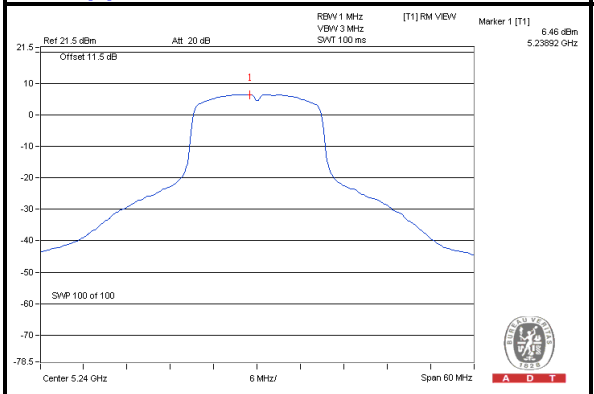
Chain(0) : CH36



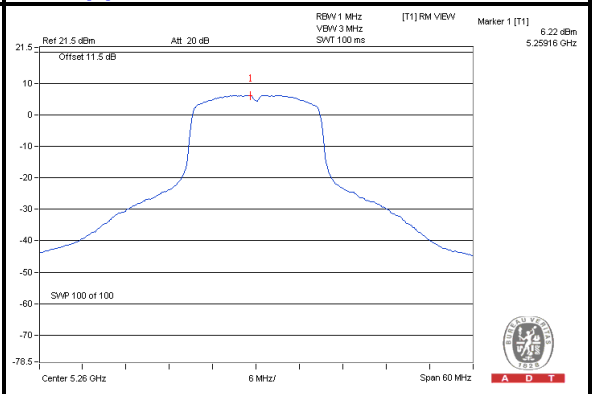
Chain(0) : CH40



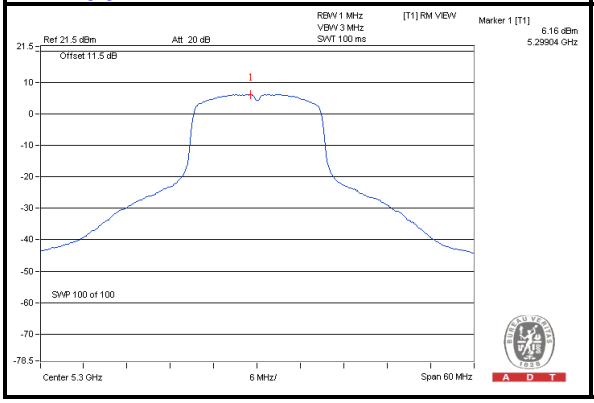
Chain(0) : CH48



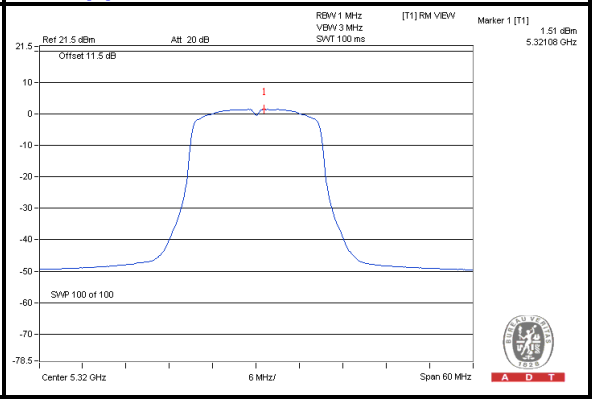
Chain(0) : CH52



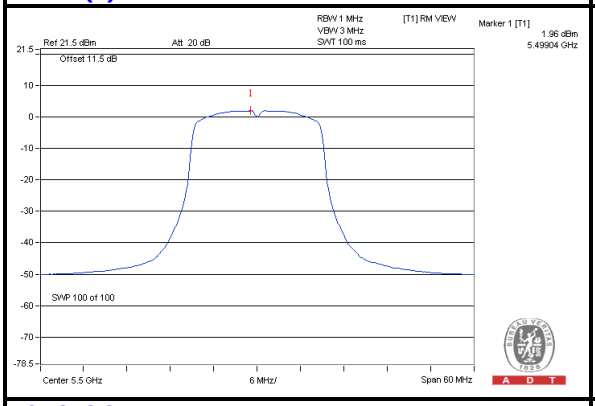
Chain(0) : CH60



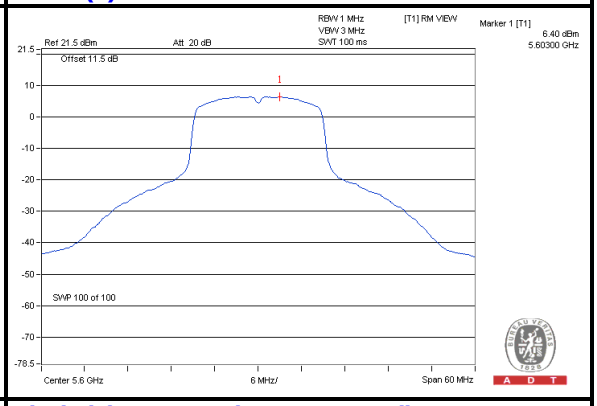
Chain(0) : CH64



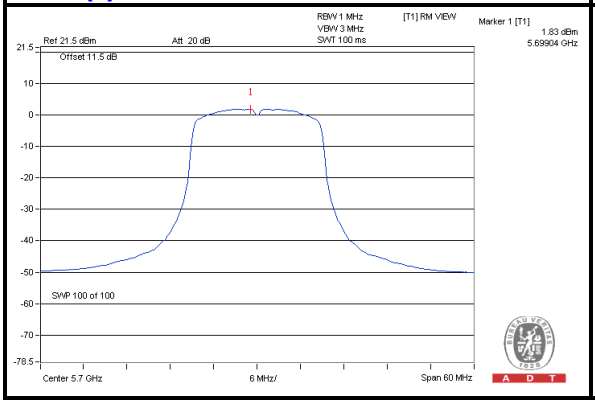
Chain(0) : CH100



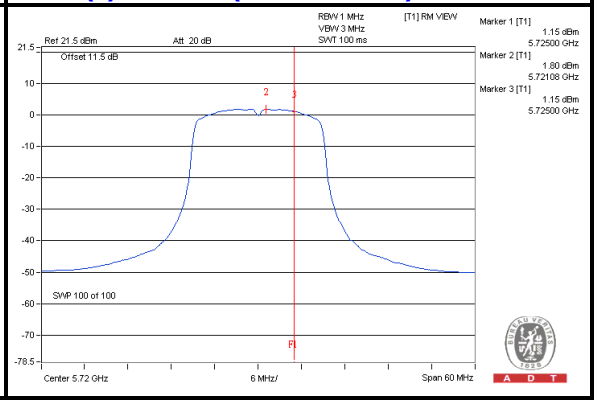
Chain(0) : CH120



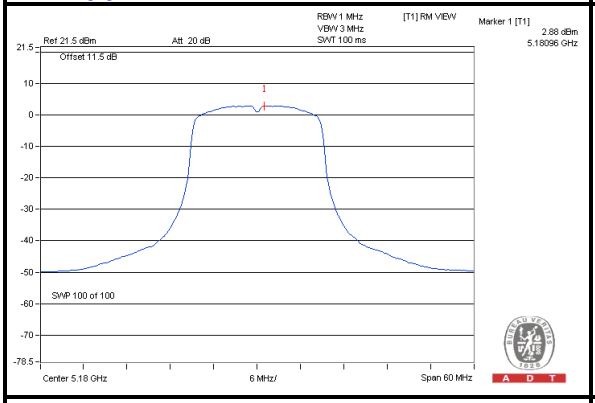
Chain(0) : CH140



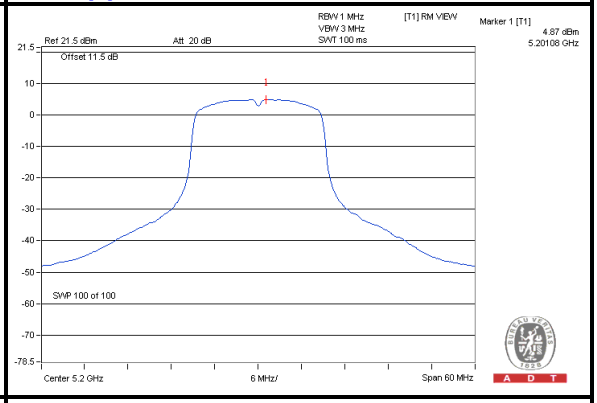
Chain(0) : CH144 (UNII-2c Band)



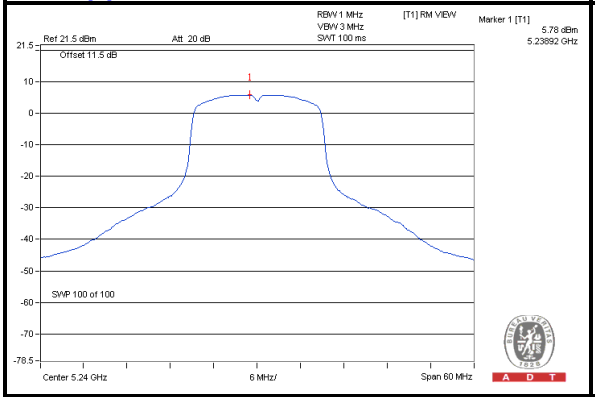
Chain(1) : CH36



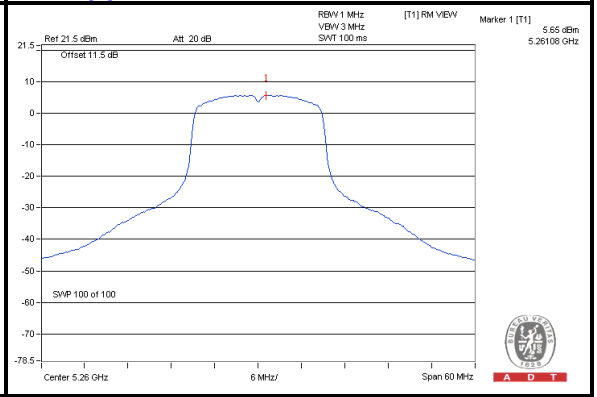
Chain(1) : CH40



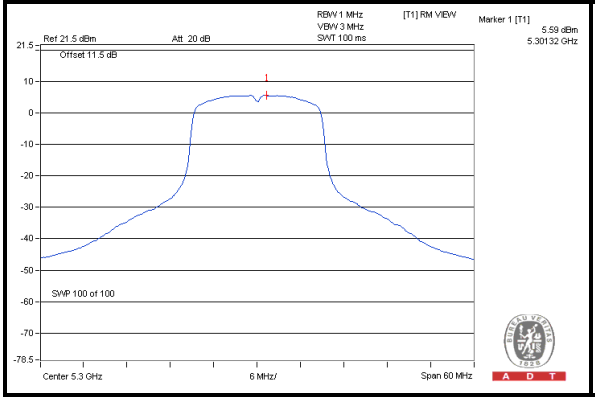
Chain(1) : CH48



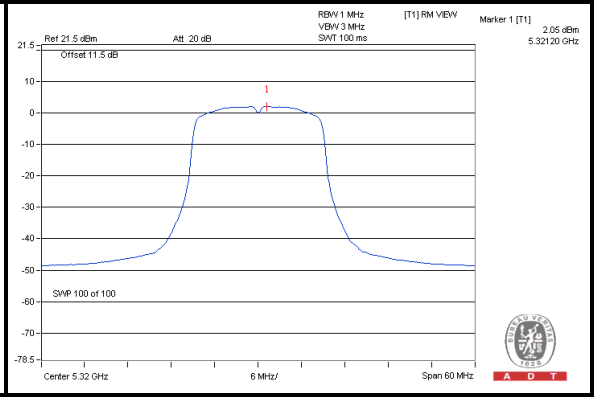
Chain(1) : CH52



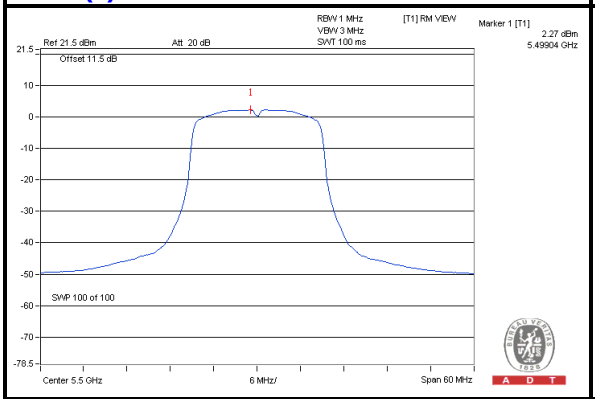
Chain(1) : CH60



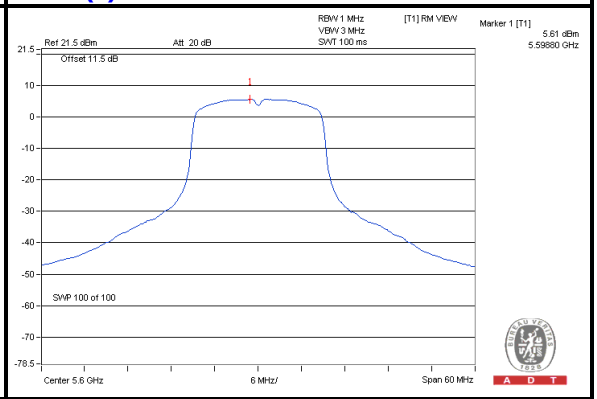
Chain(1) : CH64



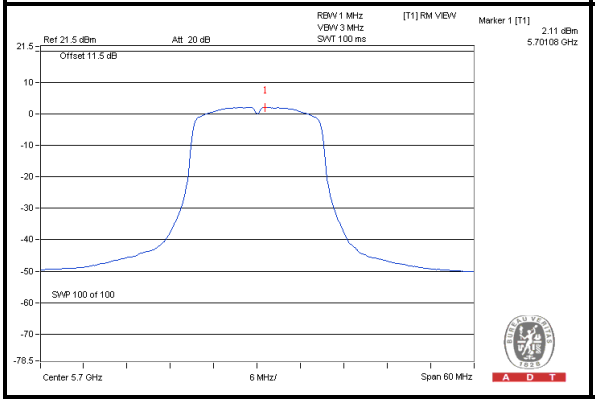
Chain(1) : CH100



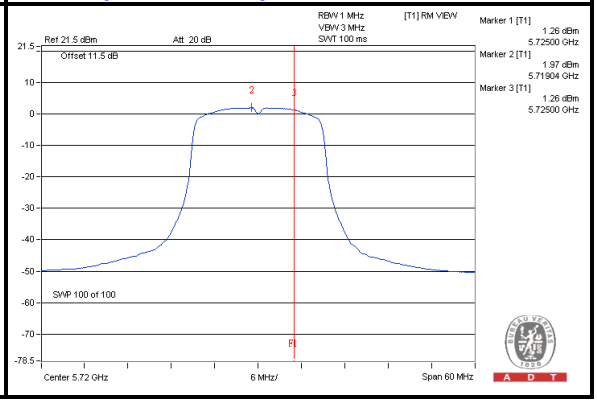
Chain(1) : CH120



Chain(1) : CH140



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



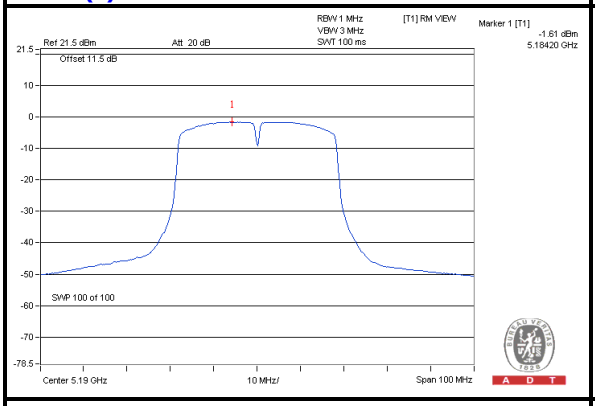
802.11ac (VHT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)		DUTY FACTOR (dB)	TOTAL PSD WITH DUTY FACTOR (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	-1.67	-2.54	0.09	1.02	10.91	PASS
46	5230	2.99	2.23	0.09	5.73	10.91	PASS
54	5270	2.70	2.20	0.09	5.56	10.91	PASS
62	5310	-1.03	-0.63	0.09	2.28	10.91	PASS
102	5510	-1.44	-1.26	0.09	1.76	9.23	PASS
118	5590	2.81	2.16	0.09	5.60	9.23	PASS
134	5670	0.33	-0.31	0.09	3.13	9.23	PASS
142 (UNII-2c Band)	5710	0.28	-0.52	0.09	3.01	9.23	PASS

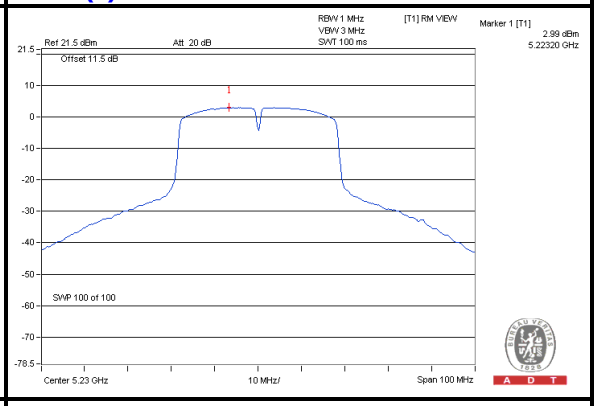
NOTE:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. 5150~5250MHz: Directional gain = 3.08dBi + 10log(2) = 6.09dBi > 6dBi , so the power density limit shall be reduced to 11-(6.09-6) = 10.91dBm.
3. 5250~5350MHz: Directional gain = 3.08dBi + 10log(2) = 6.09dBi > 6dBi, so the power density limit shall be reduced to 11-(6.09-6) = 10.91dBm.
4. 5470~5725MHz: Directional gain = 4.76dBi + 10log(2) = 7.77dBi > 6dB, so the power density limit shall be reduced to 11-(7.77-6) = 9.23dBm.
5. Refer to section 3.4 for duty cycle spectrum plot.

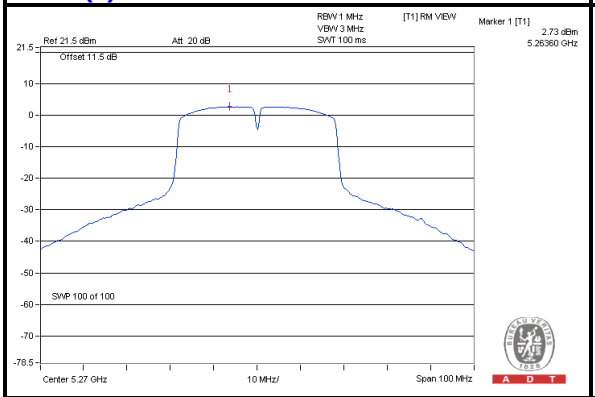
Chain(0) : CH38



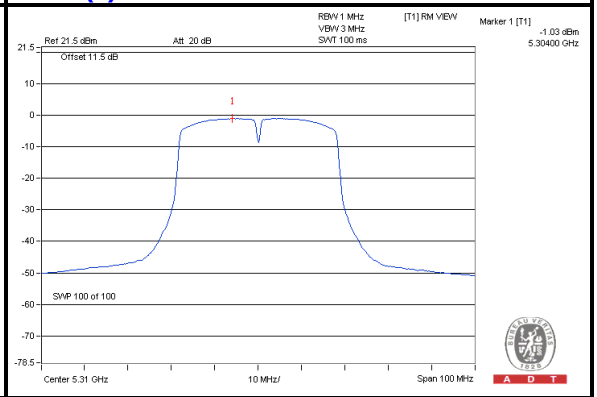
Chain(0) : CH46



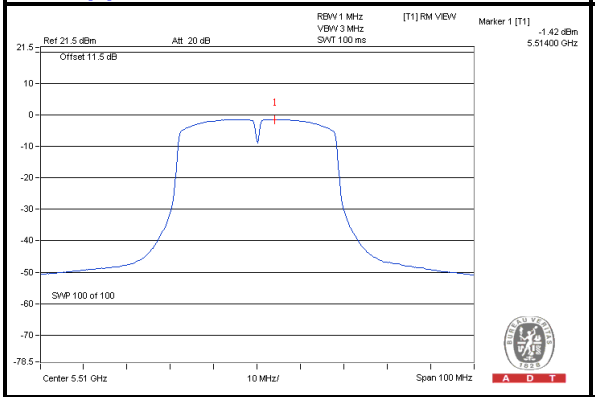
Chain(0) : CH54



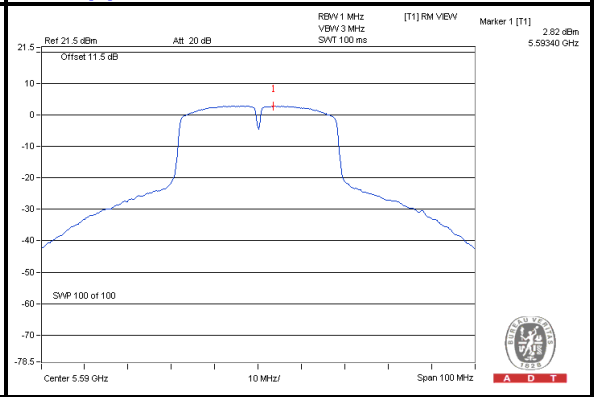
Chain(0) : CH62



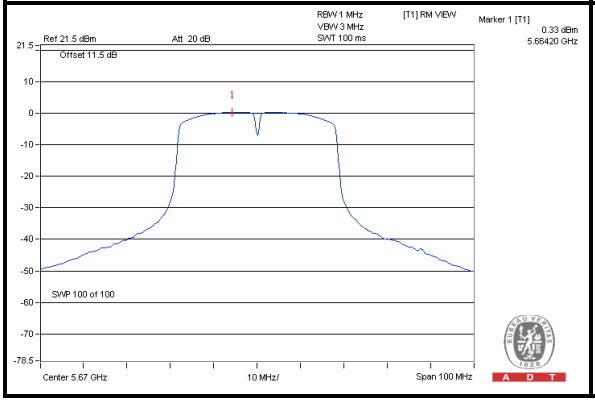
Chain(0) : CH102



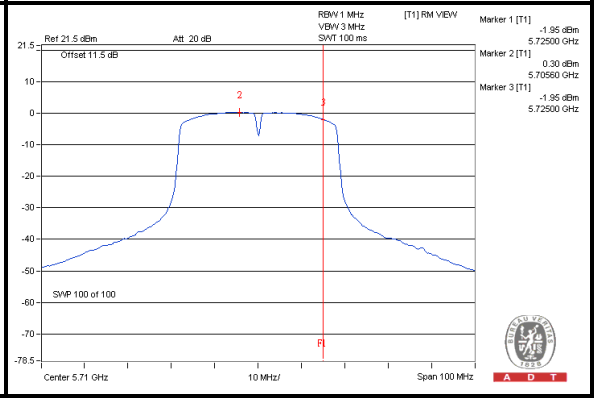
Chain(0) : CH118



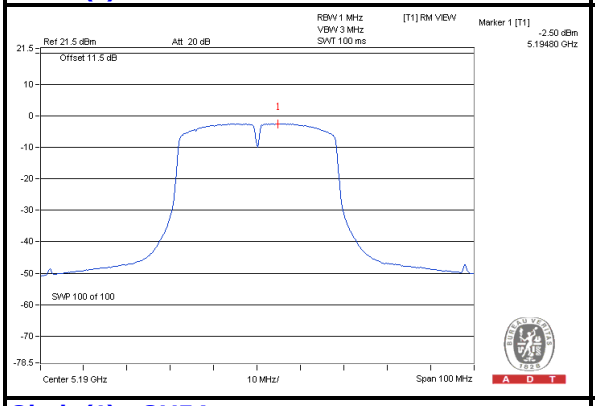
Chain(0) : CH134



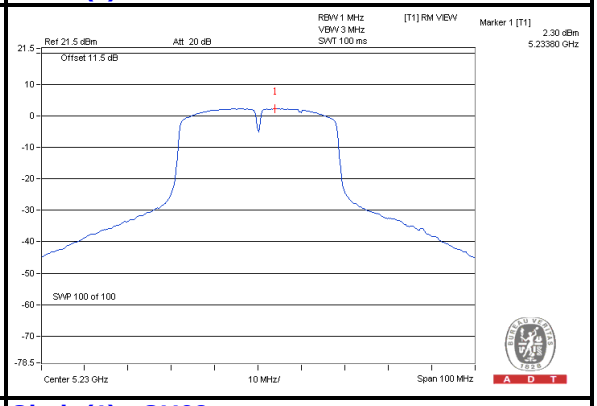
Chain(0) : CH142 (UNII-2c Band)



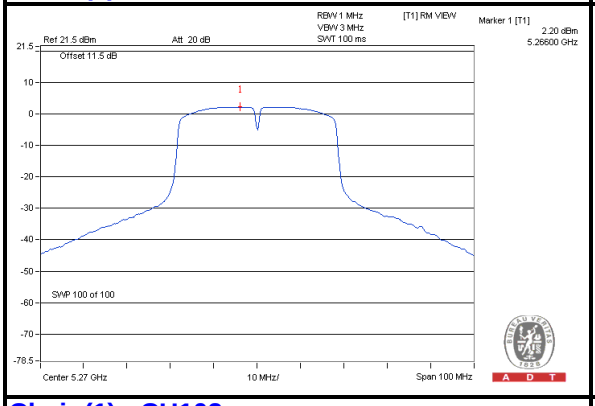
Chain(1) : CH38



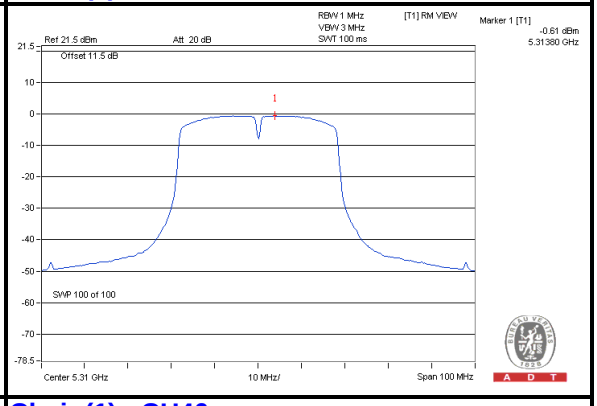
Chain(1) : CH46



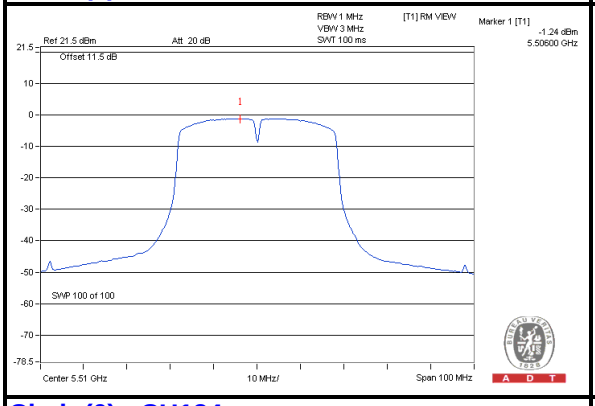
Chain(1) : CH54



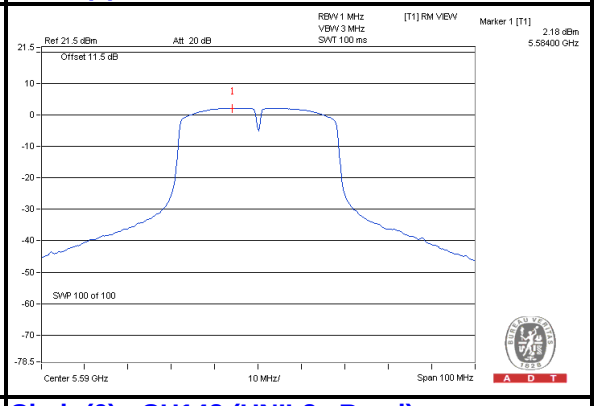
Chain(1) : CH62



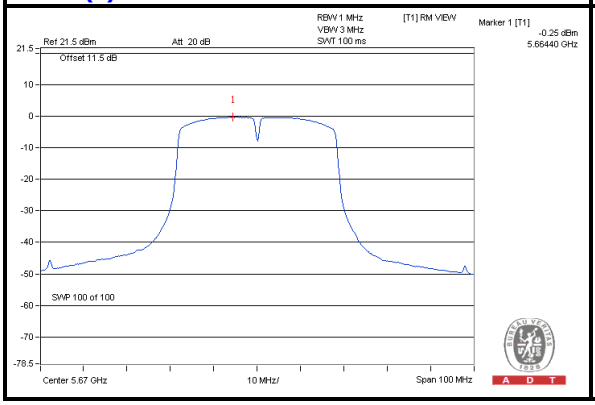
Chain(1) : CH102



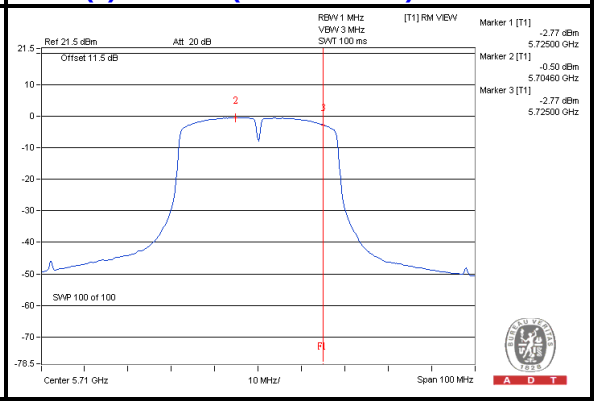
Chain(1) : CH46



Chain(0) : CH134



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



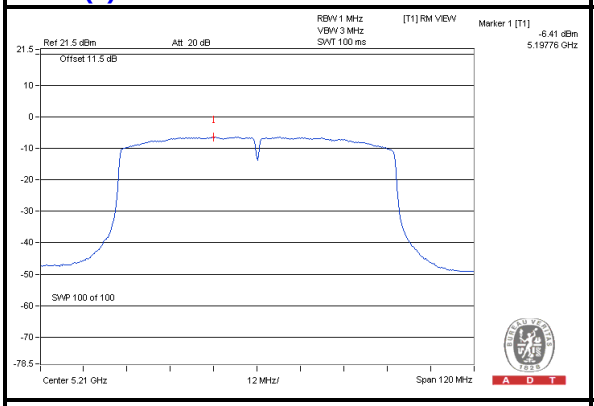
802.11ac (VHT80)

CHANNEL	CHANNEL FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)		DUTY FACTOR (dB)	TOTAL PSD WITH DUTY FACTOR (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
42	5210	-6.48	-7.42	0.21	-3.71	10.91	PASS
58	5290	-6.65	-7.35	0.21	-3.77	10.91	PASS
106	5530	-6.21	-7.32	0.21	-3.51	9.23	PASS
122	5610	-2.59	-3.49	0.21	0.20	9.23	PASS
138 (UNII-2c Band)	5690	-2.63	-2.44	0.21	0.69	9.23	PASS

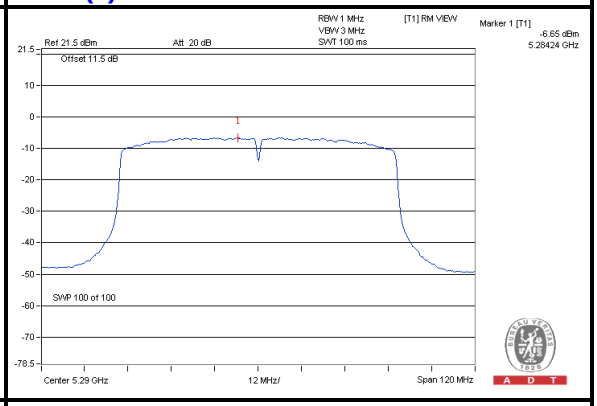
NOTE:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. 5150~5250MHz: Directional gain = 3.08dBi + 10log(2) = 6.09dBi > 6dBi , so the power density limit shall be reduced to 11-(6.09-6) = 10.91dBm.
3. 5250~5350MHz: Directional gain = 3.08dBi + 10log(2) = 6.09dBi > 6dBi, so the power density limit shall be reduced to 11-(6.09-6) = 10.91dBm.
4. 5470~5725MHz: Directional gain = 4.76dBi + 10log(2) = 7.77dBi > 6dB, so the power density limit shall be reduced to 11-(7.77-6) = 9.23dBm.
5. Refer to section 3.4 for duty cycle spectrum plot.

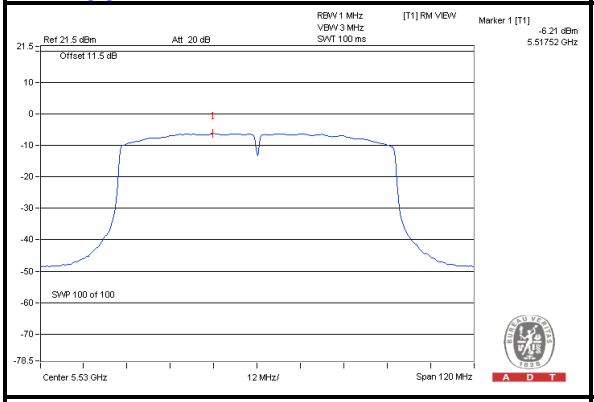
Chain(0) : CH42



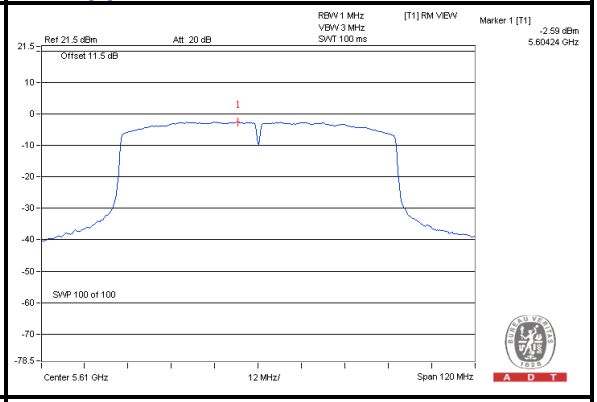
Chain(0) : CH58



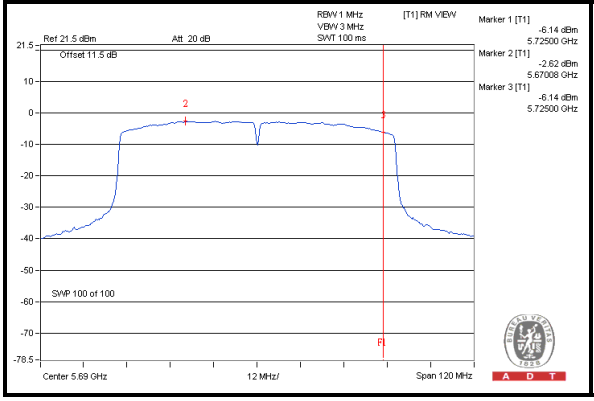
Chain(0) : CH106



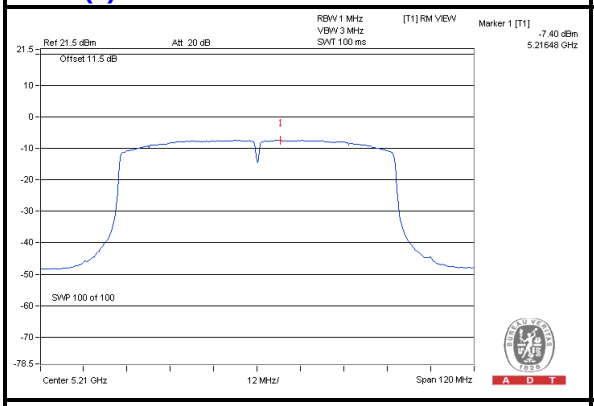
Chain(0) : CH122



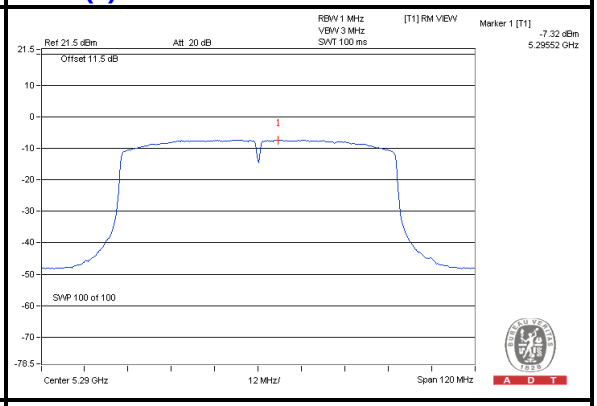
Chain(0) : CH138 (UNII-2c Band)



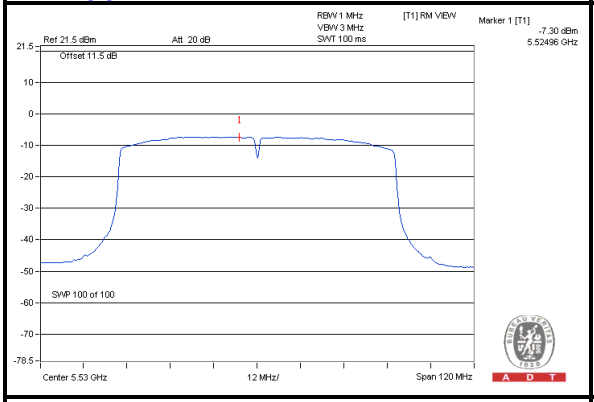
Chain(1) : CH42



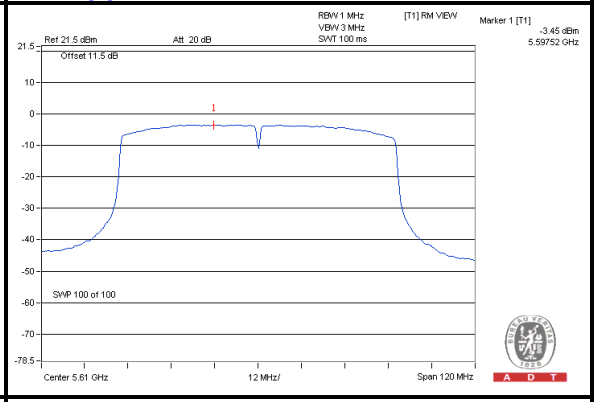
Chain(1) : CH58



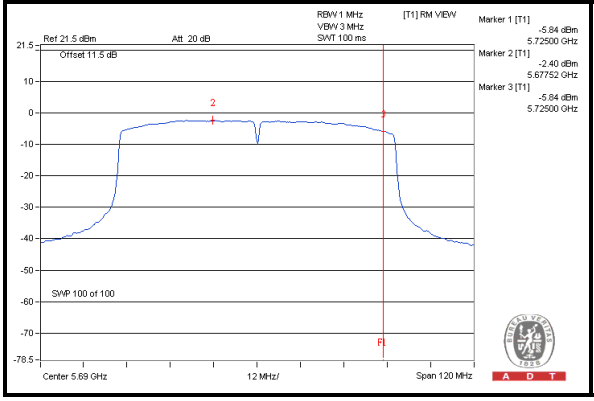
Chain(1) : CH106



Chain(1) : CH122



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



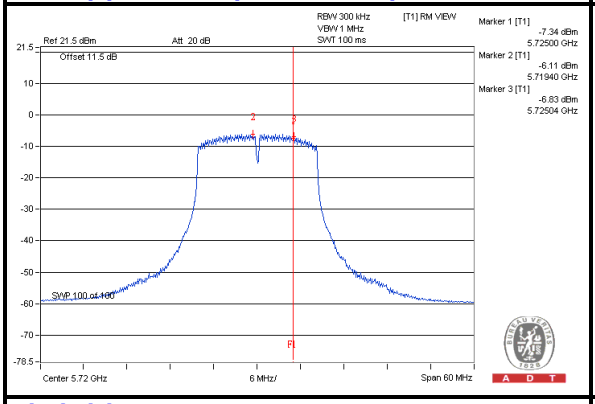
For U-NII-3:

802.11a

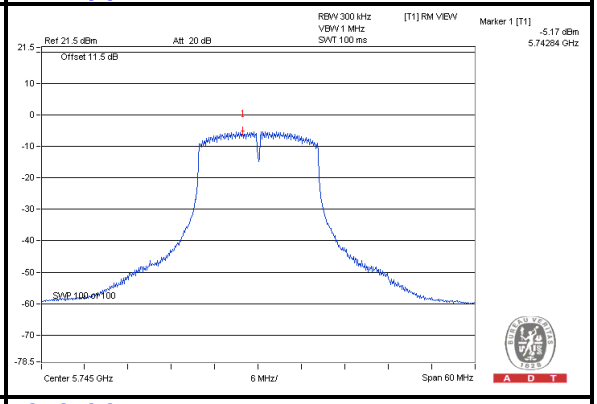
TX CHAIN	CHANNEL	FREQUENCY (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=2) dB	TOTAL PSD (dBm/500kHz)	LIMIT (dBm/500kHz)	PASS /FAIL
0	144 (UNII-3 Band)	5720	-6.83	-4.61	3.01	-1.60	28.23	PASS
	149	5745	-5.17	-2.95	3.01	0.06	28.23	PASS
	157	5785	-2.05	0.17	3.01	3.18	28.23	PASS
	165	5825	-2.36	-0.14	3.01	2.87	28.23	PASS
1	144 (UNII-3 Band)	5720	-7.43	-5.21	3.01	-2.20	28.23	PASS
	149	5745	-5.24	-3.02	3.01	-0.01	28.23	PASS
	157	5785	-2.75	-0.53	3.01	2.48	28.23	PASS
	165	5825	-2.24	-0.02	3.01	2.99	28.23	PASS

NOTE: 1. **5725~5825MHz:** Directional gain = 4.76dBi + 10log(2) = 7.77dBi > 6dB, so the power density limit shall be reduced to 30-(7.77-6) = 28.23dBm.

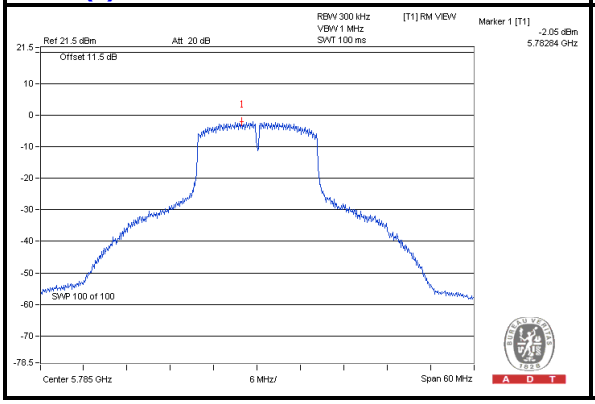
Chain(0) : CH144 (UNII-3 Band)



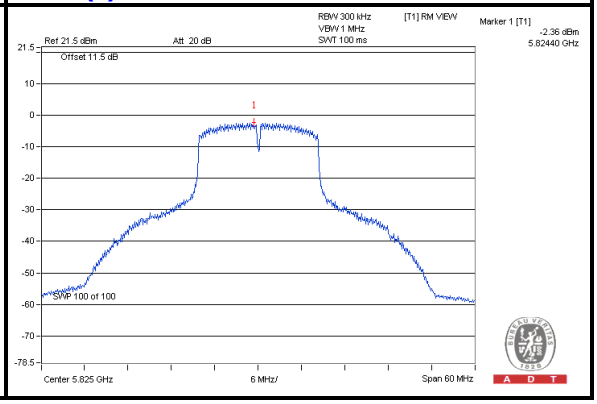
Chain(0) : CH149



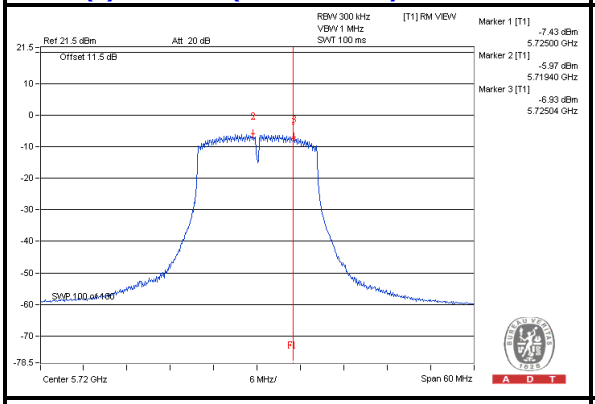
Chain(0) : CH157



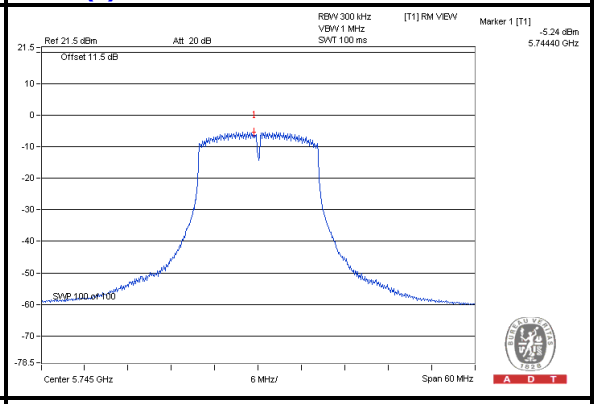
Chain(0) : CH165



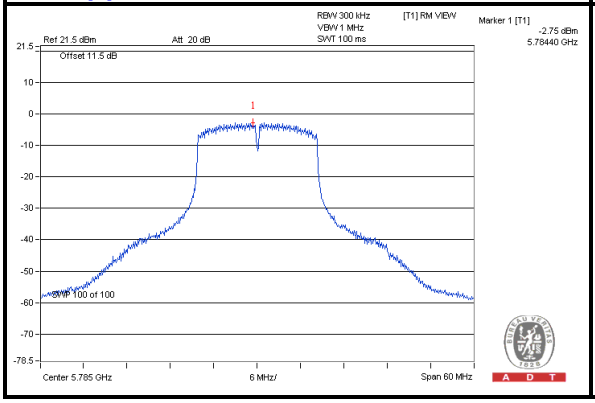
Chain(1) : CH144 (UNII-3 Band)



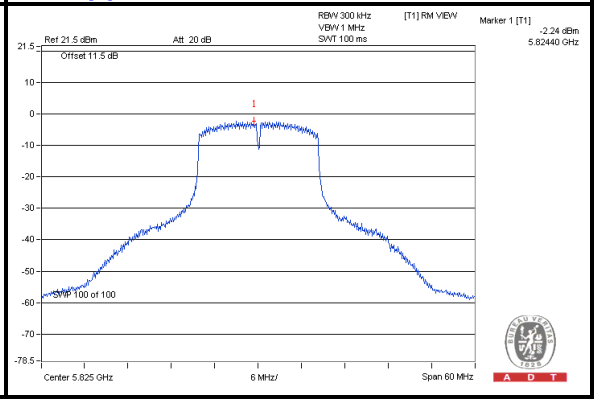
Chain(1) : CH149



Chain(1) : CH157



Chain(1) : CH165

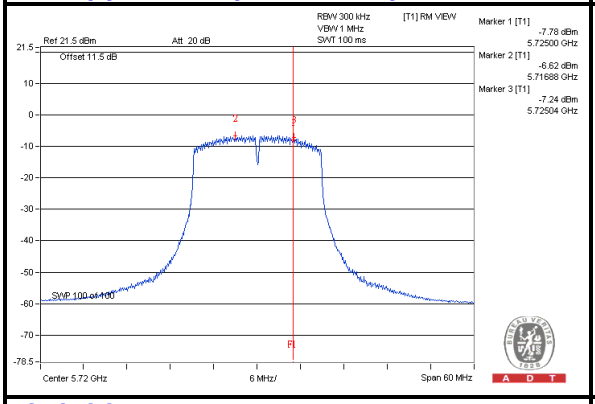


802.11ac (VHT20)

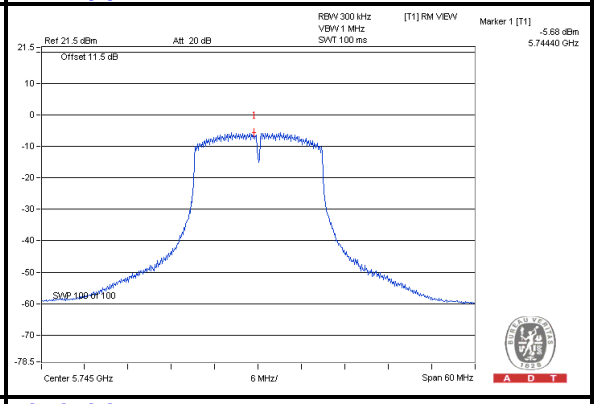
TX CHAIN	CHANNEL	FREQUENCY (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=2) dB	TOTAL PSD (dBm/500kHz)	LIMIT (dBm/500kHz)	PASS /FAIL
0	144 (UNII-3 Band)	5720	-7.24	-5.02	3.01	-2.01	28.23	PASS
	149	5745	-5.68	-3.46	3.01	-0.45	28.23	PASS
	157	5785	-3.40	-1.18	3.01	1.83	28.23	PASS
	165	5825	-2.77	-0.55	3.01	2.46	28.23	PASS
1	144 (UNII-3 Band)	5720	-7.62	-5.40	3.01	-2.39	28.23	PASS
	149	5745	-5.67	-3.45	3.01	-0.44	28.23	PASS
	157	5785	-3.28	-1.06	3.01	1.95	28.23	PASS
	165	5825	-3.54	-1.32	3.01	1.69	28.23	PASS

NOTE: 1. **5725~5825MHz:** Directional gain = 4.76dBi + 10log(2) = 7.77dBi > 6dB, so the power density limit shall be reduced to 30-(7.77-6) = 28.23dBm.

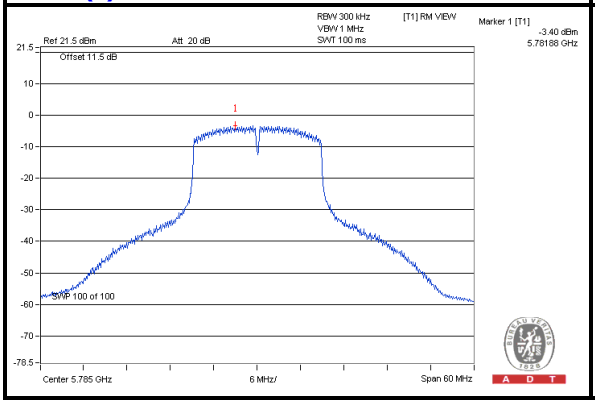
Chain(0) : CH144 (UNII-3 Band)



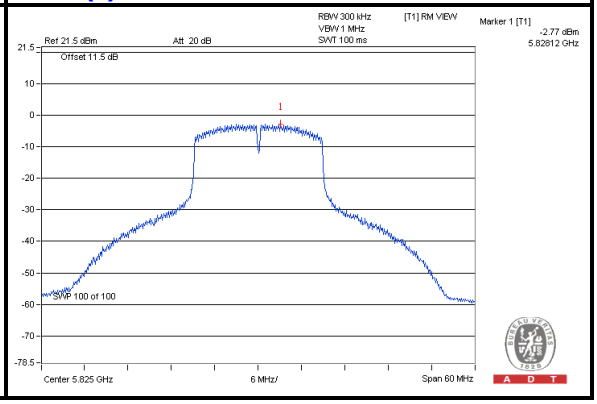
Chain(0) : CH149



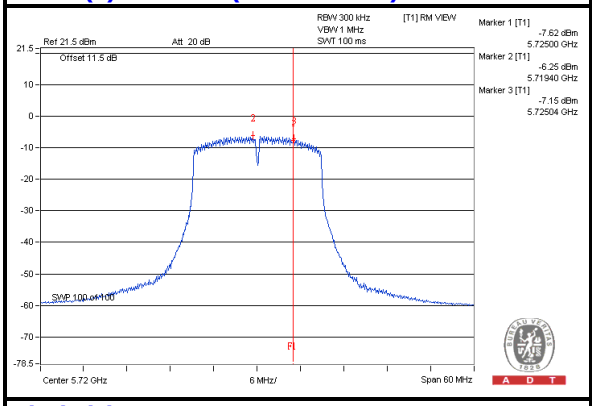
Chain(0) : CH157



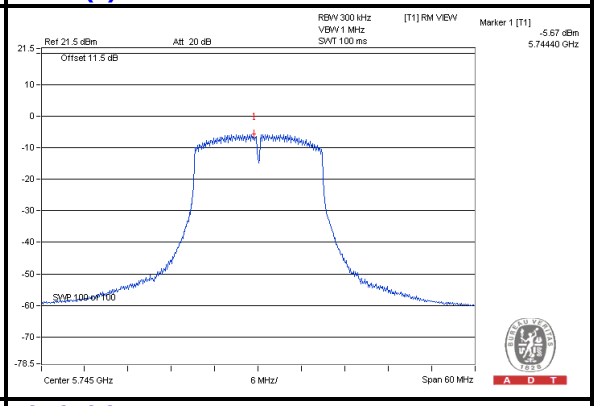
Chain(0) : CH165



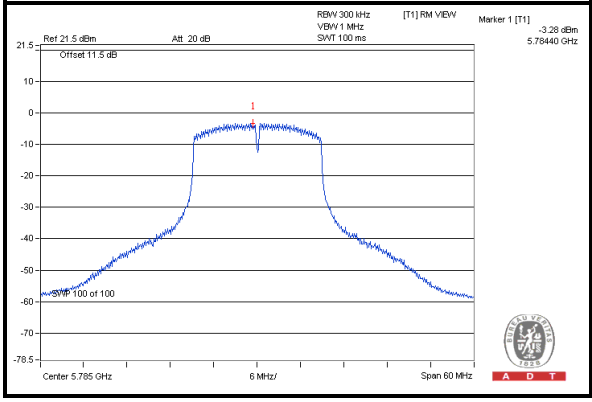
Chain(1) : CH144 (UNII-3 Band)



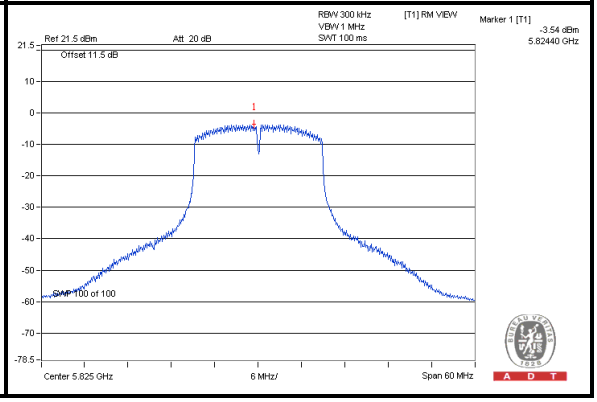
Chain(1) : CH149



Chain(1) : CH157



Chain(1) : CH165



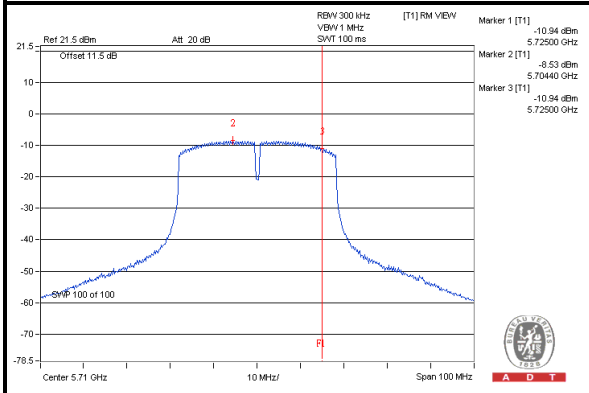
802.11ac (VHT40)

TX CHAIN	CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR		10 log (N=2) dB	DUTY FACTOR (dB)	TOTAL PSD WITH DUTY FACTOR (dBm/500kHz)	LIMIT (dBm/500kHz)	PASS /FAIL
			(dBm/300kHz)	(dBm/500kHz)					
0	142 (UNII-3 Band)	5710	-10.94	-8.72	3.01	0.09	-5.62	28.23	PASS
	151	5755	-10.48	-8.26	3.01	0.09	-5.16	28.23	PASS
	159	5795	-6.40	-4.18	3.01	0.09	-1.08	28.23	PASS
1	142 (UNII-3 Band)	5710	-11.95	-9.73	3.01	0.09	-6.63	28.23	PASS
	151	5755	-10.47	-8.25	3.01	0.09	-5.15	28.23	PASS
	159	5795	-7.04	-4.82	3.01	0.09	-1.72	28.23	PASS

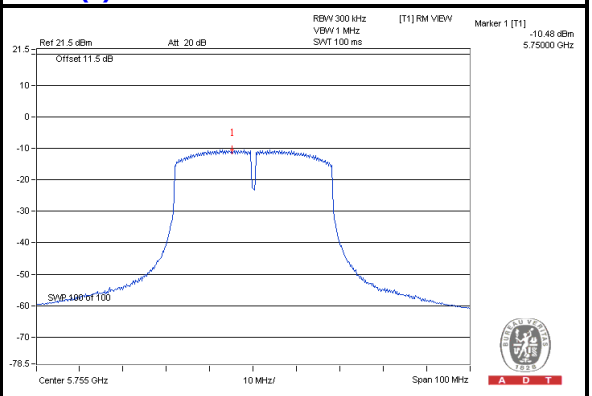
NOTE: 1. **5725~5825MHz:** Directional gain = 4.76dBi + 10log(2) = 7.77dBi > 6dB, so the power density limit shall be reduced to 30-(7.77-6) = 28.23dBm.

2. Refer to section 3.4 for duty cycle spectrum plot.

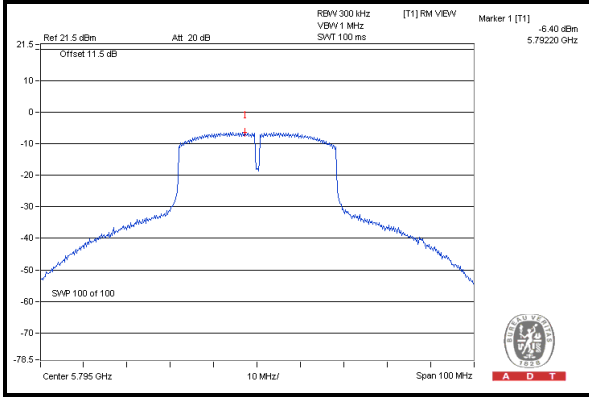
Chain(0) : CH142 (UNII-3 Band)



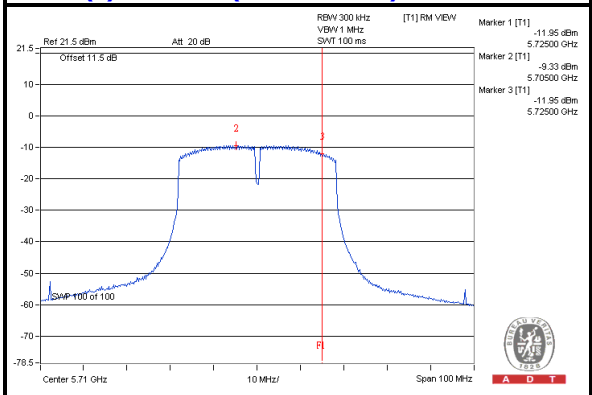
Chain(0) : CH151



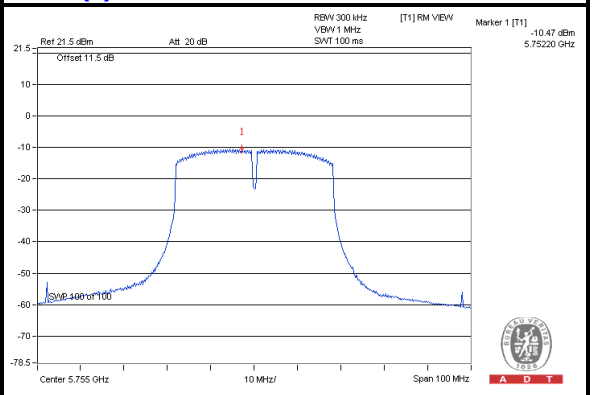
Chain(0) : CH159



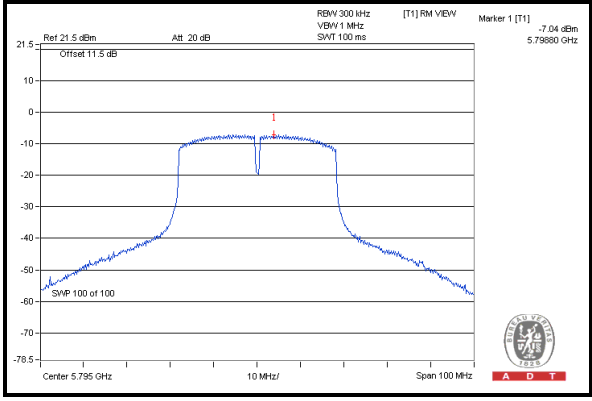
Chain(1) : CH142 (UNII-3 Band)



Chain(1) : CH151



Chain(1) : CH159



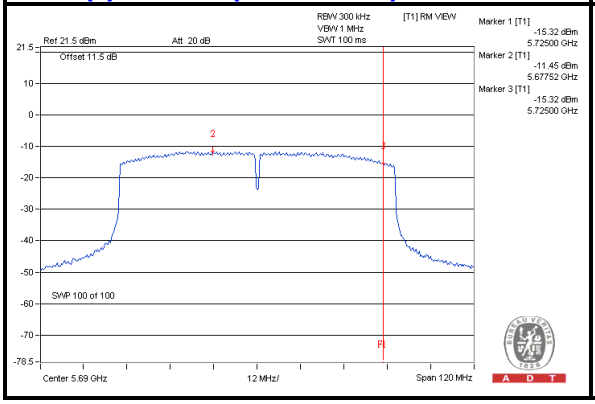
802.11ac (VHT80)

TX CHAIN	CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR		10 log (N=2) dB	DUTY FACTOR (dB)	TOTAL PSD WITH DUTY FACTOR (dBm/500kHz)	LIMIT (dBm/500kHz)	PASS /FAIL
			(dBm/300kHz)	(dBm/500kHz)					
0	138 (UNII-3 Band)	5690	-15.32	-13.10	3.01	0.21	-9.88	28.23	PASS
	155	5775	-14.47	-12.25	3.01	0.21	-9.03	28.23	PASS
1	138 (UNII-3 Band)	5690	-14.97	-12.75	3.01	0.21	-9.53	28.23	PASS
	155	5775	-14.75	-12.53	3.01	0.21	-9.31	28.23	PASS

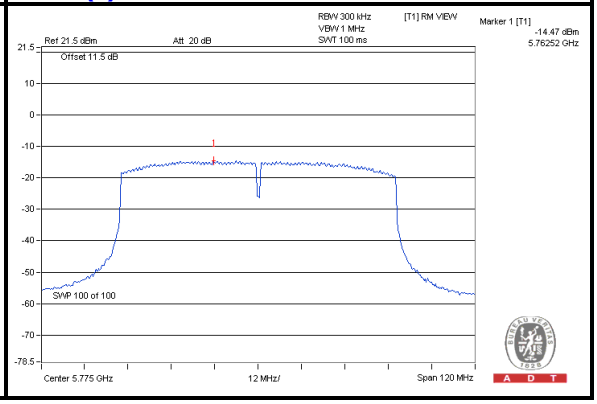
NOTE: 1. **5725~5825MHz:** Directional gain = 4.76dBi + 10log(2) = 7.77dBi > 6dB, so the power density limit shall be reduced to 30-(7.77-6) = 28.23dBm.

2. Refer to section 3.4 for duty cycle spectrum plot.

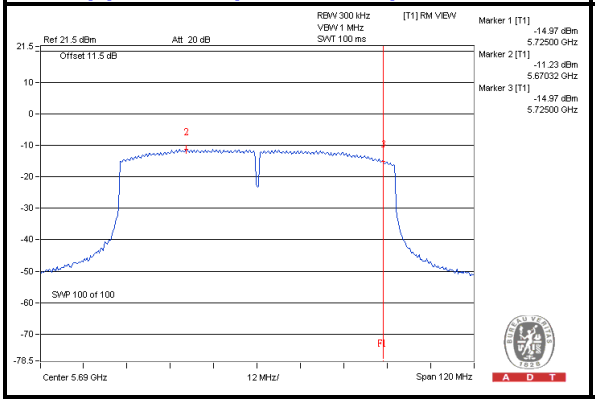
Chain(0) : CH138 (UNII-3 Band)



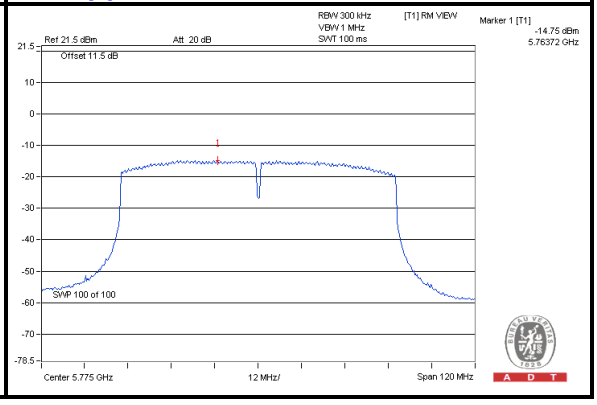
Chain(0) : CH155



Chain(1) : CH138 (UNII-3 Band)



Chain(1) : CH155



4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSV 40	100964	July 15, 2013	July 14, 2014

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : July 02, 2014

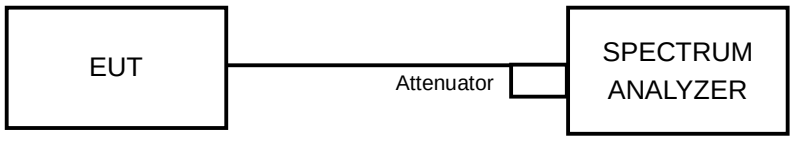
4.3.3 TEST PROCEDURE

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

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

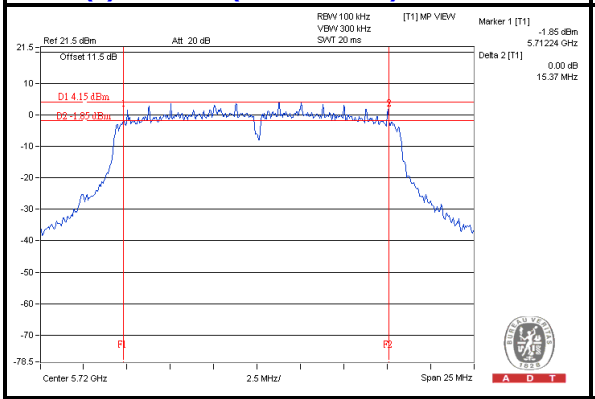
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

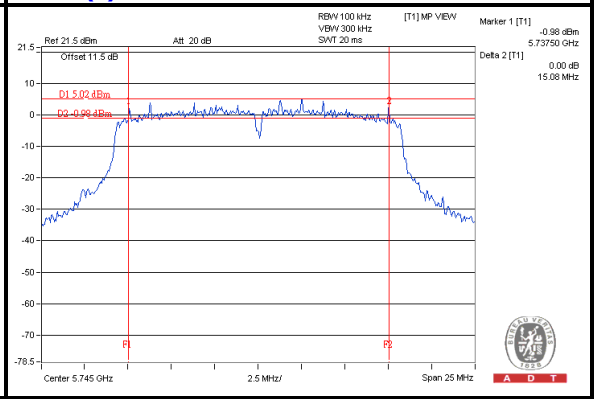
802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
144 (UNII-3 Band)	5720	2.61	2.61	0.5	PASS
149	5745	15.08	15.08	0.5	PASS
157	5785	15.15	15.16	0.5	PASS
165	5825	15.03	15.15	0.5	PASS

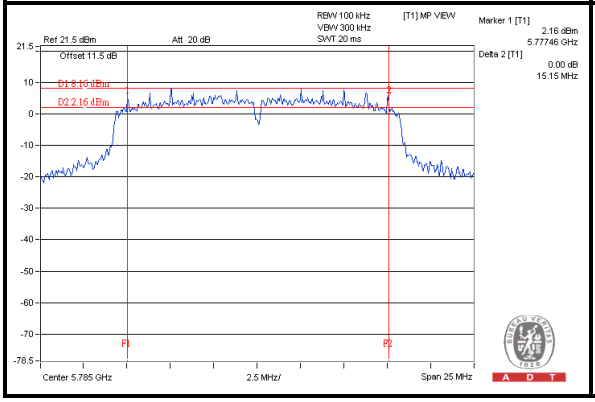
Chain(0) : CH144 (UNII-3 Band)



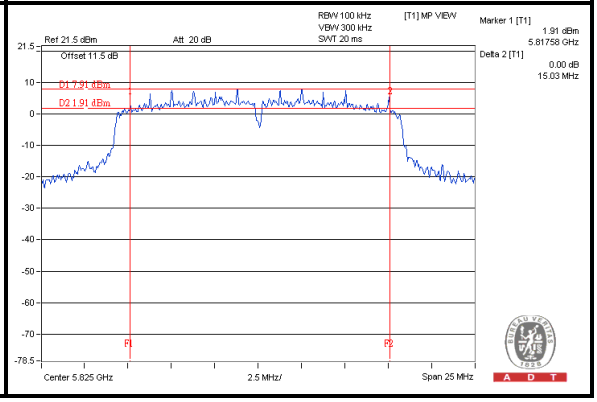
Chain(0) : CH149



Chain(0) : CH157

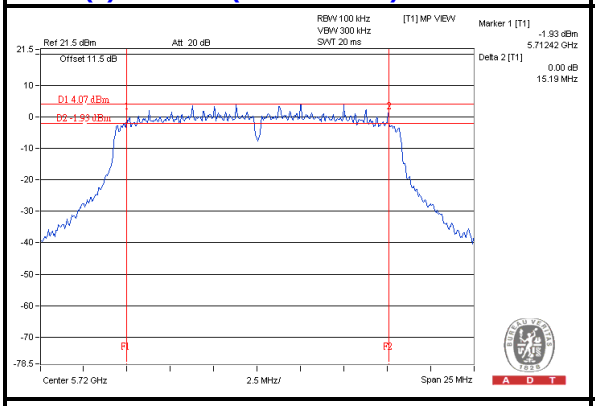


Chain(0) : CH165

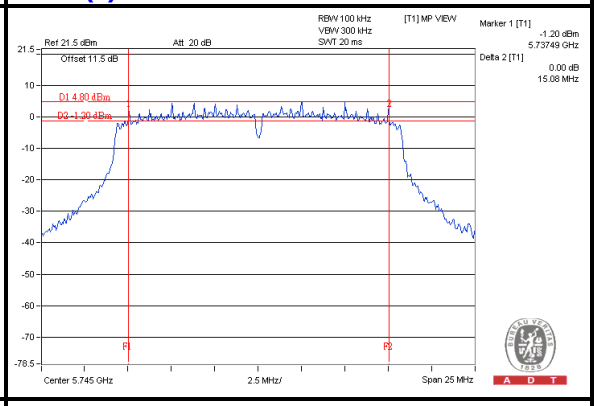


NOTE: For CH144 (UNII-3 Band) = Delta 2 - (5725 - Marker 1)

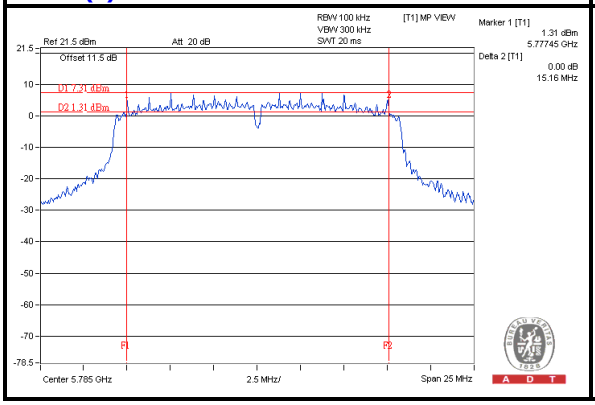
Chain(1) : CH144 (UNII-3 Band)



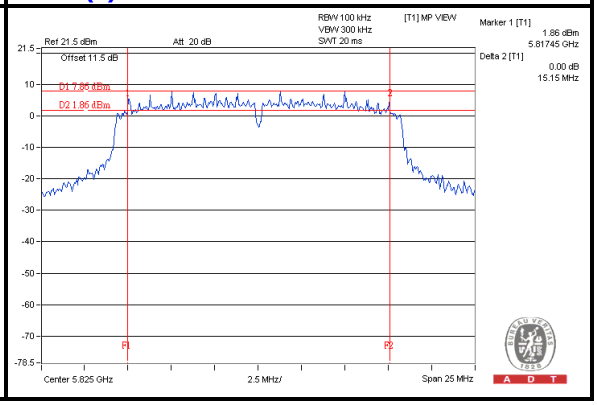
Chain(1) : CH149



Chain(1) : CH157



Chain(1) : CH165

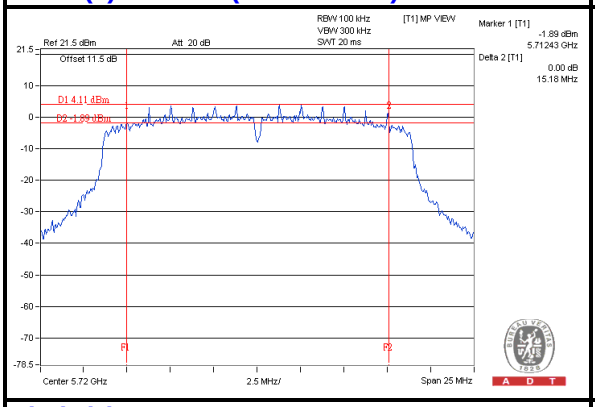


NOTE: For CH144 (UNII-3 Band) = Delta 2 - (5725 - Marker 1)

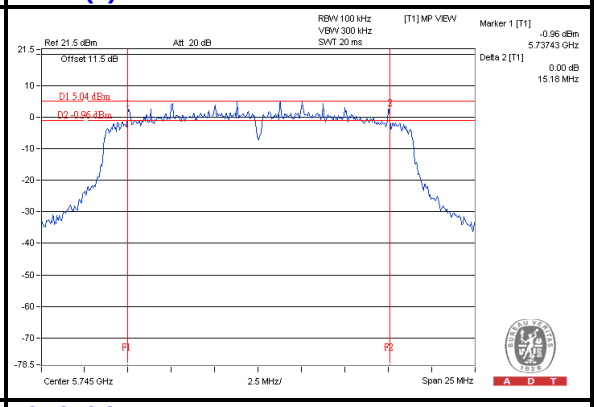
802.11ac (VHT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
144 (UNII-3 Band)	5720	2.61	2.60	0.5	PASS
149	5745	15.18	15.19	0.5	PASS
157	5785	15.19	15.11	0.5	PASS
165	5825	15.13	15.16	0.5	PASS

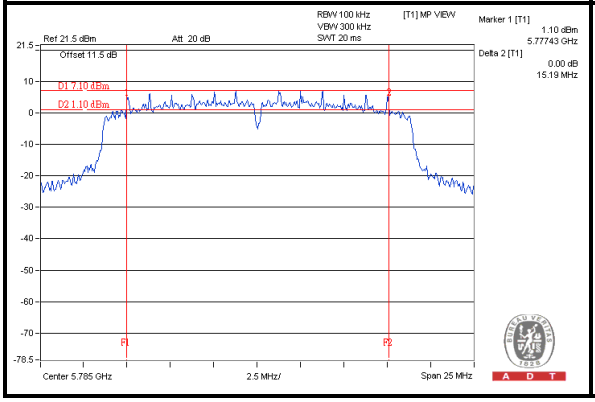
Chain(0) : CH144 (UNII-3 Band)



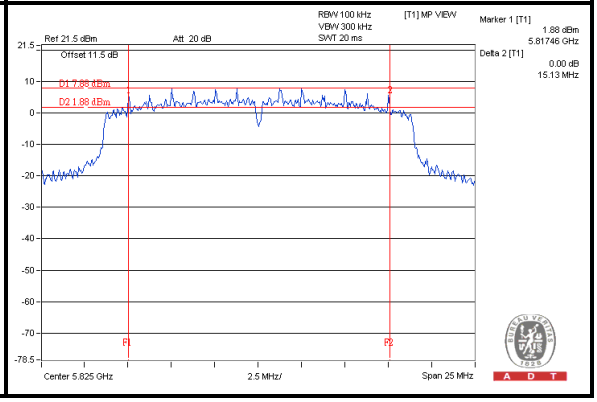
Chain(0) : CH149



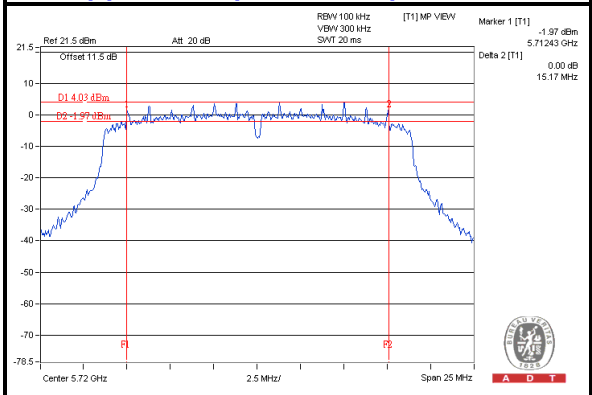
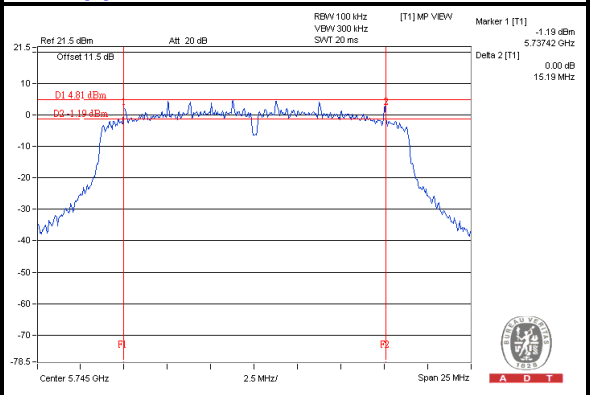
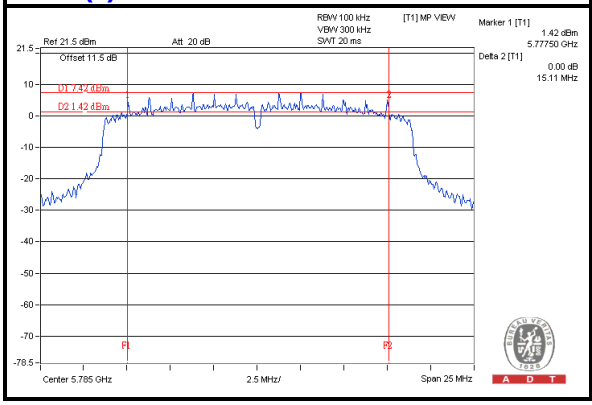
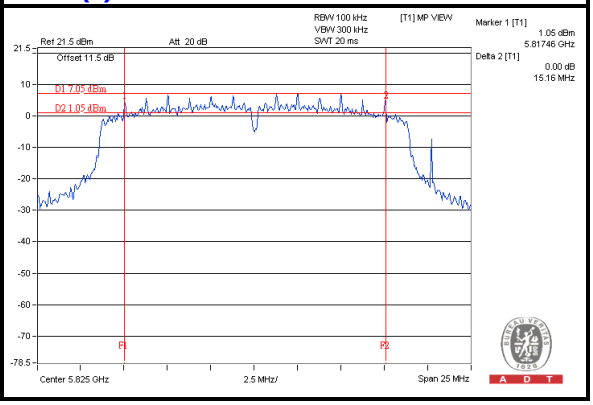
Chain(0) : CH157



Chain(0) : CH165



NOTE: For CH144 (UNII-3 Band) = Delta 2 - (5725 - Marker 1)

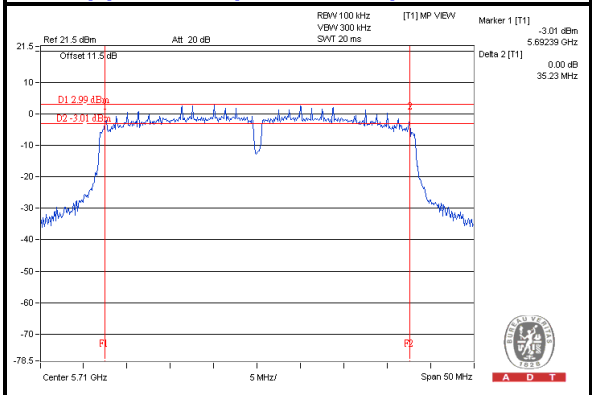
Chain(1) : CH144 (UNII-3 Band)	Chain(1) : CH149
	
Chain(1) : CH157	**Chain(1) : CH165**
	

NOTE: For CH144 (UNII-3 Band) = Delta 2 - (5725 - Marker 1)

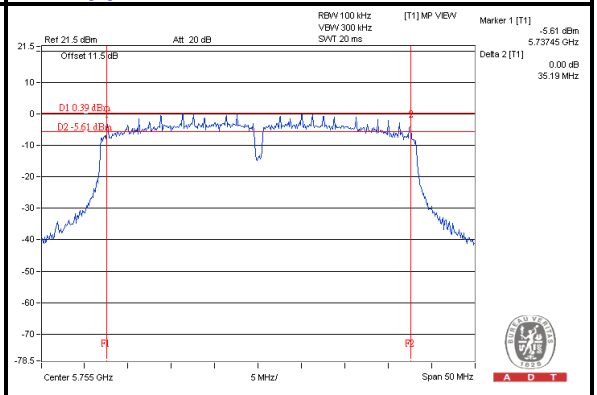
802.11ac (VHT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
142 (UNII-3 Band)	5710	2.62	2.64	0.5	PASS
151	5755	35.19	35.14	0.5	PASS
159	5795	32.76	35.14	0.5	PASS

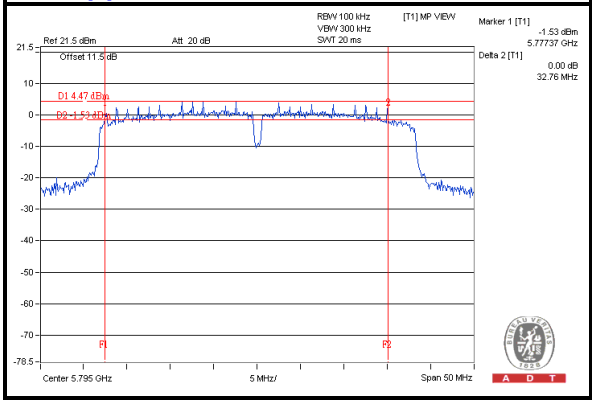
Chain(1) : CH142 (UNII-3 Band)



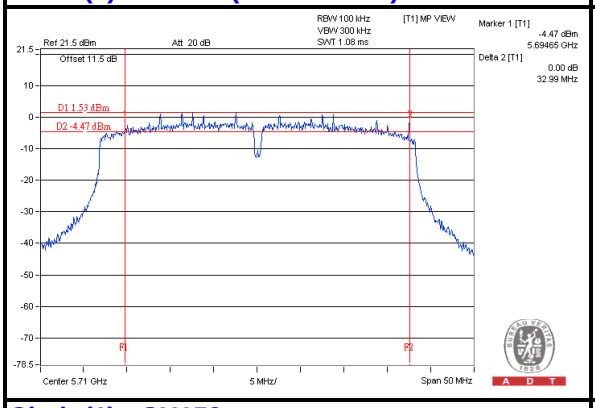
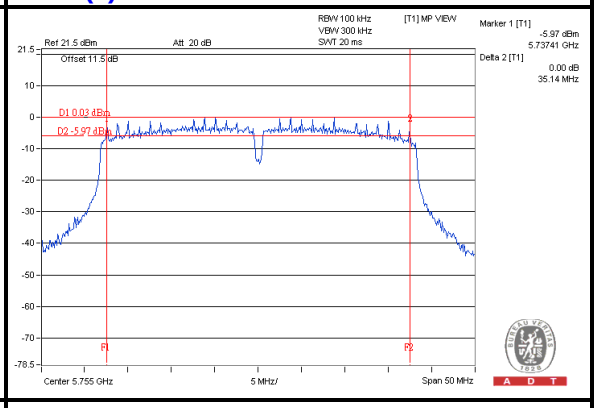
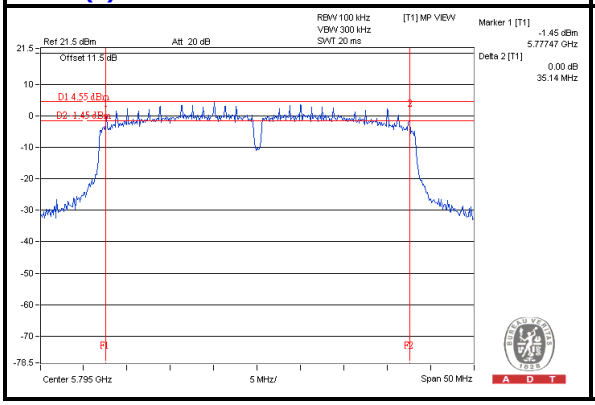
Chain(1) : CH151



Chain(1) : CH159



NOTE: For CH142 (UNII-3 Band) = Delta 2 - (5725 - Marker 1)

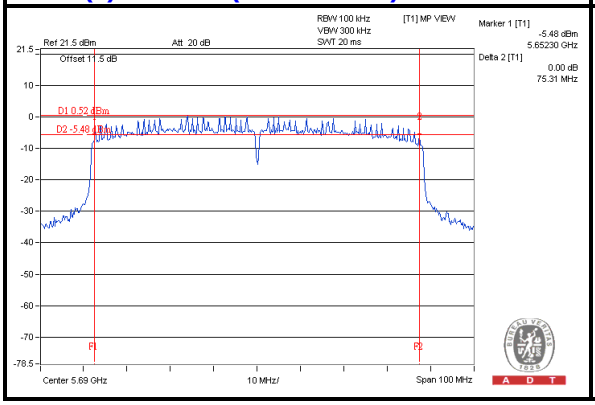
Chain(1) : CH142 (UNII-3 Band)	Chain(1) : CH151
	
Chain(1) : CH159	
	

NOTE: For CH142 (UNII-3 Band) = Delta 2 - (5725 - Marker 1)

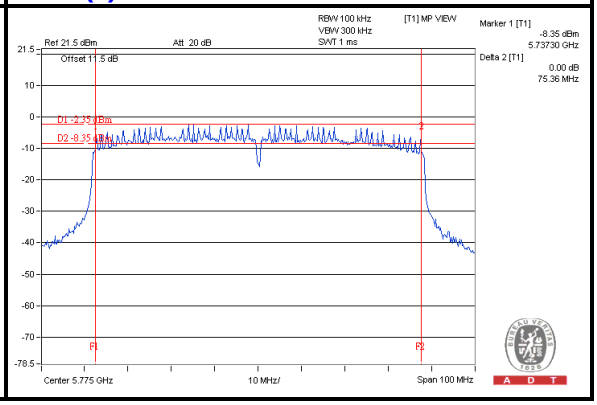
802.11ac (VHT80)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
138 (UNII-3 Band)	5690	2.61	2.62	0.5	PASS
155	5775	75.36	75.39	0.5	PASS

Chain(0) : CH138 (UNII-3 Band)

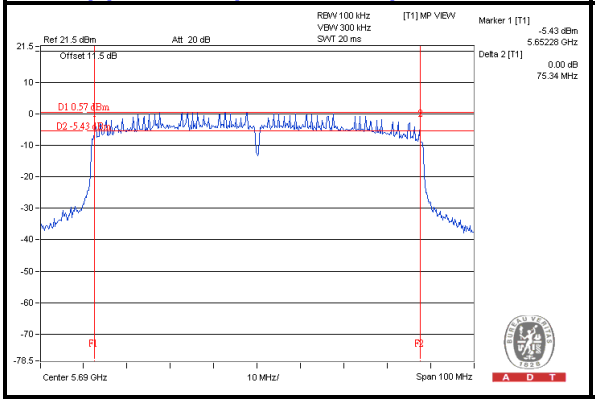


Chain(0) : CH155

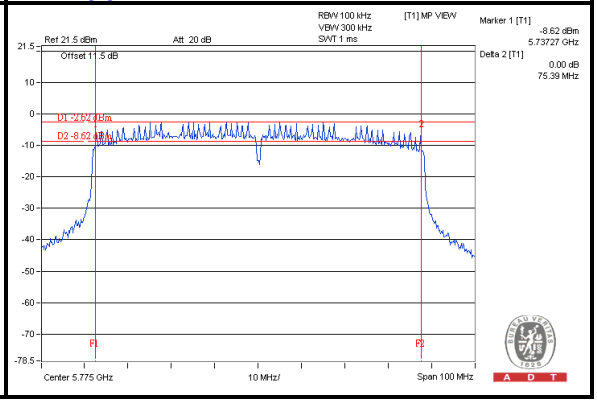


NOTE: For CH138 (UNII-3 Band) = Delta 2 - (5725 - Marker 1)

Chain(1) : CH138 (UNII-3 Band)



Chain(1) : CH155



NOTE: For CH138 (UNII-3 Band) = Delta 2 - (5725 - Marker 1)