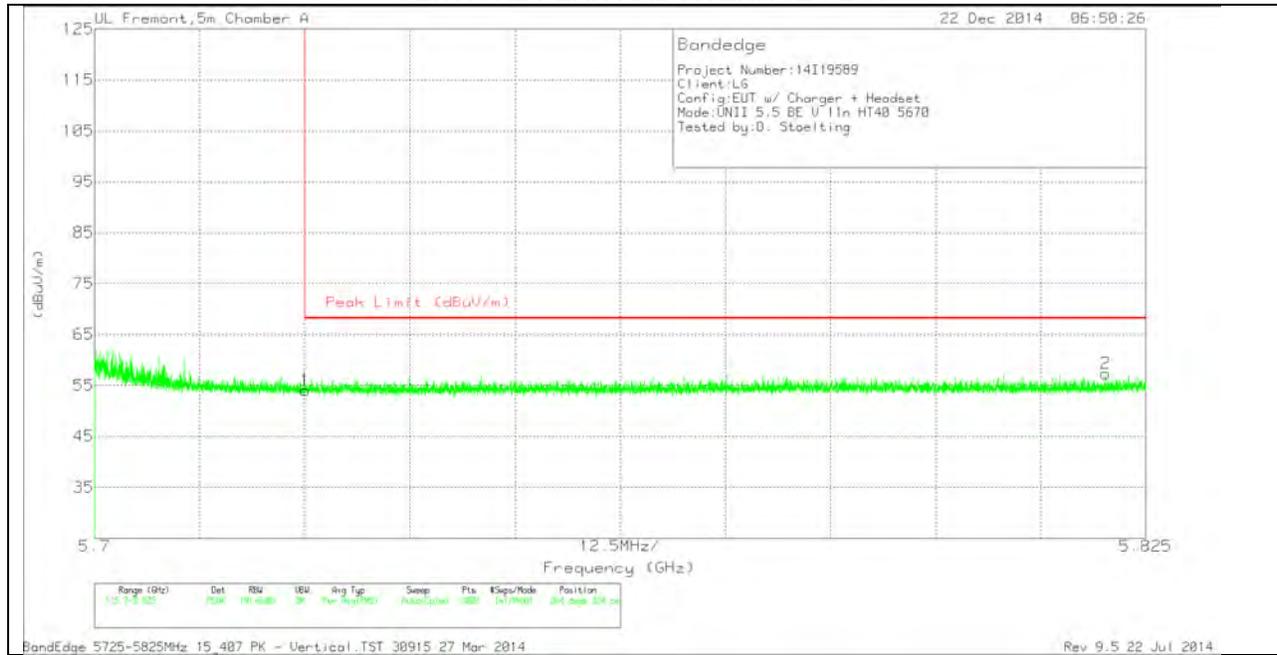


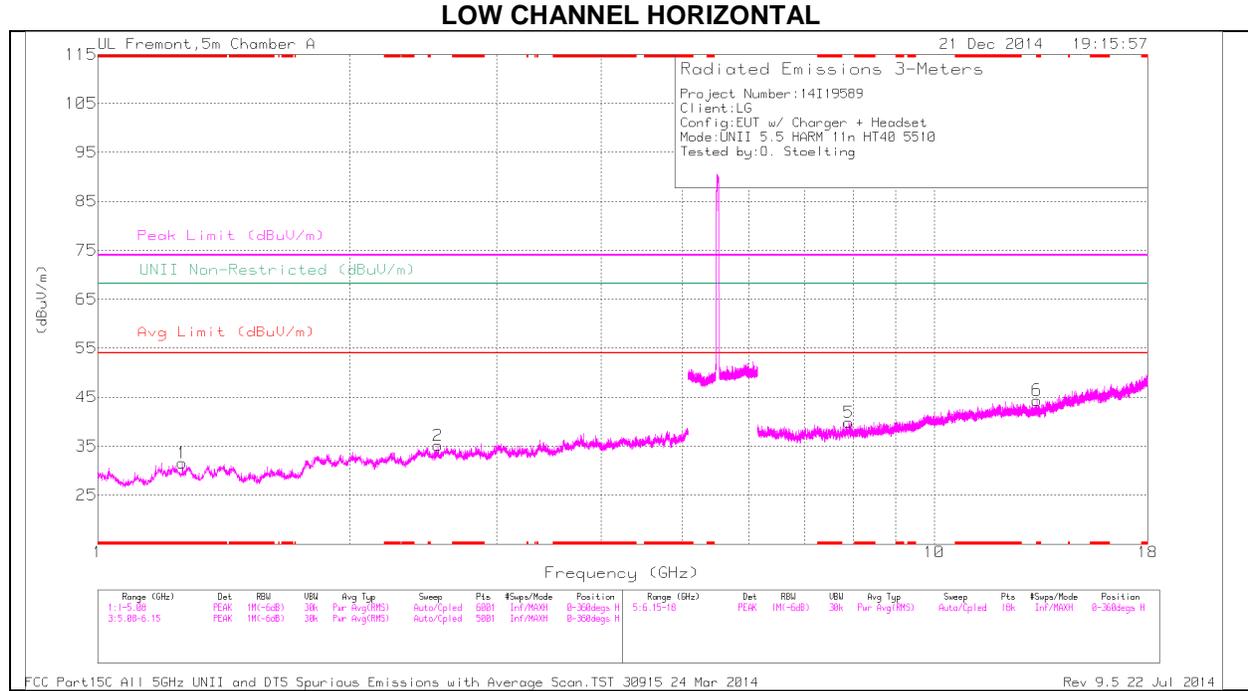
**VERTICAL PEAK AND AVERAGE PLOT**



**VERTICAL DATA**

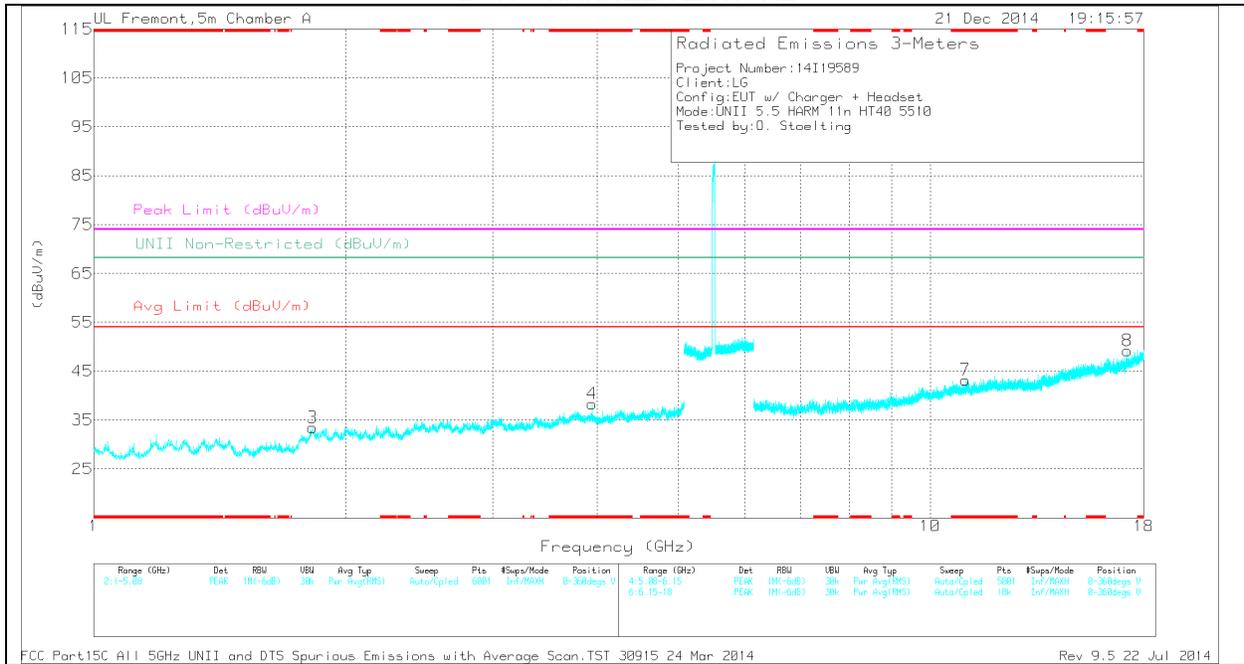
Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Filtr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	38.46	PK	34.6	-19	0	54.06	68.2	-14.14	264	324	V
2	5.82	41.02	PK	34.8	-18.5	0	57.32	68.2	-10.88	264	324	V

### HARMONICS AND SPURIOUS EMISSIONS



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	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Ftrr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricte d (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.262	35.85	PK	29.9	-34.2	0	31.55	-	-	74	-42.45	-	-	0-360	100	H
4	* 3.944	34.33	PK	33.7	-29.7	0	38.33	-	-	74	-35.67	-	-	0-360	201	V
6	13.262	27.57	PK	39.1	-22.3	0	44.37	-	-	74	-29.63	-	-	0-360	201	H
7	* 11.02	26.99	PK	37.7	-21.5	0	43.19	-	-	74	-30.81	-	-	0-360	201	V
3	1.827	34.78	PK	30.9	-32.2	0	33.48	-	-	-	-	68.2	-34.72	0-360	100	V
2	2.55	33.69	PK	32.9	-31.5	0	35.09	-	-	-	-	68.2	-33.11	0-360	201	H
5	7.908	29.65	PK	35.5	-25.3	0	39.85	-	-	-	-	68.2	-28.35	0-360	201	H
8	17.205	26.7	PK	40.8	-18.3	0	49.2	-	-	-	-	68.2	-19	0-360	100	V

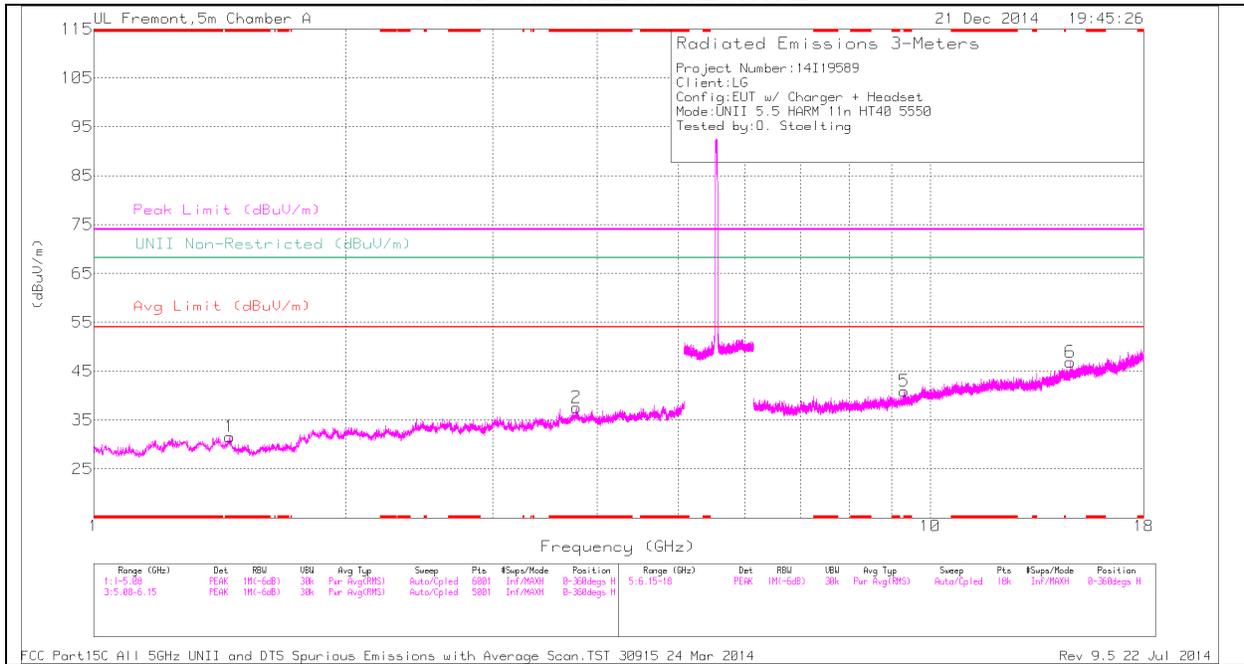
PK - Peak detector

*RADIATED EMISSIONS*

Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/F trr/Pad (dB)	DC Corr (dB)	Correcte d 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
* 3.943	39.74	PK1	33.7	-29.7	0	43.74	-	-	74	-30.26	-	-	96	296	V
* 3.945	28.14	AD1	33.7	-29.7	.47	32.61	54	-21.39	-	-	-	-	96	296	V
* 13.261	33.43	PK1	39.1	-22.2	0	50.33	-	-	74	-23.67	-	-	331	381	H
* 13.263	22.39	AD1	39.1	-22.3	.47	39.66	54	-14.34	-	-	-	-	331	381	H

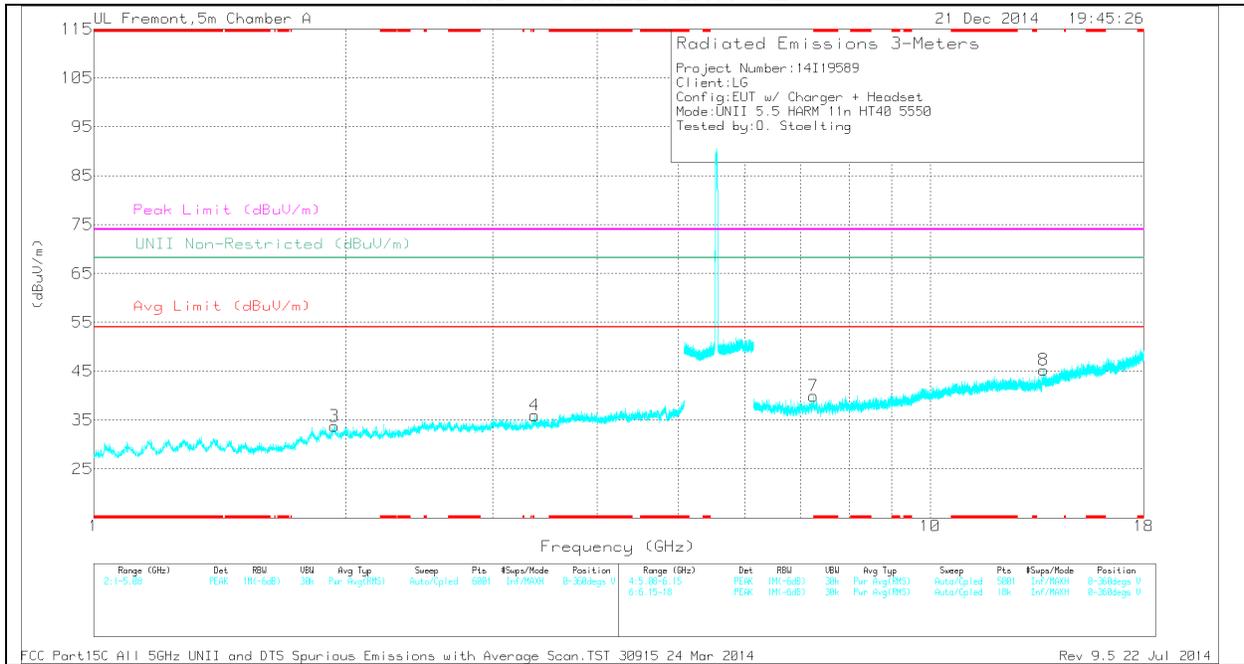
FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

**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	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Ftrr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non- Restrict ed (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.454	35.61	PK	29.2	-33.2	0	31.61	-	-	74	-42.39	-	-	0-360	100	H
2	* 3.775	33.69	PK	33.6	-29.7	0	37.59	-	-	74	-36.41	-	-	0-360	201	H
5	* 9.304	28.51	PK	36.2	-23.8	0	40.91	-	-	74	-33.09	-	-	0-360	201	H
3	1.94	34.56	PK	31.8	-32.6	0	33.76	-	-	-	-	68.2	-34.44	0-360	201	V
4	3.368	32.68	PK	33	-29.7	0	35.98	-	-	-	-	68.2	-32.22	0-360	100	V
7	7.249	29.52	PK	35.2	-24.8	0	39.92	-	-	-	-	68.2	-28.28	0-360	201	V
8	13.672	28.25	PK	38.8	-21.8	0	45.25	-	-	-	-	68.2	-22.95	0-360	201	V
6	14.701	28	PK	40	-21.1	0	46.9	-	-	-	-	68.2	-21.3	0-360	201	H

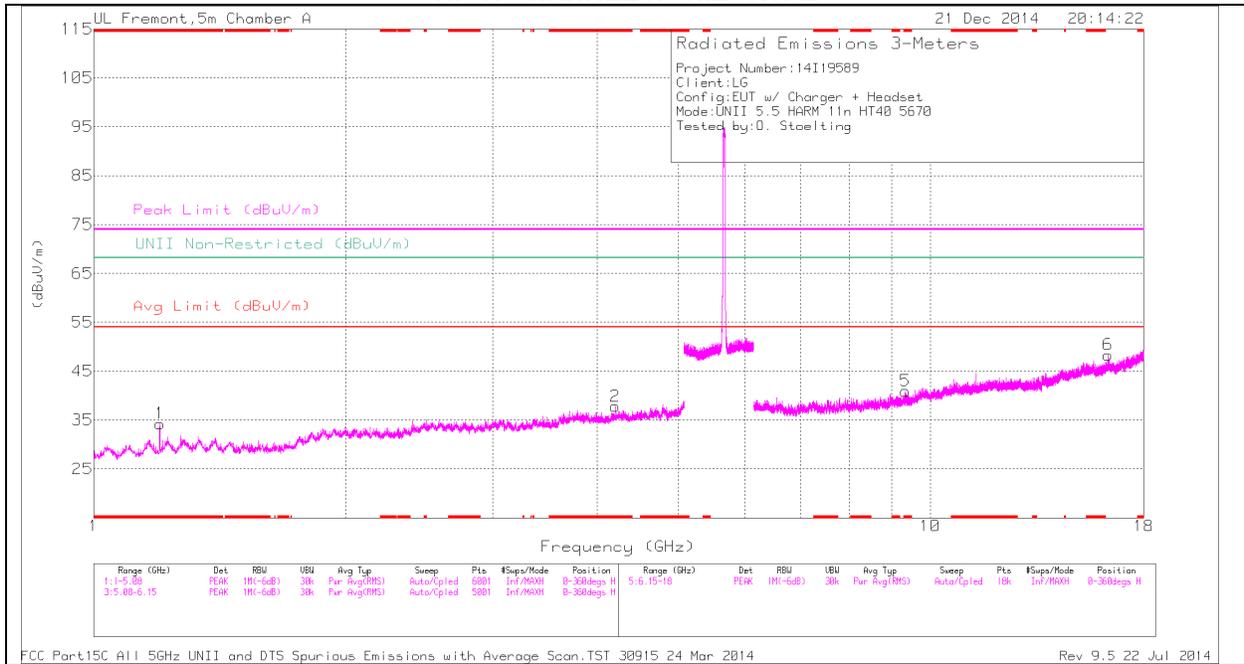
PK - Peak detector

*RADIATED EMISSIONS*

Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Ftrr/Pad (dB)	DC Corr (dB)	Correcte d 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
* 3.777	39.56	PK1	33.6	-29.7	0	43.46	-	-	74	-30.54	-	-	268	160	H
* 3.775	28.57	AD1	33.6	-29.7	.47	32.94	54	-21.06	-	-	-	-	268	160	H
14.701	33.68	PK1	40	-21.1	0	52.58	-	-	-	-	68.2	-15.62	90	262	H
14.701	22.3	AD1	40	-21.1	.47	41.67	-	-	-	-	-	-	90	262	H

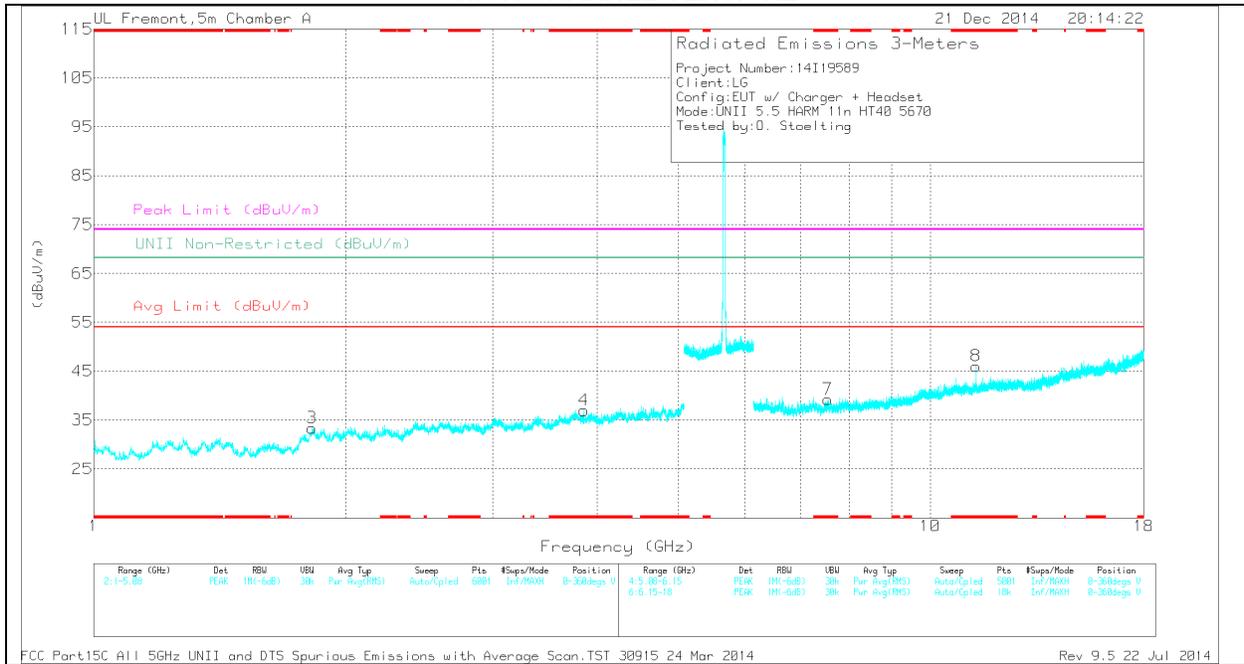
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**HIGH CHANNEL HORIZONTAL**



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	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Ftrr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non- Restrict ed (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.2	38.69	PK	29.3	-33.7	0	34.29	-	-	74	-39.71	-	-	0-360	201	H
2	* 4.2	32.4	PK	33.9	-28.5	0	37.8	-	-	74	-36.2	-	-	0-360	201	H
4	* 3.856	33.29	PK	33.7	-30	0	36.99	-	-	74	-37.01	-	-	0-360	201	V
5	* 9.347	28.34	PK	36.3	-23.7	0	40.94	-	-	74	-33.06	-	-	0-360	201	H
7	* 7.546	28.55	PK	35.3	-24.6	0	39.25	-	-	74	-34.75	-	-	0-360	201	V
8	* 11.339	29.34	PK	38	-21.3	0	46.04	-	-	74	-27.96	-	-	0-360	201	V
3	1.824	34.79	PK	30.8	-32.2	0	33.39	-	-	-	-	68.2	-34.81	0-360	100	V
6	16.311	26.35	PK	40.7	-18.7	0	48.35	-	-	-	-	68.2	-19.85	0-360	100	H

PK - Peak detector

*RADIATED EMISSIONS*

Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Ftrr/Pad (dB)	DC Corr (dB)	Correcte d 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
* 1.201	42.94	PK1	29.3	-33.7	0	38.54	-	-	74	-35.46	-	-	292	103	H
* 1.202	30.08	AD1	29.3	-33.7	.47	26.15	54	-27.85	-	-	-	-	292	103	H
* 11.34	35.23	PK1	38	-21.3	0	51.93	-	-	74	-22.07	-	-	28	253	V
* 11.34	27.88	AD1	38	-21.3	.47	45.05	54	-8.95	-	-	-	-	28	253	V

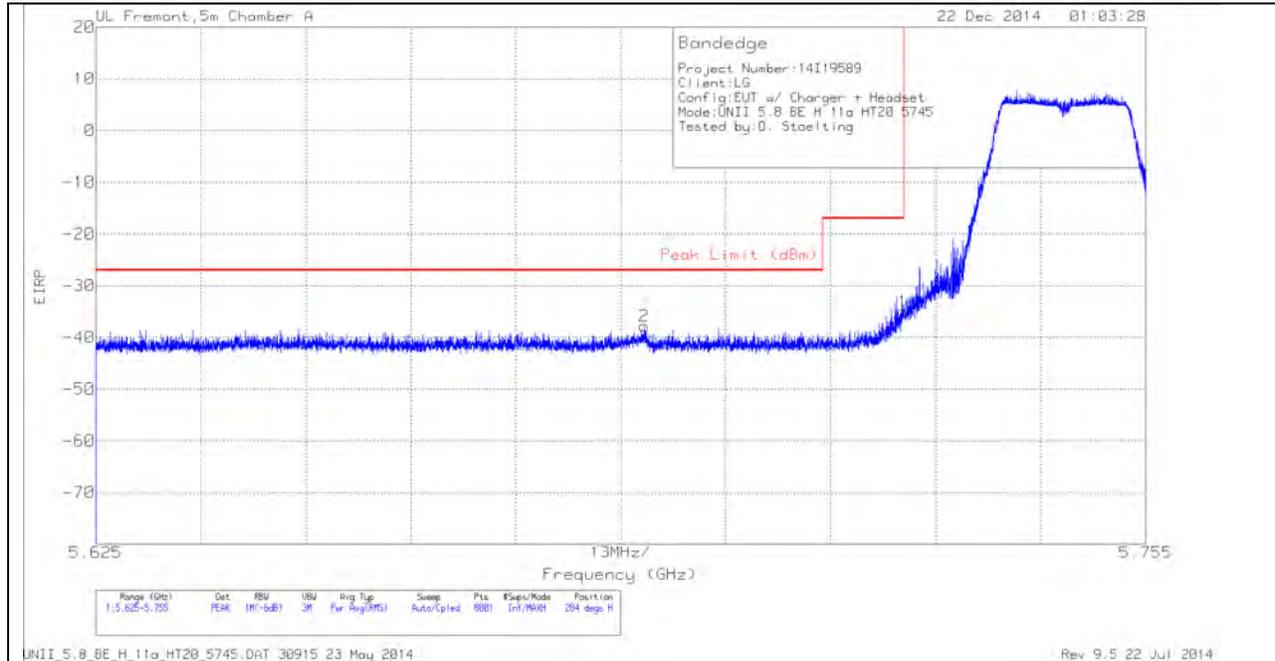
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## 11.4. 5.8 GHz

### 11.4.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.8 GHz BAND

#### AUTHORIZED BANDEDGE (LOW CHANNEL)

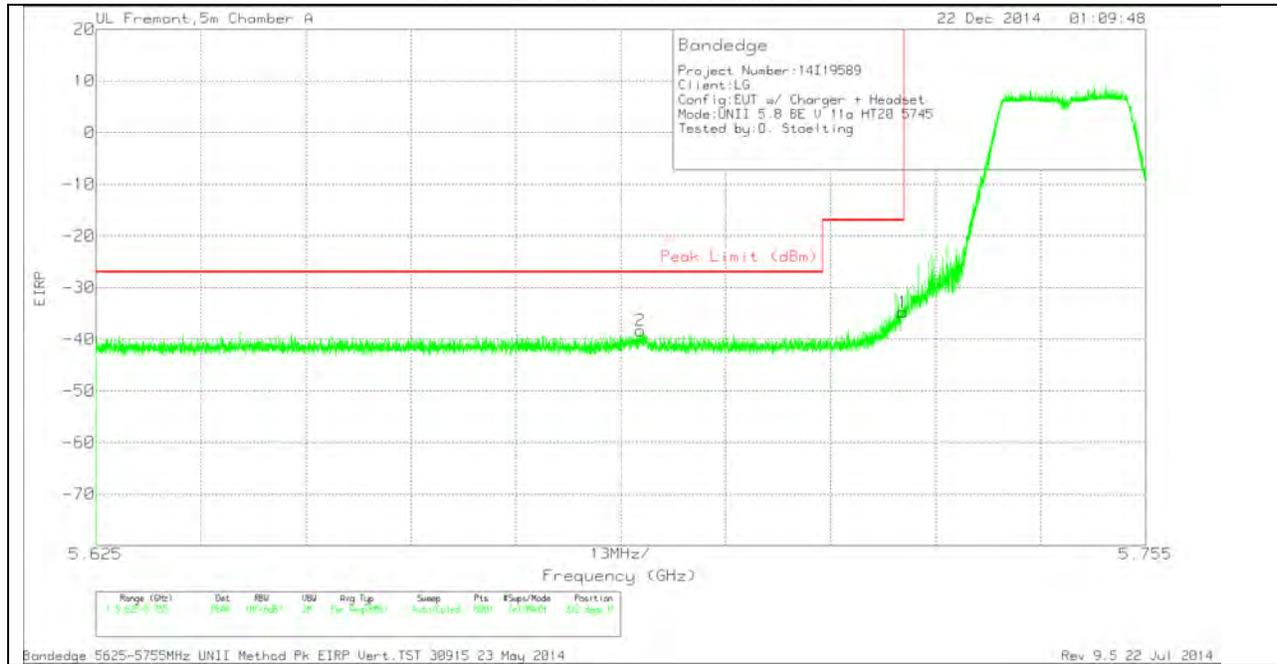
##### HORIZONTAL PEAK AND AVERAGE PLOT



##### HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cb/Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.693	-65.28	PK	34.5	-18.8	11.8	0	-37.78	-27	-10.78	284	177	H
1	5.725	-62.41	PK	34.6	-19	11.8	0	-35.01	-17	-18.01	284	177	H

**VERTICAL PEAK AND AVERAGE PLOT**

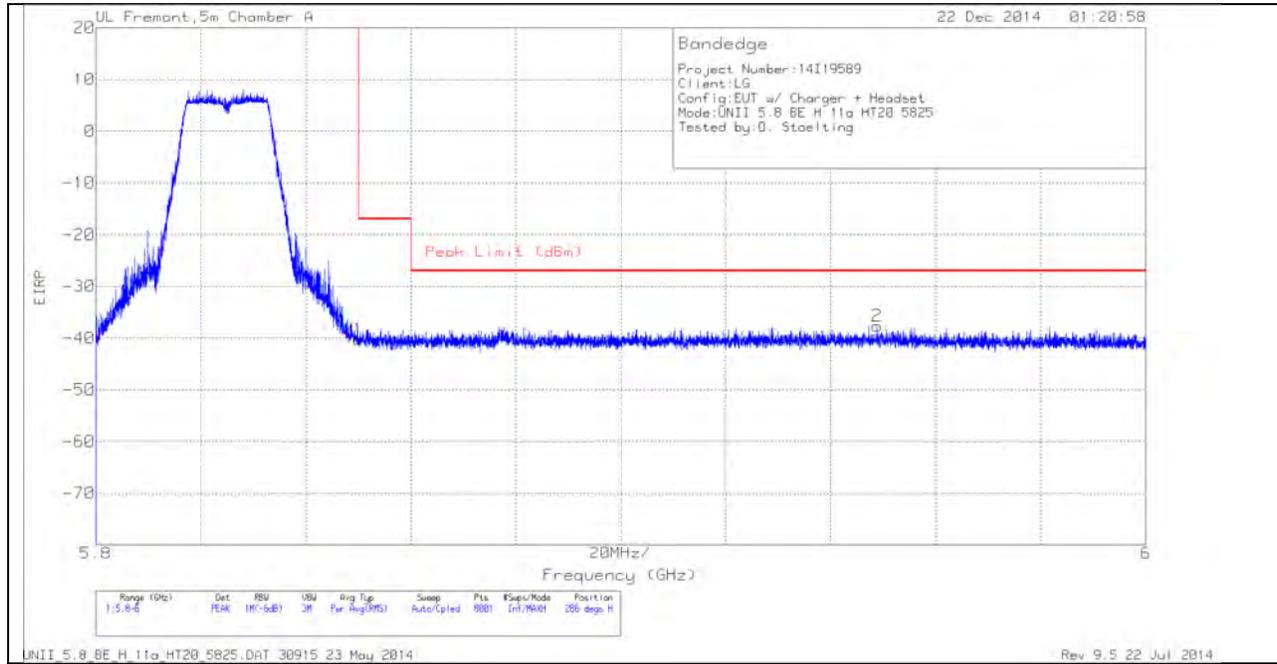


**VERTICAL DATA**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cb/Filtr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.692	-65.82	PK	34.5	-18.8	11.8	0	-38.32	-27	-11.32	332	283	V
1	5.725	-62.17	PK	34.6	-19	11.8	0	-34.77	-17	-17.77	332	283	V

### AUTHORIZED BANDEDGE (HIGH CHANNEL)

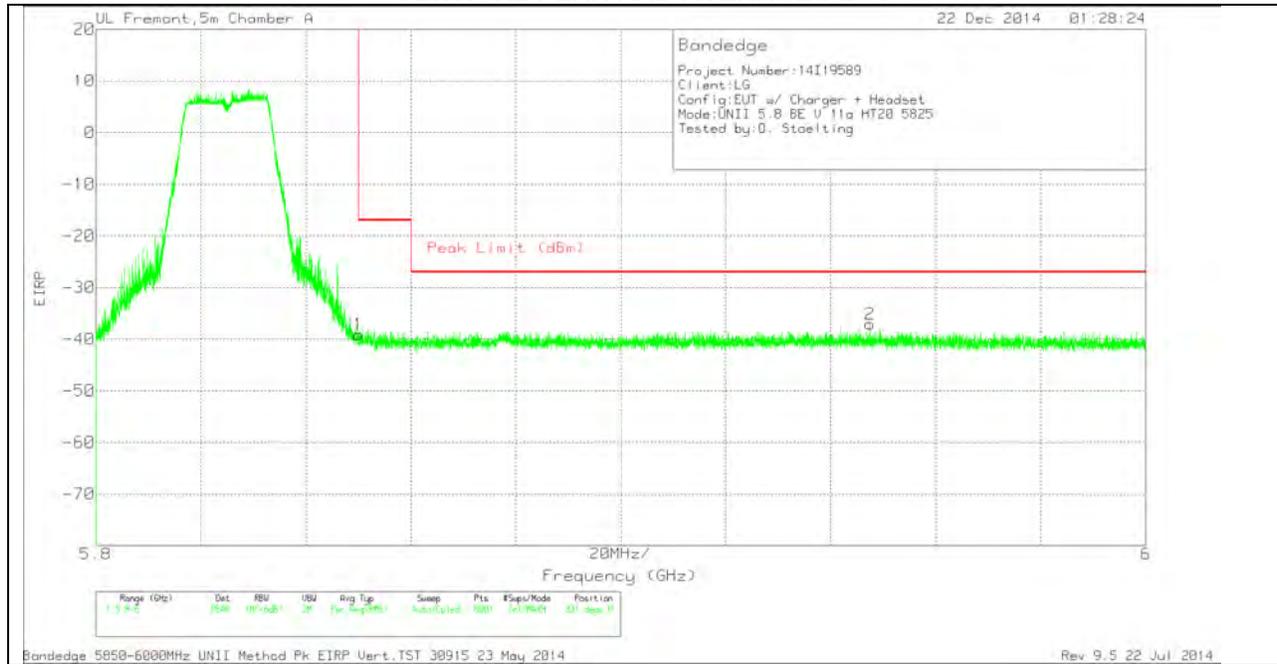
#### HORIZONTAL PEAK AND AVERAGE PLOT



#### HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cb/ Fitr/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	-68.2	PK	34.9	-18.7	11.8	0	-40.2	-17	-23.2	286	212	H
2	5.949	-66.52	PK	35.2	-18.1	11.8	0	-37.62	-27	-10.62	286	212	H

**VERTICAL PEAK AND AVERAGE PLOT**

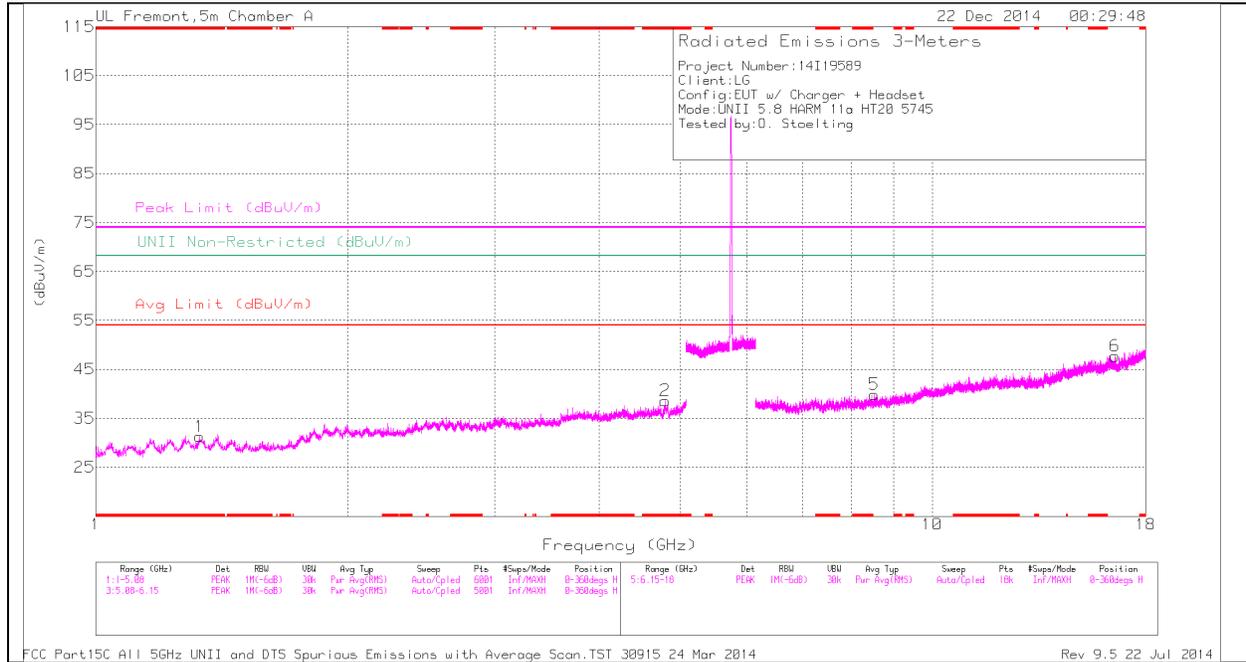


**VERTICAL DATA**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cb/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	-67.1	PK	34.9	-18.7	11.8	0	-39.1	-17	-22.1	331	274	V
2	5.947	-65.87	PK	35.1	-18.1	11.8	0	-37.07	-27	-10.07	331	274	V

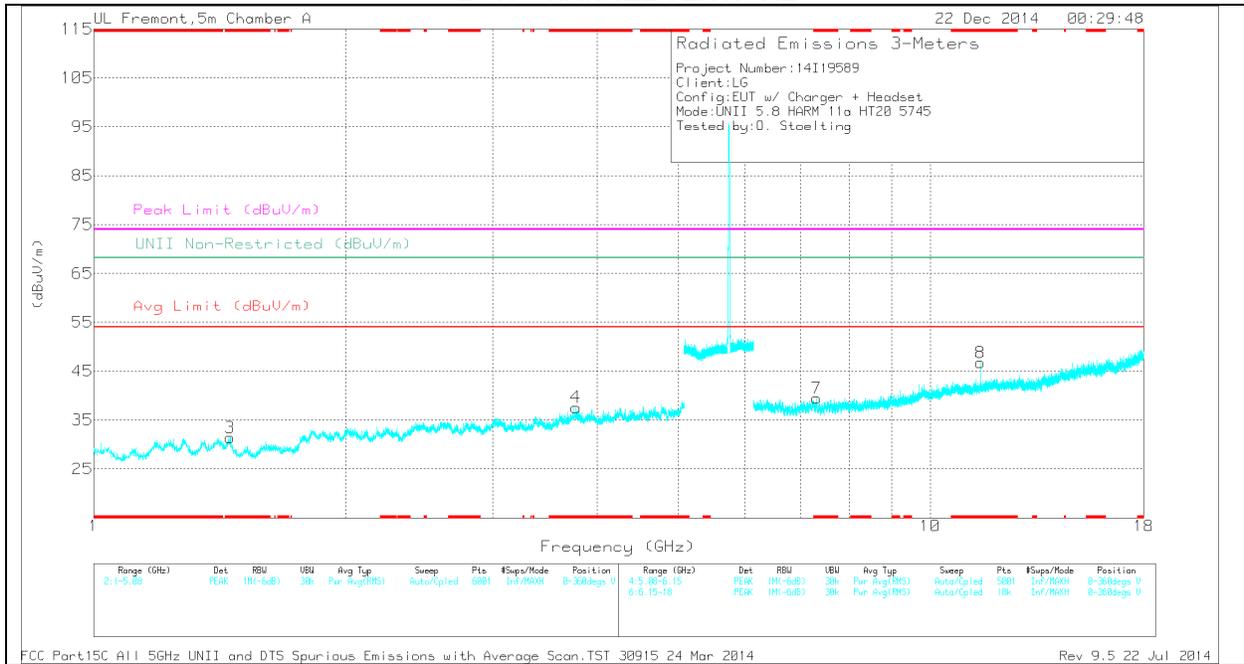
### HARMONICS AND SPURIOUS EMISSIONS

#### 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	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Ftrr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricte d (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.33	35.28	PK	30.1	-34.1	0	31.28	-	-	74	-42.72	-	-	0-360	201	H
2	* 4.795	32.9	PK	34	-28.3	0	38.6	-	-	74	-35.4	-	-	0-360	201	H
3	* 1.456	35.43	PK	29.2	-33.2	0	31.43	-	-	74	-42.57	-	-	0-360	100	V
4	* 3.774	33.7	PK	33.6	-29.7	0	37.6	-	-	74	-36.4	-	-	0-360	201	V
7	* 7.315	29.53	PK	35.2	-25.3	0	39.43	-	-	74	-34.57	-	-	0-360	100	V
8	* 11.489	30.25	PK	38.3	-21.8	0	46.75	-	-	74	-27.25	-	-	0-360	201	V
5	8.523	29.07	PK	35.7	-24.9	0	39.87	-	-	-	-	68.2	-28.33	0-360	201	H
6	16.552	26.53	PK	40.5	-19.3	0	47.73	-	-	-	-	68.2	-20.47	0-360	201	H

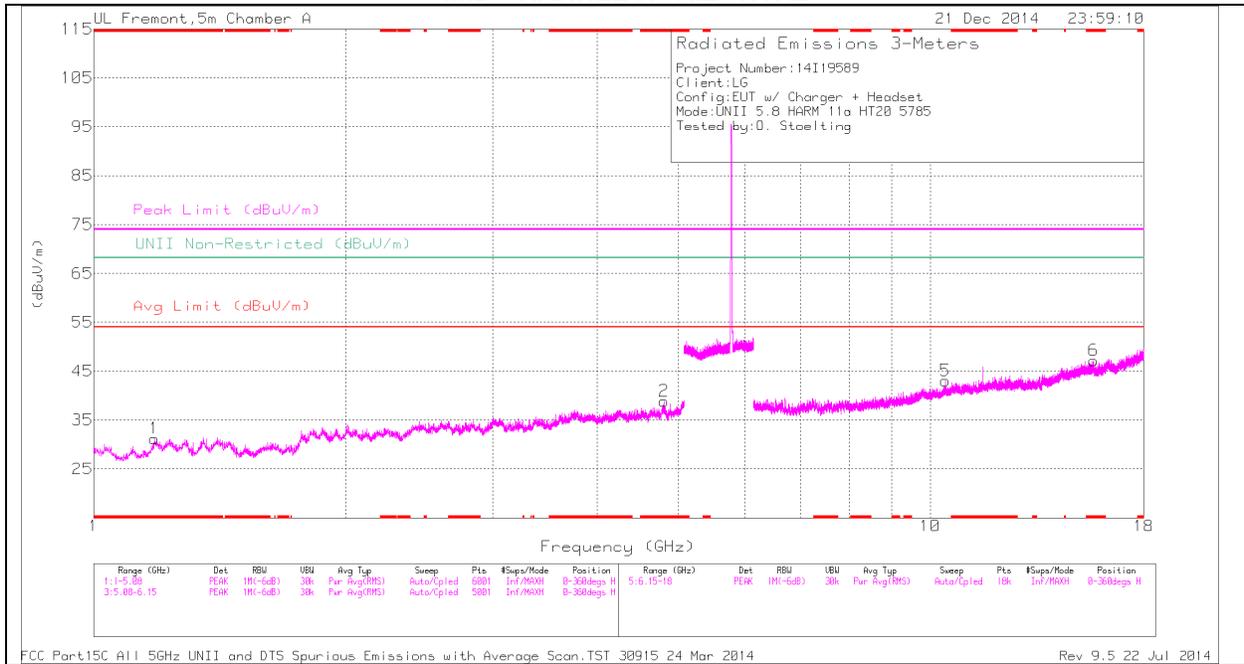
PK - Peak detector

*RADIATED EMISSIONS*

Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/F trr/Pad (dB)	DC Corr (dB)	Correcte d 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
* 3.772	40.18	PK1	33.6	-29.7	0	44.08	-	-	74	-29.92	-	-	113	162	V
* 3.776	28.66	AD1	33.6	-29.7	.21	32.77	54	-21.23	-	-	-	-	113	162	V
* 11.49	36.17	PK1	38.3	-21.8	0	52.67	-	-	74	-21.33	-	-	36	239	V
* 11.49	29.06	AD1	38.3	-21.8	.21	45.77	54	-8.23	-	-	-	-	36	239	V

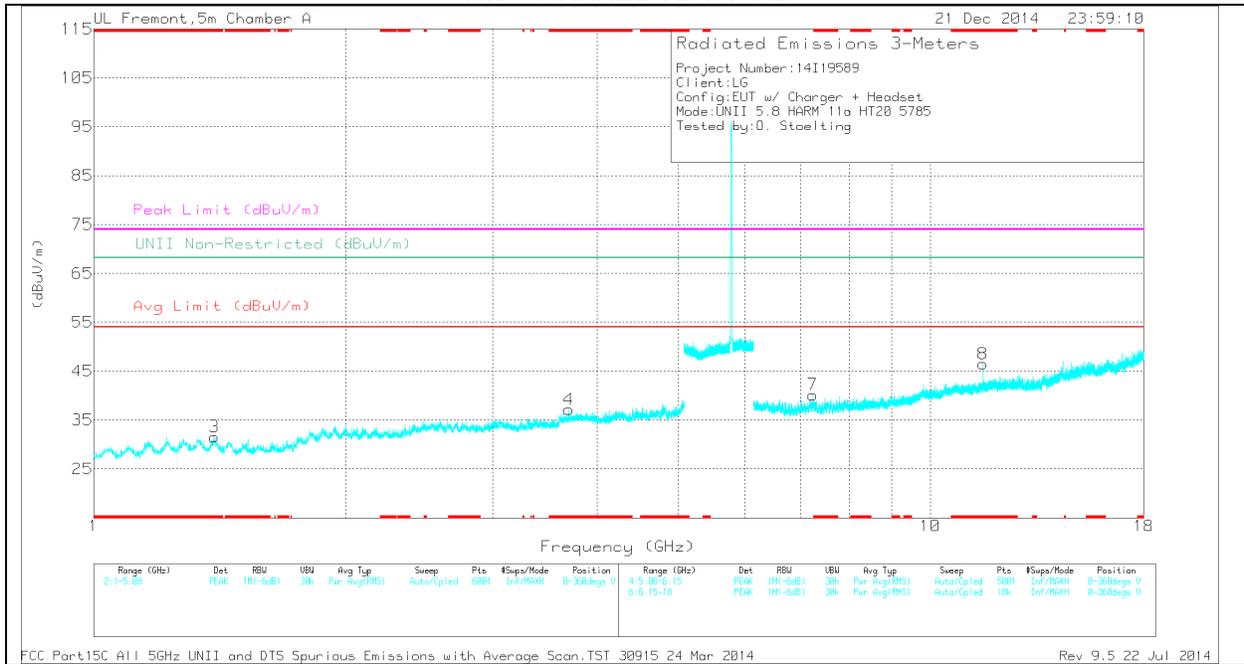
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**MID CHANNEL HORIZONTAL**



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	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/CbI/ Ftr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non- Restrict ed (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.182	35.82	PK	29.1	-33.7	0	31.22	-	-	74	-42.78	-	-	0-360	100	H
2	* 4.809	33.47	PK	34	-28.6	0	38.87	-	-	74	-35.13	-	-	0-360	100	H
3	* 1.395	35.56	PK	29.8	-33.8	0	31.56	-	-	74	-42.44	-	-	0-360	201	V
4	* 3.698	33.74	PK	33.4	-30	0	37.14	-	-	74	-36.86	-	-	0-360	100	V
6	* 15.681	26.39	PK	40.4	-19.6	0	47.19	-	-	74	-26.81	-	-	0-360	201	H
8	* 11.57	29.89	PK	38.4	-21.8	0	46.49	-	-	74	-27.51	-	-	0-360	201	V
7	7.241	29.77	PK	35.2	-24.8	0	40.17	-	-	-	-	68.2	-28.03	0-360	100	V
5	10.431	27.07	PK	37.4	-21.4	0	43.07	-	-	-	-	68.2	-25.13	0-360	100	H

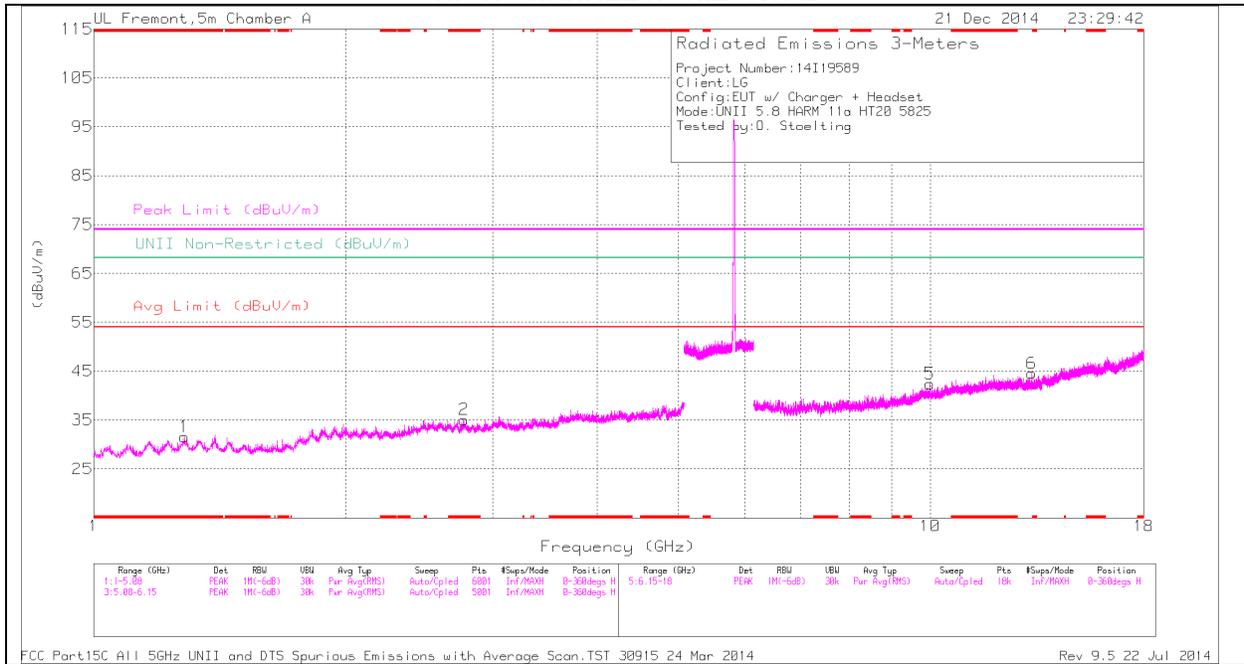
PK - Peak detector

*RADIATED EMISSIONS*

Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/CbI/ Ftr/Pad (dB)	DC Corr (dB)	Correcte d 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
* 1.397	42.76	PK1	29.8	-33.7	0	38.86	-	-	74	-35.14	-	-	110	396	V
* 1.397	31.03	AD1	29.8	-33.7	.21	27.34	54	-26.66	-	-	-	-	110	396	V
* 11.57	36.3	PK1	38.4	-21.8	0	52.9	-	-	74	-21.1	-	-	36	207	V
* 11.57	29.51	AD1	38.4	-21.8	.21	46.32	54	-7.68	-	-	-	-	36	207	V

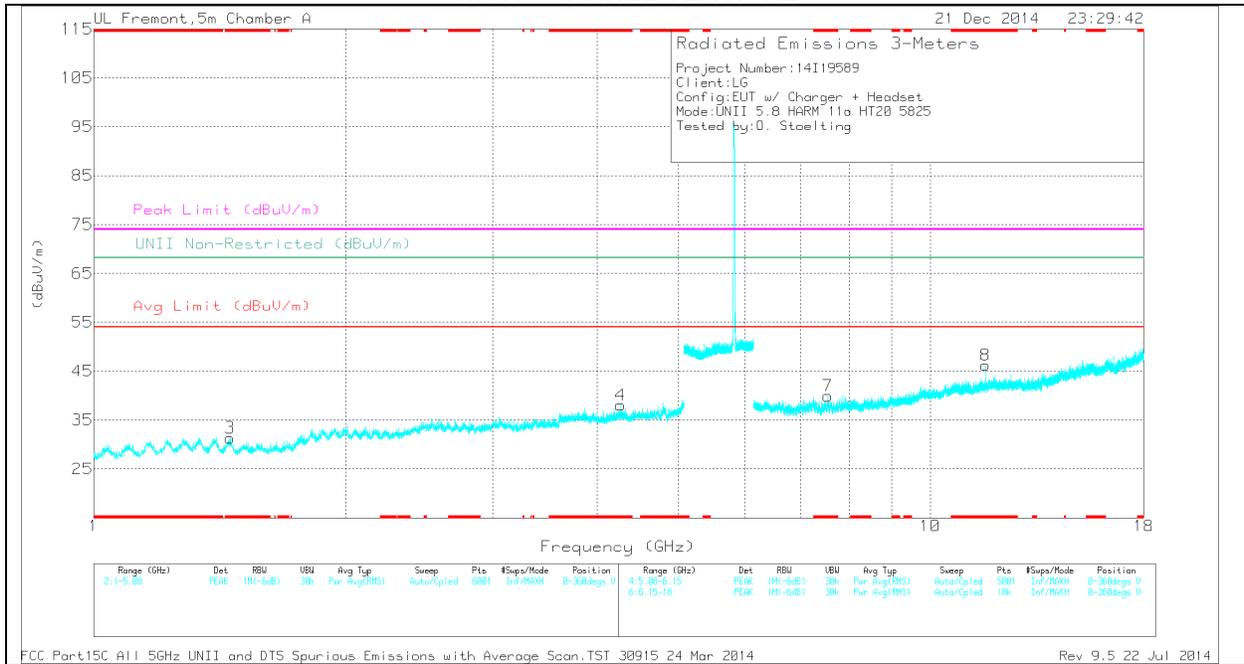
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**HIGH CHANNEL HORIZONTAL**



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	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Ftr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricte d (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.284	35.68	PK	30.1	-34.2	0	31.58	-	-	74	-42.42	-	-	0-360	100	H
2	* 2.771	33.26	PK	32.7	-30.9	0	35.06	-	-	74	-38.94	-	-	0-360	201	H
3	* 1.456	35.33	PK	29.2	-33.2	0	31.33	-	-	74	-42.67	-	-	0-360	100	V
4	* 4.265	32.33	PK	34	-28.3	0	38.03	-	-	74	-35.97	-	-	0-360	201	V
7	* 7.548	29.23	PK	35.3	-24.6	0	39.93	-	-	74	-34.07	-	-	0-360	100	V
8	*	29.51	PK	38.6	-21.9	0	46.21	-	-	74	-27.79	-	-	0-360	201	V
	11.649															
5	9.984	28.14	PK	37.1	-22.8	0	42.44	-	-	-	-	68.2	-25.76	0-360	100	H
6	13.225	27.65	PK	39.1	-22.2	0	44.55	-	-	-	-	68.2	-23.65	0-360	100	H

PK - Peak detector

*RADIATED EMISSIONS*

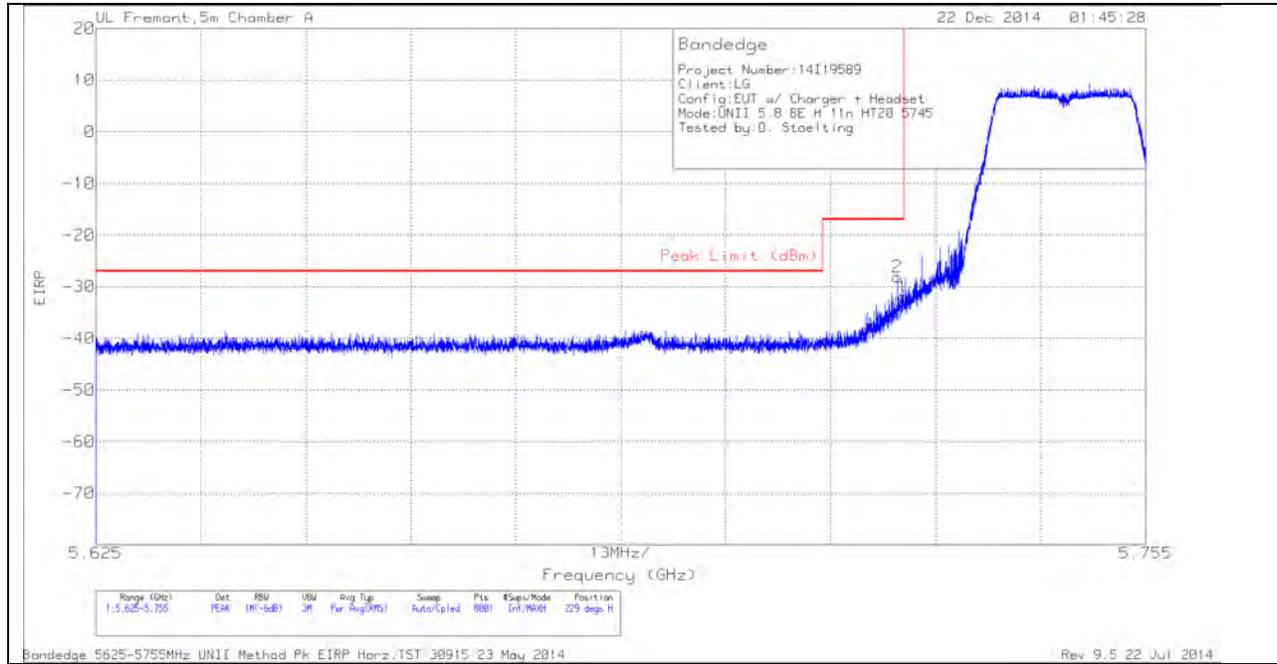
Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/F tr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.267	39.31	PK1	34	-28.3	0	45.01	-	-	74	-28.99	-	-	84	322	V
* 4.265	27.5	AD1	34	-28.3	.21	33.41	54	-20.59	-	-	-	-	84	322	V
* 11.65	36.38	PK1	38.6	-21.9	0	53.08	-	-	74	-20.92	-	-	32	234	V
* 11.65	29	AD1	38.6	-21.9	.21	45.91	54	-8.09	-	-	-	-	32	234	V

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

**AUTHORIZED BANDEDGE (LOW CHANNEL)**

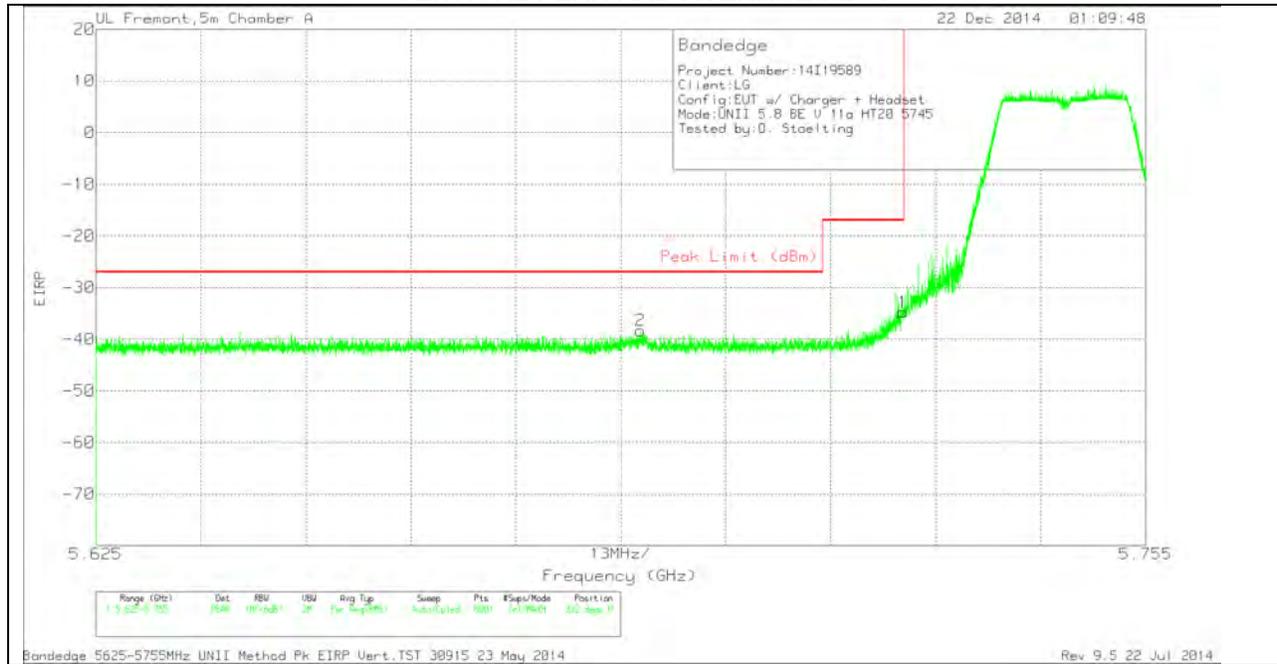
**HORIZONTAL PEAK AND AVERAGE PLOT**



**HORIZONTAL DATA**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cb/ Filt/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.724	-55.49	PK	34.6	-19	11.8	0	-28.09	-17	-11.09	229	332	H
1	5.725	-59.4	PK	34.6	-19	11.8	0	-32	-17	-15	229	332	H

**VERTICAL PEAK AND AVERAGE PLOT**

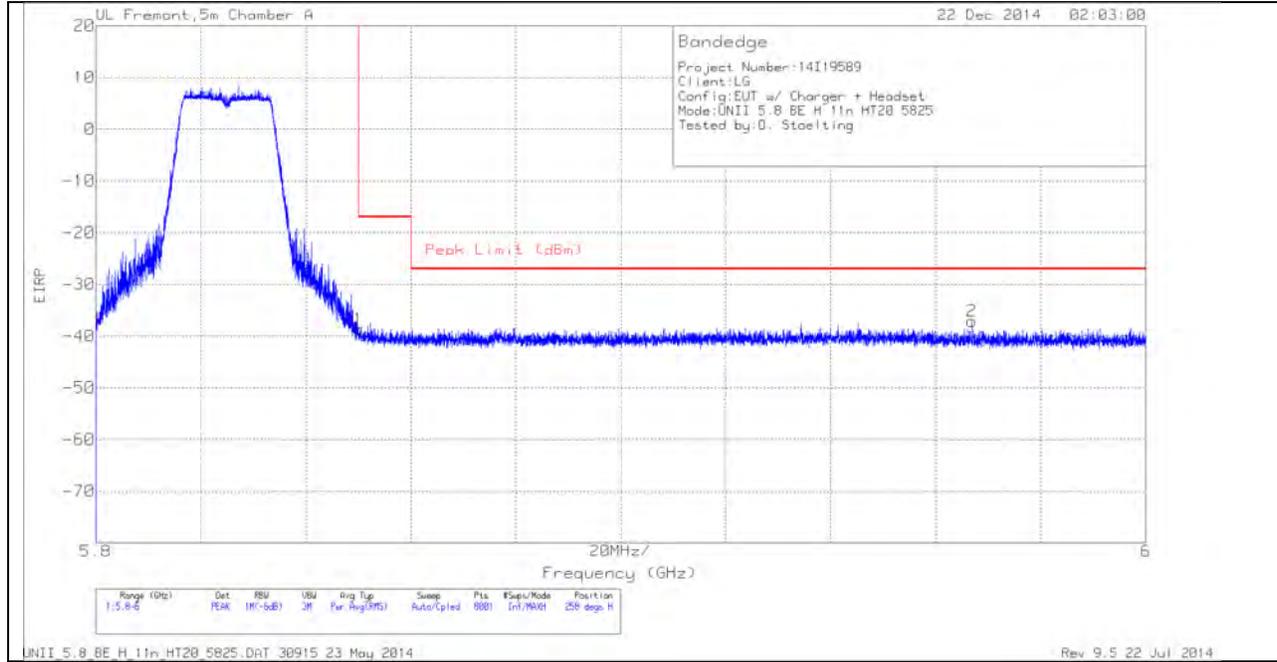


**VERTICAL DATA**

Marker	Frequen cy (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cb/ Filtr/Pad (dB)	Conversi on Factor (dB)	DC Corr (dB)	Correcte d Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.692	-65.82	PK	34.5	-18.8	11.8	0	-38.32	-27	-11.32	332	283	V
1	5.725	-62.17	PK	34.6	-19	11.8	0	-34.77	-17	-17.77	332	283	V

### AUTHORIZED BANDEDGE (HIGH CHANNEL)

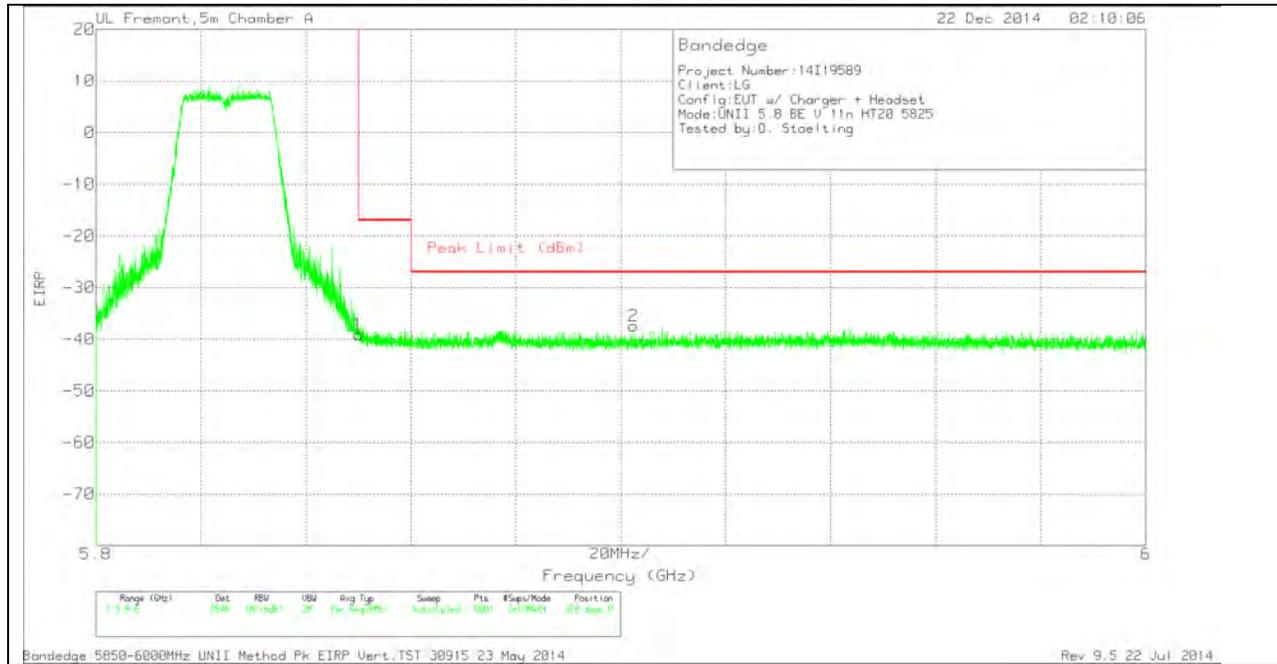
#### HORIZONTAL PEAK AND AVERAGE PLOT



#### HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cb/ Fitr/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	-66.67	PK	34.9	-18.7	11.8	0	-38.67	-17	-21.67	258	274	H
2	5.967	-65.61	PK	35.2	-18.5	11.8	0	-37.11	-27	-10.11	258	274	H

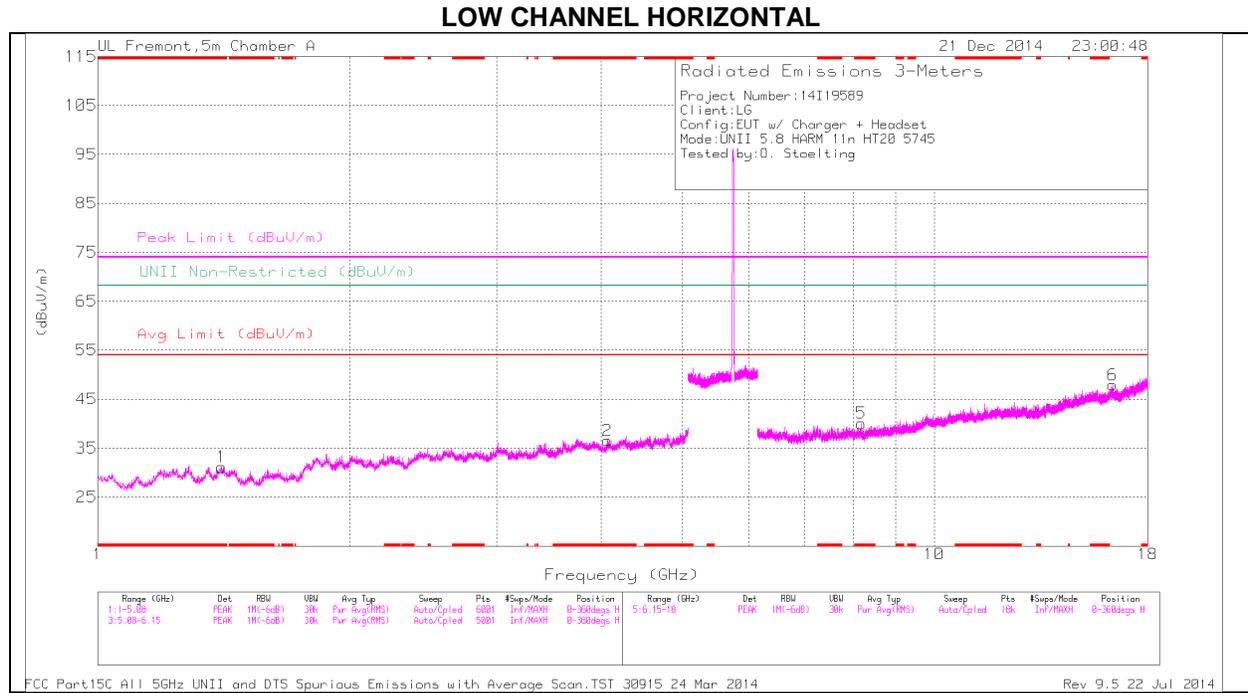
**VERTICAL PEAK AND AVERAGE PLOT**



**VERTICAL DATA**

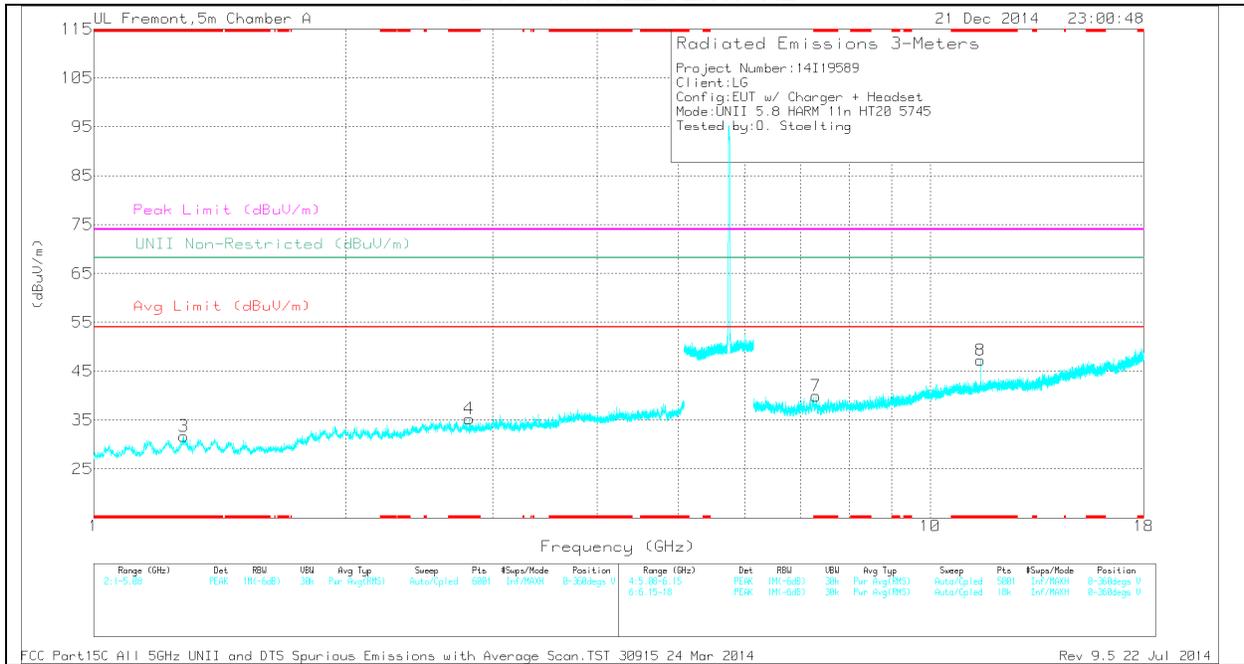
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cb/ Ftr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-67.09	PK	34.9	-18.7	11.8	0	-39.09	-17	-22.09	328	236	V
2	5.902	-65.74	PK	35	-18.5	11.8	0	-37.44	-27	-10.44	328	236	V

### HARMONICS AND SPURIOUS EMISSIONS



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	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Ftrr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non- Restrict ed (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.407	35.01	PK	29.7	-33.6	0	31.11	-	-	74	-42.89	-	-	0-360	201	H
2	* 4.066	32.4	PK	33.8	-29.7	0	36.5	-	-	74	-37.5	-	-	0-360	100	H
3	* 1.282	35.7	PK	30.1	-34.1	0	31.7	-	-	74	-42.3	-	-	0-360	201	V
4	* 2.812	33.99	PK	32.6	-31.3	0	35.29	-	-	74	-38.71	-	-	0-360	201	V
5	* 8.181	28.95	PK	35.6	-24.5	0	40.05	-	-	74	-33.95	-	-	0-360	201	H
7	* 7.302	29.92	PK	35.2	-25.2	0	39.92	-	-	74	-34.08	-	-	0-360	100	V
8	* 11.49	30.75	PK	38.3	-21.8	0	47.25	-	-	74	-26.75	-	-	0-360	201	V
6	16.351	26.01	PK	40.7	-18.8	0	47.91	-	-	-	-	68.2	-20.29	0-360	201	H

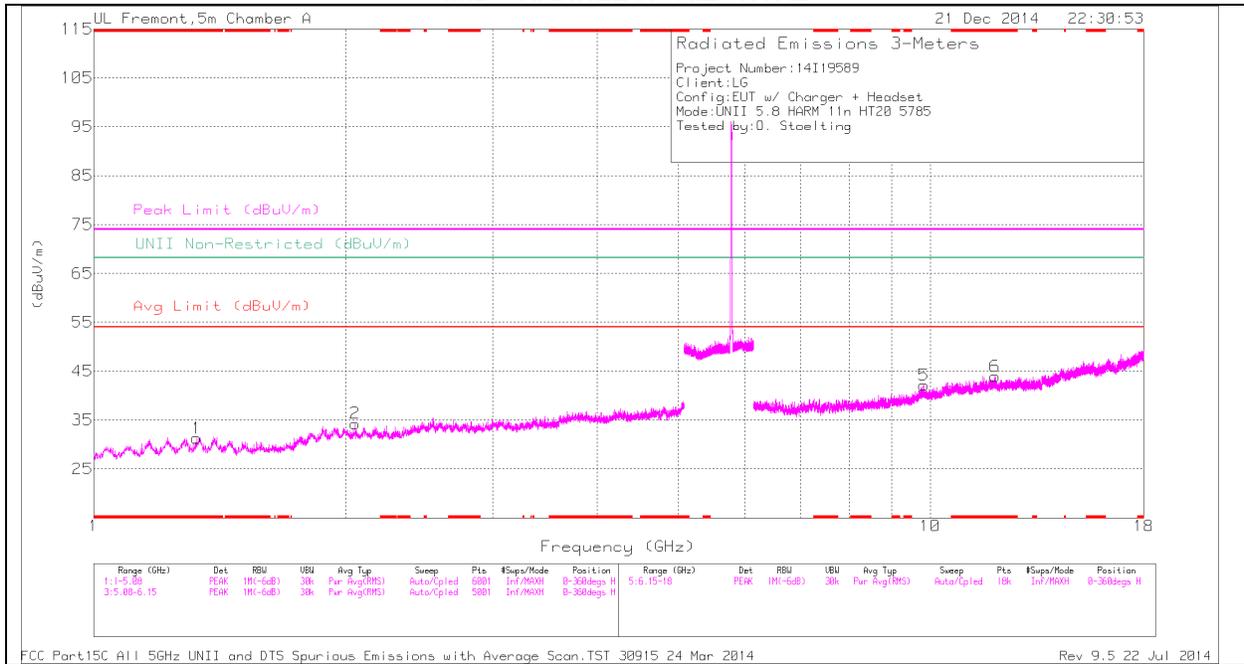
PK - Peak detector

*RADIATED EMISSIONS*

Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Ftrr/Pad (dB)	DC Corr (dB)	Correcte d 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
* 7.302	36.18	PK1	35.2	-25.2	0	46.18	-	-	74	-27.82	-	-	200	141	V
* 7.3	24.96	AD1	35.2	-25.2	.24	35.2	54	-18.8	-	-	-	-	200	141	V
* 11.49	36.72	PK1	38.3	-21.8	0	53.22	-	-	74	-20.78	-	-	28	261	V
* 11.49	29	AD1	38.3	-21.8	.24	45.74	54	-8.26	-	-	-	-	28	261	V

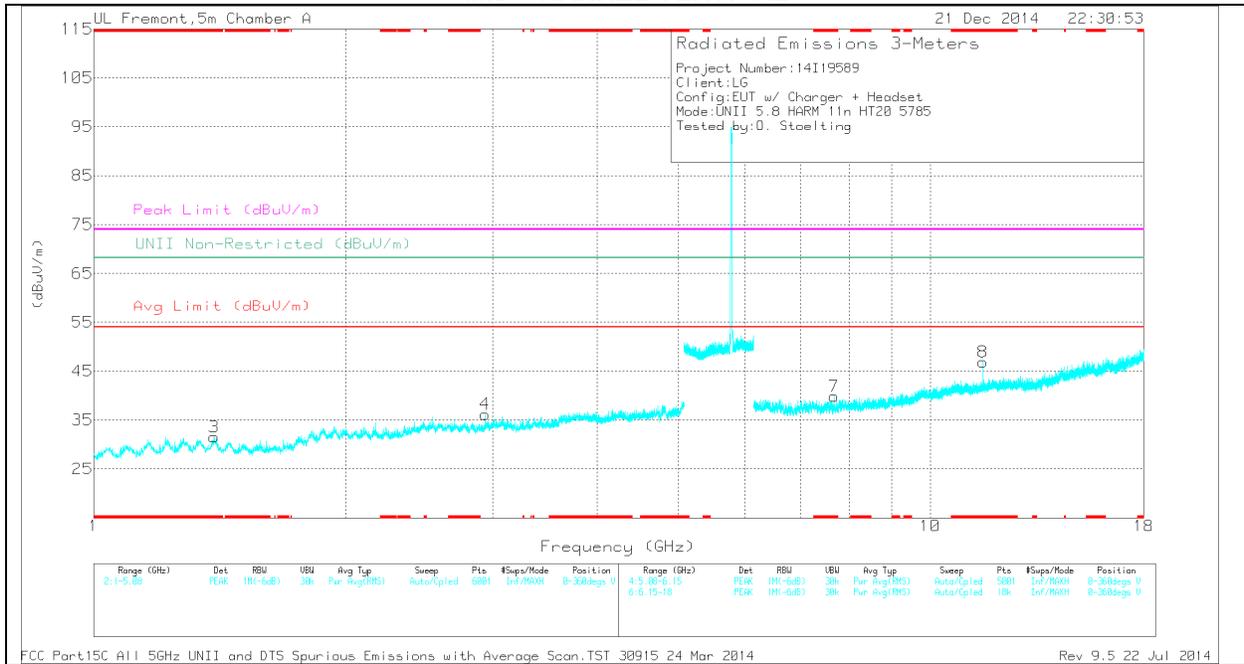
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**MID CHANNEL HORIZONTAL**



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	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/ Ftr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restrict ed (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.328	35.37	PK	30.1	-34.2	0	31.27	-	-	74	-42.73	-	-	0-360	201	H
3	* 1.393	35.45	PK	29.9	-33.8	0	31.55	-	-	74	-42.45	-	-	0-360	100	V
6	* 11.957	26.45	PK	38.9	-21.4	0	43.95	-	-	74	-30.05	-	-	0-360	100	H
7	* 7.681	30.36	PK	35.4	-25.9	0	39.86	-	-	74	-34.14	-	-	0-360	100	V
8	* 11.57	30.28	PK	38.4	-21.8	0	46.88	-	-	74	-27.12	-	-	0-360	201	V
2	2.053	35.29	PK	31.9	-32.9	0	34.29	-	-	-	-	68.2	-33.91	0-360	201	H
4	2.939	34.79	PK	32.7	-31.3	0	36.19	-	-	-	-	68.2	-32.01	0-360	100	V
5	9.829	27.86	PK	36.9	-22.6	0	42.16	-	-	-	-	68.2	-26.04	0-360	100	H

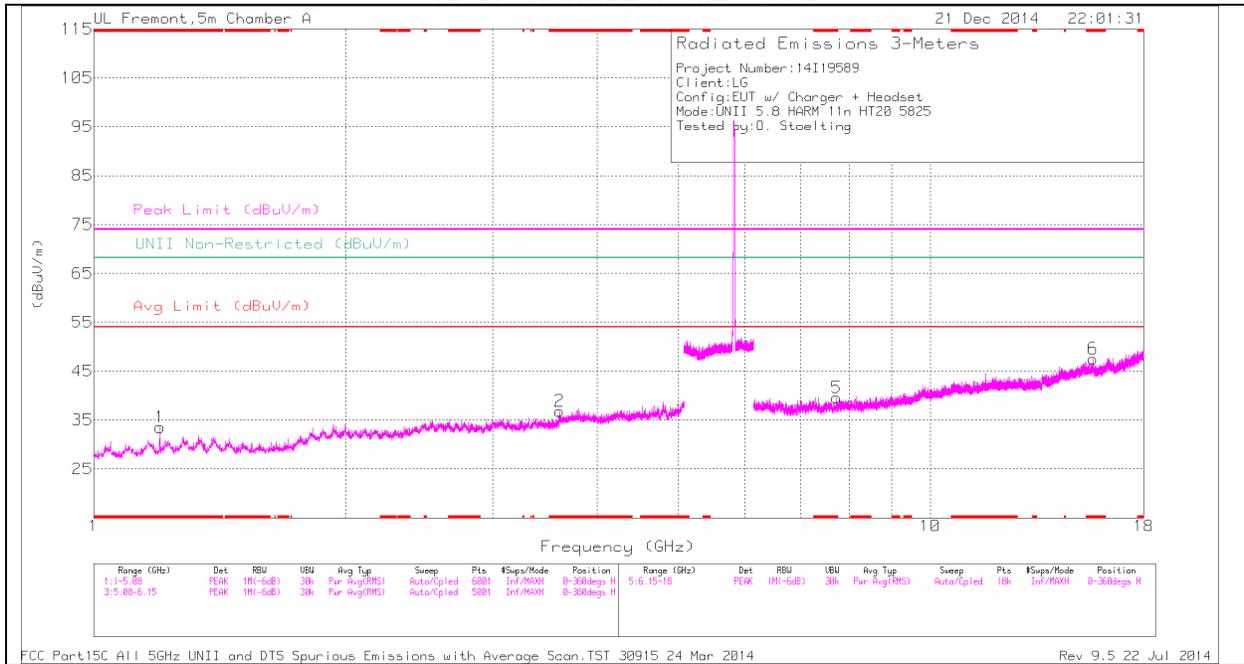
PK - Peak detector

*RADIATED EMISSIONS*

Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/ Ftr/Pad (dB)	DC Corr (dB)	Correcte d 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
* 7.679	36.35	PK1	35.4	-26	0	45.75	-	-	74	-28.25	-	-	328	229	V
* 7.68	25.38	AD1	35.4	-26	.24	35.02	54	-18.98	-	-	-	-	328	229	V
* 11.57	36.24	PK1	38.4	-21.8	0	52.84	-	-	74	-21.16	-	-	23	185	V
* 11.57	28.79	AD1	38.4	-21.8	.24	45.63	54	-8.37	-	-	-	-	23	185	V

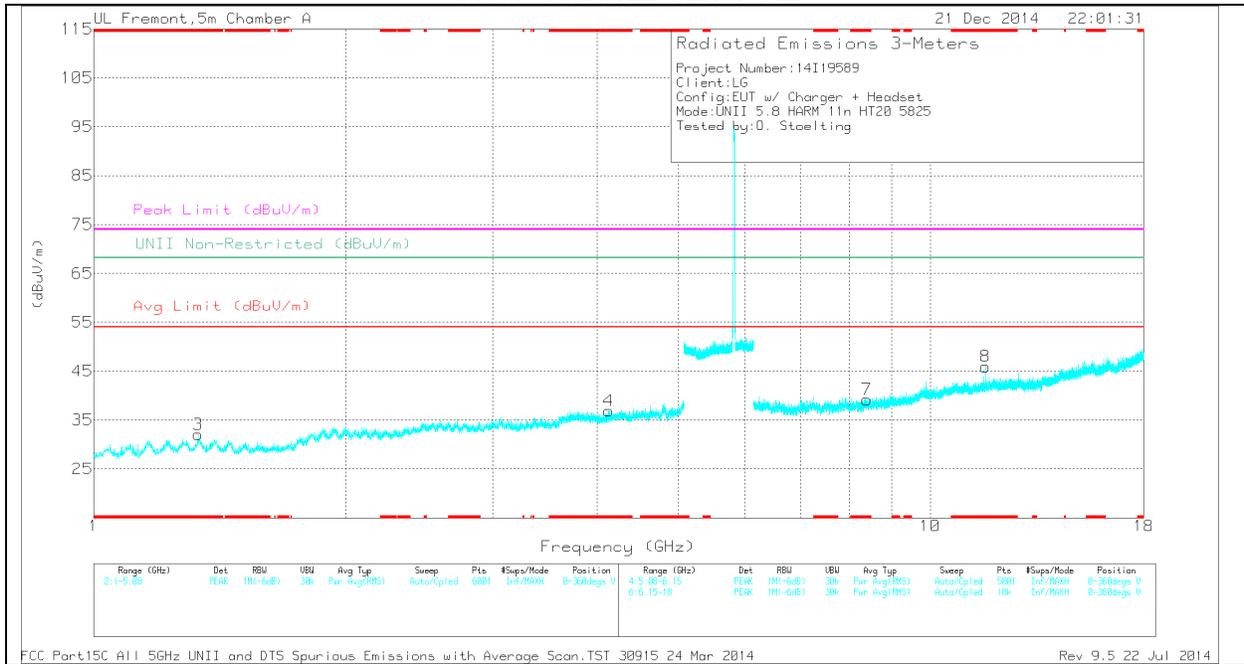
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**HIGH CHANNEL HORIZONTAL**



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	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Ftr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restrict ed (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.2	37.94	PK	29.3	-33.7	0	33.54	-	-	74	-40.46	-	-	0-360	100	H
2	* 3.606	34.13	PK	33.2	-30.5	0	36.83	-	-	74	-37.17	-	-	0-360	201	H
3	* 1.334	36.06	PK	30.1	-34.1	0	32.06	-	-	74	-41.94	-	-	0-360	201	V
4	* 4.128	32.99	PK	33.9	-30	0	36.89	-	-	74	-37.11	-	-	0-360	100	V
5	* 7.729	30.08	PK	35.4	-25.9	0	39.58	-	-	74	-34.42	-	-	0-360	201	H
6	* 15.656	26.35	PK	40.4	-19.2	0	47.55	-	-	74	-26.45	-	-	0-360	201	H
7	* 8.401	28.37	PK	35.7	-24.9	0	39.17	-	-	74	-34.83	-	-	0-360	201	V
8	* 11.65	29.24	PK	38.6	-21.9	0	45.94	-	-	74	-28.06	-	-	0-360	201	V

PK - Peak detector

*RADIATED EMISSIONS*

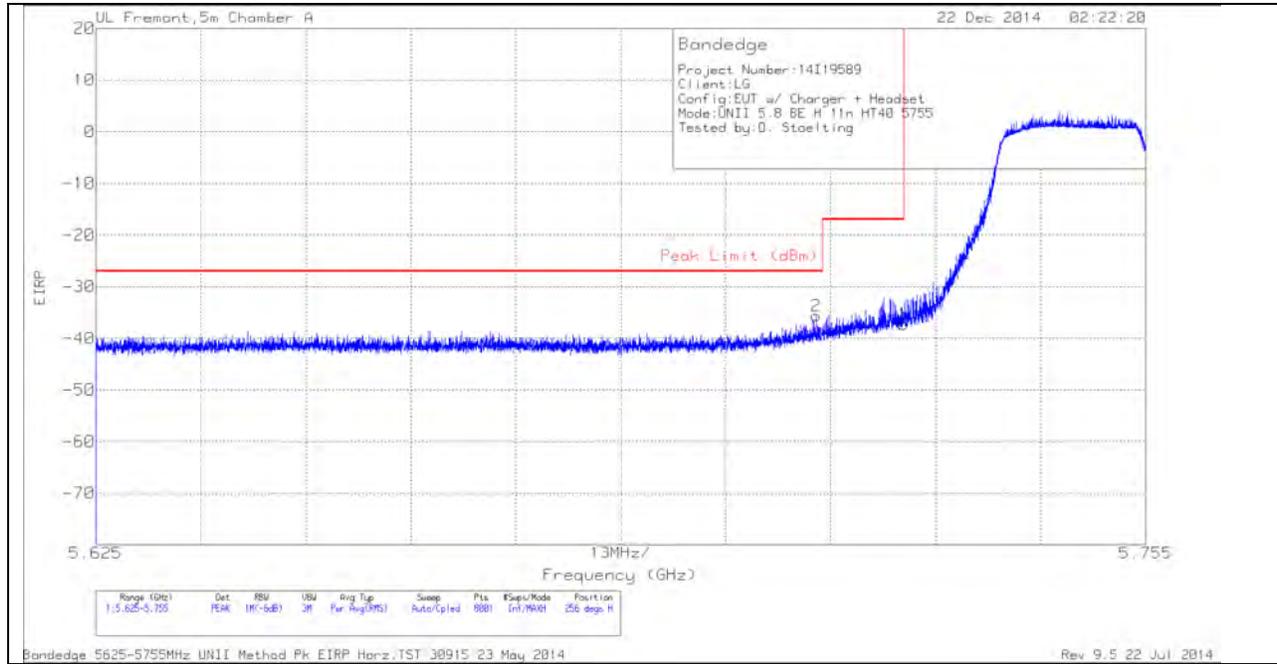
Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/F tr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.2	45.44	PK1	29.3	-33.7	0	41.04	-	-	74	-32.96	-	-	156	103	H
* 1.202	30.08	AD1	29.3	-33.7	.24	25.92	54	-28.08	-	-	-	-	156	103	H
* 11.65	36.86	PK1	38.6	-21.9	0	53.56	-	-	74	-20.44	-	-	249	137	V
* 11.65	28.68	AD1	38.6	-21.9	.24	45.62	54	-8.38	-	-	-	-	249	137	V

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

**AUTHORIZED BANDEDGE (LOW CHANNEL)**

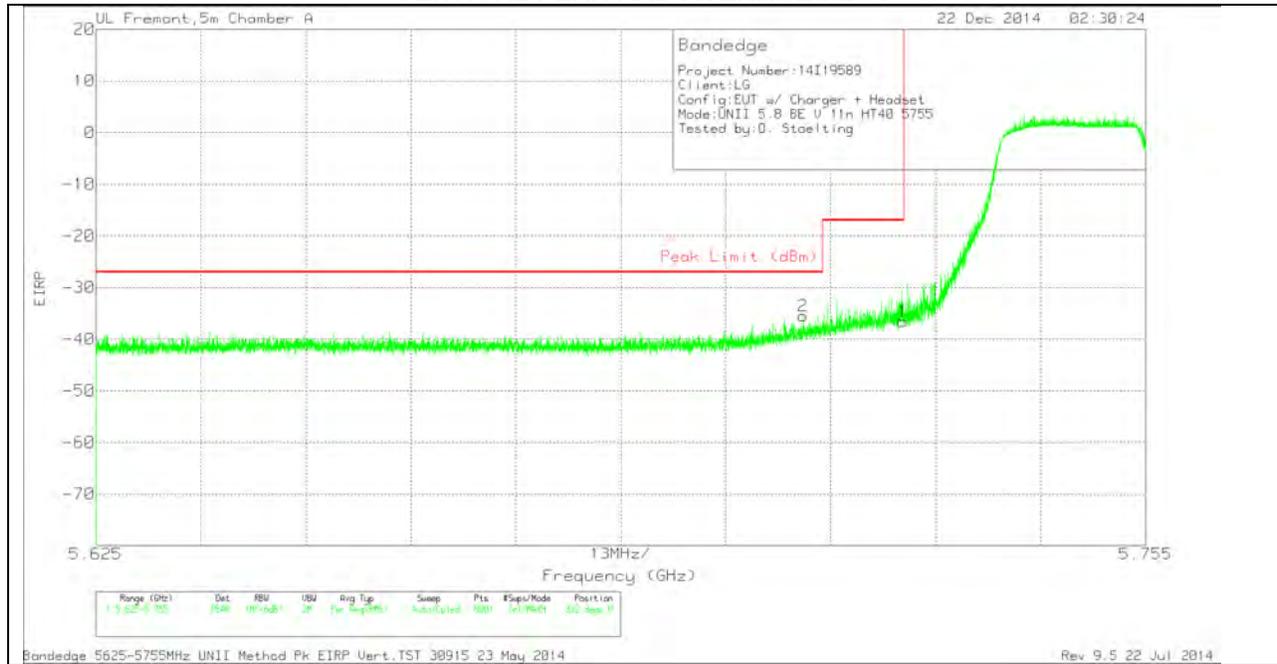
**HORIZONTAL PEAK AND AVERAGE PLOT**



**HORIZONTAL DATA**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cb/ Fitr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.714	-63.14	PK	34.6	-18.9	11.8	0	-35.64	-27	-8.64	256	254	H
1	5.725	-64.63	PK	34.6	-19	11.8	0	-37.23	-17	-20.23	256	254	H

**VERTICAL PEAK AND AVERAGE PLOT**

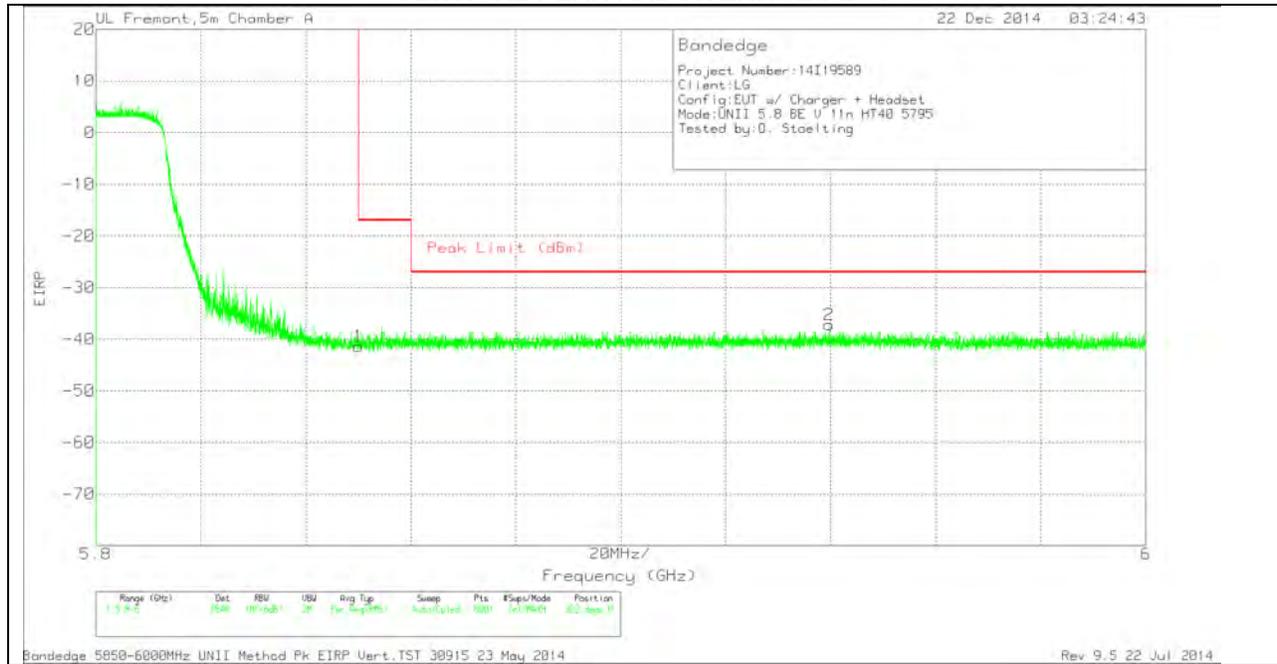


**VERTICAL DATA**

Marker	Frequen- cy (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cb/ Filtr/Pad (dB)	Conversi- on Factor (dB)	DC Corr (dB)	Correcte d Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.713	-62.93	PK	34.5	-18.9	11.8	0	-35.53	-27	-8.53	332	316	V
1	5.725	-63.99	PK	34.6	-19	11.8	0	-36.59	-17	-19.59	332	316	V



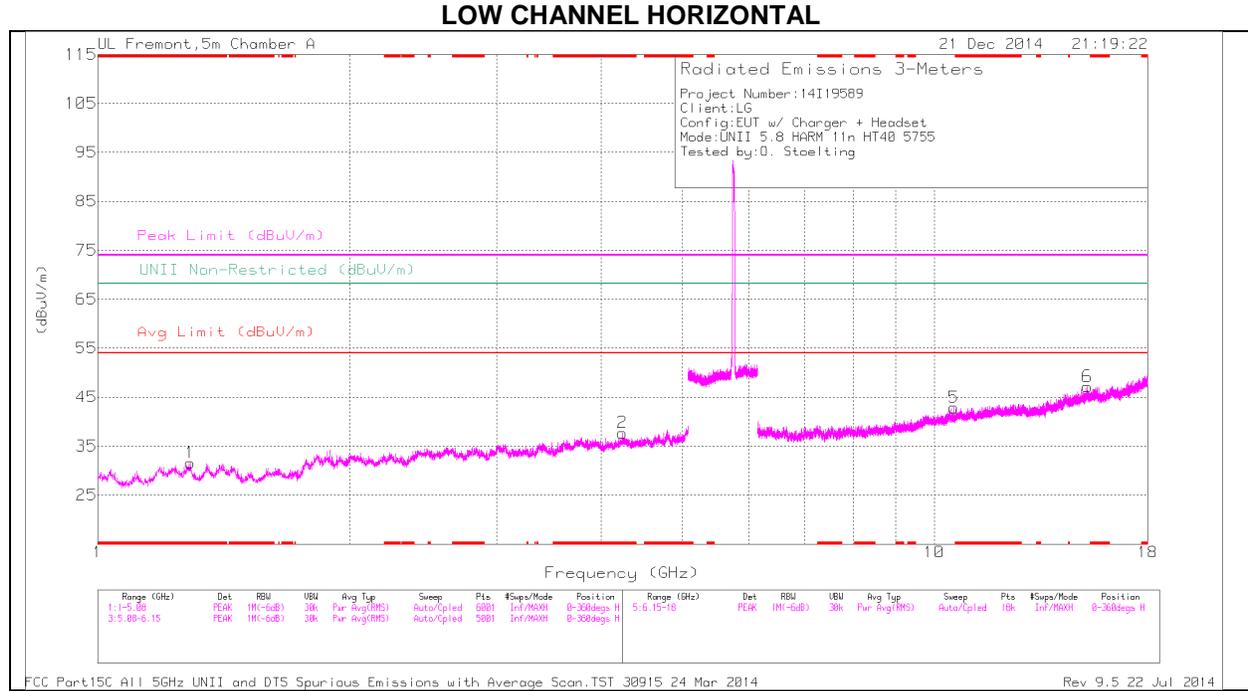
**VERTICAL PEAK AND AVERAGE PLOT**



**VERTICAL DATA**

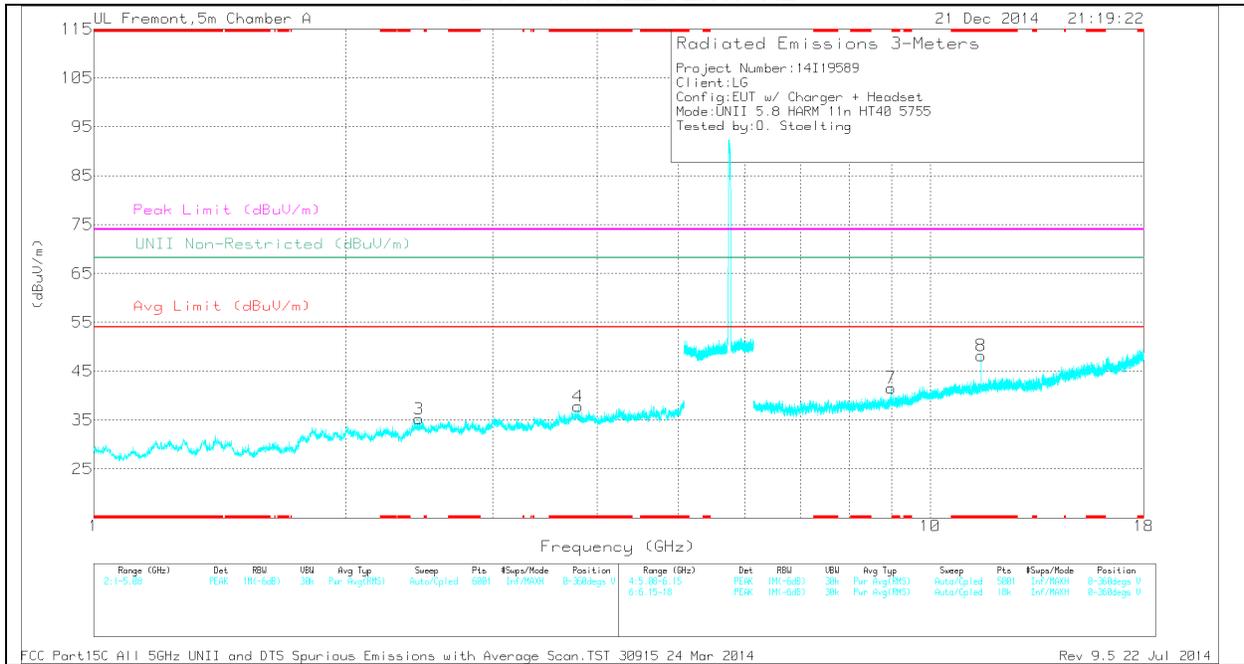
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cb/ Ftr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-69.39	PK	34.9	-18.7	11.8	0	-41.39	-17	-24.39	322	308	V
2	5.94	-66.08	PK	35.1	-18	11.8	0	-37.18	-27	-10.18	322	308	V

### HARMONICS AND SPURIOUS EMISSIONS



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	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Ftrr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non- Restrict ed (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.291	35.61	PK	30.2	-34.2	0	31.61	-	-	74	-42.39	-	-	0-360	100	H
2	* 4.237	32.14	PK	33.9	-28.3	0	37.74	-	-	74	-36.26	-	-	0-360	100	H
4	* 3.794	33.47	PK	33.6	-29.3	0	37.77	-	-	74	-36.23	-	-	0-360	100	V
8	* 11.51	31.48	PK	38.3	-21.6	0	48.18	-	-	74	-25.82	-	-	0-360	201	V
3	2.448	34.43	PK	32.6	-31.8	0	35.23	-	-	-	-	68.2	-32.97	0-360	201	V
7	8.983	29.66	PK	35.9	-24	0	41.56	-	-	-	-	68.2	-26.64	0-360	100	V
5	10.549	27.37	PK	37.6	-22.1	0	42.87	-	-	-	-	68.2	-25.33	0-360	100	H
6	15.241	26.95	PK	40.6	-20.4	0	47.15	-	-	-	-	68.2	-21.05	0-360	201	H

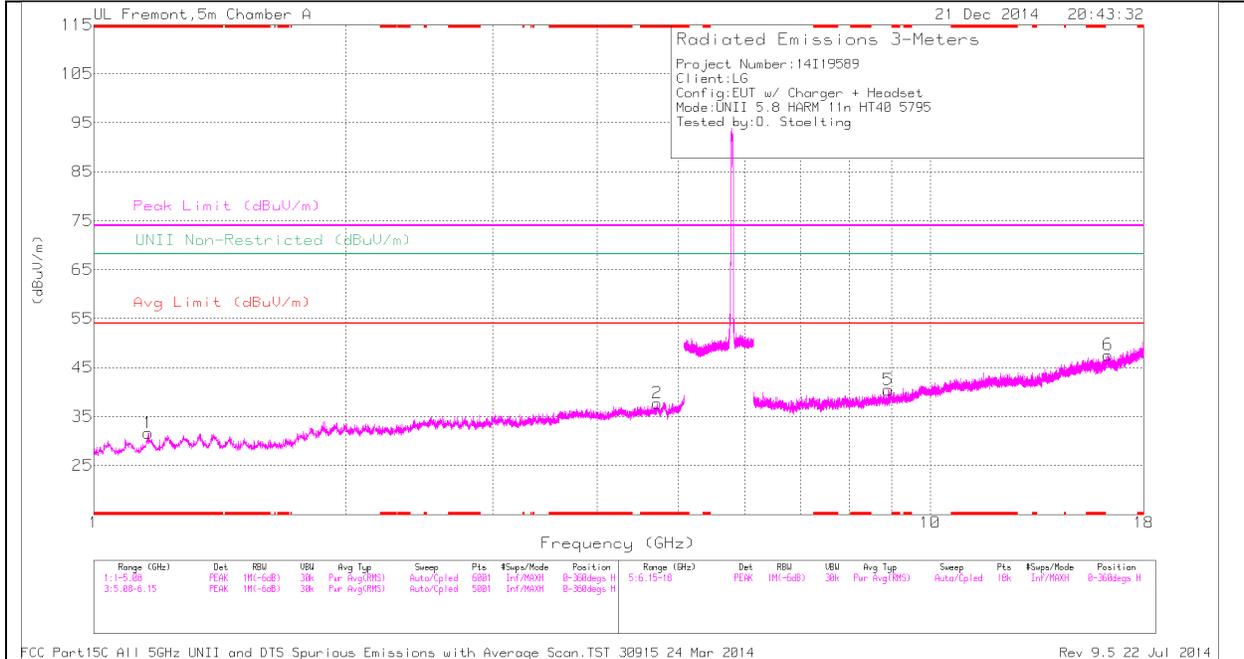
PK - Peak detector

*RADIATED EMISSIONS*

Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Ftrr/Pad (dB)	DC Corr (dB)	Correcte d 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
* 4.237	39.31	PK1	33.9	-28.3	0	44.91	-	-	74	-29.09	-	-	333	208	H
* 4.236	27.28	AD1	33.9	-28.3	.47	33.35	54	-20.65	-	-	-	-	333	208	H
* 3.796	40.38	PK1	33.6	-29.4	0	44.58	-	-	74	-29.42	-	-	148	327	V
* 3.794	27.99	AD1	33.6	-29.3	.47	32.76	54	-21.24	-	-	-	-	148	327	V
* 11.51	36.09	PK1	38.3	-21.6	0	52.79	-	-	74	-21.21	-	-	31	216	V
* 11.51	28.76	AD1	38.3	-21.6	.47	45.93	54	-8.07	-	-	-	-	31	216	V

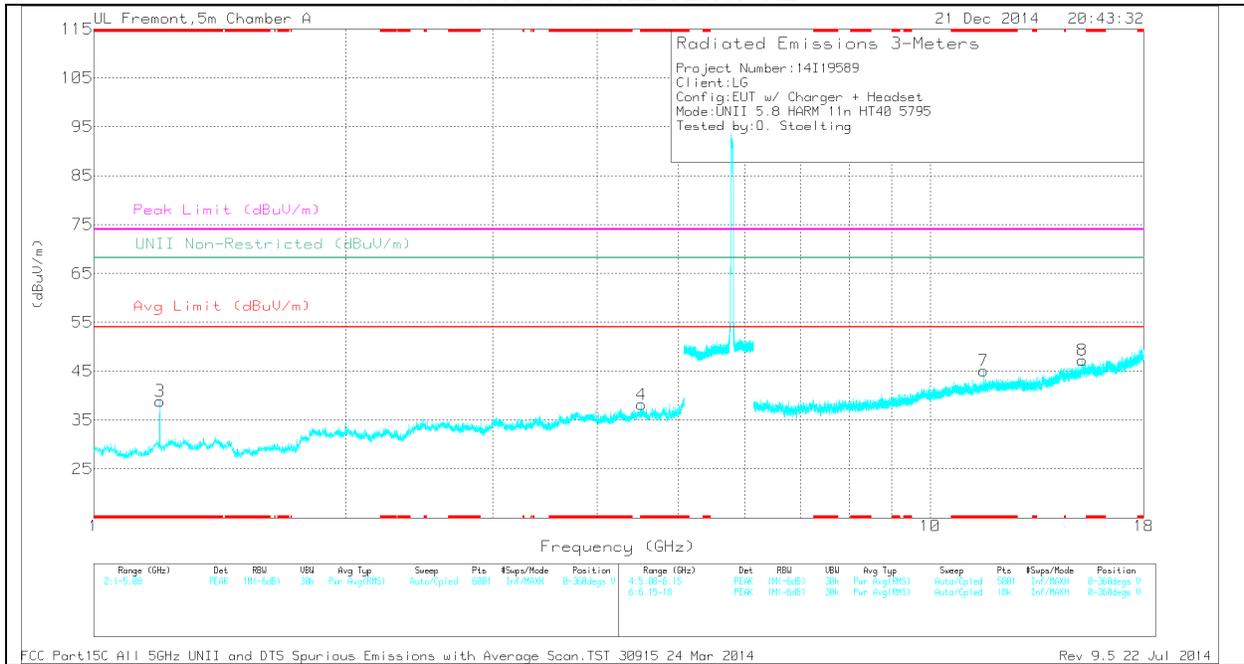
FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

**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	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/CbI/ Ftrr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non- Restrict ed (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.163	36.33	PK	28.9	-33.6	0	31.63	-	-	74	-42.37	-	-	0-360	201	H
2	* 4.716	32.64	PK	34	-28.9	0	37.74	-	-	74	-36.26	-	-	0-360	201	H
3	* 1.2	43.25	PK	29.3	-33.7	0	38.85	-	-	74	-35.15	-	-	0-360	201	V
4	* 4.52	32.88	PK	33.9	-28.6	0	38.18	-	-	74	-35.82	-	-	0-360	201	V
7	* 11.59	28.4	PK	38.4	-21.7	0	45.1	-	-	74	-28.9	-	-	0-360	201	V
5	8.908	29.24	PK	35.8	-24.6	0	40.44	-	-	-	-	68.2	-27.76	0-360	100	H
8	15.209	26.65	PK	40.6	-20	0	47.25	-	-	-	-	68.2	-20.95	0-360	100	V
6	16.312	25.57	PK	40.7	-18.7	0	47.57	-	-	-	-	68.2	-20.63	0-360	201	H

PK - Peak detector

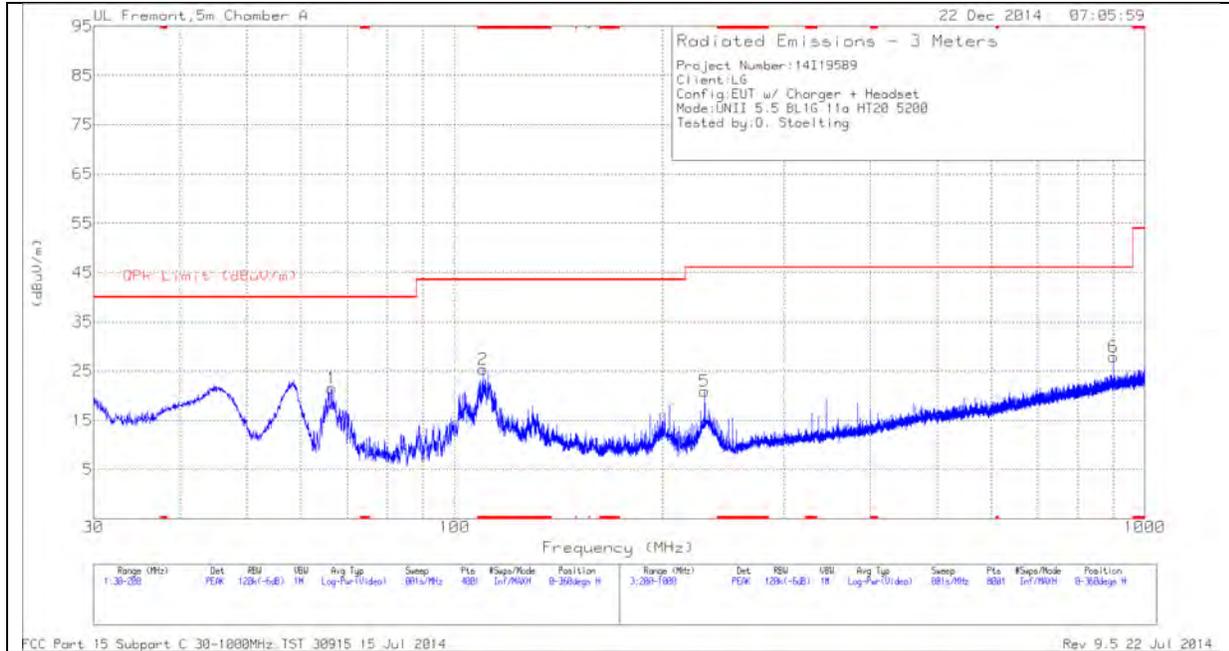
*RADIATED EMISSIONS*

Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/CbI/ Ftrr/Pad (dB)	DC Corr (dB)	Correcte d 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
* 1.2	47.13	PK1	29.3	-33.7	0	42.73	-	-	74	-31.27	-	-	111	281	V
* 1.2	31.25	AD1	29.3	-33.7	.47	27.32	54	-26.68	-	-	-	-	111	281	V
* 11.59	35.19	PK1	38.4	-21.7	0	51.89	-	-	74	-22.11	-	-	34	255	V
* 11.59	28.05	AD1	38.4	-21.7	.47	45.22	54	-8.78	-	-	-	-	34	255	V

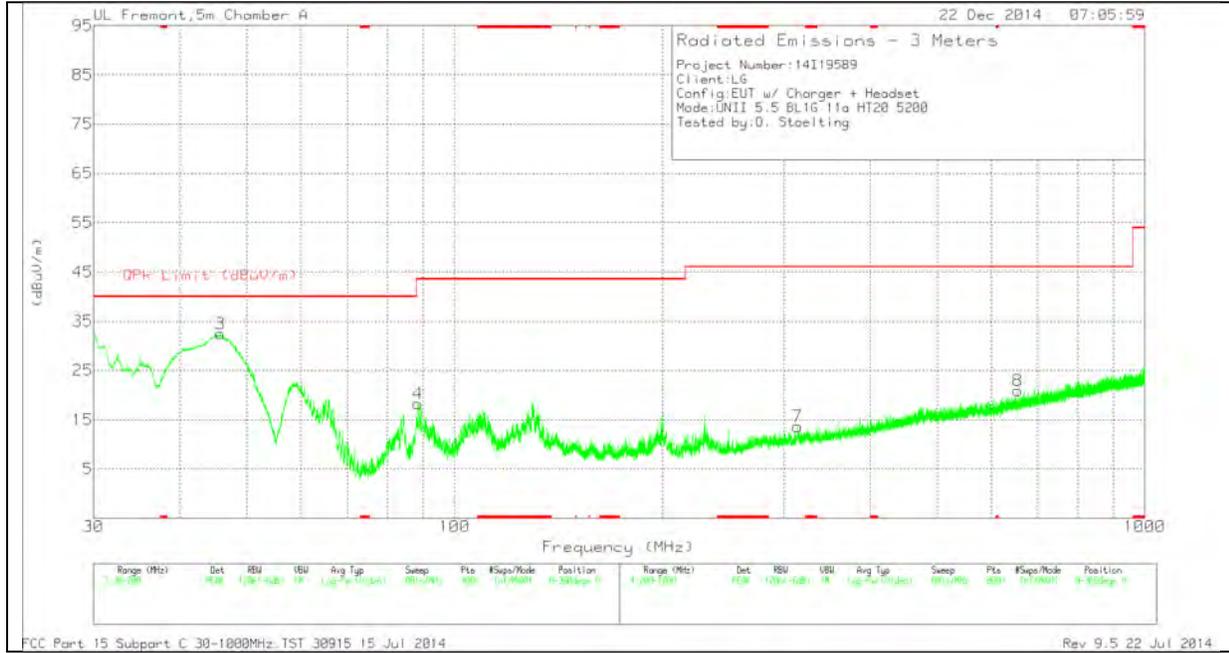
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## 12. WORST-CASE BELOW 1 GHz (in the 5.3 GHz Band)

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



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



**Below 1G Data**

Marker	Frequenc y (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB/m)	DC Corr (dB)	Correcte d Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 109.985	43.2	PK	12.6	-30.5	0	25.3	43.52	-18.22	0-360	200	H
3	45.7675	53.32	PK	10.1	-31	0	32.42	40	-7.58	0-360	101	V
1	66.38	44.49	PK	8	-30.9	0	21.59	40	-18.41	0-360	300	H
4	88.6075	41.31	PK	7.5	-30.6	0	18.21	43.52	-25.31	0-360	101	V
5	230.4	39.61	PK	11.1	-29.8	0	20.91	46.02	-25.11	0-360	101	H
7	314.3	29.11	PK	13.8	-29.3	0	13.61	46.02	-32.41	0-360	200	V
8	654.1	29.65	PK	19.6	-28.3	0	20.95	46.02	-25.07	0-360	300	V
6	900	32.99	PK	22.3	-27.4	0	27.89	46.02	-18.13	0-360	101	H

### 13. 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 C63.4.

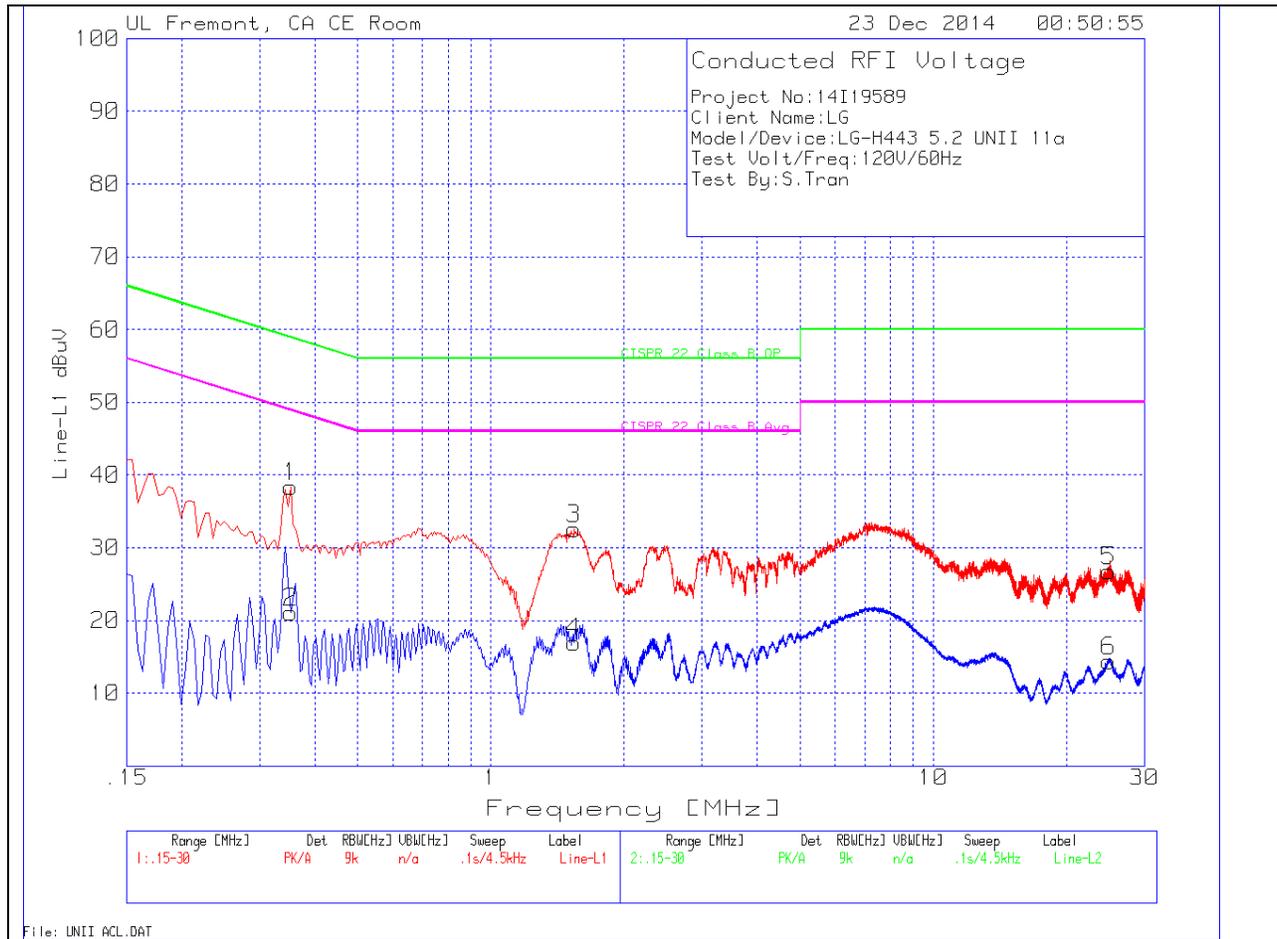
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

#### RESULTS

**6 WORST EMISSIONS**

**LINE 1 PLOT**

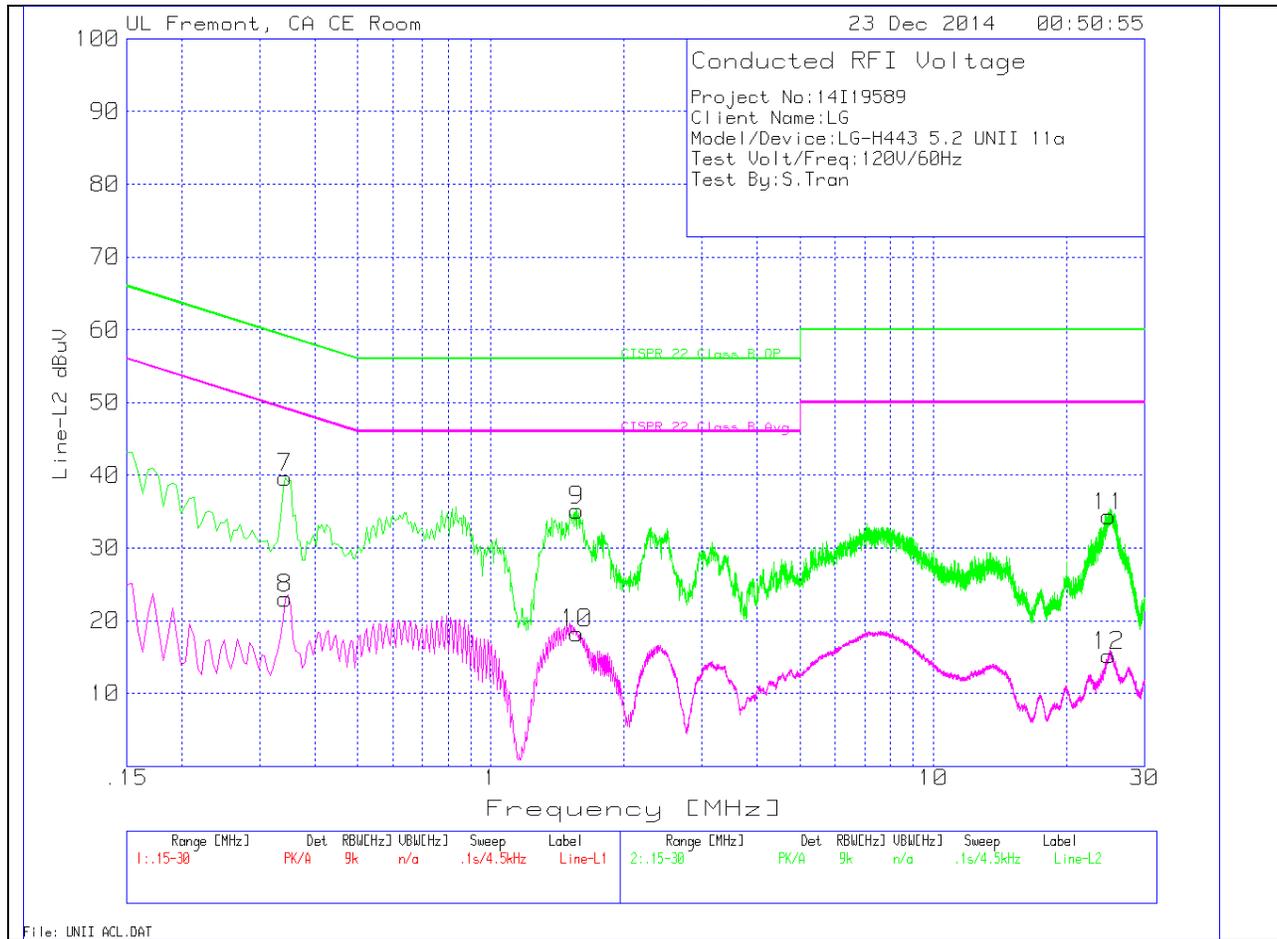


**LINE 1 RESULTS**

**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	.3525	37.93	PK	.5	0	38.43	58.9	-20.47	-	-
2	.3525	20.59	Av	.5	0	21.09	-	-	48.9	-27.81
3	1.5405	32.29	PK	.2	.1	32.59	56	-23.41	-	-
4	1.5405	16.7	Av	.2	.1	17	-	-	46	-29
5	24.918	26.32	PK	.3	.2	26.82	60	-33.18	-	-
6	24.918	13.95	Av	.3	.2	14.45	-	-	50	-35.55

### 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)
7	.3435	39.15	PK	.5	0	39.65	59.1	-19.45	-	-
8	.3435	22.55	Av	.5	0	23.05	-	-	49.1	-26.05
9	1.5675	34.86	PK	.2	.1	35.16	56	-20.84	-	-
10	1.5675	18.02	Av	.2	.1	18.32	-	-	46	-27.68
11	24.9	33.72	PK	.3	.3	34.32	60	-25.68	-	-
12	24.9	14.63	Av	.3	.3	15.23	-	-	50	-34.77

## 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 8 A9.3

**Note:** For the band 5600–5650 MHz, no operation is permitted.

Until further notice, devices subject to this annex shall not be capable of transmitting in the band 5600–5650 MHz. This restriction is for the protection of Environment Canada weather radars operating in this band.

#### 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

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar DFS	Client (without DFS)
<i>U-NII Detection Bandwidth and Statistical Performance Check</i>	All BW modes must be tested	Not required
<i>Channel Move Time and Channel Closing Transmission Time</i>	Test using widest BW mode available	Test using the widest BW mode available for the link
<i>All other tests</i>	Any single BW mode	Not required
<p><b>Note:</b> Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in all 20 MHz channel blocks and a null frequency between the bonded 20 MHz channel blocks.</p>		

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

Maximum Transmit Power	Value (see notes)
E.I.R.P. $\geq$ 200 mill watt	-64 dBm
E.I.R.P. < 200 mill watt and power spectral density < 10 dBm/MHz	-62 dBm
E.I.R.P. < 200 mill watt that do not meet power spectral density requirement	-64 dBm
<p><b>Note 1:</b> This is the level at the input of the receiver assuming a 0 dBi receive antenna</p> <p><b>Note 2:</b> 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.</p> <p><b>Note 3:</b> E.I.R.P. is based on the highest antenna gain. For MIMO devices refer to KDB publication 662911 D01.</p>	

**Table 4: DFS Response requirement values**

Parameter	Value
<i>Non-occupancy period</i>	30 minutes
<i>Channel Availability Check Time</i>	60 seconds
<i>Channel Move Time</i>	10 seconds (See Note 1)
<i>Channel Closing Transmission Time</i>	200 milliseconds + approx. 60 milliseconds over remaining 10 second period. (See Notes 1 and 2)
<i>U-NII Detection Bandwidth</i>	Minimum 100% of the U-NII 99% transmission power bandwidth. (See Note 3)
<p><b>Note 1:</b> <i>Channel Move Time</i> and the <i>Channel Closing Transmission Time</i> should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.</p> <p><b>Note 2:</b> The <i>Channel Closing Transmission Time</i> is comprised of 200 milliseconds starting at the beginning of the <i>Channel Move Time</i> plus any additional intermittent control signals required to facilitate a <i>Channel</i> move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.</p> <p><b>Note 3:</b> During the <i>U-NII Detection Bandwidth</i> detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.</p>	

**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: $\{(1/360) \times (19 \times 10^6 \text{ PRI}_{\text{usec}})\}$	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
<b>Note 1:</b> Short Pulse Radar Type 0 should be used for the <i>Detection Bandwidth</i> test, <i>Channel Move Time</i> , and <i>Channel Closing Time</i> tests.					

**Table 6 – Long Pulse Radar Test Signal**

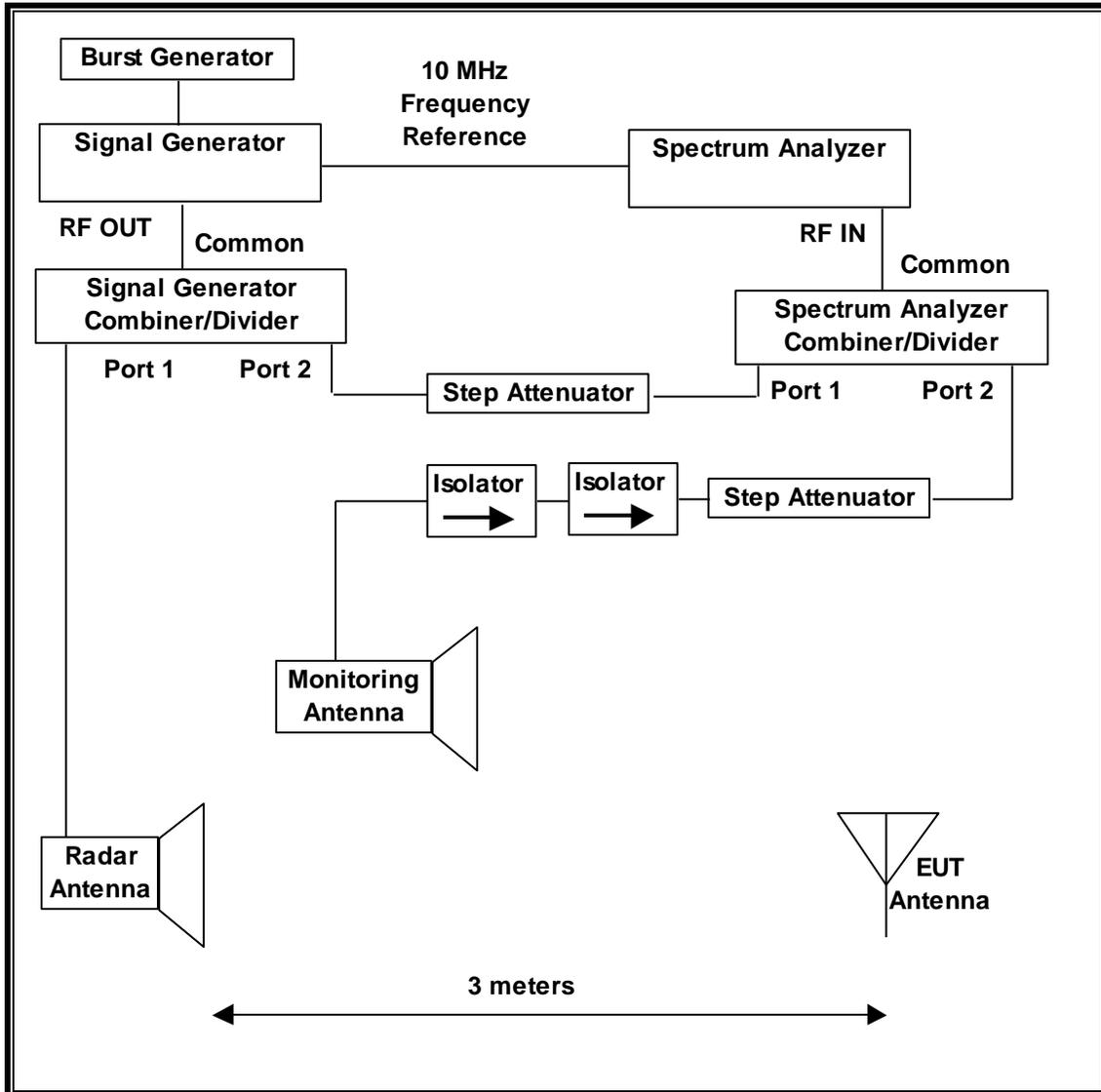
Radar Waveform Type	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

**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 KDB 905462 D02. 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.

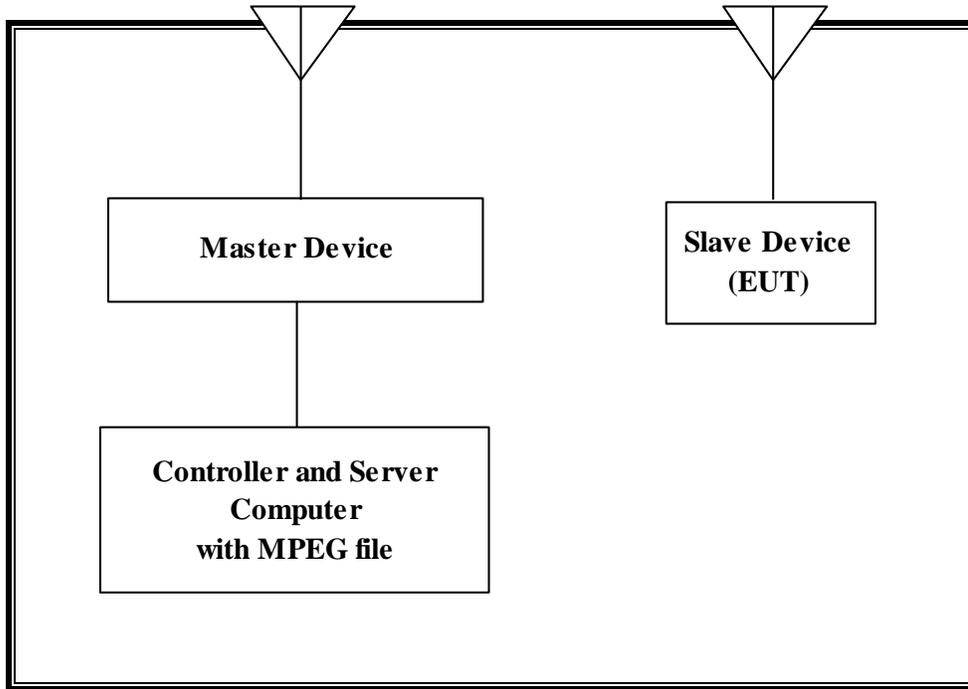
**TEST AND MEASUREMENT EQUIPMENT**

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	09/05/15
Vector Signal Generator, 20GHz	Agilent / HP	E8267C	C01066	09/03/15

**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
802.11ac Access Point (Master Device 1)	Cisco	AIR-CAP3702E-A-K9	FTX181570A6	LDK102087
P.O.E. Injector (Master 1)	Phihong	POE30U-560(G)	PHI170102N2	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**

For FCC the EUT operates over the 5250-5350 MHz and 5470-5725 MHz ranges.

For IC 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 10.79 dBm EIRP in the 5250-5350 MHz band and 10.67 dBm EIRP in the 5470-5725 MHz band.

The only antenna assembly utilized with the EUT has a gain of -2.4dBi.

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 version 3.0.2 ESMedia Player media player.

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 revision 12.4(25d)JA1.

#### **UNIFORM CHANNEL SPREADING**

This function is not required per KDB 905462.

### **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  $> 23\text{dBm}$  (EIRP). Therefore the required interference threshold level is  $-64\text{ dBm}$ . After correction for procedural adjustments, the required radiated threshold at the antenna port is  $-64 + 1 = -63\text{ dBm}$ .

The calibrated radiated DFS Detection Threshold level is set to  $-64\text{ dBm}$ . The tested level is lower than the required level hence it provides a margin to the limit.

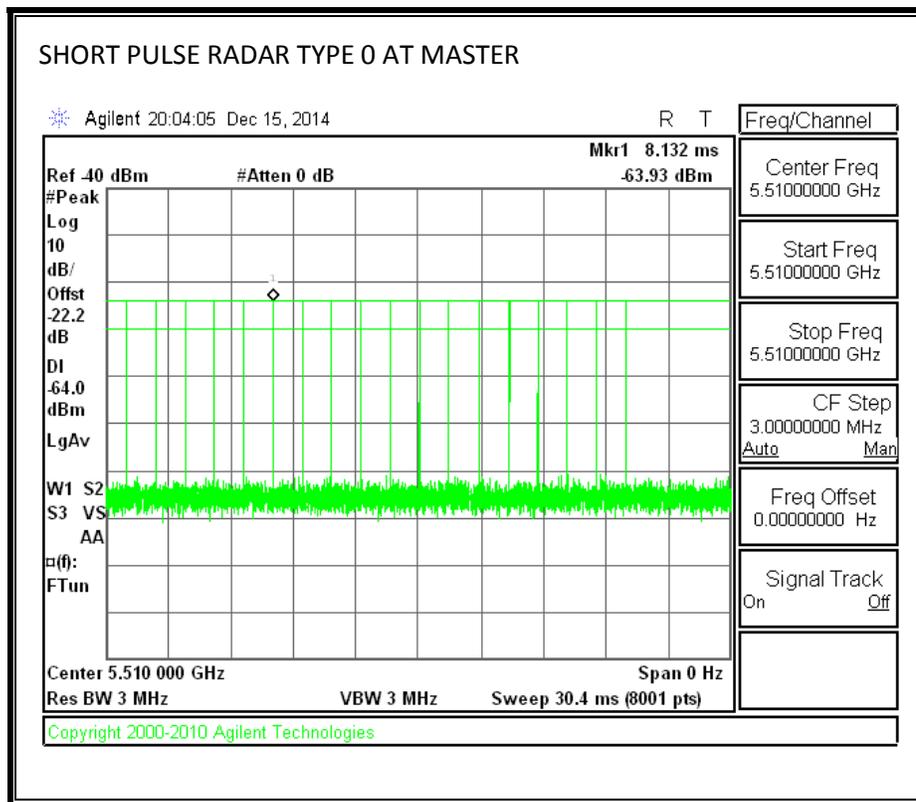
## 14.2. RESULTS FOR 20 MHz BANDWIDTH

### 14.2.1. TEST CHANNEL

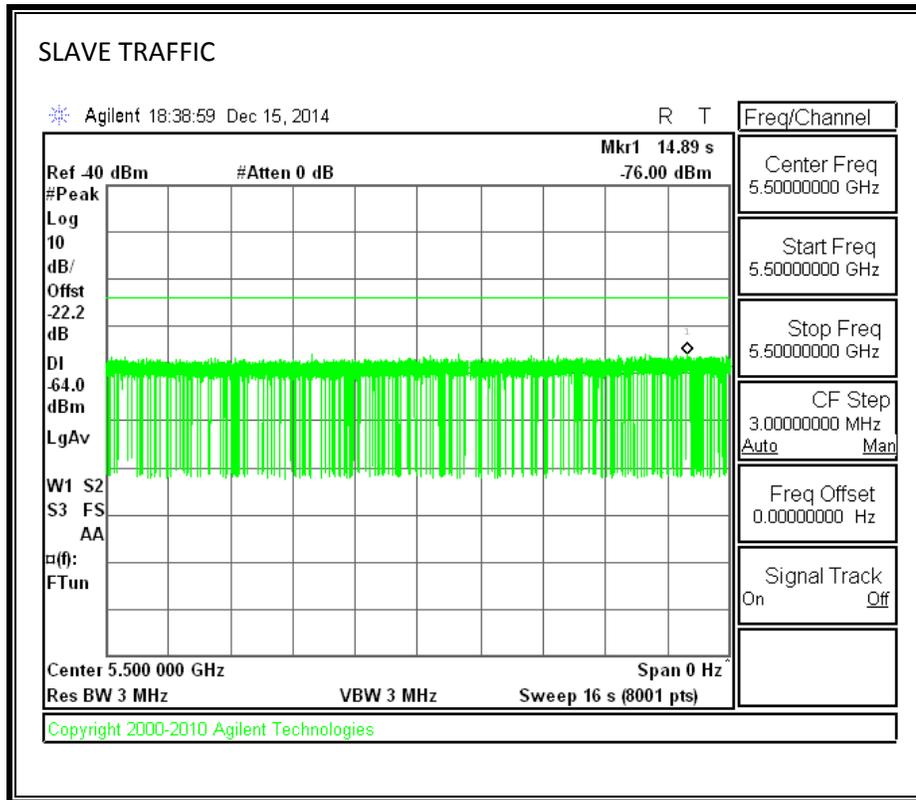
All tests were performed at a channel center frequency of 5500 MHz.

### 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)

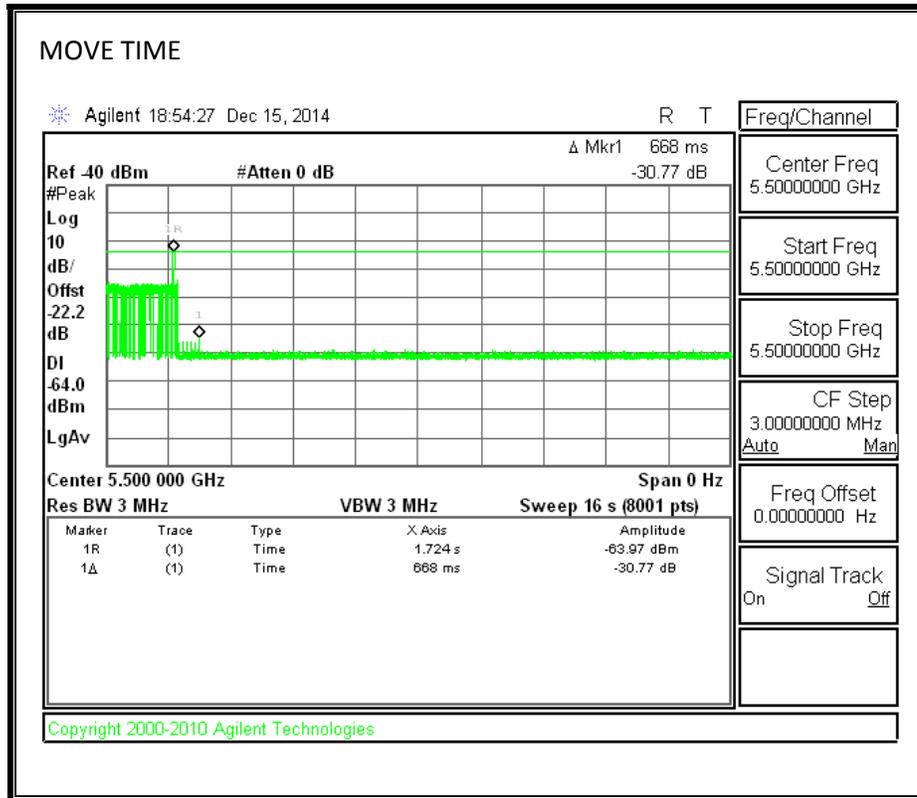
The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

#### RESULTS

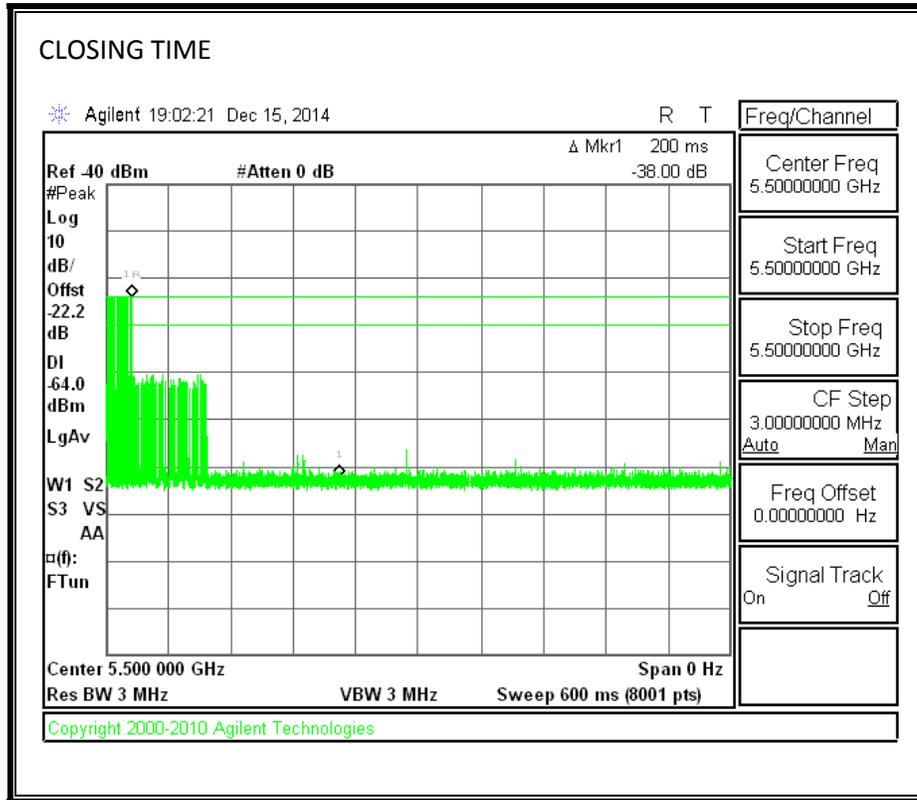
<b>Channel Move Time (sec)</b>	<b>Limit (sec)</b>
<b>0.668</b>	<b>10</b>

<b>Aggregate Channel Closing Transmission Time (msec)</b>	<b>Limit (msec)</b>
<b>12.0</b>	<b>60</b>

**MOVE TIME**

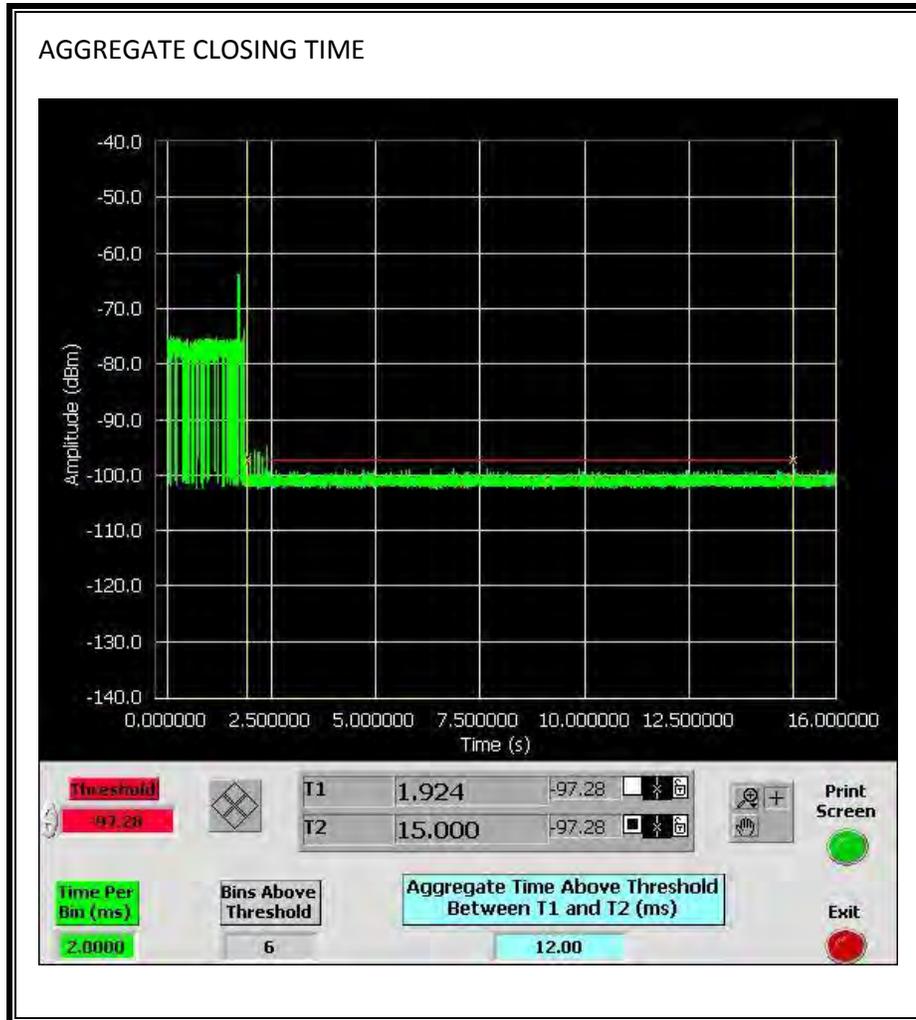


**CHANNEL CLOSING TIME**



**AGGREGATE CHANNEL CLOSING TRANSMISSION TIME**

Only intermittent transmissions are observed during the aggregate monitoring period.



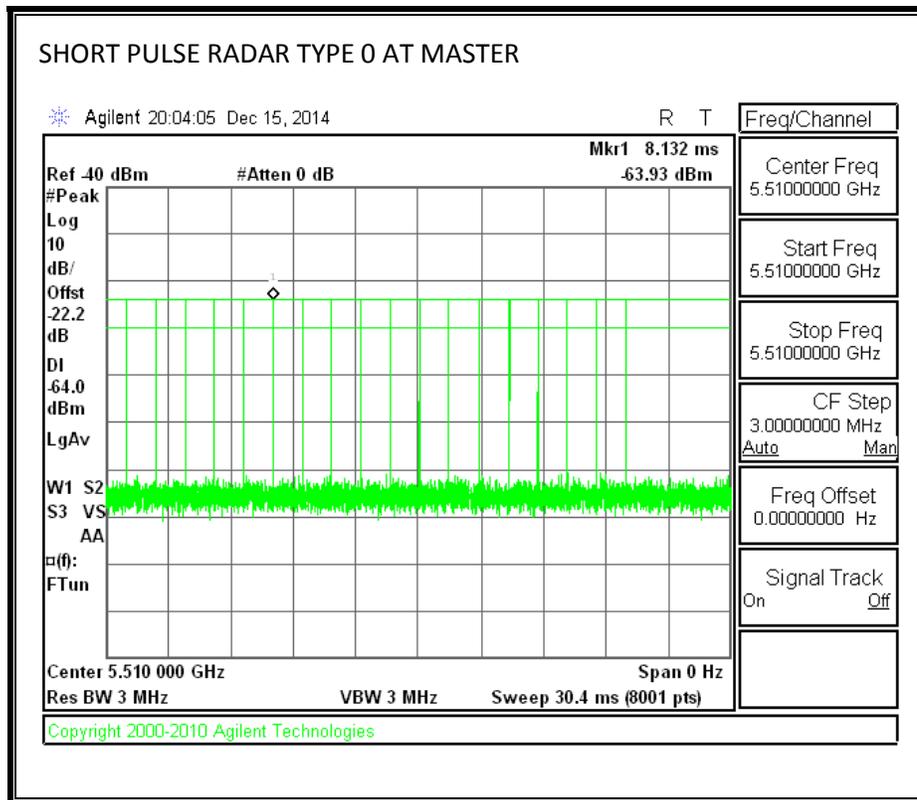
### 14.3. RESULTS FOR 40 MHz BANDWIDTH

#### 14.3.1. TEST CHANNEL

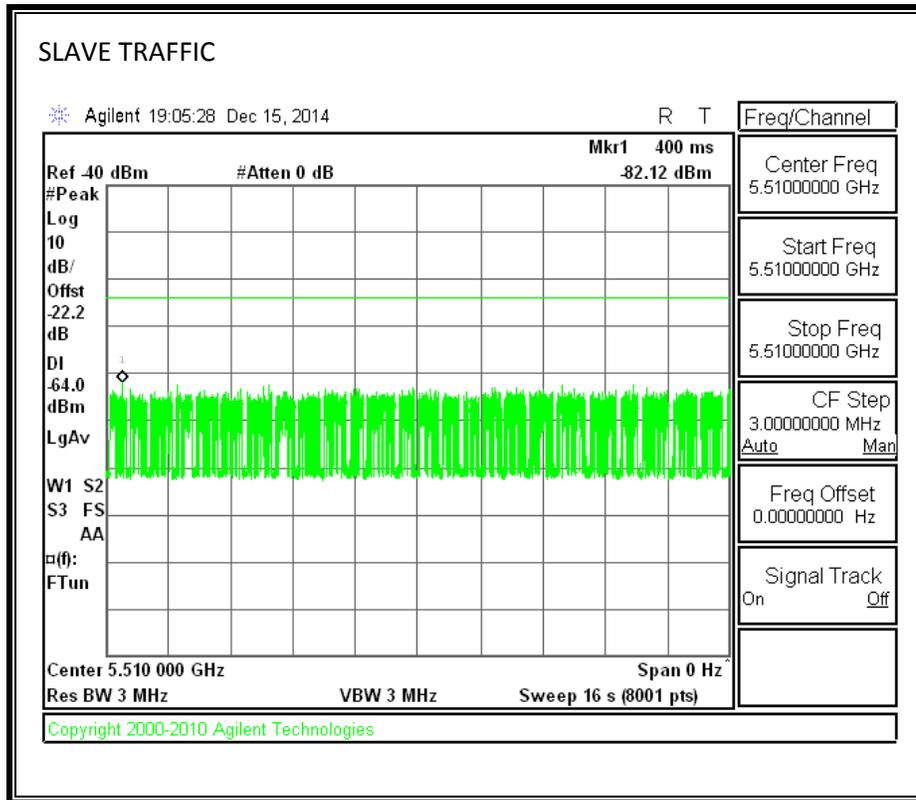
All tests were performed at a channel center frequency of 5510 MHz.

#### 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)

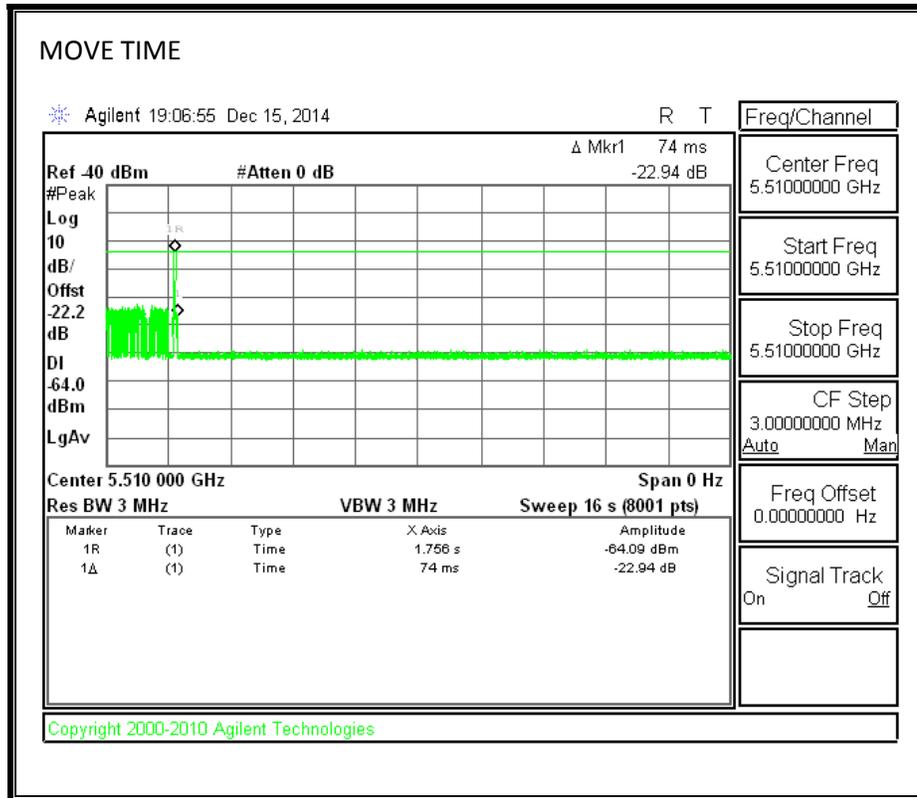
The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

#### RESULTS

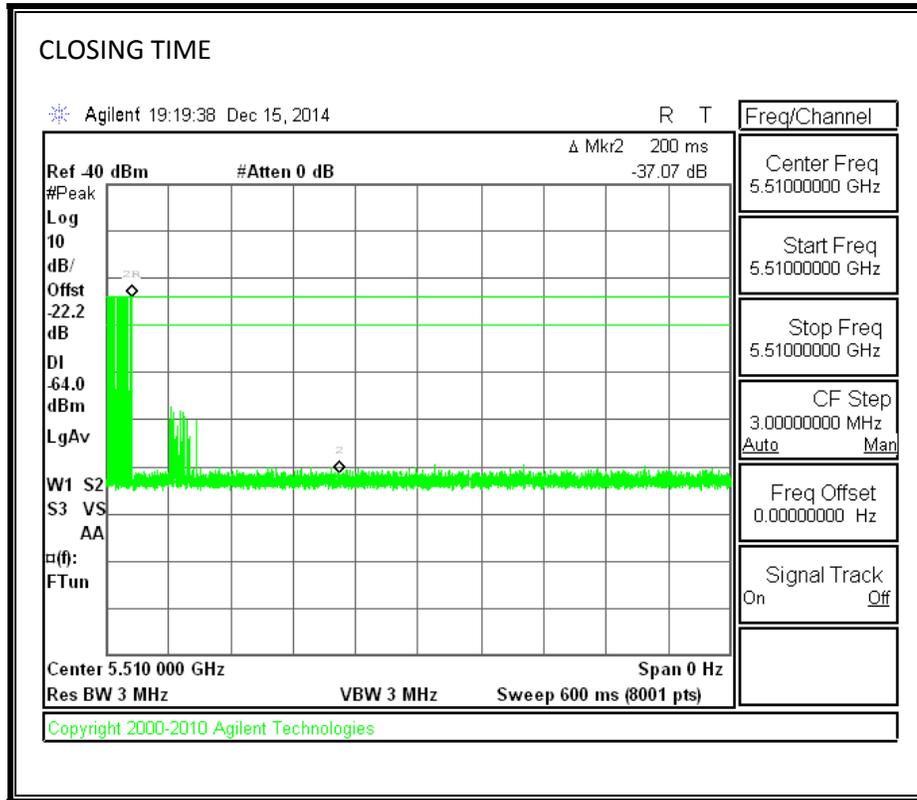
Channel Move Time (sec)	Limit (sec)
0.074	10

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

**MOVE TIME**

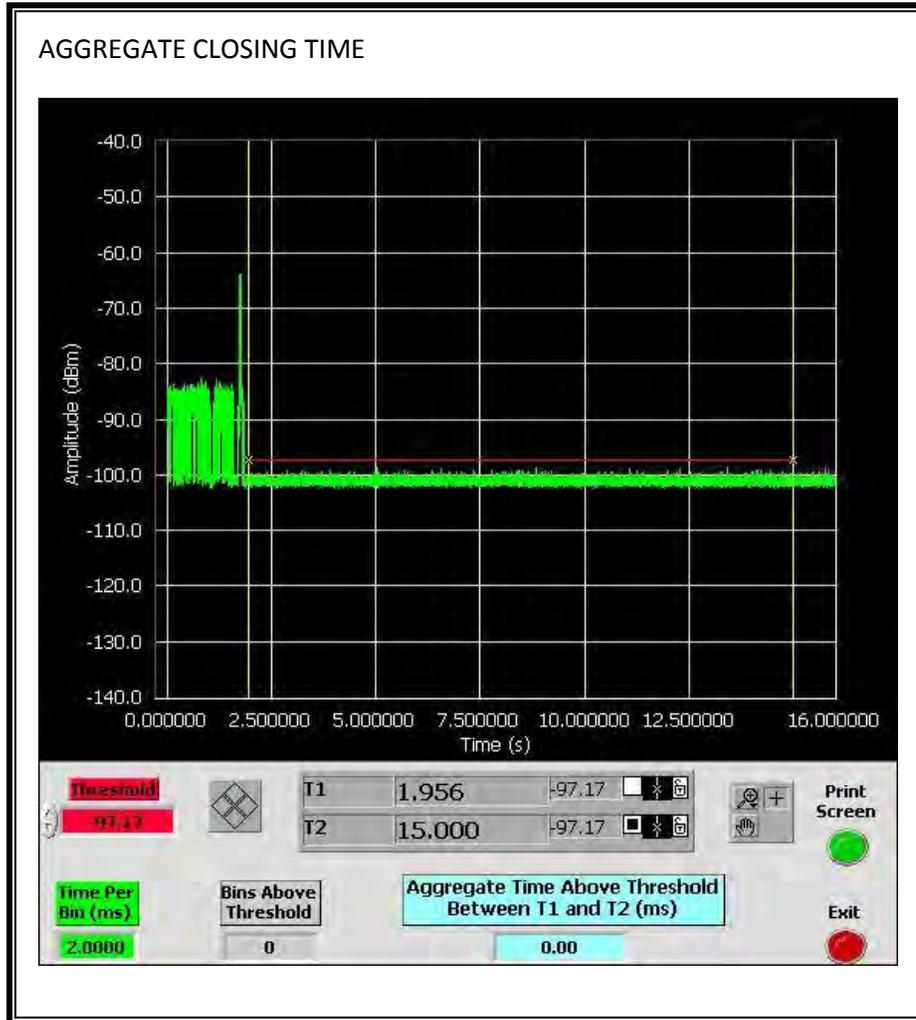


**CHANNEL CLOSING TIME**



**AGGREGATE CHANNEL CLOSING TRANSMISSION TIME**

No transmissions are observed during the aggregate monitoring period.



### 14.3.5. 10-MINUTE BEACON MONITORING PERIOD

#### RESULTS

No EUT transmissions were observed on the test channel during the 10-minute observation time.

