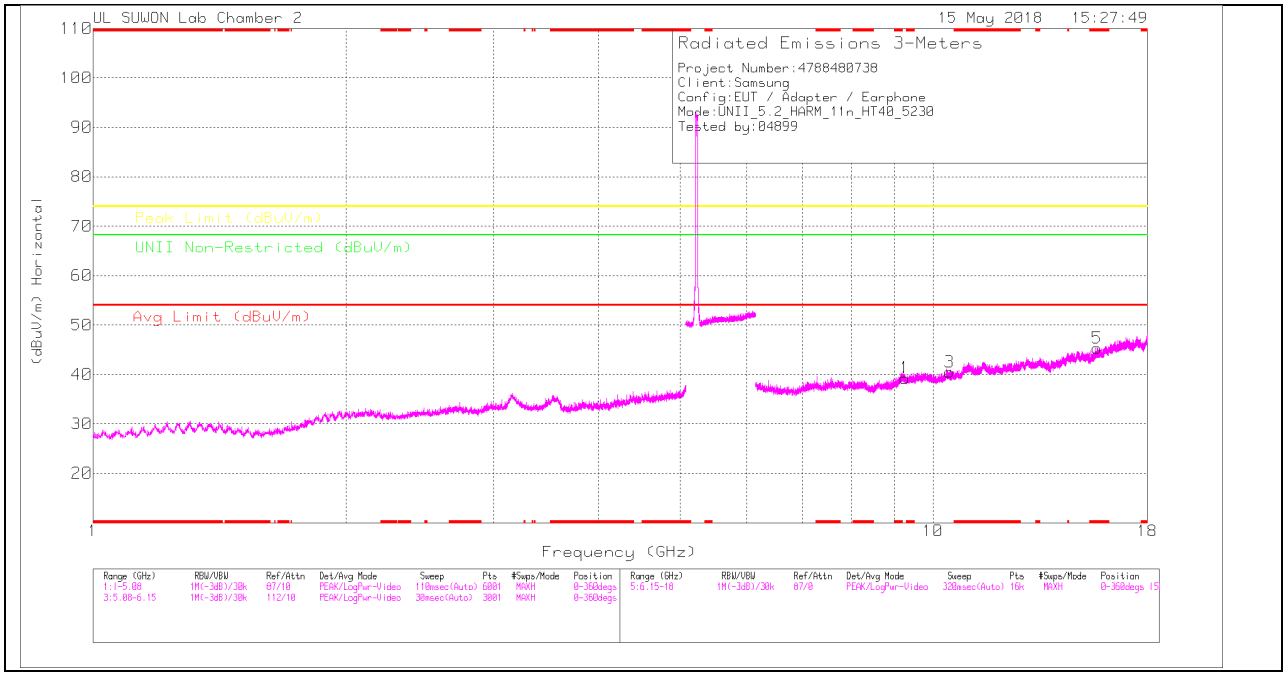
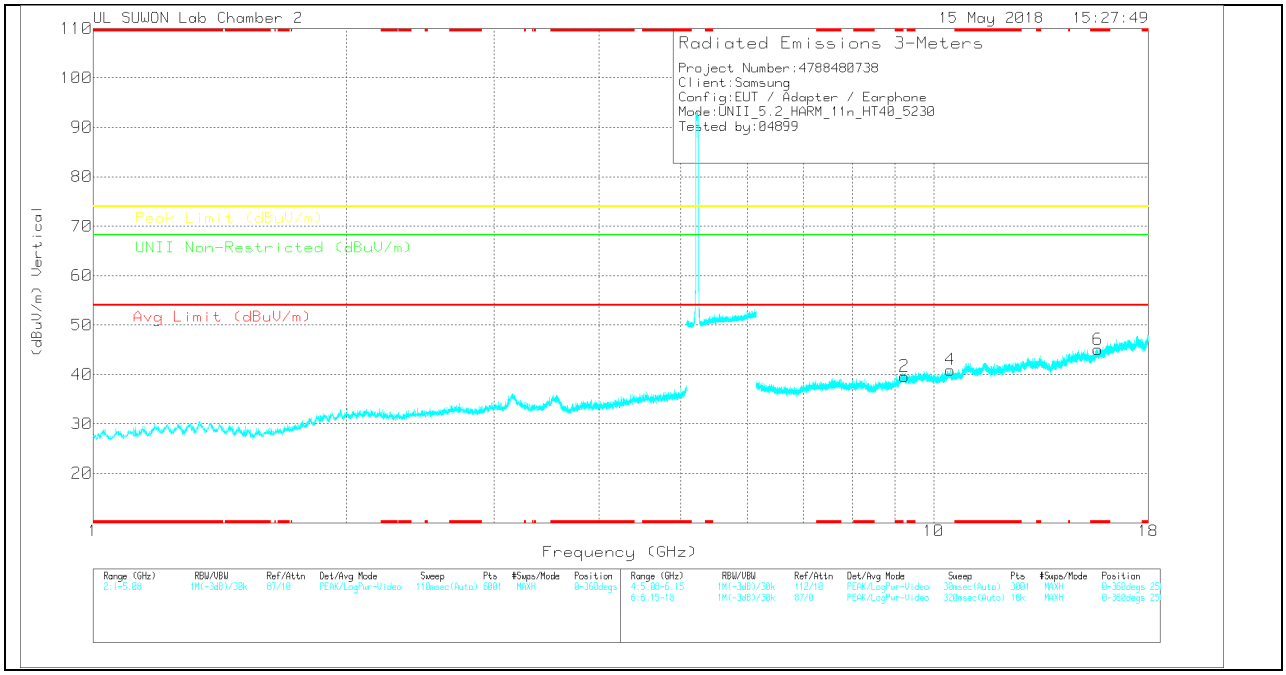
HIGH CHANNEL HORIZONTAL



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	170531_3117(00168724)	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	9.26	20.68	PK	36.4	-17.8	0	39.28	-	-	-	-	68.2	-28.92	0-360	250	H
3	10.462	19.27	PK	37.5	-16.3	0	40.47	-	-	-	-	68.2	-27.73	0-360	250	H
5	* 15.684	20.19	PK	39.9	-14.8	0	45.29	-	-	74	-28.71	-	-	0-360	150	H
2	9.226	20.83	PK	36.4	-17.6	0	39.63	-	-	-	-	68.2	-28.57	0-360	250	V
4	10.462	19.73	PK	37.5	-16.3	0	40.93	-	-	-	-	68.2	-27.27	0-360	250	V
6	* 15.686	19.86	PK	39.9	-14.7	0	45.06	-	-	74	-28.94	-	-	0-360	150	V

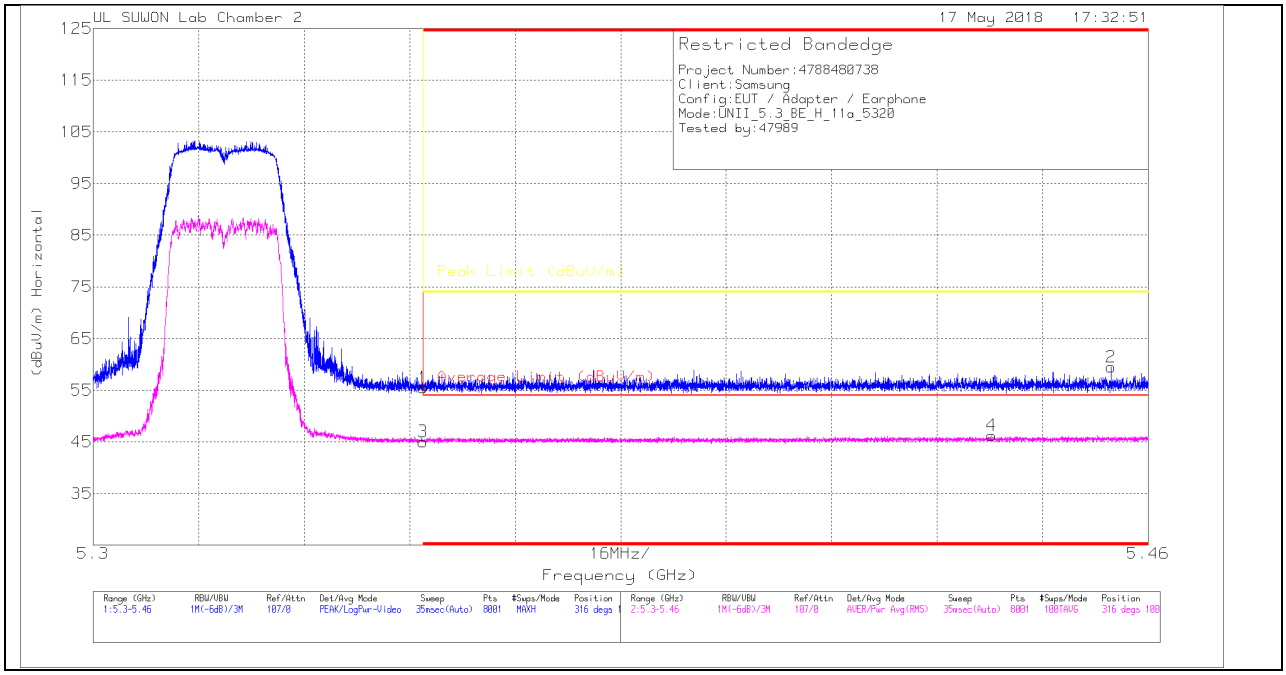
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

11.2. 5.3 GHz

11.2.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.3 GHz BAND AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



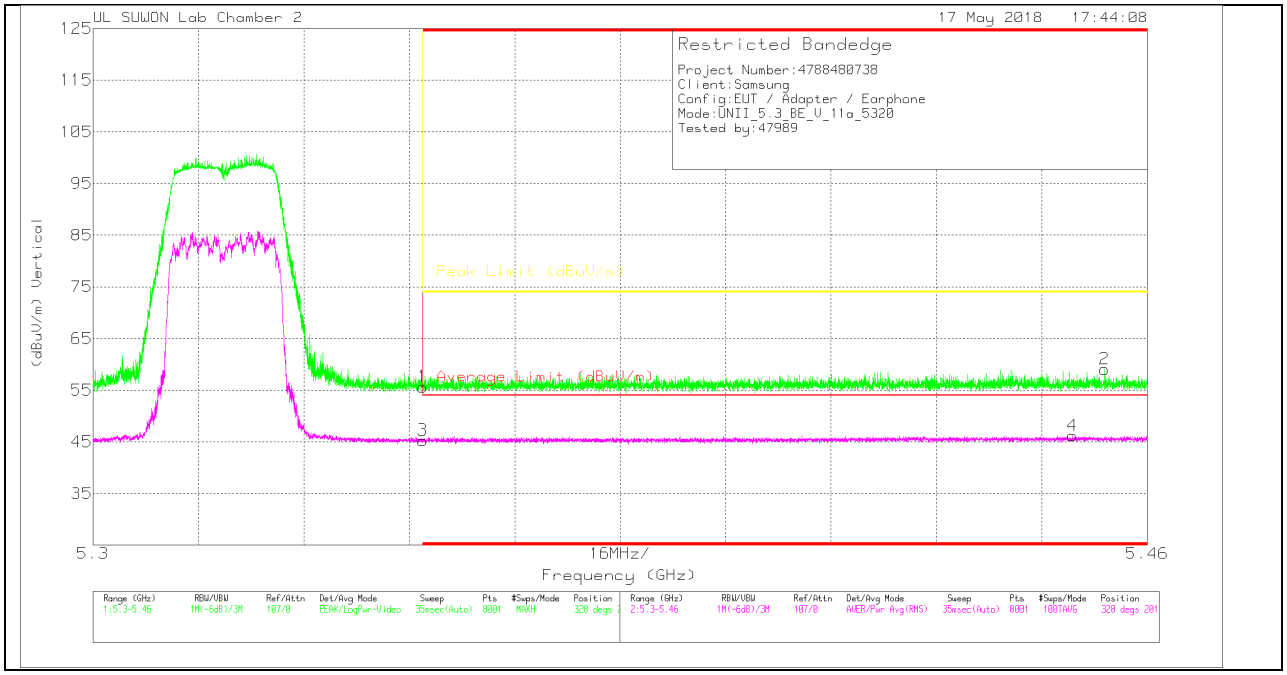
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	36.49	Pk	34.2	-15.2	0	55.49	-	-	74	-18.51	316	100	H
2	* 5.454	40.3	Pk	34.3	-15.1	0	59.5	-	-	74	-14.5	316	100	H
3	* 5.35	26.02	RMS	34.2	-15.2	0	45.02	54	-8.98	-	-	316	100	H
4	* 5.436	27.06	RMS	34.3	-15.1	0	46.26	54	-7.74	-	-	316	100	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

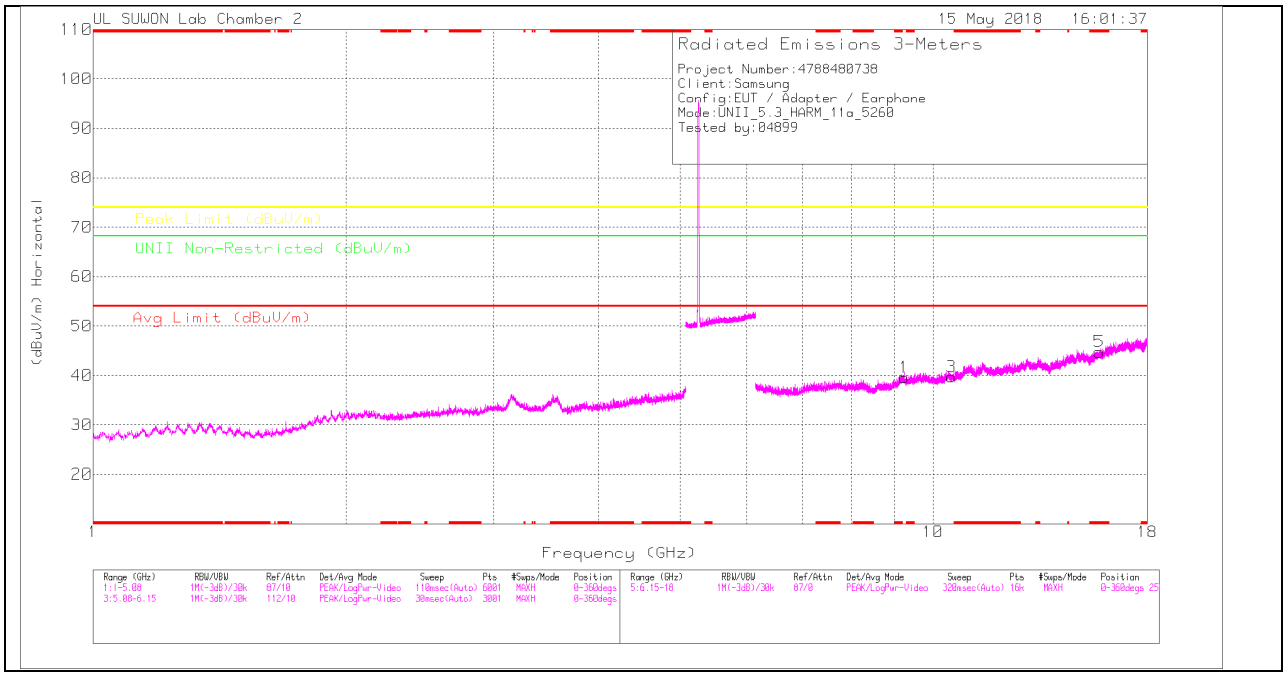
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	36.62	Pk	34.2	-15.2	0	55.62	-	-	74	-18.38	328	201	V
2	* 5.454	39.87	Pk	34.3	-15.1	0	59.07	-	-	74	-14.93	328	201	V
3	* 5.35	26.3	RMS	34.2	-15.2	0	45.3	54	-8.7	-	-	328	201	V
4	* 5.449	26.99	RMS	34.3	-15.1	0	46.19	54	-7.81	-	-	328	201	V

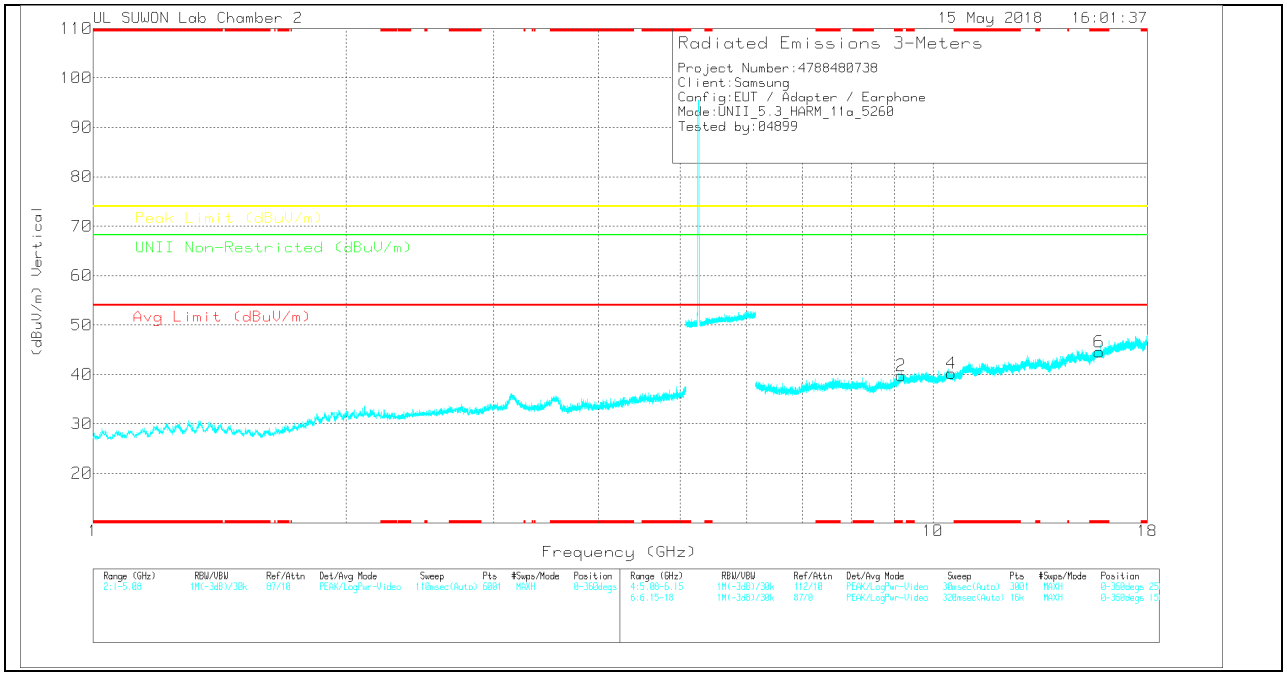
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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

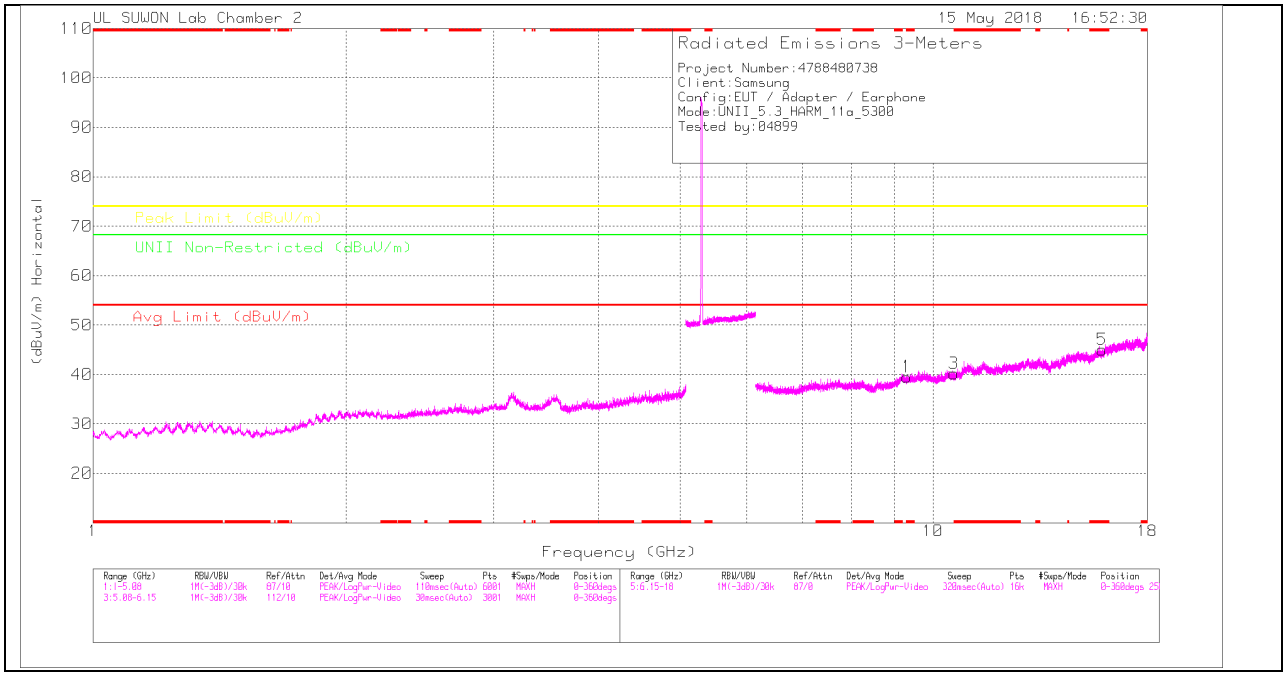
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	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	9.244	20.96	PK	36.4	-17.8	0	39.56	-	-	-	-	68.2	-28.64	0-360	250	H
3	10.525	18.73	PK	37.6	-16.6	0	39.73	-	-	-	-	68.2	-28.47	0-360	250	H
5	* 15.775	19.46	PK	40	-14.7	0	44.76	-	-	74	-29.24	-	-	0-360	250	H
2	* 9.163	21.04	PK	36.4	-17.7	0	39.74	-	-	74	-34.26	-	-	0-360	150	V
4	10.522	19.32	PK	37.5	-16.6	0	40.22	-	-	-	-	68.2	-27.98	0-360	250	V
6	* 15.776	19.14	PK	40.1	-14.7	0	44.54	-	-	74	-29.46	-	-	0-360	250	V

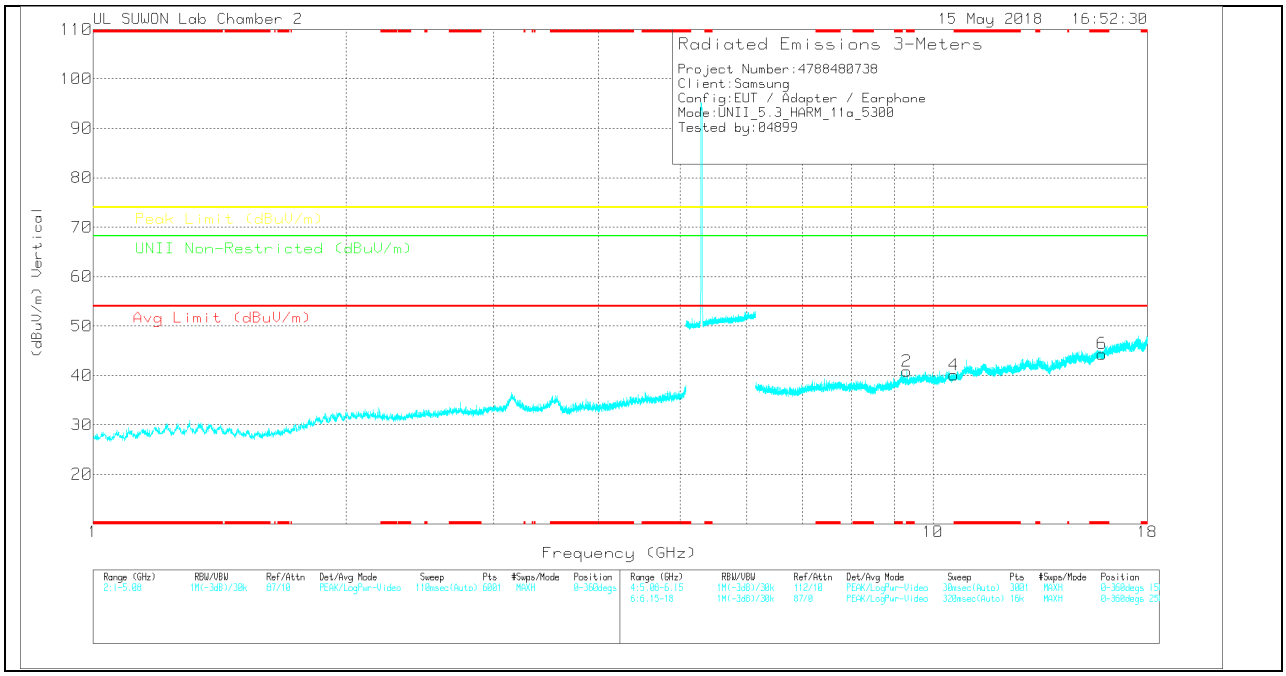
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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

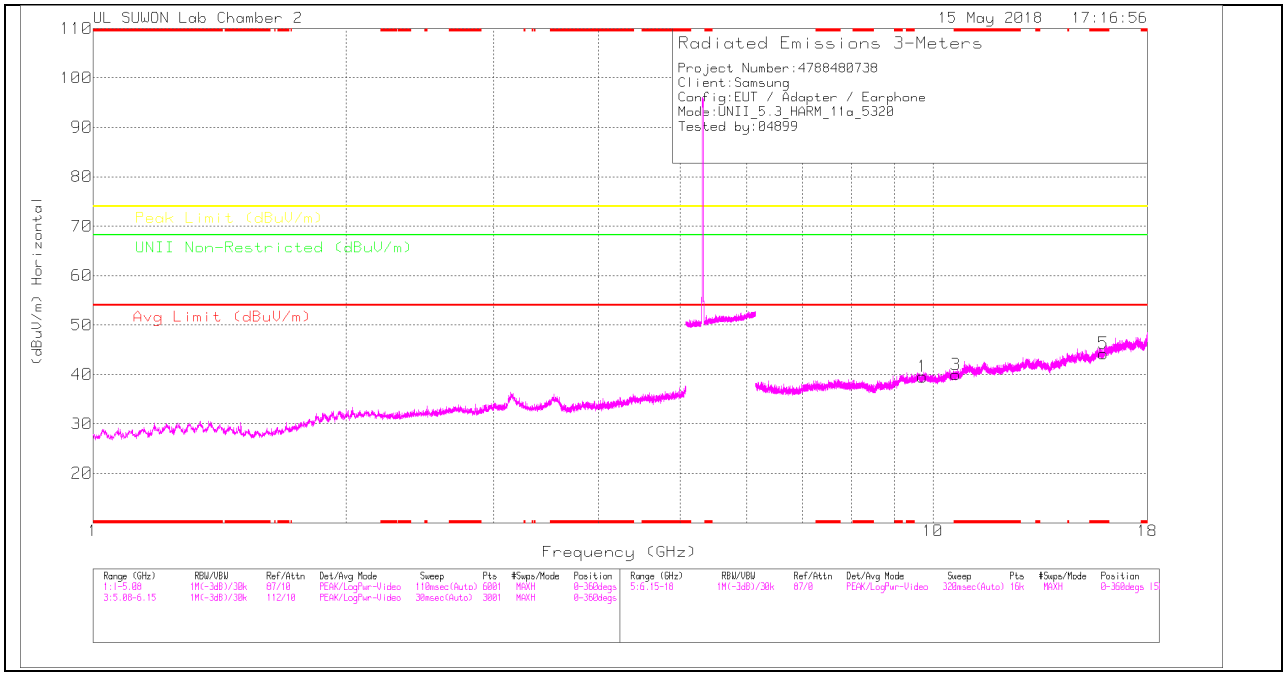
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	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	* 9.314	21.42	PK	36.4	-18.3	0	39.52	-	-	74	-34.48	-	-	0-360	250	H
3	10.596	19.19	PK	37.6	-16.6	0	40.19	-	-	-	-	68.2	-28.01	0-360	250	H
5	* 15.9	19.41	PK	40.3	-14.7	0	45.01	-	-	74	-28.99	-	-	0-360	150	H
2	* 9.312	22.68	PK	36.4	-18.2	0	40.88	-	-	74	-33.12	-	-	0-360	150	V
4	10.599	19.07	PK	37.6	-16.6	0	40.07	-	-	-	-	68.2	-28.13	0-360	150	V
6	* 15.9	18.77	PK	40.3	-14.7	0	44.37	-	-	74	-29.63	-	-	0-360	150	V

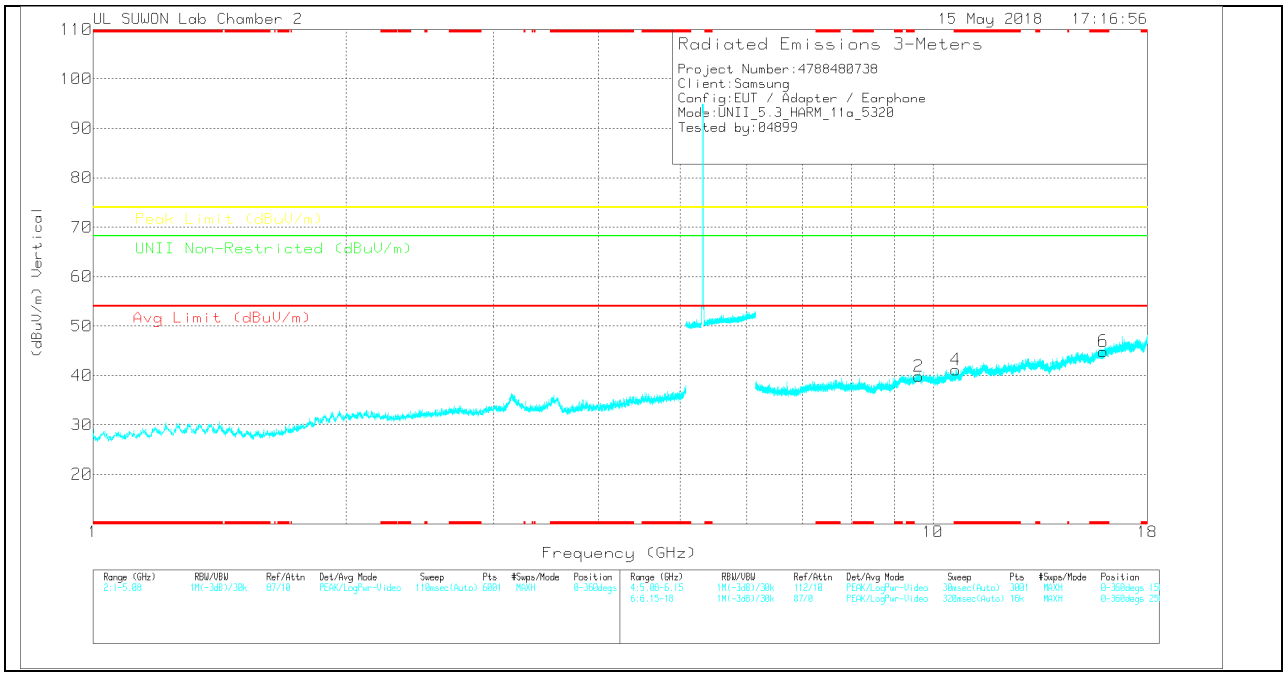
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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	170531_3117[00168724]	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	9.721	20.45	PK	36.8	-17.7	0	39.55	-	-	-	-	68.2	-28.65	0-360	250	H
3	* 10.64	18.88	PK	37.7	-16.6	0	39.98	-	-	74	-34.02	-	-	0-360	150	H
5	* 15.961	18.23	PK	40.4	-14.4	0	44.23	-	-	74	-29.77	-	-	0-360	250	H
2	9.619	21.04	PK	36.7	-17.9	0	39.84	-	-	-	-	68.2	-28.36	0-360	250	V
4	* 10.64	20.05	PK	37.7	-16.6	0	41.15	-	-	74	-32.85	-	-	0-360	150	V
6	* 15.961	18.85	PK	40.4	-14.4	0	44.85	-	-	74	-29.15	-	-	0-360	250	V

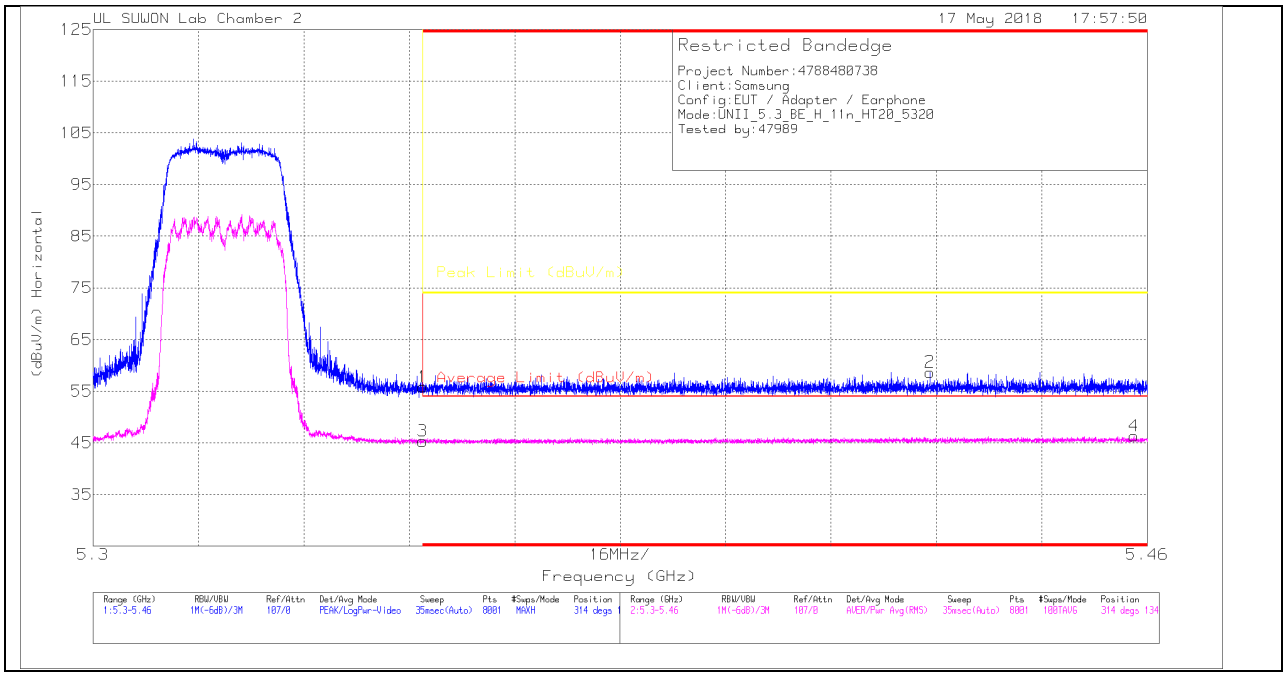
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

11.2.2. TX ABOVE 1GHz 802.11n HT20 MODE IN THE 5.3GHz BAND

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



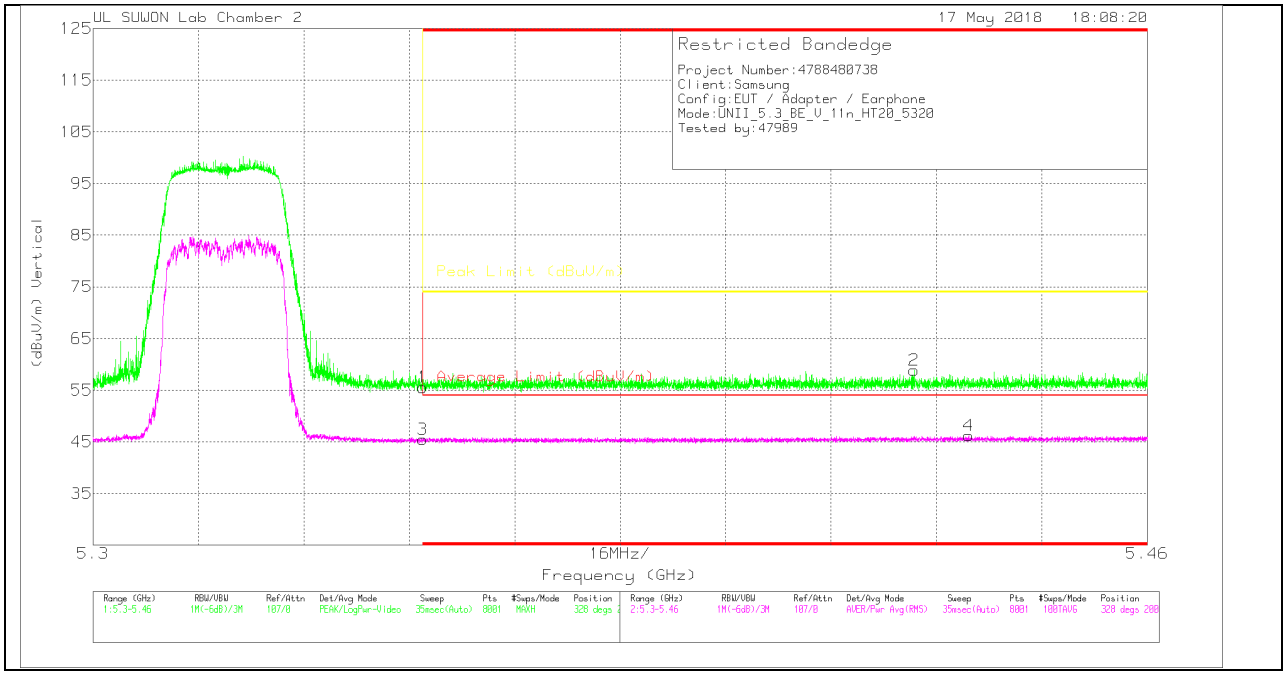
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	36.84	Pk	34.2	-15.2	0	55.84	-	-	74	-18.16	314	134	H
2	* 5.427	39.49	Pk	34.3	-15.1	0	58.69	-	-	74	-15.31	314	134	H
3	* 5.35	26.32	RMS	34.2	-15.2	0	45.32	54	-8.68	-	-	314	134	H
4	* 5.458	27.12	RMS	34.3	-15.1	0	46.32	54	-7.68	-	-	314	134	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

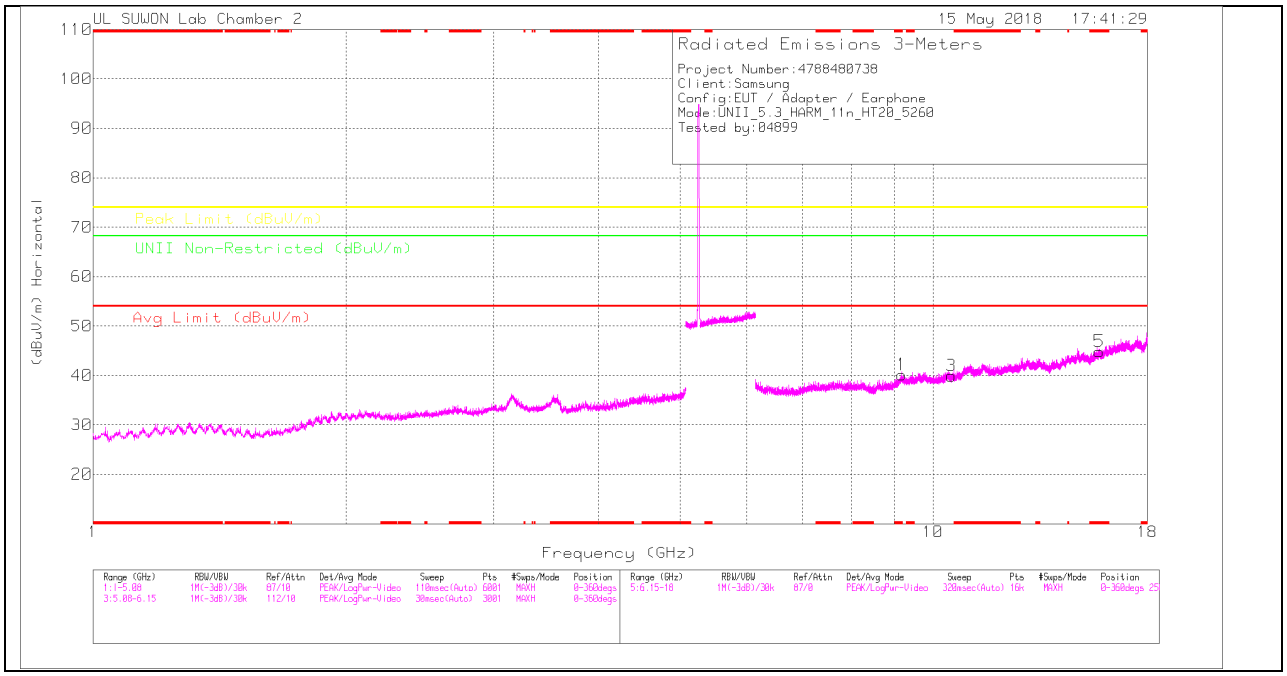
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	36.56	Pk	34.2	-15.2	0	55.56	-	-	74	-18.44	328	200	V
2	* 5.425	39.75	Pk	34.2	-15.1	0	58.85	-	-	74	-15.15	328	200	V
3	* 5.35	26.47	RMS	34.2	-15.2	0	45.47	54	-8.53	-	-	328	200	V
4	* 5.433	27.01	RMS	34.3	-15.1	0	46.21	54	-7.79	-	-	328	200	V

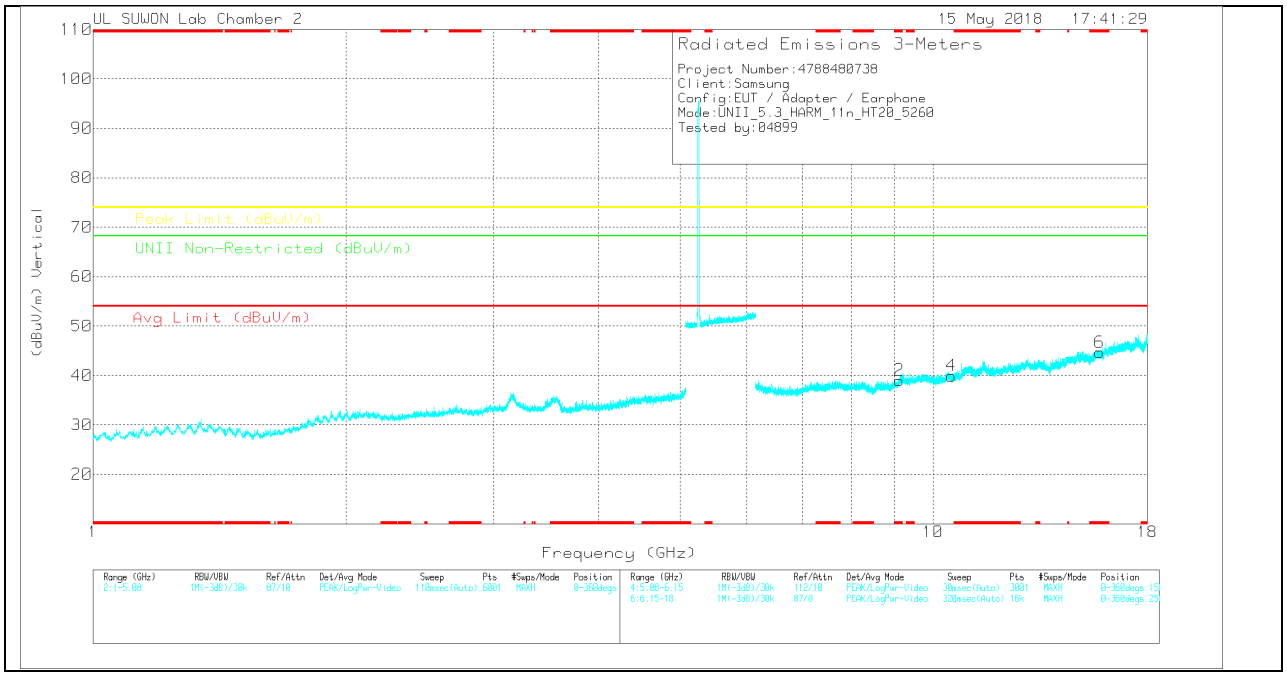
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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

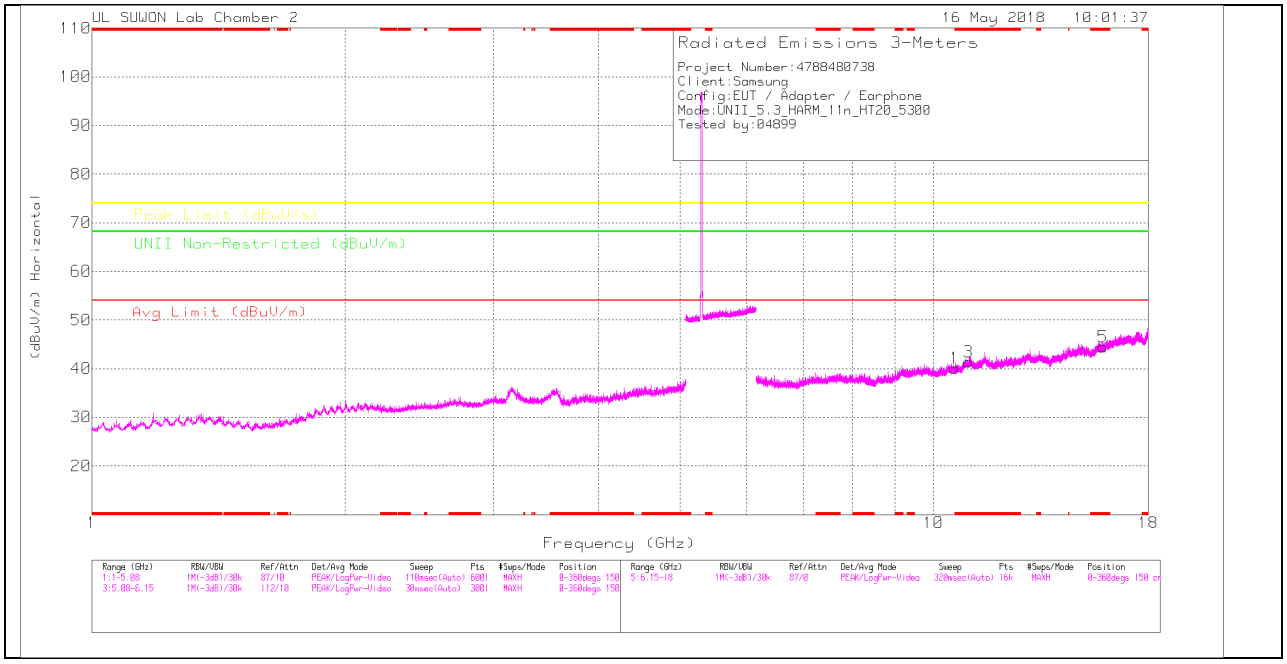
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117(00168724)	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	* 9.183	21.24	PK	36.4	-17.5	0	40.14	-	-	74	-33.86	-	-	0-360	250	H
3	10.522	19.04	PK	37.5	-16.6	0	39.94	-	-	-	-	68.2	-28.26	0-360	250	H
5	* 15.777	19.43	PK	40.1	-14.7	0	44.83	-	-	74	-29.17	-	-	0-360	150	H
2	* 9.117	20.69	PK	36.4	-18.1	0	38.99	-	-	74	-35.01	-	-	0-360	250	V
4	10.519	19.02	PK	37.5	-16.6	0	39.92	-	-	-	-	68.2	-28.28	0-360	250	V
6	* 15.783	19.26	PK	40.1	-14.7	0	44.66	-	-	74	-29.34	-	-	0-360	150	V

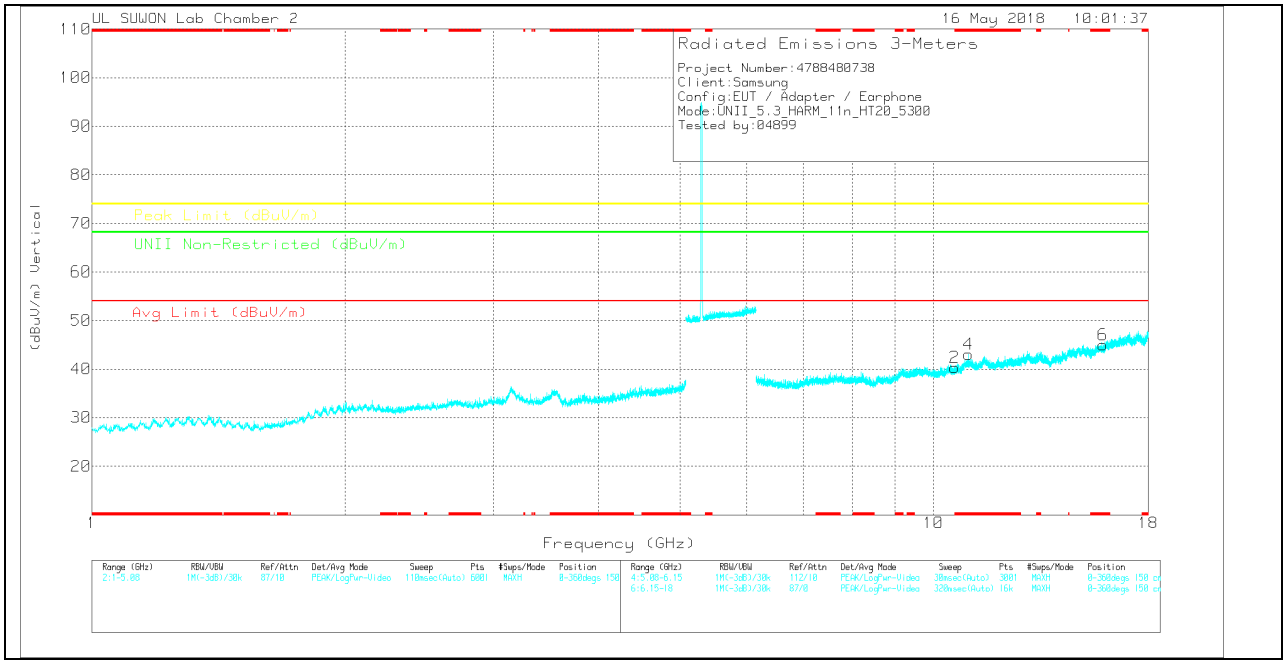
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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

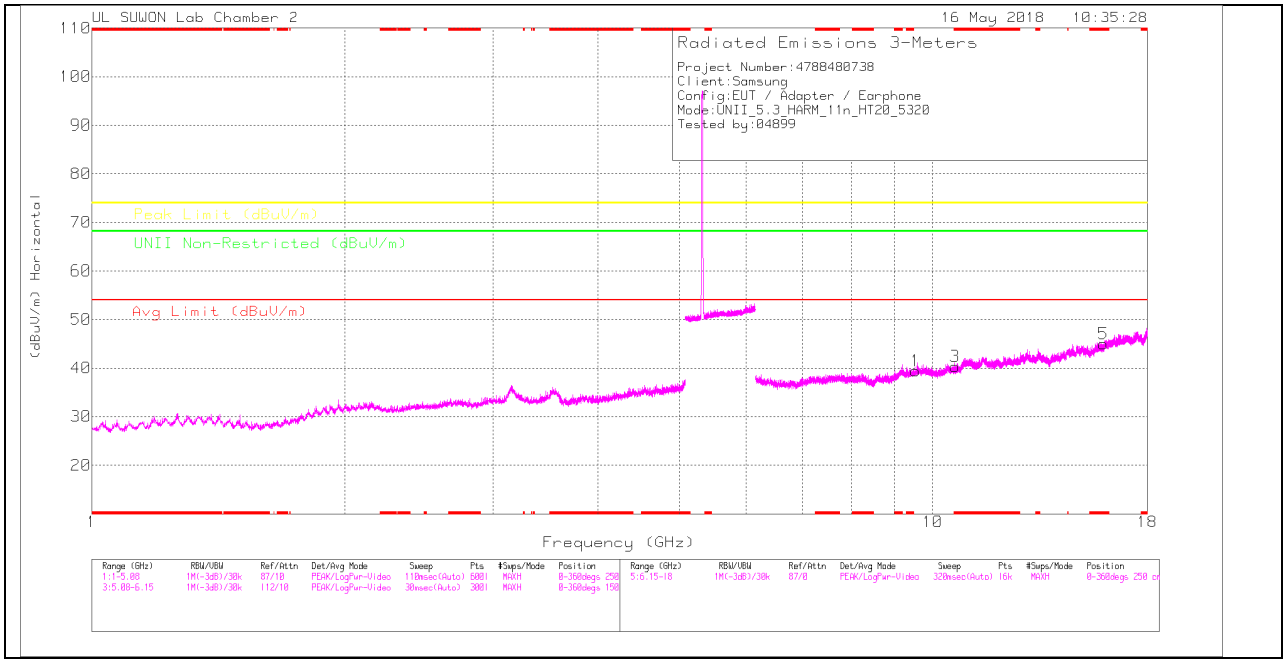
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	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	10.599	19.11	PK	37.6	-16.6	0	40.11	-	-	-	-	68.2	-28.09	0-360	250	H
3	* 10.999	19.33	PK	38	-16	0	41.33	-	-	74	-32.67	-	-	0-360	250	H
5	* 15.895	18.96	PK	40.3	-14.8	0	44.46	-	-	74	-29.54	-	-	0-360	150	H
2	* 10.6	19.31	PK	37.6	-16.6	0	40.31	-	-	74	-33.69	-	-	0-360	150	V
4	* 11.004	21.07	PK	38	-16	0	43.07	-	-	74	-30.93	-	-	0-360	150	V
6	* 15.903	19.34	PK	40.3	-14.7	0	44.94	-	-	74	-29.06	-	-	0-360	250	V

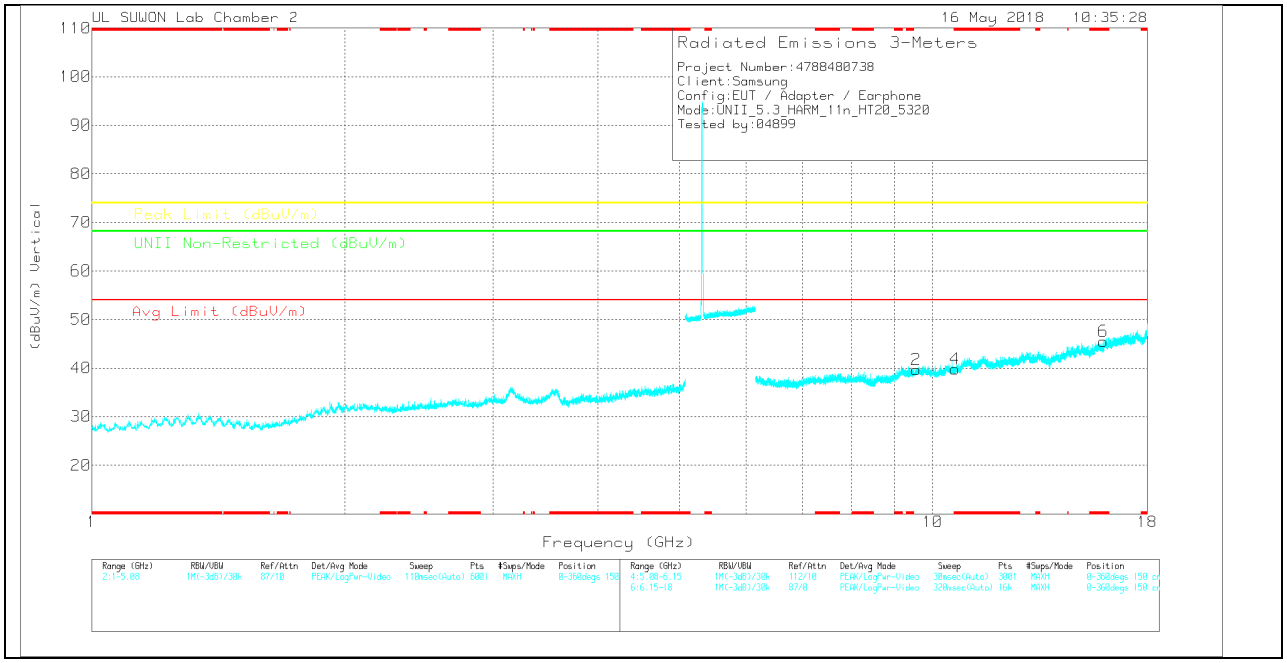
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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

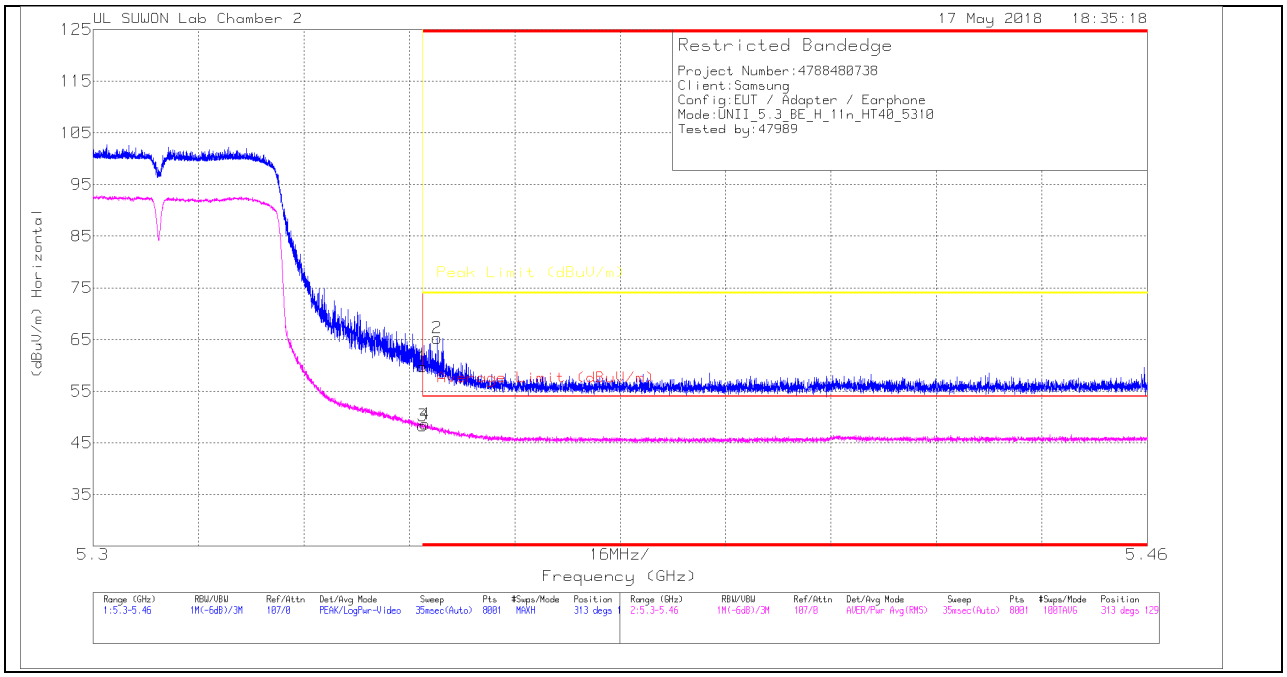
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	6GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	9.539	20.42	PK	36.7	-17.7	0	39.42	-	-	-	-	68.2	-28.78	0-360	250	H
3	* 10.633	19.35	PK	37.7	-16.7	0	40.35	-	-	74	-33.65	-	-	0-360	150	H
5	* 15.963	18.86	PK	40.4	-14.3	0	44.96	-	-	74	-29.04	-	-	0-360	150	H
2	9.562	20.76	PK	36.7	-17.8	0	39.66	-	-	-	-	68.2	-28.54	0-360	250	V
4	* 10.637	18.75	PK	37.7	-16.6	0	39.85	-	-	74	-34.15	-	-	0-360	150	V
6	* 15.967	19.46	PK	40.4	-14.3	0	45.56	-	-	74	-28.44	-	-	0-360	150	V

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

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

11.2.3. TX ABOVE 1GHz 802.11n HT40 MODE IN THE 5.3GHz BAND AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



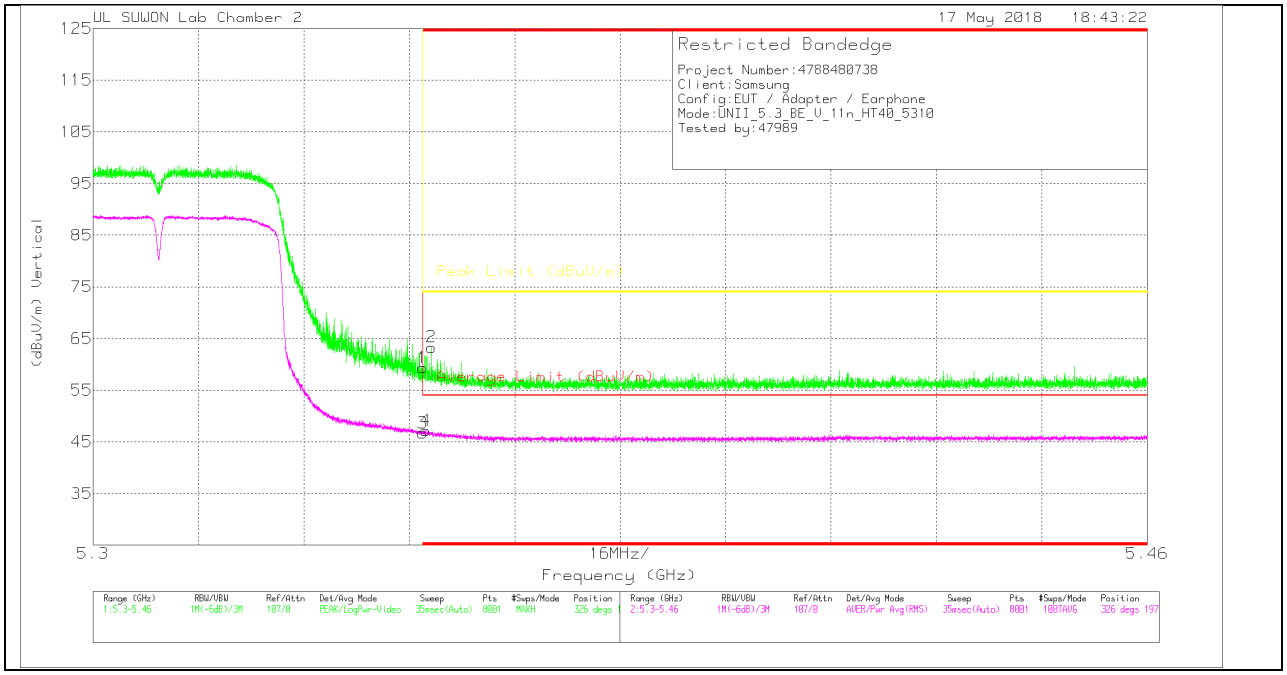
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	40.75	Pk	34.2	-15.2	0	59.75	-	-	74	-14.25	313	129	H
2	* 5.352	46.29	Pk	34.2	-15.2	0	65.29	-	-	74	-8.71	313	129	H
3	* 5.35	29.16	RMS	34.2	-15.2	.18	48.34	54	-5.66	-	-	313	129	H
4	* 5.35	29.48	RMS	34.2	-15.2	.18	48.66	54	-5.34	-	-	313	129	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

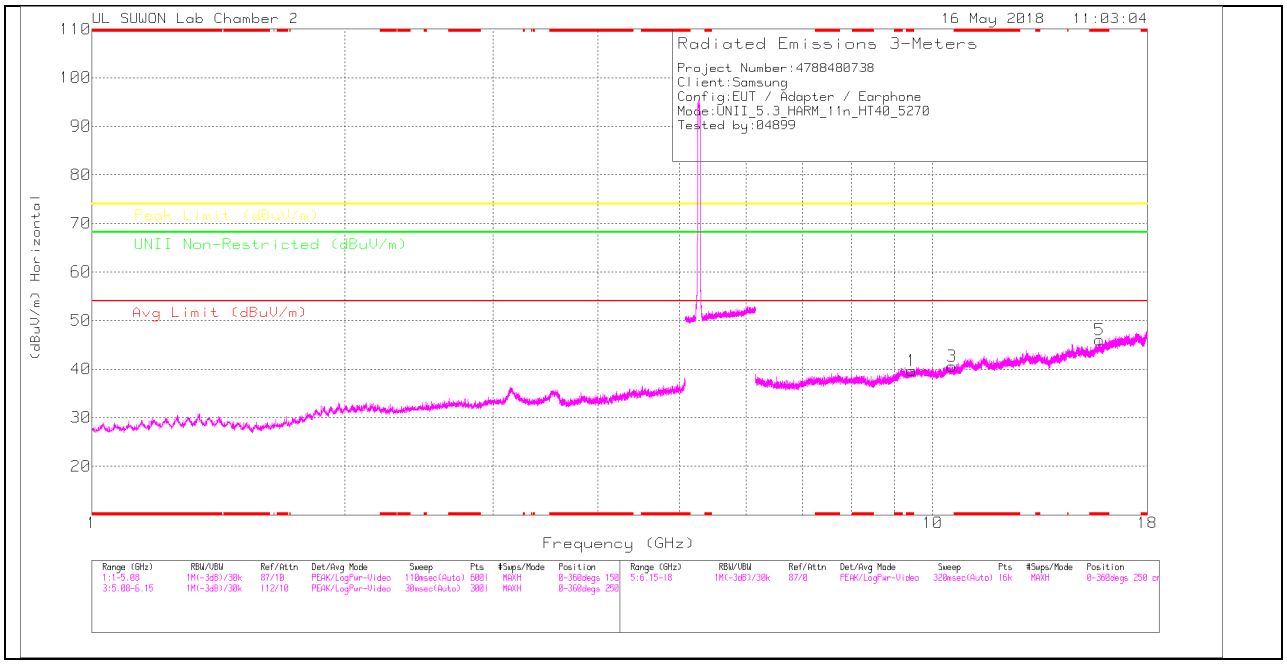
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	40.35	Pk	34.2	-15.2	0	59.35	-	-	74	-14.65	326	197	V
2	* 5.351	44.32	Pk	34.2	-15.2	0	63.32	-	-	74	-10.68	326	197	V
3	* 5.35	27.53	RMS	34.2	-15.2	.18	46.71	54	-7.29	-	-	326	197	V
4	* 5.35	28.02	RMS	34.2	-15.2	.18	47.2	54	-6.8	-	-	326	197	V

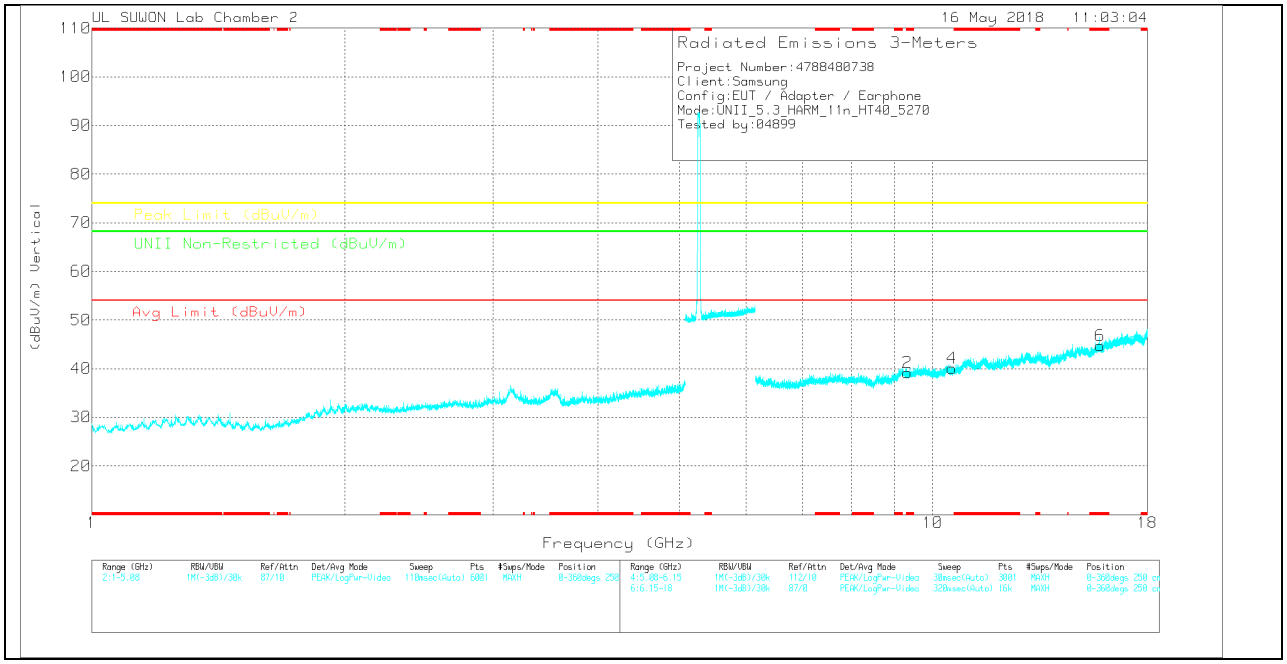
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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

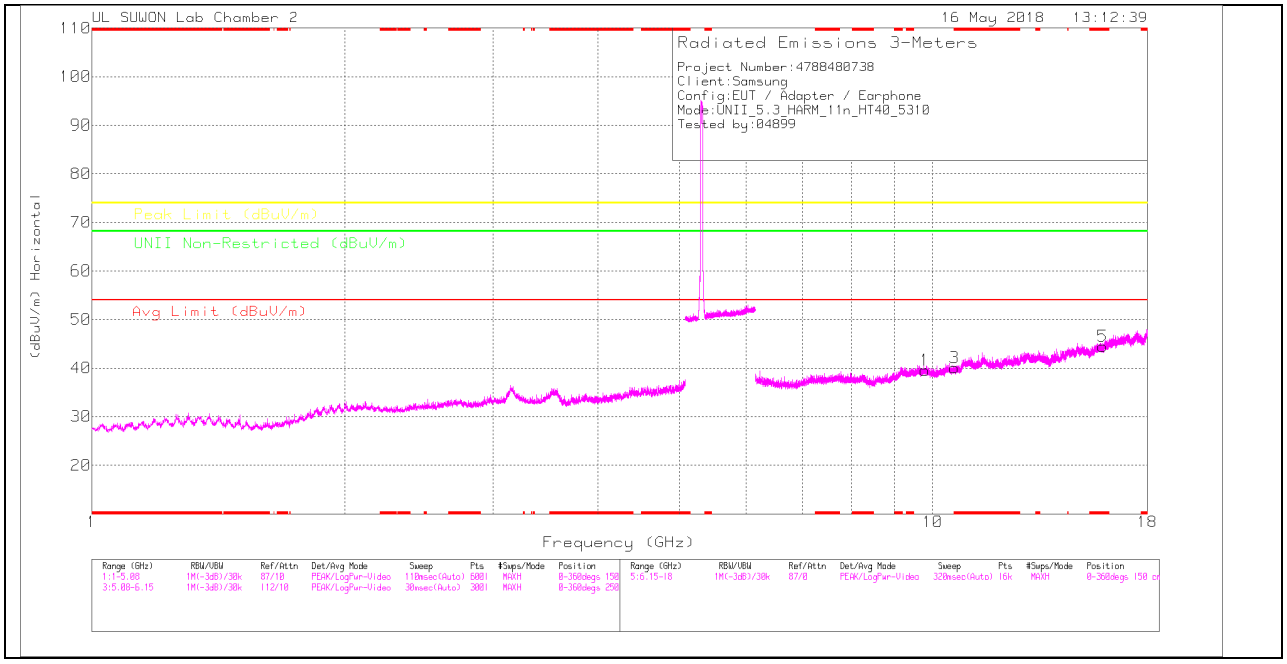
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	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	* 9.451	21.3	PK	36.5	-18.1	0	39.7	-	-	74	-34.3	-	-	0-360	150	H
3	10.54	19.57	PK	37.6	-16.6	0	40.57	-	-	-	-	68.2	-27.63	0-360	150	H
5	* 15.803	20.77	PK	40.1	-14.8	0	46.07	-	-	74	-27.93	-	-	0-360	250	H
2	* 9.332	21.07	PK	36.4	-18.3	0	39.17	-	-	74	-34.83	-	-	0-360	150	V
4	10.536	19.11	PK	37.6	-16.6	0	40.11	-	-	-	-	68.2	-28.09	0-360	250	V
6	* 15.808	19.27	PK	40.1	-14.7	0	44.67	-	-	74	-29.33	-	-	0-360	150	V

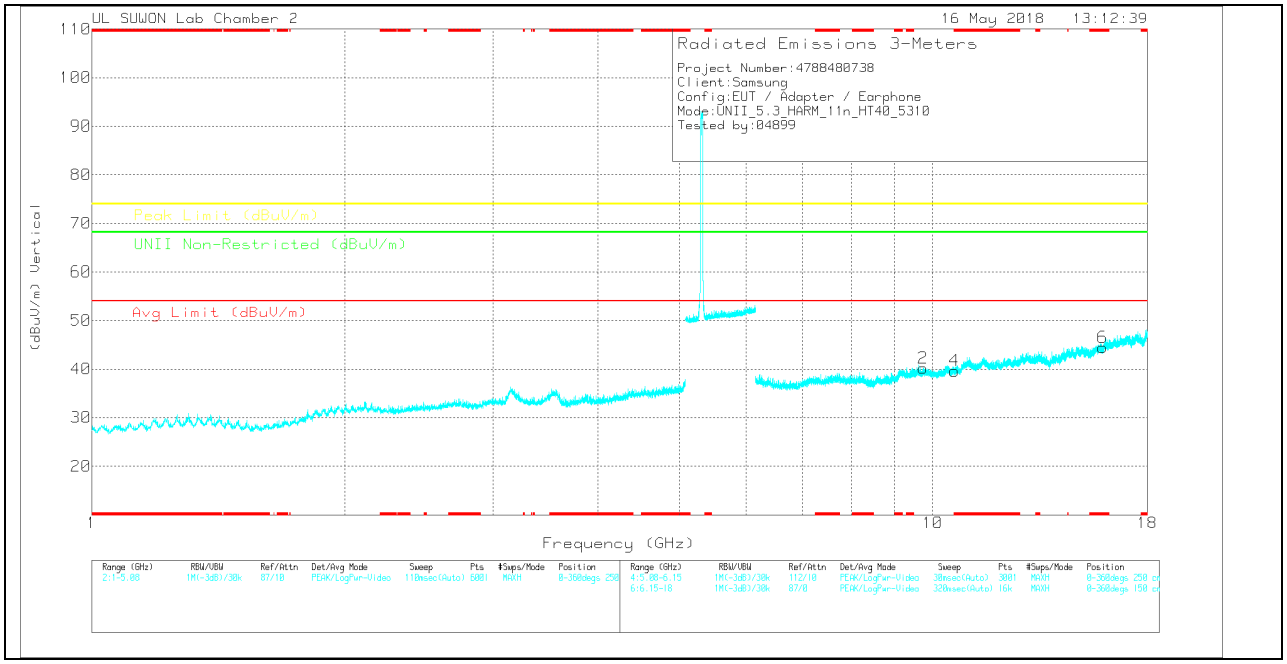
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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	170531_3117(00168724)	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	9.791	19.91	PK	37	-17.3	0	39.61	-	-	-	-	68.2	-28.59	0-360	250	H
3	* 10.62	19.18	PK	37.6	-16.7	0	40.08	-	-	74	-33.92	-	-	0-360	250	H
5	* 15.929	18.71	PK	40.4	-14.7	0	44.41	-	-	74	-29.59	-	-	0-360	250	H
2	9.743	20.69	PK	36.9	-17.4	0	40.19	-	-	-	-	68.2	-28.01	0-360	150	V
4	* 10.62	18.72	PK	37.6	-16.7	0	39.62	-	-	74	-34.38	-	-	0-360	250	V
6	* 15.929	18.77	PK	40.4	-14.7	0	44.47	-	-	74	-29.53	-	-	0-360	150	V

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

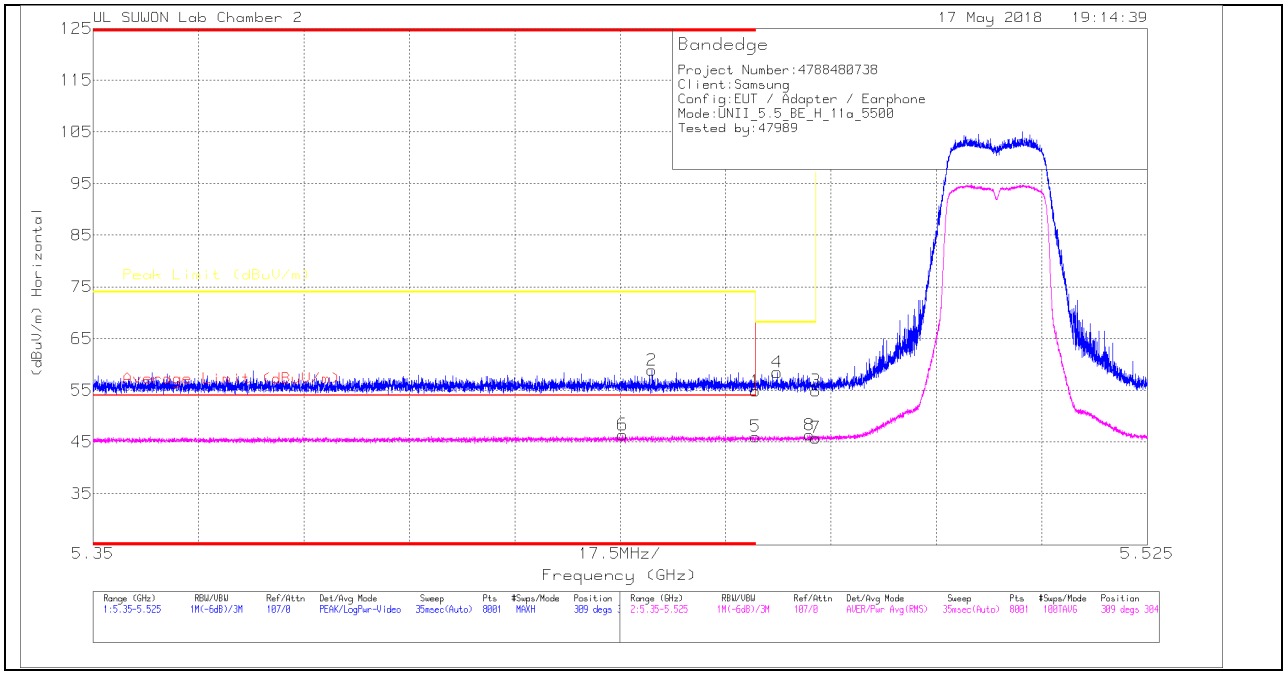
Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

11.3. 5.5-5.6 GHz

11.3.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.5 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



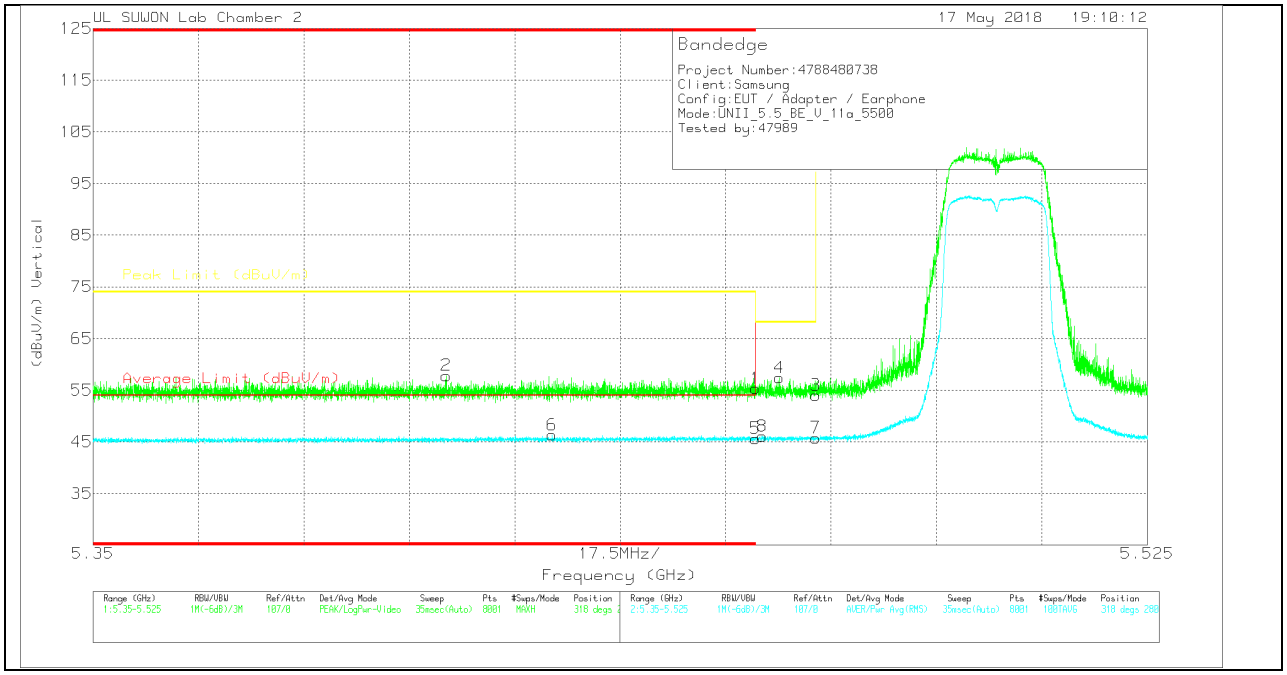
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.46	35.54	Pk	34.3	-15	0	54.84	-	-	74	-19.16	309	304	H
2	* 5.443	39.68	Pk	34.3	-15.1	0	58.88	-	-	74	-15.12	309	304	H
3	5.47	35.59	Pk	34.3	-15	0	54.89	-	-	68.2	-13.31	309	304	H
4	5.464	39.26	Pk	34.3	-15.1	0	58.46	-	-	68.2	-9.74	309	304	H
5	* 5.46	26.74	RMS	34.3	-15	0	46.04	54	-7.96	-	-	309	304	H
6	* 5.438	27.19	RMS	34.3	-15.1	0	46.39	54	-7.61	-	-	309	304	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

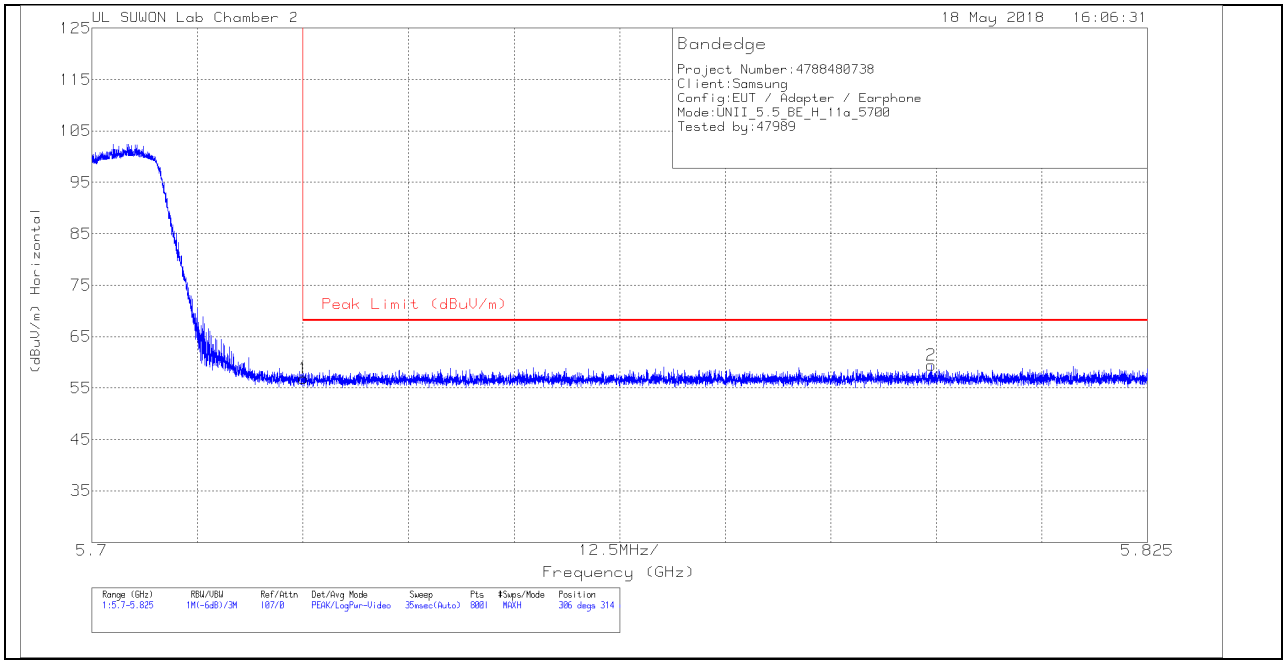
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.46	36.04	Pk	34.3	-15	0	55.34	-	-	74	-18.66	318	280	V
2	* 5.409	38.84	Pk	34.2	-15.2	0	57.84	-	-	74	-16.16	318	280	V
3	5.47	34.73	Pk	34.3	-15	0	54.03	-	-	68.2	-14.17	318	280	V
4	5.464	38.23	Pk	34.3	-15.1	0	57.43	-	-	68.2	-10.77	318	280	V
5	* 5.46	26.33	RMS	34.3	-15	0	45.63	54	-8.37	-	-	318	280	V
6	* 5.426	27.12	RMS	34.3	-15.1	0	46.32	54	-7.68	-	-	318	280	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



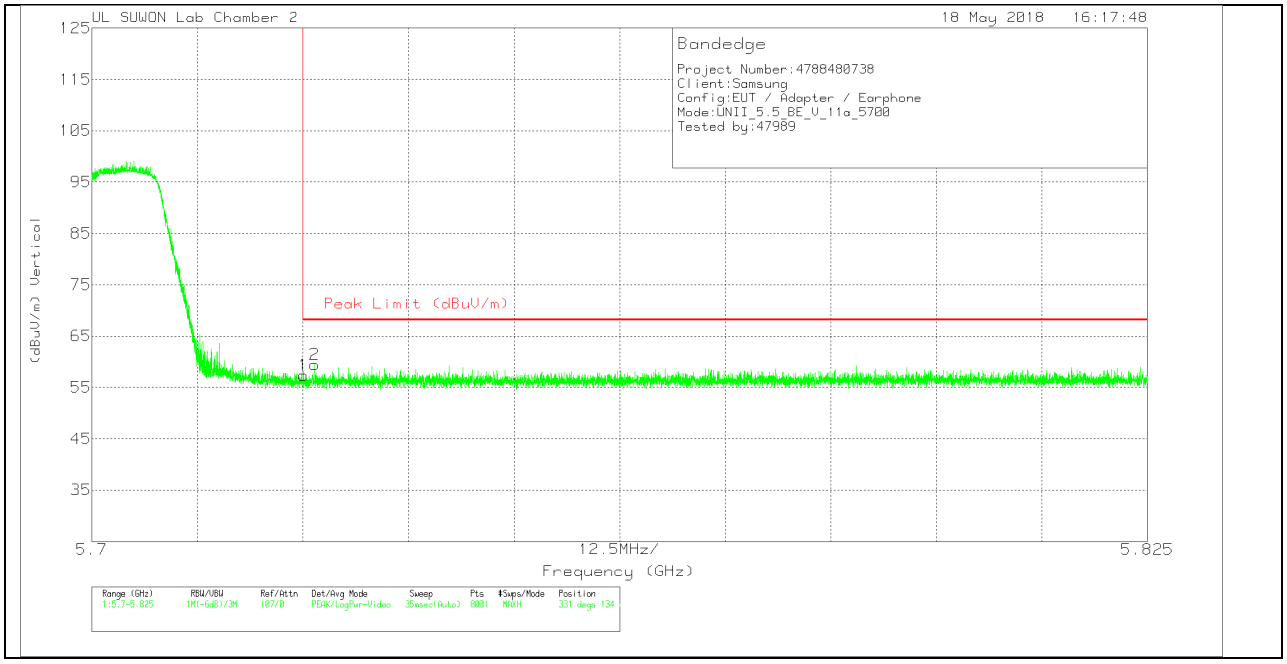
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	36.95	Pk	34.4	-14.5	0	56.85	68.2	-11.35	306	314	H
2	5.799	39.3	Pk	34.5	-14.4	0	59.4	68.2	-8.8	306	314	H

Pk - Peak detector

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

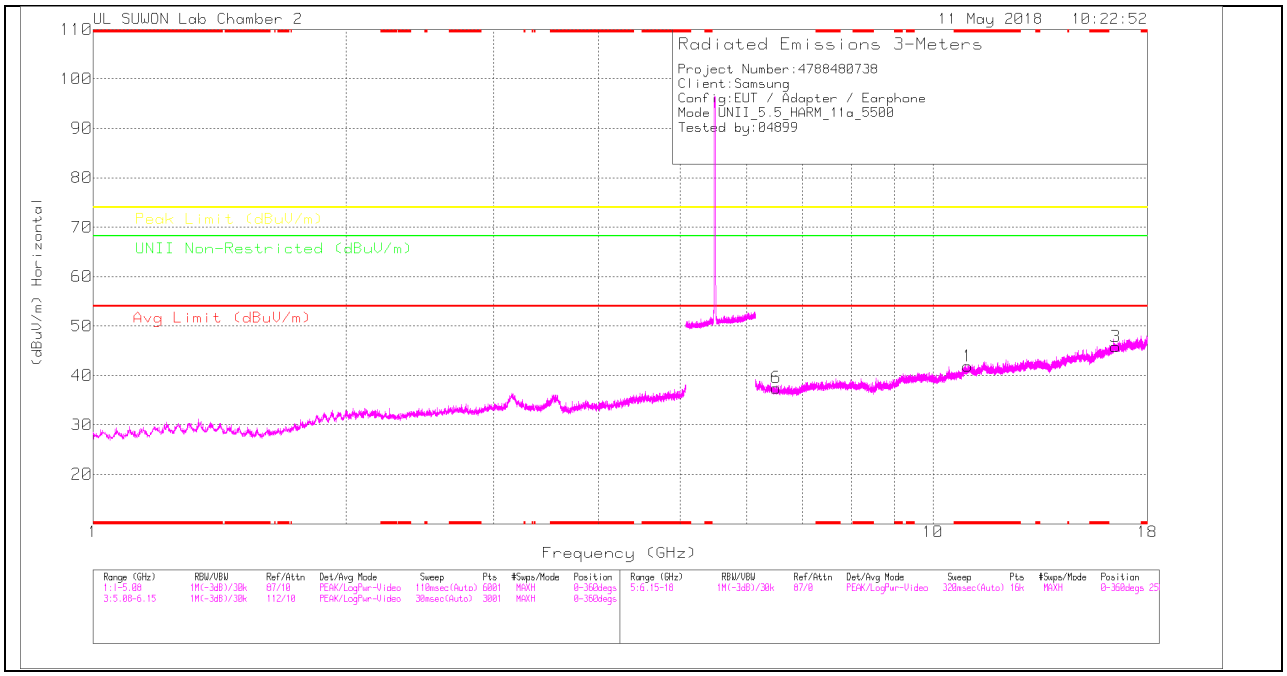
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	37.46	Pk	34.4	-14.5	0	57.36	68.2	-10.84	331	134	V
2	5.726	39.59	Pk	34.4	-14.5	0	59.49	68.2	-8.71	331	134	V

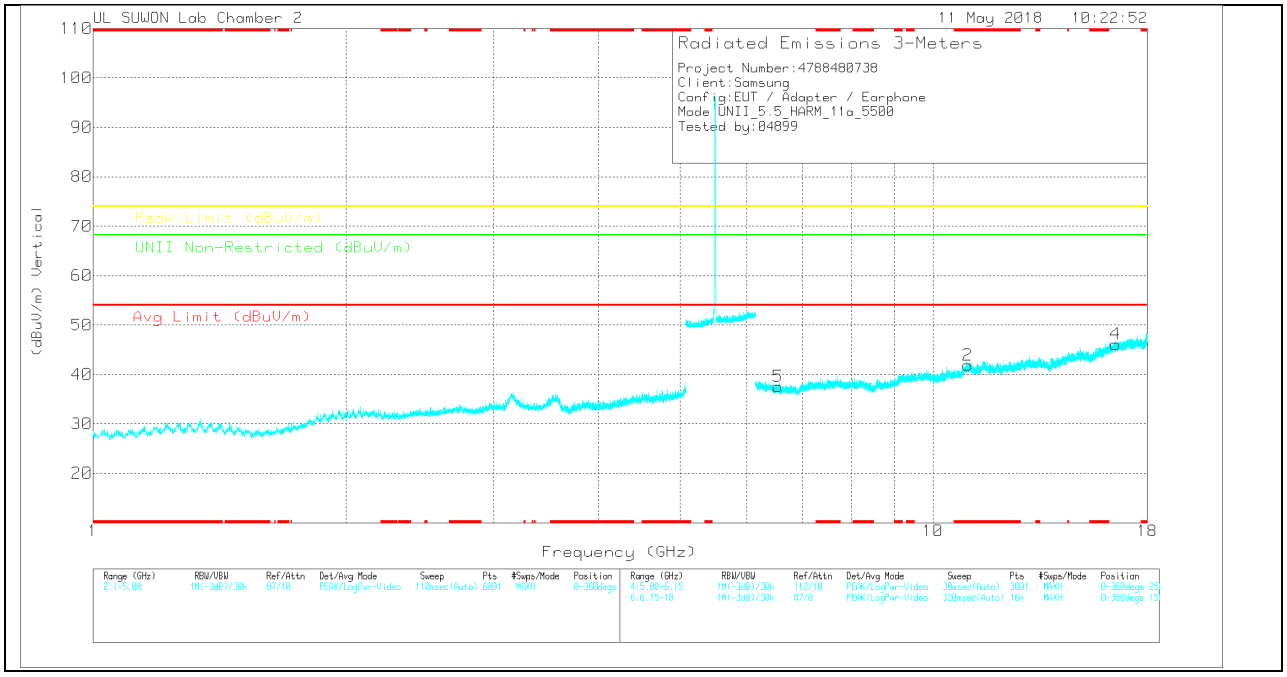
Pk - Peak detector

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

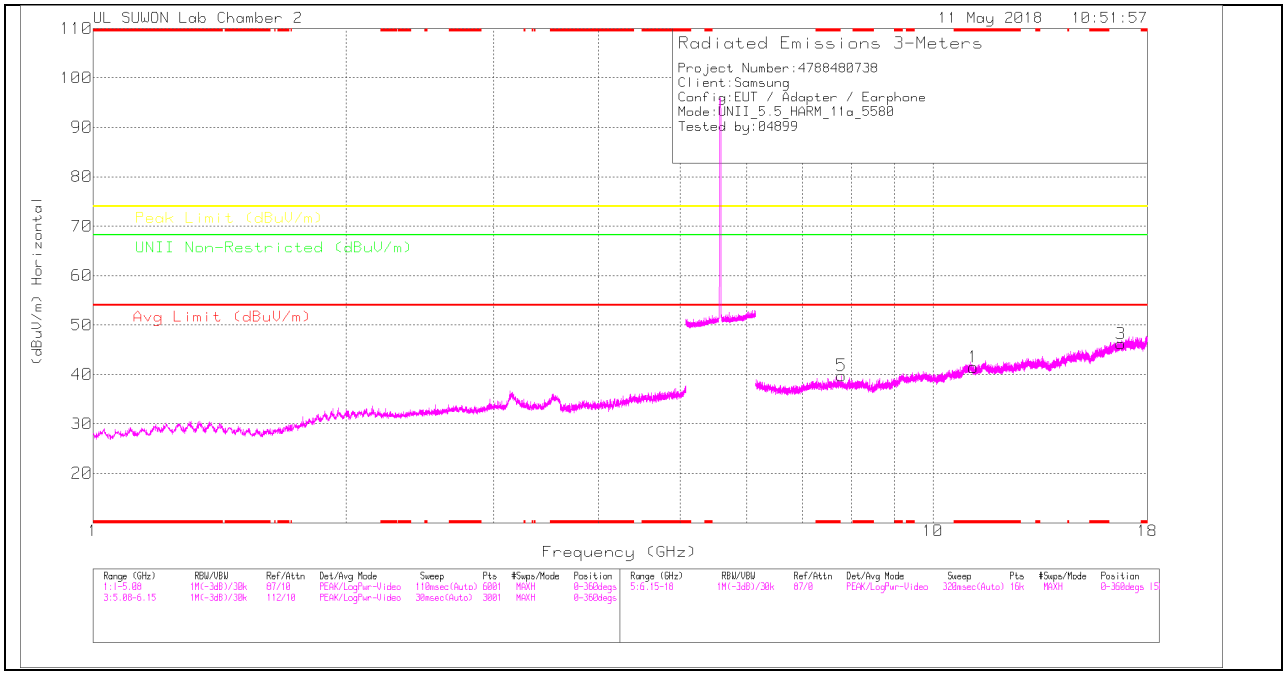
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117(00168724)	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	* 10.999	19.88	PK	38	-16	0	41.88	-	-	74	-32.12	-	-	0-360	150	H
3	16.5	19.5	PK	40.7	-14.4	0	45.8	-	-	-	-	68.2	-22.4	0-360	150	H
6	6.505	24.59	PK	35.1	-22.2	0	37.49	-	-	-	-	68.2	-30.71	0-360	150	H
2	* 10.996	19.89	PK	38	-16	0	41.89	-	-	74	-32.11	-	-	0-360	150	V
4	16.5	19.83	PK	40.7	-14.4	0	46.13	-	-	-	-	68.2	-22.07	0-360	150	V
5	6.54	24.87	PK	35.1	-22.4	0	37.57	-	-	-	-	68.2	-30.63	0-360	150	V

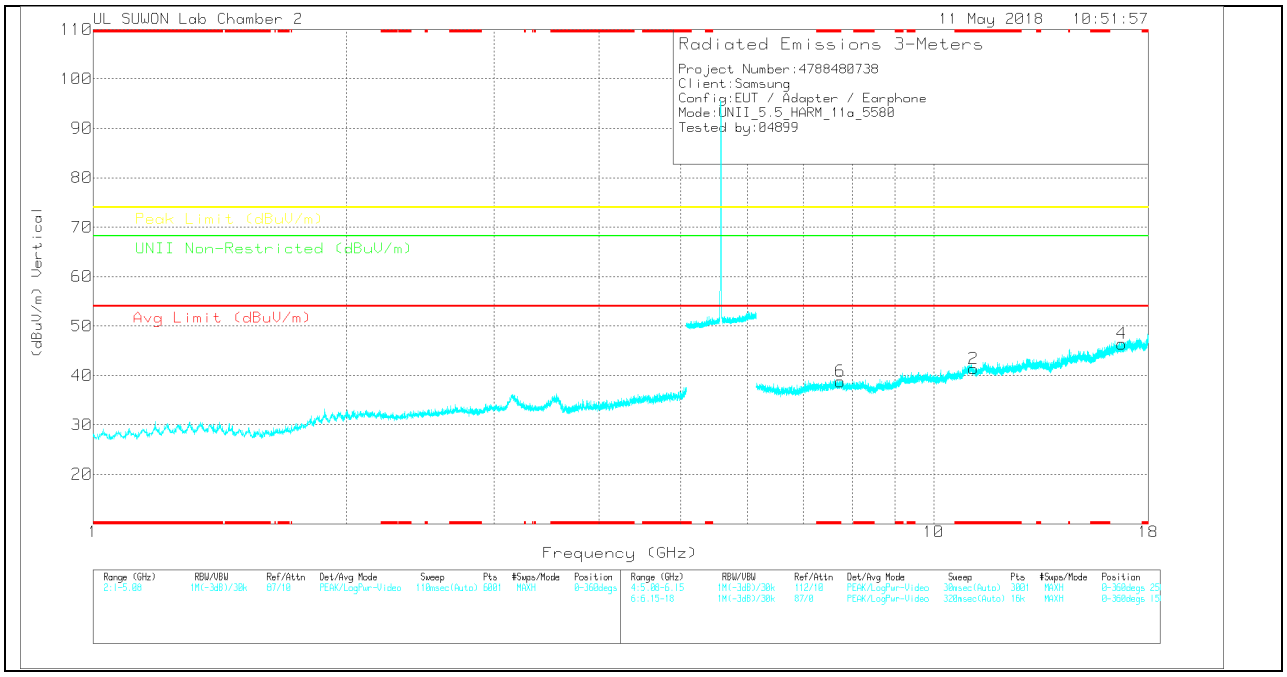
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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

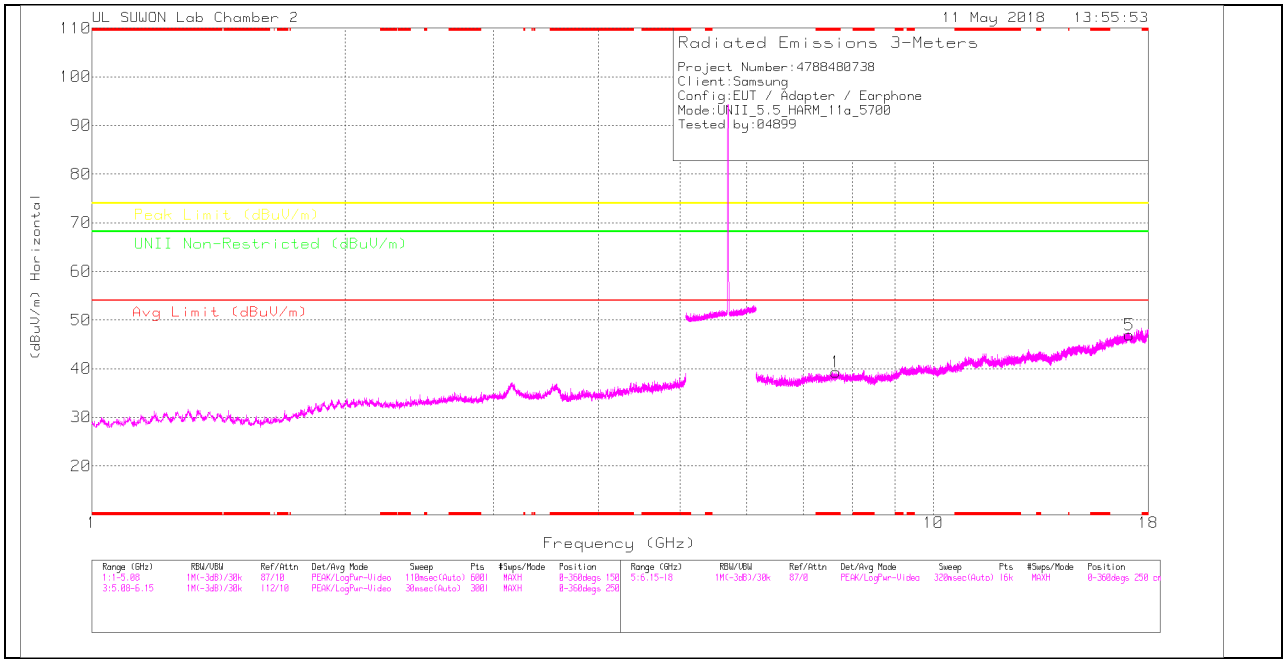
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117(00168724)	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	* 11.169	19.75	PK	37.9	-16.2	0	41.45	-	-	74	-32.55	-	-	0-360	250	H
3	16.732	19.12	PK	40.9	-13.8	0	46.22	-	-	-	-	68.2	-21.98	0-360	250	H
5	7.787	24.36	PK	35.8	-20.4	0	39.76	-	-	-	-	68.2	-28.44	0-360	150	H
2	* 11.157	19.69	PK	37.9	-16.2	0	41.39	-	-	74	-32.61	-	-	0-360	150	V
4	16.74	19.31	PK	40.9	-13.8	0	46.41	-	-	-	-	68.2	-21.79	0-360	150	V
6	* 7.739	22.88	PK	35.8	-19.9	0	38.78	-	-	74	-35.22	-	-	0-360	250	V

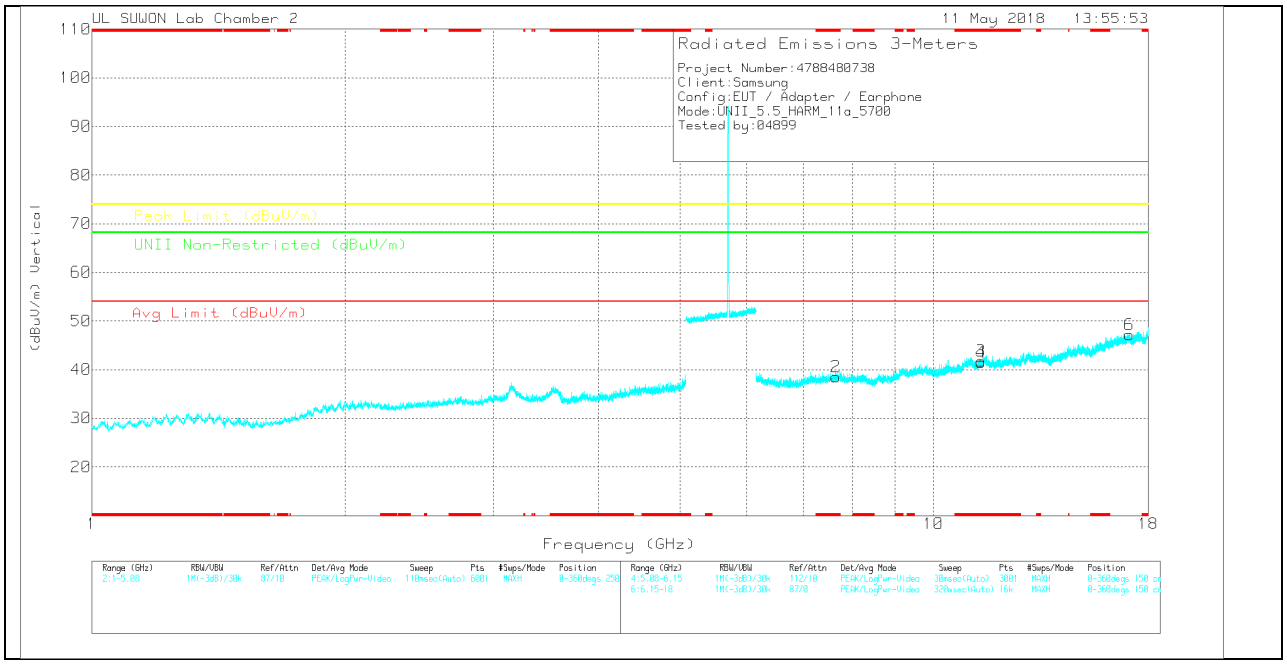
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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

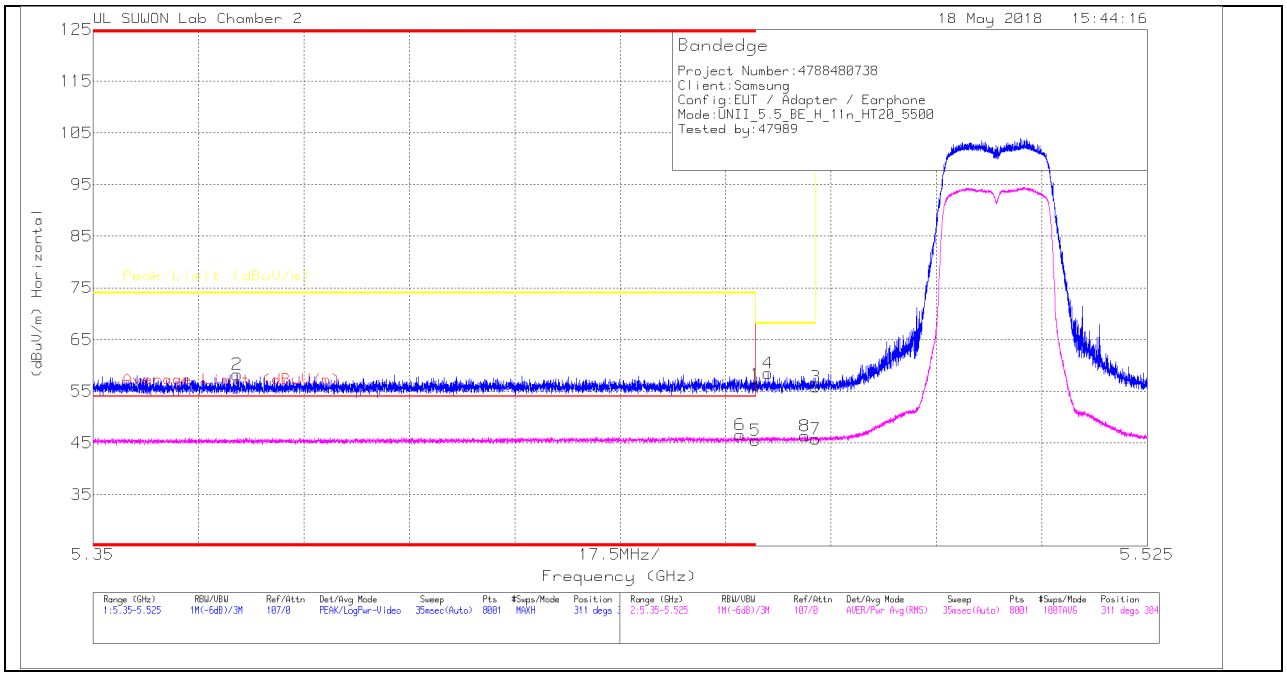
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	6GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 7.656	23.45	PK	35.8	-20	0	39.25	-	-	74	-34.75	-	-	0-360	150	H
5	17.102	19.09	PK	41.3	-13.5	0	46.89	-	-	-	-	68.2	-21.31	0-360	250	H
2	* 7.659	22.76	PK	35.8	-20	0	38.56	-	-	74	-35.44	-	-	0-360	150	V
3	* 11.395	19.2	PK	38.1	-15.6	0	41.7	-	-	74	-32.3	-	-	0-360	250	V
4	* 11.397	18.96	PK	38.1	-15.6	0	41.46	-	-	74	-32.54	-	-	0-360	150	V
6	17.1	19.4	PK	41.3	-13.5	0	47.2	-	-	-	-	68.2	-21	0-360	150	V

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

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

11.3.2. TX ABOVE 1GHz 802.11n HT20 MODE IN THE 5.5GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



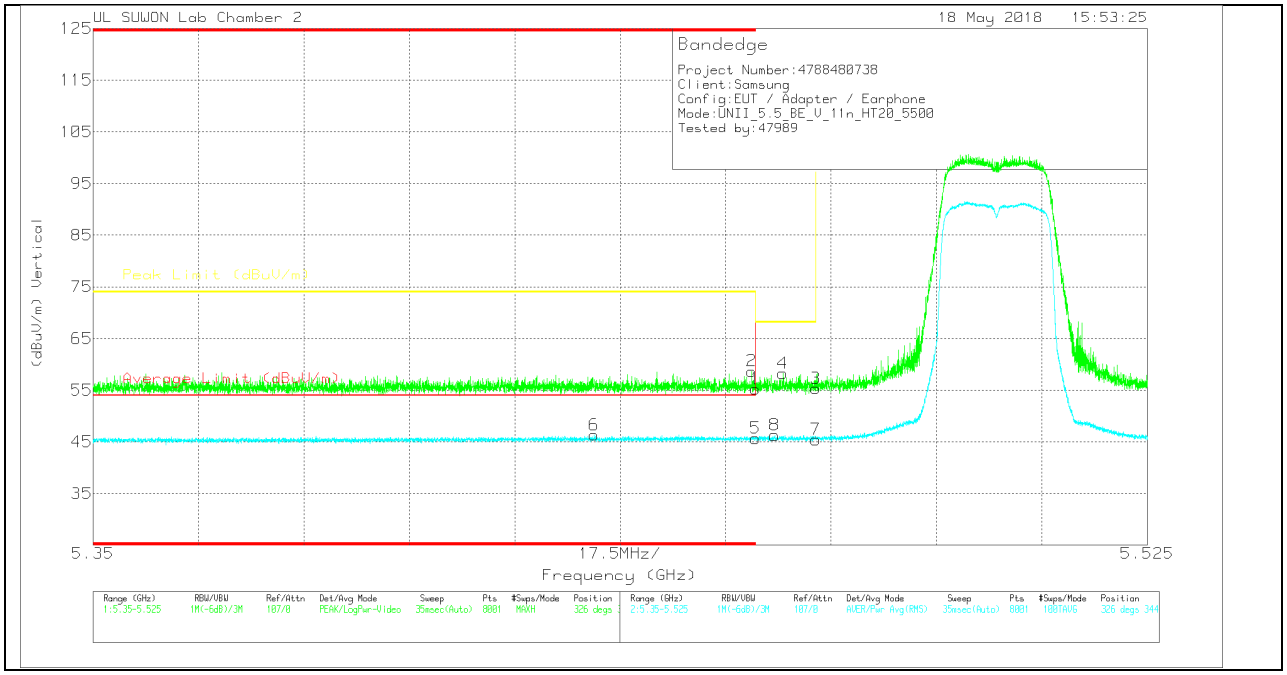
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.46	36.97	Pk	34.3	-15	0	56.27	-	-	74	-17.73	311	304	H
2	* 5.374	39.23	Pk	34.2	-15.2	0	58.23	-	-	74	-15.77	311	304	H
3	5.47	36.55	Pk	34.3	-15	0	55.85	-	-	68.2	-12.35	311	304	H
4	5.462	39.17	Pk	34.3	-15	0	58.47	-	-	68.2	-9.73	311	304	H
5	* 5.46	26.19	RMS	34.3	-15	0	45.49	54	-8.51	-	-	311	304	H
6	* 5.457	27.39	RMS	34.3	-15.1	0	46.59	54	-7.41	-	-	311	304	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

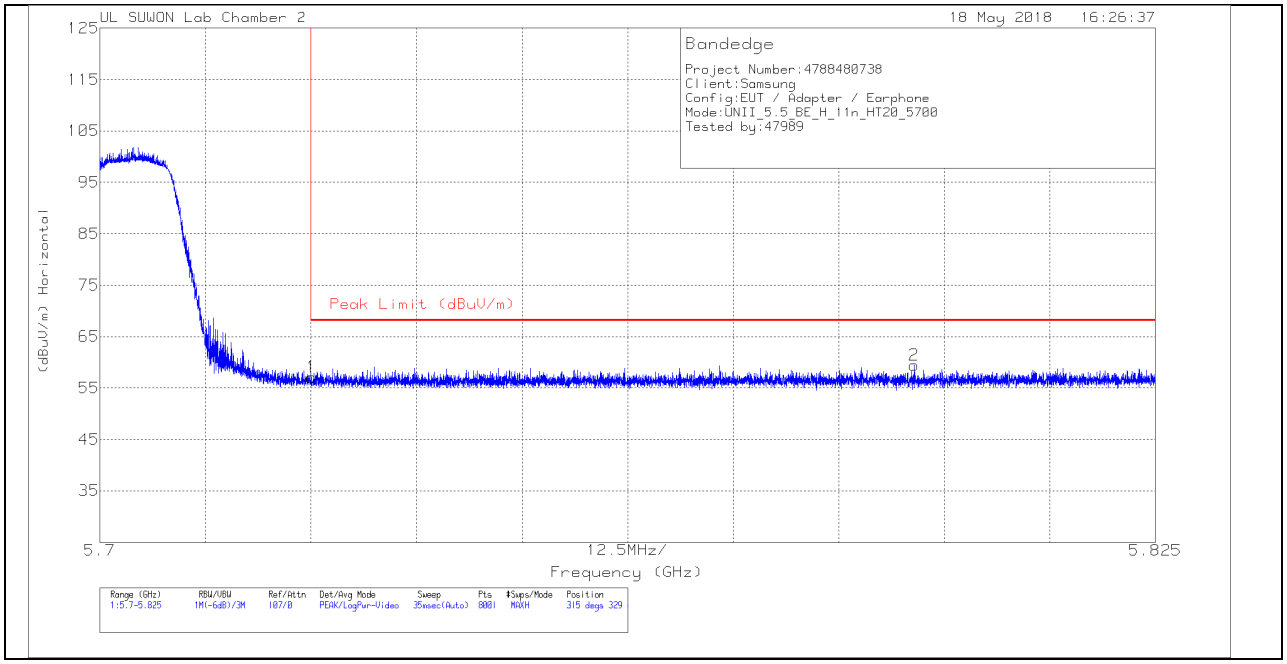
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.46	35.98	Pk	34.3	-15	0	55.28	-	-	74	-18.72	326	344	V
2	* 5.459	39.4	Pk	34.3	-15	0	58.7	-	-	74	-15.3	326	344	V
3	5.47	36.05	Pk	34.3	-15	0	55.35	-	-	68.2	-12.85	326	344	V
4	5.464	39.05	Pk	34.3	-15.1	0	58.25	-	-	68.2	-9.95	326	344	V
5	* 5.46	26.39	RMS	34.3	-15	0	45.69	54	-8.31	-	-	326	344	V
6	* 5.433	27.14	RMS	34.3	-15.1	0	46.34	54	-7.66	-	-	326	344	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



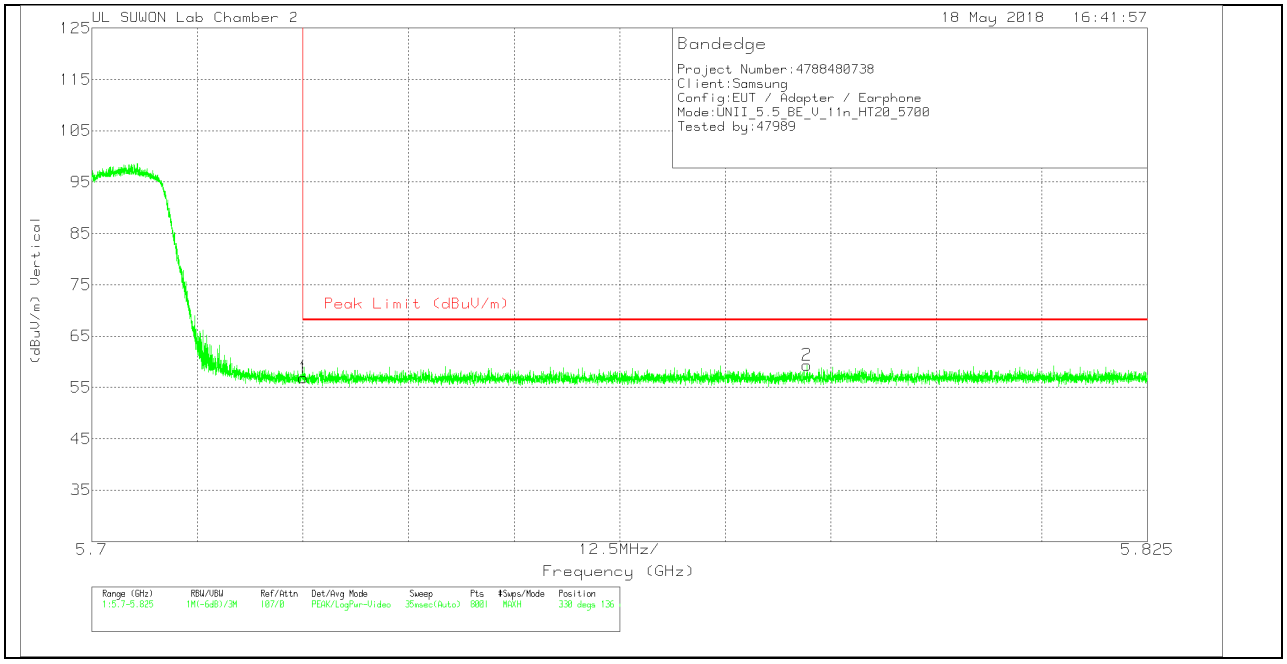
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	37.17	Pk	34.4	-14.5	0	57.07	68.2	-11.13	315	329	H
2	5.796	39.32	Pk	34.5	-14.4	0	59.42	68.2	-8.78	315	329	H

Pk - Peak detector

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

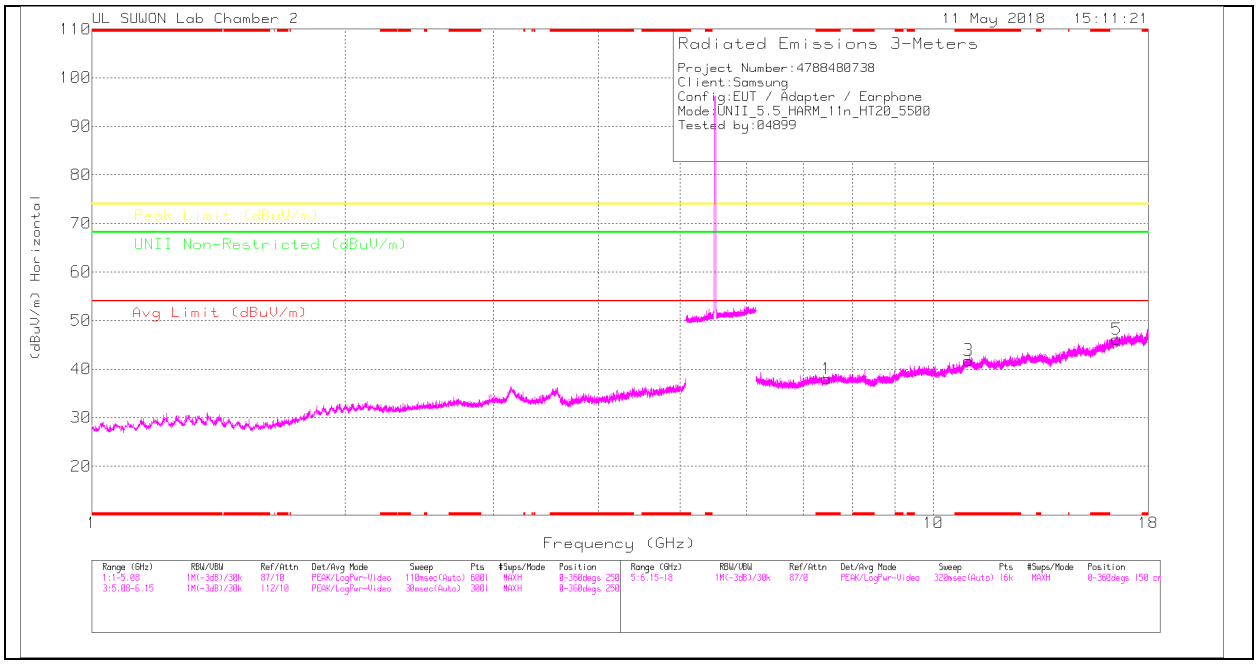
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	37.04	Pk	34.4	-14.5	0	56.94	68.2	-11.26	330	136	V
2	5.785	39.29	Pk	34.5	-14.4	0	59.39	68.2	-8.81	330	136	V

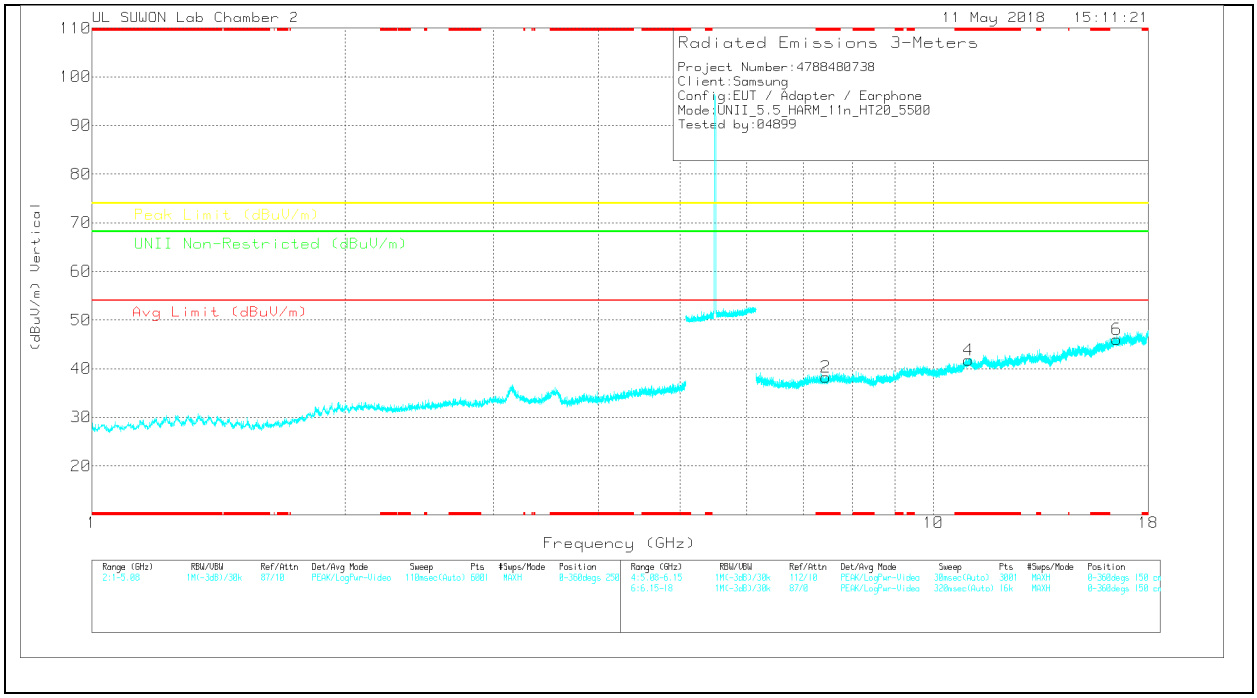
Pk - Peak detector

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

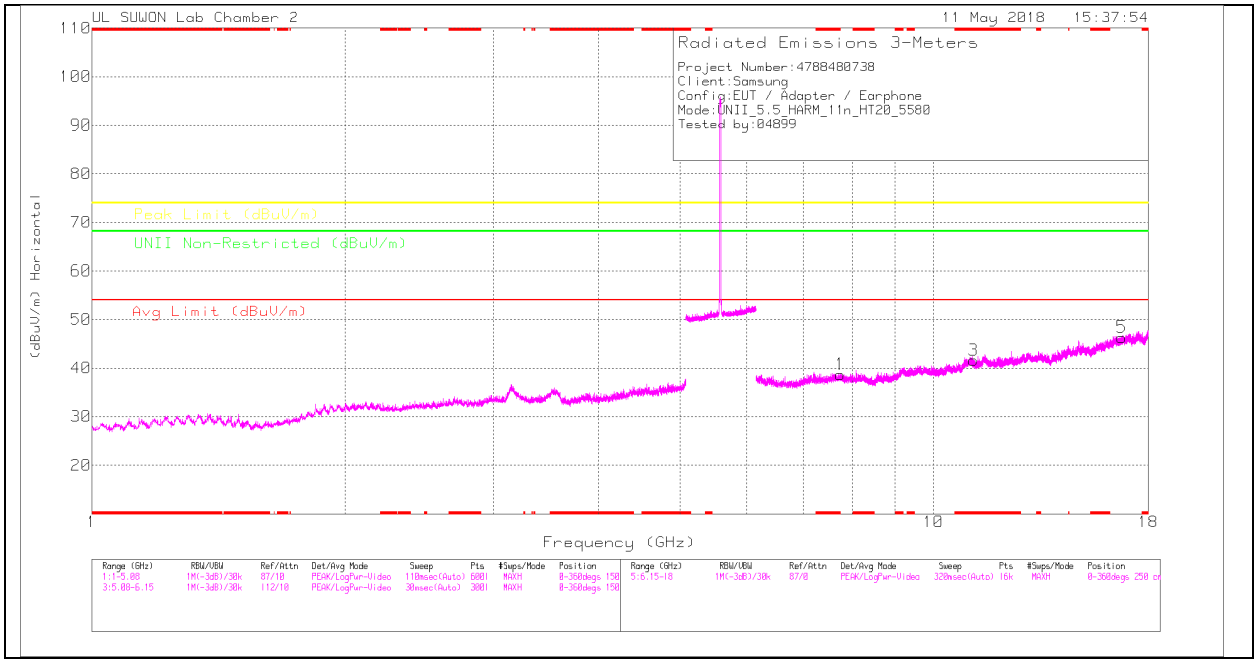
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	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	* 7.459	23.25	PK	35.9	-21.2	0	37.95	-	-	74	-36.05	-	-	0-360	250	H
3	* 11.002	19.81	PK	38	-16	0	41.81	-	-	74	-32.19	-	-	0-360	150	H
5	16.506	19.87	PK	40.7	-14.4	0	46.17	-	-	-	-	68.2	-22.03	0-360	150	H
2	* 7.449	23.56	PK	35.9	-21.2	0	38.26	-	-	74	-35.74	-	-	0-360	250	V
4	* 11.002	19.78	PK	38	-16	0	41.78	-	-	74	-32.22	-	-	0-360	250	V
6	16.503	19.75	PK	40.7	-14.4	0	46.05	-	-	-	-	68.2	-22.15	0-360	250	V

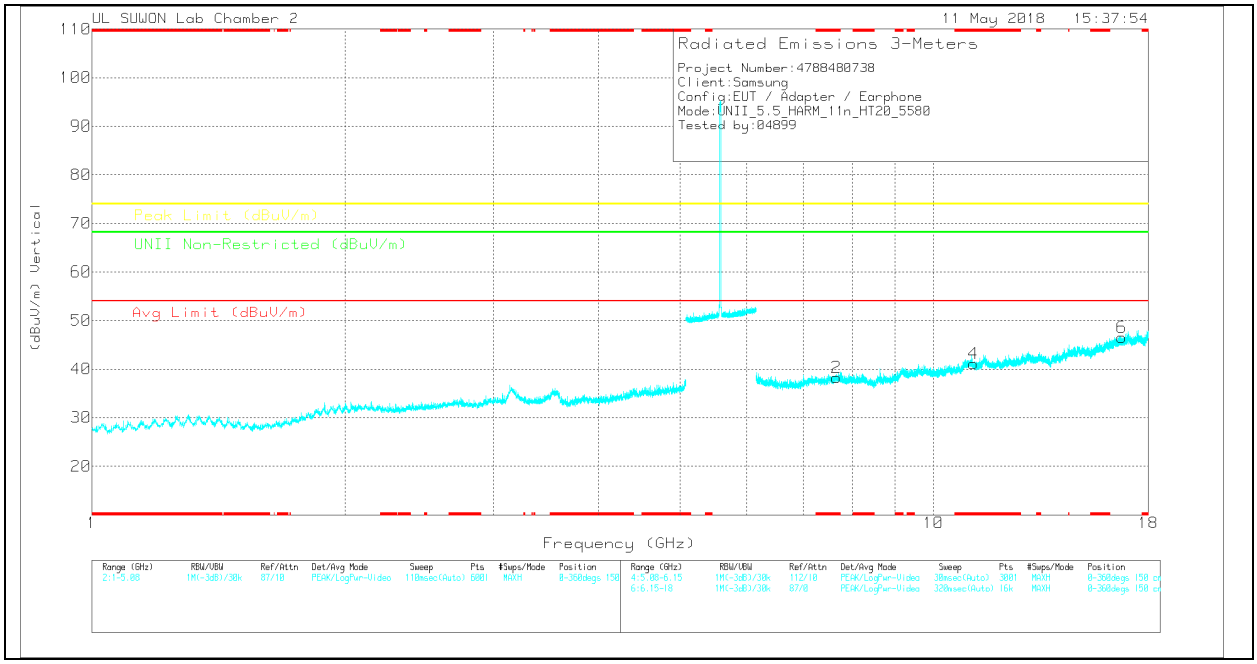
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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

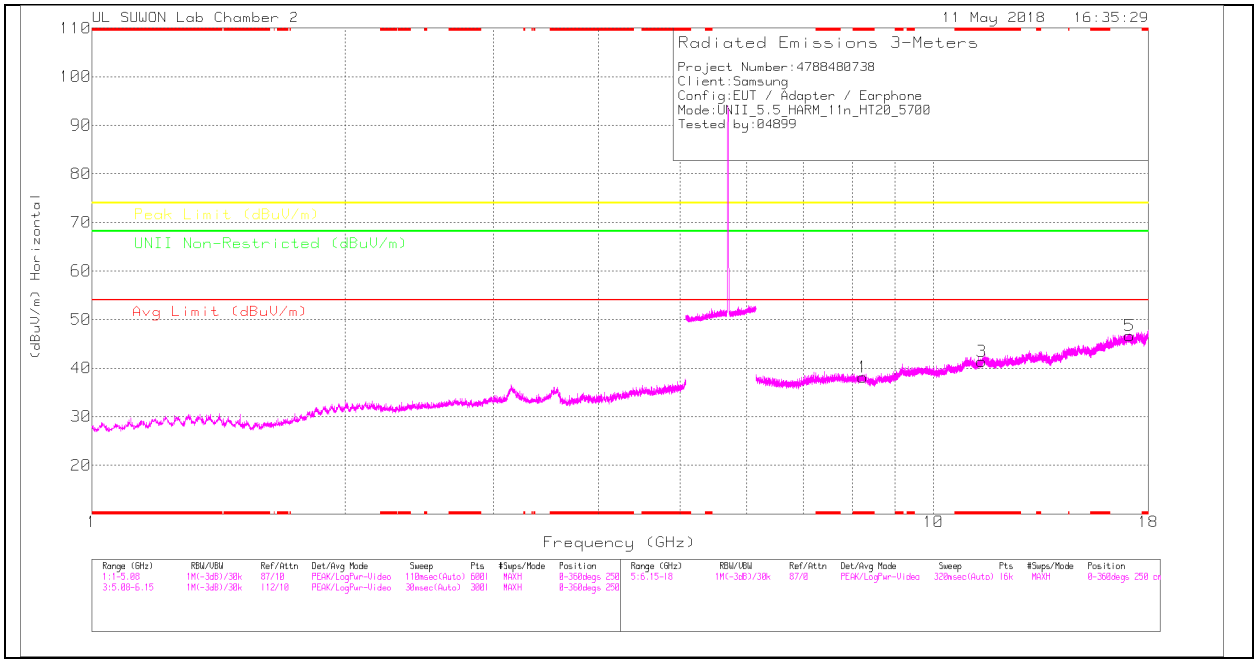
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117(00168724)	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	7.75	22.91	PK	35.8	-20	0	38.71	-	-	-	-	68.2	-29.49	0-360	150	H
3	* 11.159	19.95	PK	37.9	-16.2	0	41.65	-	-	74	-32.35	-	-	0-360	150	H
5	16.736	19.24	PK	40.9	-13.8	0	46.34	-	-	-	-	68.2	-21.86	0-360	250	H
2	* 7.667	22.44	PK	35.8	-20	0	38.24	-	-	74	-35.76	-	-	0-360	250	V
4	* 11.157	19.39	PK	37.9	-16.2	0	41.09	-	-	74	-32.91	-	-	0-360	150	V
6	16.743	19.34	PK	40.9	-13.7	0	46.54	-	-	-	-	68.2	-21.66	0-360	150	V

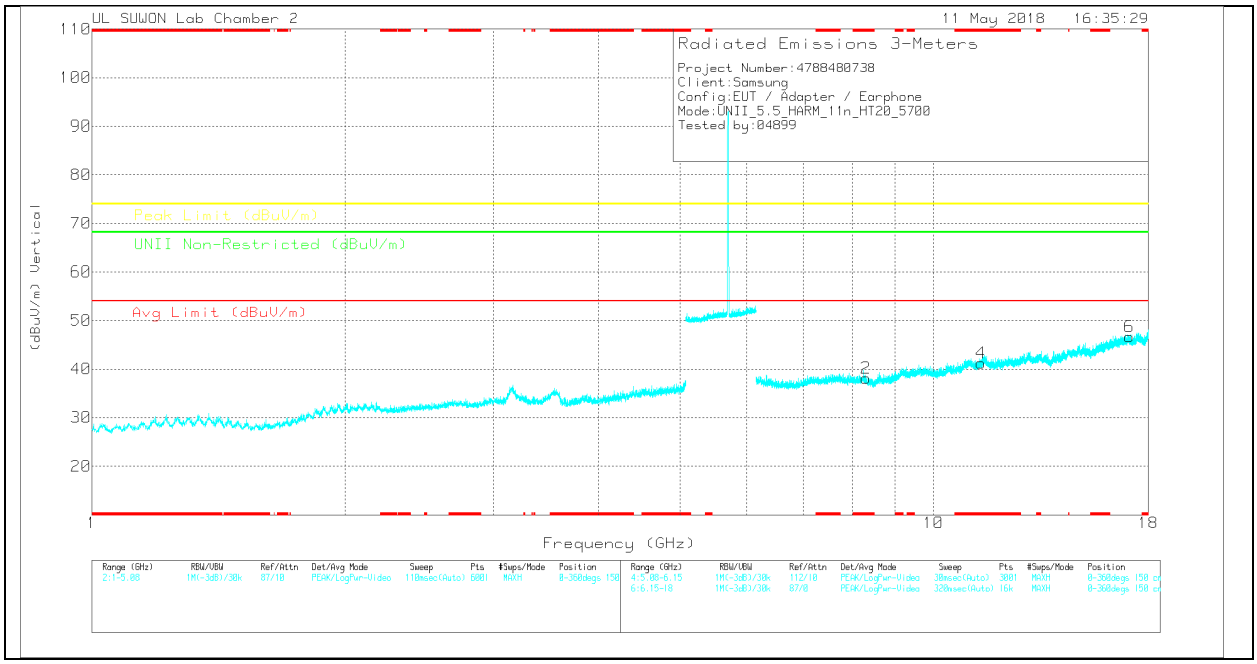
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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

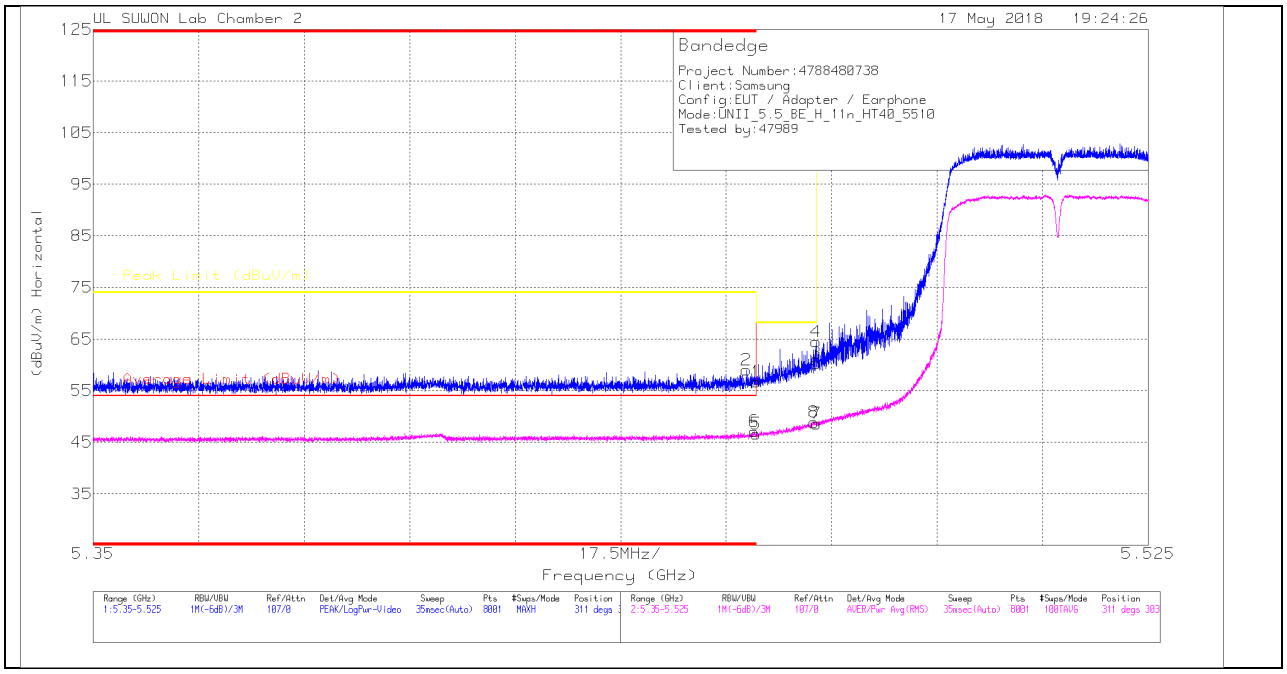
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	6GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 8.242	21.52	PK	35.7	-19.1	0	38.12	-	-	74	-35.88	-	-	0-360	150	H
3	* 11.401	18.98	PK	38.1	-15.7	0	41.38	-	-	74	-32.62	-	-	0-360	250	H
5	17.105	18.86	PK	41.3	-13.5	0	46.66	-	-	-	-	68.2	-21.54	0-360	150	H
2	* 8.315	21.28	PK	35.7	-18.9	0	38.08	-	-	74	-35.92	-	-	0-360	150	V
4	* 11.398	18.69	PK	38.1	-15.6	0	41.19	-	-	74	-32.81	-	-	0-360	150	V
6	17.096	18.82	PK	41.3	-13.5	0	46.62	-	-	-	-	68.2	-21.58	0-360	150	V

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

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

11.3.3. TX ABOVE 1GHz 802.11n HT40 MODE IN THE 5.5GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



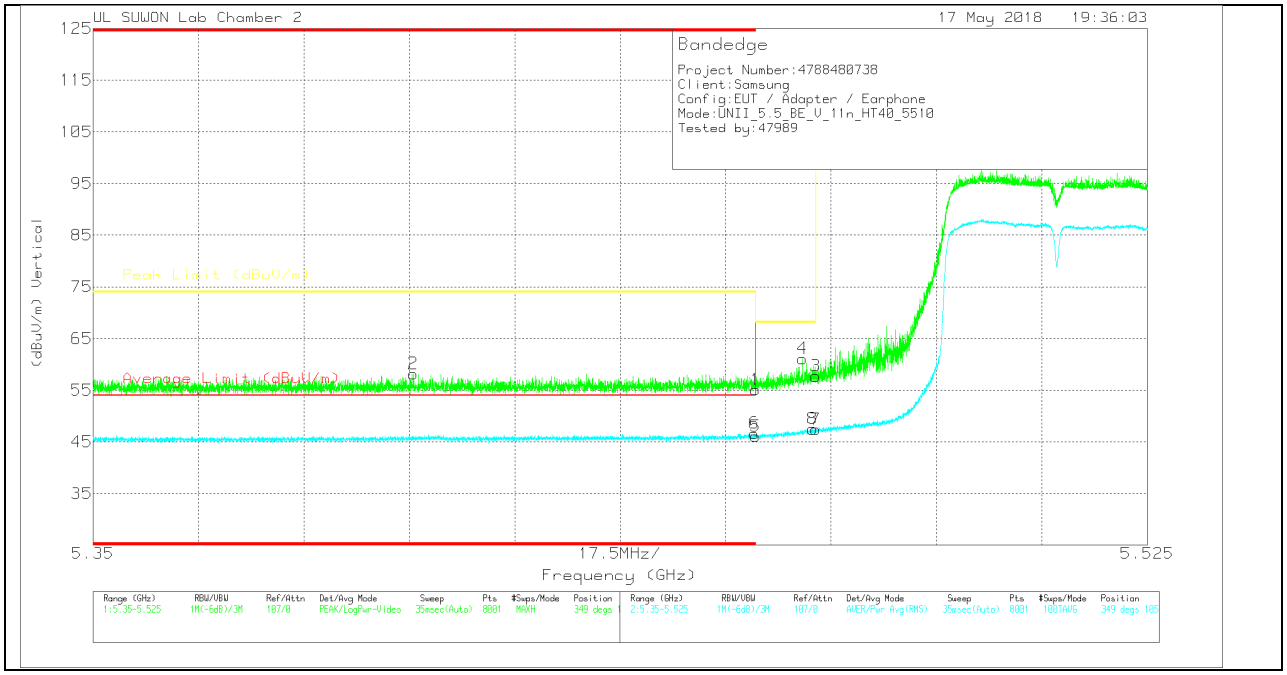
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.46	37.41	Pk	34.3	-15	0	56.71	-	-	74	-17.29	311	303	H
2	* 5.458	39.8	Pk	34.3	-15.1	0	59	-	-	74	-15	311	303	H
3	5.47	41	Pk	34.3	-15	0	60.3	-	-	68.2	-7.9	311	303	H
4	5.47	45.17	Pk	34.3	-15	0	64.47	-	-	68.2	-3.73	311	303	H
5	* 5.46	27.13	RMS	34.3	-15	.18	46.61	54	-7.39	-	-	311	303	H
6	* 5.46	27.62	RMS	34.3	-15	.18	47.1	54	-6.9	-	-	311	303	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

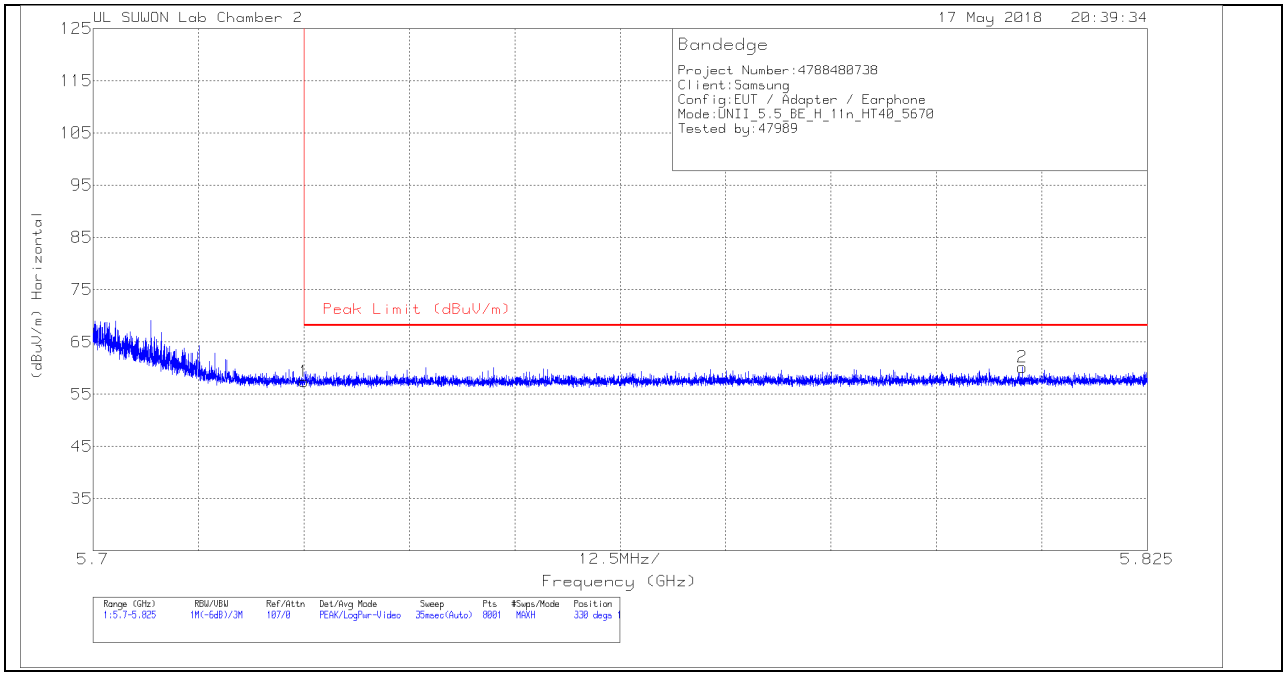
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.46	35.82	Pk	34.3	-15	0	55.12	-	-	74	-18.88	349	105	V
2	* 5.403	39.2	Pk	34.2	-15.2	0	58.2	-	-	74	-15.8	349	105	V
3	5.47	38.44	Pk	34.3	-15	0	57.74	-	-	68.2	-10.46	349	105	V
4	5.468	41.82	Pk	34.3	-15	0	61.12	-	-	68.2	-7.08	349	105	V
5	* 5.46	26.59	RMS	34.3	-15	.18	46.07	54	-7.93	-	-	349	105	V
6	* 5.46	27.17	RMS	34.3	-15	.18	46.65	54	-7.35	-	-	349	105	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



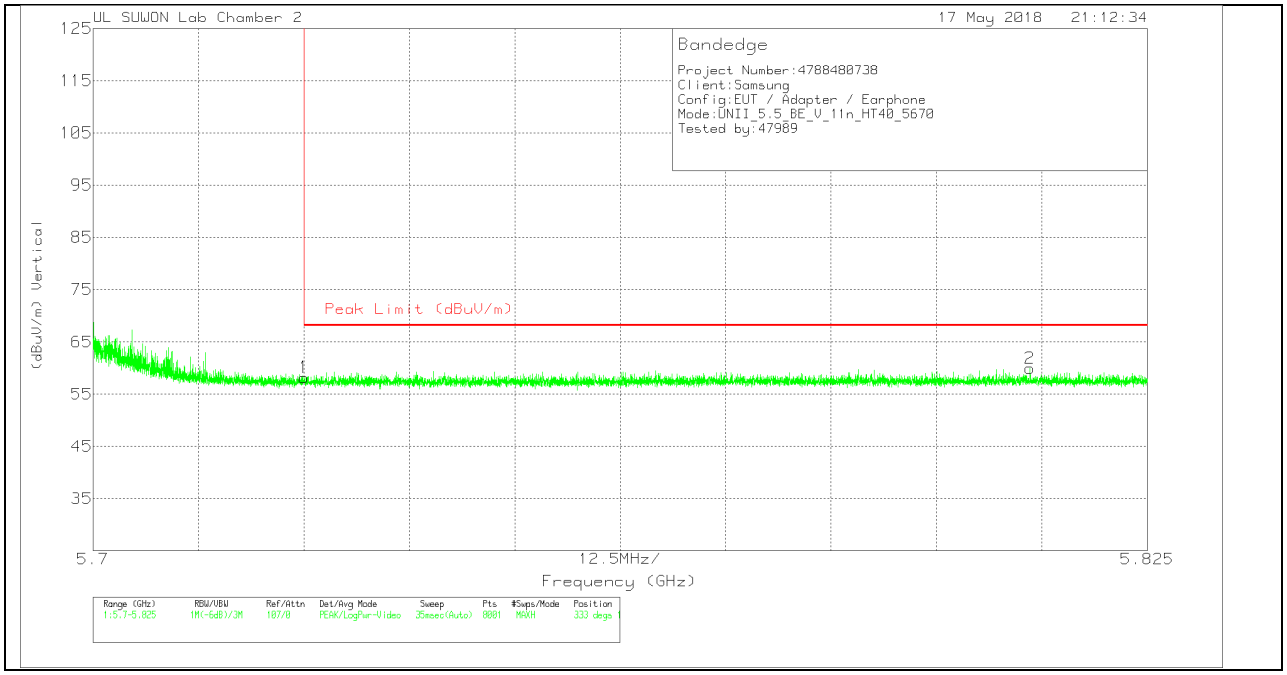
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	37.52	Pk	34.4	-14.5	0	57.42	68.2	-10.78	330	119	H
2	5.81	39.95	Pk	34.5	-14.3	0	60.15	68.2	-8.05	330	119	H

Pk - Peak detector

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

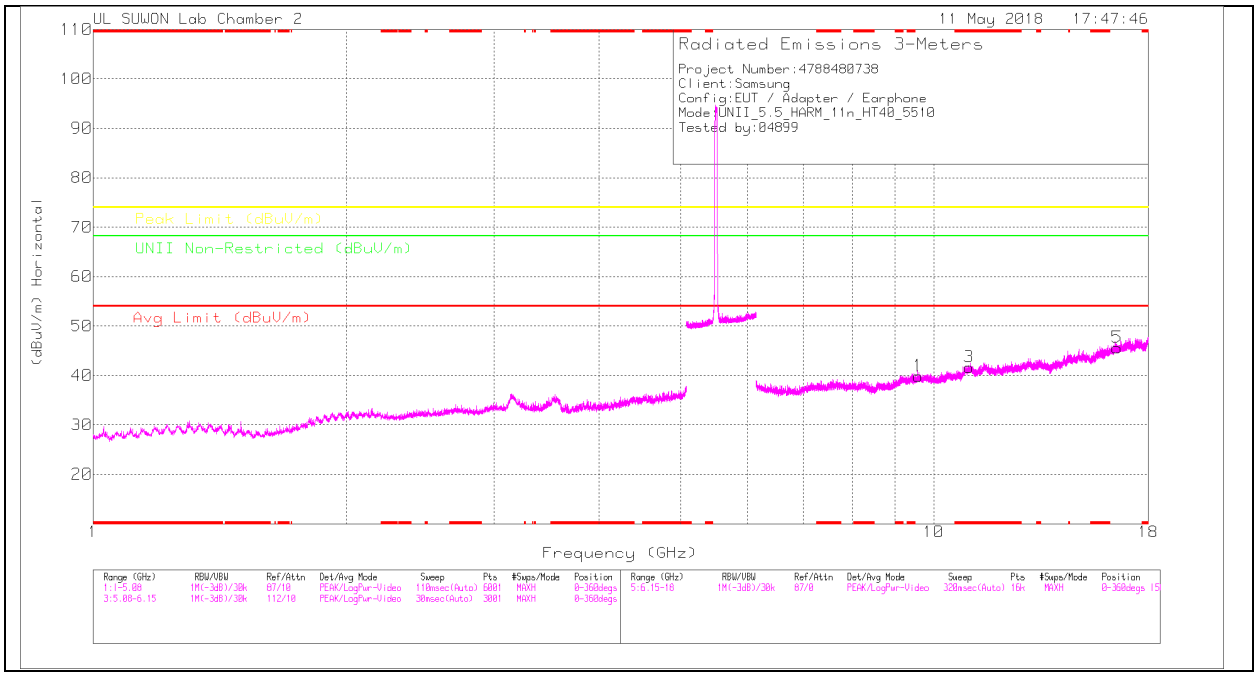
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	38.3	Pk	34.4	-14.5	0	58.2	68.2	-10	333	106	V
2	5.811	39.86	Pk	34.5	-14.4	0	59.96	68.2	-8.24	333	106	V

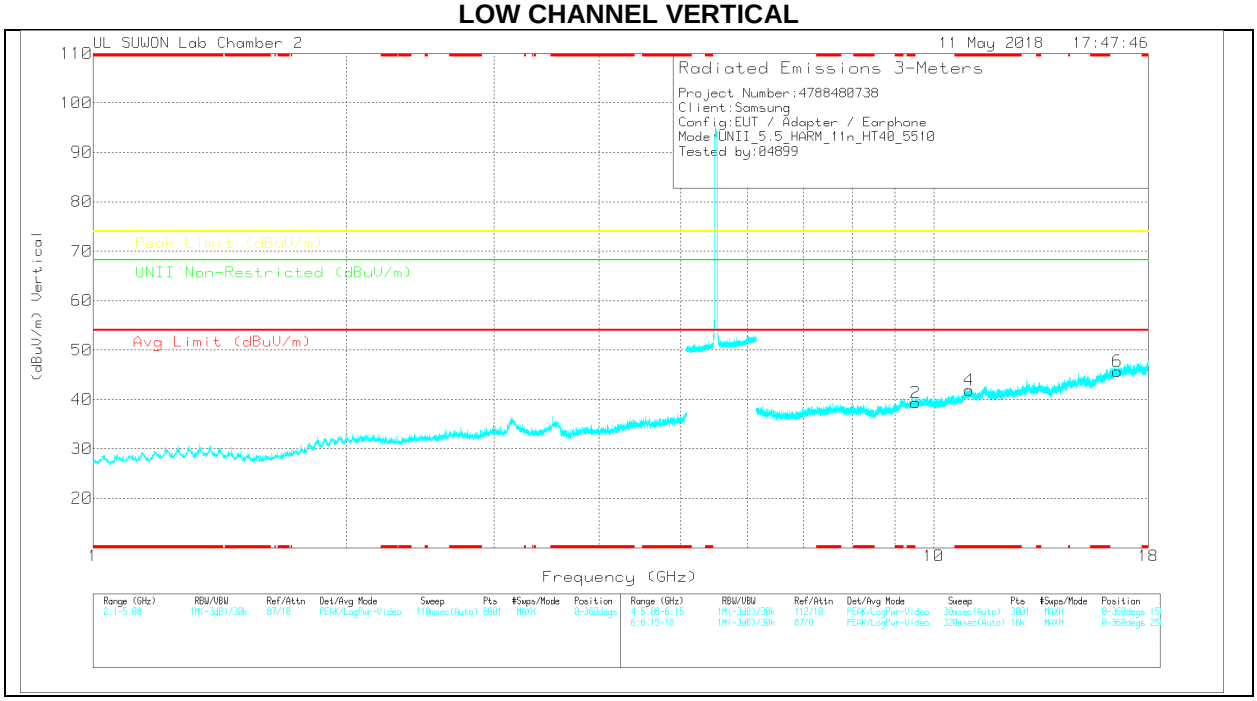
Pk - Peak detector

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

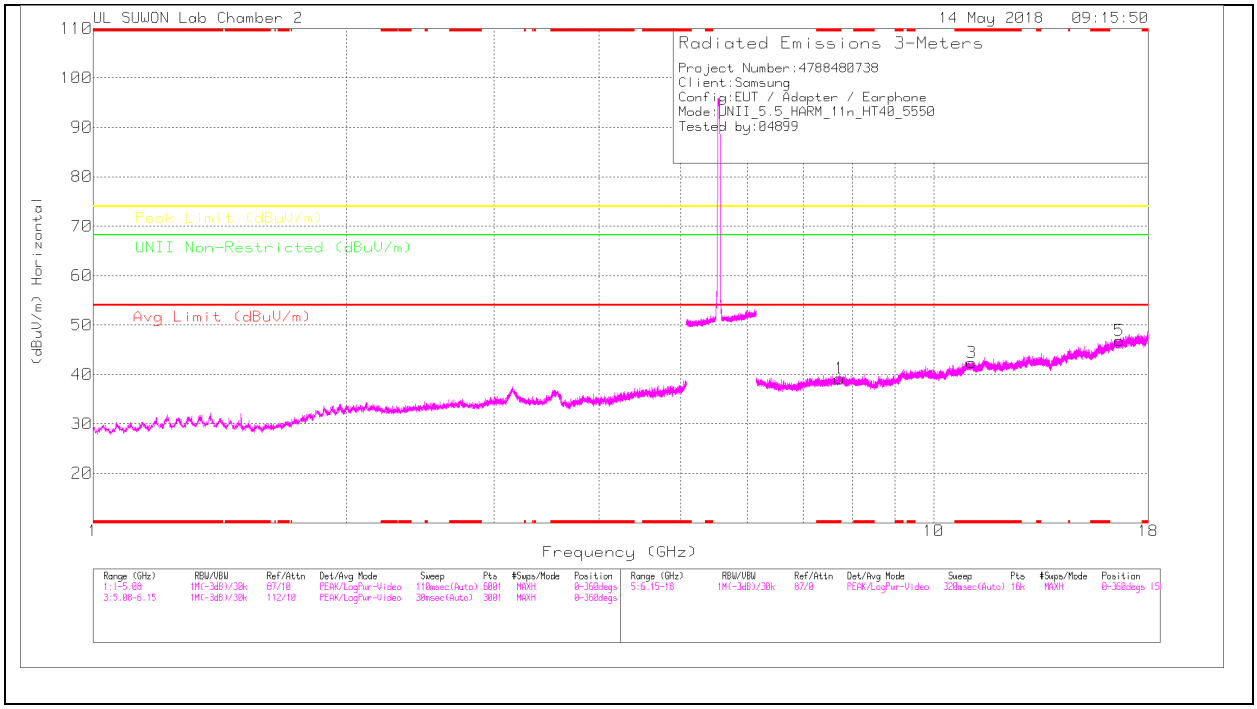
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	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	9.581	21	PK	36.7	-17.8	0	39.9	-	-	-	-	68.2	-28.3	0-360	150	H
3	* 11.018	19.8	PK	38	-16.1	0	41.7	-	-	74	-32.3	-	-	0-360	150	H
5	16.524	19.34	PK	40.7	-14.4	0	45.64	-	-	-	-	68.2	-22.56	0-360	250	H
2	9.523	20.41	PK	36.6	-17.7	0	39.31	-	-	-	-	68.2	-28.89	0-360	250	V
4	* 11.019	19.99	PK	38	-16.1	0	41.89	-	-	74	-32.11	-	-	0-360	150	V
6	16.531	19.28	PK	40.7	-14.3	0	45.68	-	-	-	-	68.2	-22.52	0-360	150	V

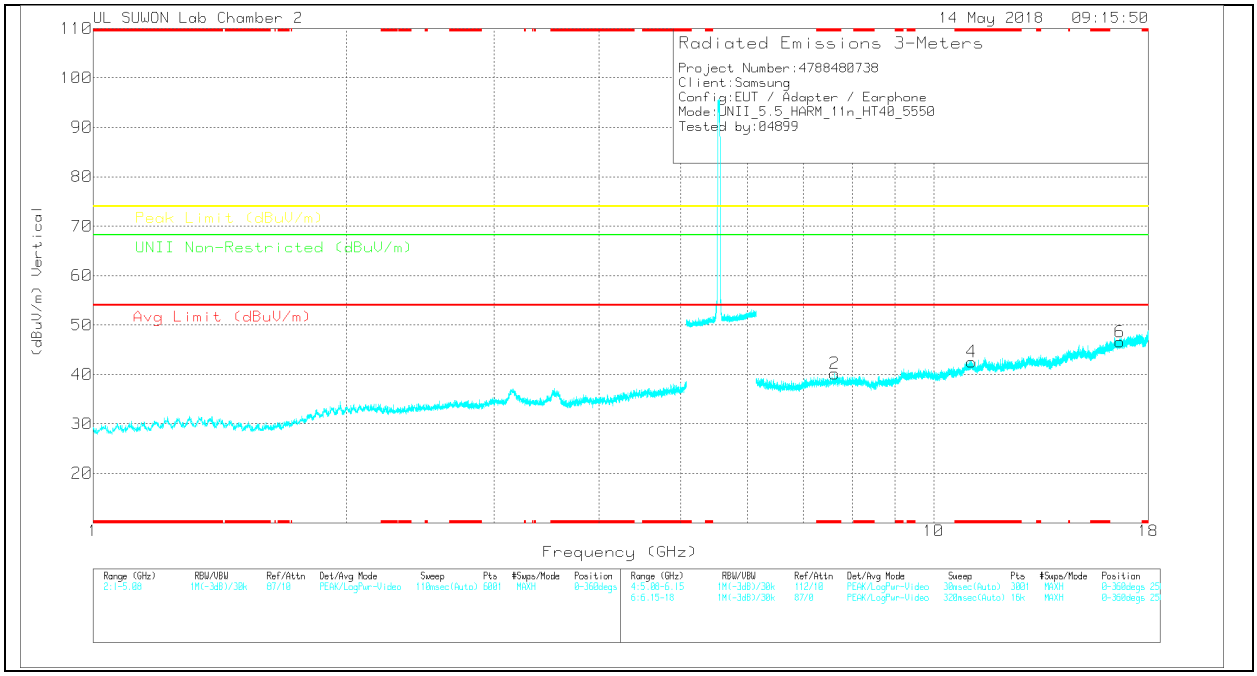
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

MID CHANNEL HORIZONTAL



MID CHANNELVERTICAL



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

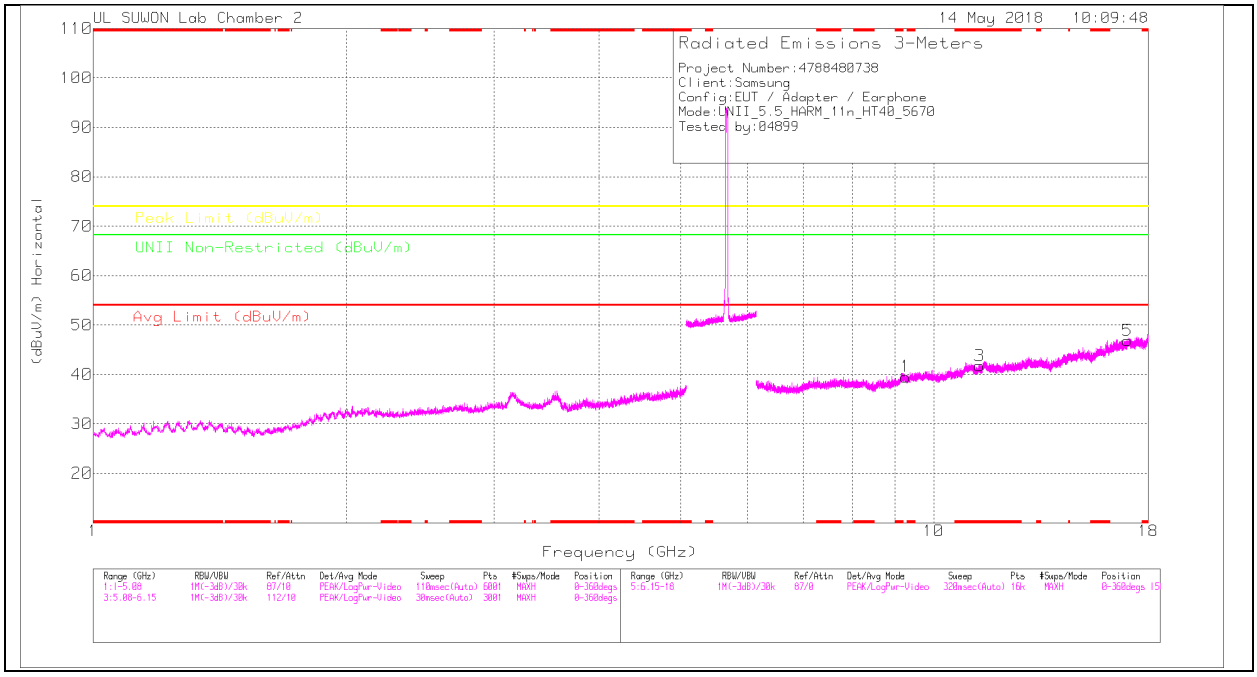
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117(00168724)	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	* 7.729	23.16	PK	35.8	-19.8	0	39.16	-	-	74	-34.84	-	-	0-360	150	H
3	* 11.094	20.47	PK	38	-16.1	0	42.37	-	-	74	-31.63	-	-	0-360	150	H
5	16.623	20.16	PK	40.8	-14.1	0	46.86	-	-	-	-	68.2	-21.34	0-360	250	H
2	* 7.624	24.78	PK	35.8	-20.4	0	40.18	-	-	74	-33.82	-	-	0-360	250	V
4	* 11.1	20.64	PK	38	-16.1	0	42.54	-	-	74	-31.46	-	-	0-360	250	V
6	16.648	19.89	PK	40.9	-14.2	0	46.59	-	-	-	-	68.2	-21.61	0-360	150	V

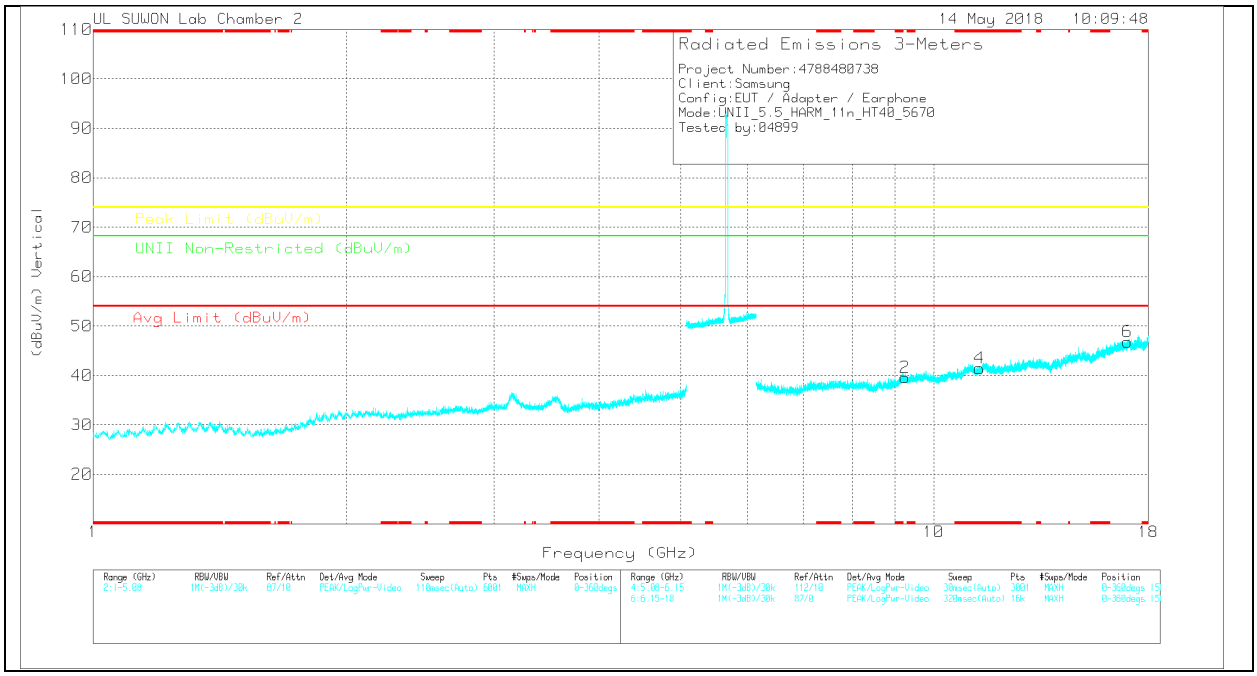
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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	170531_3117[00168724]	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	9.26	20.93	PK	36.4	-17.8	0	39.53	-	-	-	-	68.2	-28.67	0-360	150	H
3	* 11.338	19.37	PK	38	-15.6	0	41.77	-	-	74	-32.23	-	-	0-360	150	H
5	17.011	18.82	PK	41.2	-13.2	0	46.82	-	-	-	-	68.2	-21.38	0-360	250	H
2	9.246	20.99	PK	36.4	-17.8	0	39.59	-	-	-	-	68.2	-28.61	0-360	250	V
4	* 11.336	19.05	PK	38	-15.6	0	41.45	-	-	74	-32.55	-	-	0-360	250	V
6	17.006	18.81	PK	41.2	-13.2	0	46.81	-	-	-	-	68.2	-21.39	0-360	150	V

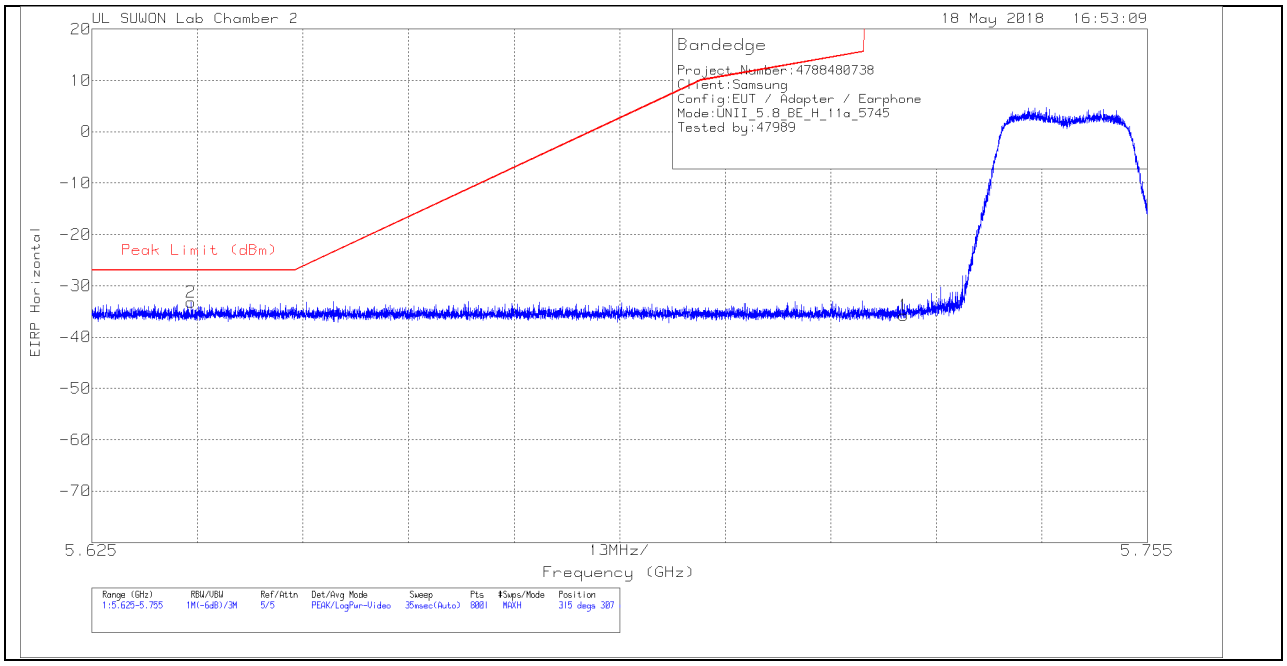
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

11.4. 5.8 GHz

11.4.1. TX ABOVE 1GHz 802.11a MODE IN THE 5.8GHz BAND BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK PLOT



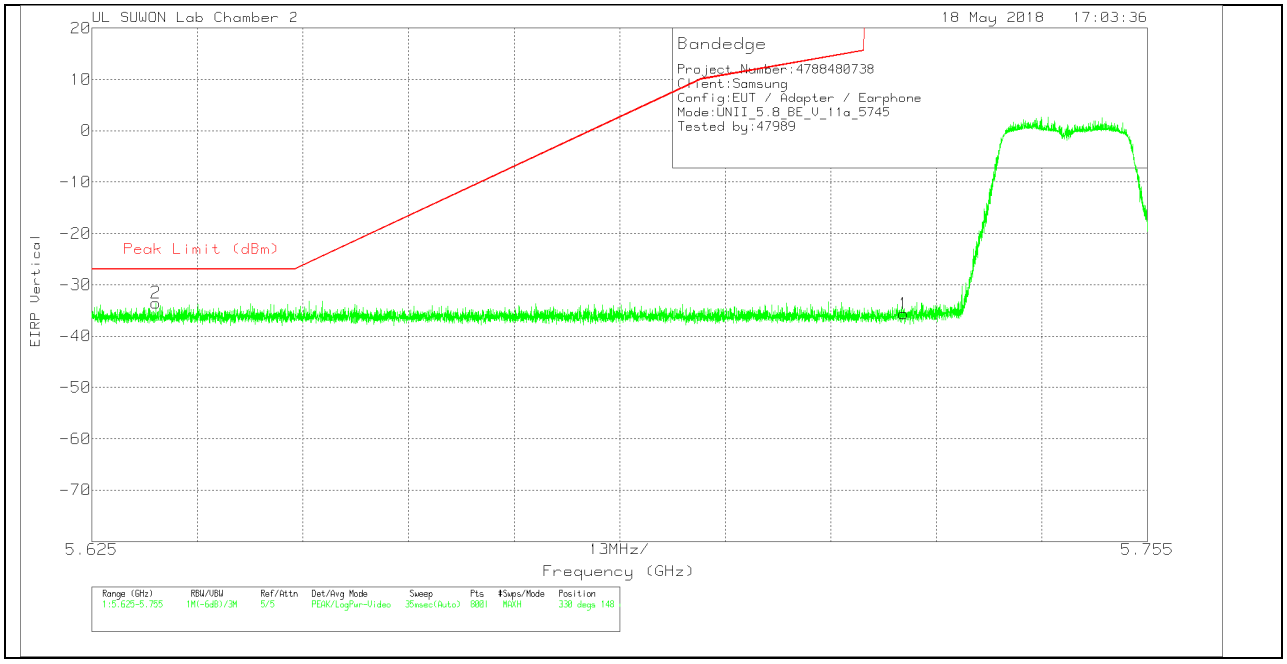
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	170531_3117[00 168724]	Path_2_10dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-66.44	Pk	34.5	-15.6	11.8	0	-35.74	278.26	-314	315	307	H
2	5.637	-63.7	Pk	34.4	-15.7	11.8	0	-33.2	-27	-6.2	315	307	H

Pk - Peak detector

VERTICAL PEAK PLOT



VERTICAL DATA

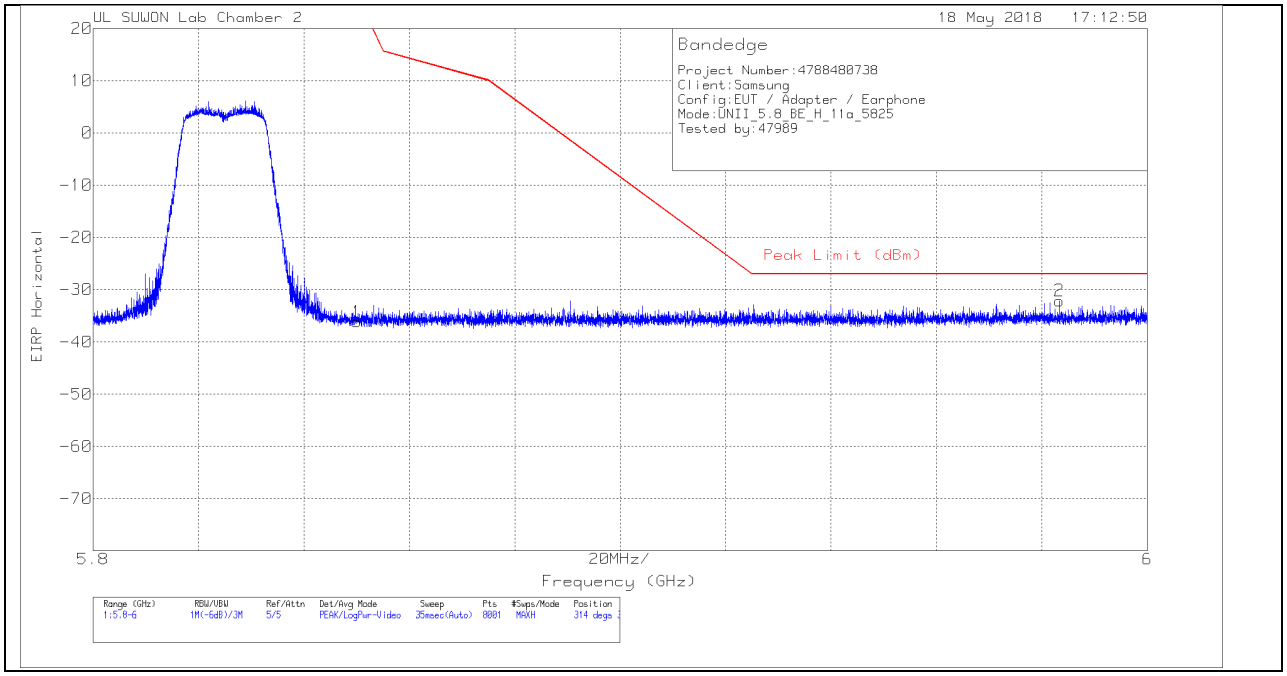
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	170531_3117[00 168724]	Path_2_10dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-66.31	Pk	34.5	-15.6	11.8	0	-35.61	278.26	-313.87	330	148	V
2	5.633	-64	Pk	34.4	-15.7	11.8	0	-33.5	-27	-6.5	330	148	V

Pk - Peak detector

BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK PLOT



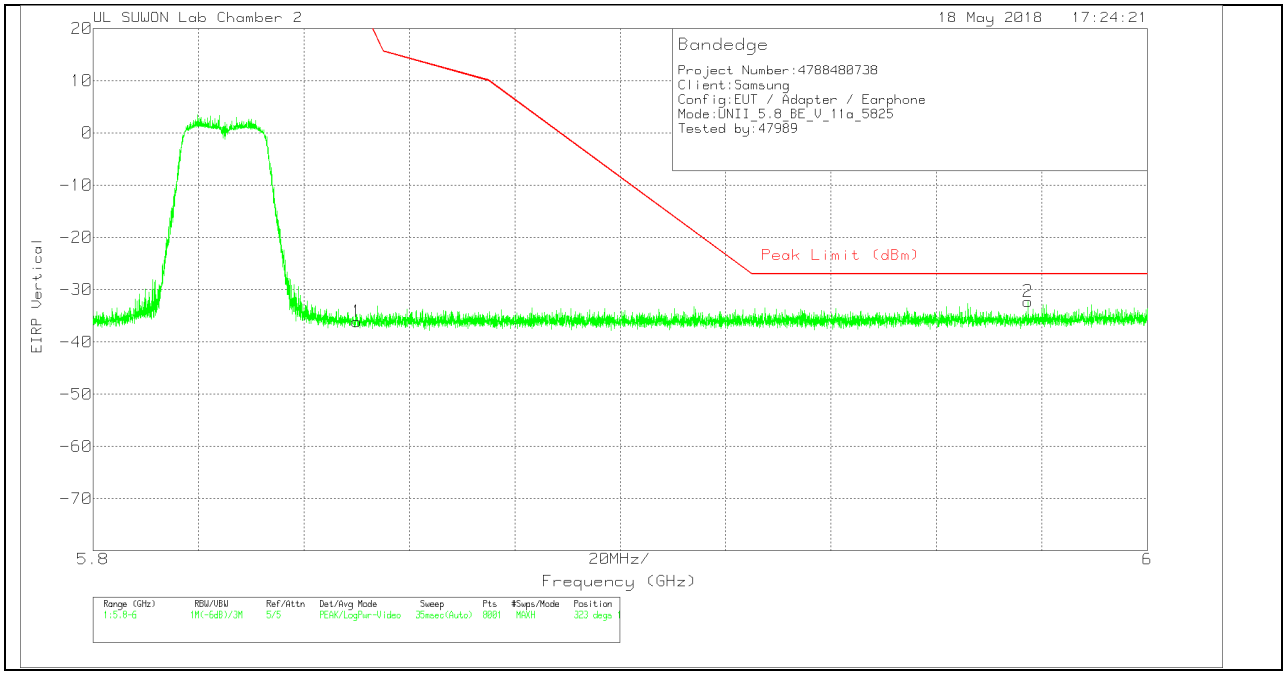
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	170531_3117[00 168724]	Path_2_10dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-66.93	Pk	34.5	-15.5	11.8	0	-36.13	26.94	-63.07	314	331	H
2	5.983	-63.22	Pk	34.7	-15.4	11.8	0	-32.12	-27	-5.12	314	331	H

Pk - Peak detector

VERTICAL PEAK PLOT



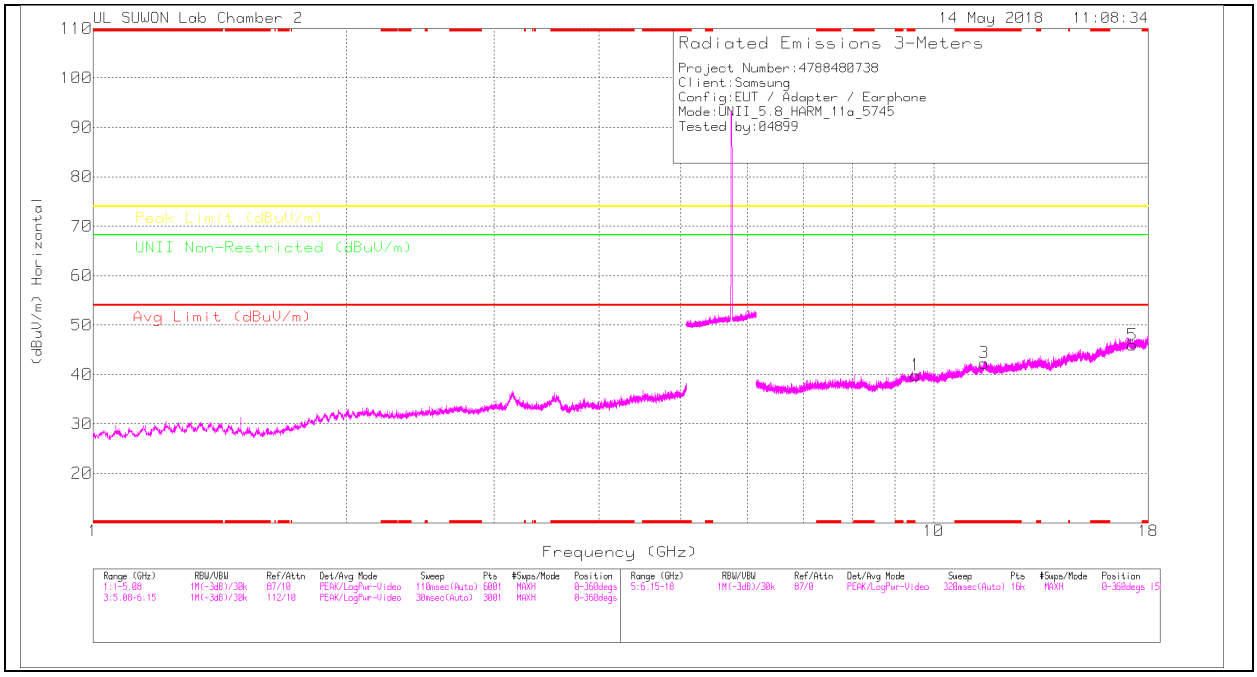
VERTICAL DATA

Trace Markers

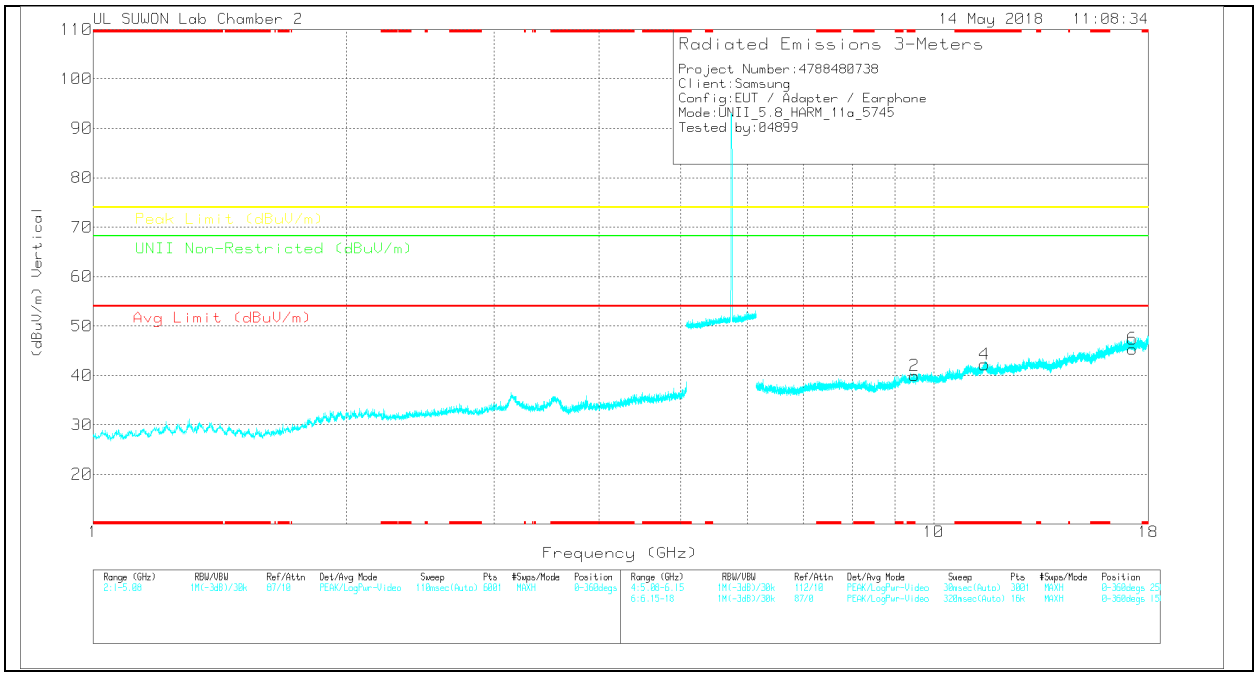
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	170531_3117[00 168724]	Path_2_10dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-66.9	Pk	34.5	-15.5	11.8	0	-36.1	26.94	-63.04	323	122	V
2	5.977	-63.36	Pk	34.7	-15.4	11.8	0	-32.26	-27	-5.26	323	122	V

Pk - Peak detector

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

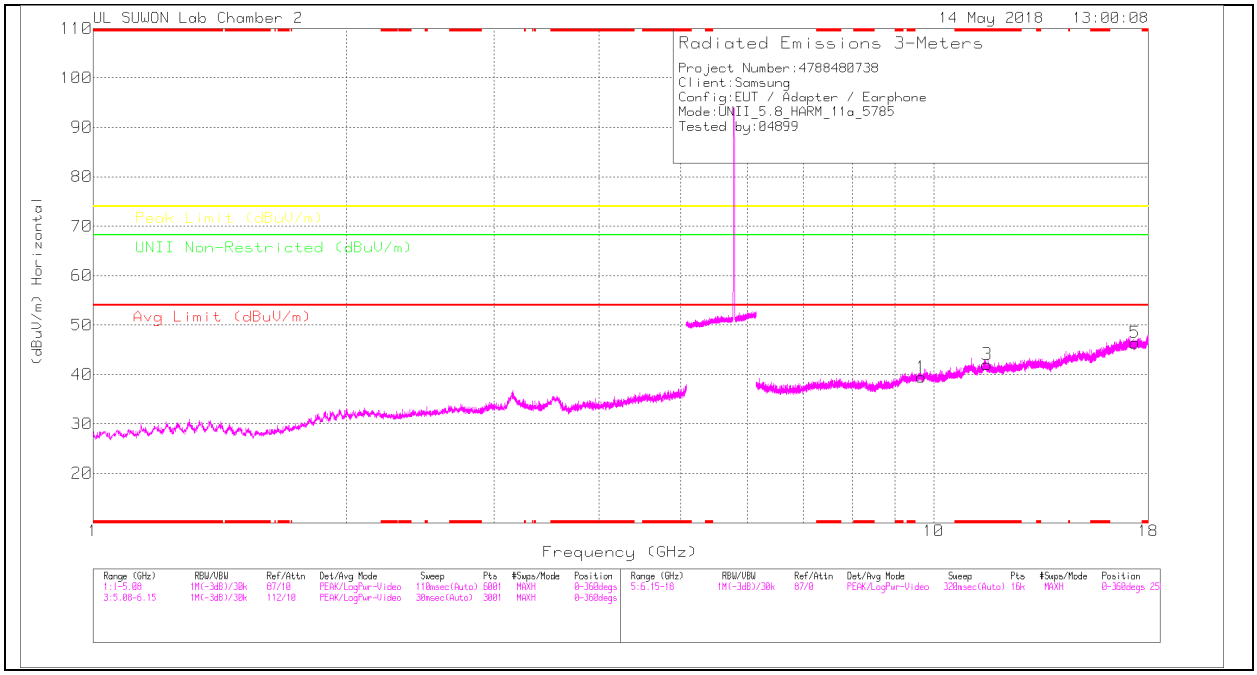
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	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	9.523	20.97	PK	36.6	-17.7	0	39.87	-	-	-	-	68.2	-28.33	0-360	150	H
3	* 11.488	20.03	PK	38.2	-15.9	0	42.33	-	-	74	-31.67	-	-	0-360	250	H
5	17.236	17.86	PK	41.6	-13.5	0	45.96	-	-	-	-	68.2	-22.24	0-360	150	H
2	* 9.483	21.25	PK	36.6	-17.9	0	39.95	-	-	74	-34.05	-	-	0-360	250	V
4	* 11.494	19.93	PK	38.2	-15.9	0	42.23	-	-	74	-31.77	-	-	0-360	150	V
6	17.234	17.26	PK	41.6	-13.5	0	45.36	-	-	-	-	68.2	-22.84	0-360	150	V

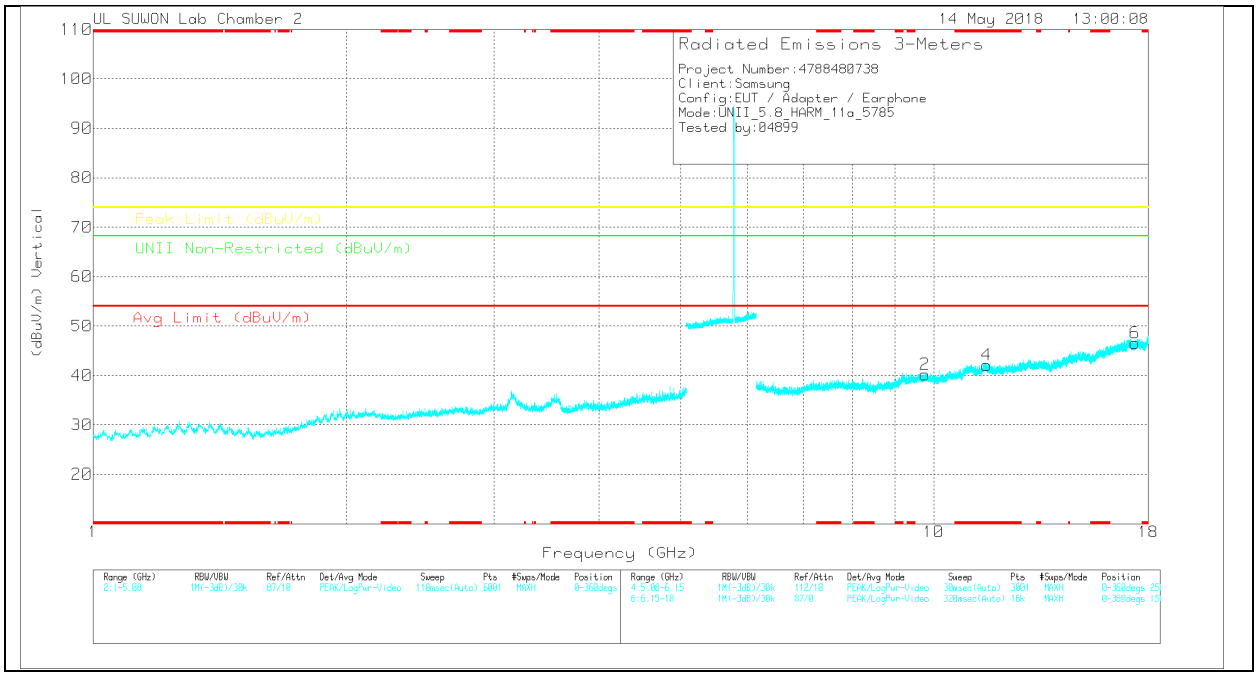
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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

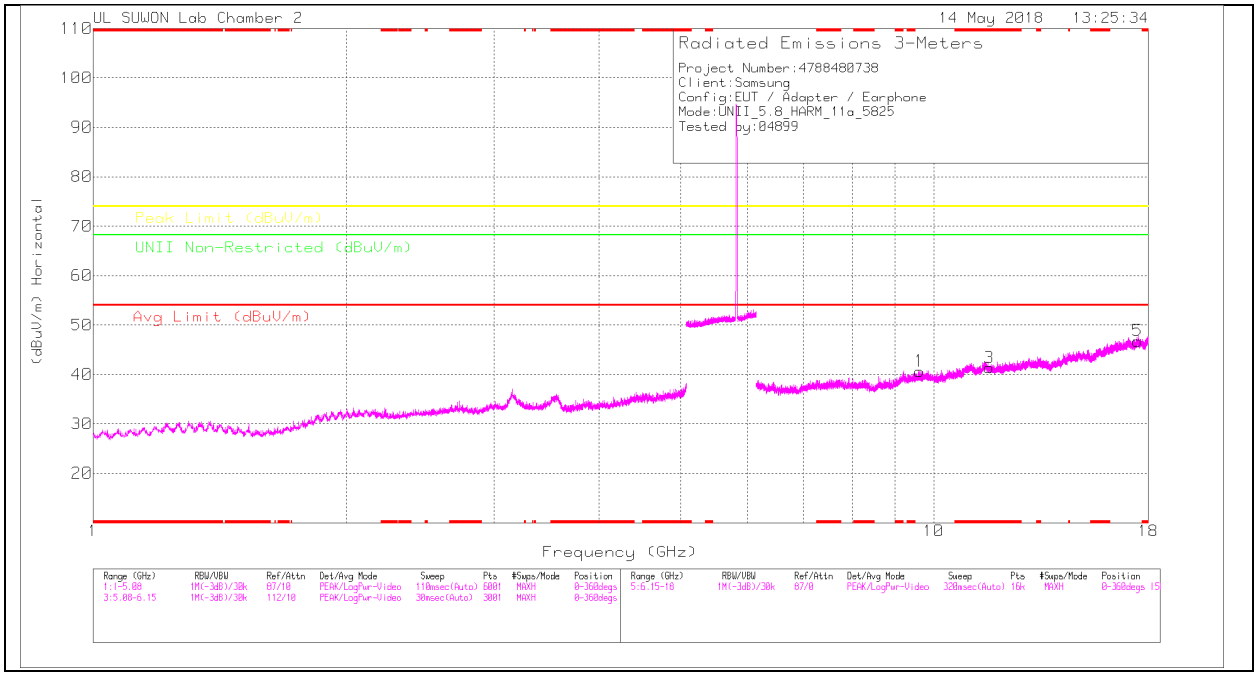
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117(00168724)	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	9.671	20.68	PK	36.8	-18	0	39.48	-	-	-	-	68.2	-28.72	0-360	250	H
3	* 11.574	19.74	PK	38.2	-15.9	0	42.04	-	-	74	-31.96	-	-	0-360	250	H
5	17.353	18.33	PK	41.4	-13.3	0	46.43	-	-	-	-	68.2	-21.77	0-360	150	H
2	9.765	20.68	PK	36.9	-17.4	0	40.18	-	-	-	-	68.2	-28.02	0-360	150	V
4	* 11.571	19.79	PK	38.2	-15.9	0	42.09	-	-	74	-31.91	-	-	0-360	150	V
6	17.356	18.45	PK	41.4	-13.3	0	46.55	-	-	-	-	68.2	-21.65	0-360	250	V

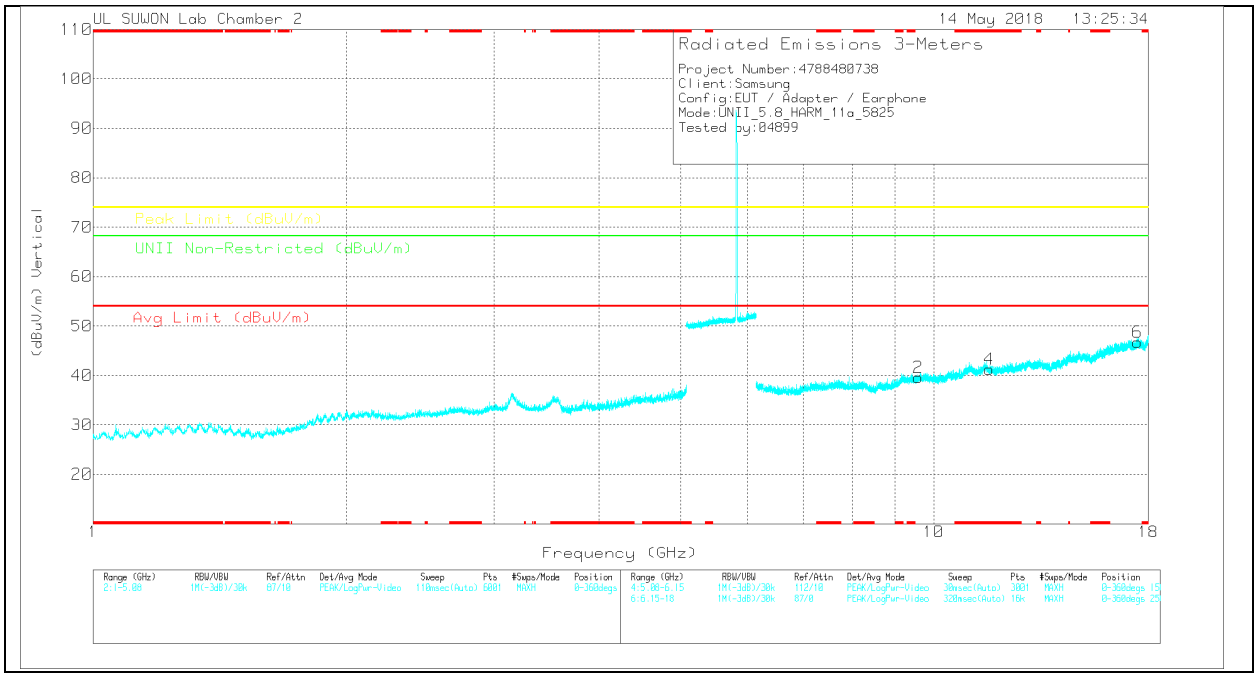
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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

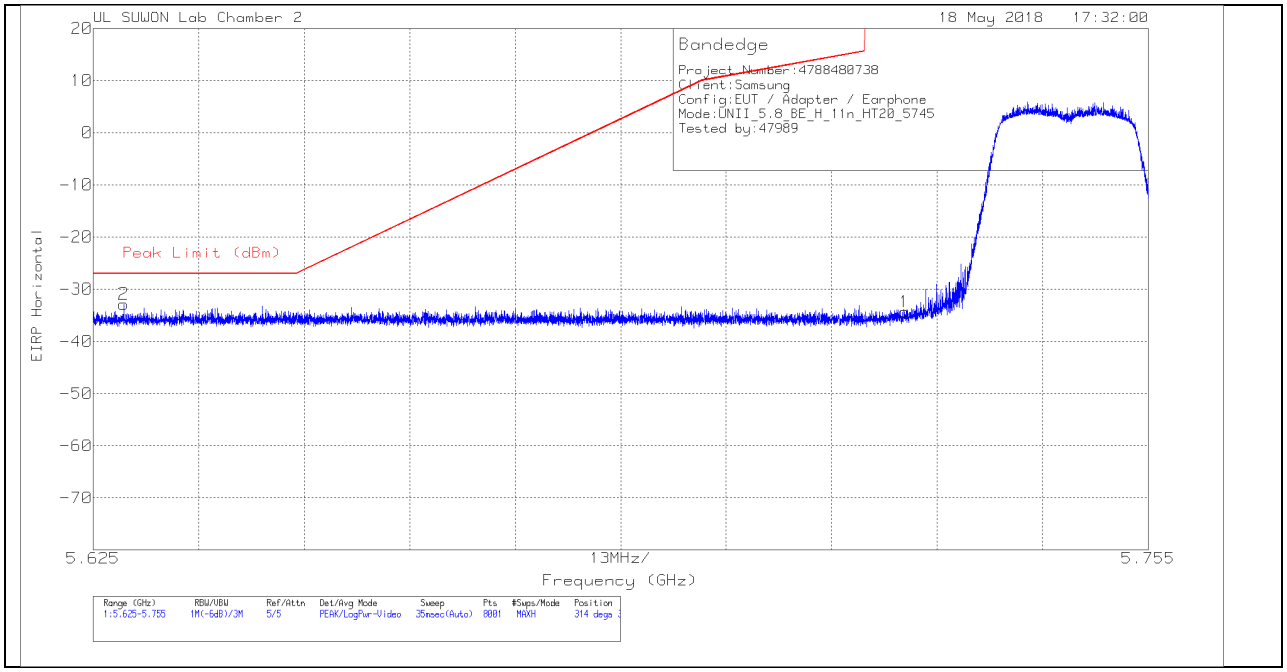
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	6GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	9.622	21.84	PK	36.7	-17.9	0	40.64	-	-	-	-	68.2	-27.56	0-360	250	H
3	* 11.651	18.98	PK	38.1	-15.7	0	41.38	-	-	74	-32.62	-	-	0-360	150	H
5	17.474	17.68	PK	41.3	-12.2	0	46.78	-	-	-	-	68.2	-21.42	0-360	150	H
2	9.581	20.68	PK	36.7	-17.8	0	39.58	-	-	-	-	68.2	-28.62	0-360	150	V
4	* 11.65	18.83	PK	38.1	-15.7	0	41.23	-	-	74	-32.77	-	-	0-360	150	V
6	17.476	17.7	PK	41.2	-12.2	0	46.7	-	-	-	-	68.2	-21.5	0-360	150	V

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

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

11.4.2. TX ABOVE 1GHz 802.11n HT20 MODE IN THE 5.8GHz BAND BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK PLOT



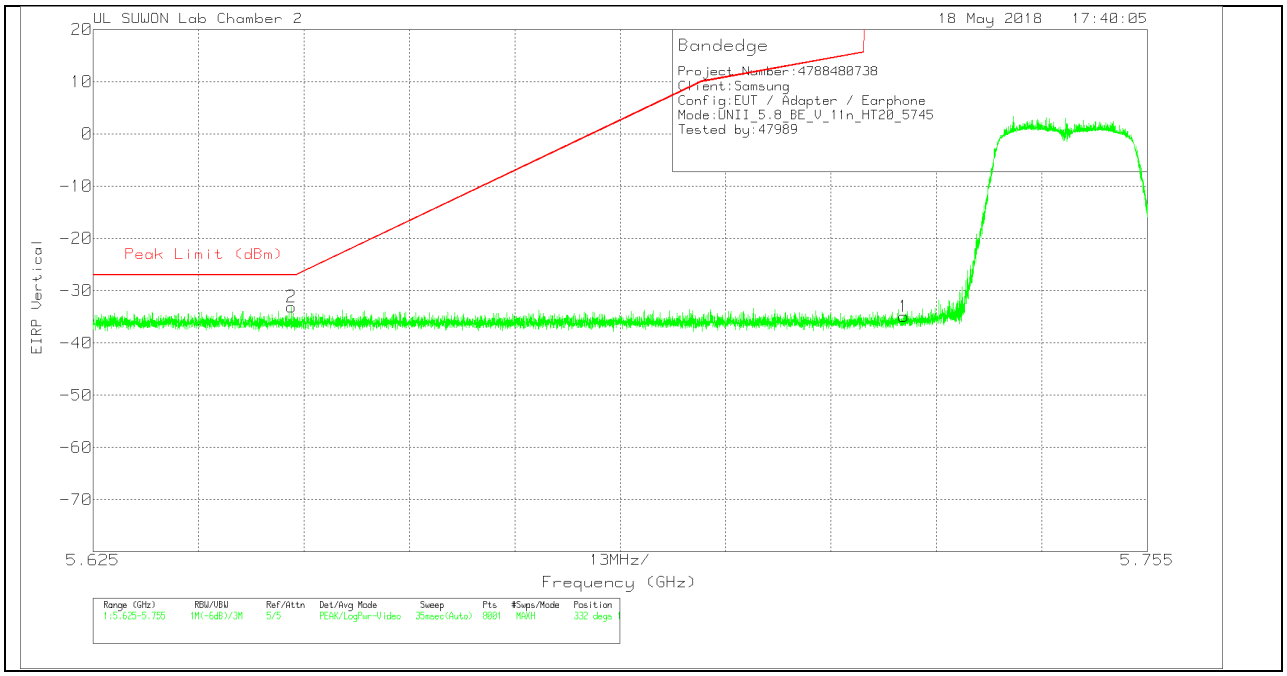
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	170531_3117[00 168724]	Path_2_10dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-65.05	Pk	34.5	-15.6	11.8	0	-34.35	278.26	-312.61	314	309	H
2	5.629	-63.35	Pk	34.4	-15.7	11.8	0	-32.85	-27	-5.85	314	309	H

Pk - Peak detector

VERTICAL PEAK PLOT



VERTICAL DATA

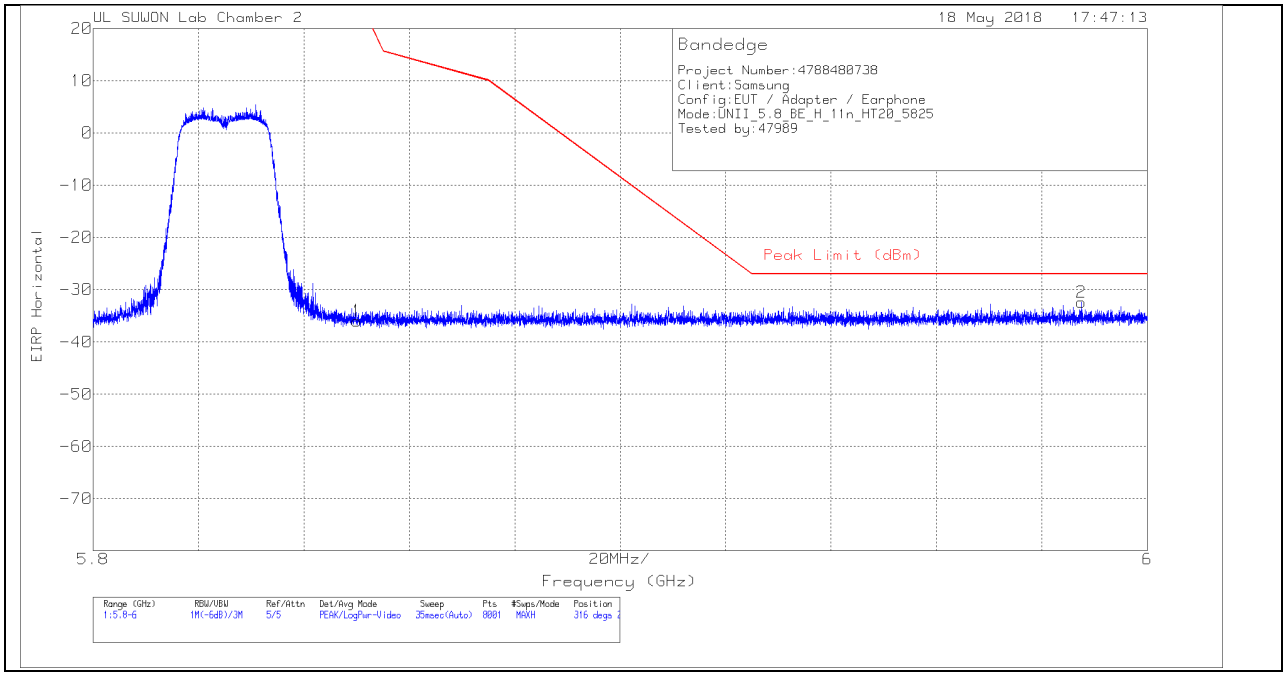
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	170531_3117[00 168724]	Path_2_10dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-65.64	Pk	34.5	-15.6	11.8	0	-34.94	278.26	-313.2	332	126	V
2	5.649	-63.6	Pk	34.4	-15.7	11.8	0	-33.1	-27	-6.1	332	126	V

Pk - Peak detector

BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



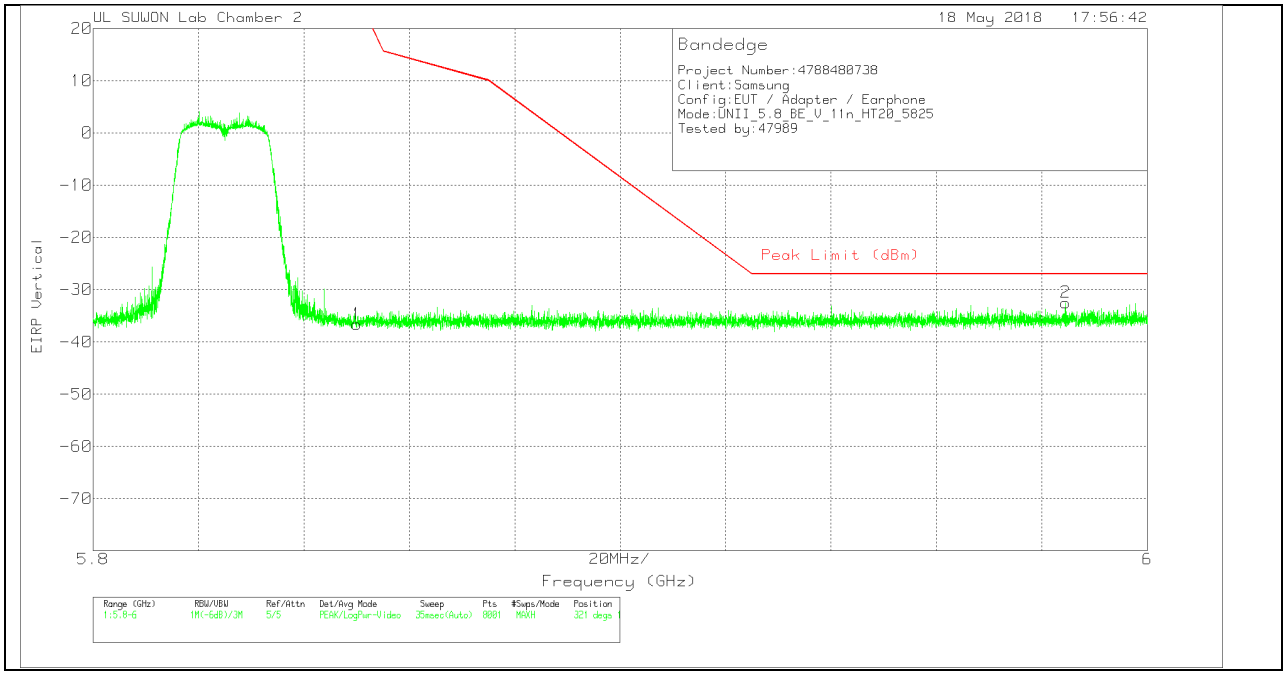
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	170531_3117[00 168724]	Path_2_10dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-66.8	Pk	34.5	-15.5	11.8	0	-36	26.94	-62.94	316	296	H
2	5.987	-63.52	Pk	34.7	-15.4	11.8	0	-32.42	-27	-5.42	316	296	H

Pk - Peak detector

VERTICAL PEAK PLOT



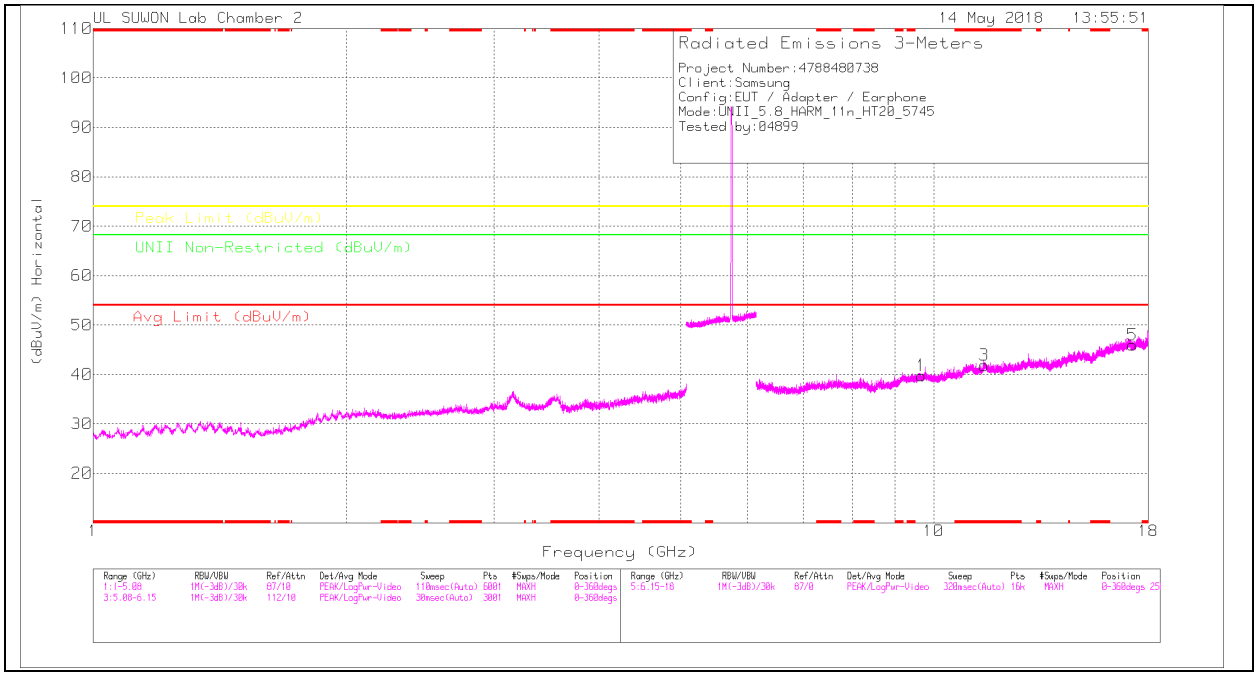
VERTICAL DATA

Trace Markers

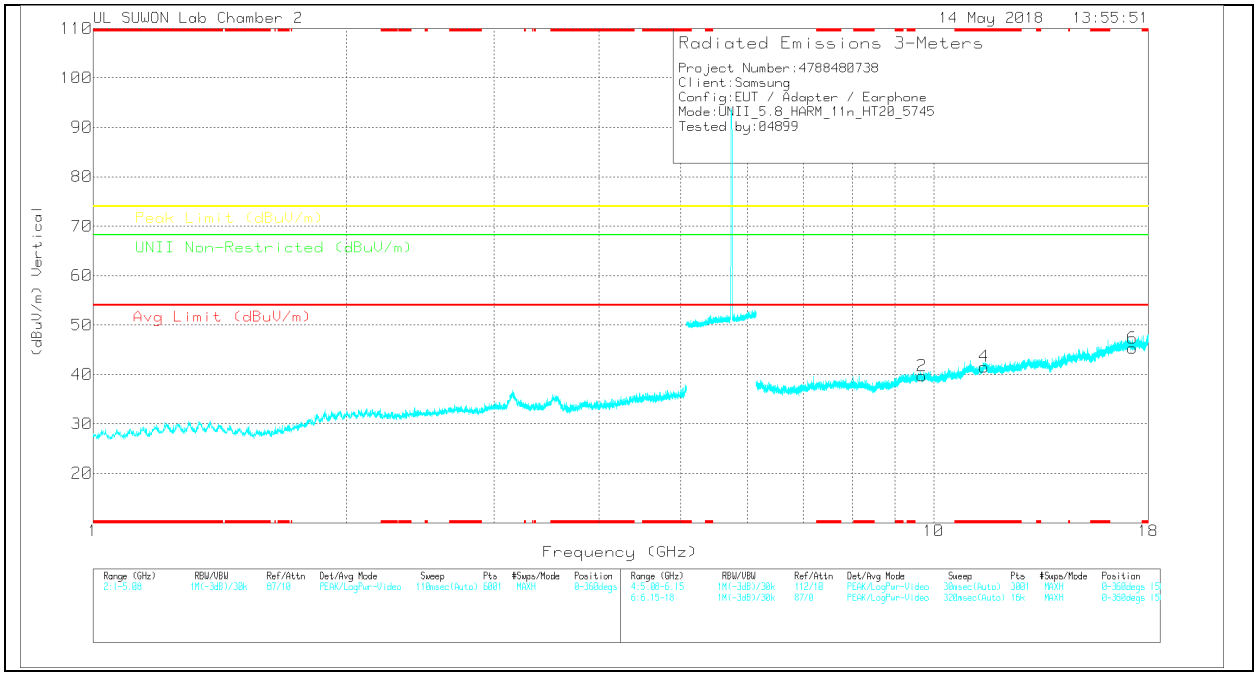
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	170531_3117[00 168724]	Path_2_10dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-67.4	Pk	34.5	-15.5	11.8	0	-36.6	26.94	-63.54	321	131	V
2	5.985	-63.57	Pk	34.7	-15.4	11.8	0	-32.47	-27	-5.47	321	131	V

Pk - Peak detector

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

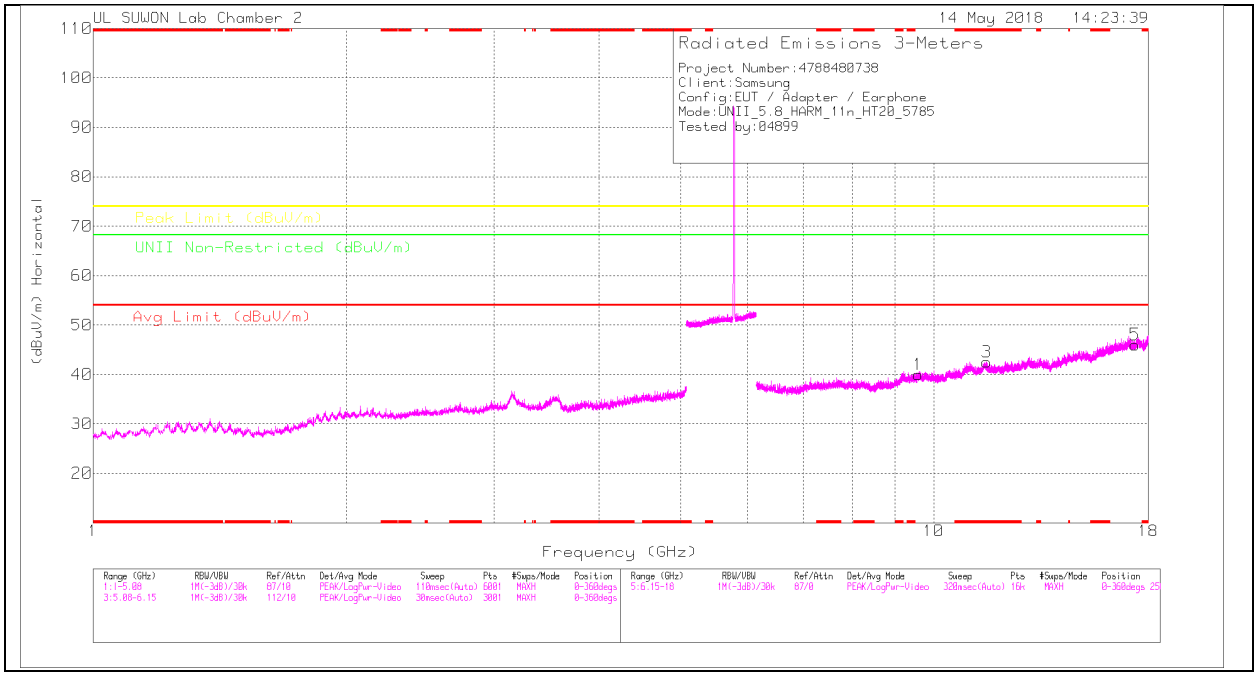
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	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	9.671	20.94	PK	36.8	-18	0	39.74	-	-	-	-	68.2	-28.46	0-360	250	H
3	* 11.49	19.53	PK	38.2	-15.9	0	41.83	-	-	74	-32.17	-	-	0-360	150	H
5	17.235	17.86	PK	41.6	-13.5	0	45.96	-	-	-	-	68.2	-22.24	0-360	250	H
2	9.686	20.8	PK	36.8	-17.9	0	39.7	-	-	-	-	68.2	-28.5	0-360	250	V
4	* 11.49	19.26	PK	38.2	-15.9	0	41.56	-	-	74	-32.44	-	-	0-360	150	V
6	17.235	17.19	PK	41.6	-13.5	0	45.29	-	-	-	-	68.2	-22.91	0-360	250	V

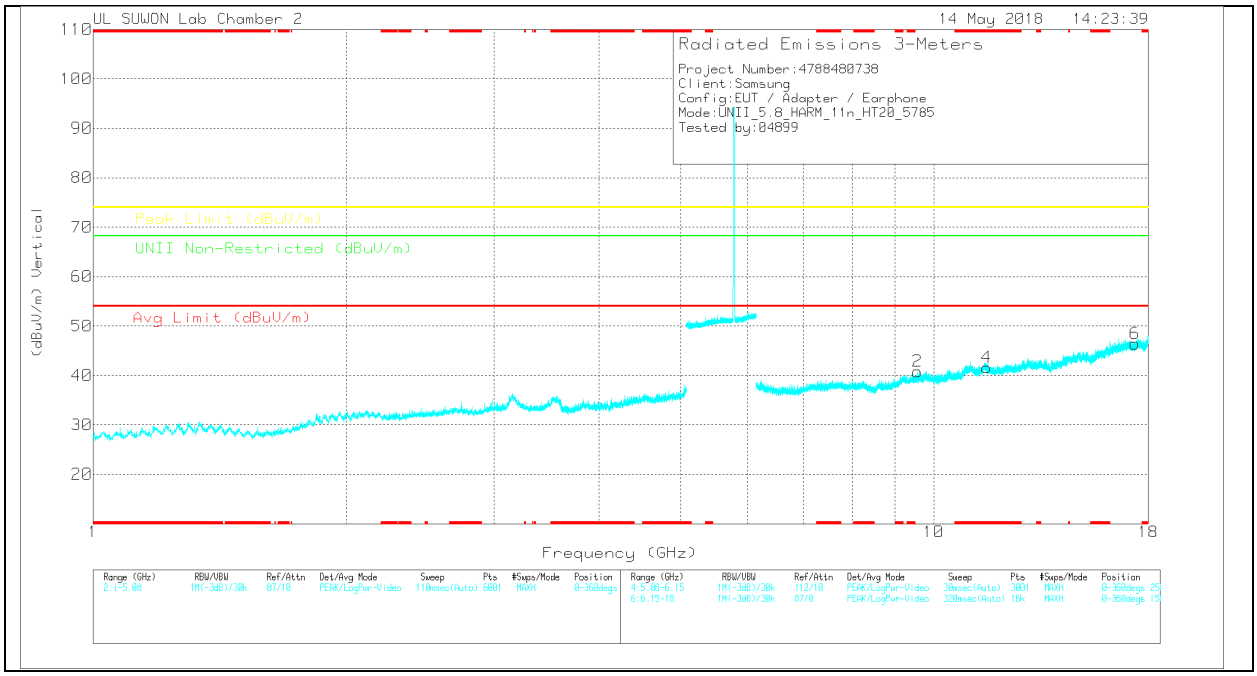
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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

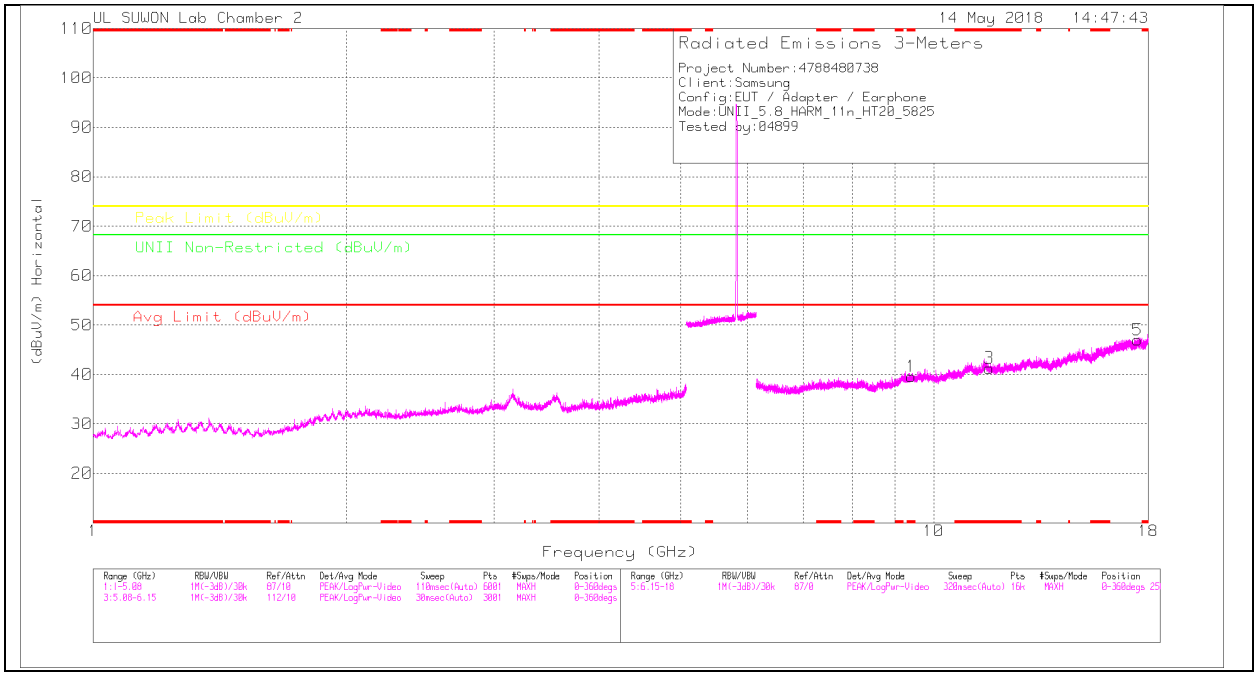
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117(00168724)	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	9.586	21.09	PK	36.7	-17.8	0	39.99	-	-	-	-	68.2	-28.21	0-360	150	H
3	* 11.564	20.19	PK	38.2	-15.9	0	42.49	-	-	74	-31.51	-	-	0-360	250	H
5	17.356	17.9	PK	41.4	-13.3	0	46	-	-	-	-	68.2	-22.2	0-360	250	H
2	9.566	21.91	PK	36.7	-17.8	0	40.81	-	-	-	-	68.2	-27.39	0-360	250	V
4	* 11.568	19.32	PK	38.2	-15.9	0	41.62	-	-	74	-32.38	-	-	0-360	250	V
6	17.351	18.23	PK	41.4	-13.2	0	46.43	-	-	-	-	68.2	-21.77	0-360	250	V

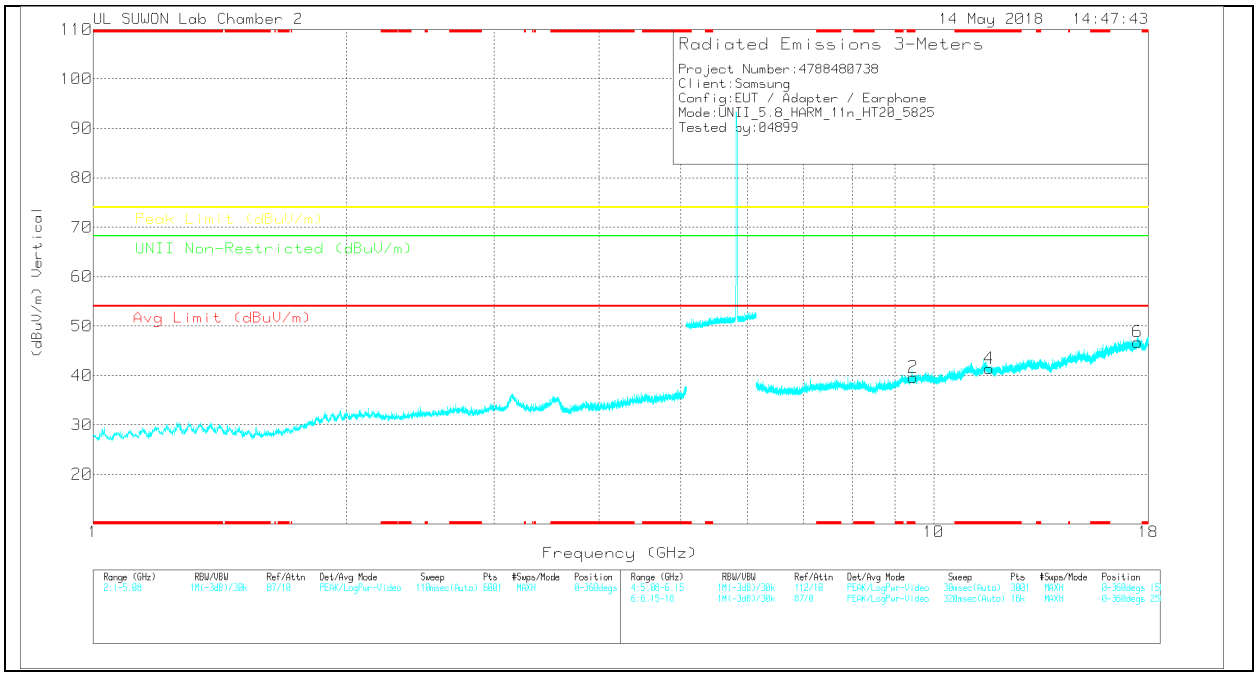
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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

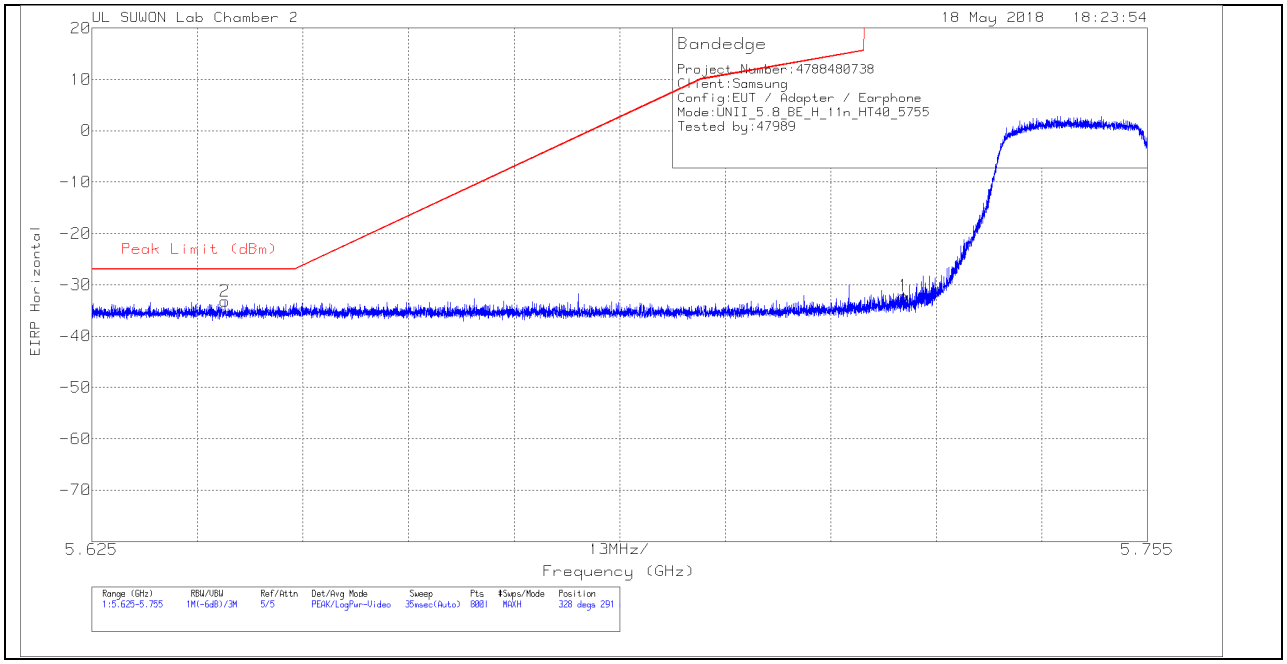
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	6GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 9.406	21.46	PK	36.5	-18.4	0	39.56	-	-	74	-34.44	-	-	0-360	150	H
3	* 11.651	18.87	PK	38.1	-15.7	0	41.27	-	-	74	-32.73	-	-	0-360	250	H
5	17.479	18.07	PK	41.2	-12.3	0	46.97	-	-	-	-	68.2	-21.23	0-360	250	H
2	* 9.457	21.14	PK	36.5	-18	0	39.64	-	-	74	-34.36	-	-	0-360	150	V
4	* 11.65	19.01	PK	38.1	-15.7	0	41.41	-	-	74	-32.59	-	-	0-360	250	V
6	17.478	17.78	PK	41.2	-12.2	0	46.78	-	-	-	-	68.2	-21.42	0-360	150	V

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

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

11.4.3. TX ABOVE 1GHz 802.11n HT40 MODE IN THE 5.8GHz BAND BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK PLOT



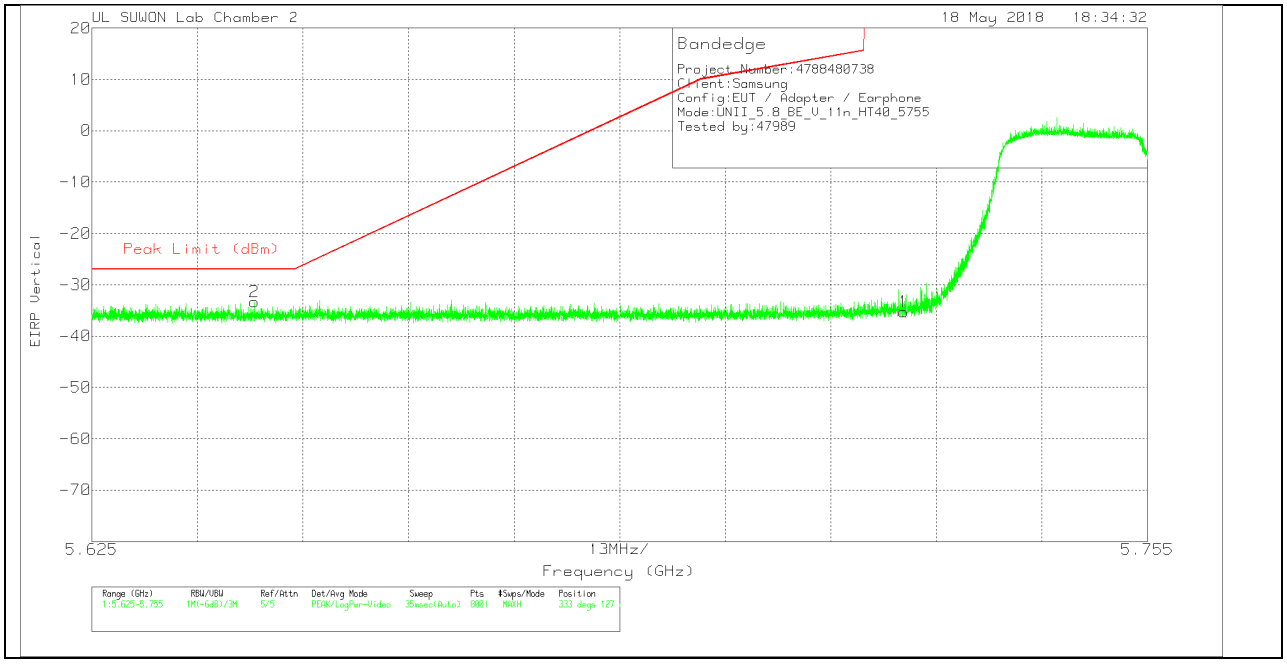
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	170531_3117[00 168724]	Path_2_10dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-62.85	Pk	34.5	-15.6	11.8	0	-32.15	278.26	-310.41	328	291	H
2	5.641	-63.66	Pk	34.4	-15.7	11.8	0	-33.16	-27	-6.16	328	291	H

Pk - Peak detector

VERTICAL PEAK PLOT



VERTICAL DATA

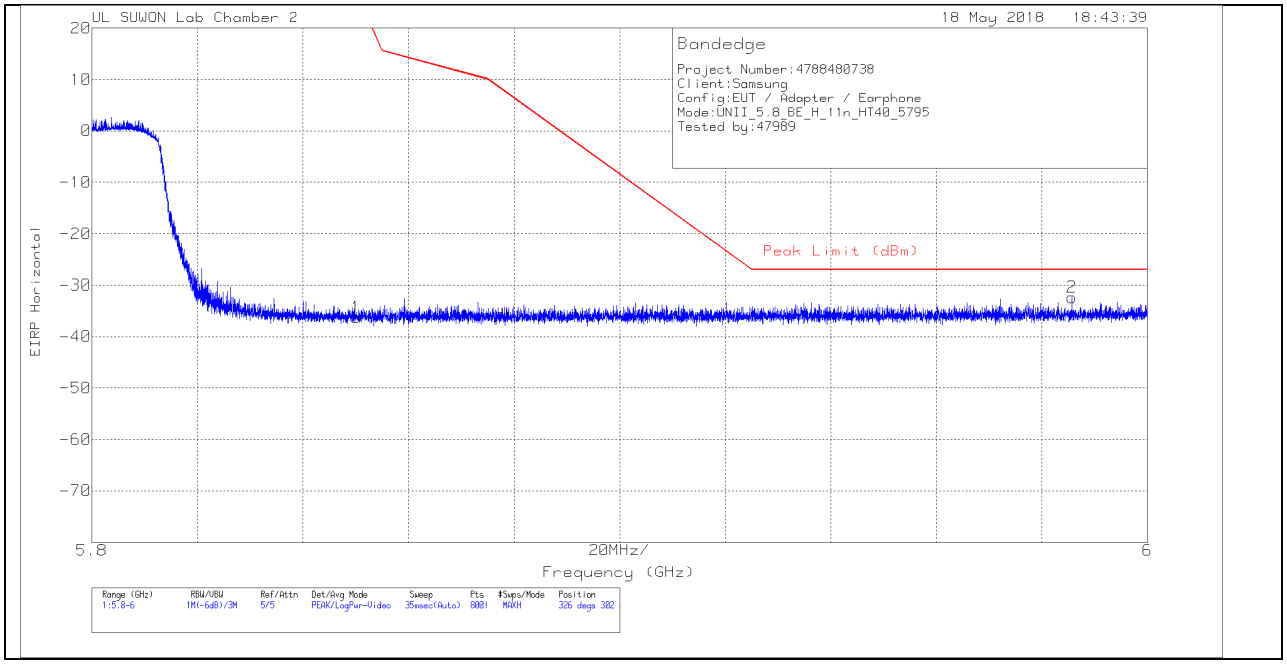
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	170531_3117[00 168724]	Path_2_10dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-65.95	Pk	34.5	-15.6	11.8	0	-35.25	278.26	-313.51	333	127	V
2	5.645	-63.8	Pk	34.4	-15.7	11.8	0	-33.3	-27	-6.3	333	127	V

Pk - Peak detector

BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK PLOT



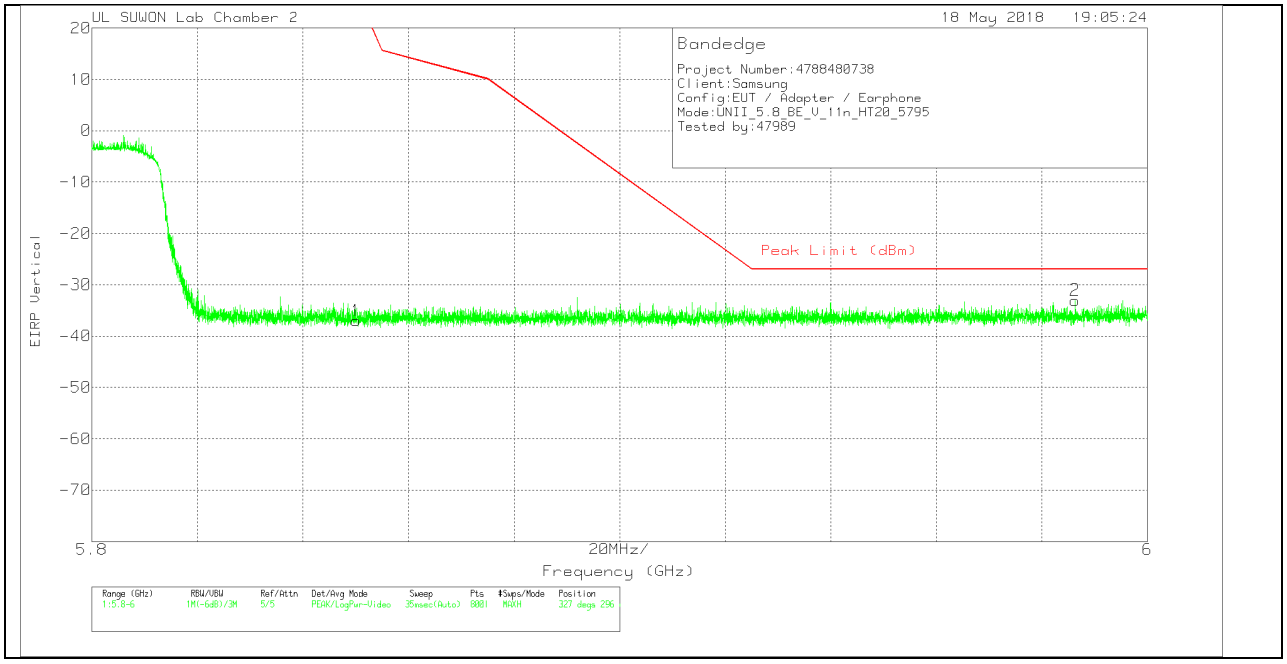
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	170531_3117[00 168724]	Path_2_10dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-67	Pk	34.5	-15.5	11.8	0	-36.2	26.94	-63.14	326	302	H
2	5.986	-63.49	Pk	34.7	-15.4	11.8	0	-32.39	-27	-5.39	326	302	H

Pk - Peak detector

VERTICAL PEAK PLOT



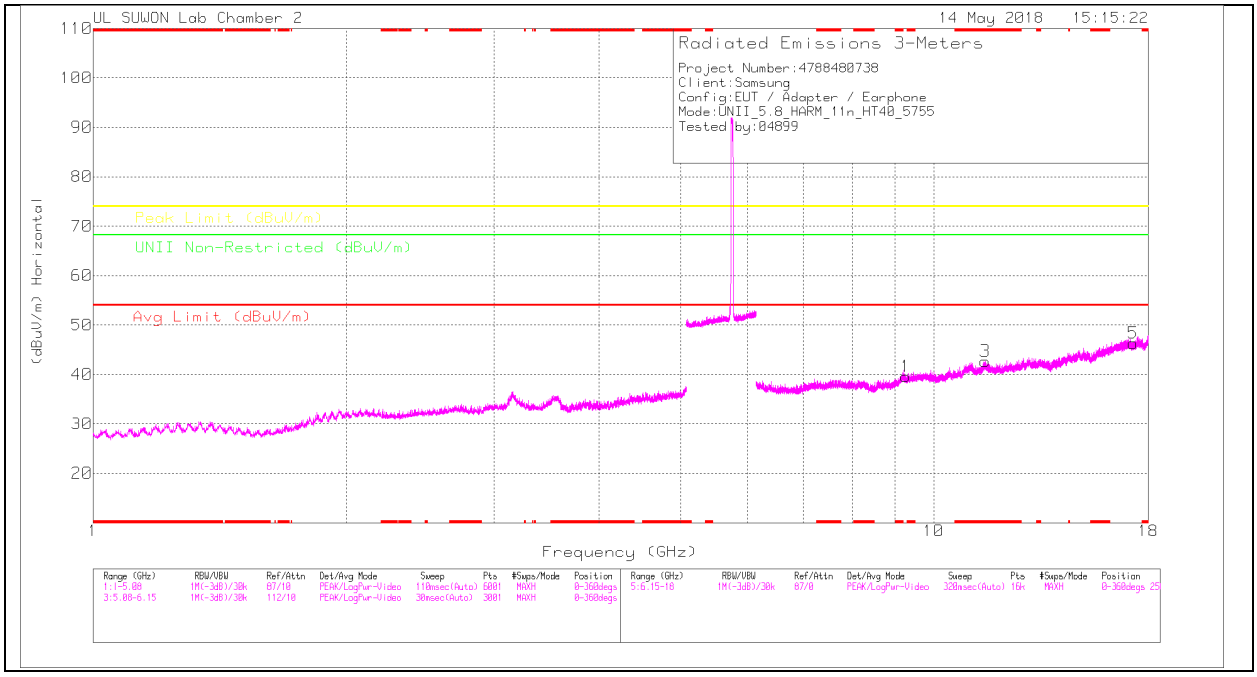
VERTICAL DATA

Trace Markers

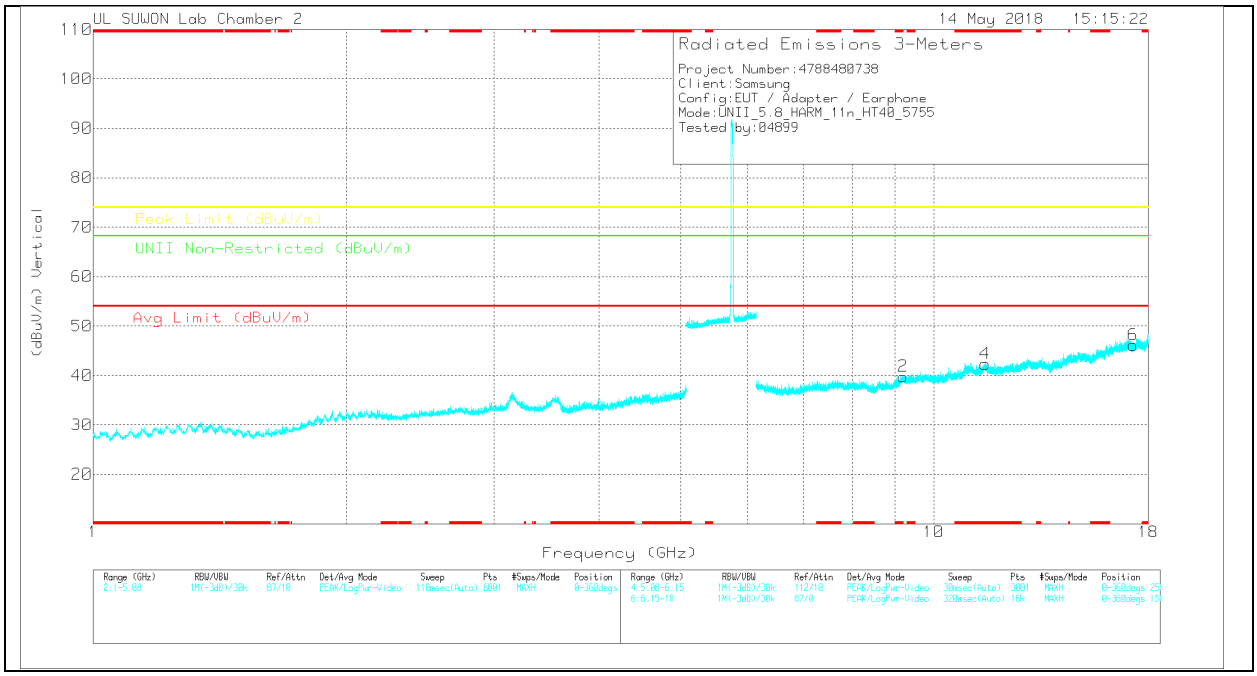
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	170531_3117[00 168724]	Path_2_10dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-67.79	Pk	34.5	-15.5	11.8	0	-36.99	26.94	-63.93	327	296	V
2	5.986	-64.11	Pk	34.7	-15.4	11.8	0	-33.01	-27	-6.01	327	296	V

Pk - Peak detector

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

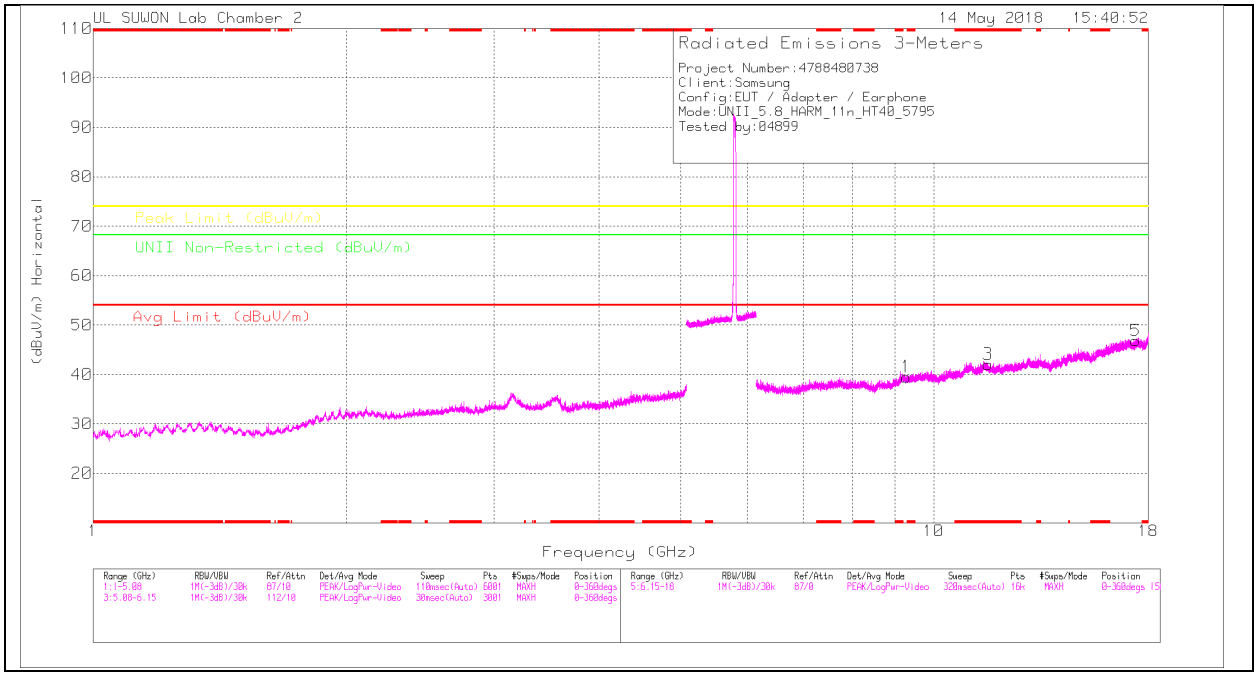
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	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	9.264	21.06	PK	36.4	-17.9	0	39.56	-	-	-	-	68.2	-28.64	0-360	250	H
3	* 11.515	20.37	PK	38.2	-15.9	0	42.67	-	-	74	-31.33	-	-	0-360	150	H
5	17.267	18.19	PK	41.5	-13.4	0	46.29	-	-	-	-	68.2	-21.91	0-360	150	H
2	* 9.197	20.98	PK	36.4	-17.6	0	39.78	-	-	74	-34.22	-	-	0-360	250	V
4	* 11.514	20.04	PK	38.2	-15.9	0	42.34	-	-	74	-31.66	-	-	0-360	250	V
6	17.264	18.07	PK	41.5	-13.4	0	46.17	-	-	-	-	68.2	-22.03	0-360	250	V

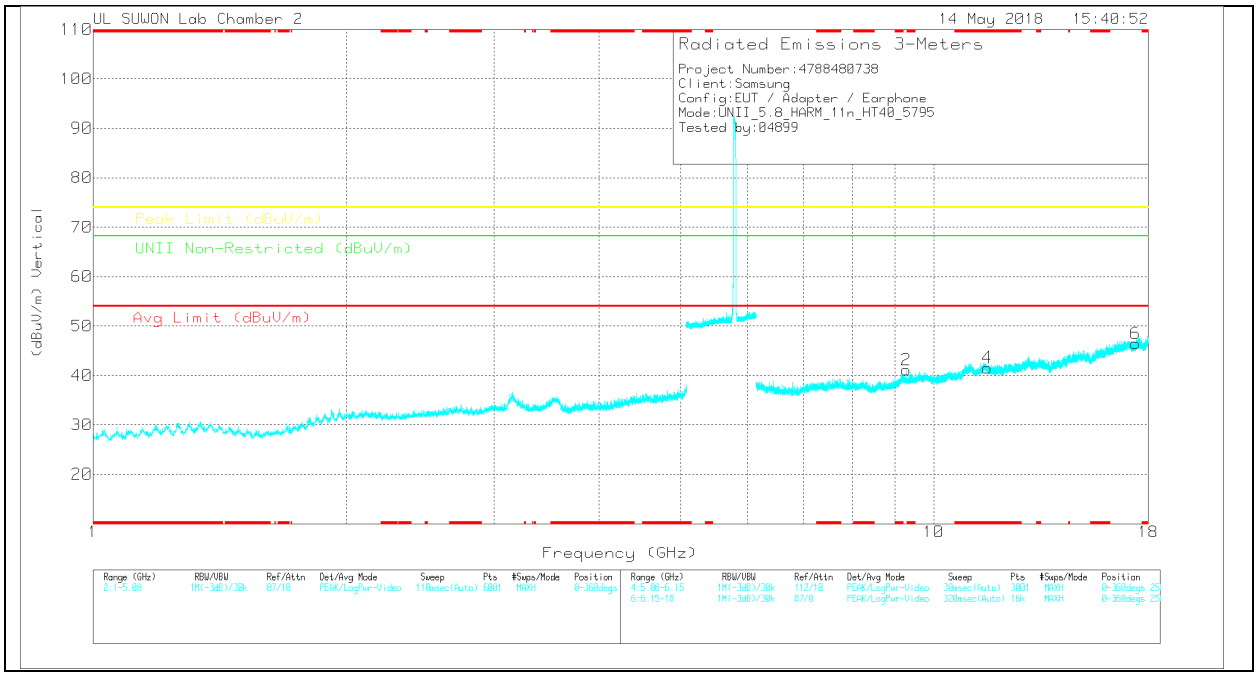
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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

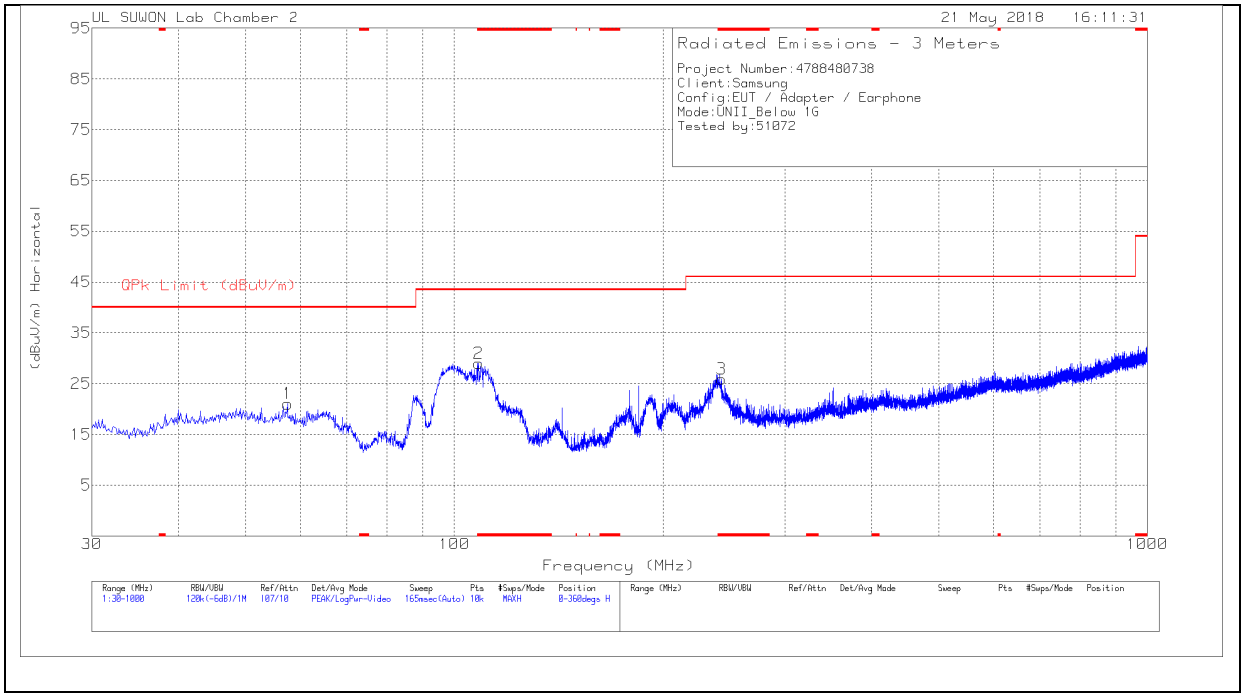
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3117[00168724]	6GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	9.28	21.1	PK	36.4	-18	0	39.5	-	-	-	-	68.2	-28.7	0-360	250	H
3	* 11.596	19.66	PK	38.2	-15.8	0	42.06	-	-	74	-31.94	-	-	0-360	250	H
5	17.388	18.53	PK	41.3	-13	0	46.83	-	-	-	-	68.2	-21.37	0-360	150	H
2	9.282	22.81	PK	36.4	-18.1	0	41.11	-	-	-	-	68.2	-27.09	0-360	250	V
4	* 11.591	19.22	PK	38.2	-15.9	0	41.52	-	-	74	-32.48	-	-	0-360	250	V
6	17.386	18.25	PK	41.3	-13.1	0	46.45	-	-	-	-	68.2	-21.75	0-360	250	V

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

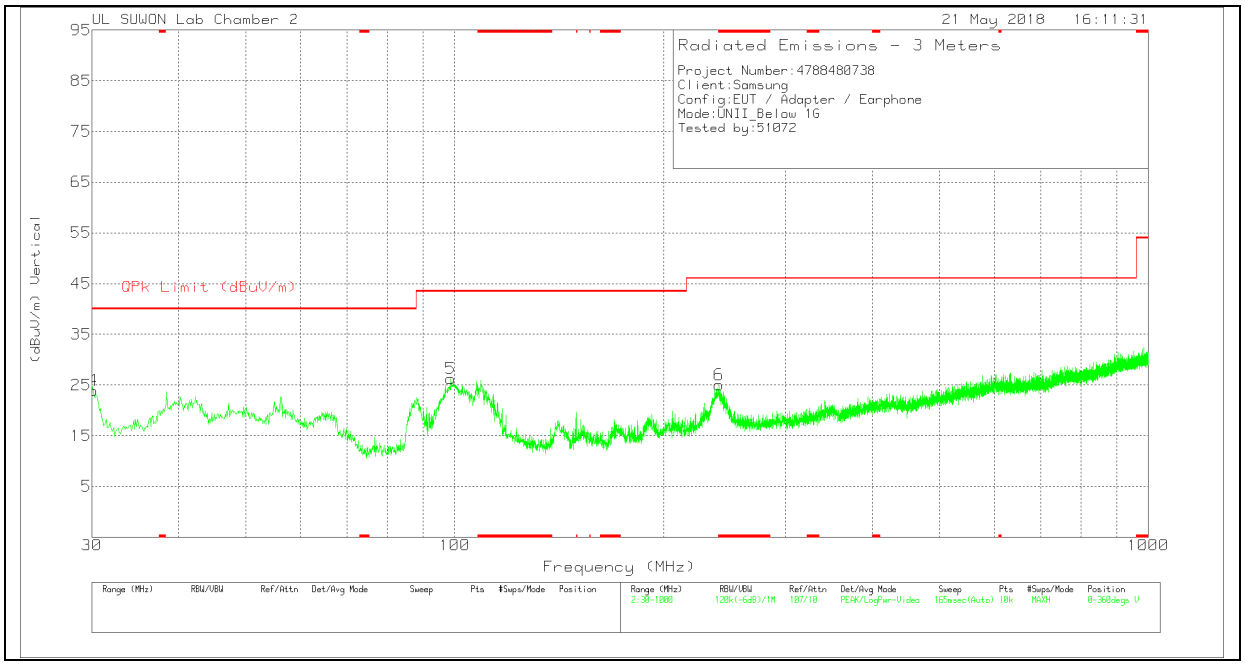
Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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	VULB9163-749	30-1000MHz[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	57.451	33.51	Pk	18.9	-31.4	21.01	40	-18.99	0-360	200	H
2	* 108.376	42.83	Pk	17.2	-31	29.03	43.52	-14.49	0-360	300	H
3	* 243.206	38.16	Pk	18	-30.3	25.86	46.02	-20.16	0-360	100	H
4	30.097	39.45	Pk	16.1	-31.6	23.95	40	-16.05	0-360	100	V
5	98.773	40.11	Pk	17.3	-31.1	26.31	43.52	-17.21	0-360	100	V
6	* 240.49	37.4	Pk	17.9	-30.3	25	46.02	-21.02	0-360	200	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)

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.

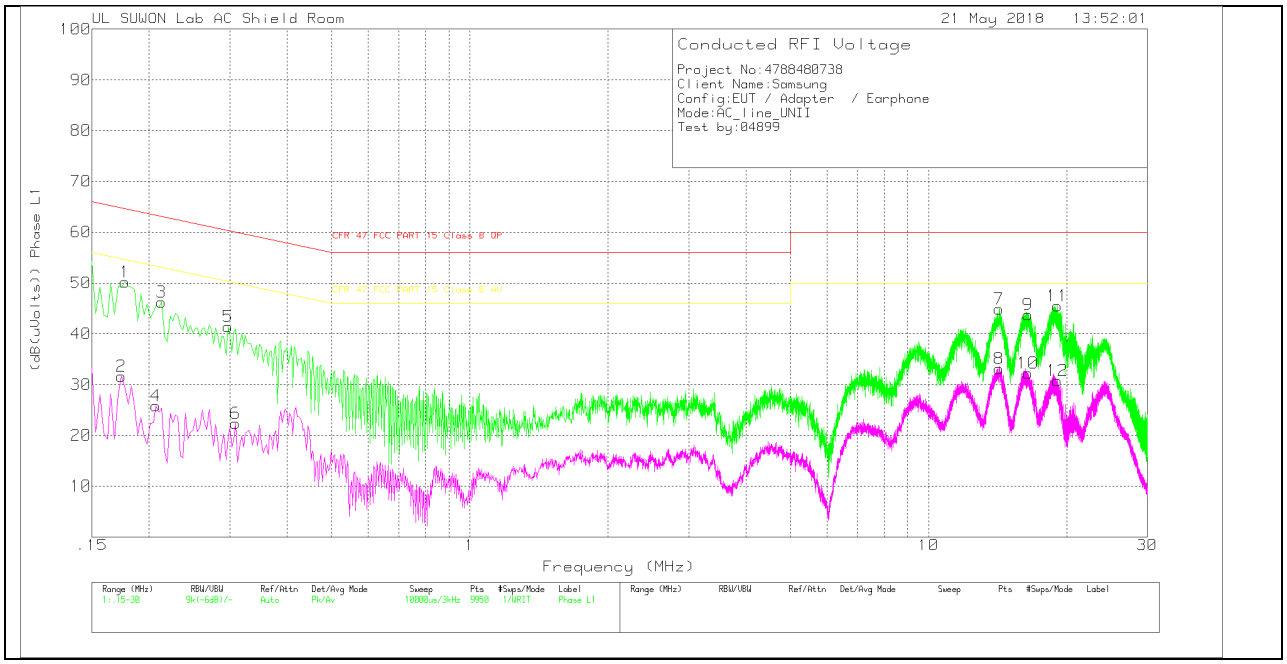
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

6 WORST EMISSIONS

LINE 1 PLOT



LINE 1 RESULTS

Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_L1_with extension	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	.177	40.1	Pk	9.9	.2	50.2	64.63	-14.43	-	-
2	.174	21.57	Av	9.9	.2	31.67	-	-	54.77	-23.1
3	.213	36.29	Pk	9.7	.2	46.19	63.09	-16.9	-	-
4	.207	15.87	Av	9.7	.2	25.77	-	-	53.32	-27.55
5	.297	31.59	Pk	9.6	.2	41.39	60.33	-18.94	-	-
6	.309	12.6	Av	9.6	.2	22.4	-	-	50	-27.6
7	14.268	34.72	Pk	9.8	.4	44.92	60	-15.08	-	-
8	14.268	22.93	Av	9.8	.4	33.13	-	-	50	-16.87
9	16.47	33.42	Pk	9.9	.4	43.72	60	-16.28	-	-
10	16.464	21.92	Av	9.9	.4	32.22	-	-	50	-17.78
11	19.098	34.98	Pk	10.1	.4	45.48	60	-14.52	-	-
12	19.098	20.28	Av	10.1	.4	30.78	-	-	50	-19.22

Pk - Peak detector
Av - Average detection

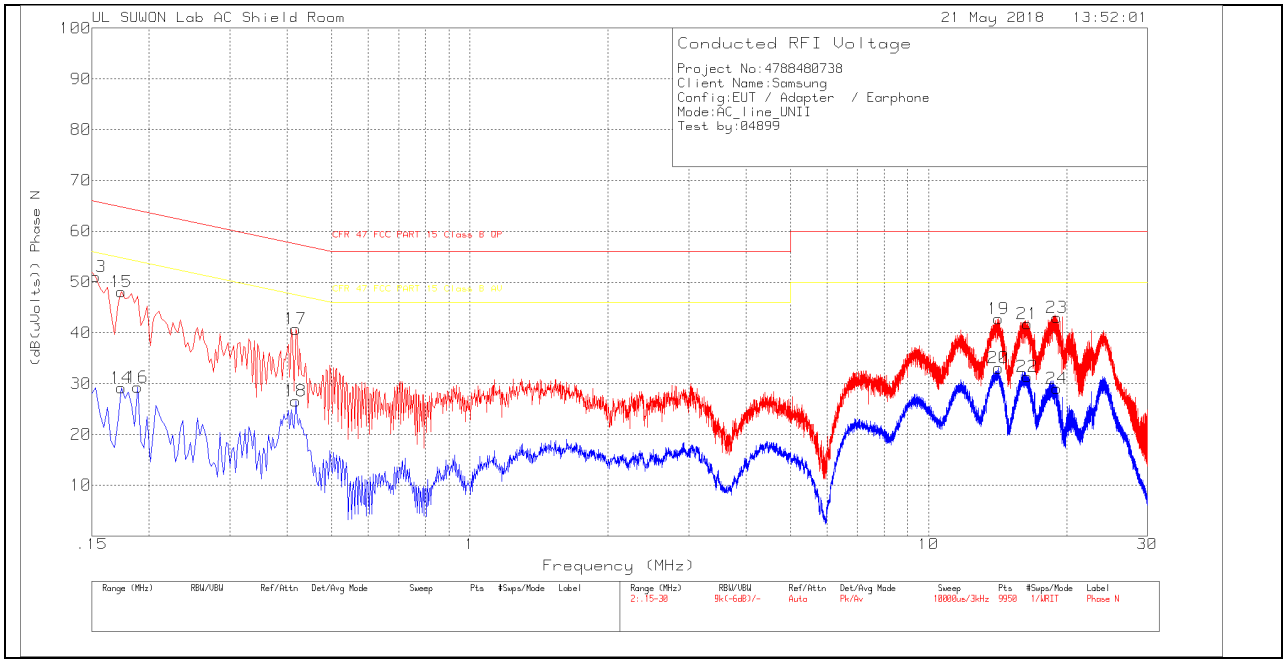
Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101837_L1_with extension	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)
.17625	32.71	Qp	9.9	.2	42.81	64.66	-21.85	-	-
.17325	33.25	Qp	9.9	.2	43.35	64.8	-21.45	-	-
.21225	27.15	Qp	9.7	.2	37.05	63.12	-26.07	-	-
.20715	28.5	Qp	9.7	.2	38.4	63.32	-24.92	-	-
.29775	21.73	Qp	9.6	.2	31.53	60.31	-28.78	-	-
.30825	21.2	Qp	9.6	.2	31	60.02	-29.02	-	-
14.2682	29.69	Qp	9.8	.4	39.89	60	-20.11	-	-
16.4702	27.57	Qp	9.9	.4	37.87	60	-22.13	-	-
16.4648	27.46	Qp	9.9	.4	37.76	60	-22.24	-	-
19.0973	26.31	Qp	10.1	.4	36.81	60	-23.19	-	-

Qp - Quasi-Peak detector

LINE 2 PLOT



LINE 2 RESULTS

Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_N_with extension	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	40.94	Pk	10	.1	51.04	65.84	-14.8	-	-
14	.174	18.94	Av	10	.2	29.14	-	-	54.77	-25.63
15	.174	37.87	Pk	10	.2	48.07	64.77	-16.7	-	-
16	.189	19.14	Av	9.9	.2	29.24	-	-	54.08	-24.84
17	.417	30.73	Pk	9.8	.2	40.73	57.51	-16.78	-	-
18	.417	16.6	Av	9.8	.2	26.6	-	-	47.51	-20.91
19	14.208	32.46	Pk	9.9	.4	42.76	60	-17.24	-	-
20	14.211	22.76	Av	9.9	.4	33.06	-	-	50	-16.94
21	16.41	31.5	Pk	9.9	.4	41.8	60	-18.2	-	-
22	16.407	21.08	Av	9.9	.4	31.38	-	-	50	-18.62
23	19.068	32.57	Pk	10	.4	42.97	60	-17.03	-	-
24	19.071	18.61	Av	10	.4	29.01	-	-	50	-20.99

Pk - Peak detector
Av - Average detection

Range 2: Phase N .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101837_N_with extension	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	34.16	Qp	10	.1	44.26	65.83	-21.57	-	-
.17415	31.4	Qp	10	.2	41.6	64.76	-23.16	-	-
.18975	27.63	Qp	9.9	.2	37.73	64.05	-26.32	-	-
.41625	24.43	Qp	9.8	.2	34.43	57.52	-23.09	-	-
14.2082	26.18	Qp	9.9	.4	36.48	60	-23.52	-	-
14.2118	26.11	Qp	9.9	.4	36.41	60	-23.59	-	-
16.4108	25.64	Qp	9.9	.4	35.94	60	-24.06	-	-
16.4063	26.46	Qp	9.9	.4	36.76	60	-23.24	-	-
19.0688	24.08	Qp	10	.4	34.48	60	-25.52	-	-
19.0703	24.22	Qp	10	.4	34.62	60	-25.38	-	-

Qp - Quasi-Peak detector

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

Table 4: DFS Response requirement values

Parameter	Value
Non-occupancy period	30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds (See Note 1)
Channel Closing Transmission Time	200 milliseconds + approx. 60 milliseconds over remaining 10 second period. (See Notes 1 and 2)
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. (See Note 3)
Note 1: *Channel Move Time* and the *Channel Closing Transmission Time* should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. **Note 2:** The *Channel Closing Transmission Time* is comprised of 200 milliseconds starting at the beginning of the *Channel Move Time* plus any additional intermittent control signals required to facilitate a *Channel* 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 *U-NII Detection Bandwidth* 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) x (19 x 10^6 PRI_{usec})}	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 usec. With a minimum increment of 1 usec, excluding PRI values selected in Test A			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120
Note 1: Short Pulse Radar Type 0 should be used for the *Detection Bandwidth* test, *Channel Move Time*, and *Channel Closing Time* tests.					

Table 6 – Long Pulse Radar Test Signal

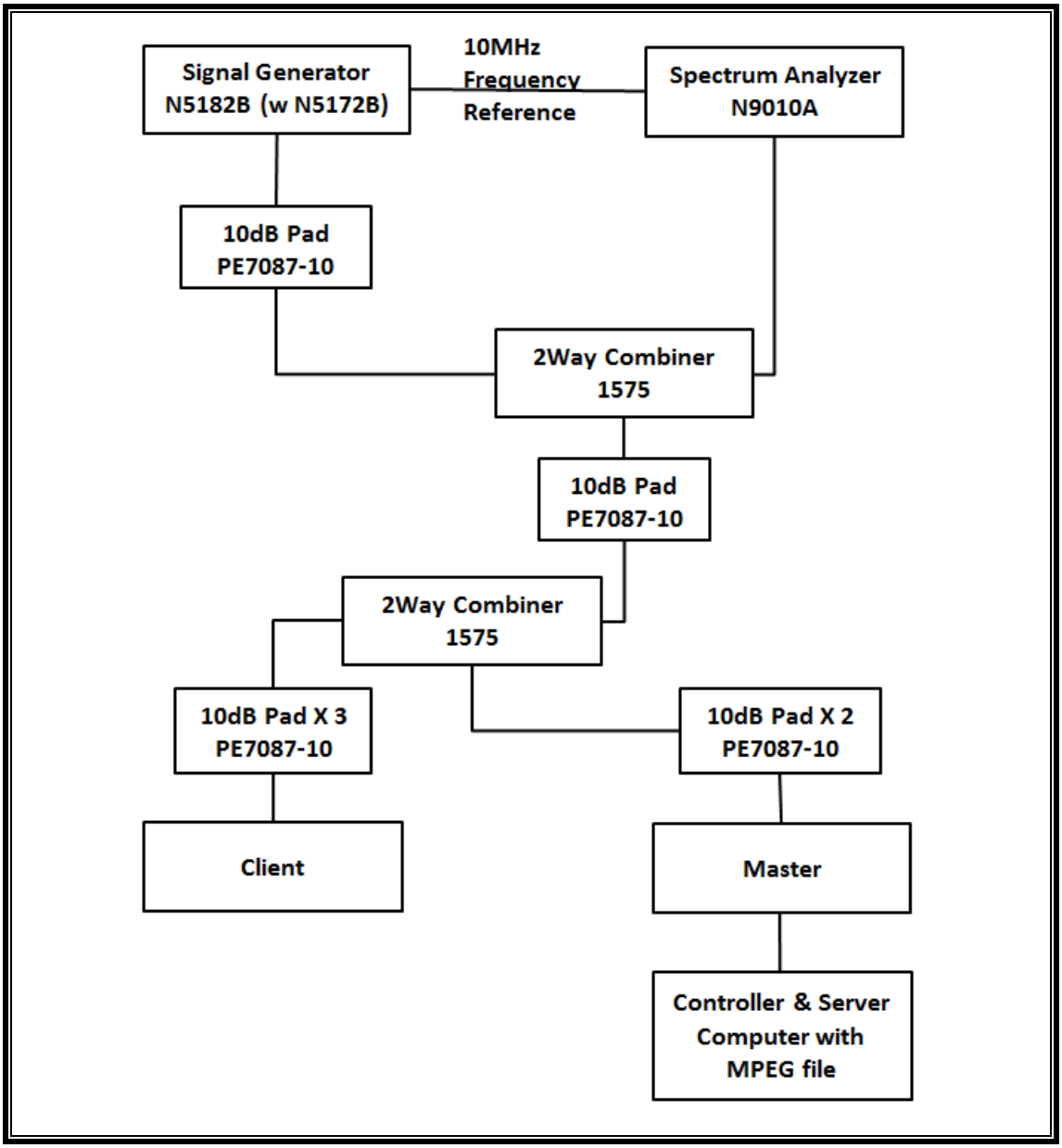
Radar Waveform Type	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

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

14.1.1. TEST AND MEASUREMENT SYSTEM

CONDUCTED METHOD SYSTEM BLOCK DIAGRAM



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.

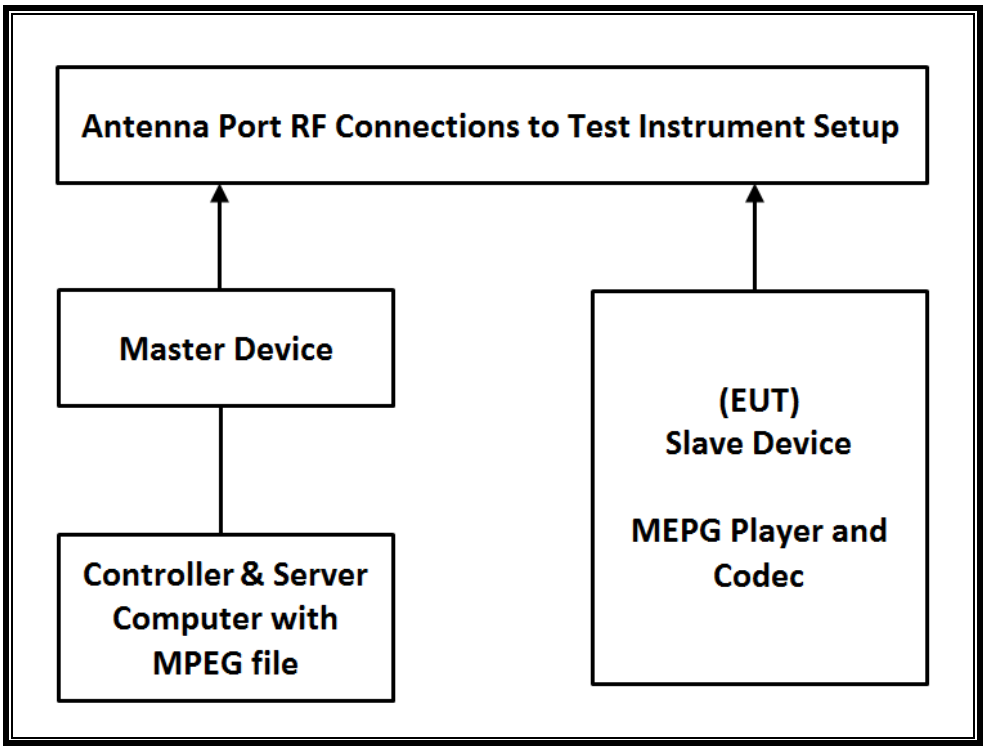
TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**S/N**	**Cal Due**
Spectrum Analyzer, 7 GHz	Agilent / HP	N9010A	MY54200580	08-07-18
Vector Signal Generator, 6GHz	Agilent / HP	N5182B	MY53051241	08-07-18

14.1.2. 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
PC (Controller/Server)	HP	HP EliteDesk 800 G1 TWR	CZC4125J25	DoC

14.1.3. 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 15.90 dBm in the 5250-5350 MHz band and 15.86 dBm in the 5470-5725 MHz band.

The antenna gain assembly utilized with the EUT are -2.72 dBi in the 5250-5350 MHz band and -3.66 dBi in the 5470-5725 MHz band.

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

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

UNIFORM CHANNEL SPREADING

This requirement is not applicable to Slave radio devices.

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

The Master Device is a Cisco Access Point, FCC ID: 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.

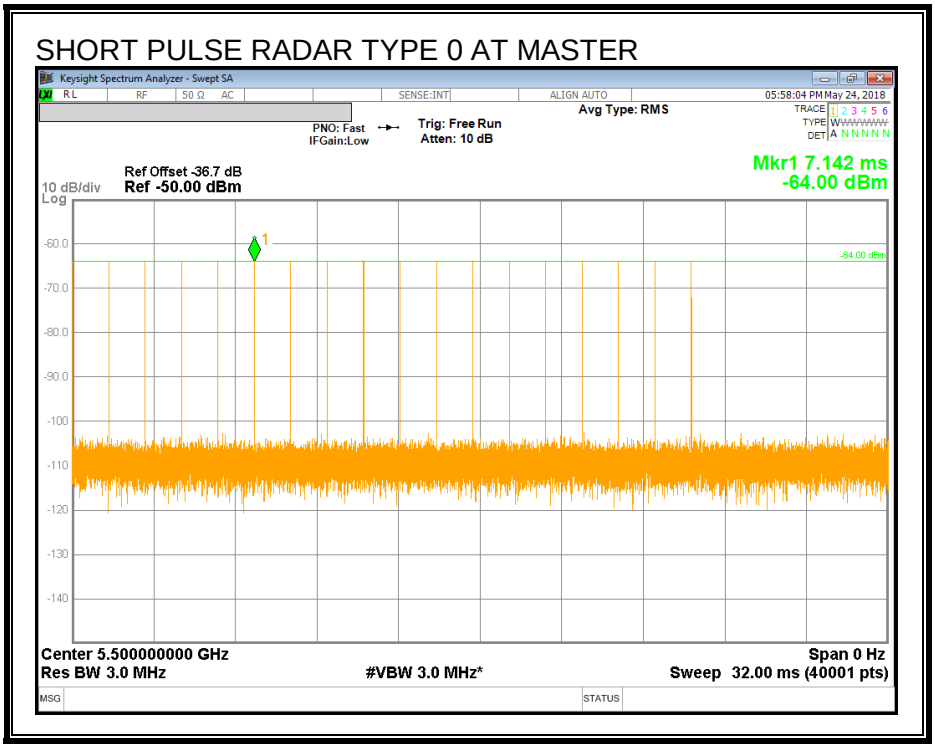
14.2. RESULTS FOR 20 MHz BANDWIDTH

14.2.1. TEST CHANNEL

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

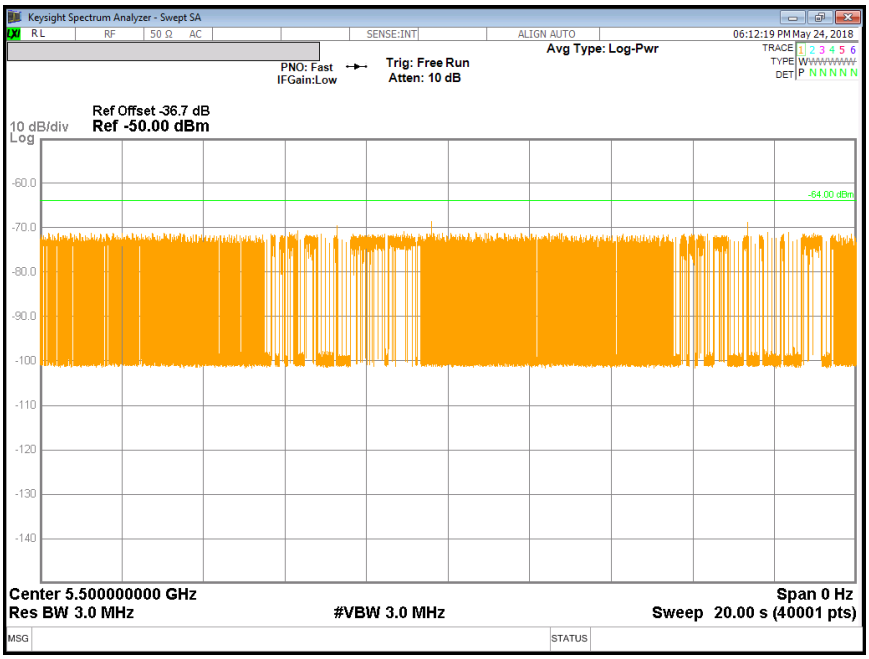
14.2.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



TRAFFIC

SLAVE TRAFFIC



14.2.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

14.2.4. MOVE AND CLOSING TIME

REPORTING NOTES

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

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

The aggregate channel closing transmission time is calculated as follows:

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

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

RESULTS

Channel Move Time (sec)	Limit (sec)
0.781	10

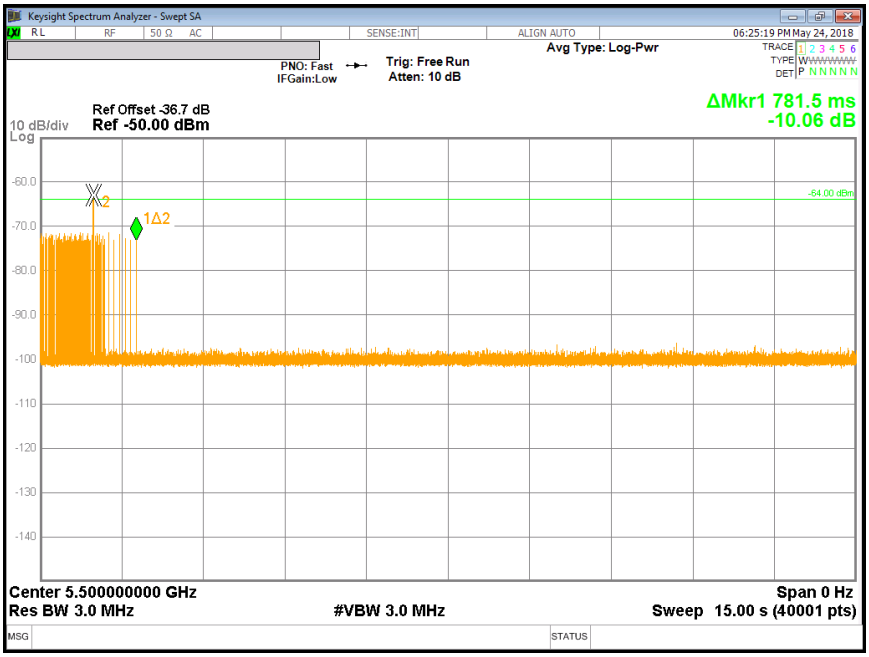
Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
4.125	60

MOVE TIME & CHANNEL CLOSING TIME

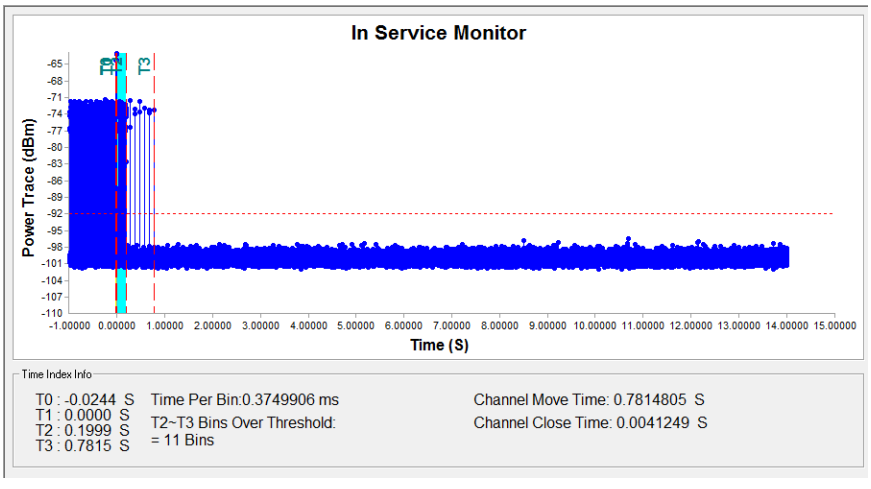
AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.

MOVE TIME & AGGREGATE CHANNEL CLOSING TRANSMISSION TIME



MOVE TIME & CLOSING TIME AT IN SERVICE MONITOR

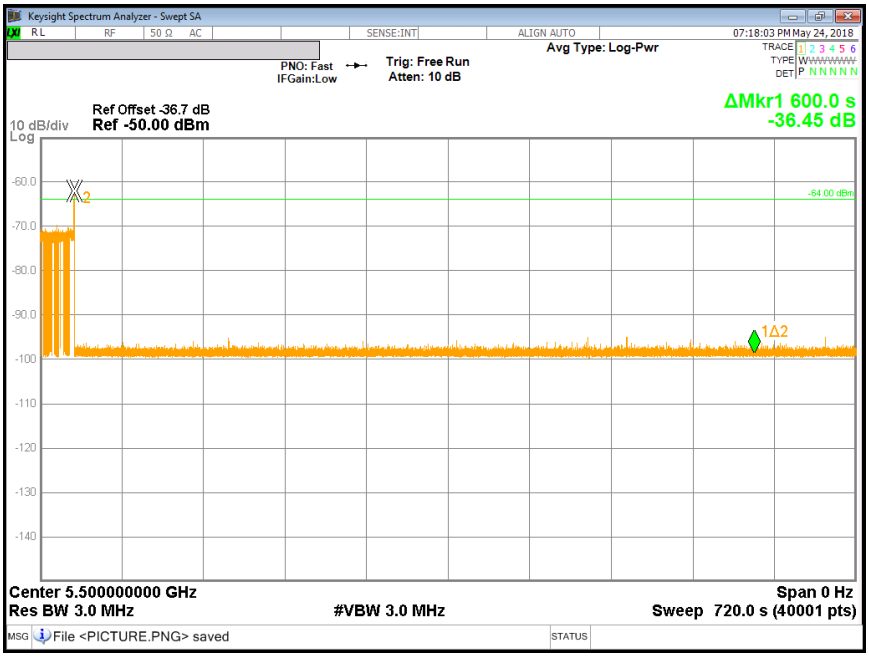


NON-OCCUPANCY PERIOD

RESULTS

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

10-MINUTE BEACON MONITORING PERIOD



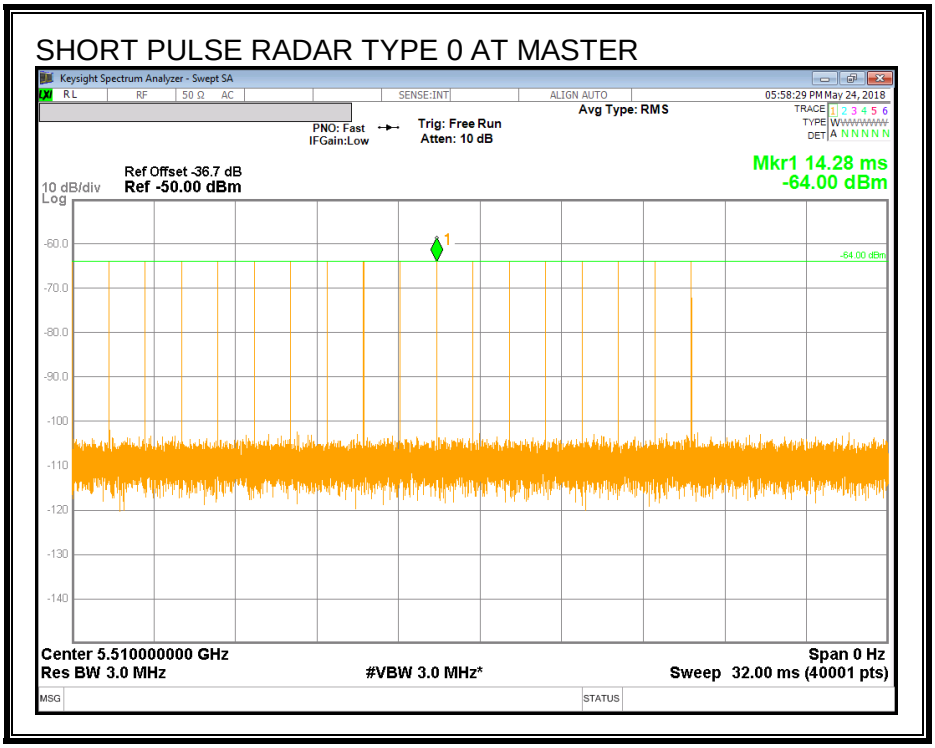
14.3. RESULTS FOR 40 MHz BANDWIDTH

14.3.1. TEST CHANNEL

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

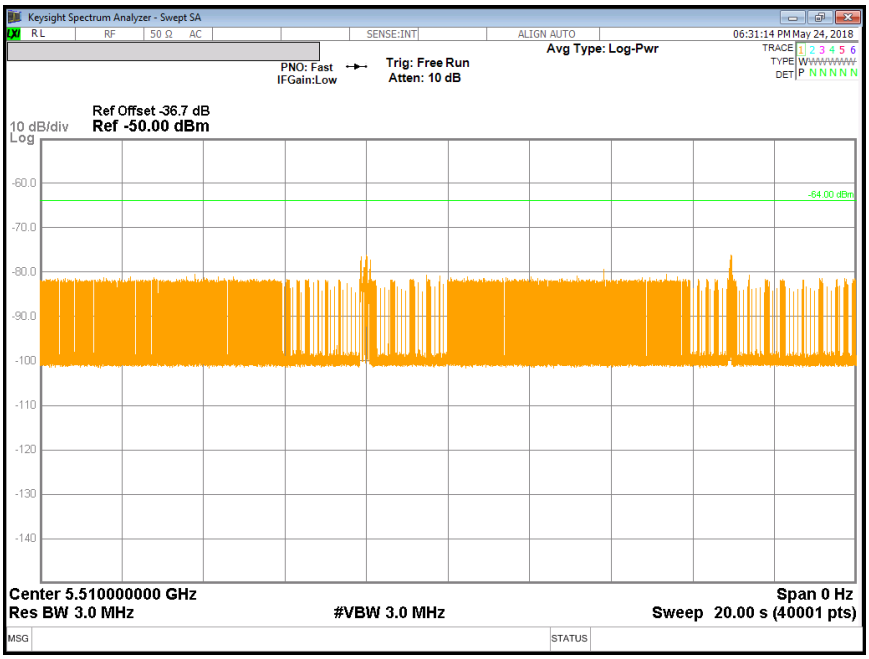
14.3.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



TRAFFIC

SLAVE TRAFFIC



14.3.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

14.3.4. MOVE AND CLOSING TIME

REPORTING NOTES

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

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

The aggregate channel closing transmission time is calculated as follows:

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

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

RESULTS

Channel Move Time (sec)	Limit (sec)
0.720	10

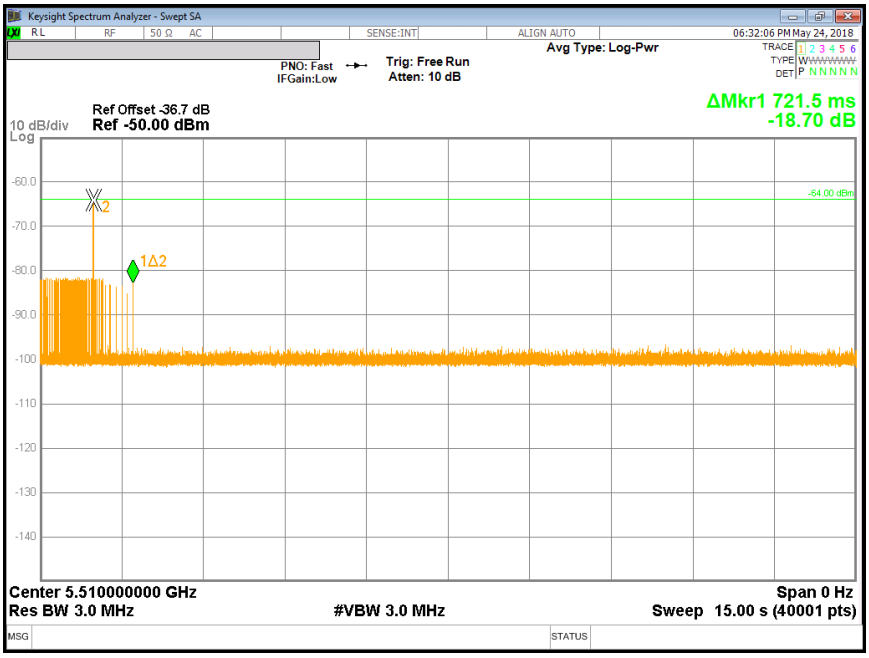
Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
5.250	60

MOVE TIME & CHANNEL CLOSING TIME

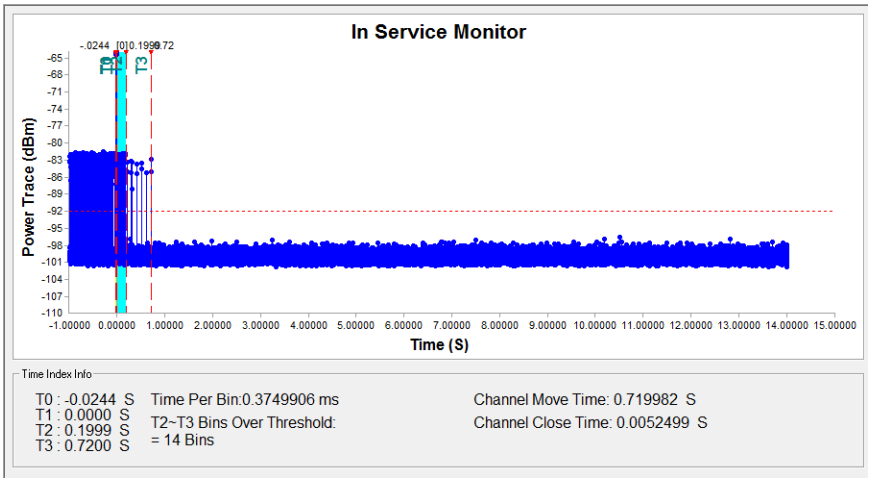
AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.

MOVE TIME & AGGREGATE CHANNEL CLOSING TRANSMISSION TIME



MOVE TIME & CLOSING TIME AT IN SERVICE MONITOR



NON-OCCUPANCY PERIOD

RESULTS

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

10-MINUTE BEACON MONITORING PERIOD