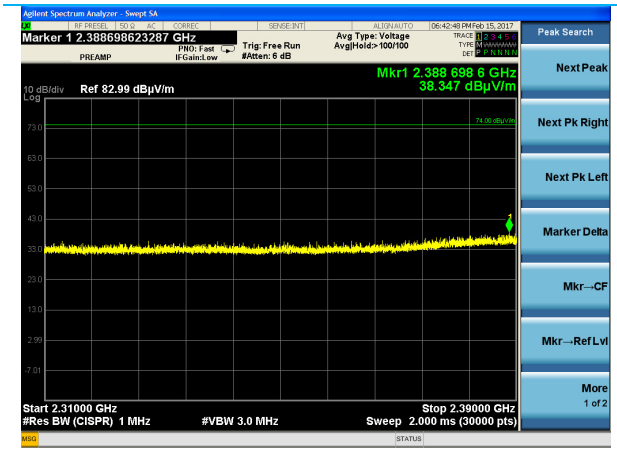
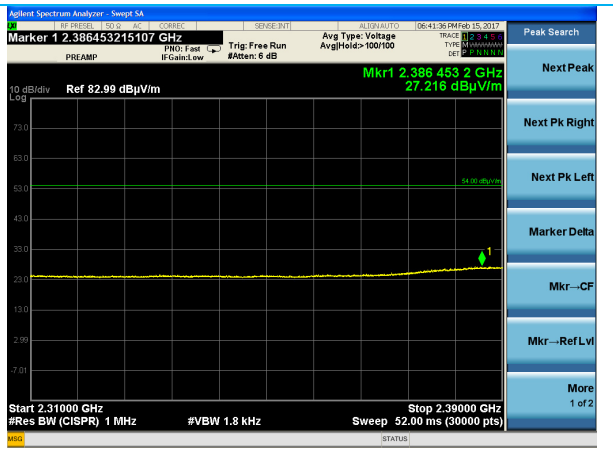
Plots – WLAN Lower Band Edge, continued

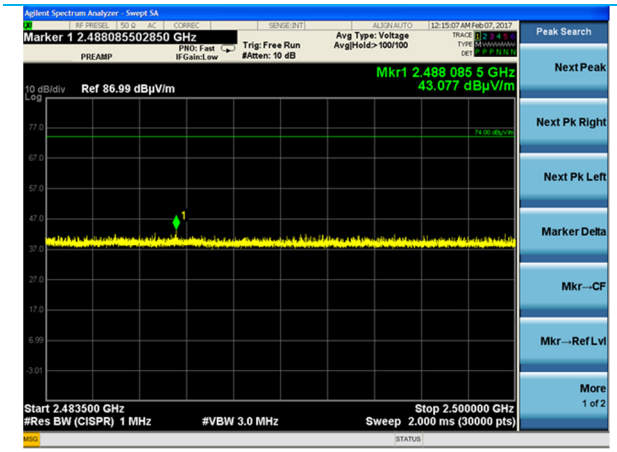


MCS0 – HT40 - Peak

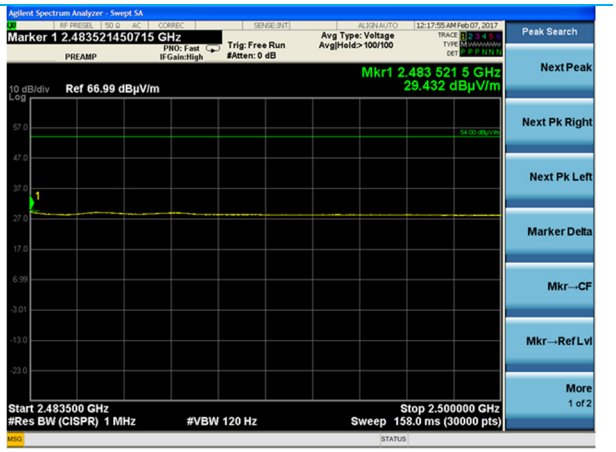


MCS0 – HT40 - Average

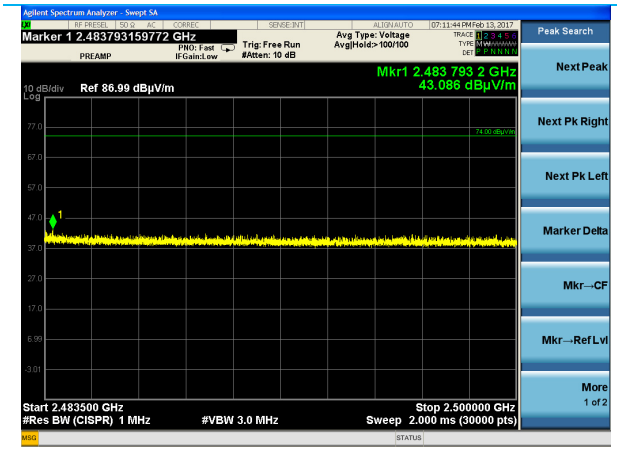
Plots – WLAN Upper Band Edge



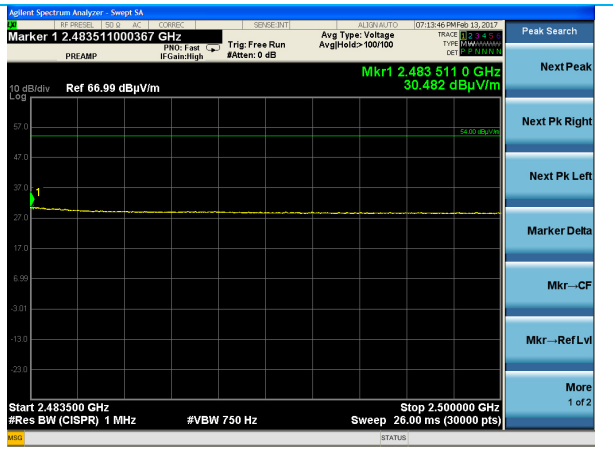
1 Mbps – Peak



1 Mbps - Average

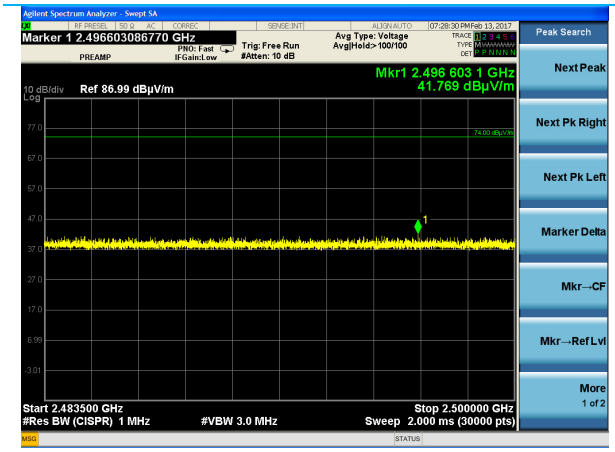


6 Mbps - Peak

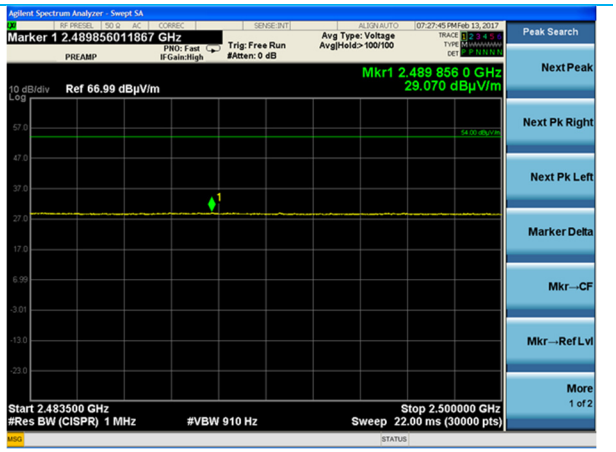


6 Mbps - Average

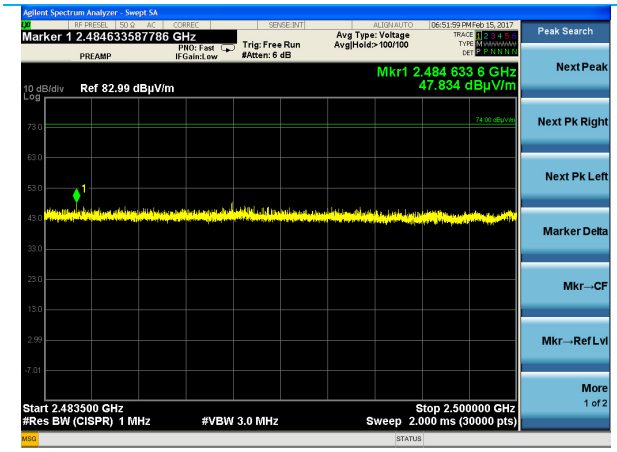
Plots – WLAN Upper Band Edge, continued



MCS0 - Peak



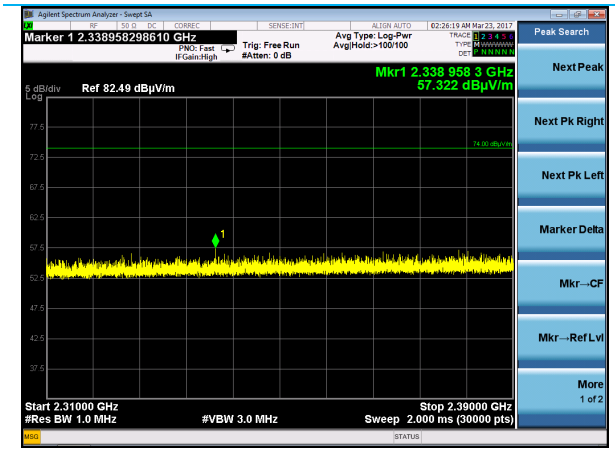
MCS0 - Average



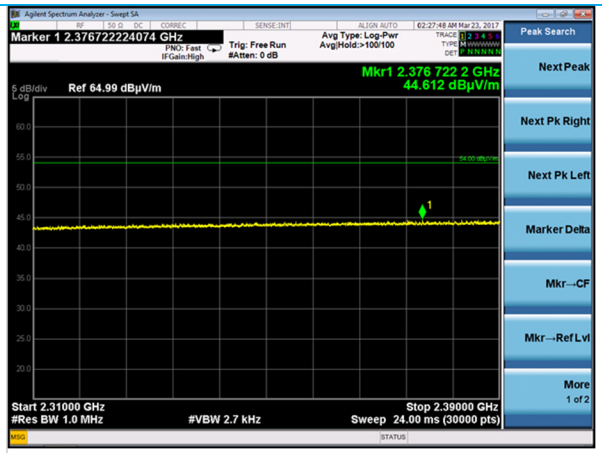
MCS0 – HT40 – Peak

MCS0 – HT40 – Average

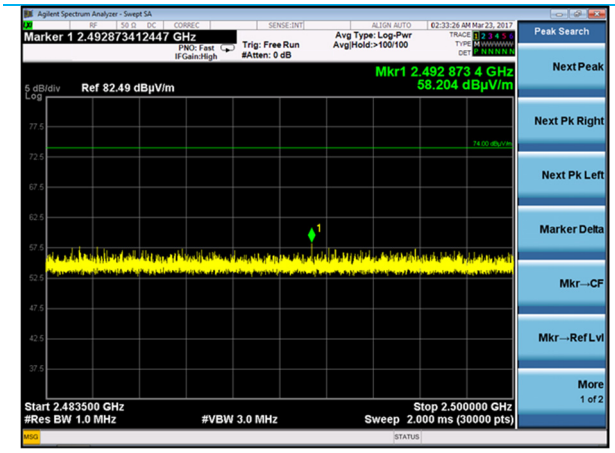
Plots – BLE Band Edges



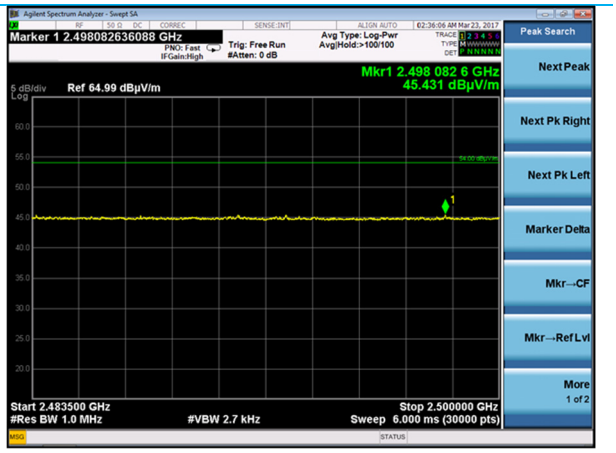
Lower Band Edge - Peak



Lower Band Edge - Average



Upper Band Edge - Peak



Upper Band Edge - Average

5.2.2 Radiated Emissions – Spurious Emissions

Operator	Kimberly Bay / Shane Dock
QA	Shane Dock / Kimberly Bay
Test Date	February 14, 2017 / February 17, 2017 / March 22-24, 2017
Location	3-meter Semi-Anechoic Chamber
Temp. / R.H.	20-22°C / 27-36% R.H.
Requirement	FCC 15.247 (d) / RSS-247 Section 5.5
Method	ANSI C63.10 Sections 6.5, 6.6

Limits

Frequency (MHz)	Quasi-Peak Limit (dBµV/m)	Average Limit (dBµV/m)	Peak Limit (dBµV/m)
30-88	40	N/A	N/A
88-216	43.5	N/A	N/A
216-960	46	N/A	N/A
960-1000	54	N/A	N/A
Above 1000	N/A	54	74

Test Parameters

Settings	RBW = 1 MHz; VBW = 3 MHz for peak and at least 1/duty cycle for average
Test Chamber	Above 1 GHz: absorbers on floor and tilt-gear added to antenna to maintain cone of radiation
EUT	802.11b HT-20, 1 Mbps: 2412, 2437, 2462 MHz
EUT	BLE: 2402, 2440, 2480 MHz
Notes	WLAN: Tested antenna port terminated; 1 Mbps used as worst case
Notes	BLE: Tested as Bluetooth GFSK with FlexPIFA (highest gain) antenna

Instrumentation

LSR a Laird Business

Date: 6-Feb-2017 Type Test: Radiated Emissions Job #: C-2602

Prepared By: Kim Customer: LSR Quote #: 316356

No.	Asset #	Description	Manufacturer	Model #	Serial #	Cal Date	Cal Due Date	Equipment Status
1	EE 960085	EMI Receiver	Agilent	N9038A	MY51210148	5/12/2016	5/12/2017	Active Calibration
2	AA 960158	Double Ridge Horn Antenna	ETS Lindgren	3117	109300	10/13/2016	10/13/2017	Active Calibration
3	EE 960159	Low Noise Amplifier	Mini-Circuits	ZVA-213X-S+	40201429	10/13/2016	10/13/2017	Active Calibration
4	AA 960007	Double Ridge Horn Antenna	EMCO	3115	9311-4138	7/22/2016	7/22/2017	Active Calibration
5	AA 960153	High Pass Filter 2.4 GHz	KWM	HPF-L-14186	7272-04	4/29/2016	4/29/2017	Active Calibration
6	AA 960154	High Pass Filter 2.4 GHz	KWM	HPF-L-14186	7272-02	7/25/2016	7/25/2017	Active Calibration
7	EE 960160	Low Noise Amplifier	Mini-Circuits	ZVA-213X-S+	977711030	7/22/2016	7/22/2017	Active Calibration
8	AA 960174	Small Horn Antenna	ETS Lindgren	3116C-PA	00206880	4/23/2016	4/23/2017	Active Calibration

Table – WLAN & BLE Spurious Emission Data 30-1000 MHz

Frequency (MHz)	Height (m)	Azimuth (degree)	QP Reading (dBµV/m)	QP Limit (dBµV/m)	Margin (dB)	Antenna Polarity	EUT Orientation	Channel	Notes
949.18	1.00	0.0	28.5	43.5	15.0	Horizontal	Vertical	Low	1
947.08	1.00	0.0	28.4	43.5	15.1	Vertical	Vertical	Low	1
196.64	1.00	0.0	28.0	43.5	15.5	Vertical	Vertical	Low	1
198.74	1.00	0.0	28.0	43.5	15.5	Horizontal	Vertical	Low	1

Notes: 1) System noise floor measurements

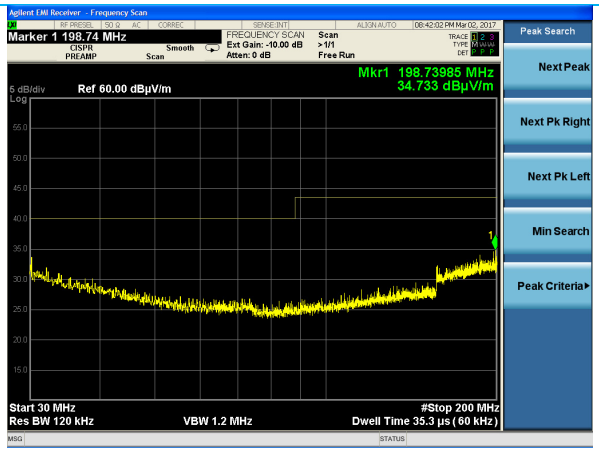
Table – WLAN Spurious Emission Data 1-25 GHz

Frequency (MHz)	Height (m)	Azimuth (degree)	Peak Reading (dBµV/m)	Average Reading (dBµV/m)	Average Limit (dBµV/m)	Average Margin (dB)	Antenna Polarity	EUT Orientation	Channel
4824	4.00	45	44.58	38.85	54	15.15	Horizontal	Side	Low
7311	1.42	55.2	53.8	50.05	54	3.95	Horizontal	Side	Mid
7386	1.45	58.3	52.46	47.66	54	6.34	Horizontal	Side	High

Table – BLE Spurious Emission Data 1-25 GHz

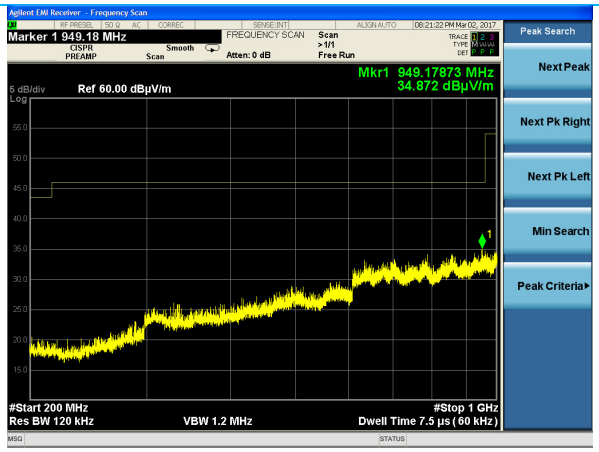
Frequency (MHz)	Height (m)	Azimuth (degree)	Peak Reading (dBµV/m)	Average Reading (dBµV/m)	Average Limit (dBµV/m)	Average Margin (dB)	Antenna Polarity	EUT Orientation	Channel
4804	1.67	235	44.5	37.8	54	16.2	Horizontal	Side	Low
4880	1.00	45	45.3	39.8	54	14.2	Horizontal	Side	Mid
7320	1.85	50	51.8	46.4	54	7.6	Horizontal	Side	Mid
4960	1.00	48.5	45.3	39.3	54	14.7	Horizontal	Side	High
7440	1.76	62	51.9	46.4	54	7.6	Horizontal	Side	High

Plots – WLAN Spurious Emissions

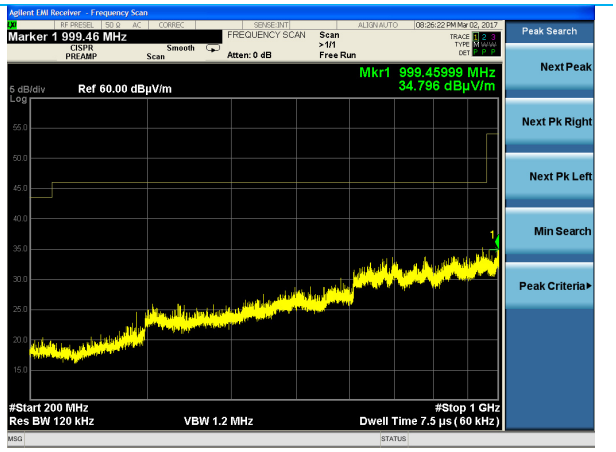


30-200 MHz – Horizontal Antenna

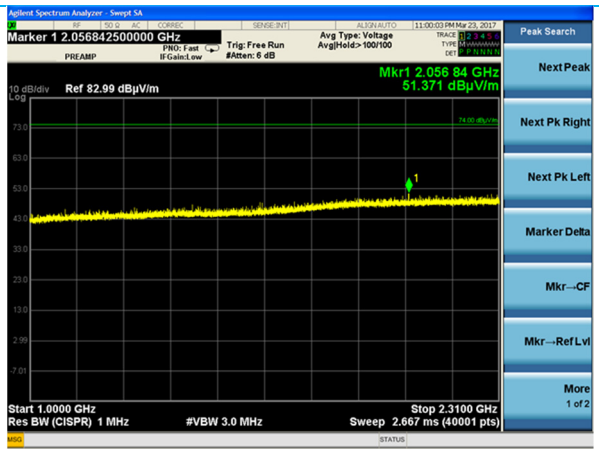
30-200 MHz – Vertical Antenna



200-1000 MHz – Horizontal Antenna



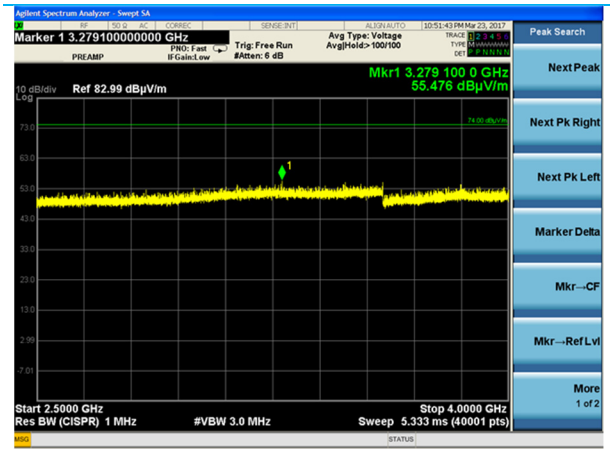
200-1000 MHz – Vertical Antenna



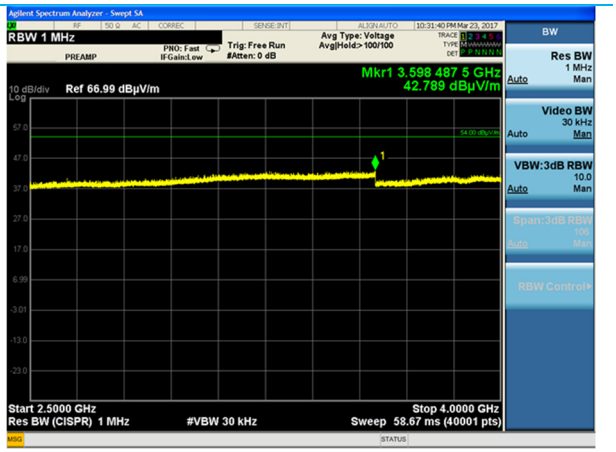
1-2.31 GHz – H+V Antenna

1-2.31 GHz – H+V Antenna – Reduced VBW

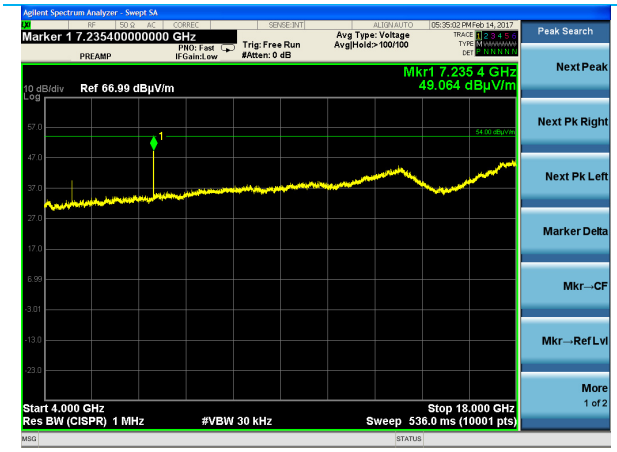
Plots – WLAN Spurious Emissions, continued



2.5-4 GHz – H+V Antenna



2.5-4 GHz – H+V Antenna – Reduced VBW



Low Channel– 4-18 GHz – Reduced VBW

Mid Channel– 4-18 GHz – Reduced VBW

High Channel– 4-18 GHz – Reduced VBW

18-25 GHz – Reduced VBW