

DATA

Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/F lter/Pad (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	* 3.883	43.99	PK1	33.4	-29.1	48.29	-	-	74	-25.71	-	-	40	306	H
	* 3.883	38.84	AD1	33.4	-29.1	43.14	54	-10.86	-	-	-	-	40	306	H
2	* 3.883	43.5	PK1	33.4	-29.1	47.8	-	-	74	-26.2	-	-	6	304	V
	* 3.883	38.49	AD1	33.4	-29.1	42.79	54	-11.21	-	-	-	-	6	304	V
3	* 5.048	41.49	PK1	34.3	-25.7	50.09	-	-	74	-23.91	-	-	325	309	V
	* 5.048	31.42	AD1	34.3	-25.7	40.02	54	-13.98	-	-	-	-	325	309	V
6	* 11.652	38.8	PK1	38.1	-21.4	55.5	-	-	74	-18.5	-	-	0	116	V
	* 11.65	26.48	AD1	38.1	-21.4	43.18	54	-10.82	-	-	-	-	0	116	V
4	5.315	40.92	PK1	34.3	-18.2	57.02	-	-	-	-	68.2	-11.18	149	386	V
5	6.211	39.64	PK1	35.4	-26.7	48.34	-	-	-	-	68.2	-19.86	340	133	V

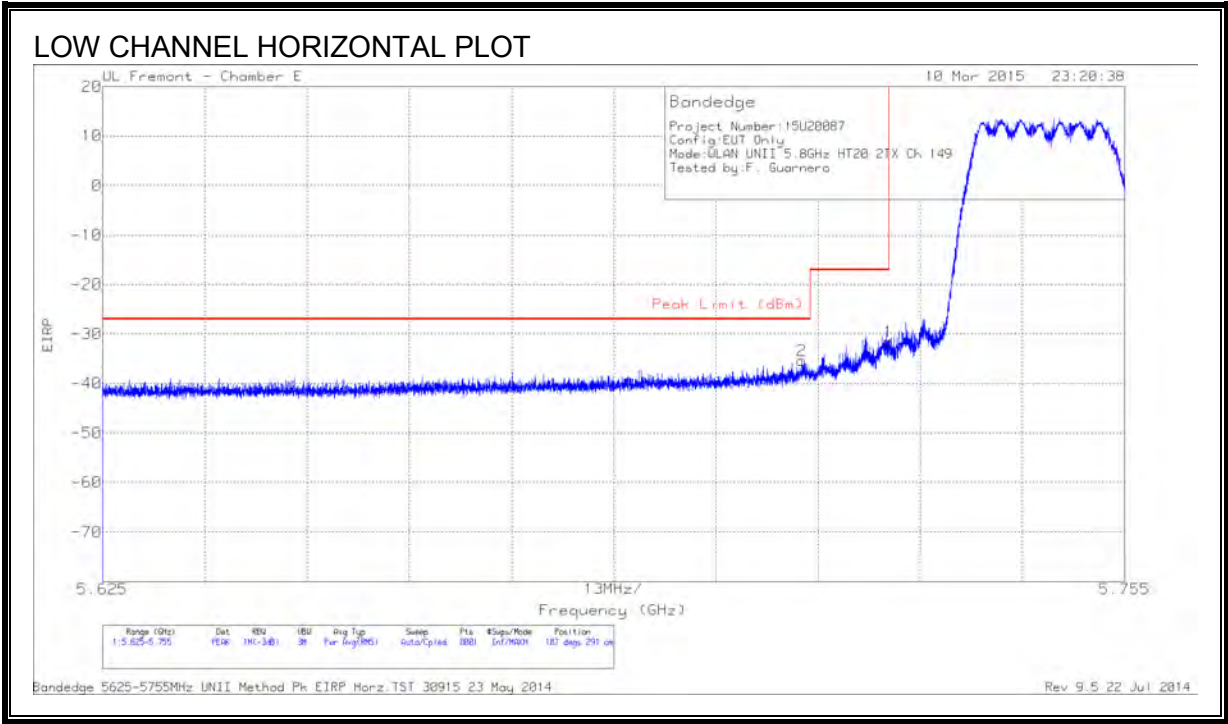
* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

9.21. 802.11n HT20 2Tx CDD MODE IN THE 5.8 GHz BAND

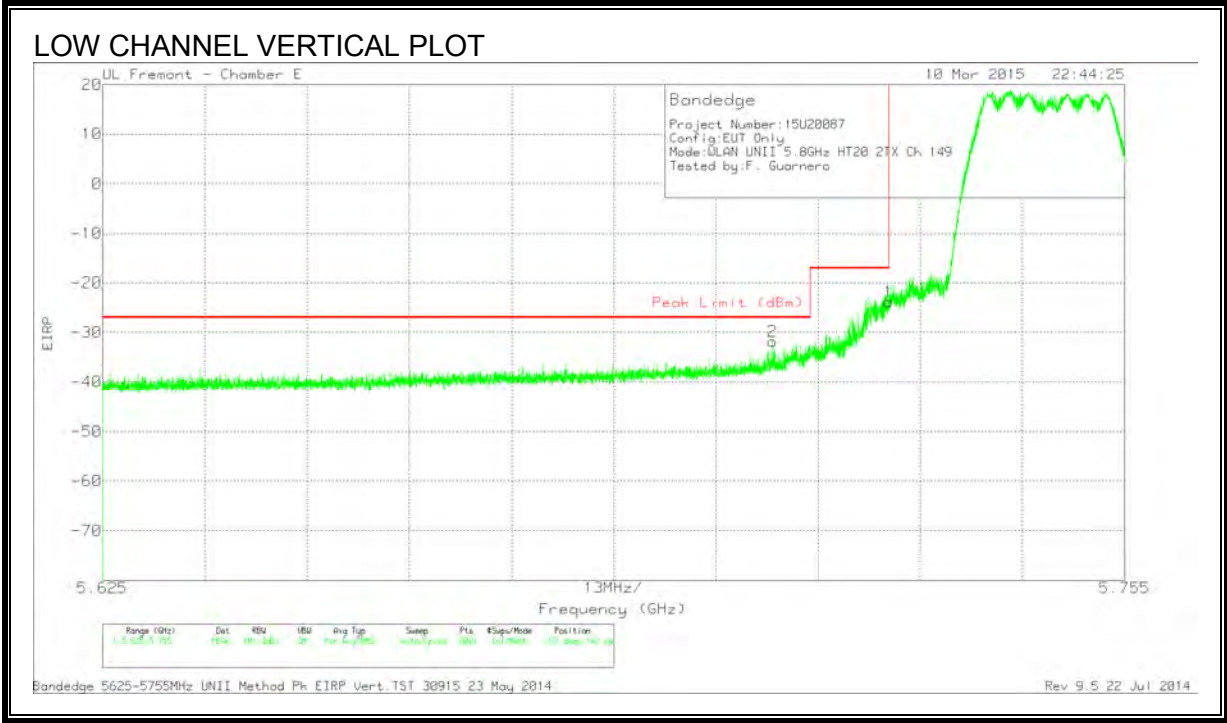
RESTRICTED BANDEDGE (LOW CHANNEL)



DATA

Marker	Frequenc y (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl/ Filtr/Pad (dB)	Conversi on Factor (dB)	Correcte d Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.714	-60.91	PK	34.7	-21	11.8	-35.41	-27	-8.41	187	291	H
1	5.725	-57.24	PK	34.7	-20.8	11.8	-31.54	-17	-14.54	187	291	H

PK - Peak detector

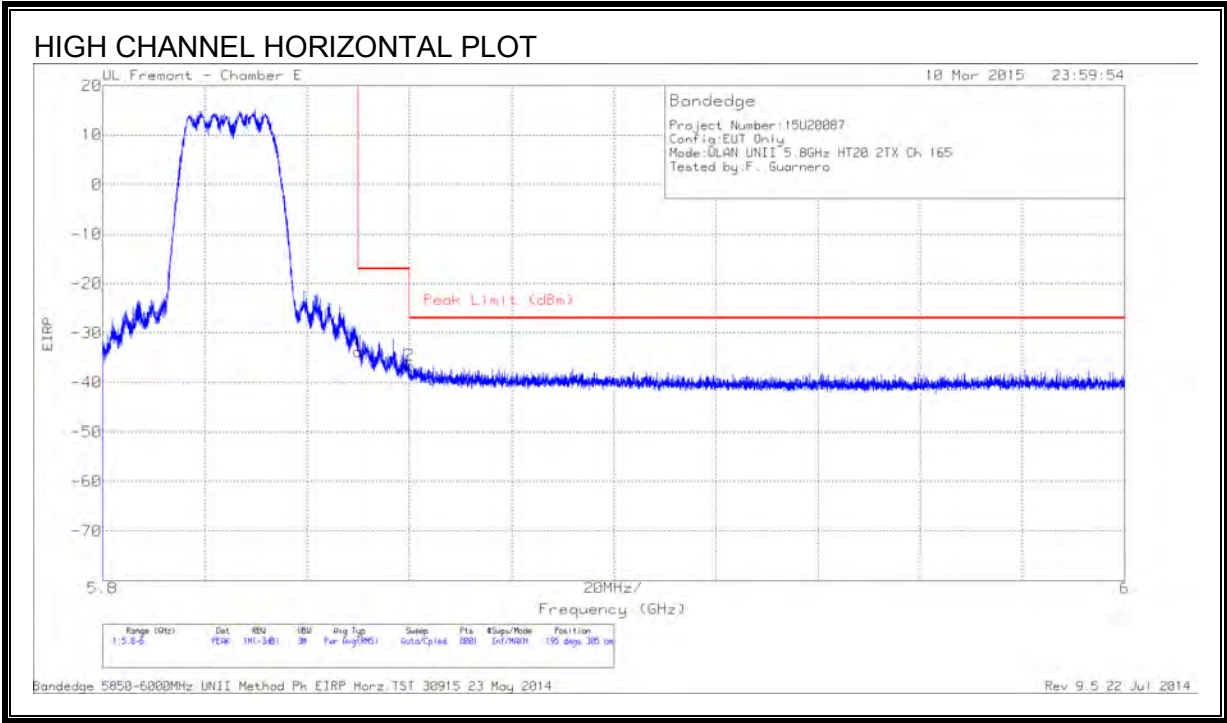


DATA

Marker	Frequenc y (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl/ Filtr/Pad (dB)	Conversi on Factor (dB)	Correcte d Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.71	-57.3	PK	34.7	-21	11.8	-31.8	-27	-4.8	237	142	V
1	5.725	-49.48	PK	34.7	-20.8	11.8	-23.78	-17	-6.78	237	142	V

PK - Peak detector

RESTRICTED BANDEDGE (HIGH CHANNEL)



DATA

Marker	Frequenc y (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cb/ Fitr/Pad (dB)	Conversi on Factor (dB)	Correcte d Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-60.16	PK	34.9	-20.3	11.8	-33.76	-17	-16.76	195	305	H
2	5.86	-62.85	PK	34.9	-20.3	11.8	-36.45	-27	-9.45	195	305	H

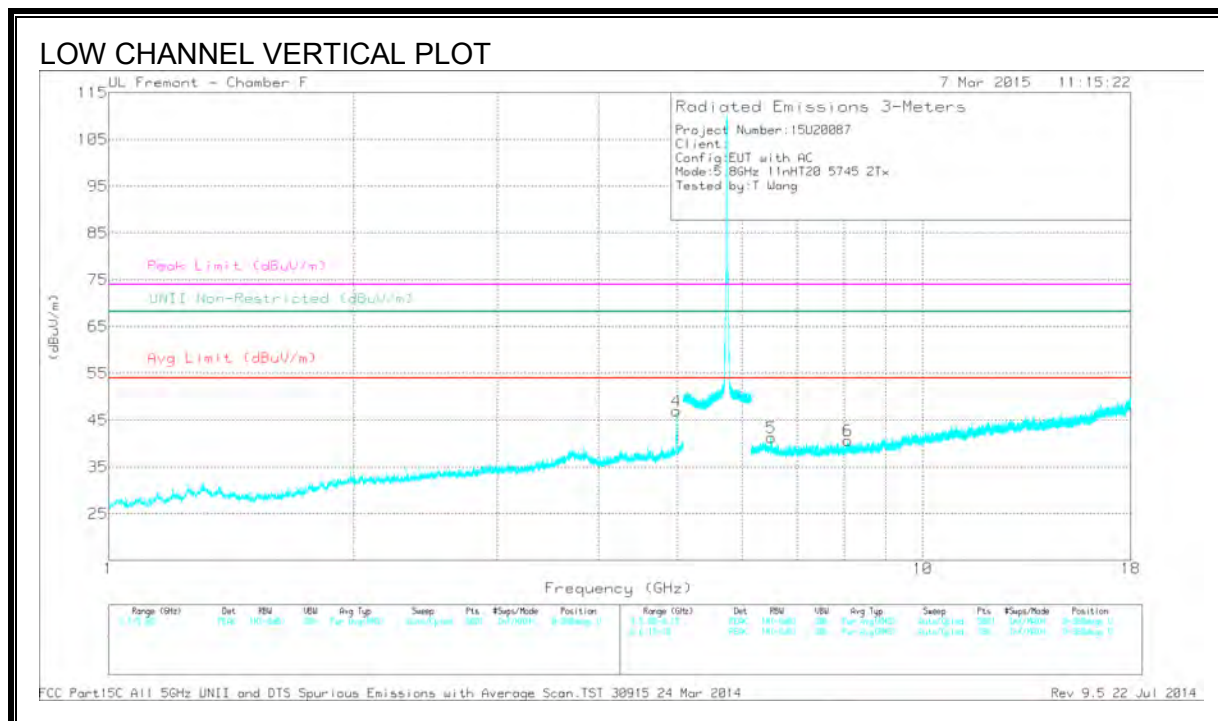
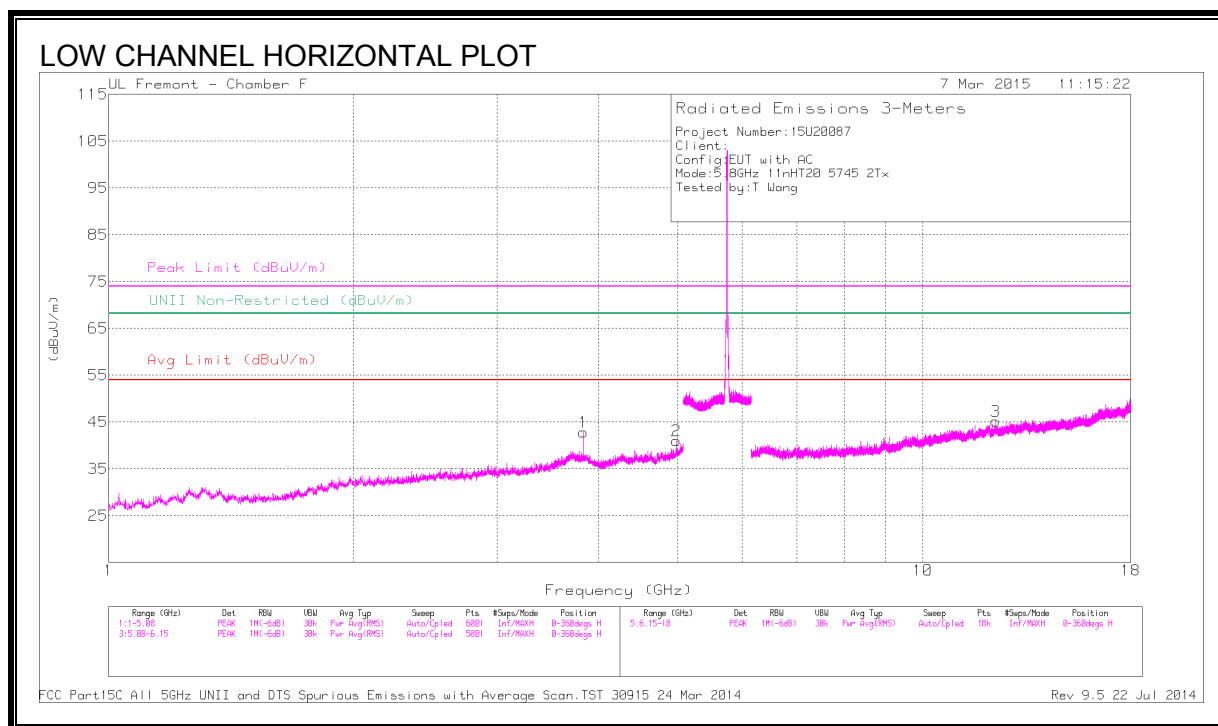
PK - Peak detector



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl/ Filt/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-53.41	PK	34.9	-20.3	11.8	-27.01	-17	-10.01	278	104	V
2	5.861	-58.41	PK	34.9	-20.3	11.8	-32.01	-27	-5.01	278	104	V

PK - Peak detector

LOW CHANNEL HARMONICS AND SPURIOUS EMISSIONS



DATA

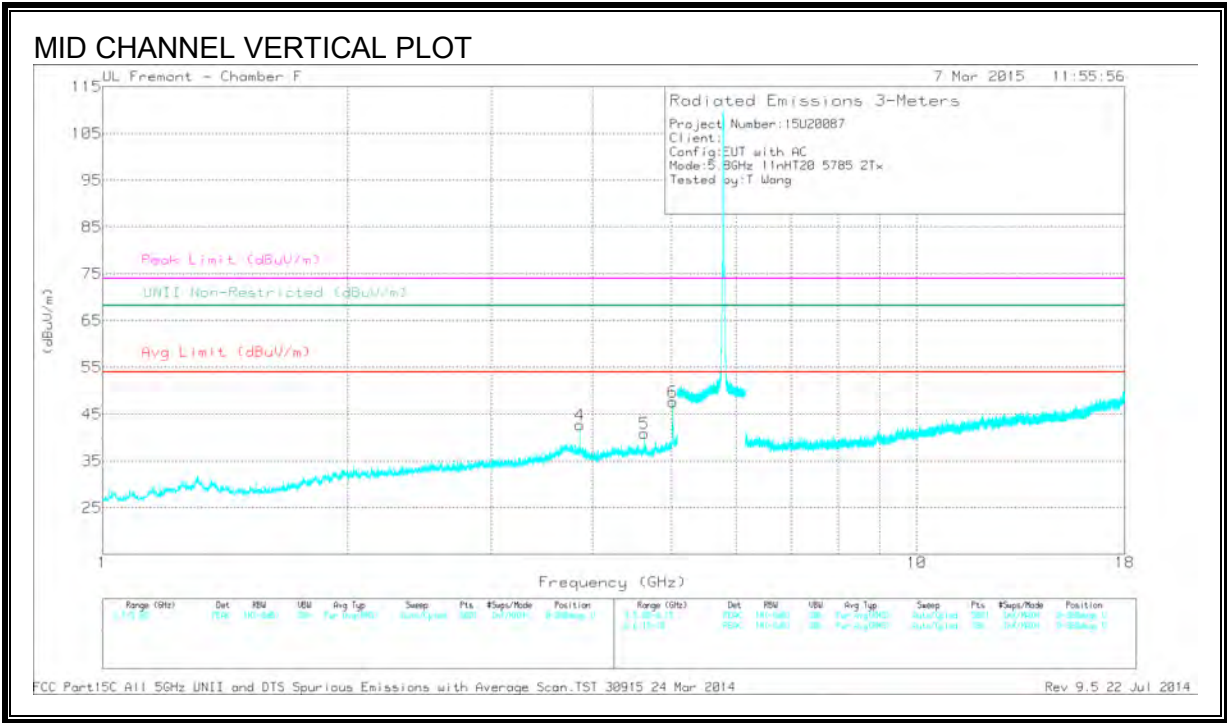
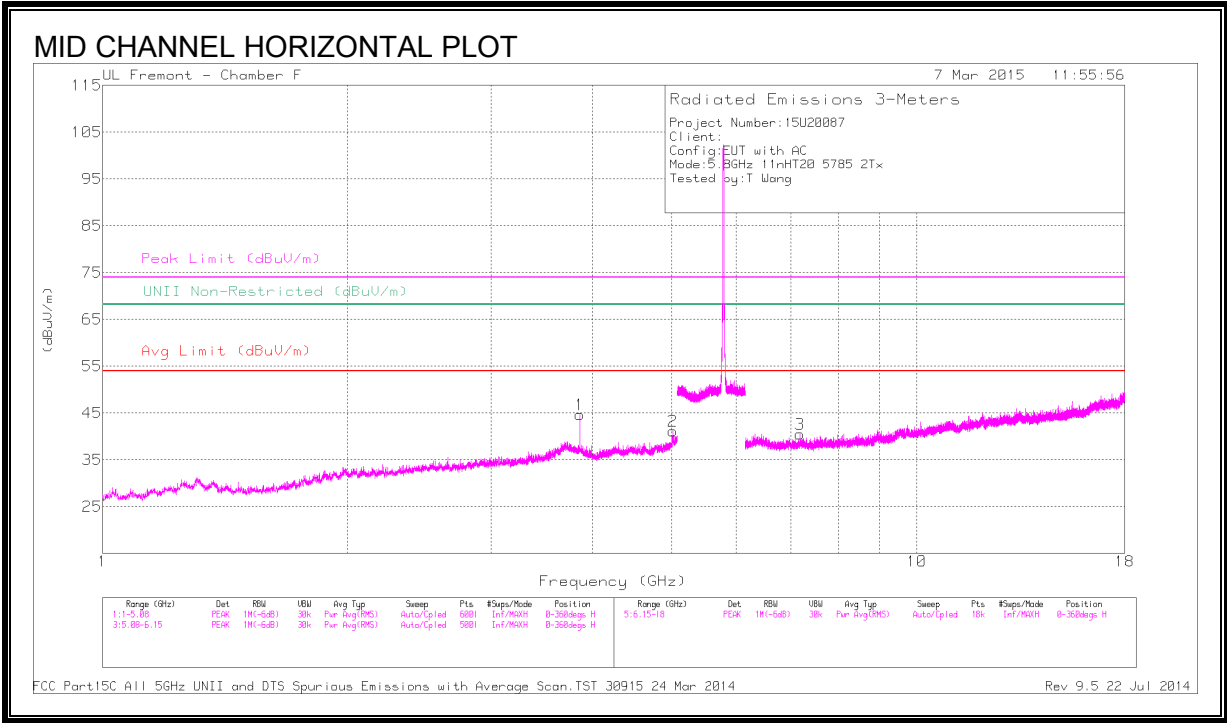
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.83	42.67	PK1	34.3	-29	47.97	-	-	74	-26.03	-	-	149	275	H
	* 3.83	36.35	AD1	34.3	-29	41.65	54	-12.35	-	-	-	-	149	275	H
2	* 4.979	40.35	PK1	34.2	-26.9	47.65	-	-	74	-26.35	-	-	149	275	H
	* 4.979	31.79	AD1	34.2	-26.8	39.19	54	-14.81	-	-	-	-	149	275	H
4	* 4.979	43.93	PK1	34.2	-26.8	51.33	-	-	74	-22.67	-	-	55	117	V
	* 4.979	36.77	AD1	34.2	-26.8	44.17	54	-9.83	-	-	-	-	55	117	V
3	* 12.278	34.76	PK1	38.9	-21.8	51.86	-	-	74	-22.14	-	-	13	170	H
	* 12.279	23.42	AD1	38.9	-21.8	40.52	54	-13.48	-	-	-	-	13	170	H
6	* 8.098	36.45	PK1	35.7	-25	47.15	-	-	74	-26.85	-	-	352	378	V
	* 8.097	24.7	AD1	35.7	-25	35.4	54	-18.6	-	-	-	-	352	378	V
5	6.511	39.02	PK1	35.6	-25.9	48.72	-	-	-	-	68.2	-19.48	352	378	V

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

MID CHANNEL HARMONICS AND SPURIOUS EMISSIONS



DATA

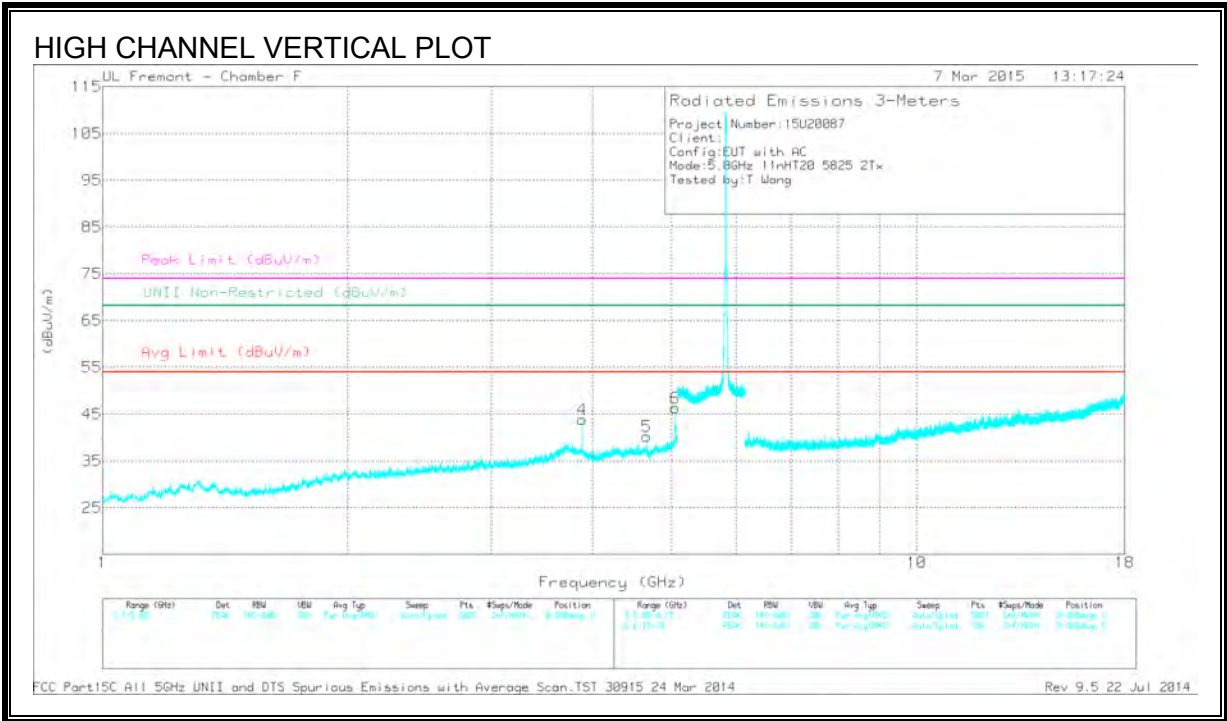
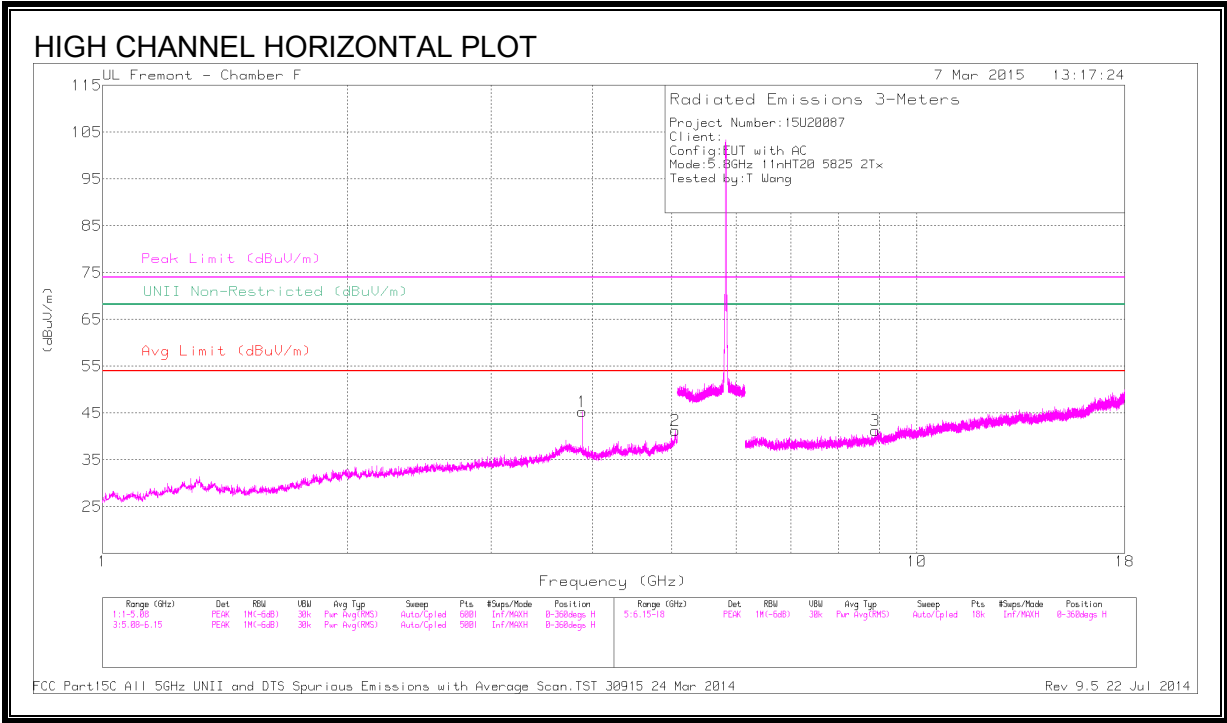
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/F ttr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.857	42.69	PK1	34.2	-29	47.89	-	-	74	-26.11	-	-	79	154	H
	* 3.857	36.78	AD1	34.2	-29	41.98	54	-12.02	-	-	-	-	79	154	H
2	* 5.012	39.37	PK1	34.2	-26.8	46.77	-	-	74	-27.23	-	-	79	154	H
	* 5.014	28.98	AD1	34.2	-26.8	36.38	54	-17.62	-	-	-	-	79	154	H
6	* 5.014	45.82	PK1	34.2	-26.8	53.22	-	-	74	-20.78	-	-	58	196	V
	* 5.014	37.69	AD1	34.2	-26.8	45.09	54	-8.91	-	-	-	-	58	196	V
5	* 4.63	37.94	PK1	34.1	-26.6	45.44	-	-	74	-28.56	-	-	58	196	V
	* 4.628	27.64	AD1	34.1	-26.6	35.14	54	-18.86	-	-	-	-	58	196	V
4	* 3.857	41.08	PK1	34.2	-29	46.28	-	-	74	-27.72	-	-	58	196	V
	* 3.857	33.3	AD1	34.2	-29	38.5	54	-15.5	-	-	-	-	58	196	V
3	7.181	36.75	PK1	35.5	-25.8	46.45	-	-	-	-	68.2	-21.75	79	154	H

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

HIGH CHANNEL HARMONICS AND SPURIOUS EMISSIONS



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/F ltr/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	* 3.883	43.93	PK1	34.1	-29	49.03	-	-	74	-24.97	-	-	147	209	H
	* 3.883	39.12	AD1	34.1	-29	44.22	54	-9.78	-	-	-	-	147	209	H
2	* 5.047	39.25	PK1	34.3	-26.5	47.05	-	-	74	-26.95	-	-	147	209	H
	* 5.048	28.4	AD1	34.3	-26.5	36.2	54	-17.8	-	-	-	-	147	209	H
6	* 5.048	43.93	PK1	34.3	-26.5	51.73	-	-	74	-22.27	-	-	48	218	V
	* 5.048	36.56	AD1	34.3	-26.5	44.36	54	-9.64	-	-	-	-	48	218	V
5	* 4.66	38.12	PK1	34.1	-27.1	45.12	-	-	74	-28.88	-	-	48	218	V
	* 4.66	28.3	AD1	34.1	-27.1	35.3	54	-18.7	-	-	-	-	48	218	V
4	* 3.883	41.52	PK1	34.1	-29	46.62	-	-	74	-27.38	-	-	48	218	V
	* 3.883	34.73	AD1	34.1	-29	39.83	54	-14.17	-	-	-	-	48	218	V
3	8.896	34.85	PK1	36	-23.2	47.65	-	-	-	-	68.2	-20.55	147	209	H

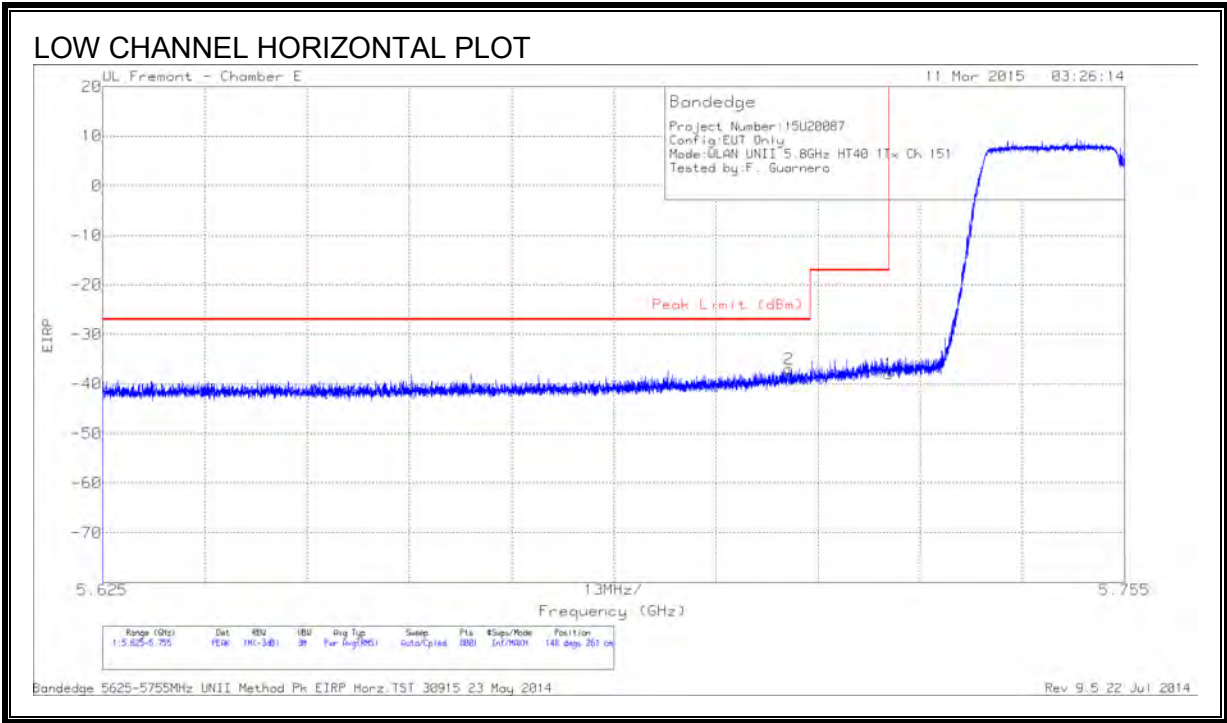
* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

9.22. 802.11n HT40 1Tx MODE IN THE 5.8 GHz BAND

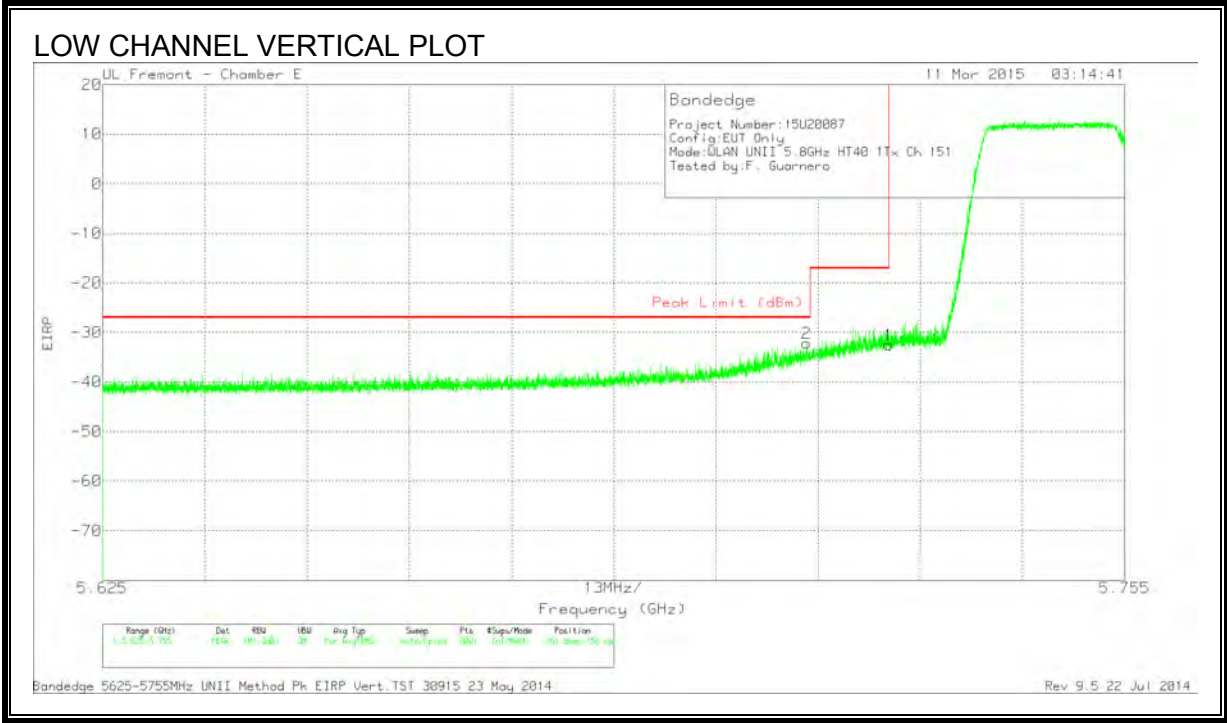
RESTRICTED BANDEGE (LOW CHANNEL)



DATA

Marker	Frequenc y (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl/ Filtr/Pad (dB)	Conversi on Factor (dB)	Correcte d Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.712	-62.47	PK	34.7	-21	11.8	-36.97	-27	-9.97	148	261	H
1	5.725	-63.66	PK	34.7	-20.8	11.8	-37.96	-17	-20.96	148	261	H

PK - Peak detector

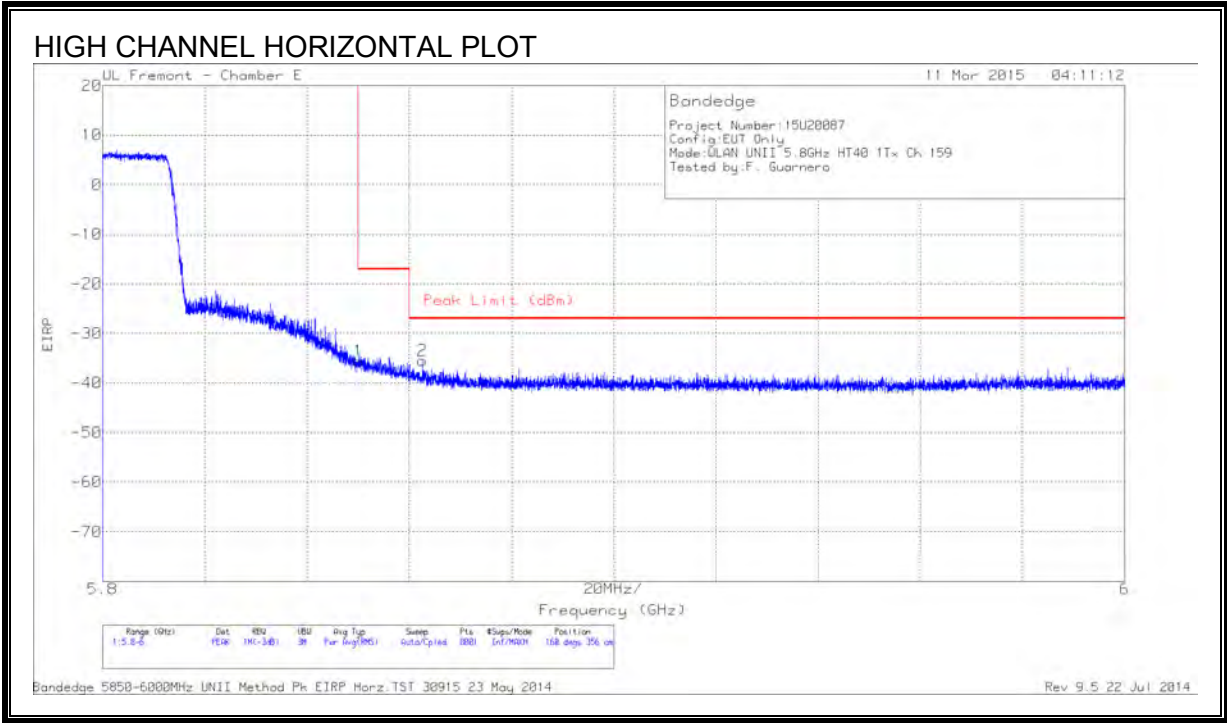


DATA

Marker	Frequenc y (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl/ Filtr/Pad (dB)	Conversi on Factor (dB)	Correcte d Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.715	-57.67	PK	34.7	-21	11.8	-32.17	-27	-5.17	261	156	V
1	5.725	-58.24	PK	34.7	-20.8	11.8	-32.54	-17	-15.54	261	156	V

PK - Peak detector

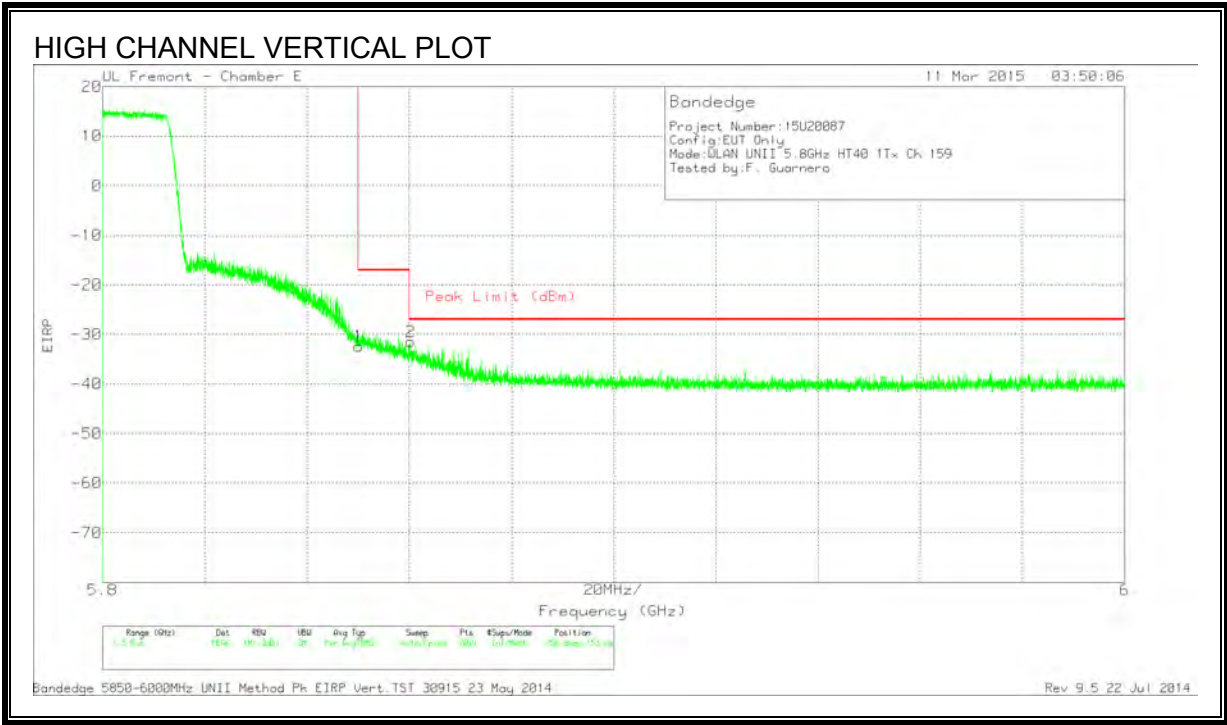
RESTRICTED BANDEDGE (HIGH CHANNEL)



DATA

Marker	Frequenc y (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cb/ Filtr/Pad (dB)	Conversi on Factor (dB)	Correcte d Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-61.89	PK	34.9	-20.3	11.8	-35.49	-17	-18.49	160	356	H
2	5.863	-61.72	PK	34.9	-20.4	11.8	-35.42	-27	-8.42	160	356	H

PK - Peak detector

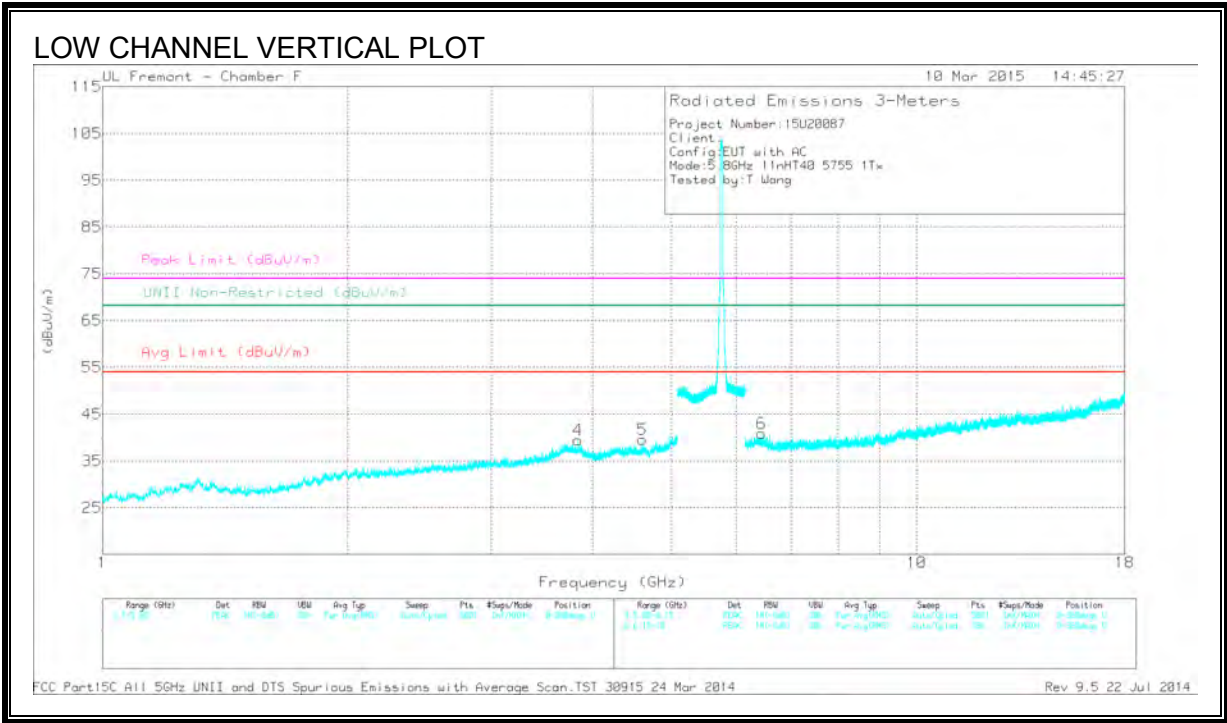
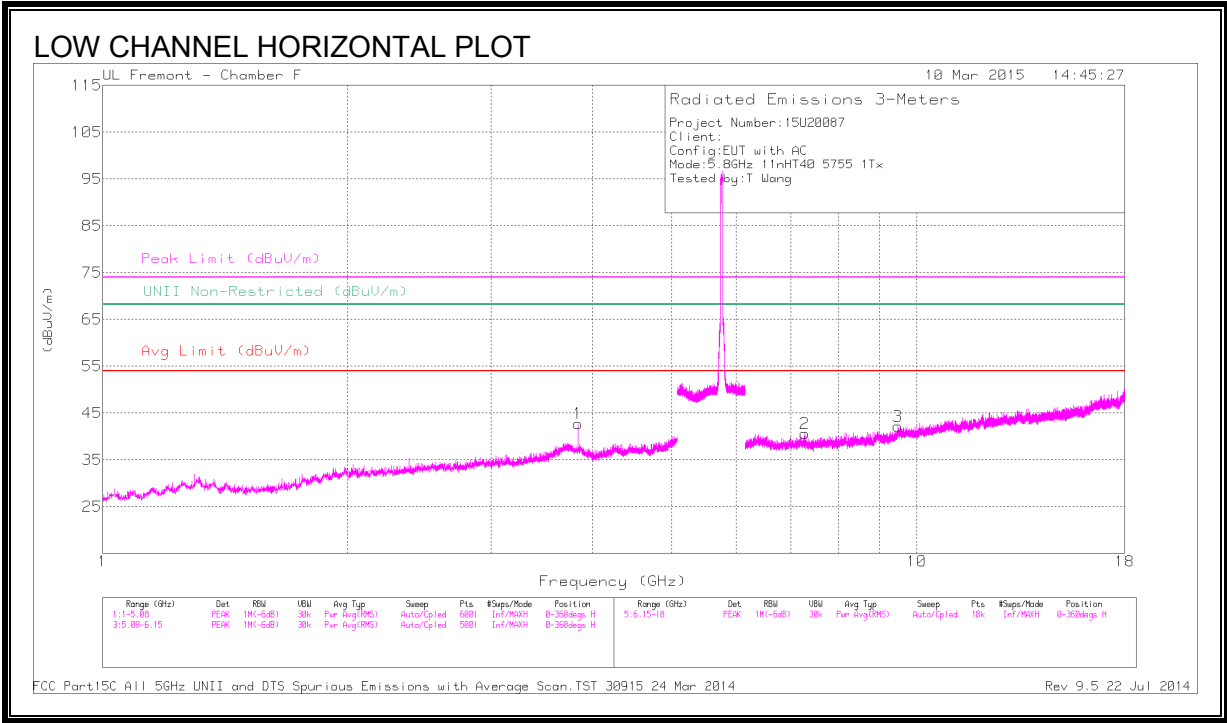


DATA

Marker	Frequenc y (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl/ Filtr/Pad (dB)	Conversi on Factor (dB)	Correcte d Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-58.75	PK	34.9	-20.3	11.8	-32.35	-17	-15.35	250	153	V
2	5.86	-57.83	PK	34.9	-20.3	11.8	-31.43	-27	-4.43	250	153	V

PK - Peak detector

LOW CHANNEL HARMONICS AND SPURIOUS EMISSIONS



DATA

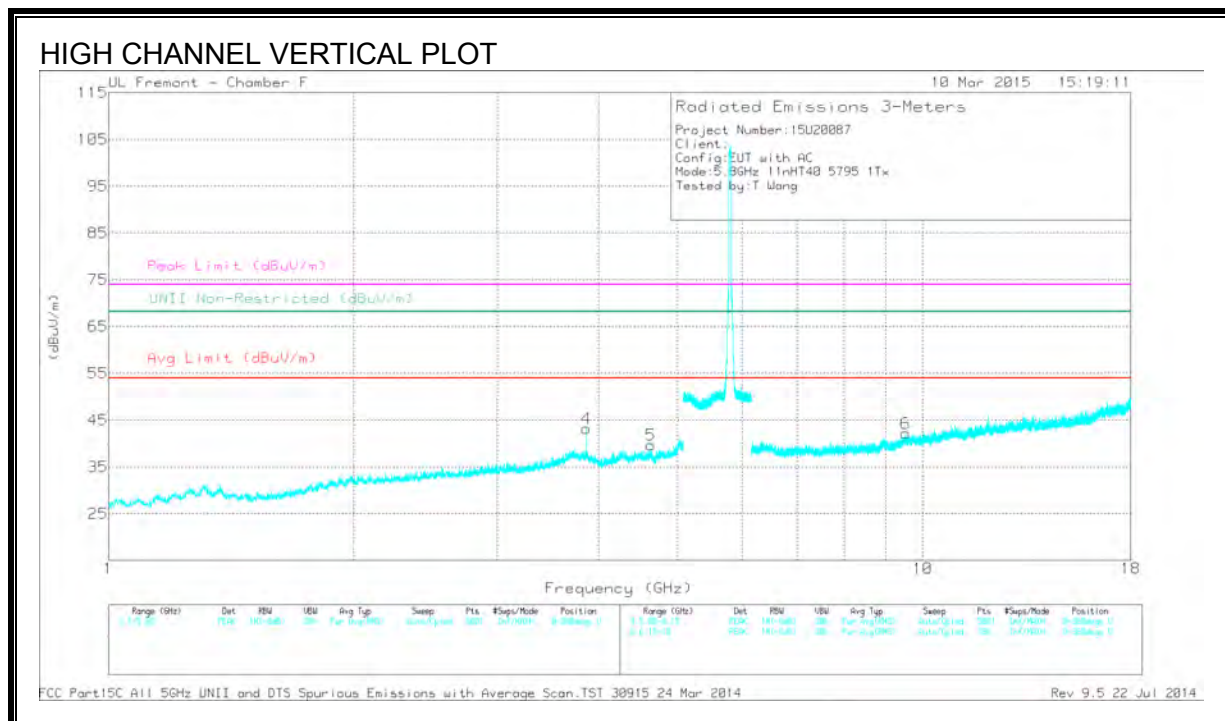
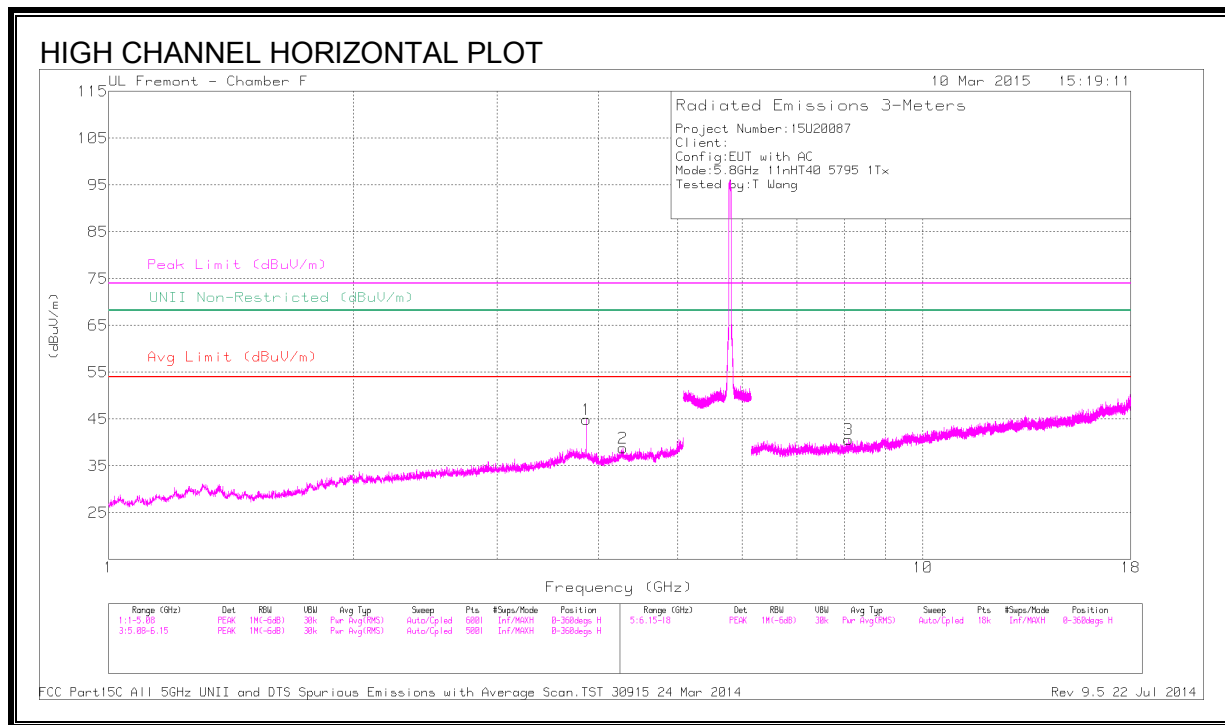
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/F ttr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.837	42.51	PK1	34.2	-28.9	47.81	-	-	74	-26.19	-	-	142	277	H
	* 3.837	36.89	AD1	34.2	-28.9	42.19	54	-11.81	-	-	-	-	142	277	H
4	* 3.837	40.5	PK1	34.2	-28.9	45.8	-	-	74	-28.2	-	-	93	308	V
	* 3.837	32	AD1	34.2	-28.9	37.3	54	-16.7	-	-	-	-	93	308	V
5	* 4.605	38.18	PK1	34.1	-27.1	45.18	-	-	74	-28.82	-	-	93	308	V
	* 4.604	28.26	AD1	34.1	-27.2	35.16	54	-18.84	-	-	-	-	93	308	V
2	* 7.279	36.78	PK1	35.5	-25.6	46.68	-	-	74	-27.32	-	-	142	277	H
	* 7.279	25.87	AD1	35.5	-25.6	35.77	54	-18.23	-	-	-	-	142	277	H
3	* 9.474	33.85	PK1	36.8	-21.5	49.15	-	-	74	-24.85	-	-	142	277	H
	* 9.474	23.04	AD1	36.8	-21.5	38.34	54	-15.66	-	-	-	-	142	277	H
6	6.447	37.93	PK1	35.6	-26.9	46.63	-	-	-	-	68.2	-21.57	93	308	V

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

HIGH CHANNEL HARMONICS AND SPURIOUS EMISSIONS



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/F ltr/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	* 3.863	43.97	PK1	34.1	-28.9	49.17	-	-	74	-24.83	-	-	151	310	H
	* 3.863	38.7	AD1	34.1	-28.9	43.9	54	-10.1	-	-	-	-	151	310	H
2	* 4.28	37.63	PK1	33.7	-27	44.33	-	-	74	-29.67	-	-	151	310	H
	* 4.279	26.59	AD1	33.7	-26.9	33.39	54	-20.61	-	-	-	-	151	310	H
4	* 3.864	41.9	PK1	34.1	-28.9	47.1	-	-	74	-26.9	-	-	65	267	V
	* 3.863	35.1	AD1	34.1	-28.9	40.3	54	-13.7	-	-	-	-	65	267	V
5	* 4.636	39.26	PK1	34.1	-26.6	46.76	-	-	74	-27.24	-	-	65	267	V
	* 4.636	30.52	AD1	34.1	-26.6	38.02	54	-15.98	-	-	-	-	65	267	V
3	* 8.107	35.98	PK1	35.7	-24.9	46.78	-	-	74	-27.22	-	-	151	310	H
	* 8.106	25.25	AD1	35.7	-24.9	36.05	54	-17.95	-	-	-	-	151	310	H
6	9.529	34.13	PK1	36.9	-21.6	49.43	-	-	-	-	68.2	-18.77	65	267	V

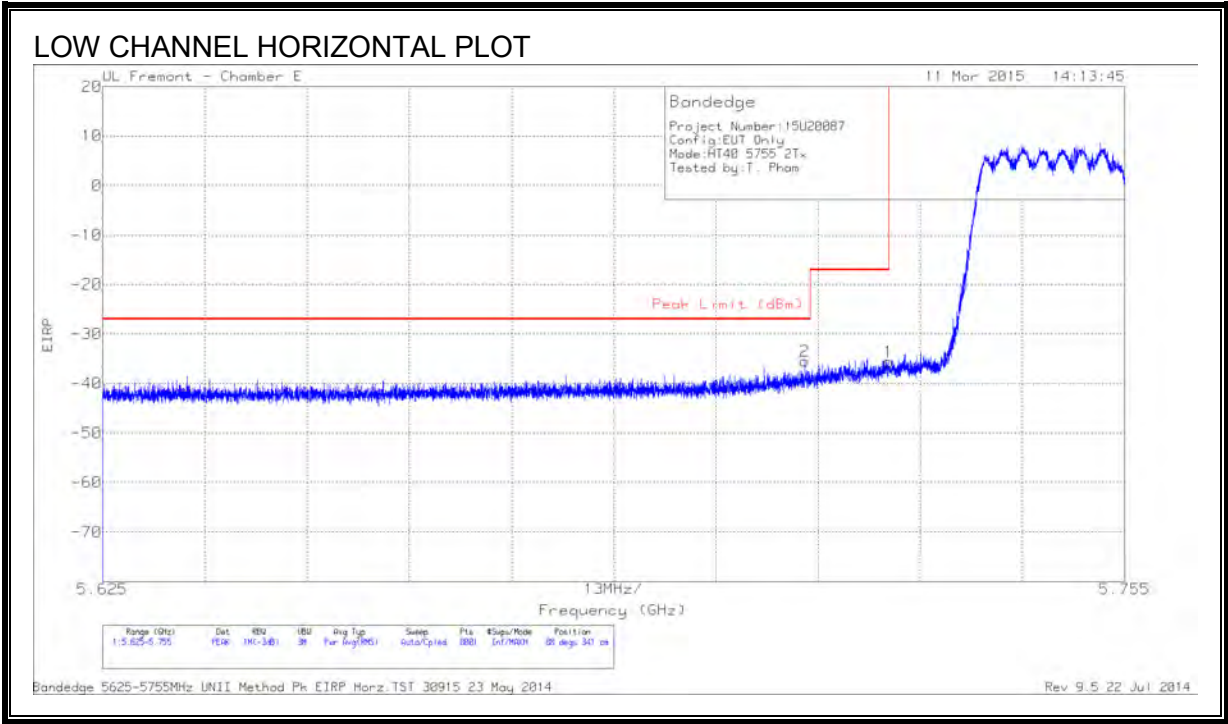
* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

9.23. 802.11n HT40 2Tx CDD MODE IN THE 5.8 GHz BAND

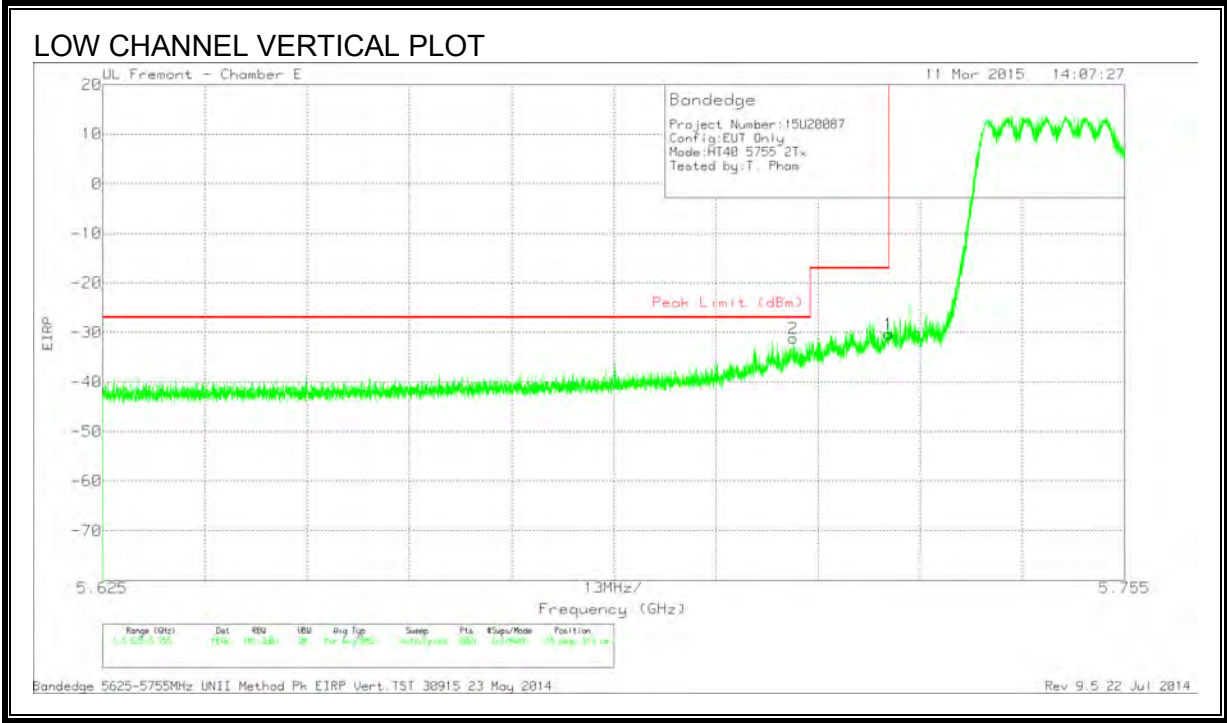
RESTRICTED BANDEDGE (LOW CHANNEL)



DATA

Marker	Frequenc y (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl/ Filtr/Pad (dB)	Conversi on Factor (dB)	Correcte d Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.714	-60.98	PK	34.7	-21	11.8	-35.48	-27	-8.48	88	341	H
1	5.725	-61.31	PK	34.7	-20.8	11.8	-35.61	-17	-18.61	88	341	H

PK - Peak detector

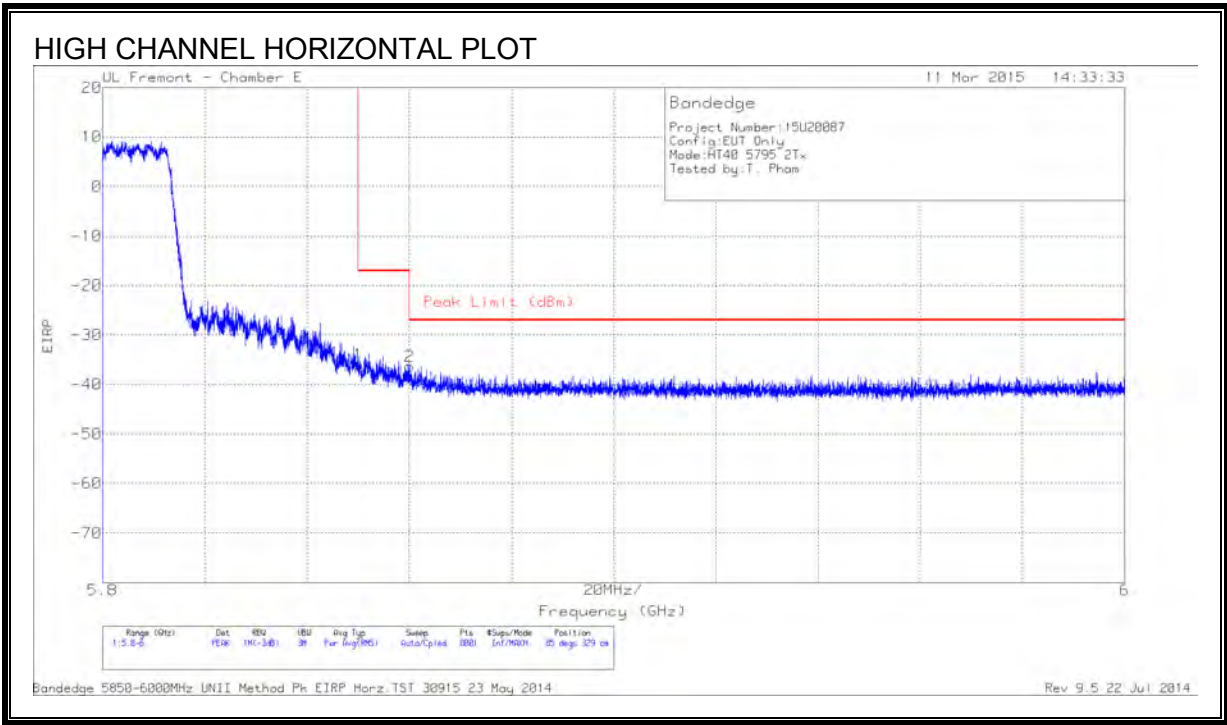


DATA

Marker	Frequenc y (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl/ Filtr/Pad (dB)	Conversi on Factor (dB)	Correcte d Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.713	-56.63	PK	34.7	-21	11.8	-31.13	-27	-4.13	55	313	V
1	5.725	-56.07	PK	34.7	-20.8	11.8	-30.37	-17	-13.37	55	313	V

PK - Peak detector

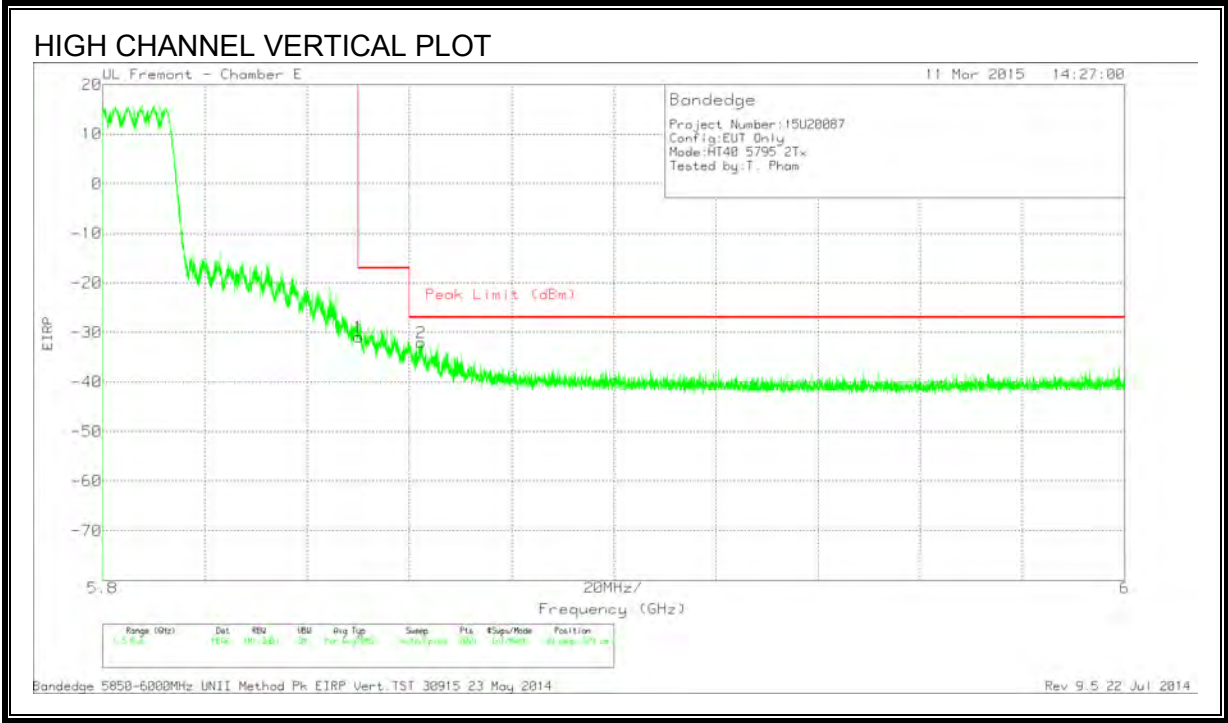
RESTRICTED BANDEDGE (HIGH CHANNEL)



DATA

Marker	Frequenc y (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cb/ Filtr/Pad (dB)	Conversi on Factor (dB)	Correcte d Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-62.41	PK	34.9	-20.3	11.8	-36.01	-17	-19.01	85	329	H
2	5.86	-62.77	PK	34.9	-20.3	11.8	-36.37	-27	-9.37	85	329	H

PK - Peak detector

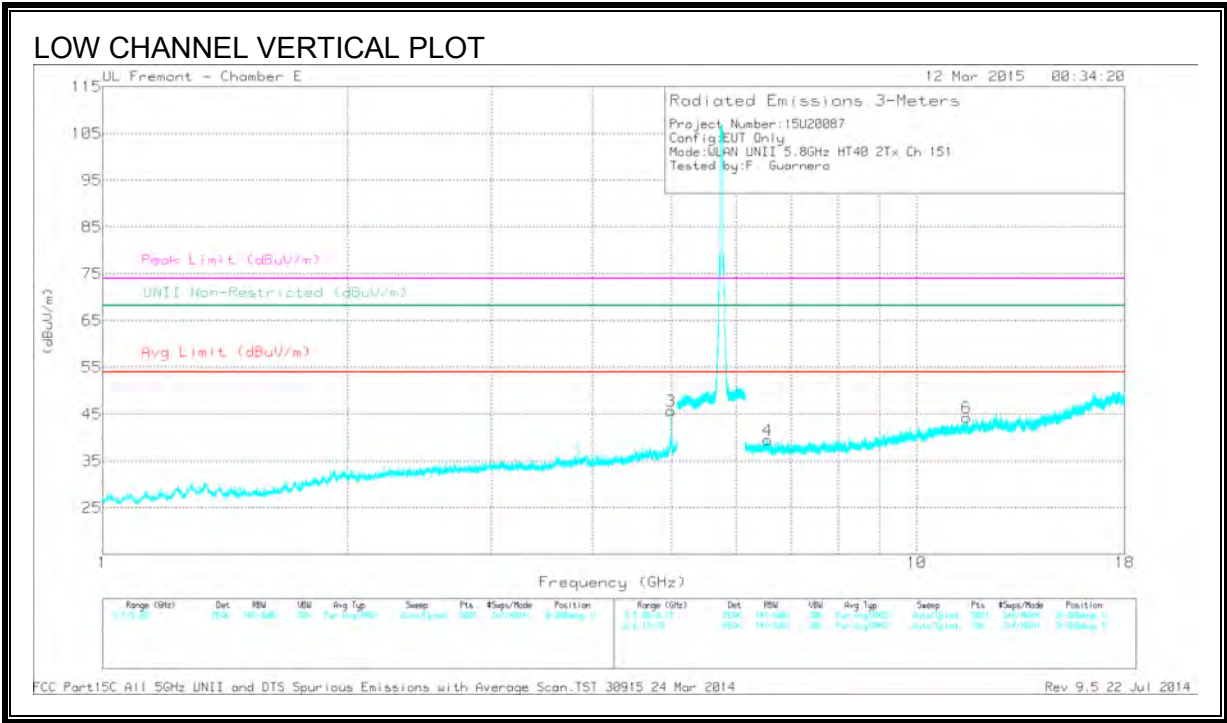
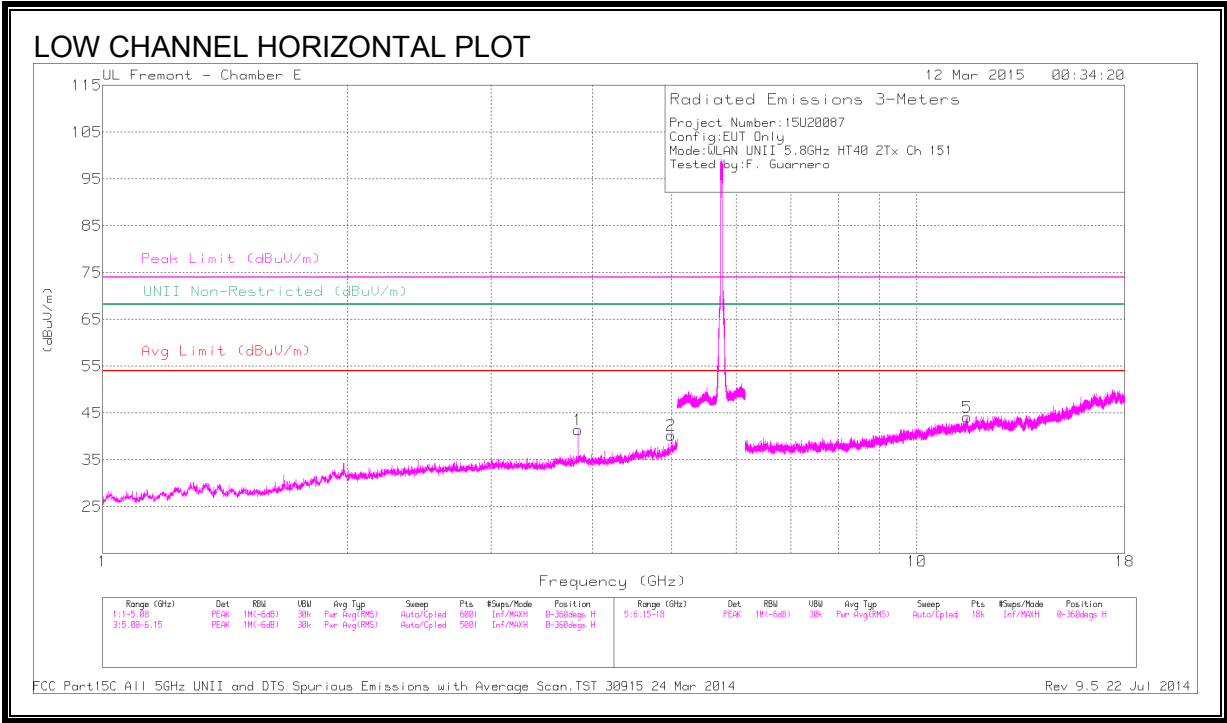


DATA

Marker	Frequenc y (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl/ Filtr/Pad (dB)	Conversi on Factor (dB)	Correcte d Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-57.33	PK	34.9	-20.3	11.8	-30.93	-17	-13.93	49	329	V
2	5.862	-58.29	PK	34.9	-20.4	11.8	-31.99	-27	-4.99	49	329	V

PK - Peak detector

LOW CHANNEL HARMONICS AND SPURIOUS EMISSIONS



DATA

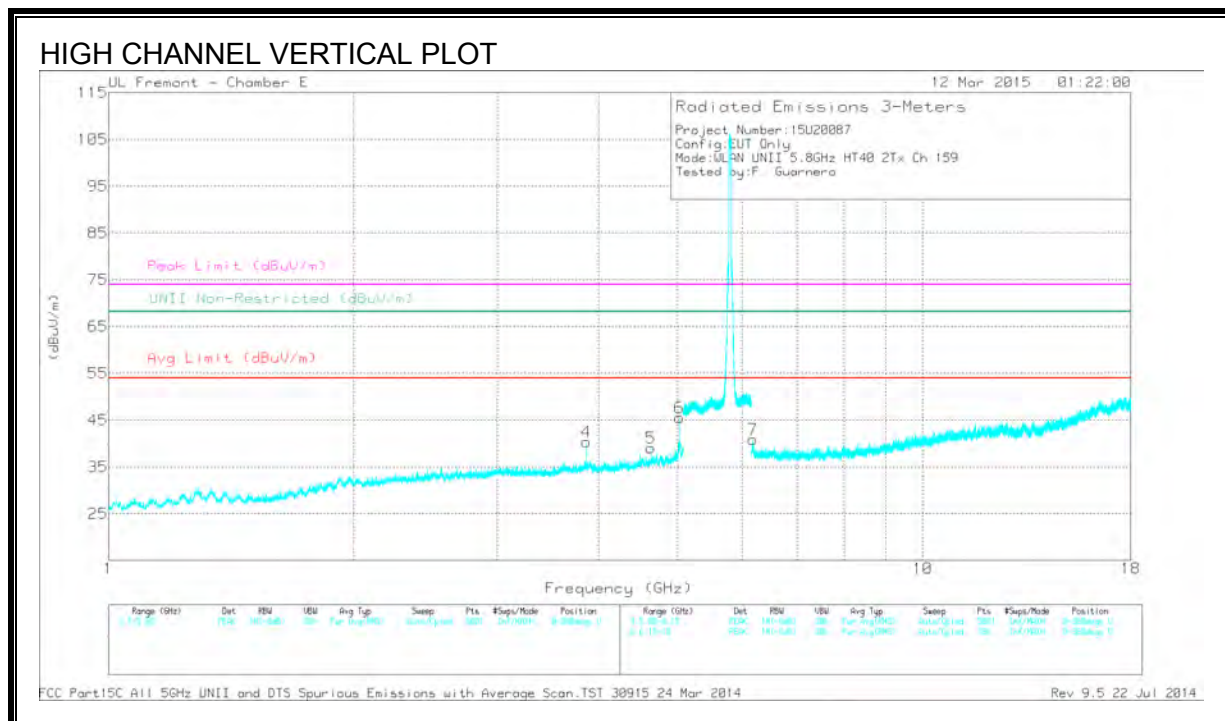
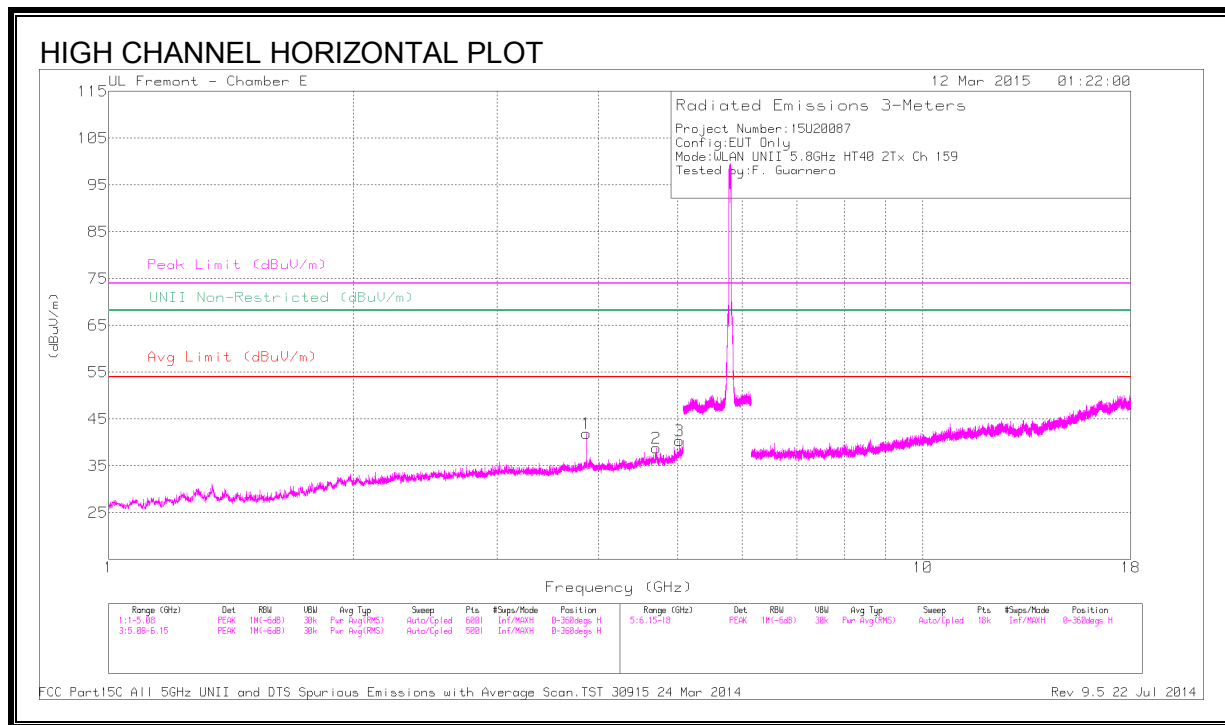
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.837	46.6	PK1	33.5	-31.6	48.5	-	-	74	-25.5	-	-	339	244	H
	* 3.837	40.32	AD1	33.5	-31.6	42.22	54	-11.78	-	-	-	-	339	244	H
2	* 4.987	43.58	PK1	34.2	-29.2	48.58	-	-	74	-25.42	-	-	152	122	H
	* 4.988	34.12	AD1	34.2	-29.2	39.12	54	-14.88	-	-	-	-	152	122	H
3	* 4.988	45.51	PK1	34.2	-29.2	50.51	-	-	74	-23.49	-	-	266	205	V
	* 4.988	39.43	AD1	34.2	-29.2	44.43	54	-9.57	-	-	-	-	266	205	V
5	* 11.513	33.94	PK1	38.1	-24.3	47.74	-	-	74	-26.26	-	-	307	134	H
	* 11.513	27.52	AD1	38.1	-24.3	41.32	54	-12.68	-	-	-	-	307	134	H
6	* 11.509	35.17	PK1	38.1	-24.4	48.87	-	-	74	-25.13	-	-	297	122	V
	* 11.509	28.19	AD1	38.1	-24.4	41.89	54	-12.11	-	-	-	-	297	122	V
4	6.56	39.16	PK1	35.6	-27.9	46.86	-	-	-	-	68.2	-21.34	98	100	V

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

HIGH CHANNEL HARMONICS AND SPURIOUS EMISSIONS



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Ftr/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	* 3.863	45.13	PK1	33.5	-30.8	47.83	-	-	74	-26.17	-	-	337	310	H
	* 3.863	38.41	AD1	33.5	-30.8	41.11	54	-12.89	-	-	-	-	337	310	H
2	* 4.711	42.24	PK1	34.2	-30.3	46.14	-	-	74	-27.86	-	-	165	322	H
	* 4.71	30.78	AD1	34.2	-30.2	34.78	54	-19.22	-	-	-	-	165	322	H
3	* 5.022	43.06	PK1	34.2	-28.9	48.36	-	-	74	-25.64	-	-	156	102	H
	* 5.022	33.7	AD1	34.2	-28.9	39	54	-15	-	-	-	-	156	102	H
4	* 3.863	45.71	PK1	33.5	-30.8	48.41	-	-	74	-25.59	-	-	267	272	V
	* 3.863	39.06	AD1	33.5	-30.8	41.76	54	-12.24	-	-	-	-	267	272	V
5	* 4.636	43.43	PK1	34.1	-30.1	47.43	-	-	74	-26.57	-	-	264	369	V
	* 4.636	35.05	AD1	34.1	-30.1	39.05	54	-14.95	-	-	-	-	264	369	V
6	* 5.022	45.91	PK1	34.2	-28.9	51.21	-	-	74	-22.79	-	-	261	179	V
	* 5.022	39.69	AD1	34.2	-28.9	44.99	54	-9.01	-	-	-	-	261	179	V
7	6.185	42.16	PK1	35.3	-29.1	48.36	-	-	-	-	68.2	-19.84	246	128	V

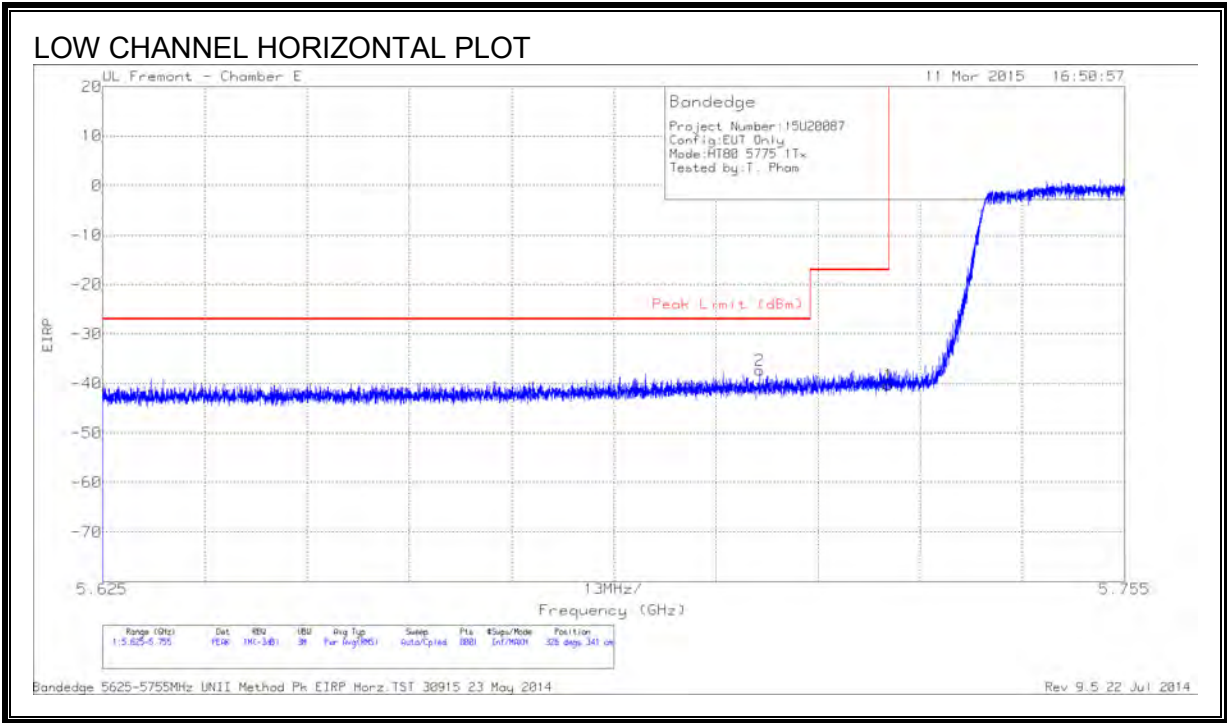
* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

9.24. 802.11ac 80Mhz 1Tx SISO MODE IN THE 5.8 GHz BAND

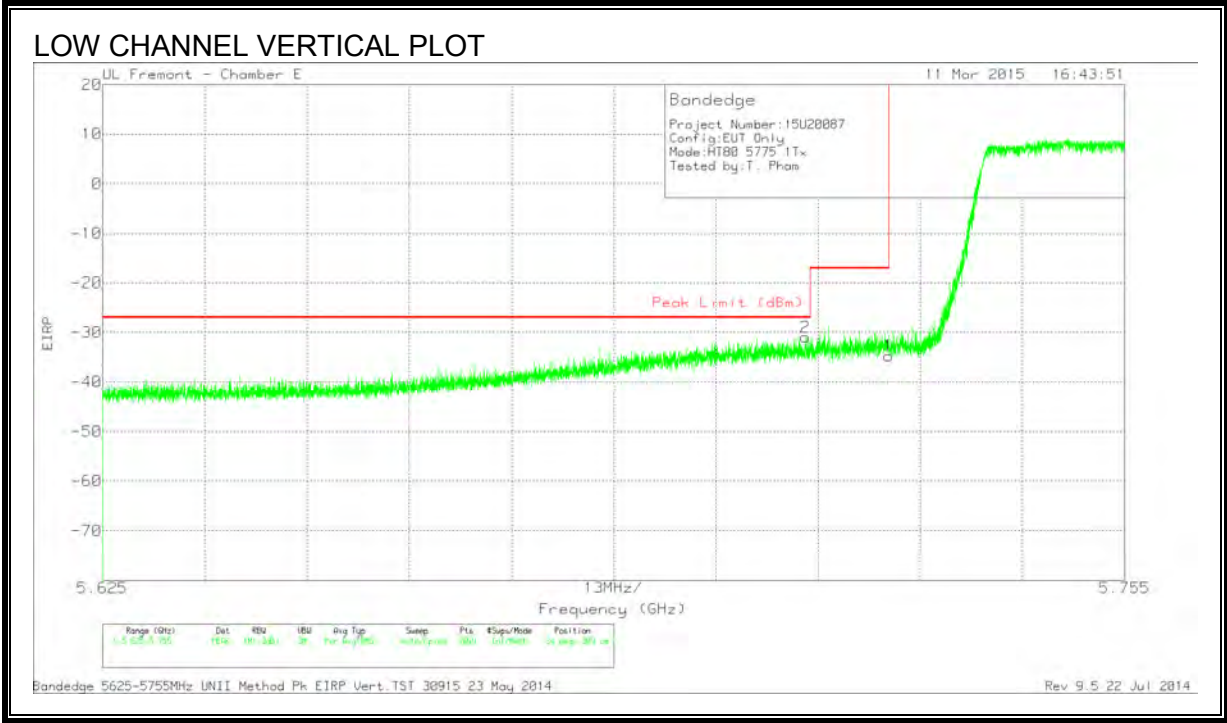
RESTRICTED BANDEGE (LOW)



DATA

Marker	Frequenc y (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl/ Filtr/Pad (dB)	Conversi on Factor (dB)	Correcte d Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.709	-62.81	PK	34.7	-21	11.8	-37.31	-27	-10.31	326	341	H
1	5.725	-65.99	PK	34.7	-20.8	11.8	-40.29	-17	-23.29	326	341	H

PK - Peak detector

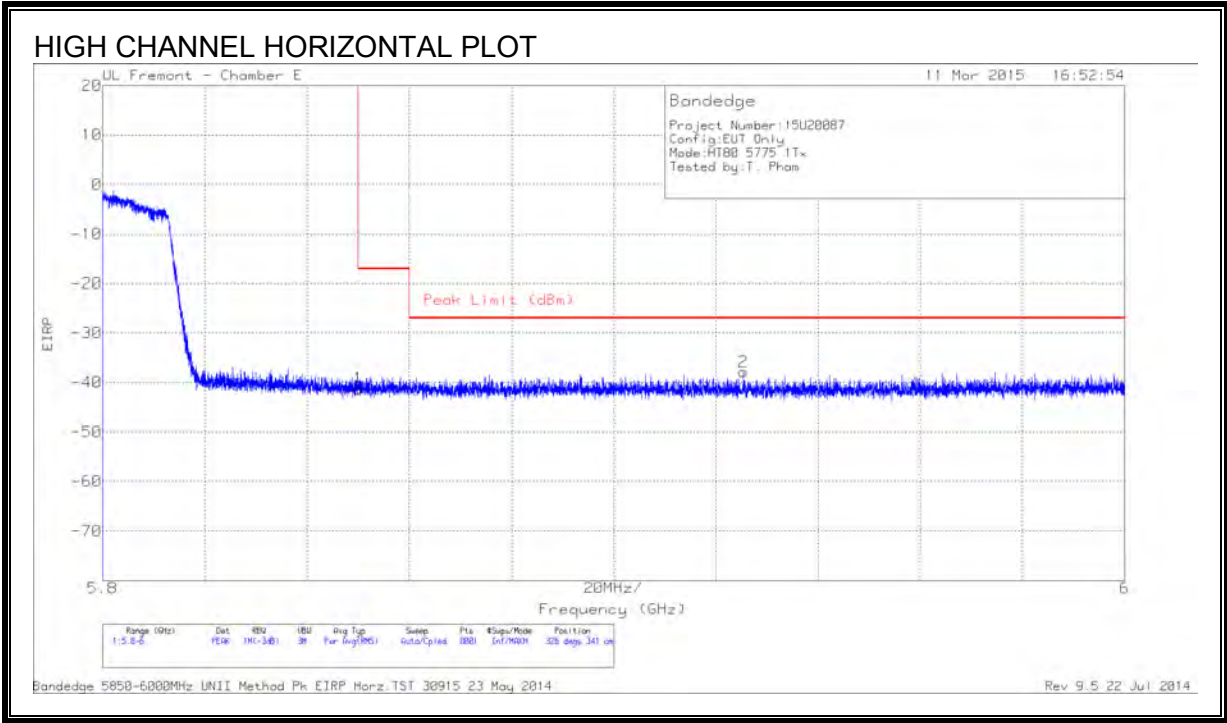


DATA

Marker	Frequenc y (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl/ Filtr/Pad (dB)	Conversi on Factor (dB)	Correcte d Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.714	-56.38	PK	34.7	-21	11.8	-30.88	-27	-3.88	24	309	V
1	5.725	-60.38	PK	34.7	-20.8	11.8	-34.68	-17	-17.68	24	309	V

PK - Peak detector

RESTRICTED BANDEGE (HIGH)



DATA

Marker	Frequenc y (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cb/ Fitr/Pad (dB)	Conversi on Factor (dB)	Correcte d Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-67.59	PK	34.9	-20.3	11.8	-41.19	-17	-24.19	326	341	H
2	5.925	-64.1	PK	35	-20.5	11.8	-37.8	-27	-10.8	326	341	H

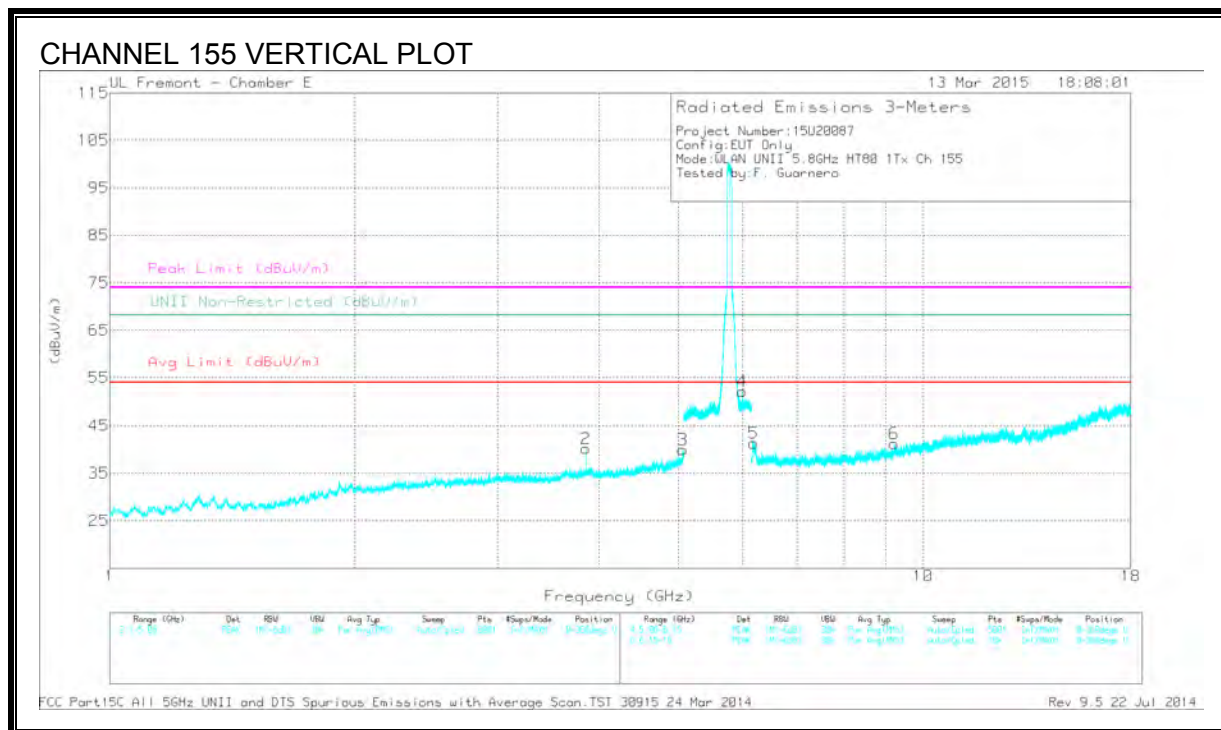
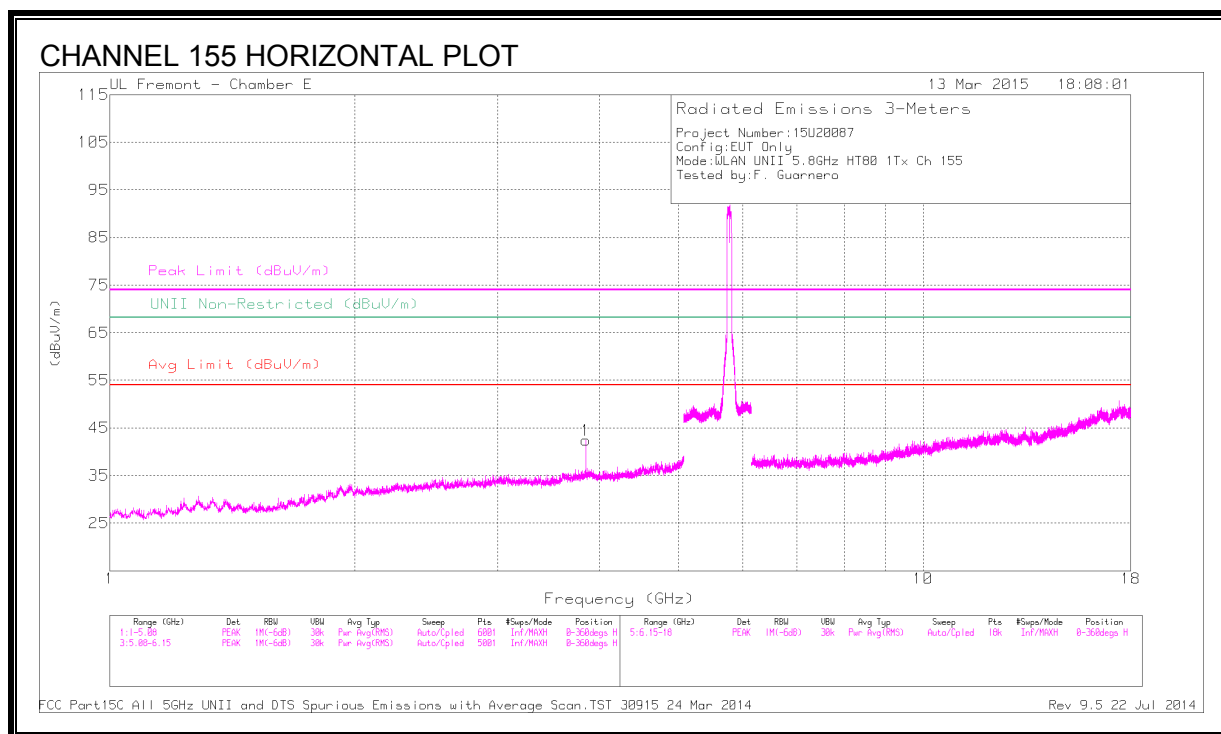
PK - Peak detector



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl/ Filt/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-66.68	PK	34.9	-20.3	11.8	-40.28	-17	-23.28	24	309	V
2	5.863	-63.14	PK	34.9	-20.4	11.8	-36.84	-27	-9.84	24	309	V

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CHANNEL 155 HARMONICS AND SPURIOUS EMISSIONS



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dBm)	Amp/CbU/F Itr/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	* 3.85	46.31	PK1	33.5	-31.1	0	48.71	-	-	74	-25.29	-	-	346	275	H
	* 3.85	40.58	AD1	33.5	-31.1	.16	43.15	54	-10.85	-	-	-	-	346	275	H
2	* 3.85	44.89	PK1	33.5	-31.1	0	47.29	-	-	74	-26.71	-	-	296	141	V
	* 3.85	36.9	AD1	33.5	-31.1	.16	39.47	54	-14.53	-	-	-	-	296	141	V
3	* 5.064	40.55	PK1	34.2	-28.2	0	46.55	-	-	74	-27.45	-	-	271	162	V
	* 5.065	29.39	AD1	34.2	-28.1	.16	35.66	54	-18.34	-	-	-	-	271	162	V
4	5.988	43.78	PK1	35.1	-20.6	0	58.28	-	-	-	-	68.2	-9.92	248	160	V
5	6.193	44.53	PK1	35.3	-29.2	0	50.63	-	-	-	-	68.2	-17.57	233	138	V
6	9.219	37.29	PK1	36.4	-25.5	0	48.19	-	-	-	-	68.2	-20.01	138	178	V

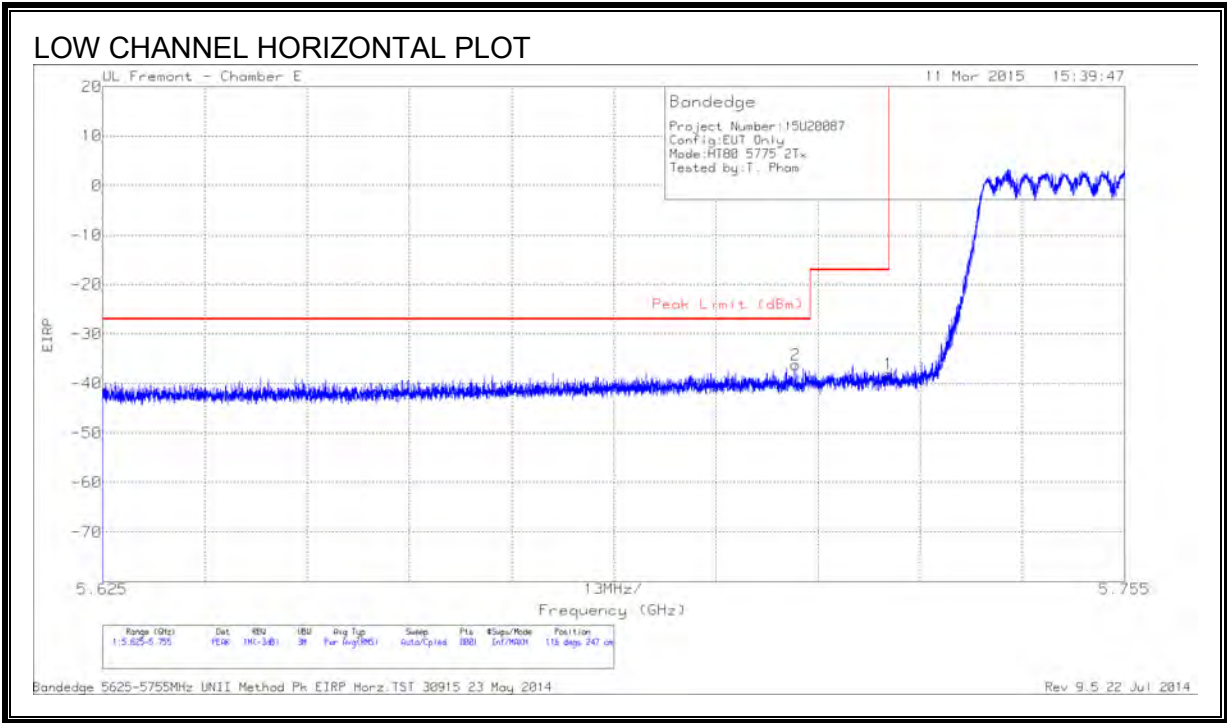
* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

9.25. 802.11ac 80Mhz 2Tx CDD MODE IN THE 5.8 GHz BAND

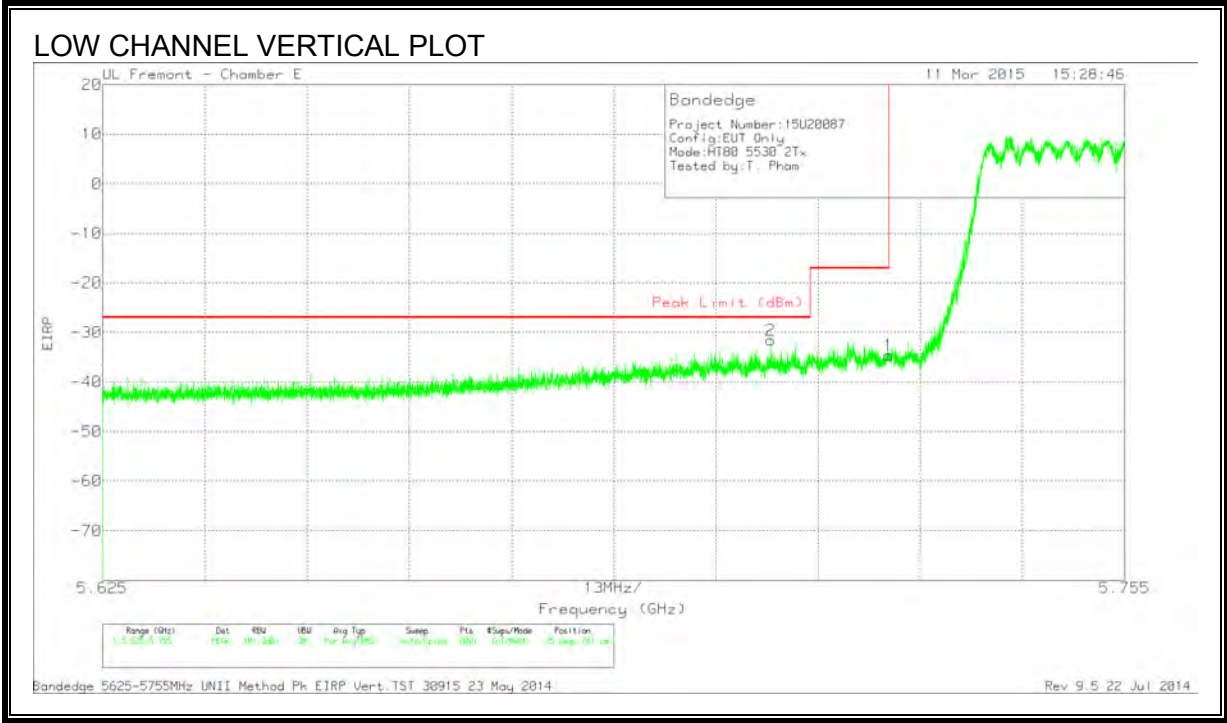
RESTRICTED BANDEGE (LOW)



DATA

Marker	Frequenc y (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl/ Filtr/Pad (dB)	Conversio n Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.713	-61.72	PK	34.7	-21	11.8	-36.22	-27	-9.22	116	247	H
1	5.725	-63.73	PK	34.7	-20.8	11.8	-38.03	-17	-21.03	116	247	H

PK - Peak detector

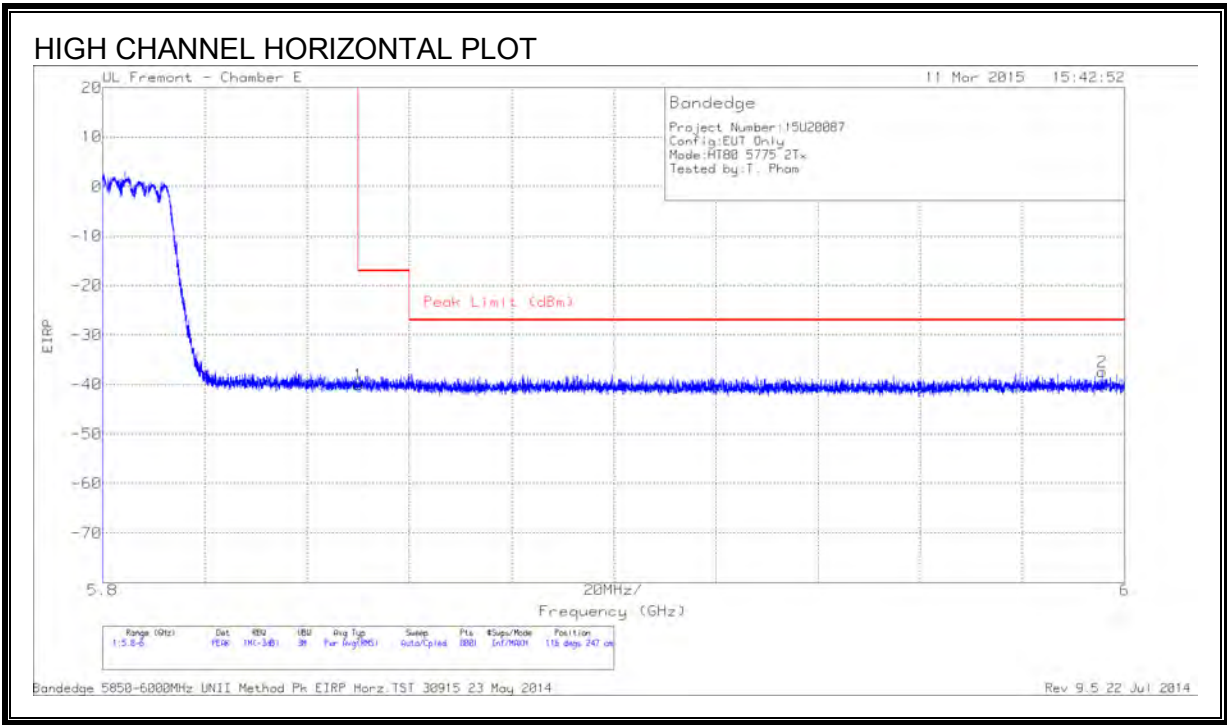


DATA

Marker	Frequenc y (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl/ Filtr/Pad (dB)	Conversi on Factor (dB)	Correcte d Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.71	-57.1	PK	34.7	-21	11.8	-31.6	-27	-4.6	25	281	V
1	5.725	-60.28	PK	34.7	-20.8	11.8	-34.58	-17	-17.58	25	281	V

PK - Peak detector

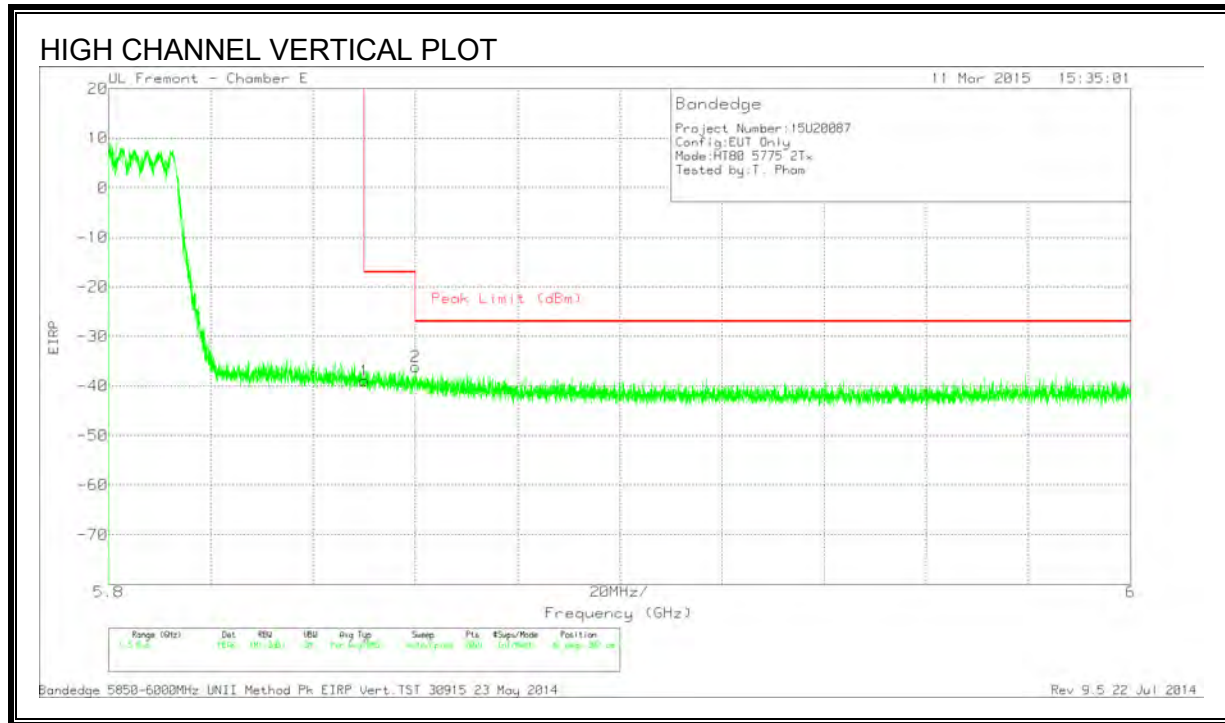
RESTRICTED BANDEDGE (HIGH)



DATA

Marker	Frequenc y (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cb/ Fitr/Pad (dB)	Conversi on Factor (dB)	Correcte d Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-66.45	PK	34.9	-20.3	11.8	-40.05	-17	-23.05	116	247	H
2	5.996	-63.77	PK	35.1	-20.6	11.8	-37.47	-27	-10.47	116	247	H

PK - Peak detector

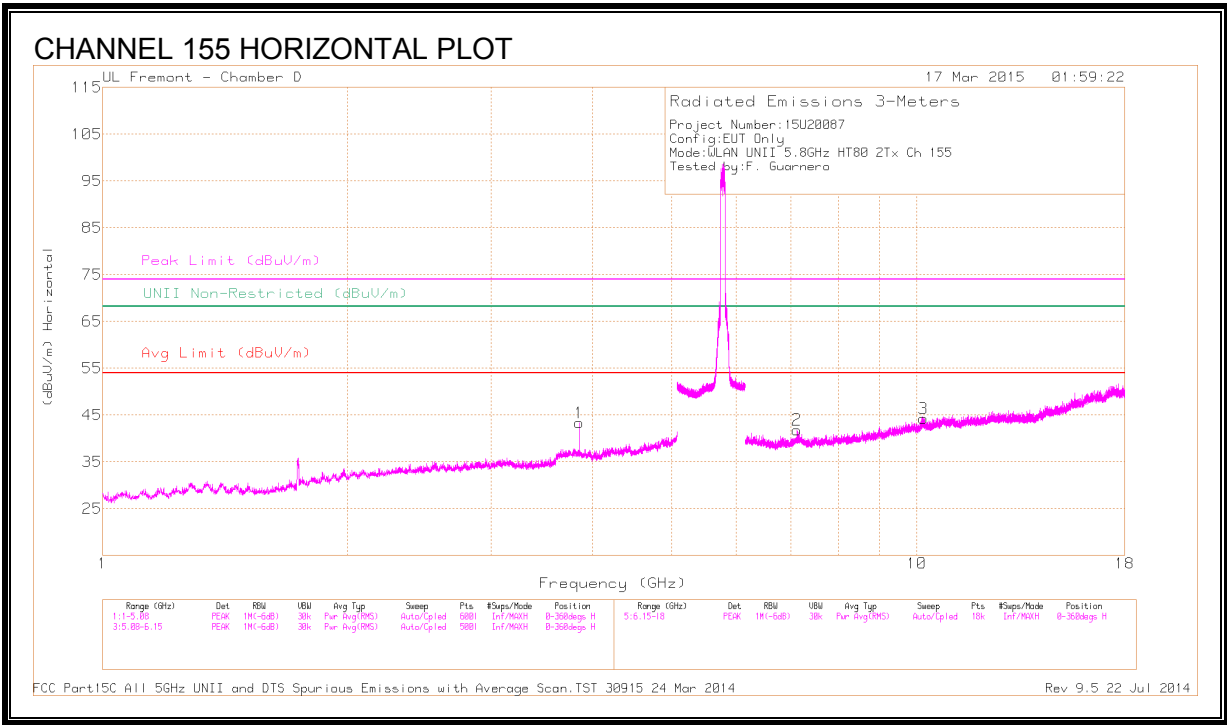


DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T346 (dB/m)	Amp/Cbl/ Filt/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-65.28	PK	34.9	-20.3	11.8	-38.88	-17	-21.88	42	302	V
2	5.86	-62.5	PK	34.9	-20.3	11.8	-36.1	-27	-9.1	42	302	V

PK - Peak detector

CHANNEL 155 HARMONICS AND SPURIOUS EMISSIONS



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dBm)	Amp/CbUF Itr/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	* 3.85	43.61	PK1	33.4	-28.9	0	48.11	-	-	74	-25.89	-	-	47	319	H
	* 3.85	37.92	AD1	33.4	-28.9	.22	42.63	54	-11.37	-	-	-	-	47	319	H
4	* 3.85	42.8	PK1	33.4	-28.9	0	47.3	-	-	74	-26.7	-	-	6	312	V
	* 3.85	36.43	AD1	33.4	-28.9	.22	41.14	54	-12.86	-	-	-	-	6	312	V
5	* 4.706	42.32	PK1	34.2	-28.3	0	48.22	-	-	74	-25.78	-	-	338	157	V
	* 4.706	35.07	AD1	34.2	-28.3	.22	41.18	54	-12.82	-	-	-	-	338	157	V
6	6.193	42.64	PK1	35.5	-26.6	0	51.54	-	-	-	-	68.2	-16.66	305	164	V
2	7.13	36.45	PK1	35.5	-24.5	0	47.45	-	-	-	-	68.2	-20.75	3	191	H
3	10.183	34.8	PK1	37.2	-20.8	0	51.2	-	-	-	-	68.2	-17	22	262	H

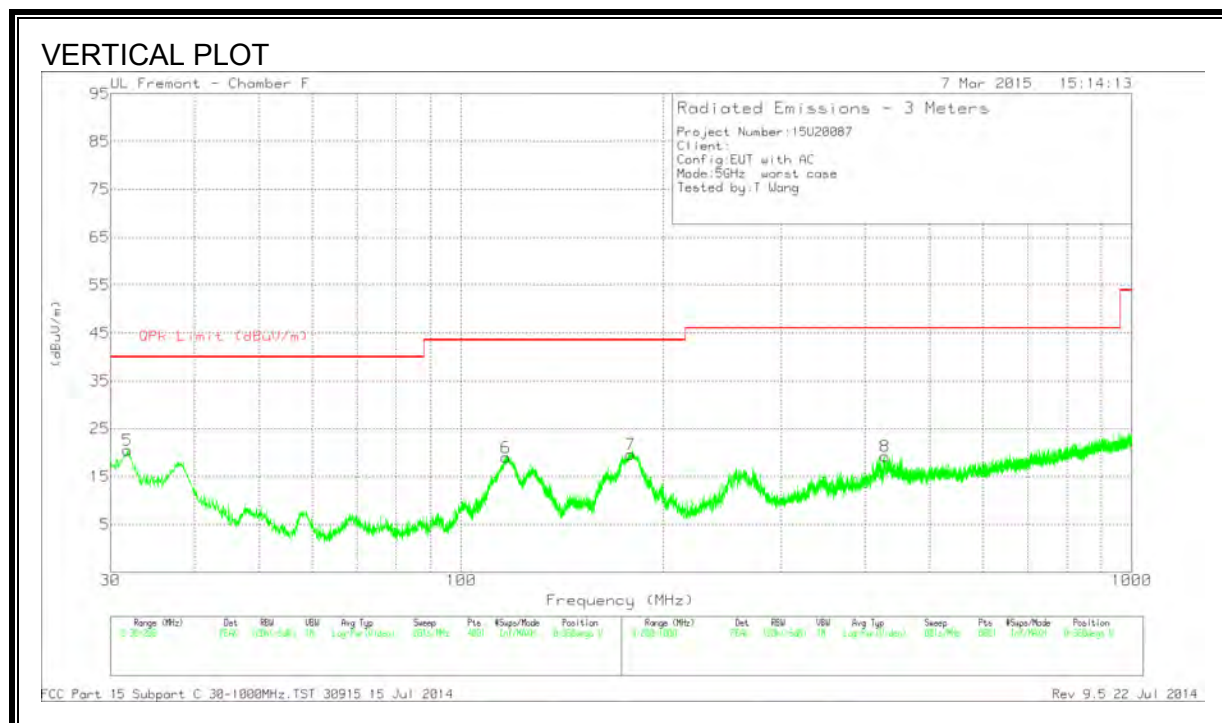
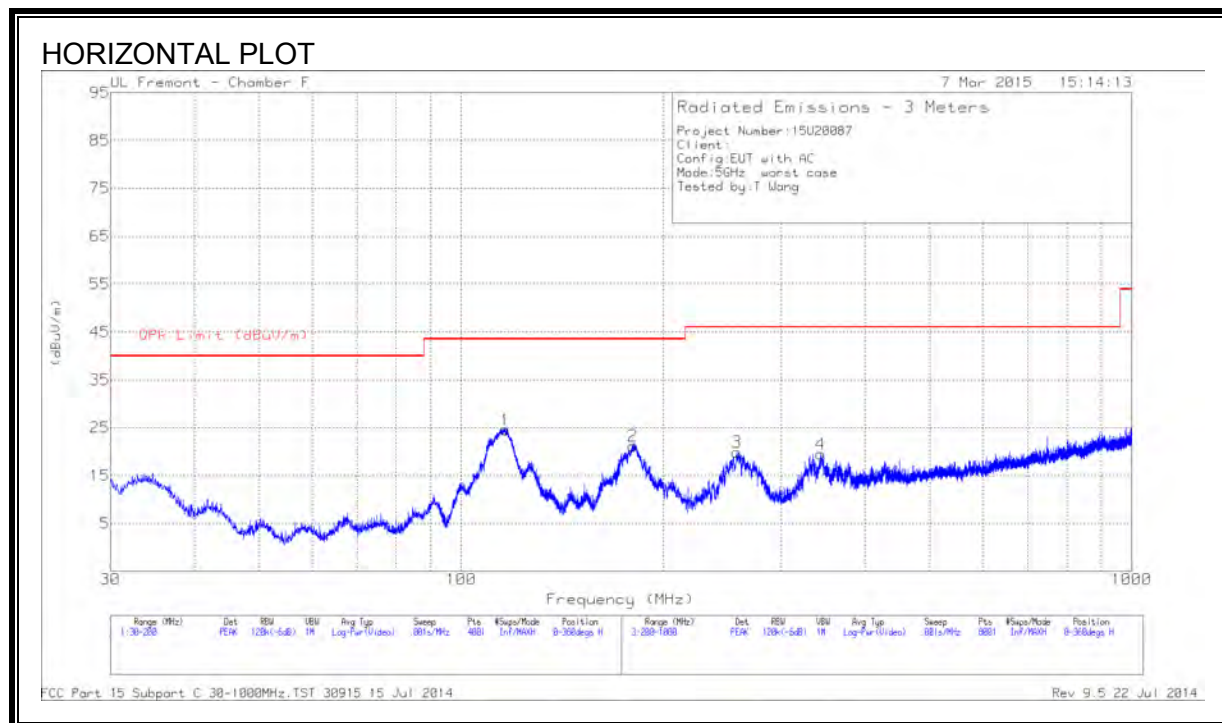
* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

9.26. WORST-CASE BELOW 1 GHz

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



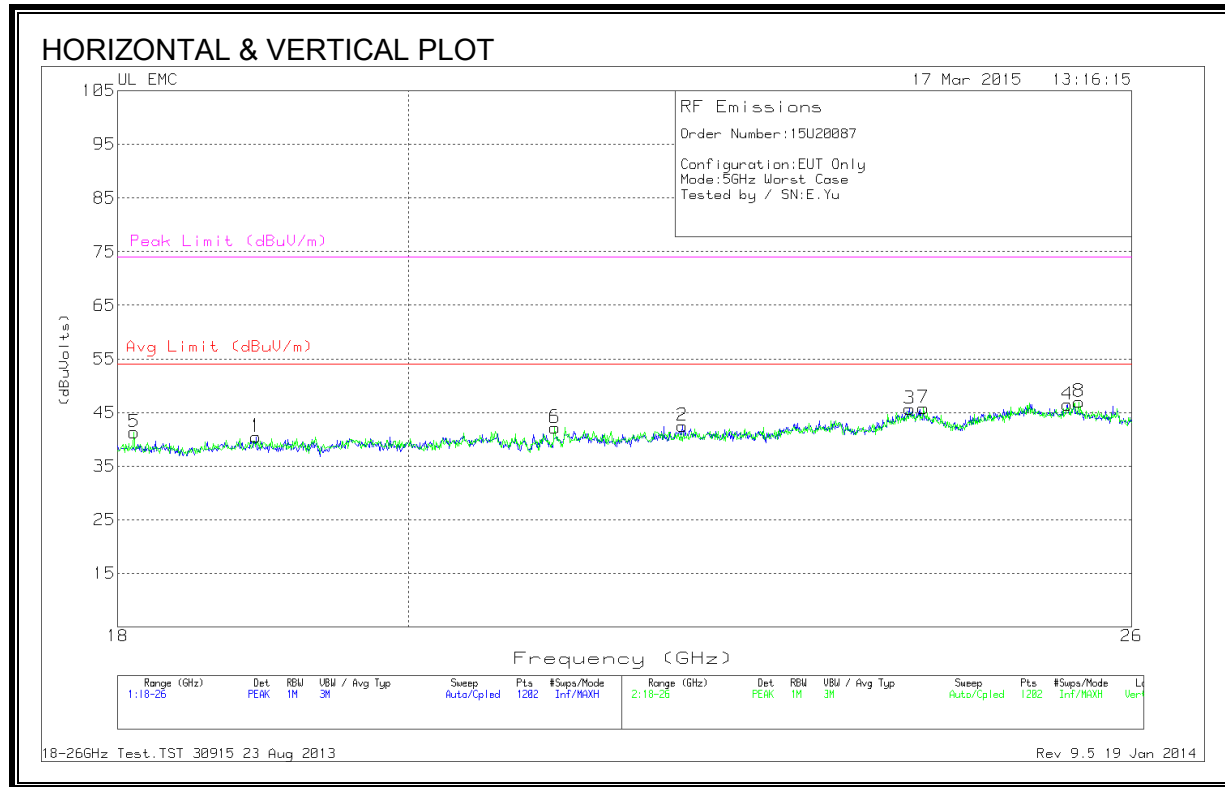
HORIZONTAL AND VERTICAL DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T122 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 116.4025	42.14	PK	13.5	-31.1	24.54	43.52	-18.98	0-360	301	H
2	180.195	40.62	PK	11.3	-30.7	21.22	43.52	-22.3	0-360	201	H
5	31.785	33.18	PK	19.3	-31.9	20.58	40	-19.42	0-360	100	V
6	* 116.6575	36.5	PK	13.6	-31.1	19	43.52	-24.52	0-360	100	V
7	179.005	39.07	PK	11.3	-30.7	19.67	43.52	-23.85	0-360	100	V
3	* 257.8	38.35	PK	11.8	-30.2	19.95	46.02	-26.07	0-360	99	H
4	343.7	35.16	PK	14.1	-29.8	19.46	46.02	-26.56	0-360	99	H
8	428.2	32.59	PK	16.2	-29.5	19.29	46.02	-26.73	0-360	100	V

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.
PK - Peak detector

9.27. WORST-CASE ABOVE 18 GHz

SPURIOUS EMISSIONS 18000 TO 26000 MHz (WORST-CASE CONFIGURATION)



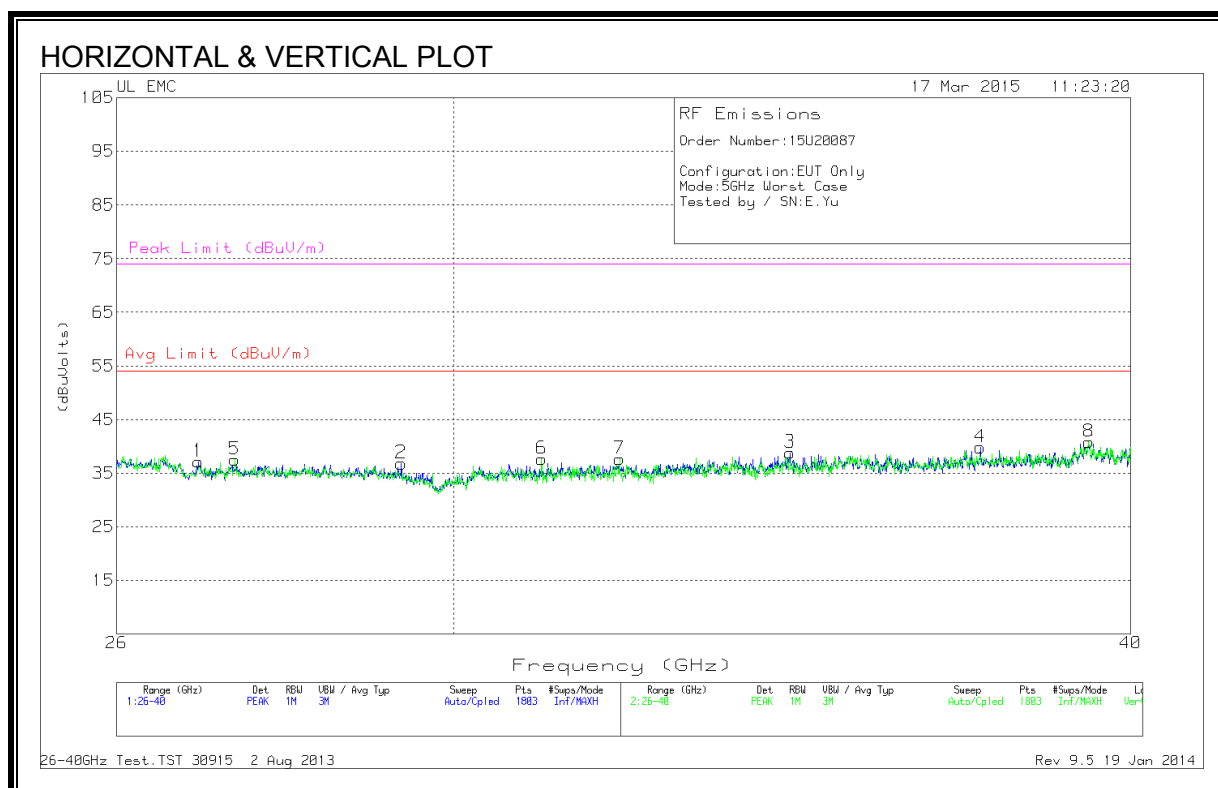
HORIZONTAL AND VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T89 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	18.926	41.7	PK	32.8	-24.5	-9.5	40.5	54	-13.5	74	-33.5
2	22.09	42.2	PK	33.7	-23.9	-9.5	42.5	54	-11.5	74	-31.5
3	23.988	43.67	PK	34.2	-22.7	-9.5	45.67	54	-8.33	74	-28.33
4	25.401	44.2	PK	34.6	-22.8	-9.5	46.5	54	-7.5	74	-27.5
5	18.107	43.23	PK	32.6	-25	-9.5	41.33	54	-12.67	74	-32.67
6	21.091	42.17	PK	33.3	-23.8	-9.5	42.17	54	-11.84	74	-31.84
7	24.108	44.03	PK	34.2	-22.9	-9.5	45.83	54	-8.17	74	-28.17
8	25.507	44.9	PK	34.7	-23.1	-9.5	47	54	-7	74	-27

PK - Peak detector

18-26GHz Test.TST 30915 23 Aug 2013 Rev 9.5 19 Jan 2014

SPURIOUS EMISSIONS 26000 TO 40000 MHz (WORST-CASE CONFIGURATION,)



HORIZONTAL AND VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T90 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	26.917	45.57	PK	35.4	-34.3	-9.5	37.17	54	-16.83	74	-36.83
2	29.341	46.83	PK	35.9	-36.4	-9.5	36.83	54	-17.17	74	-37.17
3	34.608	49.03	PK	37.3	-38	-9.5	38.83	54	-15.17	74	-35.17
4	37.522	50.83	PK	37.2	-38.7	-9.5	39.83	54	-14.17	74	-34.17
5	27.336	46.5	PK	35.6	-35.1	-9.5	37.5	54	-16.5	74	-36.5
6	31.143	48.67	PK	35.9	-37.4	-9.5	37.67	54	-16.33	74	-36.33
7	32.192	47.87	PK	36.4	-37.1	-9.5	37.67	54	-16.33	74	-36.33
8	39.293	47.73	PK	38.4	-35.8	-9.5	40.83	54	-13.17	74	-33.17

PK - Peak detector

26-40GHz Test.TST 30915 2 Aug 2013 Rev 9.5 19 Jan 2014

10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

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

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

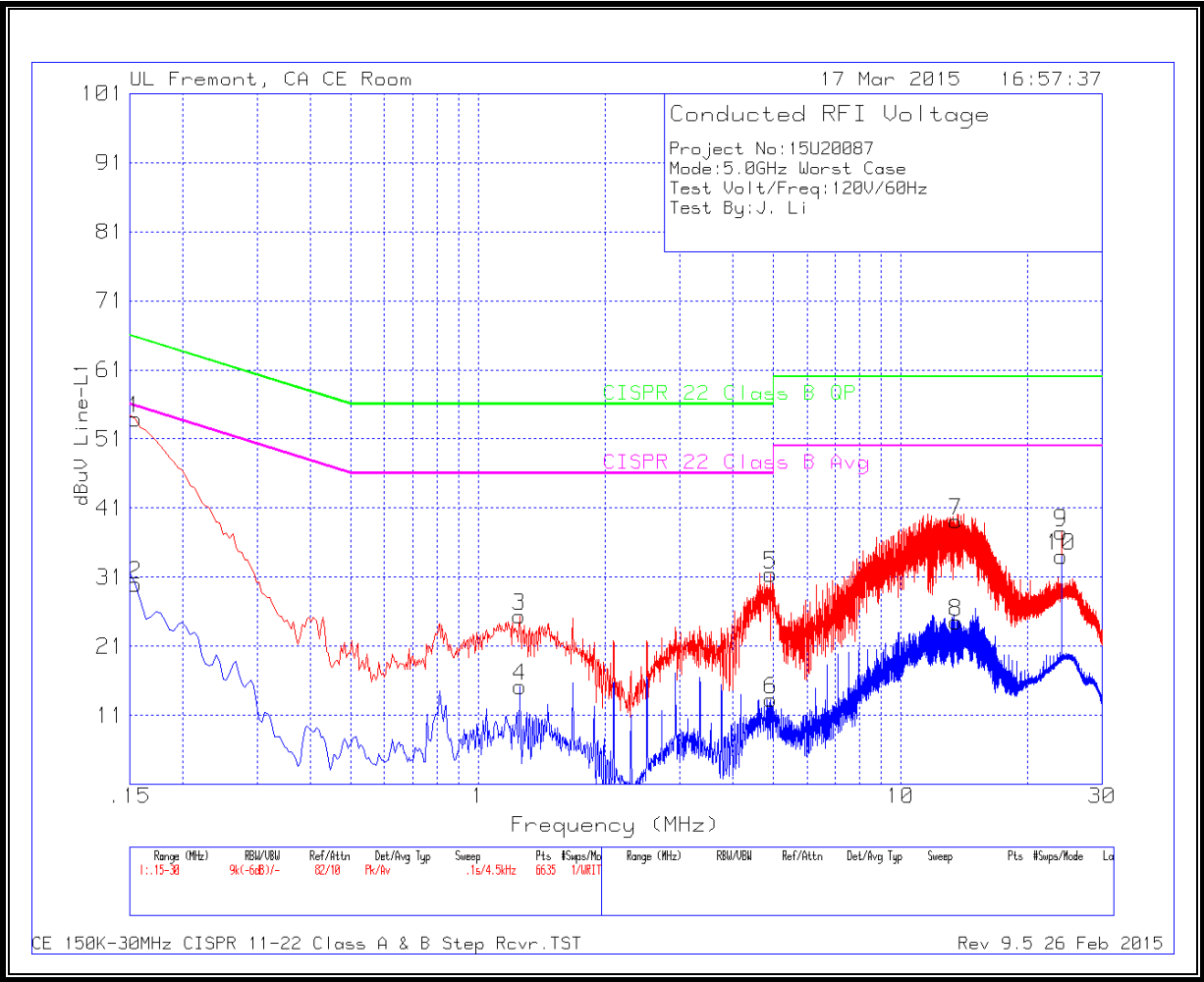
The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

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

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

RESULTS

LINE 1 RESULTS



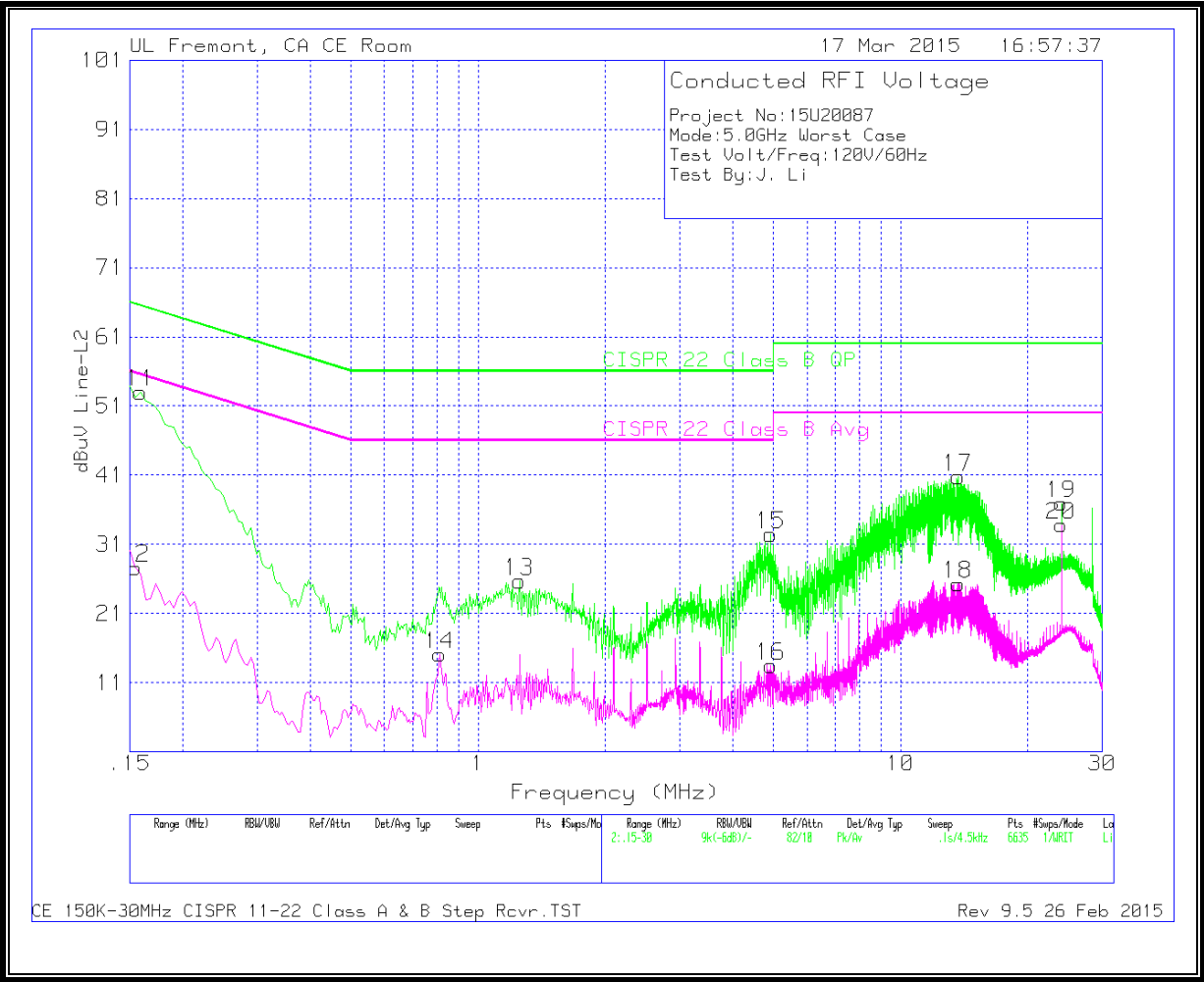
WORST EMISSIONS

Range 1: Line-L1 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1	LC Cables 1&3	Corrected Reading dBuV	CISPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
1	.1545	52.64	Pk	1.3	0	53.94	-	-	55.75	-1.81
2	.1545	28.66	Av	1.3	0	29.96	65.75	-35.79	55.75	-25.79
3	1.2525	25.19	Pk	.2	0	25.39	-	-	46	-20.61
4	1.257	14.97	Av	.2	0	15.17	56	-40.83	46	-30.83
5	4.9245	31.11	Pk	.2	.1	31.41	-	-	46	-14.59
6	4.929	12.99	Av	.2	.1	13.29	56	-42.71	46	-32.71
7	13.5285	38.73	Pk	.2	.2	39.13	-	-	50	-10.87
8	13.5285	24.11	Av	.2	.2	24.51	60	-35.49	50	-25.49
9	24	36.99	Pk	.3	.2	37.49	-	-	50	-12.51
10	24	33.53	Av	.3	.2	34.03	60	-25.97	50	-15.97

Pk - Peak detector

Av - Average detection

LINE 2 RESULTS



WORST EMISSIONS

Range 2: Line-L2 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2	LC Cables 2&3	Corrected Reading dBuV	CISPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
11	.159	51.63	Pk	1.4	0	53.03	-	-	55.52	-2.49
12	.1545	26.21	Av	1.4	0	27.61	65.75	-38.14	55.75	-28.14
13	1.2525	25.47	Pk	.2	0	25.67	-	-	46	-20.33
14	.8115	14.81	Av	.3	0	15.11	56	-40.89	46	-30.89
15	4.9245	32.13	Pk	.2	.1	32.43	-	-	46	-13.57
16	4.929	13.17	Av	.2	.1	13.47	56	-42.53	46	-32.53
17	13.6725	40.36	Pk	.2	.2	40.76	-	-	50	-9.24
18	13.6725	24.87	Av	.2	.2	25.27	60	-34.73	50	-24.73
19	24	36.44	Pk	.3	.2	36.94	-	-	50	-13.06
20	24	33.33	Av	.3	.2	33.83	60	-26.17	50	-16.17

Pk - Peak detector

Av - Average detection

CE 150K-30MHz CISPR 11-22 Class A & B Step Rcvr.TST
Rev 9.5 26 Feb 2015

11. DYNAMIC FREQUENCY SELECTION

11.1. OVERVIEW

11.1.1. LIMITS

INDUSTRY CANADA

IC RSS-247 is closely harmonized with FCC Part 15 DFS rules. The deviations are as follows:

RSS-247 Issue 1

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

Note: 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.

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

Maximum Transmit Power	Value (see notes)
E.I.R.P. $\geq$ 200 milliwatt	-64 dBm
E.I.R.P. $<$ 200 milliwatt and power spectral density $<$ 10 dBm/MHz	-62 dBm
E.I.R.P. $<$ 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
<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)
Note 1: <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. Note 2: 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. Note 3: 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.	

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
Note 1: 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

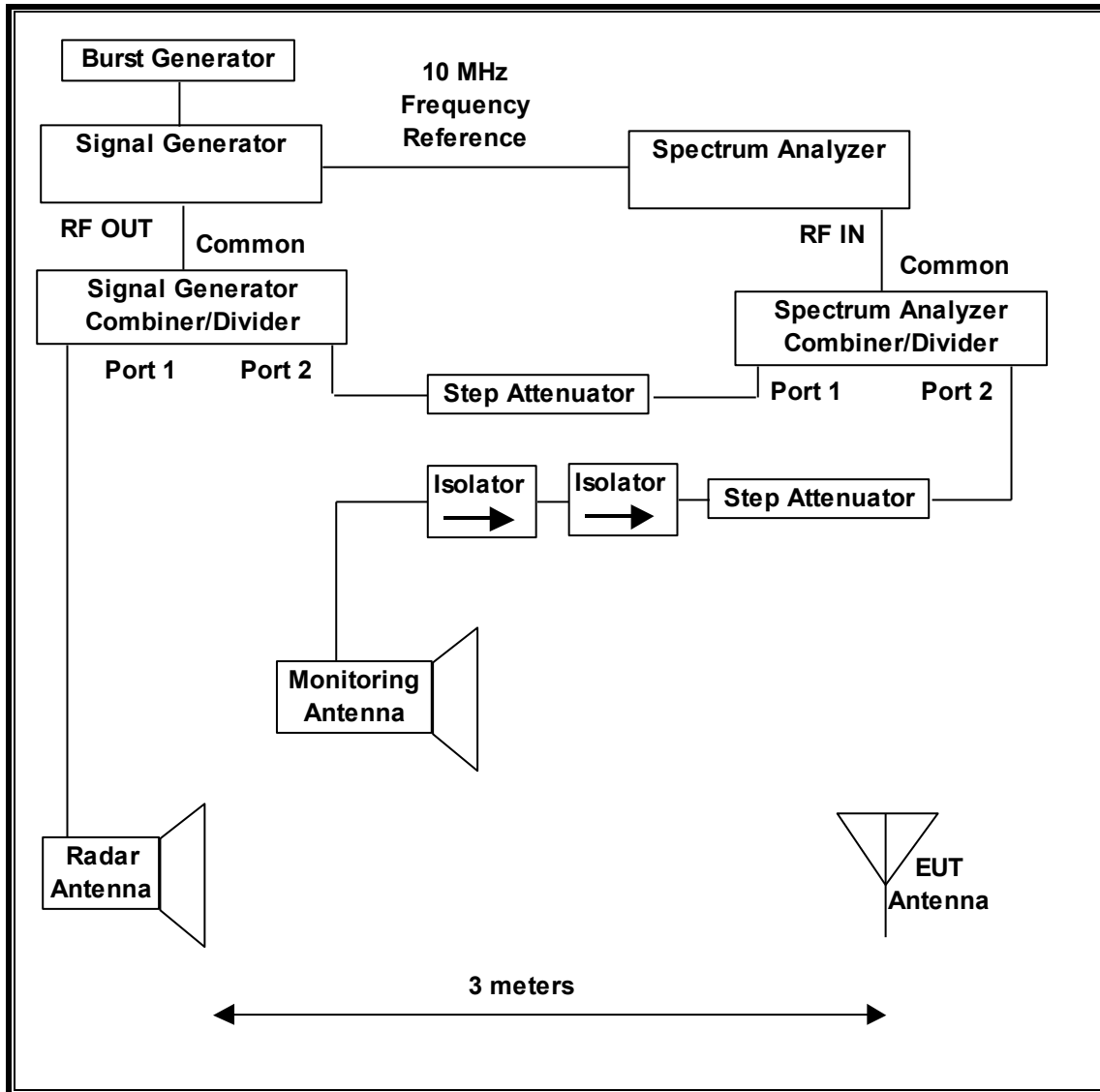
Radar Waveform Type	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

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

11.1.2. 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 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.

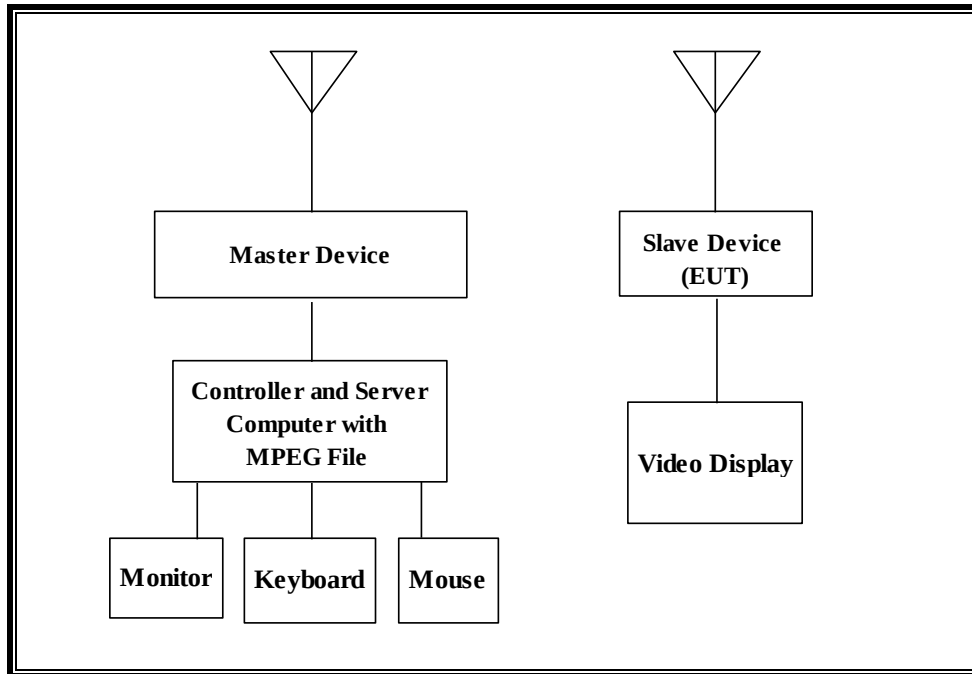
TEST AND MEASUREMENT EQUIPMENT

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

11.1.3. SETUP OF EUT (CLIENT MODE)

RADIATED METHOD EUT TEST SETUP



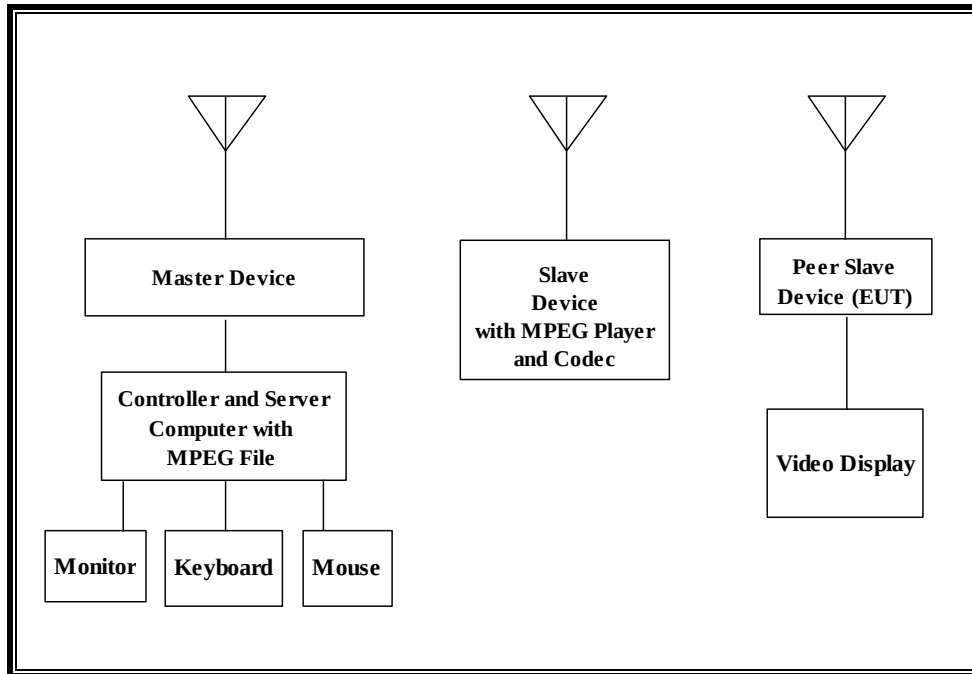
SUPPORT EQUIPMENT

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
802.11a/b/g/n/ac Wireless Access Point (Master Device)	Apple	A1521	CB6KX6B5FJIR	BCGA1521
Personal Computer (Controller/Server)	Apple	A1347	DZHV02WDTCL	DoC
Monitor (Controller/Server)	Samsung	LN19B360C5D	AZA134NS302514T	DoC
Keyboard (Controller/Server)	Apple	A1243	CC232520MQQDPQ VAL	DoC
Mouse (Controller/Server)	Apple	A1152	CC2251307MQDNY A3	DoC

11.1.4. SETUP OF EUT (CLIENT-TO-CLIENT COMMUNICATIONS MODE)

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
802.11a/b/g/n/ac Wireless Access Point (Master Device)	Apple	A1521	CB6KX6B5FJIR	BCGA1521
Personal Computer (Controller/Server)	Apple	A1347	DZHJV02WDTCL	DoC
Monitor (Controller/Server)	Samsung	LN19B360C5D	AZA134NS302514T	DoC
Keyboard (Controller/Server)	Apple	A1243	CC232520MQQDPQ VAL	DoC
Mouse (Controller/Server)	Apple	A1152	CC2251307MQDNY A3	DoC
Cell Phone (Slave Device)	Apple	A1522	C39N809HG87G	BCGE2817A
Video Display	Dell	U2410f	CN-0FJ525N-72872- 1B5-AGAL	DoC

11.1.5. 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 22.90 dBm EIRP in the 5250-5350 MHz band and 23.40 dBm EIRP in the 5470-5725 MHz band.

The two antennas of the only antenna assembly utilized with the EUT have respective gains of 4.086 dBi and 1.246 dBi in the 5250-5350 MHz band and 4.125 dBi and 2.487 dBi in the 5470-5725 MHz band.

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

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.

Client mode WLAN traffic is generated by streaming the video file TestFile.mp2 "6 ½ Magic Hours.MPG" from the Master to the Slave in full motion video mode using revision 10.2 (603.12) QuickTime Player.

Client to Client mode WLAN traffic is generated by streaming the video file TestFile.mp2 "6 ½ Magic Hours.MP4" from the Master to the Slave in full motion video mode using revision 6.0.3 Safari web browser.

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

The EUT utilizes the 802.11ac architecture. Three nominal channel bandwidths are implemented: 20 MHz, 40 MHz and 80 MHz.

The software installed in the EUT is 13A169.

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 an Apple, Inc. Access Point, FCC ID: BCGA1521. The minimum antenna gain for the Master Device is 1.4 dBi.

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

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 software installed in the access point is 7.7D3.

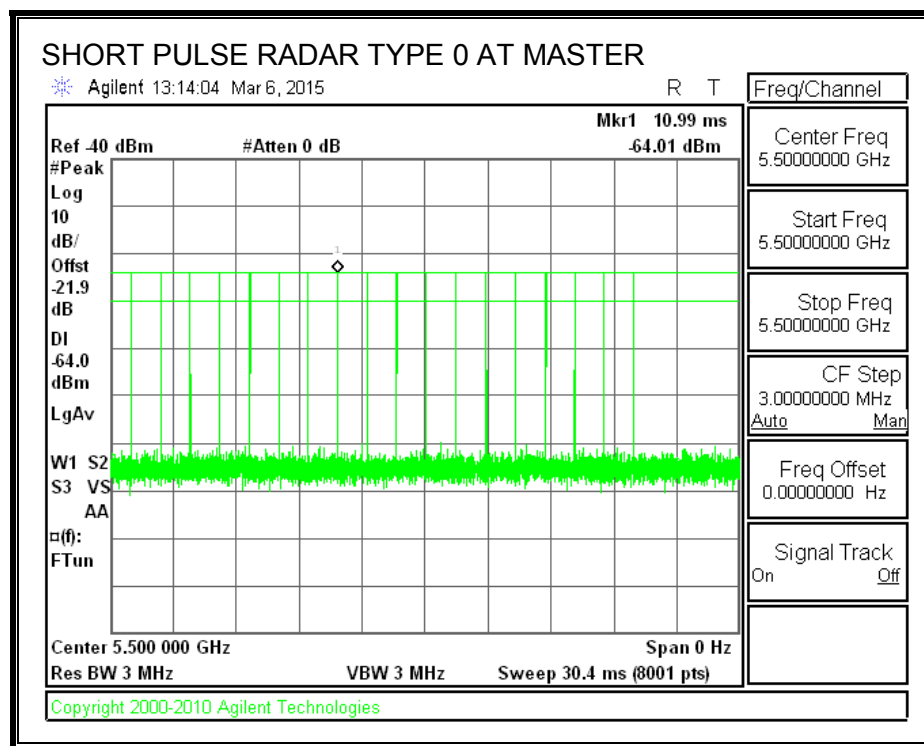
11.2. CLIENT MODE RESULTS FOR 20 MHz BANDWIDTH

11.2.1. TEST CHANNEL

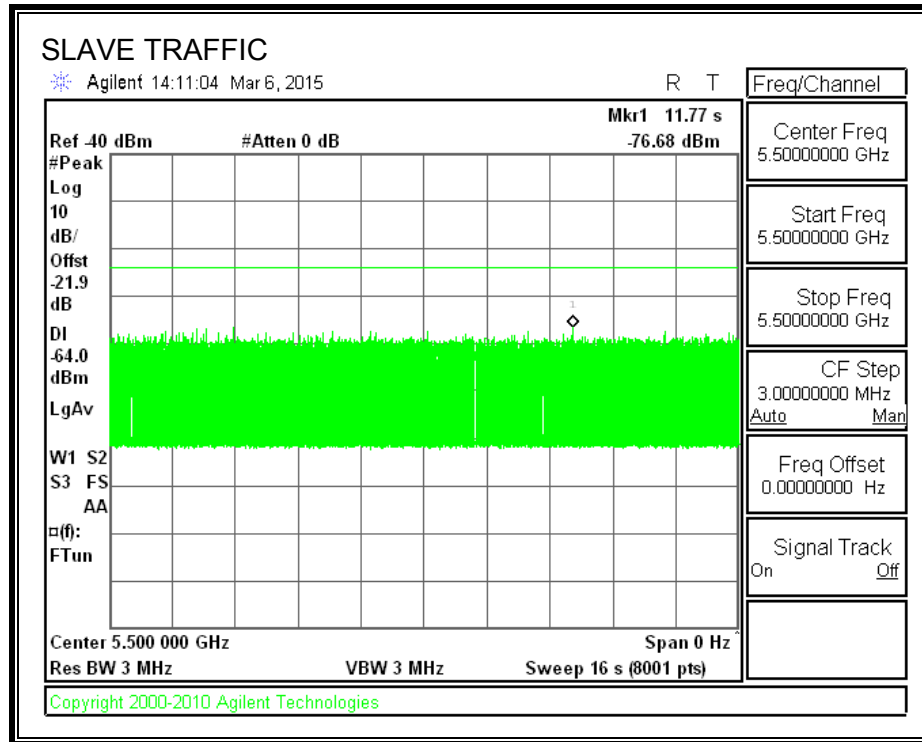
All tests were performed at a channel center frequency of 5500 MHz.

11.2.2. RADAR WAVEFORM AND TRAFFIC

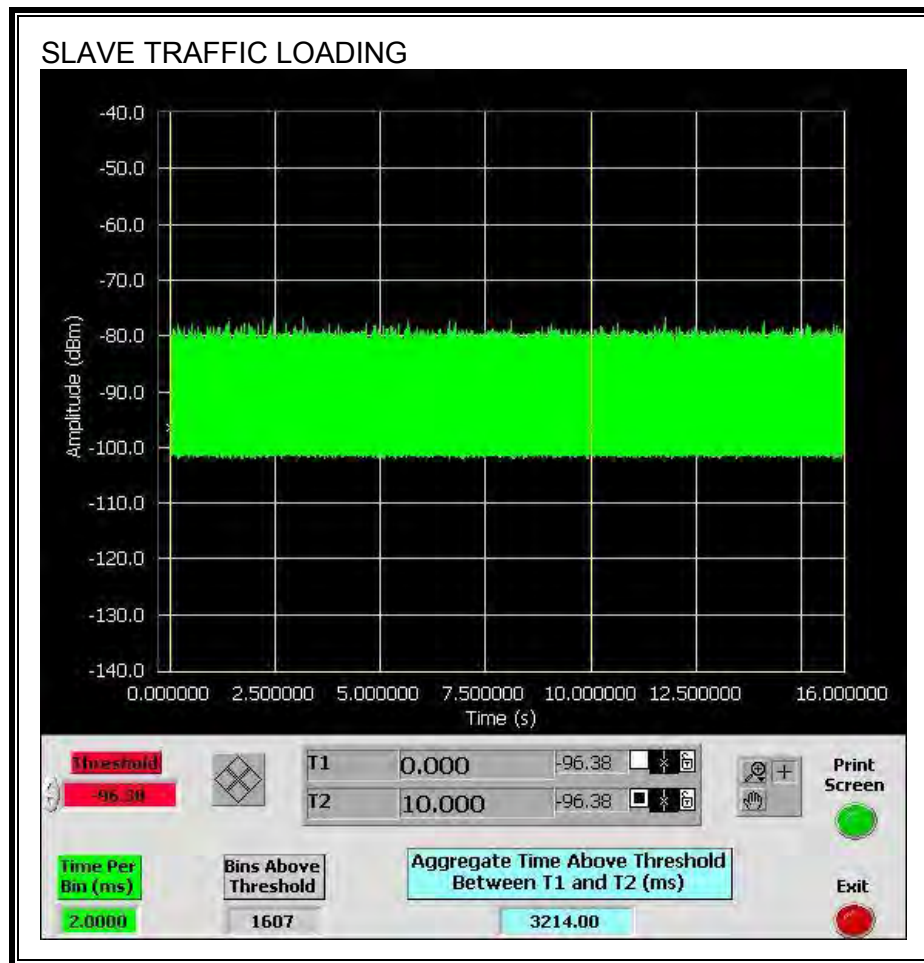
RADAR WAVEFORM



TRAFFIC



TRAFFIC LOADING



The level of traffic loading on the channel by the EUT is 32.14%

11.2.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

11.2.4. 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).

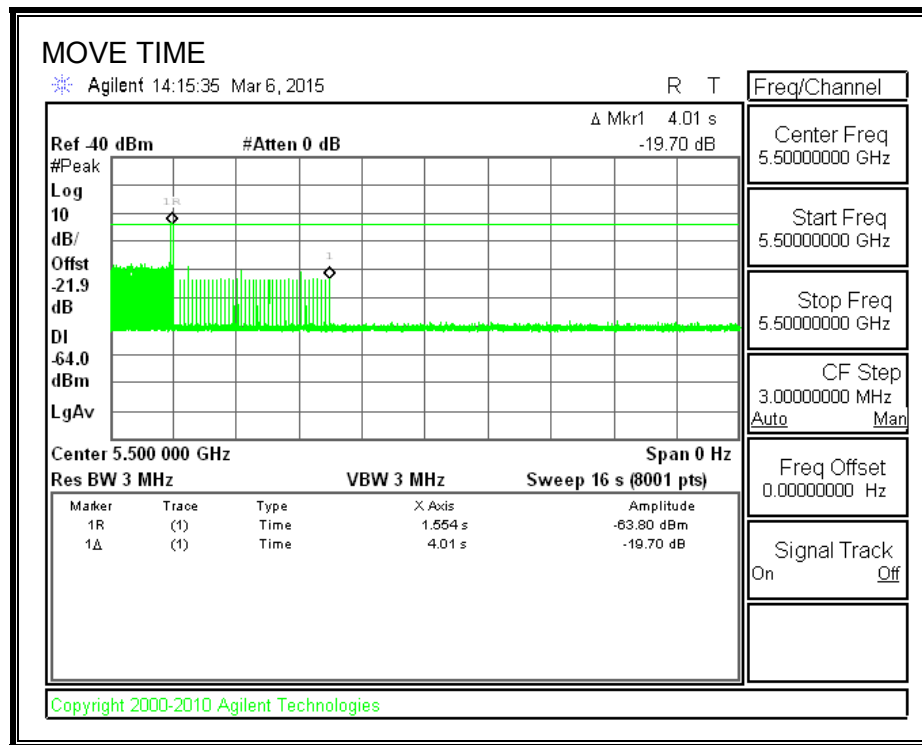
RESULTS

Channel Move Time (sec)	Limit (sec)
4.077	10

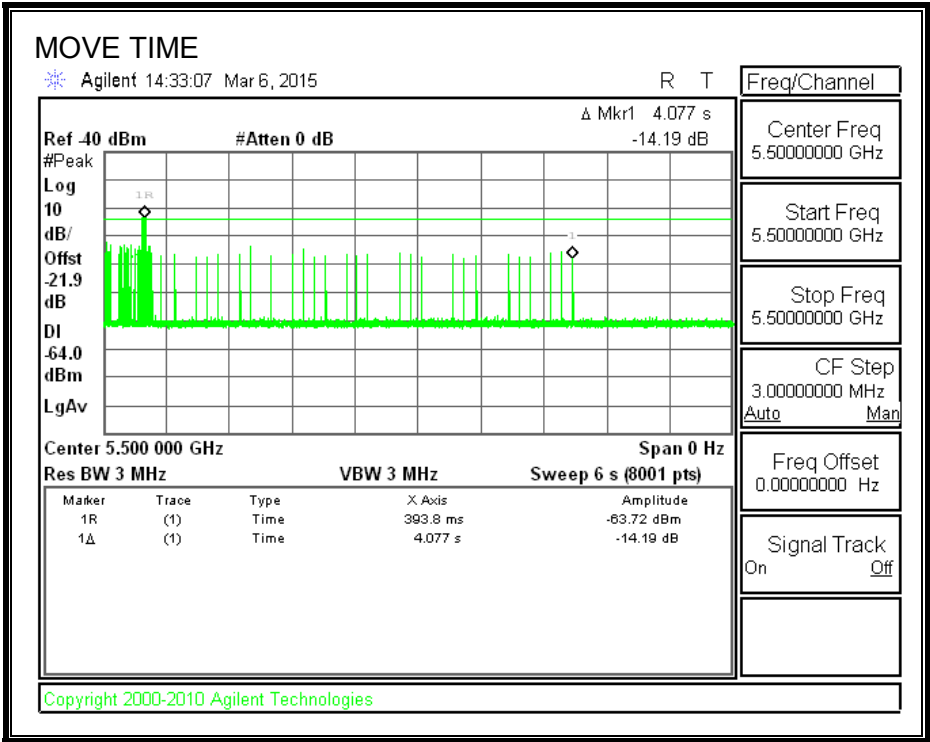
Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
20.25	60

MOVE TIME

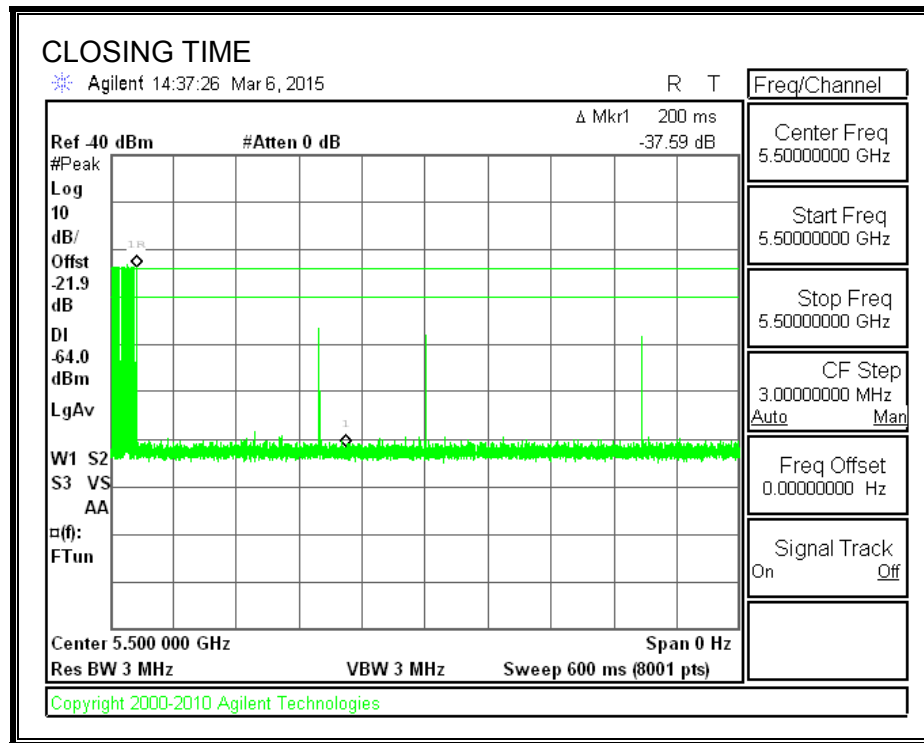
16 Second Sweep:



6 Second Sweep:

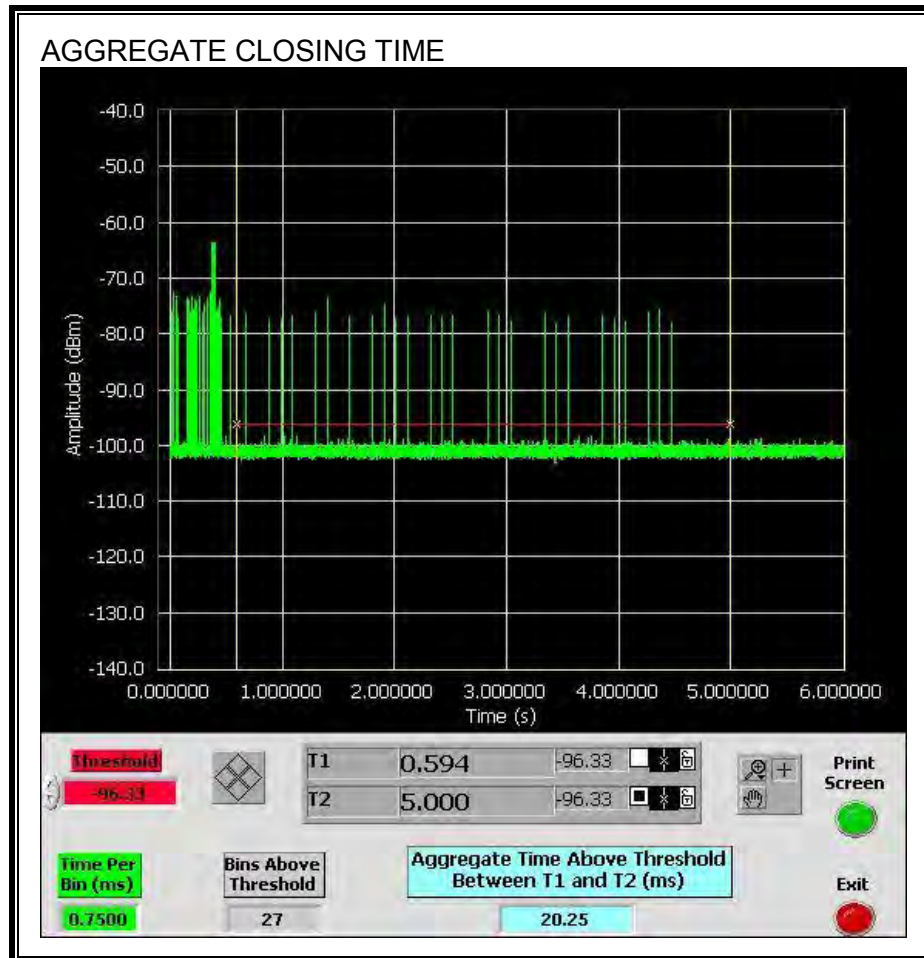


CHANNEL CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

Only intermittent transmissions are observed during the aggregate monitoring period.



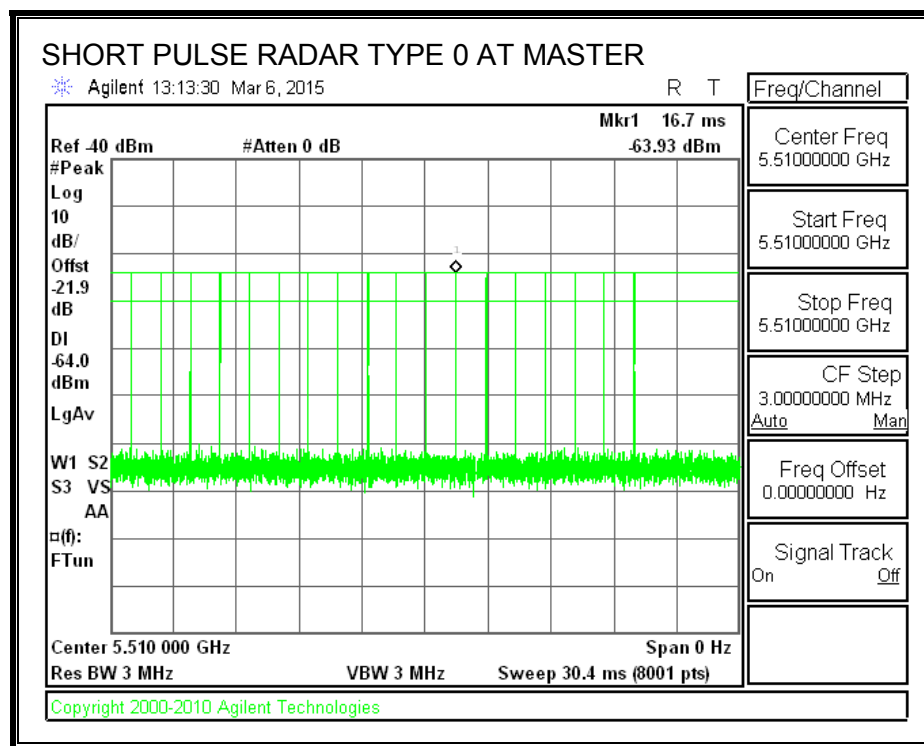
11.3. CLIENT MODE RESULTS FOR 40 MHz BANDWIDTH

11.3.1. TEST CHANNEL

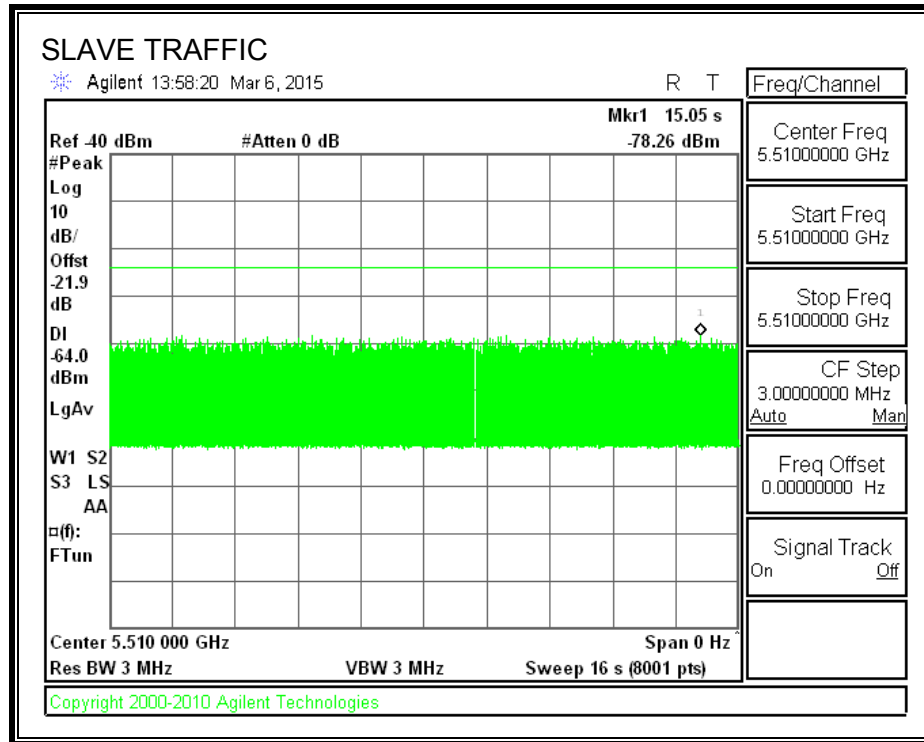
All tests were performed at a channel center frequency of 5510 MHz.

11.3.2. RADAR WAVEFORM AND TRAFFIC

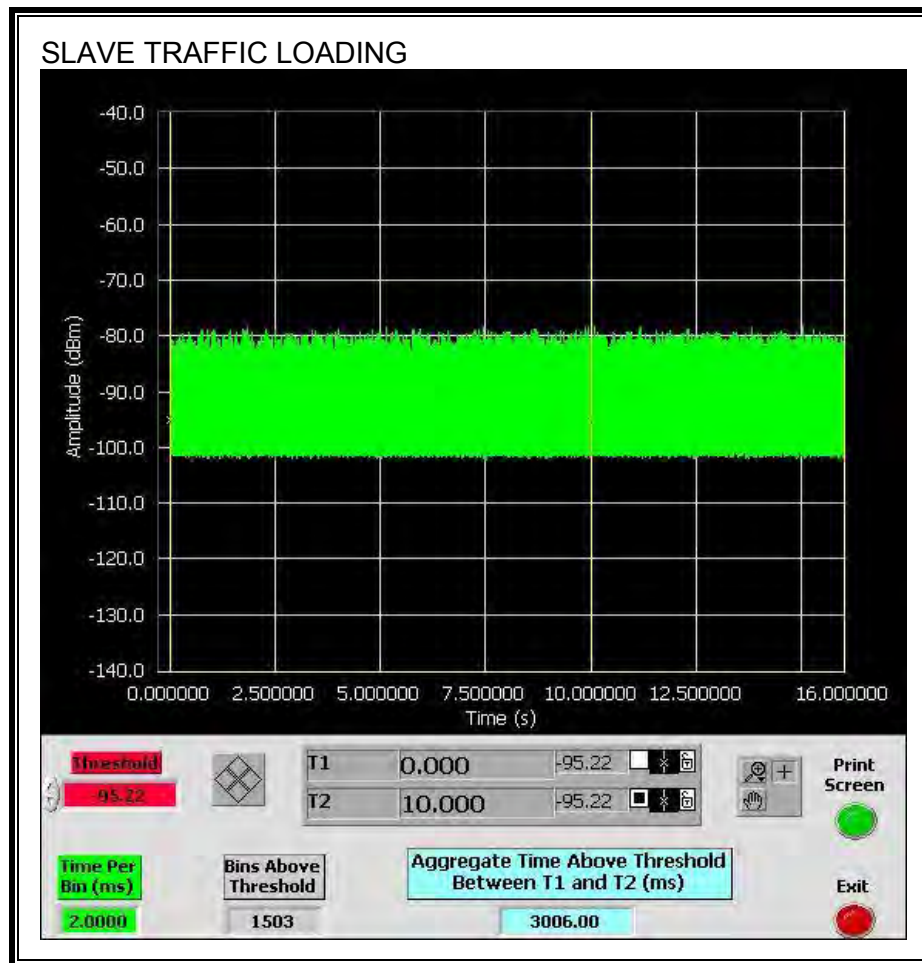
RADAR WAVEFORM



TRAFFIC



TRAFFIC LOADING



The level of traffic loading on the channel by the EUT is 30.06%

11.3.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

11.3.4. 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).

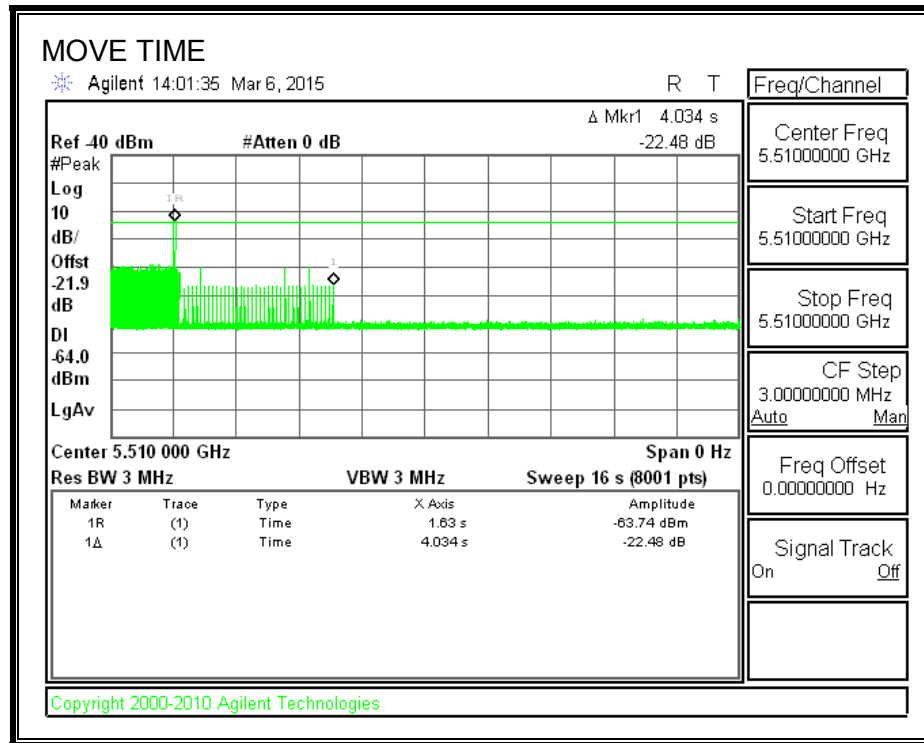
RESULTS

Channel Move Time (sec)	Limit (sec)
3.991	10

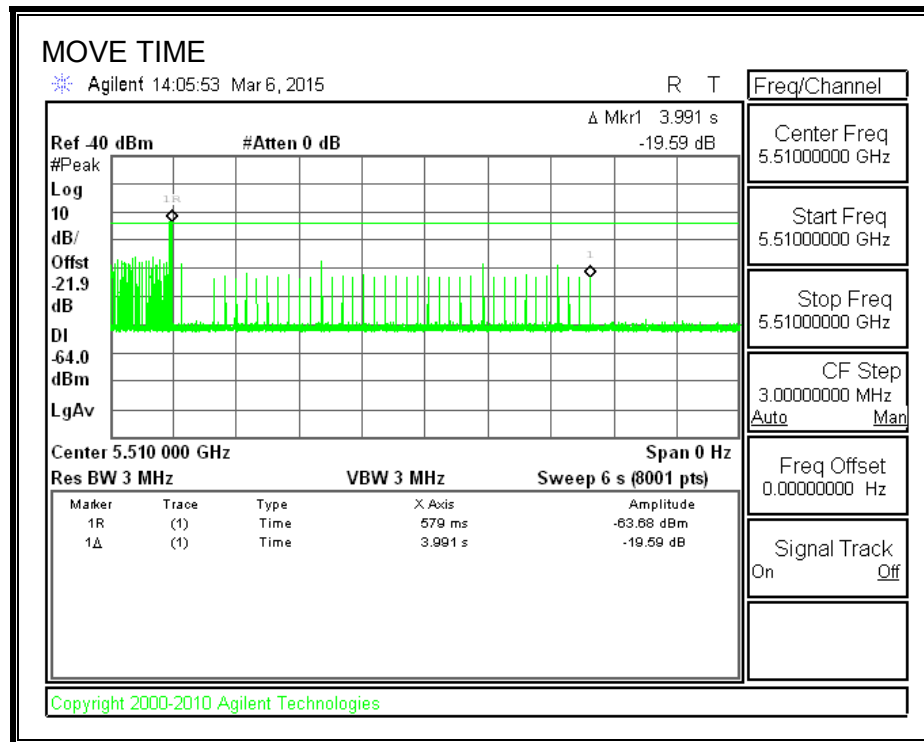
Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
28.5	60

MOVE TIME

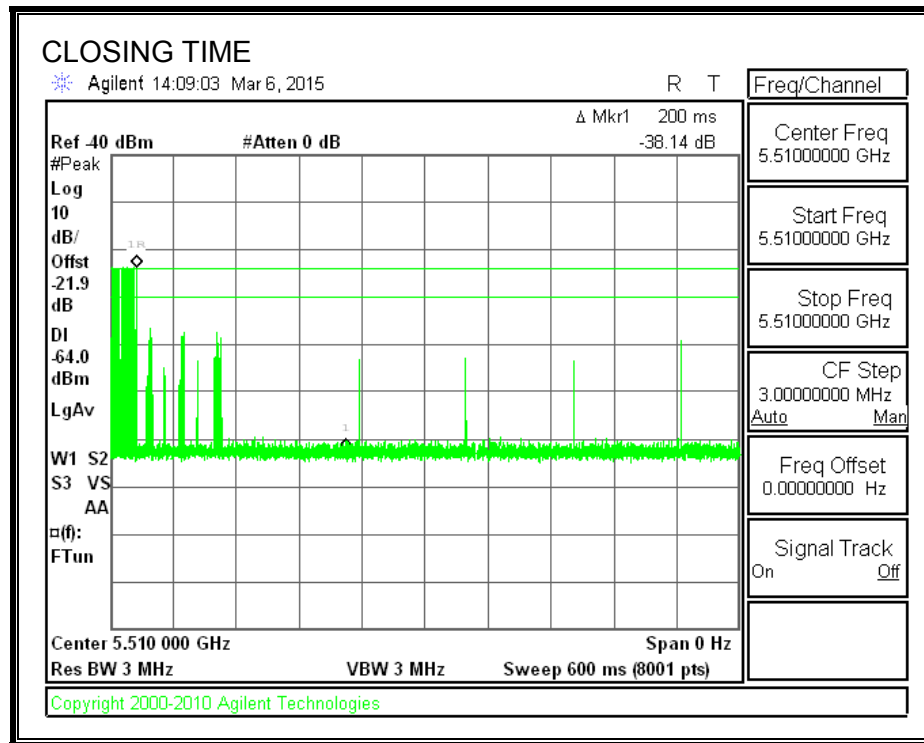
16 Second Sweep:



6 Second Sweep:

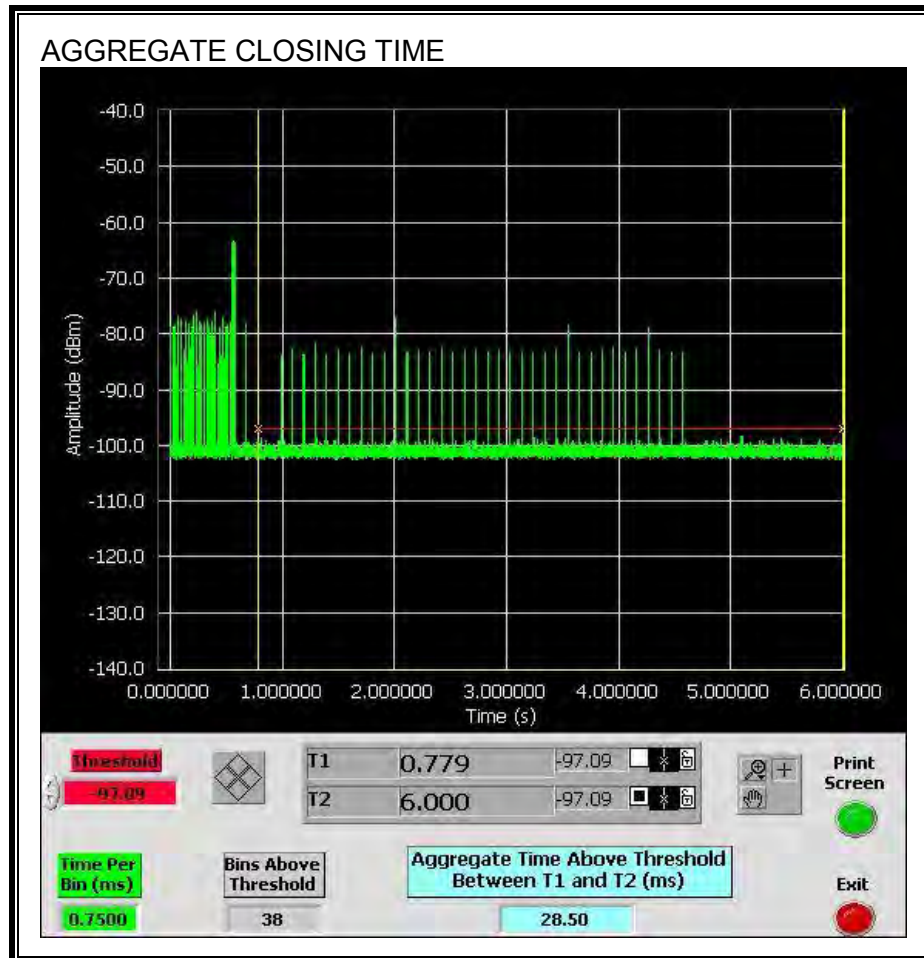


CHANNEL CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

Only intermittent transmissions are observed during the aggregate monitoring period.



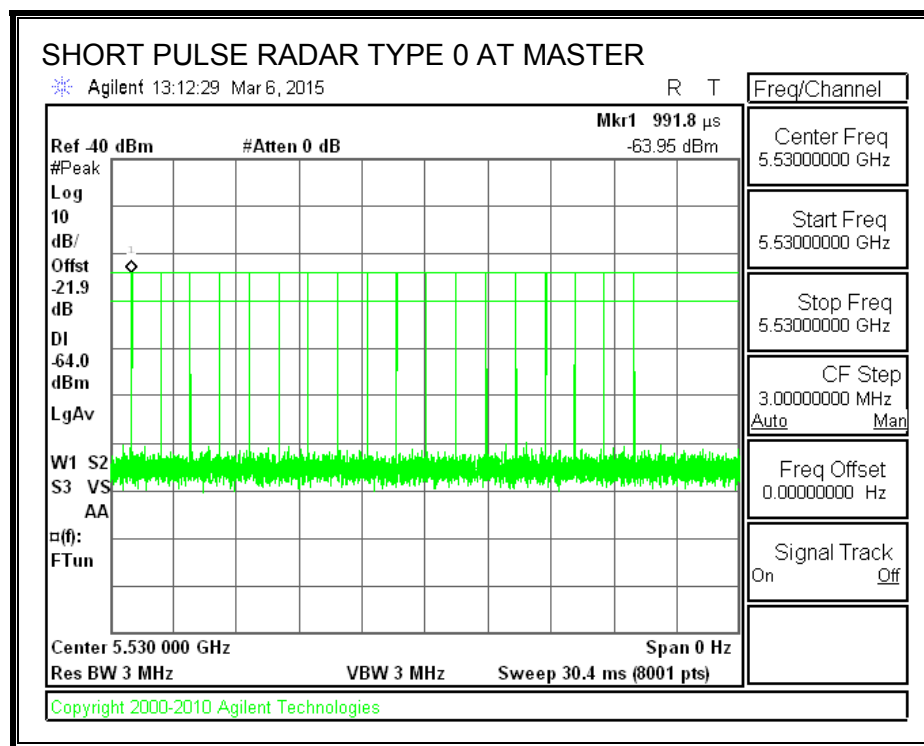
11.4. CLIENT MODE RESULTS FOR 80 MHz BANDWIDTH

11.4.1. TEST CHANNEL

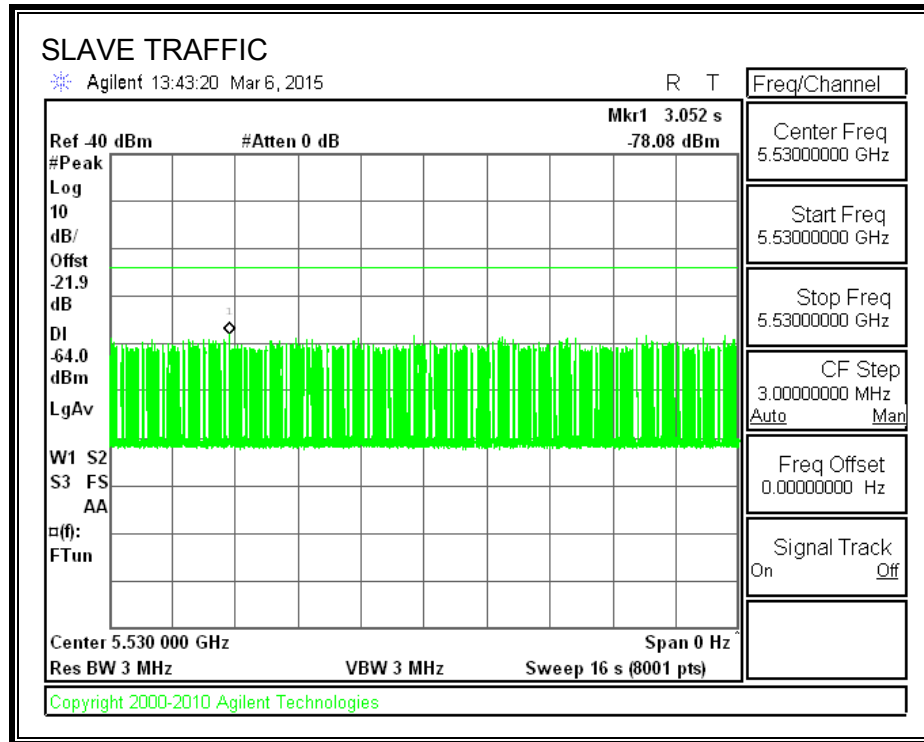
All tests were performed at a channel center frequency of 5530 MHz.

11.4.2. RADAR WAVEFORM AND TRAFFIC

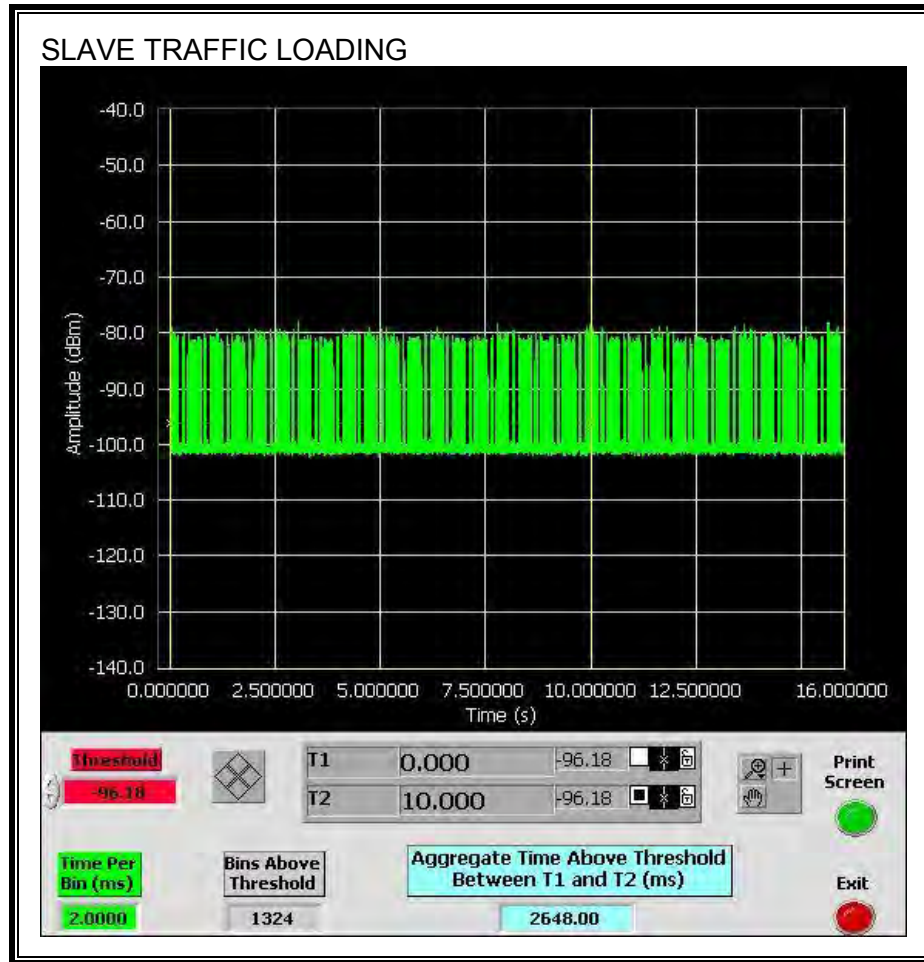
RADAR WAVEFORM



TRAFFIC



TRAFFIC LOADING



The level of traffic loading on the channel by the EUT is 26.48%

11.4.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

11.4.4. 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)

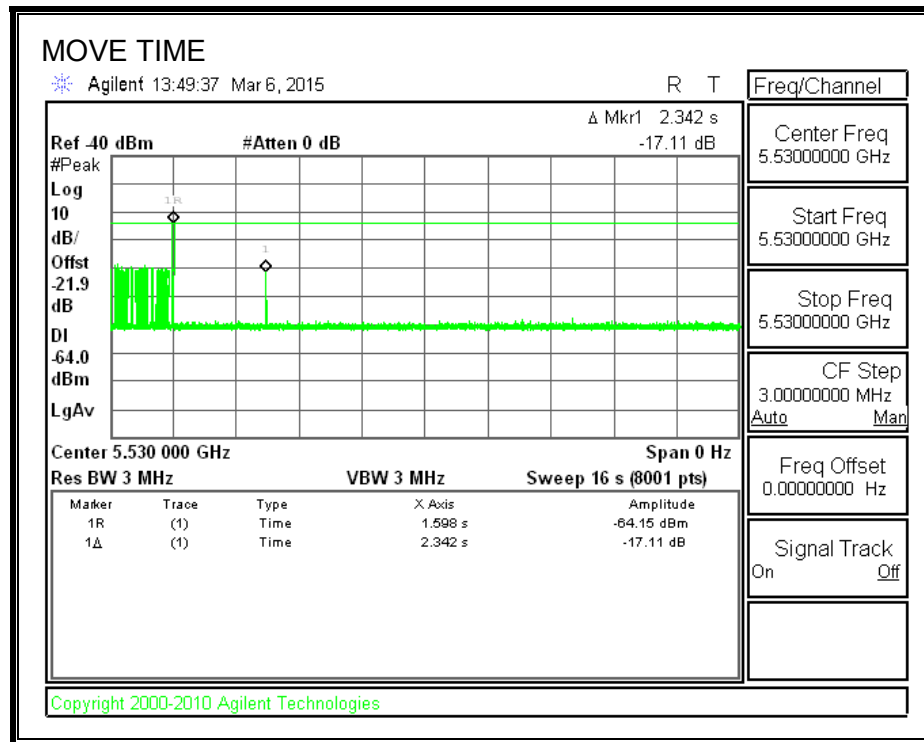
The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

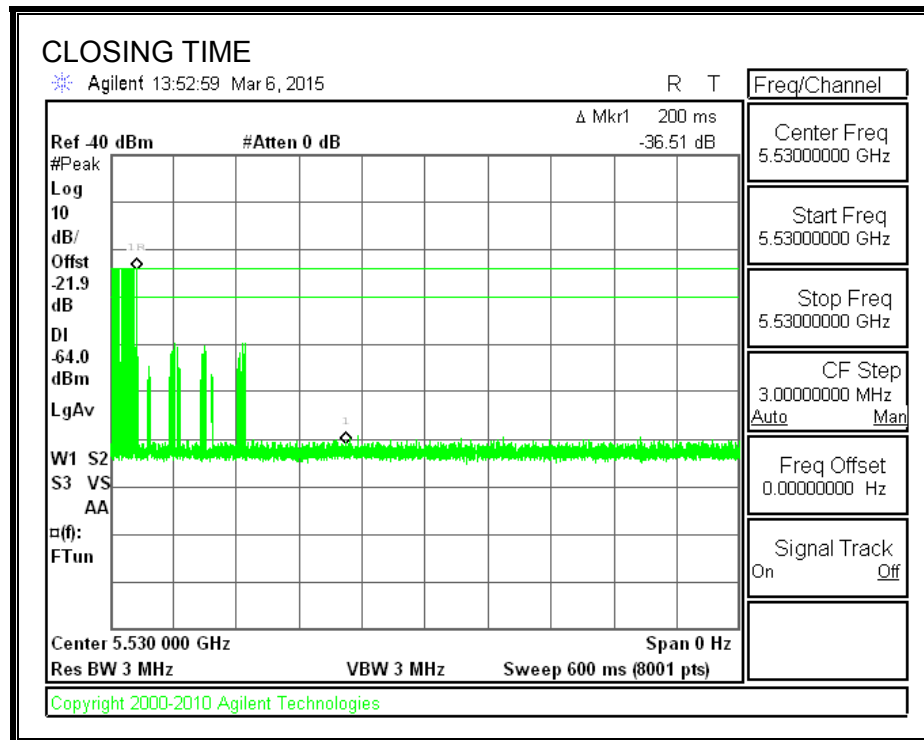
RESULTS

Channel Move Time (sec)	Limit (sec)
2.342	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
2.0	60

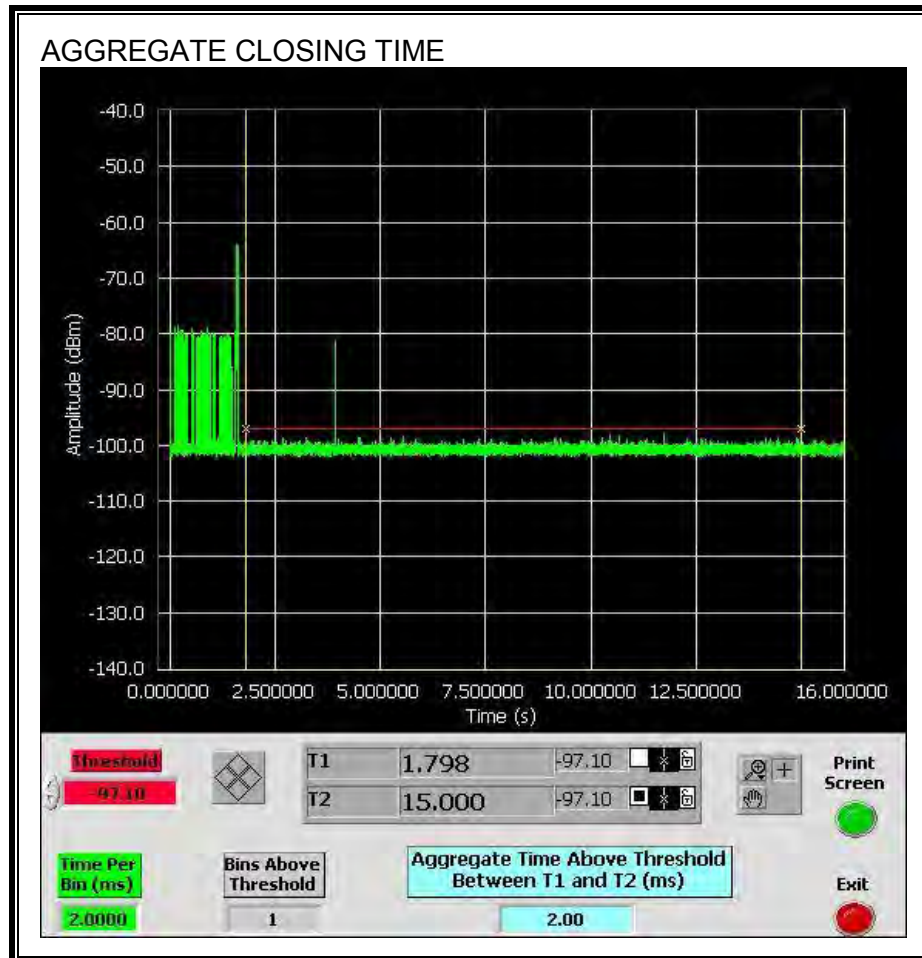
MOVE TIME





AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

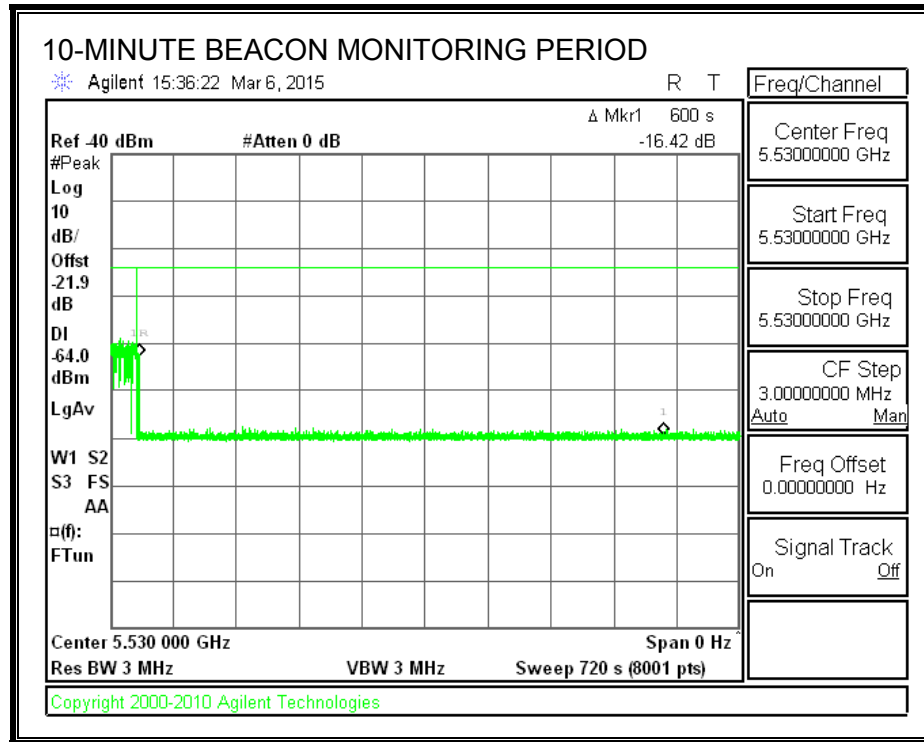
Only intermittent transmissions are observed during the aggregate monitoring period.



11.4.5. 10-MINUTE BEACON MONITORING PERIOD

RESULTS

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



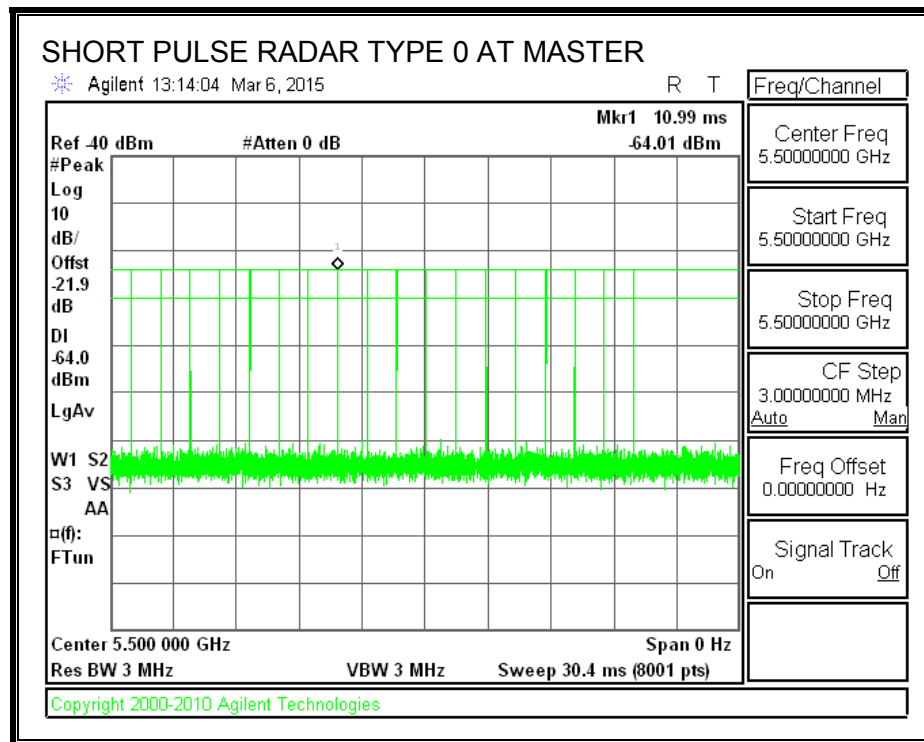
11.5. CLIENT-TO-CLIENT COMMUNICATIONS MODE RESULTS FOR 20 MHz BANDWIDTH

11.5.1. TEST CHANNEL

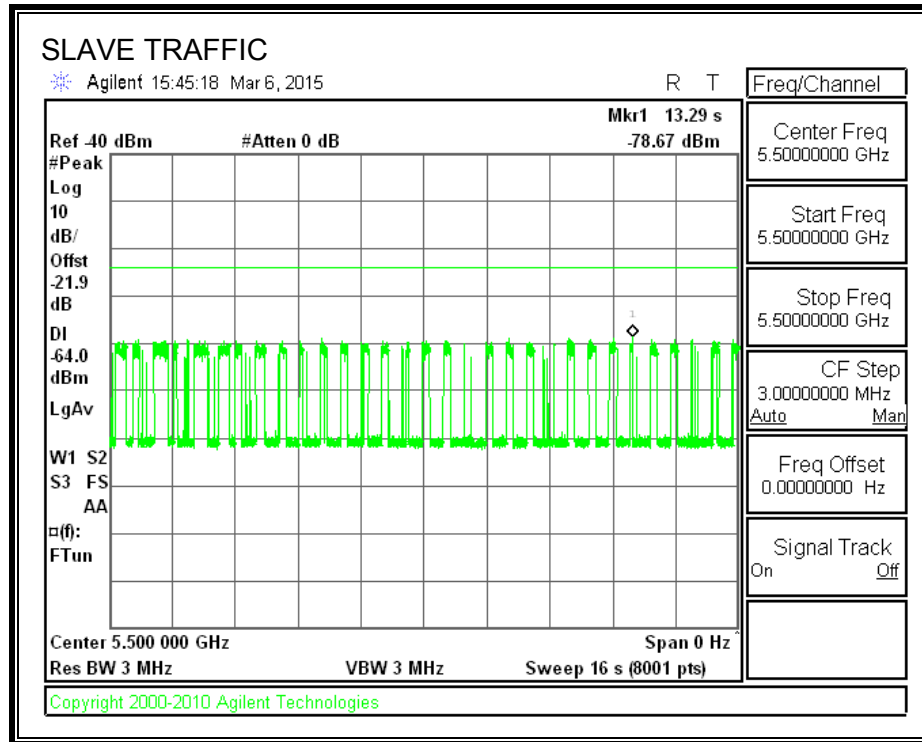
All tests were performed at a channel center frequency of 5500 MHz.

11.5.2. RADAR WAVEFORM AND TRAFFIC

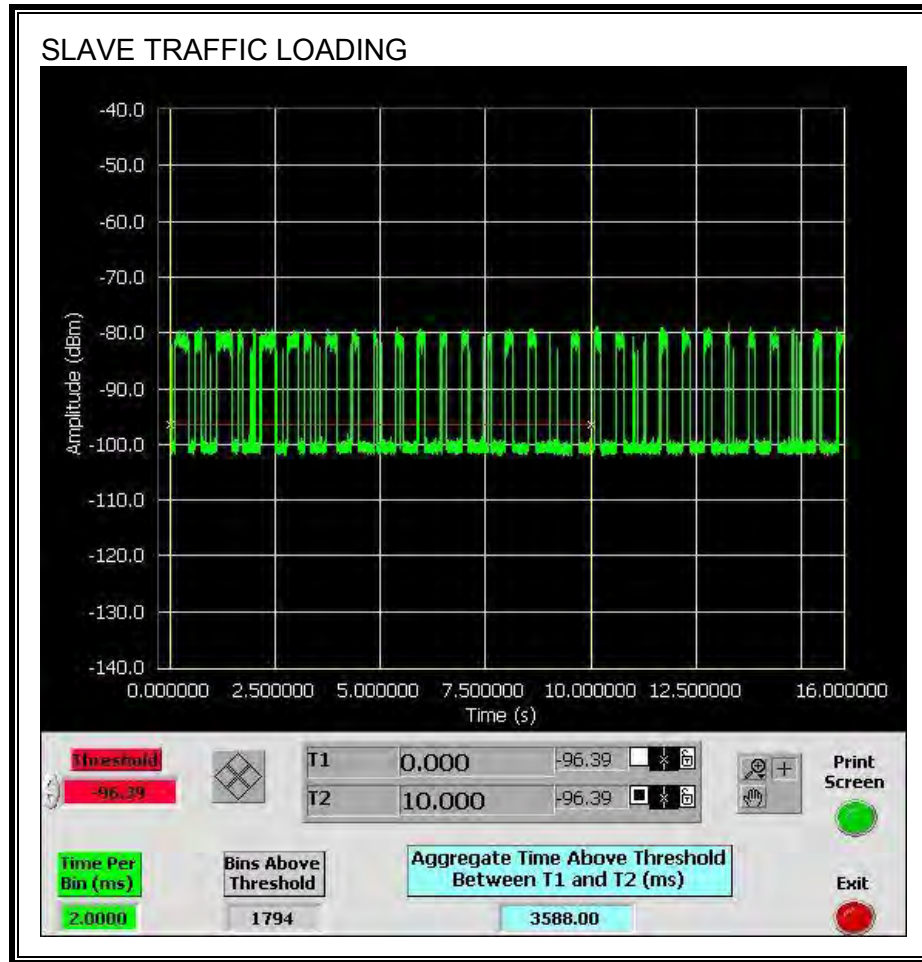
RADAR WAVEFORM



TRAFFIC



TRAFFIC LOADING



The level of traffic loading on the channel by the EUT is 35.88%.

11.5.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

11.5.4. 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)

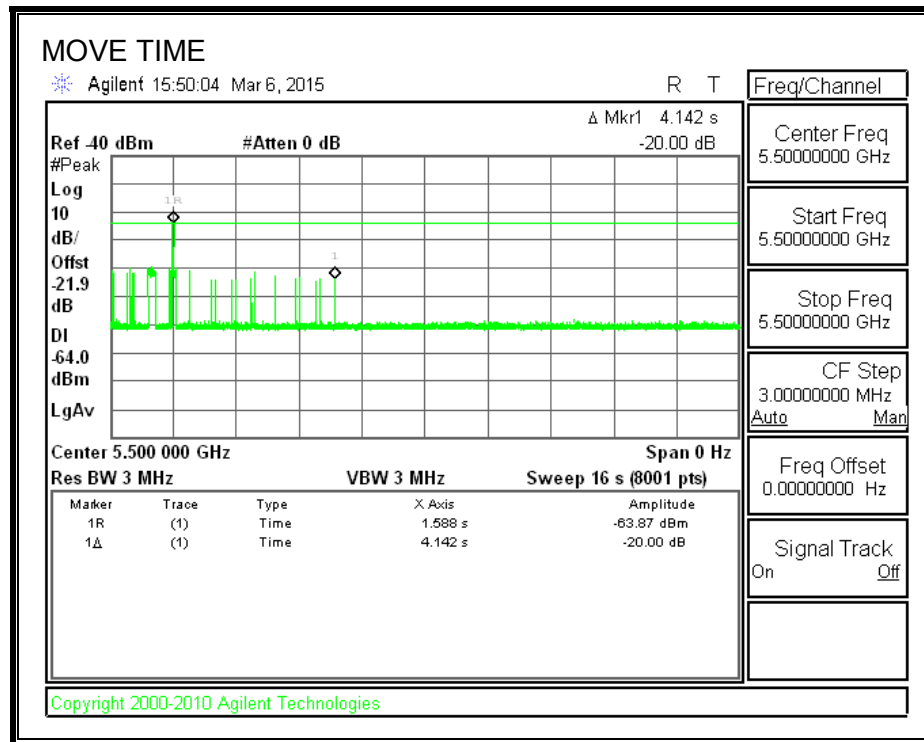
The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

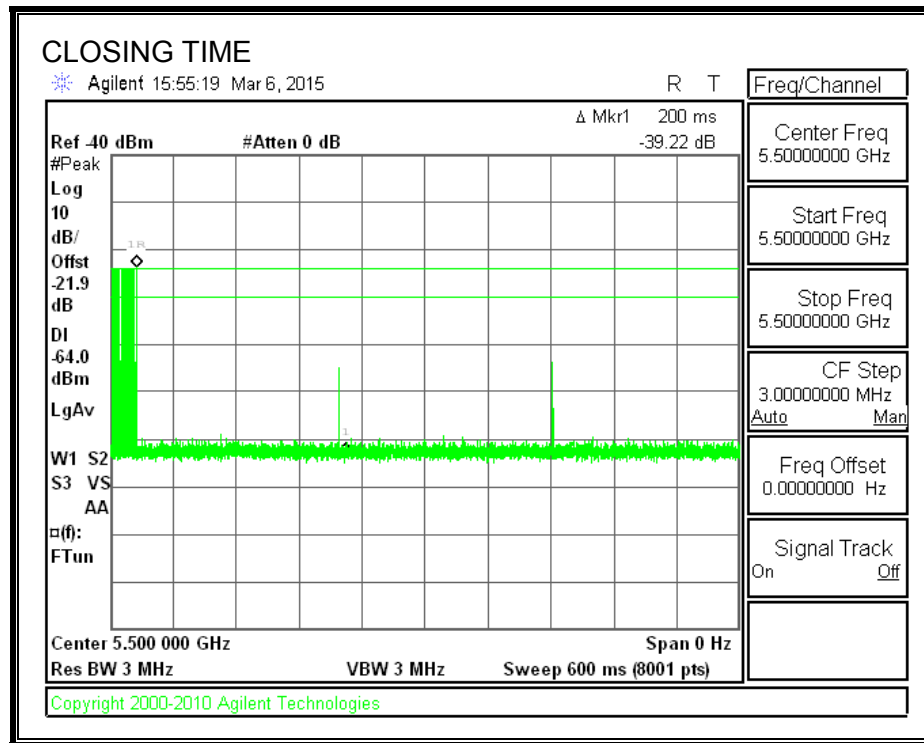
Channel Move Time (sec)	Limit (sec)
4.142	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
28.0	60

MOVE TIME

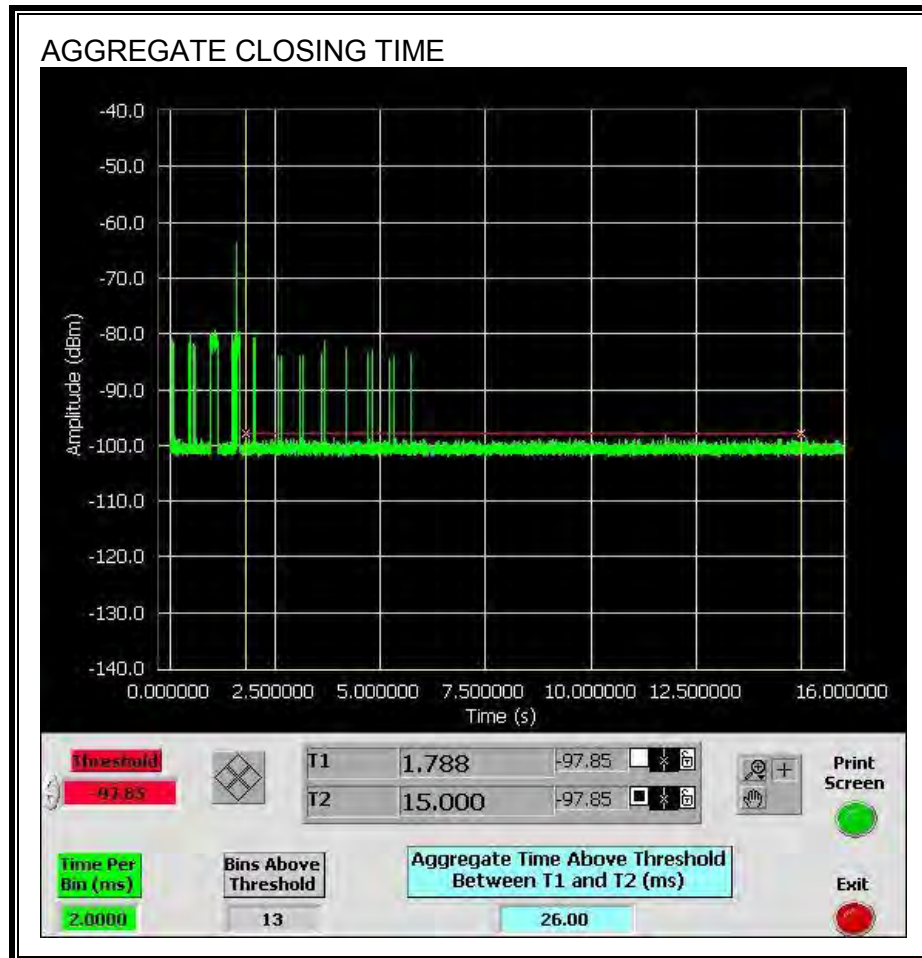


CHANNEL CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

Only intermittent transmissions are observed during the aggregate monitoring period.



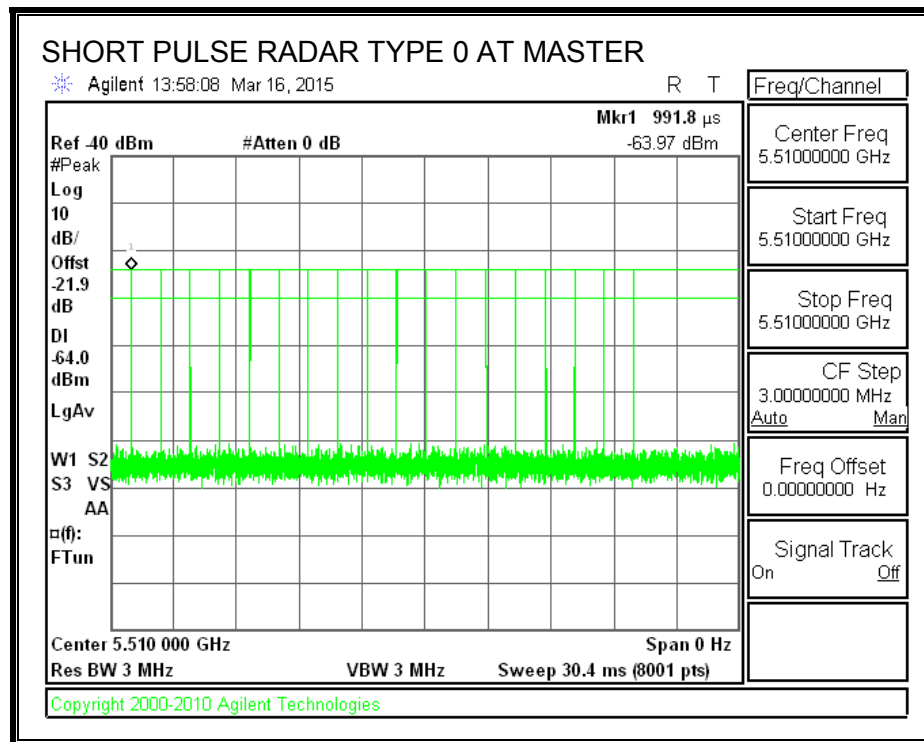
11.6. CLIENT-TO-CLIENT COMMUNICATIONS MODE RESULTS FOR 40 MHz BANDWIDTH

11.6.1. TEST CHANNEL

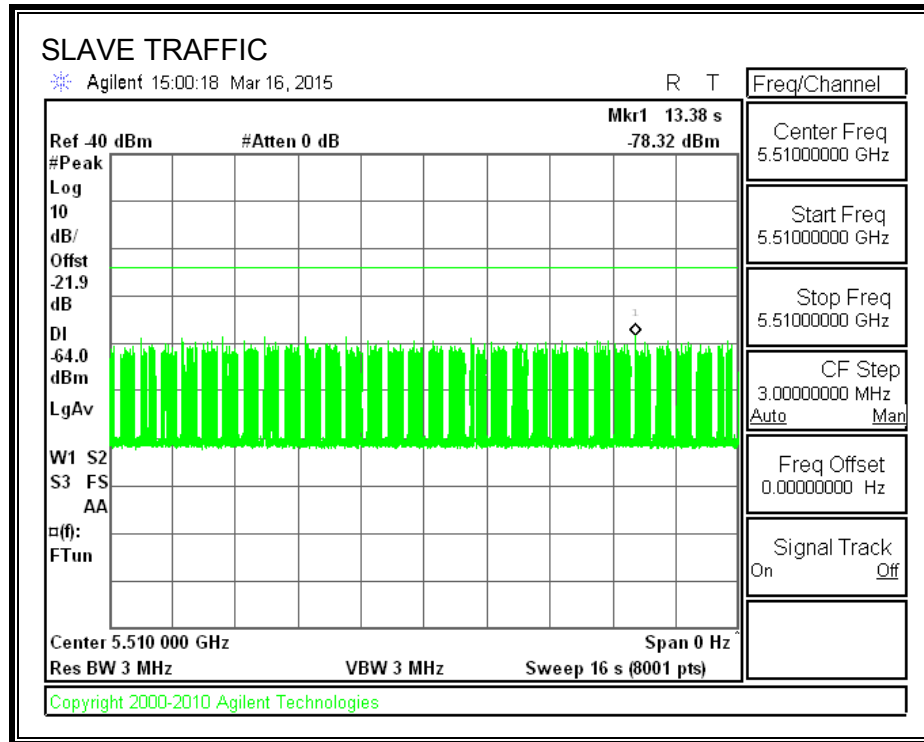
All tests were performed at a channel center frequency of 5510 MHz.

11.6.2. RADAR WAVEFORM AND TRAFFIC

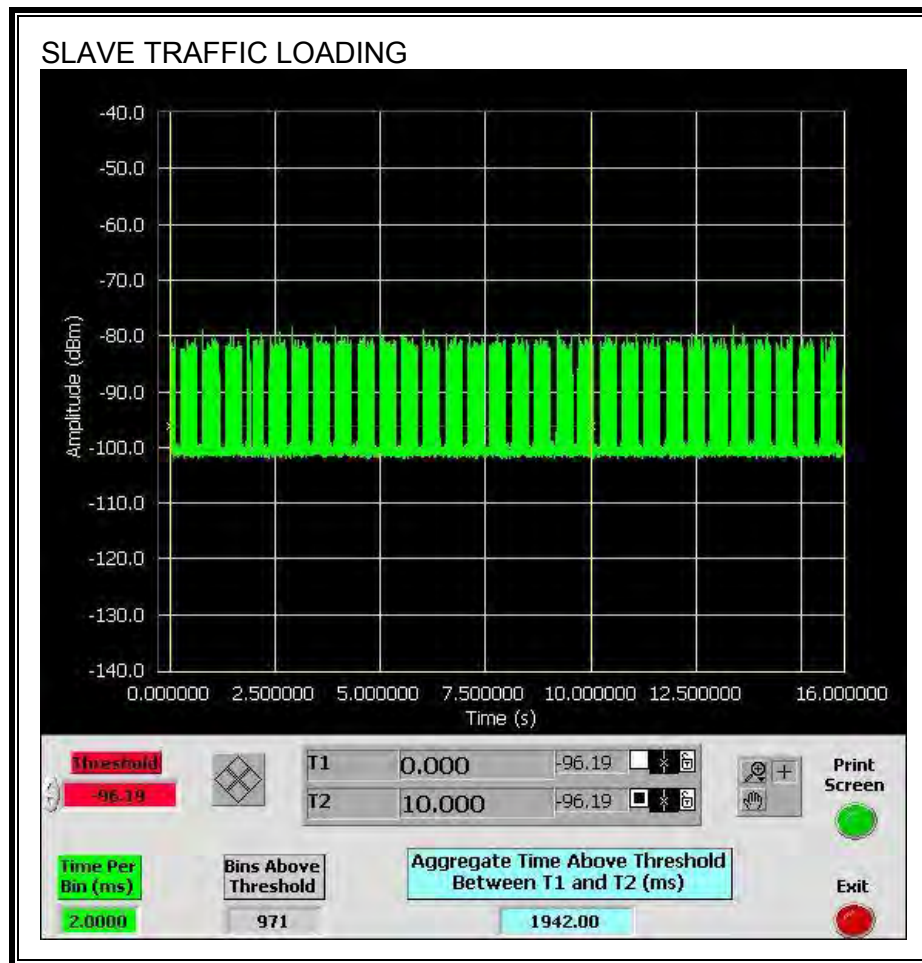
RADAR WAVEFORM



TRAFFIC



TRAFFIC LOADING



The level of traffic loading on the channel by the EUT is 19.42%

11.6.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

11.6.4. 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).

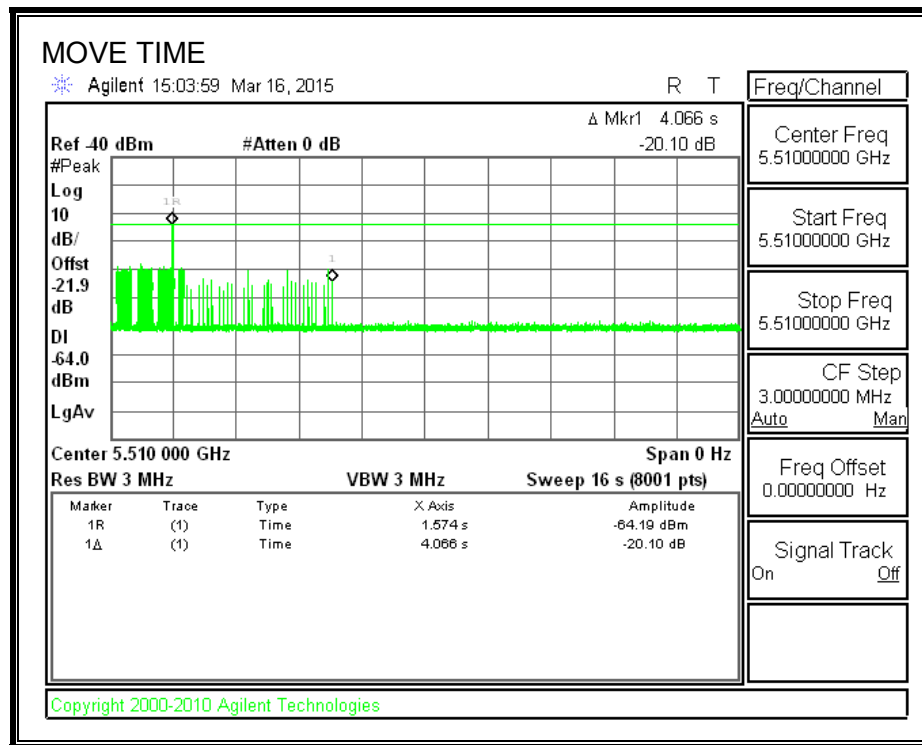
RESULTS

Channel Move Time (sec)	Limit (sec)
4.045	10

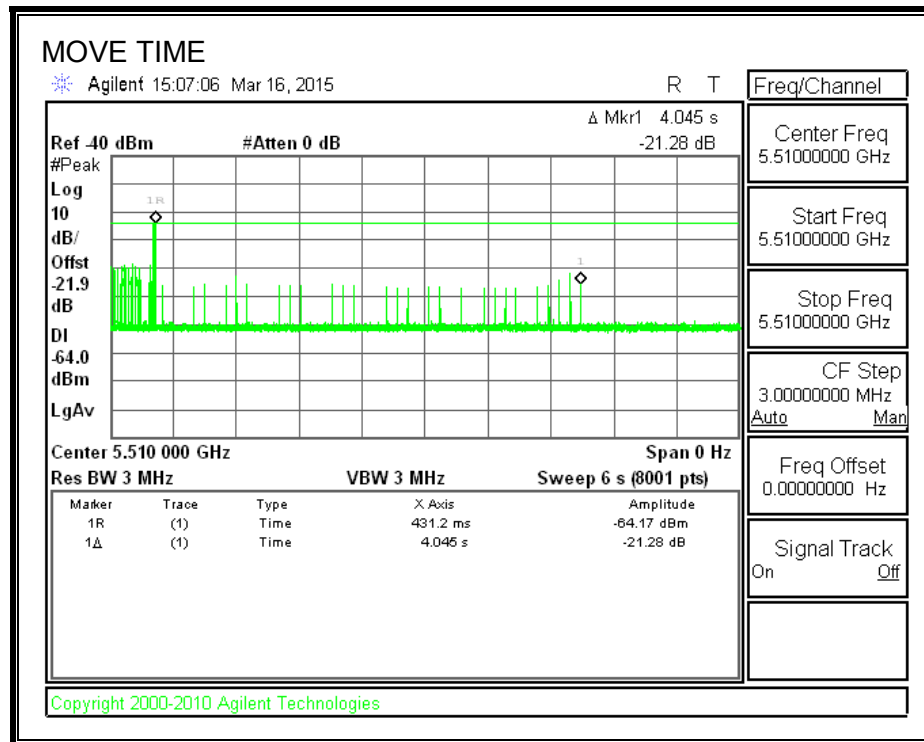
Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
19.5	60

MOVE TIME

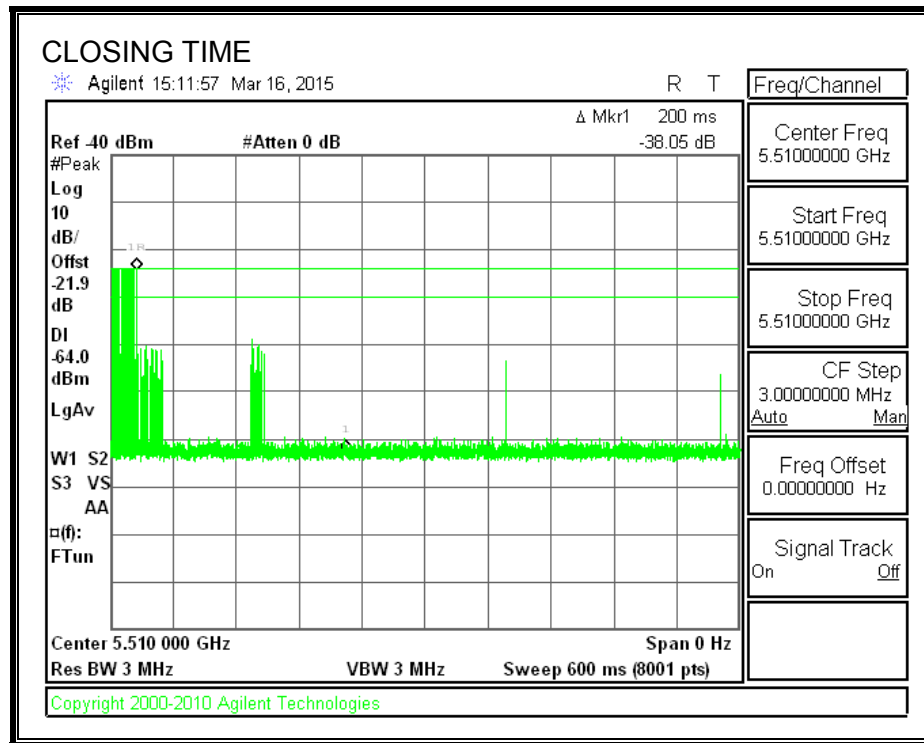
16 SECOND SWEEP:



6 SECOND SWEEP:

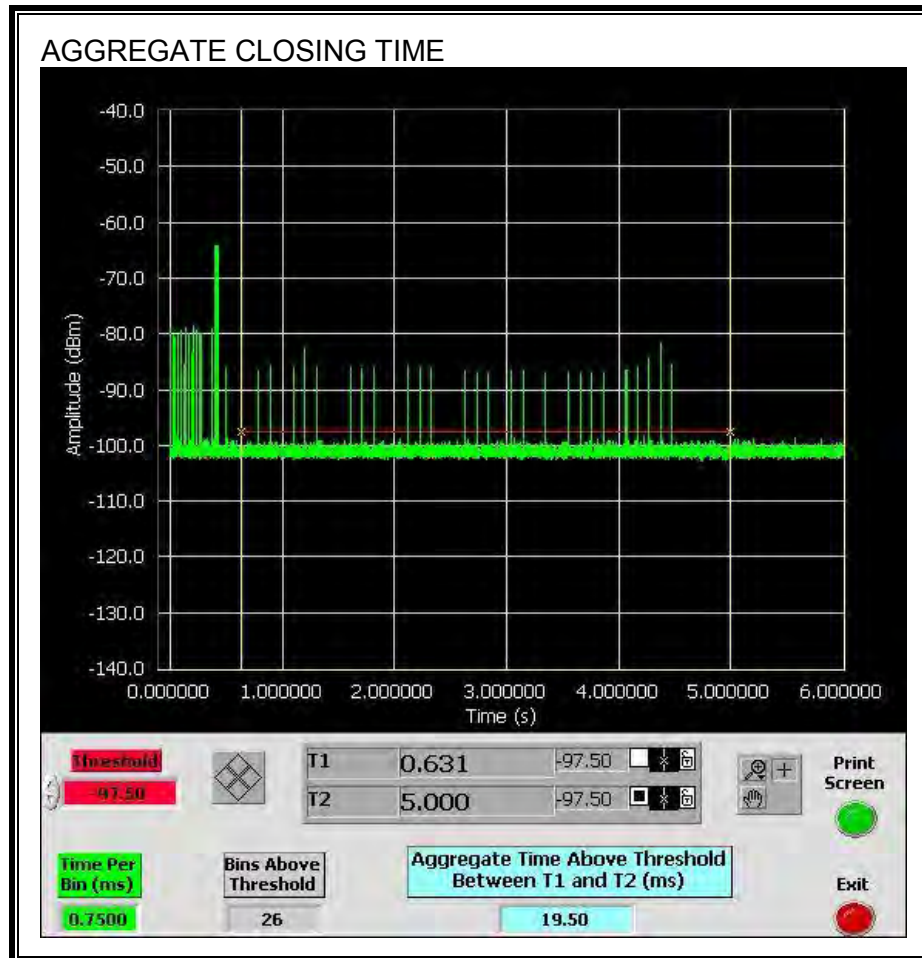


CHANNEL CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

Only intermittent transmissions are observed during the aggregate monitoring period.



11.7. CLIENT-TO-CLIENT COMMUNICATIONS MODE RESULTS FOR 80 MHz BANDWIDTH

11.7.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5530 MHz.

11.7.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM

