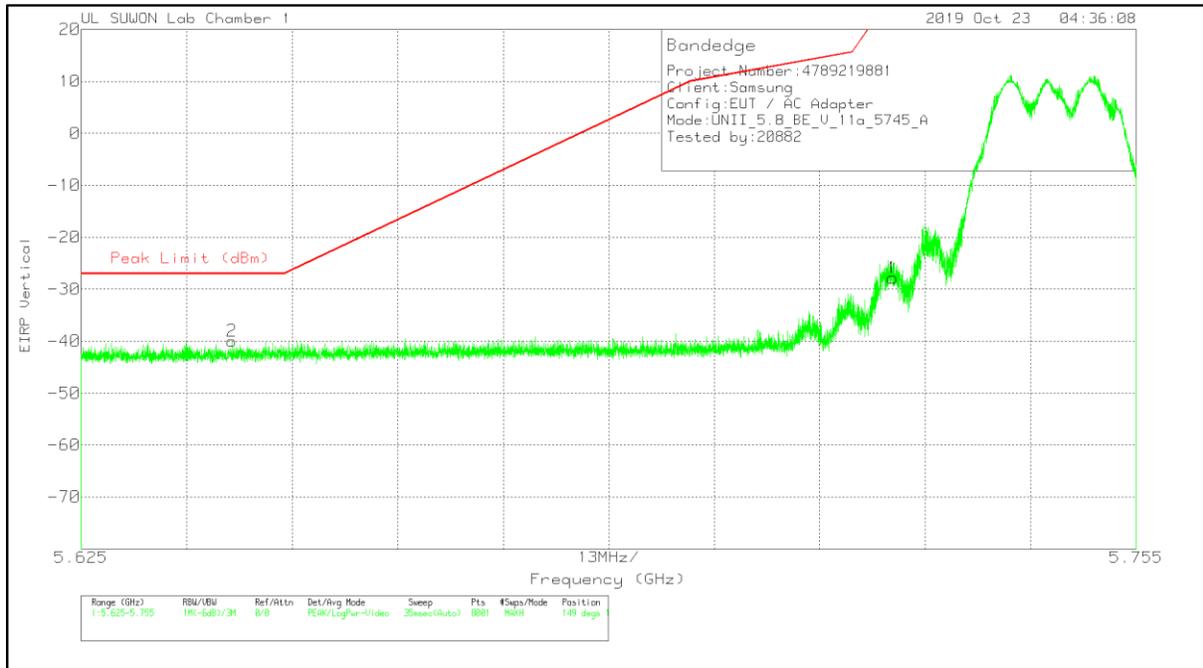


**VERTICAL PEAK DATA**



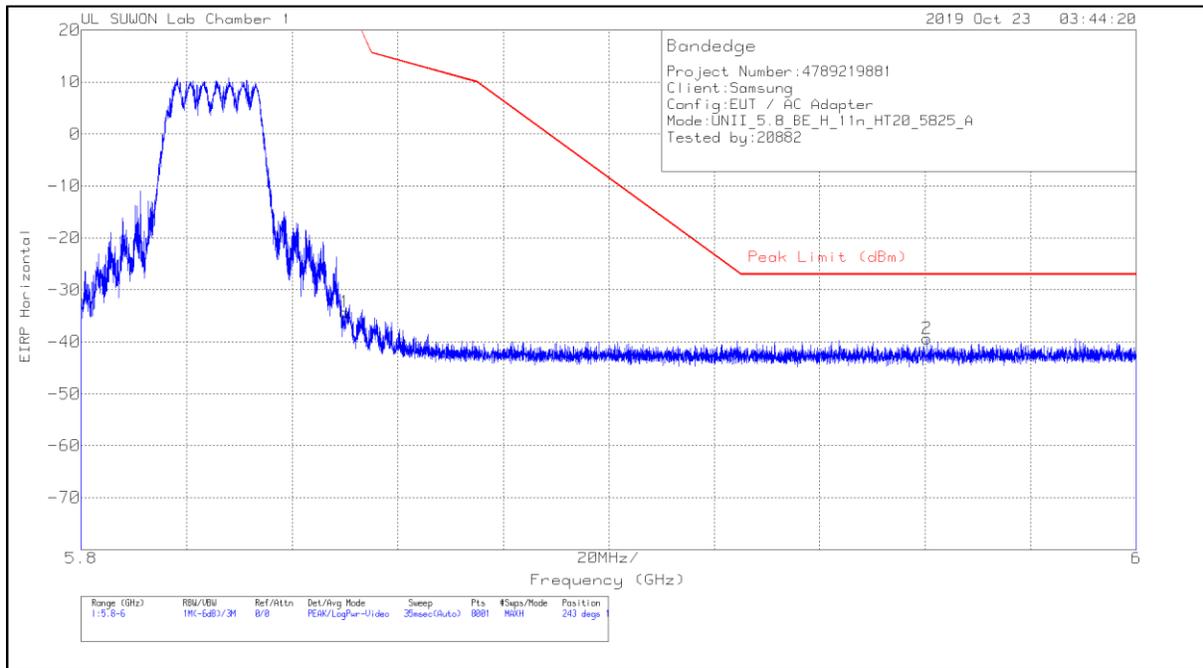
**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117_00168717	10dB_ATT[dB]	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.72499	-53.33	Pk	34.8	-21.1	11.8	0	-27.83	26.97	-54.8	149	100	V
2	5.64357	-65.48	Pk	34.7	-21	11.8	0	-39.98	-27	-12.98	149	100	V

Pk - Peak detector

**BADEDGE (HIGH CHANNEL)**

**HORIZONTAL PEAK DATA**

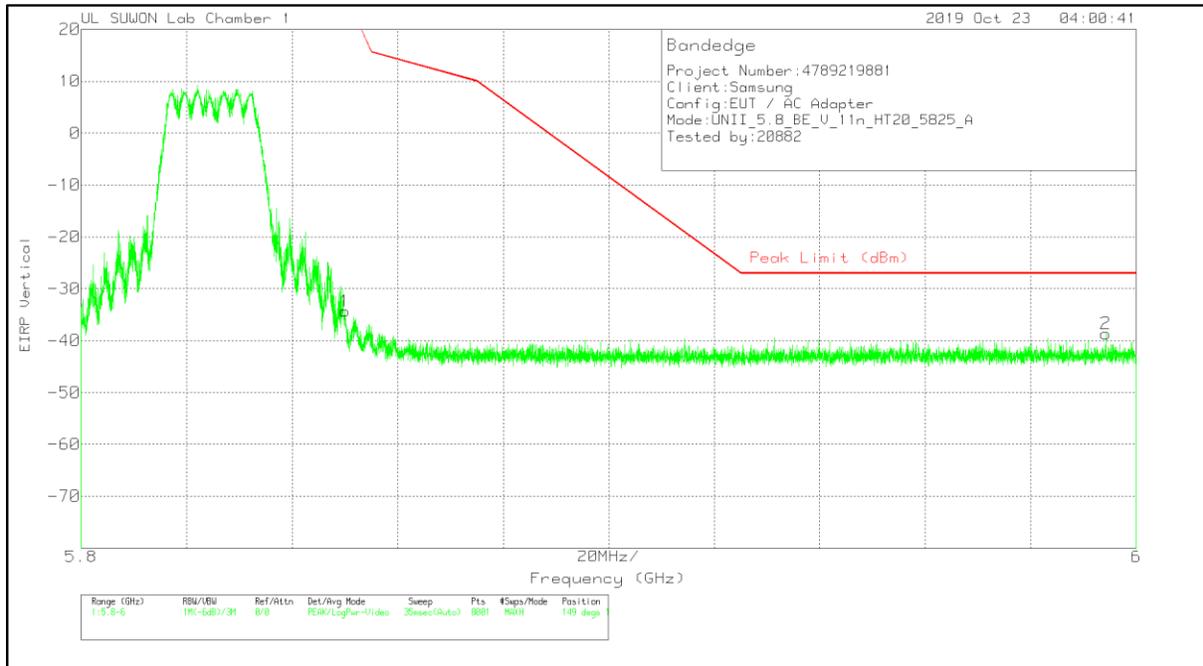


**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117_00168717	10dB_ATT[dB]	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85003	-60.07	Pk	35	-21	11.8	0	-34.27	26.94	-61.21	243	101	H
2	5.9603	-65.45	Pk	35.1	-20.8	11.8	0	-39.35	-27	-12.35	243	101	H

Pk - Peak detector

**VERTICAL PEAK DATA**



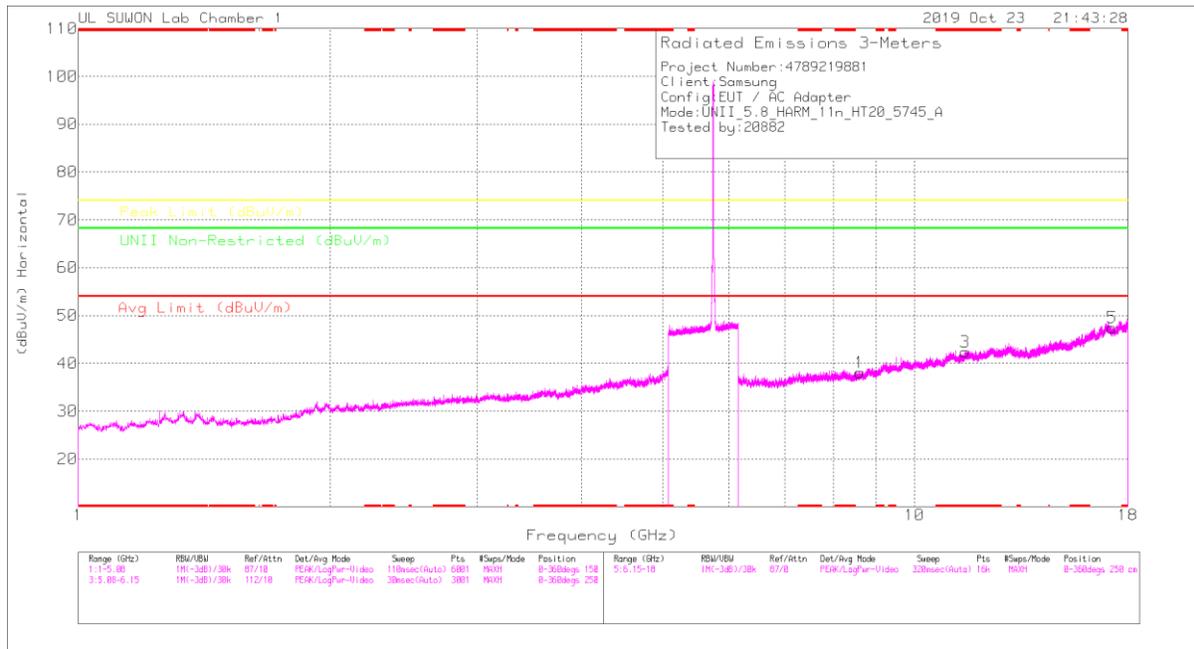
**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117_00168717	10dB_ATT[dB]	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85003	-60.11	Pk	35	-21	11.8	0	-34.31	26.94	-61.25	149	100	V
2	5.99423	-64.92	Pk	35.1	-20.6	11.8	0	-38.62	-27	-11.62	149	100	V

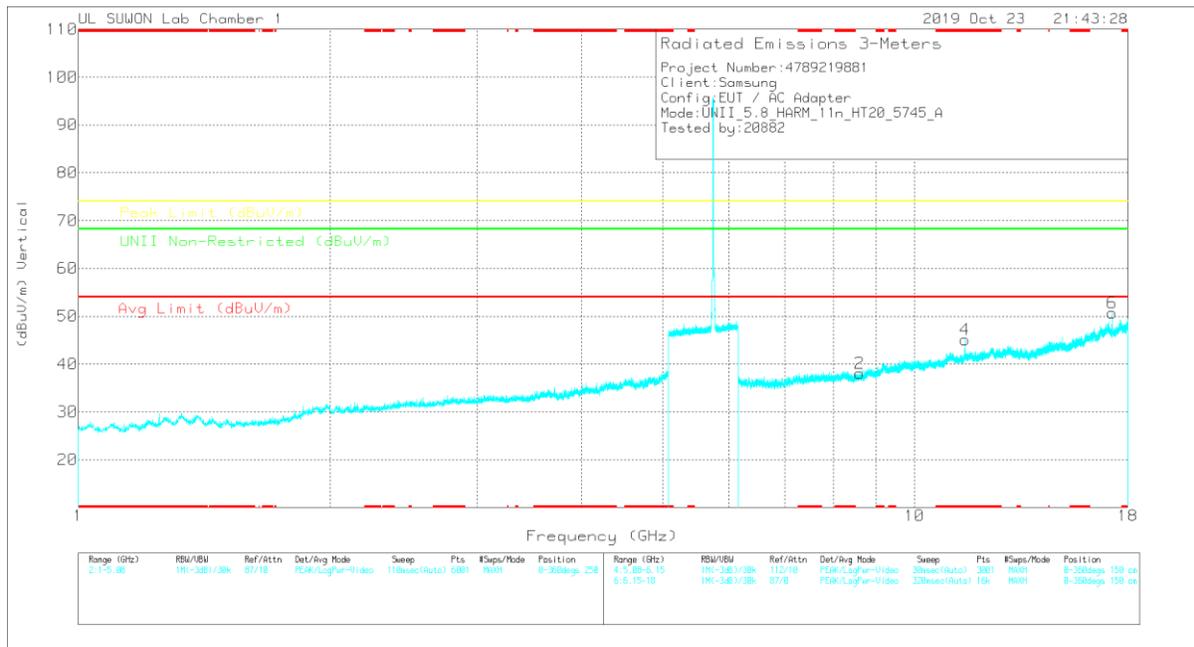
Pk - Peak detector

**HARMONICS AND SPURIOUS EMISSIONS**

**LOW CHANNEL HORIZONTAL**



**LOW CHANNEL VERTICAL**



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

**LOW CHANNEL DATA**

**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	6GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	8.60058	26.27	PK	36.3	-24.5	0	38.07	-	-	-	-	68.2	-30.13	0-360	150	H
3	* 11.48735	26.1	PK	38.5	-22.2	0	42.4	-	-	74	-31.6	-	-	0-360	250	H
5	17.23128	23.7	PK	41.3	-17.5	0	47.5	-	-	-	-	68.2	-20.7	0-360	250	H
2	8.60724	26.42	PK	36.3	-24.7	0	38.02	-	-	-	-	68.2	-30.18	0-360	150	V
4	* 11.4918	29.05	PK	38.5	-22.4	0	45.15	-	-	74	-28.85	-	-	0-360	250	V
6	17.23499	26.99	PK	41.3	-17.6	0	50.69	-	-	-	-	68.2	-17.51	0-360	250	V

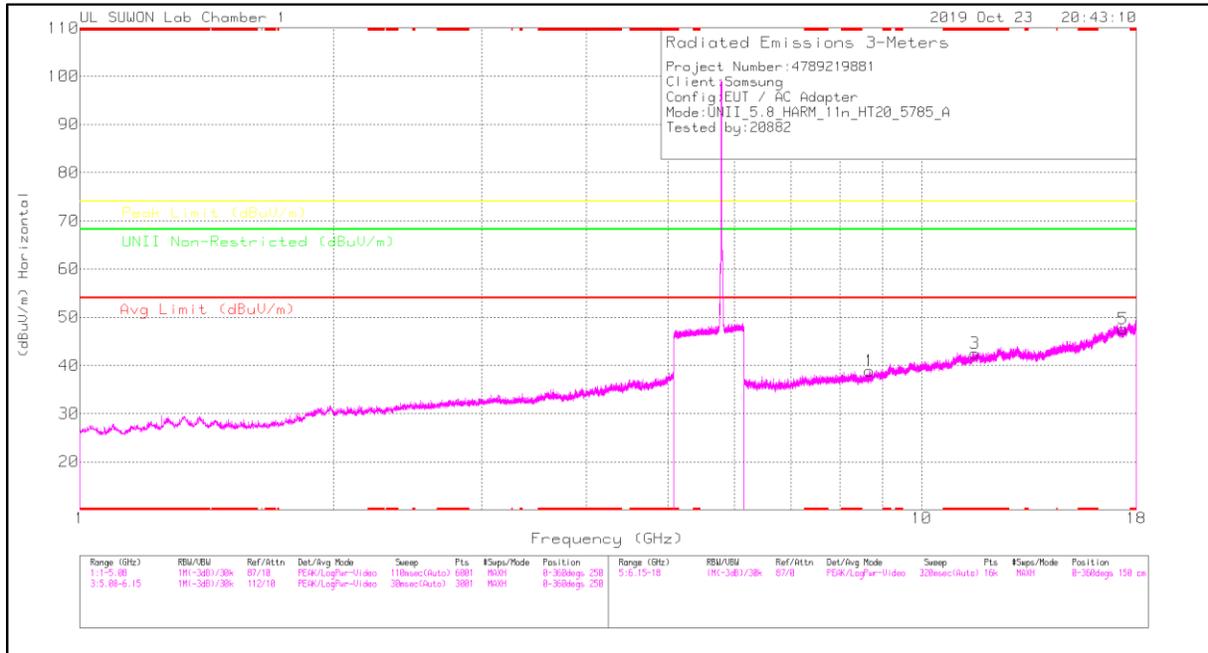
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK – Peak Detector

**Radiated Emissions**

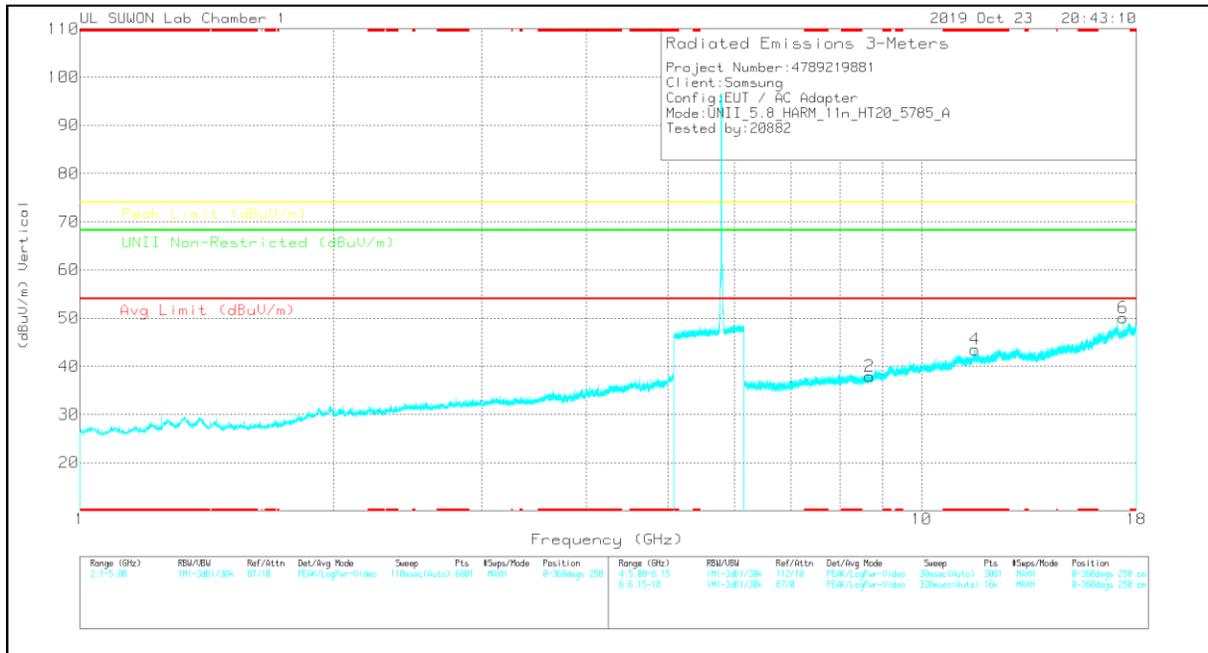
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	6GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
8.60149	37.91	PK-U	36.3	-24.6	0	49.61	-	-	-	-	68.2	-18.59	0	100	H
8.60191	36.55	PK-U	36.3	-24.6	0	48.25	-	-	-	-	68.2	-19.95	0	100	V
* 11.48823	38.16	PK-U	38.5	-22.3	0	54.36	-	-	74	-19.64	-	-	159	100	H
* 11.48811	25.74	ADR	38.5	-22.3	0	41.94	54	-12.06	-	-	-	-	159	100	H
* 11.48959	40.7	PK-U	38.5	-22.3	0	56.9	-	-	74	-17.1	-	-	171	100	V
* 11.48927	28.47	ADR	38.5	-22.3	0	44.67	54	-9.33	-	-	-	-	171	100	V
17.23484	37.41	PK-U	41.3	-17.5	0	61.21	-	-	-	-	68.2	-6.99	159	100	H
17.2394	39.14	PK-U	41.3	-17.6	0	62.84	-	-	-	-	68.2	-5.36	230	293	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK-U - U-NII: Maximum Peak  
 ADR - U-NII AD primary method, RMS average

MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL



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

**MID CHANNEL DATA**

**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	6GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	8.67019	27.72	PK	36.4	-25.3	0	38.82	-	-	-	-	68.2	-29.38	0-360	150	H
3	*11.57844	28.09	PK	38.6	-22.2	0	42.49	-	-	74	-31.51	-	-	0-360	150	H
5	17.36014	24.14	PK	41.2	-17.7	0	47.64	-	-	-	-	68.2	-20.56	0-360	250	H
2	8.67019	26.83	PK	36.4	-25.3	0	37.93	-	-	-	-	68.2	-30.27	0-360	250	V
4	*11.574	27.09	PK	38.6	-22.2	0	43.49	-	-	74	-30.51	-	-	0-360	150	V
6	17.34978	26.7	PK	41.2	-17.8	0	50.1	-	-	-	-	68.2	-18.1	0-360	250	V

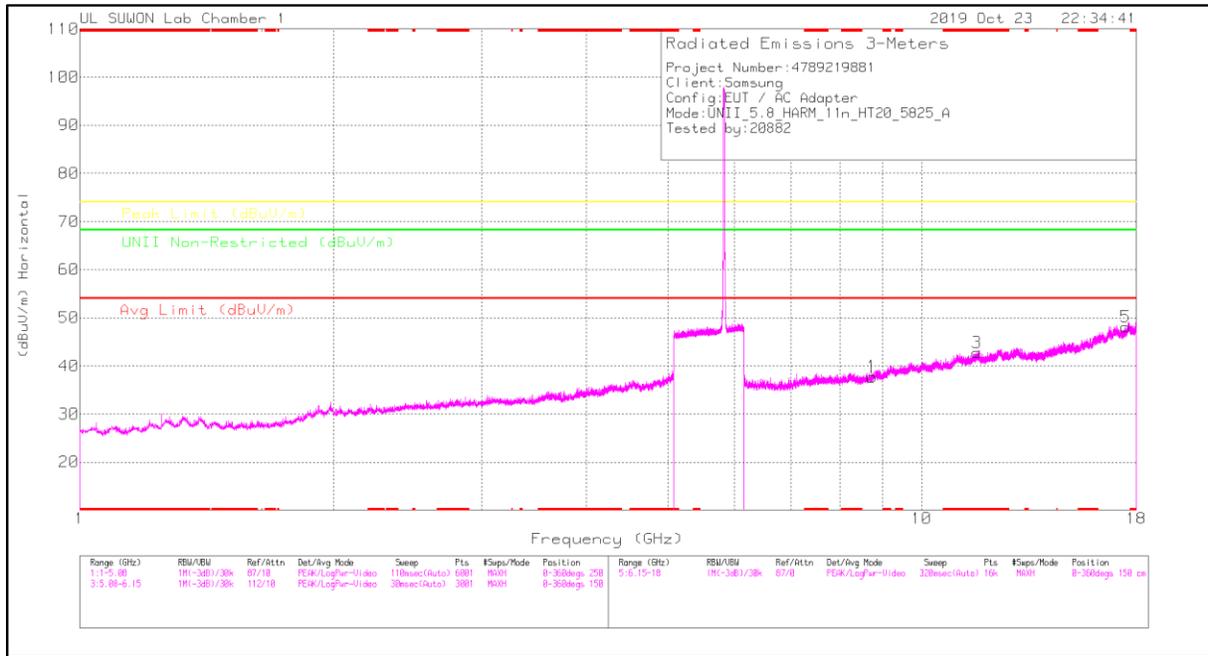
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK – Peak Detector

**Radiated Emissions**

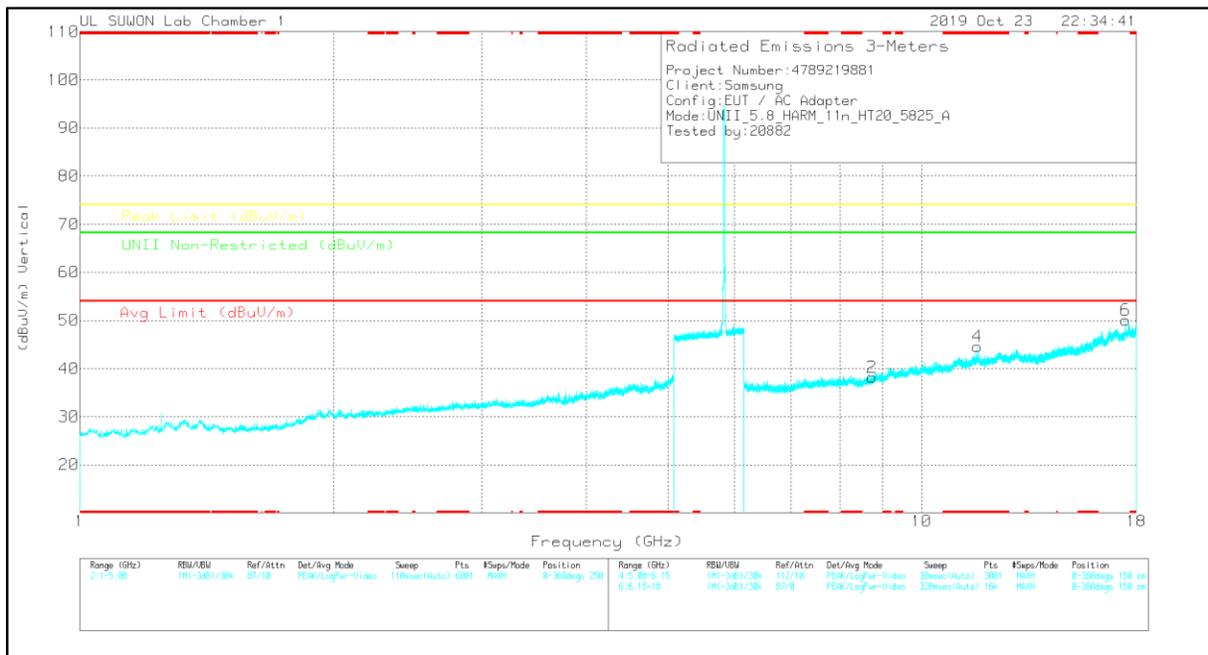
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	6GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
8.67097	36.53	PK-U	36.4	-25.3	0	47.63	-	-	-	-	68.2	-20.57	0	100	H
8.66957	36.81	PK-U	36.4	-25.3	0	47.91	-	-	-	-	68.2	-20.29	0	100	V
*11.56772	38.16	PK-U	38.6	-22.3	0	54.46	-	-	74	-19.54	-	-	162	100	H
*11.57016	25.66	ADR	38.6	-22.3	0	41.96	54	-12.04	-	-	-	-	162	100	H
*11.57184	40.77	PK-U	38.6	-22.3	0	57.07	-	-	74	-16.93	-	-	171	100	V
*11.56932	28.33	ADR	38.6	-22.3	0	44.63	54	-9.37	-	-	-	-	171	100	V
17.35228	36.53	PK-U	41.2	-17.8	0	59.93	-	-	-	-	68.2	-8.27	157	100	H
17.34948	41.53	PK-U	41.2	-17.8	0	64.93	-	-	-	-	68.2	-3.27	177	206	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK-U - U-NII: Maximum Peak  
 ADR - U-NII AD primary method, RMS average

**HIGH CHANNEL HORIZONTAL**



**HIGH CHANNEL VERTICAL**



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

**HIGH CHANNEL DATA**

**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	6GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	8.73684	27.05	PK	36.4	-25.7	0	37.75	-	-	-	-	68.2	-30.45	0-360	150	H
3	* 11.63991	25.96	PK	38.7	-21.9	0	42.76	-	-	74	-31.24	-	-	0-360	250	H
5	17.47271	24.48	PK	41.2	-17.6	0	48.08	-	-	-	-	68.2	-20.12	0-360	250	H
2	8.73684	27.55	PK	36.4	-25.7	0	38.25	-	-	-	-	68.2	-29.95	0-360	150	V
4	* 11.64658	27.75	PK	38.7	-21.9	0	44.55	-	-	74	-29.45	-	-	0-360	250	V
6	17.47493	26.37	PK	41.2	-17.5	0	50.07	-	-	-	-	68.2	-18.13	0-360	250	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK – Peak Detector

**Radiated Emissions**

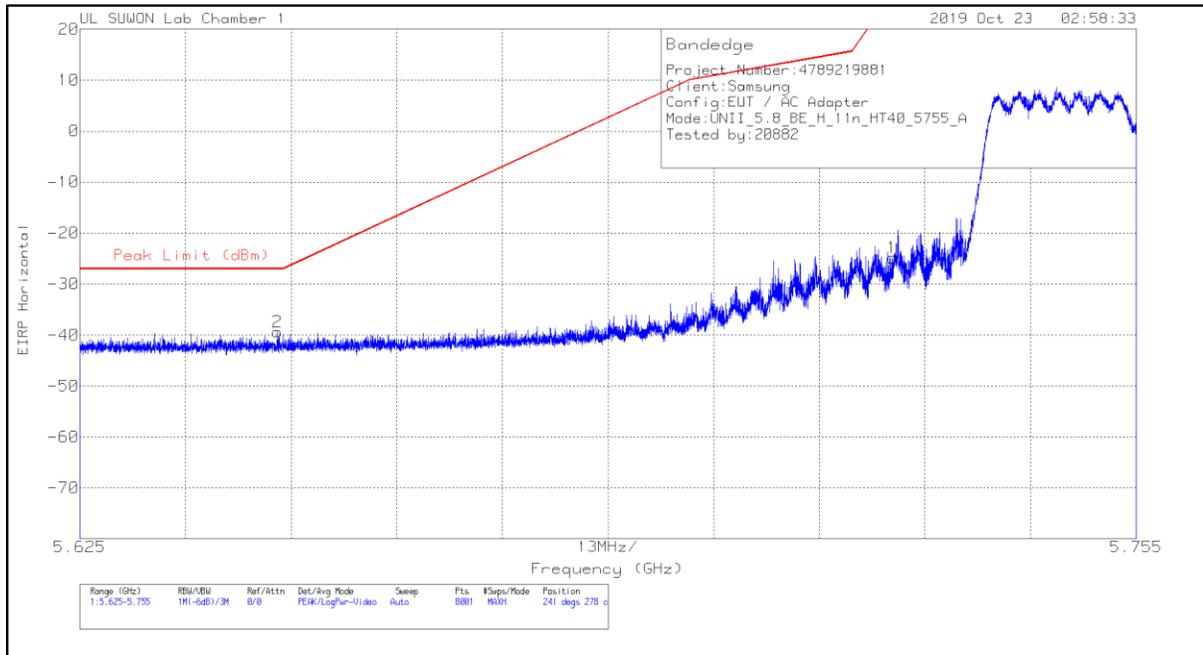
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	6GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
8.73535	37.36	PK-U	36.4	-25.7	0	48.06	-	-	-	-	68.2	-20.14	360	100	H
8.73789	37.3	PK-U	36.4	-25.7	0	48	-	-	-	-	68.2	-20.2	360	100	V
* 11.65071	38.14	PK-U	38.7	-21.9	0	54.94	-	-	74	-19.06	-	-	162	100	H
* 11.65035	25.25	ADR	38.7	-21.9	0	42.05	54	-11.95	-	-	-	-	162	100	H
* 11.64451	40.32	PK-U	38.7	-21.8	0	57.22	-	-	74	-16.78	-	-	171	100	V
* 11.64939	27.9	ADR	38.7	-21.8	0	44.8	54	-9.2	-	-	-	-	171	100	V
17.46959	36.05	PK-U	41.2	-17.6	0	59.65	-	-	-	-	68.2	-8.55	160	100	H
17.47207	40.29	PK-U	41.2	-17.6	0	63.89	-	-	-	-	68.2	-4.31	179	205	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK-U - U-NII: Maximum Peak  
 ADR - U-NII AD primary method, RMS average

**11.4.3. TX ABOVE 1GHz 802.11n HT40 2Tx MODE IN THE 5.8GHz BAND**

**BANDEDGE (LOW CHANNEL)**

**HORIZONTAL PEAK DATA**

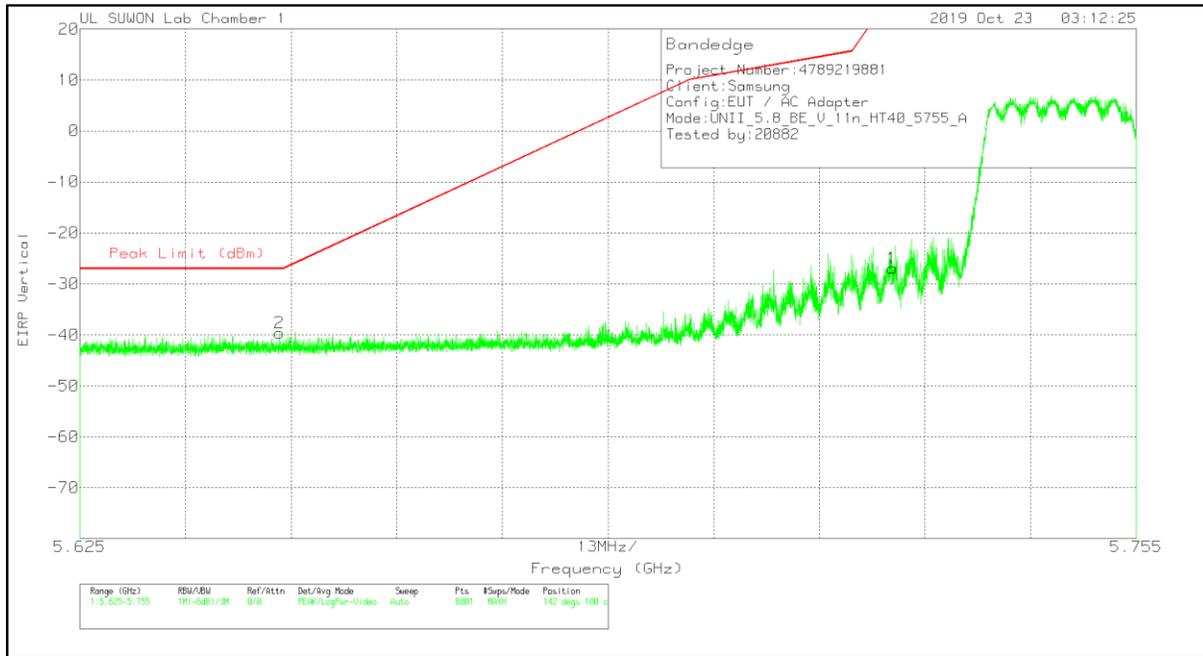


**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117_00168717	10dB_ATT[dB]	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.72499	-50.33	Pk	34.8	-21.1	11.8	0	-24.83	26.97	-51.8	241	278	H
2	5.64936	-64.78	Pk	34.7	-21.1	11.8	0	-39.38	-27	-12.38	241	278	H

Pk - Peak detector

**VERTICAL PEAK DATA**



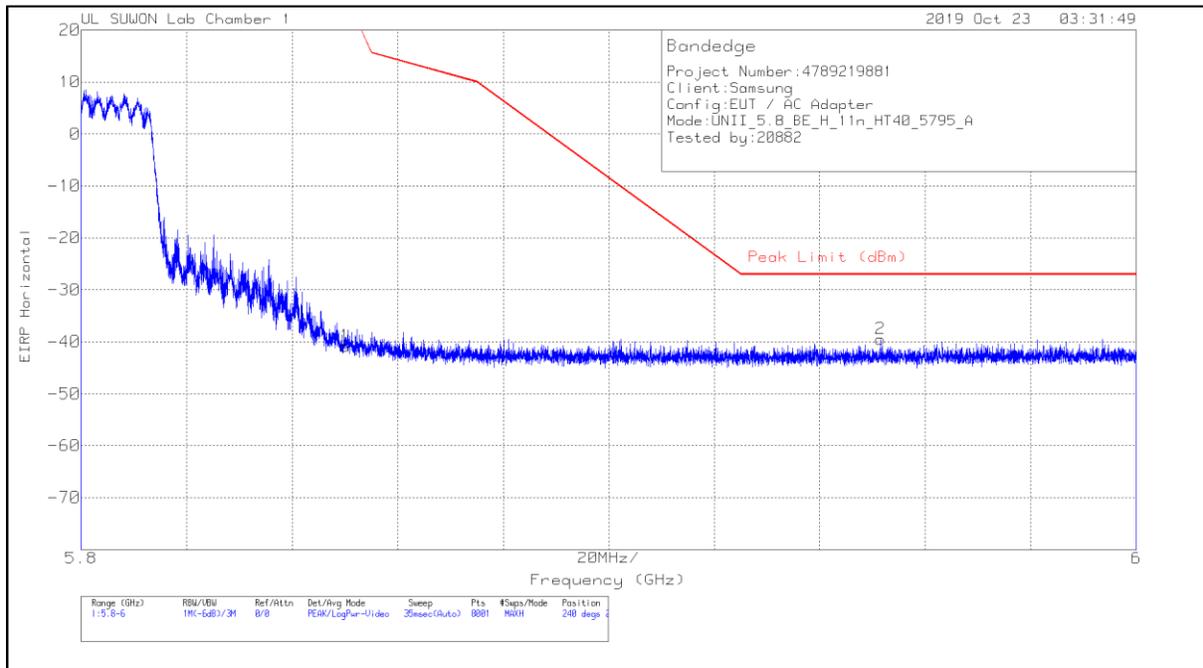
**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117_00168717	10dB_ATT[dB]	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.72498	-52.4	Pk	34.8	-21.1	11.8	0	-26.9	-26.97	-53.87	142	100	V
2	5.64959	-65	Pk	34.7	-21.1	11.8	0	-39.6	-27	-12.6	142	100	V

Pk - Peak detector

**BADEDGE (HIGH CHANNEL)**

**HORIZONTAL PEAK DATA**

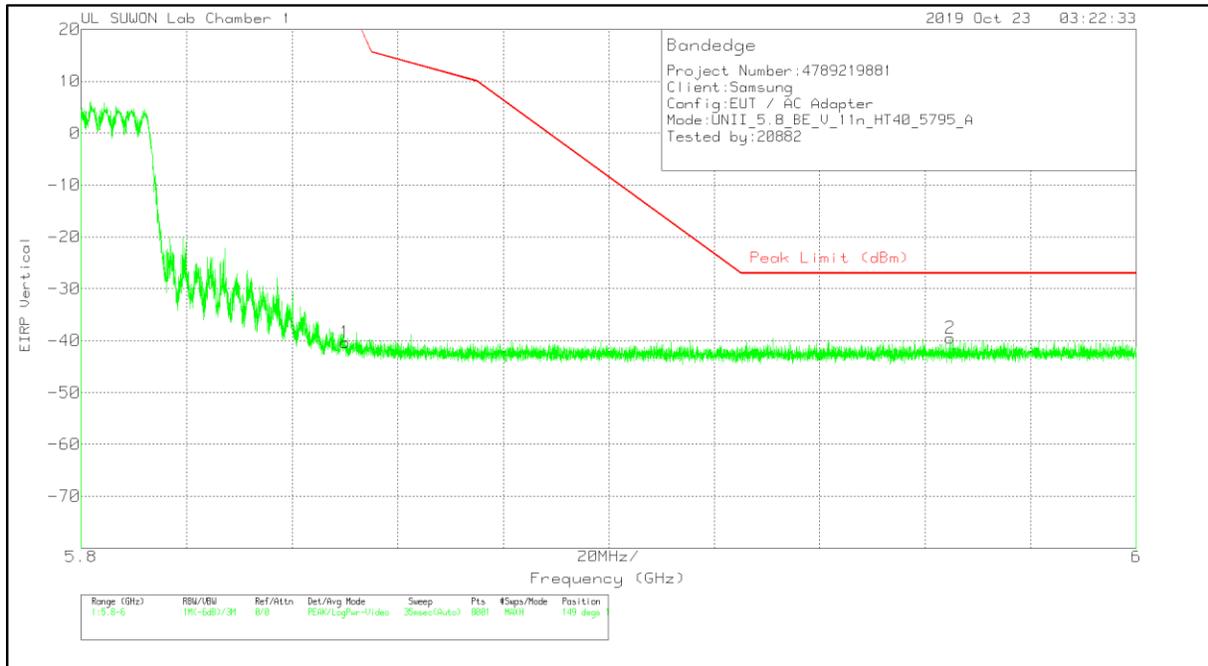


**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117_00168717	10dB_ATT[dB]	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85003	-66.61	Pk	35	-21	11.8	0	-40.81	26.94	-67.75	240	267	H
2	5.9515	-65.56	Pk	35.1	-20.8	11.8	0	-39.46	-27	-12.46	240	267	H

Pk - Peak detector

**VERTICAL PEAK DATA**



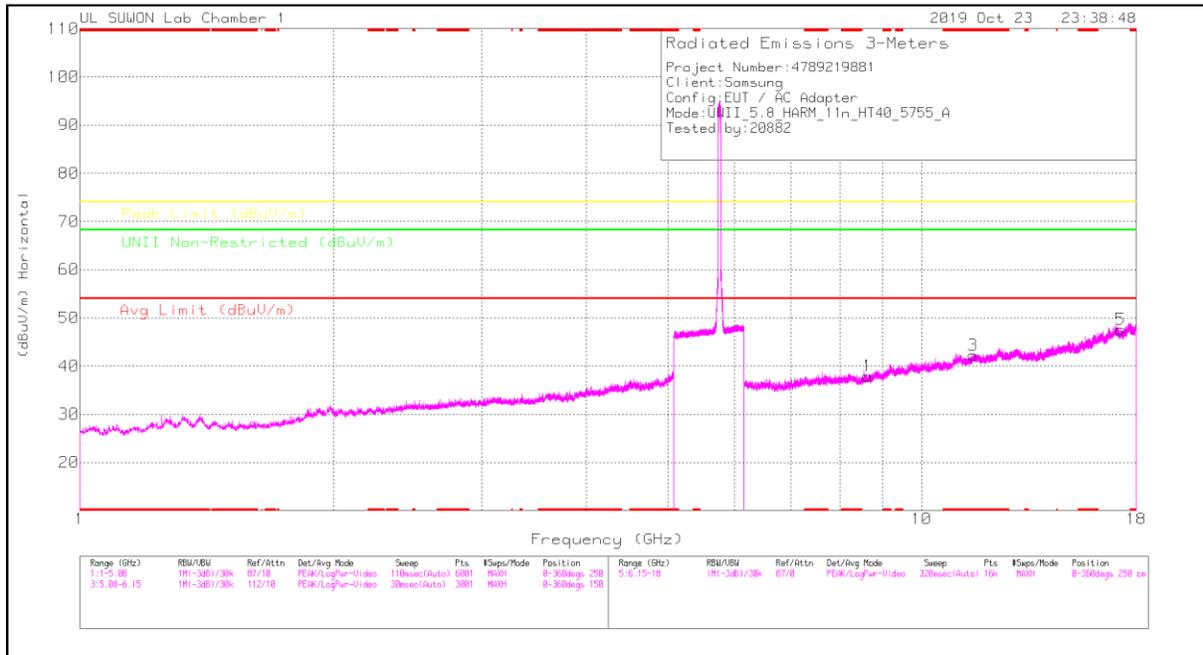
**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117_00168717	10dB_ATT[dB]	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85003	-66.13	Pk	35	-21	11.8	0	-40.33	26.94	-67.27	149	101	V
2	5.96473	-65.68	Pk	35.1	-20.7	11.8	0	-39.48	-27	-12.48	149	101	V

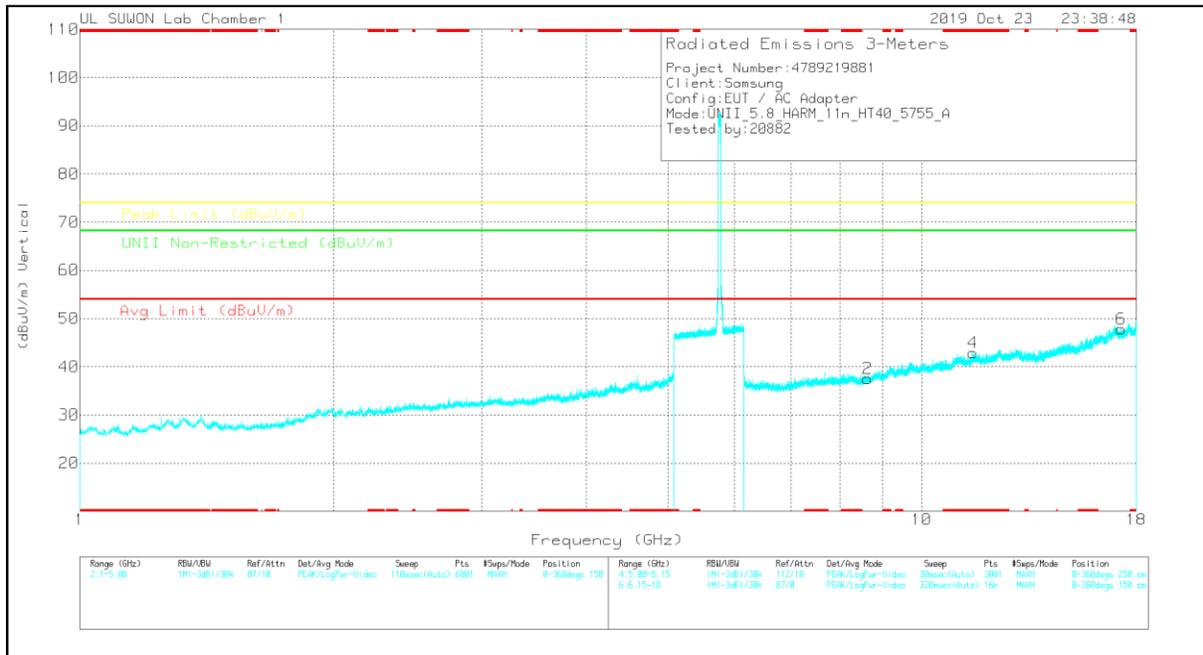
Pk - Peak detector

**HARMONICS AND SPURIOUS EMISSIONS**

**LOW CHANNEL HORIZONTAL**



**LOW CHANNEL VERTICAL**



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

**LOW CHANNEL DATA**

**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	6GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	8.63612	26.69	PK	36.3	-25	0	37.99	-	-	-	-	68.2	-30.21	0-360	150	H
3	* 11.52512	26.29	PK	38.5	-22.5	0	42.29	-	-	74	-31.71	-	-	0-360	250	H
5	17.24684	23.74	PK	41.3	-17.5	0	47.54	-	-	-	-	68.2	-20.66	0-360	250	H
2	8.63464	26.29	PK	36.3	-25	0	37.59	-	-	-	-	68.2	-30.61	0-360	150	V
4	* 11.50957	26.77	PK	38.5	-22.4	0	42.87	-	-	74	-31.13	-	-	0-360	250	V
6	17.26017	24	PK	41.3	-17.4	0	47.9	-	-	-	-	68.2	-20.3	0-360	250	V

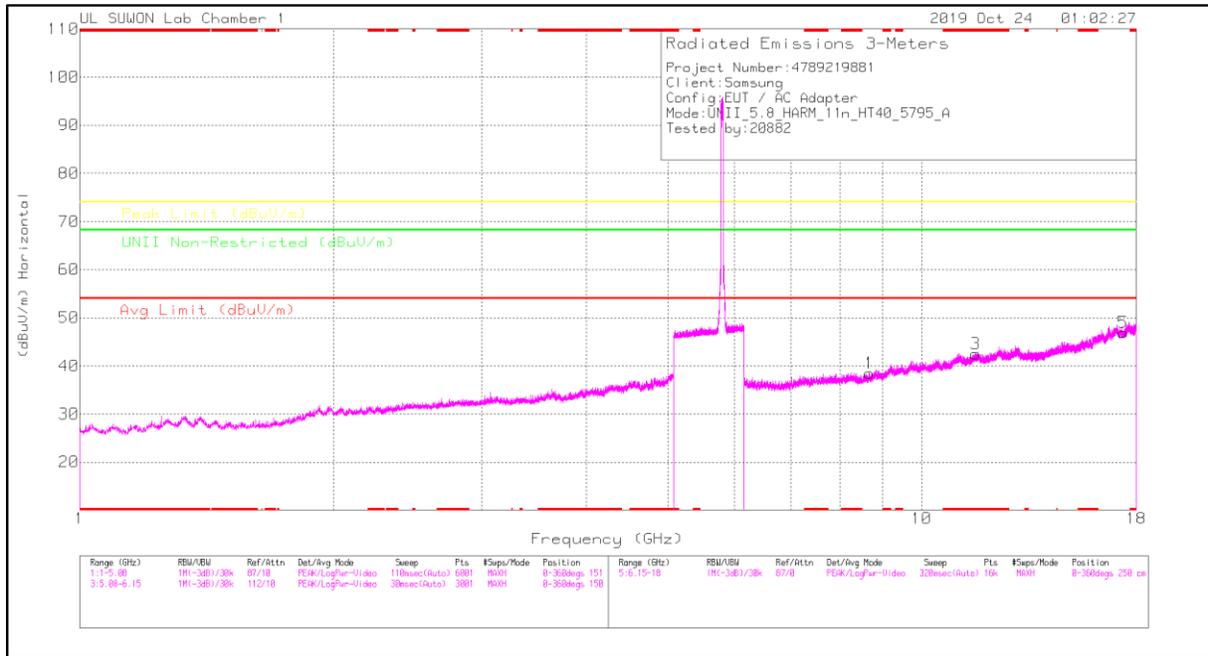
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK – Peak Detector

**Radiated Emissions**

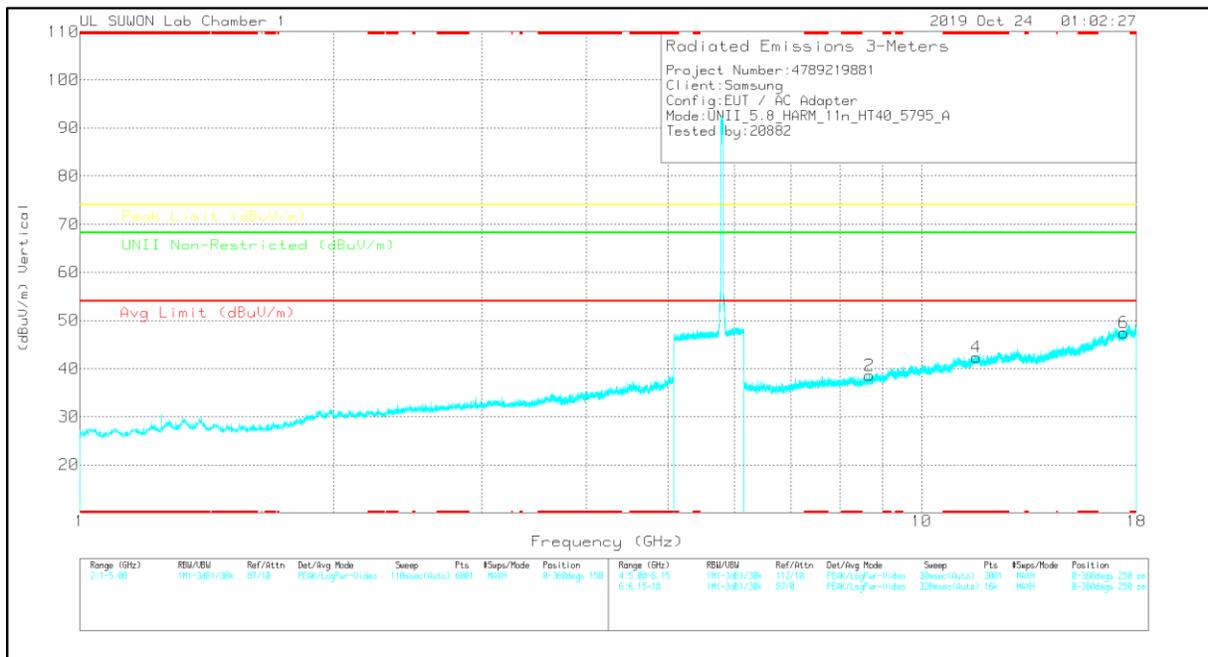
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	6GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
8.63679	36.67	PK-U	36.3	-25	0	48.17	-	-	-	-	68.2	-20.03	0	100	H
8.6367	36.58	PK-U	36.3	-25	0	47.88	-	-	-	-	68.2	-20.32	0	100	V
* 11.52418	35.48	PK-U	38.5	-22.5	0	51.48	-	-	74	-22.52	-	-	0	100	H
* 11.52405	36	PK-U	38.5	-22.5	0	52	-	-	74	-22	-	-	0	100	V
17.24505	34.34	PK-U	41.3	-17.5	0	58.14	-	-	-	-	68.2	-10.06	0	100	H
17.24681	34.32	PK-U	41.3	-17.5	0	58.12	-	-	-	-	68.2	-10.08	0	100	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK-U - U-NII: Maximum Peak  
 ADR - U-NII AD primary method, RMS average

**HIGH CHANNEL HORIZONTAL**



**HIGH CHANNEL VERTICAL**



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

**HIGH CHANNEL DATA**

**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	6GHz_HP[dB ]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	8.67537	27.55	PK	36.4	-25.5	0	38.45	-	-	-	-	68.2	-29.75	0-360	150	H
3	* 11.59844	25.96	PK	38.6	-22	0	42.56	-	-	74	-31.44	-	-	0-360	150	H
5	17.37422	23.39	PK	41.2	-17.6	0	46.99	-	-	-	-	68.2	-21.21	0-360	150	H
2	8.67463	27.68	PK	36.4	-25.5	0	38.58	-	-	-	-	68.2	-29.62	0-360	250	V
4	* 11.60733	25.82	PK	38.6	-22	0	42.42	-	-	74	-31.58	-	-	0-360	250	V
6	17.38236	23.91	PK	41.2	-17.7	0	47.41	-	-	-	-	68.2	-20.79	0-360	250	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK – Peak Detector

**Radiated Emissions**

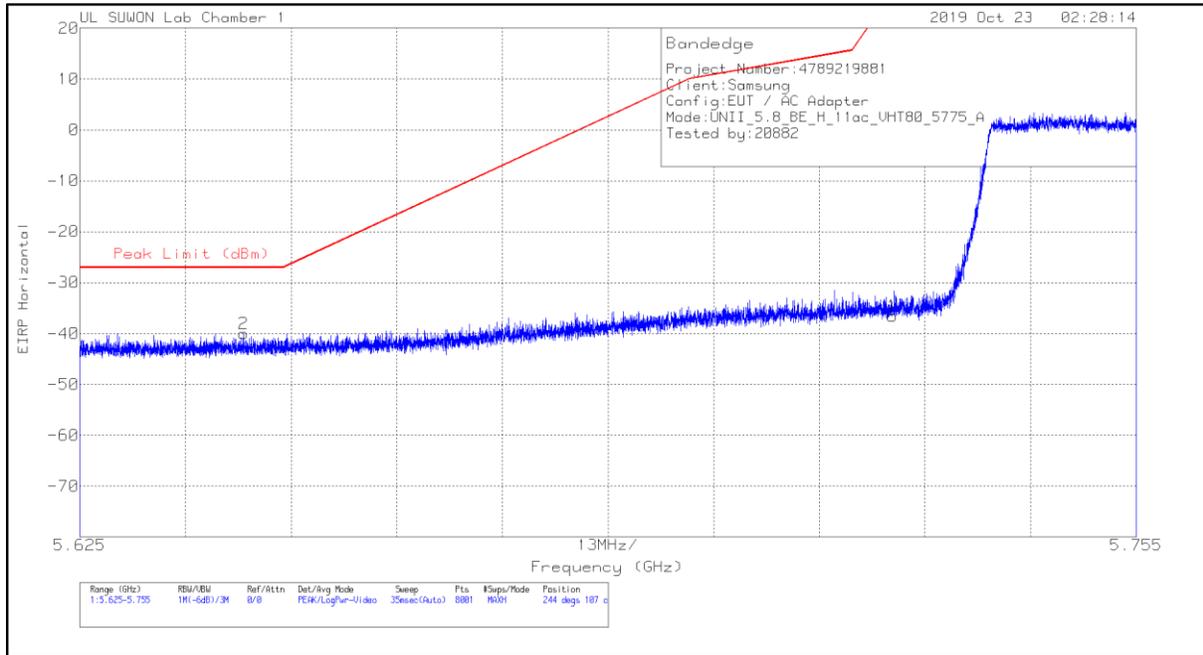
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	6GHz_HP[dB ]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
8.67441	37	PK-U	36.4	-25.5	0	47.9	-	-	-	-	68.2	-20.3	0	100	H
8.67371	37.05	PK-U	36.4	-25.5	0	47.95	-	-	-	-	68.2	-20.25	0	100	V
* 11.59695	34.92	PK-U	38.6	-22.1	0	51.42	-	-	74	-22.58	-	-	0	100	H
* 11.59668	35.32	PK-U	38.6	-22.1	0	51.82	-	-	74	-22.18	-	-	0	100	V
17.3727	34.07	PK-U	41.2	-17.6	0	57.67	-	-	-	-	68.2	-10.53	0	100	H
17.37342	34.21	PK-U	41.2	-17.6	0	57.81	-	-	-	-	68.2	-10.39	0	100	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK-U - U-UNII: Maximum Peak

**11.4.4. TX ABOVE 1GHz 802.11ac VHT80 2Tx MODE IN THE 5.8GHz BAND**

**BANDEDGE (Lower side)**

**HORIZONTAL PEAK DATA**

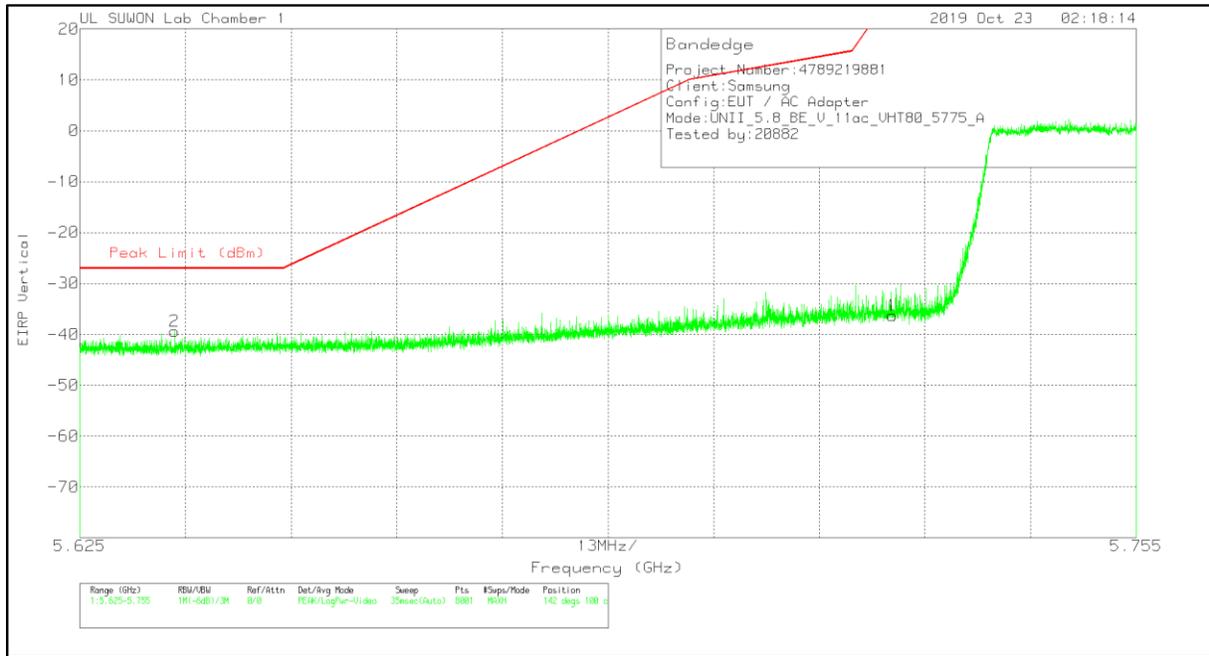


**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117_00168717	10dB_ATT[dB]	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.72499	-62.07	Pk		-21.1	11.8	0	-36.57	-26.97	-63.54	244	107	H
2	5.64513	-65.45	Pk		-21	11.8	0	-39.95	-27	-12.95	244	107	H

PK - Peak detector

**VERTICAL PEAK DATA**



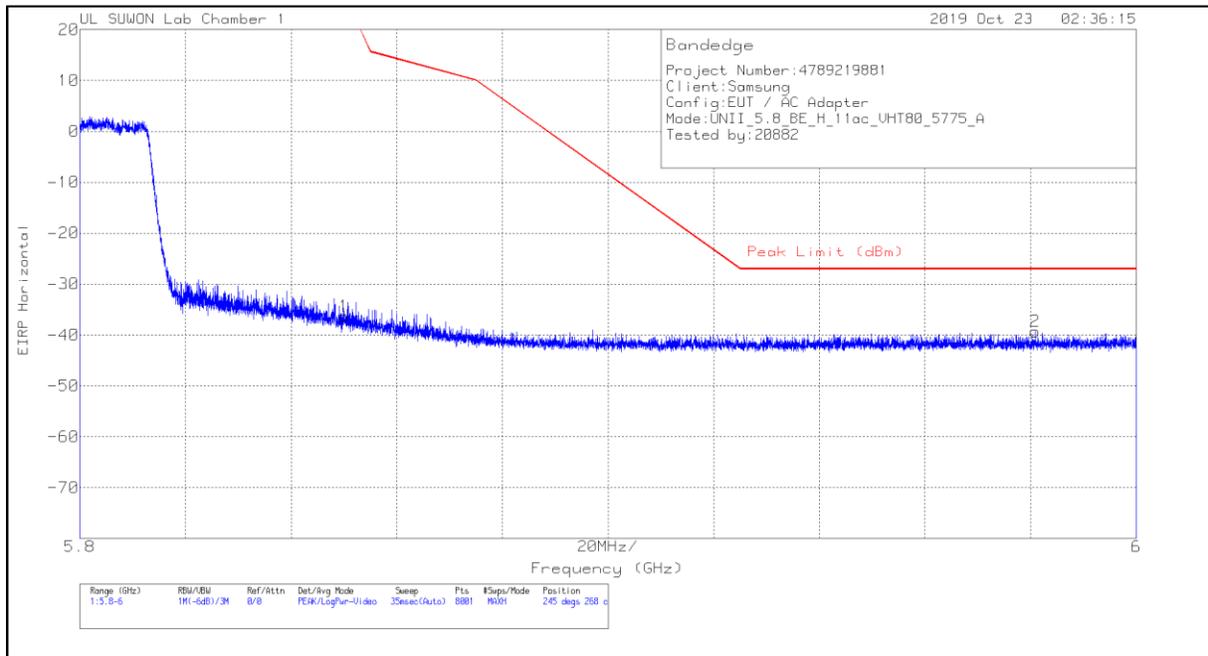
**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117_00168717	10dB_ATT[dB]	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity	
1	5.72499	-61.81	Pk		34.8	-21.1	11.8	0	-36.31	26.97	-63.28	142	100	V
2	5.63664	-64.84	Pk		34.7	-21.1	11.8	0	-39.44	-27	-12.44	142	100	V

Pk - Peak detector

**BADEDGE (Upper side)**

**HORIZONTAL PEAK DATA**

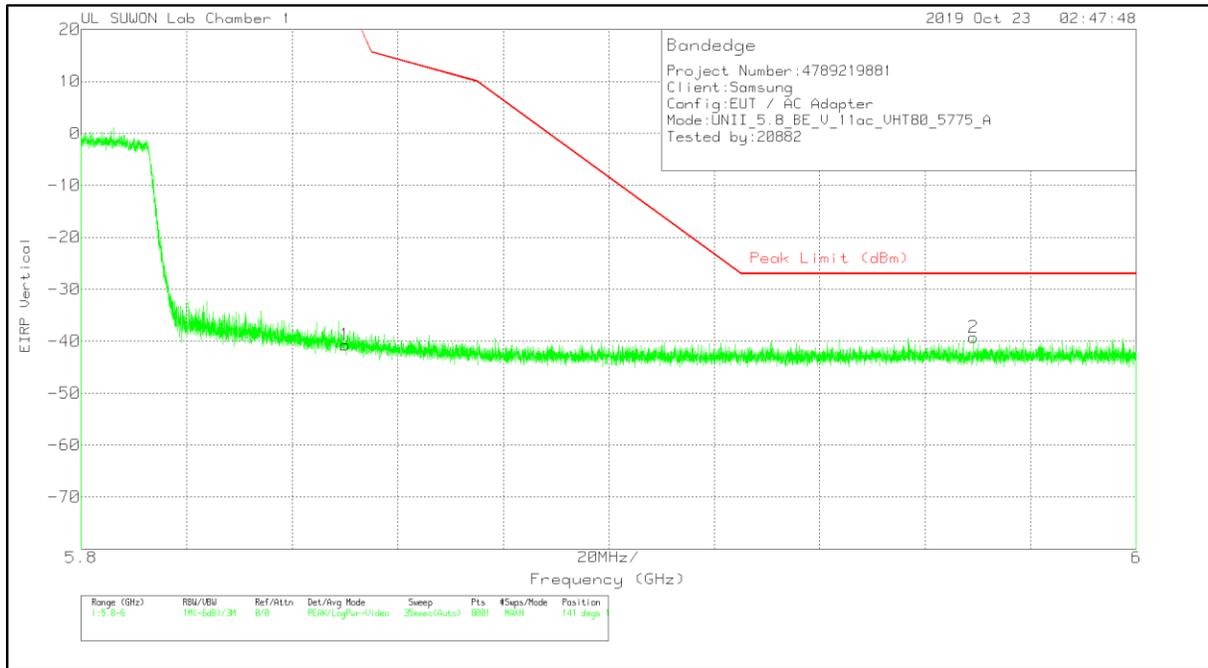


**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117_00168717	10dB_ATT[dB]	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85003	-62.11	Pk	35	-21	11.8	0	-36.31	-26.94	-63.25	245	268	H
2	5.98088	-65.62	Pk	35.1	-20.6	11.8	0	-39.32	-27	-12.32	245	268	H

PK - Peak detector

VERTICAL PEAK DATA



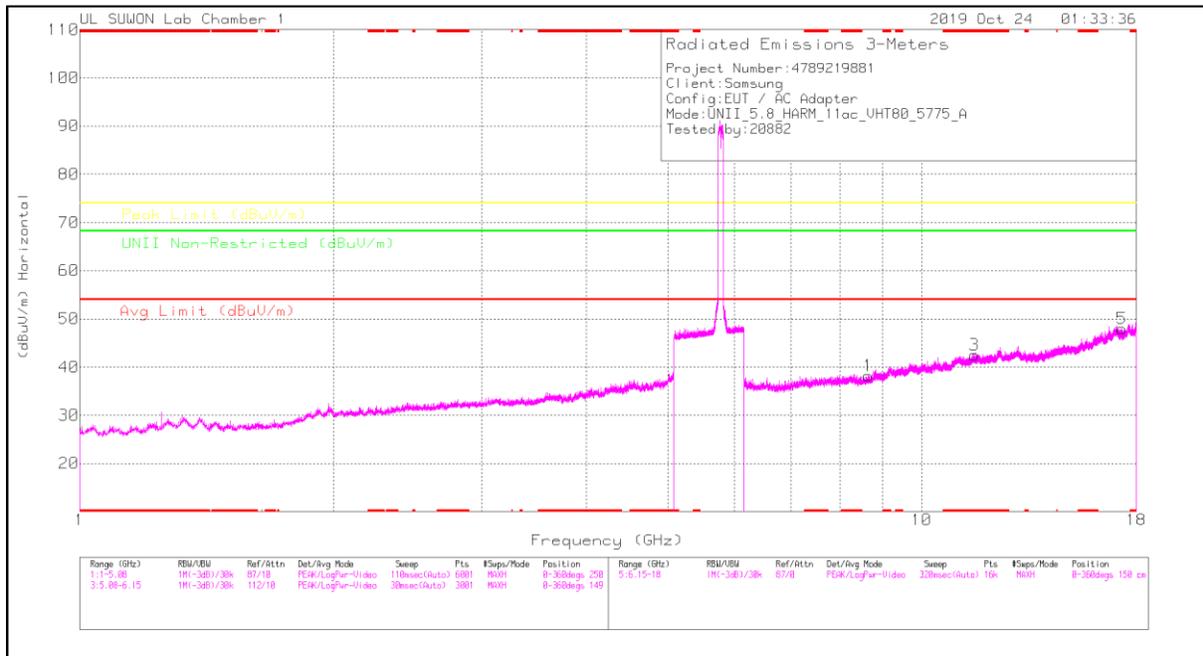
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117_00168717	10dB_ATT[dB]	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85003	-66.48	Pk	35	-21	11.8	0	-40.68	-26.94	-67.62	141	101	V
2	5.96913	-65.44	Pk	35.1	-20.7	11.8	0	-39.24	-27	-12.24	141	101	V

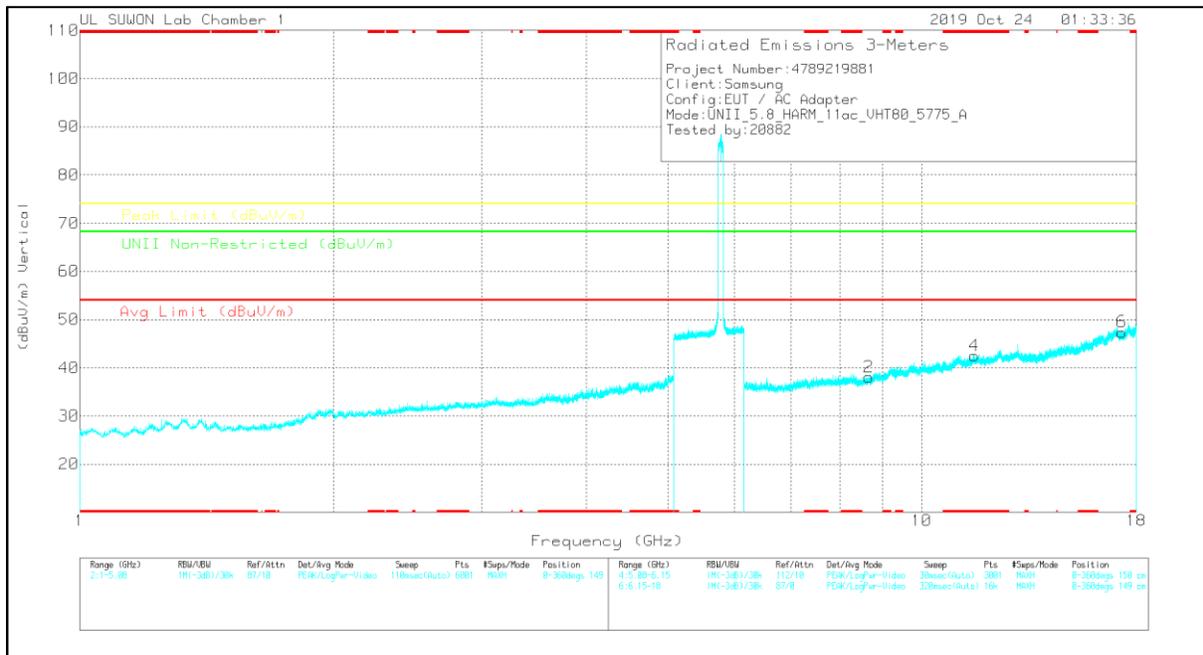
Pk - Peak detector

**HARMONICS AND SPURIOUS EMISSIONS**

**MID CHANNEL HORIZONTAL**



**MID CHANNEL VERTICAL**



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

**MID CHANNEL DATA**

**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	6GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	8.64945	26.91	PK	36.3	-25	0	38.21	-	-	-	-	68.2	-29.99	0-360	250	H
3	* 11.54882	26.32	PK	38.5	-22.3	0	42.52	-	-	74	-31.48	-	-	0-360	150	H
5	17.30756	24.32	PK	41.3	-17.6	0	48.02	-	-	-	-	68.2	-20.18	0-360	250	H
2	8.66056	26.62	PK	36.4	-25	0	38.02	-	-	-	-	68.2	-30.18	0-360	250	V
4	* 11.55475	26.3	PK	38.6	-22.4	0	42.5	-	-	74	-31.5	-	-	0-360	149	V
6	17.30386	23.7	PK	41.3	-17.6	0	47.4	-	-	-	-	68.2	-20.8	0-360	149	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK – Peak Detector

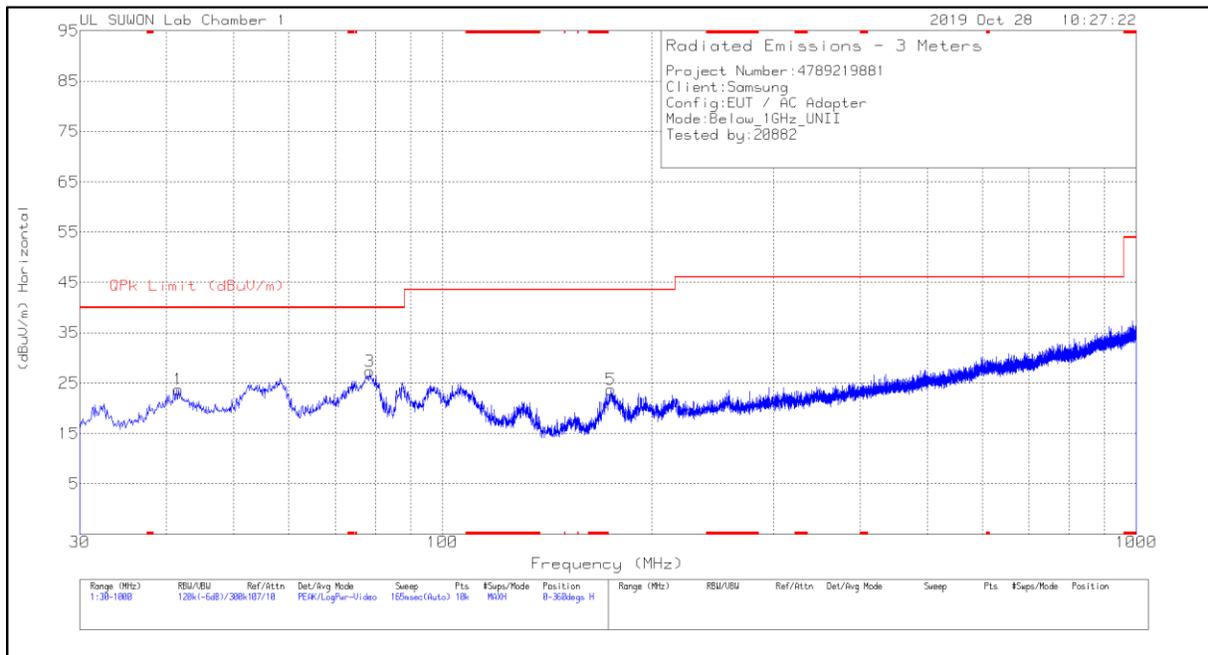
**Radiated Emissions**

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	6GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
8.65118	36.21	PK-U	36.4	-25	0	47.61	-	-	-	-	68.2	-20.59	0	100	H
8.65086	37.18	PK-U	36.4	-25	0	48.58	-	-	-	-	68.2	-19.62	0	100	V
* 11.54736	35.86	PK-U	38.5	-22.3	0	52.06	-	-	74	-21.94	-	-	0	100	H
* 11.54964	35.78	PK-U	38.5	-22.3	0	51.98	-	-	74	-22.02	-	-	0	100	V
17.30895	34.27	PK-U	41.3	-17.6	0	57.97	-	-	-	-	68.2	-10.23	0	100	H
17.30934	35.12	PK-U	41.3	-17.6	0	58.82	-	-	-	-	68.2	-9.38	0	100	V

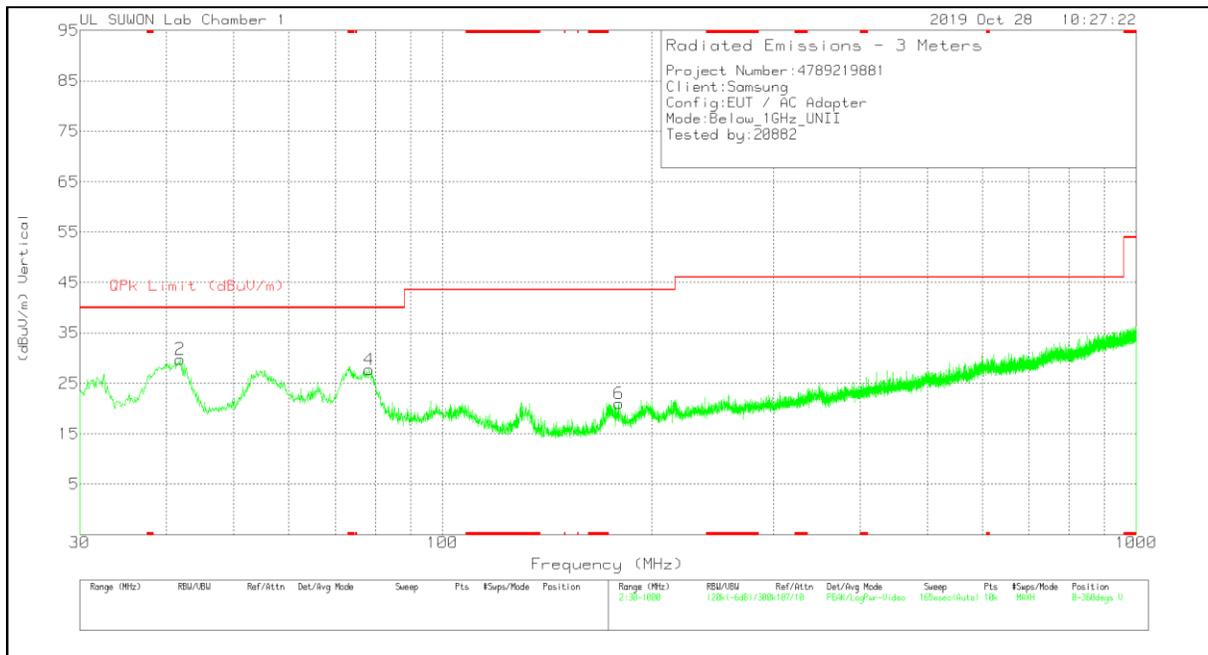
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK-U - U-NII: Maximum Peak

## 12. WORST-CASE BELOW 1 GHz

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



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



**Below 1G Data**

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	41.64	34.38	Pk	19.1	-29.7	0	23.78	40	-16.22	0-360	300	H
3	78.597	43.71	Pk	12.6	-29	0	27.31	40	-12.69	0-360	200	H
5	174.918	36.34	Pk	15.1	-27.7	0	23.74	43.52	-19.78	0-360	100	H
2	41.834	40.39	Pk	19.1	-29.7	0	29.79	40	-10.21	0-360	100	V
4	78.306	44.08	Pk	12.7	-29	0	27.78	40	-12.22	0-360	200	V
6	179.477	33.22	Pk	15.5	-27.7	0	21.02	43.52	-22.5	0-360	100	V

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

Pk - Peak detector

### 13. AC POWER LINE CONDUCTED EMISSIONS

#### LIMITS

FCC §15.207 (a)  
IC RSS-GEN Clause 8.8

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.

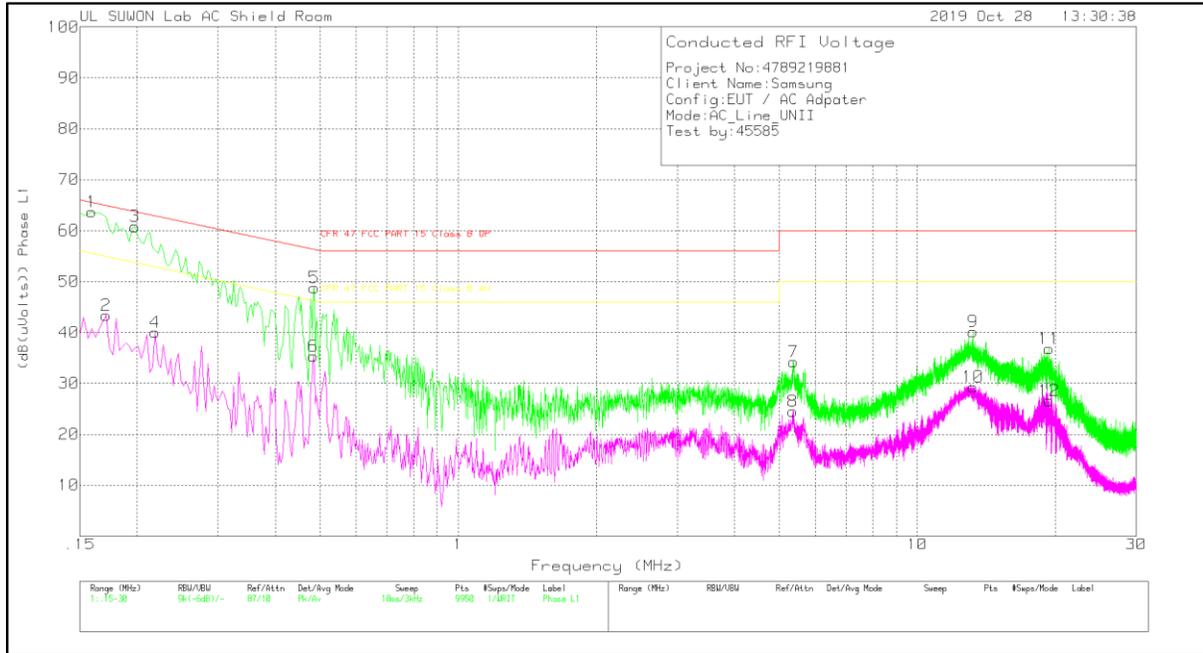
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

#### RESULTS

**WORST EMISSIONS**

**LINE 1 DATA**



**Trace Markers**

Range 1: Phase L1 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_101836_With ex-cord_L1	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
1	.159	53.71	Pk	9.9	.1	63.71	65.52	-1.81	-	-
2	.171	33.09	Av	10.1	.2	43.39	-	-	54.91	-11.52
3	.198	50.69	Pk	9.9	.2	60.79	63.69	-2.9	-	-
4	.219	29.98	Av	9.8	.2	39.98	-	-	52.86	-12.88
5	.486	38.62	Pk	9.9	.2	48.72	56.24	-7.52	-	-
6	.483	25.29	Av	9.9	.2	35.39	-	-	46.29	-10.9
7	5.373	24.14	Pk	9.8	.3	34.24	60	-25.76	-	-
8	5.367	14.41	Av	9.8	.3	24.51	-	-	50	-25.49
9	13.248	29.66	Pk	10.1	.4	40.16	60	-19.84	-	-
10	13.248	18.83	Av	10.1	.4	29.33	-	-	50	-20.67
11	19.377	26.11	Pk	10.3	.4	36.81	60	-23.19	-	-
12	19.344	16	Av	10.2	.4	26.6	-	-	50	-23.4

Pk - Peak detector

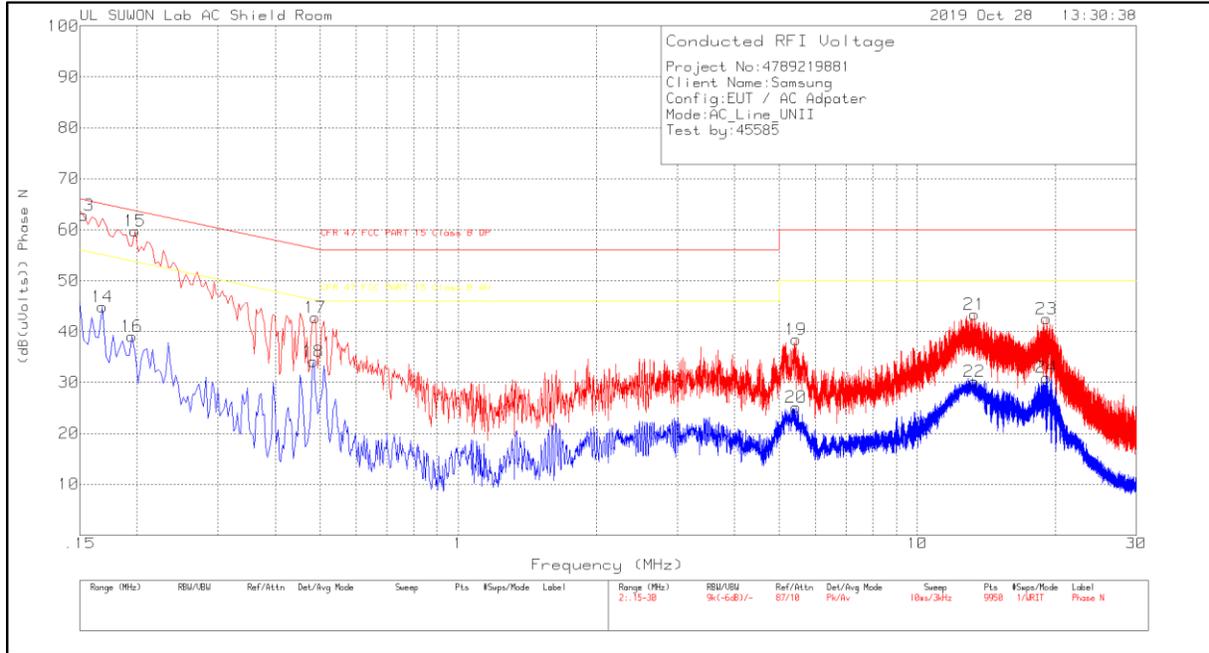
Av - Average detection

**Quasi-Peak Emissions**

Range 1: Phase L1 .15 - 30MHz									
Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With Ex_L1[dB]	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
.15915	45.51	Qp	9.9	.1	55.51	65.51	-10	-	-
.19815	42.51	Qp	9.9	.2	52.61	63.69	-11.08	-	-

Qp - Quasi-Peak detector

**LINE 2 DATA**



**Trace Markers**

Range 2: Phase N .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_101836_With ex-cord_N	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
13	.153	52.9	Pk	9.8	.1	62.8	65.84	-3.04	-	-
14	.168	34.73	Av	10	.1	44.83	-	-	55.06	-10.23
15	.198	49.66	Pk	9.9	.2	59.76	63.69	-3.93	-	-
16	.195	28.95	Av	9.9	.2	39.05	-	-	53.82	-14.77
17	.489	32.6	Pk	9.9	.2	42.7	56.18	-13.48	-	-
18	.483	23.96	Av	9.9	.2	34.06	-	-	46.29	-12.23
19	5.442	28.3	Pk	9.8	.3	38.4	60	-21.6	-	-
20	5.442	15.07	Av	9.8	.3	25.17	-	-	50	-24.83
21	13.314	32.83	Pk	10.1	.4	43.33	60	-16.67	-	-
22	13.317	19.66	Av	10.1	.4	30.16	-	-	50	-19.84
23	19.128	31.82	Pk	10.3	.4	42.52	60	-17.48	-	-
24	19.128	20.27	Av	10.3	.4	30.97	-	-	50	-19.03

Pk - Peak detector

Av - Average detection

**Quasi-Peak Emissions**

Range 2: Phase N .15 - 30MHz									
Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_N[dB]	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
.15315	47.61	Qp	9.8	.1	57.51	65.83	-8.32	-	-
.19875	41.33	Qp	9.9	.2	51.43	63.66	-12.23	-	-

Qp - Quasi-Peak detector

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## 14. DYNAMIC FREQUENCY SELECTION

### 14.1. OVERVIEW

#### 14.1.1. LIMITS

#### 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)
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	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  <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.  <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.  <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.  <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**

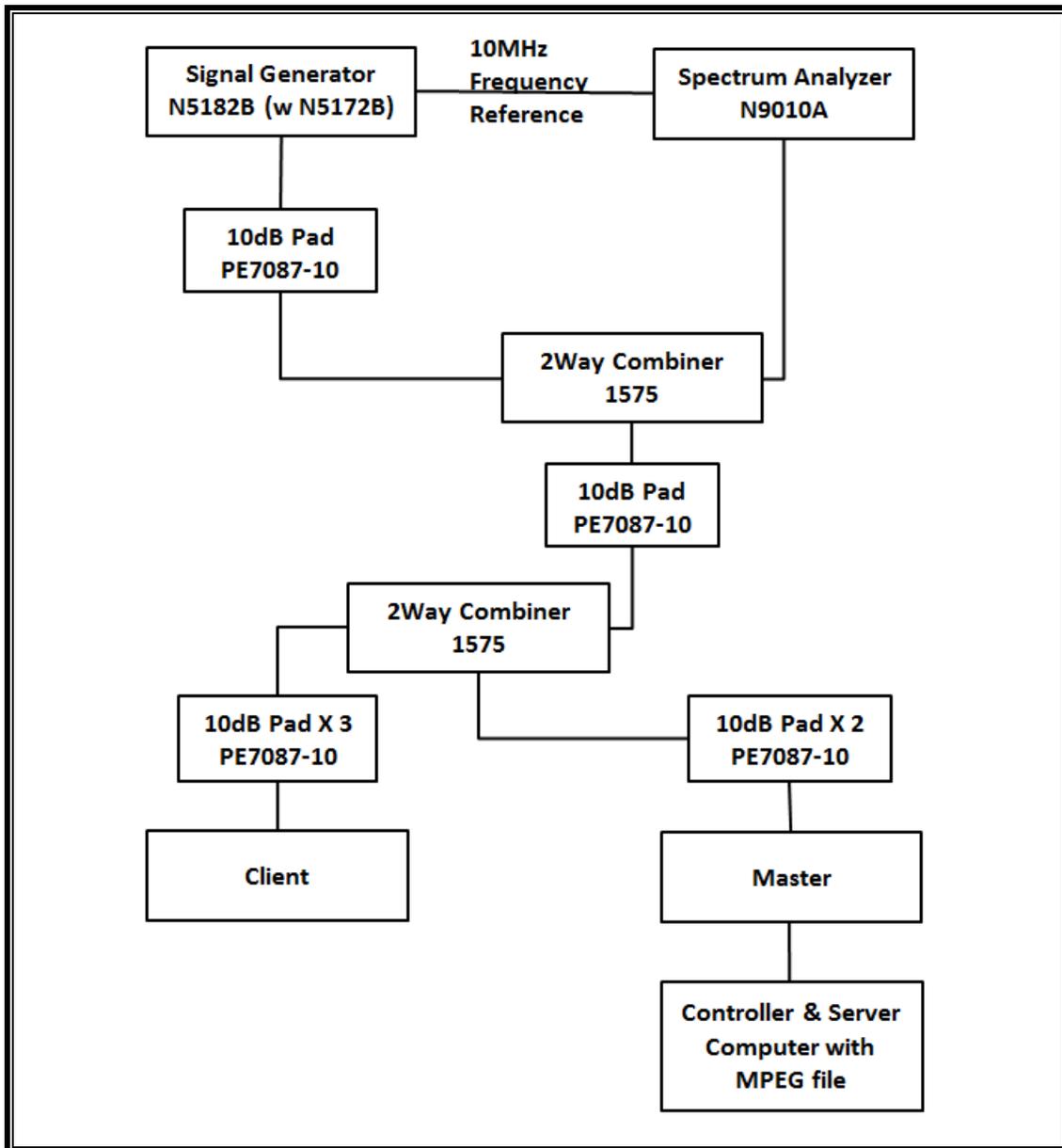
Radar Waveform Type	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

**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

#### CONDUCTED METHOD SYSTEM BLOCK DIAGRAM



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## **SYSTEM OVERVIEW**

The short pulse and long pulse signal generating system utilizes the Keysite Signal Studio for Pulse Building as N5172B. 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.

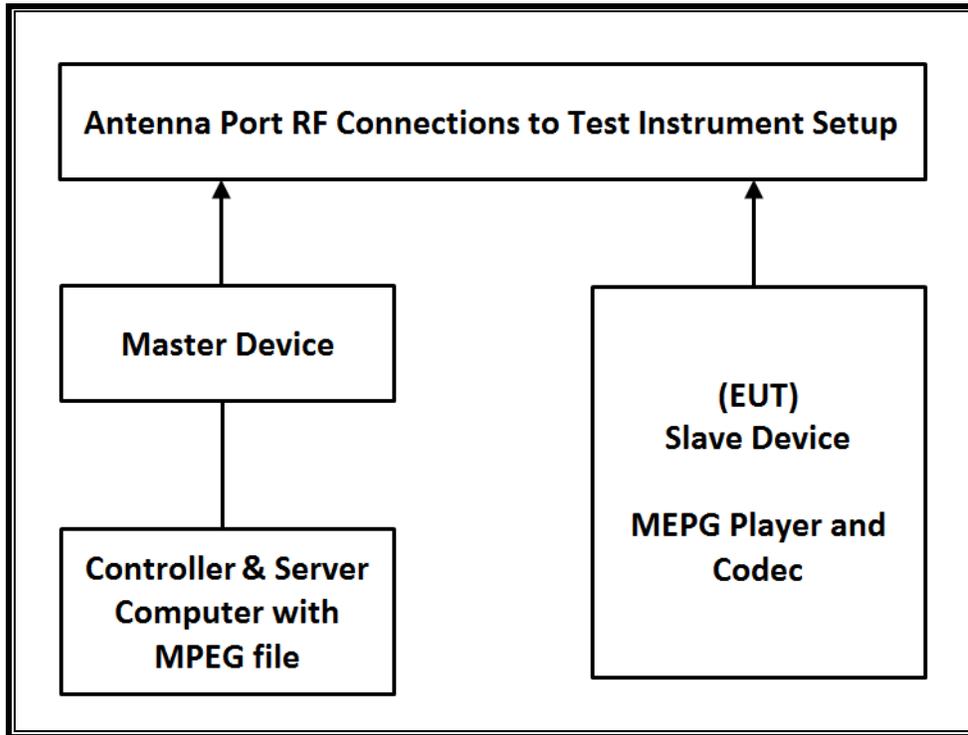
**TEST AND MEASUREMENT EQUIPMENT**

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

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	S/N	Next Cal Due
Spectrum Analyzer, 7 GHz	Agilent / HP	N9010A	MY54200580	08-07-20
Vector Signal Generator, 6GHz	Agilent / HP	N5182B	MY53051241	08-06-20
Combiner	AEROFLEX/WEINSCHEL	1575	2150	08-08-20
Combiner	AEROFLEX/WEINSCHEL	1575	2781	08-08-20

**14.1.3. SETUP OF EUT**

**CONDUCTED METHOD EUT TEST SETUP**



**SUPPORT EQUIPMENT**

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

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Wireless Access Point	Cisco	AIR-CAP3702E-A-K9	FTX182276QX	LDK102087
Notebook PC (Controller/Server)	HP	HP EliteDesk 800 G1 TWR	CZC4125J25	DoC

#### **14.1.4. DESCRIPTION OF EUT**

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

The EUT is a Slave Device without Radar Detection.

The highest power level within these bands is 16.28 dBm in the 5250-5350 MHz band and 15.70 dBm in the 5470-5725 MHz band.

The antenna assembly utilized two antenna.

Gain of ANT1 : -11.70 dBi for UNII 2A and -12.00 dBi for UNII 2C.

Gain of ANT2 : -8.89 dBi for UNII 2A and -8.05 dBi for UNII 2C.

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 conducted 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 that meets or exceeds the minimum required loading was generated by transferring a data stream from the controller/server PC to the EUT using iPerf version 2.0.5 software package.

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 access point is 12.4(25d)JA1.

#### **UNIFORM CHANNEL SPREADING**

This requirement is not applicable to Slave radio devices.

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

The Master Device is a Cisco Access Point, FCC ID: LDK102087. The minimum antenna gain for the Master Device is 6 dBi.

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

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

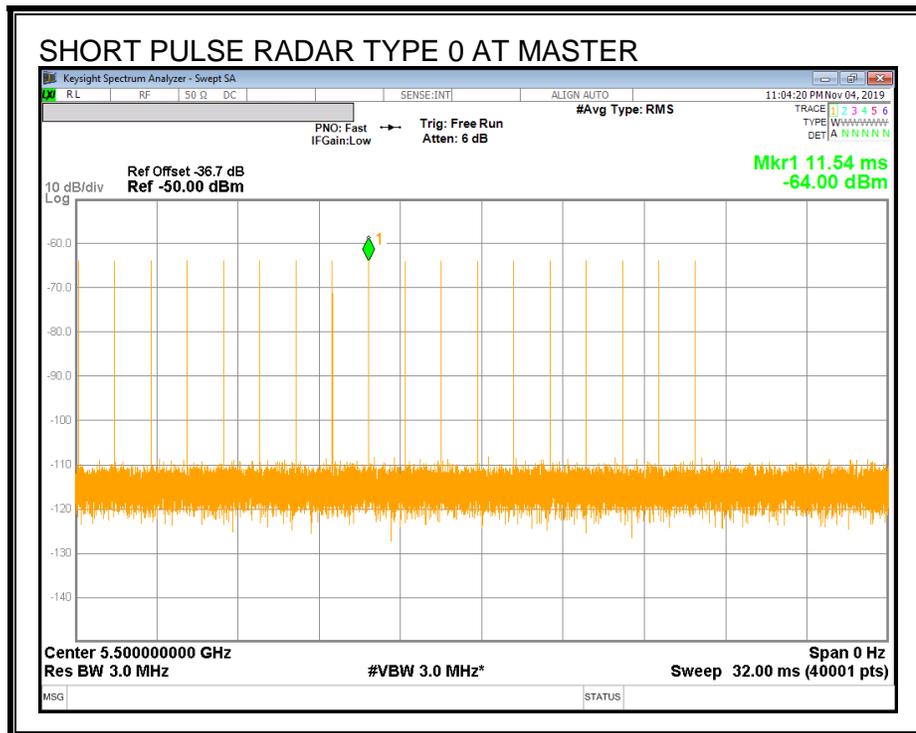
## 14.2. RESULTS FOR 20 MHz BANDWIDTH

### 14.2.1. TEST CHANNEL

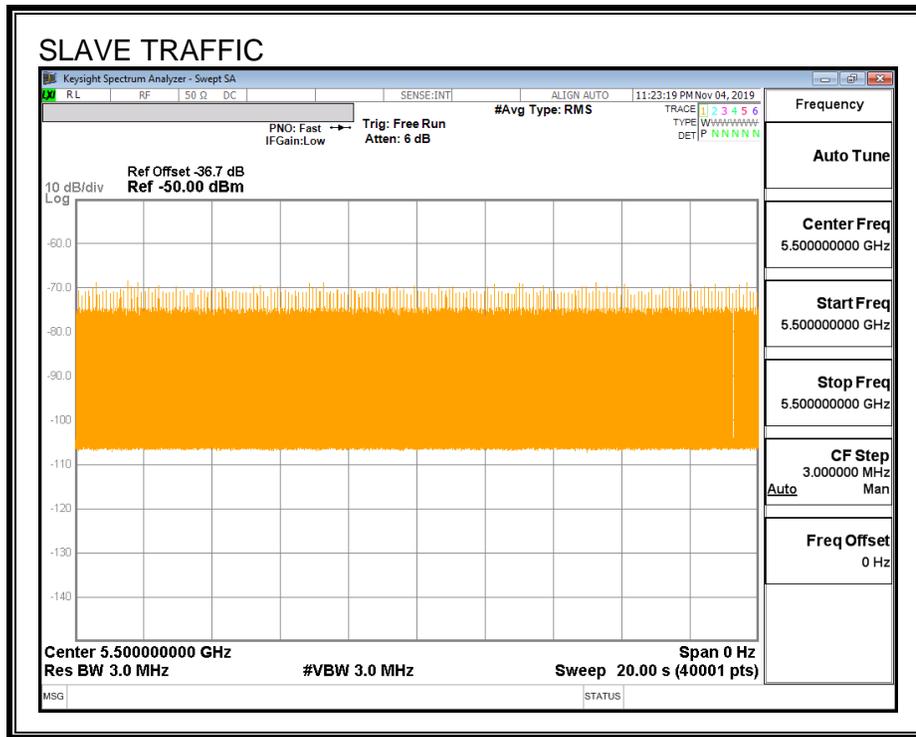
All tests were performed at a channel center frequency of 5500 MHz.

### 14.2.2. RADAR WAVEFORM AND TRAFFIC

#### RADAR WAVEFORM



**TRAFFIC**



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### 14.2.3. OVERLAPPING CHANNEL TESTS

#### RESULTS

These tests are not applicable.

### 14.2.4. MOVE AND CLOSING TIME

#### REPORTING NOTES

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

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

The aggregate channel closing transmission time is calculated as follows:

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

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

#### RESULTS

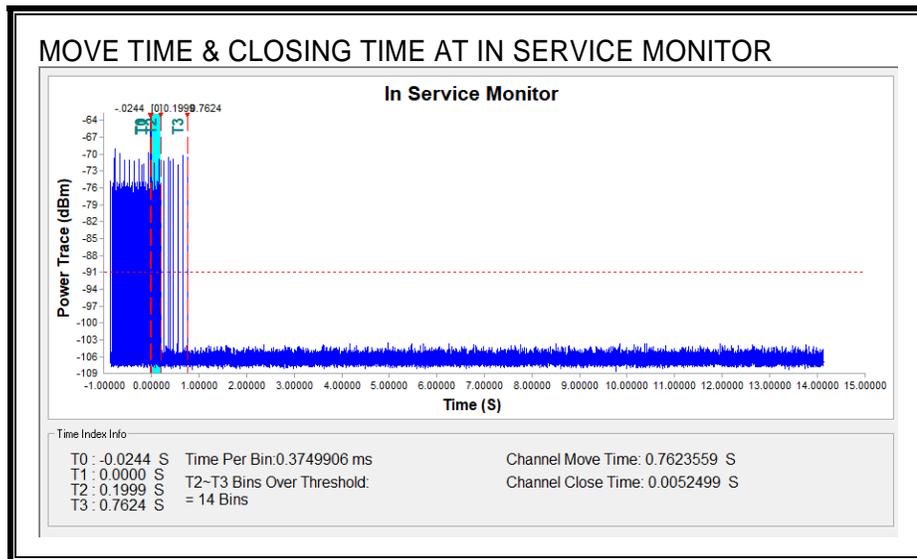
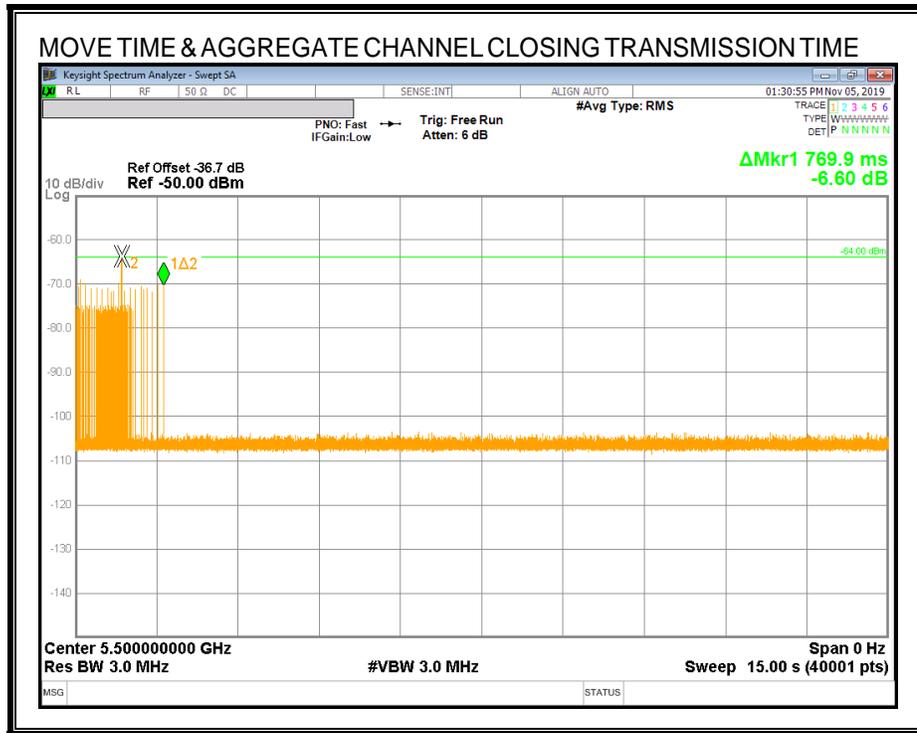
Channel Move Time (sec)	Limit (sec)
0.762	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
5.250	60

**MOVE TIME & CHANNEL CLOSING TIME**

**AGGREGATE CHANNEL CLOSING TRANSMISSION TIME**

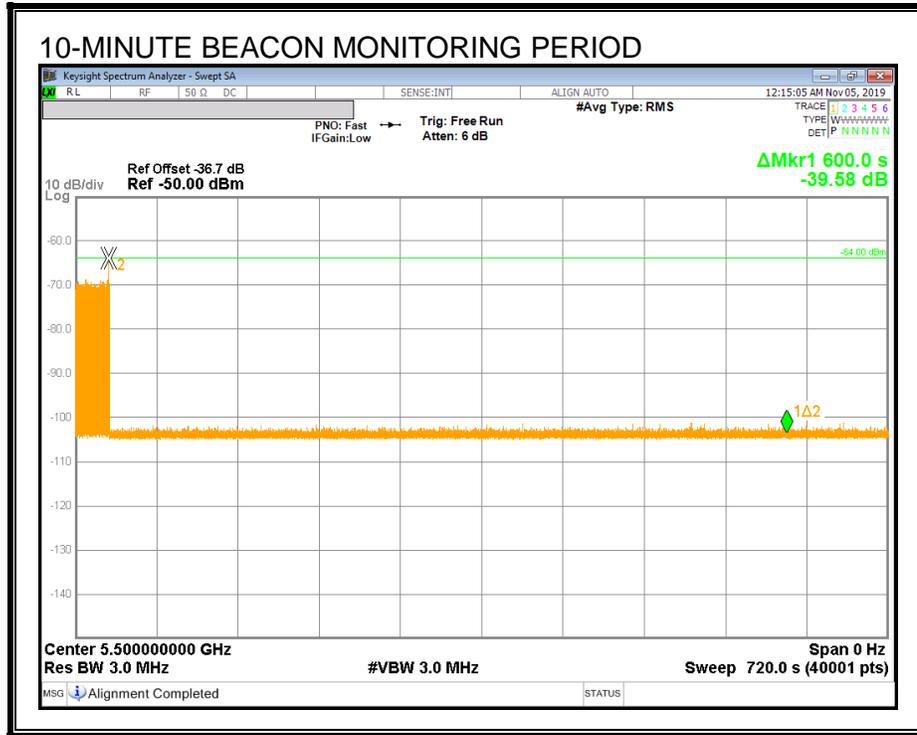
No transmissions are observed during the aggregate monitoring period.



**NON-OCCUPANCY PERIOD**

**RESULTS**

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



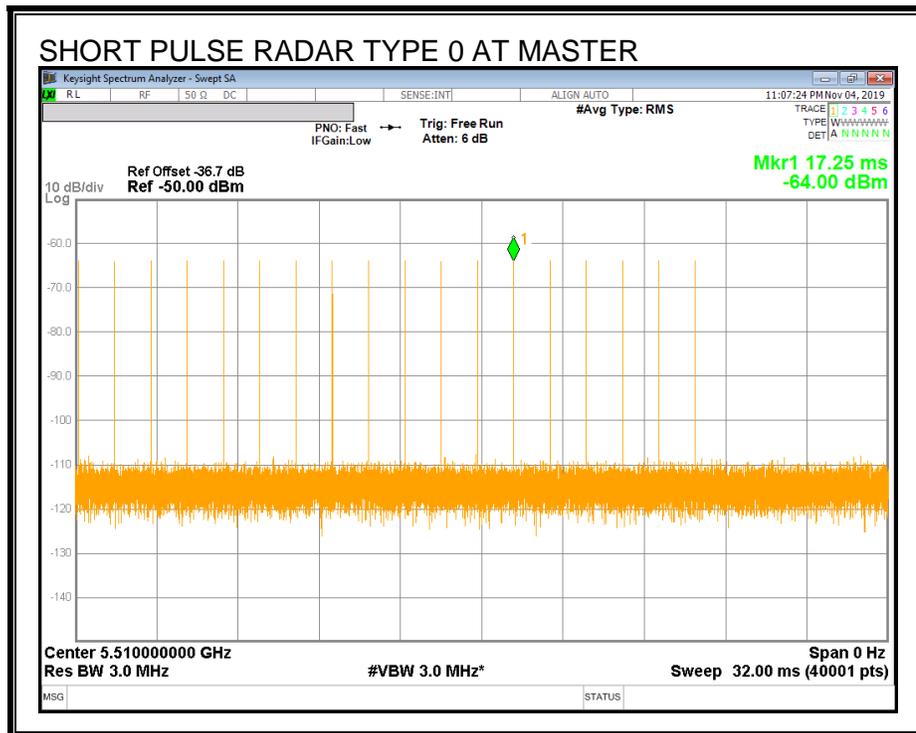
### 14.3. RESULTS FOR 40 MHz BANDWIDTH

#### 14.3.1. TEST CHANNEL

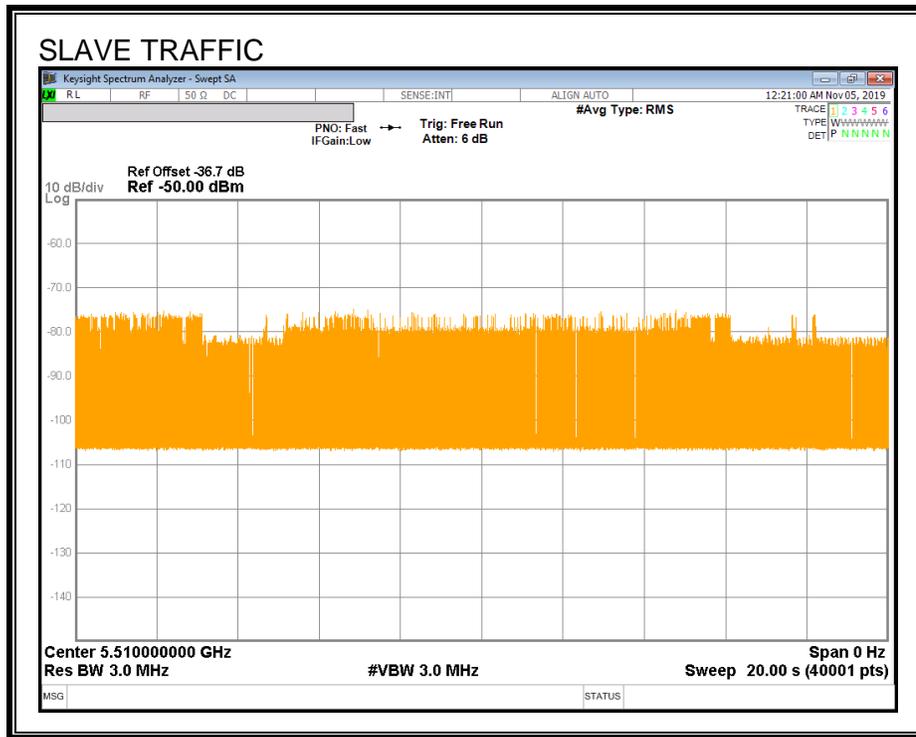
All tests were performed at a channel center frequency of 5510 MHz.

#### 14.3.2. RADAR WAVEFORM AND TRAFFIC

##### RADAR WAVEFORM



**TRAFFIC**



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### 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

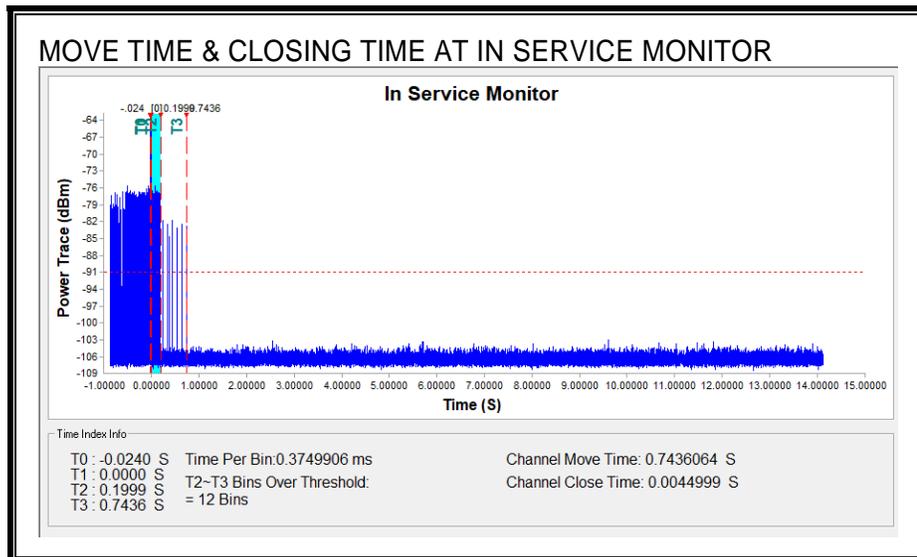
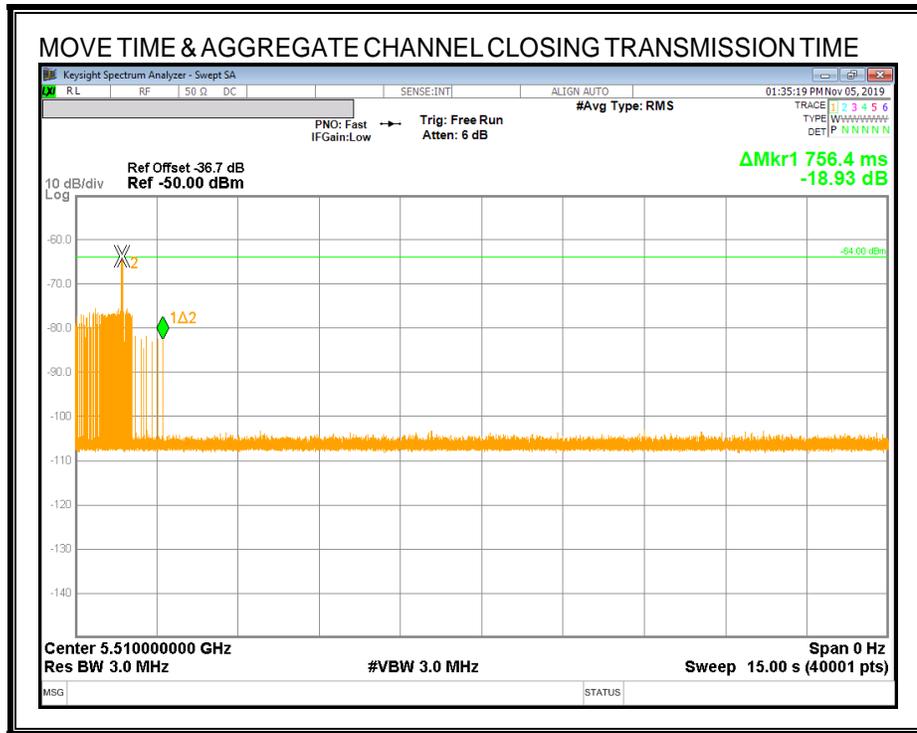
Channel Move Time (sec)	Limit (sec)
0.744	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
4.450	60

**MOVE TIME & CHANNEL CLOSING TIME**

**AGGREGATE CHANNEL CLOSING TRANSMISSION TIME**

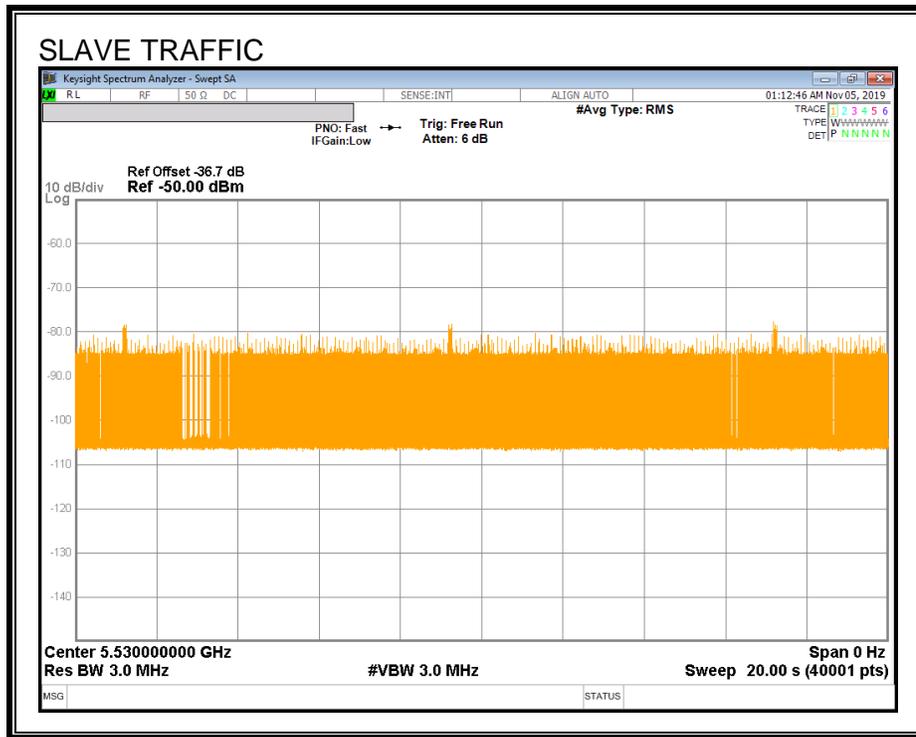
No transmissions are observed during the aggregate monitoring period.







**TRAFFIC**



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### 14.4.3. OVERLAPPING CHANNEL TESTS

#### RESULTS

These tests are not applicable.

### 14.4.4. 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

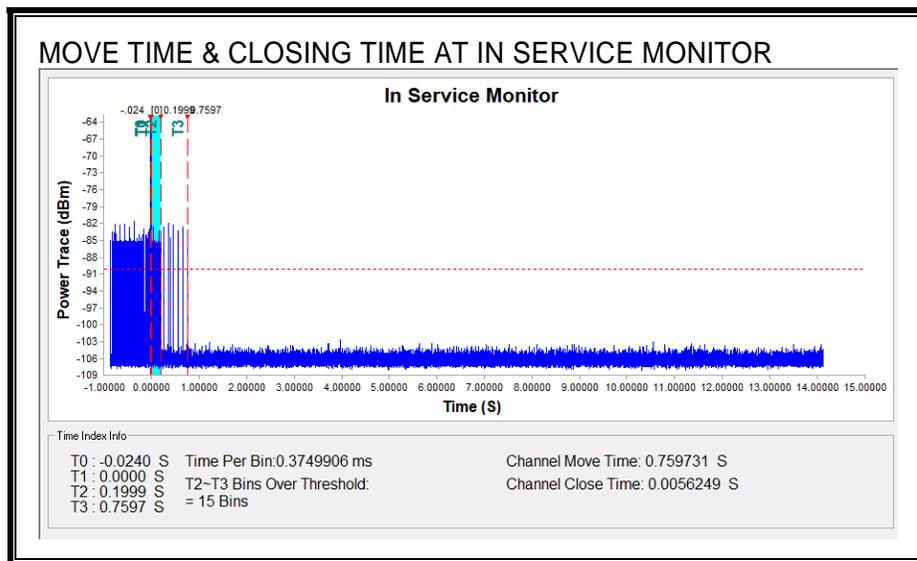
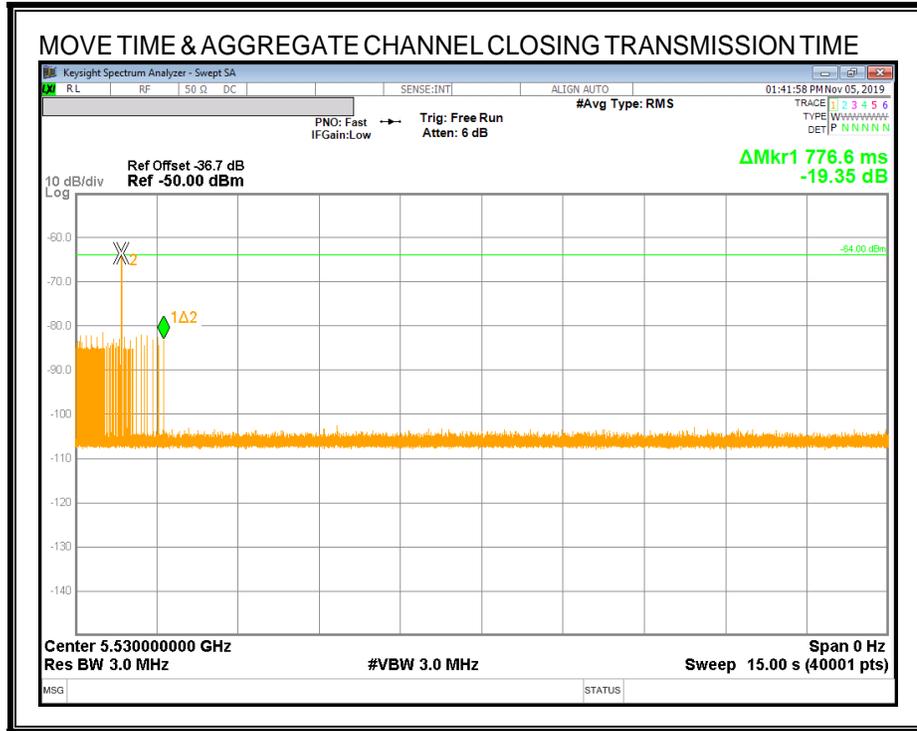
Channel Move Time (sec)	Limit (sec)
0.760	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
5.620	60

**MOVE TIME & CHANNEL CLOSING TIME**

**AGGREGATE CHANNEL CLOSING TRANSMISSION TIME**

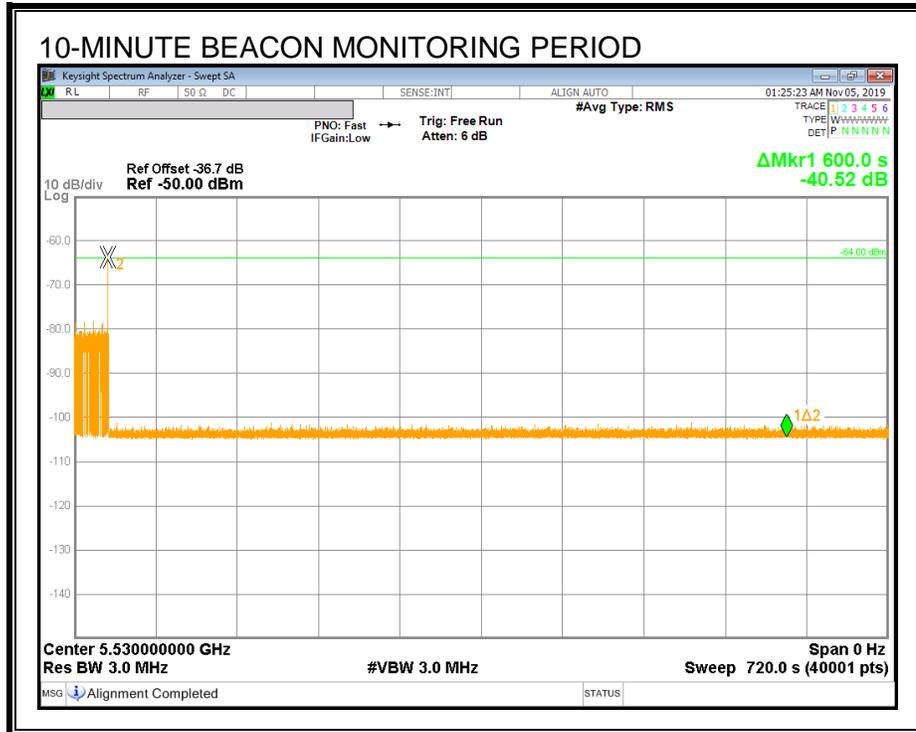
No transmissions are observed during the aggregate monitoring period.



**NON-OCCUPANCY PERIOD**

**RESULTS**

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



**END OF REPORT**