

FCC Test Report (WLAN)

Report No.: RF140313E05J-1

FCC ID: PPD-QCNFA34AC

Test Model: QCNFA34AC

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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.

Test Location (3): E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,
Taiwan R.O.C.



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A D T

Release Control Record

Issue No.	Description	Date Issued
RF140313E05J-1	Original release.	Aug. 26, 2015



A D T

1 Certificate of Conformity

Product: 802.11 a/b/g/n/ac+ BT 4.1 M.2 Type Card

Brand: Qualcomm Atheros

Test Model: QCNFA34AC

Sample Status: R&D SAMPLE

Applicant: Qualcomm Atheros, Inc.

Test Date: Aug. 19, 2015

Standards: 47 CFR FCC Part 15, Subpart E (Section 15.407)
ANSI C63.10: 2013

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

Prepared by : Phoenix Huang , **Date:** Aug. 26, 2015
Phoenix Huang / Specialist

Approved by : May Chen , **Date:** Aug. 26, 2015
May Chen / Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (SECTION 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b) (1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -3.4dB at 166.03MHz.
15.407(a)(1/2 /3)	Max Average 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. This report is prepared for FCC Class II change. (Upgrade the standard to section 15.407 under new rule for U-NII-3 band)

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (\pm)
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.37 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.65 dB
	6GHz ~ 18GHz	3.88 dB
	18GHz ~ 40GHz	4.11 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	802.11 a/b/g/n/ac+ BT 4.1 M.2 Type Card
Brand	Qualcomm Atheros
Test Model	QCNFA34AC
Status of EUT	R&D SAMPLE
Power Supply Rating	3.3Vdc from host equipment
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode and VHT (20/40) mode in 2.4GHz
Modulation Technology	DSSS,OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n : up to 300Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	For 15.407 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.50 ~ 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/g, 802.11n (HT20), VHT20 7 for 802.11n (HT40), VHT40
Output Power	See Note
Antenna Type	See item 3.2
Antenna Connector	See item 3.2
Accessory Device	NA
Data Cable Supplied	NA

Note:

- This report is prepared for FCC Class II change. The difference compared with the Report No.: RF140313E05B-1 design is as the following:
 - ◆ Upgrade the standard to section 15.407 under new rule for U-NII-3 band
- According to above conditions, all test items of U-NII-3 band test item need to be performed, except for AC power conducted emission test item. And all data was verified to meet the requirements.
- There are Bluetooth technology and WLAN technology used for the EUT.
- The modular has two variant designs as following table:

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

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

15.407 (5GHz_U-NII-3 band)			
SKU #2(NFA345) - 1TX		SKU #1 (NFA344) - 2TX	
802.11a	31.842	802.11a	64.803
802.11ac (VHT20)	32.659	802.11ac (VHT20)	64.355
802.11ac (VHT40)	25.763	802.11ac (VHT40)	52.248
802.11ac (VHT80)	9.057	802.11ac (VHT80)	11.648

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

SKU #1 (NFA344)			
MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11a	6 ~ 54Mbps	2TX CDD / beamforming	2RX
802.11b	1 ~ 11Mbps	2TX CDD	2RX
802.11g	6 ~ 54Mbps	2TX CDD	2RX
802.11n (HT20)	MCS 0~7	2TX CDD / beamforming	2RX
	MCS 8~15	2TX	2RX
802.11n (HT40)	MCS 0~7	2TX CDD / beamforming	2RX
	MCS 8~15	2TX	2RX
VHT20	MCS 0~8, Nss=1	2TX CDD / beamforming	2RX
	MCS 0~8, Nss=2	2TX	2RX
VHT40	MCS 0~9, Nss=1	2TX CDD / beamforming	2RX
	MCS 0~9, Nss=2	2TX	2RX
802.11ac (VHT20)	MCS 0~8, Nss=1	2TX CDD / beamforming	2RX
	MCS 0~8, Nss=2	2TX	2RX
802.11ac (VHT40)	MCS 0~9, Nss=1	2TX CDD / beamforming	2RX
	MCS 0~9, Nss=2	2TX	2RX
802.11ac (VHT80)	MCS 0~9, Nss=1	2TX CDD / beamforming	2RX
	MCS 0~9, Nss=2	2TX	2RX
SKU #2 (NFA345)			
MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11a	6 ~ 54Mbps	1TX (Fix main port)	1RX (Fix main port) or 2RX
802.11b	1 ~ 11Mbps	1TX (Fix main port)	1RX (Fix main port) or 2RX
802.11g	6 ~ 54Mbps	1TX (Fix main port)	1RX (Fix main port) or 2RX
802.11n (HT20)	MCS 0~7	1TX (Fix main port)	1RX (Fix main port) or 2RX
802.11n (HT40)	MCS 0~7	1TX (Fix main port)	1RX (Fix main port) or 2RX
VHT20	MCS 0~8, Nss=1	1TX (Fix main port)	1RX (Fix main port) or 2RX
VHT40	MCS 0~9, Nss=1	1TX (Fix main port)	1RX (Fix main port) or 2RX
802.11ac (VHT20)	MCS 0~8, Nss=1	1TX (Fix main port)	1RX (Fix main port) or 2RX
802.11ac (VHT40)	MCS 0~9, Nss=1	1TX (Fix main port)	1RX (Fix main port) or 2RX
802.11ac (VHT80)	MCS 0~9, Nss=1	1TX (Fix main port)	1RX (Fix main port) or 2RX

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

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

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

8. WLAN/BT coexistence mode:

◆ **NFA344:**

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

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

◆ **NFA345:**

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

1TX 5GHz WLAN+ BT concurrent

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

3.2 Description of Antenna

The antenna gain was declared by client; please refer to the following table:

Ant. No.	Transmitter Circuit	Brand	Model	Ant. Type	2.4GHz Gain with cable loss (dBi)	5GHz Gain with cable loss (dBi)	2.4GHz Cable Loss (dB)	5GHz Cable Loss (dB)	Connector Type	Cable Length (mm)
1	Chain (0)	WNC	81.EBJ15.005	PIFA	3.00	5.15~5.35GHz: 2.56	1.15	5.15~5.35GHz: 1.70	IPEX	300
						5.47~5.725GHz: 4.76		5.47~5.725GHz: 1.74		
						5.725~5.85GHz: 4.76		5.725~5.85GHz: 1.79		
	Chain (1)	WNC	81.EBJ15.005	PIFA	3.62	5.15~5.35GHz: 3.08	1.15	5.15~5.35GHz: 1.70	IPEX	300
						5.47~5.725GHz: 3.31		5.47~5.725GHz: 1.74		
						5.725~5.85GHz: 2.42		5.725~5.85GHz: 1.79		

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

Following antenna combination(s) was (were) selected as representative mode for test or evaluate in this report as listed.

Transmitter Circuit	Brand	Model	Ant. Type	5GHz Gain with cable loss (dBi)	5GHz Cable Loss (dB)	Connector Type	Cable Length (mm)
Chain (0)+(1)	WNC	81.EBJ15.005	PIFA	5.725~5.85GHz: 4.76	5.725~5.85GHz: 1.79	IPEX	300

3.3 Description of Test Modes

FOR 5745 ~ 5825MHz:

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

Channel	Frequency	Channel	Frequency
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

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

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775MHz

3.3.1 Test Mode Applicability and Tested Channel Detail

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

Where **UE \geq 1G**: Unwanted Emission above 1GHz **UE<1G**: Unwanted Emission below 1GHz
APCM: Antenna Port Conducted Measurement

Unwanted Emission Test (Above 1GHz):

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

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6
802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	6.5
802.11ac (VHT40)		151 to 159	151, 159	OFDM	13.5
802.11ac (VHT80)		155	155	OFDM	29.3

Unwanted Emission Test (Below 1GHz):

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

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11a	5745-5825	149 to 165	165	OFDM	6

Antenna Port Conducted Measurement:

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

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6
802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	6.5
802.11ac (VHT40)		151 to 159	151, 159	OFDM	13.5
802.11ac (VHT80)		155	155	OFDM	29.3



Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
UE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Tim Ho
UE<1G	24deg. C, 70%RH	120Vac, 60Hz	Tim Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen

3.4 Duty Cycle of Test Signal

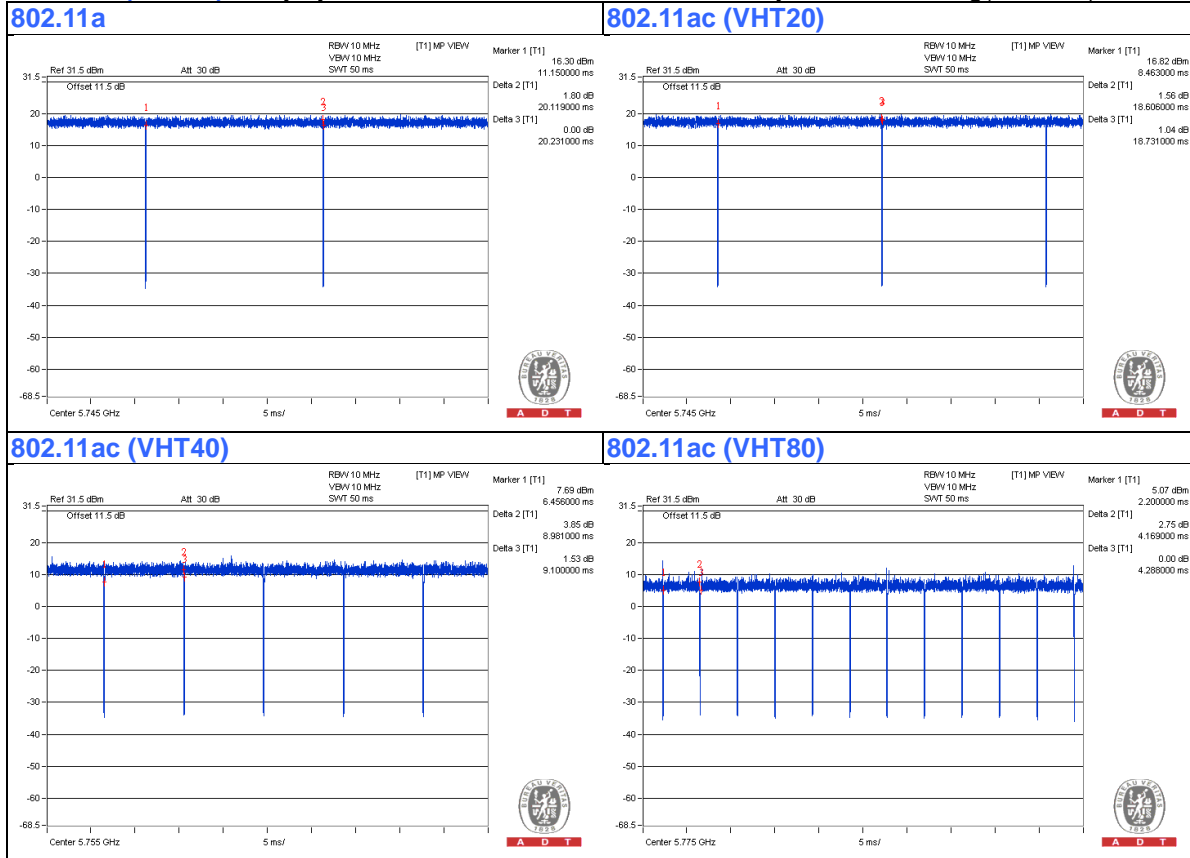
If duty cycle of test signal is $\geq 98\%$, duty factor is not required.
 If duty cycle of test signal is $< 98\%$, duty factor shall be considered.

802.11a: Duty cycle = $20.119 \text{ ms} / 20.231 \text{ ms} = 0.994$

802.11ac (VHT20): Duty cycle = $18.606 \text{ ms} / 18.731 \text{ ms} = 0.993$

802.11ac (VHT40): Duty cycle = $8.981 \text{ ms} / 9.1 \text{ ms} = 0.987$

802.11ac (VHT80): Duty cycle = $4.169 \text{ ms} / 4.288 \text{ ms} = 0.972$, Duty factor = $10 * \log(1/0.972) = 0.12$



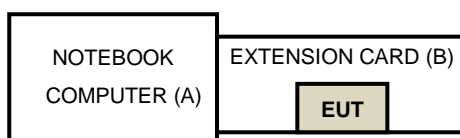
3.5 Description of Support Units

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	E6420	H62T3R1	FCC DoC	Provided by Lab
B	EXTENSION CARD	Qualcomm Atheros	HPCBM194-0	NA	NA	Supplied by Client

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

3.5.1 Configuration of System under Test



3.6 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 (15.407)

789033 D02 General UNII Test Procedures New Rules v01

662911 D01 Multiple Transmitter Output v02r01

644545 D03 Guidance for IEEE 802.11ac v01

ANSI C63.10-2013

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

4 Test Types and Results

4.1 Transmit Power Measurement

4.1.1 Limits of Transmit Power Measurement

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

Note: *B is the 26 dB emission bandwidth in megahertz

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

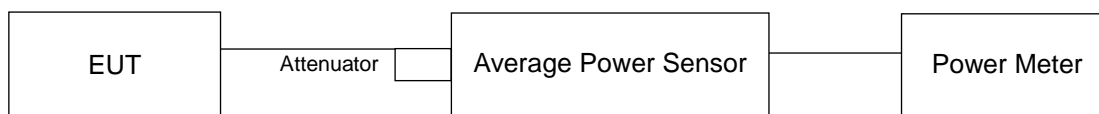
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

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

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.1.2 Test Setup



4.1.3 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power meter Anritsu	ML2495A	1014008	Apr. 28, 2015	Apr. 27, 2016
Power sensor Anritsu	MA2411B	0917122	Apr. 28, 2015	Apr. 27, 2016

- NOTE:**
1. The test was performed in Oven room 2.
 2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 3. Tested Date: Aug. 19, 2015

4.1.4 Test Procedures

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

4.1.5 Deviation from Test Standard

No deviation.

4.1.6 EUT Operating Conditions

The software (QCART.exe V3.0.54.0) provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.1.7 Test Results (Mode 1)

802.11a

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
149	5745	12.36	12.76	36.099	15.57	28.23	Pass
157	5785	15.00	15.06	63.686	18.04	28.23	Pass
165	5825	15.03	15.18	64.803	18.12	28.23	Pass

NOTE: 1. Directional gain = $4.76\text{dBi} + 10\log(2) = 7.77\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30-(7.77-6) = 28.23\text{dBm}$.

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
149	5745	12.29	12.57	35.015	15.44	28.23	Pass
157	5785	15.14	15.01	64.355	18.09	28.23	Pass
165	5825	13.65	13.98	48.177	16.83	28.23	Pass

NOTE: 1. Directional gain = $4.76\text{dBi} + 10\log(2) = 7.77\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30-(7.77-6) = 28.23\text{dBm}$.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
151	5755	8.91	9.08	15.871	12.01	28.23	Pass
159	5795	14.11	14.23	52.248	17.18	28.23	Pass

NOTE: 1. Directional gain = $4.76\text{dBi} + 10\log(2) = 7.77\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30-(7.77-6) = 28.23\text{dBm}$.

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
155	5775	7.51	7.79	11.648	10.66	28.23	Pass

NOTE: 1. Directional gain = $4.76\text{dBi} + 10\log(2) = 7.77\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30-(7.77-6) = 28.23\text{dBm}$.

4.1.8 Test Results (Mode 2)
802.11a

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
149	5745	28.973	14.62	30	Pass
157	5785	31.623	15.00	30	Pass
165	5825	31.842	15.03	30	Pass

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
149	5745	29.309	14.67	30	Pass
157	5785	32.659	15.14	30	Pass
165	5825	32.434	15.11	30	Pass

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
151	5755	13.552	11.32	30	Pass
159	5795	25.763	14.11	30	Pass

802.11ac (VHT80)

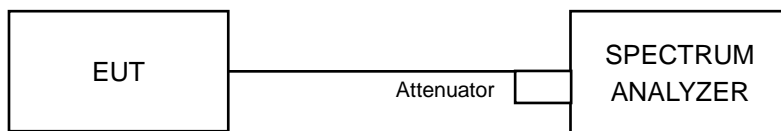
Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
155	5775	9.057	9.57	30	Pass

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/ MHz

4.2.2 Test Setup



4.2.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.2.4 Test Procedures

For 802.11a, 802.11ac (VHT20) & 802.11ac (VHT40):

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
- Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
- 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 $BWCF = 10\log(500\text{ kHz}/300\text{kHz})$
- Sweep time = auto, trigger set to "free run".
- Trace average at least 100 traces in power averaging mode.
- Record the max value

For 802.11ac (VHT80):

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
- Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
- 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 $BWCF = 10\log(500\text{ kHz}/300\text{kHz})$
- Sweep time = auto, trigger set to "free run".
- Trace average at least 100 traces in power averaging mode.
- Record the max value and add $10\log(1/\text{duty cycle})$

4.2.5 Deviation from Test Standard

No deviation.

4.2.6 EUT Operating Conditions

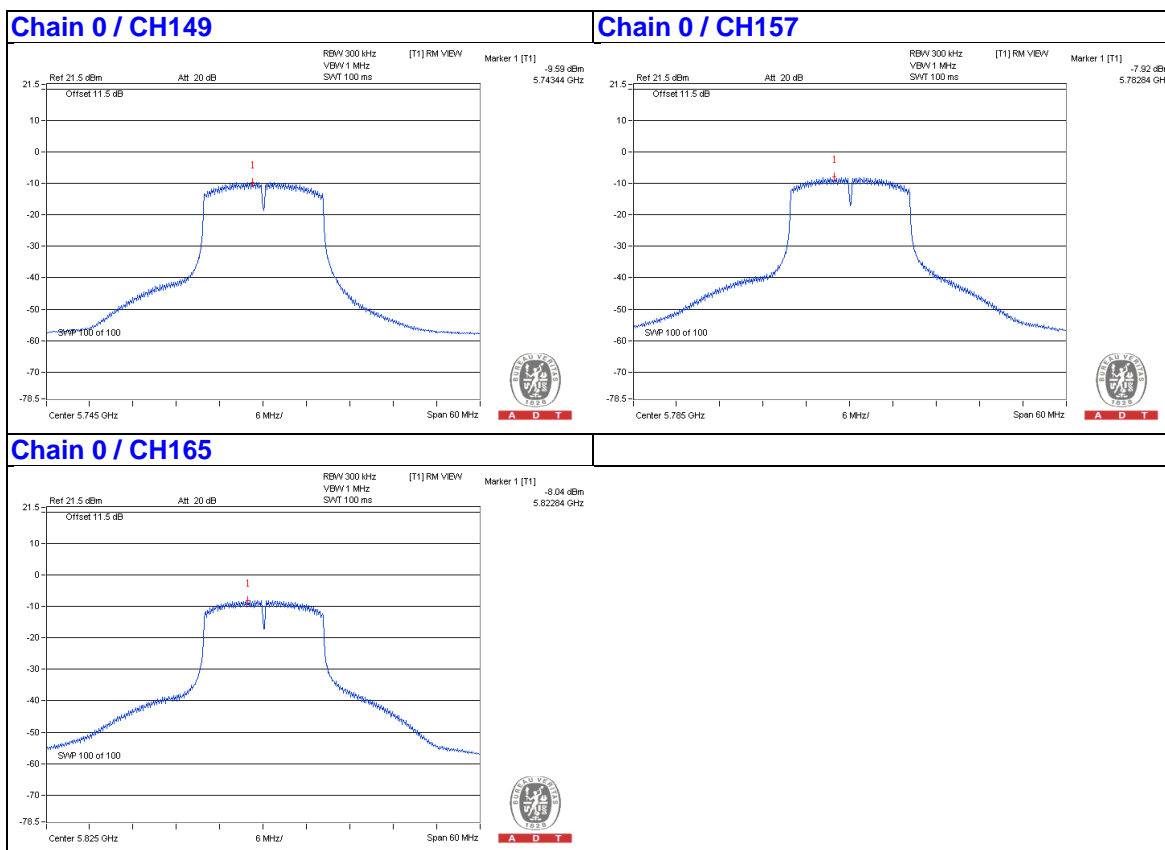
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

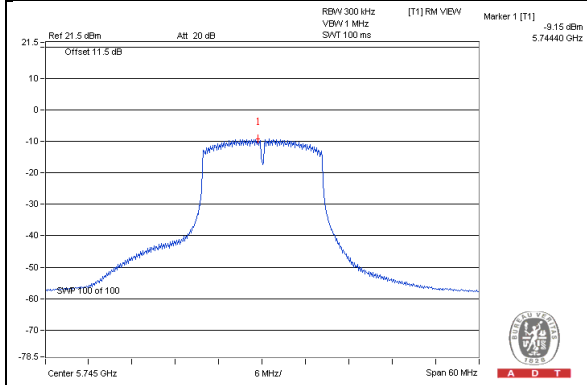
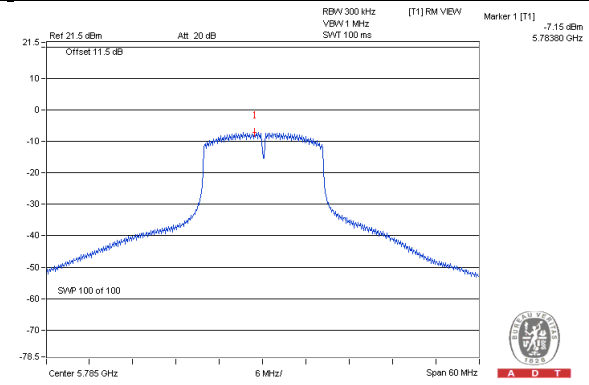
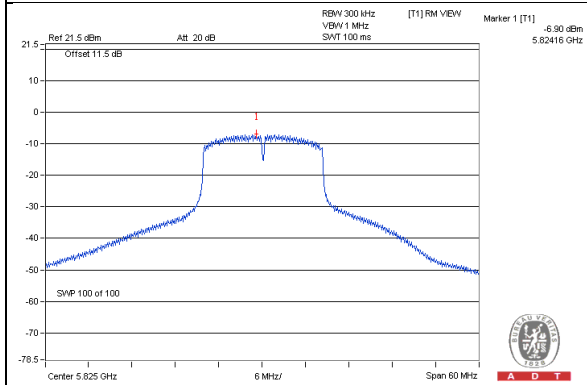
4.2.7 Test Results (Mode 1)

802.11a

TX chain	Chan.	Chan. Freq. (MHz)	PSD		10 log (N=2) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)				
0	149	5745	-9.59	-7.37	3.01	-4.36	28.23	Pass
	157	5785	-7.92	-5.70	3.01	-2.69	28.23	Pass
	165	5825	-8.04	-5.82	3.01	-2.81	28.23	Pass
1	149	5745	-9.15	-6.93	3.01	-3.92	28.23	Pass
	157	5785	-7.15	-4.93	3.01	-1.92	28.23	Pass
	165	5825	-6.90	-4.68	3.01	-1.67	28.23	Pass

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

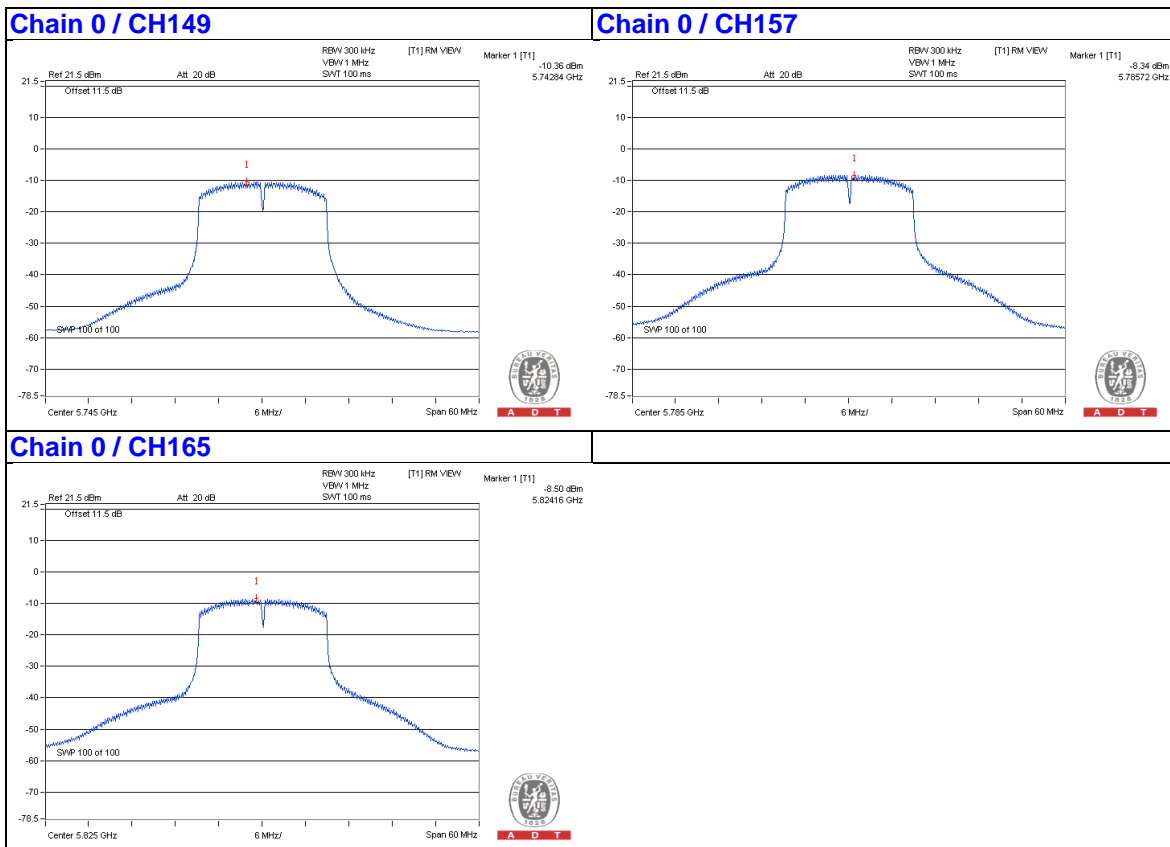


Chain 1 / CH149**Chain 1 / CH157****Chain 1 / CH165**

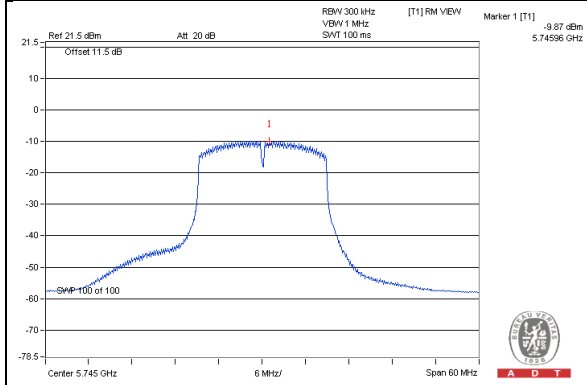
802.11ac (VHT20)

TX chain	Chan.	Chan. Freq. (MHz)	PSD		10 log (N=2) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)				
0	149	5745	-10.36	-8.14	3.01	-5.13	28.23	Pass
	157	5785	-8.34	-6.12	3.01	-3.11	28.23	Pass
	165	5825	-8.50	-6.28	3.01	-3.27	28.23	Pass
1	149	5745	-9.87	-7.65	3.01	-4.64	28.23	Pass
	157	5785	-7.39	-5.17	3.01	-2.16	28.23	Pass
	165	5825	-8.04	-5.82	3.01	-2.81	28.23	Pass

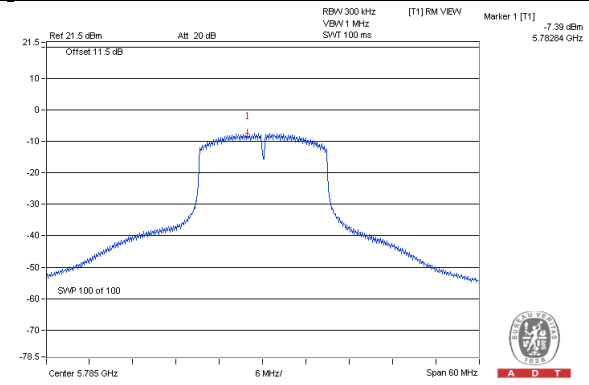
NOTE: 1. Directional gain = 4.76dBi + 10log(2) = 7.77dBi > 6dB, so the power density limit shall be reduced to 30-(7.77-6) = 28.23dBm.



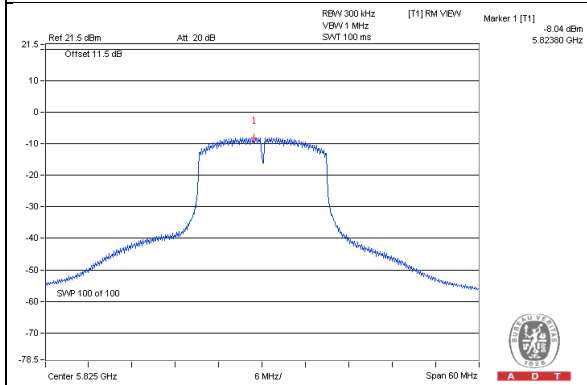
Chain 1 / CH149



Chain 1 / CH157



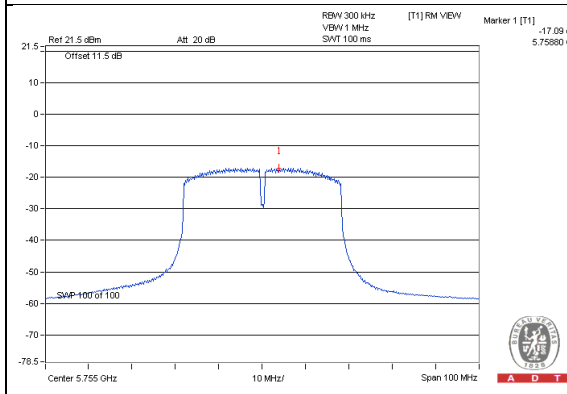
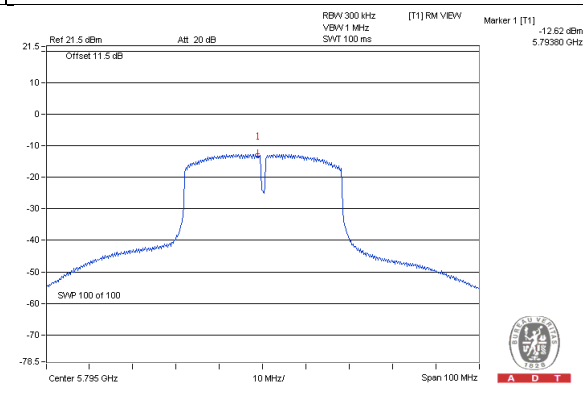
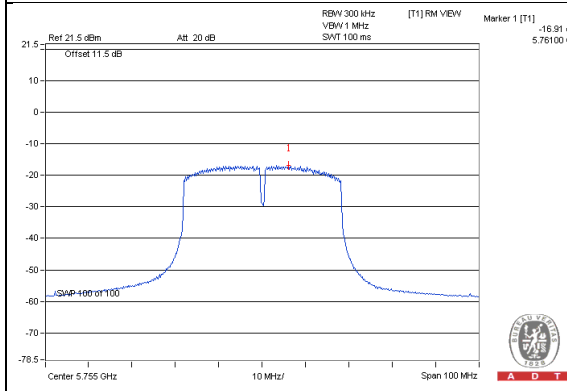
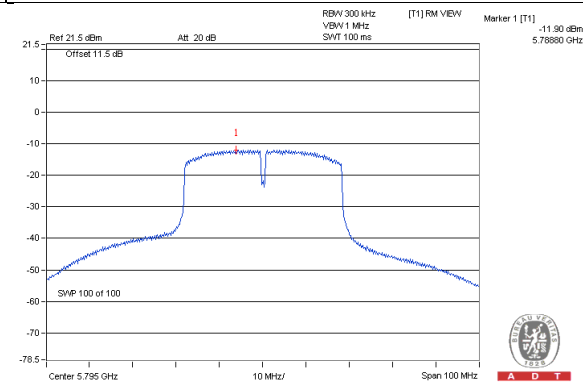
Chain 1 / CH165



802.11ac (VHT40)

TX chain	Chan.	Chan. Freq. (MHz)	PSD		10 log (N=2) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)				
0	151	5745	-17.09	-14.87	3.01	-11.86	28.23	Pass
	159	5785	-12.62	-10.40	3.01	-7.39	28.23	Pass
1	151	5745	-16.91	-14.69	3.01	-11.68	28.23	Pass
	159	5785	-11.90	-9.68	3.01	-6.67	28.23	Pass

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

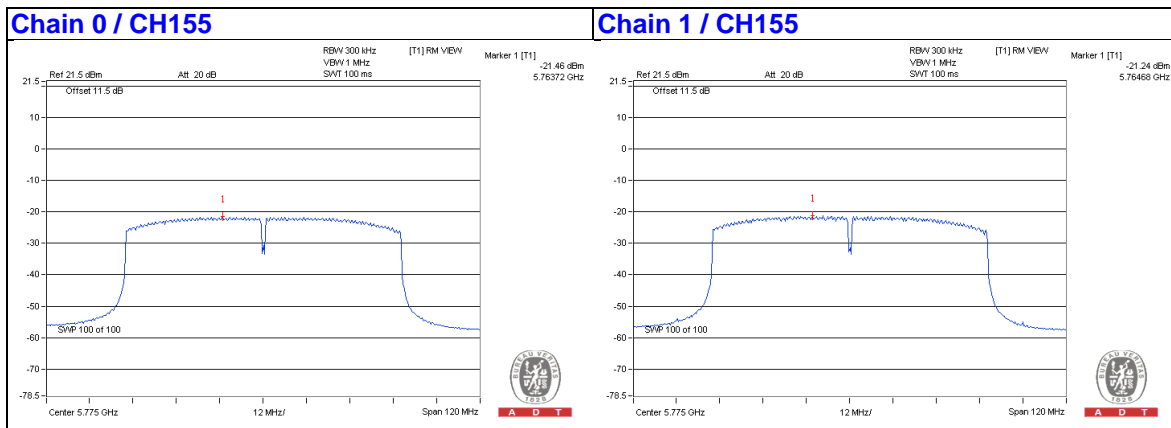
Chain 0 / CH151

Chain 0 / CH159

Chain 1 / CH151

Chain 1 / CH159


802.11ac (VHT80)

TX chain	Chan.	Chan. Freq. (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	155	5745	-21.46	-19.24	3.01	0.12	-16.11	28.23	Pass
1	155	5745	-21.24	-19.02	3.01	0.12	-15.89	28.23	Pass

NOTE: 1. 5725~5850MHz: 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.

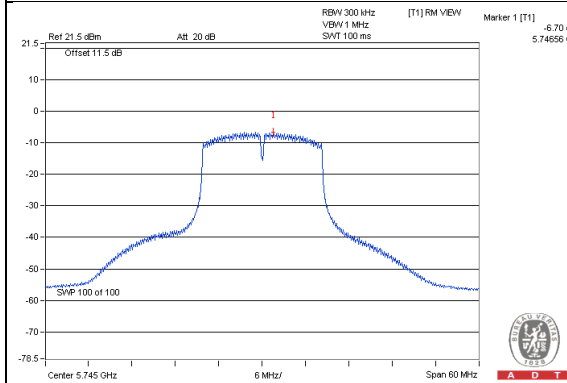


4.2.8 Test Results (Mode 2)

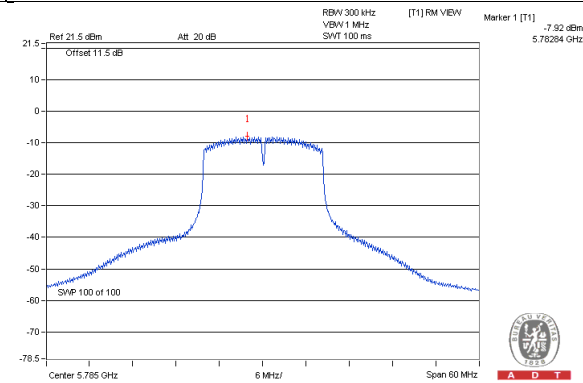
802.11a

Chan.	Chan. Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
149	5745	-6.70	-4.48	30	Pass
157	5785	-7.92	-5.70	30	Pass
165	5825	-6.68	-4.46	30	Pass

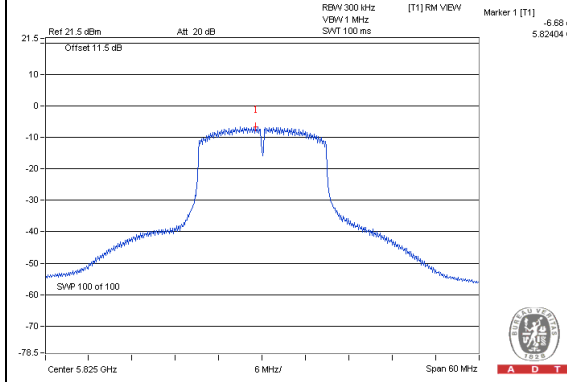
CH149



CH157



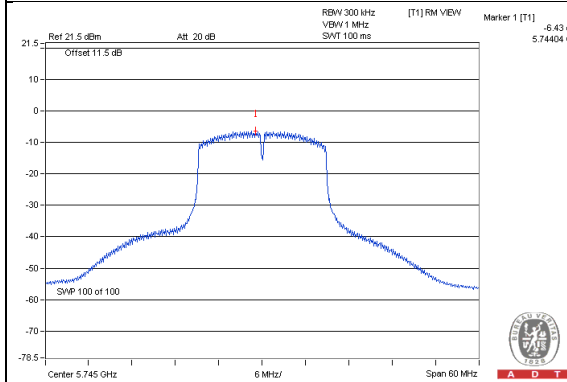
CH165



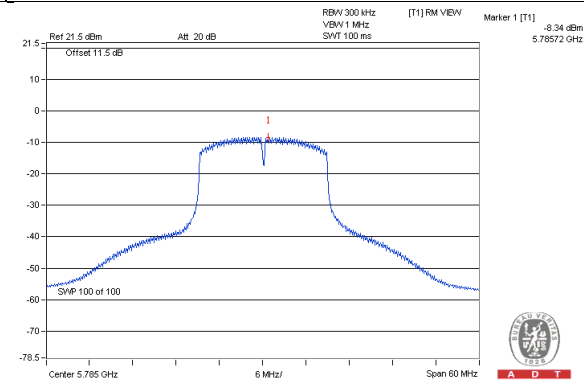
802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
149	5745	-6.43	-4.21	30	Pass
157	5785	-8.34	-6.12	30	Pass
165	5825	-5.96	-3.74	30	Pass

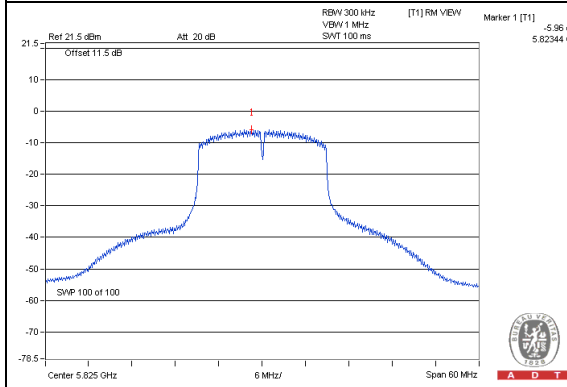
CH149



CH157



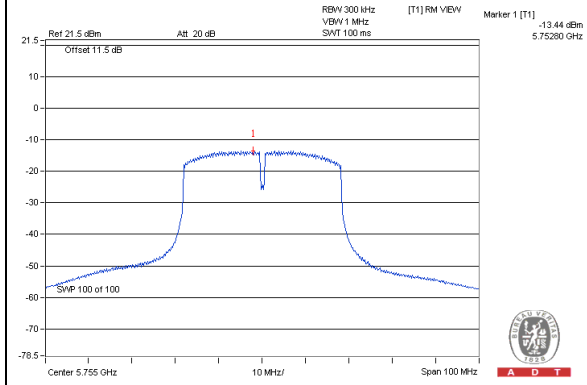
CH165



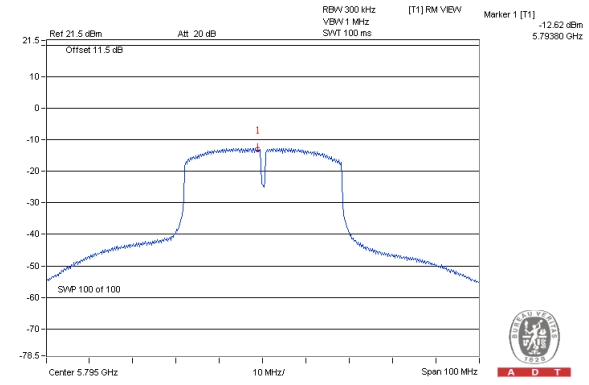
802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
151	5755	-13.44	-11.22	30	Pass
159	5795	-12.62	-10.40	30	Pass

CH151



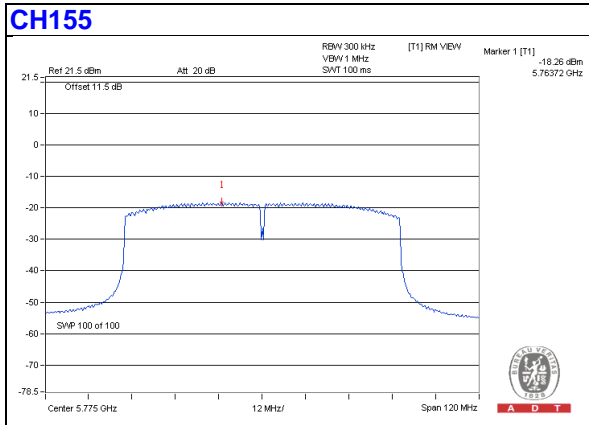
CH159



802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor		Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
		(dBm/300kHz)	(dBm/500kHz)				
155	5775	-18.26	-16.04	0.12	-15.92	30	Pass

NOTE: 1. Refer to section 3.4 for duty cycle spectrum plot.

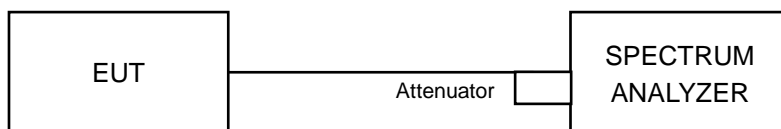


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedures

MEASUREMENT PROCEDURE REF

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

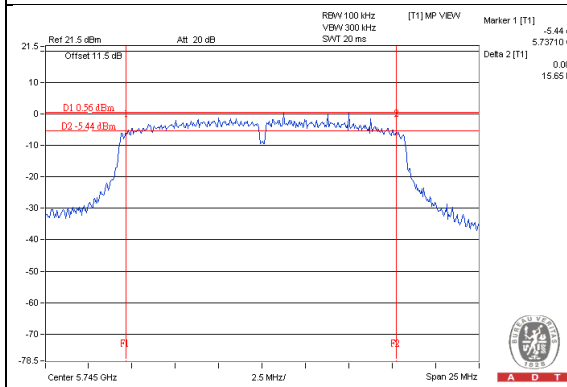
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 Test Results (Mode 1)

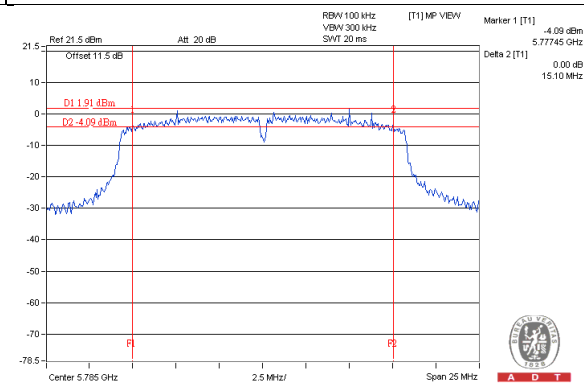
802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	15.65	15.33	0.5	Pass
157	5785	15.10	15.11	0.5	Pass
165	5825	15.59	15.55	0.5	Pass

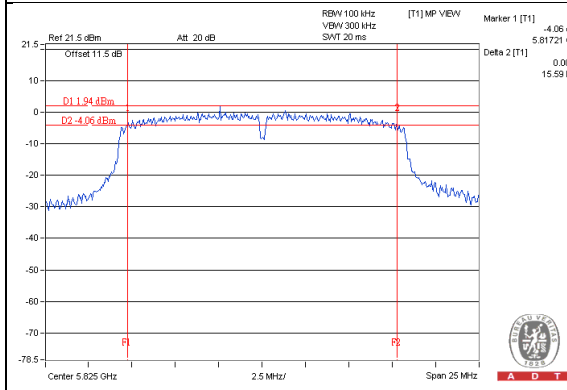
Chain 0 / CH149



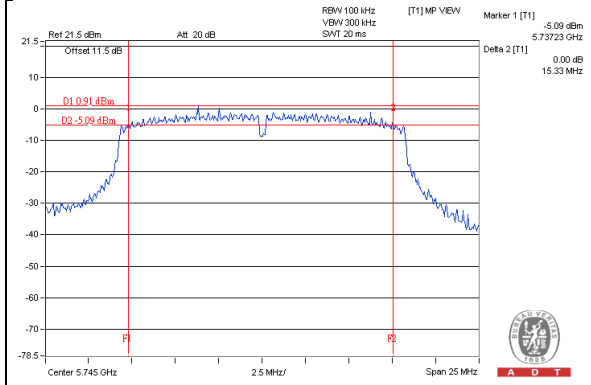
Chain 0 / CH157



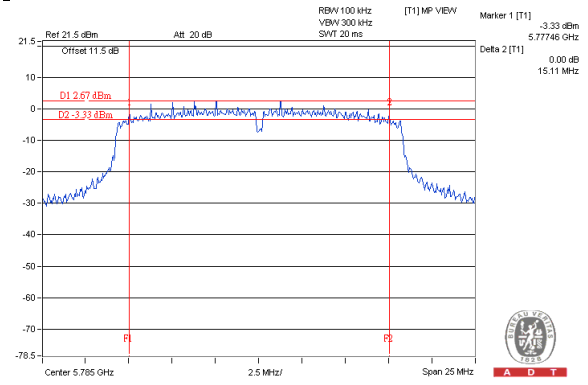
Chain 0 / CH165



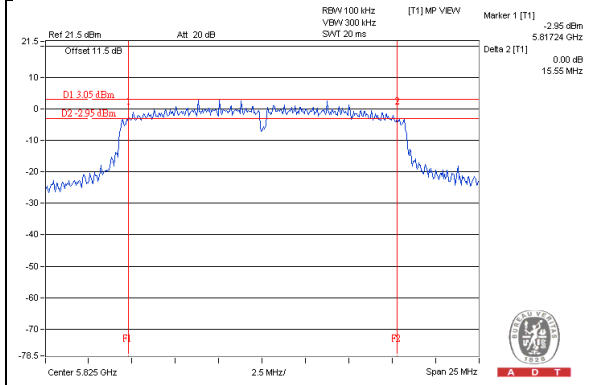
Chain 1 / CH149



Chain 1 / CH157



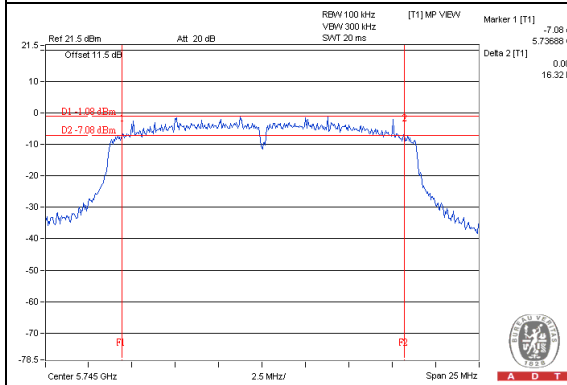
Chain 1 / CH165



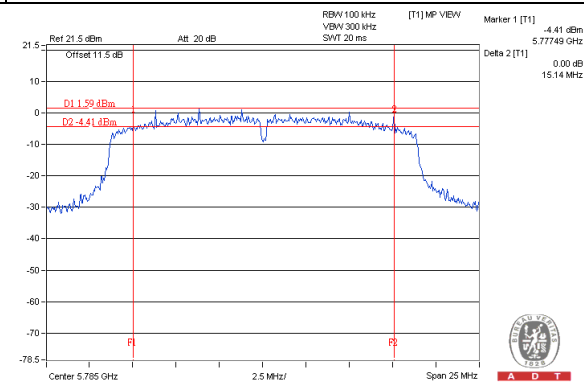
802.11ac (VHT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	16.32	15.39	0.5	Pass
157	5785	15.14	15.67	0.5	Pass
165	5825	15.06	14.45	0.5	Pass

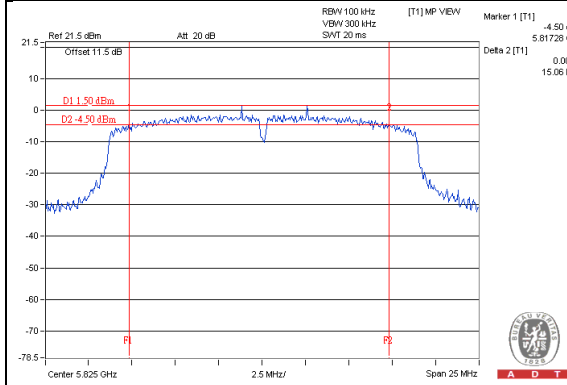
Chain 0 / CH149



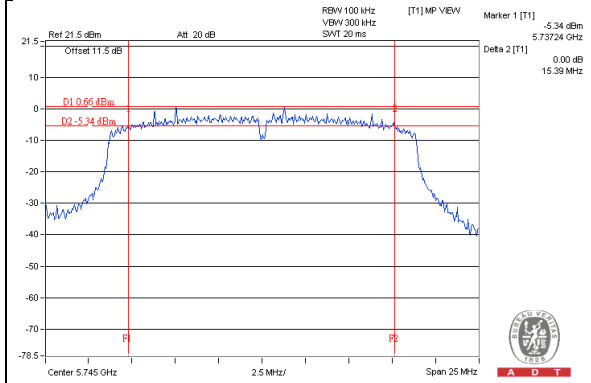
Chain 0 / CH157



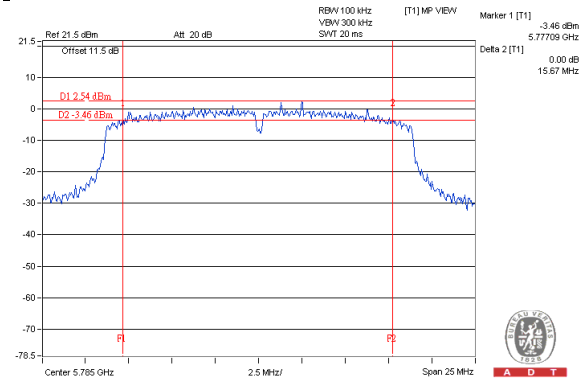
Chain 0 / CH165



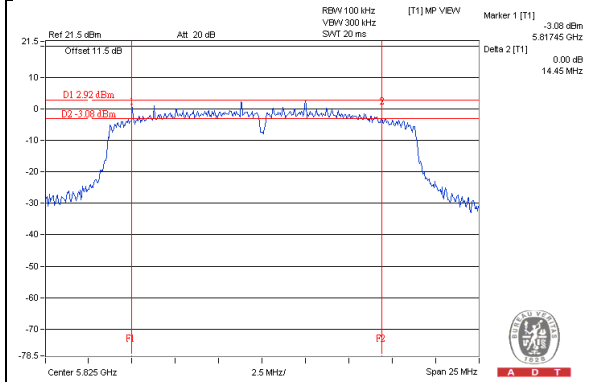
Chain 1 / CH149



Chain 1 / CH157



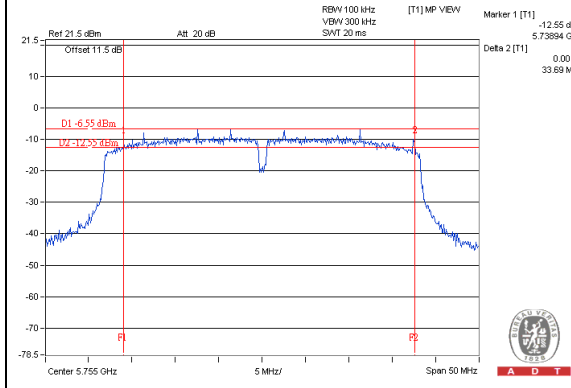
Chain 1 / CH165



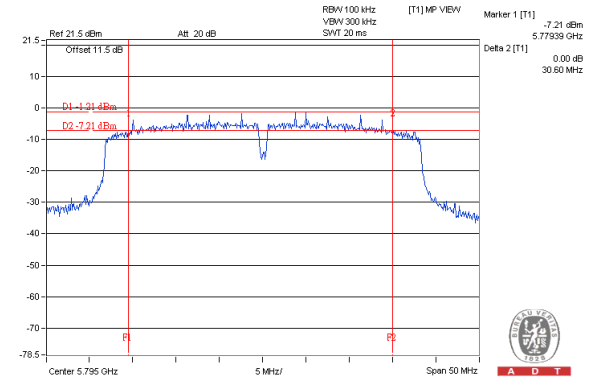
802.11ac (VHT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
151	5755	33.69	34.22	0.5	Pass
159	5795	30.60	33.26	0.5	Pass

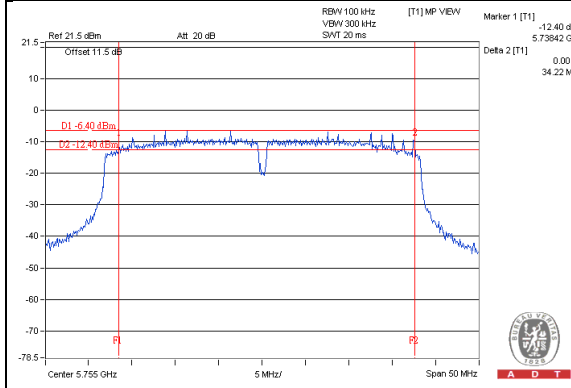
Chain 0 / CH151



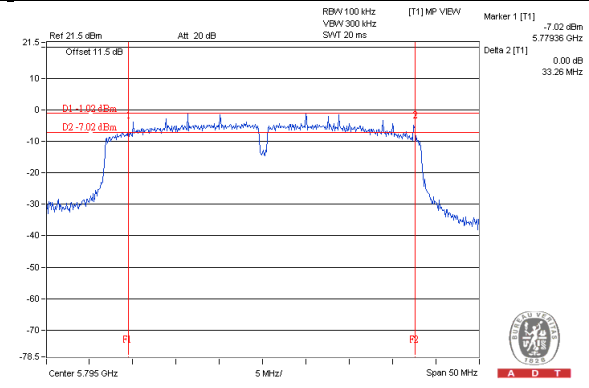
Chain 0 / CH159



Chain 1 / CH151



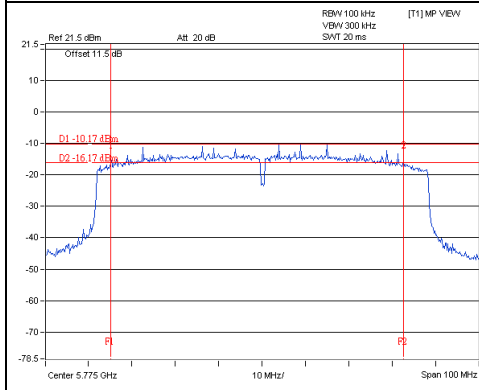
Chain 1 / CH159



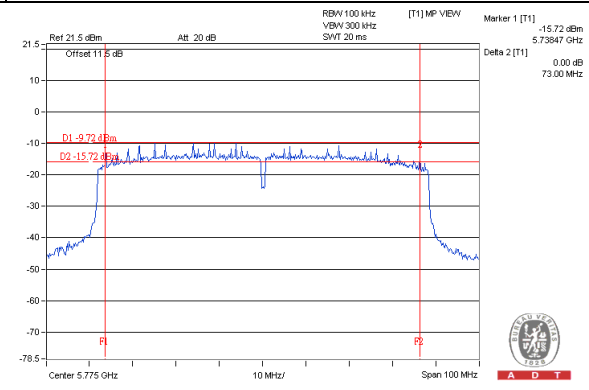
802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
155	5775	67.73	73.00	0.5	Pass

Chain 0 / CH155



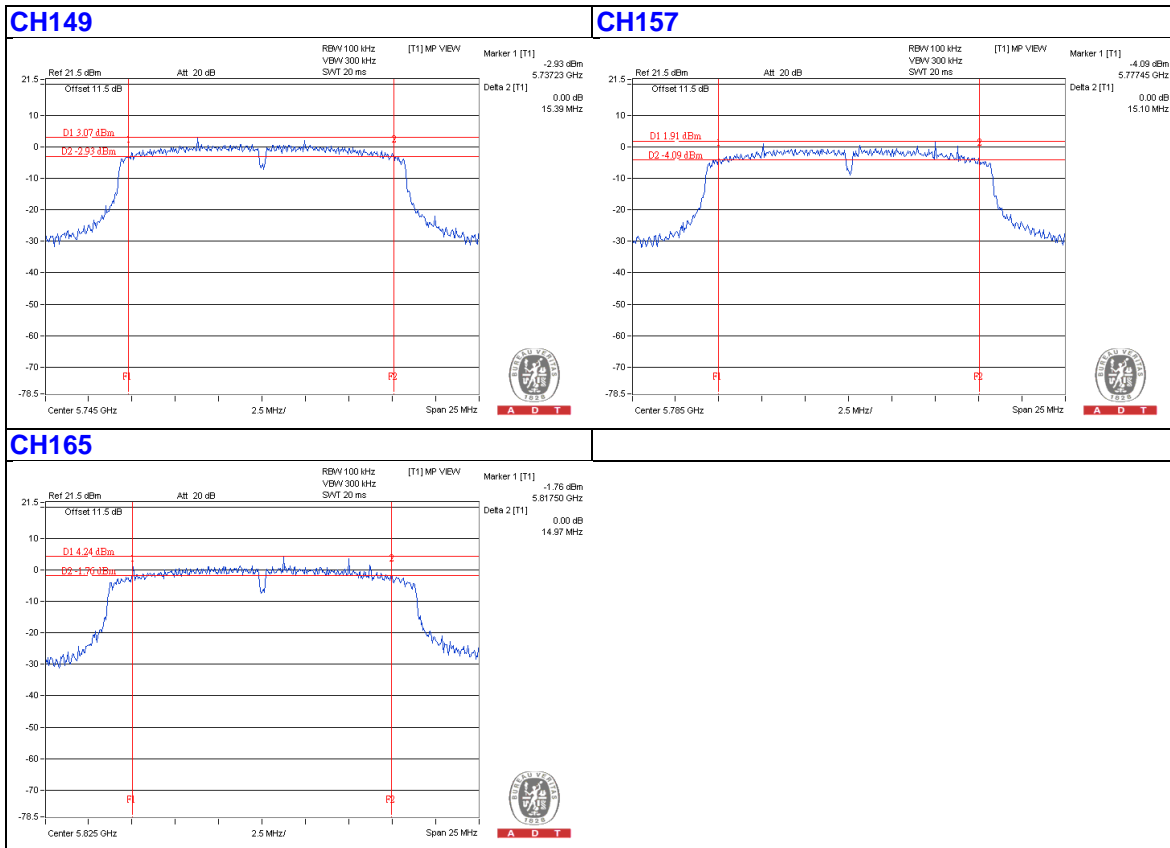
Chain 1 / CH155



4.3.8 Test Results (Mode 2)

802.11a

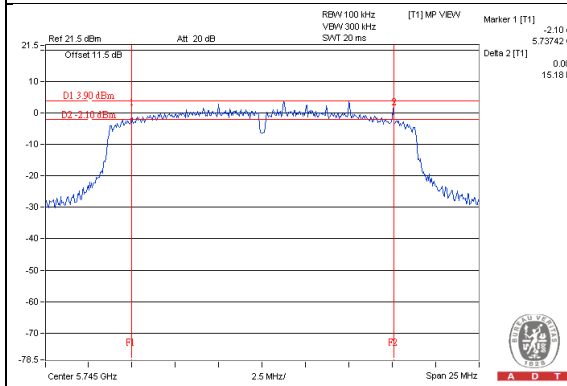
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	15.39	0.5	Pass
157	5785	15.10	0.5	Pass
165	5825	14.97	0.5	Pass



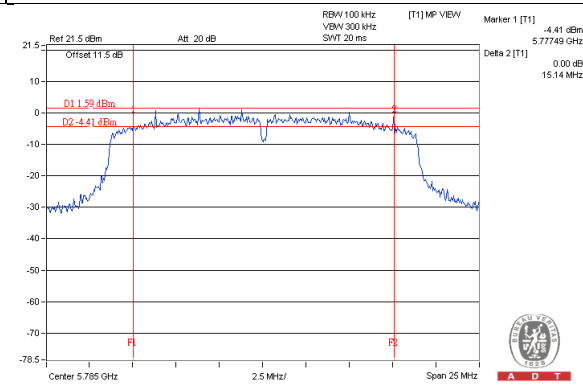
802.11ac (VHT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	15.18	0.5	Pass
157	5785	15.14	0.5	Pass
165	5825	16.06	0.5	Pass

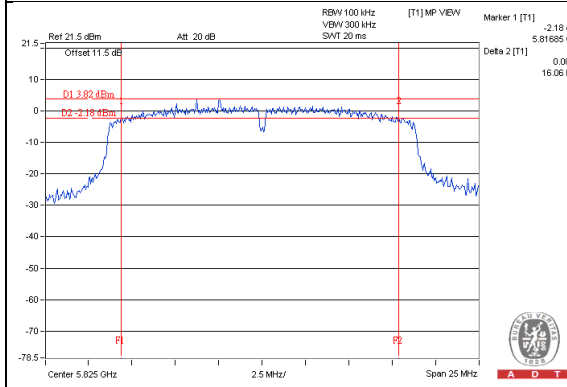
CH149



CH157

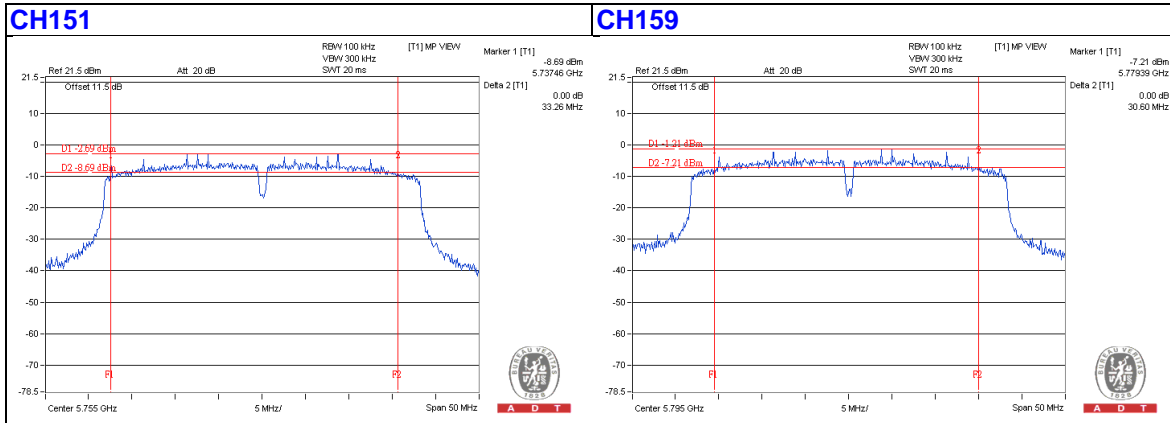


CH165



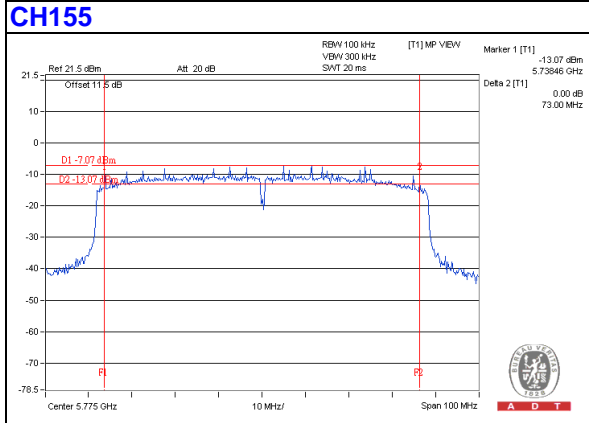
802.11ac (VHT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	33.26	0.5	Pass
159	5795	30.60	0.5	Pass



802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
155	5775	73.00	0.5	Pass



4.4 Unwanted Emission (Radiated Versus Conducted)

4.4.1 Limits of Unwanted Emission Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

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

Limits of Unwanted Emission out of the Restricted Bands

APPLICABLE TO	LIMIT	
789033 D02 General UNII Test Procedure New Rules v01	FIELD STRENGTH AT 3m	
	PK:74 (dBµV/m)	AV:54 (dBµV/m)
APPLICABLE TO	EIRP LIMIT	EQUIVALENT FIELD STRENGTH AT 3m
15.407(b)(1)	PK:-27 (dBm/MHz)	PK:68.2 (dBµV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)	PK:-27 (dBm/MHz) ^{*1} PK:-17 (dBm/MHz) ^{*2}	PK:68.2 (dBµV/m) ^{*1} PK:78.2 (dBµV/m) ^{*2}

NOTE: ^{*1} beyond 10MHz of the band edge ^{*2} within 10 MHz of band edge

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts).$$



4.4.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY51210105	July 24, 2015	July 23, 2016
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Feb. 06, 2015	Feb. 05, 2016
RF Cable	8D-FB	CHGCAB-001 -1 CHGCAB-001 -2	Oct. 04, 2014	Oct. 03, 2015
	RF-141	CHGCAB-004	Oct. 04, 2014	Oct. 03, 2015
Horn_Antenna AISI	AIH.8018	000032009111 0	Feb. 09, 2015	Feb. 08, 2016
Pre-Amplifier Agilent	8449B	3008A02578	June 23, 2015	June 22, 2016
RF Cable	NA	131205 131216 131217 SNMY23684/ 4	Jan. 16, 2015	Jan. 15, 2016
Spectrum Analyzer R&S	FSV40	100964	June 26, 2015	June 25, 2016
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Dec. 12, 2014	Dec. 11, 2015
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Feb. 05, 2015	Feb. 04, 2016
RF Cable	NA	329751/4 RF104-204	Dec. 11, 2014	Dec. 10, 2015
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. G.
3. The FCC Site Registration No. is 966073.
4. The VCCI Site Registration No. is G-137.
5. The CANADA Site Registration No. is IC 7450H-2.
6. Tested Date: Aug. 19, 2015

4.4.3 Test Procedures

Following FCC KDB 789033 D02 General UNII Test Procedures:

Radiated versus Conducted Measurements.

The unwanted emission limits in both the restricted and non-restricted bands are based on antenna-port conducted measurements in conjunction with cabinet emissions tests are permitted to demonstrate compliance.

The following steps was performed:

- a. Cabinet emissions measurements. Radiated measurement was performed to ensure that cabinet emissions are below the emission limits. For the cabinet-emission measurements the antenna was replaced by a termination matching the nominal impedance of the antenna.
- b. Conducted tests was performed using equipment that matches the nominal impedance of the antenna assembly used with the EUT
- c. EIRP calculation. A value representative of an upper bound on out-of-band antenna gain (in dBi) shall be added to the measured antenna-port conducted emission power to compute EIRP within the specified measurement bandwidth. (For emissions in the restricted bands, additional calculations are required to convert EIRP to field strength at the specified distance.) The upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands or 2 dBi, whichever is greater
- d. EIRP adjustments for multiple outputs. (Follow the procedures specified in FCC KDB Publication 662911)
- e. For all of Radiation emission test
 - e-1. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at a 3 meters chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
 - e-2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
 - e-3. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
 - e-4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
 - e-5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
 - e-6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor ($10 \log(1/\text{duty cycle})$).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle \geq 98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

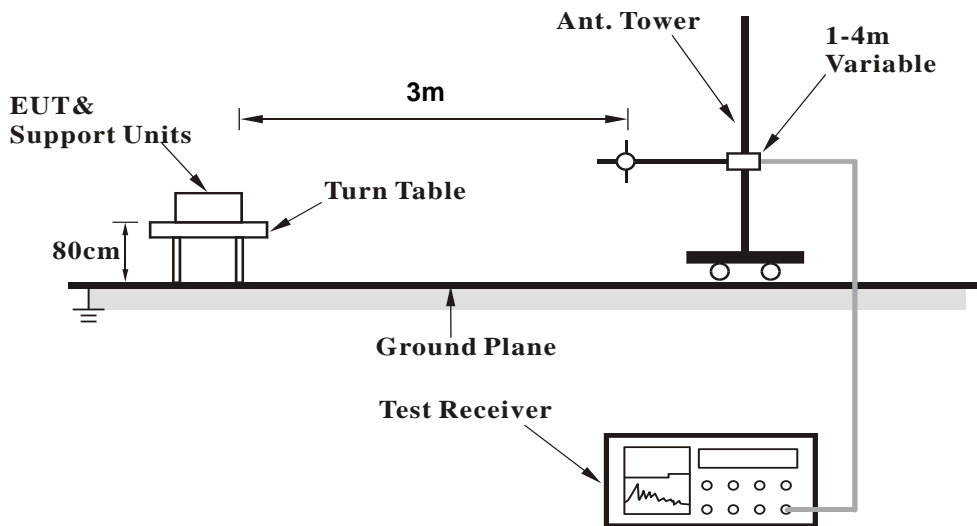
4.4.4 Deviation from Test Standard

No deviation.

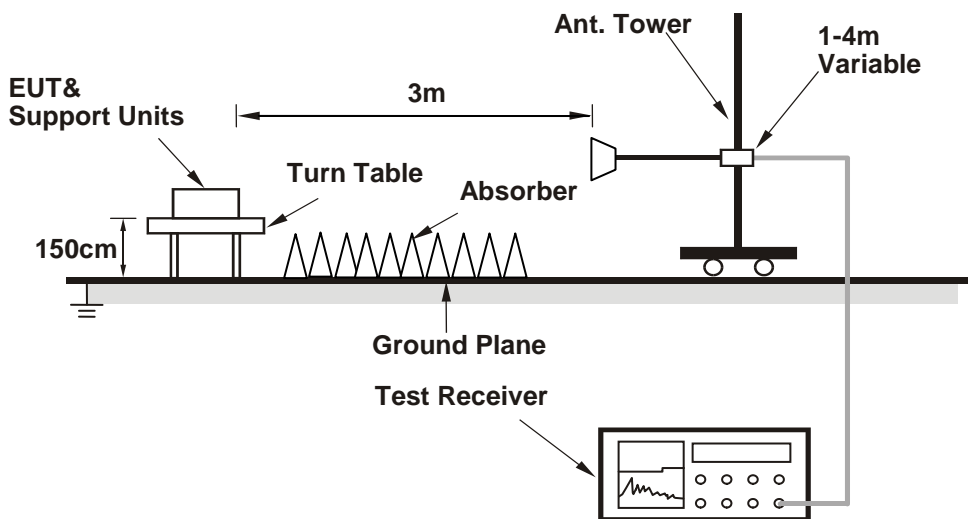
4.4.5 Test Setup

For radiated configuration:

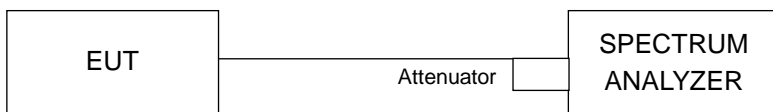
<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



For conducted configuration:



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

4.4.6 EUT Operating Conditions

1. Connect the EUT with the support unit A (Notebook Computer) which is placed on a testing table.
2. The communication partner run test program "QCART.exe V3.0.54.0" to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.4.7 Test Results (Mode 1_ Radiated Measurement)

Radiated versus Conducted Measurement	
<input type="checkbox"/> Conducted measurement	<input checked="" type="checkbox"/> Radiated measurement
<u>For Radiated measurement:</u> The level of unwanted emissions was measured when radiated by the cabinet or structure of the equipment with the antenna connector(s) terminated by a specified load (cabinet radiation)	
<u>For Conducted measurement:</u> The level of unwanted emissions was measured as their power in a specified load (conducted spurious emissions).	

Radiated test was done with 50ohm terminator on antenna port

Above 1GHz Data

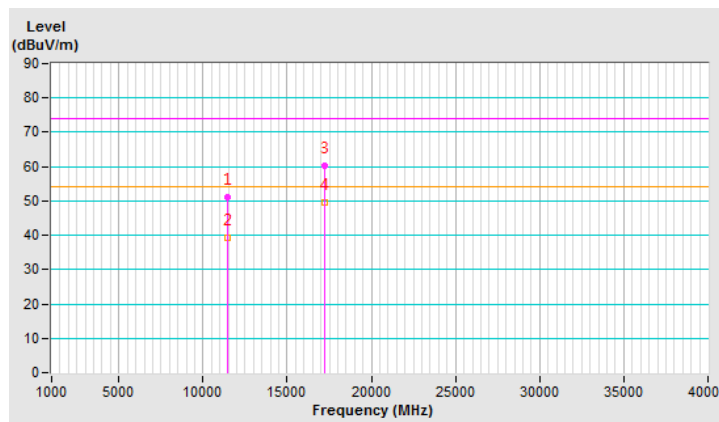
802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11490.00	51.2 PK	74.0	-22.8	1.47 H	166	36.34	14.86
2	11490.00	39.3 AV	54.0	-14.7	1.47 H	166	24.44	14.86
3	#17235.00	60.2 PK	74.0	-13.8	1.37 H	327	36.97	23.23
4	#17235.00	49.5 AV	54.0	-4.5	1.37 H	327	26.27	23.23

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.

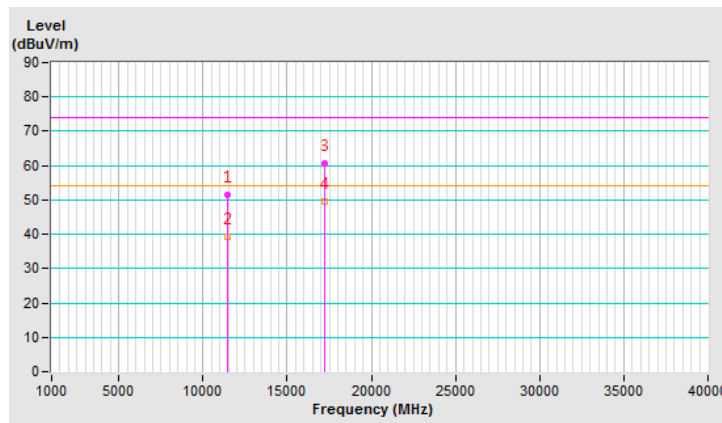


CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11490.00	51.6 PK	74.0	-22.4	1.33 V	321	36.74	14.86
2	11490.00	39.4 AV	54.0	-14.6	1.33 V	321	24.54	14.86
3	#17235.00	60.5 PK	74.0	-13.5	1.44 V	158	37.27	23.23
4	#17235.00	49.6 AV	54.0	-4.4	1.44 V	158	26.37	23.23

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. "#": The radiated frequency is out of the restricted band.



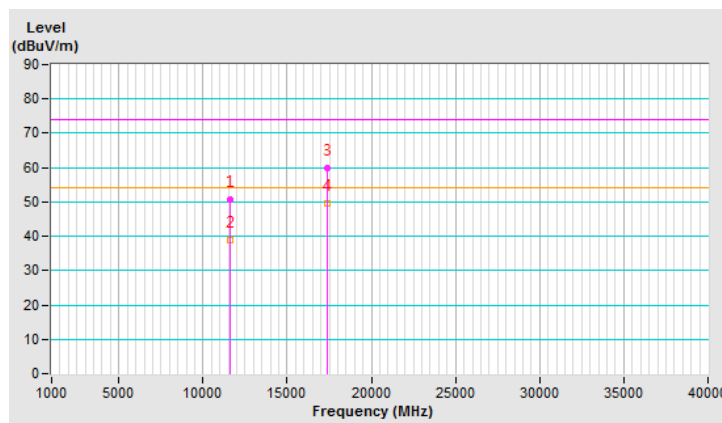
CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11570.00	50.6 PK	74.0	-23.4	1.42 H	168	35.40	15.20
2	11570.00	38.8 AV	54.0	-15.2	1.42 H	168	23.60	15.20
3	#17355.00	60.0 PK	74.0	-14.0	1.34 H	343	36.44	23.56
4	#17355.00	49.4 AV	54.0	-4.6	1.34 H	343	25.84	23.56

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.

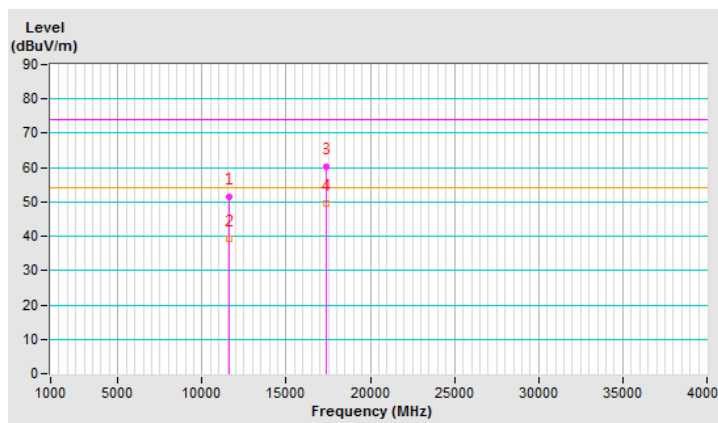


CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11570.00	51.4 PK	74.0	-22.6	1.29 V	313	36.20	15.20
2	11570.00	39.2 AV	54.0	-14.8	1.29 V	313	24.00	15.20
3	#17355.00	60.1 PK	74.0	-13.9	1.50 V	165	36.54	23.56
4	#17355.00	49.4 AV	54.0	-4.6	1.50 V	165	25.84	23.56

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.



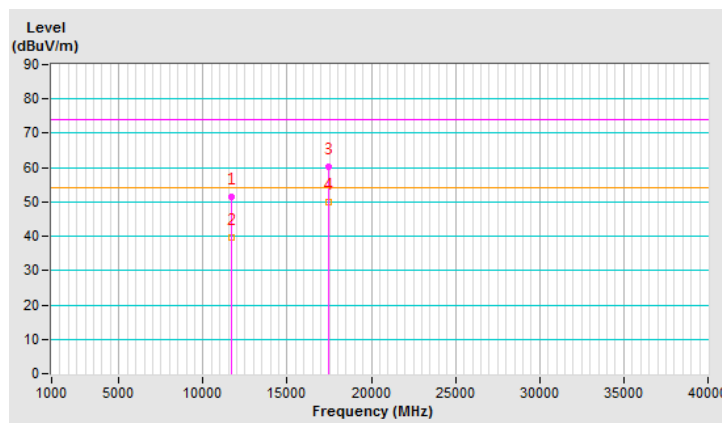
CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11650.00	51.3 PK	74.0	-22.7	1.52 H	154	35.90	15.40
2	11650.00	39.5 AV	54.0	-14.5	1.52 H	154	24.10	15.40
3	#17475.00	60.4 PK	74.0	-13.6	1.34 H	334	36.31	24.09
4	#17475.00	49.9 AV	54.0	-4.1	1.34 H	334	25.81	24.09

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.

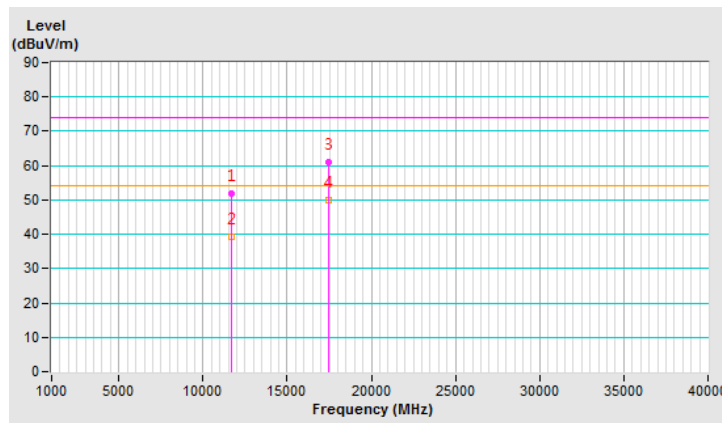


CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11650.00	51.7 PK	74.0	-22.3	1.36 V	329	36.30	15.40
2	11650.00	39.3 AV	54.0	-14.7	1.36 V	329	23.90	15.40
3	#17475.00	61.1 PK	74.0	-12.9	1.49 V	167	37.01	24.09
4	#17475.00	50.1 AV	54.0	-3.9	1.49 V	167	26.01	24.09

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.



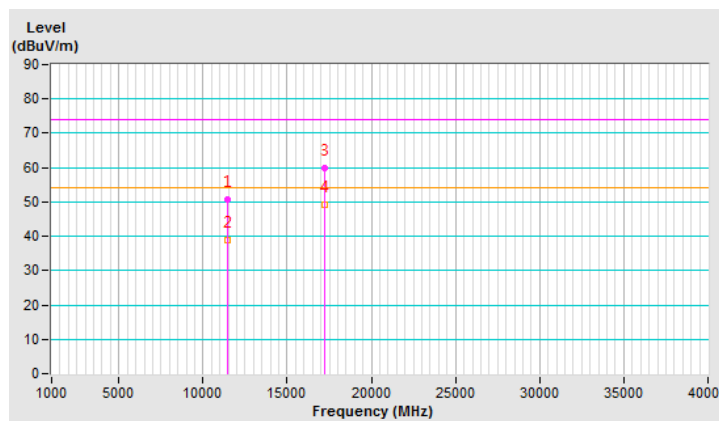
802.11ac (VHT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11490.00	50.8 PK	74.0	-23.2	1.41 H	169	35.94	14.86
2	11490.00	38.9 AV	54.0	-15.1	1.41 H	169	24.04	14.86
3	#17235.00	59.8 PK	74.0	-14.2	1.42 H	312	36.57	23.23
4	#17235.00	49.2 AV	54.0	-4.8	1.42 H	312	25.97	23.23

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.

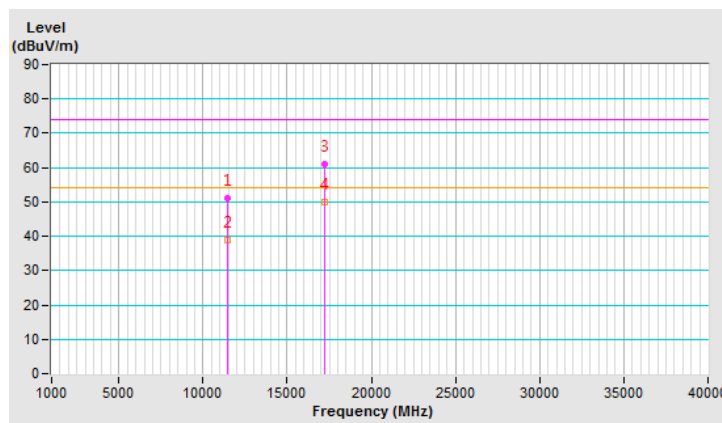


CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11490.00	51.2 PK	74.0	-22.8	1.38 V	330	36.34	14.86
2	11490.00	39.0 AV	54.0	-15.0	1.38 V	330	24.14	14.86
3	#17235.00	60.9 PK	74.0	-13.1	1.49 V	146	37.67	23.23
4	#17235.00	49.9 AV	54.0	-4.1	1.49 V	146	26.67	23.23

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.



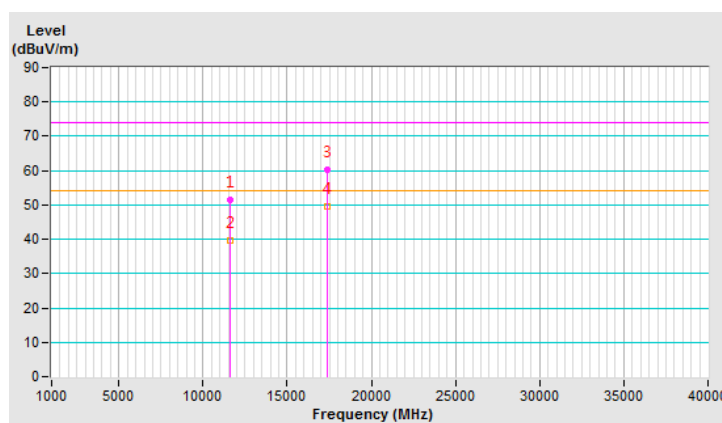
CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11570.00	51.3 PK	74.0	-22.7	1.51 H	180	36.10	15.20
2	11570.00	39.6 AV	54.0	-14.4	1.51 H	180	24.40	15.20
3	#17355.00	60.4 PK	74.0	-13.6	1.32 H	335	36.84	23.56
4	#17355.00	49.6 AV	54.0	-4.4	1.32 H	335	26.04	23.56

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.

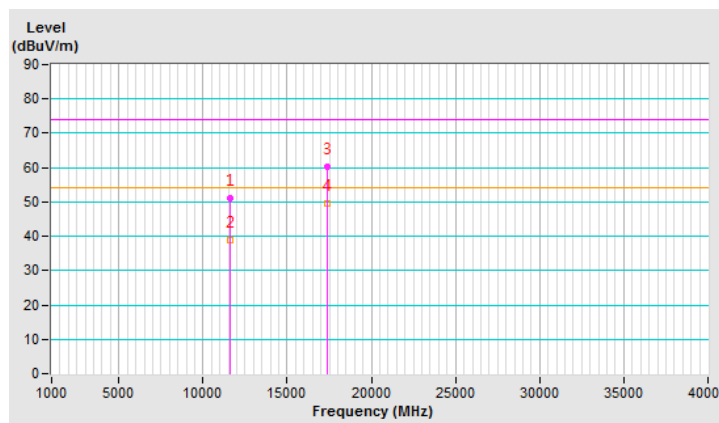


CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11570.00	51.0 PK	74.0	-23.0	1.31 V	336	35.80	15.20
2	11570.00	39.0 AV	54.0	-15.0	1.31 V	336	23.80	15.20
3	#17355.00	60.4 PK	74.0	-13.6	1.40 V	155	36.84	23.56
4	#17355.00	49.5 AV	54.0	-4.5	1.40 V	155	25.94	23.56

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.



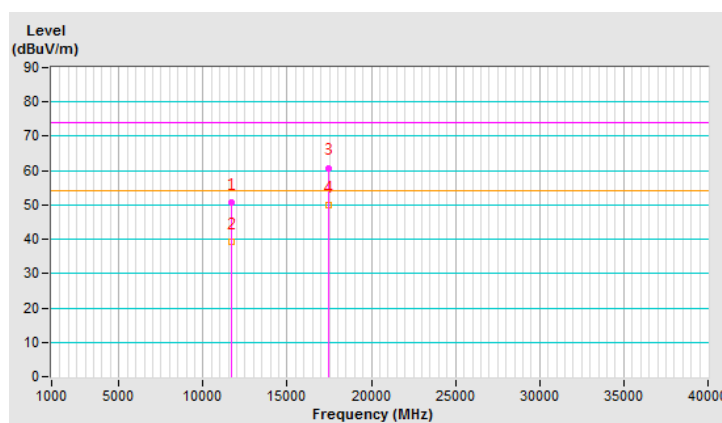
CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11650.00	50.8 PK	74.0	-23.2	1.46 H	155	35.40	15.40
2	11650.00	39.1 AV	54.0	-14.9	1.46 H	155	23.70	15.40
3	#17475.00	60.8 PK	74.0	-13.2	1.35 H	341	36.71	24.09
4	#17475.00	49.9 AV	54.0	-4.1	1.35 H	341	25.81	24.09

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.

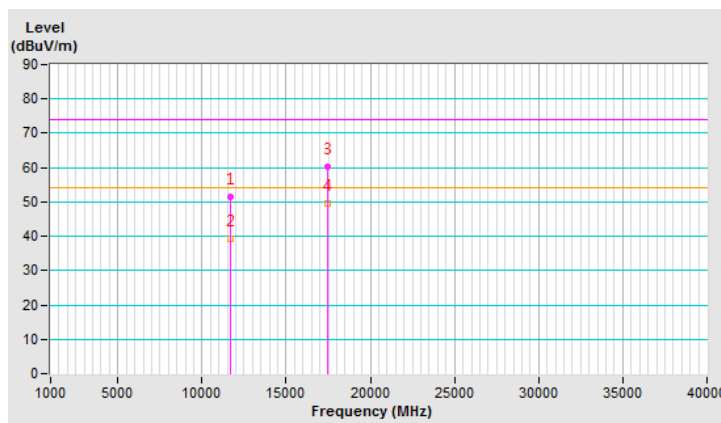


CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11650.00	51.5 PK	74.0	-22.5	1.33 V	320	36.10	15.40
2	11650.00	39.2 AV	54.0	-14.8	1.33 V	320	23.80	15.40
3	#17475.00	60.3 PK	74.0	-13.7	1.39 V	168	36.21	24.09
4	#17475.00	49.4 AV	54.0	-4.6	1.39 V	168	25.31	24.09

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.



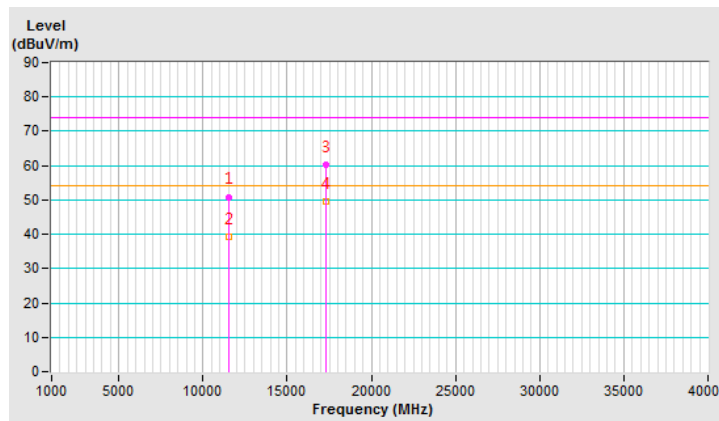
802.11ac (VHT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11510.00	50.9 PK	74.0	-23.1	1.49 H	164	36.05	14.85
2	11510.00	39.1 AV	54.0	-14.9	1.49 H	164	24.25	14.85
3	#17265.00	60.2 PK	74.0	-13.8	1.32 H	336	36.97	23.23
4	#17265.00	49.7 AV	54.0	-4.3	1.32 H	336	26.47	23.23

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.



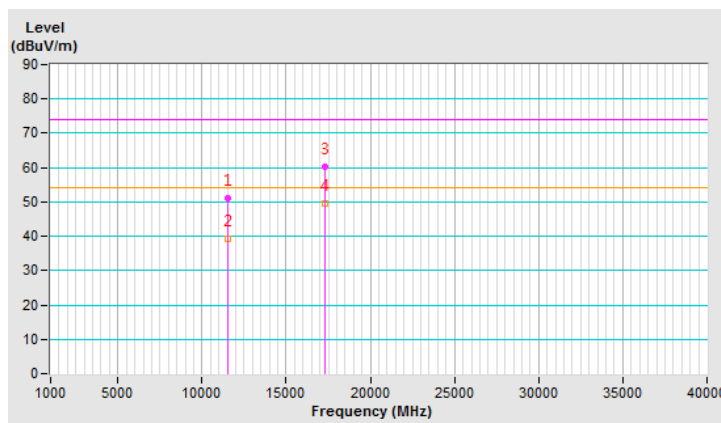
CHANNEL	TX Channel 151	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11510.00	51.2 PK	74.0	-22.8	1.27 V	315	36.35	14.85
2	11510.00	39.2 AV	54.0	-14.8	1.27 V	315	24.35	14.85
3	#17265.00	60.3 PK	74.0	-13.7	1.49 V	161	37.07	23.23
4	#17265.00	49.5 AV	54.0	-4.5	1.49 V	161	26.27	23.23

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.



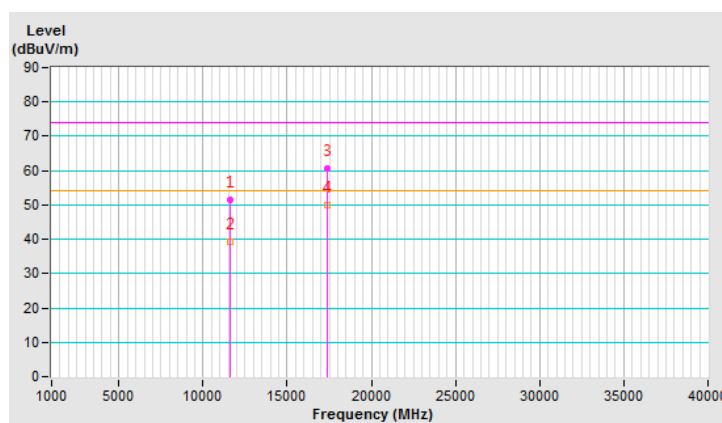
CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11590.00	51.4 PK	74.0	-22.6	1.52 H	160	36.09	15.31
2	11590.00	39.2 AV	54.0	-14.8	1.52 H	160	23.89	15.31
3	#17385.00	60.5 PK	74.0	-13.5	1.34 H	323	36.74	23.76
4	#17385.00	49.8 AV	54.0	-4.2	1.34 H	323	26.04	23.76

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.

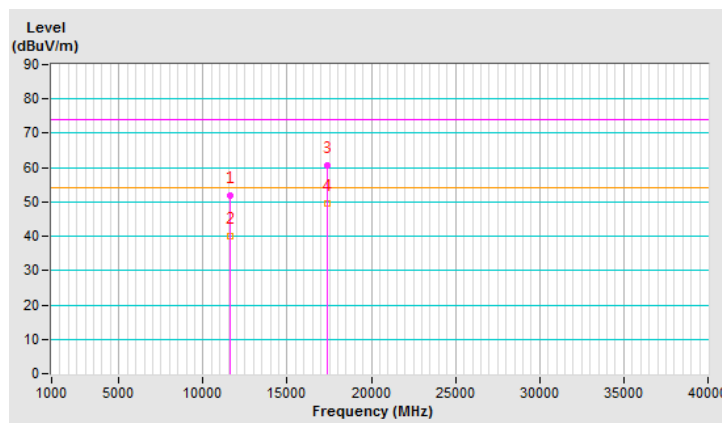


CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11590.00	52.0 PK	74.0	-22.0	1.31 V	307	36.69	15.31
2	11590.00	39.9 AV	54.0	-14.1	1.31 V	307	24.59	15.31
3	#17385.00	60.7 PK	74.0	-13.3	1.42 V	155	36.94	23.76
4	#17385.00	49.6 AV	54.0	-4.4	1.42 V	155	25.84	23.76

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.



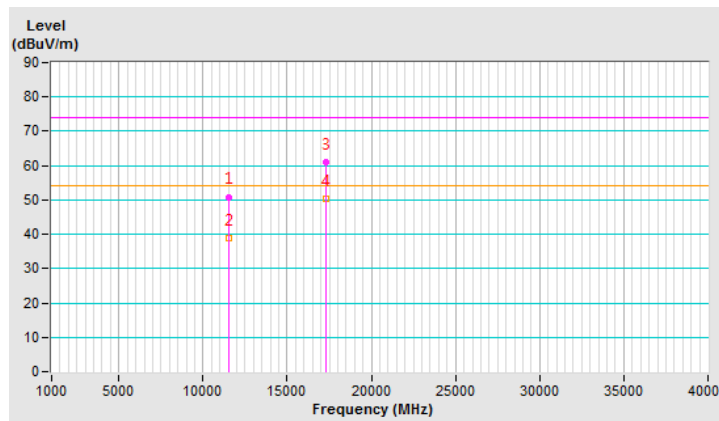
802.11ac (VHT80)

CHANNEL	TX Channel 155	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11550.00	50.9 PK	74.0	-23.1	1.50 H	169	35.81	15.09
2	11550.00	38.8 AV	54.0	-15.2	1.50 H	169	23.71	15.09
3	#17325.00	61.0 PK	74.0	-13.0	1.32 H	327	37.62	23.38
4	#17325.00	50.2 AV	54.0	-3.8	1.32 H	327	26.82	23.38

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.

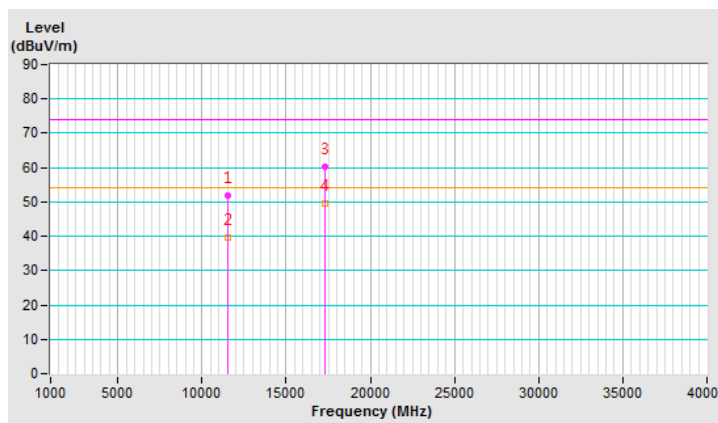


CHANNEL	TX Channel 155	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11550.00	51.8 PK	74.0	-22.2	1.31 V	337	36.71	15.09
2	11550.00	39.8 AV	54.0	-14.2	1.31 V	337	24.71	15.09
3	#17325.00	60.2 PK	74.0	-13.8	1.41 V	169	36.82	23.38
4	#17325.00	49.4 AV	54.0	-4.6	1.41 V	169	26.02	23.38

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.



Below 1GHz Data

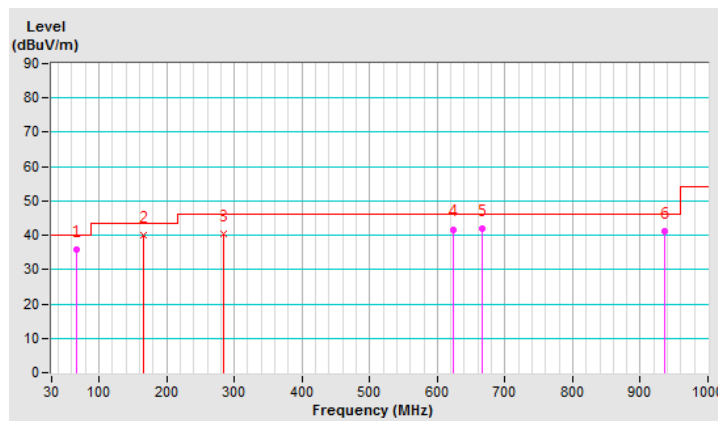
802.11a

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	Below 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	67.59	35.9 QP	40.0	-4.1	2.00 H	253	50.79	-14.93
2	166.03	40.1 QP	43.5	-3.4	1.50 H	343	53.38	-13.32
3	284.47	40.4 QP	46.0	-5.7	1.00 H	90	52.84	-12.49
4	623.98	41.7 QP	46.0	-4.3	1.50 H	121	45.47	-3.74
5	666.47	41.9 QP	46.0	-4.1	1.50 H	188	45.19	-3.32
6	936.03	41.2 QP	46.0	-4.8	1.50 H	290	39.82	1.40

REMARKS:

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



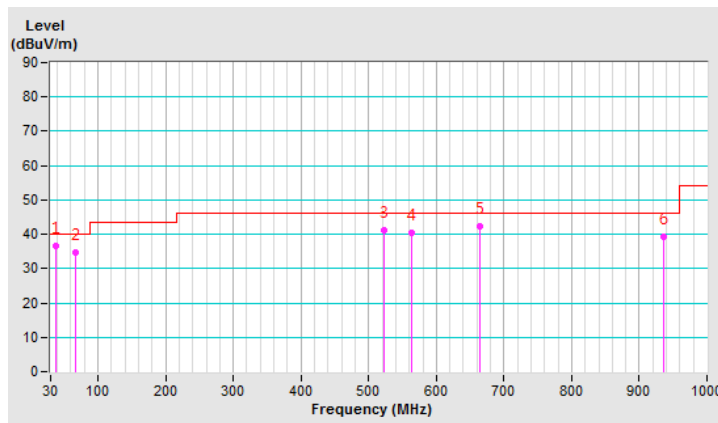
CHANNEL	TX Channel 165	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	Below 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	36.79	36.6 QP	40.0	-3.5	1.00 V	167	50.48	-13.93
2	67.64	34.7 QP	40.0	-5.3	2.00 V	304	49.67	-14.95
3	522.52	41.2 QP	46.0	-4.9	1.50 V	48	47.48	-6.33
4	564.03	40.5 QP	46.0	-5.5	1.50 V	51	46.05	-5.51
5	663.89	42.3 QP	46.0	-3.7	1.50 V	140	45.60	-3.34
6	936.08	39.1 QP	46.0	-6.9	1.50 V	51	37.72	1.40

REMARKS:

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



4.4.8 Test Results (Mode 2_ Radiated Measurement)

Radiated versus Conducted Measurement	
<input type="checkbox"/> Conducted measurement	<input checked="" type="checkbox"/> Radiated measurement
<u>For Radiated measurement:</u> The level of unwanted emissions was measured when radiated by the cabinet or structure of the equipment with the antenna connector(s) terminated by a specified load (cabinet radiation)	
<u>For Conducted measurement:</u> The level of unwanted emissions was measured as their power in a specified load (conducted spurious emissions).	

Radiated test was done with 50ohm terminator on antenna port

Above 1GHz Data

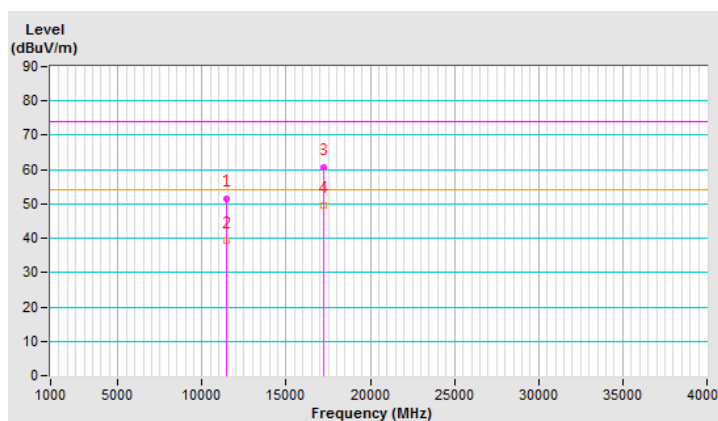
802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11490.00	51.3 PK	74.0	-22.7	1.46 H	155	36.44	14.86
2	11490.00	39.4 AV	54.0	-14.6	1.46 H	155	24.54	14.86
3	#17235.00	60.5 PK	74.0	-13.5	1.32 H	322	37.27	23.23
4	#17235.00	49.7 AV	54.0	-4.3	1.32 H	322	26.47	23.23

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.

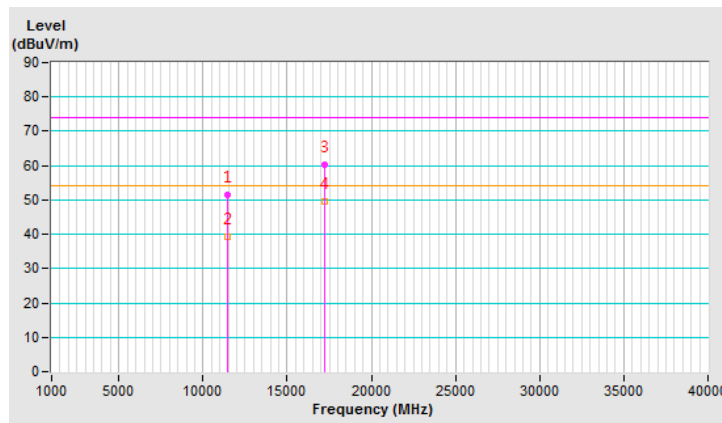


CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11490.00	51.6 PK	74.0	-22.4	1.36 V	329	36.74	14.86
2	11490.00	39.4 AV	54.0	-14.6	1.36 V	329	24.54	14.86
3	#17235.00	60.2 PK	74.0	-13.8	1.48 V	159	36.97	23.23
4	#17235.00	49.5 AV	54.0	-4.5	1.48 V	159	26.27	23.23

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.



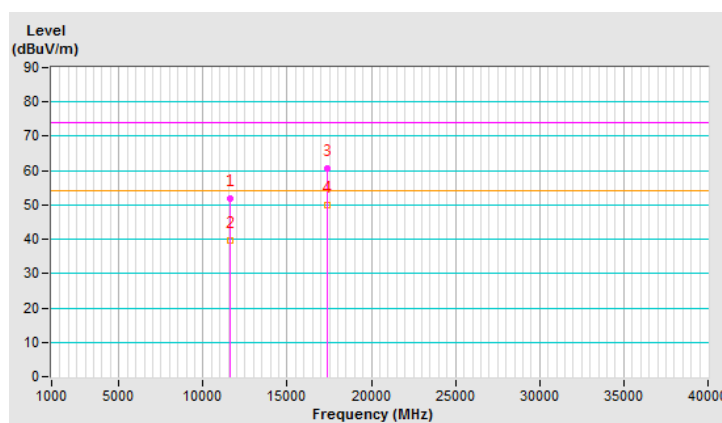
CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11570.00	51.7 PK	74.0	-22.3	1.52 H	149	36.50	15.20
2	11570.00	39.7 AV	54.0	-14.3	1.52 H	149	24.50	15.20
3	#17355.00	60.6 PK	74.0	-13.4	1.35 H	306	37.04	23.56
4	#17355.00	50.1 AV	54.0	-3.9	1.35 H	306	26.54	23.56

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.

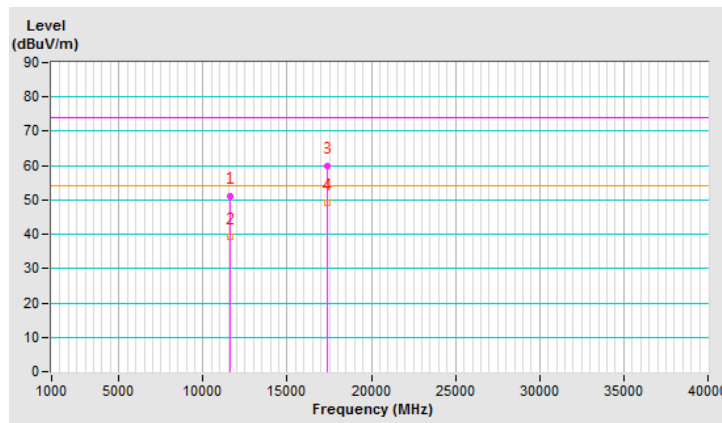


CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11570.00	51.2 PK	74.0	-22.8	1.32 V	324	36.00	15.20
2	11570.00	39.3 AV	54.0	-14.7	1.32 V	324	24.10	15.20
3	#17355.00	59.7 PK	74.0	-14.3	1.44 V	167	36.14	23.56
4	#17355.00	49.3 AV	54.0	-4.7	1.44 V	167	25.74	23.56

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.



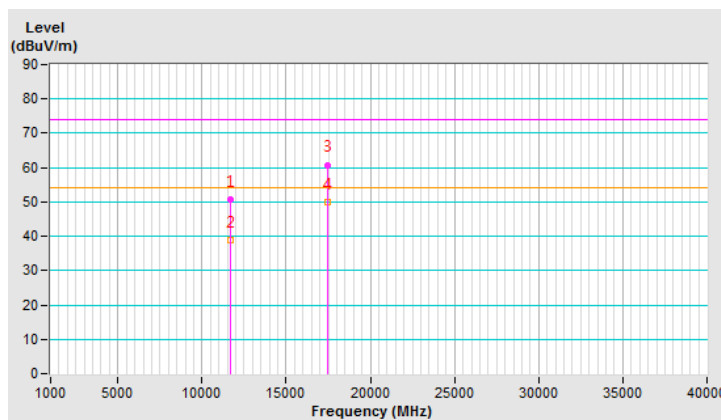
CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11650.00	50.6 PK	74.0	-23.4	1.42 H	140	35.20	15.40
2	11650.00	39.0 AV	54.0	-15.0	1.42 H	140	23.60	15.40
3	#17475.00	60.8 PK	74.0	-13.2	1.30 H	311	36.71	24.09
4	#17475.00	49.8 AV	54.0	-4.2	1.30 H	311	25.71	24.09

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.

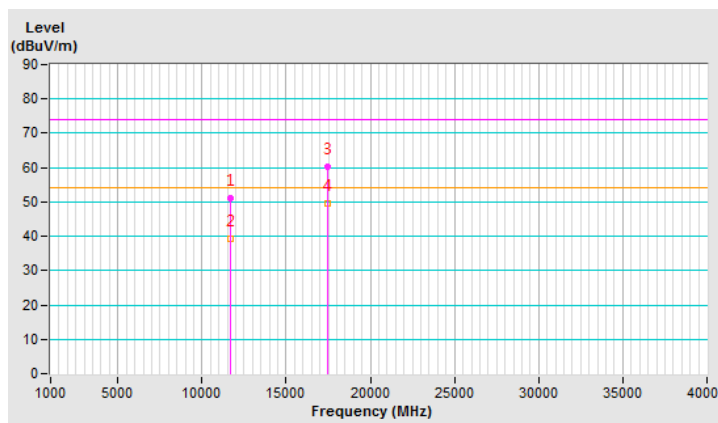


CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11650.00	51.2 PK	74.0	-22.8	1.32 V	325	35.80	15.40
2	11650.00	39.1 AV	54.0	-14.9	1.32 V	325	23.70	15.40
3	#17475.00	60.2 PK	74.0	-13.8	1.47 V	164	36.11	24.09
4	#17475.00	49.5 AV	54.0	-4.5	1.47 V	164	25.41	24.09

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.



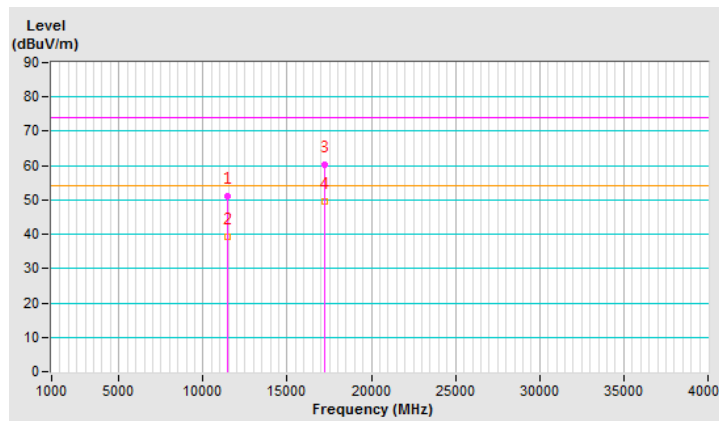
802.11ac (VHT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11490.00	51.1 PK	74.0	-22.9	1.45 H	142	36.24	14.86
2	11490.00	39.1 AV	54.0	-14.9	1.45 H	142	24.24	14.86
3	#17235.00	60.2 PK	74.0	-13.8	1.28 H	322	36.97	23.23
4	#17235.00	49.6 AV	54.0	-4.4	1.28 H	322	26.37	23.23

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.

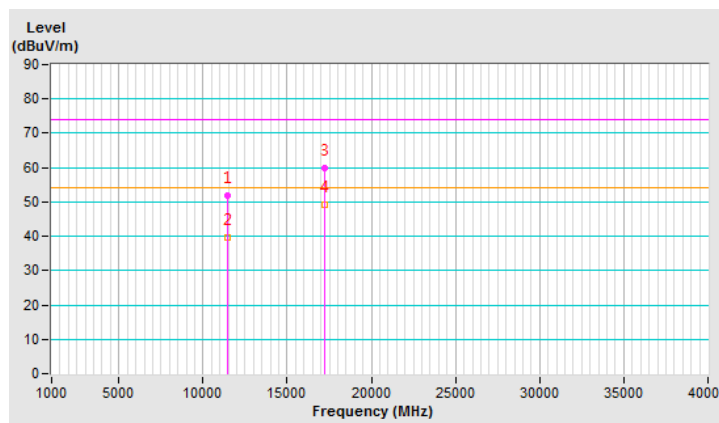


CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11490.00	51.8 PK	74.0	-22.2	1.33 V	344	36.94	14.86
2	11490.00	39.8 AV	54.0	-14.2	1.33 V	344	24.94	14.86
3	#17235.00	59.8 PK	74.0	-14.2	1.50 V	151	36.57	23.23
4	#17235.00	49.2 AV	54.0	-4.8	1.50 V	151	25.97	23.23

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. "#": The radiated frequency is out of the restricted band.



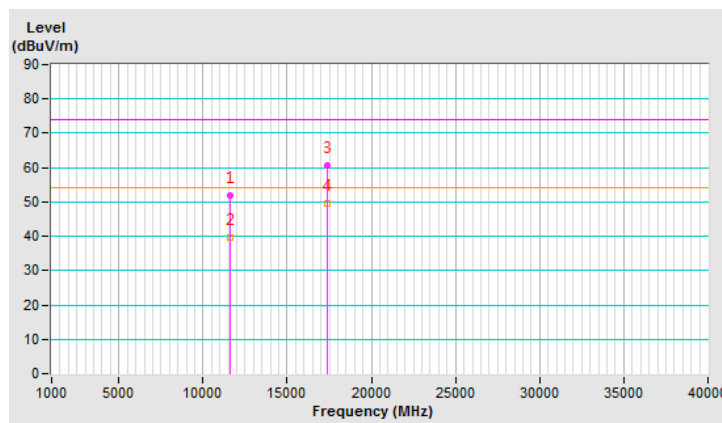
CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11570.00	51.9 PK	74.0	-22.1	1.45 H	157	36.70	15.20
2	11570.00	39.8 AV	54.0	-14.2	1.45 H	157	24.60	15.20
3	#17355.00	60.5 PK	74.0	-13.5	1.37 H	318	36.94	23.56
4	#17355.00	49.4 AV	54.0	-4.6	1.37 H	318	25.84	23.56

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.

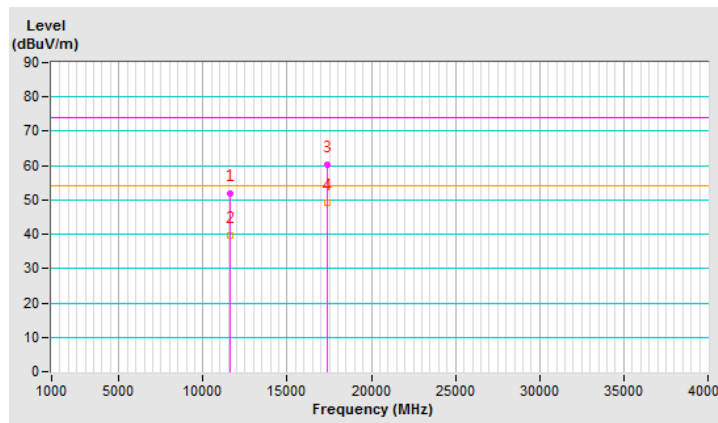


CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11570.00	51.8 PK	74.0	-22.2	1.40 V	338	36.60	15.20
2	11570.00	39.6 AV	54.0	-14.4	1.40 V	338	24.40	15.20
3	#17355.00	60.1 PK	74.0	-13.9	1.48 V	166	36.54	23.56
4	#17355.00	49.2 AV	54.0	-4.8	1.48 V	166	25.64	23.56

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.

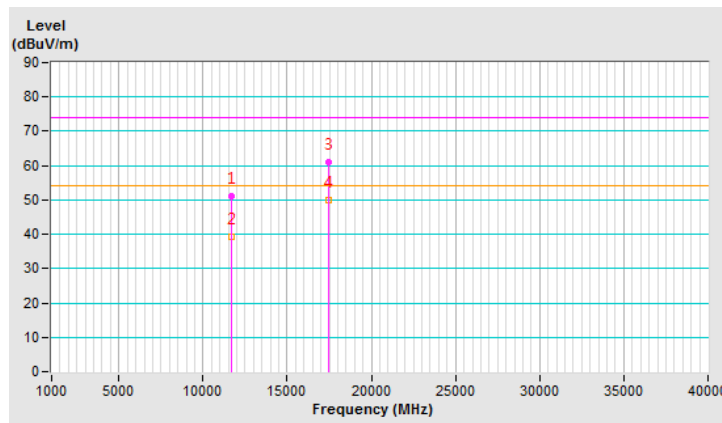


CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11650.00	51.2 PK	74.0	-22.8	1.44 H	140	35.80	15.40
2	11650.00	39.2 AV	54.0	-14.8	1.44 H	140	23.80	15.40
3	#17475.00	60.9 PK	74.0	-13.1	1.27 H	328	36.81	24.09
4	#17475.00	49.9 AV	54.0	-4.1	1.27 H	328	25.81	24.09

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.

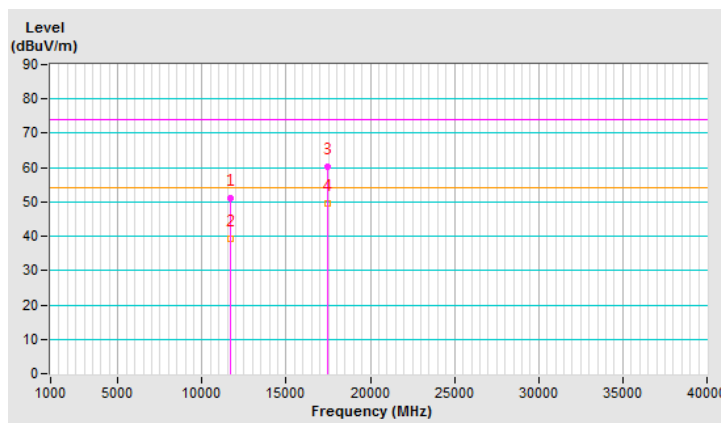


CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11650.00	51.2 PK	74.0	-22.8	1.40 V	340	35.80	15.40
2	11650.00	39.2 AV	54.0	-14.8	1.40 V	340	23.80	15.40
3	#17475.00	60.4 PK	74.0	-13.6	1.45 V	161	36.31	24.09
4	#17475.00	49.5 AV	54.0	-4.5	1.45 V	161	25.41	24.09

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. "#": The radiated frequency is out of the restricted band.



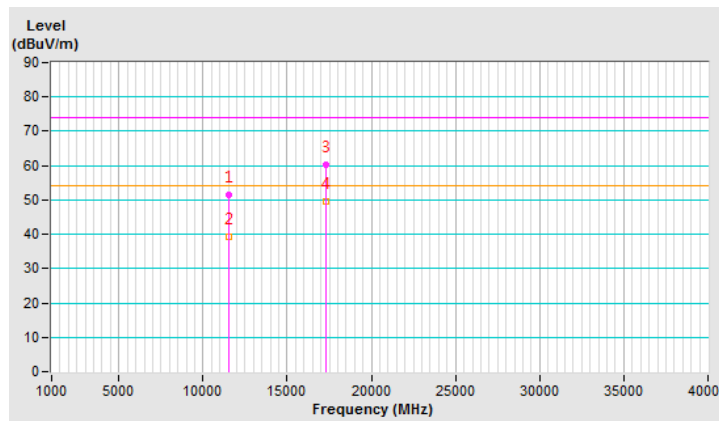
802.11ac (VHT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11510.00	51.5 PK	74.0	-22.5	1.44 H	155	36.65	14.85
2	11510.00	39.4 AV	54.0	-14.6	1.44 H	155	24.55	14.85
3	#17265.00	60.3 PK	74.0	-13.7	1.36 H	335	37.07	23.23
4	#17265.00	49.5 AV	54.0	-4.5	1.36 H	335	26.27	23.23

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. "#": The radiated frequency is out of the restricted band.

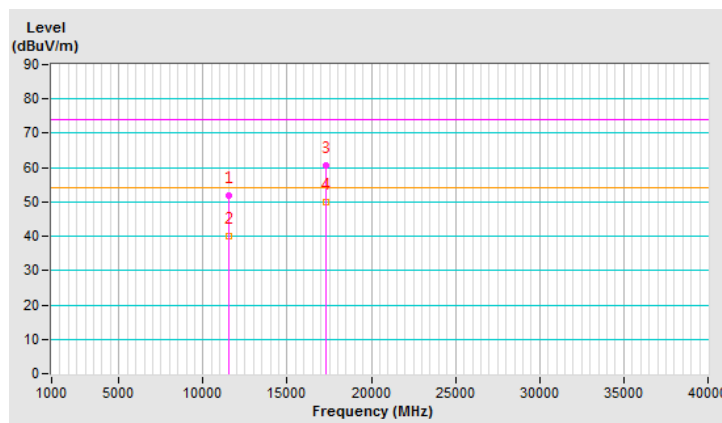


CHANNEL	TX Channel 151	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11510.00	51.8 PK	74.0	-22.2	1.32 V	333	36.95	14.85
2	11510.00	39.9 AV	54.0	-14.1	1.32 V	333	25.05	14.85
3	#17265.00	60.7 PK	74.0	-13.3	1.54 V	175	37.47	23.23
4	#17265.00	49.9 AV	54.0	-4.1	1.54 V	175	26.67	23.23

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.



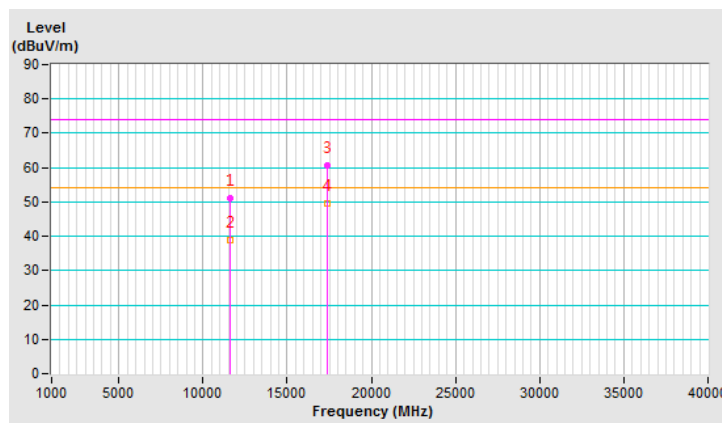
CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11590.00	51.2 PK	74.0	-22.8	1.47 H	155	35.89	15.31
2	11590.00	39.0 AV	54.0	-15.0	1.47 H	155	23.69	15.31
3	#17385.00	60.5 PK	74.0	-13.5	1.29 H	335	36.74	23.76
4	#17385.00	49.7 AV	54.0	-4.3	1.29 H	335	25.94	23.76

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.

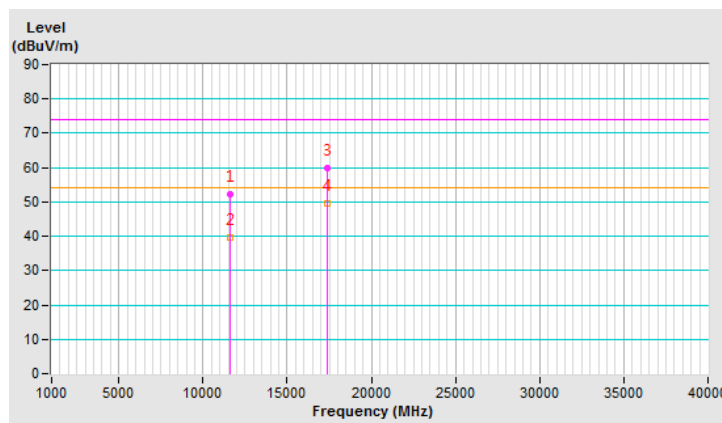


CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11590.00	52.3 PK	74.0	-21.7	1.41 V	330	36.99	15.31
2	11590.00	39.8 AV	54.0	-14.2	1.41 V	330	24.49	15.31
3	#17385.00	60.0 PK	74.0	-14.0	1.45 V	163	36.24	23.76
4	#17385.00	49.4 AV	54.0	-4.6	1.45 V	163	25.64	23.76

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.



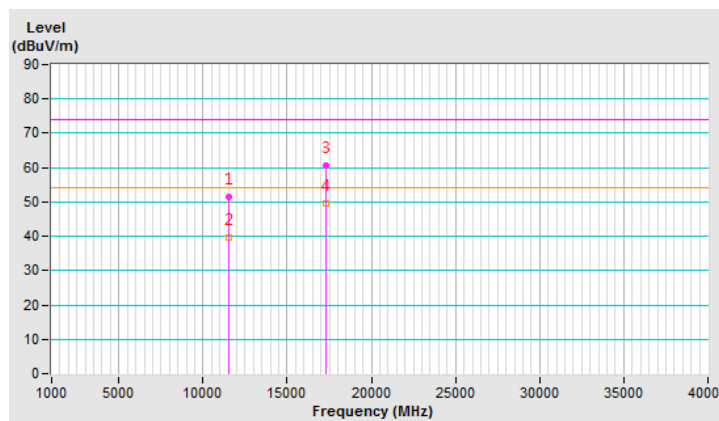
802.11ac (VHT80)

CHANNEL	TX Channel 155	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11550.00	51.6 PK	74.0	-22.4	1.49 H	139	36.51	15.09
2	11550.00	39.6 AV	54.0	-14.4	1.49 H	139	24.51	15.09
3	#17325.00	60.6 PK	74.0	-13.4	1.36 H	331	37.22	23.38
4	#17325.00	49.7 AV	54.0	-4.3	1.36 H	331	26.32	23.38

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.

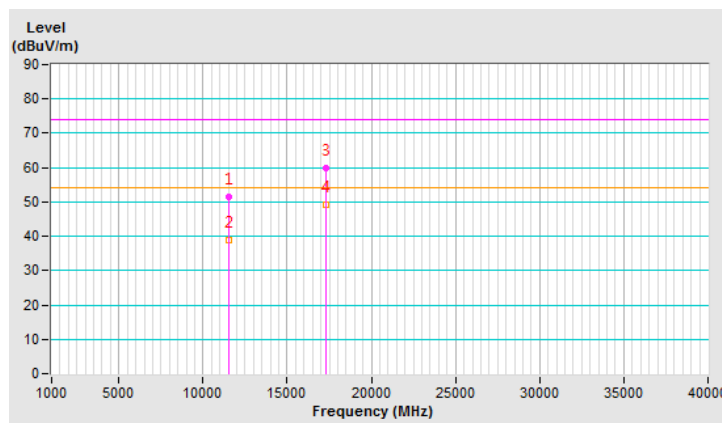


CHANNEL	TX Channel 155	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11550.00	51.4 PK	74.0	-22.6	1.32 V	317	36.31	15.09
2	11550.00	39.0 AV	54.0	-15.0	1.32 V	317	23.91	15.09
3	#17325.00	59.9 PK	74.0	-14.1	1.53 V	157	36.52	23.38
4	#17325.00	49.1 AV	54.0	-4.9	1.53 V	157	25.72	23.38

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.



4.4.9 Test Results (Mode 1_Conducted Measurement)

Radiated versus Conducted Measurement	
<input checked="" type="checkbox"/> Conducted measurement	<input type="checkbox"/> Radiated measurement
<p><u>For Radiated measurement:</u> The level of unwanted emissions was measured when radiated by the cabinet or structure of the equipment with the antenna connector(s) terminated by a specified load (cabinet radiation)</p> <p><u>For Conducted measurement:</u> The level of unwanted emissions was measured as their power in a specified load (conducted spurious emissions).</p>	

Conducted Measurement Factor
<p>a. The composite gain will be used when signal support the correlated signal. (Composite gain = $4.76\text{dBi} + 10\log(2) = 7.77\text{dBi}$)</p> <p>b. For the out of band spurious the gain for the specific band may have been used rather than the highest gain across all bands.</p> <p>c. For the band edge the gain for the specific band may have been used.</p> <p>d. In restricted bands below 1000 MHz, add upper bound on ground plane reflection: For $f = 30 - 1000$ MHz, add 4.7 dB.</p> <p>Note: The conducted emission test was considered some factor to compute test result.</p>

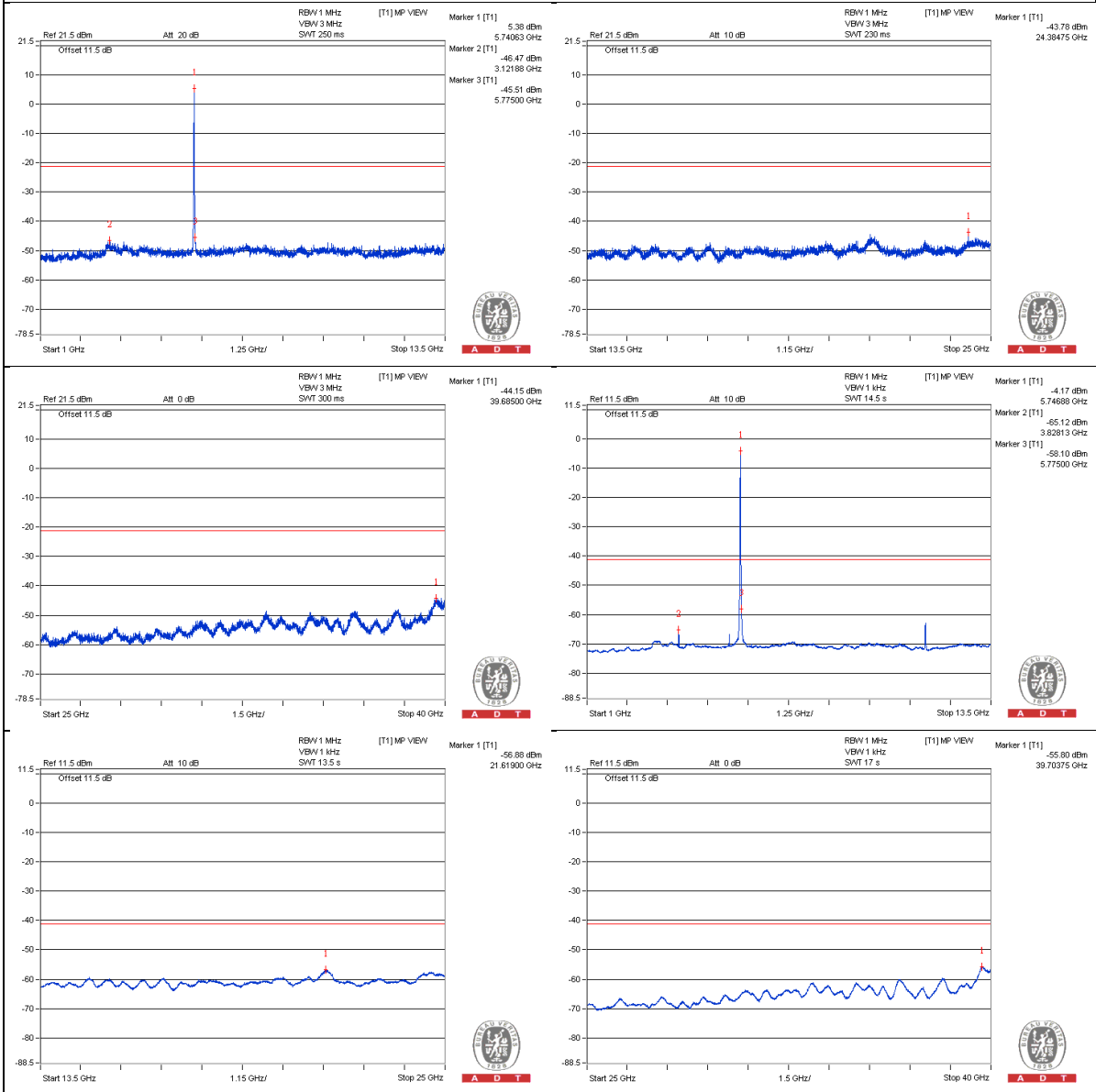
Above 1GHz Data
802.11a - Channel 149

Conducted spurious emission table

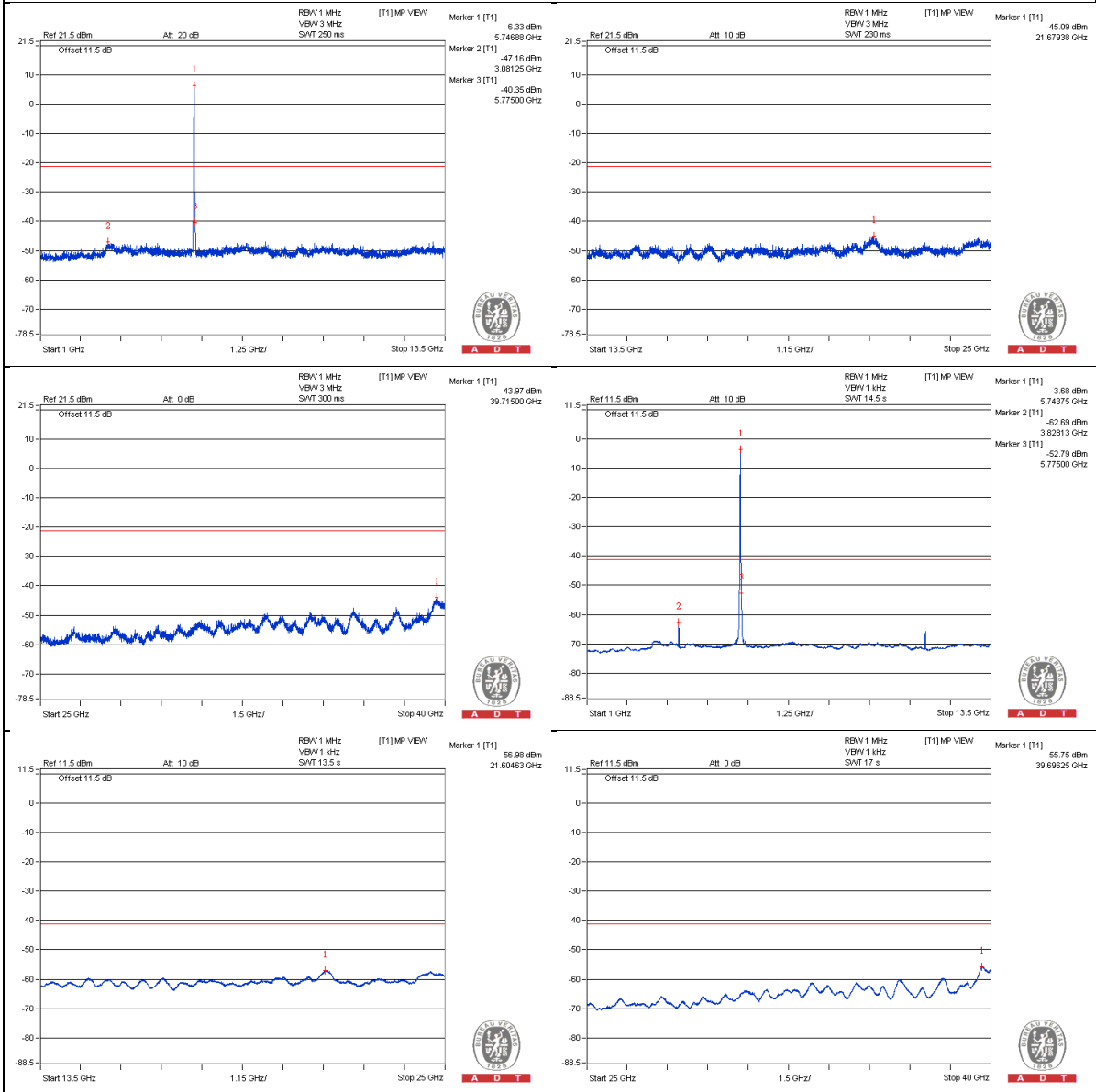
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	3828.125 PK	56.22	74	-17.78	-48.94	-50.93	7.77	-39.04
2	3828.125 AV	42.3	54	-11.7	-65.12	-62.69	7.77	-52.96
3	7659.375 PK	56.52	74	-17.48	-49.04	-50.07	7.77	-38.74
4	7659.375 AV	35.56	54	-18.44	-70.38	-70.59	7.77	-59.7
5	11490.625 PK	56.63	74	-17.37	-48.39	-50.74	7.77	-38.63
6	11490.625 AV	41.89	54	-12.11	-62.99	-65.73	7.77	-53.37
7	17234.625 PK	53.4	74	-20.6	-52.27	-53.04	7.77	-41.86
8	17234.625 AV	42.57	54	-11.43	-63.43	-63.51	7.77	-52.69

Note :
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
d = measurement distance in 3 meters.

Chain 0



Chain 1

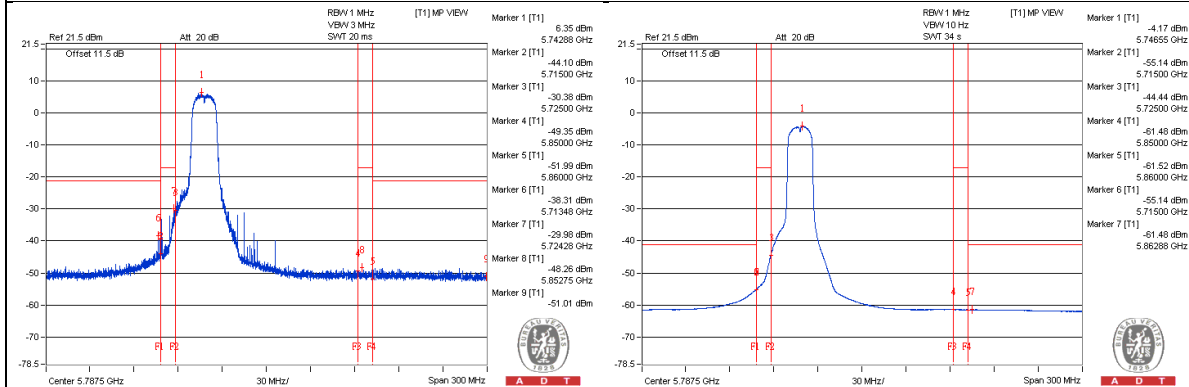


Bandedge table

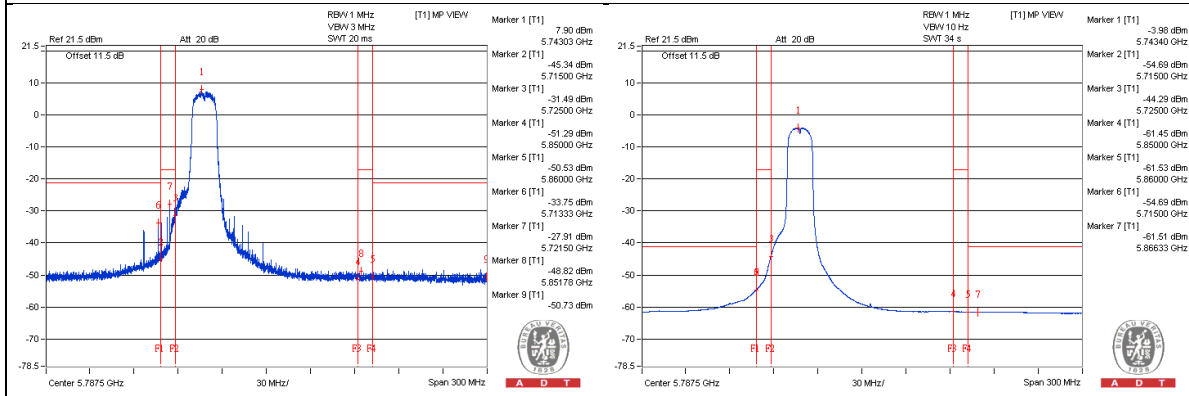
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	5713.325 PK	69.58	74	-4.42	-45.17	-33.75	7.77	-25.68
2	5714.975 AV	51.13	54	-2.87	-55.14	-54.69	7.77	-44.13
3	5724.725 PK	76.18	78.2	-2.02	-30.75	-29.12	7.77	-19.08
4	5852.75 PK	56.64	78.2	-21.56	-48.26	-50.95	7.77	-38.62
5	5861.75 PK	56.46	74	-17.54	-48.48	-51.07	7.77	-38.8
6	5861.375 AV	44.53	54	-9.47	-61.49	-61.54	7.77	-50.73

Note :
 $Emission\ Level\ (dBuV/m) = EIRP\ Level\ (dBm) - 20\log(d) + 104.8$
 d = measurement distance in 3 meters.

Chain 0



Chain 1



802.11a - Channel 157
Conducted spurious emission table

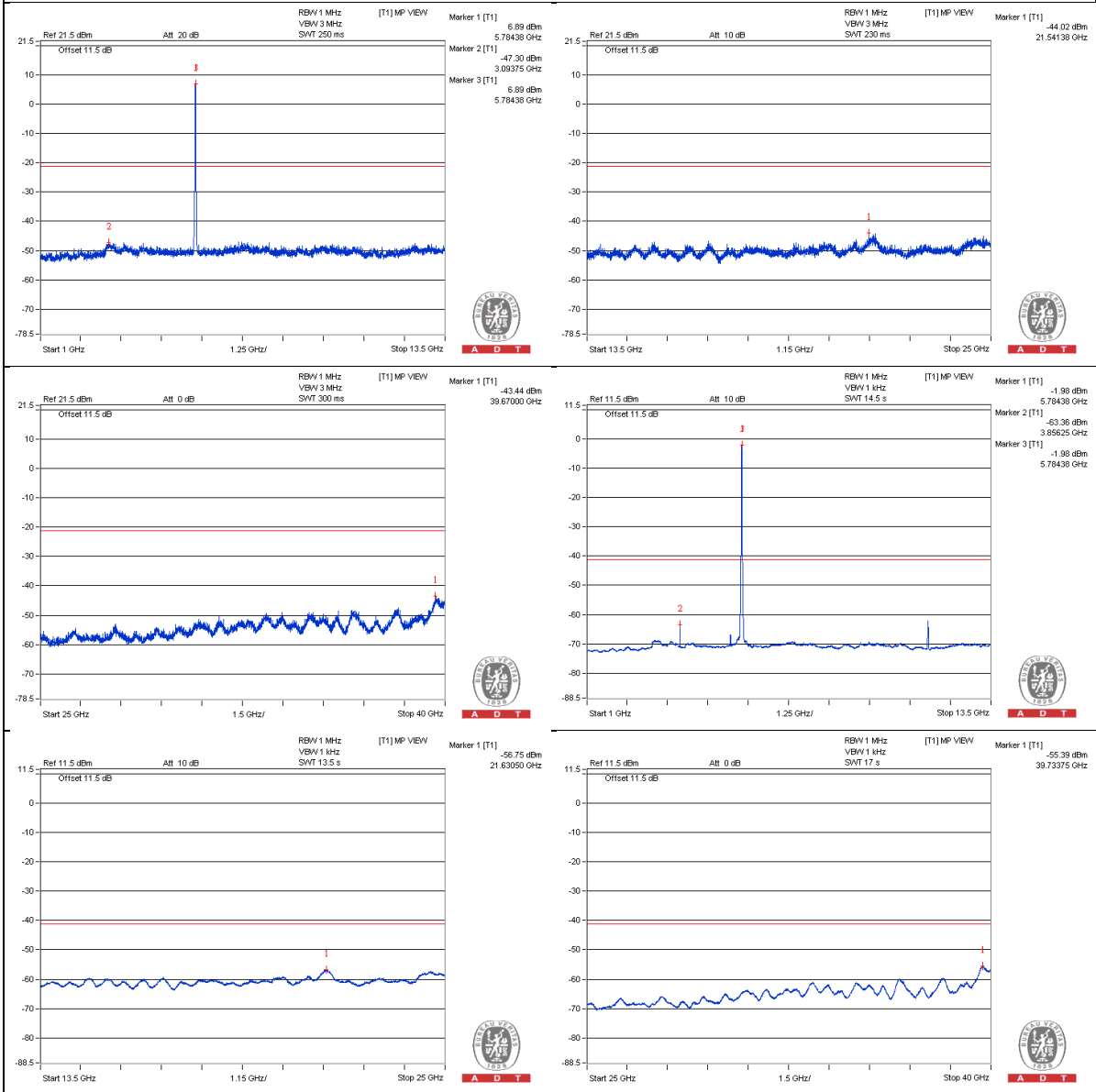
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	3856.25 PK	55.92	74	-18.08	-50.84	-49.5	7.77	-39.34
2	3856.25 AV	43.46	54	-10.54	-63.36	-61.92	7.77	-51.8
3	7712.5 PK	56.84	74	-17.16	-48.34	-50.28	7.77	-38.42
4	7712.5 AV	36.23	54	-17.77	-69.66	-69.96	7.77	-59.03
5	11571.875 PK	56.18	74	-17.82	-49.66	-50.07	7.77	-39.08
6	11571.875 AV	42.33	54	-11.67	-62.15	-66.18	7.77	-52.93
7	17355.375 PK	53.54	74	-20.46	-52.46	-52.55	7.77	-41.72
8	17355.375 AV	43.38	54	-10.62	-62.58	-62.75	7.77	-51.88

Note :

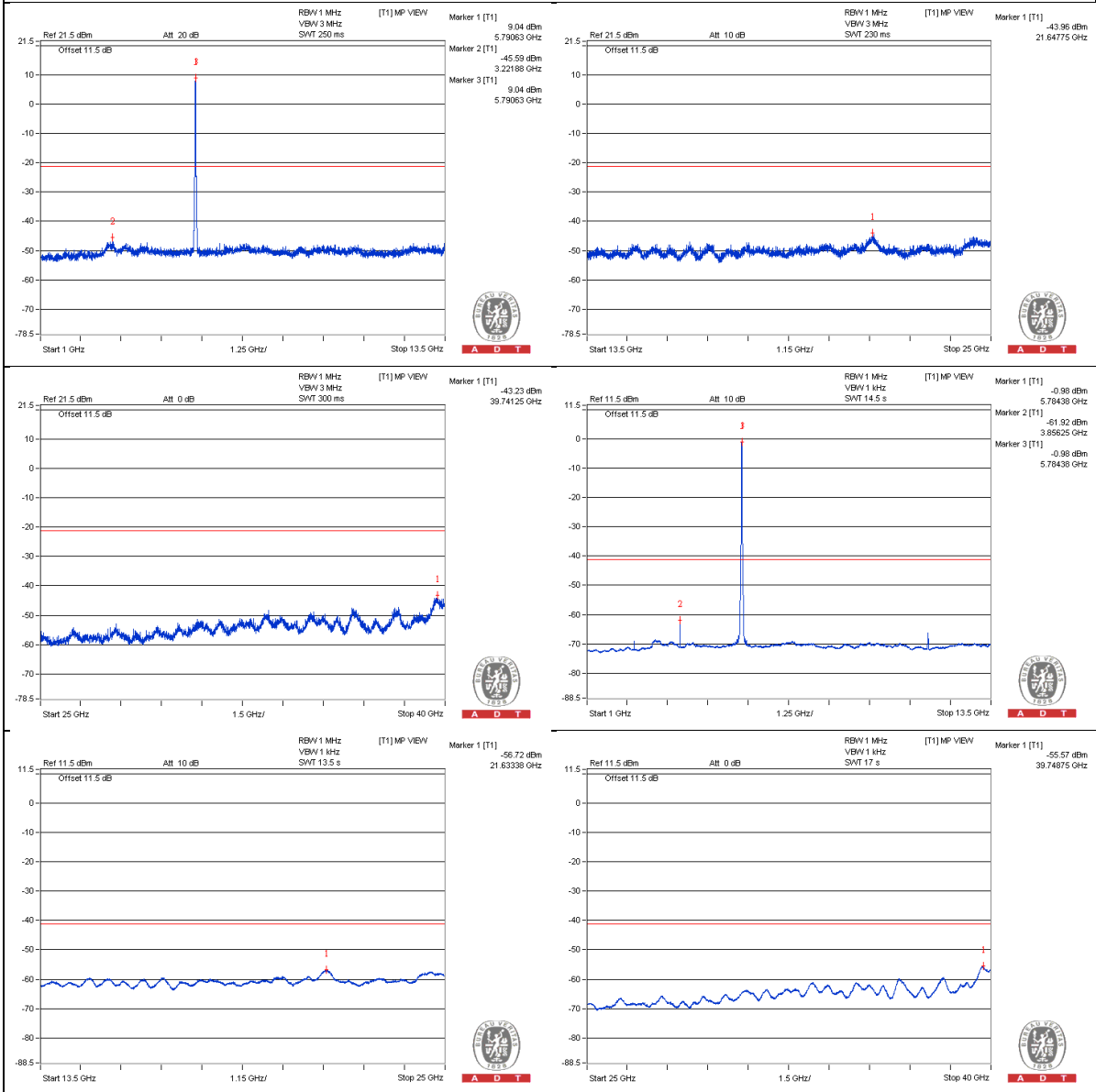
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.

Chain 0



Chain 1

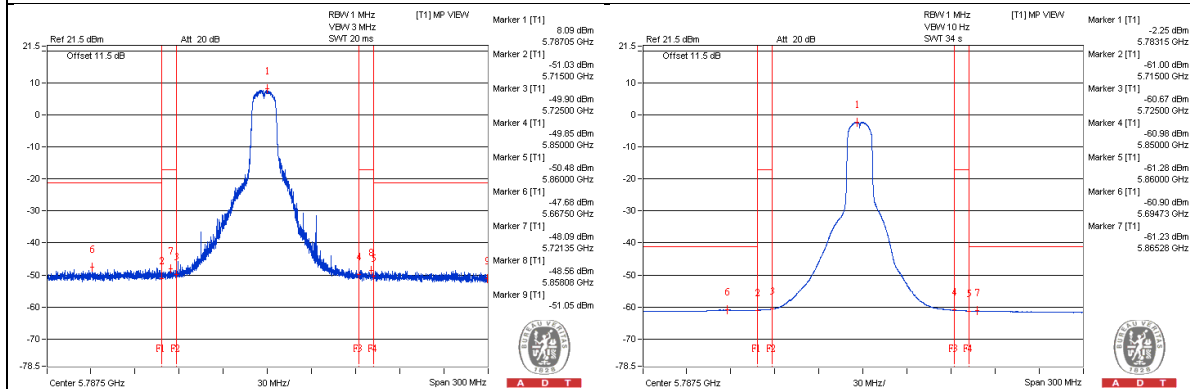


Bandedge table

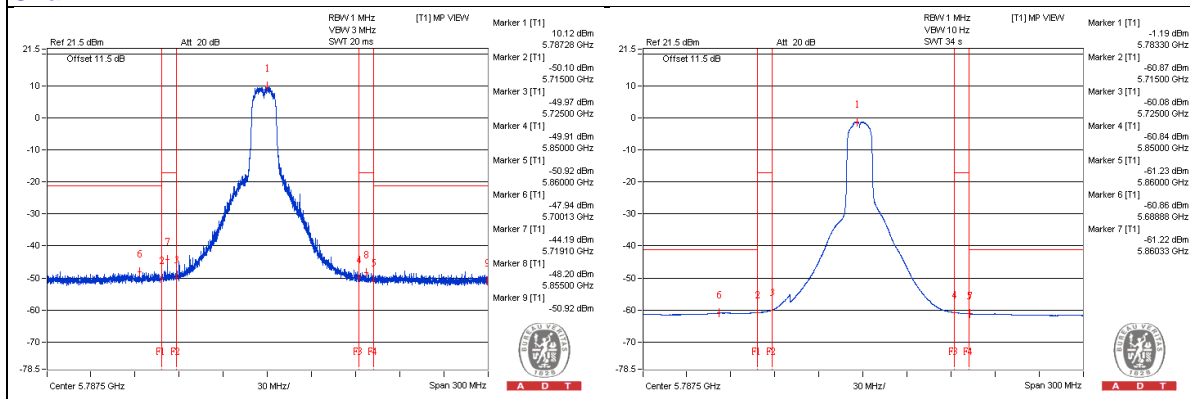
No.	Frequency (MHz)	Emission Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	5713.1 PK	57.02	74	-16.98	-49.22	-48.82	7.77	-38.24
2	5714.975 AV	45.11	54	-8.89	-61	-60.87	7.77	-50.15
3	5719.1 PK	59.89	78.2	-18.31	-49.82	-44.19	7.77	-35.37
4	5855 PK	57.13	78.2	-21.07	-49.77	-48.2	7.77	-38.13
5	5861.375 PK	56.48	74	-17.52	-49.36	-49.76	7.77	-38.78
6	5860.925 AV	44.81	54	-9.19	-61.24	-61.22	7.77	-50.45

Note :
 Emission Level (dBUV/m) = EIRP Level (dBm) – 20log(d) + 104.8
 d = measurement distance in 3 meters.

Chain 0



Chain 1



802.11a - Channel 165
Conducted spurious emission table

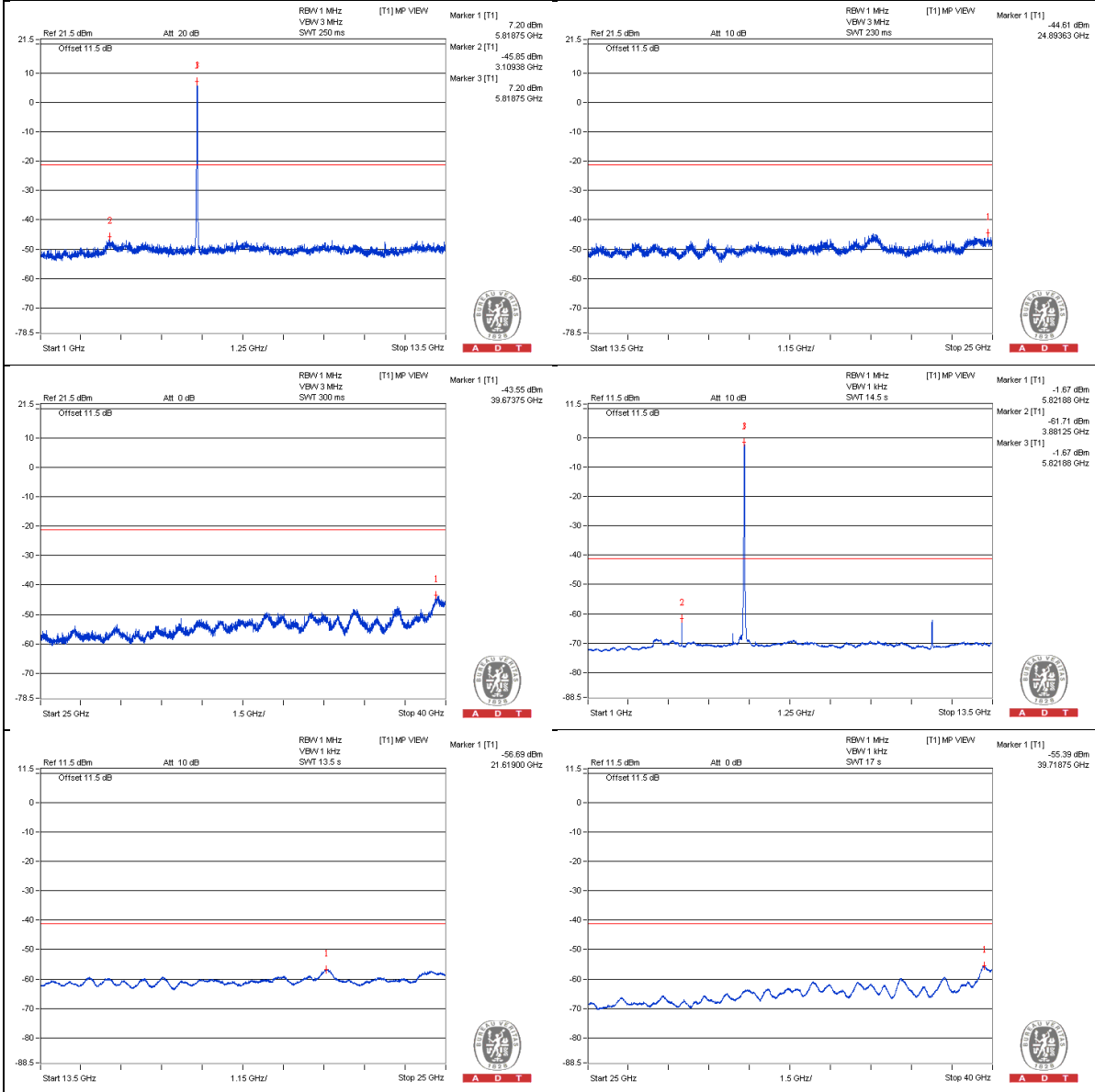
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	3884.375 PK	56.68	74	-17.32	-49.61	-49.12	7.77	-38.58
2	3881.25 AV	45.33	54	-8.67	-61.71	-59.9	7.77	-49.93
3	7768.75 PK	56.3	74	-17.7	-49.88	-49.61	7.77	-38.96
4	7765.625 AV	36.19	54	-17.81	-69.5	-70.23	7.77	-59.07
5	11650 PK	55.36	74	-18.64	-49.61	-52.11	7.77	-39.9
6	11650 AV	42.17	54	-11.83	-62.07	-67.01	7.77	-53.09
7	17476.125 PK	55.71	74	-18.29	-50.45	-50.21	7.77	-39.55
8	17473.25 AV	45.08	54	-8.92	-60.93	-60.99	7.77	-50.18

Note :

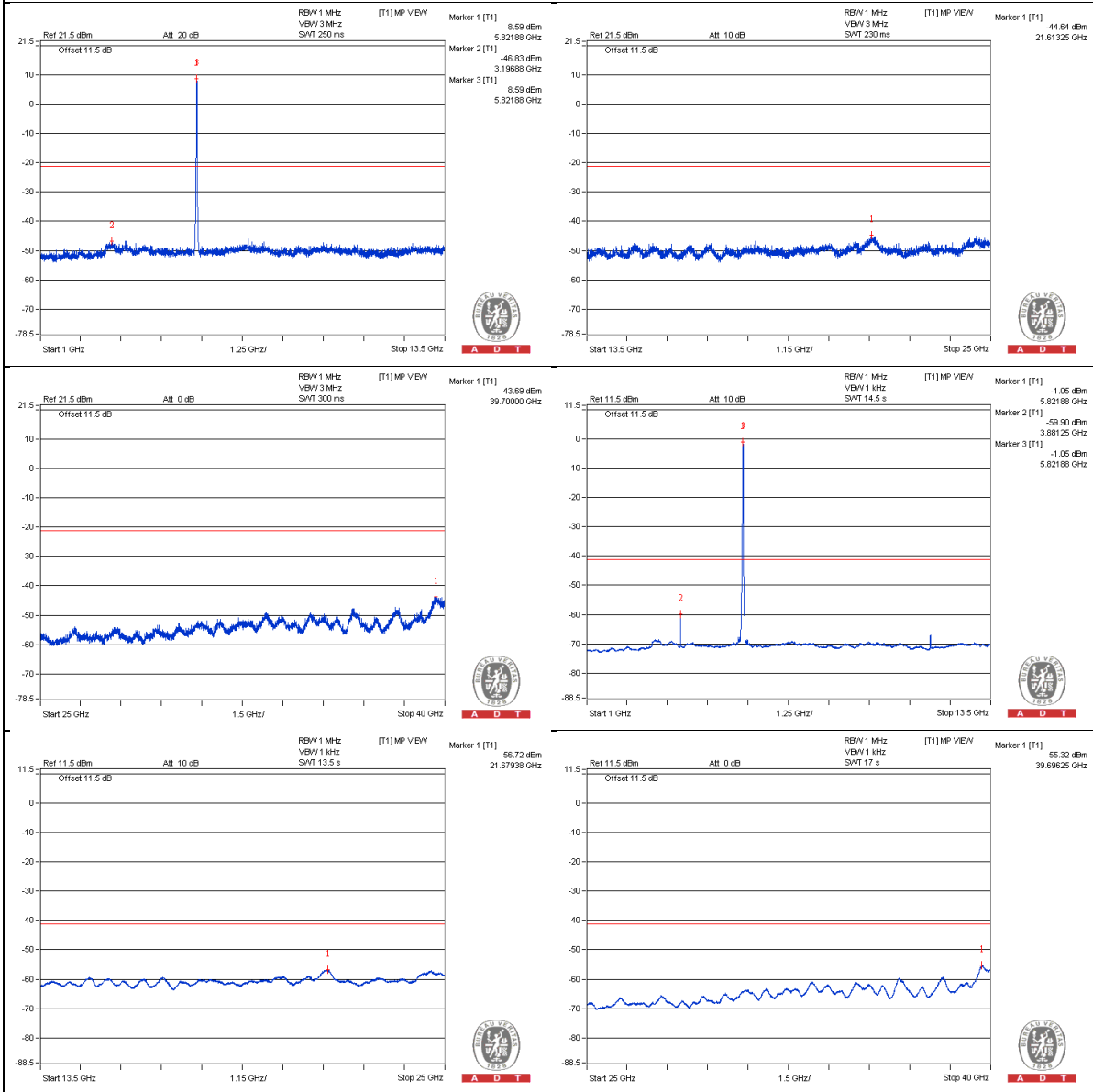
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.

Chain 0



Chain 1



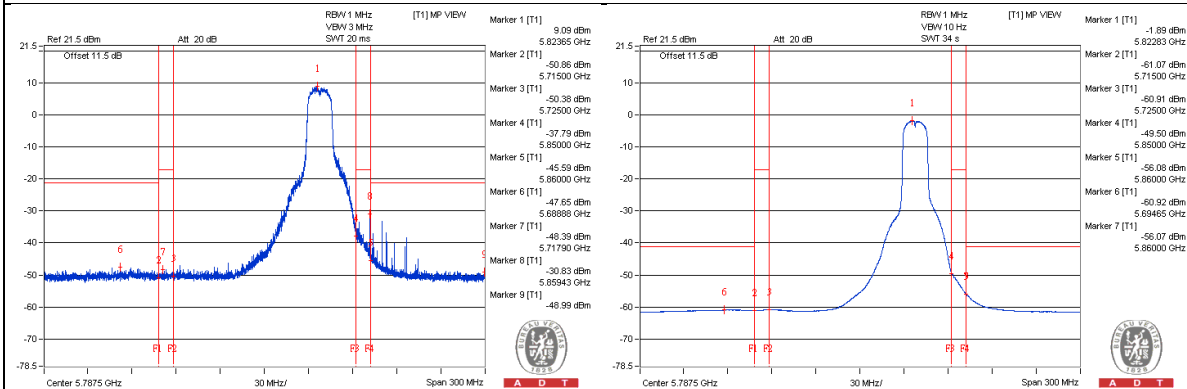
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	5714.6 PK	57.17	74	-16.83	-49.75	-48.14	7.77	-38.09
2	5714.6 AV	44.92	54	-9.08	-61.05	-61.2	7.77	-50.34
3	5720.825 PK	57.28	78.2	-20.92	-50.08	-47.75	7.77	-37.98
4	5850.575 PK	73.33	78.2	-4.87	-36.32	-30.77	7.77	-21.93
5	5861.75 PK	67.34	74	-6.66	-37.13	-41.18	7.77	-27.92
6	5860.025 AV	52.32	54	-1.68	-56.08	-52.2	7.77	-42.94

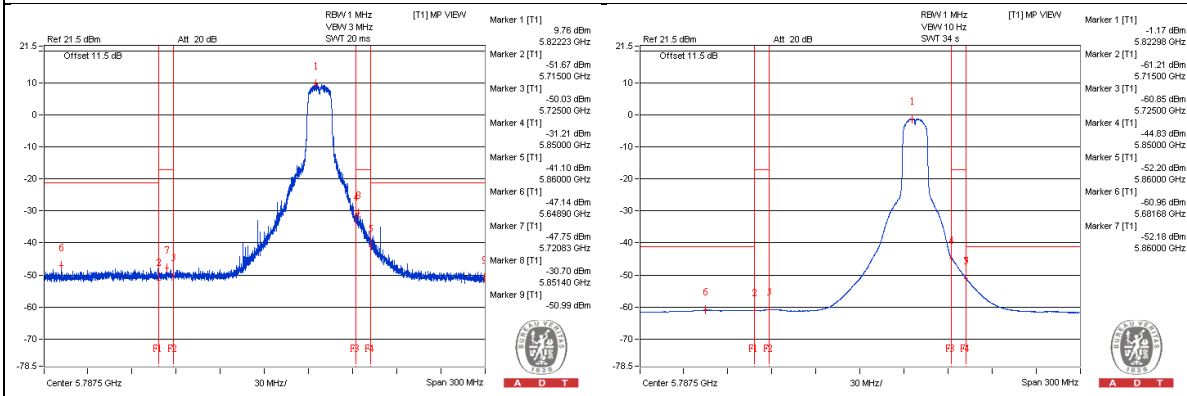
Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
d = measurement distance in 3 meters.

Chain 0



Chain 1



802.11ac (VHT20) - Channel 149
Conducted spurious emission table

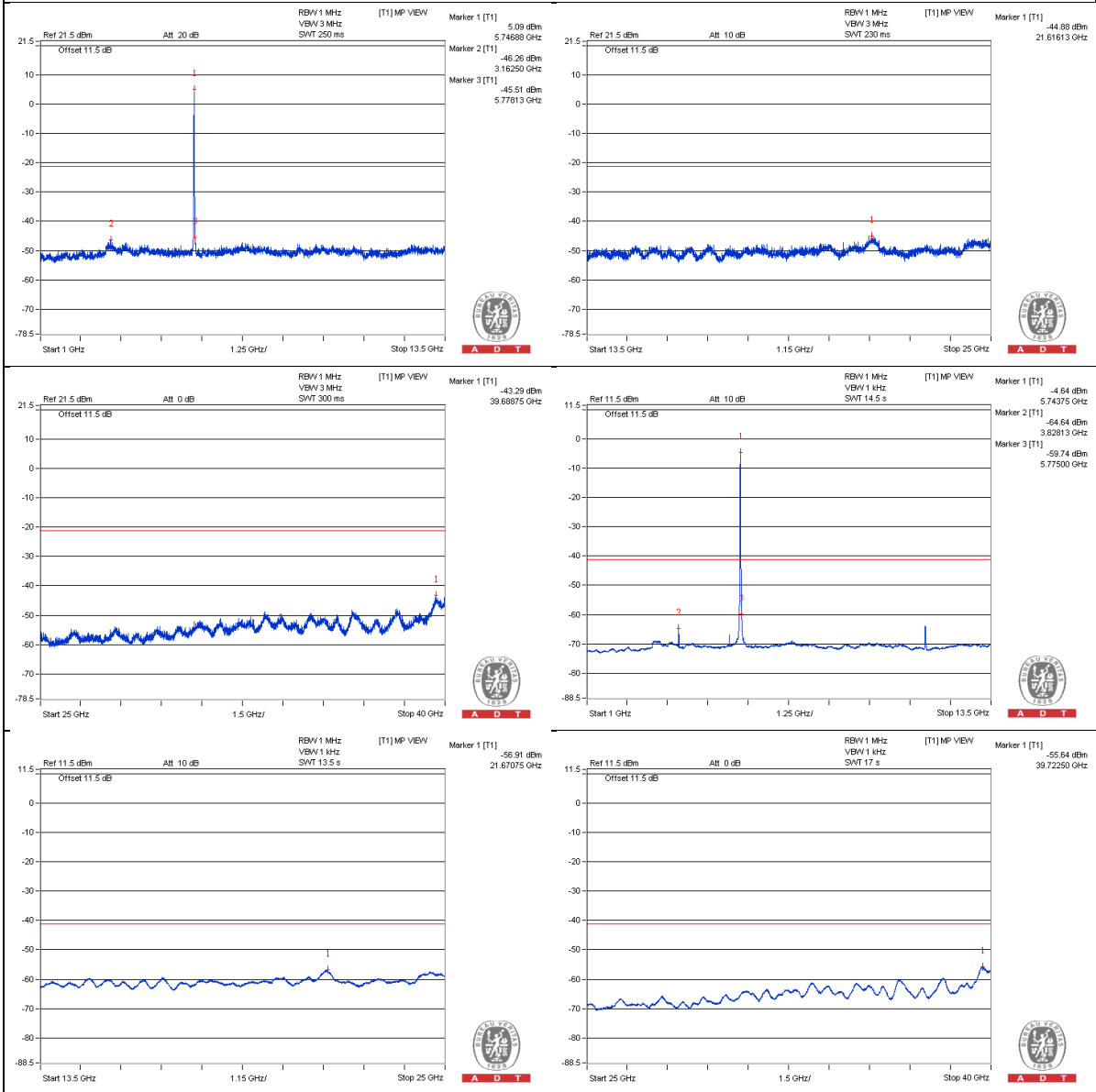
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	3828.125 PK	56.37	74	-17.63	-50.56	-48.93	7.77	-38.89
2	3828.125 AV	42.55	54	-11.45	-64.64	-62.58	7.77	-52.71
3	7659.375 PK	55.41	74	-18.59	-50.6	-50.67	7.77	-39.85
4	7659.375 AV	35.69	54	-18.31	-70.05	-70.67	7.77	-59.57
5	11490.625 PK	55.36	74	-18.64	-50.23	-51.18	7.77	-39.9
6	11490.625 AV	40.52	54	-13.48	-64.86	-66.29	7.77	-54.74
7	17234.625 PK	52.08	74	-21.92	-53.97	-53.96	7.77	-43.18
8	17234.625 AV	42.48	54	-11.52	-63.52	-63.61	7.77	-52.78

Note :

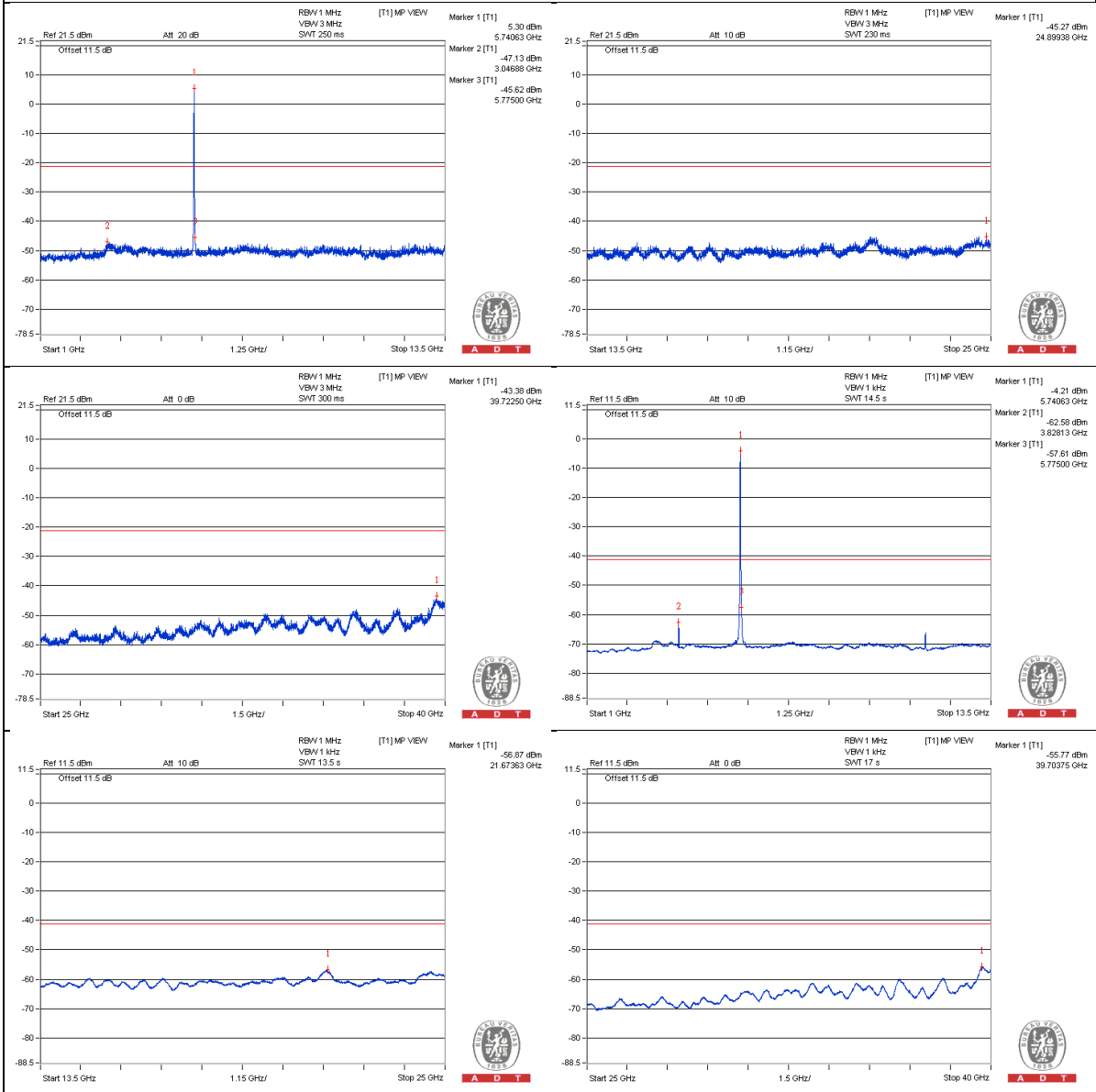
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.

Chain 0



Chain 1

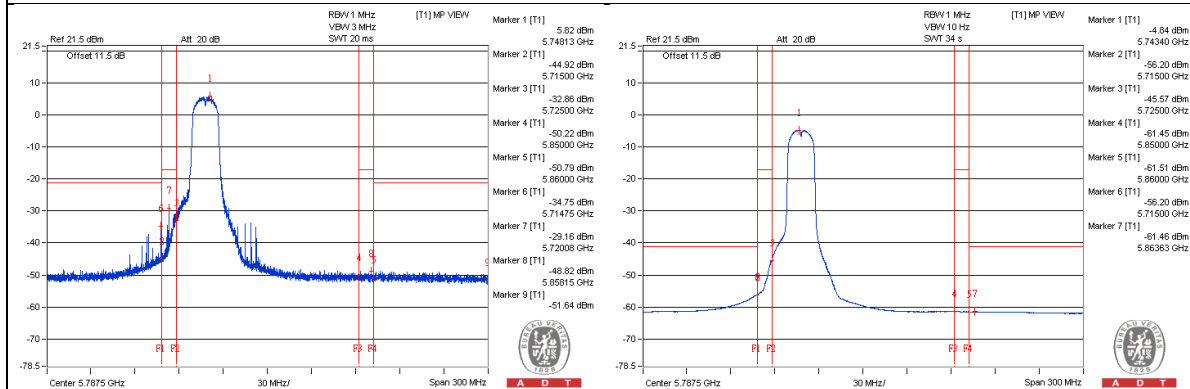


Bandedge table

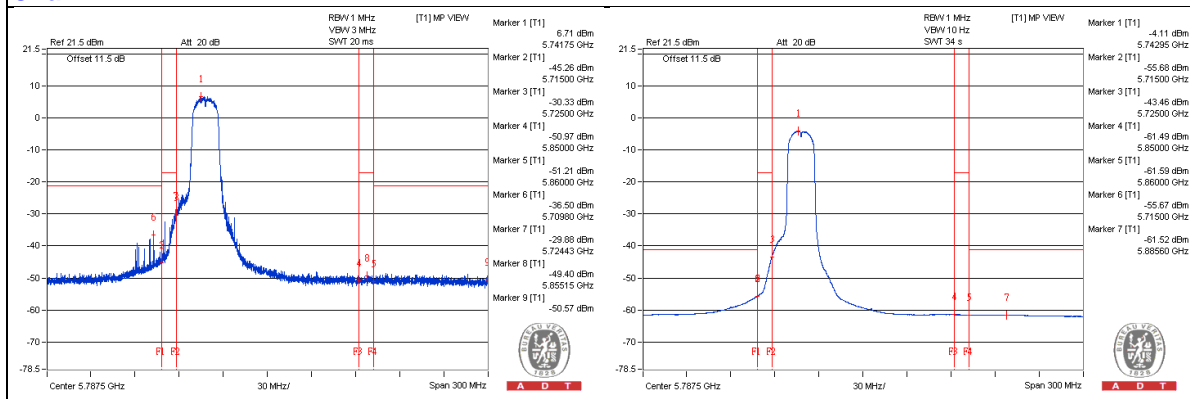
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	5714.75 PK	68.76	74	-5.24	-34.75	-44.07	7.77	-26.5
2	5714.975 AV	50.11	54	-3.89	-56.2	-55.68	7.77	-45.15
3	5724.35 PK	75.61	78.2	-2.59	-30.85	-30.05	7.77	-19.65
4	5858.15 PK	56.57	78.2	-21.63	-48.82	-50.23	7.77	-38.69
5	5861.675 PK	56.29	74	-17.71	-49.17	-50.41	7.77	-38.97
6	5861.225 AV	44.51	54	-9.49	-61.5	-61.56	7.77	-50.75

Note :
 Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
 d = measurement distance in 3 meters.

Chain 0



Chain 1



802.11ac (VHT20) - Channel 157
Conducted spurious emission table

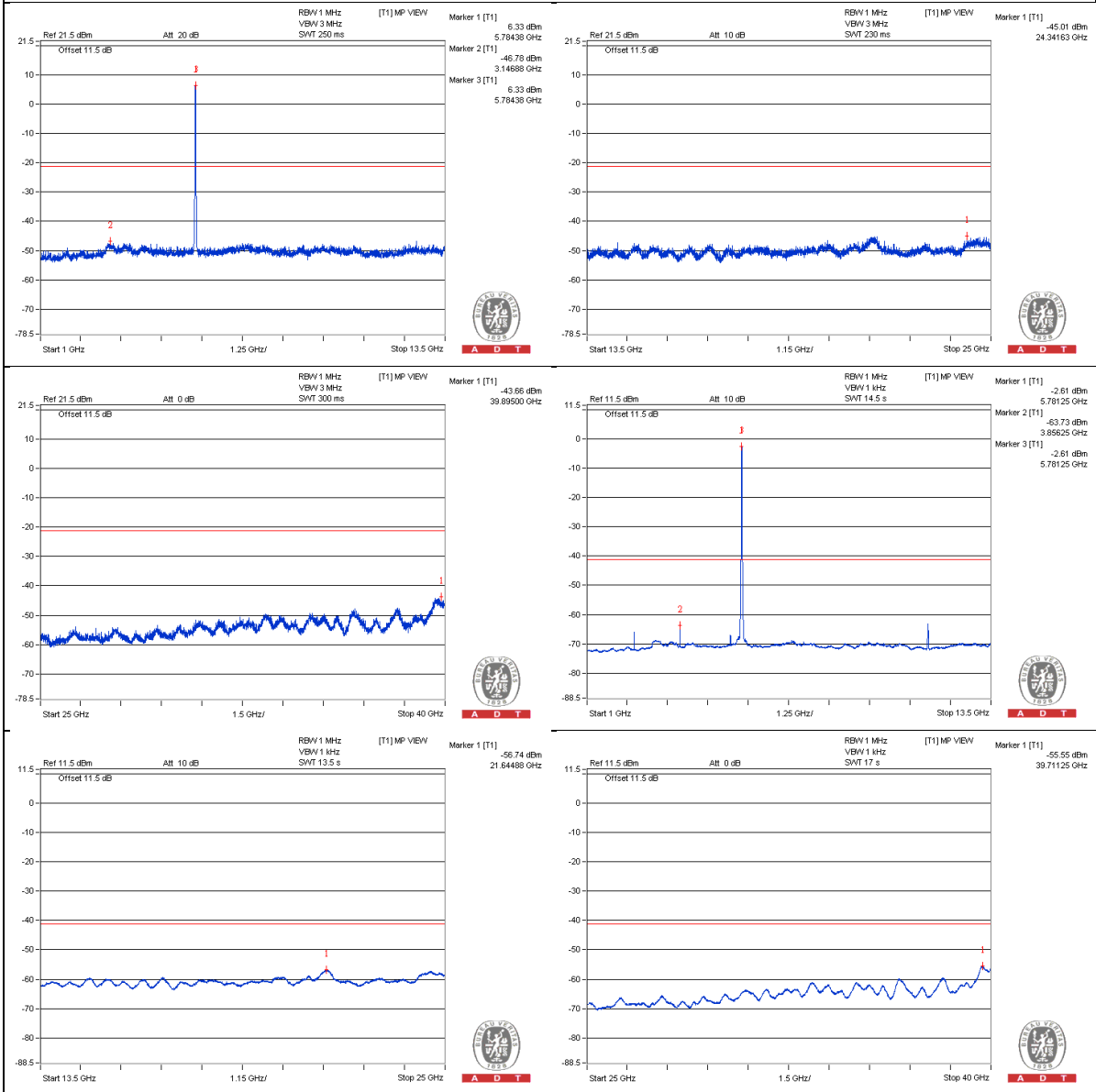
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	3856.25 PK	56.59	74	-17.41	-49.54	-49.36	7.77	-38.67
2	3856.25 AV	43.47	54	-10.53	-63.73	-61.65	7.77	-51.79
3	7712.5 PK	56.91	74	-17.09	-48.82	-49.47	7.77	-38.35
4	7712.5 AV	36.33	54	-17.67	-69.32	-70.13	7.77	-58.93
5	11568.75 PK	55.91	74	-18.09	-50.56	-49.74	7.77	-39.35
6	11568.75 AV	41.68	54	-12.32	-63.15	-66.03	7.77	-53.58
7	17355.375 PK	53.83	74	-20.17	-51.94	-52.5	7.77	-41.43
8	17355.375 AV	43.41	54	-10.59	-62.68	-62.59	7.77	-51.85

Note :

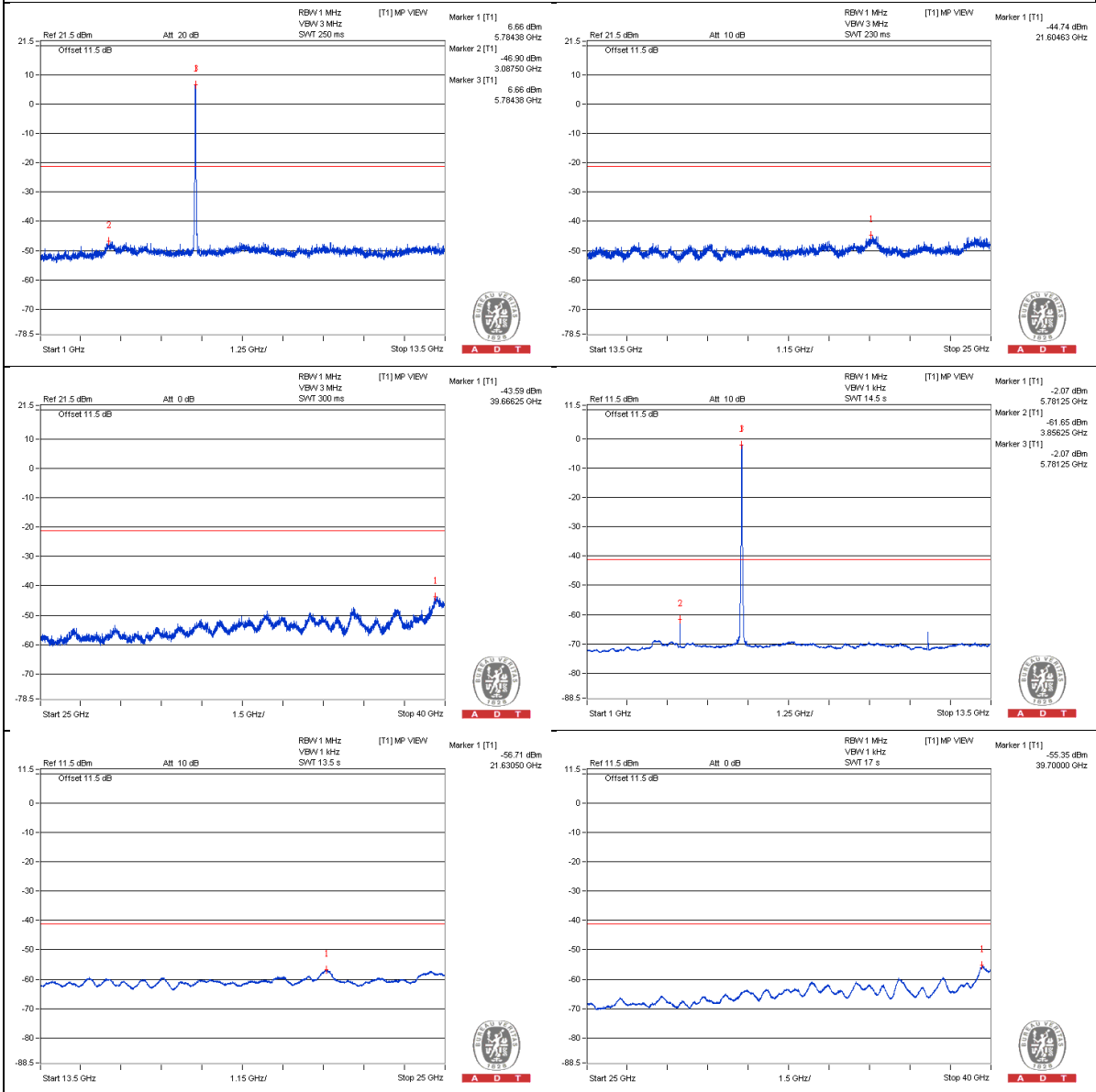
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.

Chain 0



Chain 1

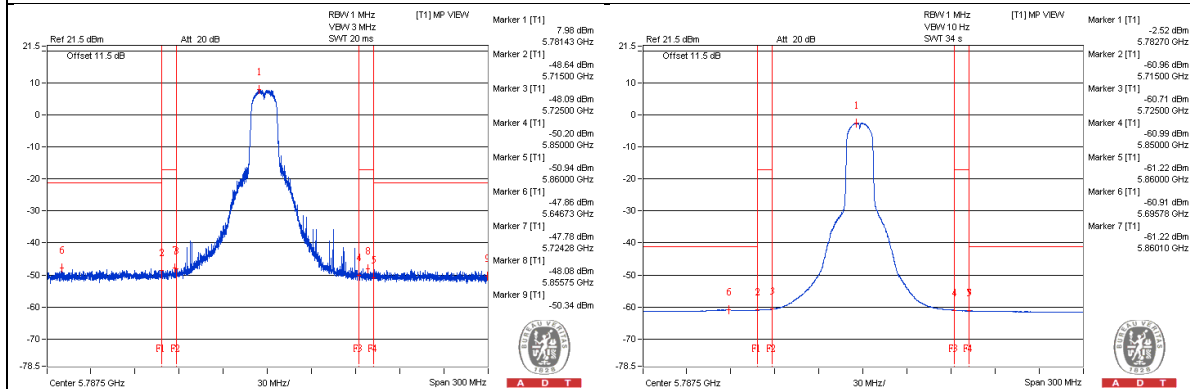
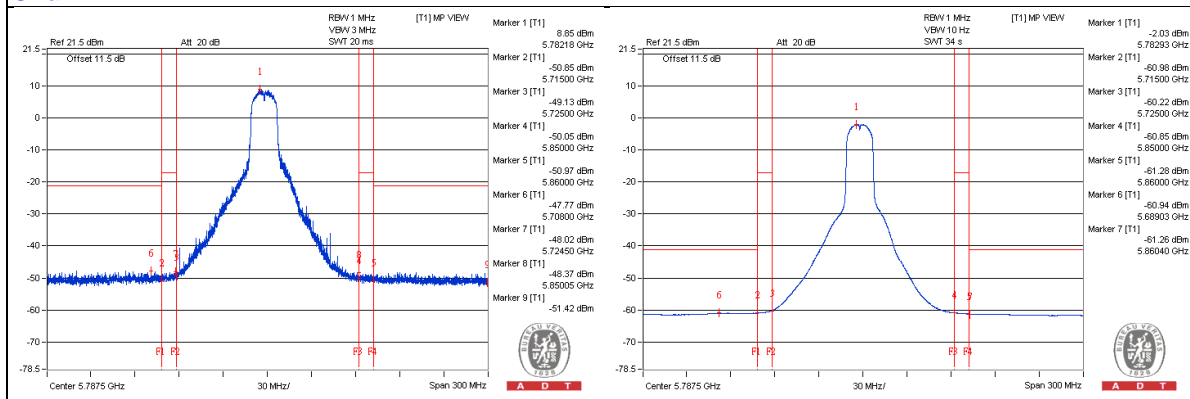


Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	5714.6 PK	56.72	74	-17.28	-48.78	-49.93	7.77	-38.54
2	5714.9 AV	45.08	54	-8.92	-60.96	-60.97	7.77	-50.18
3	5724.5 PK	57.82	78.2	-20.38	-48.42	-48.02	7.77	-37.44
4	5850.05 PK	57.33	78.2	-20.87	-49.09	-48.37	7.77	-37.93
5	5860.625 PK	56.65	74	-17.35	-48.24	-50.96	7.77	-38.61
6	5860.625 AV	44.8	54	-9.2	-61.22	-61.27	7.77	-50.46

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
d = measurement distance in 3 meters.

Chain 0

Chain 1


802.11ac (VHT20) - Channel 165
Conducted spurious emission table

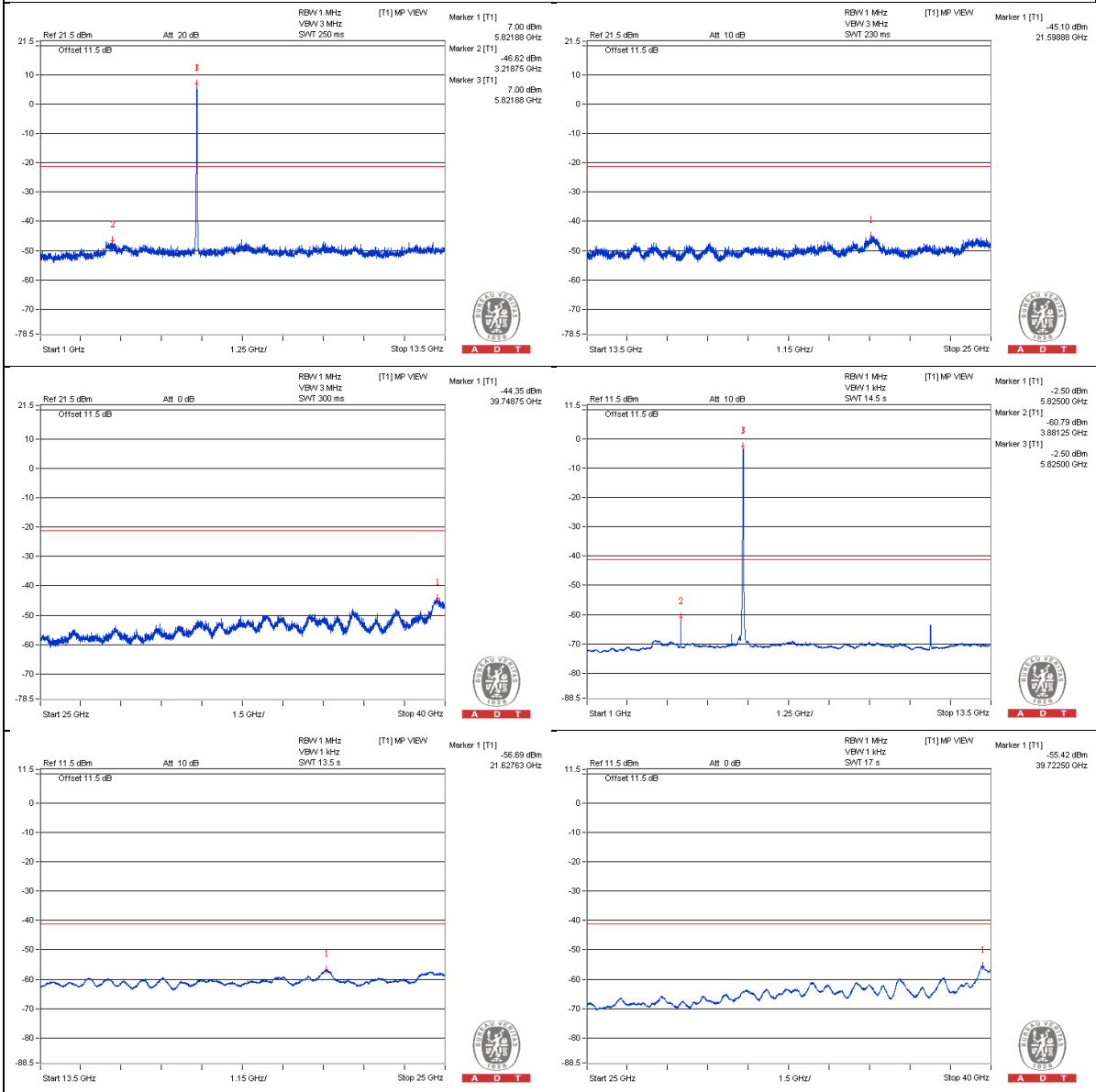
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	3884.375 PK	56.27	74	-17.73	-49.95	-49.6	7.77	-38.99
2	3881.25 AV	45.93	54	-8.07	-60.79	-59.53	7.77	-49.33
3	7768.75 PK	56.22	74	-17.78	-49.34	-50.37	7.77	-39.04
4	7765.625 AV	36.29	54	-17.71	-69.31	-70.24	7.77	-58.97
5	11650 PK	56.14	74	-17.86	-48.85	-51.29	7.77	-39.12
6	11650 AV	40.68	54	-13.32	-63.77	-67.91	7.77	-54.58
7	17473.25 PK	55.94	74	-18.06	-49.52	-50.78	7.77	-39.32
8	17473.25 AV	44.87	54	-9.13	-61.13	-61.22	7.77	-50.39

Note :

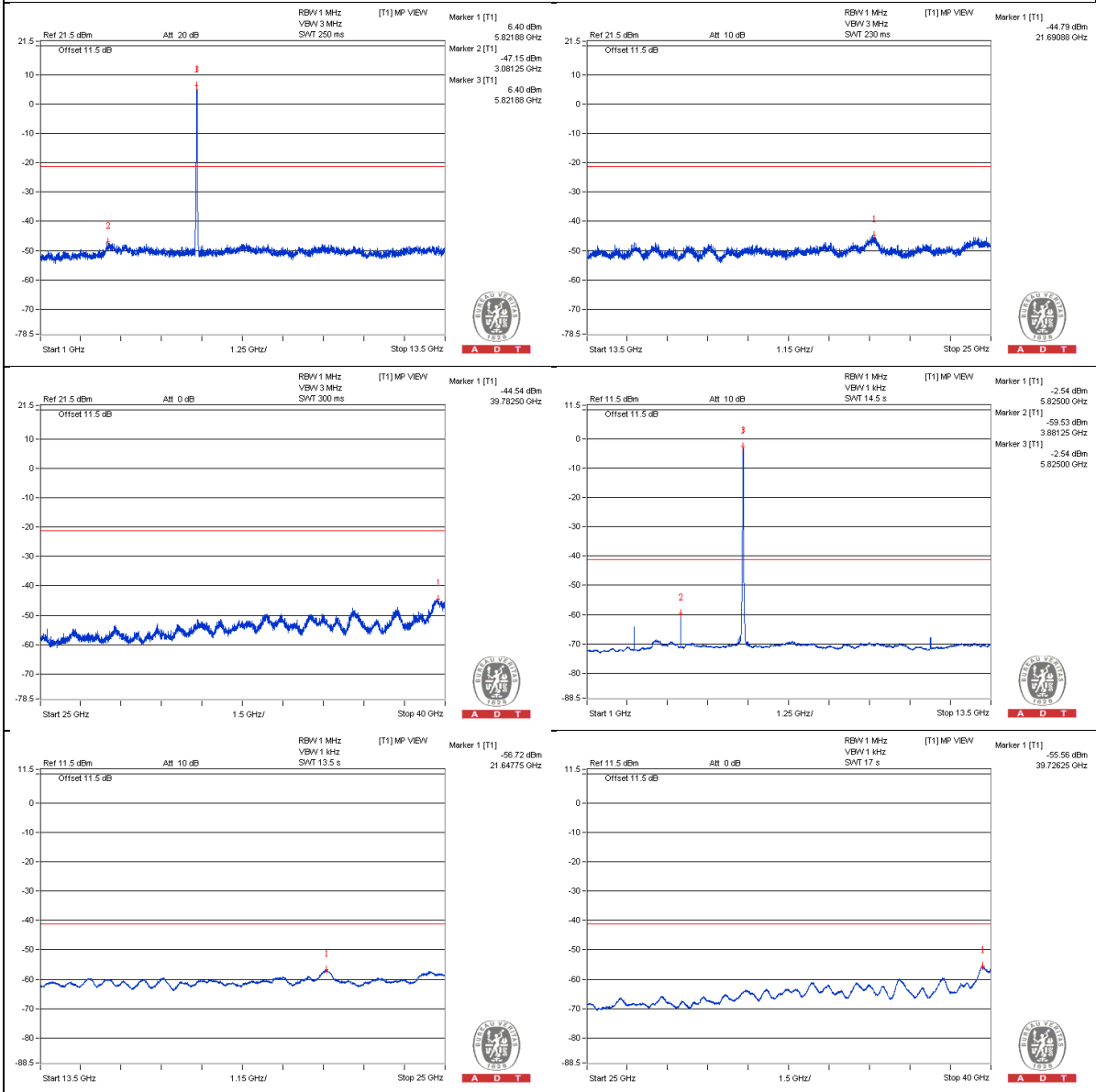
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.

Chain 0



Chain 1

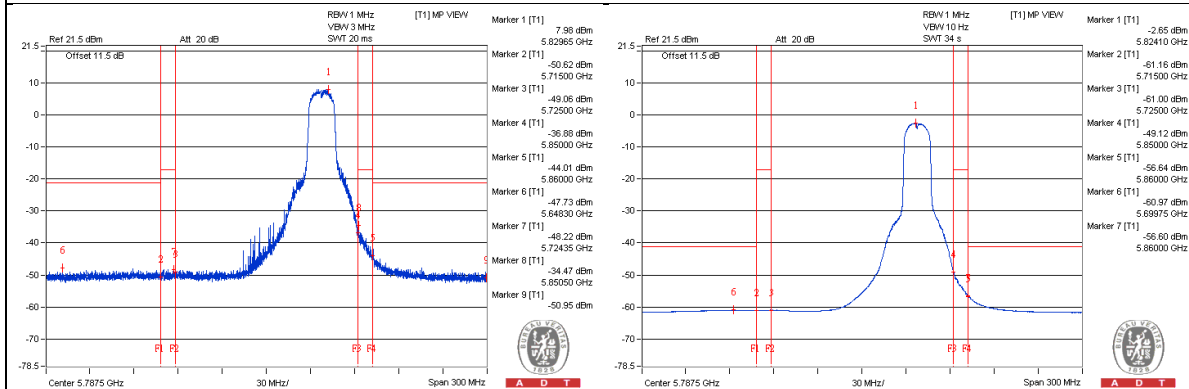


Bandedge table

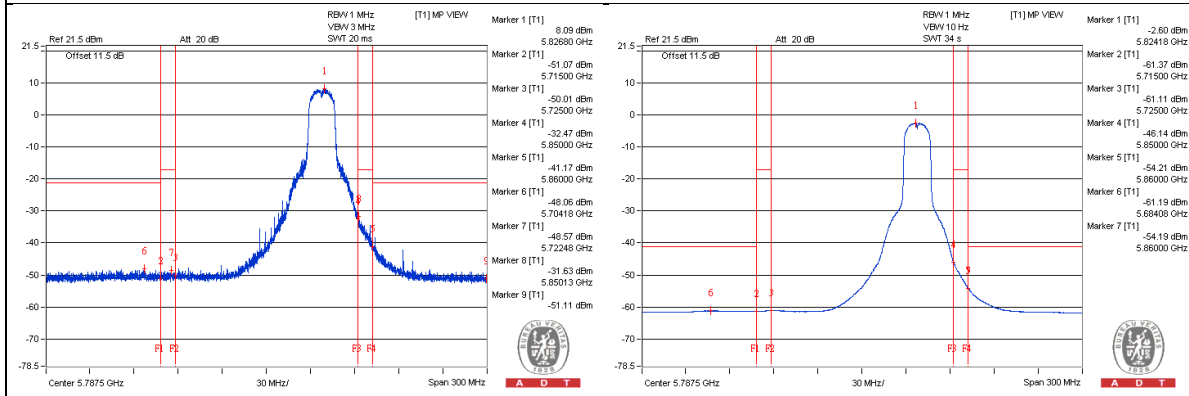
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	5714.15 PK	56.61	74	-17.39	-49.74	-49.15	7.77	-38.65
2	5713.475 AV	44.81	54	-9.19	-61.15	-61.32	7.77	-50.45
3	5717.075 PK	57.15	78.2	-21.05	-48.5	-49.32	7.77	-38.11
4	5850.125 PK	72.86	78.2	-5.34	-35.63	-31.63	7.77	-22.4
5	5861.75 PK	65.24	74	-8.76	-46.21	-38.47	7.77	-30.02
6	5860.025 AV	50.78	54	-3.22	-56.64	-54.21	7.77	-44.48

Note :
 Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
 d = measurement distance in 3 meters.

Chain 0



Chain 1



802.11ac (VHT40) - Channel 151
Conducted spurious emission table

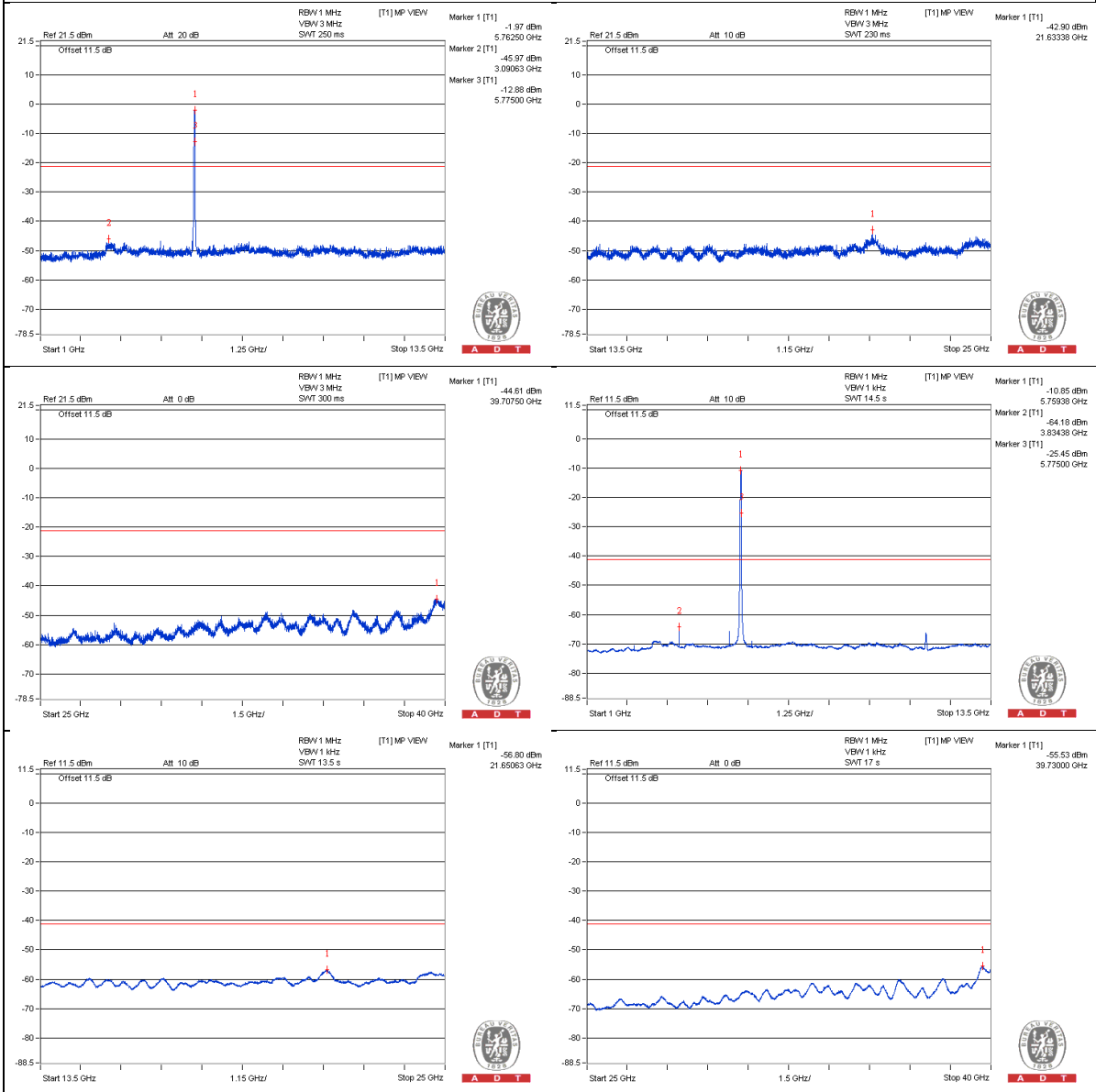
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	3837.5 PK	55.84	74	-18.16	-50.07	-50.34	7.77	-39.42
2	3837.5 AV	42.62	54	-11.38	-64.36	-62.65	7.77	-52.64
3	7675 PK	56.18	74	-17.82	-50.26	-49.5	7.77	-39.08
4	7671.875 AV	35.79	54	-18.21	-70.02	-70.49	7.77	-59.47
5	11509.375 PK	54.54	74	-19.46	-51.45	-51.55	7.77	-40.72
6	11509.375 AV	38.43	54	-15.57	-66.97	-68.36	7.77	-56.83
7	17266.25 PK	53.67	74	-20.33	-51.66	-53.21	7.77	-41.59
8	17263.375 AV	42.34	54	-11.66	-63.74	-63.67	7.77	-52.92

Note :

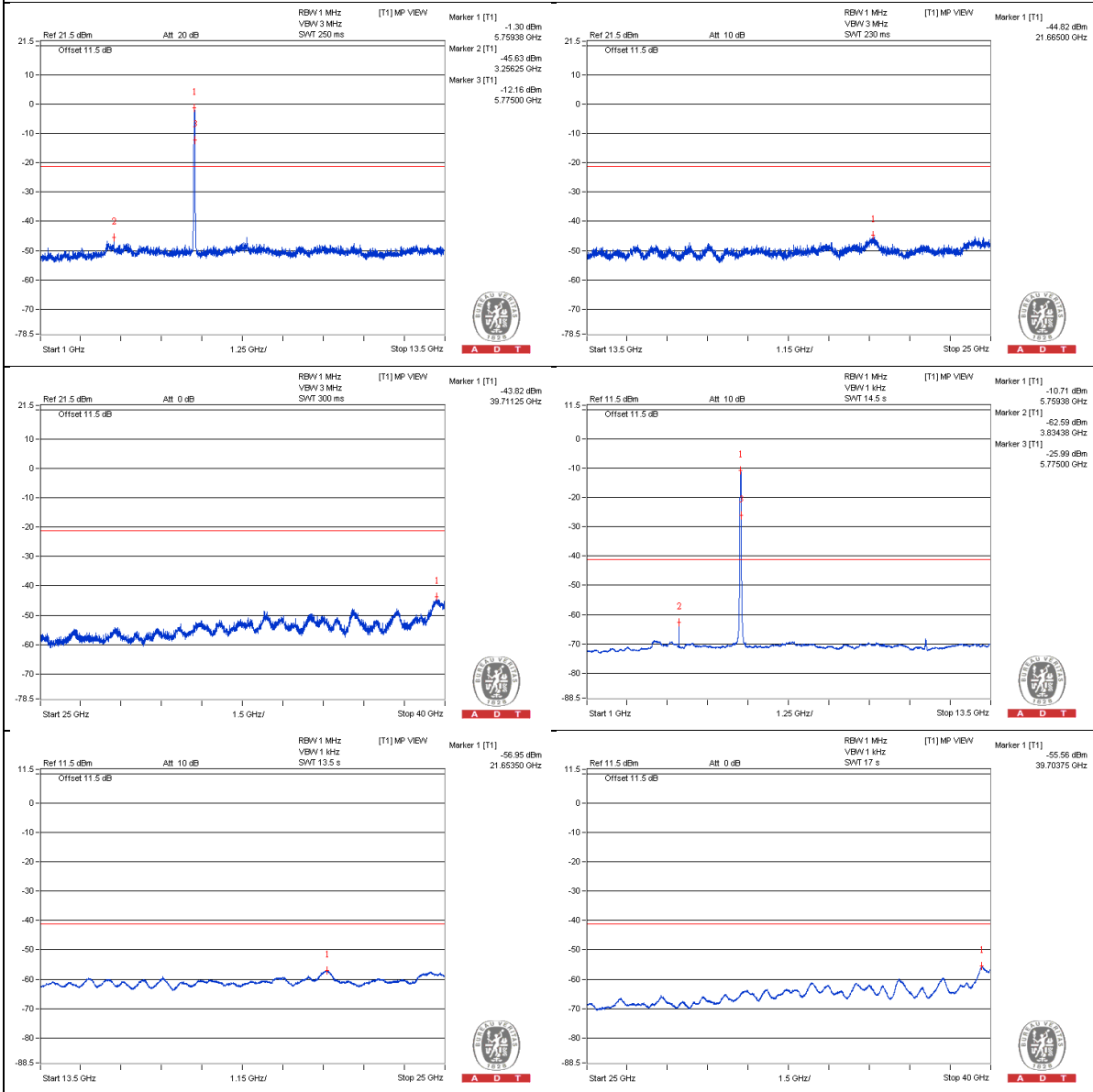
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.

Chain 0



Chain 1



Bandedge table

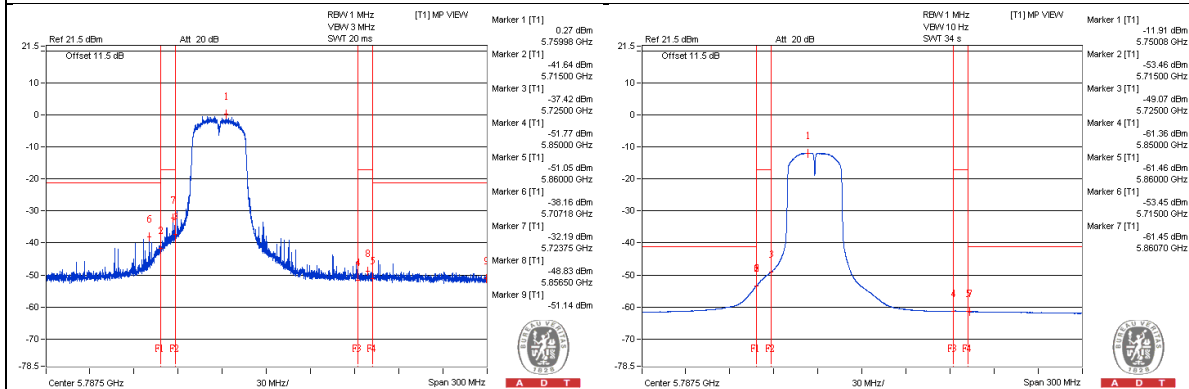
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	5714.75 PK	64.52	74	-9.48	-42.12	-41	7.77	-30.74
2	5714.975 AV	52.31	54	-1.69	-53.46	-54.01	7.77	-42.95
3	5723.75 PK	71.74	78.2	-6.46	-32.19	-38.57	7.77	-23.52
4	5858.45 PK	57.72	78.2	-20.48	-50.5	-46.87	7.77	-37.54
5	5860.175 PK	56.58	74	-17.42	-50.1	-48.91	7.77	-38.68
6	5860.7 AV	44.57	54	-9.43	-61.45	-61.5	7.77	-50.69

Note :

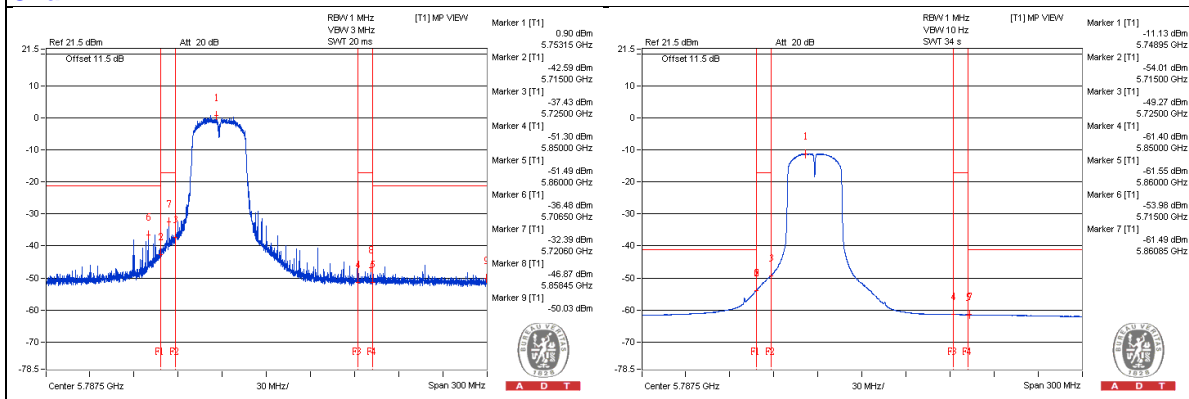
$$\text{Emission Level (dBuV/m)} = \text{EIRP Level (dBm)} - 20\log(d) + 104.8$$

d = measurement distance in 3 meters.

Chain 0



Chain 1



802.11ac (VHT40) - Channel 159
Conducted spurious emission table

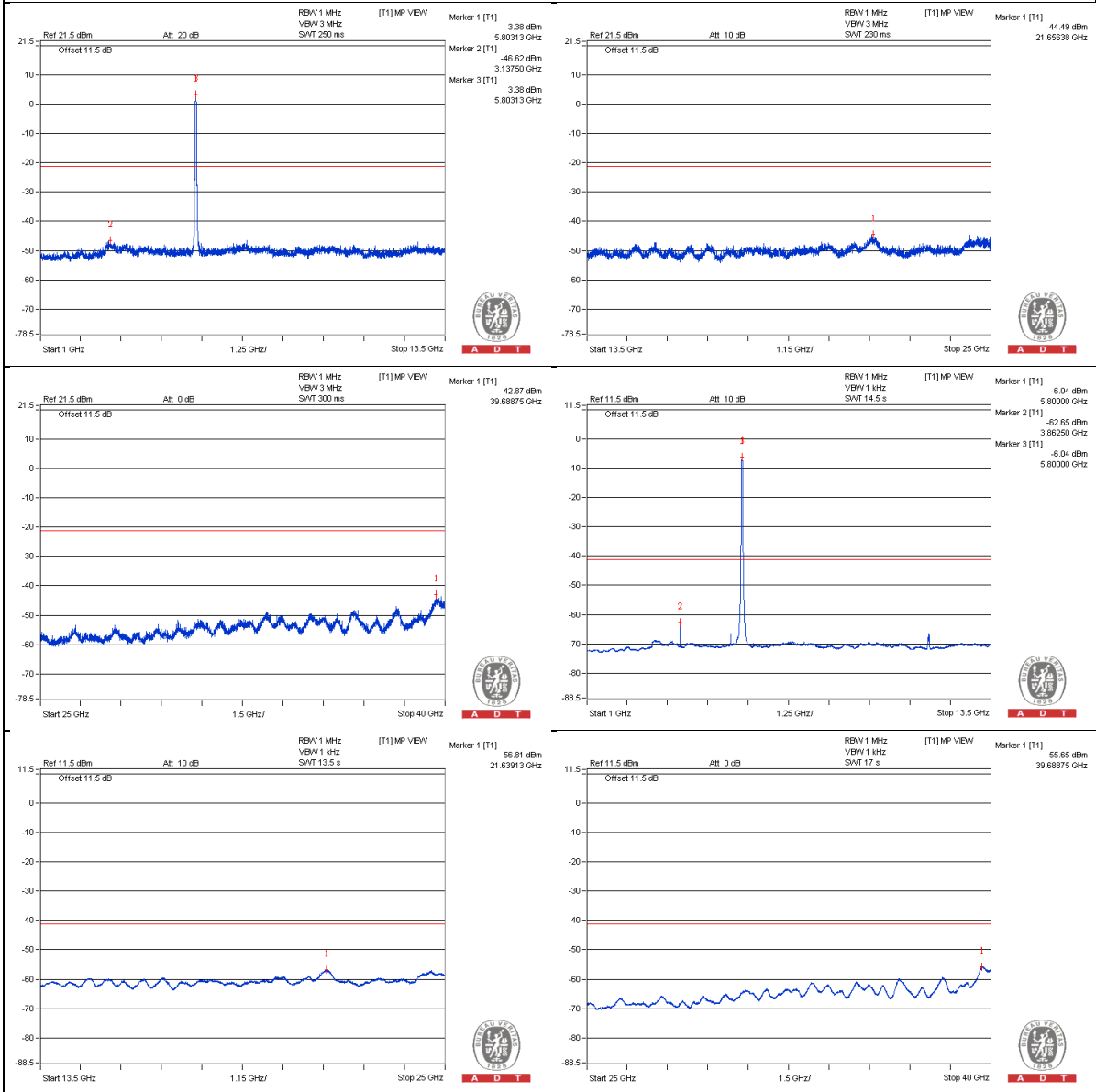
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	3862.5 PK	56.02	74	-17.98	-50.43	-49.65	7.77	-39.24
2	3862.5 AV	44.65	54	-9.35	-62.65	-60.42	7.77	-50.61
3	7728.125 PK	56.51	74	-17.49	-49.76	-49.31	7.77	-38.75
4	7728.125 AV	36.35	54	-17.65	-69.24	-70.19	7.77	-58.91
5	11590.625 PK	54.94	74	-19.06	-51.13	-51.07	7.77	-40.32
6	11590.625 AV	37.72	54	-16.28	-67.8	-68.91	7.77	-57.54
7	17384.125 PK	54.33	74	-19.67	-52.06	-51.39	7.77	-40.93
8	17384.125 AV	43.88	54	-10.12	-62.16	-62.16	7.77	-51.38

Note :

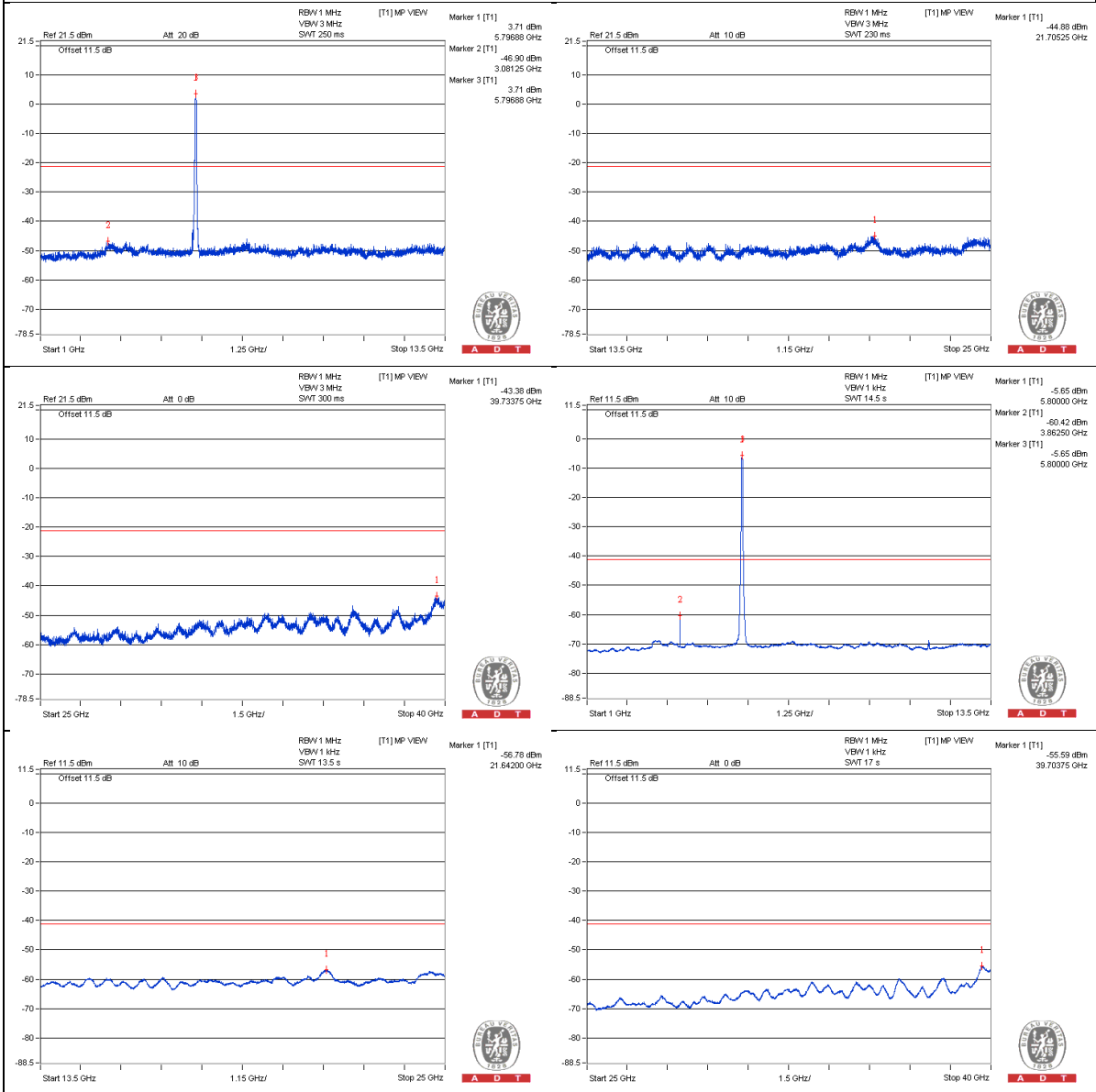
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.

Chain 0



Chain 1



Bandedge table

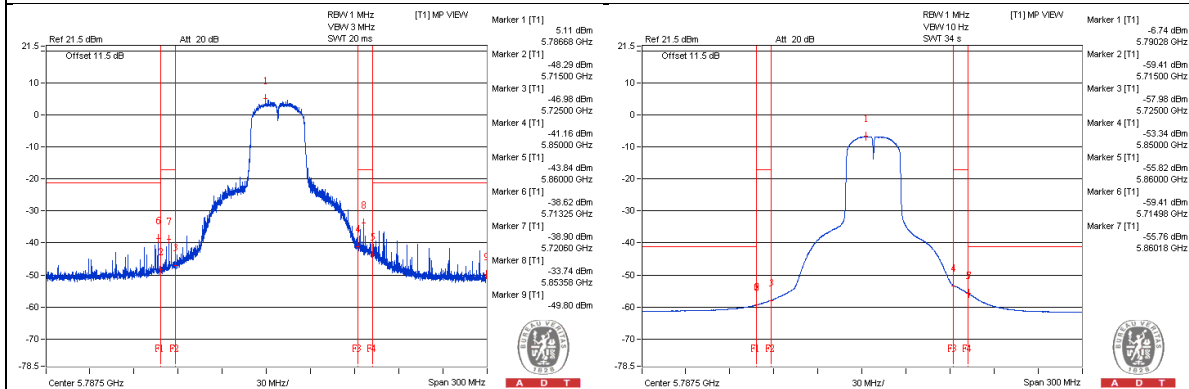
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	5713.25 PK	65.11	74	-8.89	-38.62	-46.22	7.77	-30.15
2	5714.975 AV	47.23	54	-6.77	-59.41	-58.29	7.77	-48.03
3	5724.425 PK	67.73	78.2	-10.47	-46.45	-35.65	7.77	-27.53
4	5853.575 PK	69.92	78.2	-8.28	-33.74	-41.77	7.77	-25.34
5	5860.625 PK	65.63	74	-8.37	-40.4	-40.42	7.77	-29.63
6	5860.1 AV	50.63	54	-3.37	-55.76	-55.08	7.77	-44.63

Note :

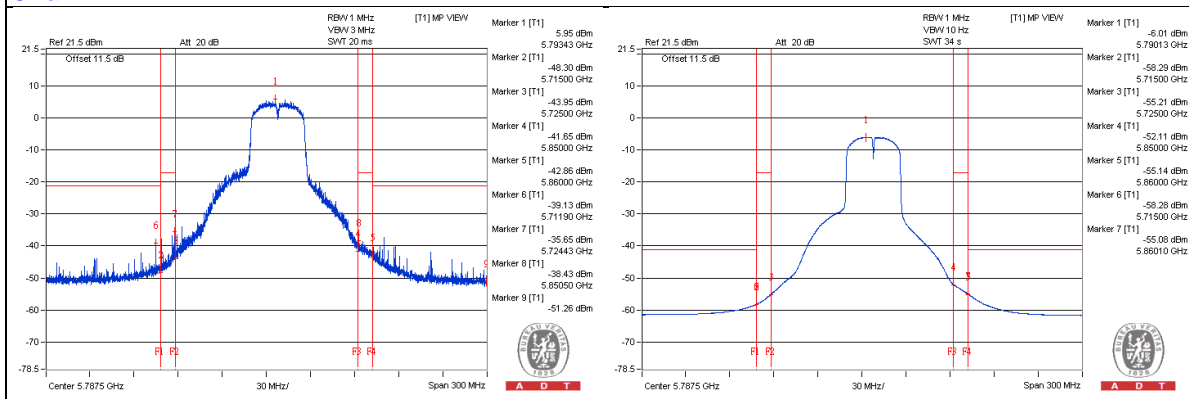
$$\text{Emission Level (dBuV/m)} = \text{EIRP Level (dBm)} - 20\log(d) + 104.8$$

d = measurement distance in 3 meters.

Chain 0



Chain 1



802.11ac (VHT80) - Channel 155
Conducted spurious emission table

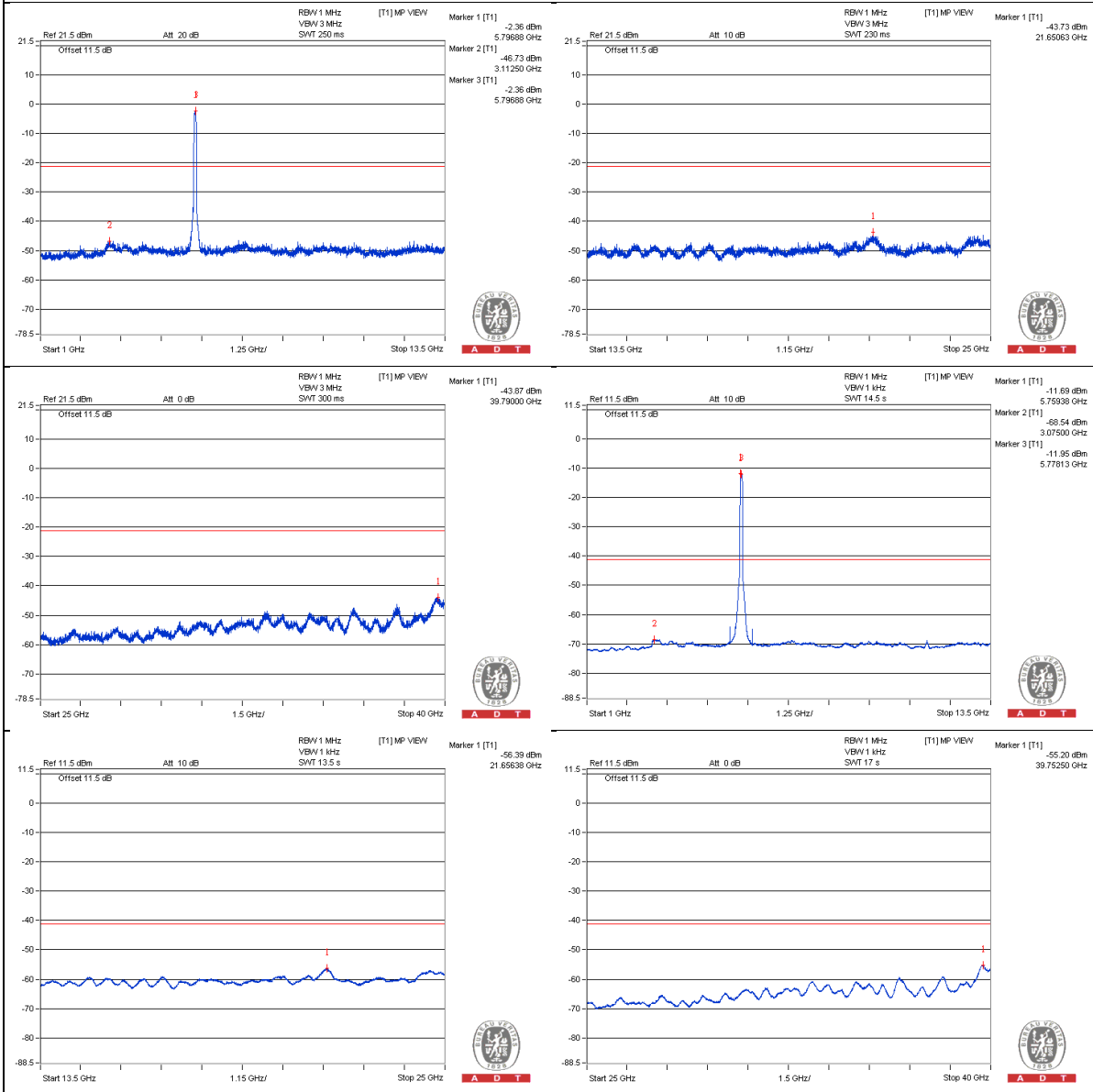
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	3850 PK	56.11	74	-17.89	-50.23	-49.65	7.77	-39.15
2	3850 AV	44.64	54	-9.36	-62.83	-60.32	7.77	-50.62
3	7700 PK	56.43	74	-17.57	-49.72	-49.5	7.77	-38.83
4	7700 AV	35.84	54	-18.16	-70.07	-70.33	7.77	-59.42
5	11550 PK	54.85	74	-19.15	-51.15	-51.24	7.77	-40.41
6	11550 AV	35.85	54	-18.15	-69.52	-70.98	7.77	-59.41
7	17326.625 PK	53.56	74	-20.44	-52	-53.03	7.77	-41.7
8	17323.75 AV	42.92	54	-11.08	-63.24	-63.01	7.77	-52.34

Note :

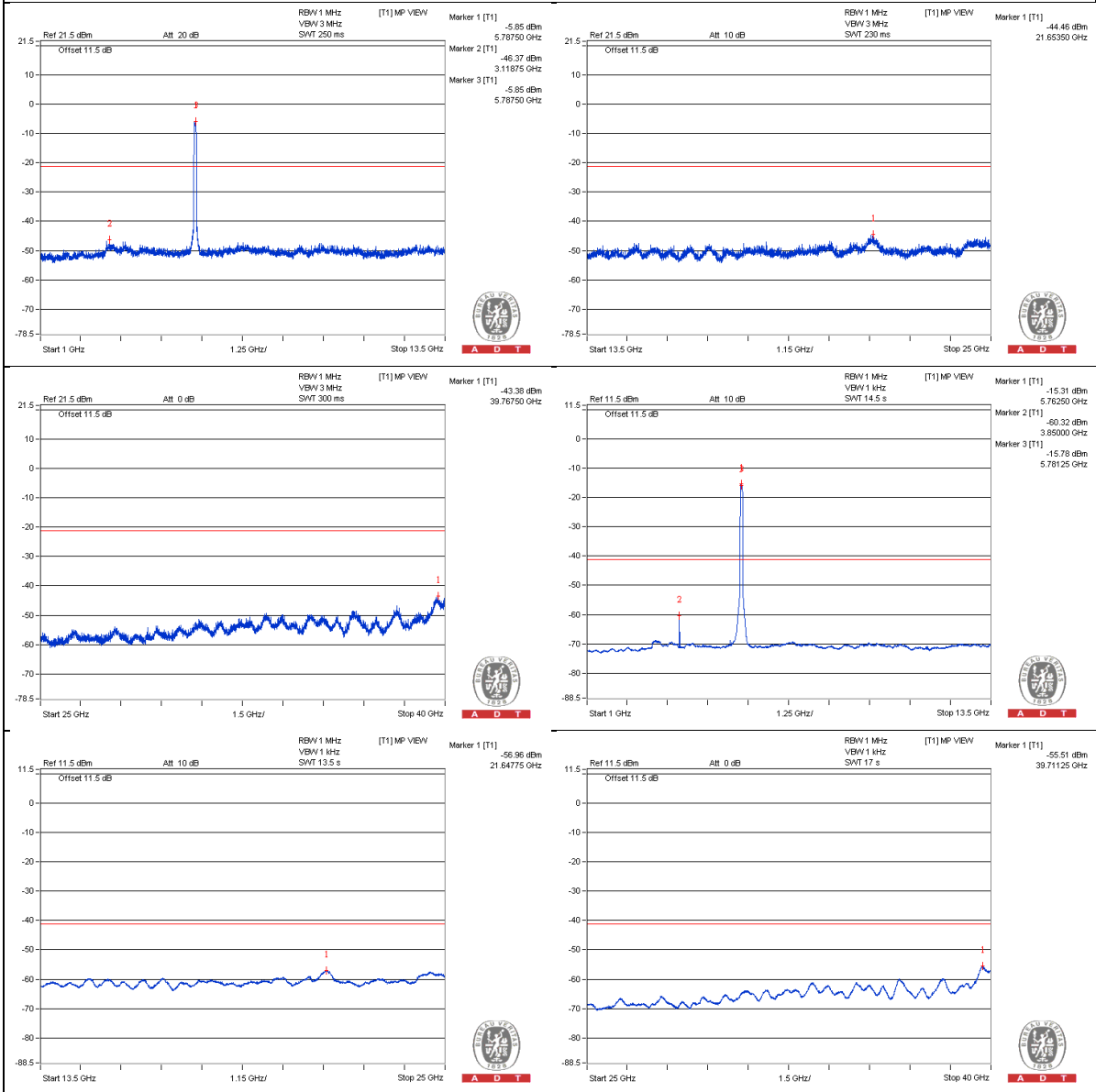
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.

Chain 0



Chain 1



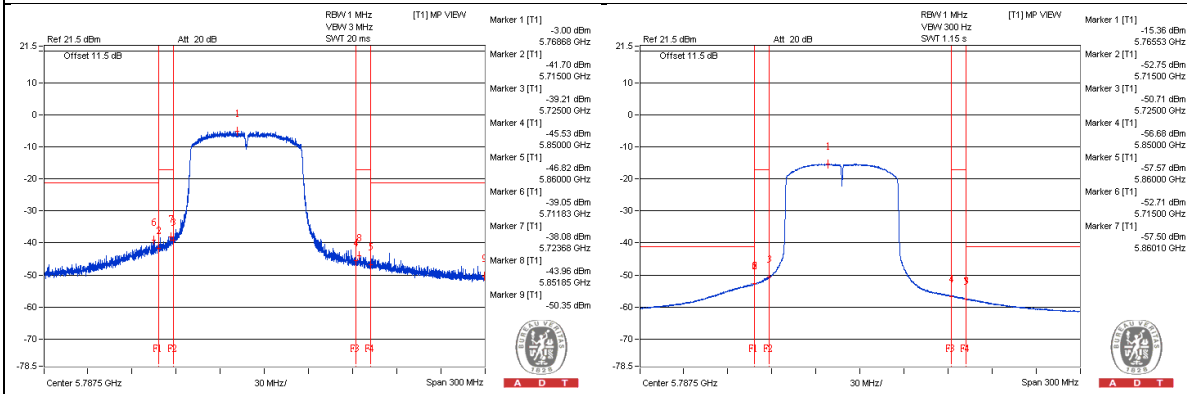
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	5712.875 PK	65.81	68.2	-2.39	-41.79	-39.09	7.77	-29.45
2	5723.675 PK	67.45	78.2	-10.75	-38.08	-39.17	7.77	-27.81
3	5851.85 PK	61.28	78.2	-16.92	-43.96	-45.74	7.77	-33.98
4	5861.375 PK	61.24	74	-12.76	-43.98	-45.82	7.77	-34.02
5	5860.1 AV	48.75	54	-5.25	-57.5	-57.09	7.77	-46.51

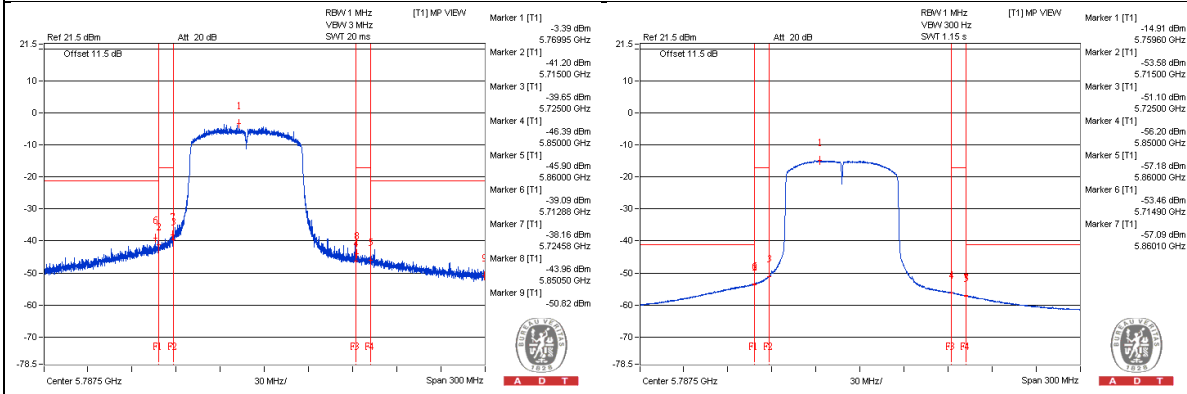
Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
d = measurement distance in 3 meters.

Chain 0



Chain 1



Below 1GHz Data

802.11a - Channel 165

Conducted spurious emission table

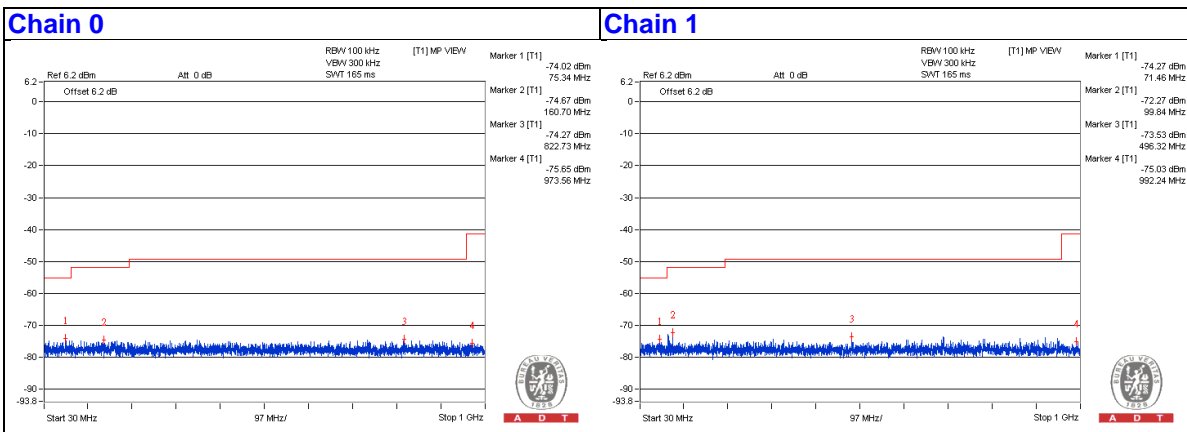
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	32.6675	30.42	40	-9.58	-75.64	-75.61	7.77	-64.84
2	99.84	32.12	43.5	-11.38	-76.57	-72.28	7.77	-63.14
3	322.6975	30.73	46	-15.27	-76.37	-74.46	7.77	-64.53
4	496.3275	30.99	46	-15.01	-77.37	-73.54	7.77	-64.27
5	617.335	31.12	46	-14.88	-75.2	-74.65	7.77	-64.14
6	951.985	30.7	46	-15.3	-76.88	-74.21	7.77	-64.56

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.

Emission levels include upper bound on ground plane reflection (4.7dB) for below 1GHz emission.



4.4.10 Test Results (Mode 2_Conducted Measurement)

Radiated versus Conducted Measurement	
<input checked="" type="checkbox"/> Conducted measurement	<input type="checkbox"/> Radiated measurement
<u>For Radiated measurement:</u> The level of unwanted emissions was measured when radiated by the cabinet or structure of the equipment with the antenna connector(s) terminated by a specified load (cabinet radiation)	
<u>For Conducted measurement:</u> The level of unwanted emissions was measured as their power in a specified load (conducted spurious emissions).	

Conducted Measurement Factor
e. The max antenna gain were be used for conducted measurement. (Antenna gain = 4.76dBi)
f. For the out of band spurious the gain for the specific band may have been used rather than the highest gain across all bands.
g. For the band edge the gain for the specific band may have been used.
h. In restricted bands below 1000 MHz, add upper bound on ground plane reflection: For $f = 30 - 1000$ MHz, add 4.7 dB.
Note: The conducted emission test was considered some factor to compute test result.

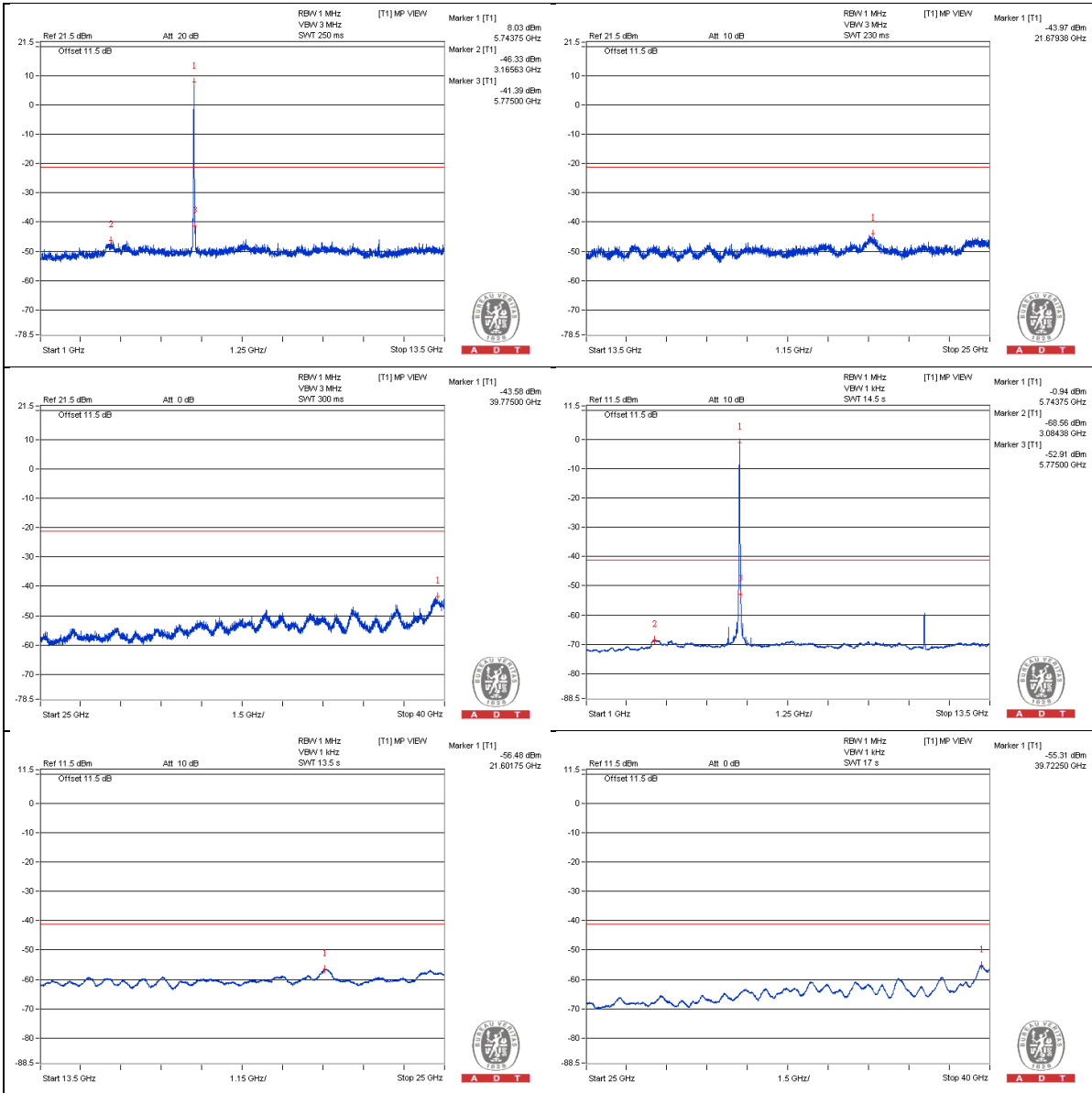
Above 1GHz Data
802.11a - Channel 149

Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	3821.875 PK	50.02	74	-23.98	-50	4.76	-45.24
2	3821.875 AV	29.53	54	-24.47	-70.49	4.76	-65.73
3	7650 PK	52.37	74	-21.63	-47.65	4.76	-42.89
4	7659.375 AV	30.47	54	-23.53	-69.55	4.76	-64.79
5	11493.75 PK	54.06	74	-19.94	-45.96	4.76	-41.2
6	11490.625 AV	40.61	54	-13.39	-59.41	4.76	-54.65
7	17226 PK	47.54	74	-26.46	-52.48	4.76	-47.72
8	17226 AV	37.31	54	-16.69	-62.71	4.76	-57.95

Note :

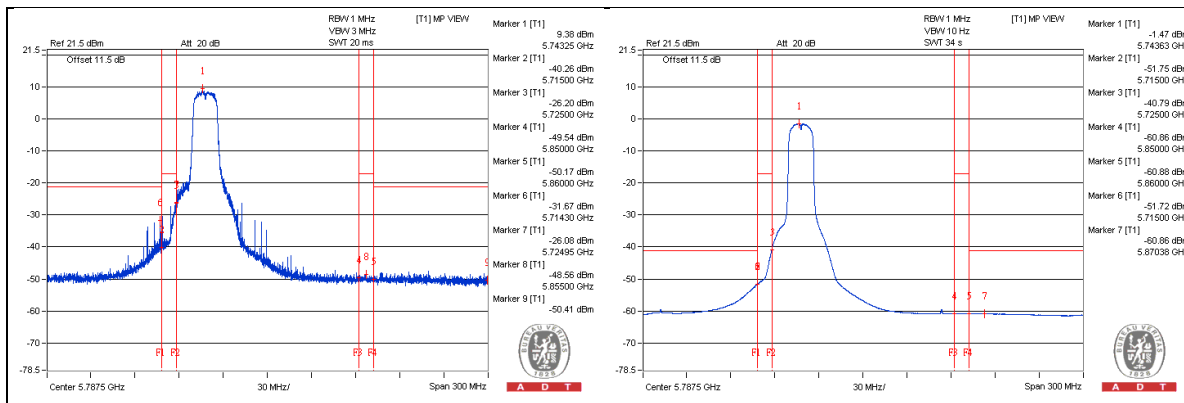
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
d = measurement distance in 3 meters.



Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	5714.3 PK	68.35	74	-5.65	-31.67	4.76	-26.91
2	5715 AV	48.3	54	-5.7	-51.72	4.76	-46.96
3	5724.95 PK	73.94	78.2	-4.26	-26.08	4.76	-21.32
4	5855 PK	51.46	78.2	-26.74	-48.56	4.76	-43.8
5	5937.5 PK	49.61	74	-24.39	-50.41	4.76	-45.65
6	5870.38 AV	39.16	54	-14.84	-60.86	4.76	-56.1

Note :
 Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
 d = measurement distance in 3 meters.

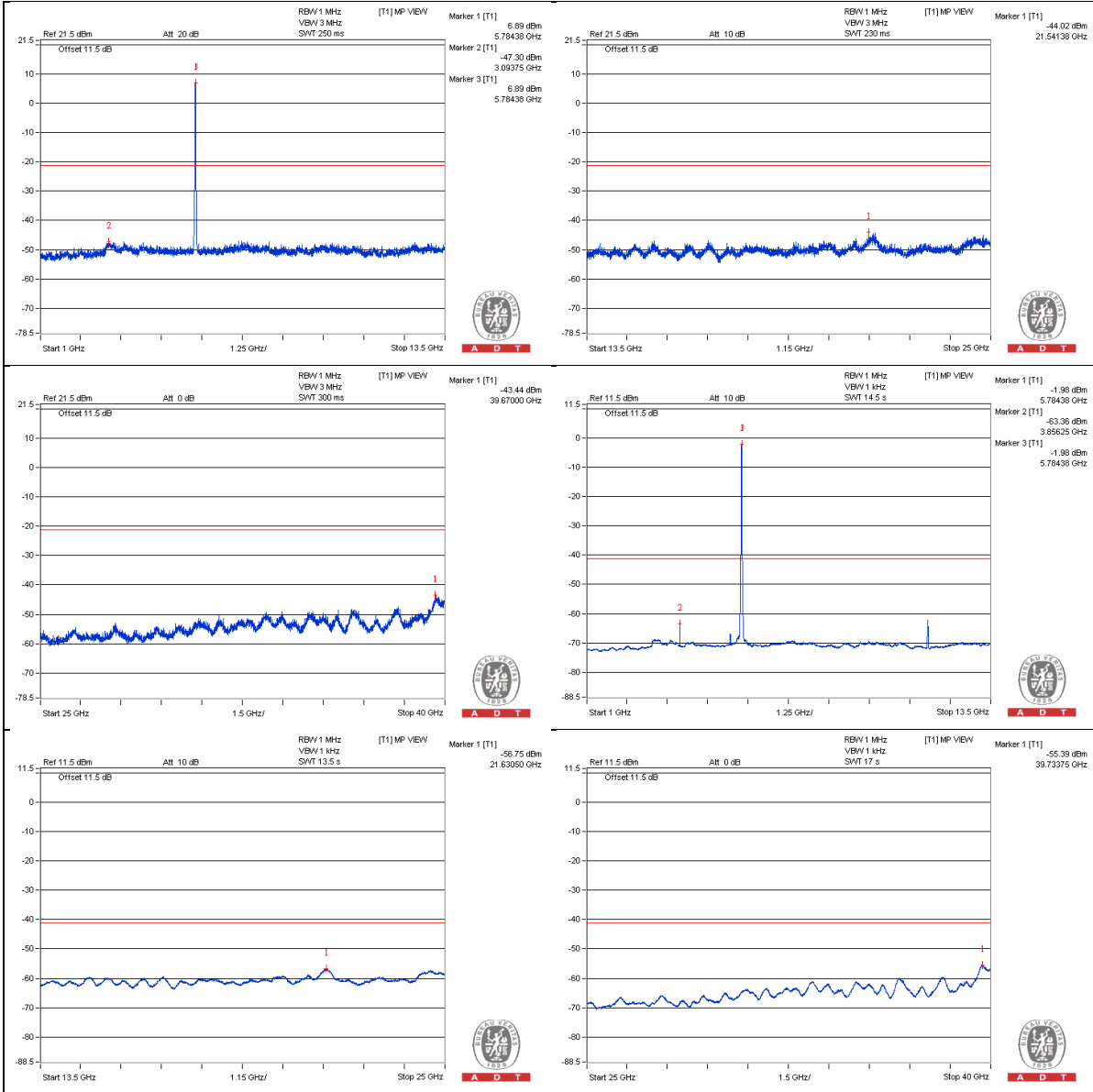


802.11a - Channel 157**Conducted spurious emission table**

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	3850 PK	52.99	74	-21.01	-50.28	4.76	-42.27
2	3856.25 AV	40.45	54	-13.55	-63.36	4.76	-54.81
3	7712.5 PK	53.83	74	-20.17	-48.34	4.76	-41.43
4	7712.5 AV	33.22	54	-20.78	-69.66	4.76	-62.04
5	11575 PK	53.69	74	-20.31	-48.78	4.76	-41.57
6	11571.875 AV	39.32	54	-14.68	-62.15	4.76	-55.94

Note :

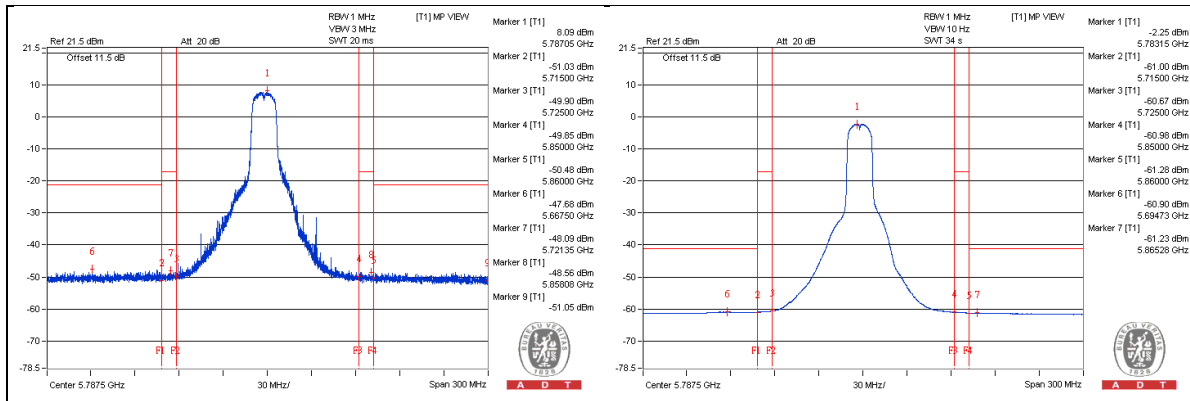
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
d = measurement distance in 3 meters.



Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	5667.5 PK	52.34	74	-21.66	-47.68	4.76	-42.92
2	5694.73 AV	39.12	54	-14.88	-60.9	4.76	-56.14
3	5721.35 PK	51.93	78.2	-26.27	-48.09	4.76	-43.33
4	5858.08 PK	51.46	78.2	-26.74	-48.56	4.76	-43.8
5	5937.5 PK	48.97	74	-25.03	-51.05	4.76	-46.29
6	5865.28 AV	38.79	54	-15.21	-61.23	4.76	-56.47

Note :
 Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
 d = measurement distance in 3 meters.



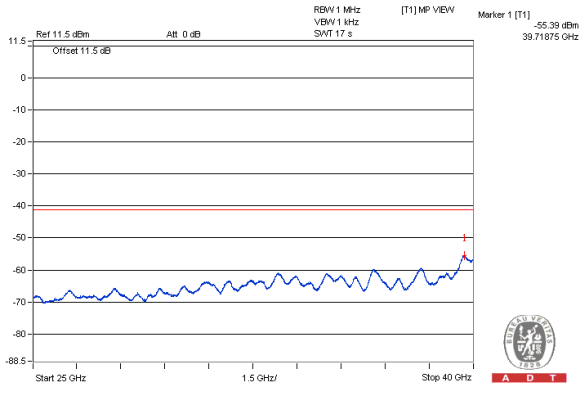
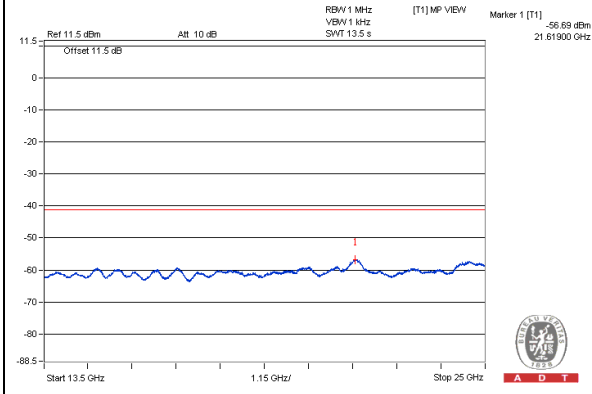
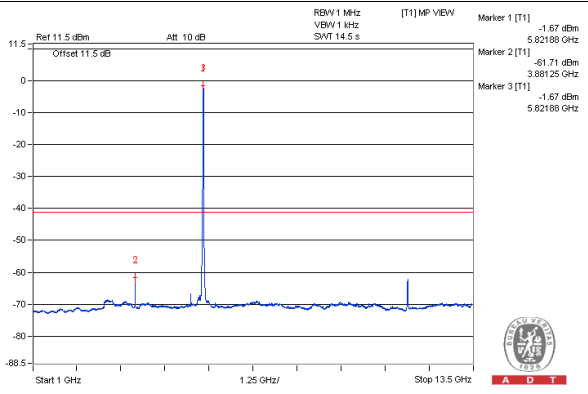
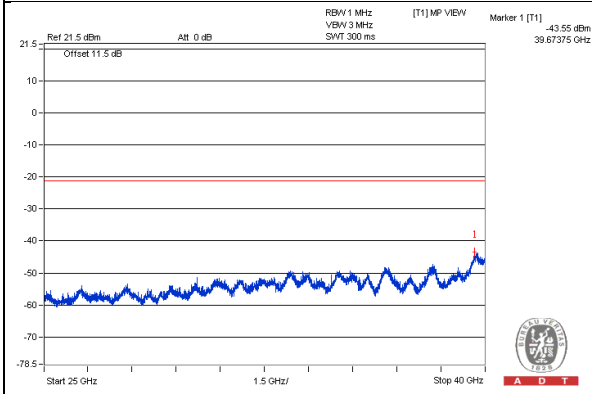
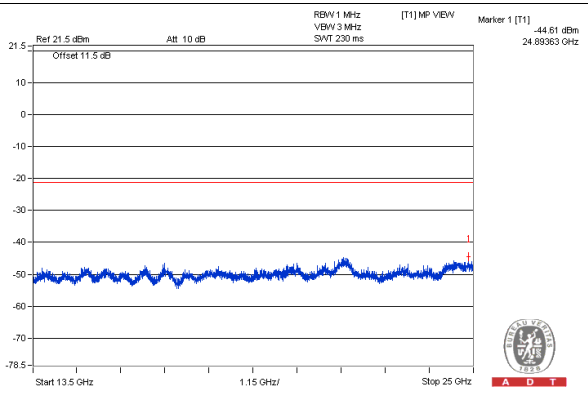
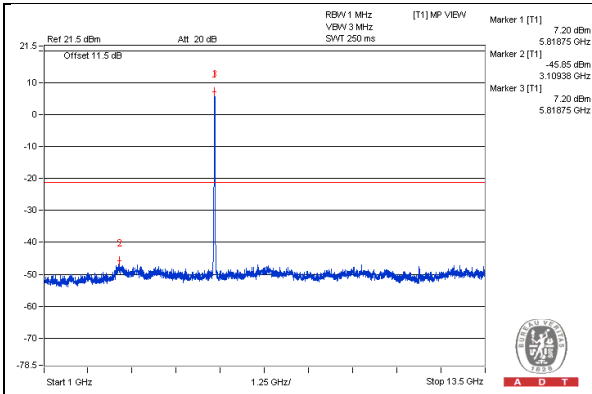
802.11a - Channel 165**Conducted spurious emission table**

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	3884.375 PK	50.41	74	-23.59	-49.61	4.76	-44.85
2	3881.25 AV	38.31	54	-15.69	-61.71	4.76	-56.95
3	7759.375 PK	50.53	74	-23.47	-49.49	4.76	-44.73
4	7765.625 AV	30.52	54	-23.48	-69.5	4.76	-64.74
5	11640.625 PK	52.42	74	-21.58	-47.6	4.76	-42.84
6	11650 AV	37.95	54	-16.05	-62.07	4.76	-57.31
7	17470.375 PK	49.7	74	-24.3	-50.32	4.76	-45.56
8	17481.875 AV	39.28	54	-14.72	-60.74	4.76	-55.98

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

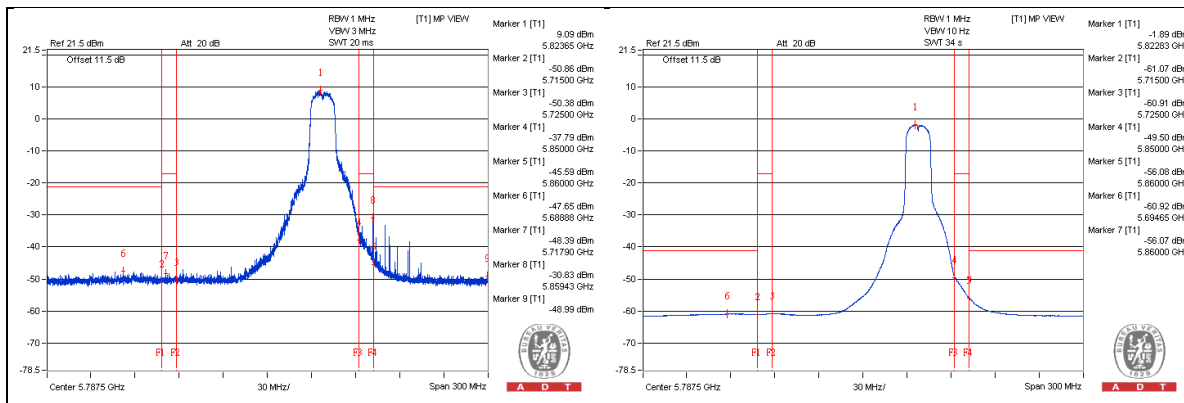
d = measurement distance in 3 meters.



Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	5688.88 PK	52.37	74	-21.63	-47.65	4.76	-42.89
2	5694.65 AV	39.1	54	-14.9	-60.92	4.76	-56.16
3	5717.9 PK	51.63	78.2	-26.57	-48.39	4.76	-43.63
4	5859.43 PK	69.19	78.2	-9.01	-30.83	4.76	-26.07
5	5937.5 PK	51.03	74	-22.97	-48.99	4.76	-44.23
6	5860 AV	43.95	54	-10.05	-56.07	4.76	-51.31

Note :
 Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
 d = measurement distance in 3 meters.



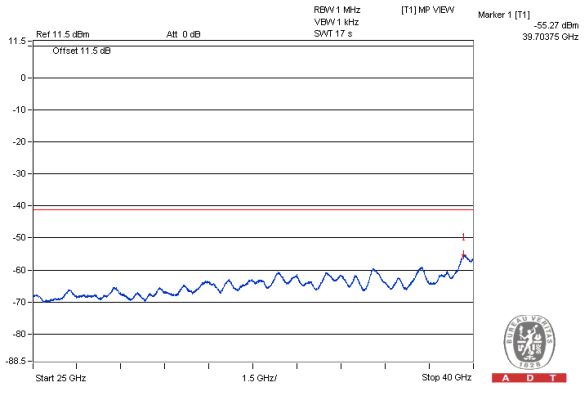
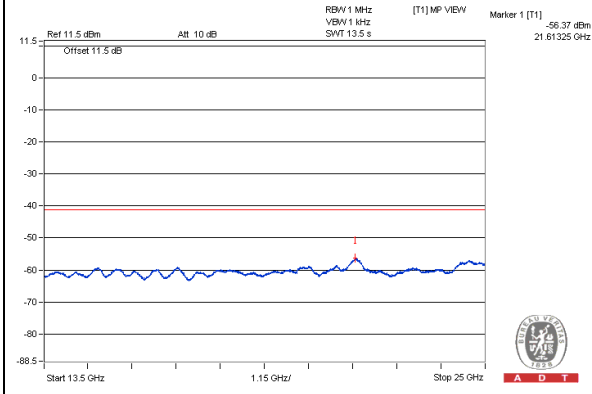
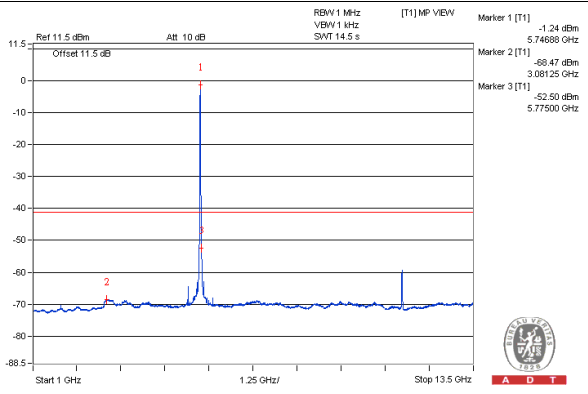
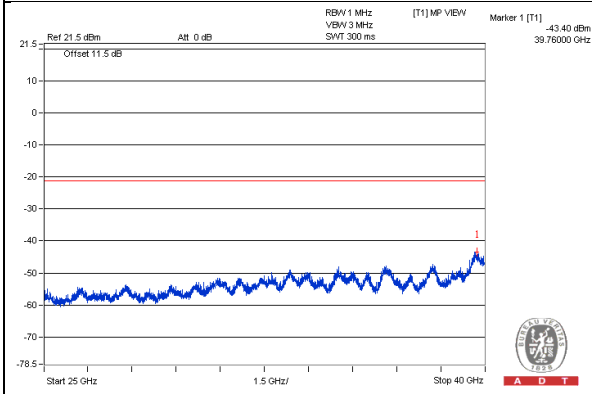
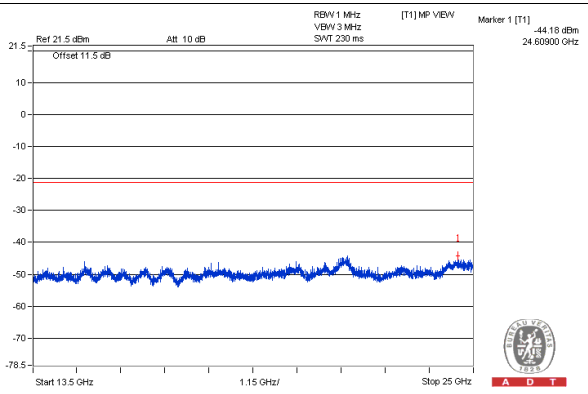
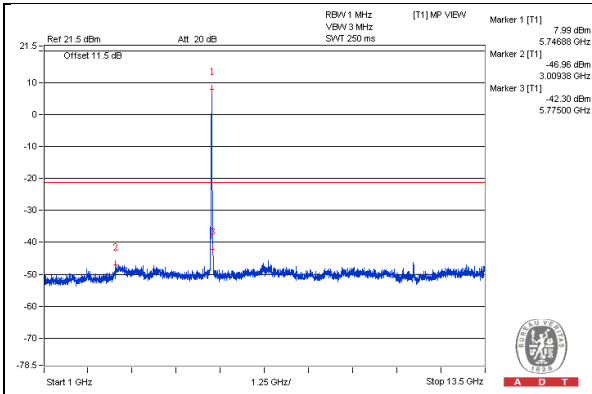
802.11ac (VHT20) - Channel 149**Conducted spurious emission table**

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	3837.5 PK	50.61	74	-23.39	-49.41	4.76	-44.65
2	3828.125 AV	29.75	54	-24.25	-70.27	4.76	-65.51
3	7662.5 PK	51.67	74	-22.33	-48.35	4.76	-43.59
4	7659.375 AV	30.31	54	-23.69	-69.71	4.76	-64.95
5	11484.375 PK	53.8	74	-20.2	-46.22	4.76	-41.46
6	11490.625 AV	40.79	54	-13.21	-59.23	4.76	-54.47
7	17237.5 PK	47.87	74	-26.13	-52.15	4.76	-47.39
8	17228.875 AV	37.18	54	-16.82	-62.84	4.76	-58.08

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

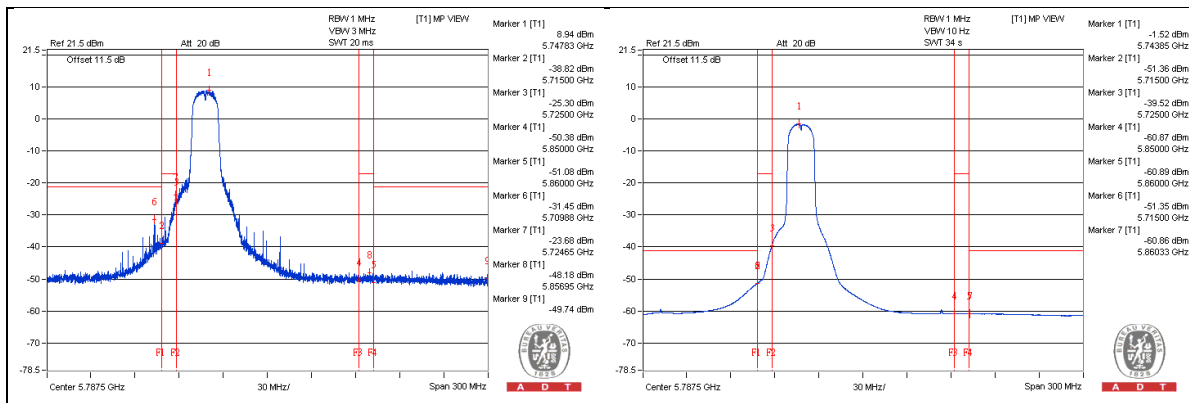
d = measurement distance in 3 meters.



Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	5709.88 PK	68.57	74	-5.43	-31.45	4.76	-26.69
2	5715 AV	48.67	54	-5.33	-51.35	4.76	-46.59
3	5724.65 PK	76.34	78.2	-1.86	-23.68	4.76	-18.92
4	5856.95 PK	51.84	78.2	-26.36	-48.18	4.76	-43.42
5	5937.5 PK	50.28	74	-23.72	-49.74	4.76	-44.98
6	5860.33 AV	39.16	54	-14.84	-60.86	4.76	-56.1

Note :
 $Emission\ Level\ (dBuV/m) = EIRP\ Level\ (dBm) - 20\log(d) + 104.8$
 d = measurement distance in 3 meters.



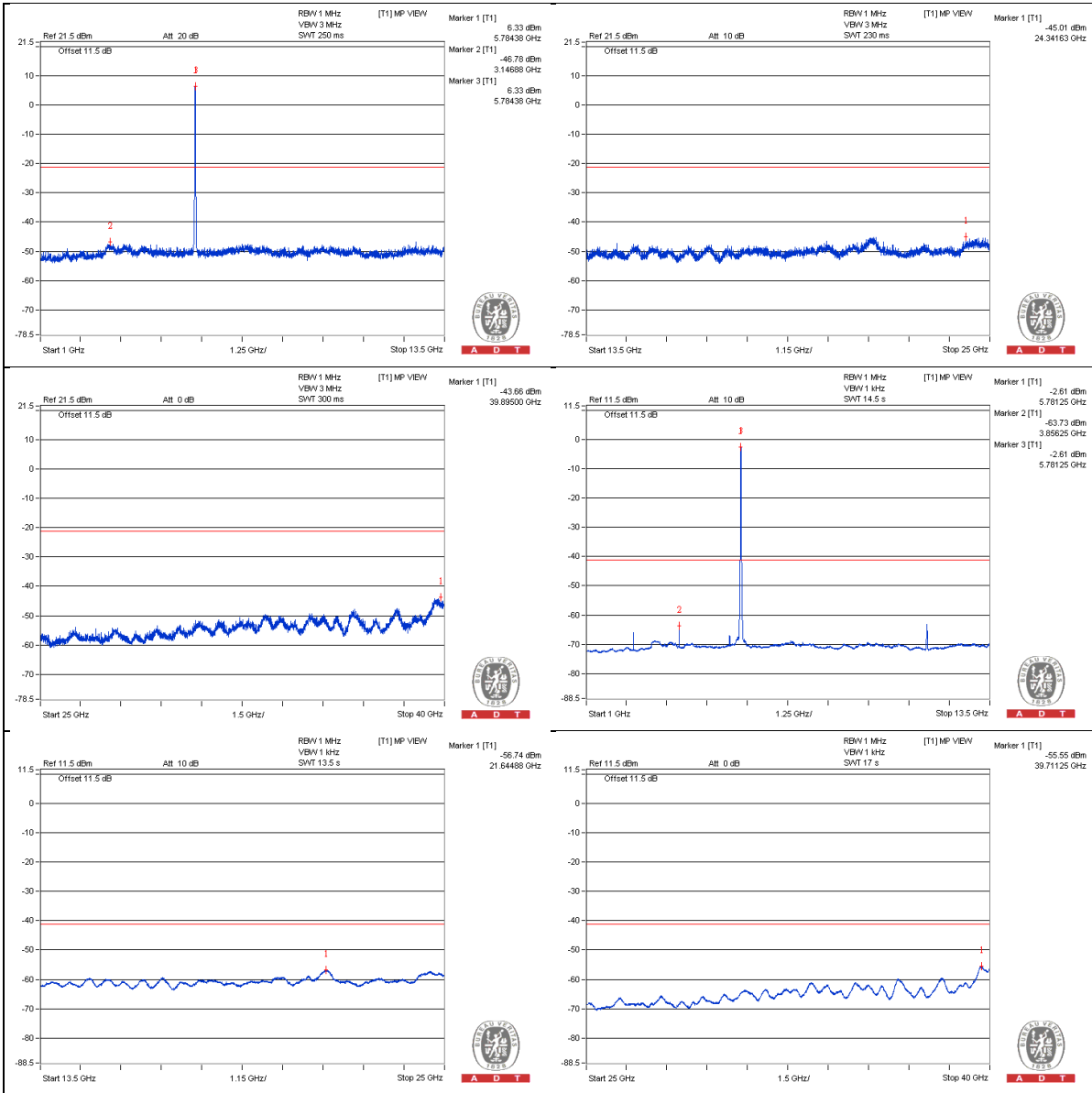
802.11ac (VHT20) - Channel 157**Conducted spurious emission table**

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	3856.25 PK	50.48	74	-23.52	-49.54	4.76	-44.78
2	3856.25 AV	36.29	54	-17.71	-63.73	4.76	-58.97
3	7712.5 PK	51.2	74	-22.8	-48.82	4.76	-44.06
4	7712.5 AV	30.7	54	-23.3	-69.32	4.76	-64.56
5	11571.875 PK	50.43	74	-23.57	-49.59	4.76	-44.83
6	11568.75 AV	36.87	54	-17.13	-63.15	4.76	-58.39
7	17364 PK	48.39	74	-25.61	-51.63	4.76	-46.87
8	17361.125 AV	37.49	54	-16.51	-62.53	4.76	-57.77

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

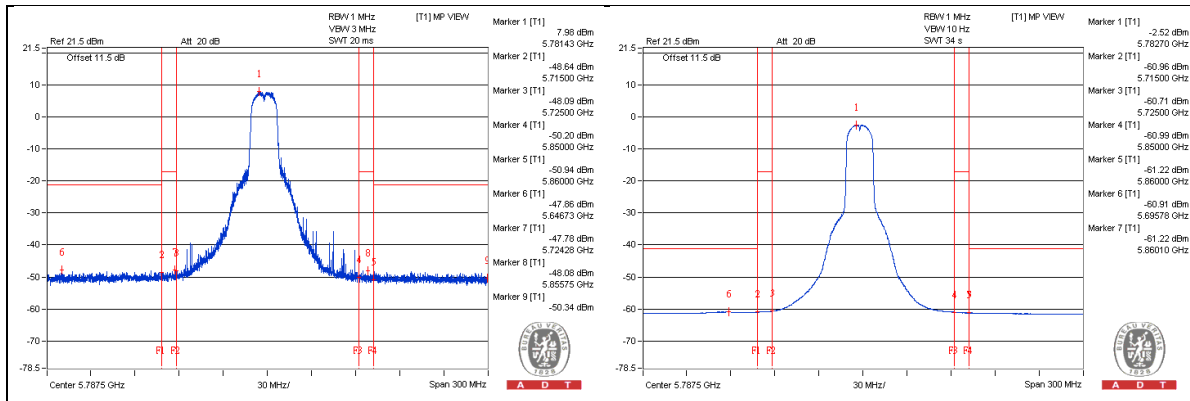
d = measurement distance in 3 meters.



Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	5646.73 PK	52.16	74	-21.84	-47.86	4.76	-43.1
2	5695.78 AV	39.11	54	-14.89	-60.91	4.76	-56.15
3	5724.28 PK	52.24	78.2	-25.96	-47.78	4.76	-43.02
4	5855.75 PK	51.94	78.2	-26.26	-48.08	4.76	-43.32
5	5937.5 PK	49.68	74	-24.32	-50.34	4.76	-45.58
6	5860.1 AV	38.8	54	-15.2	-61.22	4.76	-56.46

Note :
 $Emission\ Level\ (dBuV/m) = EIRP\ Level\ (dBm) - 20\log(d) + 104.8$
 d = measurement distance in 3 meters.



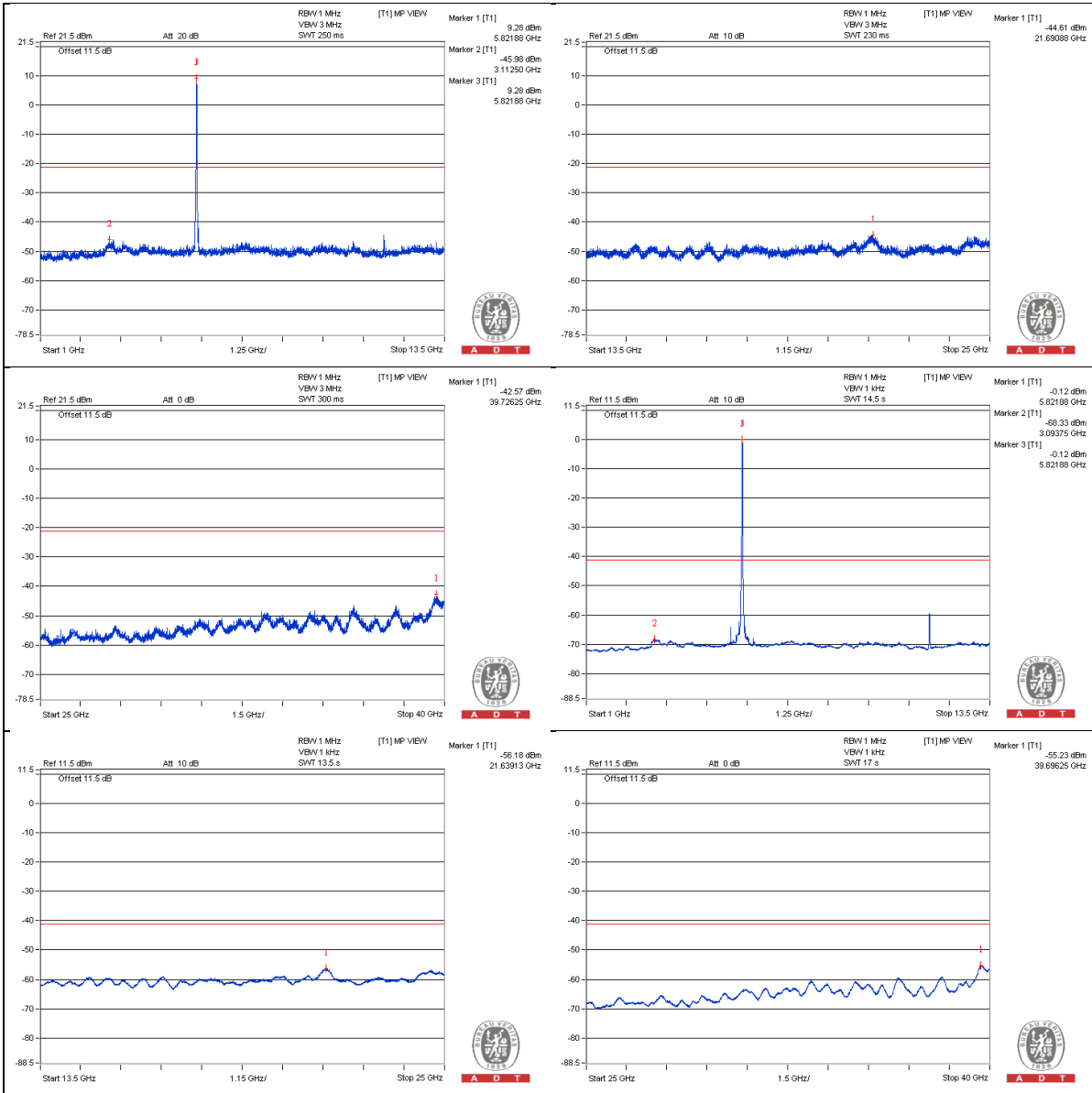
802.11ac (VHT20) - Channel 165**Conducted spurious emission table**

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	3884.375 PK	50.29	74	-23.71	-49.73	4.76	-44.97
2	3881.25 AV	30	54	-24	-70.02	4.76	-65.26
3	7768.75 PK	50.79	74	-23.21	-49.23	4.76	-44.47
4	7771.875 AV	30.2	54	-23.8	-69.82	4.76	-65.06
5	11646.875 PK	55.55	74	-18.45	-44.47	4.76	-39.71
6	11646.875 AV	40.53	54	-13.47	-59.49	4.76	-54.73
7	17476.125 PK	51.63	74	-22.37	-48.39	4.76	-43.63
8	17481.875 AV	39.56	54	-14.44	-60.46	4.76	-55.7

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

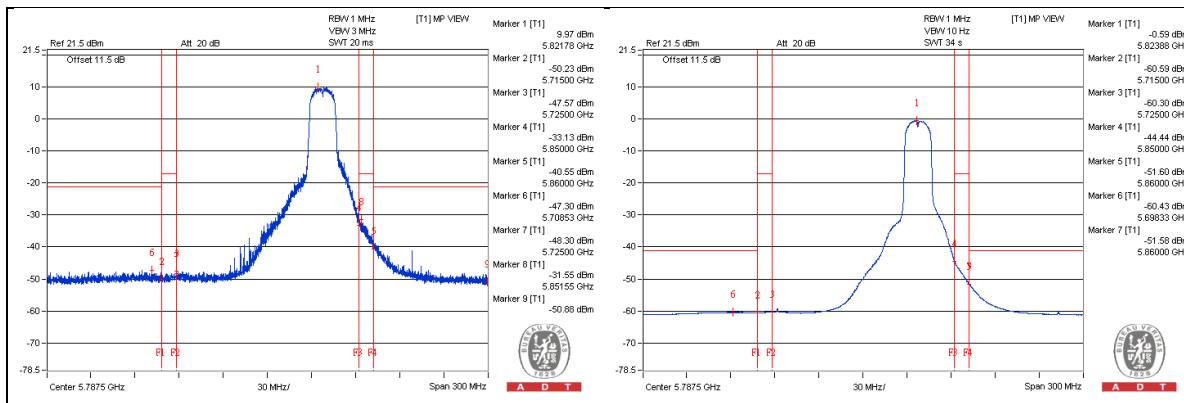
d = measurement distance in 3 meters.



Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	5708.53 PK	52.72	74	-21.28	-47.3	4.76	-42.54
2	5698.33 AV	39.59	54	-14.41	-60.43	4.76	-55.67
3	5725 PK	51.72	78.2	-26.48	-48.3	4.76	-43.54
4	5851.55 PK	68.47	78.2	-9.73	-31.55	4.76	-26.79
5	5937.5 PK	49.14	74	-24.86	-50.88	4.76	-46.12
6	5860 AV	48.44	54	-5.56	-51.58	4.76	-46.82

Note :
 Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
 d = measurement distance in 3 meters.



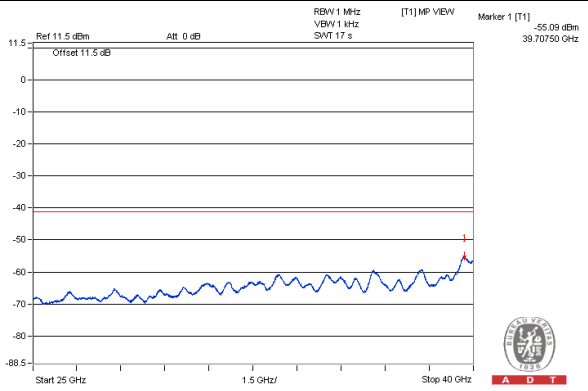
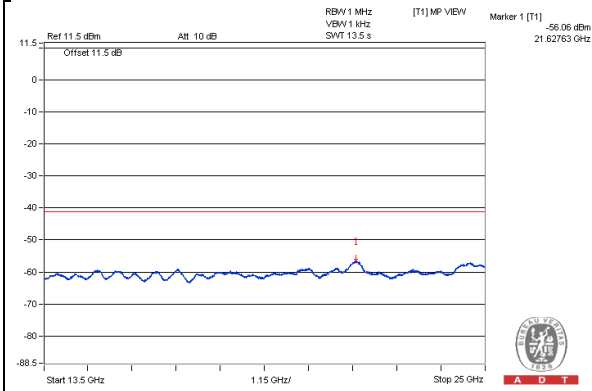
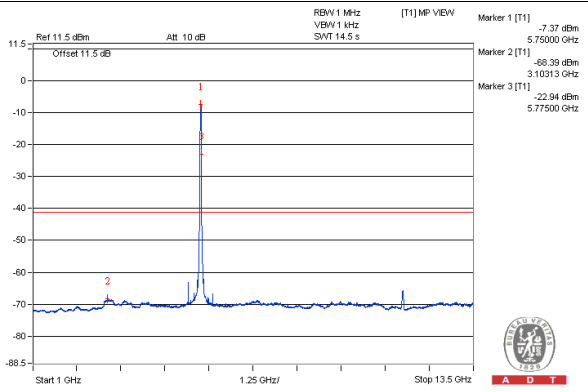
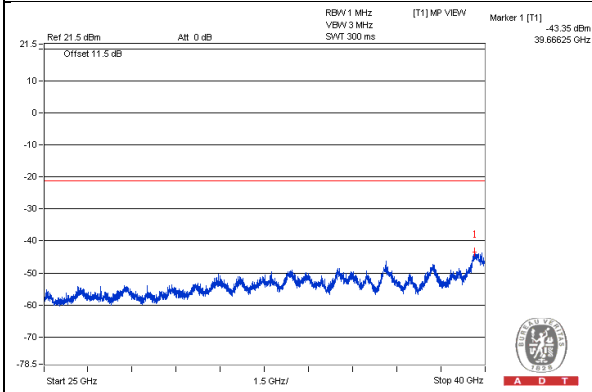
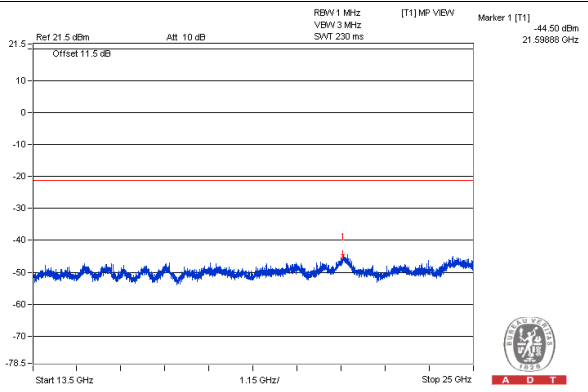
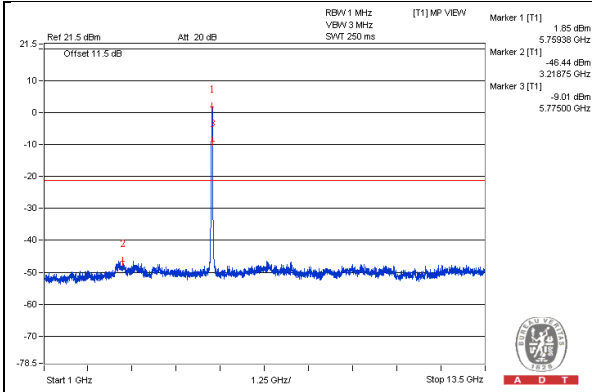
802.11ac (VHT40) - Channel 151**Conducted spurious emission table**

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	3831.25 PK	51.73	74	-22.27	-48.29	4.76	-43.53
2	3834.375 AV	29.49	54	-24.51	-70.53	4.76	-65.77
3	7678.125 PK	50.58	74	-23.42	-49.44	4.76	-44.68
4	7675 AV	30.2	54	-23.8	-69.82	4.76	-65.06
5	11500 PK	50.48	74	-23.52	-49.54	4.76	-44.78
6	11512.5 AV	34.23	54	-19.77	-65.79	4.76	-61.03
7	17257.625 PK	47.78	74	-26.22	-52.24	4.76	-47.48
8	17257.625 AV	36.9	54	-17.1	-63.12	4.76	-58.36

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.

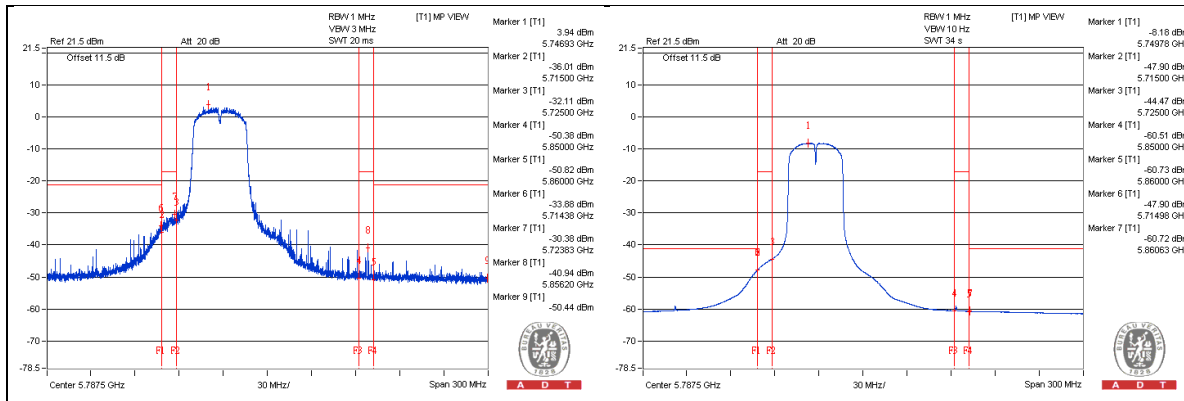


Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	5714.38 PK	66.14	68.2	-2.06	-33.88	4.76	-29.12
2	5723.83 PK	69.64	78.2	-8.56	-30.38	4.76	-25.62
3	5856.2 PK	59.08	78.2	-19.12	-40.94	4.76	-36.18
4	5937.5 PK	49.58	74	-24.42	-50.44	4.76	-45.68
5	5860.63 AV	39.3	54	-14.7	-60.72	4.76	-55.96

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
d = measurement distance in 3 meters.



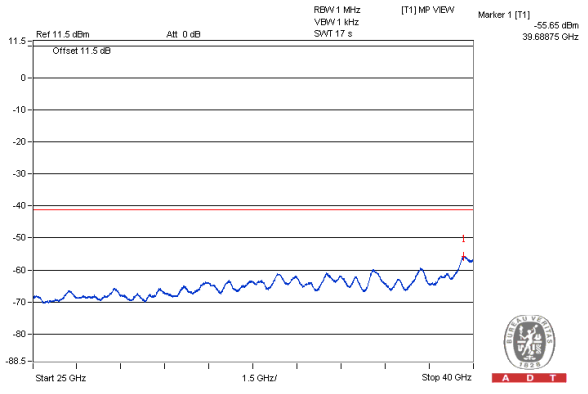
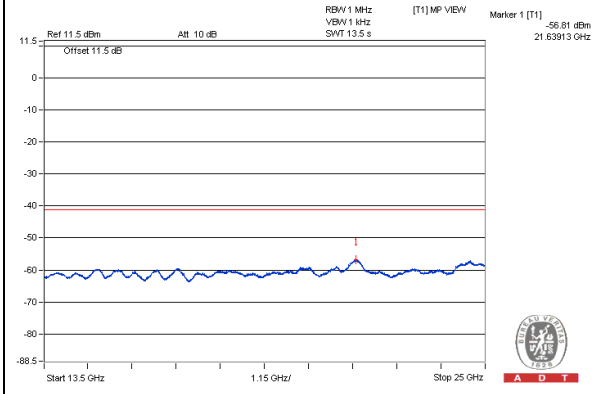
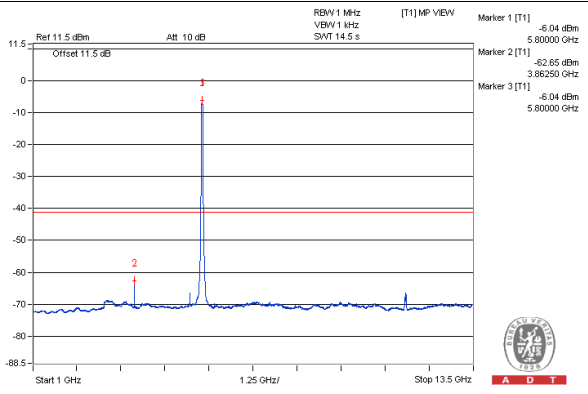
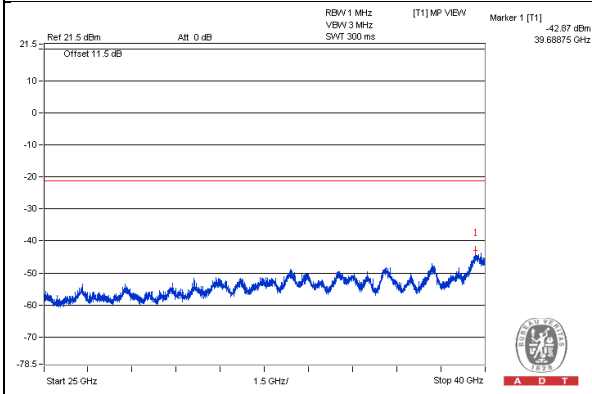
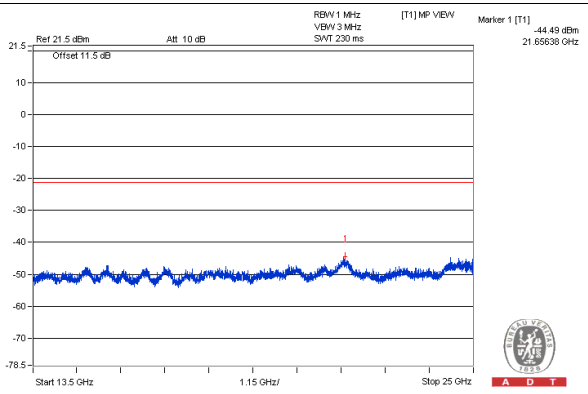
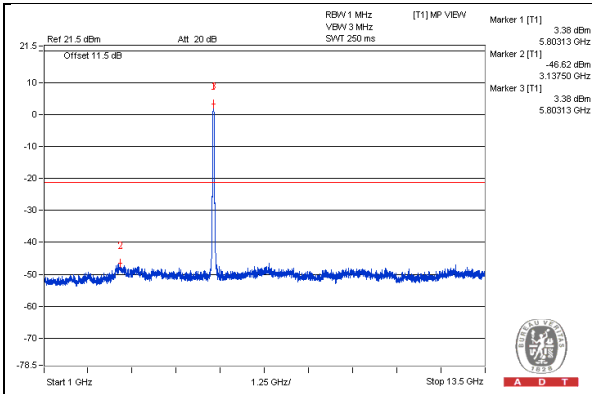
802.11ac (VHT40) - Channel 159**Conducted spurious emission table**

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	3862.5 PK	49.59	74	-24.41	-50.43	4.76	-45.67
2	3862.5 AV	37.37	54	-16.63	-62.65	4.76	-57.89
3	7721.875 PK	51.48	74	-22.52	-48.54	4.76	-43.78
4	7728.125 AV	30.78	54	-23.22	-69.24	4.76	-64.48
5	11600 PK	49.08	74	-24.92	-50.94	4.76	-46.18
6	11584.375 AV	33.59	54	-20.41	-66.43	4.76	-61.67
7	17378.375 PK	50.13	74	-23.87	-49.89	4.76	-45.13
8	17392.75 AV	37.94	54	-16.06	-62.08	4.76	-57.32

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

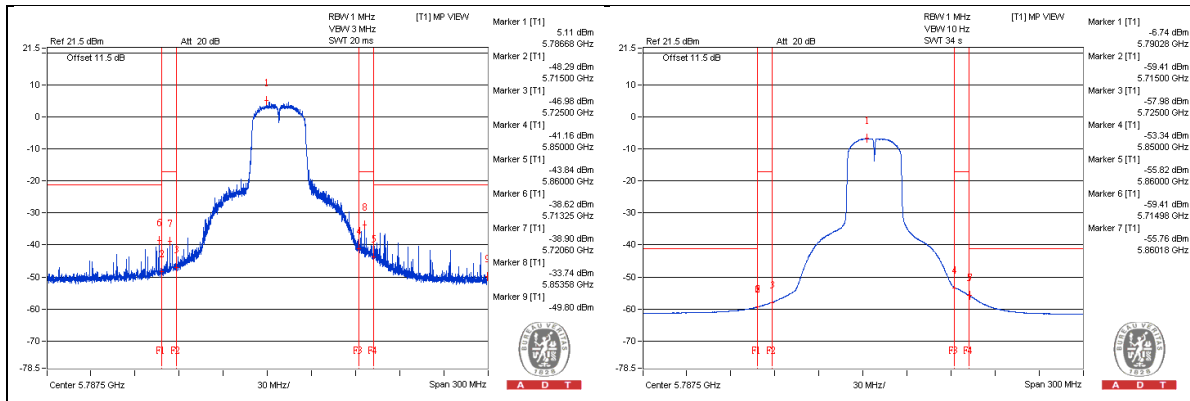
d = measurement distance in 3 meters.



Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	5713.25 PK	61.4	74	-12.6	-38.62	4.76	-33.86
2	5714.98 AV	40.61	54	-13.39	-59.41	4.76	-54.65
3	5720.6 PK	61.12	78.2	-17.08	-38.9	4.76	-34.14
4	5853.58 PK	66.28	78.2	-11.92	-33.74	4.76	-28.98
5	5937.5 PK	50.22	74	-23.78	-49.8	4.76	-45.04
6	5860.18 AV	44.26	54	-9.74	-55.76	4.76	-51

Note :
 Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
 d = measurement distance in 3 meters.



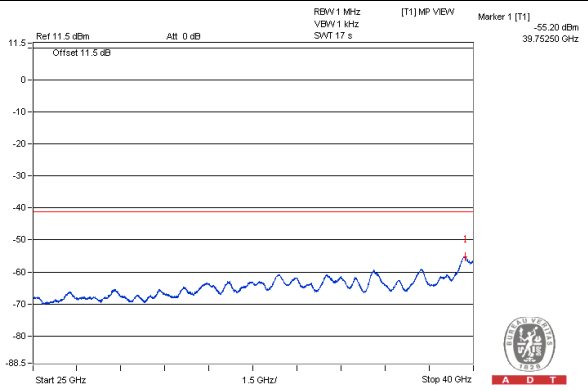
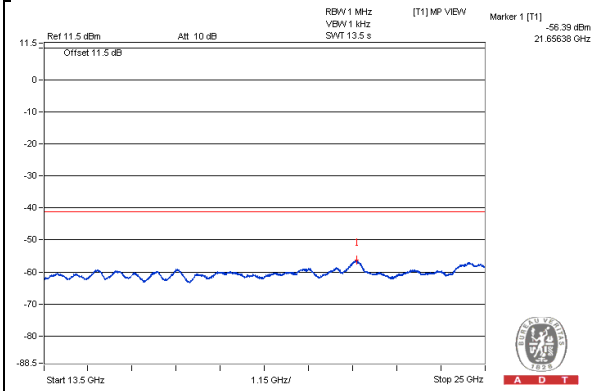
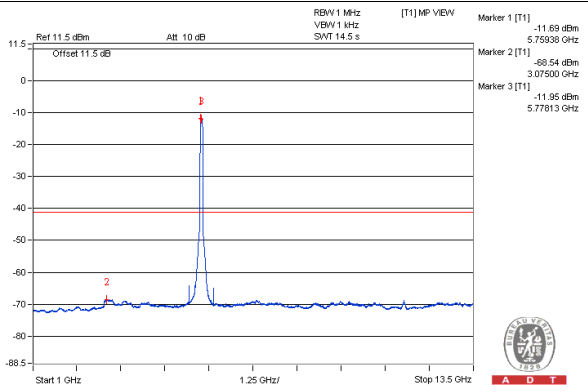
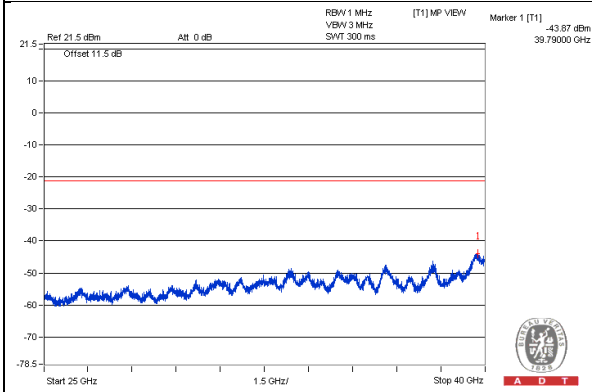
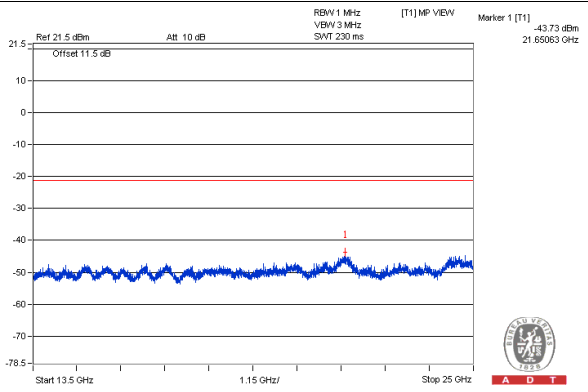
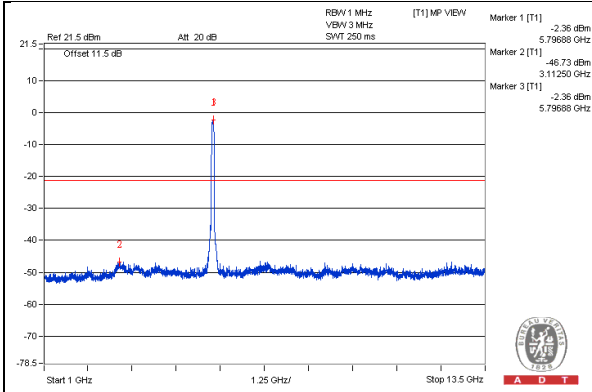
802.11ac (VHT80) - Channel 155
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	3850 PK	49.68	74	-24.32	-50.34	4.76	-45.58
2	3856.25 AV	29.3	54	-24.7	-70.72	4.76	-65.96
3	7700 PK	51.71	74	-22.29	-48.31	4.76	-43.55
4	7700 AV	30.38	54	-23.62	-69.64	4.76	-64.88
5	11550 PK	49.02	74	-24.98	-51	4.76	-46.24
6	11550 AV	31.33	54	-22.67	-68.69	4.76	-63.93
7	17329.5 PK	48.43	74	-25.57	-51.59	4.76	-46.83
8	17332.375 AV	37.32	54	-16.68	-62.7	4.76	-57.94

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.

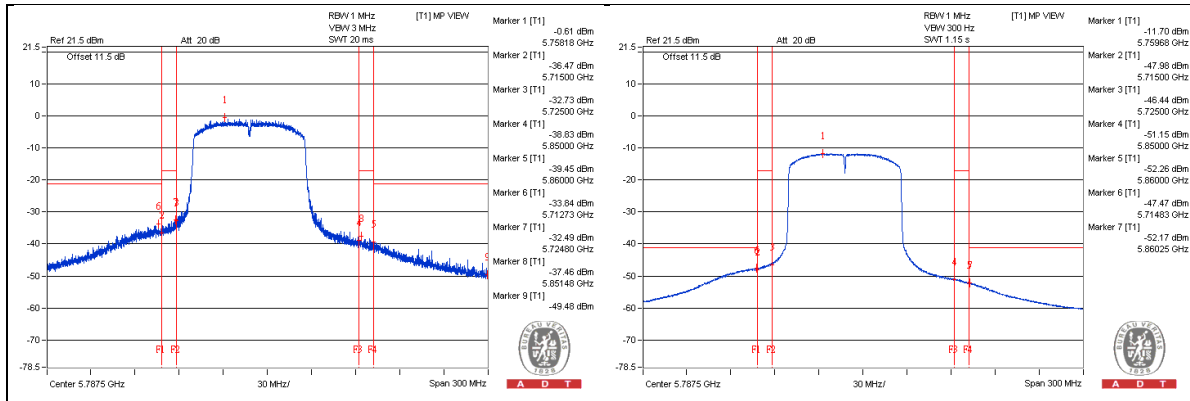


Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	5712.73 PK	66.18	68.2	-2.02	-33.84	4.76	-29.08
2	5724.8 PK	67.53	78.2	-10.67	-32.49	4.76	-27.73
3	5851.48 PK	62.56	78.2	-15.64	-37.46	4.76	-32.7
4	5937.5 PK	50.54	74	-23.46	-49.48	4.76	-44.72
5	5860.25 AV	47.85	54	-6.15	-52.17	4.76	-47.41

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
d = measurement distance in 3 meters.

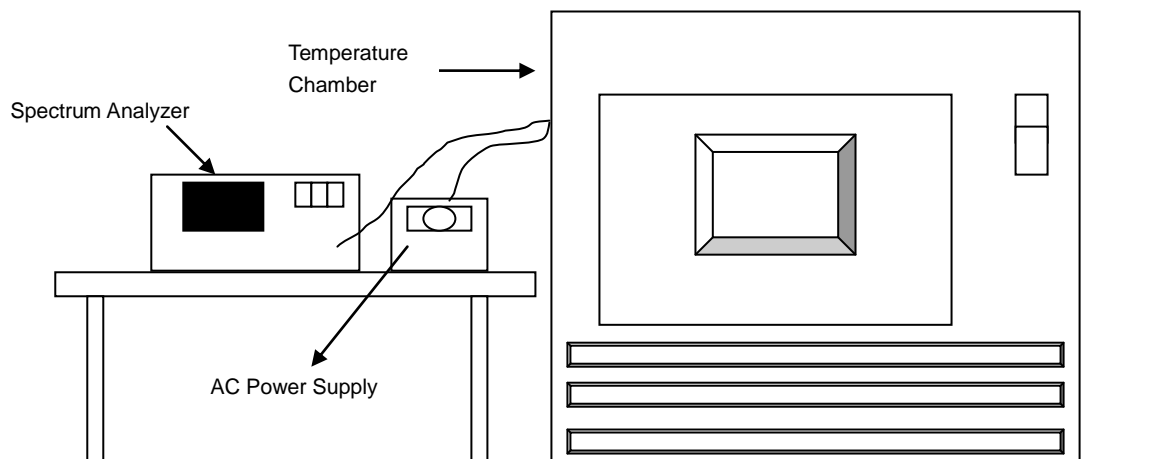


4.5 Frequency Stability Measurement

4.5.1 Limits of Frequency Stability Measurement

The frequency of the carrier signal shall be maintained within band of operation

4.5.2 Test Setup



4.5.3 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSP 40	100060	May 08, 2015	May 07, 2016
Temperature & Humidity Chamber GIANTFORCE	GTH-150-40-S P-AR	MAA0812-008	Jan. 12, 2015	Jan. 11, 2016

- NOTE:**
1. The test was performed in Oven room 2.
 2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 3. Tested Date: Aug. 19, 2015

4.5.4 Test Procedures

- a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- b. Turn the EUT on and couple its output to a spectrum analyzer.
- c. Turn the EUT off and set the chamber to the highest temperature specified.
- d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
- e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

Set the EUT transmit at un-modulation mode to test frequency stability.



4.5.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5745MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
50	120	5745.0141	0.00025	5745.0186	0.00032	5745.0187	0.00033	5745.0163	0.00028
40	120	5745.0185	0.00032	5745.019	0.00033	5745.0219	0.00038	5745.0222	0.00039
30	120	5744.9762	-0.00041	5744.9785	-0.00037	5744.9818	-0.00032	5744.9769	-0.00040
20	120	5745.0022	0.00004	5745.0046	0.00008	5745.0027	0.00005	5745.0005	0.00001
10	120	5744.9855	-0.00025	5744.9847	-0.00027	5744.9864	-0.00024	5744.987	-0.00023
0	120	5744.9948	-0.00009	5744.9916	-0.00015	5744.9907	-0.00016	5744.9954	-0.00008
-10	120	5745.001	0.00002	5744.9988	-0.00002	5745.0006	0.00001	5744.9989	-0.00002
-20	120	5745.0159	0.00028	5745.0183	0.00032	5745.0147	0.00026	5745.0173	0.00030
-30	120	5744.9835	-0.00029	5744.9819	-0.00032	5744.9858	-0.00025	5744.9804	-0.00034

Frequency Stability Versus Temp.									
Operating Frequency: 5745MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5745.0023	0.00004	5745.0046	0.00008	5745.0037	0.00006	5744.9996	-0.00001
	120	5745.0022	0.00004	5745.0046	0.00008	5745.0027	0.00005	5745.0005	0.00001
	102	5745.0014	0.00002	5745.0049	0.00009	5745.0016	0.00003	5745.0004	0.00001



5 Pictures of Test Arrangements

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



6 Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF Lab/Telecom Lab

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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