



SIMULTANEOUS TRANSMISSION TEST REPORT

Report Number: R13158070-E7

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 SUBPARTS C and E

Date Of Issue:
2020-03-20

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

REPORT REVISION HISTORY

Ver.	Issue Date	Revisions	Revised By
--	2020-03-20	--	--

TABLE OF CONTENTS

REPORT REVISION HISTORY	2
TABLE OF CONTENTS	3
1. ATTESTATION OF TEST RESULTS	4
2. TEST METHODOLOGY	5
3. FACILITIES AND ACCREDITATION	5
4. CALIBRATION AND UNCERTAINTY	6
4.60. MEASURING INSTRUMENT CALIBRATION.....	6
4.61. SAMPLE CALCULATION.....	6
4.62. MEASUREMENT UNCERTAINTY	6
5. EQUIPMENT UNDER TEST	7
5.1. EUT DESCRIPTION	7
5.2. MAXIMUM OUTPUT POWER.....	7
5.3. DESCRIPTION OF AVAILABLE ANTENNAS	7
5.4. SOFTWARE AND FIRMWARE.....	7
5.5. SIMULTANEOUS TRANSMISSION CONFIGURATIONS.....	7
5.6. DESCRIPTION OF TEST SETUP.....	8
6. TEST AND MEASUREMENT EQUIPMENT	9
7. MEASUREMENT METHOD.....	10
8. SIMULTANEOUS TRANSMISSION RESULTS.....	11
8.1 ON TIME AND DUTY CYCLE.....	11
8.1.2 On Time and Duty Cycle Results for 2.4GHz WLAN	11
8.2. RADIATED TEST RESULTS	12
8.2.1 BT GFSK DH3 2441MHz and 2.4GHz WLAN 802.11b 2437 MHz	13
8.2.2 BT GFSK DH3 2480MHz and 2.4GHz WLAN 802.11n HT20 2462MHz.....	15
8.2.2 BT GFSK DH3 2402MHz and 2.4GHz WLAN 802.11n HT40 2422MHz.....	17
8.2.2 BT GFSK DH3 2480MHz and 2.4GHz WLAN 802.11n HT40 2452MHz.....	19
8.2.3 BT GFSK DH3 2480MHz and 5GHz UNII 802.11a 5785MHz	21
9. SETUP PHOTOS.....	23
END OF TEST REPORT	23

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: 2020-01-14 to 2020-01-17

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subparts C and E	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:



Jeffrey Moser
Operations Leader
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, FCC 14-30, FCC KDB 789033 D02 v02r01, ANSI C63.10-2013, FCC 06-96.

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 27590, 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

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

4. CALIBRATION AND UNCERTAINTY

4.60. 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.

4.61. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

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

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

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

4.62. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
All emissions, conducted	3.65 dB
All emissions, radiated	5.17 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 simultaneous transmission function of the device.

5.2. MAXIMUM OUTPUT POWER

Please refer to the following reports for output power values:

- R13158070-E4 BT REPORT
- R13158070-E5 2.4 WLAN REPORT
- R13158070-E6 UNII REPORT

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPC antenna, with a maximum gain of 2.66 dBi in the 2.4GHz band and 5.77dBi in the 5GHz bands.

5.4. SOFTWARE AND FIRMWARE

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

5.5 SIMULTANEOUS TRANSMISSION CONFIGURATIONS

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

EUT transmits simultaneously in Bluetooth/2.4GHz WLAN modes and Bluetooth/5GHz UNII modes. Therefore, the modes selected for testing were:

BT GFSK 2441MHz and WLAN 802.11b 2437MHz Spurious
BT GFSK 2480MHz and WLAN 802.11nHT20 2462MHz Bandedge
BT GFSK 2402MHz and WLAN 802.11nHT40 2422MHz Bandedge
BT GFSK 2480MHz and WLAN 802.11nHT40 2452MHz Bandedge
BT GFSK 2480MHz and WLAN 802.11a 5785MHz Spurious

No other radios transmit simultaneously per the manufacturer. Device remains compliant.

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. 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	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.
1-18 GHz					
AT0072	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2019-04-22	2020-04-22
Gain-Loss Chains					
S-SAC03	Gain-loss string: 1-18GHz	Various	Various	2019-03-13	2020-03-13
Receiver & Software					
SA0025	Spectrum Analyzer	Agilent	N9030A	2019-02-28	2020-02-28
SOFTEMI	EMI Software	UL	Version 9.5 June 15, 2019	NA	NA
Additional Equipment used					
s/n 181474409	Environmental Meter	Fisher Scientific	15-077-963	2018-07-27	2020-07-27
HPF010	3GHz high-pass filter, 2W, Fhigh = 18GHz	Micro-Tronics	HPM17543	2019-03-08	2020-03-08

NOTES:

1. For equipment listed above that was calibrated during the testing period, please note the equipment was used for testing after calibration.
2. For equipment listed above that has a calibration due date during the testing period, the testing was completed before the equipment expiration date.

7. MEASUREMENT METHOD

On Time and Duty Cycle: ANSI C63.10-2013 Sections 11.6 and 12.2.

Unwanted emissions in restricted bands: KDB 789033 D02 v02r01, Section II G.1, G.3, G.5 and G.6.

Unwanted emissions in non-restricted bands: KDB 789033 D02 v02r01, Section II G.2, G.3 and G.5.

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

8. SIMULTANEOUS TRANSMISSION RESULTS

8.1 ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

ANSI C63.10 Zero-Span Spectrum Analyzer Method.

8.1.2 On Time and Duty Cycle Results for 2.4GHz WLAN

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	1/B Minimum VBW (kHz)
2.4GHz Band					
BT GFSK	1.63	2.50	0.651	65.07%	0.615
802.11b	8.385	8.480	0.989	98.88%	0.010
802.11n HT20 1TX	1.295	1.390	0.932	93.17%	0.772
802.11n HT40 1TX	0.645	0.747	0.863	86.35%	1.550
5GHz Band					
802.11a	1.386	1.492	0.929	92.90%	0.722

8.2. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209 – Restricted bands

FCC §15.407(b)(1-4) – Unrestricted bands

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

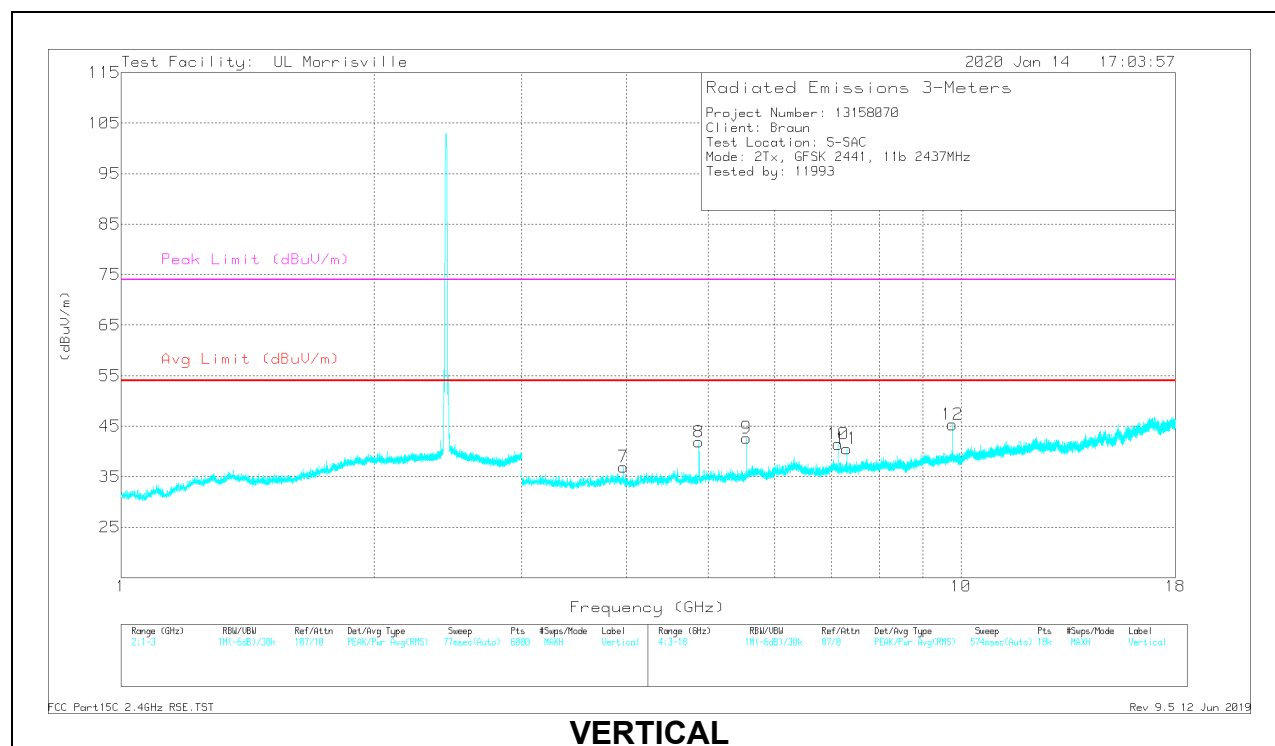
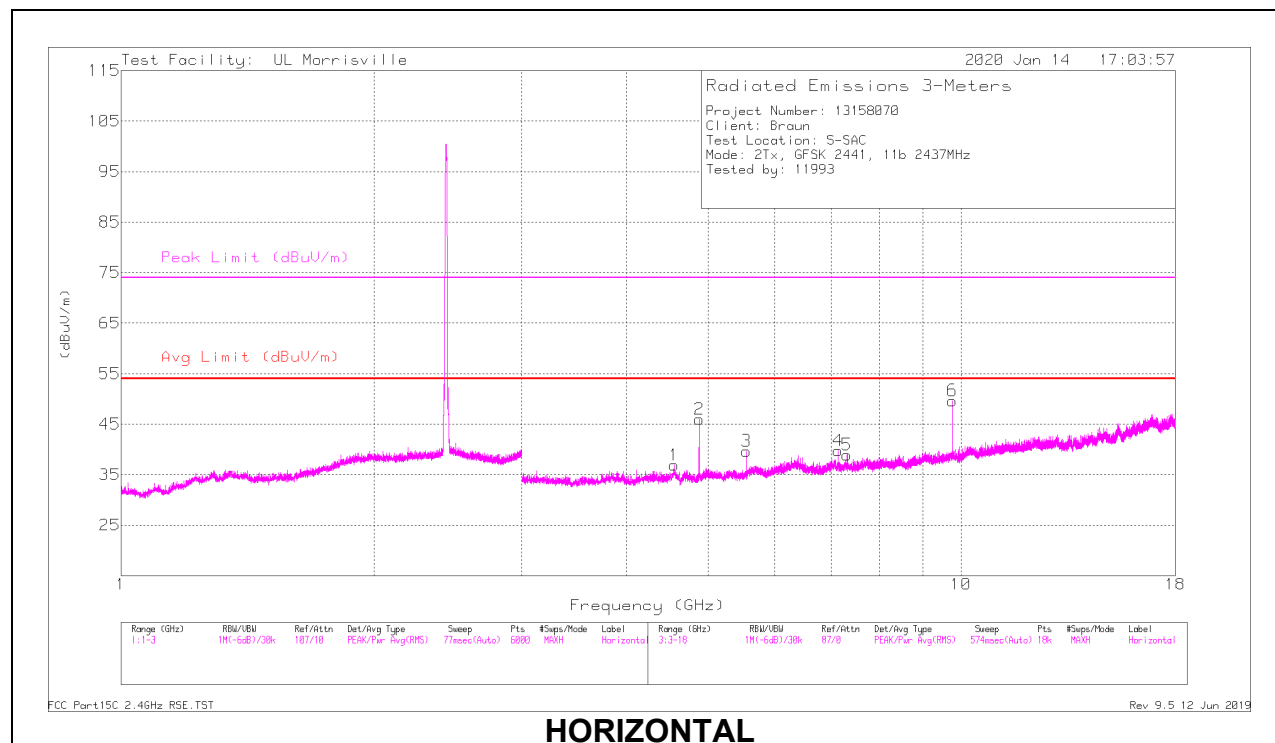
Final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and 1/T with a peak detector for average measurements where T = the on time.

The spectrum below 1 to 18GHz is investigated with the transmitter set to the modes and channels as described in Section 5.5.

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.

8.2.1 BT GFSK DH3 2441MHz and 2.4GHz WLAN 802.11b 2437 MHz

HARMONICS AND SPURIOUS EMISSIONS



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/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	* ** 4.55723	39.81	PK-U	34.1	-31.3	42.61	-	-	74	-31.39	84	141	H
	* ** 4.55625	27.61	V1TV	34.1	-31.3	30.41	54	-23.59	-	-	84	141	H
2	* ** 4.88198	46.15	PK-U	34	-30.6	49.55	-	-	74	-24.45	72	118	H
	* ** 4.88197	38.44	V1TV	34	-30.6	41.84	54	-12.16	-	-	72	118	H
5	* ** 7.31026	37.2	PK-U	35.7	-27.5	45.4	-	-	74	-28.6	160	191	H
	* ** 7.31029	28.2	V1TV	35.7	-27.5	36.4	54	-17.6	-	-	160	191	H
7	* ** 3.96508	43.1	PK-U	33.4	-31.5	45	-	-	74	-29	50	101	V
	* ** 3.96504	32.4	V1TV	33.4	-31.5	34.3	54	-19.7	-	-	50	101	V
8	* ** 4.87408	43	PK-U	34	-30.7	46.3	-	-	74	-27.7	48	122	V
	* ** 4.87406	37.27	V1TV	34	-30.7	40.57	54	-13.43	-	-	48	122	V
11	* ** 7.31062	38.91	PK-U	35.7	-27.5	47.11	-	-	74	-26.89	202	169	V
	* ** 7.31019	29.53	V1TV	35.7	-27.5	37.73	54	-16.27	-	-	202	169	V
3	5.55098	35.86	Pk	34.5	-30.7	39.66	-	-	-	-	0-360	101	H
9	5.55098	38.84	Pk	34.5	-30.7	42.64	-	-	-	-	0-360	101	V
4	7.1369	32.54	Pk	35.7	-28.5	39.74	-	-	-	-	0-360	101	H
10	7.1369	34.26	Pk	35.7	-28.5	41.46	-	-	-	-	0-360	101	V
6	9.76371	38.15	Pk	37.1	-25.6	49.65	-	-	-	-	0-360	101	H
12	9.76371	33.83	Pk	37.1	-25.6	45.33	-	-	-	-	0-360	101	V

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

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

PK-U - Maximum Peak

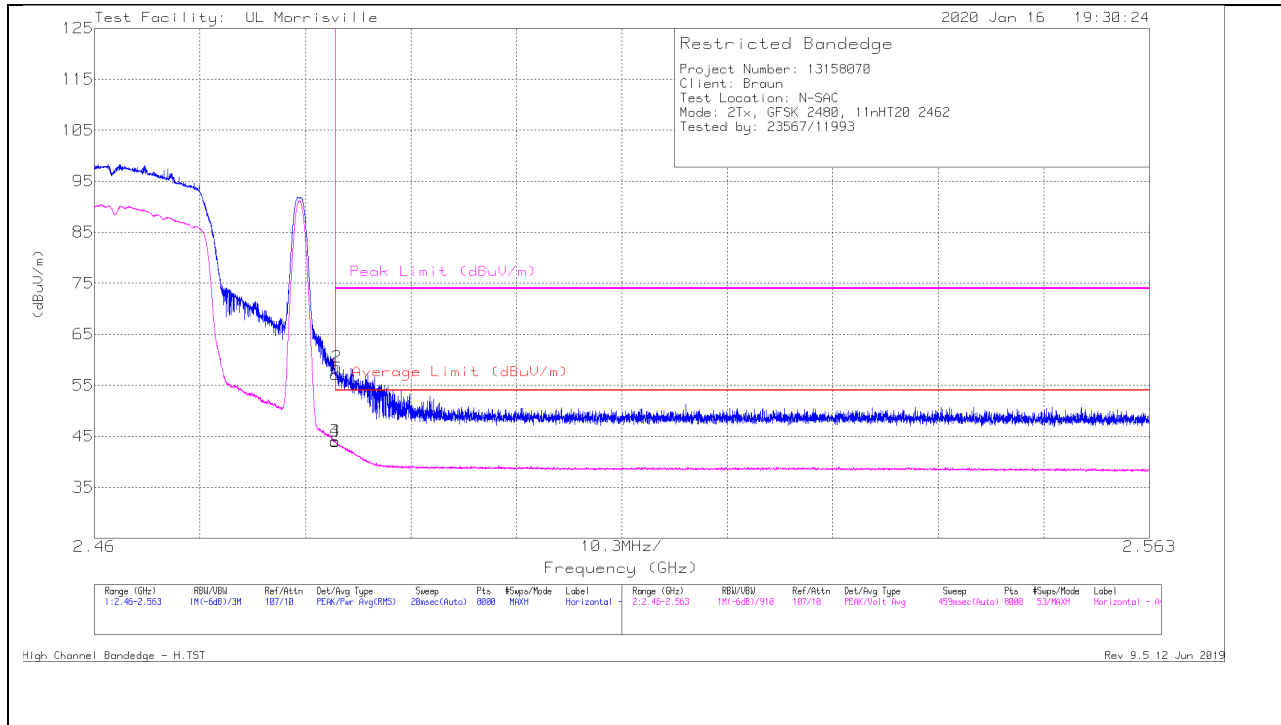
V1TV - VBW $\geq 1/\text{Ton}$, Linear Voltage Average where: Ton is Ton is worst-case on time between BT GFSK and 802.11b WLAN.

Pk - Peak detector

8.2.2 BT GFSK DH3 2480MHz and 2.4GHz WLAN 802.11n HT20 2462MHz

BANDEDGE

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	49.04	Pk	32.4	-24.3	57.14	-	-	74	-16.86	107	290	H
2	* ** 2.48368	50.49	Pk	32.4	-24.3	58.59	-	-	74	-15.41	107	290	H
3	* ** 2.4835	35.91	V1TV	32.4	-24.3	44.01	54	-9.99	-	-	107	290	H
4	* ** 2.48351	35.94	V1TV	32.4	-24.3	44.04	54	-9.96	-	-	107	290	H

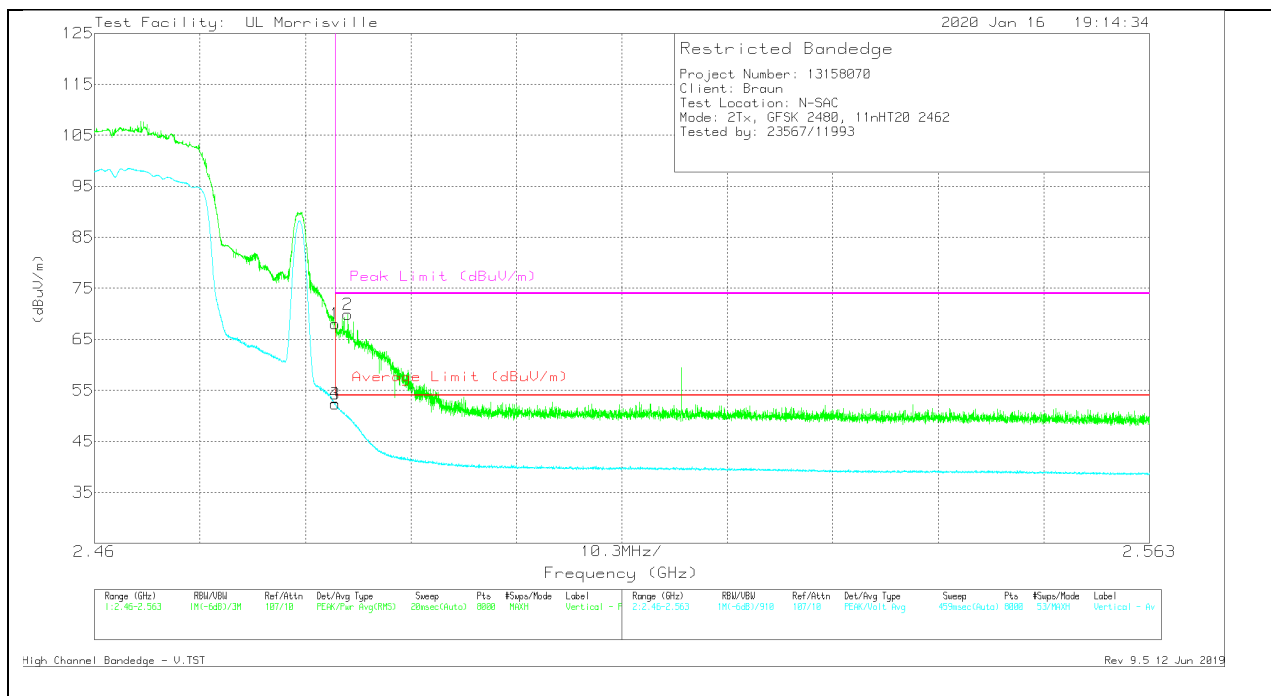
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

V1TV – VBW ≥1/Ton, Linear Voltage Average where: Ton is packet where Ton is worst-case on time between BT GFSK and 802.11nHT20 2.4GHz WLAN.

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	59.97	Pk	32.4	-24.3	68.07	-	-	74	-5.93	112	188	V
2	* ** 2.48475	61.77	Pk	32.4	-24.3	69.87	-	-	74	-4.13	112	188	V
3	* ** 2.4835	44.24	V1TV	32.4	-24.3	52.34	54	-1.66	-	-	112	188	V
4	* ** 2.48351	44.28	V1TV	32.4	-24.3	52.38	54	-1.62	-	-	112	188	V

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

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

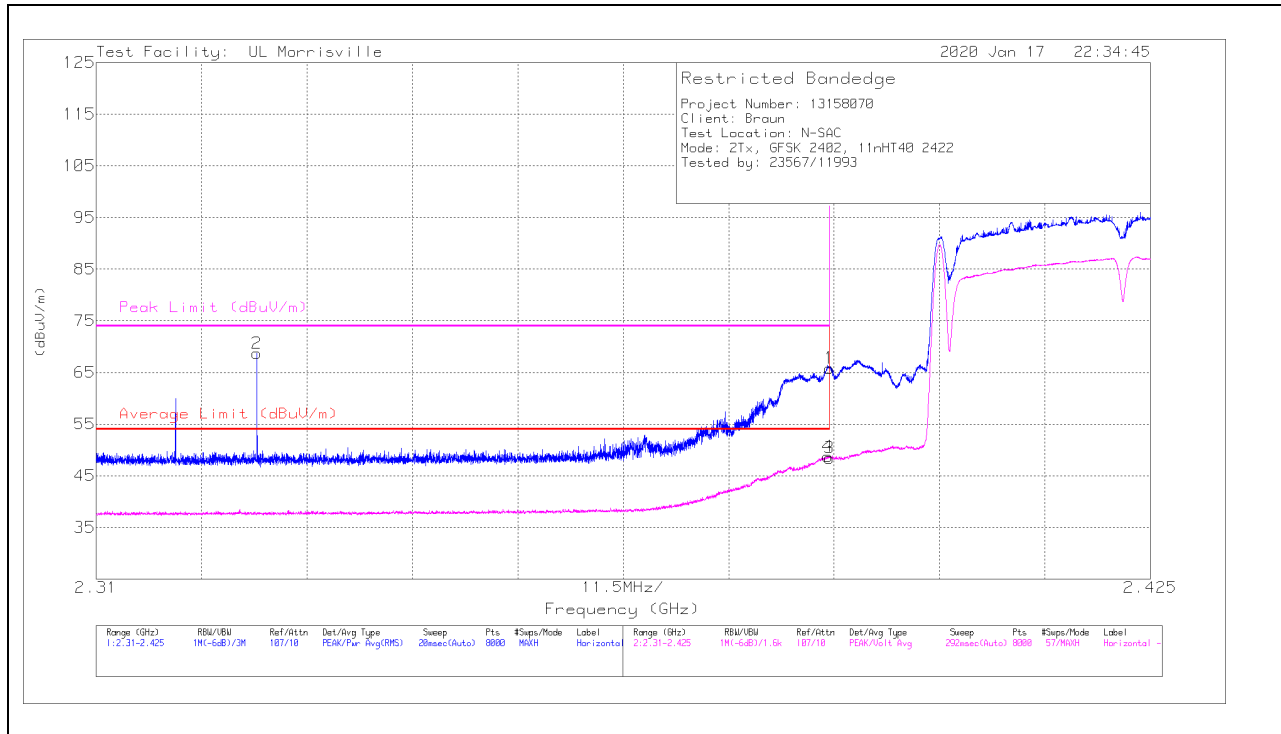
Pk - Peak detector

V1TV – VBW $\geq 1/T_{on}$, Linear Voltage Average where: T_{on} is packet where T_{on} is worst-case on time between BT GFSK and 802.11nHT20 2.4GHz WLAN.

8.2.2 BT GFSK DH3 2402MHz and 2.4GHz WLAN 802.11n HT40 2422MHz

BADEGE

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	* ** 2.38999	58.31	Pk	32	-24.5	65.81	-	-	74	-8.19	297	236	H
2	* ** 2.32754	61.58	Pk	31.7	-24.6	68.68	-	-	74	-5.32	297	236	H
3	* ** 2.38999	40.94	V1TV	32	-24.5	48.44	54	-5.56	-	-	297	236	H
4	* ** 2.38982	41.23	V1TV	32	-24.5	48.73	54	-5.27	-	-	297	236	H

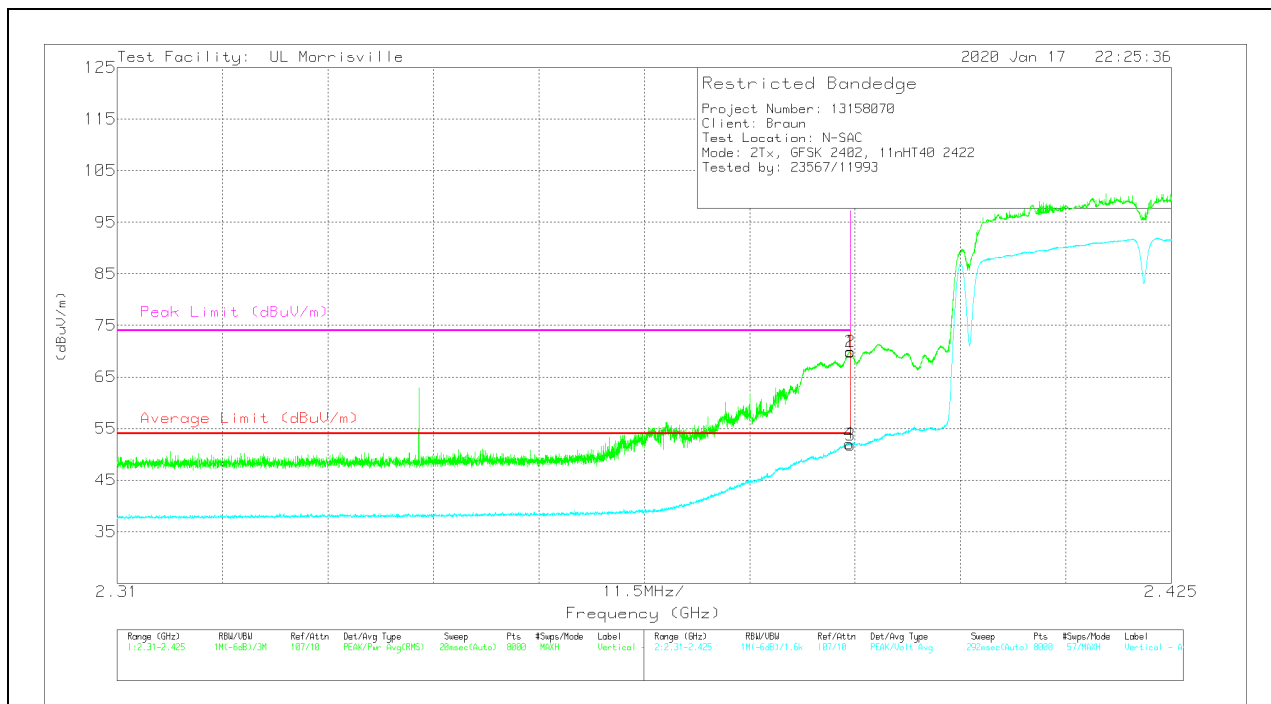
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

V1TV – VBW $\geq 1/T_{on}$, Linear Voltage Average where: T_{on} is packet where T_{on} is worst-case on time between BT GFSK and 802.11nHT40 2.4GHz WLAN.

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	* ** 2.38999	62.34	Pk	32	-24.5	69.84	-	-	74	-4.16	116	152	V
2	* ** 2.38998	62.4	Pk	32	-24.5	69.9	-	-	74	-4.1	116	152	V
3	* ** 2.38999	44.3	V1TV	32	-24.5	51.8	54	-2.2	-	-	116	152	V
4	* ** 2.38988	44.58	V1TV	32	-24.5	52.08	54	-1.92	-	-	116	152	V

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

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

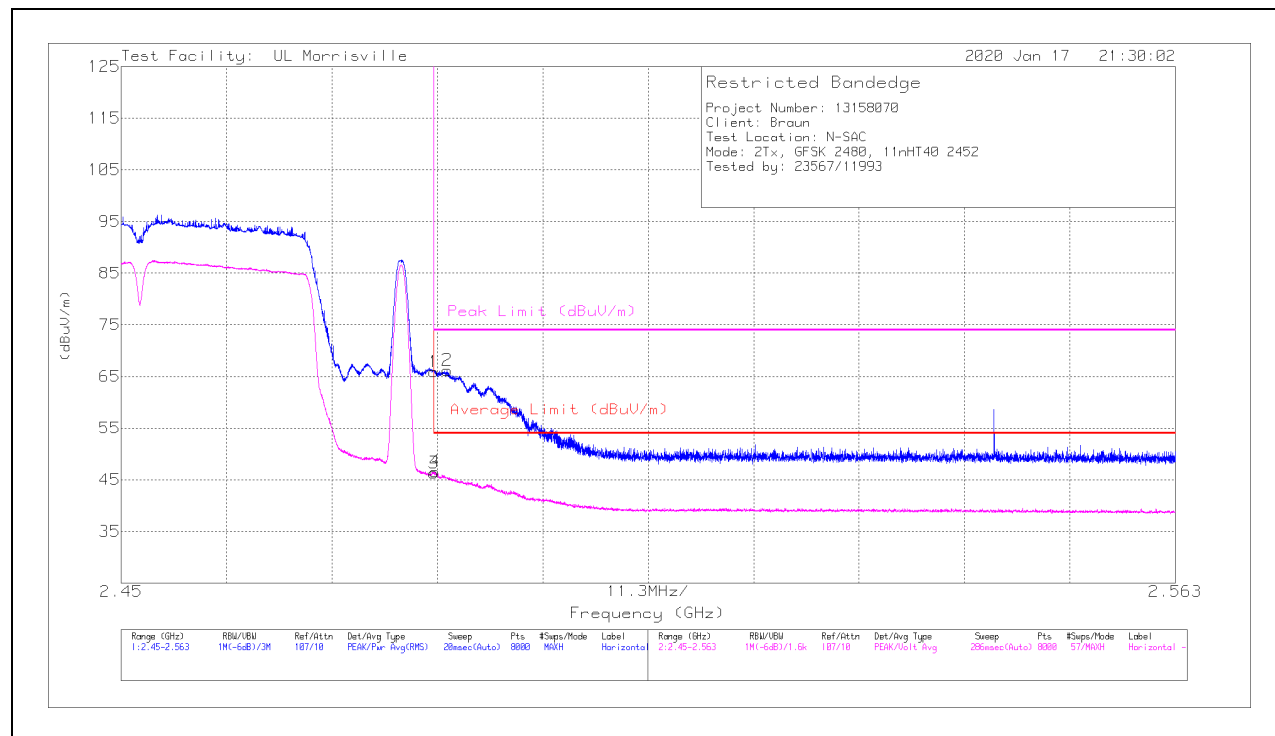
Pk - Peak detector

V1TV – VBW ≥1/Ton, Linear Voltage Average where: Ton is packet where Ton is worst-case on time between BT GFSK and 802.11nHT40 2.4GHz WLAN.

8.2.2 BT GFSK DH3 2480MHz and 2.4GHz WLAN 802.11n HT40 2452MHz

BANDEDGE

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	* ** 2.48351	57.8	Pk	32.4	-24.3	65.9	-	-	74	-8.1	29	136	H
2	* ** 2.48495	58.08	Pk	32.4	-24.3	66.18	-	-	74	-7.82	29	136	H
3	* ** 2.48351	38.22	V1TV	32.4	-24.3	46.32	54	-7.68	-	-	29	136	H
4	* ** 2.48367	38.46	V1TV	32.4	-24.3	46.56	54	-7.44	-	-	29	136	H

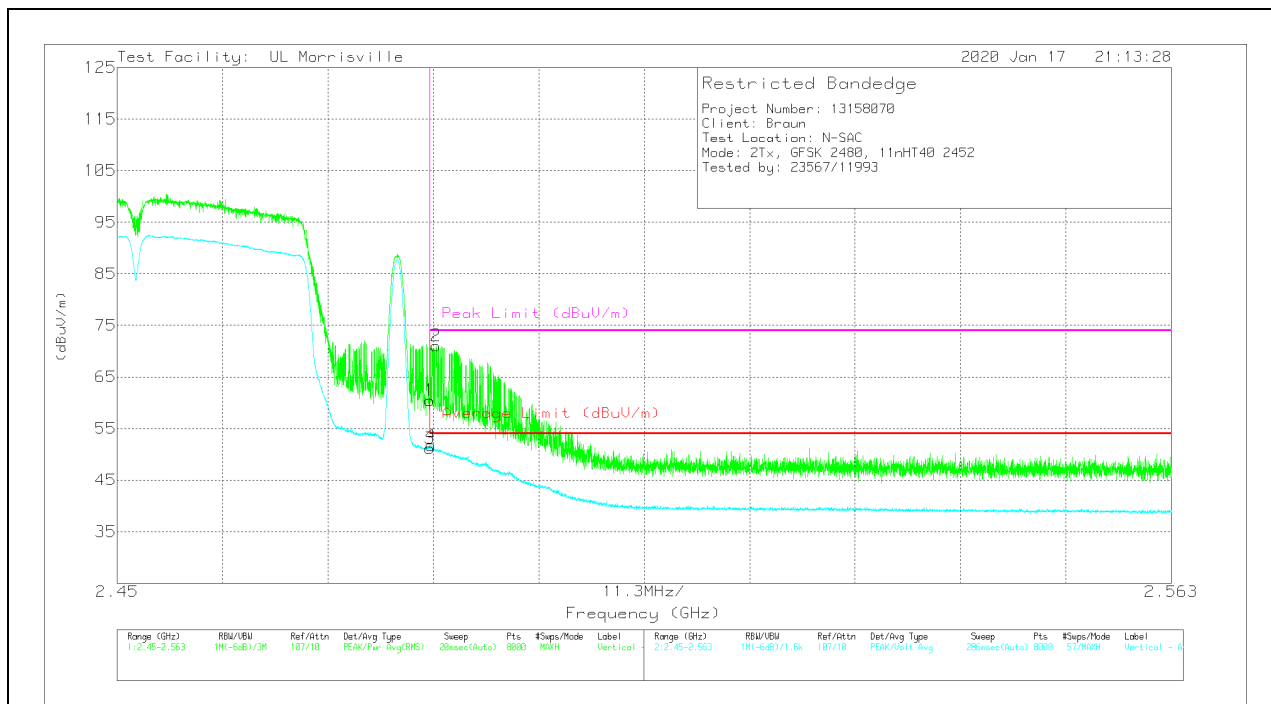
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

V1TV – VBW ≥1/Ton, Linear Voltage Average where: Ton is packet where Ton is worst-case on time between BT GFSK and 802.11nHT40 2.4GHz WLAN.

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	* ** 2.48351	52.37	Pk	32.4	-24.3	60.47	-	-	74	-13.53	119	155	V
2	* ** 2.4842	62.94	Pk	32.4	-24.3	71.04	-	-	74	-2.96	119	155	V
3	* ** 2.48351	43.05	V1TV	32.4	-24.3	51.15	54	-2.85	-	-	119	155	V
4	* ** 2.48364	43.64	V1TV	32.4	-24.3	51.74	54	-2.26	-	-	119	155	V

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

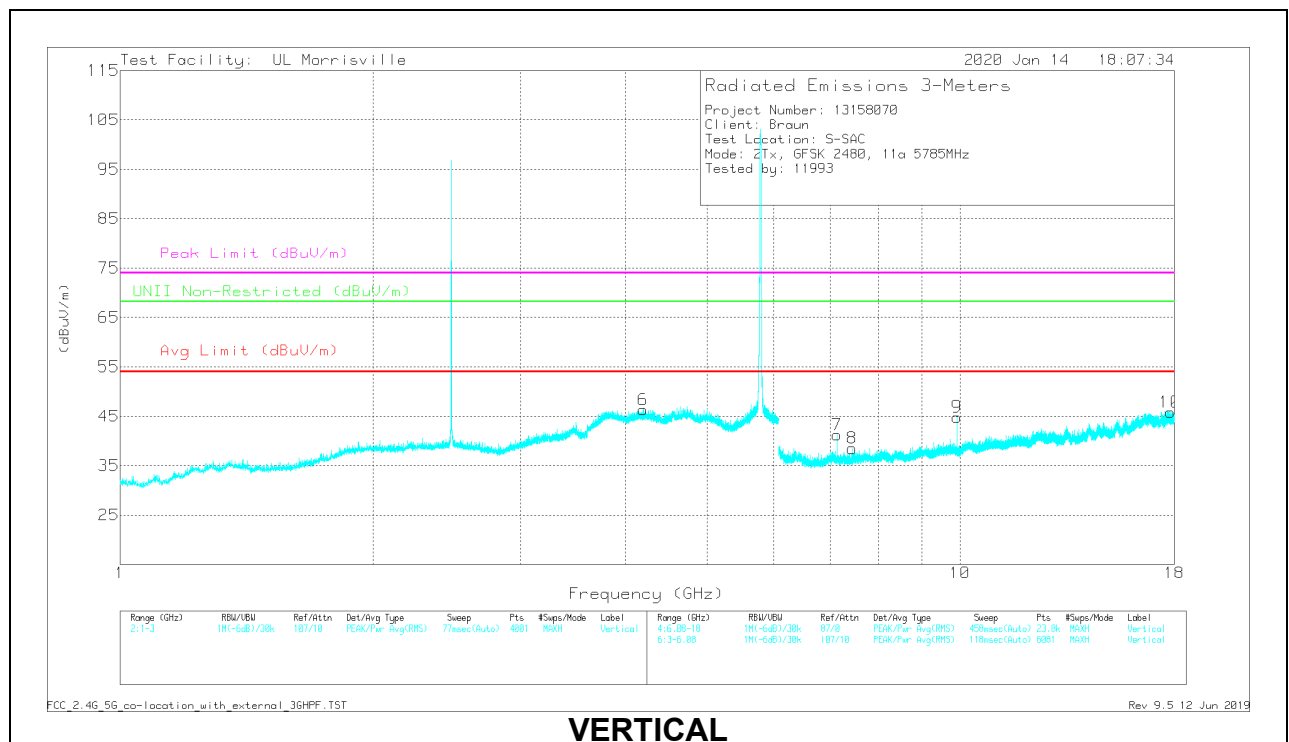
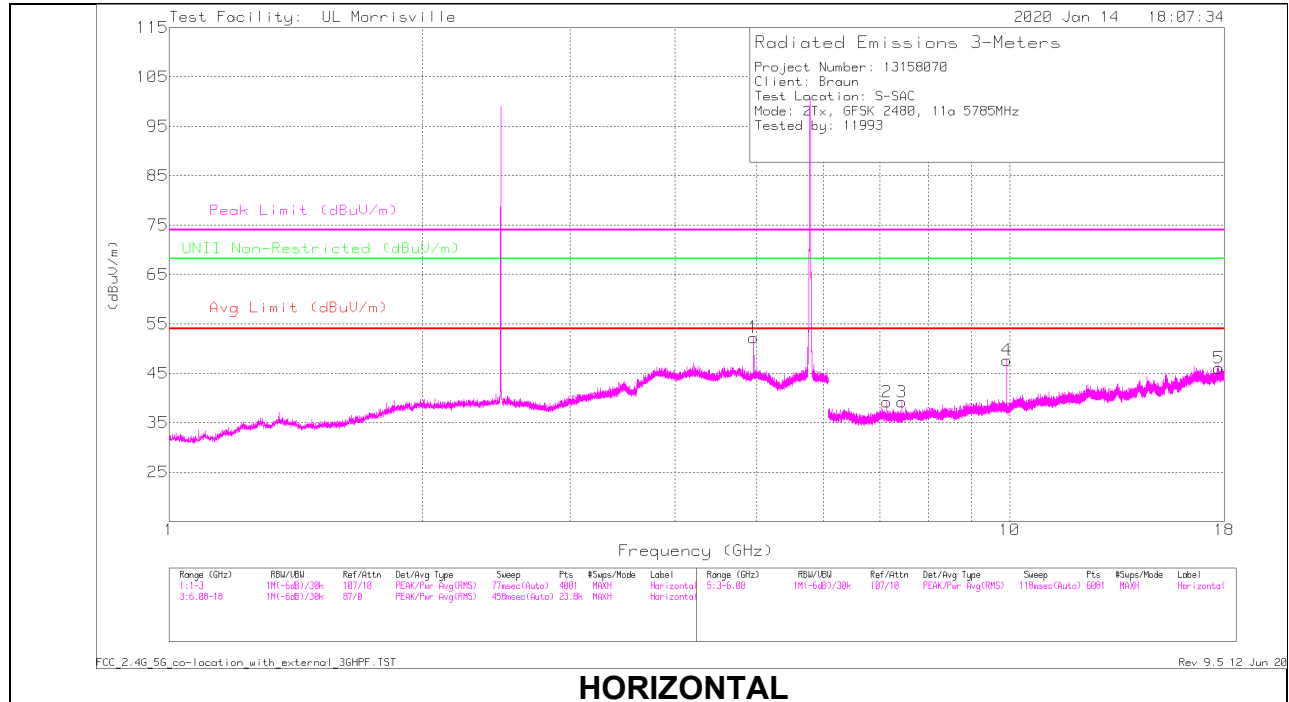
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

V1TV – VBW ≥1/Ton, Linear Voltage Average where: Ton is packet where Ton is worst-case on time between BT GFSK and 802.11nHT40 2.4GHz WLAN.

8.2.3 BT GFSK DH3 2480MHz and 5GHz UNII 802.11a 5785MHz

HARMONICS AND SPURIOUS EMISSIONS



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Filter (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* ** 7.44004	38.2	PK-U	35.8	-28	0	46	-	-	74	-28	-	-	204	124	H
	* ** 7.44004	28.68	V1TV	35.8	-28	0	36.48	54	-17.52	-	-	-	-	204	124	H
5	* ** 17.73116	33.45	PK-U	41.2	-22	0	52.65	-	-	74	-21.35	-	-	180	229	H
	* ** 17.7315	21.12	V1TV	41.2	-22	0	40.32	54	-13.68	-	-	-	-	180	229	H
8	* ** 7.43696	35.83	PK-U	35.8	-28.1	0	43.53	-	-	74	-30.47	-	-	355	166	V
	* ** 7.43583	23.62	V1TV	35.8	-28.1	0	31.32	54	-22.68	-	-	-	-	355	166	V
10	* ** 17.80458	33.07	PK-U	41.2	-22.1	0	52.17	-	-	74	-21.83	-	-	181	321	V
	* ** 17.80204	20.99	V1TV	41.2	-22.1	0	40.09	54	-13.91	-	-	-	-	181	321	V
1	* ** 4.96014	43.65	PK-U	34.1	-22	.6	56.35	-	-	74	-17.65	-	-	85	103	H
	* ** 4.96009	36.61	V1TV	34.1	-22	.6	49.31	54	-4.69	-	-	-	-	85	103	H
6	* ** 4.19695	38.99	PK-U	33.3	-20.7	.7	52.29	-	-	74	-21.71	-	-	79	305	V
	* ** 4.19699	26.59	V1TV	33.3	-20.7	.7	39.89	54	-14.11	-	-	-	-	79	305	V
7	7.137	39.86	PK-U	35.7	-28.5	0	47.06	-	-	-	-	68.2	-21.14	223	138	V
2	7.13713	38.33	PK-U	35.7	-28.5	0	45.53	-	-	-	-	68.2	-22.67	354	101	H
4	9.91775	33.18	PK-U	37.2	-25.8	0	44.58	-	-	-	-	68.2	-23.62	0	314	H
9	9.91895	34.09	PK-U	37.2	-25.8	0	45.49	-	-	-	-	68.2	-22.71	112	247	V

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

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

PK-U : Maximum Peak

V1TV – VBW ≥1/Ton, Linear Voltage Average where: Ton is packet where Ton is worst-case on time between BT GFSK and 802.11a WLAN.

9. SETUP PHOTOS

Please refer to R13158070-EP2 for setup diagrams

END OF TEST REPORT