



CERTIFICATION TEST REPORT

Report Number. : R13158070-E4

Applicant : Braun GMBH
T-QTA Frankfurter Strasses 145
Kronberg TS, D-61476
Germany

Model : 3783

FCC ID : 2AG9A51910

EUT Description : Wireless Toothbrush Charging Base

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C

Date Of Issue:
March 20, 2020

Prepared by:
UL LLC
12 Laboratory Dr.
Research Triangle Park, NC 27709 U.S.A.
TEL: (919) 549-1400



REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
–	3/20/2020	Initial Issue	

TABLE OF CONTENTS

REPORT REVISION HISTORY	2
TABLE OF CONTENTS	3
1. ATTESTATION OF TEST RESULTS	5
2. TEST METHODOLOGY	6
3. FACILITIES AND ACCREDITATION	6
4. CALIBRATION AND UNCERTAINTY	7
4.1. MEASURING INSTRUMENT CALIBRATION	7
4.2. SAMPLE CALCULATION	7
4.3. MEASUREMENT UNCERTAINTY	7
5. EQUIPMENT UNDER TEST	8
5.1. EUT DESCRIPTION	8
5.2. MAXIMUM OUTPUT POWER	8
5.3. DESCRIPTION OF AVAILABLE ANTENNAS	9
5.4. SOFTWARE AND FIRMWARE	9
5.5. WORST-CASE CONFIGURATION AND MODE	9
5.6. DESCRIPTION OF TEST SETUP	10
6. MEASUREMENT METHOD	11
7. TEST AND MEASUREMENT EQUIPMENT	12
8. ANTENNA PORT TEST RESULTS	15
8.1. ON TIME AND DUTY CYCLE	15
8.2. 99% BANDWIDTH	17
8.2.1. 802.11b MODE	18
8.2.2. 802.11g MODE	19
8.2.3. 802.11n HT20 MODE	20
8.2.4. 802.11n HT40 MODE	21
8.3. 6 dB BANDWIDTH	22
8.3.1. 802.11b MODE	23
8.3.2. 802.11g MODE	24
8.3.3. 802.11n HT20 MODE	25
8.3.4. 802.11n HT40 MODE	26
8.4. OUTPUT POWER	27
8.4.1. 802.11b MODE	28
8.4.2. 802.11g MODE	28

8.4.3.	802.11n HT20 MODE	28
8.4.4	802.11n HT40 MODE	29
8.5.	AVERAGE POWER	30
8.5.1.	802.11b MODE	30
8.5.2.	802.11g MODE	30
8.5.3.	802.11n HT20 MODE	31
8.5.4	802.11n HT40 MODE	31
8.6.	POWER SPECTRAL DENSITY	32
8.6.1.	802.11b MODE	33
8.6.2.	802.11g MODE	34
8.6.3.	802.11n HT20 MODE	35
8.6.4.	802.11n HT40 MODE	36
8.7.	CONDUCTED SPURIOUS EMISSIONS	37
8.7.1.	802.11b MODE	38
8.7.2.	802.11g MODE	39
8.7.3.	802.11n HT20 MODE	40
8.7.4.	802.11n HT40 MODE	41
9.	RADIATED TEST RESULTS	42
9.1.	TRANSMITTER ABOVE 1 GHz	44
9.1.1.	TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND	44
9.1.2.	TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND	54
9.1.3.	TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND	64
9.1.4.	TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 2.4 GHz BAND	74
9.2.	WORST CASE BELOW 30MHZ	84
9.3.	WORST CASE BELOW 1 GHZ	85
9.4.	WORST CASE 18-26 GHZ	87
10.	AC POWER LINE CONDUCTED EMISSIONS	89
10.1.1.	AC Power Line Norm	90
11.	SETUP PHOTOS	92

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Braun GMBH
T-QTA Frankfurter Strasses 145
Kronberg TS, D-61476
Germany

EUT DESCRIPTION: Wireless Toothbrush Charging Base

MODEL: 3783

SERIAL NUMBER: Charging base: BW012969000010

DATE RECEIVED: 2019-12-19

DATE TESTED: 2019-12-31 to 2020-01-21

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Complies

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. government.

Approved & Released For
UL LLC By:



Brian Kiewra
Project Engineer
Consumer Technology Division
UL LLC

Prepared By:



Cristian Melara
Engineer
Consumer Technology Division
UL LLC

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, KDB 558074 D01 15.247 Meas Guidance v05.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 12 Laboratory Drive, Research Triangle Park, NC 27709, USA and 2800 Perimeter Park Dr., Suite B, Morrisville, NC 27560, USA. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

12 Laboratory Dr.	2800 Perimeter Park Dr.
☐ Chamber A RTP	☒ North Chamber
☐ Chamber C RTP	☒ South Chamber

The above test sites and facilities are covered under FCC Test Firm Registration # 703469

UL LLC (RTP) is accredited by NVLAP, Laboratory Code 200246-0

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
 $36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.
 $36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radio Frequency (Spectrum Analyzer)	141.2 Hz
Occupied Channel Bandwidth	2.00%
RF output power, conducted	1.3 dB (PK) 0.45 dB (AV)
RF output power, radiated (SAC)	4.52 dB
Power Spectral Density, conducted	2.47 dB
Unwanted Emissions, conducted	2.50 dB
All emissions, radiated	4.88 dB
Conducted Emissions (0.150-30MHz) - LISN	3.07 dB
Temperature	2.26°C
Humidity	6.79%
DC Supply voltages	1.70%
Time	3.39%

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. EUT DESCRIPTION

The EUT is a wireless toothbrush charging base with a BT/BLE/2.4/5GHz WLAN radio and a WPT radio that operates from 30-47 kHz. This reports covers the 2.4GHz WIFI function of the device.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

2.4GHz BAND

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	17.64	58.08
2412 - 2462	802.11g	23.15	206.54
2412 - 2462	802.11n HT20	23.51	224.39
2422 - 2452	802.11n HT40	22.01	158.85

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPC antenna, with a maximum gain of 2.66 dBi.

5.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was Type 3782 firmware version:V12, Type 3783 firmware version: V20.

5.5. WORST-CASE CONFIGURATION AND MODE

Radiated emissions in the range of 1-18GHz were tested with the EUT continuously transmitting on low, mid, and high channels.

AC Mains Line Conducted and radiated emissions in the ranges of 0.009-30MHz, 30-1000MHz, and 18-26GHz were tested at worst-case channel based on power and PSD.

EUT only intended to operate in one orientation. Therefore all testing performed with EUT in its intended orientation.

Worst-case data rates as provided by the client were:

802.11b mode: 1 Mbps

802.11g mode: 6 Mbps

802.11n HT20mode: MCS0

802.11n HT40mode: MCS0

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Toothbrush	Braun	3765	BC811081911	USQ3765
Toothbrush	Braun	3765	BC811081913	USQ3765
Power supply	Braun	3780	Non-serialized	N/A

I/O CABLES

I/O Cable List						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	1	1	Proprietary 2 prong	2 conductor wire	<3	None

TEST SETUP

The EUT is powered by a power supply. The EUT begins charging as soon as powered up.

SETUP DIAGRAMS

Please refer to R13158070-EP2 for setup diagrams

6. MEASUREMENT METHOD

On Time and Duty Cycle: ANSI C63.10 Section 11.6

6 dB BW: ANSI C63.10 Subclause 11.8.1

Occupied BW (99%): ANSI C63.10-2013 Section 6.9.3

Output Power: ANSI C63.10 Subclause 11.9.1.3 Method PKPM1 Peak-reading power meter

PSD: ANSI C63.10 Subclause 11.10.2 Method PKPSD (Peak PSD)

Out-of-band emissions in non-restricted bands: ANSI C63.10-2013 Section 11.11 & 6.10.4

Out-of-band emissions in restricted bands: ANSI C63.10-2013 Section 11.12.1 & 6.10.5 and KDB 558074 D01 15.247 Section 11. FAQ 3c

General Radiated Emissions: ANSI C63.10:2013 Sections 6.3 – 6.6

AC Line Conducted Emissions: ANSI C63.10:2013 Sections 6.2

7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville - North Chamber)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
1-18 GHz					
AT0067	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2019-03-22	2020-03-22
Gain-Loss Chains					
N-SAC03	Gain-loss string: 1-18GHz	Various	Various	2019-03-15	2020-03-15
Receiver & Software					
SA0026	Spectrum Analyzer	Agilent	N9030A	2019-03-19	2020-03-19
SOFTEMI	EMI Software	UL	Version 9.5 June 15, 2019	NA	NA
Additional Equipment used					
s/n 181474341	Environmental Meter	Fisher Scientific	15-077-963	2018-07-27	2020-07-27

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville - South Chamber)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
0.009-30MHz (Loop Ant.)					
AT0079	Active Loop Antenna	ETS-Lindgren	6502	2019-08-08	2020-08-08
30-1000 MHz					
AT0074	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2019-07-16	2020-07-16
1-18 GHz					
AT0072	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2019-04-22	2020-04-22
18-40 GHz					
AT0076	Horn Antenna, 18-26.5GHz	ARA	MWH-1826/B	2019-11-07	2020-11-07
AT0077	Horn Antenna, 26-40GHz	ARA	MWH-2640/B	2019-11-07	2020-11-07
Gain-Loss Chains					
S-SAC01	Gain-loss string: 0.009-30MHz	Various	Various	2019-05-02	2020-05-02
S-SAC02	Gain-loss string: 25-1000MHz	Various	Various	2019-05-02	2020-05-02
S-SAC03	Gain-loss string: 1-18GHz	Various	Various	2019-03-13	2020-03-13
S62/AMP017/CBL2 69426-001 (Effective 09/20/2019)	Gain-loss string: 18-40GHz	Huber+Suhner Miteq MegaPhase	SUCOFLEX 102EA TTA1840-35-HG NC12-K1K1-216	2019-03-21	2020-03-21
Receiver & Software					
SA0025	Spectrum Analyzer	Agilent	N9030A	2019-02-28	2020-02-28
SA0027 (18-40GHz RSE)	Spectrum Analyzer	Agilent	N9030A	2019-05-15	2020-05-15
SOFTEMI	EMI Software	UL	Version 9.5 June 15, 2019	NA	NA

Test Equipment Used - Line-Conducted Emissions – Voltage (Morrisville – Conducted 1)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
CBL087	Coax cable, RG223, N-male to BNC-male, 20-ft.	Pasternack	PE3W06143-240	2019-05-29	2020-05-29
CDECABLE001	ANSI C63.4 1m extension cable.	UL	Per Annex B of ANSI C63.4	2019-07-10	2020-07-10
s/n 181562858	Environmental Meter	Fisher Scientific	14-650-118	2018-09-04	2020-09-04
LISN003	LISN, 50-ohm/50-uH, 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50-25-2-01-550V	2019-08-19	2020-08-19
75141 (PRE0101521)	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2019-08-20	2020-08-20
TL001	Transient Limiter, 0.009-30MHz	Com-Power	LIT-930A	2019-05-29	2020-05-29
PS215	AC Power Source	Elgar	CW2501M (s/n 1523A02397)	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 June 15, 2019	NA	NA

Test Equipment Used - Wireless Conducted Measurement Equipment

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
Conducted Room 2					
T177 (PRE0079253)	Spectrum Analyzer	Agilent Technologies	E4446A	2019-04-22	2020-04-22
PWM005 (PRE0136341)	RF Power Meter	Keysight Technologies	N1912A	2019-07-08	2020-07-08
PWS005	Peak and Avg Power Sensor, 50MHz to 6GHz	Keysight Technologies	N1921A	2019-05-06	2020-05-06
SN 181474341	Environmental Meter	Fisher Scientific	15-077-963	2018-07-27	2020-07-27
SOFTEMI	EMC Software	UL	Version 2019-11-13	NA	NA

8. ANTENNA PORT TEST RESULTS

8.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

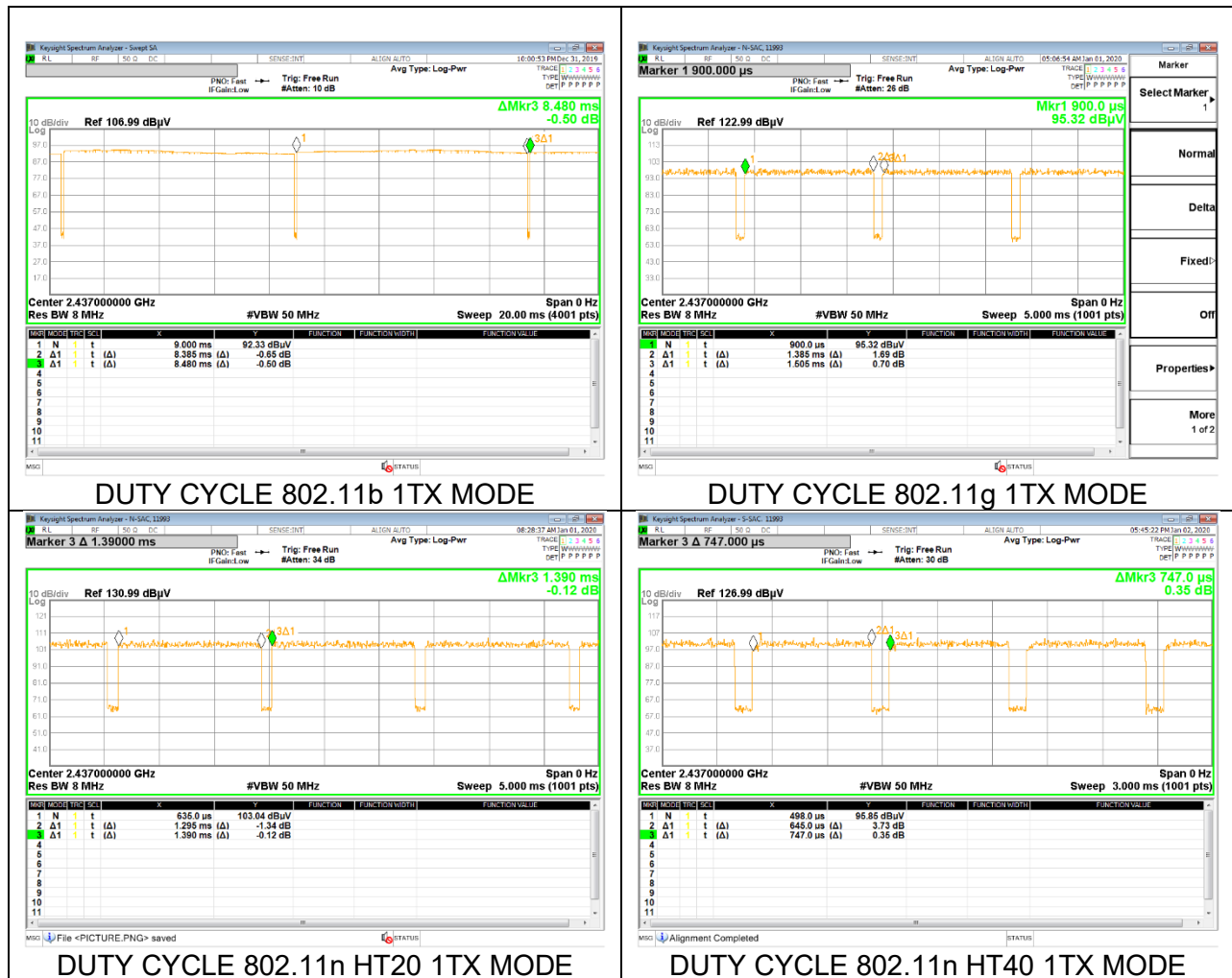
PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
2.4GHz Band						
802.11b	8.385	8.480	0.989	98.88%	0.00	0.010
802.11g 1TX	1.385	1.505	0.920	92.03%	0.72	0.722
802.11n HT20 1TX	1.295	1.390	0.932	93.17%	0.61	0.772
802.11n HT40 1TX	0.645	0.747	0.863	86.35%	1.28	1.550

DUTY CYCLE PLOTS



8.2. 99% BANDWIDTH

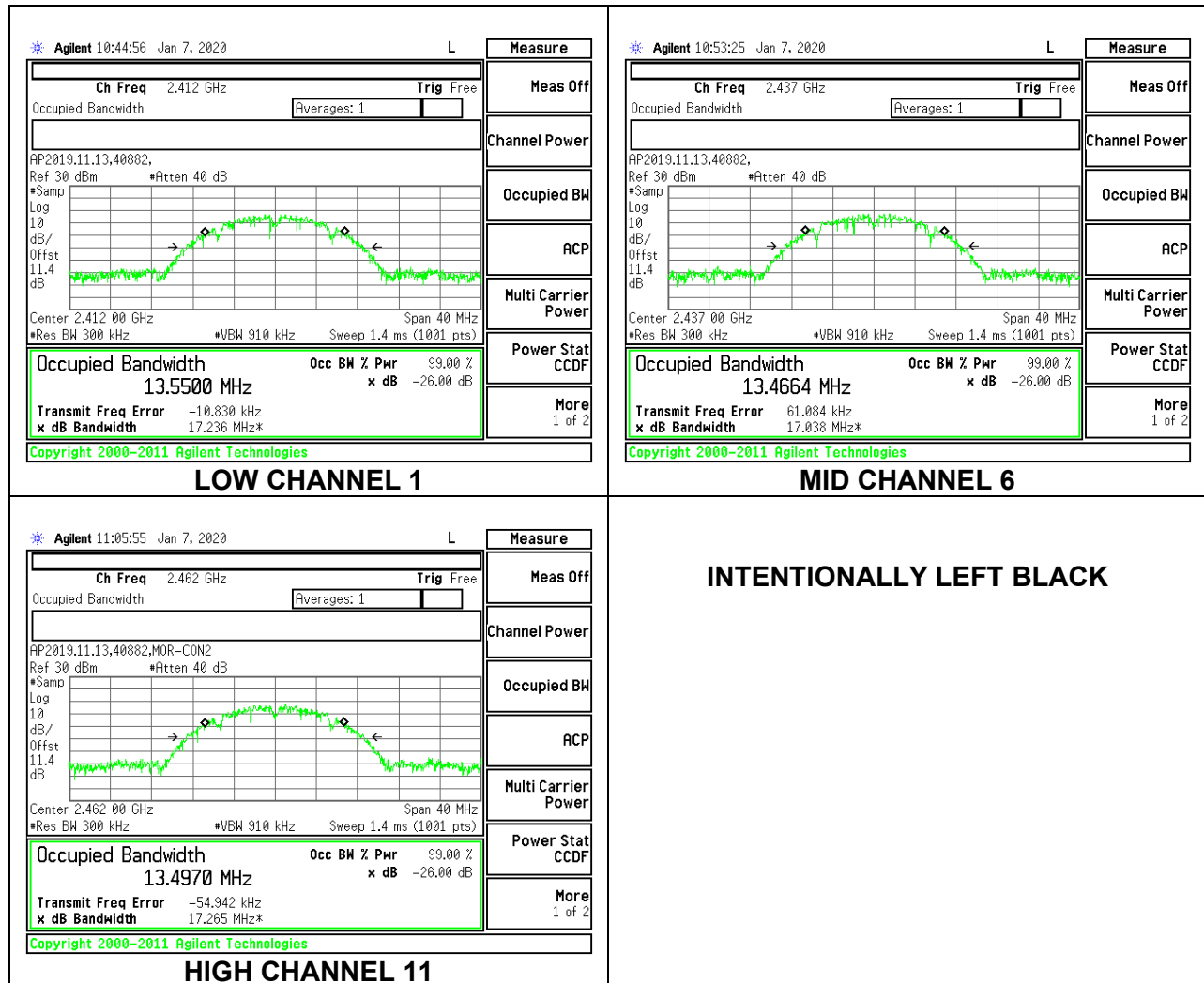
LIMITS

None; for reporting purposes only.

RESULTS

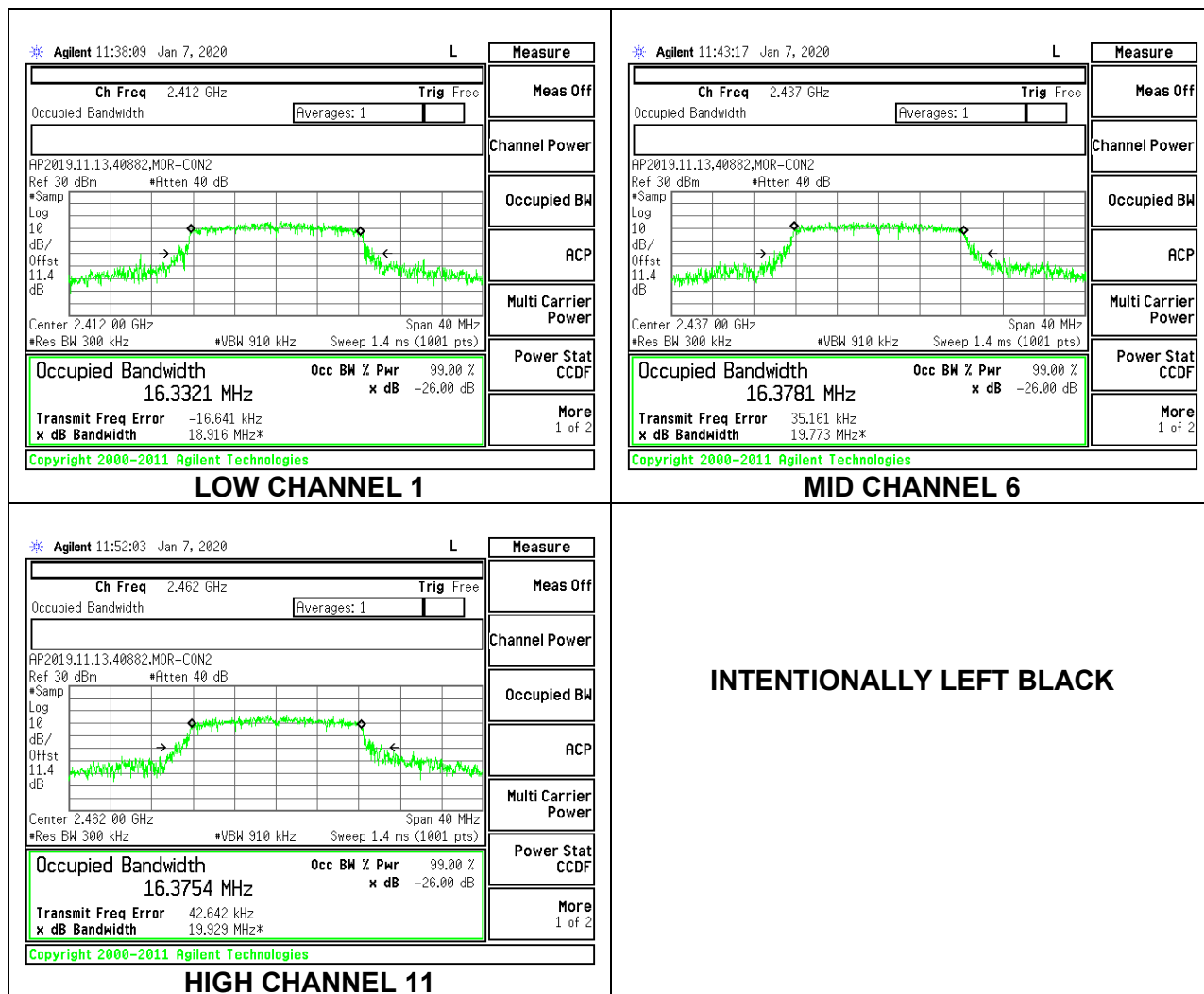
8.2.1. 802.11b MODE

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low 1	2412	13.5500
Mid 6	2437	13.4664
High 11	2462	13.4970



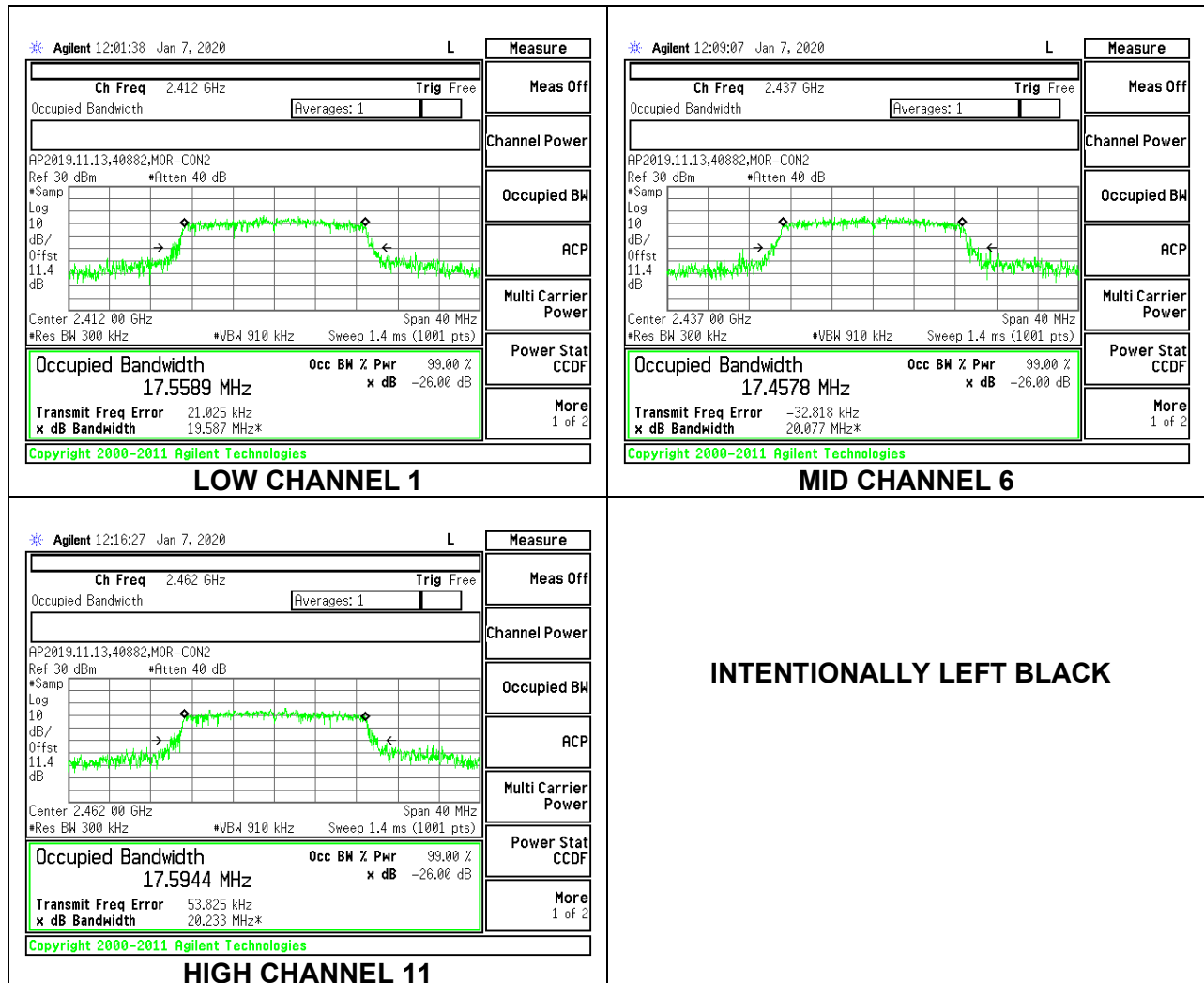
8.2.2. 802.11g MODE

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low 1	2412	16.3321
Mid 6	2437	16.3781
High 11	2462	16.3754



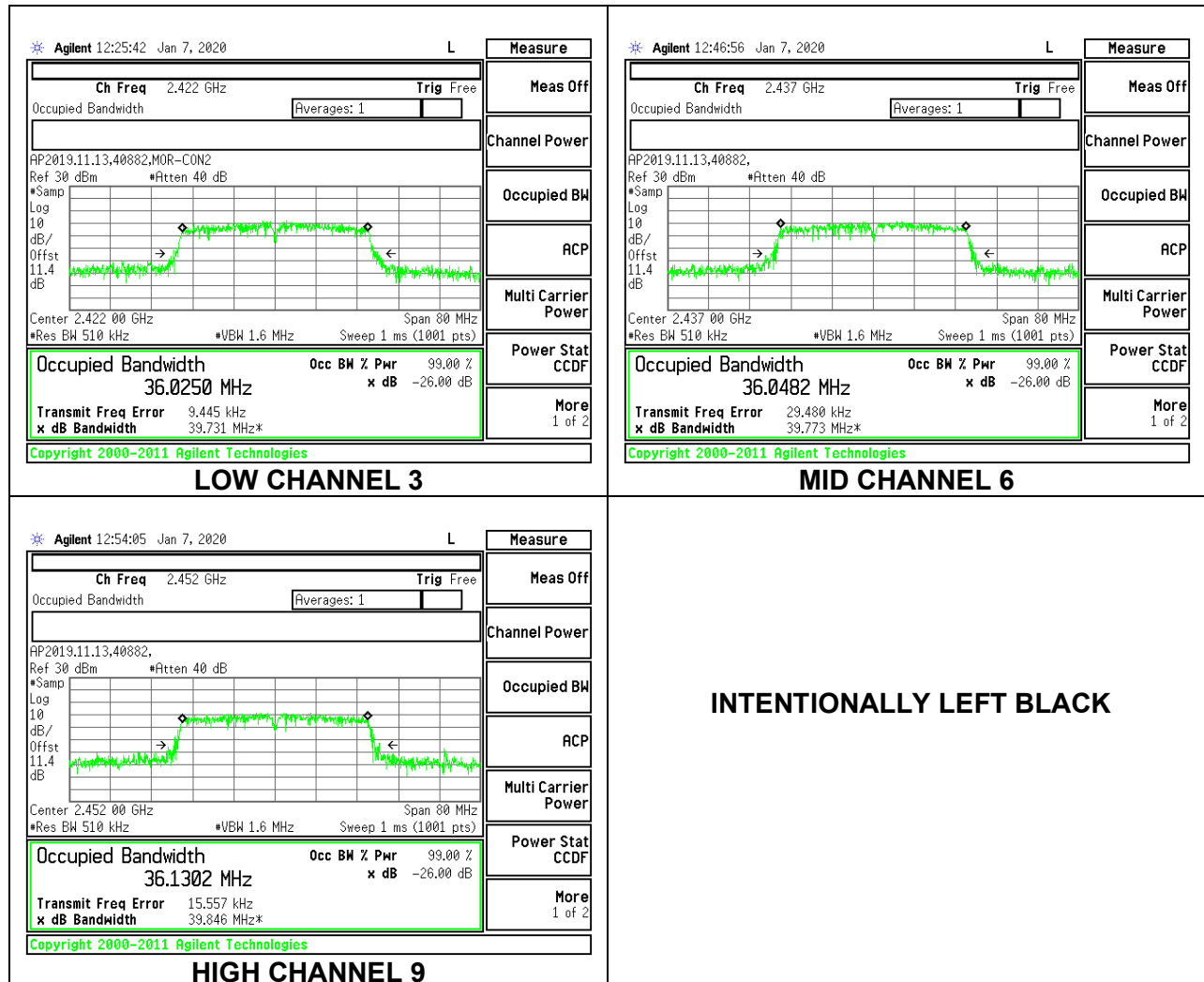
8.2.3. 802.11n HT20 MODE

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low 1	2412	17.5589
Mid 6	2437	17.4578
High 11	2462	17.5944



8.2.4. 802.11n HT40 MODE

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low 3	2422	36.0250
Mid 6	2437	36.0482
High 9	2452	36.1302



8.3. 6 dB BANDWIDTH

LIMITS

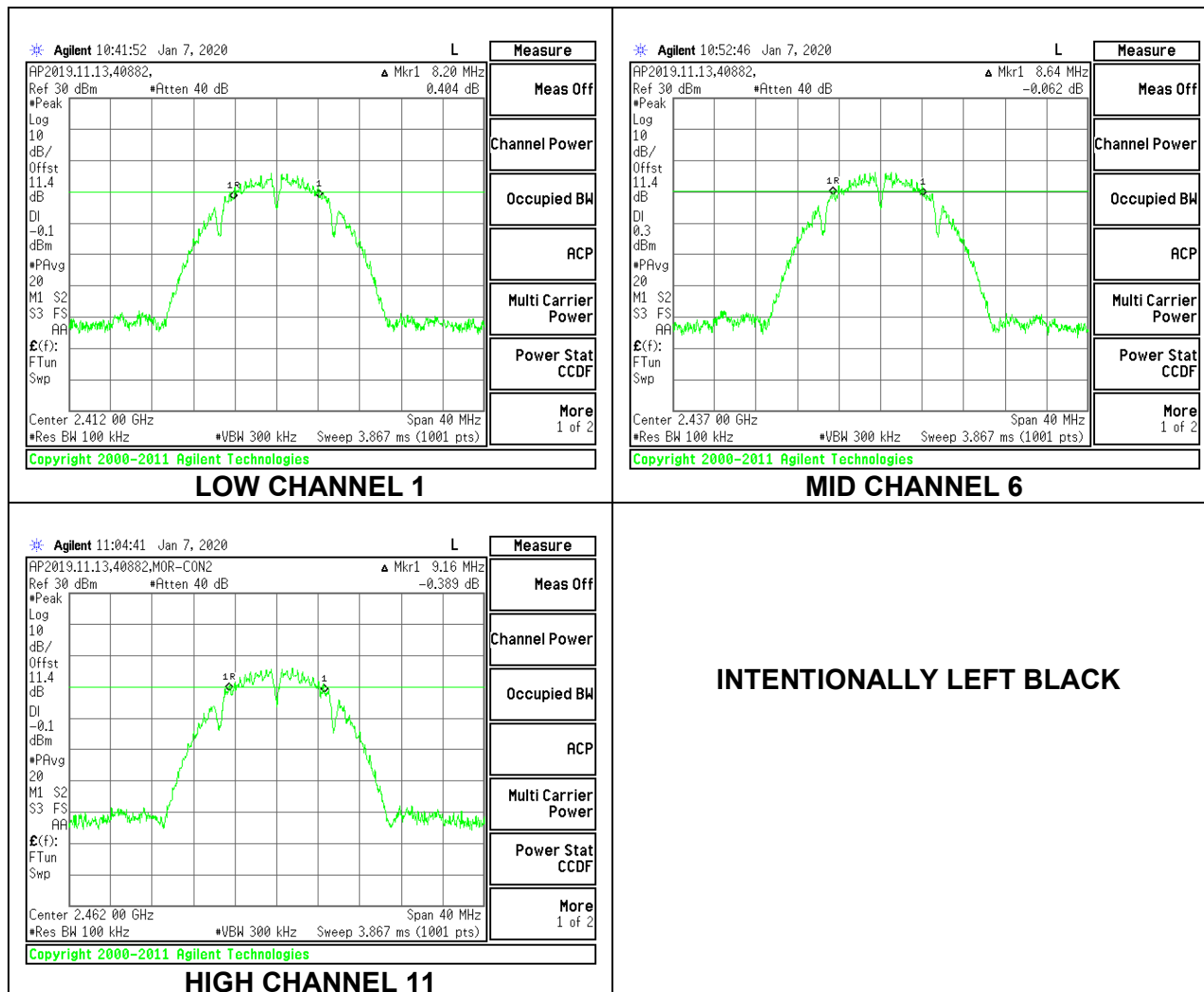
FCC §15.247 (a) (2)

The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

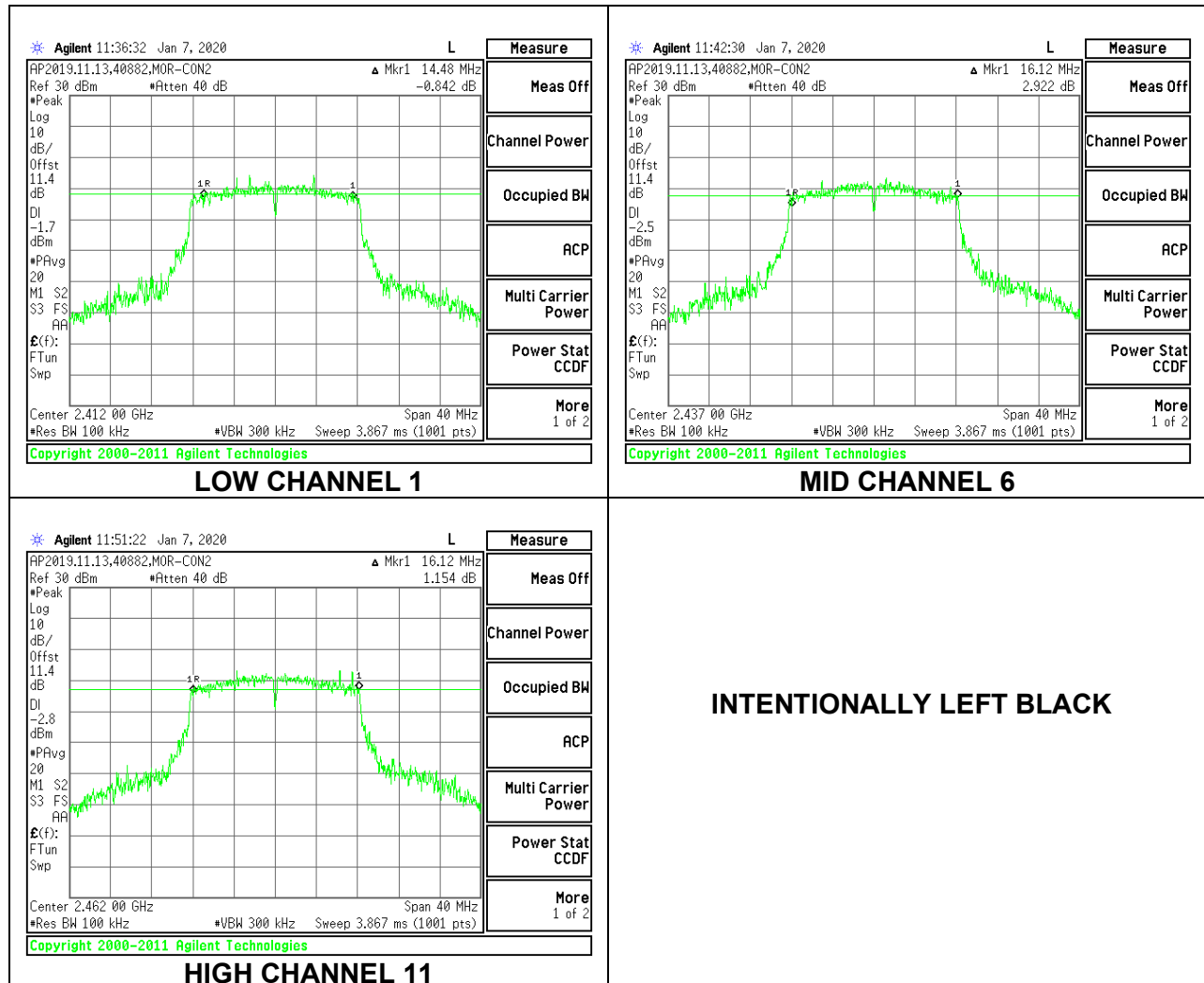
8.3.1. 802.11b MODE

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Low 1	2412	8.2000	0.5
Mid 6	2437	8.6400	0.5
High 11	2462	9.1600	0.5



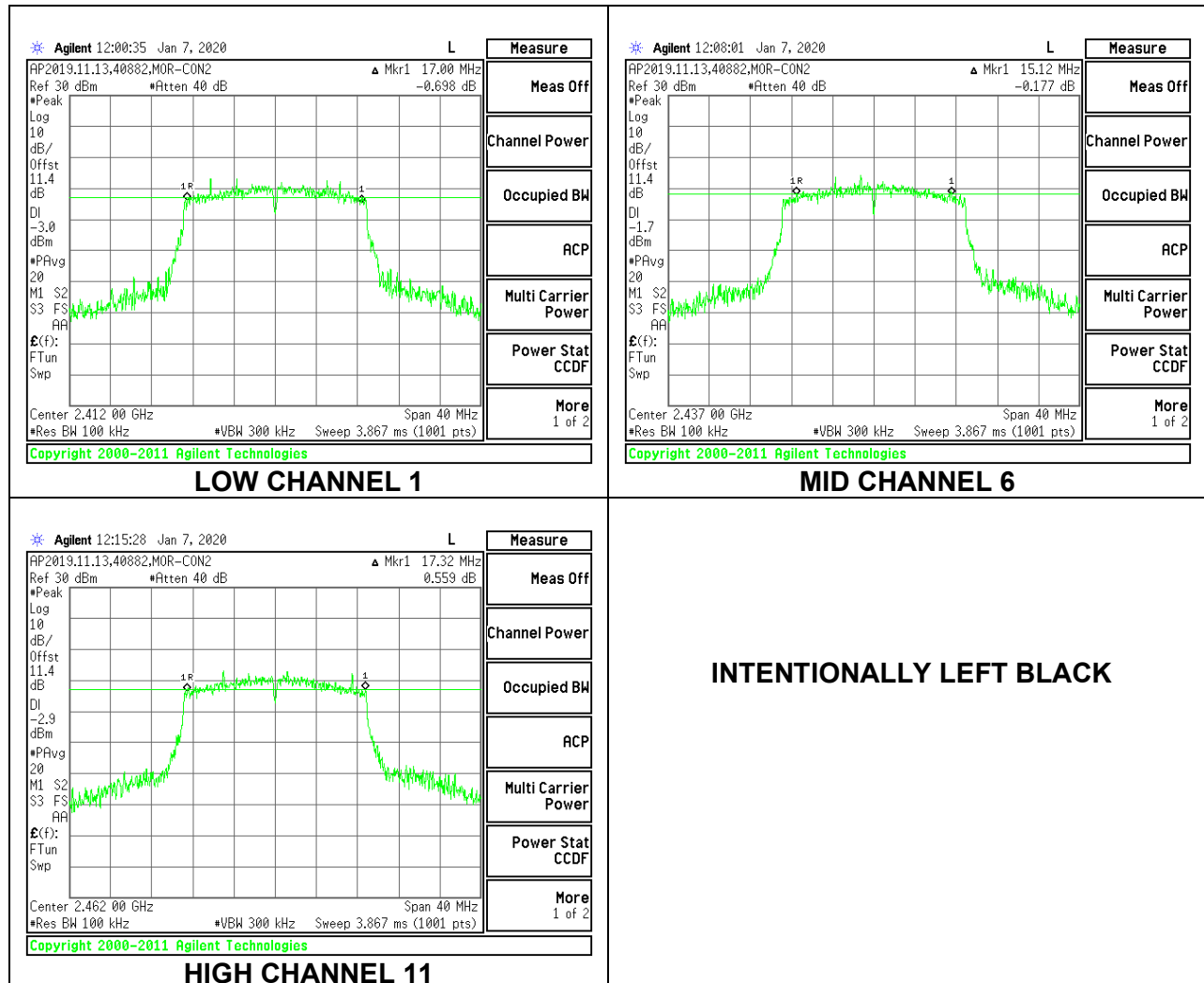
8.3.2. 802.11g MODE

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Low 1	2412	14.4800	0.5
Mid 6	2437	16.1200	0.5
High 11	2462	16.1200	0.5



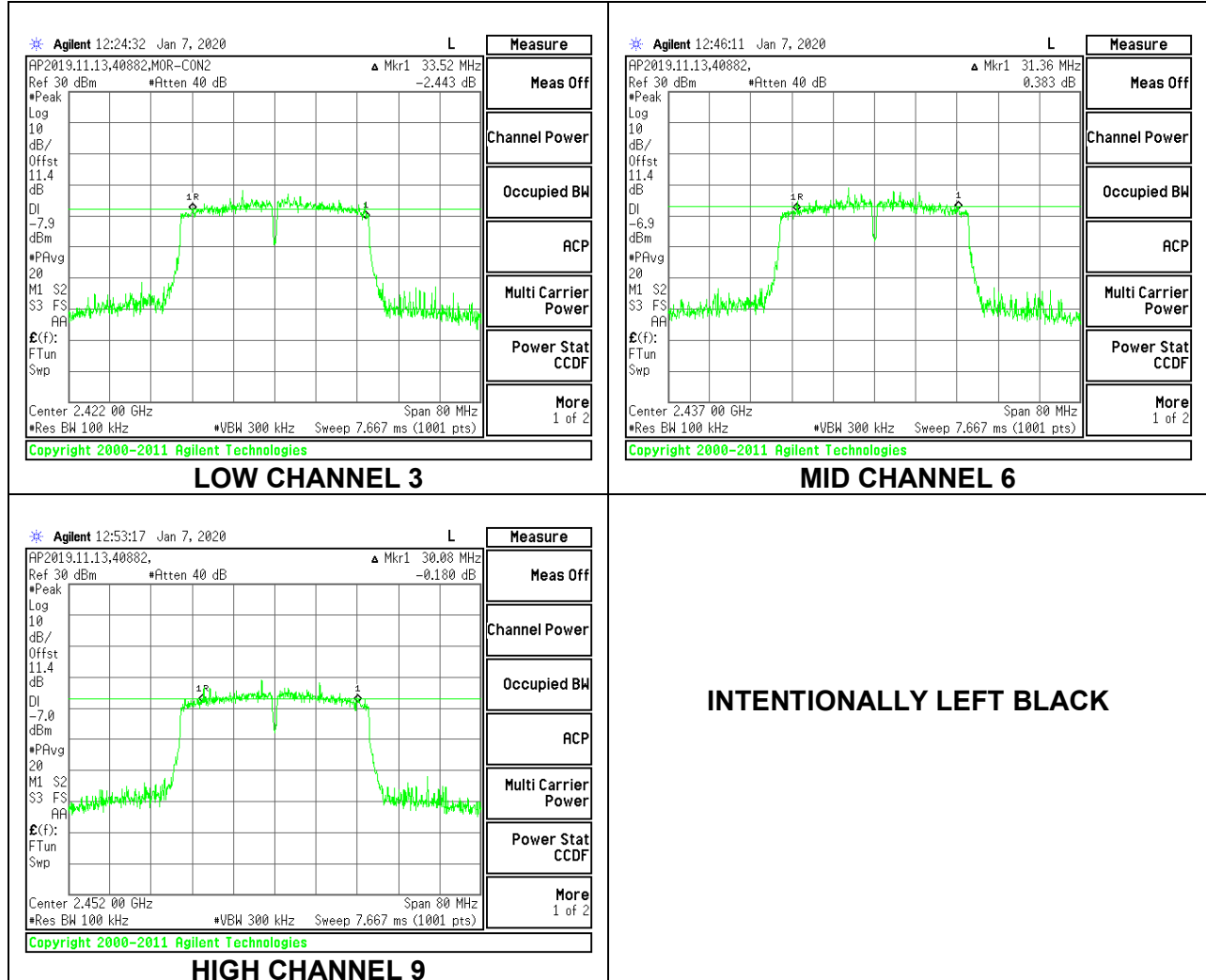
8.3.3. 802.11n HT20 MODE

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Low 1	2412	17.0000	0.5
Mid 6	2437	15.1200	0.5
High 11	2462	17.3200	0.5



8.3.4. 802.11n HT40 MODE

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Low 3	2422	33.5200	0.5
Mid 6	2437	31.3600	0.5
High 9	2452	30.0800	0.5



8.4. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.4 dB (including 10.6 dB pad and 0.8 dB cable) was entered as an offset in the power meter to allow for a Peak reading of power.

DIRECTIONAL ANTENNA GAIN

For 1 TX:

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

8.4.1. 802.11b MODE

Tested By:	11993/44389
Date:	2019-12-30

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2412	17.25	30	-12.75
Middle	2437	17.34	30	-12.66
High	2462	17.64	30	-12.36

8.4.2. 802.11g MODE

Tested By:	11993/44389
Date:	2019-12-30

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2412	23.00	30	-7.00
Middle	2437	23.15	30	-6.85
High	2462	23.12	30	-6.88

8.4.3. 802.11n HT20 MODE

Tested By:	11993/44389 and 40882
Date:	2019-12-30 and 2020-01-21

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2412	23.51	30	-6.49
Middle	2437	22.83	30	-7.17
High	2462	23.33	30	-6.67

8.4.4 802.11n HT40 MODE

Tested By:	11993/40882 and 40882
Date:	2019-12-30 and 2020-01-17

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2422	21.35	30	-8.65
Mid	2437	22.01	30	-7.99
High	2452	20.93	30	-9.07

8.5. AVERAGE POWER

LIMITS

None; for reporting purposes only

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.4 dB (including 10.6 dB pad and 0.8 dB cable) was entered as an offset in the power meter to allow for a gated average reading of power

RESULTS

8.5.1. 802.11b MODE

Tested By:	11993/44389
Date:	2019-12-30

Channel	Frequency (MHz)	Average Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2412	14.93	30	-15.07
Middle	2437	15.07	30	-14.93
High	2462	15.38	30	-14.62

8.5.2. 802.11g MODE

Tested By:	11993/44389
Date:	2019-12-30

Channel	Frequency (MHz)	Average Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2412	15.06	30	-14.94
Middle	2437	14.97	30	-15.03
High	2462	15.36	30	-14.64

8.5.3. 802.11n HT20 MODE

Tested By:	11993/44389 and 10882
Date:	2019-12-30 and 2020-01-21

Channel	Frequency (MHz)	Average Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2412	14.67	30	-15.33
Middle	2437	14.73	30	-15.27
High	2462	14.49	30	-15.51

8.5.4 802.11n HT40 MODE

Tested By:	11993/44389 and 40882
Date:	2019-12-30 and 2020-01-21

Channel	Frequency (MHz)	Average Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2422	10.61	30	-19.39
Middle	2437	11.81	30	-18.19
High	2452	11.47	30	-18.53

8.6. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

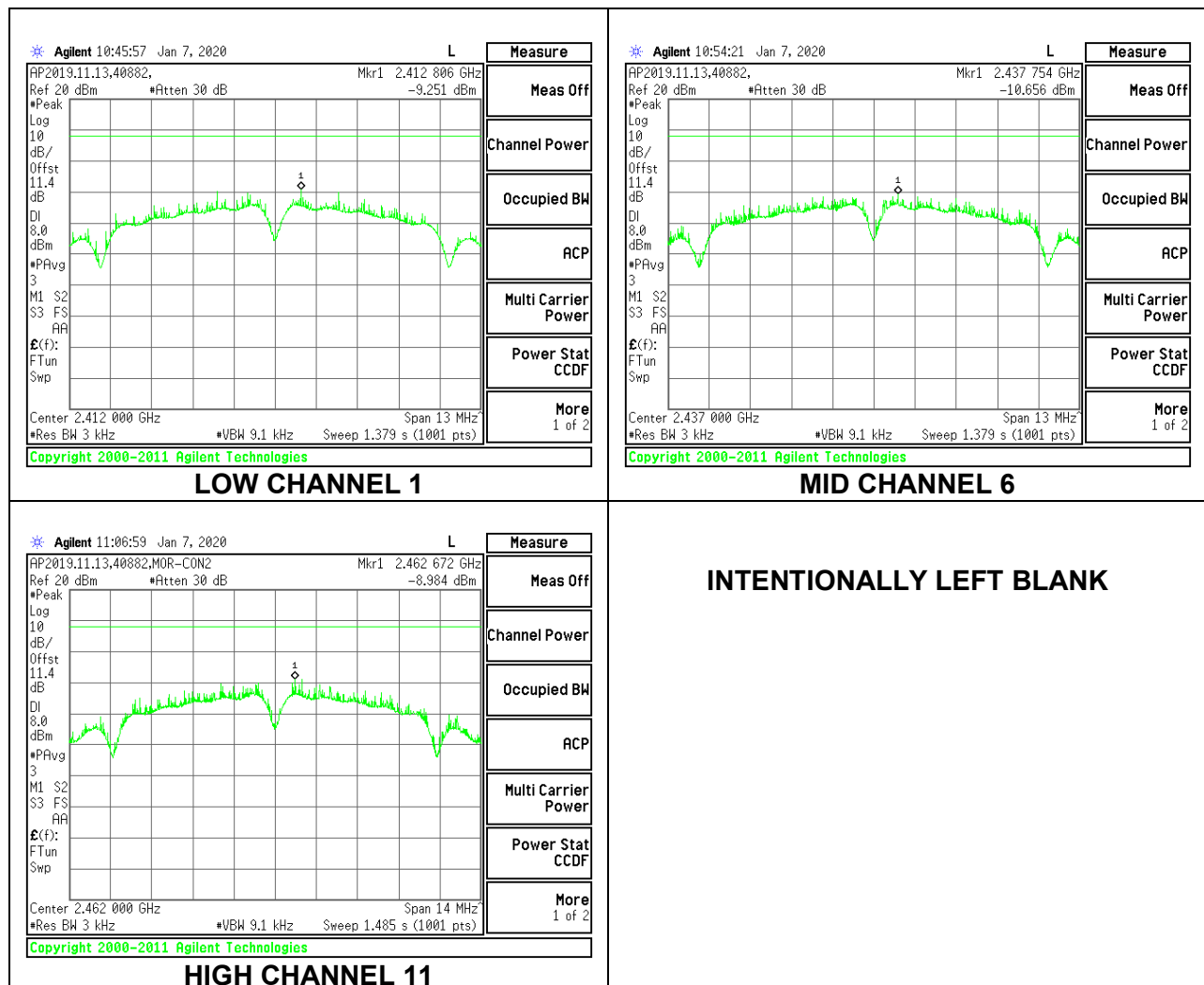
RESULTS

8.6.1. 802.11b MODE

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
--------------------	------	--

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-9.25	-9.25	8.0	-17.3
Mid 6	2437	-10.66	-10.66	8.0	-18.7
High 11	2462	-8.98	-8.98	8.0	-17.0

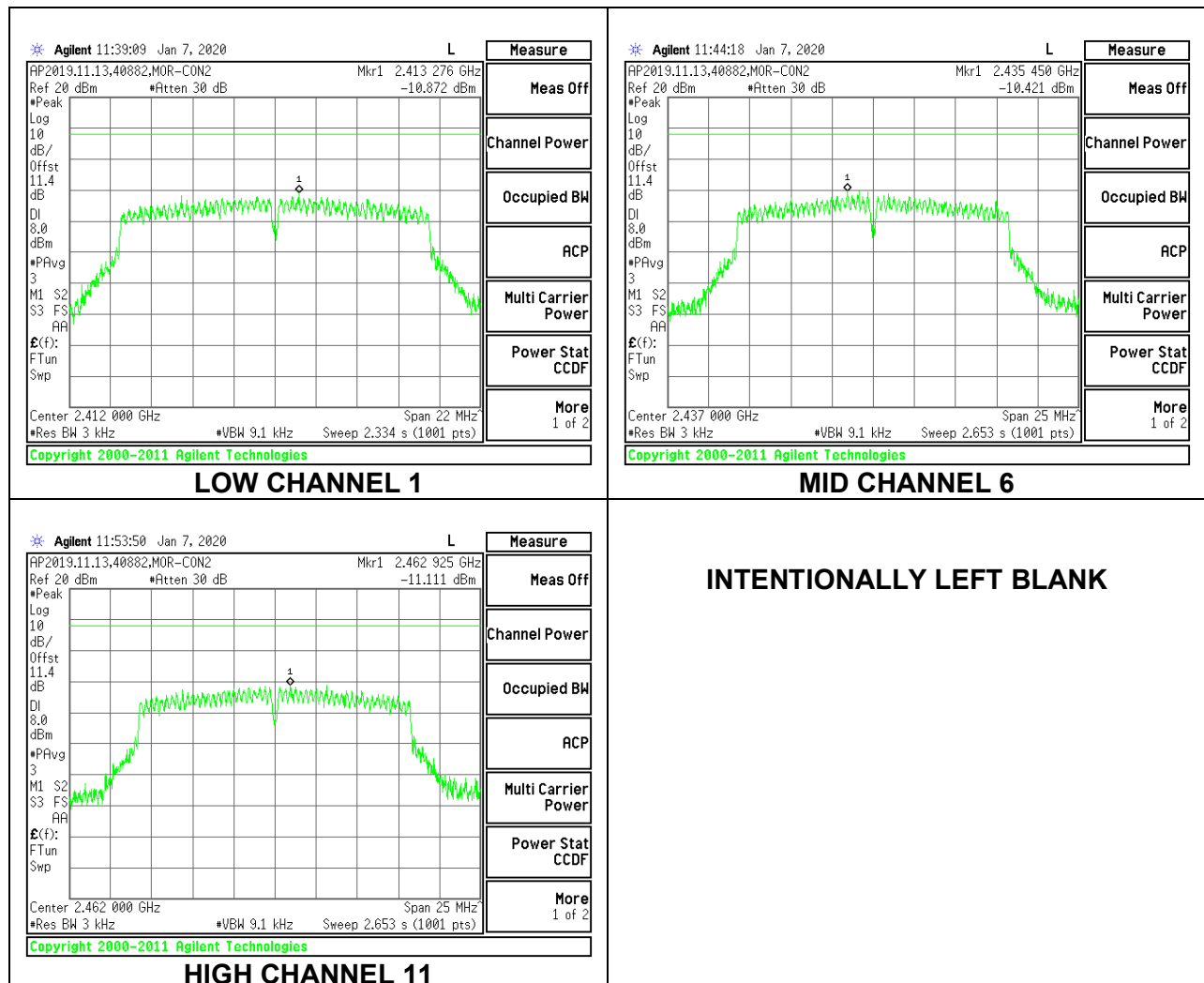


8.6.2. 802.11g MODE

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
--------------------	------	--

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-10.87	-10.87	8.0	-18.9
Mid 6	2437	-10.42	-10.42	8.0	-18.4
High 11	2462	-11.11	-11.11	8.0	-19.1

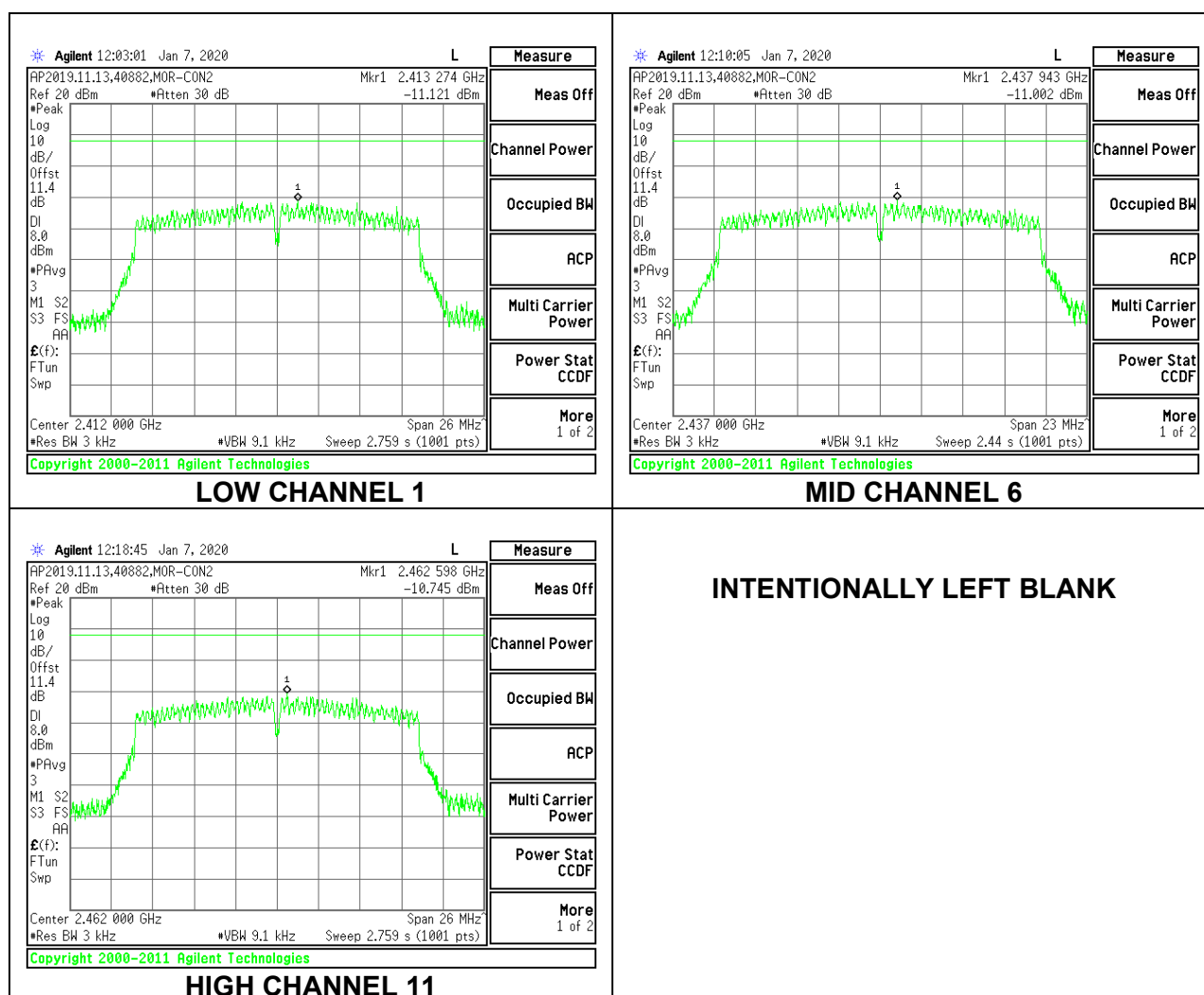


8.6.3. 802.11n HT20 MODE

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
--------------------	------	--

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-11.12	-11.12	8.0	-19.1
Mid 6	2437	-11.00	-11.00	8.0	-19.0
High 11	2462	-10.74	-10.74	8.0	-18.7

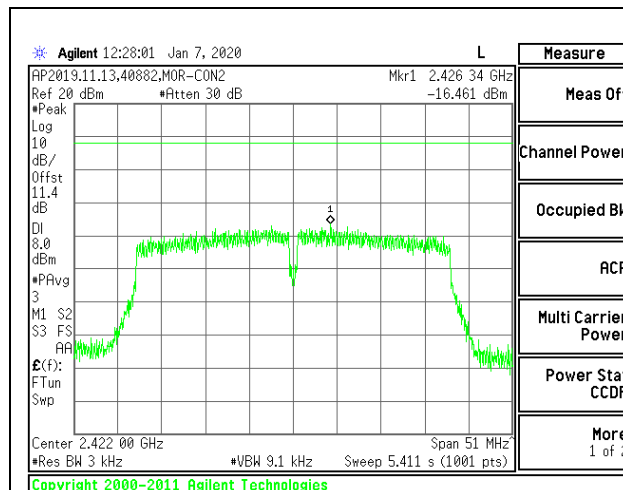


8.6.4. 802.11n HT40 MODE

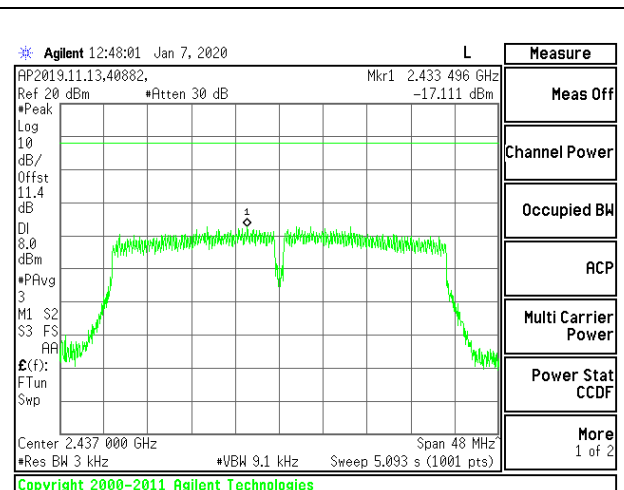
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
--------------------	------	--

PSD Results

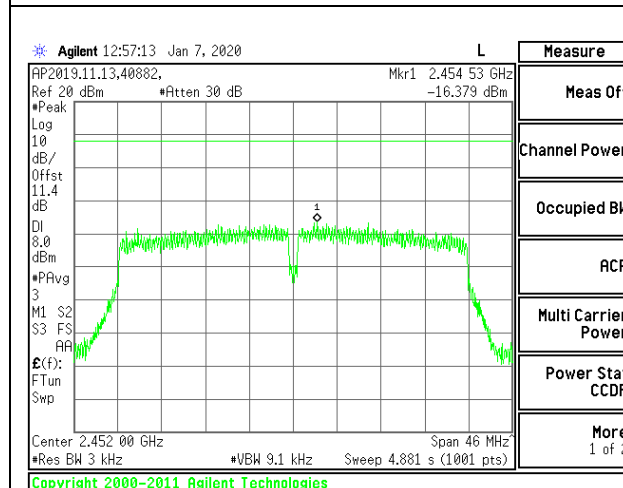
Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 3	2422	-16.46	-16.46	8.0	-24.5
Mid 6	2437	-17.11	-17.11	8.0	-25.1
High 9	2452	-16.38	-16.38	8.0	-24.4



LOW CHANNEL 3



MID CHANNEL 6



HIGH CHANNEL 9

INTENTIONALLY LEFT BLANK

8.7. CONDUCTED SPURIOUS EMISSIONS

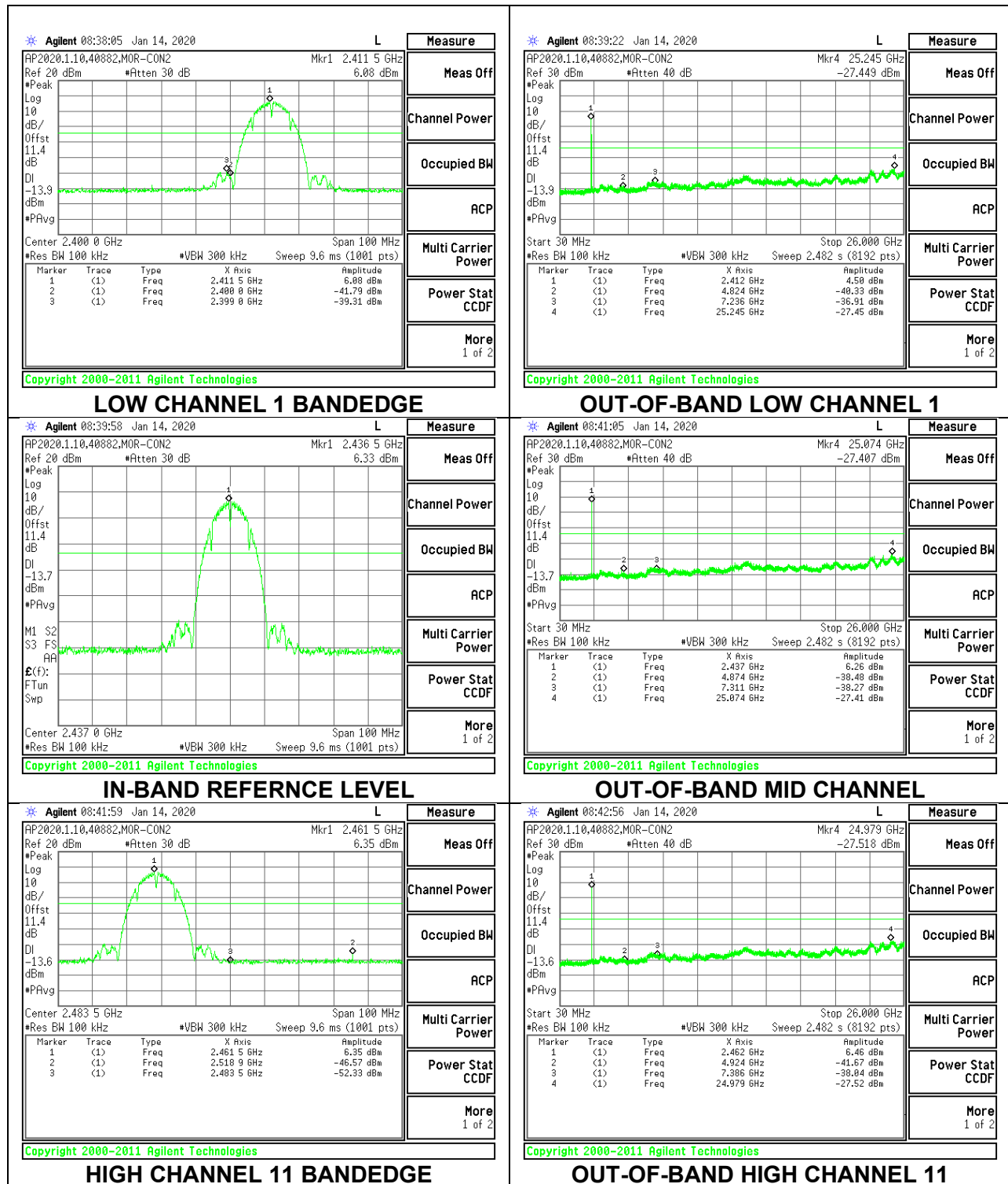
LIMITS

FCC §15.247 (d)

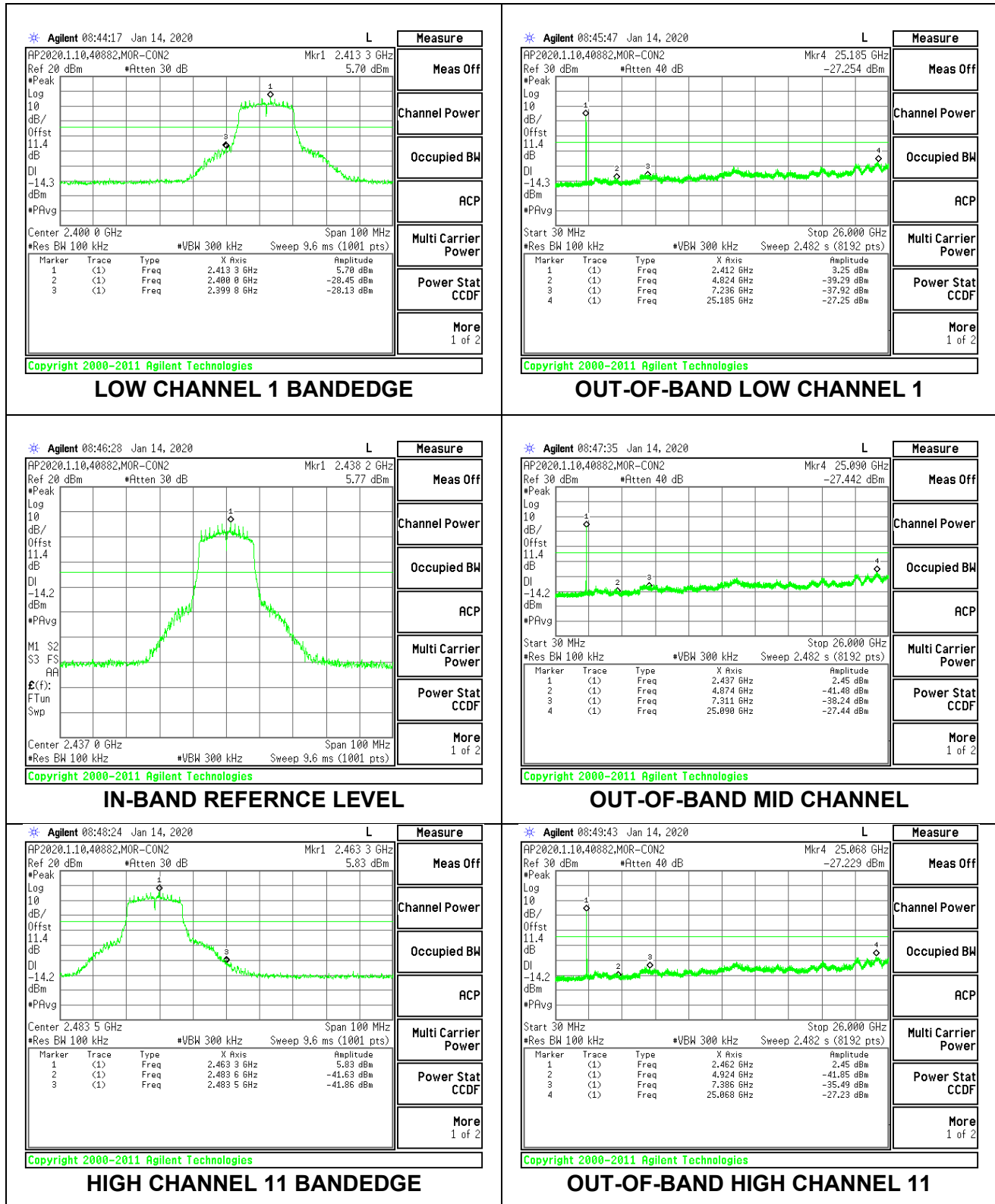
Output power was measured based on the use of peak measurement, therefore the required attenuation is 20 dB.

RESULTS

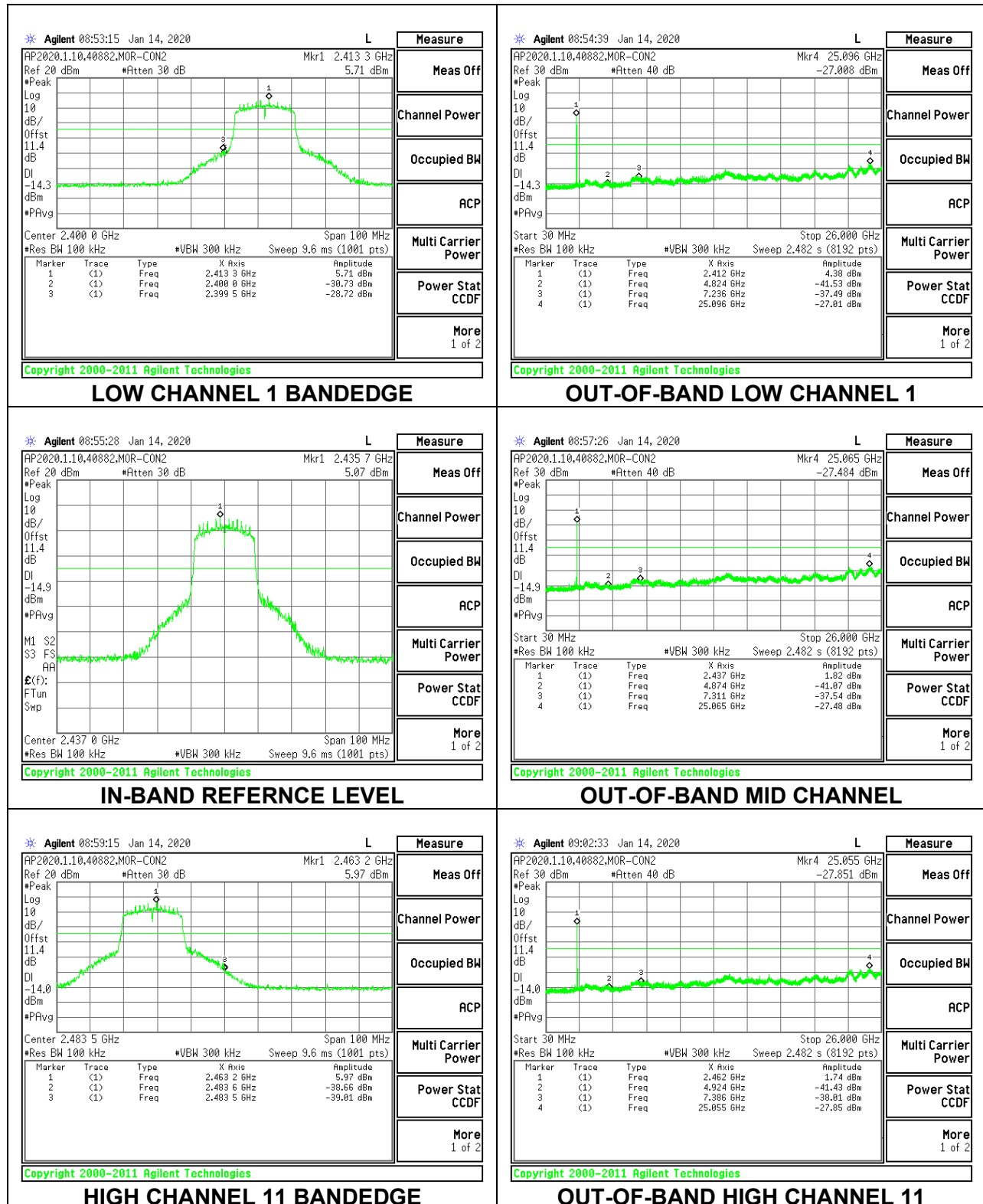
8.7.1. 802.11b MODE



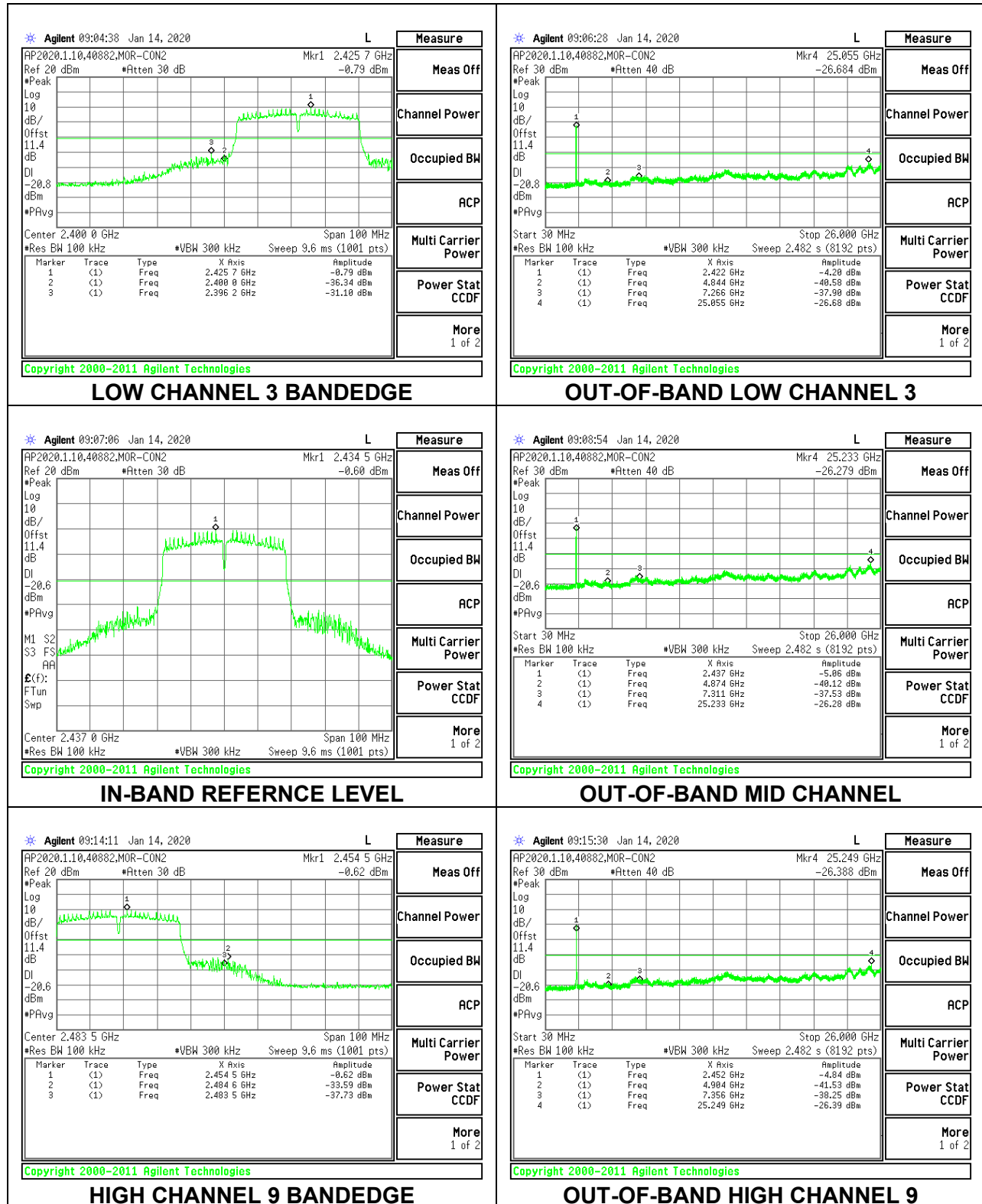
8.7.2. 802.11g MODE



8.7.3. 802.11n HT20 MODE



8.7.4. 802.11n HT40 MODE



9. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	2400/F(kHz) @ 300 m	-
0.490-1.705	24000/F(kHz) @ 30 m	-
1.705 - 30	30 @ 30m	-
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 120 kHz for peak and/or quasi-peak detection measurements in the 30-1000MHz range, 9kHz for peak and/or quasi-peak detection measurements in the 0.15-30MHz range and 200Hz for peak and/or quasi-peak detection measurements in the 9 to 150kHz range. Peak detection is used unless otherwise noted as quasi-peak.

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for average measurements. For average measurements above 1GHz, the resolution bandwidth and video bandwidth are set as described in ANSI C63.10:2013 for the applicable measurement. The particular averaging method used for this test program was voltage averaging.

The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band. Below 1GHz and above 18GHz emissions, the channel with the highest output power was tested.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

3D antenna use - For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel).

KDB 414788 Open Field Site(OFS) and Chamber Correlation Justification

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

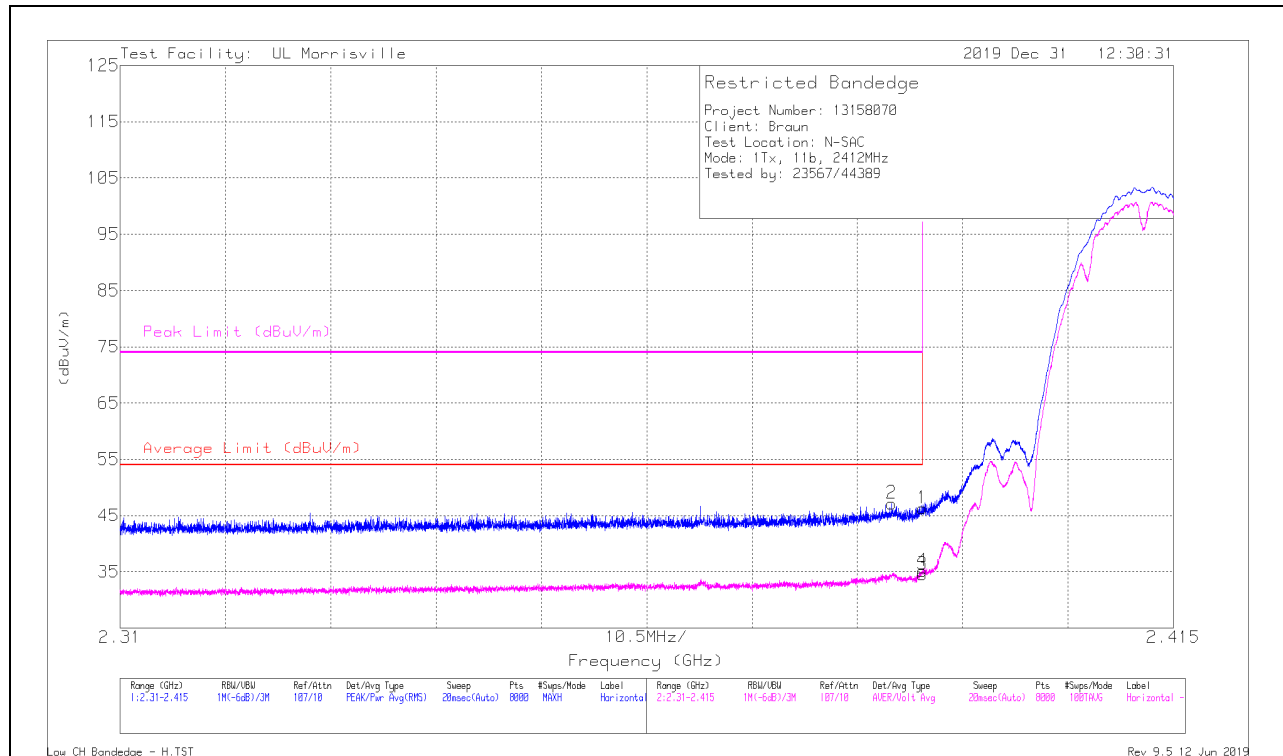
OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

9.1. TRANSMITTER ABOVE 1 GHz

9.1.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 AF (dBuV/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.39	38.65	Pk	32	-24.4	46.25	-	-	74	-27.75	100	194	H
2	* ** 2.3869	39.53	Pk	32	-24.4	47.13	-	-	74	-26.87	100	194	H
3	* ** 2.39	26.92	ADV	32	-24.4	34.52	54	-19.48	-	-	100	194	H
4	* ** 2.38998	27.55	ADV	32	-24.4	35.15	54	-18.85	-	-	100	194	H

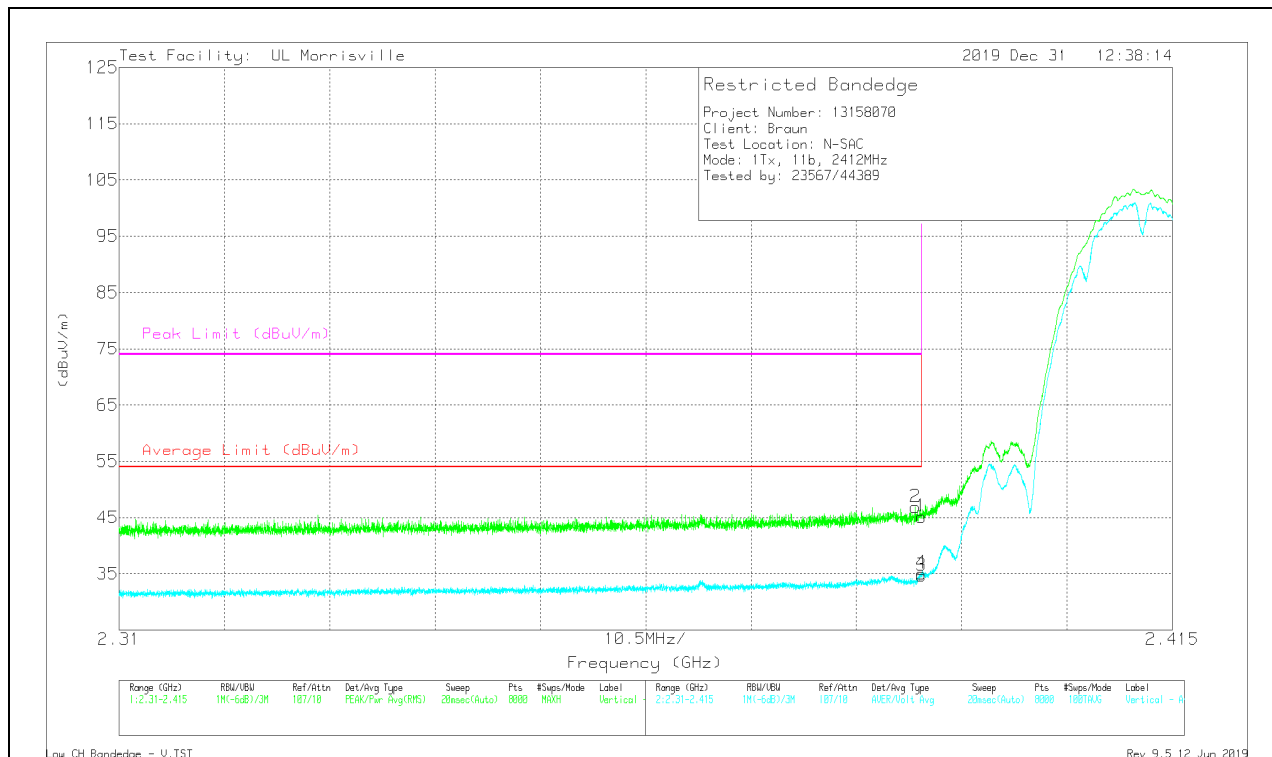
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 AF (dBuV/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* * * 2.39	37.55	Pk	32	-24.4	45.15	-	-	74	-28.85	48	276	V
2	* * * 2.38938	39.28	Pk	32	-24.4	46.88	-	-	74	-27.12	48	276	V
3	* * * 2.39	27.07	ADV	32	-24.4	34.67	54	-19.33	-	-	48	275	V
4	* * * 2.38997	27.46	ADV	32	-24.4	35.06	54	-18.94	-	-	48	275	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

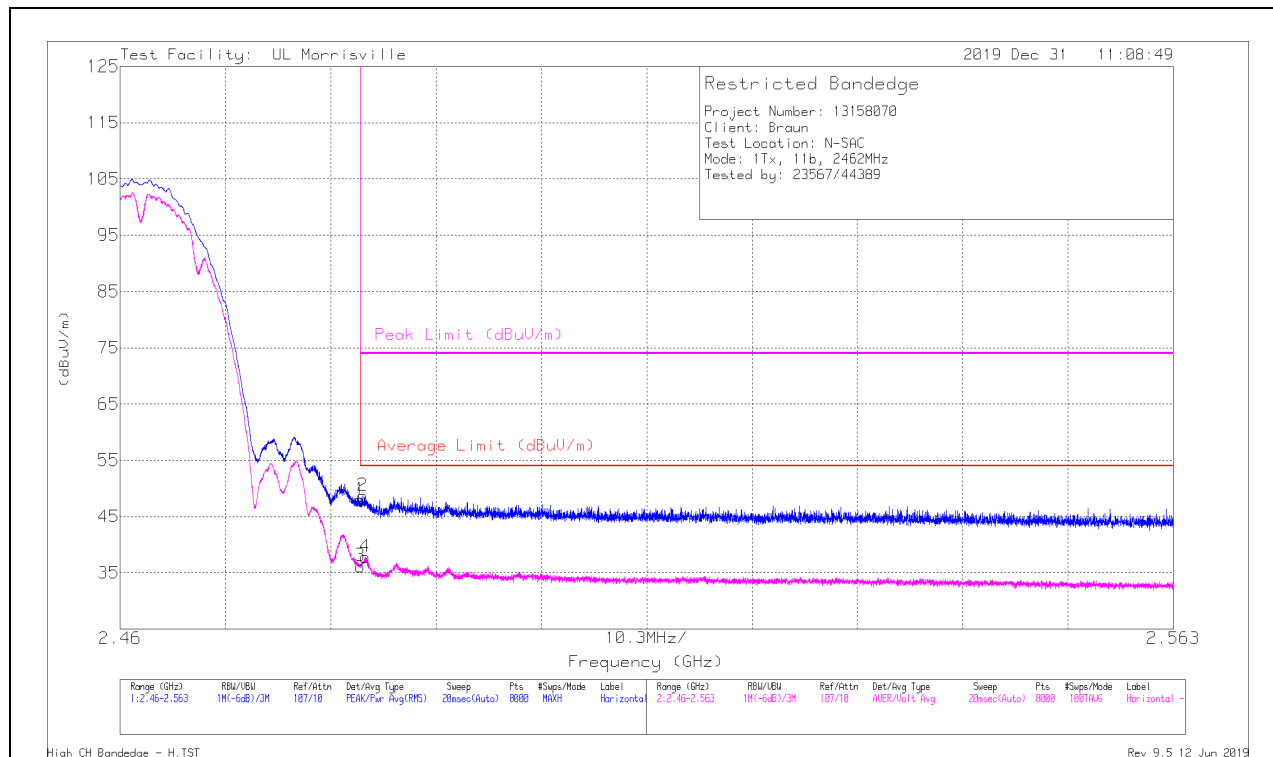
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 AF (dBuV/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.4835	39.83	Pk	32.4	-24.3	47.93	-	-	74	-26.07	103	116	H
2	* ** 2.48372	40.56	Pk	32.4	-24.3	48.66	-	-	74	-25.34	103	116	H
3	* ** 2.4835	28.08	ADV	32.4	-24.3	36.18	54	-17.82	-	-	103	116	H
4	* ** 2.48396	29.7	ADV	32.4	-24.3	37.8	54	-16.2	-	-	103	116	H

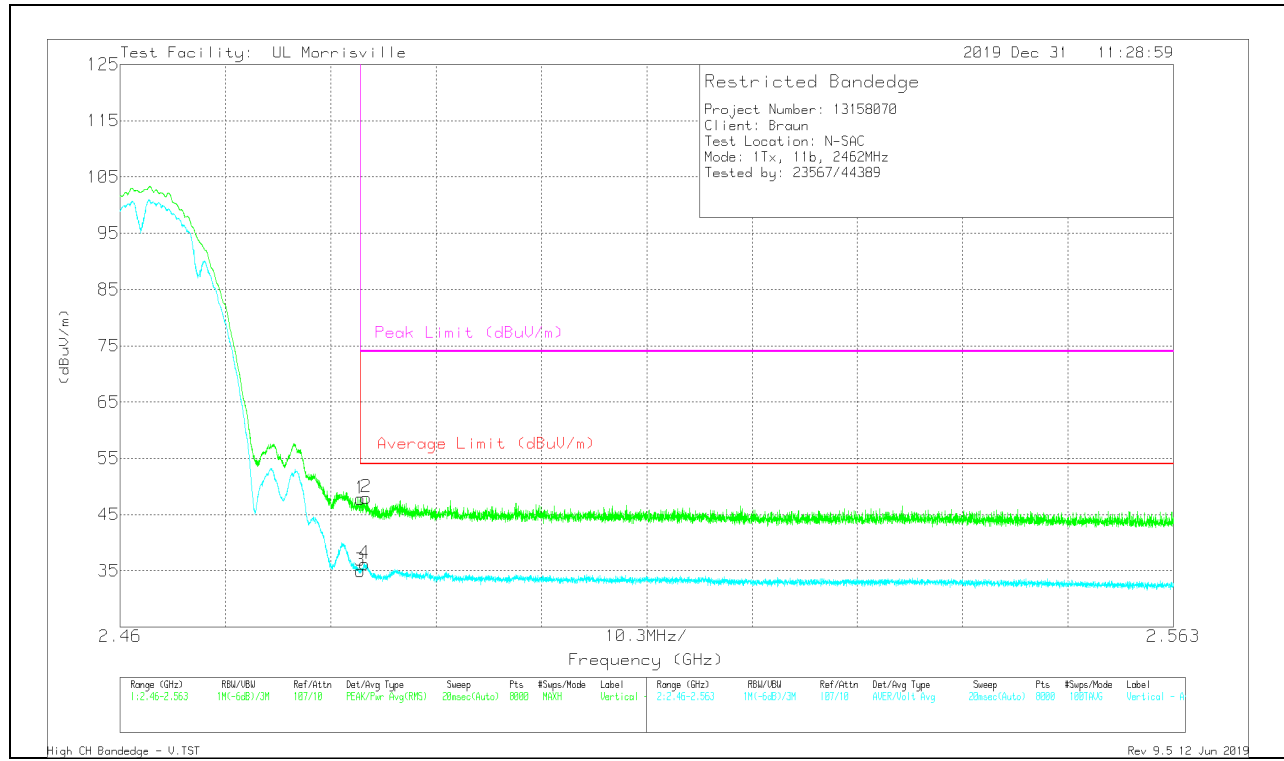
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 AF (dBuV/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.4835	39.7	Pk	32.4	-24.3	47.8	-	-	74	-26.2	134	150	V
2	* ** 2.48407	39.92	Pk	32.4	-24.3	48.02	-	-	74	-25.98	134	150	V
3	* ** 2.4835	26.9	ADV	32.4	-24.3	35	54	-19	-	-	134	150	V
4	* ** 2.48393	28.15	ADV	32.4	-24.3	36.25	54	-17.75	-	-	134	150	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

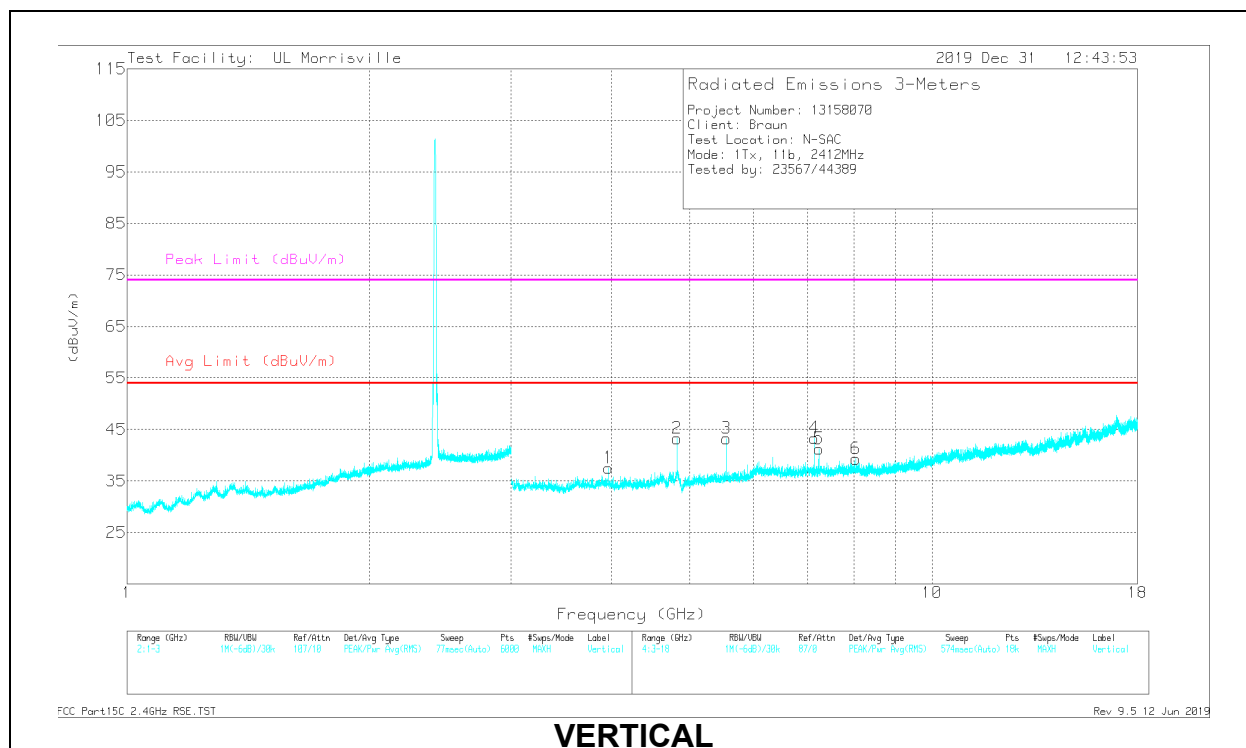
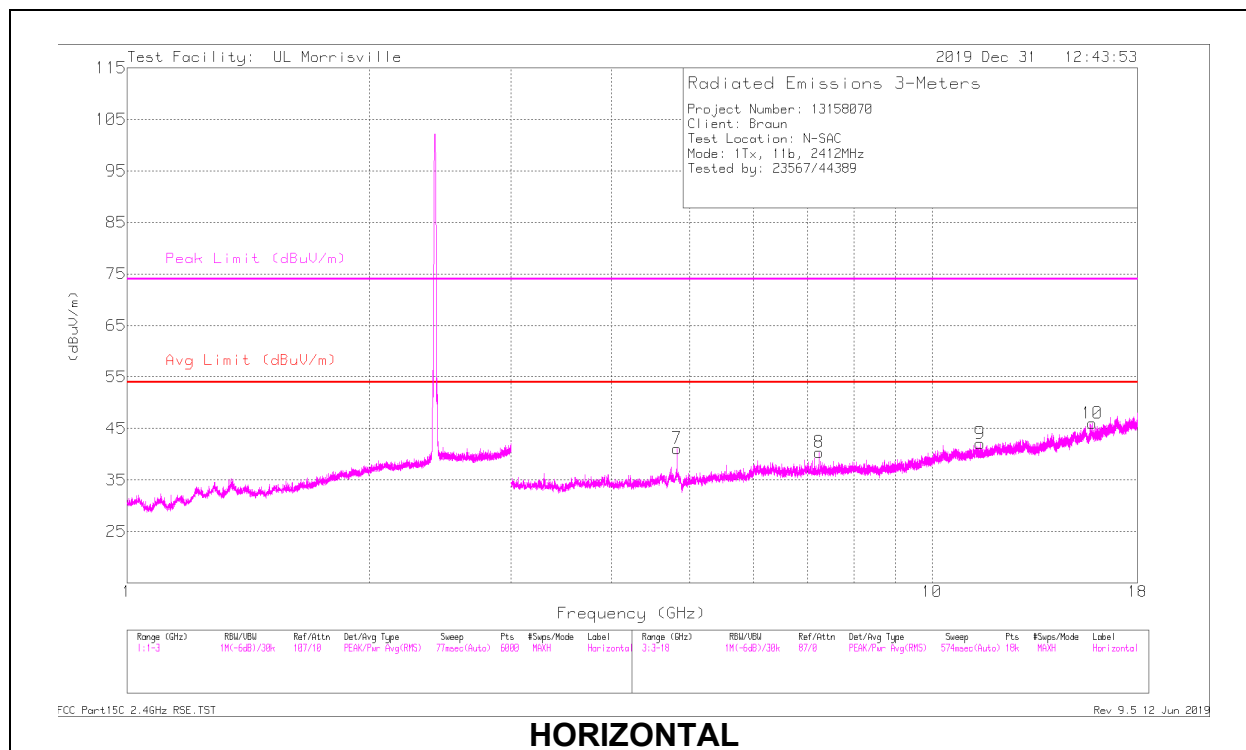
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 1 RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 Af (dBuV/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7	* ** 4.8239	44.58	PK2	34.1	-31.4	47.28	-	-	74	-26.72	256	103	H
	* ** 4.824	36.56	ADV	34.1	-31.4	39.26	54	-14.74	-	-	256	103	H
9	* ** 11.47188	35.45	PK2	38.1	-25.5	48.05	-	-	74	-25.95	174	217	H
	* ** 11.47148	22.07	ADV	38.1	-25.5	34.67	54	-19.33	-	-	174	217	H
10	* ** 15.81079	36.31	PK2	40.2	-24.7	51.81	-	-	74	-22.19	139	166	H
	* ** 15.81067	22.97	ADV	40.2	-24.7	38.47	54	-15.53	-	-	139	166	H
1	* ** 3.96493	47.17	PK2	33.4	-31.7	48.87	-	-	74	-25.13	175	150	V
	* ** 3.96495	32.56	ADV	33.4	-31.7	34.26	54	-19.74	-	-	175	150	V
2	* ** 4.824	46.16	PK2	34.1	-31.4	48.86	-	-	74	-25.14	330	104	V
	* ** 4.82398	40.08	ADV	34.1	-31.4	42.78	54	-11.22	-	-	330	104	V
6	* ** 8.03883	37.61	PK2	35.8	-28.4	45.01	-	-	74	-28.99	54	174	V
	* ** 8.03907	23.94	ADV	35.8	-28.4	31.34	54	-22.66	-	-	54	174	V
3	5.55098	41.05	Pk	34.5	-32.3	43.25	-	-	-	-	0-360	102	V
4	7.1369	37.63	Pk	35.7	-30	43.33	-	-	-	-	0-360	102	V
5	7.2369	35.24	Pk	35.6	-29.6	41.24	-	-	-	-	0-360	198	V
8	7.23774	34.35	Pk	35.6	-29.6	40.35	-	-	-	-	0-360	198	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

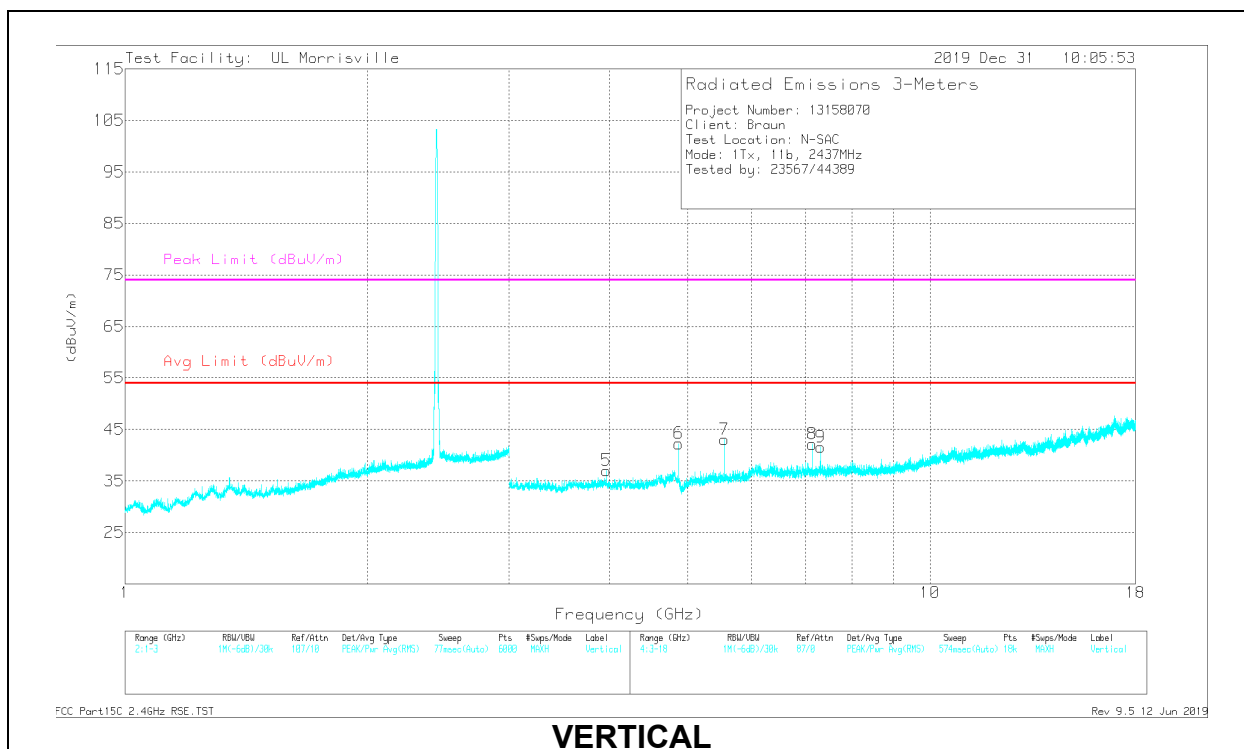
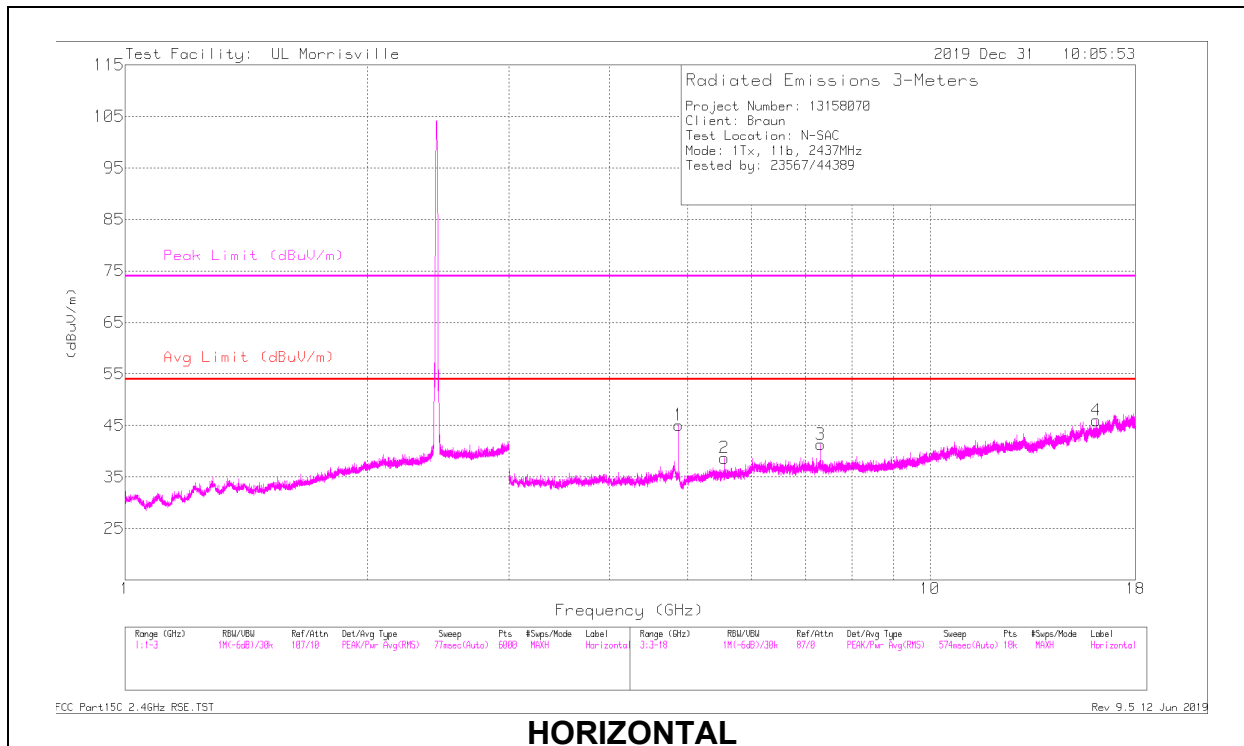
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

PK2 - Maximum Peak

ADV - Linear Voltage Average

Pk - Peak detector

MID CHANNEL, CH 6 RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 AF (dBuV/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 4.87408	44.97	PK2	34	-31.3	47.67	-	-	74	-26.33	4	109	H
	*** 4.87401	40.05	ADV	34	-31.3	42.75	54	-11.25	-	-	4	109	H
3	*** 7.31056	40.9	PK2	35.6	-29.1	47.4	-	-	74	-26.6	121	231	H
	*** 7.31029	31.5	ADV	35.6	-29.1	38	54	-16	-	-	121	231	H
4	*** 16.09324	36.39	PK2	40.5	-24.9	51.99	-	-	74	-22.01	216	111	H
	*** 16.09143	22.51	ADV	40.5	-24.9	38.11	54	-15.89	-	-	216	111	H
5	*** 3.96519	45.51	PK2	33.4	-31.7	47.21	-	-	74	-26.79	165	170	V
	*** 3.96501	32.59	ADV	33.4	-31.7	34.29	54	-19.71	-	-	165	170	V
6	*** 4.87399	44.06	PK2	34	-31.3	46.76	-	-	74	-27.24	336	111	V
	*** 4.87402	37.67	ADV	34	-31.3	40.37	54	-13.63	-	-	336	111	V
9	*** 7.31078	40.72	PK2	35.6	-29.1	47.22	-	-	74	-26.78	123	175	V
	*** 7.31029	31.58	ADV	35.6	-29.1	38.08	54	-15.92	-	-	123	175	V
2	5.55098	36.48	Pk	34.5	-32.3	38.68	-	-	-	-	0-360	198	H
7	5.55098	40.85	Pk	34.5	-32.3	43.05	-	-	-	-	0-360	102	V
8	7.1369	36.44	Pk	35.7	-30	42.14	-	-	-	-	0-360	102	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

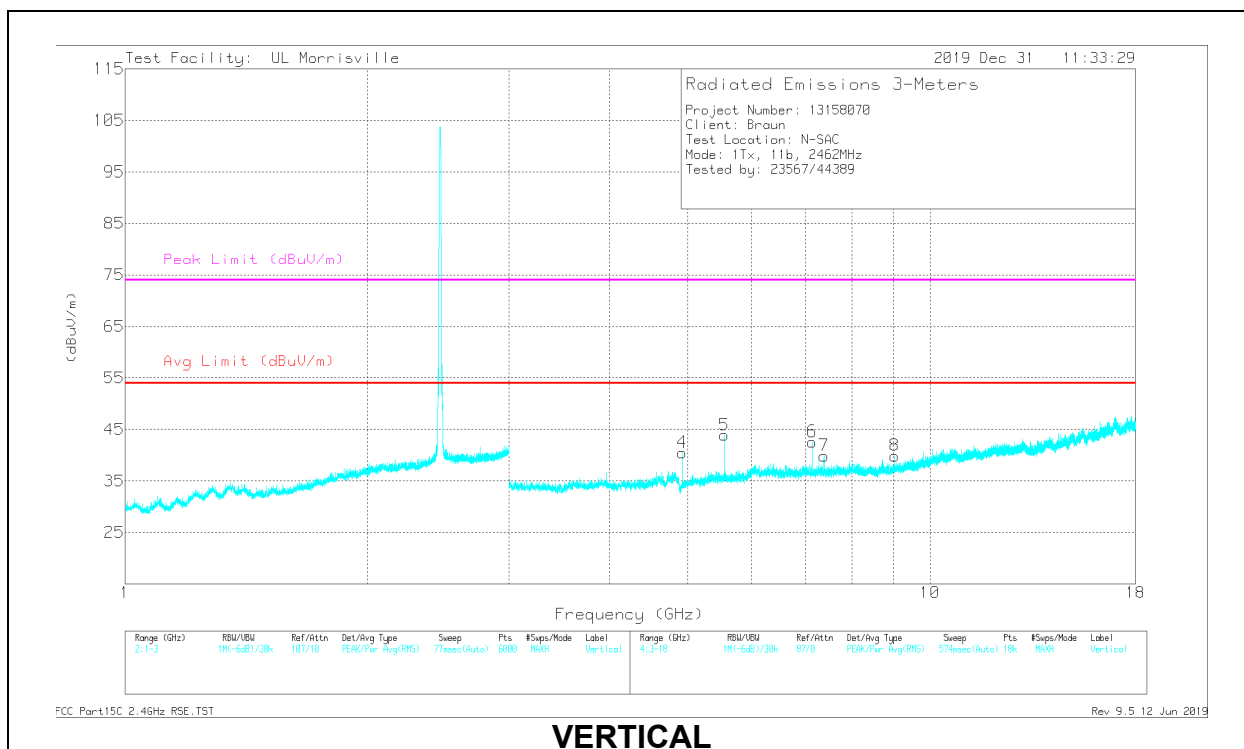
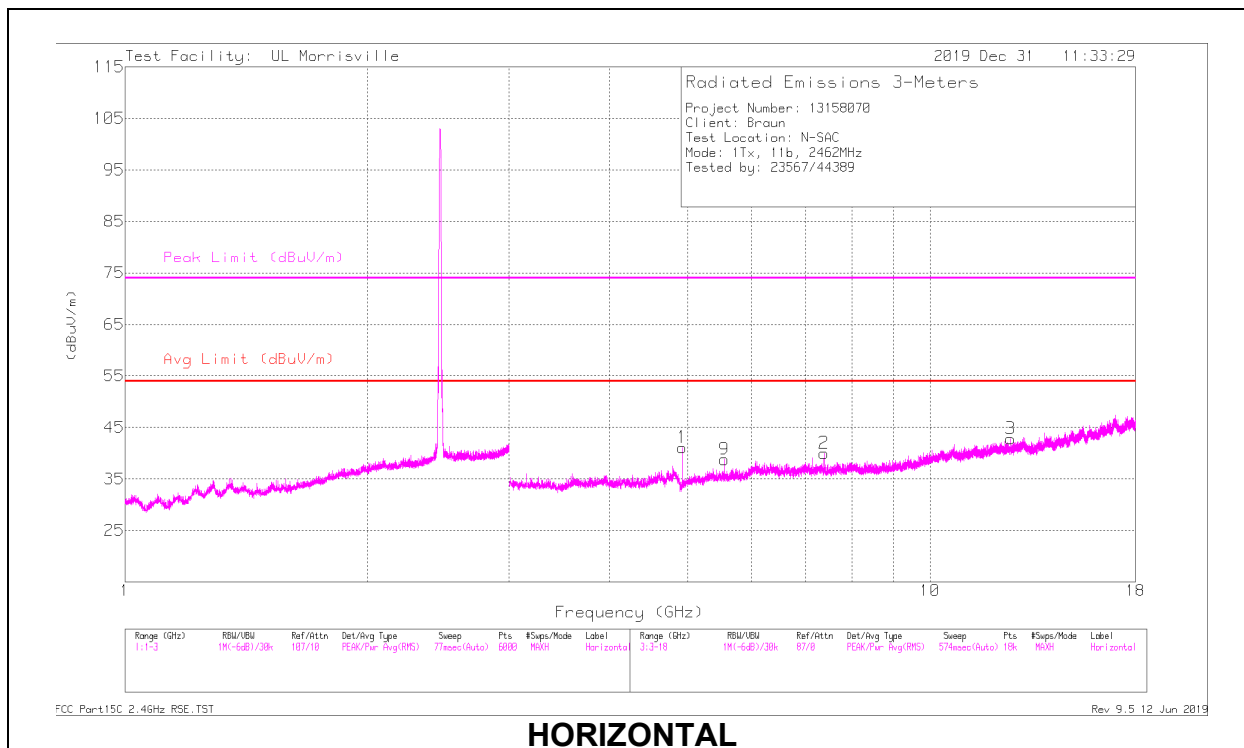
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

PK2 - Maximum Peak

ADV - Linear Voltage Average

Pk - Peak detector

HIGH CHANNEL, CH 11 RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 AF (dBuV/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 4.92395	44.33	PK2	33.9	-31.8	46.43	-	-	74	-27.57	24	103	H
	*** 4.92404	38.67	ADV	33.9	-31.8	40.77	54	-13.23	-	-	24	103	H
2	*** 7.38534	40.02	PK2	35.6	-29.2	46.42	-	-	74	-27.58	117	205	H
	*** 7.38533	29.92	ADV	35.6	-29.2	36.32	54	-17.68	-	-	117	205	H
3	*** 12.58667	35.99	PK2	38.9	-26.5	48.39	-	-	74	-25.61	300	117	H
	*** 12.58692	22.72	ADV	38.9	-26.5	35.12	54	-18.88	-	-	300	117	H
4	*** 4.92406	42.77	PK2	33.9	-31.8	44.87	-	-	74	-29.13	229	104	V
	*** 4.92403	35.73	ADV	33.9	-31.8	37.83	54	-16.17	-	-	229	104	V
7	*** 7.38698	40.2	PK2	35.6	-29.2	46.6	-	-	74	-27.4	118	206	V
	*** 7.38686	30.22	ADV	35.6	-29.2	36.62	54	-17.38	-	-	118	206	V
8	*** 9.04677	37.47	PK2	36.1	-28.4	45.17	-	-	74	-28.83	6	230	V
	*** 9.04553	24.18	ADV	36.1	-28.4	31.88	54	-22.12	-	-	6	230	V
9	5.55098	36.61	Pk	34.5	-32.3	38.81	-	-	-	-	0-360	198	H
5	5.55098	41.7	Pk	34.5	-32.3	43.9	-	-	-	-	0-360	102	V
6	7.1369	36.91	Pk	35.7	-30	42.61	-	-	-	-	0-360	102	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

PK2 - Maximum Peak

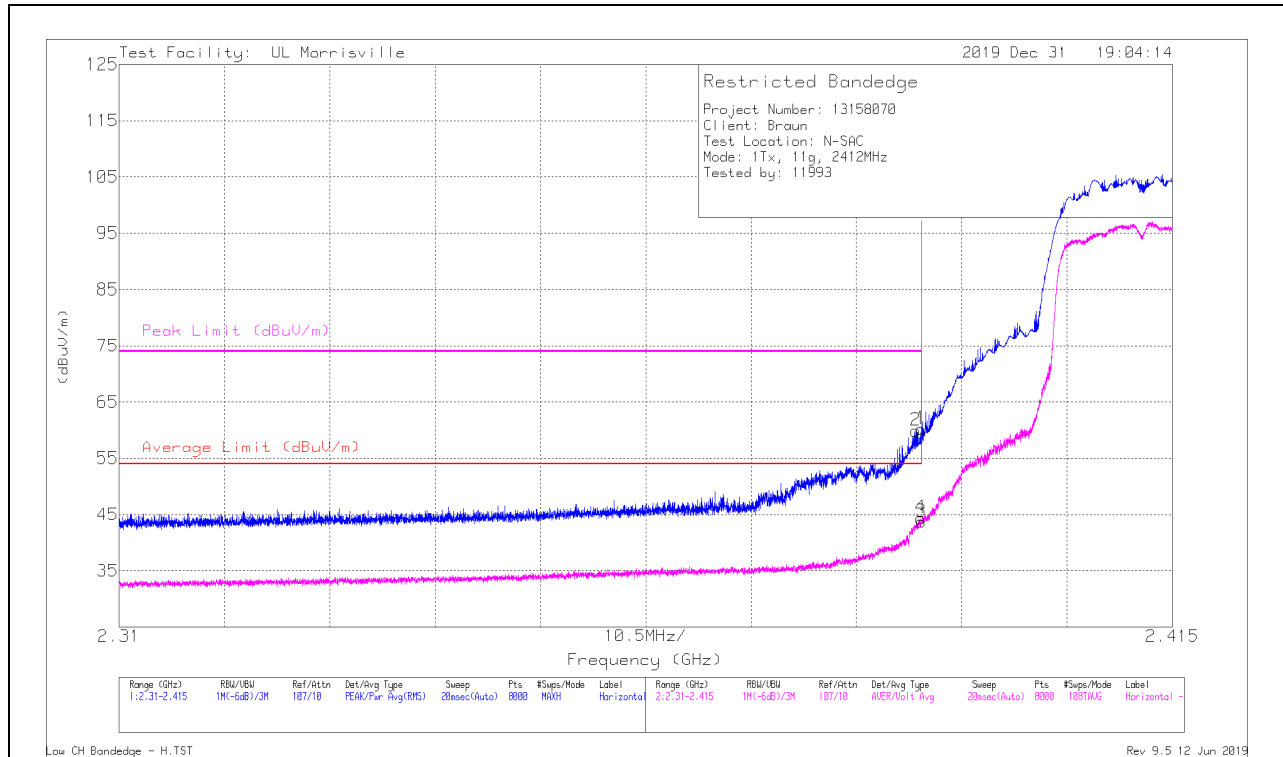
ADV - Linear Voltage Average

Pk - Peak detector

9.1.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 AF (dBuV/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.39	52.63	Pk	32	-24.4	0	60.23	-	-	74	-13.77	100	174	H
2	* ** 2.38942	52.29	Pk	32	-24.4	0	59.89	-	-	74	-14.11	100	174	H
3	* ** 2.39	35.41	ADV	32	-24.4	.72	43.73	54	-10.27	-	-	100	174	H
4	* ** 2.38992	36.06	ADV	32	-24.4	.72	44.38	54	-9.62	-	-	100	174	H

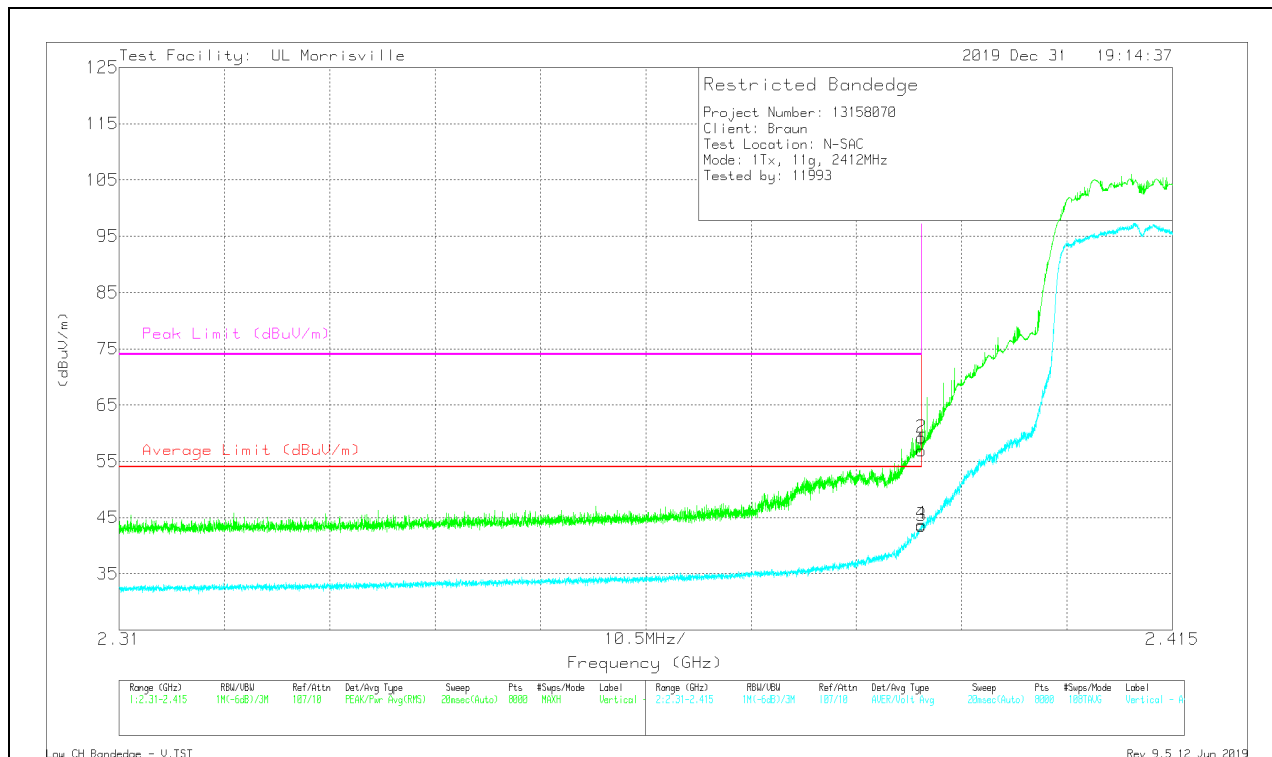
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 AF (dBuV/m)	Amp/Cbl/Fitr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.39	49.3	Pk	32	-24.4	0	56.9	-	-	74	-17.1	70	320	V
2	* ** 2.38997	51.59	Pk	32	-24.4	0	59.19	-	-	74	-14.81	70	320	V
3	* ** 2.39	35.18	ADV	32	-24.4	.72	43.5	54	-10.5	-	-	70	320	V
4	* ** 2.38997	35.48	ADV	32	-24.4	.72	43.8	54	-10.2	-	-	70	320	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

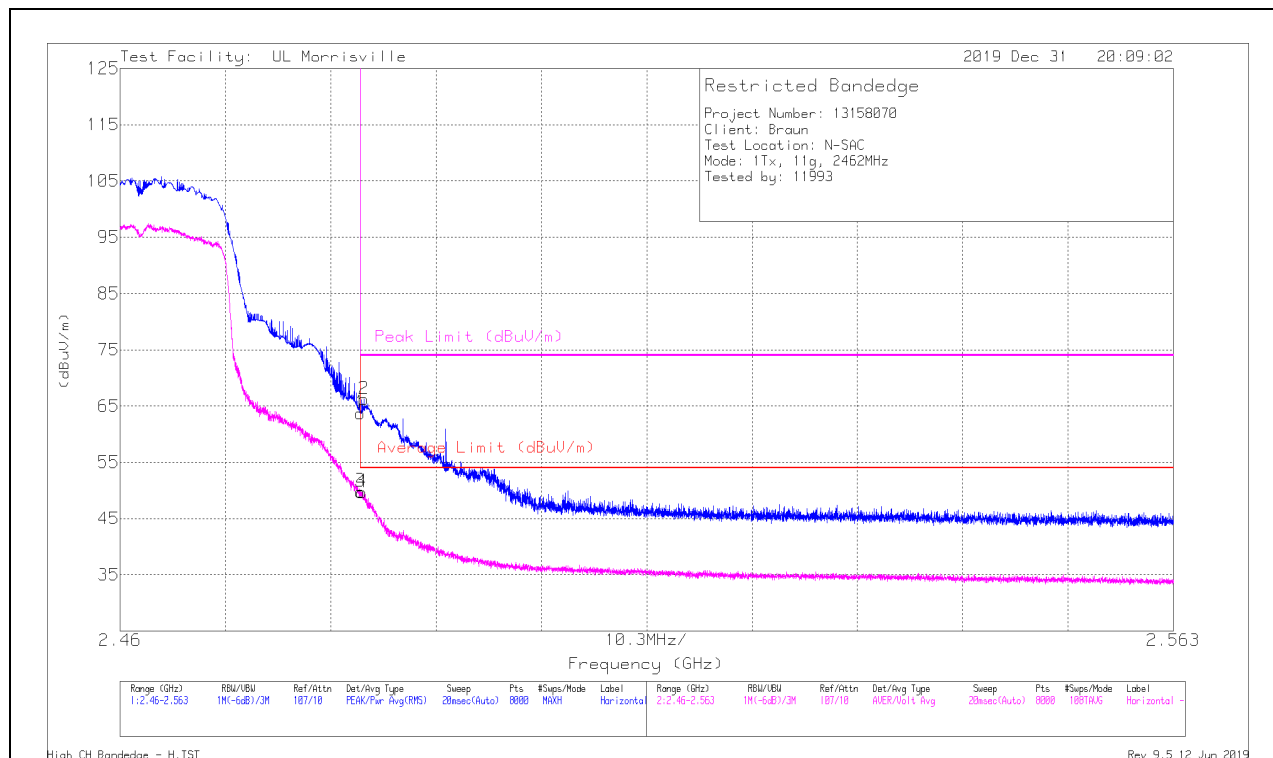
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

BANDEGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 AF (dBuV/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.4835	55.63	Pk	32.4	-24.3	0	63.73	-	-	74	-10.27	83	158	H
2	* ** 2.48385	58.1	Pk	32.4	-24.3	0	66.2	-	-	74	-7.8	83	158	H
3	* ** 2.4835	40.98	ADV	32.4	-24.3	.72	49.8	54	-4.2	-	-	83	158	H
4	* ** 2.48364	40.89	ADV	32.4	-24.3	.72	49.71	54	-4.29	-	-	83	158	H

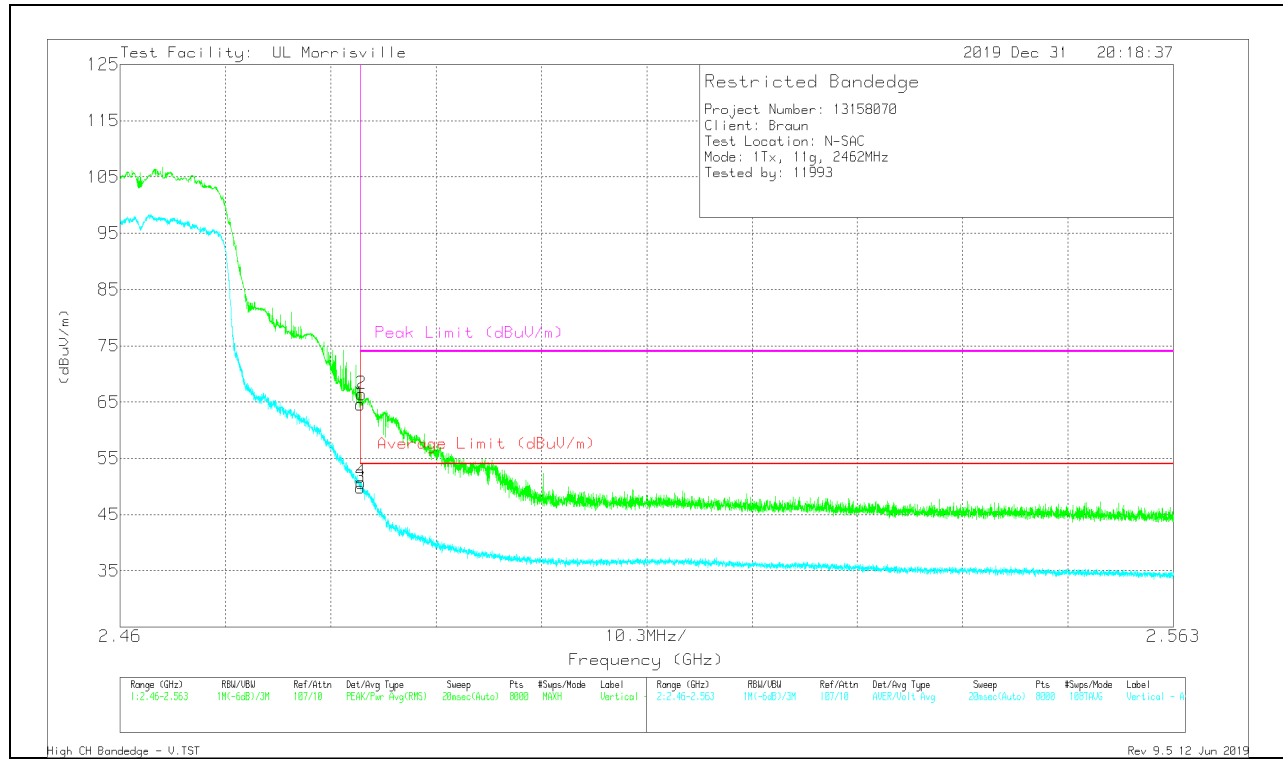
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 AF (dBuV/m)	Amp/Cbl/Fitr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.4835	56.5	Pk	32.4	-24.3	0	64.6	-	-	74	-9.4	99	143	V
2	* ** 2.48363	58.32	Pk	32.4	-24.3	0	66.42	-	-	74	-7.58	99	143	V
3	* ** 2.4835	40.96	ADV	32.4	-24.3	.72	49.78	54	-4.22	-	-	99	143	V
4	* ** 2.48353	41.89	ADV	32.4	-24.3	.72	50.71	54	-3.29	-	-	99	143	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

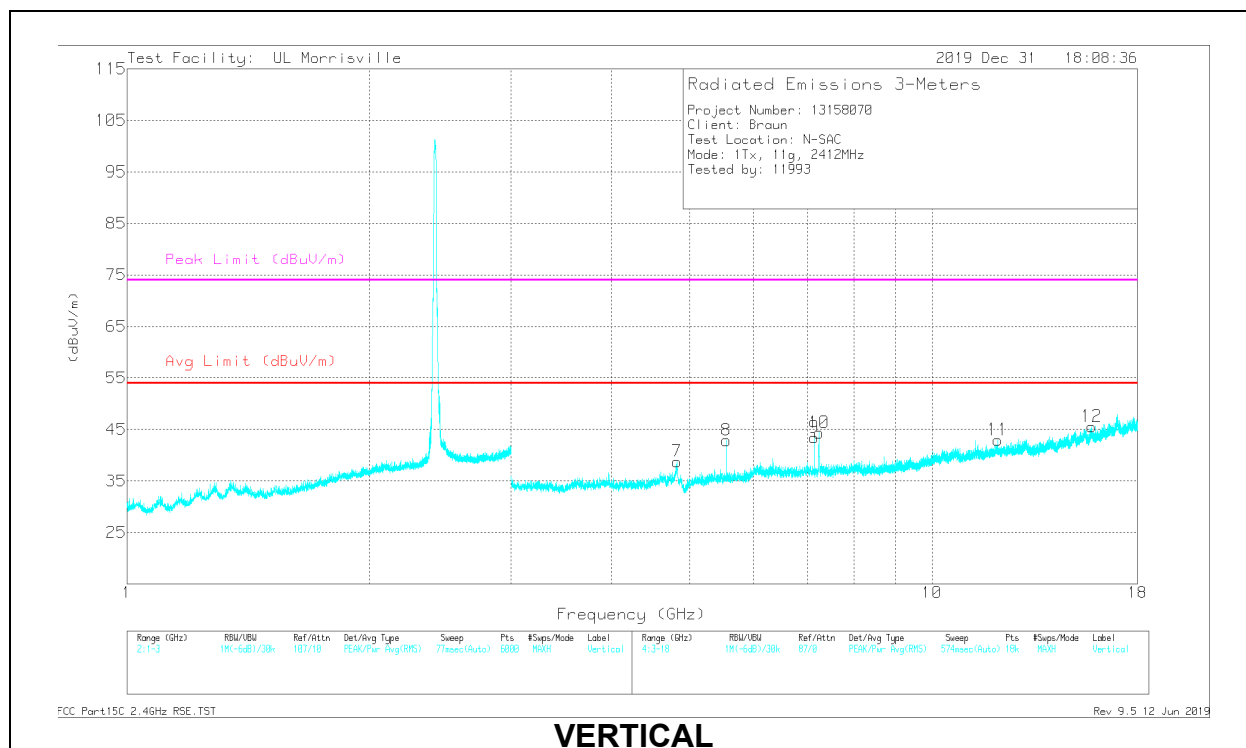
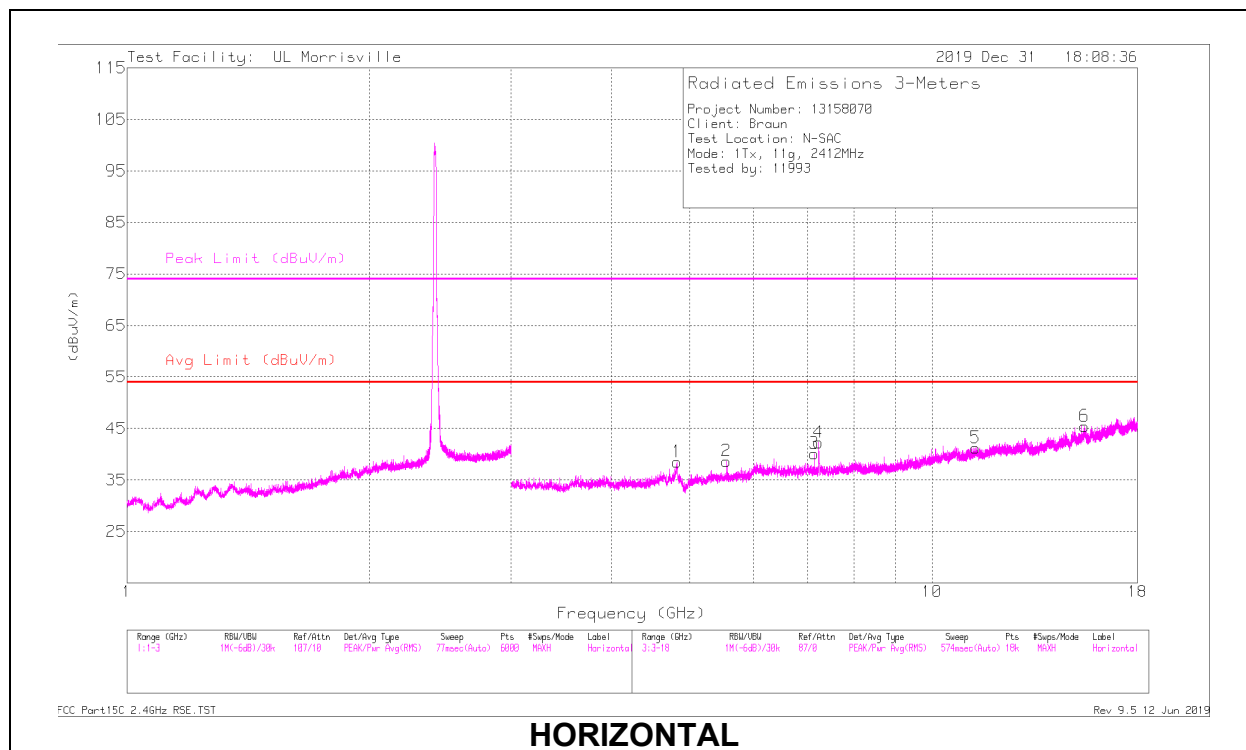
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 1 RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 AF (dBuV/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.82332	41.98	PK2	34.1	-31.4	0	44.68	-	-	74	-29.32	360	234	H
	* ** 4.82226	29.13	ADV	34.1	-31.5	.72	32.45	54	-21.55	-	-	360	234	H
5	* ** 11.3262	35.01	PK2	37.9	-24.8	0	48.11	-	-	74	-25.89	94	176	H
	* ** 11.32636	21.6	ADV	37.9	-24.8	.72	35.42	54	-18.58	-	-	94	176	H
6	* ** 15.45928	34.29	PK2	40.1	-23.9	0	50.49	-	-	74	-23.51	289	134	H
	* ** 15.45693	21.94	ADV	40.1	-23.9	.72	38.86	54	-15.14	-	-	289	134	H
7	* ** 4.8204	45.58	PK2	34.1	-31.5	0	48.18	-	-	74	-25.82	310	129	V
	* ** 4.82137	31.36	ADV	34.1	-31.5	.72	34.68	54	-19.32	-	-	310	129	V
11	* ** 12.07262	34.31	PK2	38.7	-25.7	0	47.31	-	-	74	-26.69	75	165	V
	* ** 12.07154	22.14	ADV	38.7	-25.7	.72	35.86	54	-18.14	-	-	75	165	V
12	* ** 15.7879	35.62	PK2	40.2	-24.6	0	51.22	-	-	74	-22.78	341	164	V
	* ** 15.78774	22.79	ADV	40.2	-24.6	.72	39.11	54	-14.89	-	-	341	164	V
2	5.55014	36.47	Pk	34.5	-32.3	0	38.67	-	-	-	-	0-360	101	H
8	5.55098	40.69	Pk	34.5	-32.3	0	42.89	-	-	-	-	0-360	102	V
3	7.1369	34.44	Pk	35.7	-30	0	40.14	-	-	-	-	0-360	101	H
9	7.1369	37.76	Pk	35.7	-30	0	43.46	-	-	-	-	0-360	102	V
4	7.23107	36.28	Pk	35.6	-29.6	0	42.28	-	-	-	-	0-360	101	H
10	7.23857	38.37	Pk	35.6	-29.6	0	44.37	-	-	-	-	0-360	102	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

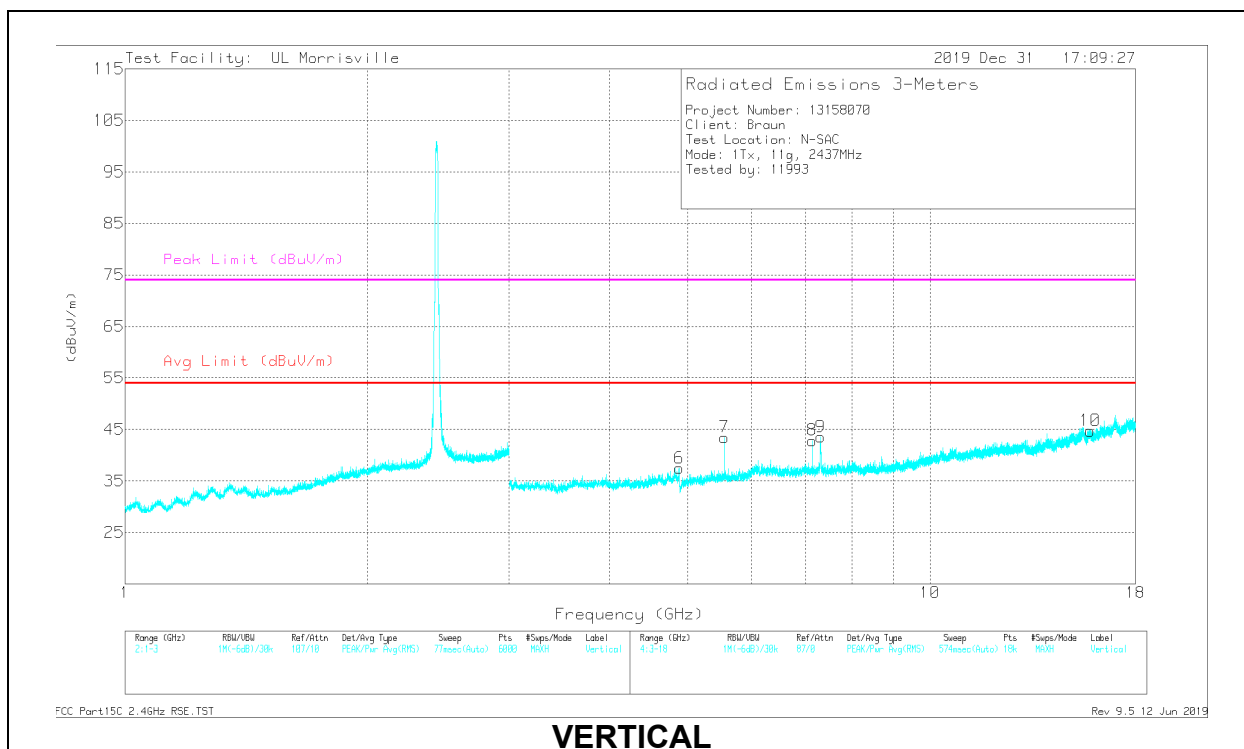
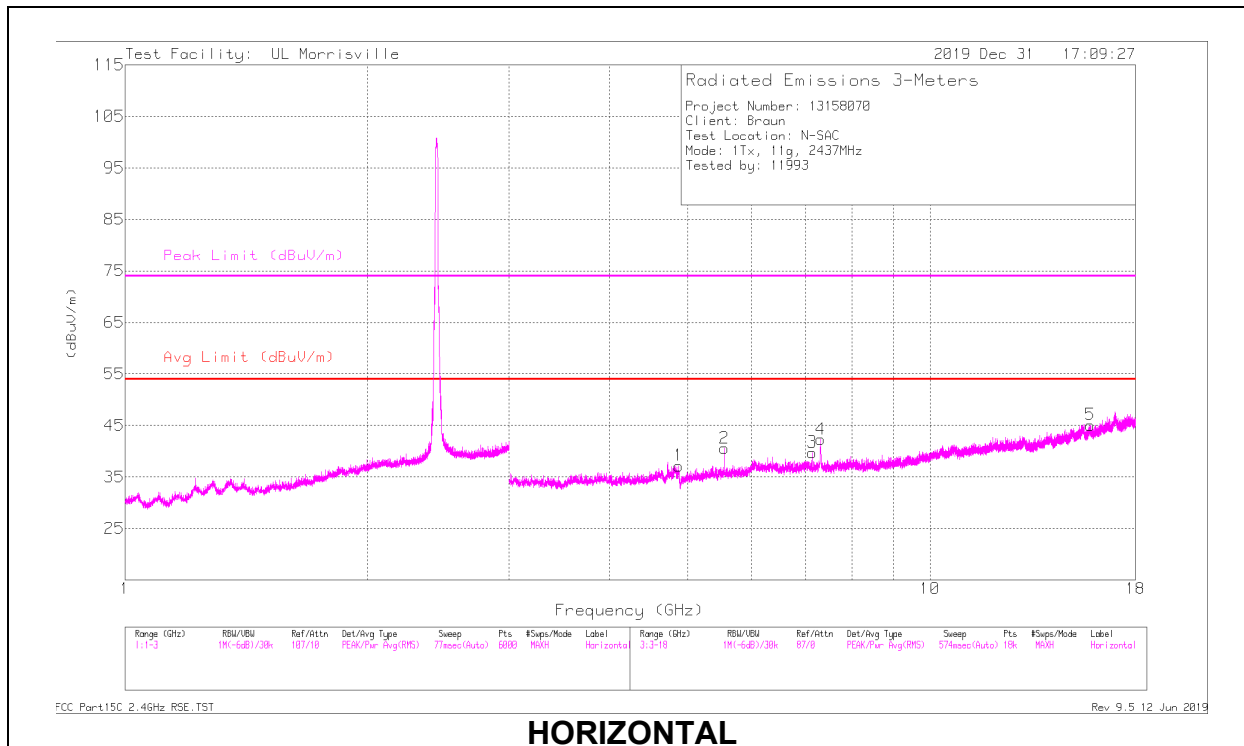
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

PK2 - Maximum Peak

ADV - Linear Voltage Average

Pk - Peak detector

MID CHANNEL, CH 6 RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 AF (dBuV/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.87216	43.1	PK2	34	-31.4	0	45.7	-	-	74	-28.3	258	107	H
	* ** 4.87221	29.44	ADV	34	-31.4	.72	32.76	54	-21.24	-	-	258	107	H
4	* ** 7.31268	45.44	PK2	35.6	-29.1	0	51.94	-	-	74	-22.06	79	153	H
	* ** 7.31147	29.58	ADV	35.6	-29.1	.72	36.8	54	-17.2	-	-	79	153	H
5	* ** 15.80878	35.95	PK2	40.2	-24.7	0	51.45	-	-	74	-22.55	93	139	H
	* ** 15.80686	23.02	ADV	40.2	-24.7	.72	39.24	54	-14.76	-	-	93	139	H
6	* ** 4.88113	42.31	PK2	33.9	-31.3	0	44.91	-	-	74	-29.09	340	135	V
	* ** 4.87827	29.18	ADV	33.9	-31.3	.72	32.5	54	-21.5	-	-	340	135	V
9	* ** 7.31287	47.16	PK2	35.6	-29.1	0	53.66	-	-	74	-20.34	53	105	V
	* ** 7.31327	30.77	ADV	35.6	-29.1	.72	37.99	54	-16.01	-	-	53	105	V
10	* ** 15.80923	35.93	PK2	40.2	-24.7	0	51.43	-	-	74	-22.57	120	214	V
	* ** 15.80855	23.02	ADV	40.2	-24.7	.72	39.24	54	-14.76	-	-	120	214	V
2	5.55098	38.38	Pk	34.5	-32.3	0	40.58	-	-	-	-	0-360	102	H
7	5.55098	41.28	Pk	34.5	-32.3	0	43.48	-	-	-	-	0-360	102	V
3	7.1369	34.07	Pk	35.7	-30	0	39.77	-	-	-	-	0-360	198	H
8	7.1369	37.17	Pk	35.7	-30	0	42.87	-	-	-	-	0-360	102	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

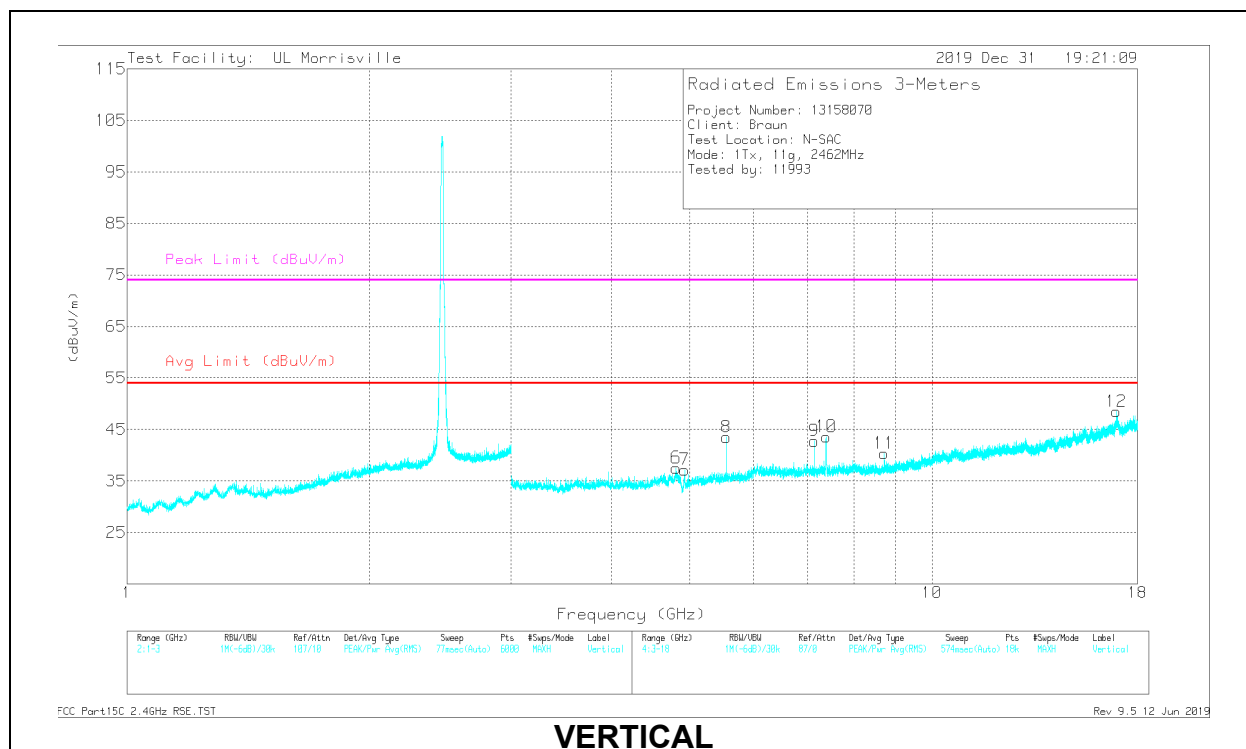
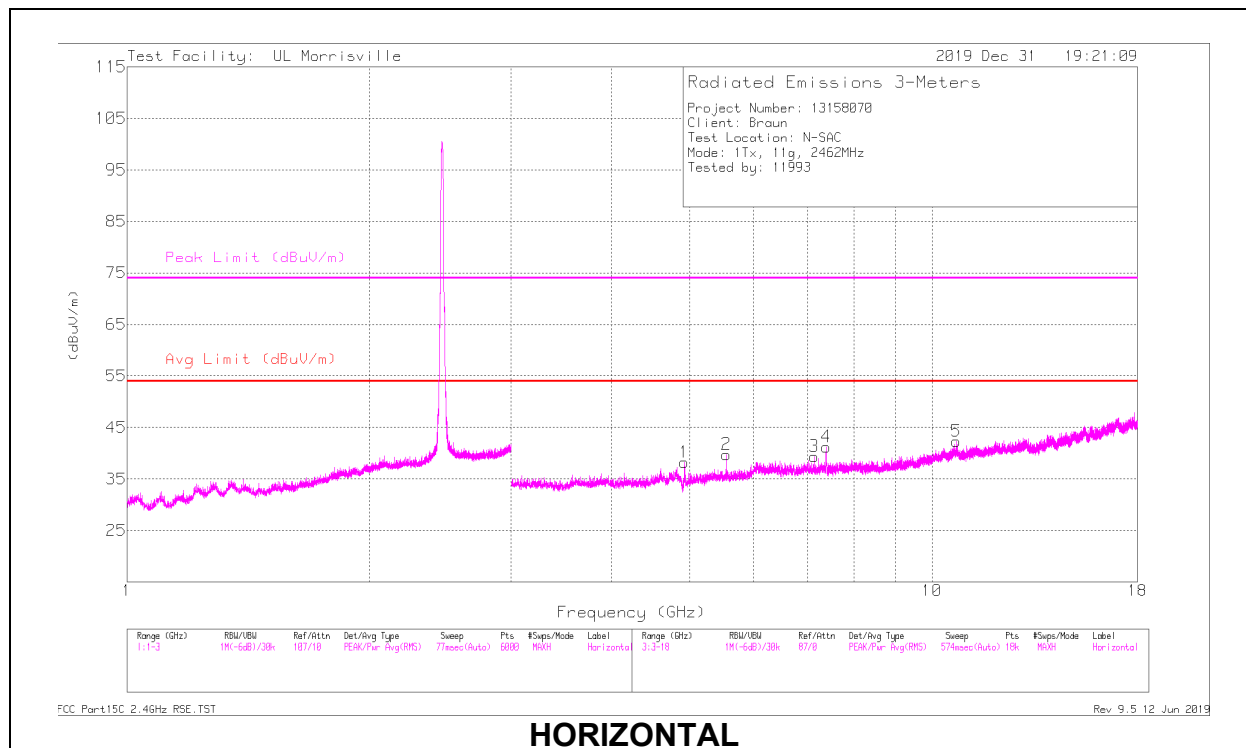
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

PK2 - Maximum Peak

ADV - Linear Voltage Average

Pk - Peak detector

HIGH CHANNEL, CH 11 RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 AF (dBuV/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 4.92363	44	PK2	33.9	-31.8	0	46.1	-	-	74	-27.9	348	104	H
	*** 4.9237	30.22	ADV	33.9	-31.8	.72	33.04	54	-20.96	-	-	348	104	H
4	*** 7.38787	42.53	PK2	35.6	-29.2	0	48.93	-	-	74	-25.07	68	303	H
	*** 7.38823	27.97	ADV	35.6	-29.2	.72	35.09	54	-18.91	-	-	68	303	H
5	*** 10.71792	34.61	PK2	37.7	-25	0	47.31	-	-	74	-26.69	22	276	H
	*** 10.71614	22.23	ADV	37.7	-25	.72	35.65	54	-18.35	-	-	22	276	H
6	*** 4.80753	41.48	PK2	34.1	-31.6	0	43.98	-	-	74	-30.02	357	383	V
	*** 4.80751	28.7	ADV	34.1	-31.6	.72	31.92	54	-22.08	-	-	357	383	V
7	*** 4.92784	42.56	PK2	33.9	-31.8	0	44.66	-	-	74	-29.34	321	222	V
	*** 4.92647	29.15	ADV	33.9	-31.8	.72	31.97	54	-22.03	-	-	321	222	V
10	*** 7.38998	43.99	PK2	35.6	-29.3	0	50.29	-	-	74	-23.71	42	116	V
	*** 7.38938	29.16	ADV	35.6	-29.3	.72	36.18	54	-17.82	-	-	42	116	V
2	5.55098	37.56	Pk	34.5	-32.3	0	39.76	-	-	-	-	0-360	102	H
8	5.55098	41.31	Pk	34.5	-32.3	0	43.51	-	-	-	-	0-360	102	V
3	7.1369	33.66	Pk	35.7	-30	0	39.36	-	-	-	-	0-360	102	H
9	7.1369	37.06	Pk	35.7	-30	0	42.76	-	-	-	-	0-360	102	V
11	8.72282	32.75	Pk	35.9	-28.3	0	40.35	-	-	-	-	0-360	198	V
12	16.94911	30.47	Pk	41.4	-23.4	0	48.47	-	-	-	-	0-360	102	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

PK2 - Maximum Peak

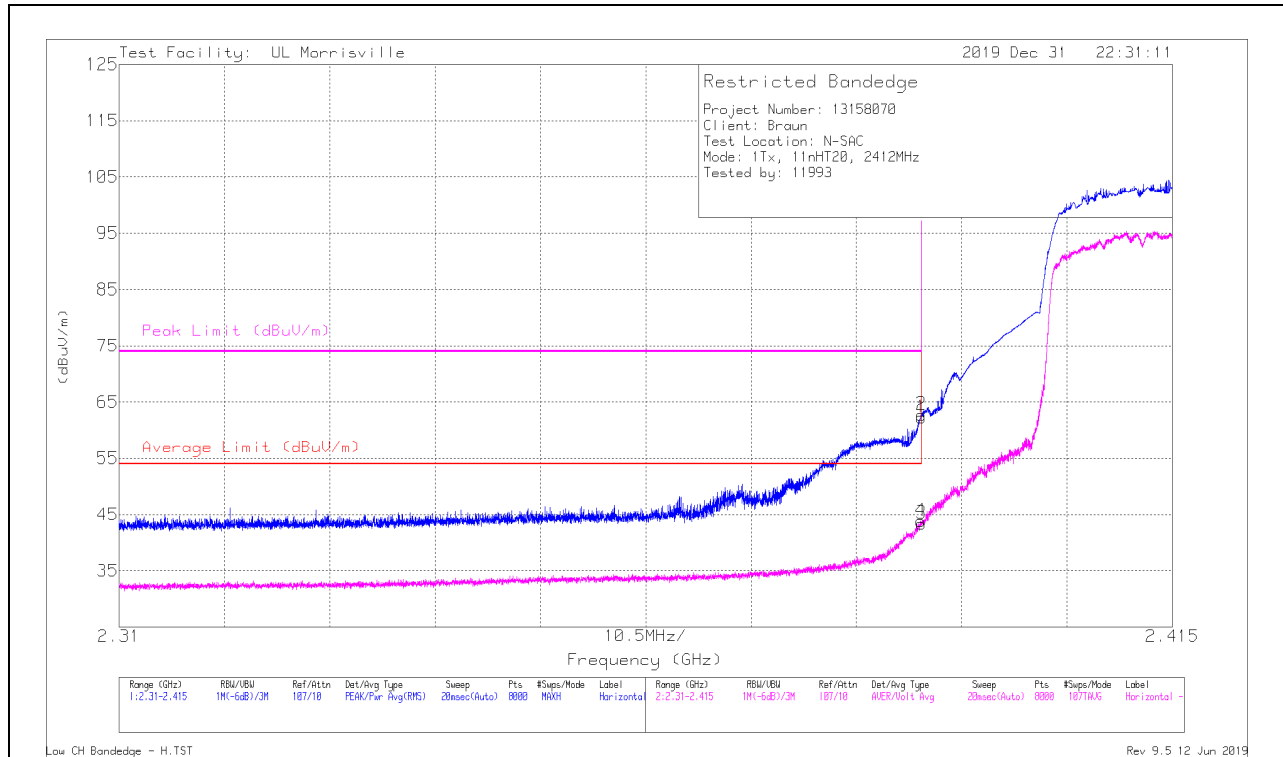
ADV - Linear Voltage Average

Pk - Peak detector

9.1.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 AF (dBuV/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.39	54.64	Pk	32	-24.4	0	62.24	-	-	74	-11.76	141	145	H
2	* ** 2.38997	55.14	Pk	32	-24.4	0	62.74	-	-	74	-11.26	141	145	H
3	* ** 2.39	35.17	ADV	32	-24.4	.61	43.38	54	-10.62	-	-	141	145	H
4	* ** 2.38992	35.61	ADV	32	-24.4	.61	43.82	54	-10.18	-	-	141	145	H

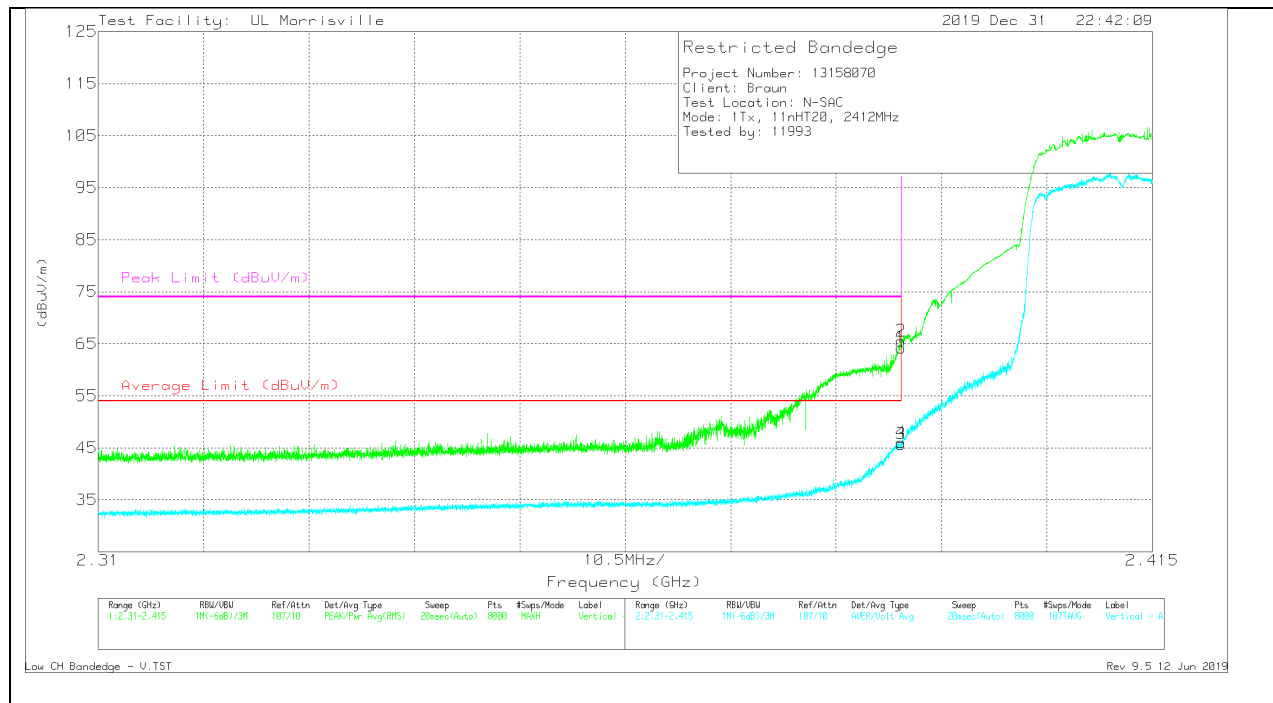
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 AF (dBuV/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.39	56.66	Pk	32	-24.4	0	64.26	-	-	74	-9.74	75	251	V
2	* ** 2.38996	57.91	Pk	32	-24.4	0	65.51	-	-	74	-8.49	75	251	V
3	* ** 2.39	37.54	ADV	32	-24.4	.62	45.76	54	-8.24	-	-	75	251	V
4	* ** 2.38996	37.81	ADV	32	-24.4	.62	46.03	54	-7.97	-	-	75	251	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

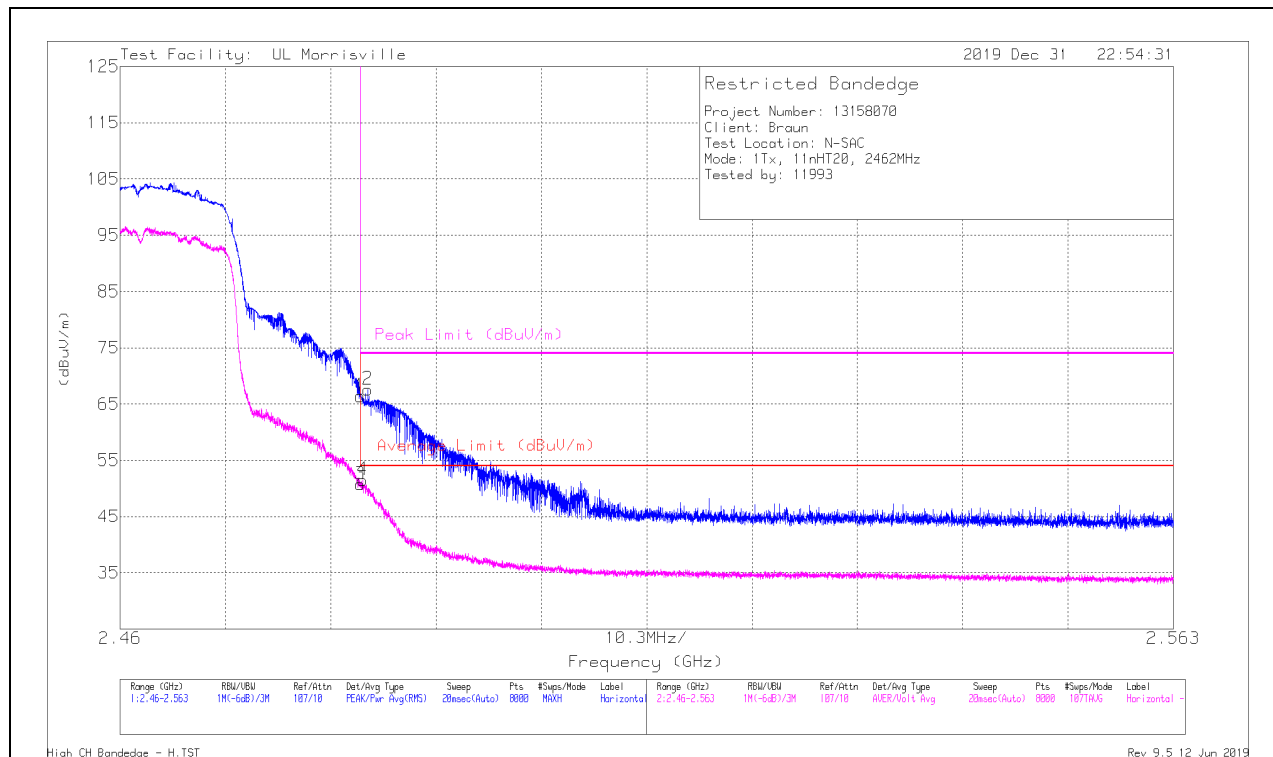
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - U-NII AD primary method, Linear Voltage Average

BANDEGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 AF (dBuV/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.4835	58.33	Pk	32.4	-24.3	0	66.43	-	-	74	-7.57	86	236	H
2	* ** 2.48421	59.48	Pk	32.4	-24.3	0	67.58	-	-	74	-6.42	86	236	H
3	* ** 2.4835	42.02	ADV	32.4	-24.3	.61	50.73	54	-3.27	-	-	86	236	H
4	* ** 2.48372	42.77	ADV	32.4	-24.3	.61	51.48	54	-2.52	-	-	86	236	H

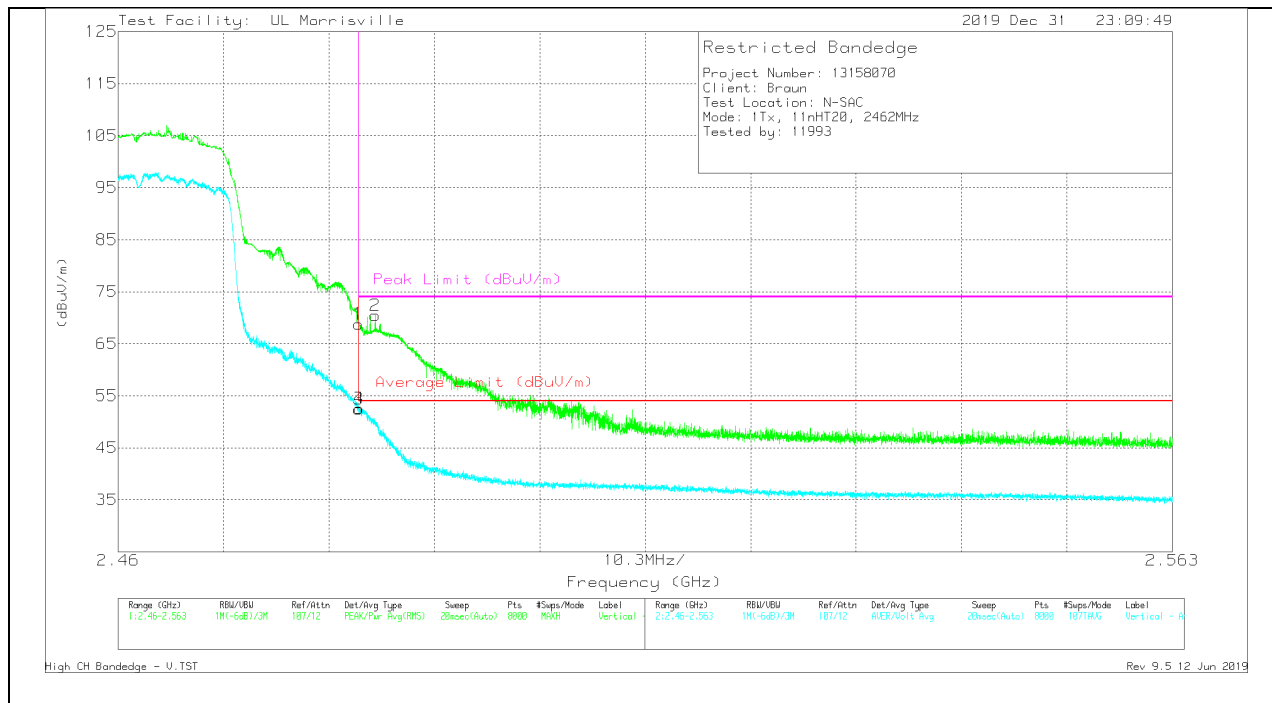
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 AF (dBuV/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.4835	60.69	Pk	32.4	-24.3	0	68.79	-	-	74	-5.21	49	217	V
2	* ** 2.48511	62.33	Pk	32.4	-24.3	0	70.43	-	-	74	-3.57	49	217	V
3	* ** 2.4835	43.74	ADV	32.4	-24.3	.61	52.45	54	-1.55	-	-	49	217	V
4	* ** 2.48355	43.84	ADV	32.4	-24.3	.61	52.55	54	-1.45	-	-	49	217	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

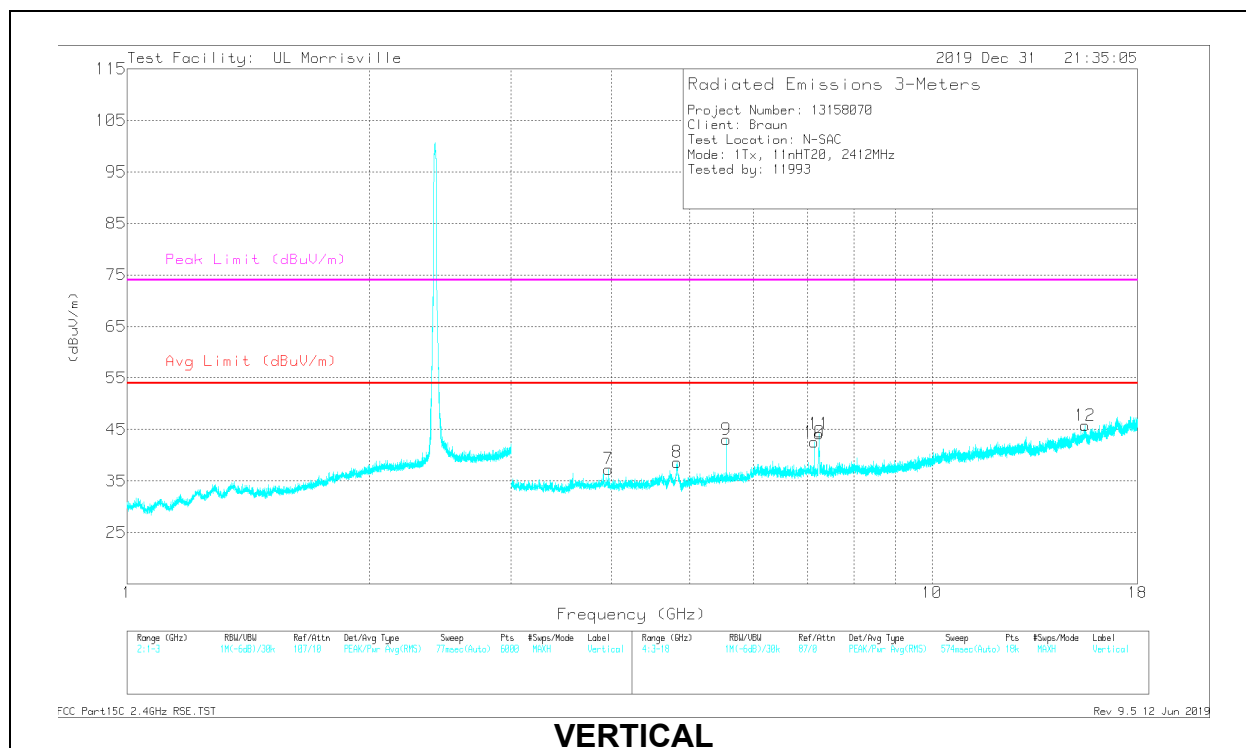
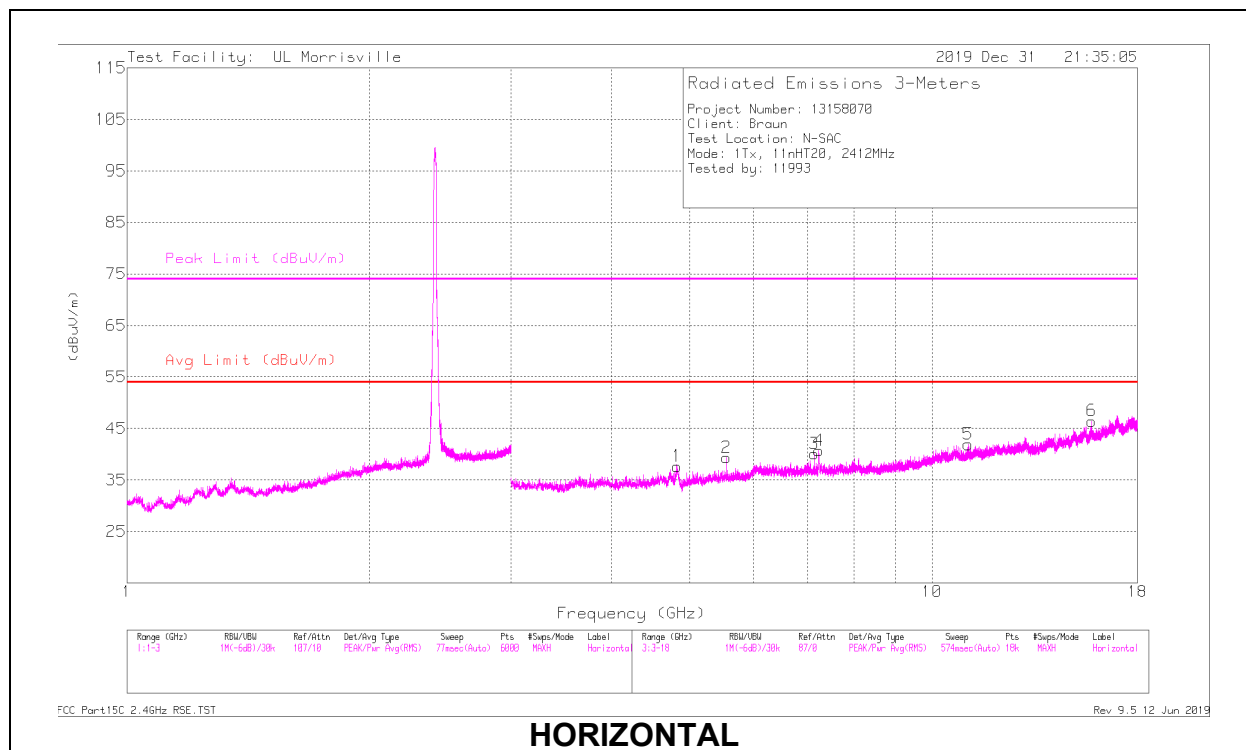
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 1 RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 AF (dBuV/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 4.82152	43.84	PK2	34.1	-31.5	0	46.44	-	-	74	-27.56	341	106	H
	*** 4.82142	30.1	ADV	34.1	-31.5	.61	33.31	54	-20.69	-	-	341	106	H
5	*** 11.08651	34.22	PK2	37.7	-25.3	0	46.62	-	-	74	-27.38	3	182	H
	*** 11.08611	21.86	ADV	37.7	-25.3	.61	34.87	54	-19.13	-	-	3	182	H
6	*** 15.78044	36.44	PK2	40.2	-24.5	0	52.14	-	-	74	-21.86	143	159	H
	*** 15.77836	23.02	ADV	40.1	-24.5	.61	39.23	54	-14.77	-	-	143	159	H
7	*** 3.96489	43.94	PK2	33.4	-31.7	0	45.64	-	-	74	-28.36	137	345	V
	*** 3.96497	30.86	ADV	33.4	-31.7	.61	33.17	54	-20.83	-	-	137	345	V
8	*** 4.82446	44.24	PK2	34.1	-31.4	0	46.94	-	-	74	-27.06	307	129	V
	*** 4.82279	30.87	ADV	34.1	-31.5	.61	34.08	54	-19.92	-	-	307	129	V
12	*** 15.48838	35.69	PK2	40.2	-23.6	0	52.29	-	-	74	-21.71	268	268	V
	*** 15.48707	22.2	ADV	40.1	-23.6	.61	39.31	54	-14.69	-	-	268	268	V
2	5.55098	37.14	Pk	34.5	-32.3	0	39.34	-	-	-	-	0-360	101	H
9	5.55098	40.83	Pk	34.5	-32.3	0	43.03	-	-	-	-	0-360	101	V
3	7.1369	34.36	Pk	35.7	-30	0	40.06	-	-	-	-	0-360	101	H
10	7.1369	36.86	Pk	35.7	-30	0	42.56	-	-	-	-	0-360	101	V
4	7.2319	34.69	Pk	35.6	-29.6	0	40.69	-	-	-	-	0-360	198	H
11	7.24274	38.16	Pk	35.6	-29.6	0	44.16	-	-	-	-	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

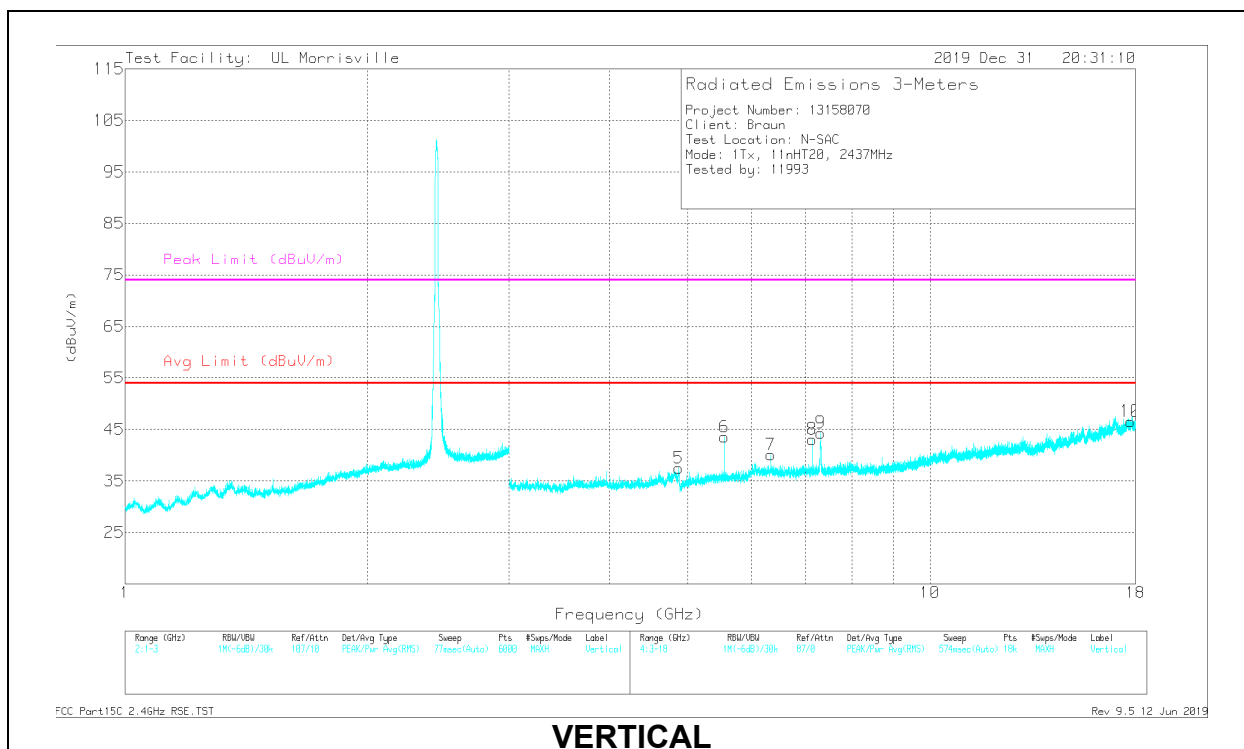
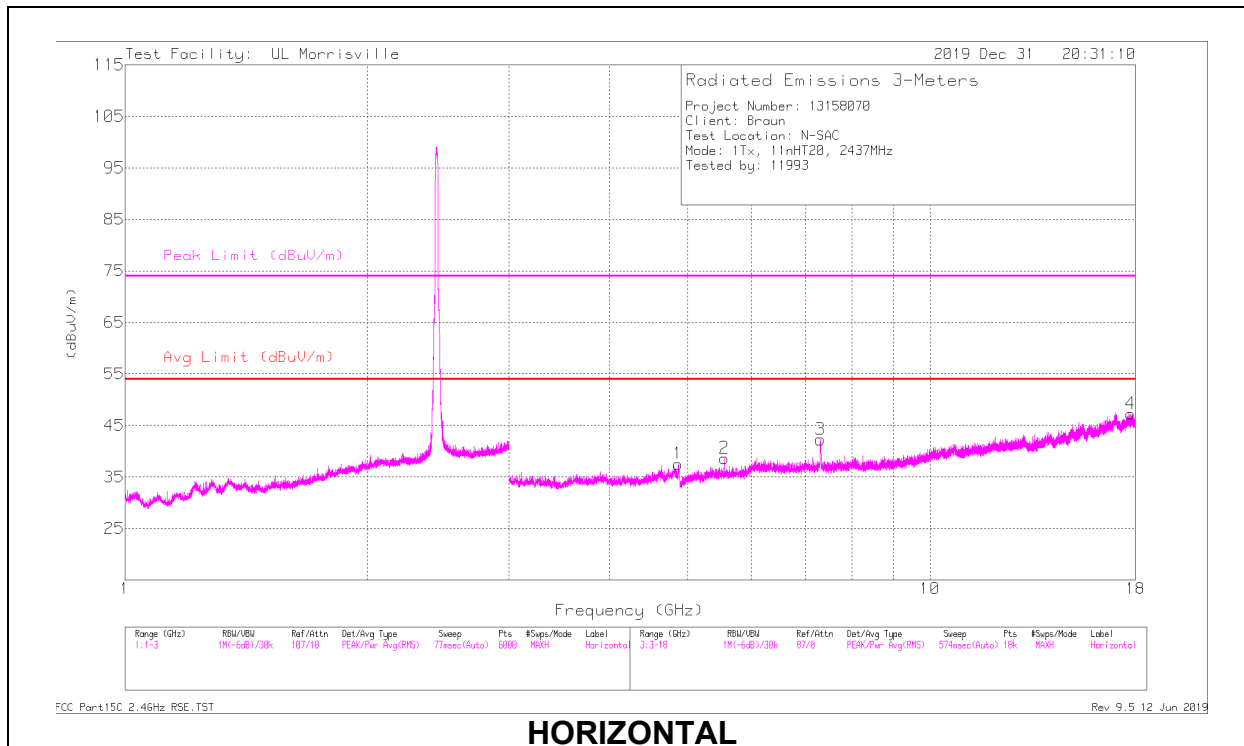
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

PK2 - Maximum Peak

ADV - Linear Voltage Average

Pk - Peak detector

MID CHANNEL, CH 6 RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 AF (dBuV/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 4.86888	41.69	PK2	34	-31.4	0	44.29	-	-	74	-29.71	41	113	H
	*** 4.86878	28.32	ADV	34	-31.4	.61	31.53	54	-22.47	-	-	41	113	H
3	*** 7.30824	45.29	PK2	35.6	-29.1	0	51.79	-	-	74	-22.21	86	128	H
	*** 7.30728	29.21	ADV	35.6	-29.1	.61	36.32	54	-17.68	-	-	86	128	H
4	*** 17.76174	34.39	PK2	41.1	-22.8	0	52.69	-	-	74	-21.31	318	236	H
	*** 17.76129	21.67	ADV	41.1	-22.8	.61	40.58	54	-13.42	-	-	318	236	H
5	*** 4.87448	43.48	PK2	34	-31.3	0	46.18	-	-	74	-27.82	310	119	V
	*** 4.87424	29.71	ADV	34	-31.3	.61	33.02	54	-20.98	-	-	310	119	V
9	*** 7.31621	46.45	PK2	35.6	-29.1	0	52.95	-	-	74	-21.05	74	157	V
	*** 7.31691	29.77	ADV	35.6	-29.1	.61	36.88	54	-17.12	-	-	74	157	V
10	*** 17.74761	34.34	PK2	41.1	-23	0	52.44	-	-	74	-21.56	212	175	V
	*** 17.74564	21.77	ADV	41.1	-23	.61	40.48	54	-13.52	-	-	212	175	V
2	5.55098	36.43	Pk	34.5	-32.3	0	38.63	-	-	-	-	0-360	198	H
6	5.55098	41.35	Pk	34.5	-32.3	0	43.55	-	-	-	-	0-360	102	V
7	6.34352	34.39	Pk	35.5	-29.8	0	40.09	-	-	-	-	0-360	198	V
8	7.1369	37.37	Pk	35.7	-30	0	43.07	-	-	-	-	0-360	102	V
2	5.55098	36.43	Pk	34.5	-32.3	0	38.63	-	-	-	-	0-360	198	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

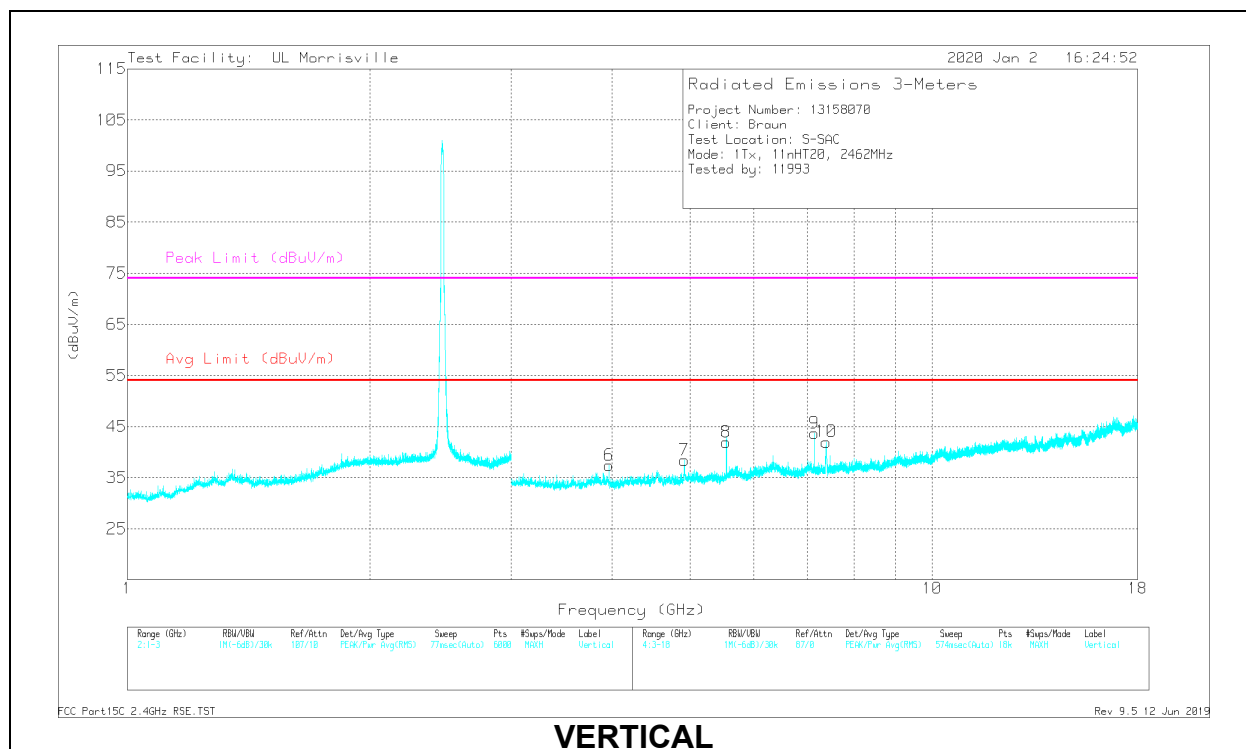
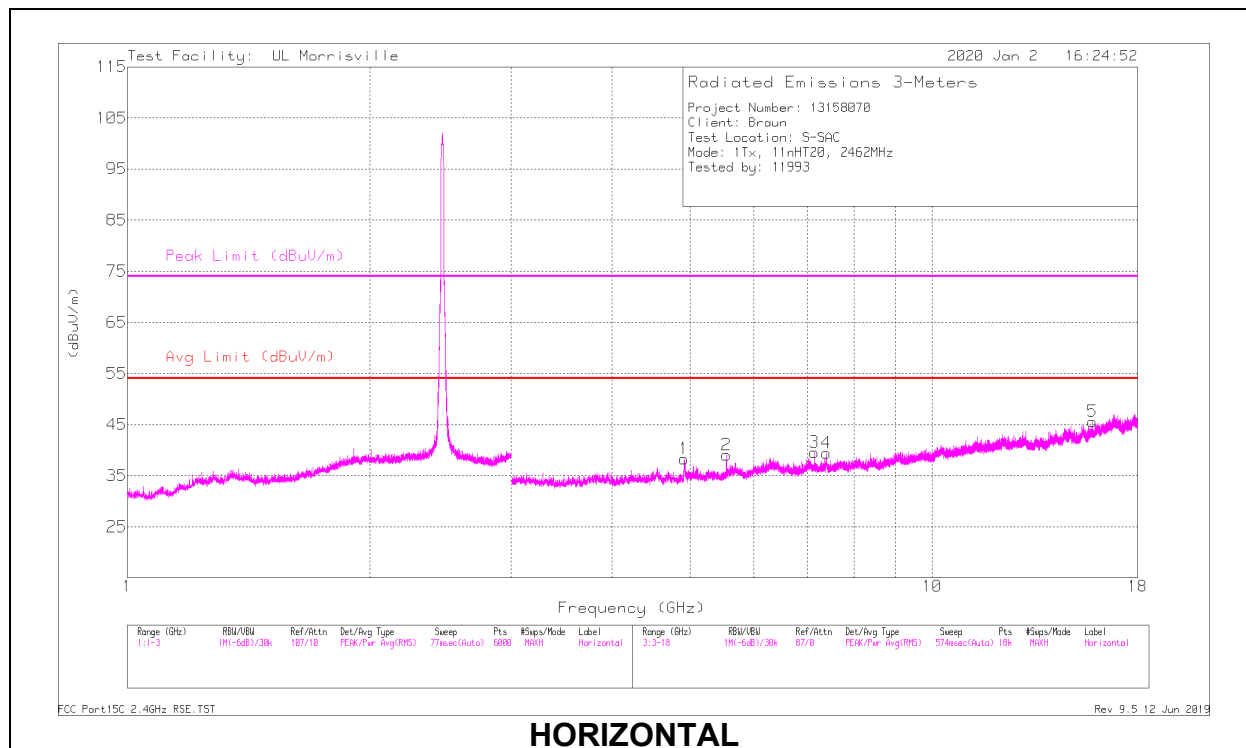
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

PK2 - Maximum Peak

ADV - Linear Voltage Average

Pk - Peak detector

HIGH CHANNEL, CH 11 RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 4.92041	43.94	PK2	34	-30.8	0	47.14	-	-	74	-26.86	74	102	H
	*** 4.92185	29.04	ADV	34	-30.8	.61	32.85	54	-21.15	-	-	74	102	H
4	*** 7.38578	39.13	PK2	35.7	-27.6	0	47.23	-	-	74	-26.77	186	279	H
	*** 7.38574	24.86	ADV	35.7	-27.6	.61	33.57	54	-20.43	-	-	186	279	H
5	*** 15.82372	33.97	PK2	40.4	-23.2	0	51.17	-	-	74	-22.83	0	266	H
	*** 15.82459	21.28	ADV	40.4	-23.2	.61	39.09	54	-14.91	-	-	0	266	H
6	*** 3.96493	44.39	PK2	33.4	-31.5	0	46.29	-	-	74	-27.71	230	180	V
	*** 3.965	31.8	ADV	33.4	-31.5	.61	34.31	54	-19.69	-	-	230	180	V
7	*** 4.92408	42.18	PK2	34	-30.8	0	45.38	-	-	74	-28.62	120	315	V
	*** 4.92378	28.77	ADV	34	-30.8	.61	32.58	54	-21.42	-	-	120	315	V
10	*** 7.38414	42.75	PK2	35.7	-27.6	0	50.85	-	-	74	-23.15	186	171	V
	*** 7.38478	26.98	ADV	35.7	-27.6	.61	35.69	54	-18.31	-	-	186	171	V
8	5.55014	38.13	Pk	34.5	-30.7	0	41.93	-	-	-	-	0-360	101	V
2	5.55098	35.21	Pk	34.5	-30.7	0	39.01	-	-	-	-	0-360	101	H
3	7.13607	32.34	Pk	35.7	-28.5	0	39.54	-	-	-	-	0-360	101	H
9	7.1369	36.51	Pk	35.7	-28.5	0	43.71	-	-	-	-	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

PK2 - Maximum Peak

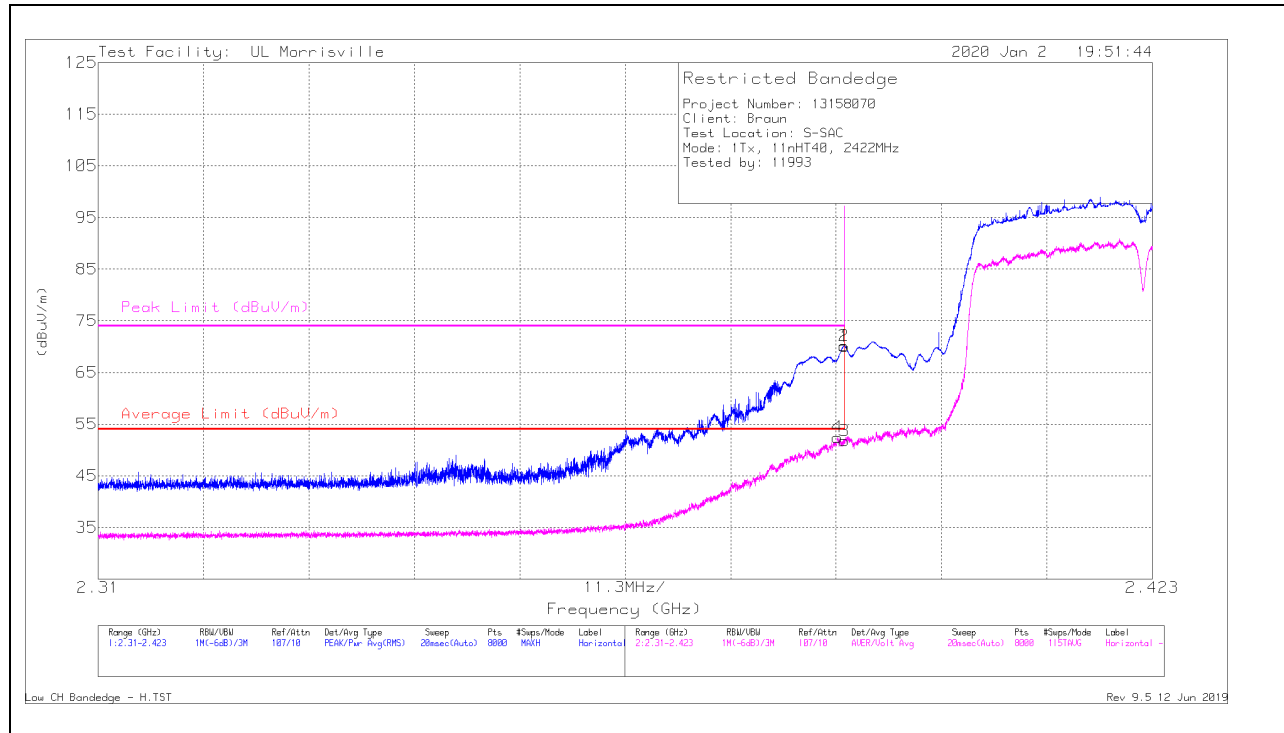
ADV - Linear Voltage Average

Pk - Peak detector

9.1.4. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 2.4 GHz BAND

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38999	62.14	Pk	31.9	-24	0	70.04	-	-	74	-3.96	202	104	H
2	* ** 2.38993	62.27	Pk	31.9	-24	0	70.17	-	-	74	-3.83	202	104	H
3	* ** 2.38999	42.59	ADV	31.9	-24	1.28	51.77	54	-2.23	-	-	202	104	H
4	* ** 2.38924	43.26	ADV	31.9	-24	1.28	52.44	54	-1.56	-	-	202	104	H

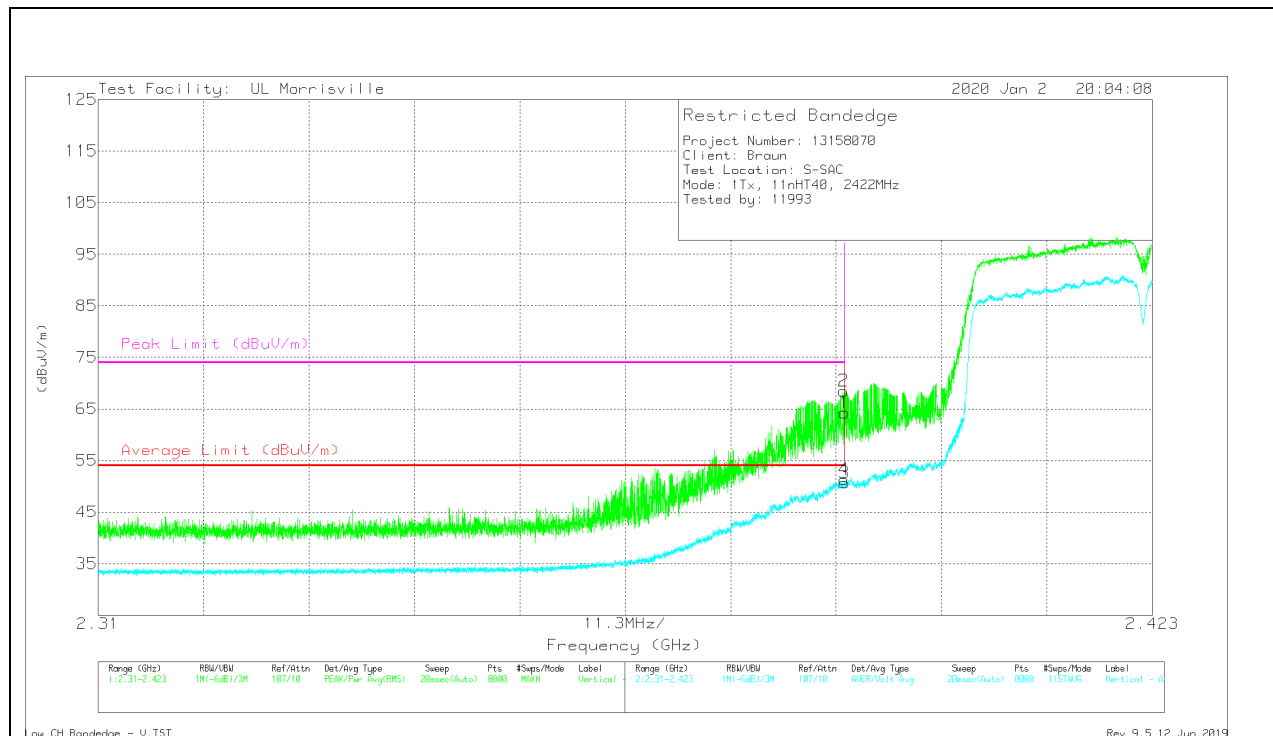
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38999	56.38	Pk	31.9	-24	0	64.28	-	-	74	-9.72	205	133	V
2	* ** 2.38992	60.61	Pk	31.9	-24	0	68.51	-	-	74	-5.49	205	133	V
3	* ** 2.38999	41.52	ADV	31.9	-24	1.28	50.7	54	-3.3	-	-	205	133	V
4	* ** 2.38993	42.14	ADV	31.9	-24	1.28	51.32	54	-2.68	-	-	205	133	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

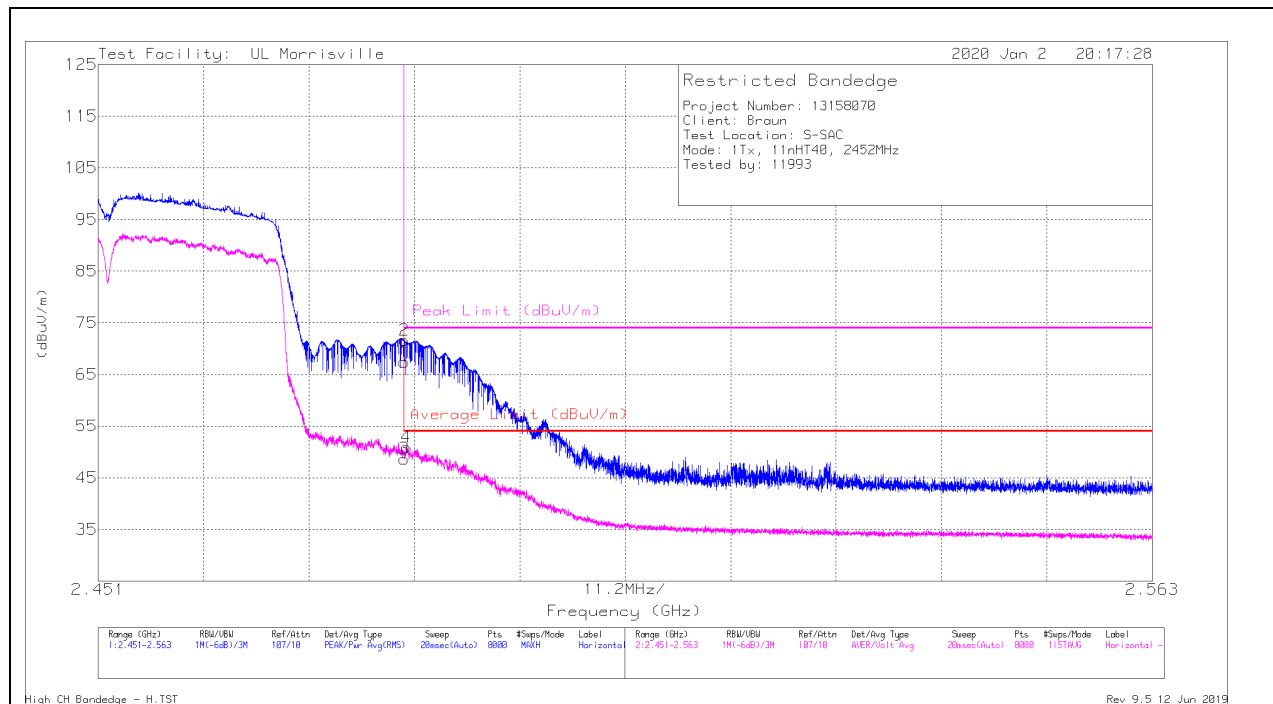
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48351	59.65	Pk	32.3	-24.5	0	67.45	-	-	74	-6.55	216	136	H
2	* ** 2.48354	63.83	Pk	32.3	-24.5	0	71.63	-	-	74	-2.37	216	136	H
3	* ** 2.48351	39.55	ADV	32.3	-24.5	1.28	48.63	54	-5.37	-	-	216	136	H
4	* ** 2.48375	41.84	ADV	32.3	-24.5	1.28	50.92	54	-3.08	-	-	216	136	H

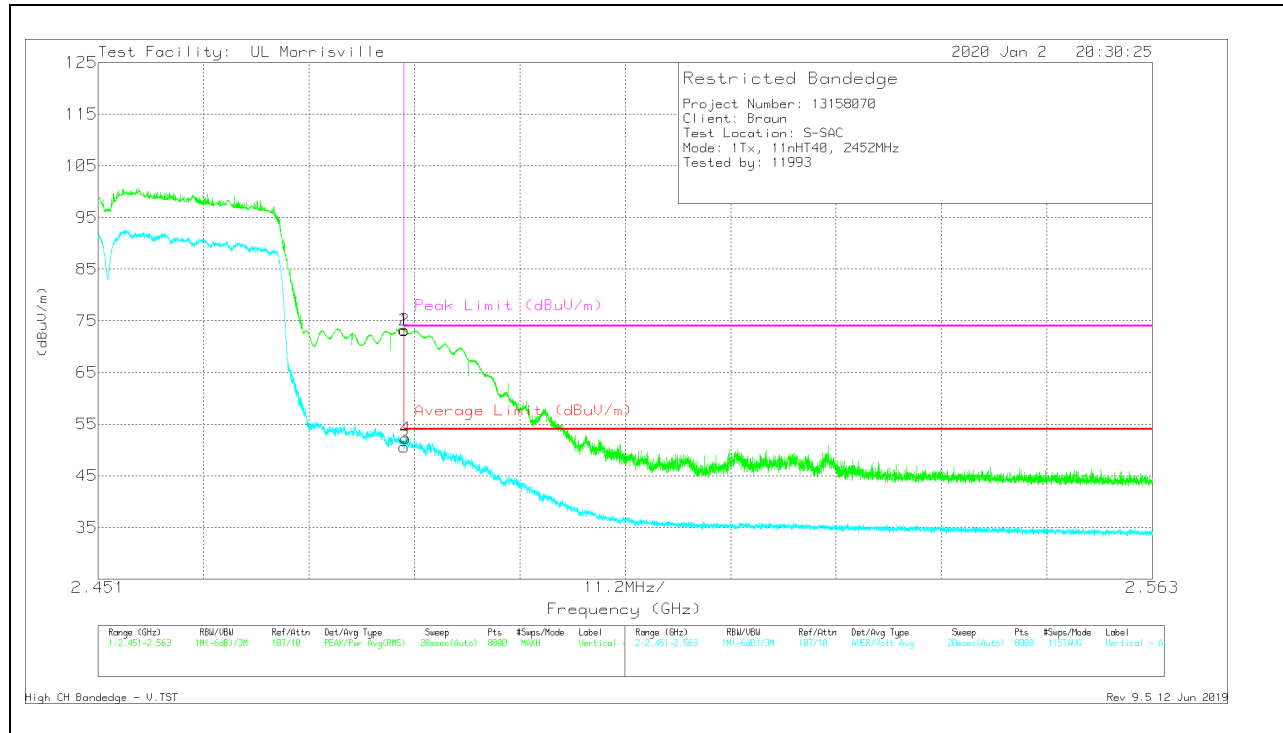
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48351	65.39	Pk	32.3	-24.5	0	73.19	-	-	74	-.81	199	140	V
2	* ** 2.48354	65.35	Pk	32.3	-24.5	0	73.15	-	-	74	-.85	199	140	V
3	* ** 2.48351	41.53	ADV	32.3	-24.5	1.28	50.61	54	-3.39	-	-	199	140	V
4	* ** 2.4837	43.18	ADV	32.3	-24.5	1.28	52.26	54	-1.74	-	-	199	140	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

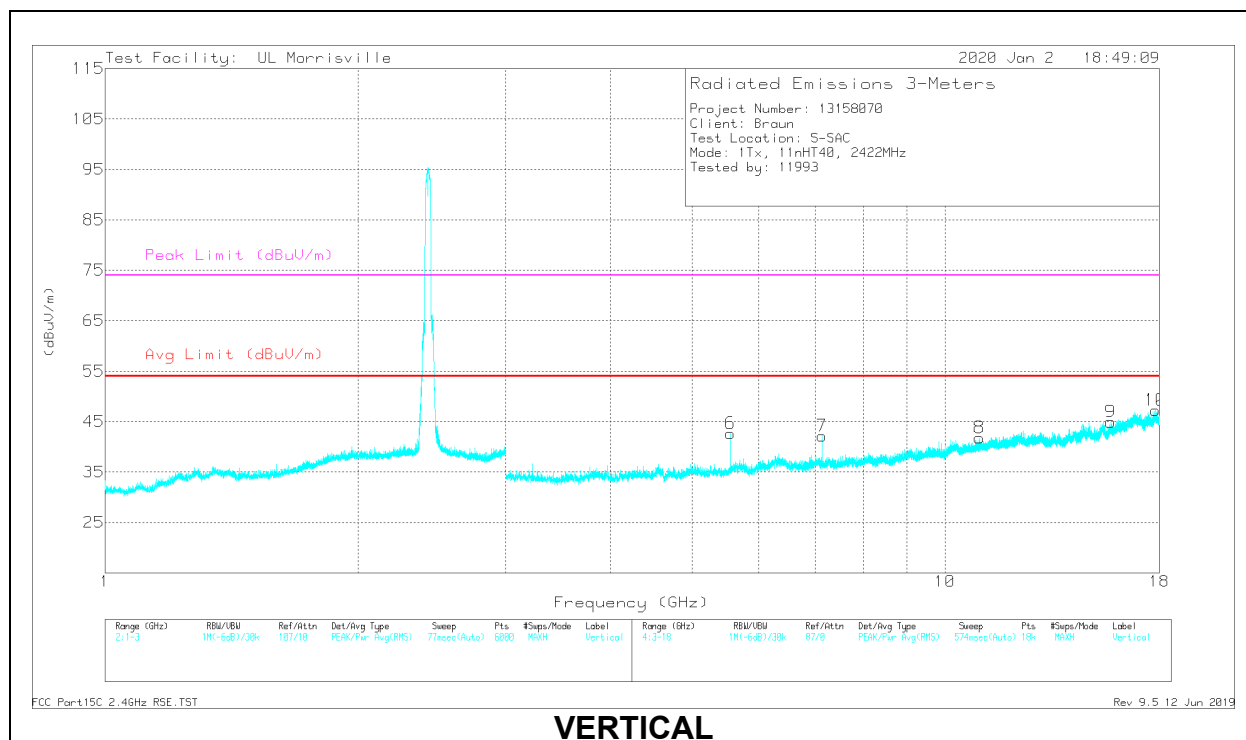
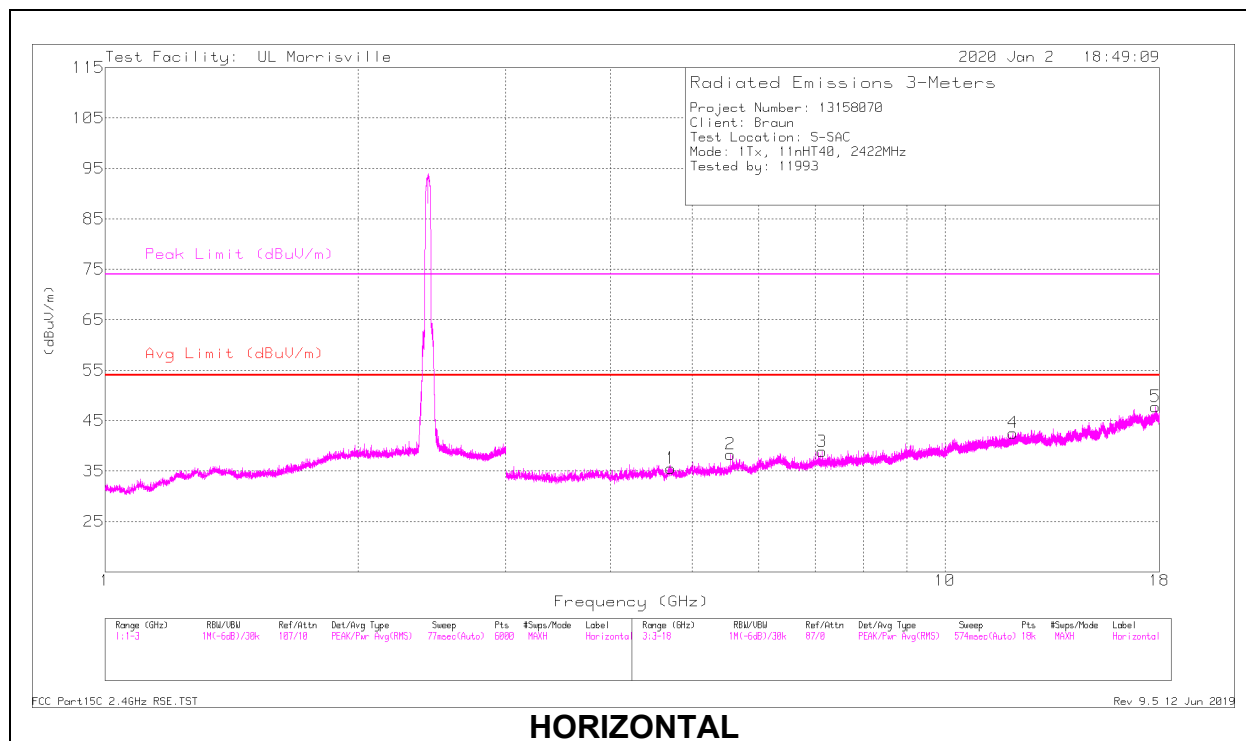
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 1 RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.72106	39.08	PK2	34	-31.5	0	41.58	-	-	74	-32.42	234	298	H
	* ** 4.71784	26.22	ADV	34	-31.5	1.28	30	54	-24	-	-	234	298	H
4	* ** 12.05404	33.19	PK2	38.7	-23.7	0	48.19	-	-	74	-25.81	285	276	H
	* ** 12.05343	20.74	ADV	38.7	-23.7	1.28	37.02	54	-16.98	-	-	285	276	H
5	* ** 17.80374	33.84	PK2	41.2	-20.9	0	54.14	-	-	74	-19.86	238	200	H
	* ** 17.80387	20.04	ADV	41.2	-20.9	1.28	41.62	54	-12.38	-	-	238	200	H
8	* ** 10.99058	33.79	PK2	37.9	-24.1	0	47.59	-	-	74	-26.41	198	139	V
	* ** 10.98827	21.22	ADV	37.9	-24.1	1.28	36.3	54	-17.7	-	-	198	139	V
9	* ** 15.74836	33.82	PK2	40.3	-22.2	0	51.92	-	-	74	-22.08	158	236	V
	* ** 15.74812	20.64	ADV	40.3	-22.2	1.28	40.02	54	-13.98	-	-	158	236	V
10	* ** 17.81047	32.68	PK2	41.2	-20.8	0	53.08	-	-	74	-20.92	4	117	V
	* ** 17.81292	20.25	ADV	41.2	-20.8	1.28	41.93	54	-12.07	-	-	4	117	V
2	5.55098	34.54	Pk	34.5	-30.7	0	38.34	-	-	-	-	0-360	101	H
6	5.55098	38.88	Pk	34.5	-30.7	0	42.68	-	-	-	-	0-360	101	V
3	7.1369	31.67	Pk	35.7	-28.5	0	38.87	-	-	-	-	0-360	101	H
7	7.1369	34.98	Pk	35.7	-28.5	0	42.18	-	-	-	-	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

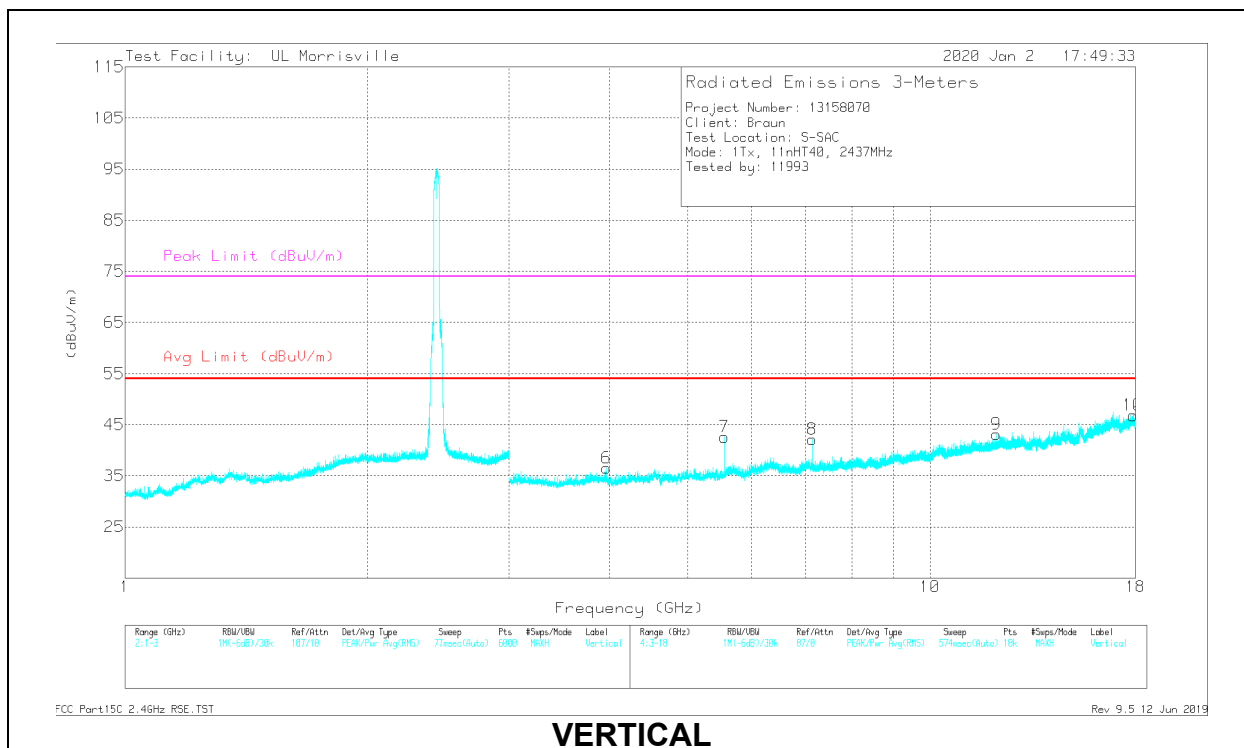
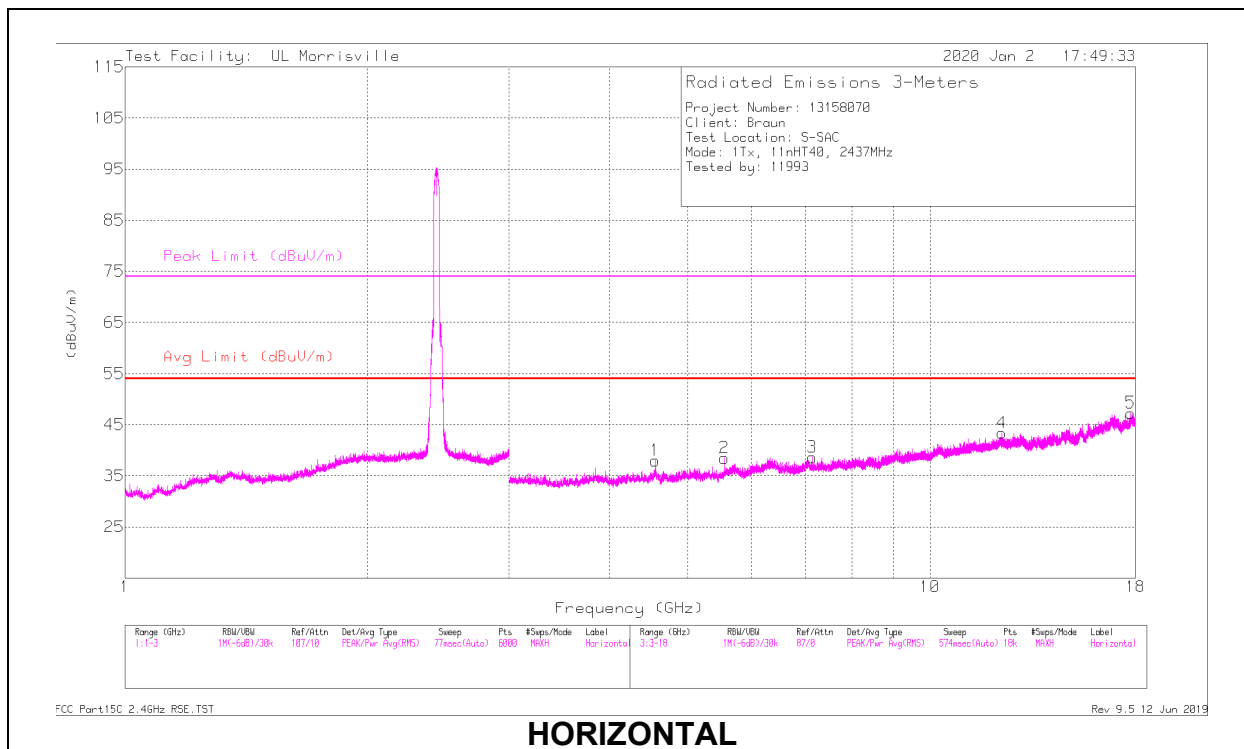
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

PK2 - Maximum Peak

ADV - Linear Voltage Average

Pk - Peak detector

MID CHANNEL, CH 6 RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 4.55786	40.28	PK2	34.1	-31.3	0	43.08	-	-	74	-30.92	329	186	H
	*** 4.55801	27.07	ADV	34.1	-31.3	1.28	31.15	54	-22.85	-	-	329	186	H
4	*** 12.27873	34.22	PK2	38.9	-23.7	0	49.42	-	-	74	-24.58	62	236	H
	*** 12.27888	21.25	ADV	38.9	-23.7	1.28	37.73	54	-16.27	-	-	62	236	H
5	*** 17.75261	34.06	PK2	41.3	-21.5	0	53.86	-	-	74	-20.14	180	261	H
	*** 17.75242	20.99	ADV	41.3	-21.5	1.28	42.07	54	-11.93	-	-	180	261	H
6	*** 3.96508	40.91	PK2	33.4	-31.5	0	42.81	-	-	74	-31.19	232	254	V
	*** 3.9651	30.68	ADV	33.4	-31.5	1.28	33.86	54	-20.14	-	-	232	254	V
9	*** 12.08585	34.18	PK2	38.8	-23.7	0	49.28	-	-	74	-24.72	167	242	V
	*** 12.08683	20.75	ADV	38.8	-23.7	1.28	37.13	54	-16.87	-	-	167	242	V
10	*** 17.87087	32.57	PK2	41.2	-20.6	0	53.17	-	-	74	-20.83	2	246	V
	*** 17.87038	20.3	ADV	41.2	-20.6	1.28	42.18	54	-11.82	-	-	2	246	V
2	5.55098	34.68	Pk	34.5	-30.7	0	38.48	-	-	-	-	0-360	101	H
7	5.55098	38.8	Pk	34.5	-30.7	0	42.6	-	-	-	-	0-360	101	V
3	7.1369	31.41	Pk	35.7	-28.5	0	38.61	-	-	-	-	0-360	101	H
8	7.1369	34.92	Pk	35.7	-28.5	0	42.12	-	-	-	-	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

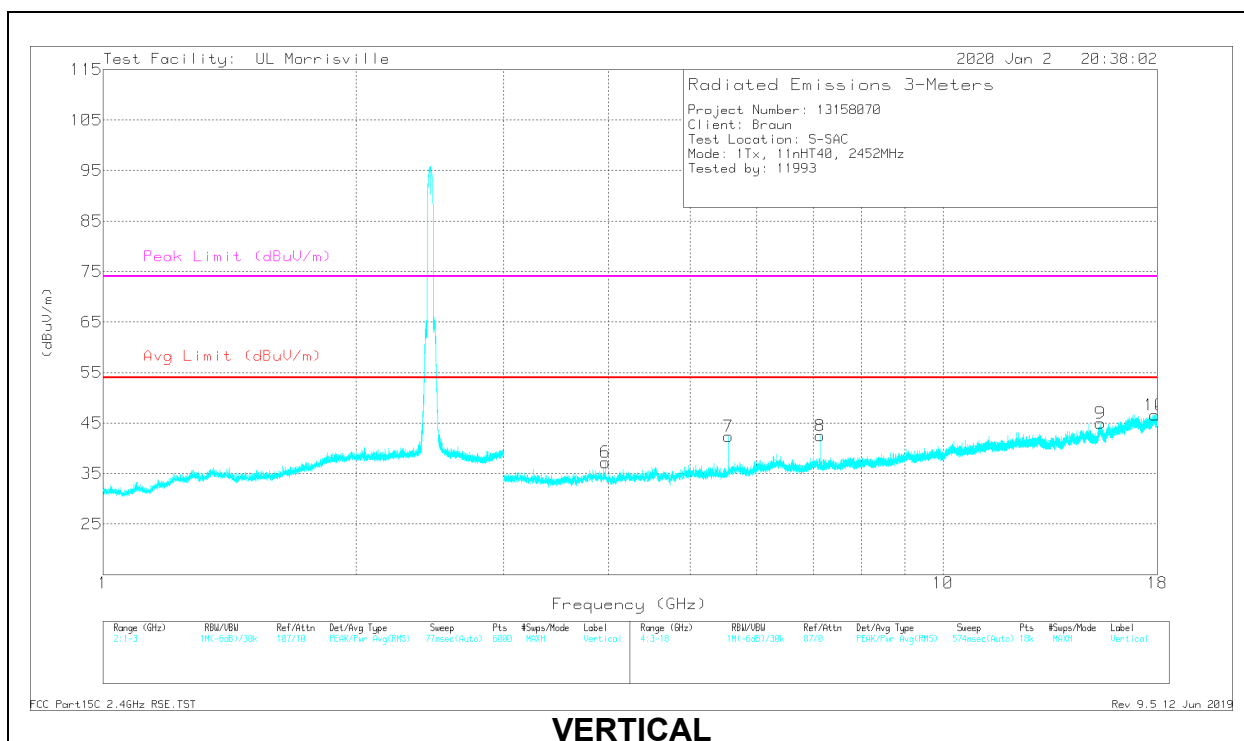
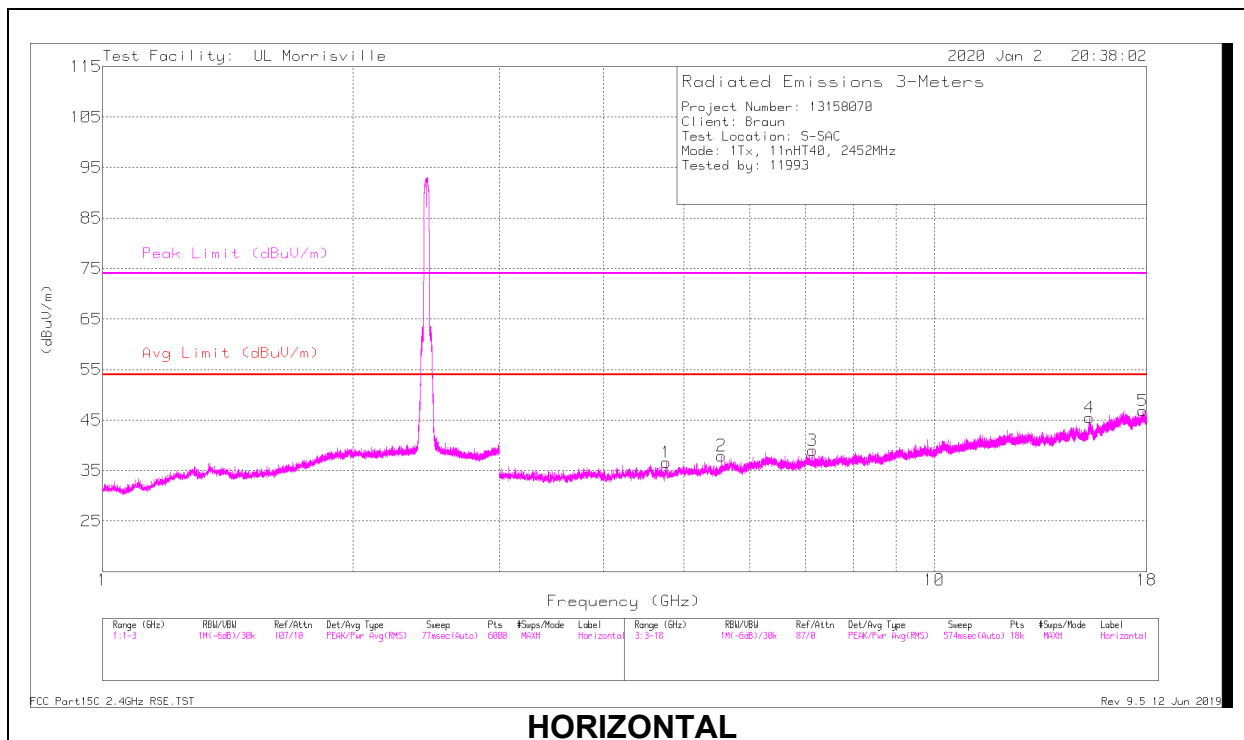
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

PK2 - Maximum Peak

ADV - Linear Voltage Average

Pk - Peak detector

HIGH CHANNEL, CH 11 RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 4.75788	39.41	PK2	34.1	-31.4	0	42.11	-	-	74	-31.89	28	104	H
	*** 4.75813	27.3	ADV	34.1	-31.4	1.28	31.28	54	-22.72	-	-	28	104	H
4	*** 15.35722	33.45	PK2	39.9	-22.2	0	51.15	-	-	74	-22.85	42	251	H
	*** 15.36056	20.88	ADV	39.9	-22.1	1.28	39.96	54	-14.04	-	-	42	251	H
5	*** 17.8078	33.17	PK2	41.2	-20.8	0	53.57	-	-	74	-20.43	17	188	H
	*** 17.80781	20.24	ADV	41.2	-20.8	1.28	41.92	54	-12.08	-	-	17	188	H
6	*** 3.96535	43.21	PK2	33.4	-31.5	0	45.11	-	-	74	-28.89	31	107	V
	*** 3.96492	30.5	ADV	33.4	-31.5	1.28	33.68	54	-20.32	-	-	31	107	V
9	*** 15.39857	32.3	PK2	39.9	-21.3	0	50.9	-	-	74	-23.1	351	243	V
	*** 15.39702	20.25	ADV	39.9	-21.3	1.28	40.13	54	-13.87	-	-	351	243	V
10	*** 17.88774	32.2	PK2	41.2	-20.7	0	52.7	-	-	74	-21.3	329	267	V
	*** 17.88552	20.01	ADV	41.2	-20.7	1.28	41.79	54	-12.21	-	-	329	267	V
2	5.55098	34.09	Pk	34.5	-30.7	0	37.89	-	-	-	-	0-360	101	H
7	5.55098	38.52	Pk	34.5	-30.7	0	42.32	-	-	-	-	0-360	101	V
3	7.13607	31.78	Pk	35.7	-28.5	0	38.98	-	-	-	-	0-360	101	H
8	7.1369	35.25	Pk	35.7	-28.5	0	42.45	-	-	-	-	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

PK2 - Maximum Peak

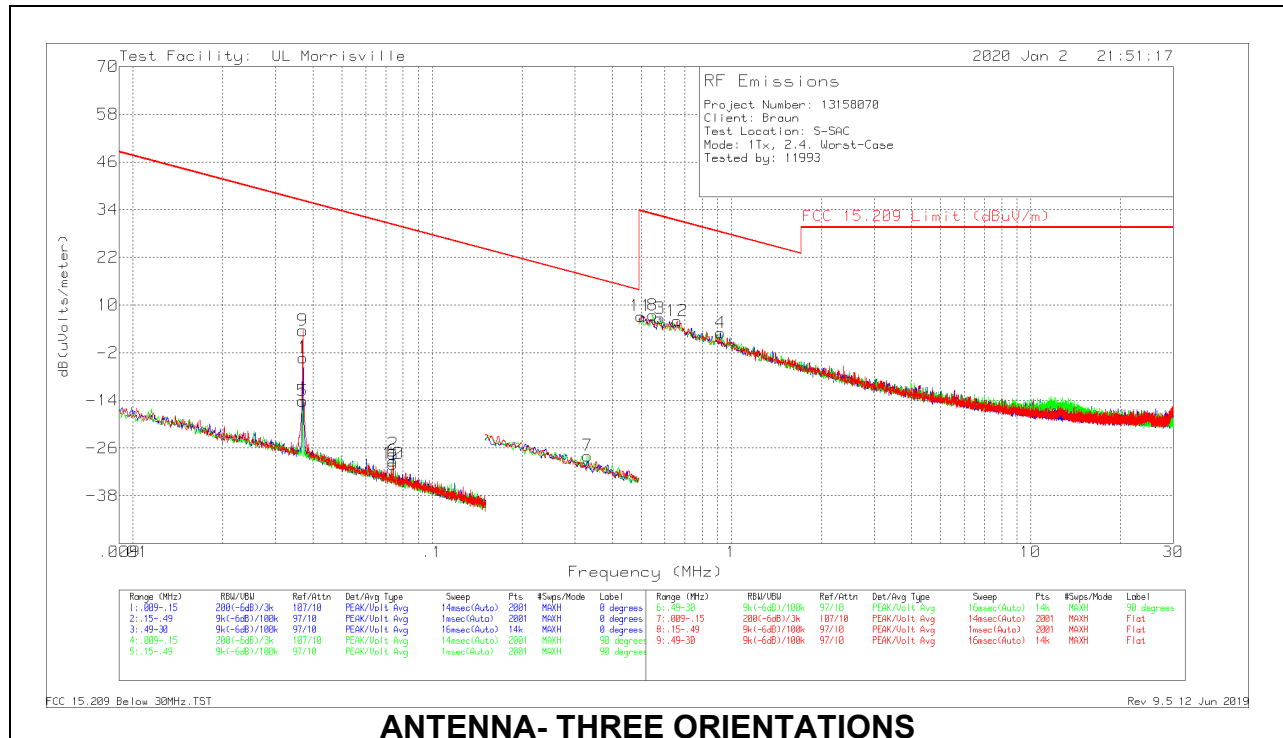
ADV - Linear Voltage Average

Pk - Peak detector

9.2. WORST CASE BELOW 30MHZ

Note: All measurements were made at a test distance of 3 m. The measured data was extrapolated from the test distance (3m) to the specification distance (300 m from 9-490 kHz and 30 m from 490 kHz – 30 MHz) to clearly show the relative levels of fundamental and spurious emissions and demonstrate compliance with the requirement that the level of any spurious emissions be below the level of the intentionally transmitted signal. The extrapolation factor for the limits were $40 \cdot \log(\text{test distance} / \text{specification distance})$.

SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)



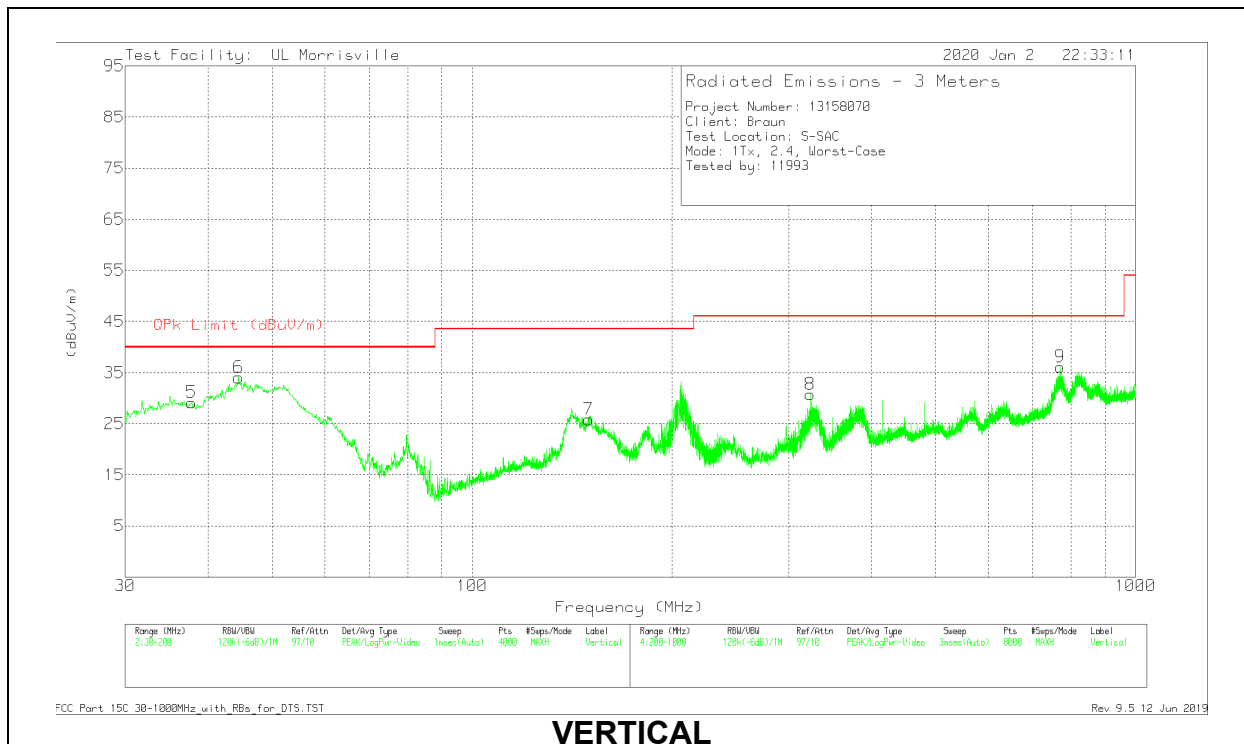
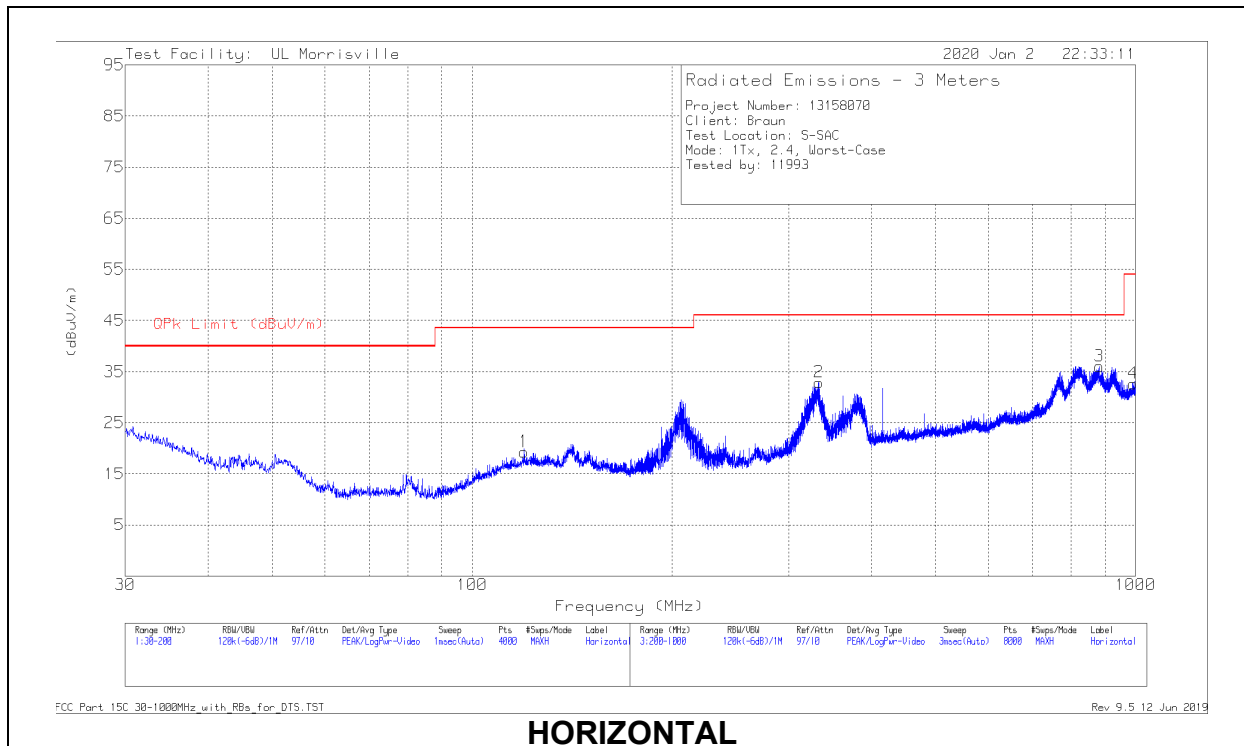
ANTENNA- THREE ORIENTATIONS

Below 30MHz Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 AF (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uV/m)	FCC 15.209 QP/AV Limit (dBuV/m)	FCC 15.209 PK Limit (dBuV/m)	Worst-Case Margin (dB)	Antenna Face
5	.03697	53.17	Pk	12.6	.1	-80	-14.13	36.25	56.25	-50.38	Off
9	.03697	70.91	Pk	12.6	.1	-80	3.61	36.25	56.25	-32.64	Flat
1	.03701	64.04	Pk	12.6	.1	-80	-3.26	36.24	56.24	-39.5	On
6	.07404	39.47	Pk	11.2	.1	-80	-29.23	30.22	50.22	-59.45	Off
10	.07404	38.72	Pk	11.2	.1	-80	-29.98	30.22	50.24	-60.2	Flat
2	.07411	41.21	Pk	11.2	.1	-80	-27.49	30.21	50.21	-57.7	On
7	.33046	40.98	Pk	11	.1	-80	-27.92	17.22	47.22	-45.14	Off
11	.49843	36.11	Pk	11	.1	-40	7.21	33.65	-	-26.44	Flat
8	.54586	36.33	Pk	11	.1	-40	7.43	32.86	-	-25.43	Off
3	.57748	35.56	Pk	11	.1	-40	6.66	32.37	-	-25.71	On
12	.65864	34.9	Pk	11	.1	-40	6	31.23	-	-25.23	Flat
4	.92003	31.9	Pk	11	.1	-40	3	28.33	-	-25.33	On

Pk - Peak detector

9.3. WORST CASE BELOW 1 GHZ



Below 1GHz DATA

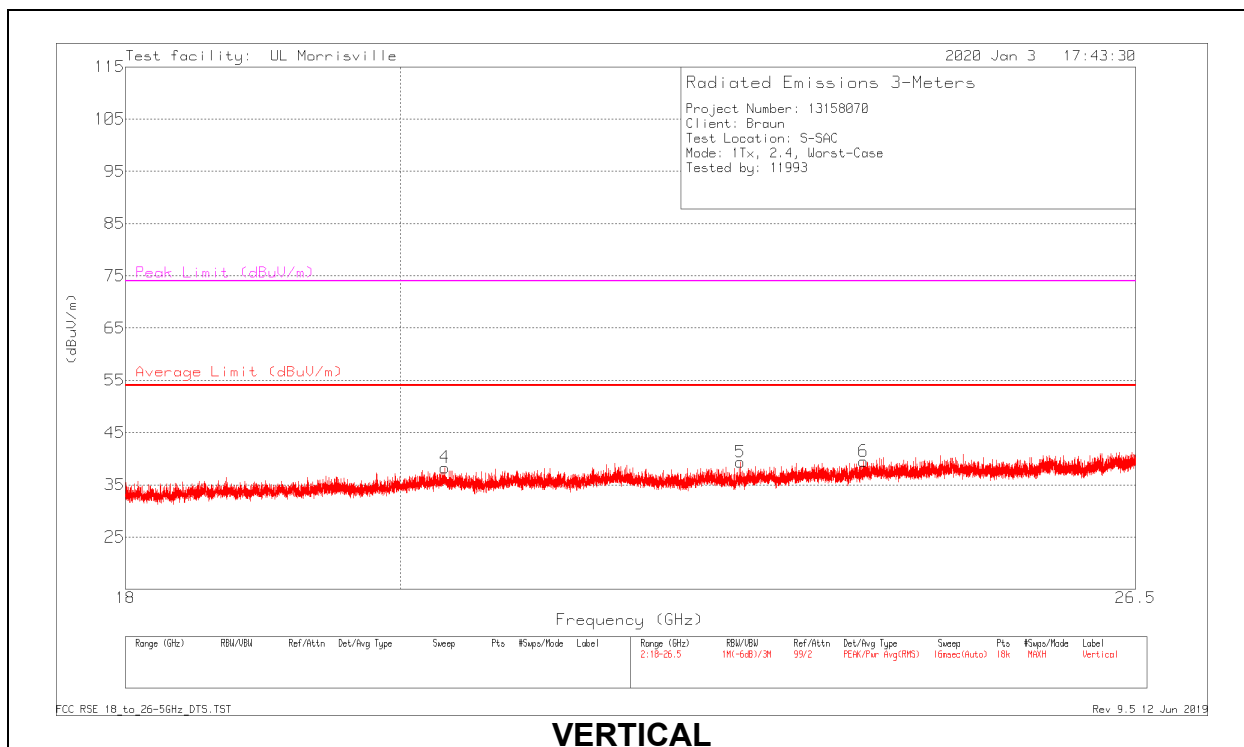
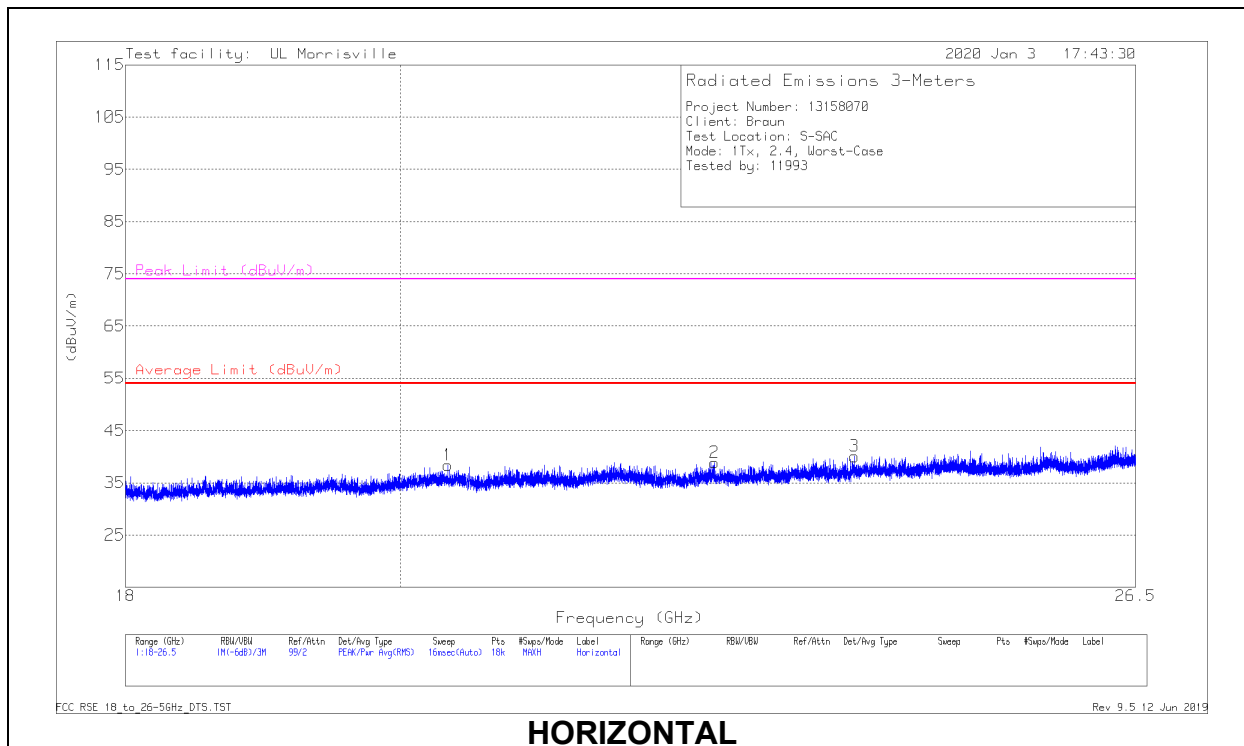
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0074 AF (dB/m)	Cbl/Amp	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 119.7407	30.29	Pk	19.9	-30.9	19.29	43.52	-24.23	0-360	399	H
5	* ** 37.7795	39.26	Pk	21.6	-31.7	29.16	40	-10.84	0-360	102	V
7	* ** 149.9023	37.82	Pk	18.6	-30.6	25.82	43.52	-17.7	0-360	102	V
2	* ** 333.3173	42.4	Pk	20	-29.5	32.9	46.02	-13.12	0-360	102	H
3	** 881.9886	35.03	Pk	28.2	-27.2	36.03	46.02	-9.99	0-360	102	H
4	* ** 991.4029	29.26	Pk	29.3	-25.9	32.66	53.97	-21.31	0-360	102	H
8	* ** 323.416	40.14	Pk	20	-29.4	30.74	46.02	-15.28	0-360	199	V
9	** 770.4742	37.21	Pk	27.1	-28.2	36.11	46.02	-9.91	0-360	102	V
6	44.4537	48.94	Pk	16.7	-31.6	34.04	40	-5.96	0-360	102	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

9.4. WORST CASE 18-26 GHZ



18 – 26GHz DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0076 AF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 20.36502	39.77	Pk	33.1	-34.5	38.37	54	-15.63	74	-35.63	0-360	298	H
2	* ** 22.55342	39.76	Pk	33.5	-34.4	38.86	54	-15.14	74	-35.14	0-360	198	H
3	* ** 23.79684	39.65	Pk	34	-33.6	40.05	54	-13.95	74	-33.95	0-360	198	H
4	* ** 20.34235	39.71	Pk	33.1	-34.5	38.31	54	-15.69	74	-35.69	0-360	252	V
5	* ** 22.77679	39.83	Pk	33.6	-34.1	39.33	54	-14.67	74	-34.67	0-360	152	V
6	* ** 23.88043	38.99	Pk	34.1	-33.6	39.49	54	-14.51	74	-34.51	0-360	298	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

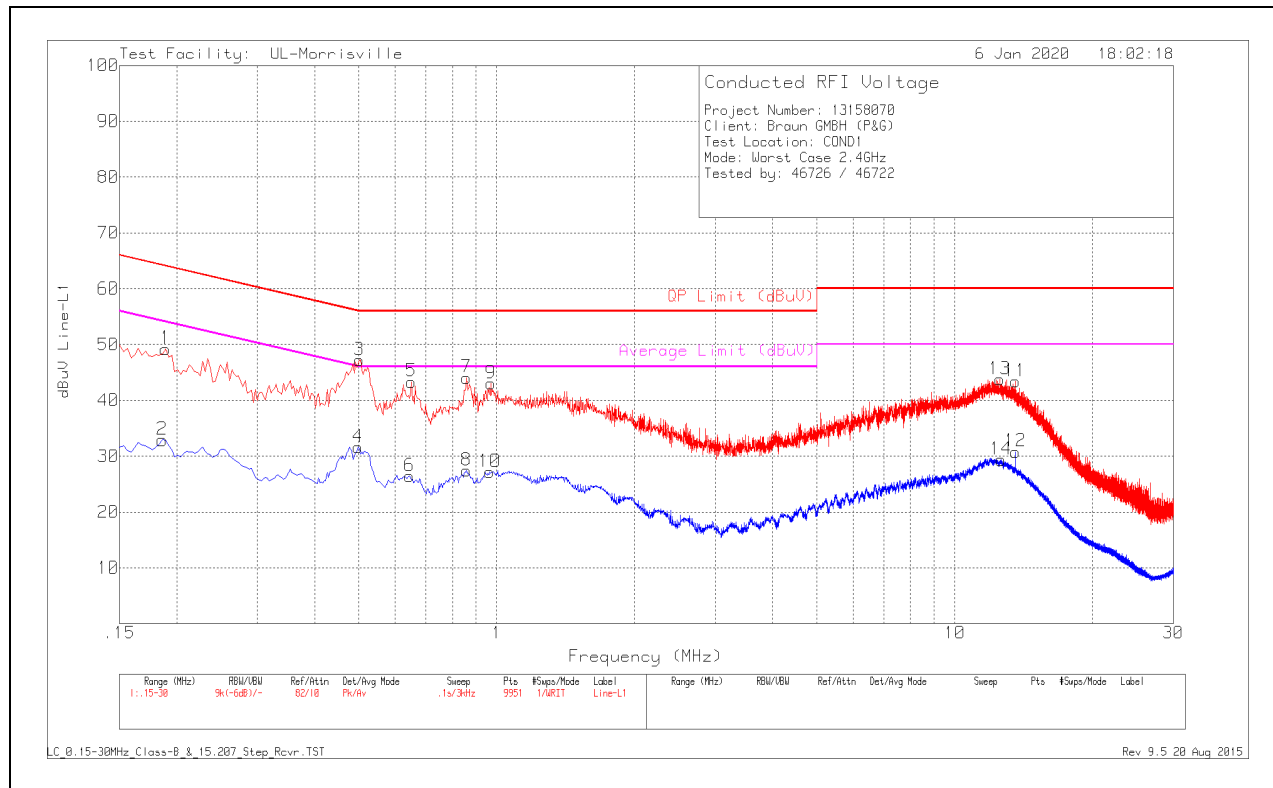
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

10.1.1. AC Power Line Norm

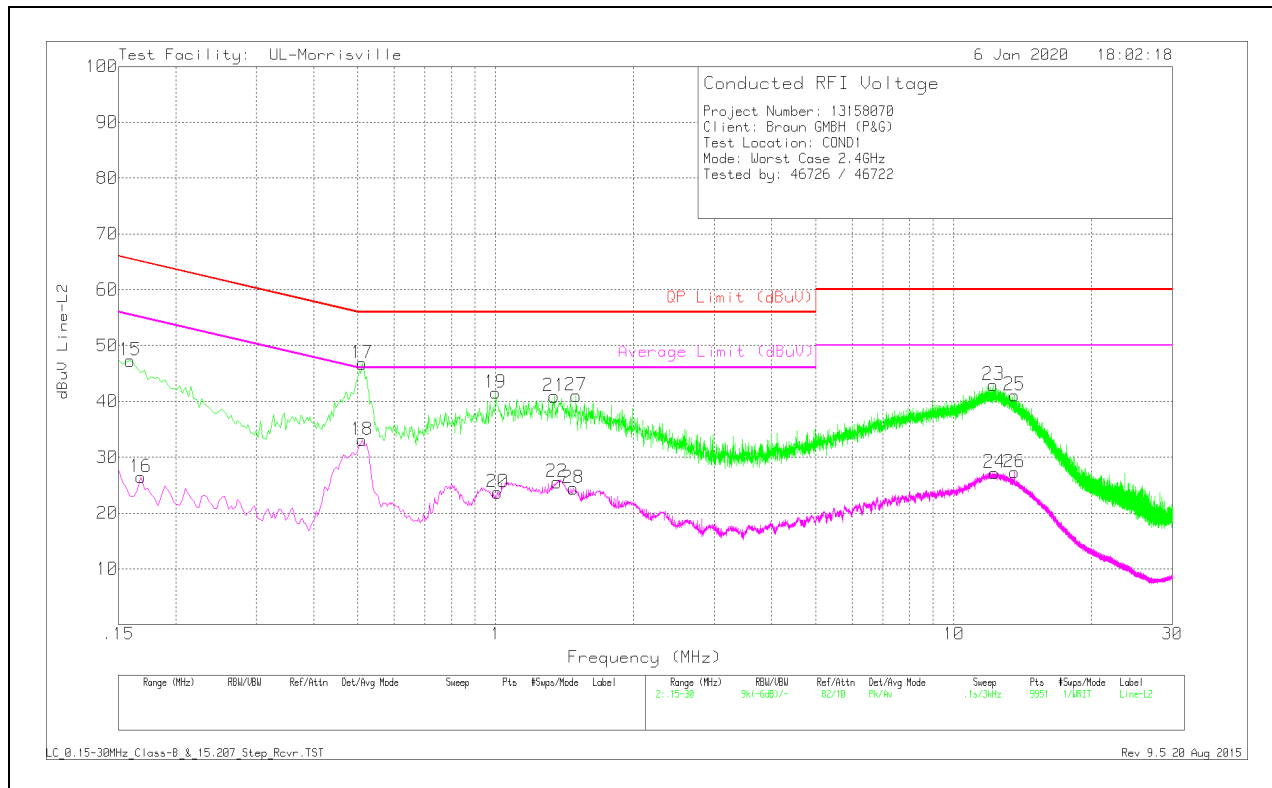
LINE 1 RESULTS



Range 1: Line-L1 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
1	.189	39.04	Pk	.2	10	49.24	64.08	-14.84	-	-
2	.186	22.71	Av	.2	10	32.91	-	-	54.21	-21.3
3	.501	37.13	Pk	.1	10	47.23	56	-8.77	-	-
4	.498	21.5	Av	.1	10	31.6	-	-	46.03	-14.43
5	.651	33.25	Pk	.1	10	43.35	56	-12.65	-	-
6	.645	16.32	Av	.1	10	26.42	-	-	46	-19.58
7	.858	34.09	Pk	0	10	44.09	56	-11.91	-	-
8	.858	17.43	Av	0	10	27.43	-	-	46	-18.57
9	.972	33.02	Pk	0	10	43.02	56	-12.98	-	-
10	.966	17.19	Av	0	10	27.19	-	-	46	-18.81
11	13.56	32.91	Pk	.1	10.4	43.41	60	-16.59	-	-
12	13.56	20.31	Av	.1	10.4	30.81	-	-	50	-19.19
13	12.543	33.27	Pk	.1	10.4	43.77	60	-16.23	-	-
14	12.618	18.85	Av	.1	10.4	29.35	-	-	50	-20.65

Pk - Peak Detector
Av - Average Detector

LINE 2 RESULTS



Range 2: Line-L2 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
15	.159	37.09	Pk	.2	10	47.29	65.52	-18.23	-	-
16	.168	16.21	Av	.2	10	26.41	-	-	55.06	-28.65
17	.51	36.81	Pk	0	10	46.81	56	-9.19	-	-
18	.51	23.06	Av	0	10	33.06	-	-	46	-12.94
19	.999	31.55	Pk	0	10	41.55	56	-14.45	-	-
20	1.0095	13.7	Av	0	10	23.7	-	-	46	-22.3
21	1.341	30.81	Pk	0	10.1	40.91	56	-15.09	-	-
22	1.359	15.44	Av	0	10.1	25.54	-	-	46	-20.46
23	12.201	32.45	Pk	.1	10.4	42.95	60	-17.05	-	-
24	12.258	16.73	Av	.1	10.4	27.23	-	-	50	-22.77
25	13.56	30.61	Pk	.1	10.4	41.11	60	-18.89	-	-
26	13.56	16.83	Av	.1	10.4	27.33	-	-	50	-22.67
27	1.497	30.92	Pk	0	10.1	41.02	56	-14.98	-	-
28	1.476	14.33	Av	0	10.1	24.43	-	-	46	-21.57

Pk - Peak Detector
Av - Average Detector

11. SETUP PHOTOS

Please refer to R13158070-EP2 for setup diagrams

END OF TEST REPORT