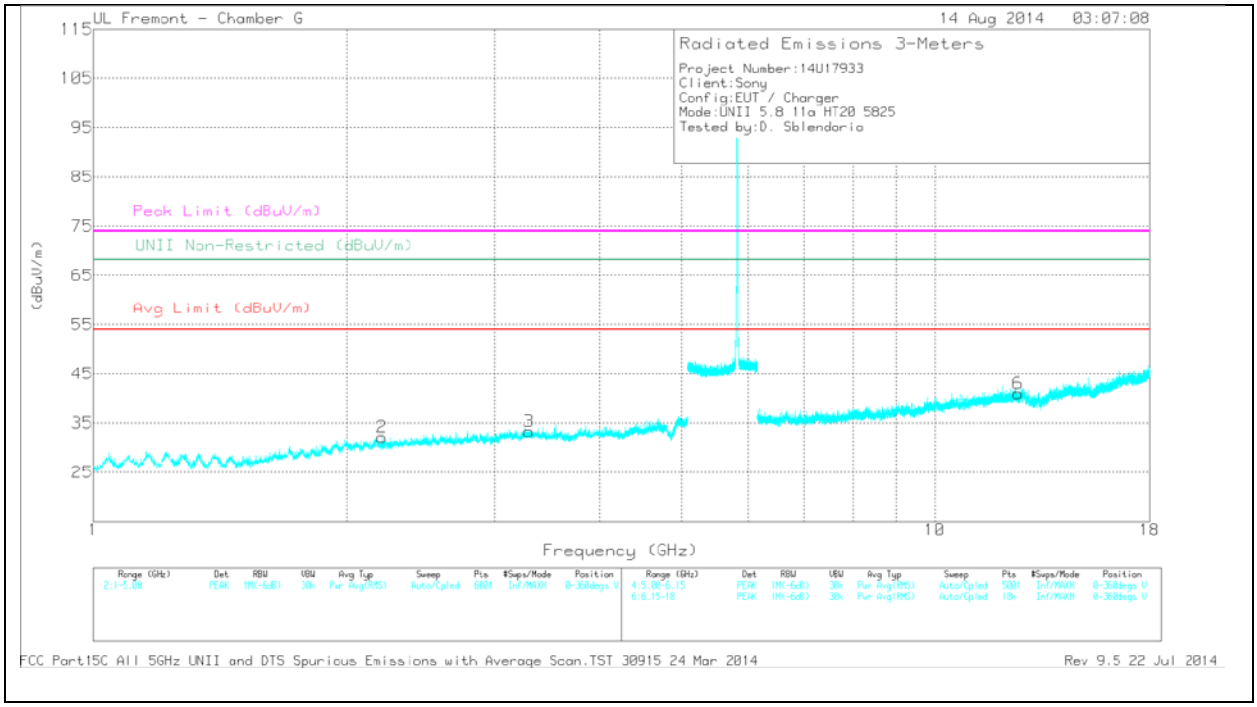
HIGH CHANNEL VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr /Pad (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
1	* 1.5	34.62	PK	27.9	-35.4	27.12	-	-	74	-46.88	-	-	0-360	201	H
2	* 2.204	35.34	PK	31.5	-34.7	32.14	-	-	74	-41.86	-	-	0-360	201	V
4	* 7.62	32.32	PK	35.6	-30.9	37.02	-	-	74	-36.98	-	-	0-360	101	H
5	* 9.426	30.71	PK	36.6	-29.2	38.11	-	-	74	-35.89	-	-	0-360	101	H
6	* 12.568	28.79	PK	39	-26.8	40.99	-	-	74	-33.01	-	-	0-360	201	V
3	3.294	33.81	PK	33	-33.5	33.31	-	-	-	-	68.2	-34.89	0-360	201	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (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
* 1.501	42.68	PK1	27.9	-35.4	35.18	-	-	74	-38.82	-	-	360	202	H
* 1.501	31.67	AD1	27.9	-35.4	24.17	54	-29.83	-	-	-	-	360	202	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

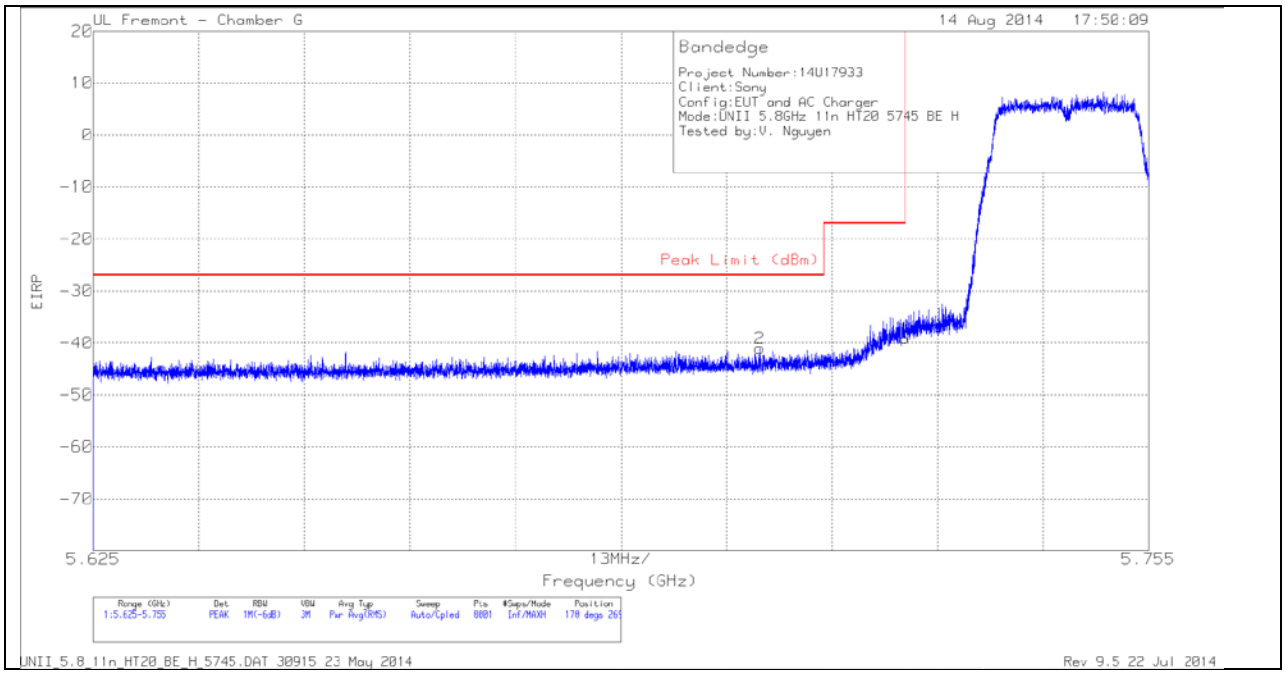
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

11.3.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

HORIZONTAL PEAK PLOT

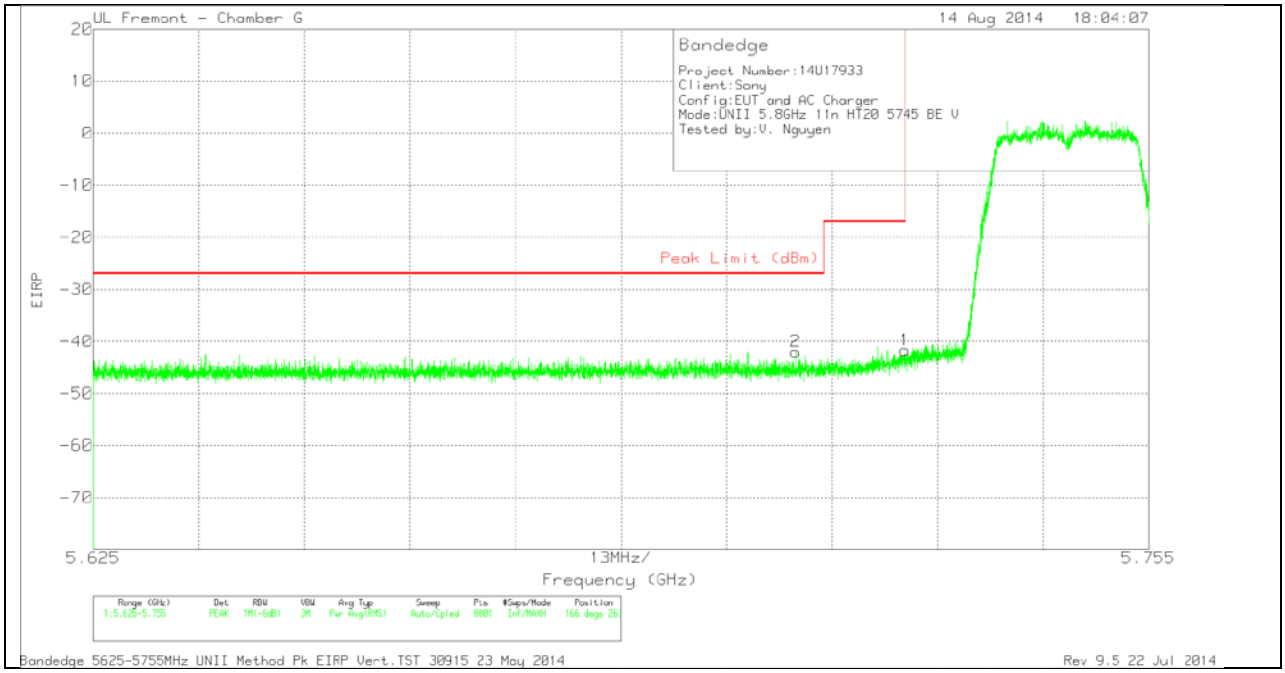


HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.707	-64.08	PK	34.8	-23.6	11.8	0	-41.08	-27	-14.08	178	269	H
1	5.725	-62.25	PK	34.8	-23.5	11.8	0	-39.15	-17	-22.15	178	269	H

PK - Peak detector

VERTICAL PEAK PLOT



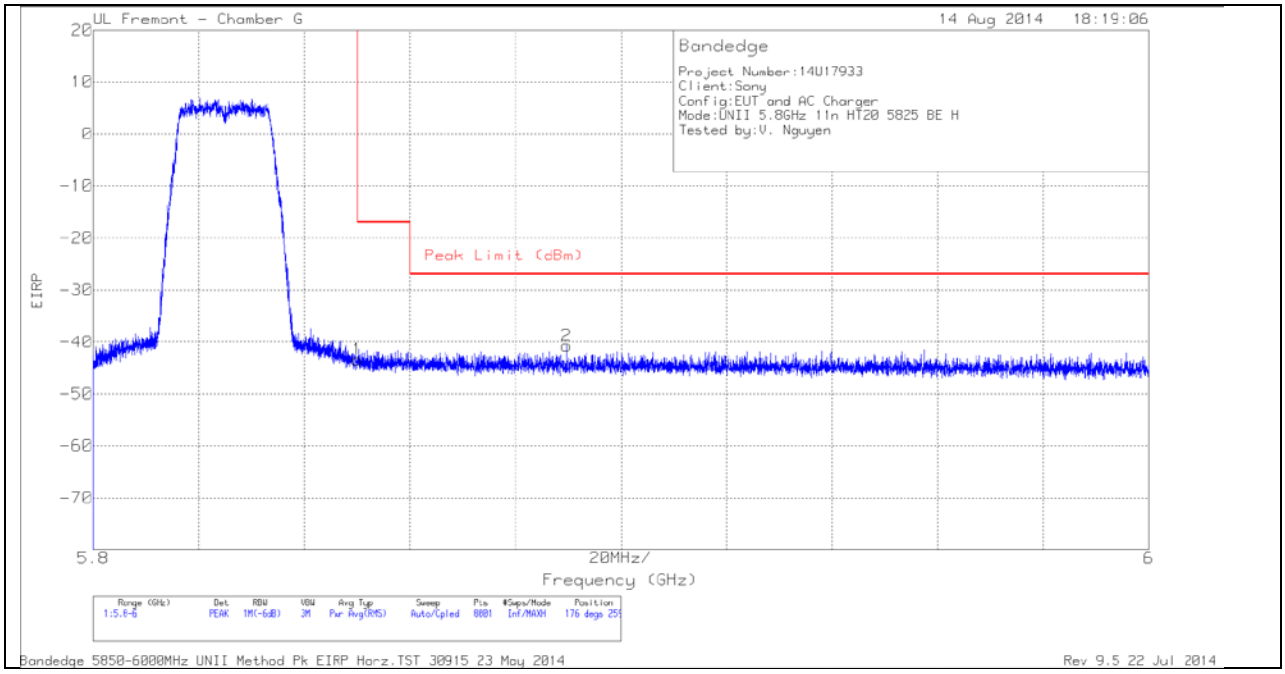
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.711	-65.07	PK	34.8	-23.5	11.8	0	-41.97	-27	-14.97	166	263	V
1	5.725	-64.8	PK	34.8	-23.5	11.8	0	-41.7	-17	-24.7	166	263	V

PK - Peak detector

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT

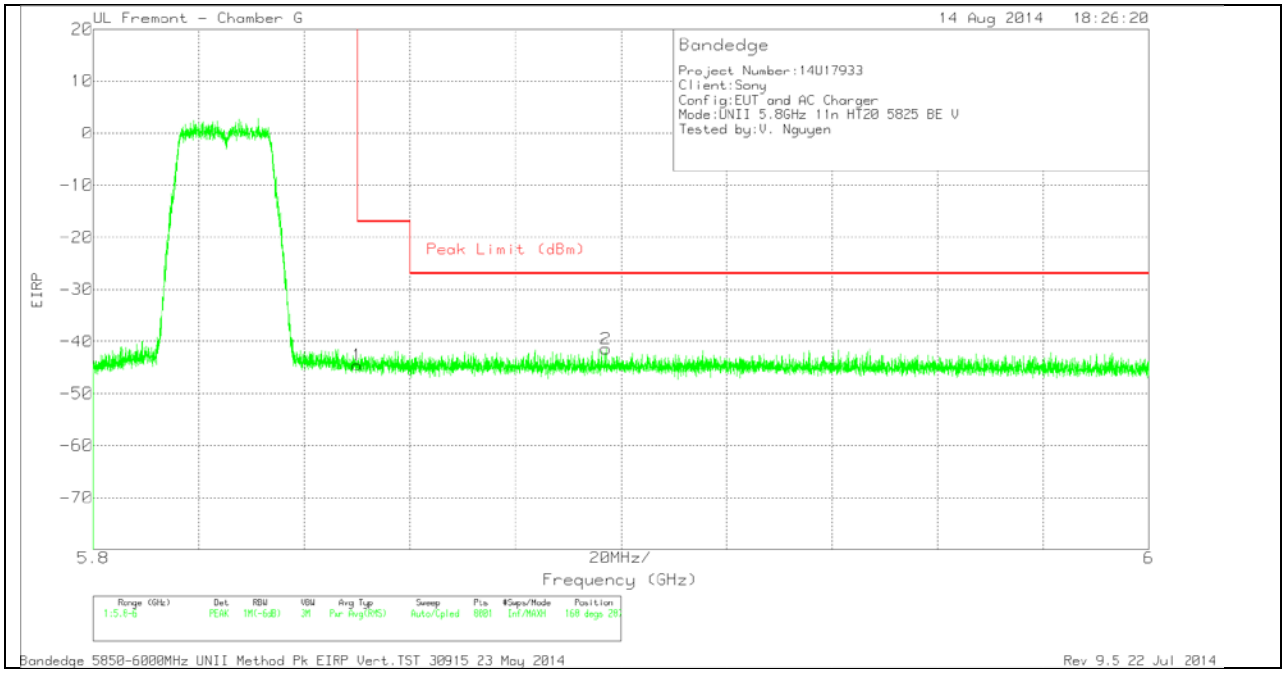


HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-66.6	PK	35	-23.6	11.8	0	-43.4	-17	-26.4	176	259	H
2	5.89	-63.94	PK	35	-23.6	11.8	0	-40.74	-27	-13.74	176	259	H

PK - Peak detector

VERTICAL PEAK PLOT

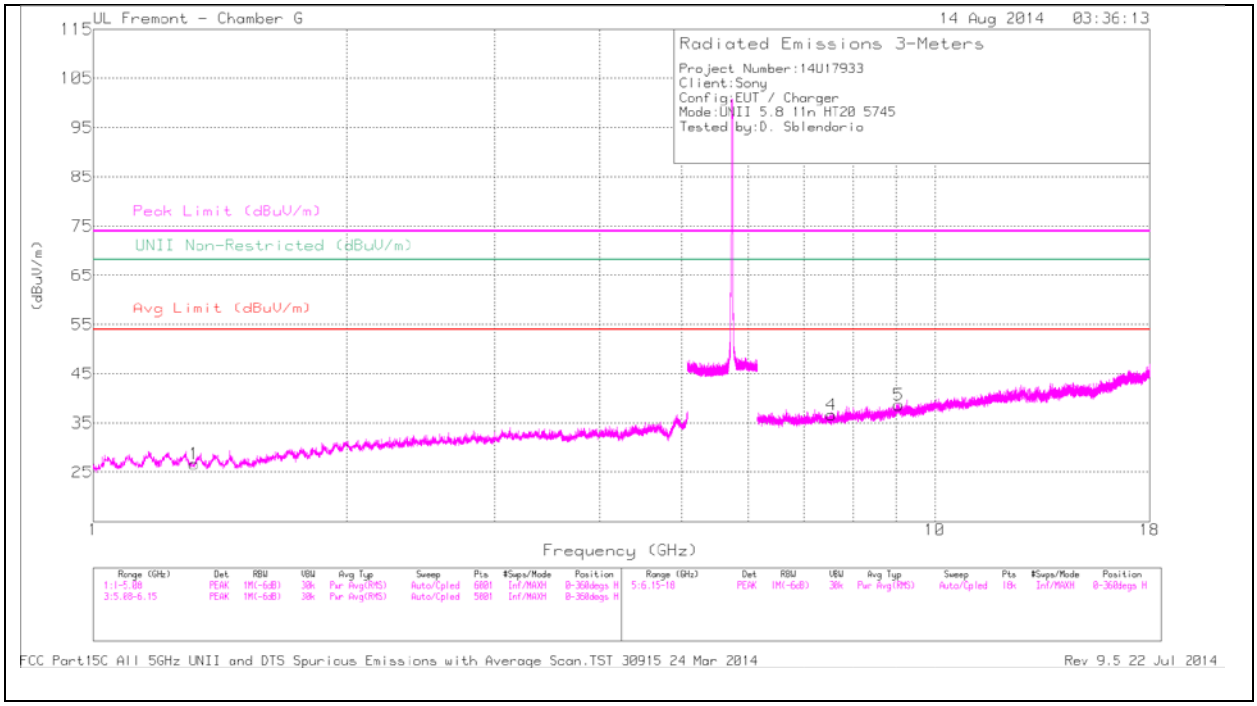


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-67.75	PK	35	-23.6	11.8	0	-44.55	-17	-27.55	168	287	V
2	5.897	-64.61	PK	35	-23.6	11.8	0	-41.41	-27	-14.41	168	287	V

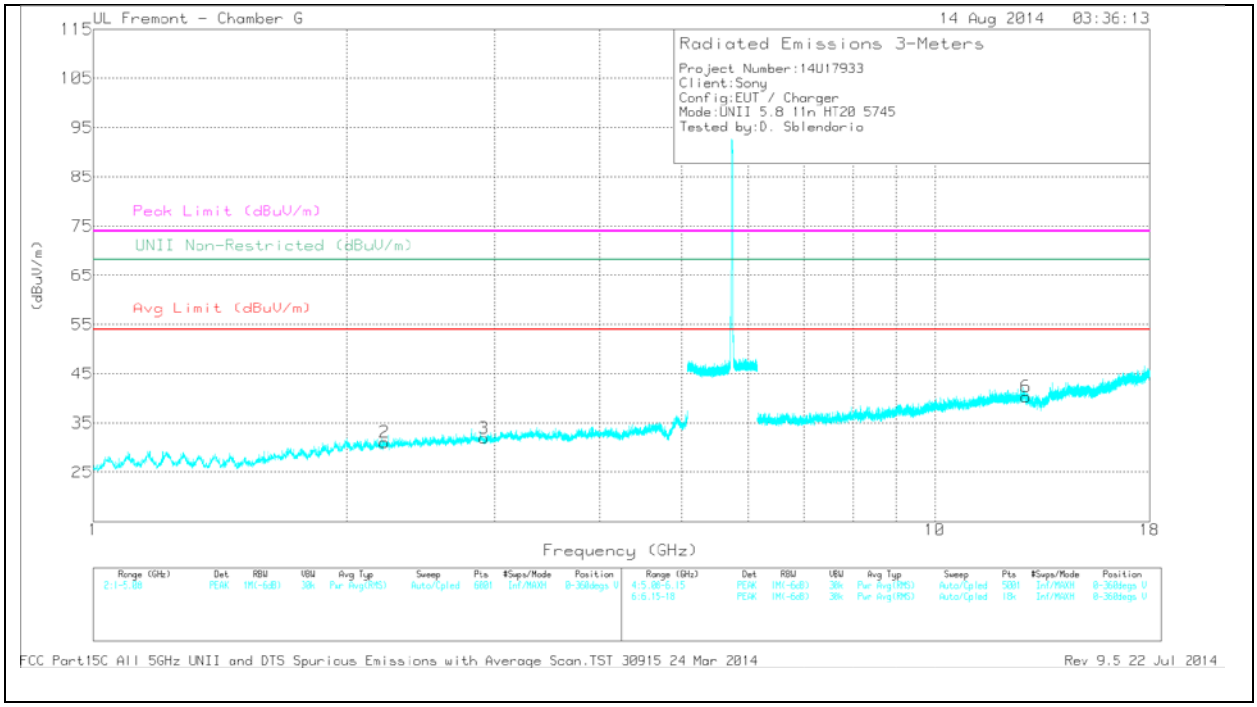
PK - Peak detector

LOW CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr /Pad (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
1	* 1.317	33.7	PK	28.9	-35.9	26.7	-	-	74	-47.3	-	-	0-360	201	H
2	* 2.219	34.27	PK	31.5	-34.7	31.07	-	-	74	-42.93	-	-	0-360	101	V
4	* 7.53	32.26	PK	35.6	-31.2	36.66	-	-	74	-37.34	-	-	0-360	101	H
5	* 9.06	30.46	PK	36.4	-28.2	38.66	-	-	74	-35.34	-	-	0-360	101	H
3	2.912	33.9	PK	32.3	-34.3	31.9	-	-	-	-	68.2	-36.3	0-360	101	V
6	12.846	28.27	PK	39.1	-27	40.37	-	-	-	-	68.2	-27.83	0-360	201	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

Radiated Emissions

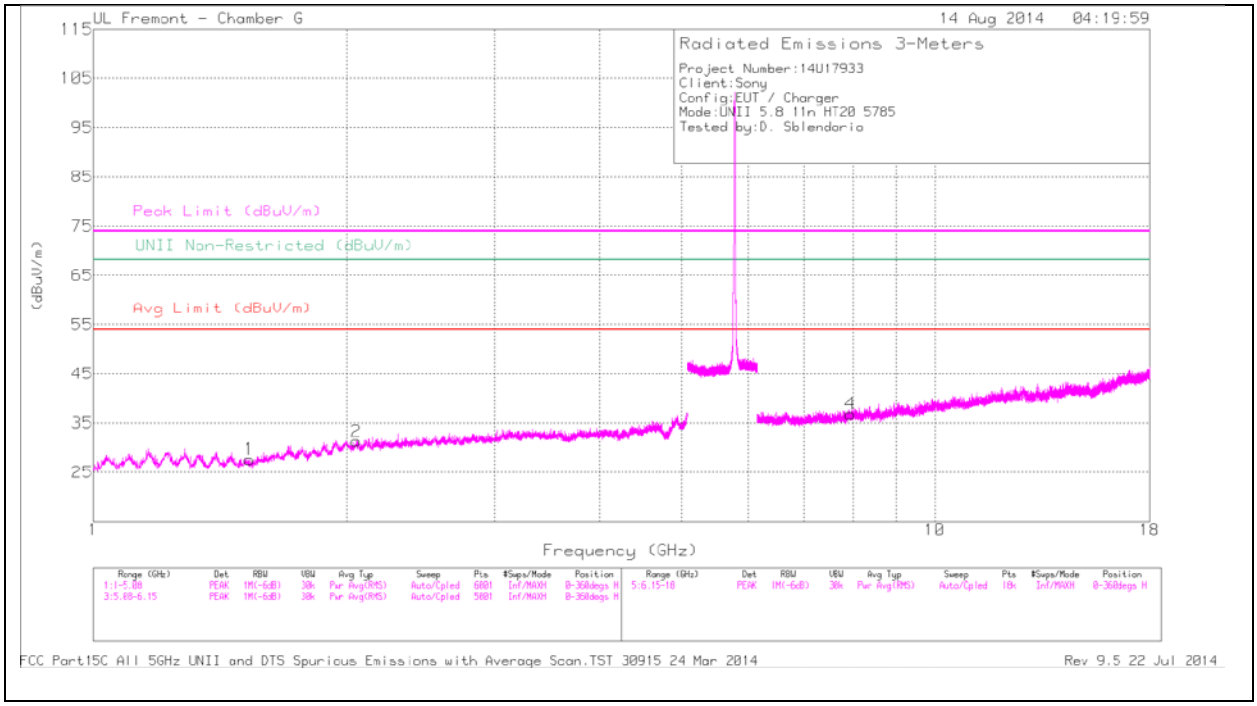
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.318	42.73	PK1	28.8	-35.9	35.63	-	-	74	-38.37	-	-	360	202	H
* 1.318	31.32	AD1	28.8	-35.9	24.22	54	-29.78	-	-	-	-	360	202	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK1 - KDB789033 Method: Peak

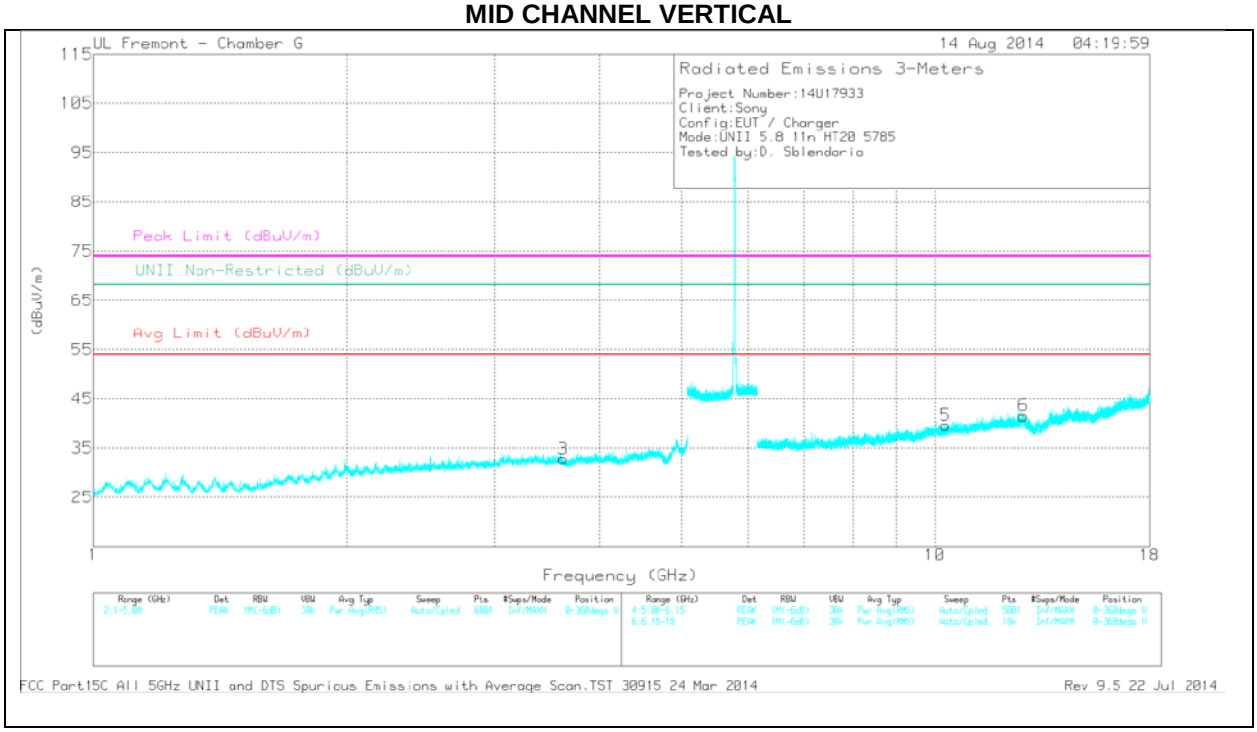
AD1 - KDB789033 Method: AD Primary Power Average

MID CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr /Pad (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
1	* 1.533	35.03	PK	28.1	-35.5	27.63	-	-	74	-46.37	-	-	0-360	201	H
3	* 3.617	33.5	PK	32.8	-33.5	32.8	-	-	74	-41.2	-	-	0-360	101	V
2	2.054	34.86	PK	31.3	-34.9	31.26	-	-	-	-	68.2	-36.94	0-360	101	H
4	7.939	31.93	PK	35.8	-30.9	36.83	-	-	-	-	68.2	-31.37	0-360	201	H
5	10.305	29.51	PK	37.5	-27.4	39.61	-	-	-	-	68.2	-28.59	0-360	101	V
6	12.747	28.07	PK	39.1	-25.6	41.57	-	-	-	-	68.2	-26.63	0-360	201	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

Radiated Emissions

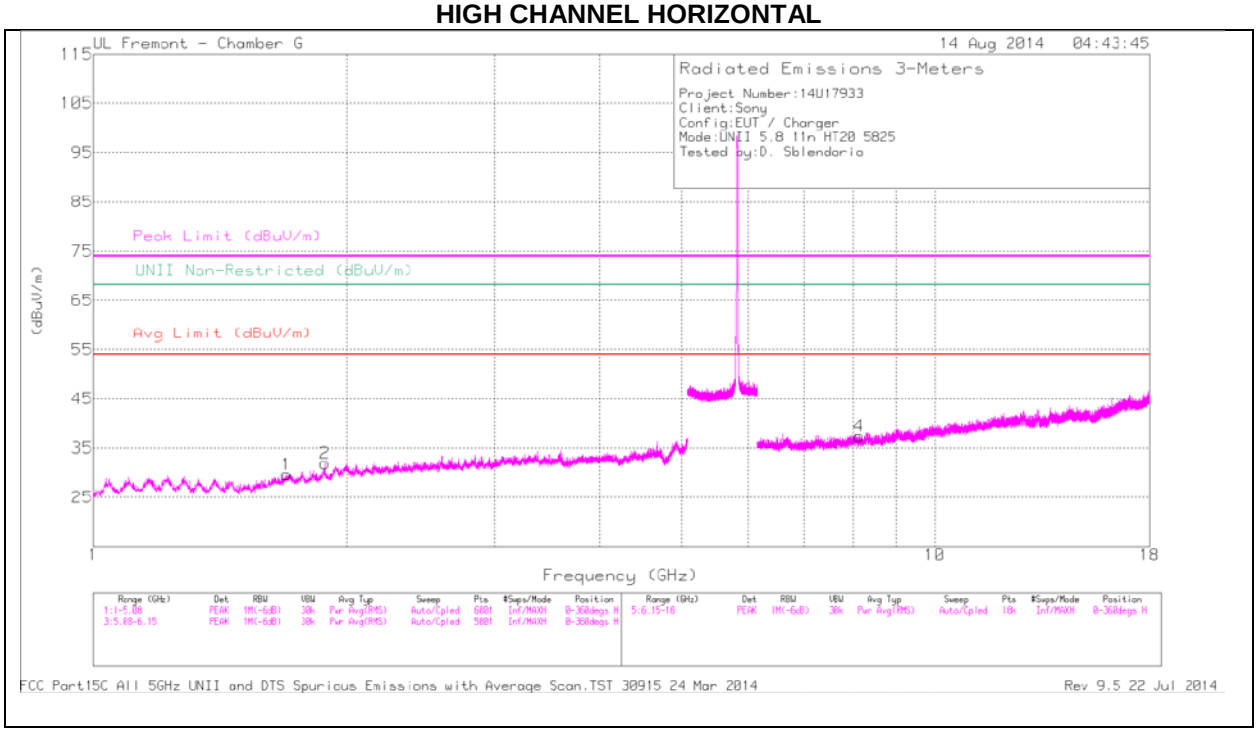
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.532	42.97	PK1	28.1	-35.5	35.57	-	-	74	-38.43	-	-	360	202	H
* 1.533	31.77	AD1	28.1	-35.5	24.37	54	-29.63	-	-	-	-	360	202	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK1 - KDB789033 Method: Peak

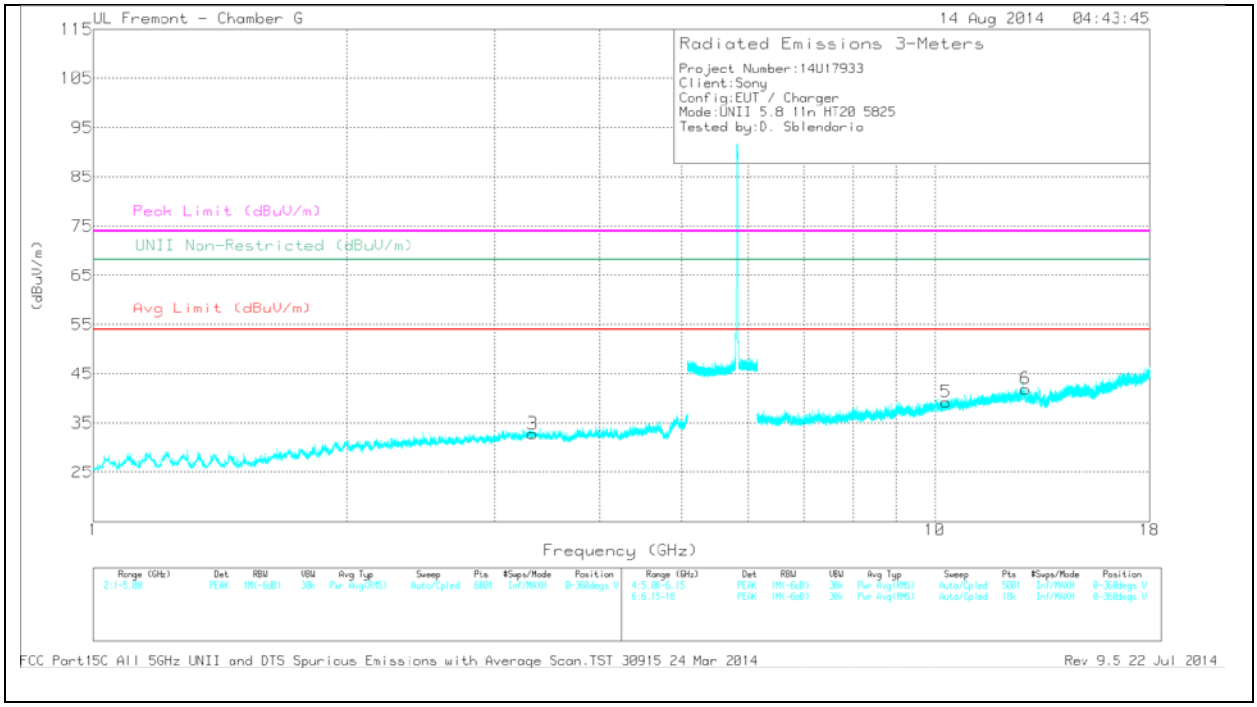
AD1 - KDB789033 Method: AD Primary Power Average

HIGH CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr /Pad (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
1	* 1.698	34.82	PK	29.2	-34.4	29.62	-	-	74	-44.38	-	-	0-360	101	H
4	* 8.127	31.57	PK	35.8	-30	37.37	-	-	74	-36.63	-	-	0-360	101	H
2	1.885	36.39	PK	30.5	-35	31.89	-	-	-	-	68.2	-36.31	0-360	201	H
3	3.328	33.14	PK	32.9	-33.2	32.84	-	-	-	-	68.2	-35.36	0-360	201	V
5	10.313	29.07	PK	37.5	-27.3	39.27	-	-	-	-	68.2	-28.93	0-360	201	V
6	12.819	29.15	PK	39.1	-26.3	41.95	-	-	-	-	68.2	-26.25	0-360	101	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (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
* 1.699	42.93	PK1	29.3	-34.4	37.83	-	-	74	-36.17	-	-	0	102	H
* 1.698	31.32	AD1	29.2	-34.4	26.12	54	-27.88	-	-	-	-	0	102	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

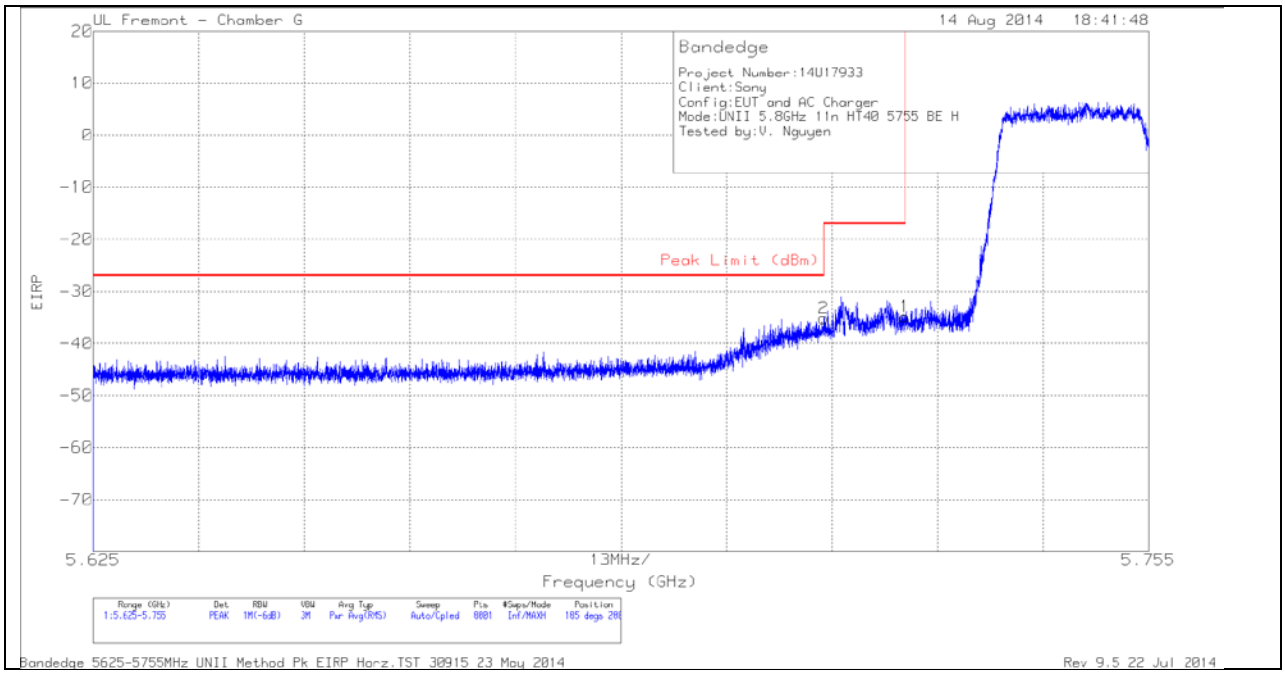
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

11.3.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

HORIZONTAL PEAK PLOT

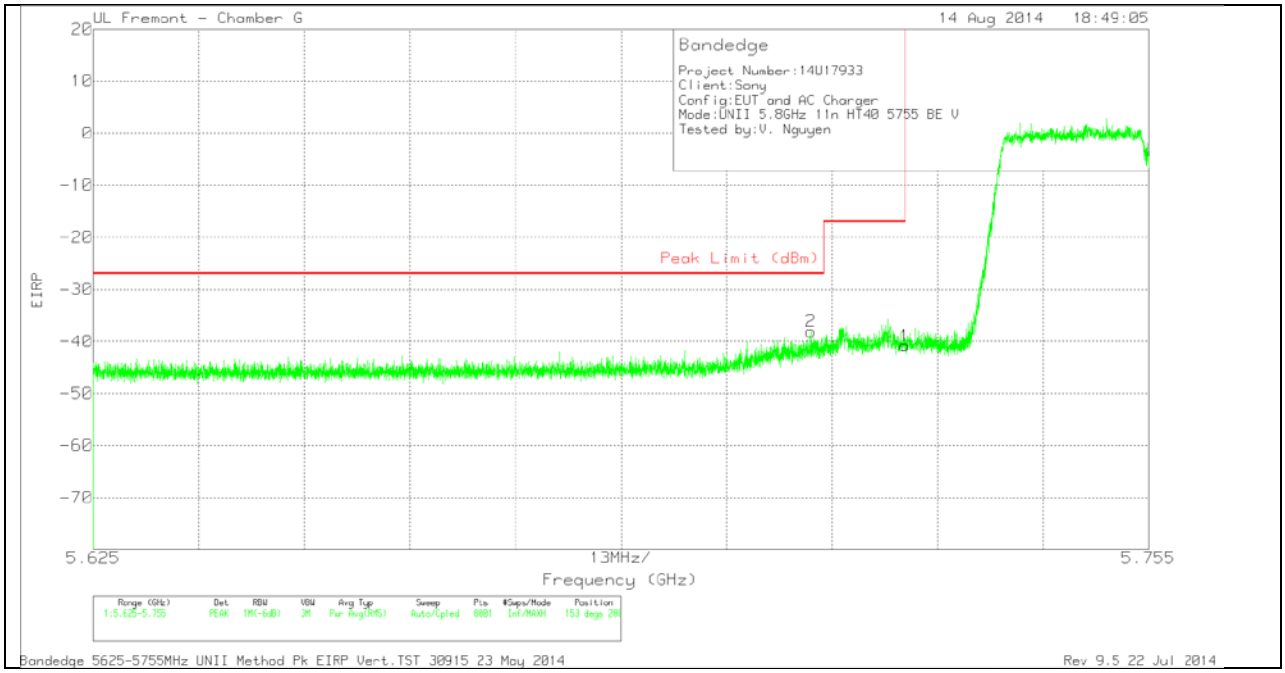


HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.715	-58.27	PK	34.8	-23.5	11.8	0	-35.17	-27	-8.17	185	288	H
1	5.725	-57.96	PK	34.8	-23.5	11.8	0	-34.86	-17	-17.86	185	288	H

PK - Peak detector

VERTICAL PEAK PLOT



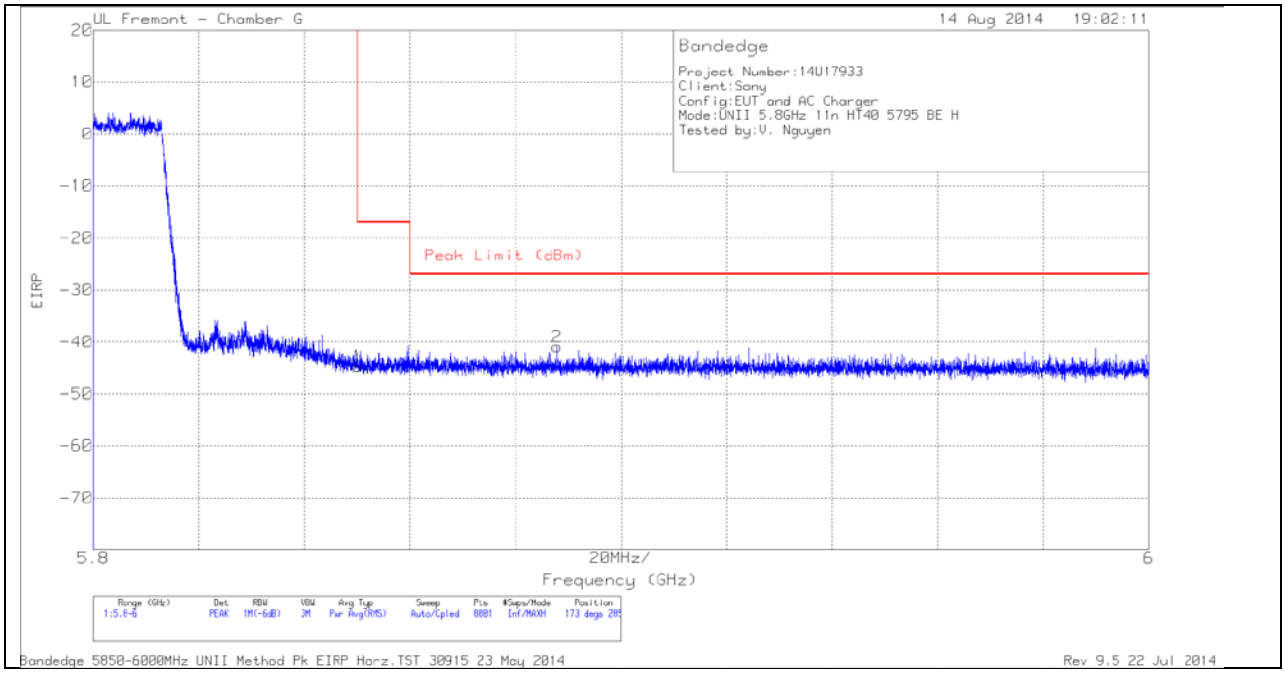
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.713	-61.17	PK	34.8	-23.5	11.8	0	-38.07	-27	-11.07	153	288	V
1	5.725	-63.92	PK	34.8	-23.5	11.8	0	-40.82	-17	-23.82	153	288	V

PK - Peak detector

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK PLOT

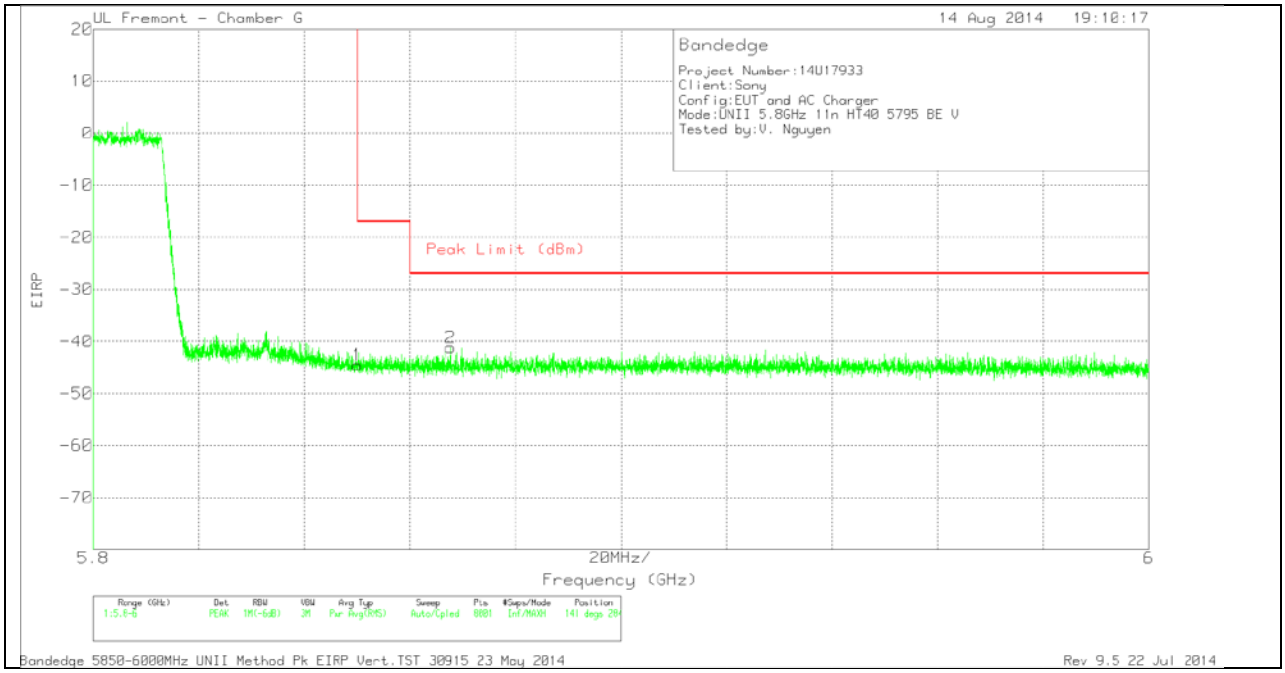


HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-67.95	PK	35	-23.6	11.8	0	-44.75	-17	-27.75	173	285	H
2	5.888	-64.16	PK	35	-23.6	11.8	0	-40.96	-27	-13.96	173	285	H

PK - Peak detector

VERTICAL PEAK PLOT

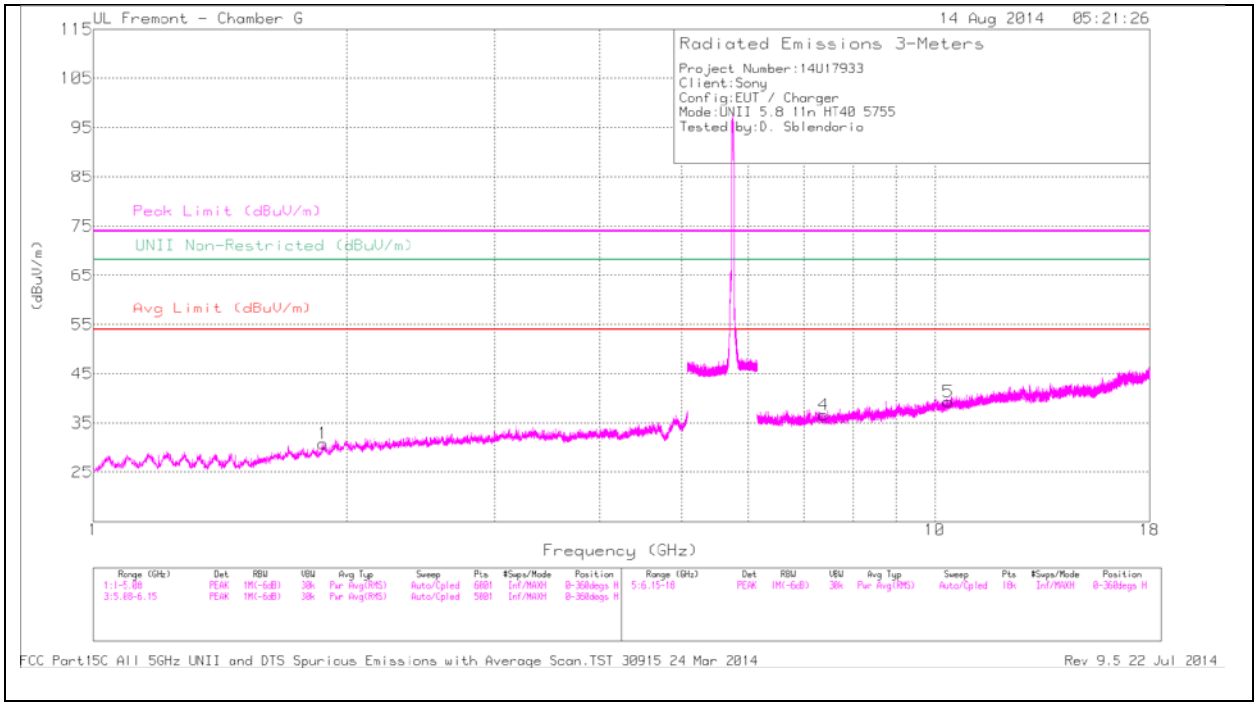


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-67.74	PK	35	-23.6	11.8	0	-44.54	-17	-27.54	141	284	V
2	5.868	-64.4	PK	35	-23.6	11.8	0	-41.2	-27	-14.2	141	284	V

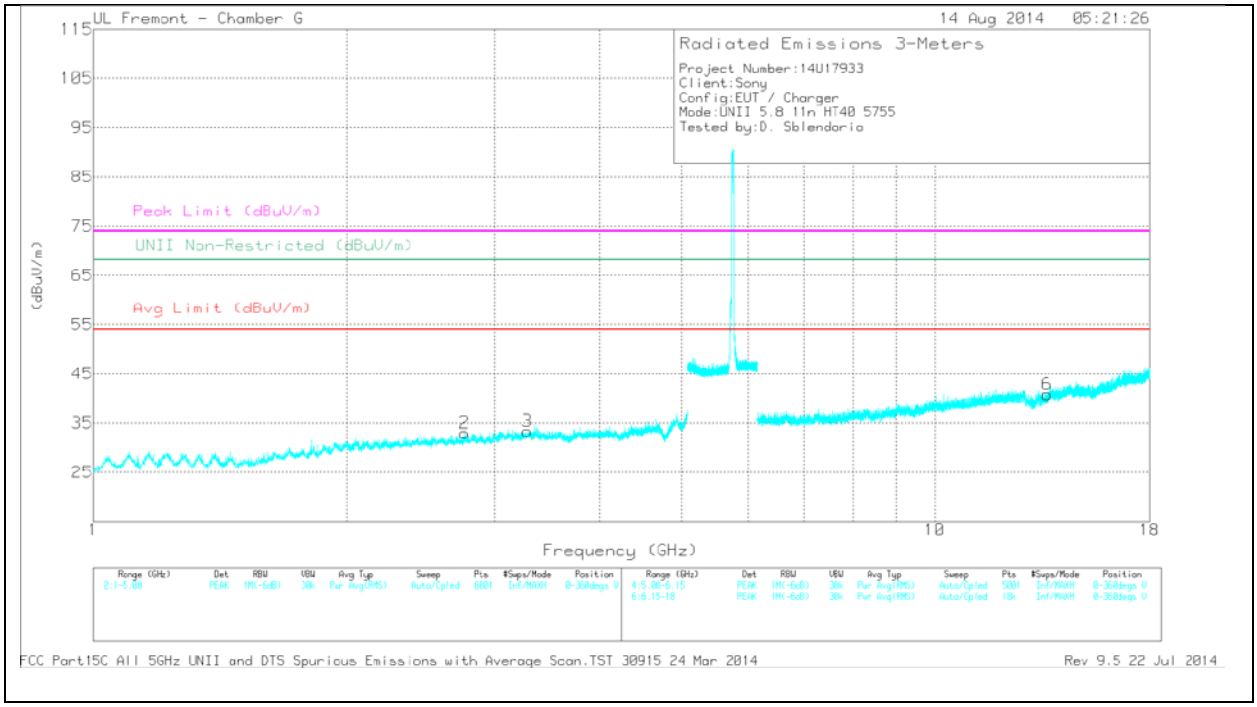
PK - Peak detector

LOW CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (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
2	* 2.761	35.19	PK	32.2	-34.4	0	32.99	-	-	74	-41.01	-	-	0-360	101	V
4	* 7.379	32.46	PK	35.6	-31.4	0	36.66	-	-	74	-37.34	-	-	0-360	100	H
1	1.876	35.41	PK	30.5	-35.1	0	30.81	-	-	-	-	68.2	-37.39	0-360	201	H
3	3.279	33.96	PK	33	-33.6	0	33.36	-	-	-	-	68.2	-34.84	0-360	201	V
5	10.384	29.13	PK	37.6	-27.4	0	39.33	-	-	-	-	68.2	-28.87	0-360	100	H
6	13.604	29.32	PK	39.1	-27.6	0	40.82	-	-	-	-	68.2	-27.38	0-360	101	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

Radiated Emissions

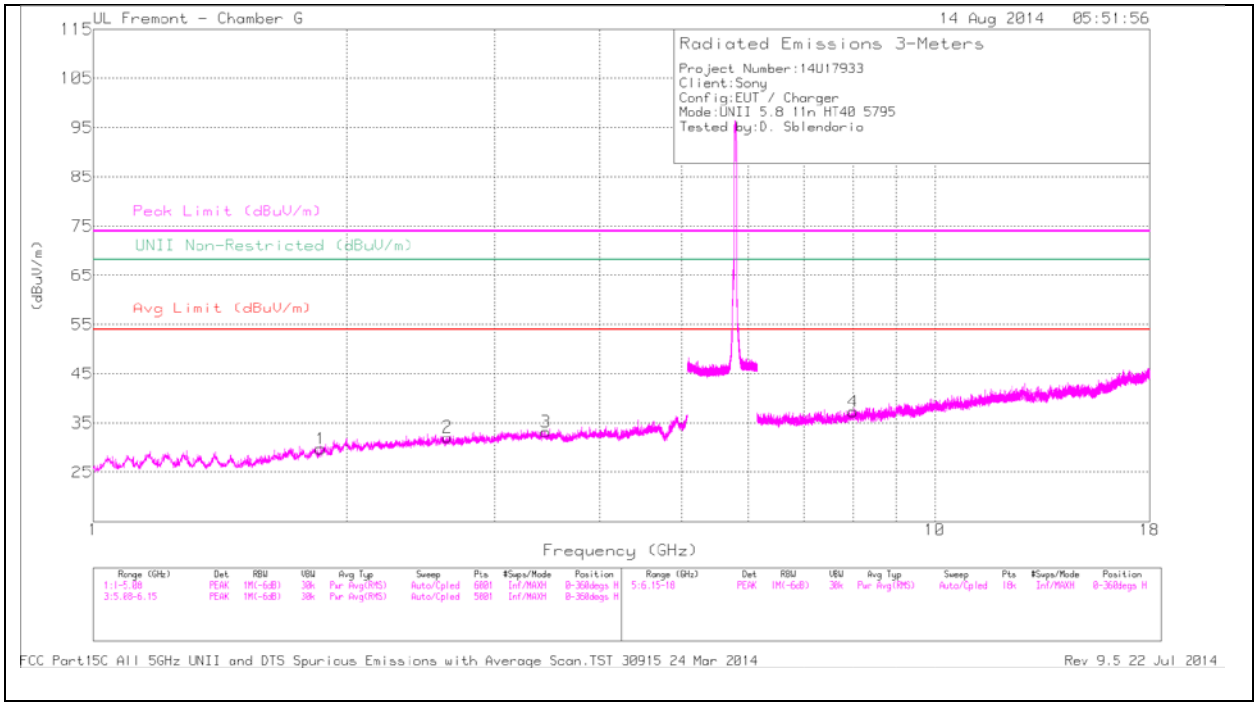
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.876	31.99	AD1	30.5	-35	.13	27.62	-	-	-	-	-	-	360	202	H
1.877	43.16	PK1	30.5	-35	0	38.66	-	-	-	-	68.2	-29.54	360	202	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK1 - KDB789033 Method: Peak

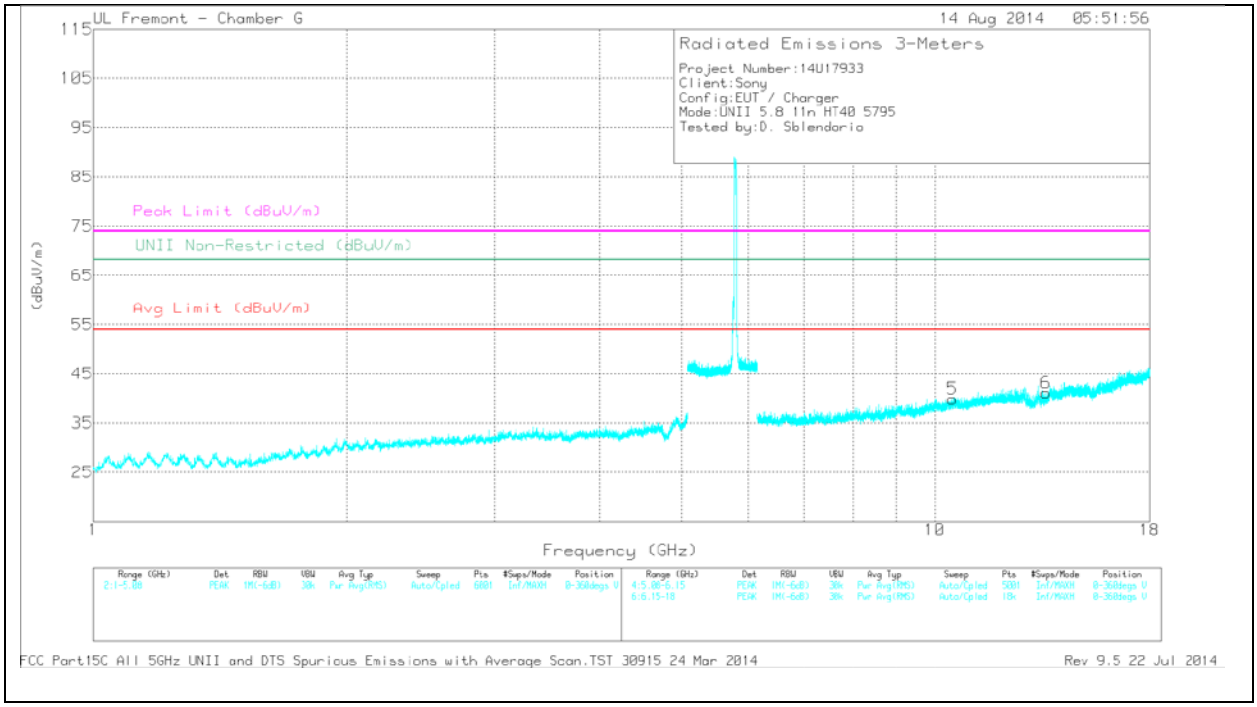
AD1 - KDB789033 Method: AD Primary Power Average

HIGH CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (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
1	1.864	34.63	PK	30.4	-35.3	0	29.73	-	-	-	-	68.2	-38.47	0-360	101	H
2	2.636	34.29	PK	32.1	-34.3	0	32.09	-	-	-	-	68.2	-36.11	0-360	101	H
3	3.447	34.48	PK	32.8	-34.1	0	33.18	-	-	-	-	68.2	-35.02	0-360	201	H
4	7.997	32.1	PK	35.8	-30.6	0	37.3	-	-	-	-	68.2	-30.9	0-360	201	H
5	10.503	29.79	PK	37.6	-27.5	0	39.89	-	-	-	-	68.2	-28.31	0-360	201	V
6	13.557	29.4	PK	39.1	-27.4	0	41.1	-	-	-	-	68.2	-27.1	0-360	101	V

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (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
1.865	43.21	PK1	30.4	-35.3	0	38.31	-	-	-	-	68.2	-29.89	360	101	H
1.866	31.47	AD1	30.4	-35.3	.13	26.7	-	-	-	-	-	-	360	101	H

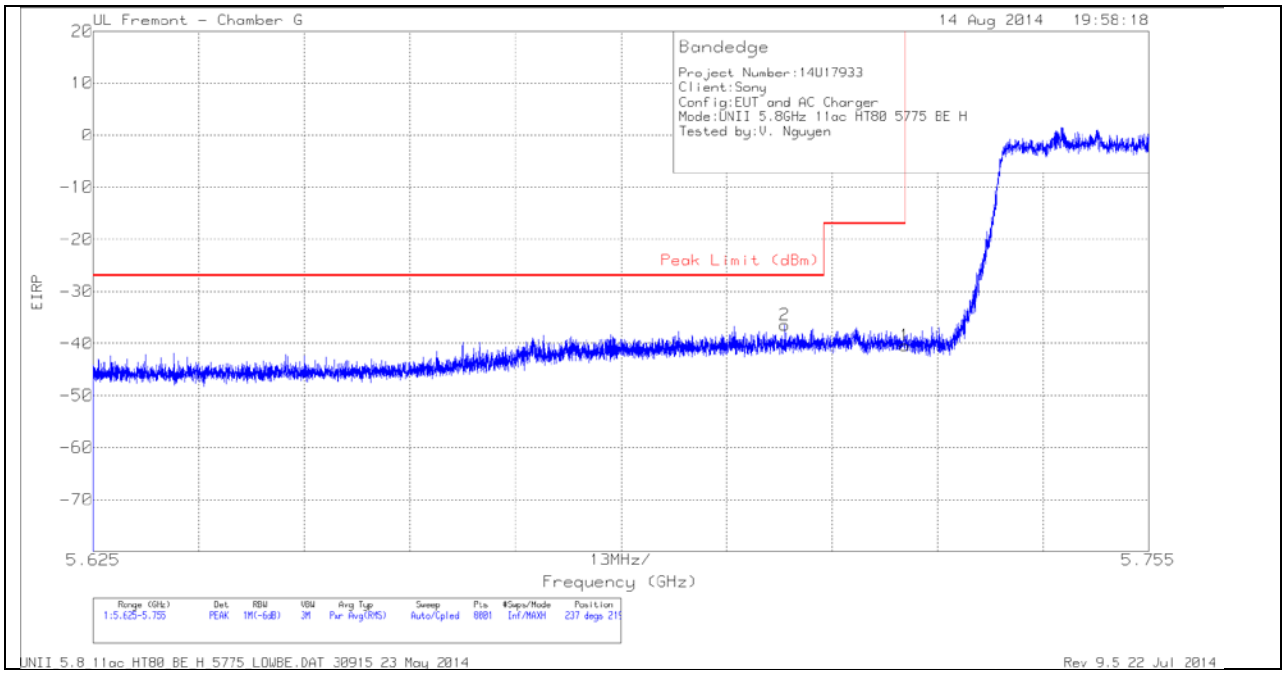
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

11.3.4. TX ABOVE 1 GHz 802.11ac HT80 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

HORIZONTAL PEAK PLOT

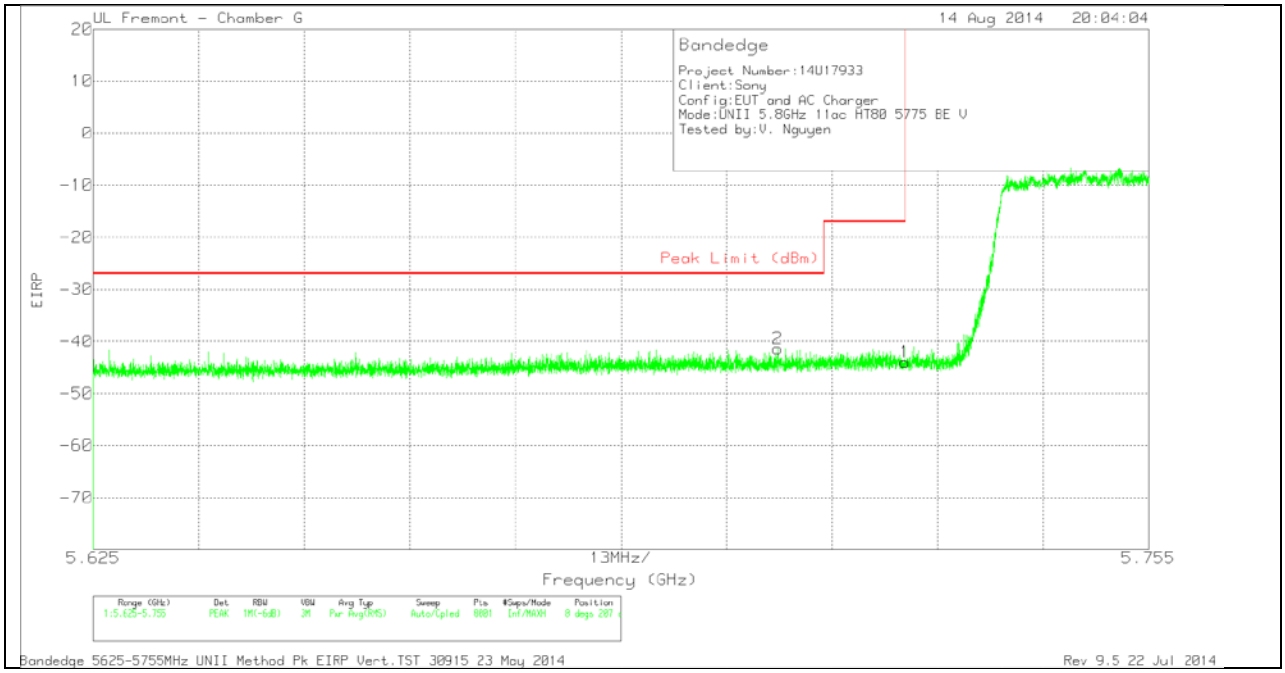


HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.71	-59.57	PK	34.8	-23.5	11.8	0	-36.47	-27	-9.47	237	219	H
1	5.725	-63.51	PK	34.8	-23.5	11.8	0	-40.41	-17	-23.41	237	219	H

PK - Peak detector

VERTICAL PEAK PLOT



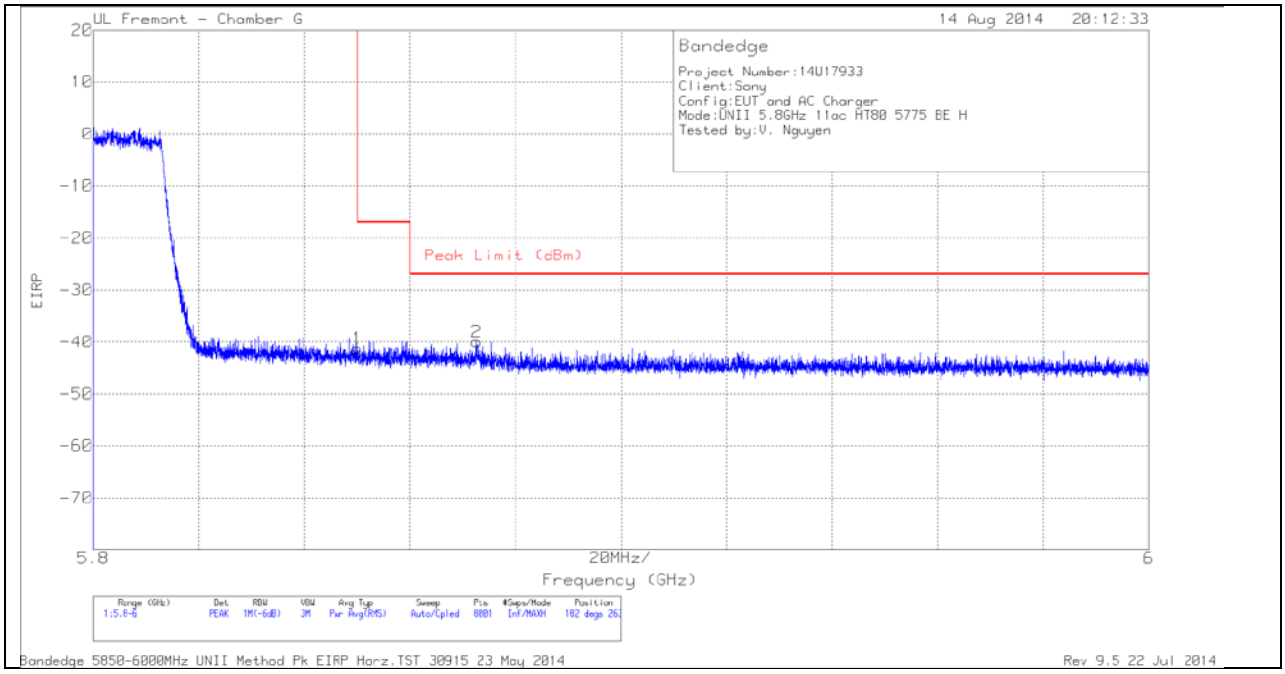
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.709	-64.49	PK	34.8	-23.5	11.8	0	-41.39	-27	-14.39	8	207	V
1	5.725	-67.07	PK	34.8	-23.5	11.8	0	-43.97	-17	-26.97	8	207	V

PK - Peak detector

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK PLOT

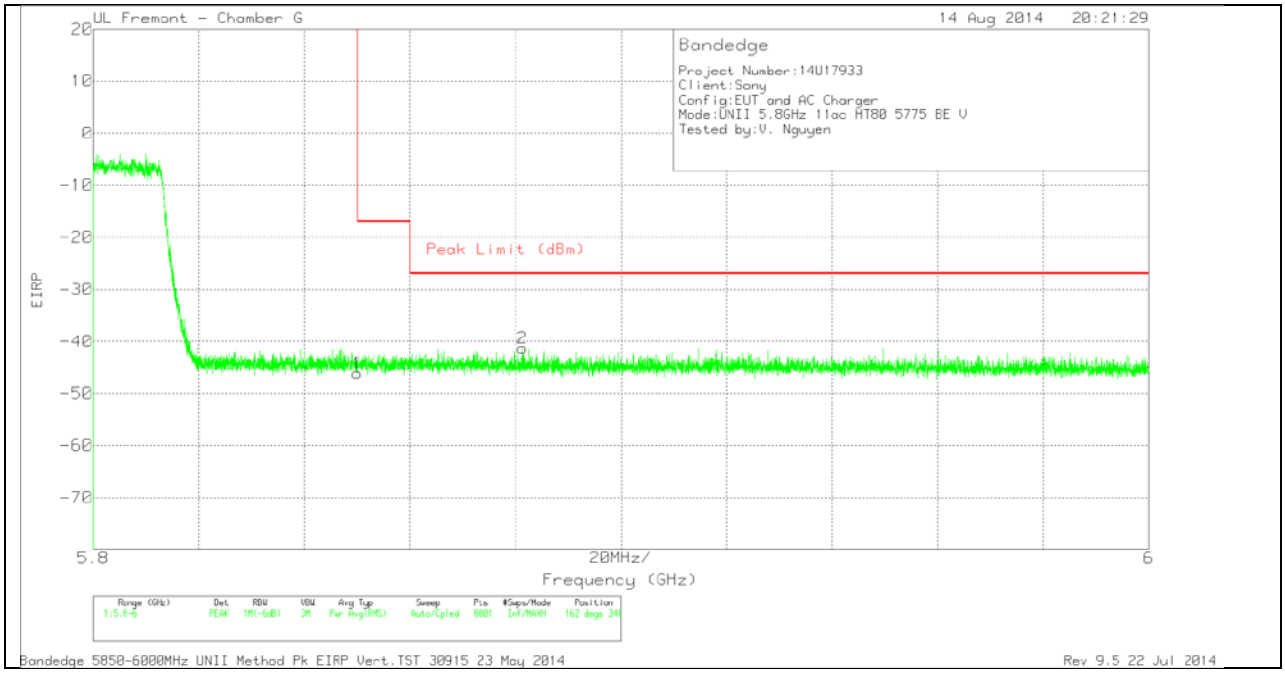


HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-64.47	PK	35	-23.6	11.8	0	-41.27	-17	-24.27	182	263	H
2	5.873	-63.17	PK	35	-23.6	11.8	0	-39.97	-27	-12.97	182	263	H

PK - Peak detector

VERTICAL PEAK PLOT

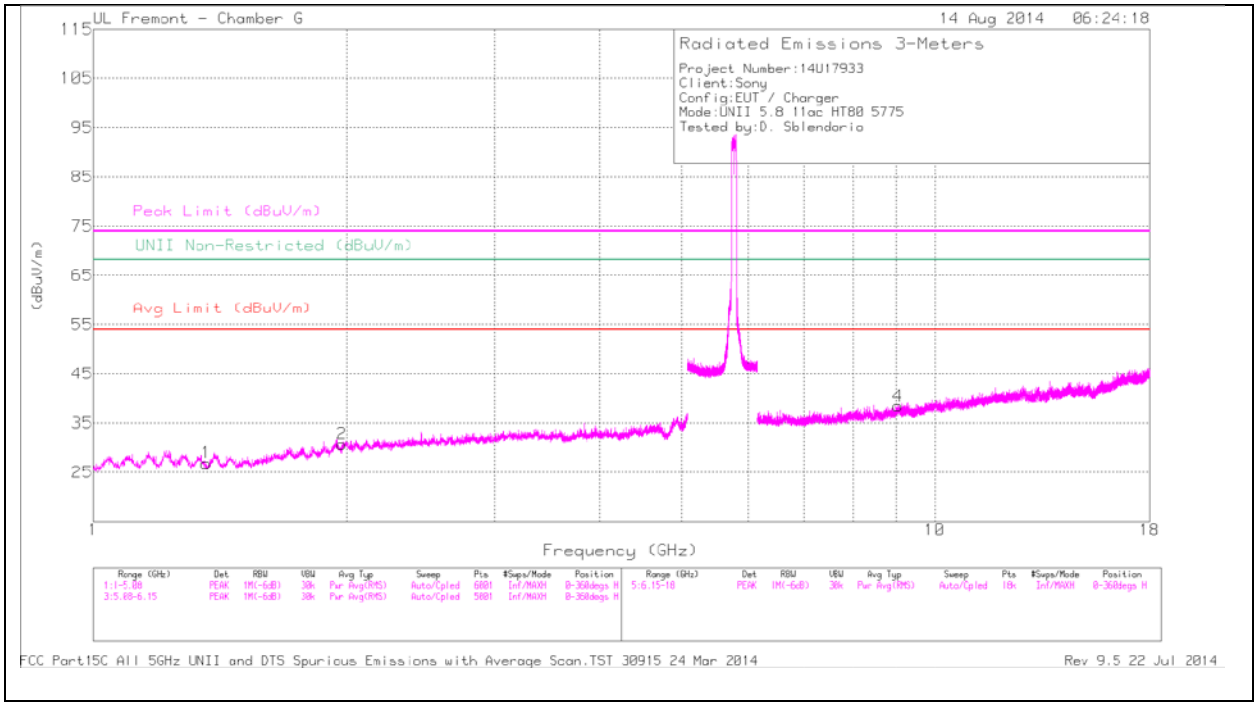


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-69.34	PK	35	-23.6	11.8	0	-46.14	-17	-29.14	162	346	V
2	5.881	-64.52	PK	35	-23.6	11.8	0	-41.32	-27	-14.32	162	346	V

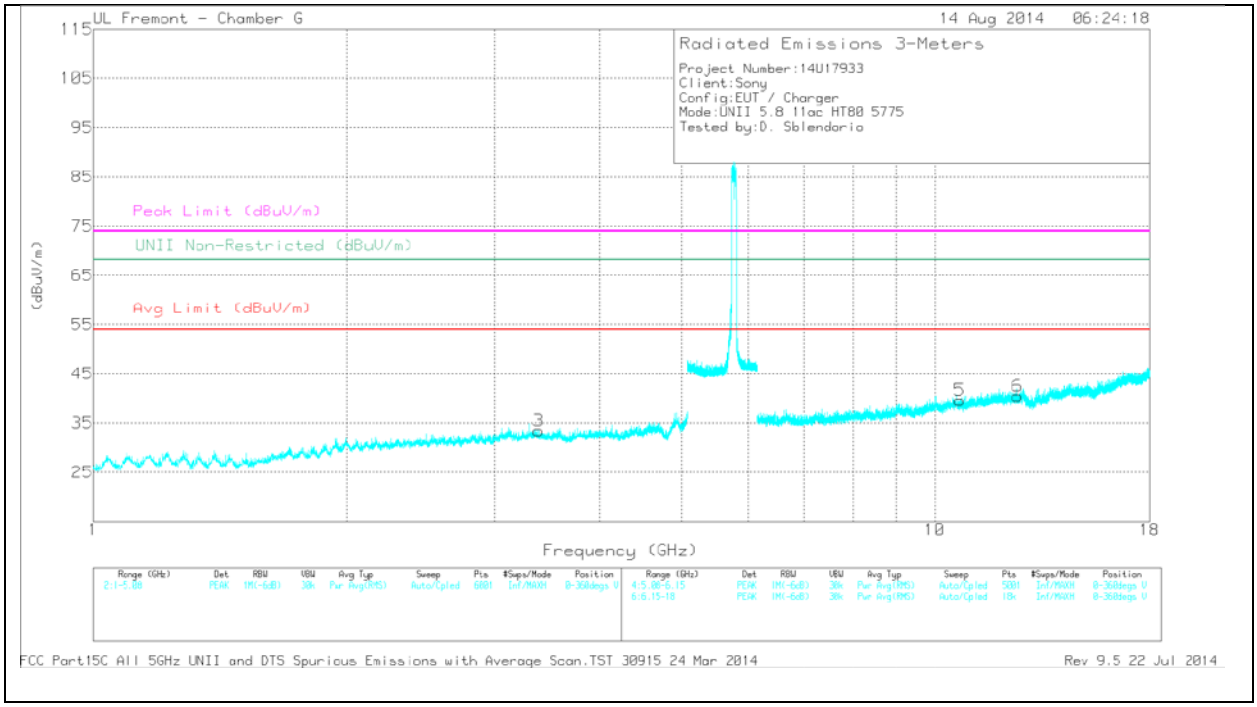
PK - Peak detector

LOW CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

TRACE MARKERS

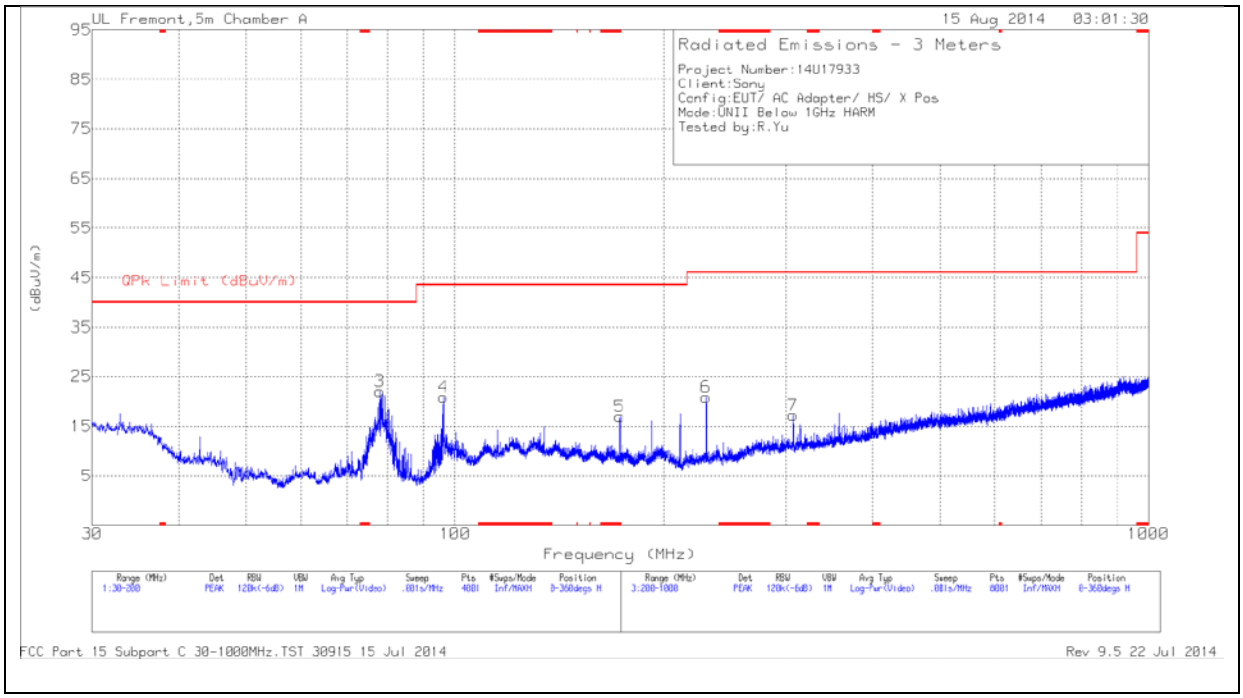
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.362	33.68	PK	28.6	-35.4	0	26.88	-	-	74	-47.12	-	-	0-360	201	H
4	* 9.039	30.53	PK	36.4	-28.5	0	38.43	-	-	74	-35.57	-	-	0-360	201	H
5	* 10.711	29.23	PK	37.7	-27.3	0	39.63	-	-	74	-34.37	-	-	0-360	101	V
6	* 12.549	28.28	PK	39	-26.8	0	40.48	-	-	74	-33.52	-	-	0-360	101	V
2	1.975	34.31	PK	31.1	-34.7	0	30.71	-	-	-	-	68.2	-37.49	0-360	101	H
3	3.381	34.13	PK	32.9	-33.6	0	33.43	-	-	-	-	68.2	-34.77	0-360	201	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

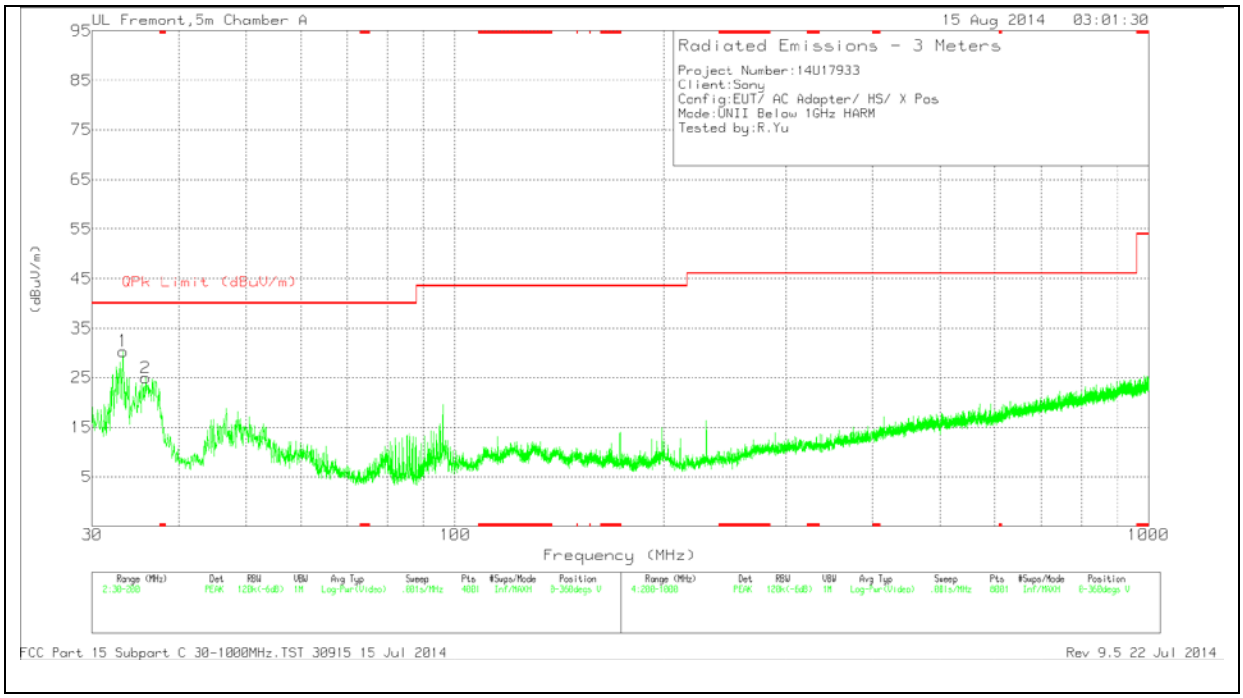
PK - Peak detector

12. WORST-CASE BELOW 1 GHz (in the 5.3 GHz Band)

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)



SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)



Below 1G Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	* 172.8	35.24	PK	11.7	-30	16.94	43.52	-26.58	0-360	200	H
1	33.1875	42.06	PK	19.4	-31.1	30.36	40	-9.64	0-360	101	V
2	35.78	38.55	PK	17.5	-31.1	24.95	40	-15.05	0-360	101	V
3	77.9825	44.69	PK	7.8	-30.4	22.09	40	-17.91	0-360	200	H
4	96.3	42.14	PK	9.2	-30.4	20.94	43.52	-22.58	0-360	400	H
6	230.4	39.42	PK	11.1	-29.6	20.92	46.02	-25.1	0-360	200	H
7	307.2	32.84	PK	13.7	-29.3	17.24	46.02	-28.78	0-360	101	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

13. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

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 C63.4.

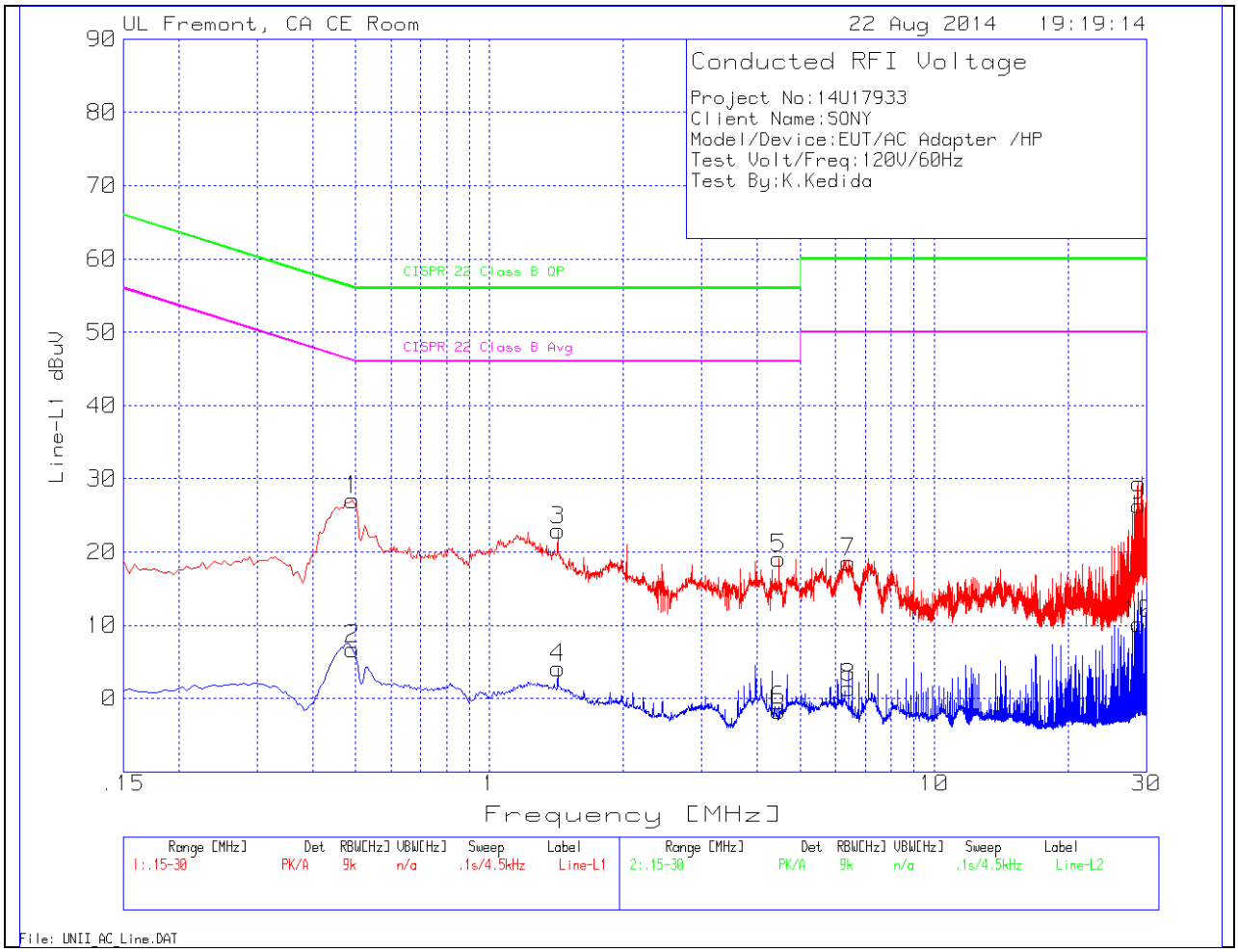
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

6 WORST EMISSIONS

LINE 1 PLOT

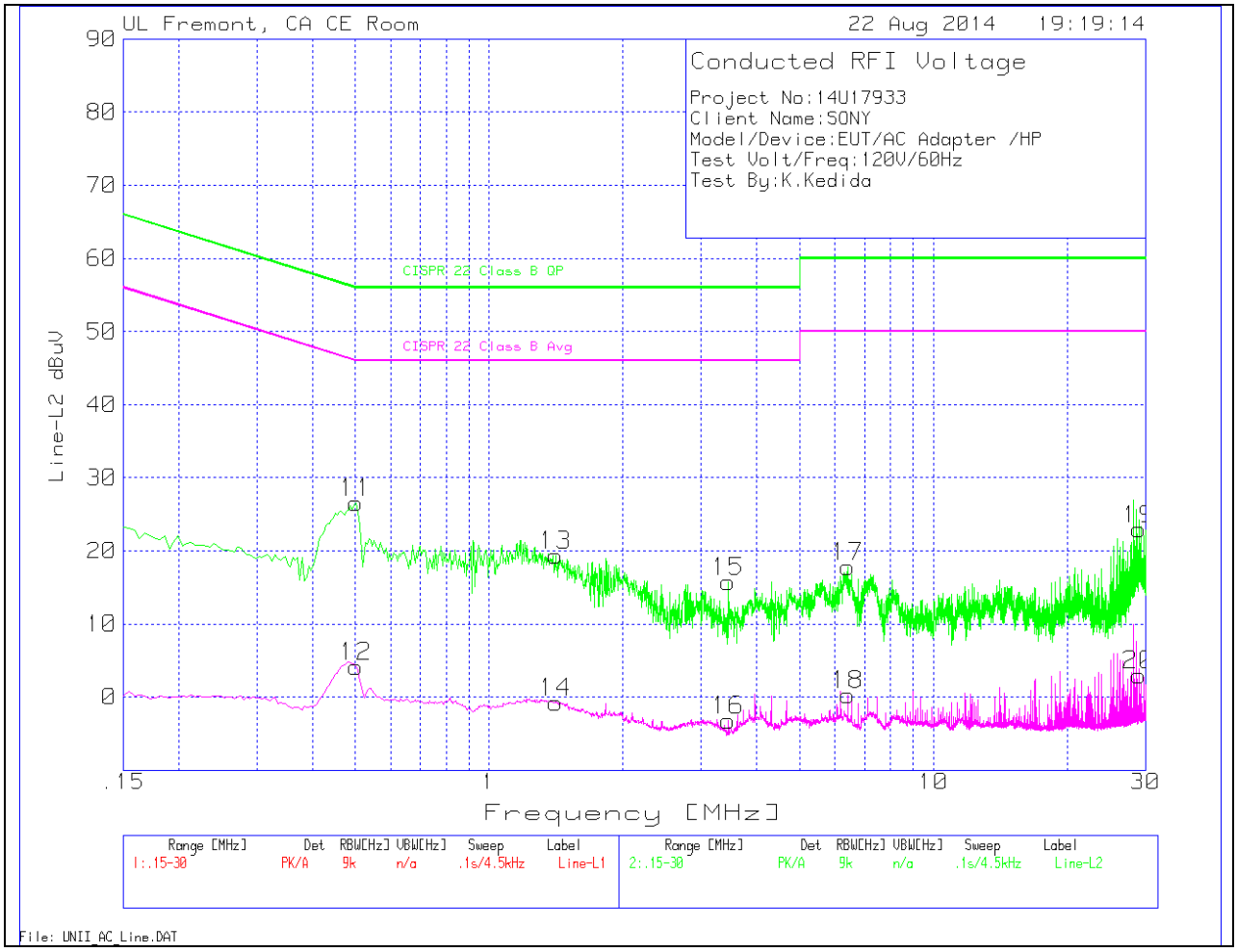


LINE 1 RESULTS

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1 (dB)	LC Cables 1&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
1	.492	26.7	PK	.4	0	27.1	56.1	-29	-	-
2	.492	6.32	Av	.4	0	6.72	-	-	46.1	-39.38
3	1.4235	22.6	PK	.2	.1	22.9	56	-33.1	-	-
4	1.4235	3.85	Av	.2	.1	4.15	-	-	46	-41.85
5	4.4745	18.76	PK	.2	.1	19.06	56	-36.94	-	-
6	4.4745	-1.96	Av	.2	.1	-1.66	-	-	46	-47.66
7	6.4185	18.33	PK	.2	.1	18.63	60	-41.37	-	-
8	6.4185	1.08	Av	.2	.1	1.38	-	-	50	-48.62
9	28.869	25.77	PK	.3	.3	26.37	60	-33.63	-	-
10	28.869	9.54	Av	.3	.3	10.14	-	-	50	-39.86

LINE 2 PLOT



LINE 2 RESULTS

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2 (dB)	LC Cables 2&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
11	.501	26.19	PK	.4	0	26.59	56	-29.41	-	-
12	.501	3.71	Av	.4	0	4.11	-	-	46	-41.89
13	1.41	19.15	PK	.2	0	19.35	56	-36.65	-	-
14	1.41	-.93	Av	.2	0	-.73	-	-	46	-46.73
15	3.4575	15.44	PK	.2	.1	15.74	56	-40.26	-	-
16	3.4575	-3.56	Av	.2	.1	-3.26	-	-	46	-49.26
17	6.414	17.49	PK	.2	.1	17.79	60	-42.21	-	-
18	6.414	-.03	Av	.2	.1	.27	-	-	50	-49.73
19	29.0355	22.3	PK	.3	.3	22.9	60	-37.1	-	-
20	29.0355	2.39	Av	.3	.3	2.99	-	-	50	-47.01

14. DYNAMIC FREQUENCY SELECTION

14.1. OVERVIEW

14.1.1. LIMITS

INDUSTRY CANADA

IC RSS-210 is closely harmonized with FCC Part 15 DFS rules. The deviations are as follows:

RSS-210 Issue 7 A9.4 (b) (ii) **Channel Availability Check Time:** …

Additional requirements for the band 5600-5650 MHz: Until further notice, devices subject to this Section shall not be capable of transmitting in the band 5600-5650 MHz, so that Environment Canada weather radars operating in this band are protected.

FCC

§15.407 (h), FCC KDB 905462 D02 “COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVICES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION” and KDB 905462 D03 “U-NII CLIENT DEVICES WITHOUT RADAR DETECTION CAPABILITY”.

Table 1: Applicability of DFS requirements prior to use of a channel

Requirement	Operational Mode		
	Master	Client (without radar detection)	Client (with radar detection)
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode		
	Master	Client **(without DFS)**	Client **(with DFS)**
DFS Detection Threshold	Yes	Not required	Yes
Channel Closing Transmission Time	Yes	Yes	Yes
Channel Move Time	Yes	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 3: Interference Threshold values, Master or Client incorporating In-Service Monitoring

Maximum Transmit Power	Value (see notes)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet power spectral density requirement	-64 dBm

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna
Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.
Note 3: E.I.R.P. is based on the highest antenna gain. For MIMO devices refer to KDB publication 662911 D01.

Table 4: DFS Response requirement values

Parameter	Value
Non-occupancy period	30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds (See Note 1)
Channel Closing Transmission Time	200 milliseconds + approx. 60 milliseconds over remaining 10 second period. (See Notes 1 and 2)
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. (See Note 3)

Note 1: The instant that the *Channel Move Time* and the *Channel Closing Transmission Time* begins is as follows:
-For the Short pulse radar Test Signals this instant is the end of the *Burst*.
-For the Frequency Hopping radar Test Signal, this instant is the end of the last radar burst generated.
-For the Long Pulse radar Test Signal this instant is the end of the 12-second period defining the radar waveform.
Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate channel changes (an aggregate of approximately 60 milliseconds) during the remainder of the 10-second period. The aggregate duration of control signals will not count quiet periods in between transmissions.
Note 3: During the U-NII Detection Bandwidth detection test, any one of radar types 0-4 can be used and for each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic. The 99% power bandwidth is measured with 100 kHz resolution bandwidth.

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (usec)	PRI (usec)	Pulses	Minimum Percentage of Successful Detection	Minimum Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in table 5a	Roundup: {(1/360) x (19 x 10^6 PRI_{usec})}	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 usec. With a minimum increment of 1 usec, excluding PRI values selected in Test A			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

Note 1: Short Pulse Radar Type 0 shall only be used for the channel availability and detection bandwidth tests. It should be noted that any of the radar test waveforms 0-4 can be used for the channel availability and detection bandwidth tests.

Table 6 – Long Pulse Radar Test Signal

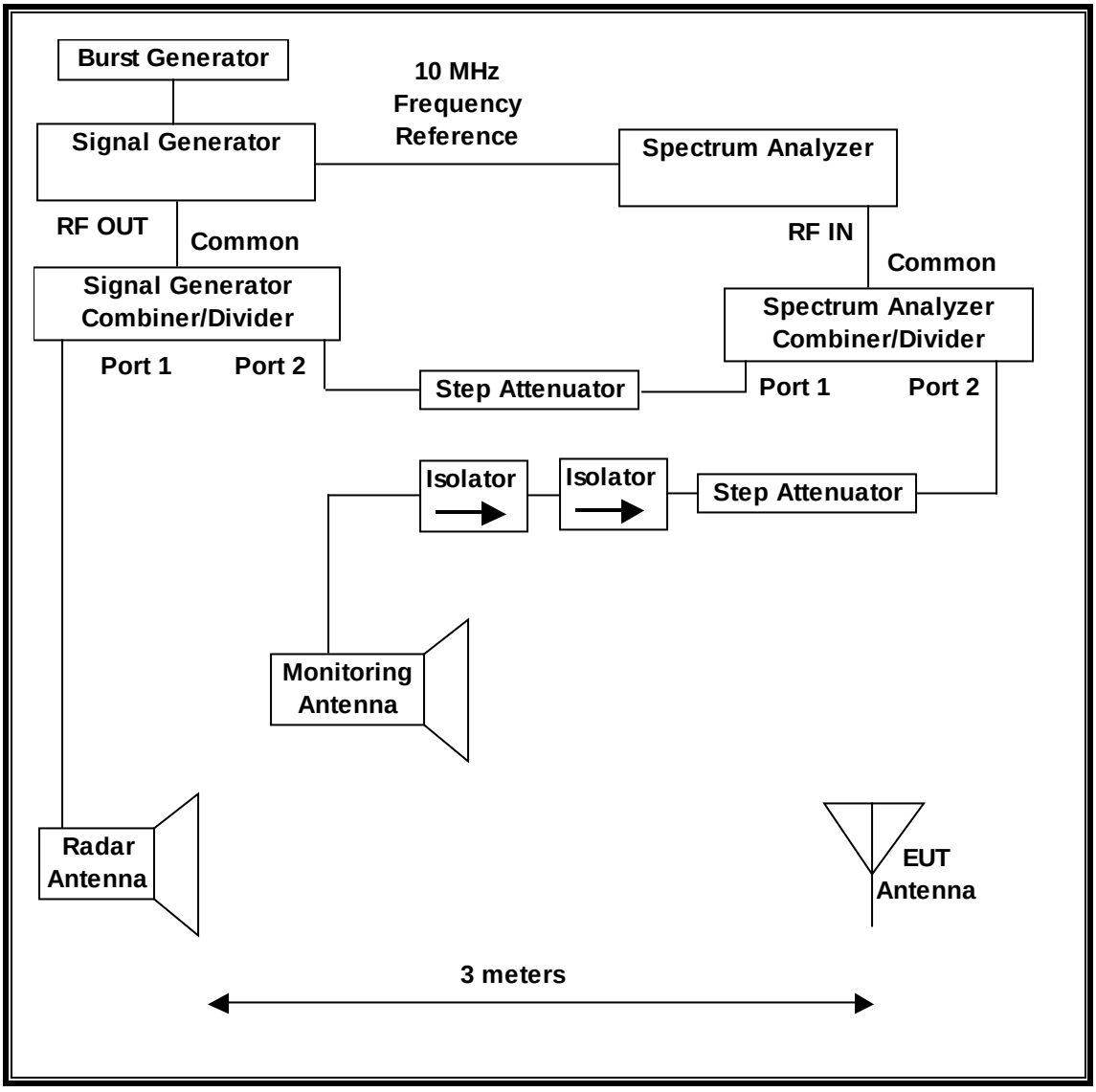
Radar Waveform Type	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

Table 7 – Frequency Hopping Radar Test Signal

Radar Waveform Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	9	0.333	300	70%	30

14.1.2. TEST AND MEASUREMENT SYSTEM

RADIATED METHOD SYSTEM BLOCK DIAGRAM



SYSTEM OVERVIEW

The short pulse and long pulse signal generating system utilizes the NTIA software. The Vector Signal Generator has been validated by the NTIA. The hopping signal generating system utilizes the CCS simulated hopping method and system, which has been validated by the DoD, FCC and NTIA. The software selects waveform parameters from within the bounds of the signal type on a random basis using uniform distribution.

The short pulse types 1, 2, 3 and 4, and the long pulse type 5 parameters are randomized at run-time.

The hopping type 6 pulse parameters are fixed while the hopping sequence is based on the August 2005 NTIA Hopping Frequency List. The initial starting point randomized at run-time and each subsequent starting point is incremented by 475. Each frequency in the 100-length segment is compared to the boundaries of the EUT Detection Bandwidth and the software creates a hopping burst pattern in accordance with Section 7.4.1.3 Method #2 Simulated Frequency Hopping Radar Waveform Generating Subsystem of FCC 06-96 APPENDIX. The frequency of the signal generator is incremented in 1 MHz steps from F_L to F_H for each successive trial. This incremental sequence is repeated as required to generate a minimum of 30 total trials and to maintain a uniform frequency distribution over the entire Detection Bandwidth.

The signal monitoring equipment consists of a spectrum analyzer. The aggregate ON time is calculated by multiplying the number of bins above a threshold during a particular observation period by the dwell time per bin, with the analyzer set to peak detection and max hold.

SYSTEM CALIBRATION

A 50-ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected to a horn antenna via a coaxial cable, with the reference level offset set to (horn antenna gain – coaxial cable loss). The signal generator is set to CW mode. The amplitude of the signal generator is adjusted to yield a level of –64 dBm as measured on the spectrum analyzer.

Without changing any of the instrument settings, the spectrum analyzer is reconnected to the Common port of the Spectrum Analyzer Combiner/Divider. The Reference Level Offset of the spectrum analyzer is adjusted so that the displayed amplitude of the signal is –64 dBm.

The spectrum analyzer displays the level of the signal generator as received at the antenna ports of the Master Device. The interference detection threshold may be varied from the calibrated value of –64 dBm and the spectrum analyzer will still indicate the level as received by the Master Device.

ADJUSTMENT OF DISPLAYED TRAFFIC LEVEL

A link is established between the Master and Slave and the distance between the units is adjusted as needed to provide a suitable received level at the Master and Slave devices. The video test file is streamed to generate WLAN traffic. The monitoring antenna is adjusted so that the WLAN traffic level, as displayed on the spectrum analyzer, is at lower amplitude than the radar detection threshold.

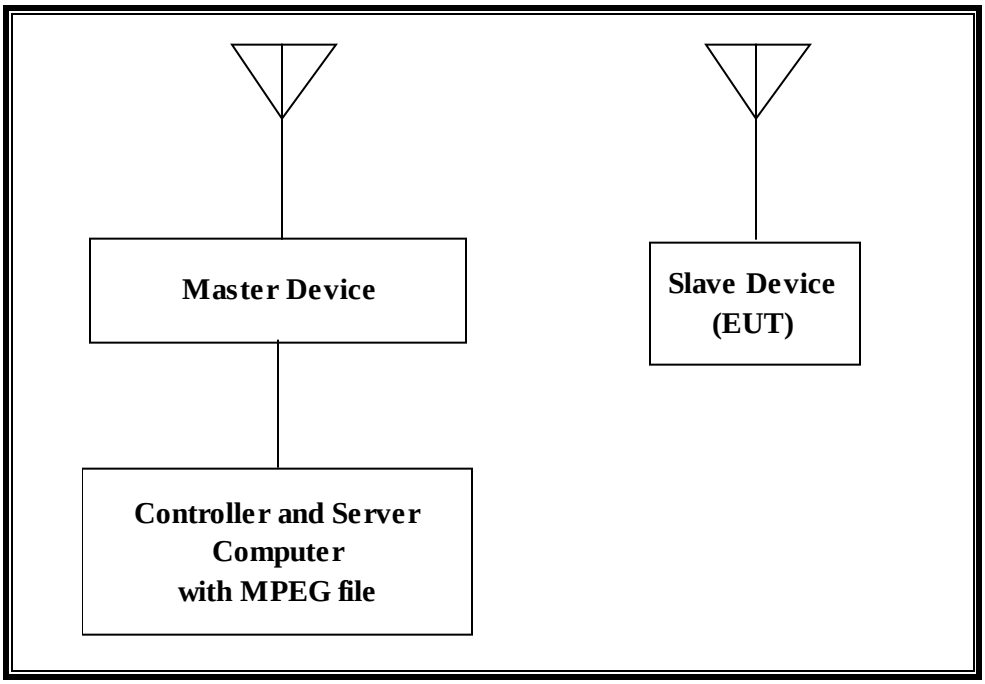
TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Asset Number**	**Cal Due**
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01178	09/10/14
Vector Signal Generator, 20GHz	Agilent / HP	E8267C	C01066	09/12/14

14.1.3. SETUP OF EUT

RADIATED METHOD EUT TEST SETUP



SUPPORT EQUIPMENT

The following support equipment was utilized for the DFS tests documented in this report:

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Wireless Access Point	Cisco	AIR-AP1252AG-A-K9	FTX120690N2	LDK102061
AC Adapter (AP)	Delta Electronics	EADP-45BB B	DTH112490BD	DoC
Notebook PC (Controller/Server)	Dell	PP18L	10657517725	DoC
AC Adapter (Controller/Server PC)	Dell	LA65SN0-00	CN-ODF263-71615-6AU-1019	DoC

14.1.4. DESCRIPTION OF EUT

The EUT operates over the 5250-5350 MHz and 5470-5725 MHz ranges excluding the 5600-5650 MHz range.

The EUT is a Slave Device without Radar Detection.

The highest power level within these bands is 27.54 dBm EIRP in the 5250-5350 MHz band and 28.77 dBm EIRP in the 5470-5725 MHz band.

The only antenna assembly utilized with the EUT has a gain of 1.5 dBi.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is –64 dBm. After correction for procedural adjustments, the required radiated threshold at the antenna port is –64 + 1 = -63 dBm.

The calibrated radiated DFS Detection Threshold level is set to –64 dBm. The tested level is lower than the required level hence it provides a margin to the limit.

The EUT uses one transmitter/receiver chain connected to an antenna to perform radiated tests.

WLAN traffic is generated by streaming the video file TestFile.mp2 “6 ½ Magic Hours” from the Master to the Slave in full motion video mode using the MP4 Player version 1.7.21 media play.

TPC is required since the maximum EIRP is greater than 500 mW (27 dBm).

TPC is not required since the maximum EIRP is less than 500 mW (27 dBm).

The EUT utilizes the 802.11a/n architecture. Two nominal channel bandwidths are implemented: 20 MHz and 40 MHz.

The software installed in the access point is 12.4(25d) JA1.

UNIFORM CHANNEL SPREADING

This requirement is not applicable to Slave radio devices.

OVERVIEW OF MASTER DEVICE WITH RESPECT TO §15.407 (h) REQUIREMENTS

The Master Device is a Cisco Access Point, FCC ID: LDK102061. The minimum antenna gain for the Master Device is 3.5 dBi.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is –64 dBm. After correction for procedural adjustments, the required radiated threshold at the antenna port is –64 + 1 = -63 dBm.

The calibrated radiated DFS Detection Threshold level is set to –64 dBm. The tested level is lower than the required level hence it provides a margin to the limit.

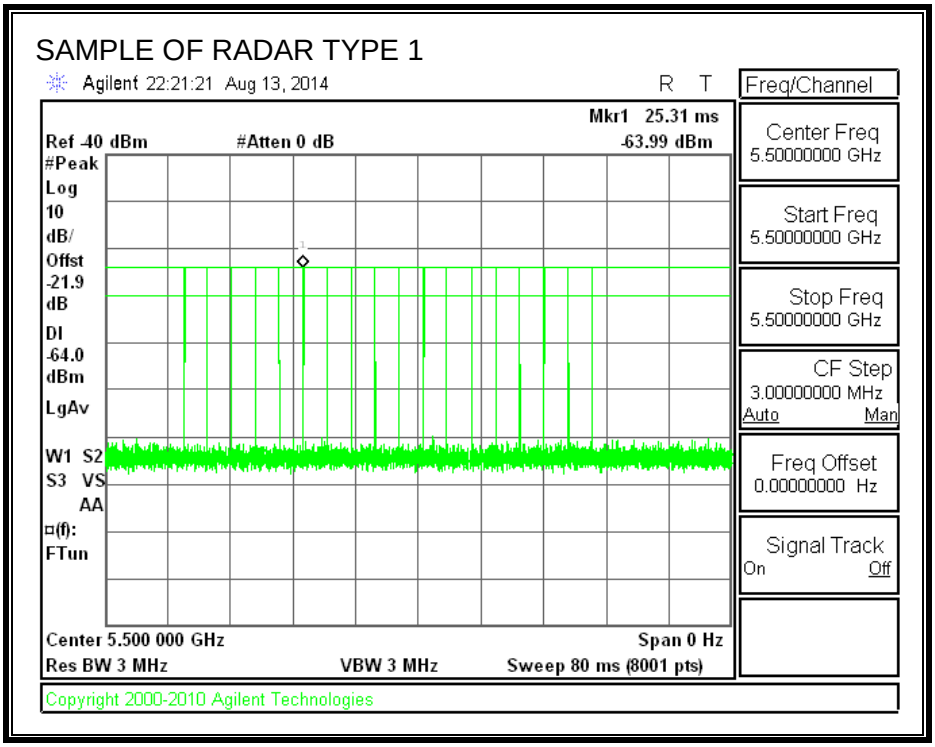
14.2. RESULTS FOR 20 MHz BANDWIDTH

14.2.1. TEST CHANNEL

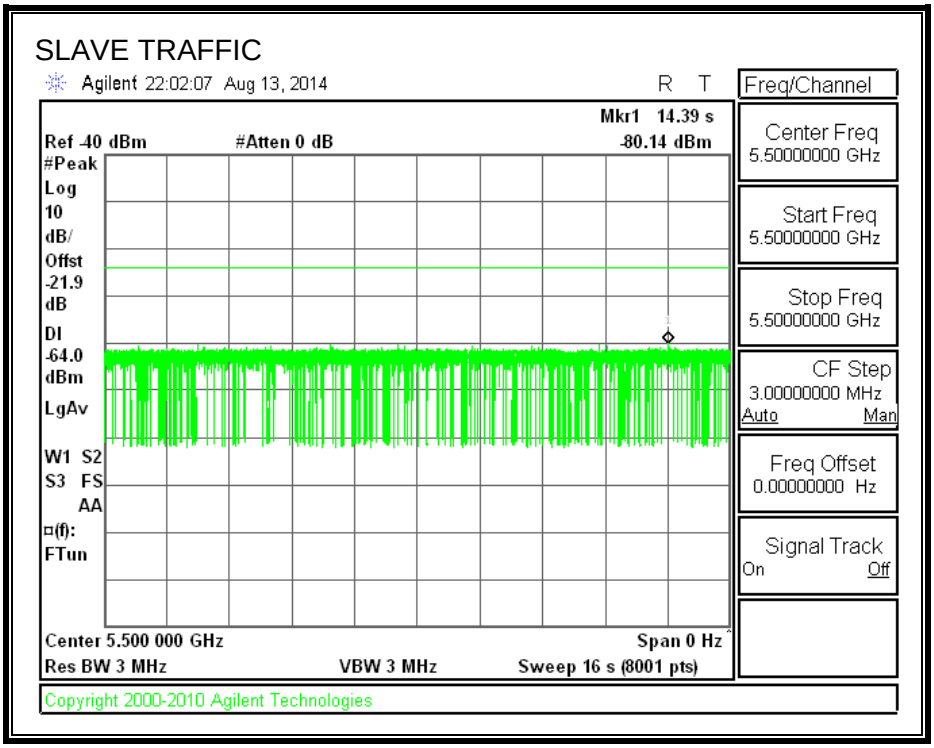
All tests were performed at a channel center frequency of 5500 MHz.

14.2.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



TRAFFIC



14.2.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

14.2.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)

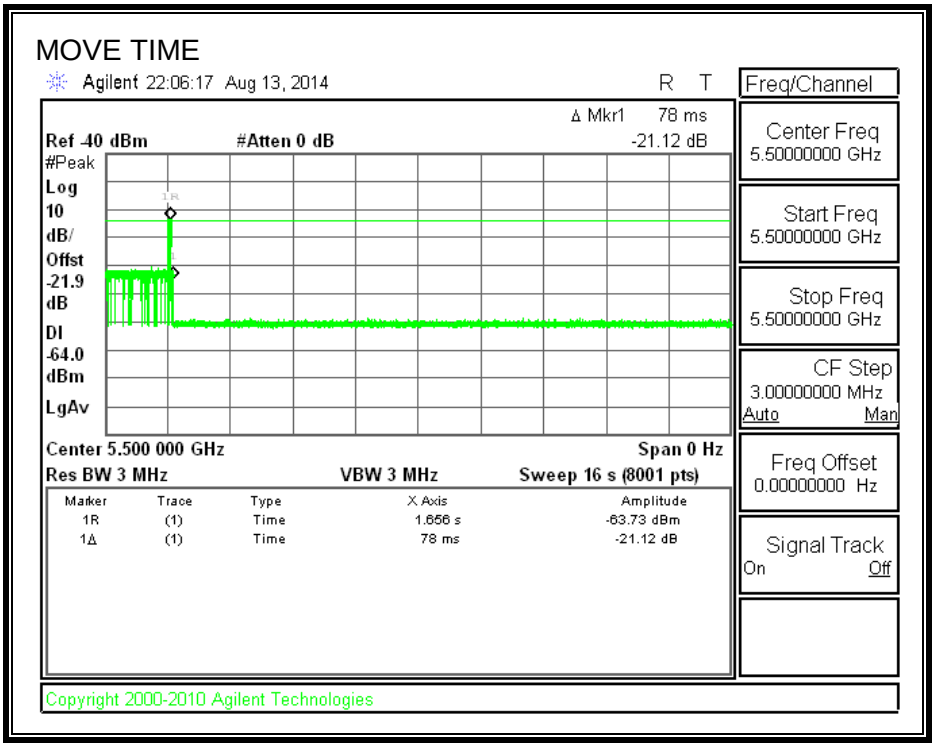
The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

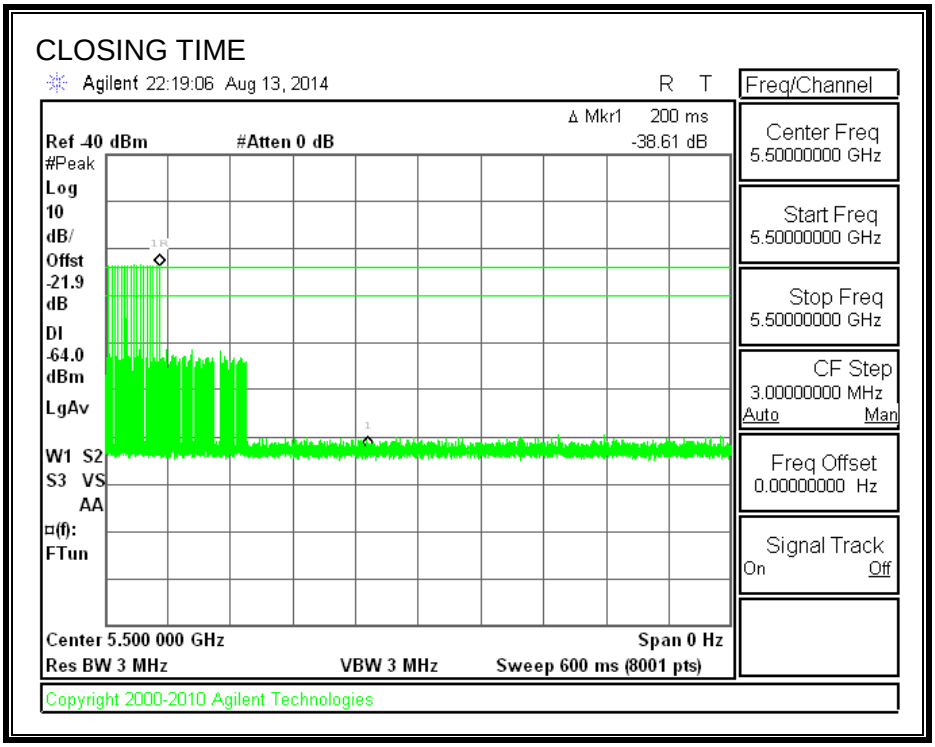
Channel Move Time (sec)	Limit (sec)
0.078	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
0.0	60

MOVE TIME

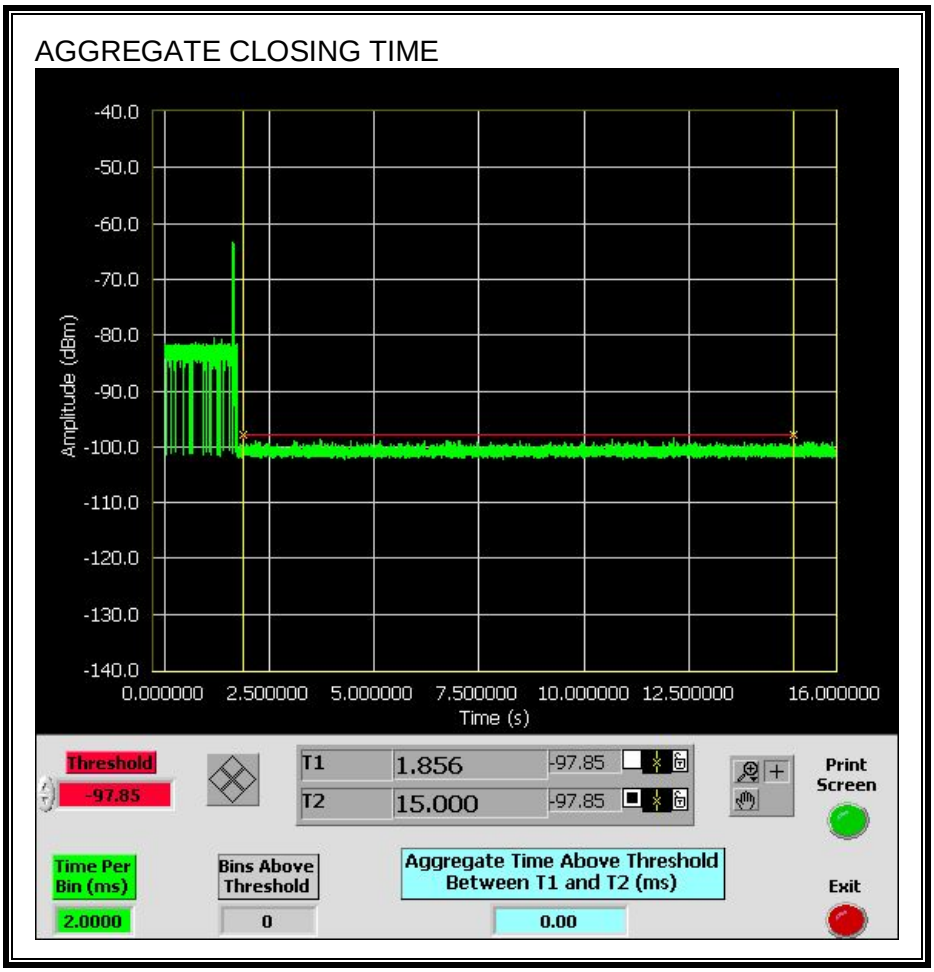


CHANNEL CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.



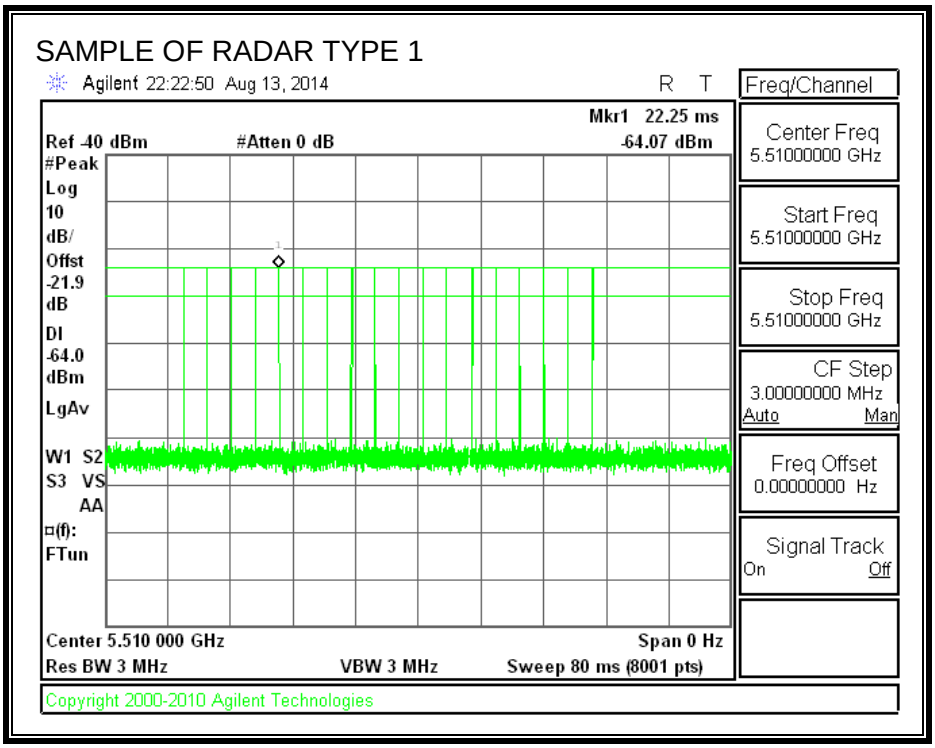
14.3. RESULTS FOR 40 MHz BANDWIDTH

14.3.1. TEST CHANNEL

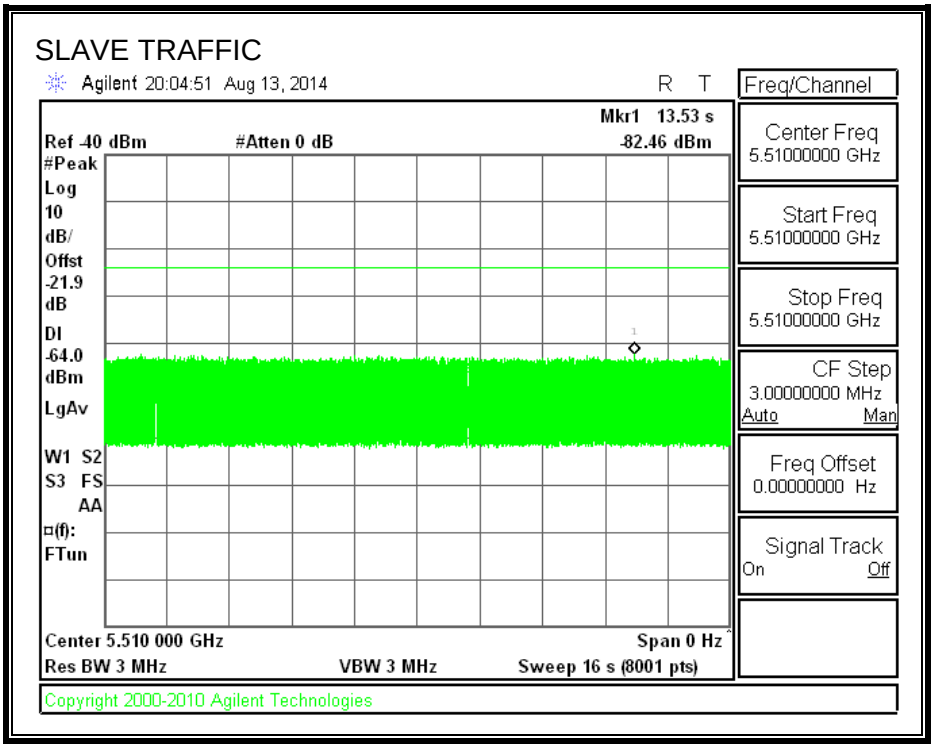
All tests were performed at a channel center frequency of 5510 MHz.

14.3.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



TRAFFIC



14.3.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

14.3.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)

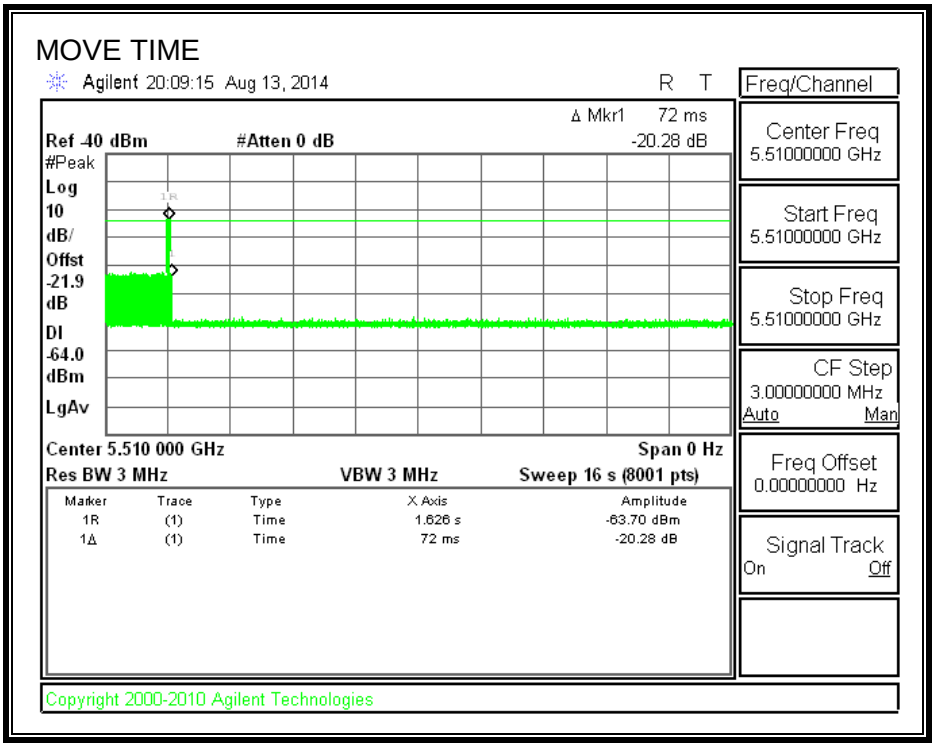
The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

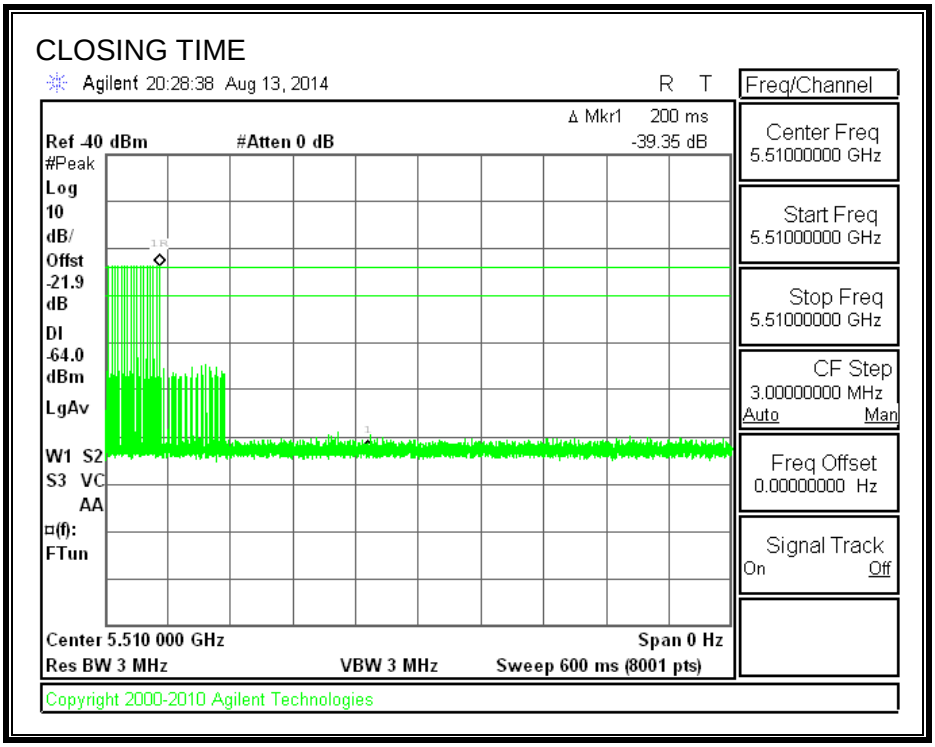
Channel Move Time (sec)	Limit (sec)
0.072	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
0.0	60

MOVE TIME

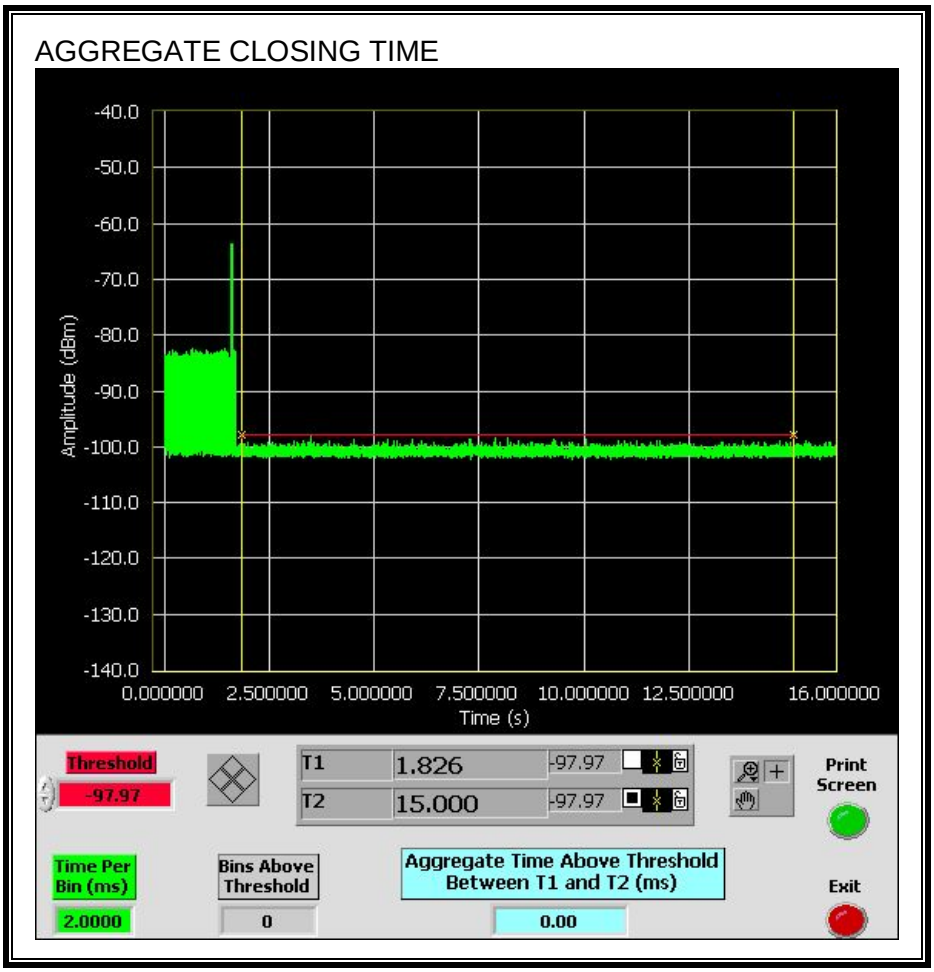


CHANNEL CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.



14.3.5. NON-OCCUPANCY PERIOD

RESULTS

No EUT transmissions were observed on the test channel during the 30-minute observation time.