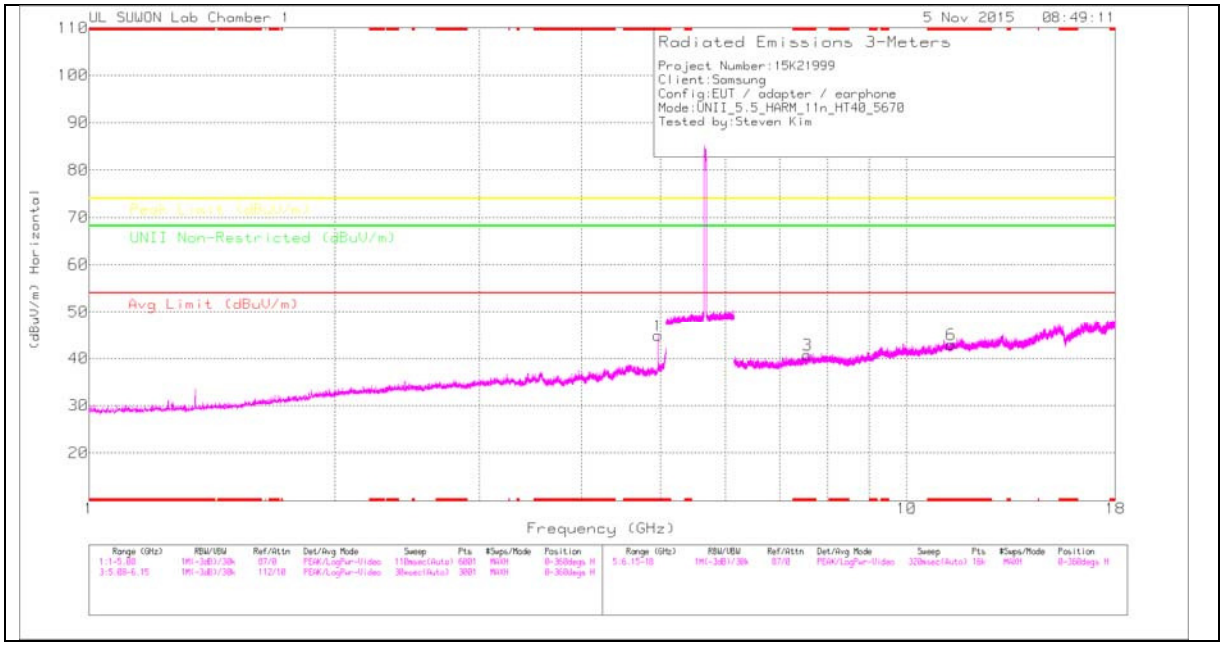
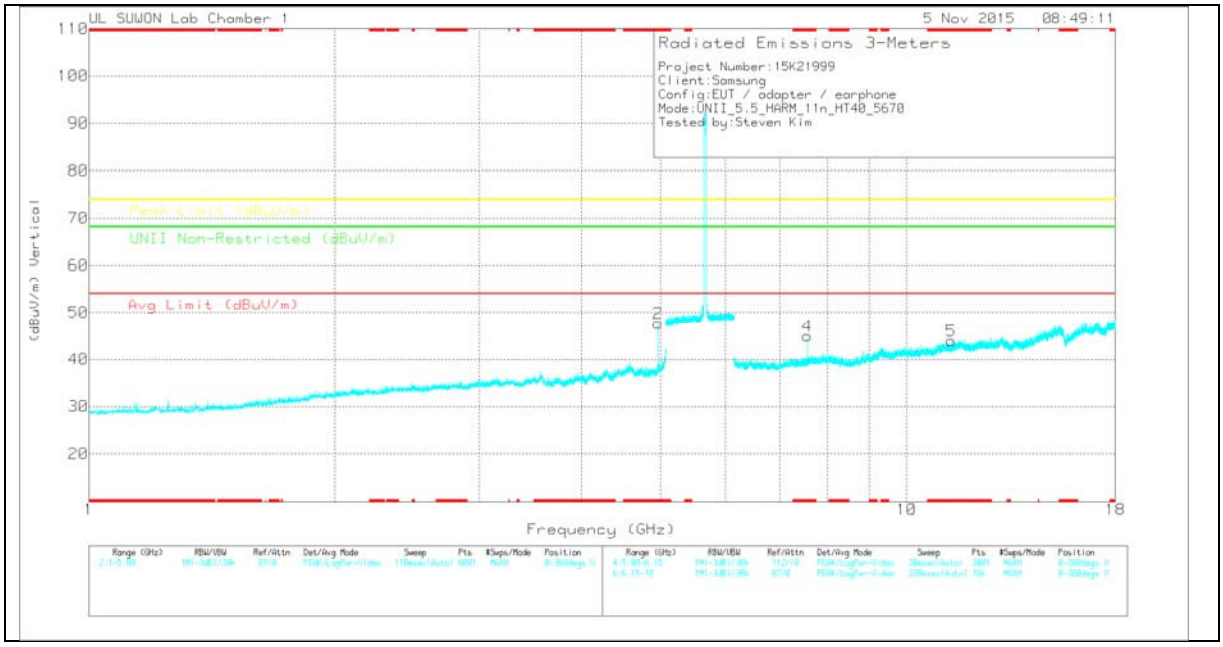
HIGH CHANNEL HORIZONTAL



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.

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001688717)_150619	Path_4	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	* 4.966	42.5	PK	34.1	-31.8	0	44.8	-	-	74	-29.2	-	-	0-360	100	H
2	* 4.966	45.41	PK	34.1	-31.8	0	47.71	-	-	74	-26.29	-	-	0-360	100	V
3	* 7.559	34.21	PK	35.9	-29.4	0	40.71	-	-	74	-33.29	-	-	0-360	200	H
6	* 11.342	30.61	PK	38.5	-26.2	0	42.91	-	-	74	-31.09	-	-	0-360	100	H
4	* 7.559	38.45	PK	35.9	-29.4	0	44.95	-	-	74	-29.05	-	-	0-360	100	V
5	* 11.34	31.59	PK	38.5	-26.2	0	43.89	-	-	74	-30.11	-	-	0-360	100	V

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

PK – Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_4	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
* 4.966	48.93	PK-U	34.1	-31.8	0	51.23	-	-	74	-22.77	-	-	156	214	H
* 4.966	41.53	ADR	34.1	-31.8	0	43.83	54	-10.17	-	-	-	-	156	214	H
* 4.966	51.89	PK-U	34.1	-31.8	0	54.19	-	-	74	-19.81	-	-	289	161	V
* 4.966	45.16	ADR	34.1	-31.8	0	47.46	54	-6.54	-	-	-	-	289	161	V
* 7.56	33.83	ADR	35.9	-29.4	0	40.33	54	-13.67	-	-	-	-	96	217	V
* 7.56	44.8	PK-U	35.9	-29.4	0	51.3	-	-	74	-22.7	-	-	96	217	V

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

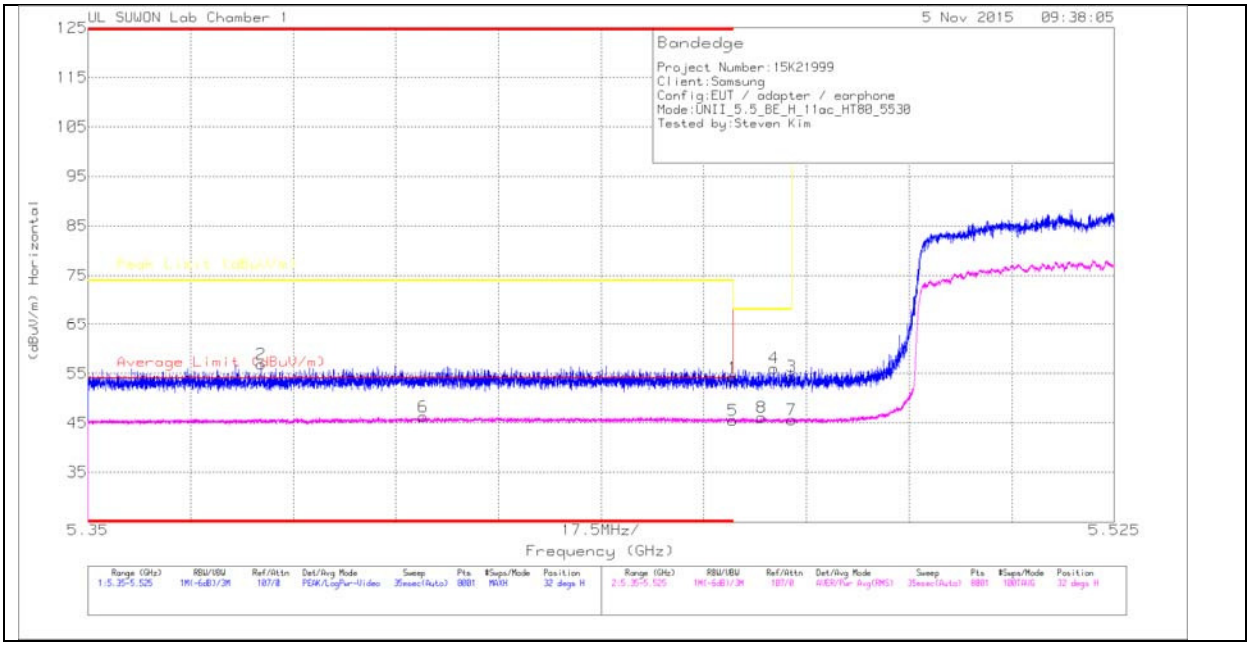
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

11.3.4. TX ABOVE 1GHz 802.11ac HT80 2TX CDD 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	3117(00168717)_150619	Path_2_10dB	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	42.17	Pk	34.6	-22.6	0	54.17	-	-	74	-19.83	32	100	H
2	* 5.38	45.2	Pk	34.5	-22.8	0	56.9	-	-	74	-17.1	32	100	H
3	5.47	42.43	Pk	34.6	-22.6	0	54.43	-	-	68.2	-13.77	32	100	H
4	5.467	44.08	Pk	34.6	-22.6	0	56.08	-	-	68.2	-12.12	32	100	H
5	* 5.46	32.27	RMS	34.6	-22.6	1.2	45.47	54	-8.53	-	-	32	100	H
6	* 5.407	33.16	RMS	34.6	-22.7	1.2	46.26	54	-7.74	-	-	32	100	H
7	5.47	32.43	RMS	34.6	-22.6	1.2	45.63	-	-	-	-	32	100	H
8	5.465	32.9	RMS	34.6	-22.6	1.2	46.1	-	-	-	-	32	100	H

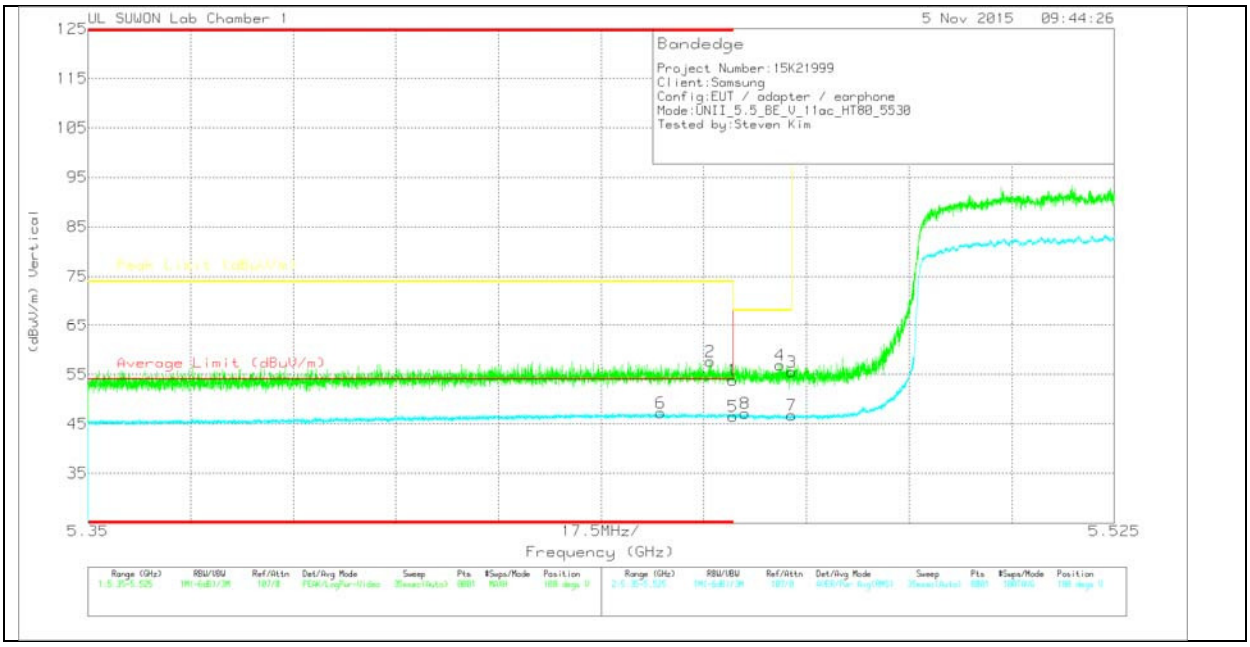
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_2_10dB	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	41.85	Pk	34.6	-22.6	0	53.85	-	-	74	-20.15	188	100	V
2	* 5.456	45.62	Pk	34.6	-22.6	0	57.62	-	-	74	-16.38	188	100	V
3	5.47	43.48	Pk	34.6	-22.6	0	55.48	-	-	68.2	-12.72	188	100	V
4	5.468	44.89	Pk	34.6	-22.6	0	56.89	-	-	68.2	-11.31	188	100	V
5	* 5.46	33.3	RMS	34.6	-22.6	1.2	46.5	54	-7.5	-	-	188	100	V
6	* 5.448	34.07	RMS	34.6	-22.6	1.2	47.27	54	-6.73	-	-	188	100	V
7	5.47	33.49	RMS	34.6	-22.6	1.2	46.69	-	-	-	-	188	100	V
8	5.462	33.96	RMS	34.6	-22.6	1.2	47.16	-	-	-	-	188	100	V

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

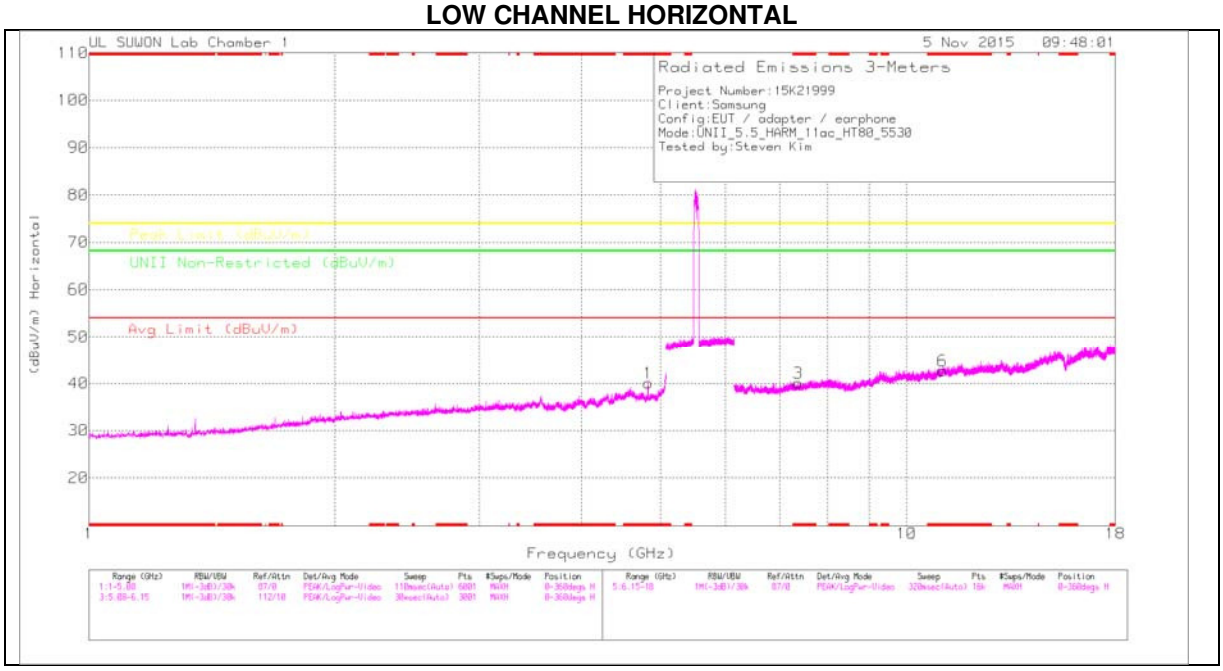
Pk - Peak detector

RMS - RMS detection

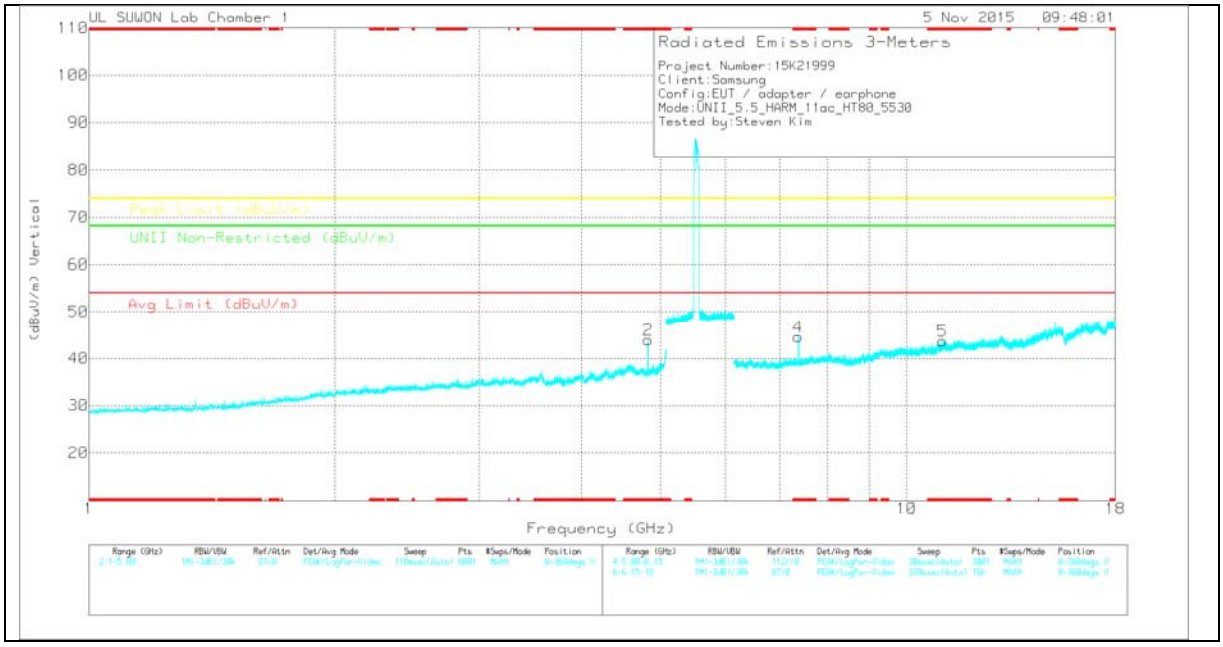
UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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.

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001688717)_150619	Path_4	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	* 4.826	38.43	PK	34	-32.4	0	40.03	-	-	74	-33.97	-	-	0-360	100	H
2	* 4.826	42.4	PK	34	-32.4	0	44	-	-	74	-30	-	-	0-360	100	V
3	* 7.373	34.02	PK	35.8	-29.8	0	40.02	-	-	74	-33.98	-	-	0-360	200	H
6	* 11.062	31.18	PK	38.2	-26.7	0	42.68	-	-	74	-31.32	-	-	0-360	100	H
4	* 7.373	38.61	PK	35.8	-29.8	0	44.61	-	-	74	-29.39	-	-	0-360	100	V
5	* 11.06	32.2	PK	38.2	-26.7	0	43.7	-	-	74	-30.3	-	-	0-360	100	V

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

PK – Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_4	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
* 4.826	47.8	PK-U	34	-32.4	0	49.4	-	-	74	-24.6	-	-	163	103	H
* 4.826	37.18	ADR	34	-32.4	0	38.78	54	-15.22	-	-	-	-	163	103	H
* 4.826	49.08	PK-U	34	-32.4	0	50.68	-	-	74	-23.32	-	-	279	167	V
* 4.826	37.89	ADR	34	-32.4	0	39.49	54	-14.51	-	-	-	-	279	167	V
* 7.373	38.5	ADR	35.8	-29.8	0	44.5	54	-9.5	-	-	-	-	93	109	V
* 7.373	46.69	PK-U	35.8	-29.8	0	52.69	-	-	74	-21.31	-	-	93	109	V

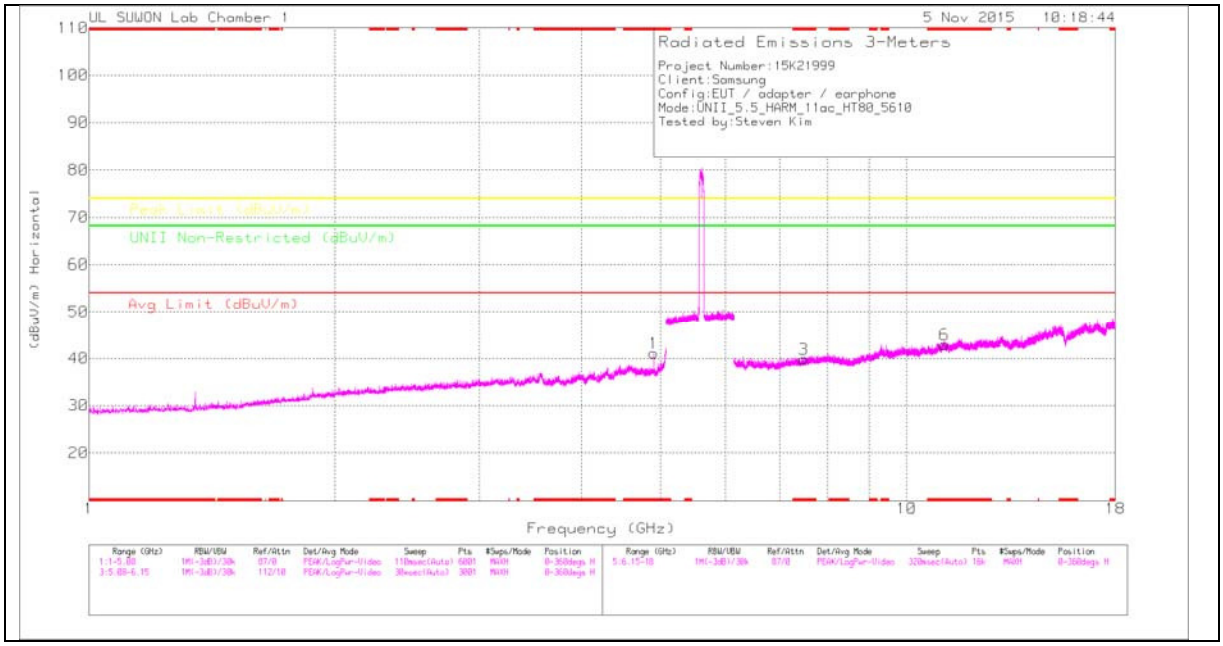
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK-U - U-NII: Maximum Peak

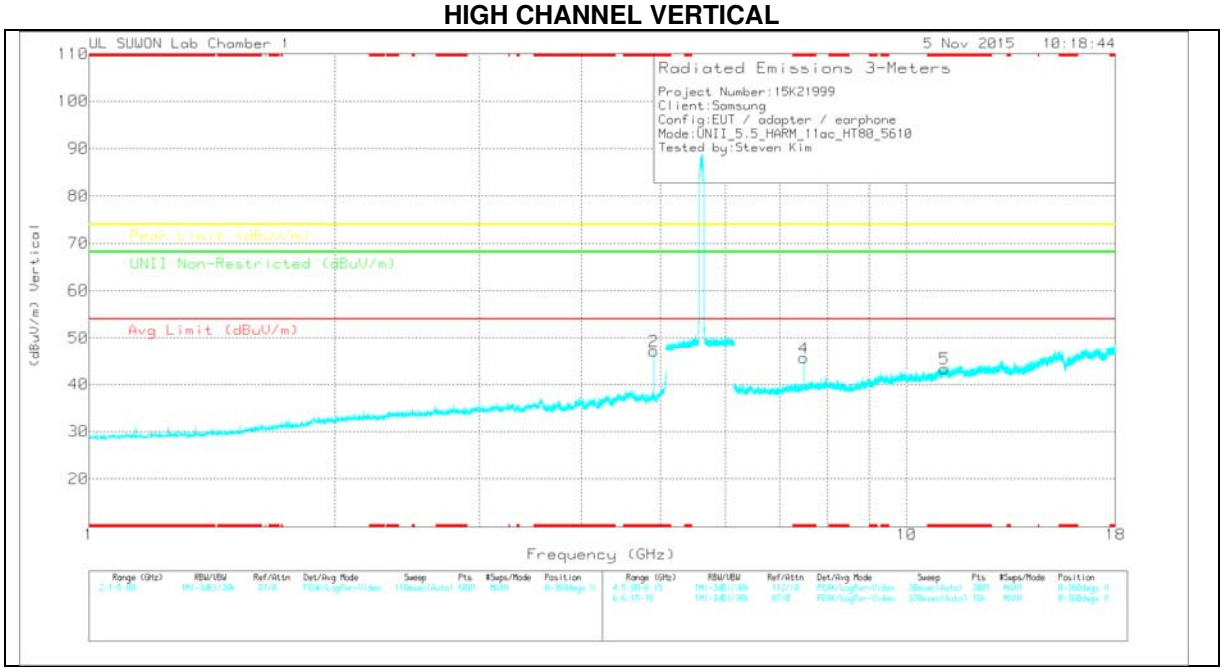
ADR - U-NII AD primary method, RMS average

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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.

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 17)_150619	Path_4	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	* 4.906	38.95	PK	34	-31.9	0	41.05	-	-	74	-32.95	-	-	0-360	100	H
2	* 4.907	45.02	PK	34	-31.9	0	47.12	-	-	74	-26.88	-	-	0-360	100	V
3	* 7.479	33.66	PK	35.8	-29.7	0	39.76	-	-	74	-34.24	-	-	0-360	200	H
6	* 11.124	31.13	PK	38.3	-26.5	0	42.93	-	-	74	-31.07	-	-	0-360	100	H
4	* 7.48	39.53	PK	35.8	-29.7	0	45.63	-	-	74	-28.37	-	-	0-360	100	V
5	* 11.122	31.52	PK	38.3	-26.5	0	43.32	-	-	74	-30.68	-	-	0-360	100	V

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

PK – Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 17)_150619	Path_4	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
* 4.906	48.39	PK-U	34	-31.9	0	50.49	-	-	74	-23.51	-	-	28	115	H
* 4.906	38.54	ADR	34	-31.9	0	40.64	54	-13.36	-	-	-	-	28	115	H
* 4.906	52.03	PK-U	34	-31.9	0	54.13	-	-	74	-19.87	-	-	283	191	V
* 4.906	46.67	ADR	34	-31.9	0	48.77	54	-5.23	-	-	-	-	283	191	V
* 7.48	36.05	ADR	35.8	-29.7	0	42.15	54	-11.85	-	-	-	-	329	189	V
* 7.48	46.13	PK-U	35.8	-29.7	0	52.23	-	-	74	-21.77	-	-	329	189	V

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

PK-U - U-NII: Maximum Peak

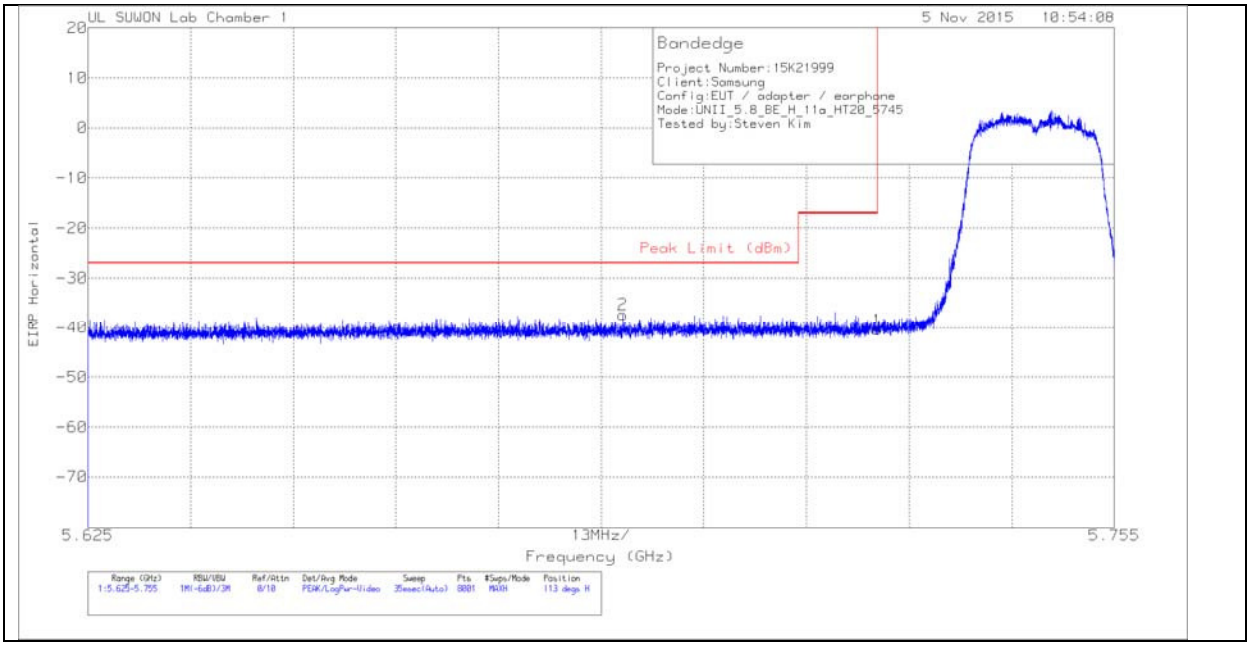
ADR - U-NII AD primary method, RMS average

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

11.4. 5.8 GHz

11.4.1. TX ABOVE 1GHz 802.11a 2TX CDD MODE IN THE 5.8GHz BAND HARMONICS AND SPURIOUS EMISSIONS

HORIZONTAL PEAK PLOT



HORIZONTAL DATA

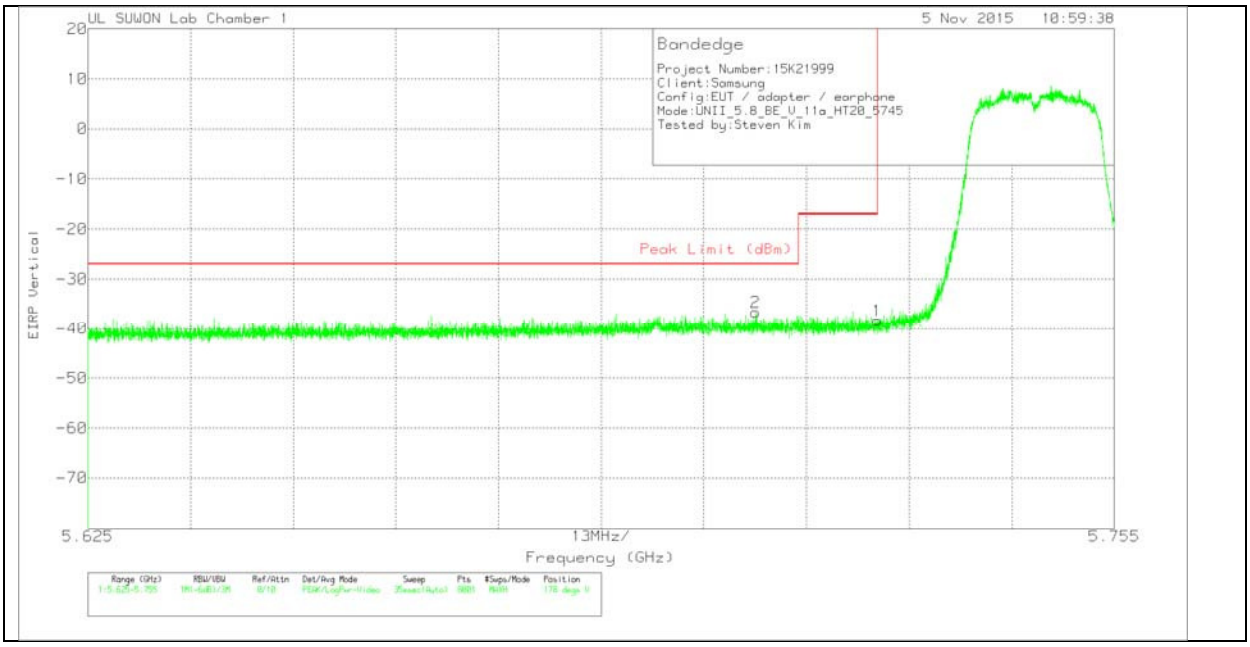
TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(00168717)_150619	Path_2_10 dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-64.62	Pk	34.8	-22.4	11.8	0	-40.42	-17	-23.42	113	323	H
2	5.693	-61.49	Pk	34.8	-22.4	11.8	0	-37.29	-27	-10.29	113	323	H

Pk - Peak detector

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

VERTICAL PEAK PLOT



VERTICAL DATA

TRACE MARKERS

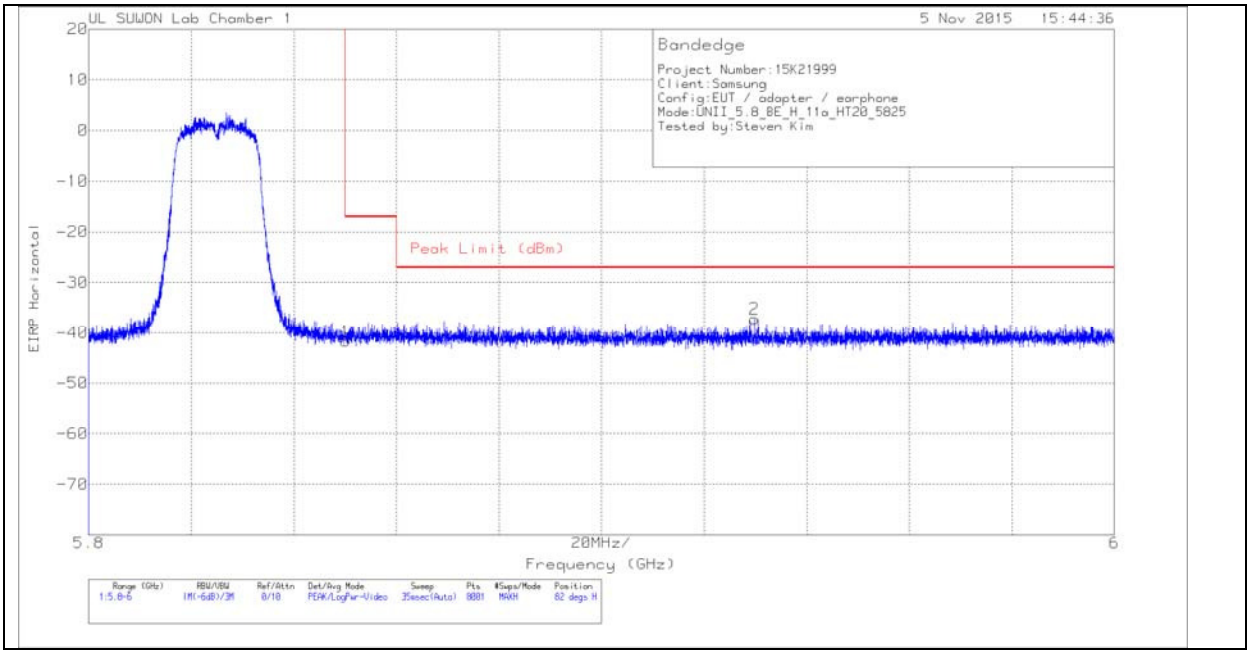
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(00168717)_150619	Path_2_10 dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-62.5	Pk	34.8	-22.4	11.8	0	-38.3	-17	-21.3	178	106	V
2	5.71	-60.79	Pk	34.8	-22.4	11.8	0	-36.59	-27	-9.59	178	106	V

Pk - Peak detector

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK PLOT



HORIZONTAL DATA

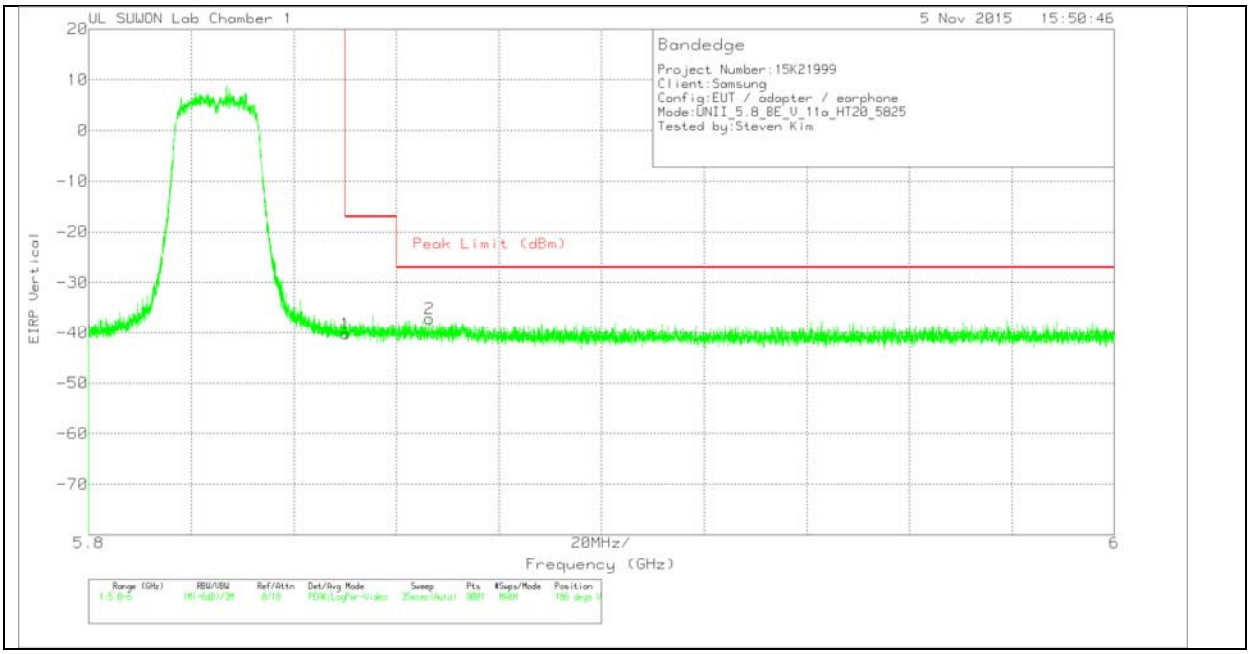
TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(0016 8717)_150 619	Path_2_10 dB	Conversio n Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-66.59	Pk	34.9	-21.8	11.8	0	-41.69	-17	-24.69	82	333	H
2	5.93	-61.99	Pk	34.9	-21.9	11.8	0	-37.19	-27	-10.19	82	333	H

Pk - Peak detector

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

VERTICAL PEAK PLOT



VERTICAL DATA

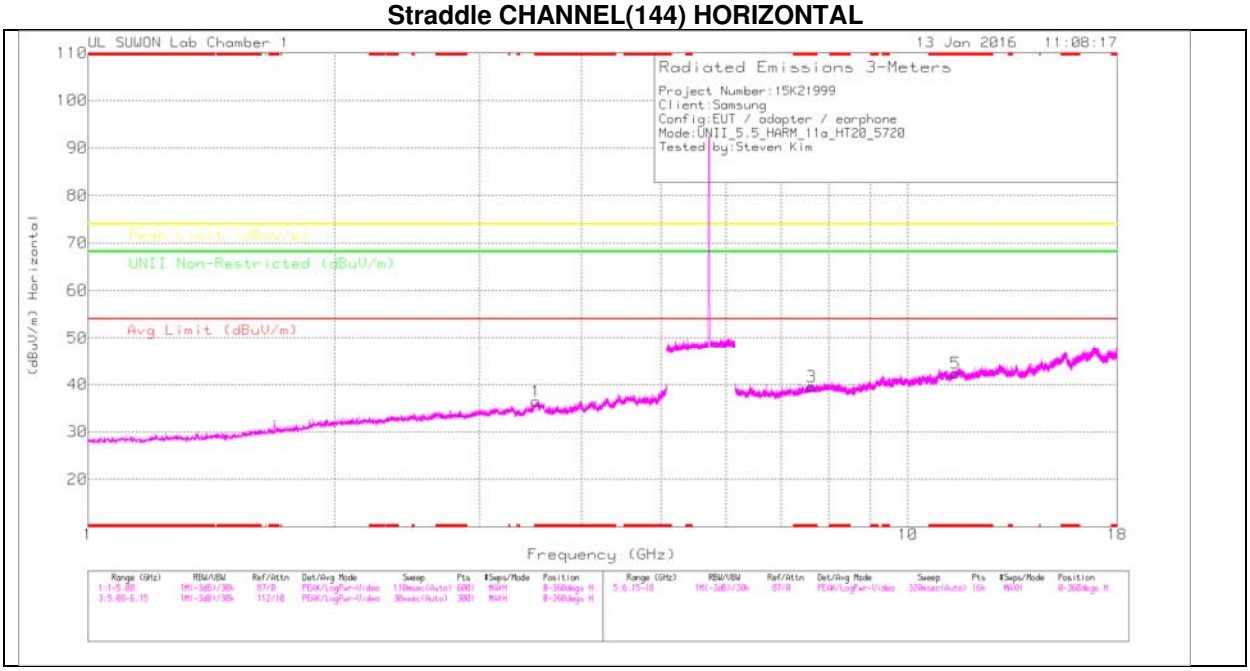
TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(0016 8717)_150 619	Path_2_10 dB	Conversio n Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-65.11	Pk	34.9	-21.8	11.8	0	-40.21	-17	-23.21	186	103	V
2	5.866	-62.04	Pk	34.9	-21.8	11.8	0	-37.14	-27	-10.14	186	103	V

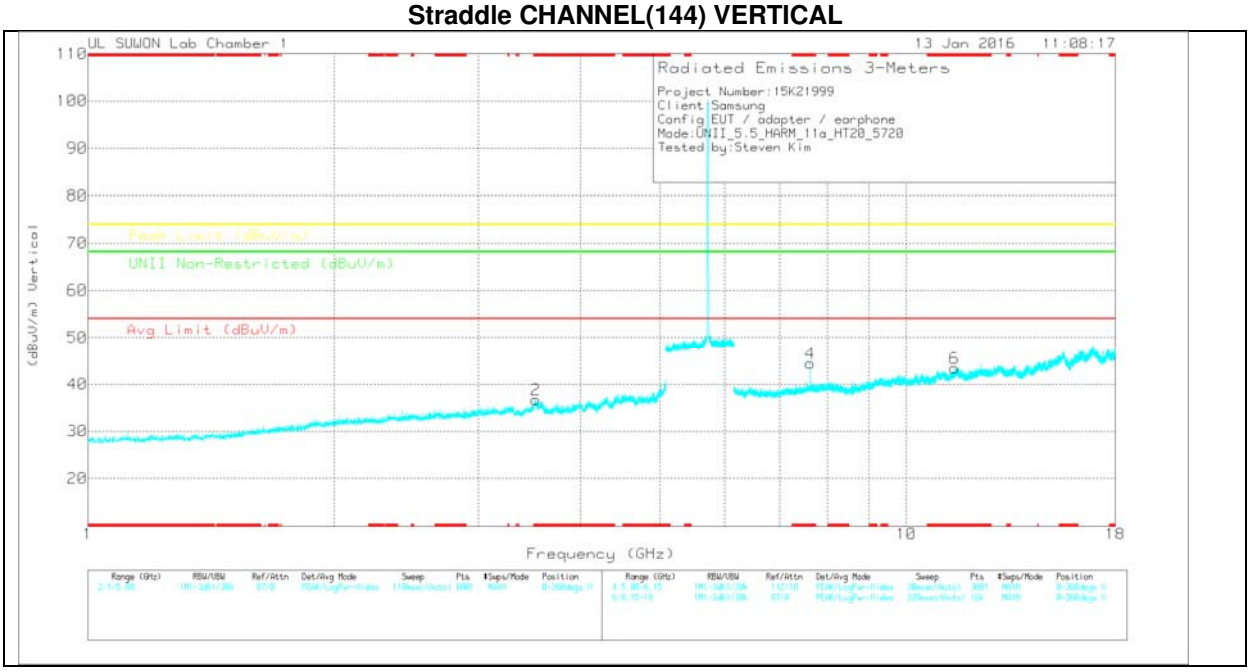
Pk - Peak detector

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

Straddle CHANNEL(144) HORIZONTAL



Straddle CHANNEL(144) 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.

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

Straddle CHANNEL(144) DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 17)_150619	Path_4	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	* 3.519	39.17	PK	32.8	-35.5	0	36.47	-	-	74	-37.53	-	-	0-360	100	H
2	* 3.526	39.4	PK	32.8	-35.5	0	36.7	-	-	74	-37.3	-	-	0-360	100	V
3	* 7.63	33.84	PK	36	-30.3	0	39.54	-	-	74	-34.46	-	-	0-360	200	H
5	* 11.438	31.29	PK	38.6	-27.5	0	42.39	-	-	74	-31.61	-	-	0-360	200	H
4	* 7.626	38.71	PK	36	-30.3	0	44.41	-	-	74	-29.59	-	-	0-360	100	V
6	* 11.44	32.34	PK	38.6	-27.5	0	43.44	-	-	74	-30.56	-	-	0-360	100	V

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

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 17)_150619	Path_5	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
* 7.626	45.33	PK-U	36	-30.3	0	51.03	-	-	74	-22.97	-	-	318	181	V
* 7.627	36.42	ADR	36	-30.3	0	42.12	54	-11.88	-	-	-	-	318	181	V

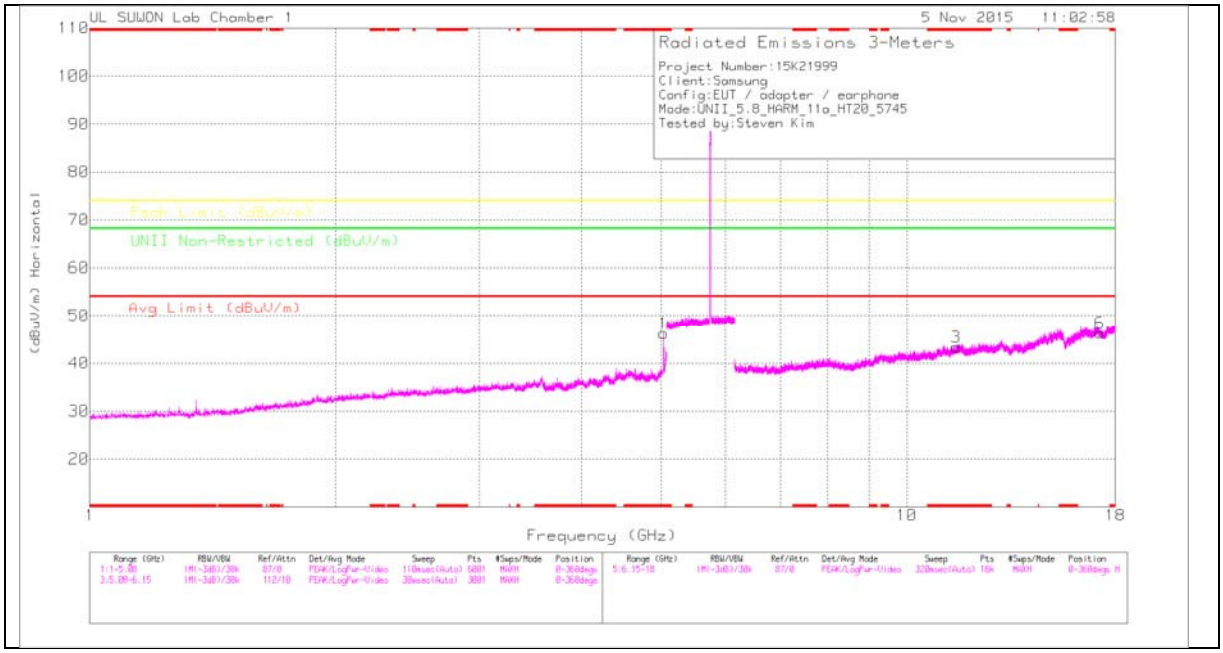
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK-U - U-NII: Maximum Peak

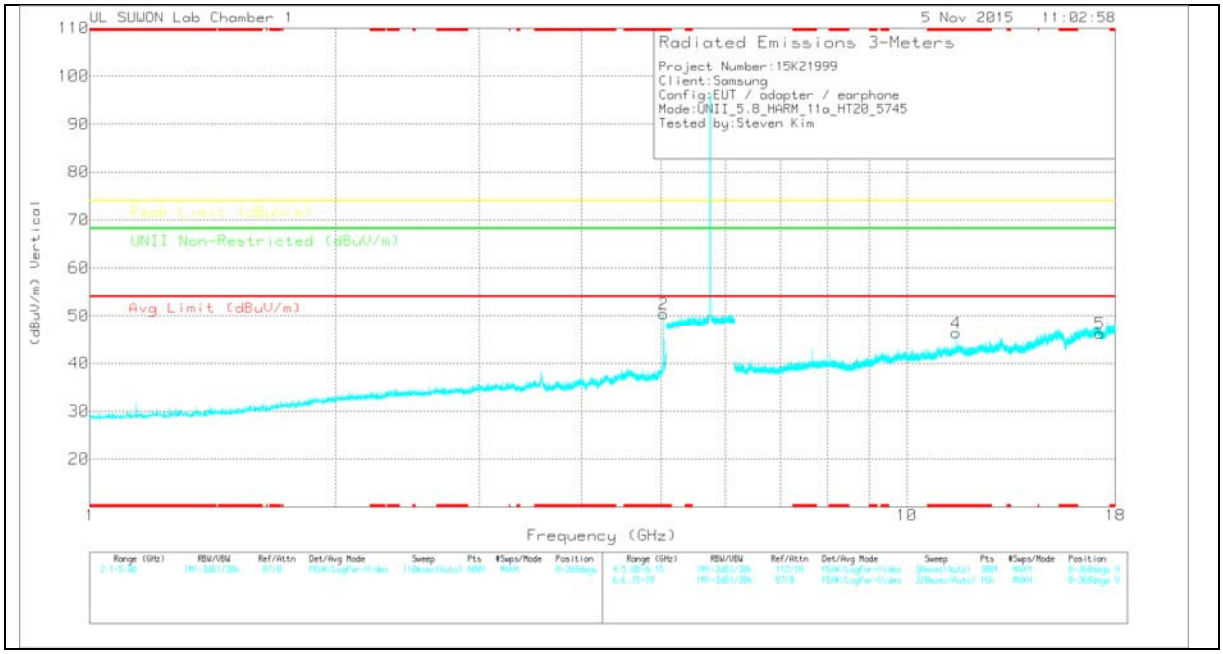
ADR - U-NII AD primary method, RMS average

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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.

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001688717)_150619	Path_4	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	* 5.041	43.37	PK	34.1	-31.2	0	46.27	-	-	74	-27.73	-	-	0-360	200	H
2	* 5.041	47.5	PK	34.1	-31.2	0	50.4	-	-	74	-23.6	-	-	0-360	200	V
3	* 11.49	31.48	PK	38.6	-26.7	0	43.38	-	-	74	-30.62	-	-	0-360	100	H
6	17.234	25.96	PK	41.2	-20.8	0	46.36	-	-	-	-	68.2	-21.84	0-360	100	H
4	* 11.49	34.46	PK	38.6	-26.7	0	46.36	-	-	74	-27.64	-	-	0-360	100	V
5	17.235	25.85	PK	41.2	-20.8	0	46.25	-	-	-	-	68.2	-21.95	0-360	200	V

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

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_4	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
* 5.041	51.49	PK-U	34.1	-31.2	0	54.39	-	-	74	-19.61	-	-	150	100	H
* 5.041	43.11	ADR	34.1	-31.2	0	46.01	54	-7.99	-	-	-	-	150	100	H
* 5.041	52.98	PK-U	34.1	-31.2	0	55.88	-	-	74	-18.12	-	-	289	114	V
* 5.041	45.28	ADR	34.1	-31.2	0	48.18	54	-5.82	-	-	-	-	289	114	V
* 11.49	33.86	ADR	38.6	-26.7	.31	46.07	54	-7.93	-	-	-	-	34	100	V
* 11.49	43.53	PK-U	38.6	-26.7	0	55.43	-	-	74	-18.57	-	-	34	100	V

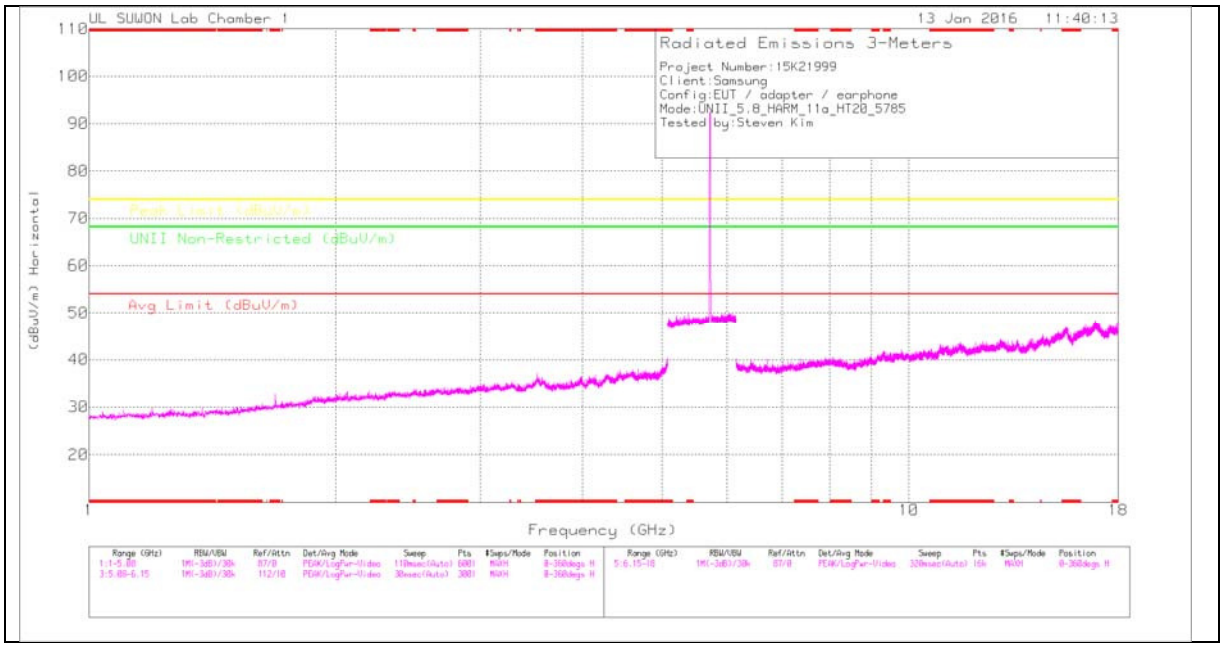
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK-U - U-NII: Maximum Peak

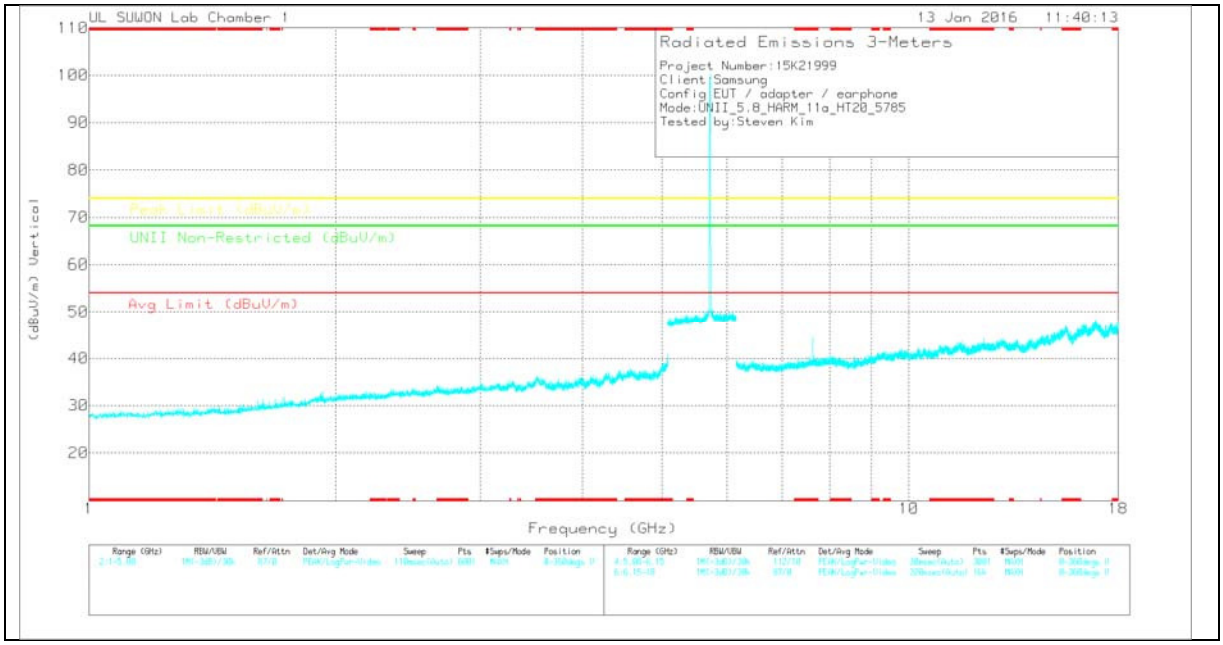
ADR - U-NII AD primary method, RMS average

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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.

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_4	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	* 3.521	39.78	PK	32.8	-35.5	0	37.08	-	-	74	-36.92	-	-	0-360	100	H
2	* 3.521	38.76	PK	32.8	-35.5	0	36.06	-	-	74	-37.94	-	-	0-360	200	V
3	* 7.63	33.84	PK	36	-30.3	0	39.54	-	-	74	-34.46	-	-	0-360	200	H
5	* 11.571	31.34	PK	38.7	-27.2	0	42.84	-	-	74	-31.16	-	-	0-360	100	H
4	* 7.626	38.71	PK	36	-30.3	0	44.41	-	-	74	-29.59	-	-	0-360	100	V
6	* 11.571	31.17	PK	38.7	-27.2	0	42.67	-	-	74	-31.33	-	-	0-360	100	V

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

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	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
* 7.638	44.51	PK-U	36	-30.3	0	50.21	-	-	74	-23.79	-	-	322	145	V
* 7.638	31.15	ADR	36	-30.3	0	36.85	54	-17.15	-	-	-	-	322	145	V

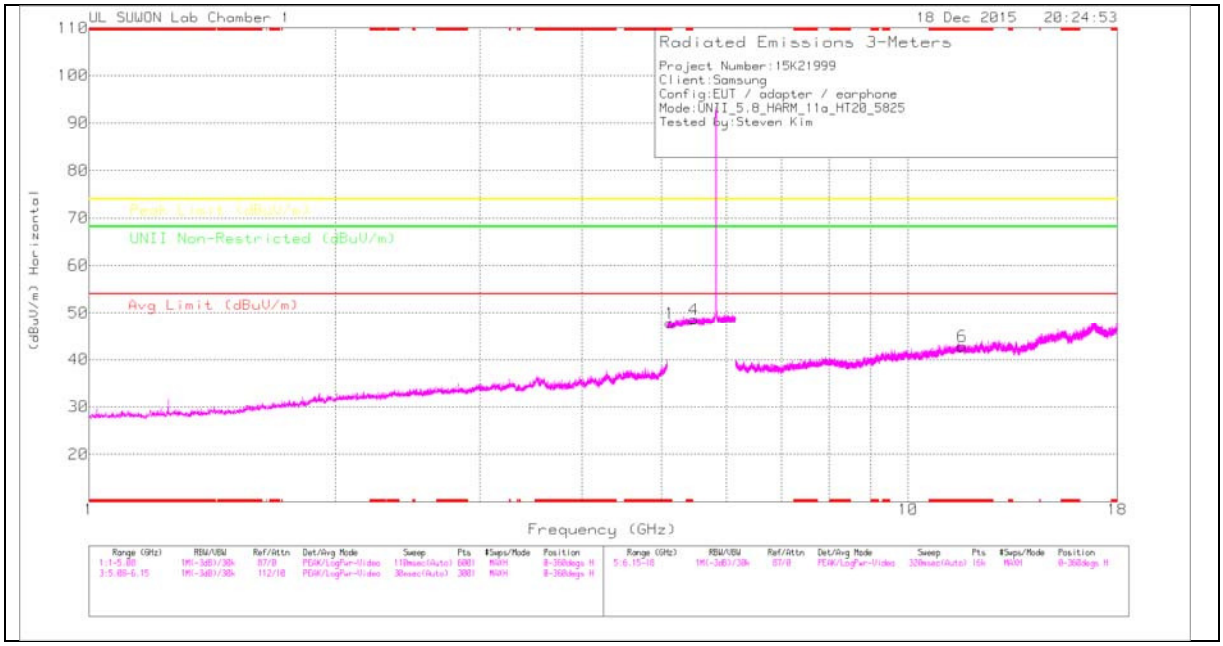
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK-U - U-NII: Maximum Peak

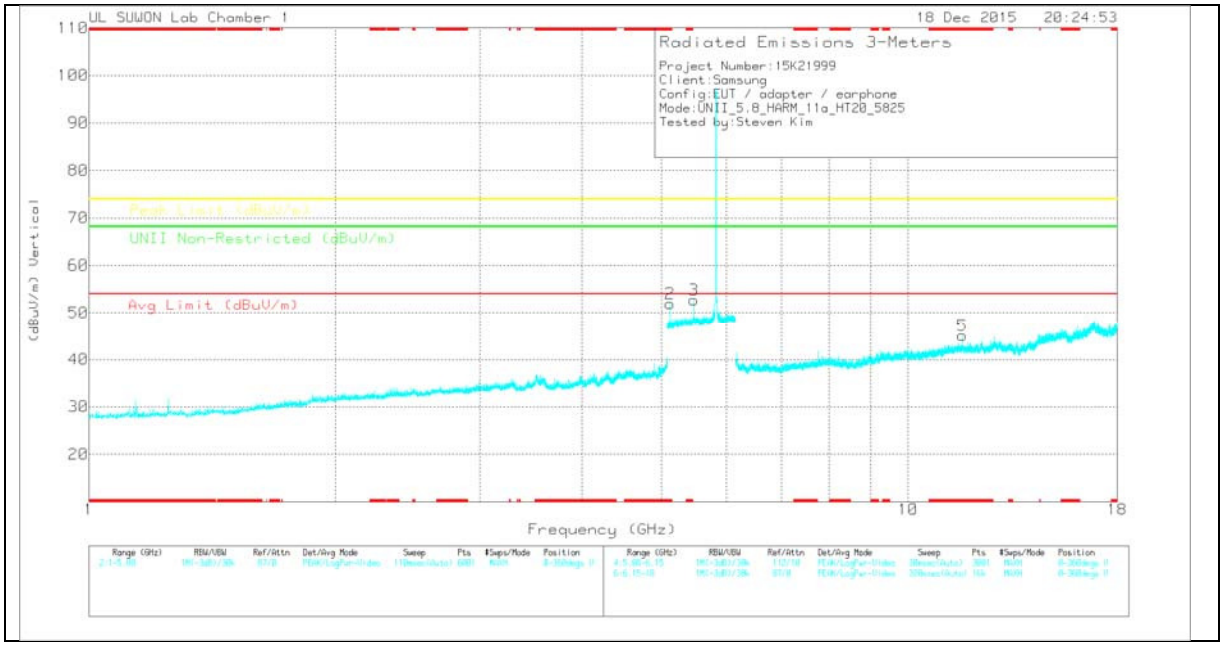
ADR - U-NII AD primary method, RMS average

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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.

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001688717)_150619	Path_2	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	* 5.121	37.71	PK	34.2	-24.1	0	47.81	-	-	74	-26.19	-	-	0-360	100	H
4	5.472	37.12	PK	34.6	-23.1	0	48.62	-	-	-	-	68.2	-19.58	0-360	200	H
2	* 5.121	41.88	PK	34.2	-24.1	0	51.98	-	-	74	-22.02	-	-	0-360	100	V
3	5.473	41.26	PK	34.6	-23.1	0	52.76	-	-	-	-	68.2	-15.44	0-360	100	V
6	* 11.647	31.63	PK	38.7	-27.6	0	42.73	-	-	74	-31.27	-	-	0-360	200	H
5	* 11.65	33.96	PK	38.7	-27.6	0	45.06	-	-	74	-28.94	-	-	0-360	100	V

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

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_2	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
* 5.121	49.96	PK-U	34.2	-24.1	0	60.06	-	-	74	-13.94	-	-	250	105	V
* 5.121	40.38	ADR	34.2	-24.1	0	50.48	54	-3.52	-	-	-	-	250	105	V
5.473	49.92	PK-U	34.6	-23.1	0	61.42	-	-	-	-	68.2	-6.78	288	100	V

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

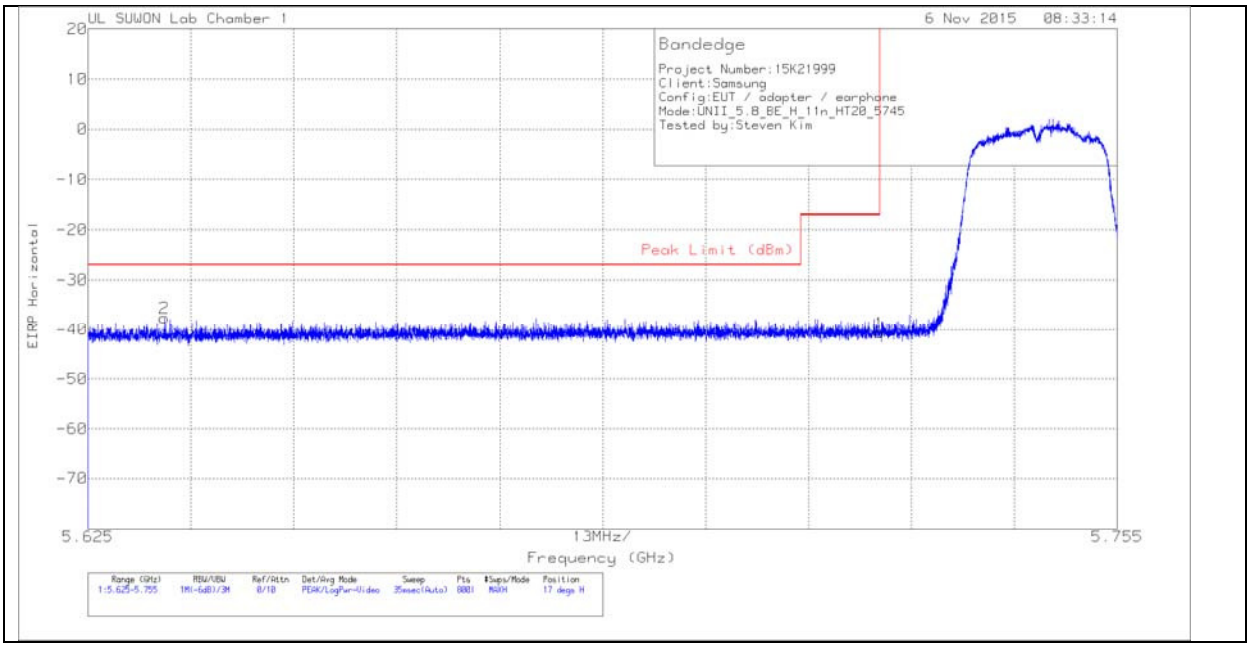
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

11.4.2. TX ABOVE 1GHz 802.11n HT20 2TX CDD MODE IN THE 5.8GHz BAND HARMONICS AND SPURIOUS EMISSIONS

HORIZONTAL PEAK PLOT



HORIZONTAL DATA

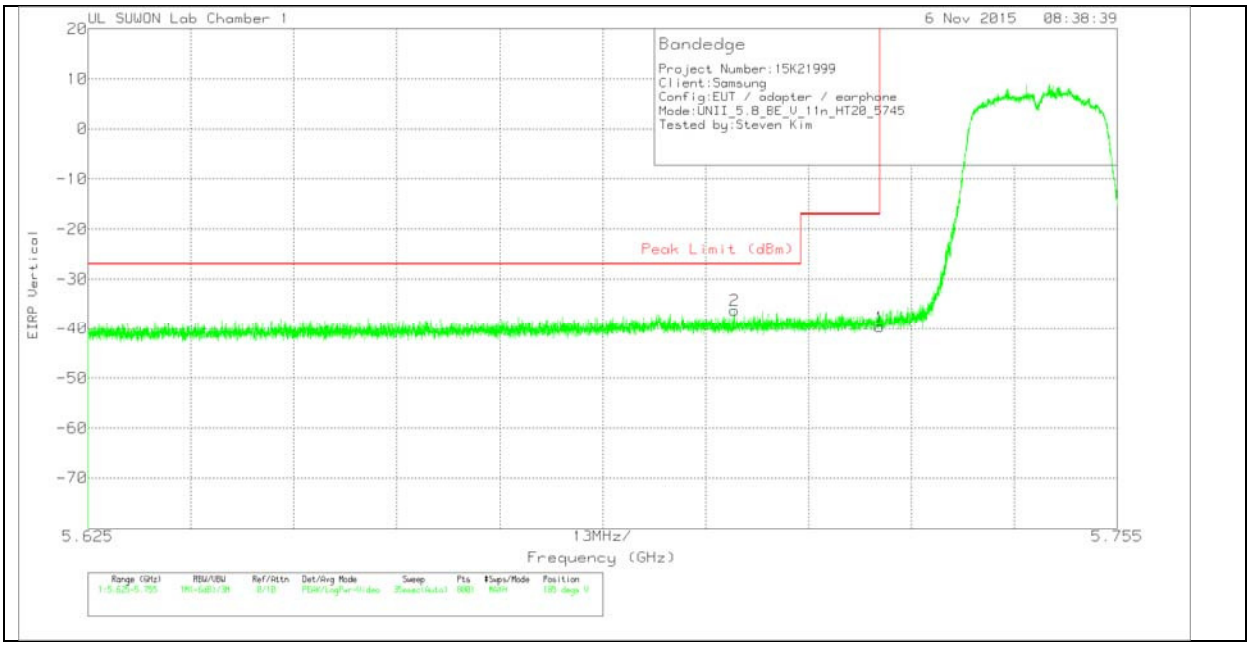
TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(00168717)_150619	Path_2_10 dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-64.89	Pk	34.8	-22.4	11.8	0	-40.69	-17	-23.69	17	317	H
2	5.635	-61.55	Pk	34.8	-22.6	11.8	0	-37.55	-27	-10.55	17	317	H

Pk - Peak detector

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

VERTICAL PEAK PLOT



VERTICAL DATA

TRACE MARKERS

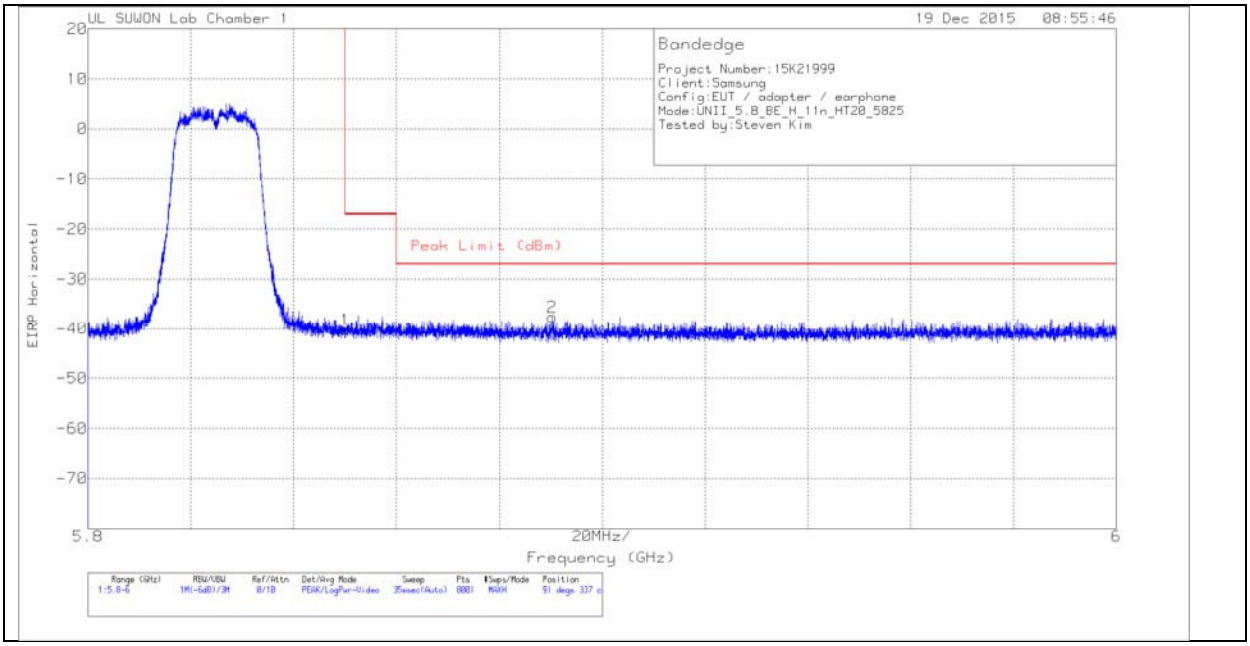
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(0016 8717)_150 619	Path_2_10 dB	Conversio n Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-63.82	Pk	34.8	-22.4	11.8	0	-39.62	-17	-22.62	185	104	V
2	5.707	-60.43	Pk	34.8	-22.4	11.8	0	-36.23	-27	-9.23	185	104	V

Pk - Peak detector

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

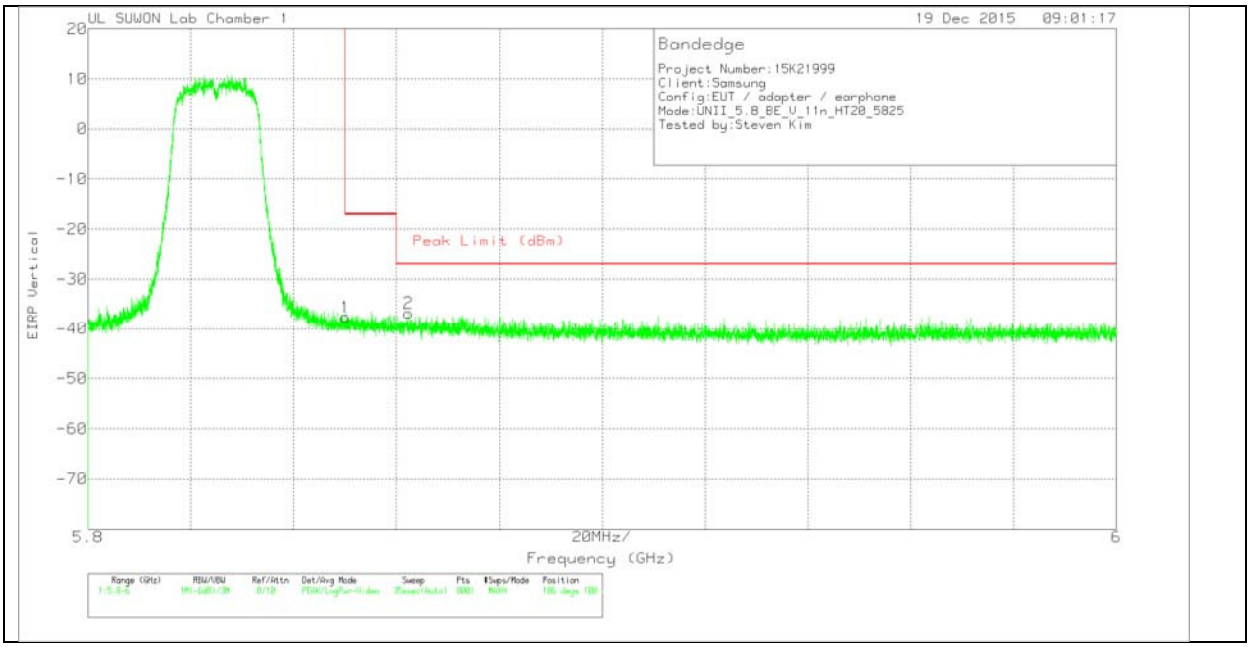
TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(00168717)_150619	Path_2_10 dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-64.63	Pk	34.9	-22.2	11.8	0	-40.13	-17	-23.13	91	337	H
2	5.89	-61.96	Pk	34.9	-22.3	11.8	0	-37.56	-27	-10.56	91	337	H

Pk - Peak detector

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

VERTICAL PEAK PLOT



VERTICAL DATA

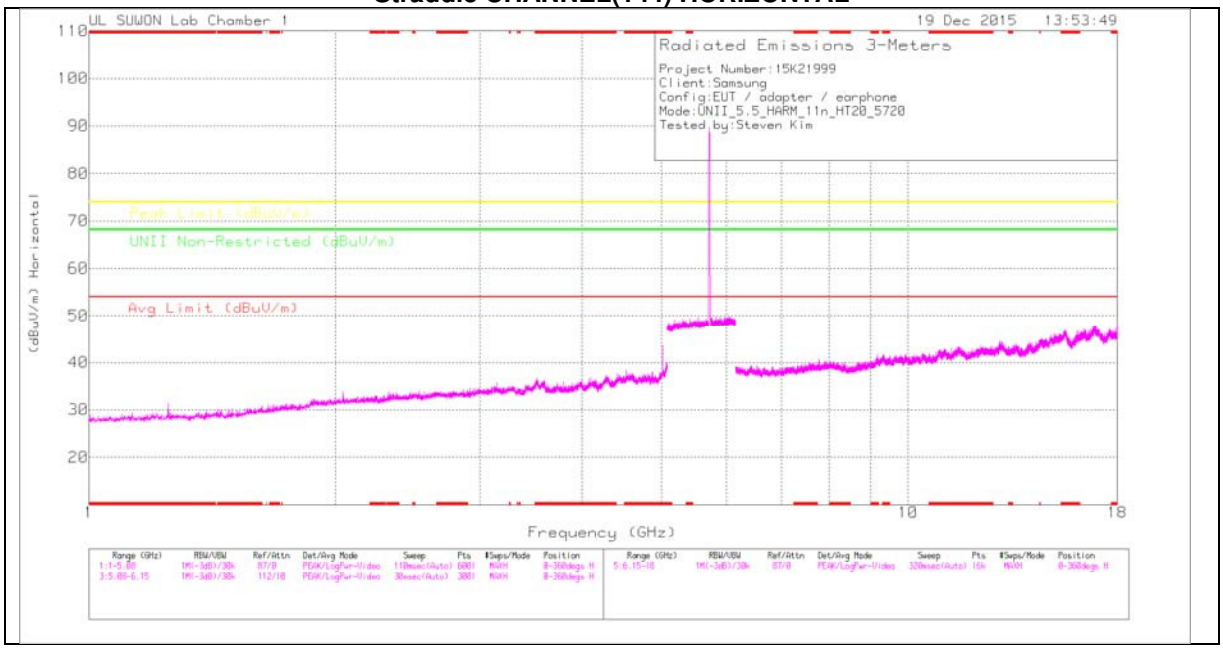
TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(00168717)_150619	Path_2_10 dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-62.15	Pk	34.9	-22.2	11.8	0	-37.65	-17	-20.65	186	100	V
2	5.862	-61.3	Pk	34.9	-22.2	11.8	0	-36.8	-27	-9.8	186	100	V

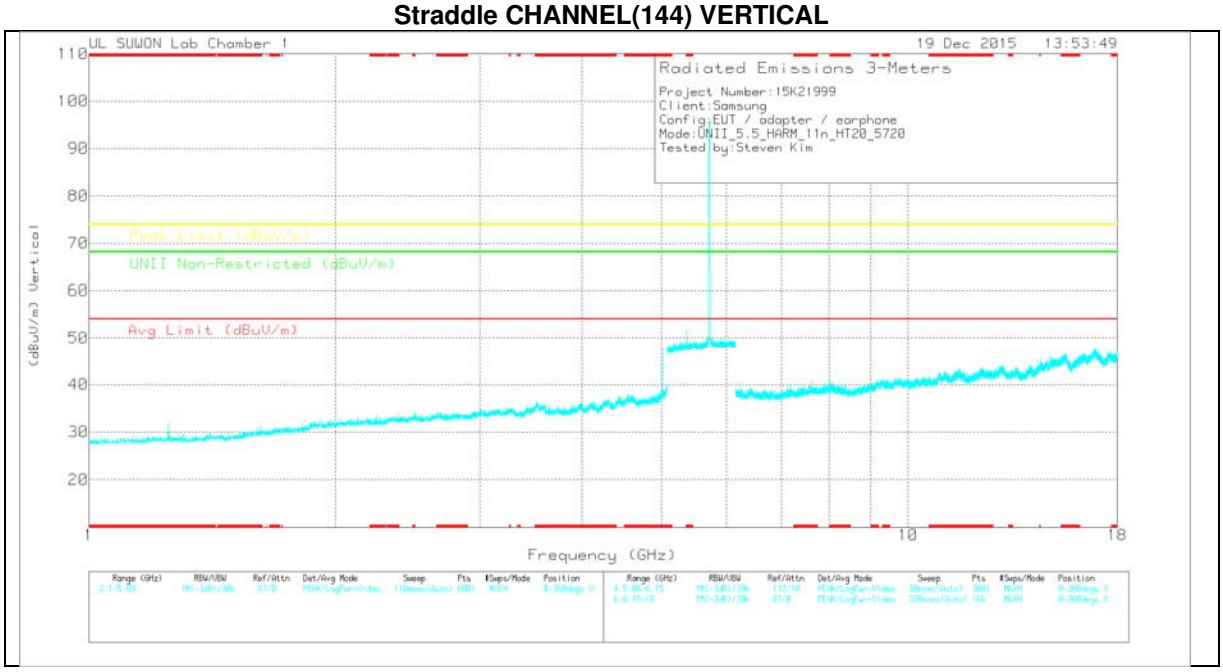
Pk - Peak detector

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

Straddle CHANNEL(144) HORIZONTAL



Straddle CHANNEL(144) 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.

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

Straddle CHANNEL(144) DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_4	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	* 5.016	41.77	PK	34.1	-32.2	0	43.67	-	-	74	-30.33	-	-	0-360	100	H
2	* 5.016	45.71	PK	34.1	-32.2	0	47.61	-	-	74	-26.39	-	-	0-360	100	V
4	* 5.368	37.31	PK	34.5	-23.3	0	48.51	-	-	74	-25.49	-	-	0-360	200	H
3	* 5.367	40.46	PK	34.5	-23.3	0	51.66	-	-	74	-22.34	-	-	0-360	100	V
5	9.907	31.4	PK	37.4	-27.1	0	41.7	-	-	-	-	68.2	-26.5	0-360	100	H
6	9.996	30.34	PK	37.5	-27.4	0	40.44	-	-	-	-	68.2	-27.76	0-360	200	V

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

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_4	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
* 5.016	49.17	PK-U	34.1	-32.2	0	51.07	-	-	74	-22.93	-	-	41	100	H
* 5.016	39.03	ADR	34.1	-32.2	0	40.93	54	-13.07	-	-	-	-	41	100	H
* 5.016	51.99	PK-U	34.1	-32.2	0	53.89	-	-	74	-20.11	-	-	242	100	V
* 5.016	43.99	ADR	34.1	-32.2	0	45.89	54	-8.11	-	-	-	-	242	100	V
* 5.368	39.24	ADR	34.5	-23.3	0	50.44	54	-3.56	-	-	-	-	294	100	V
* 5.368	50.33	PK-U	34.5	-23.3	0	61.53	-	-	74	-12.47	-	-	294	100	V

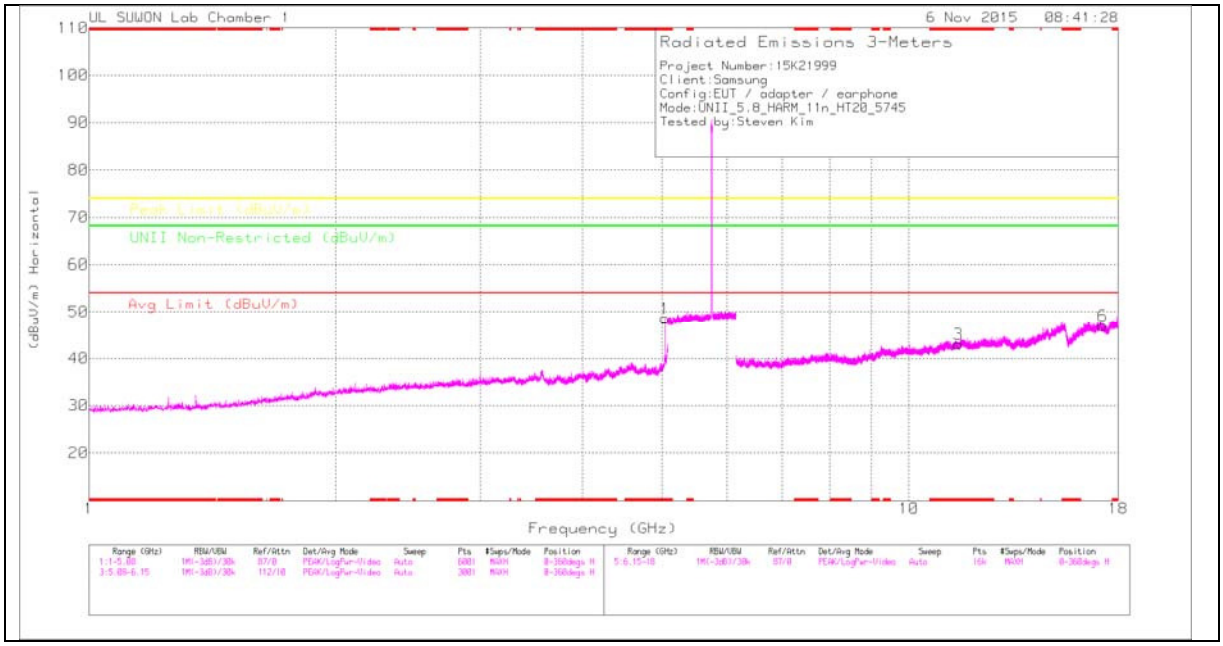
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK-U - U-NII: Maximum Peak

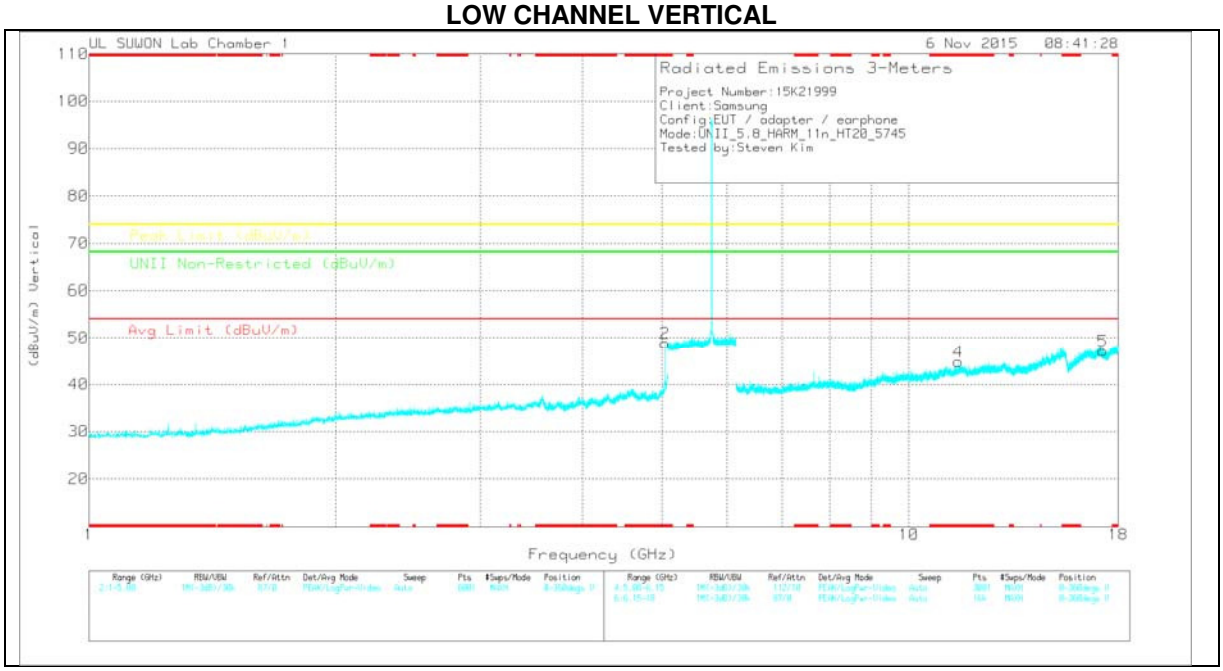
ADR - U-NII AD primary method, RMS average

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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.

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001688717)_150619	Path_4	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	* 5.041	45.65	PK	34.1	-31.2	0	48.55	-	-	74	-25.45	-	-	0-360	100	H
2	* 5.041	46	PK	34.1	-31.2	0	48.9	-	-	74	-25.1	-	-	0-360	200	V
3	* 11.489	31.18	PK	38.6	-26.7	0	43.08	-	-	74	-30.92	-	-	0-360	200	H
6	17.234	26.66	PK	41.2	-20.8	0	47.06	-	-	-	-	68.2	-21.14	0-360	100	H
4	* 11.49	32.93	PK	38.6	-26.7	0	44.83	-	-	74	-29.17	-	-	0-360	100	V
5	17.235	26.76	PK	41.2	-20.8	0	47.16	-	-	-	-	68.2	-21.04	0-360	200	V

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

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_4	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
* 5.041	52.35	PK-U	34.1	-31.2	0	55.25	-	-	74	-18.75	-	-	159	100	H
* 5.041	44.87	ADR	34.1	-31.2	0	47.77	54	-6.23	-	-	-	-	159	100	H
* 5.041	52.49	PK-U	34.1	-31.2	0	55.39	-	-	74	-18.61	-	-	283	198	V
* 5.041	44.57	ADR	34.1	-31.2	0	47.47	54	-6.53	-	-	-	-	283	198	V

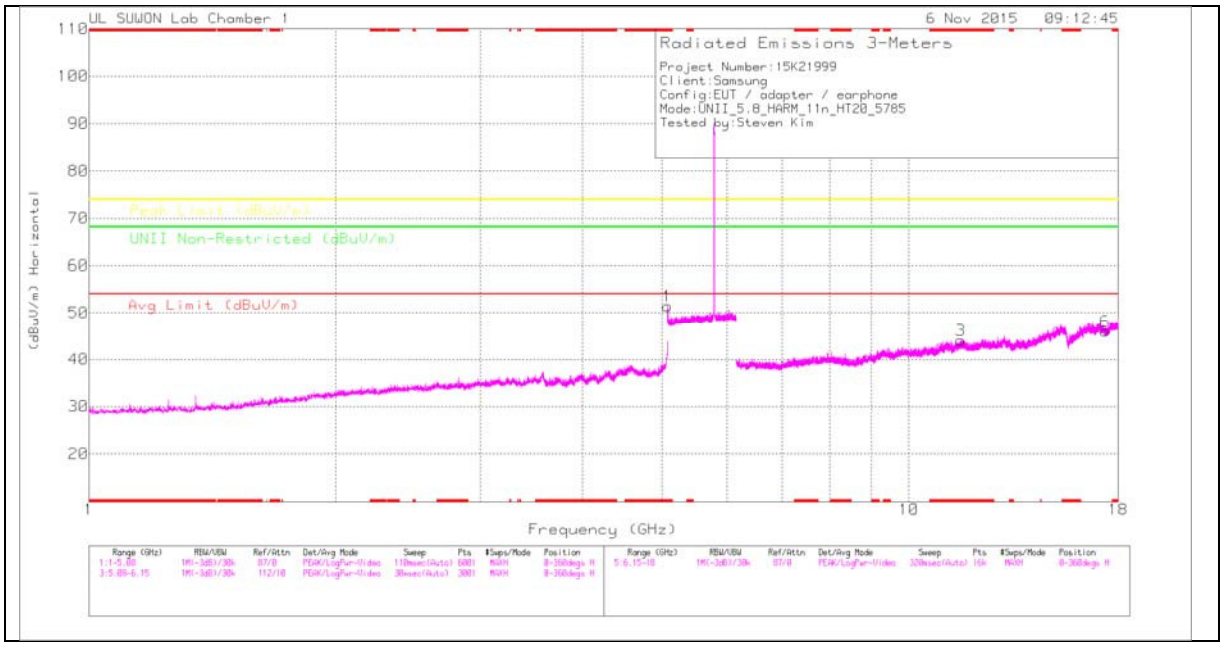
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK-U - U-NII: Maximum Peak

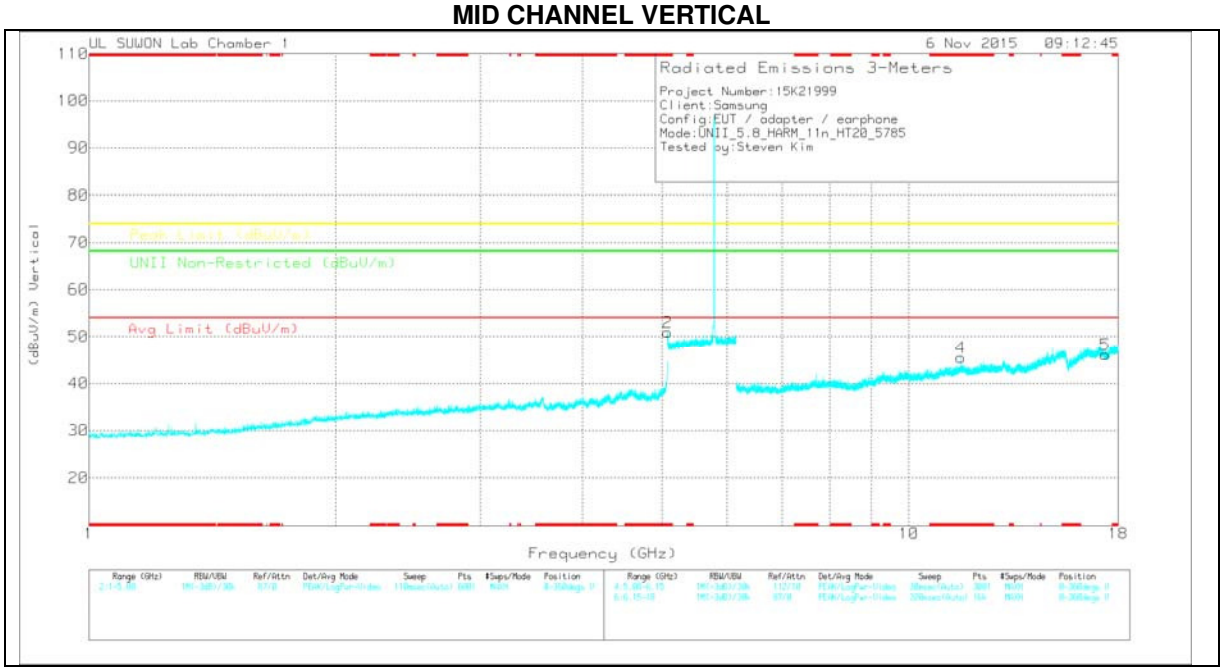
ADR - U-NII AD primary method, RMS average

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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.

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001688717)_150619	Path_2	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	* 5.081	41.01	PK	34.2	-23.8	0	51.41	-	-	74	-22.59	-	-	0-360	100	H
2	* 5.081	40.59	PK	34.2	-23.8	0	50.99	-	-	74	-23.01	-	-	0-360	200	V
3	* 11.561	31.86	PK	38.7	-26.5	0	44.06	-	-	74	-29.94	-	-	0-360	200	H
6	17.356	25.97	PK	41.2	-21.1	0	46.07	-	-	-	-	68.2	-22.13	0-360	200	H
4	* 11.57	33.37	PK	38.7	-26.6	0	45.47	-	-	74	-28.53	-	-	0-360	100	V
5	17.356	26.1	PK	41.2	-21.1	0	46.2	-	-	-	-	68.2	-22	0-360	100	V

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

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_2	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
* 5.081	50.42	PK-U	34.2	-23.8	0	60.82	-	-	74	-13.18	-	-	154	109	H
* 5.081	39.04	ADR	34.2	-23.8	0	49.44	54	-4.56	-	-	-	-	154	109	H
* 5.081	50.51	PK-U	34.2	-23.8	0	60.91	-	-	74	-13.09	-	-	298	105	V
* 5.081	40.17	ADR	34.2	-23.8	0	50.57	54	-3.43	-	-	-	-	298	105	V

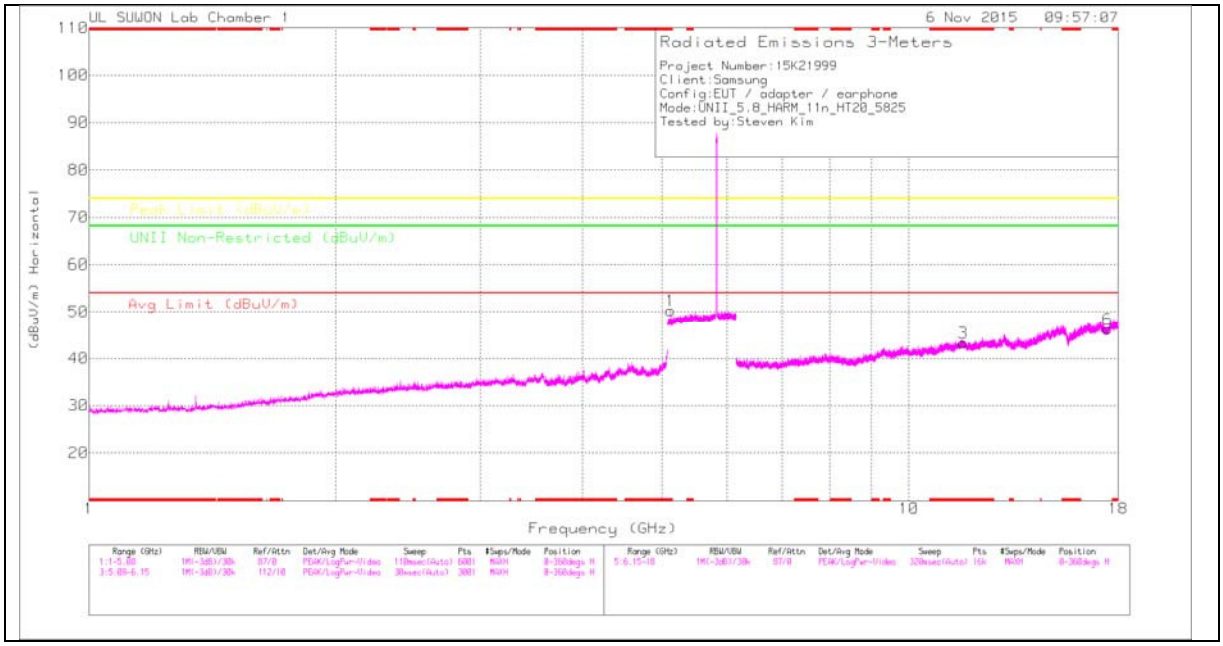
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK-U - U-NII: Maximum Peak

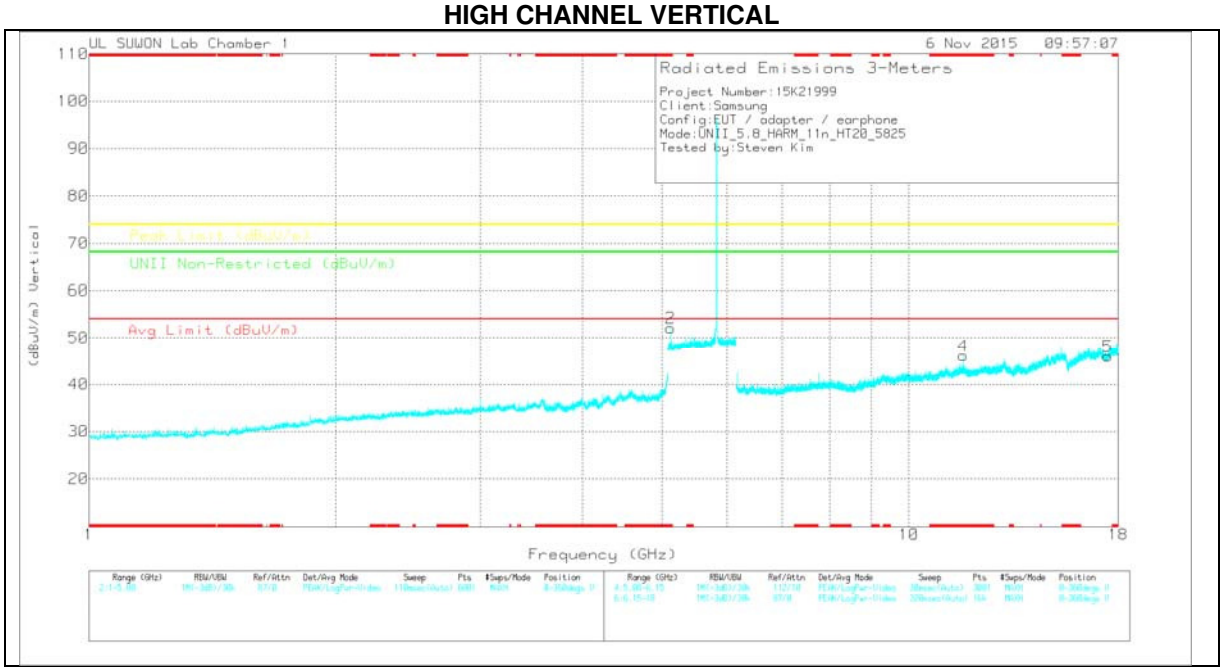
ADR - U-NII AD primary method, RMS average

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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.

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 17)_150619	Path_2	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	* 5.121	39.78	PK	34.2	-23.7	0	50.28	-	-	74	-23.72	-	-	0-360	100	H
2	* 5.121	41.65	PK	34.2	-23.7	0	52.15	-	-	74	-21.85	-	-	0-360	100	V
3	* 11.651	31.54	PK	38.7	-26.9	0	43.34	-	-	74	-30.66	-	-	0-360	100	H
6	17.473	26.12	PK	41.1	-20.9	0	46.32	-	-	-	-	68.2	-21.88	0-360	200	H
4	* 11.65	34.37	PK	38.7	-26.9	0	46.17	-	-	74	-27.83	-	-	0-360	100	V
5	17.476	25.85	PK	41.1	-20.9	0	46.05	-	-	-	-	68.2	-22.15	0-360	100	V

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

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 17)_150619	Path_2	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
* 5.121	48.76	PK-U	34.2	-23.7	0	59.26	-	-	74	-14.74	-	-	163	186	H
* 5.121	37.73	ADR	34.2	-23.7	0	48.23	54	-5.77	-	-	-	-	163	186	H
* 5.121	50.2	PK-U	34.2	-23.7	0	60.7	-	-	74	-13.3	-	-	289	111	V
* 5.121	39.74	ADR	34.2	-23.7	0	50.24	54	-3.76	-	-	-	-	289	111	V
* 11.65	31.96	ADR	38.7	-26.9	.33	44.09	54	-9.91	-	-	-	-	56	129	V
* 11.65	42.54	PK-U	38.7	-26.9	0	54.34	-	-	74	-19.66	-	-	56	129	V

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

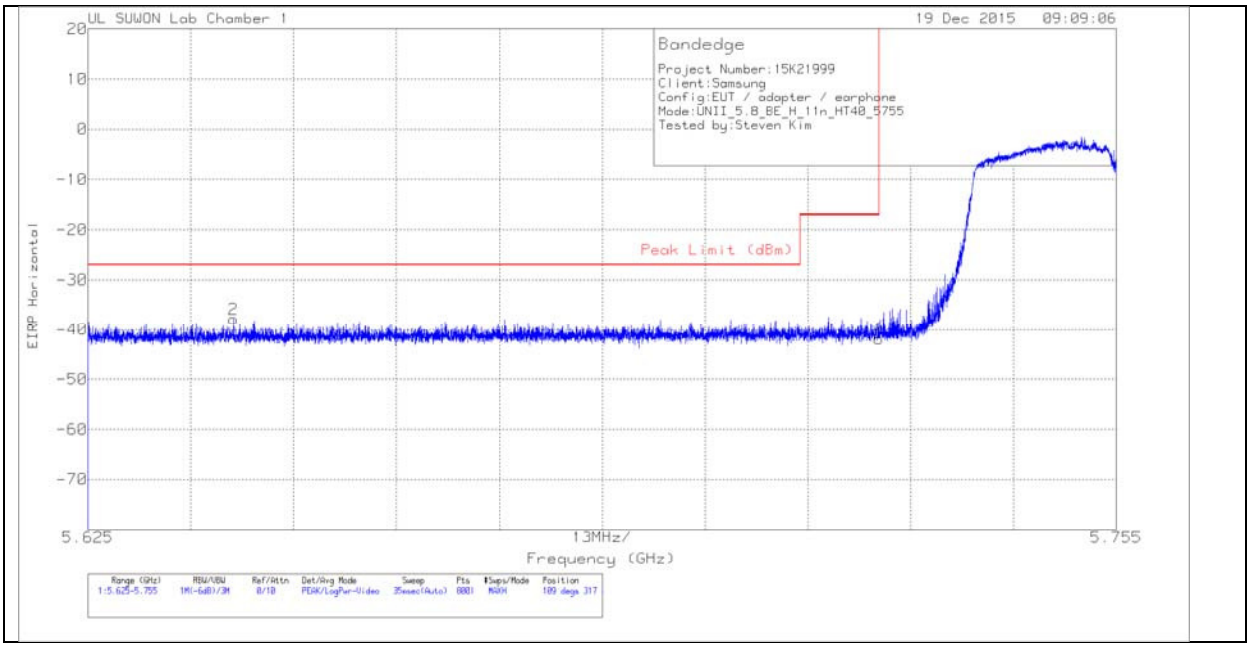
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

11.4.3. TX ABOVE 1GHz 802.11n HT40 2TX CDD MODE IN THE 5.8GHz BAND HARMONICS AND SPURIOUS EMISSIONS

HORIZONTAL PEAK PLOT



HORIZONTAL DATA

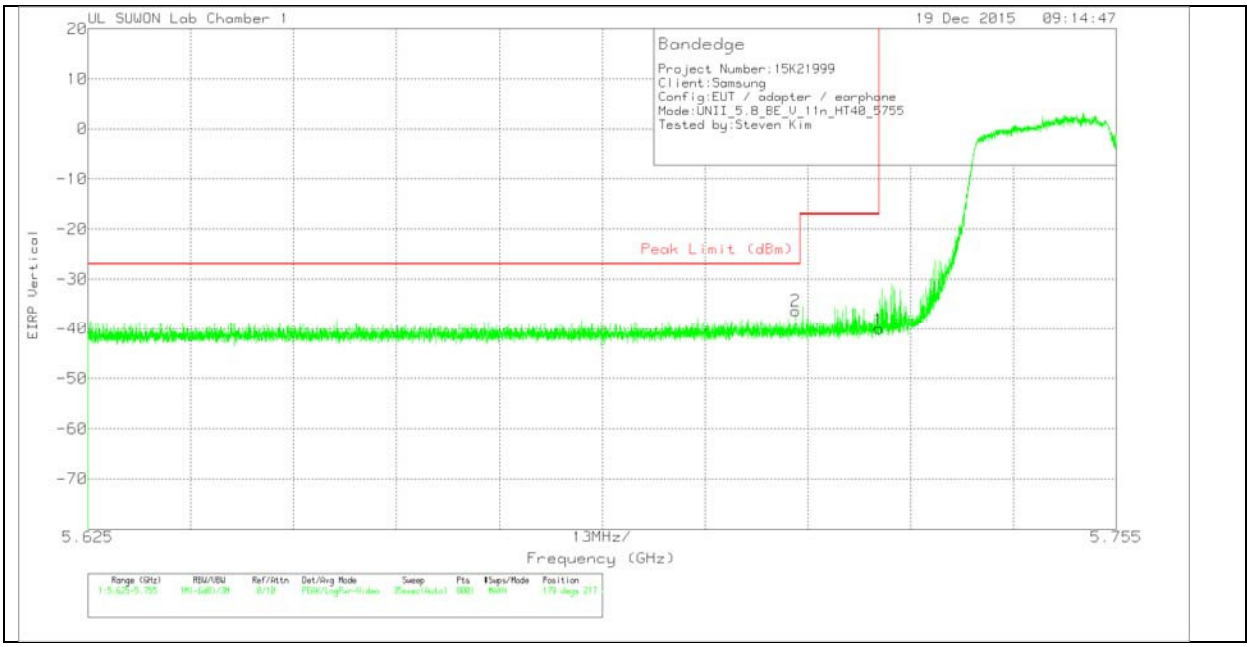
TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(00168717)_150619	Path_2_10 dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-65.7	Pk	34.8	-22.8	11.8	0	-41.9	-17	-24.9	109	317	H
2	5.643	-61.4	Pk	34.8	-23	11.8	0	-37.8	-27	-10.8	109	317	H

Pk - Peak detector

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

VERTICAL PEAK PLOT



VERTICAL DATA

TRACE MARKERS

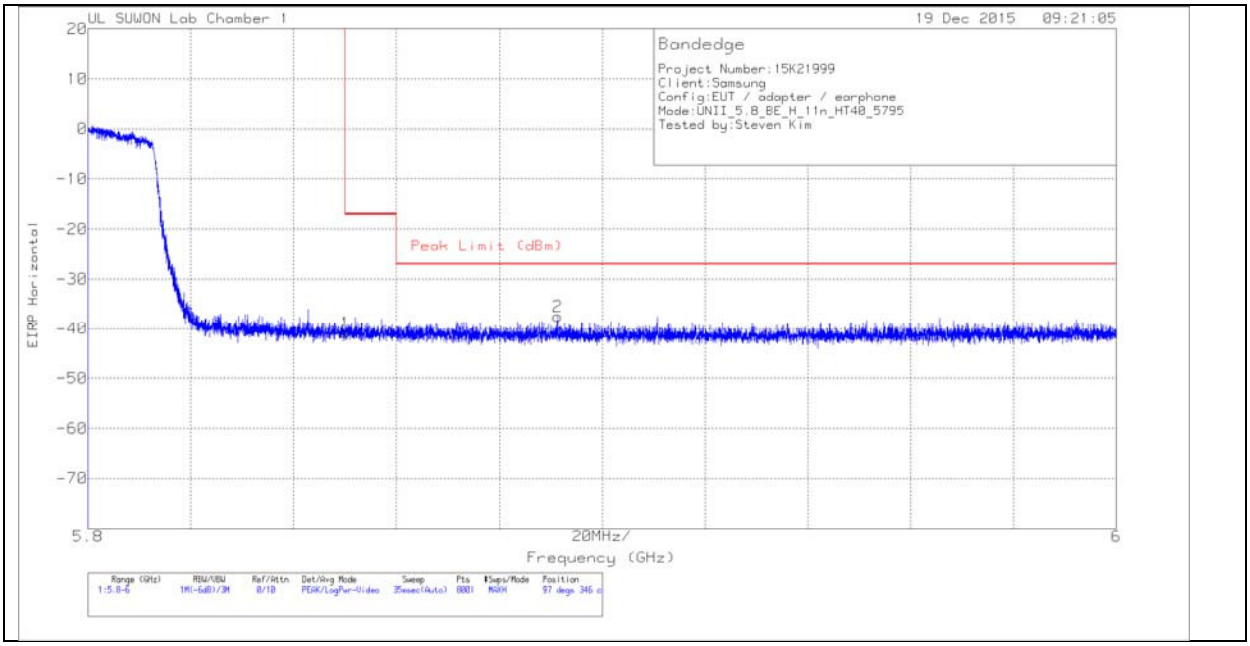
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(00168717)_150619	Path_2_10 dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-63.87	Pk	34.8	-22.8	11.8	0	-40.07	-17	-23.07	179	217	V
2	5.714	-60.11	Pk	34.8	-22.8	11.8	0	-36.31	-27	-9.31	179	217	V

Pk - Peak detector

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK PLOT



HORIZONTAL DATA

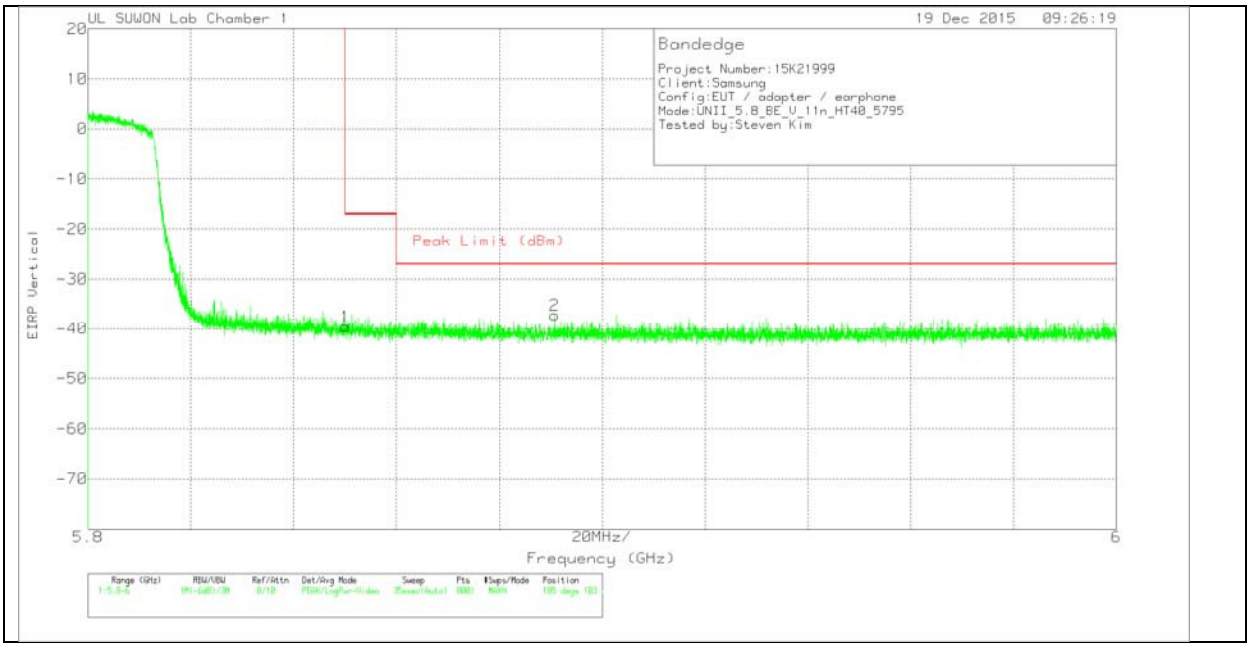
TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(00168717)_150619	Path_2_10 dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-65.31	Pk	34.9	-22.2	11.8	0	-40.81	-17	-23.81	97	346	H
2	5.891	-61.82	Pk	34.9	-22.3	11.8	0	-37.42	-27	-10.42	97	346	H

Pk - Peak detector

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

VERTICAL PEAK PLOT



VERTICAL DATA

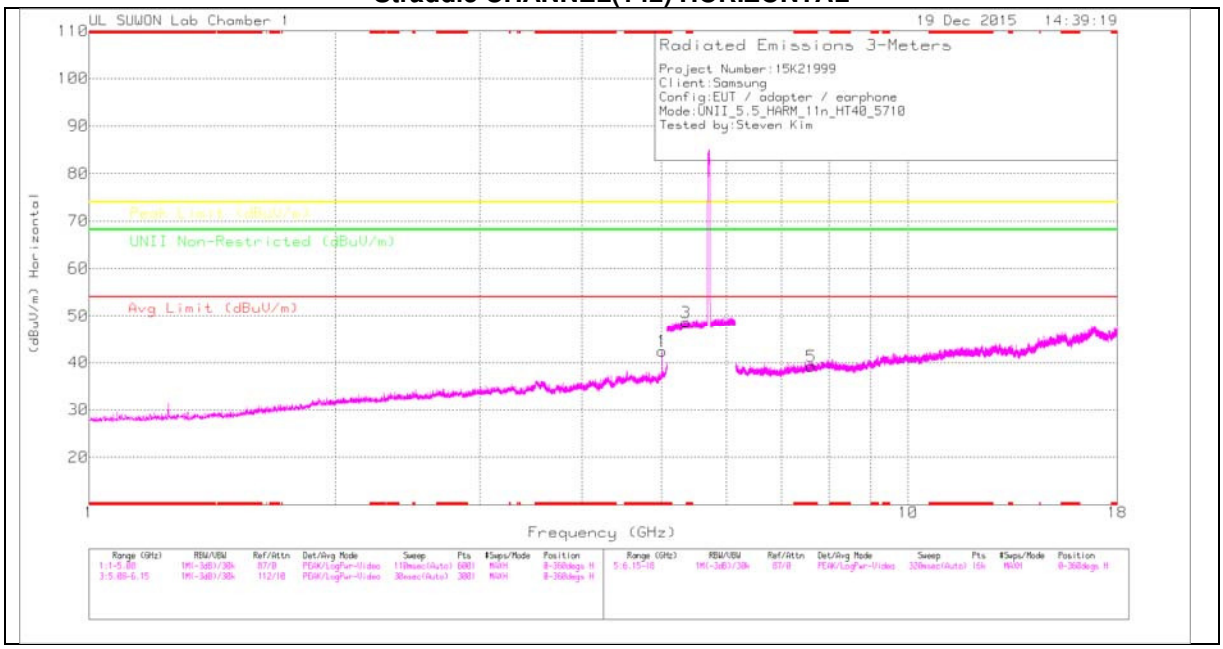
TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(00168717)_150619	Path_2_10 dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-64.09	Pk	34.9	-22.2	11.8	0	-39.59	-17	-22.59	185	103	V
2	5.891	-61.6	Pk	34.9	-22.3	11.8	0	-37.2	-27	-10.2	185	103	V

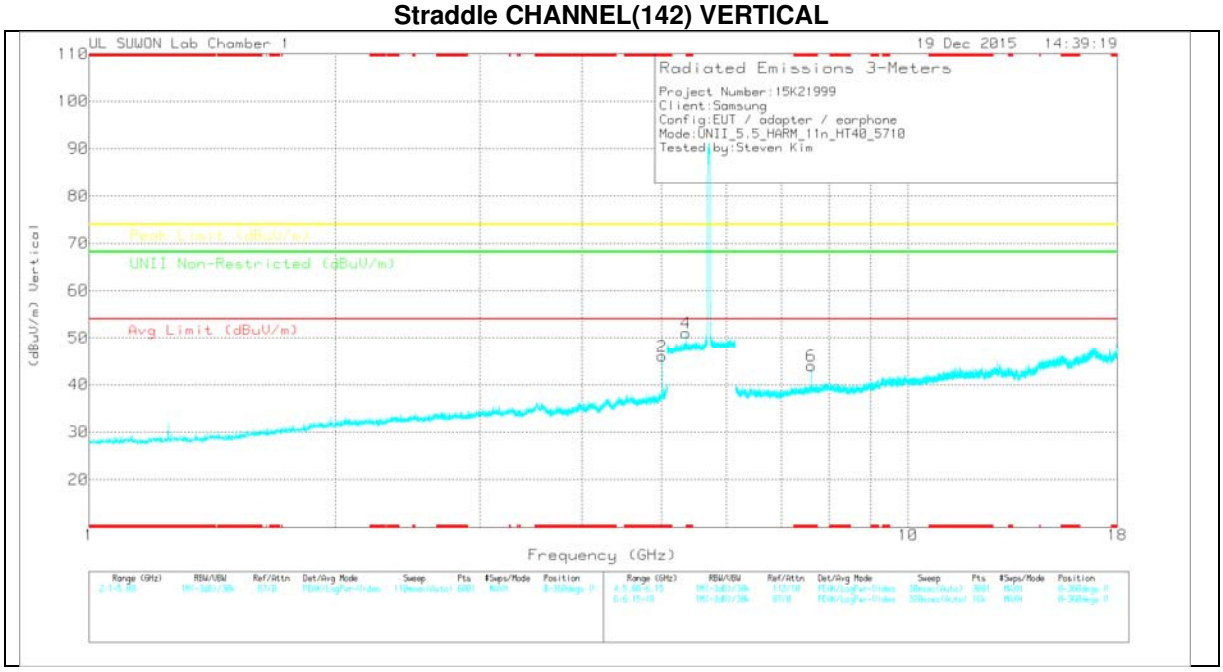
Pk - Peak detector

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

Straddle CHANNEL(142) HORIZONTAL



Straddle CHANNEL(142) 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.

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

Straddle CHANNEL(142) DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687717)_150619	Path_4	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	* 5.006	40.34	PK	34.1	-32.1	0	42.34	-	-	74	-31.66	-	-	0-360	100	H
2	* 5.007	43.96	PK	34.1	-32.1	0	45.96	-	-	74	-28.04	-	-	0-360	100	V
3	* 5.357	37.35	PK	34.5	-23.3	0	48.55	-	-	74	-25.45	-	-	0-360	100	H
4	* 5.358	39.9	PK	34.5	-23.3	0	51.1	-	-	74	-22.9	-	-	0-360	100	V
5	* 7.614	33.42	PK	36	-30.3	0	39.12	-	-	74	-34.88	-	-	0-360	200	H
6	* 7.613	38.31	PK	35.9	-30.3	0	43.91	-	-	74	-30.09	-	-	0-360	100	V

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

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_4	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
* 5.006	48.38	PK-U	34.1	-32.1	0	50.38	-	-	74	-23.62	-	-	28	101	H
* 5.006	38.01	ADR	34.1	-32.1	0	40.01	54	-13.99	-	-	-	-	28	101	H
* 5.006	50.38	PK-U	34.1	-32.1	0	52.38	-	-	74	-21.62	-	-	248	107	V
* 5.006	40.71	ADR	34.1	-32.1	0	42.71	54	-11.29	-	-	-	-	248	107	V
* 5.358	39.73	ADR	34.5	-23.3	0	50.93	54	-3.07	-	-	-	-	294	101	V
* 5.358	49.21	PK-U	34.5	-23.3	0	60.41	-	-	74	-13.59	-	-	294	101	V

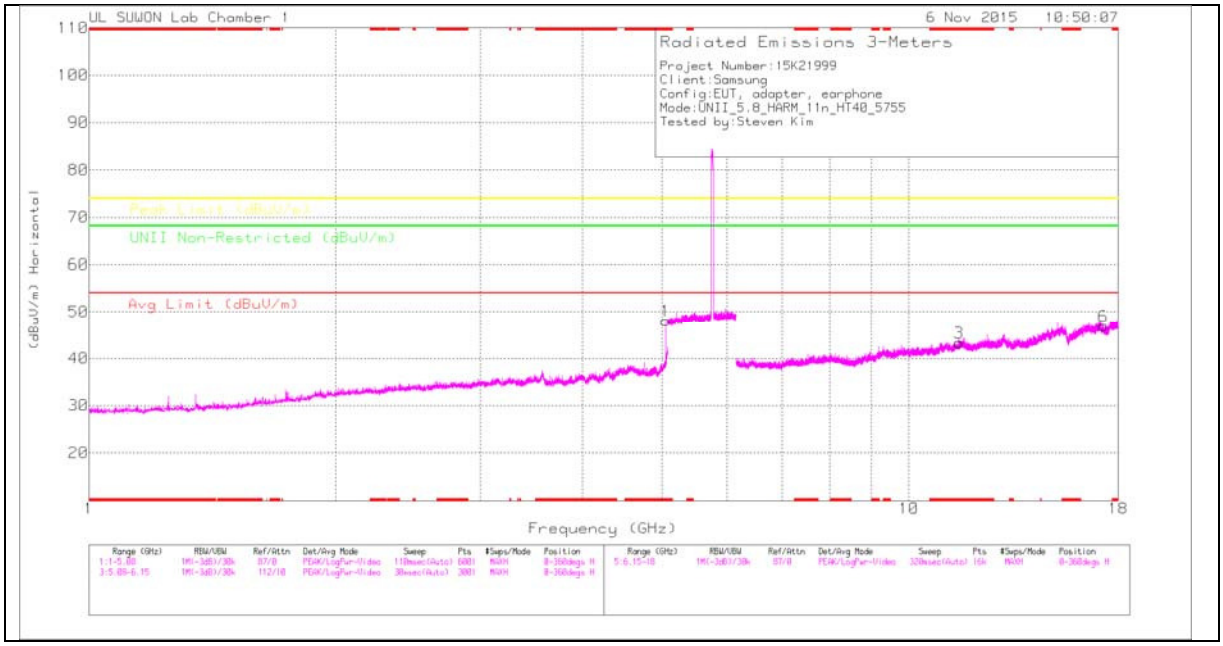
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK-U - U-NII: Maximum Peak

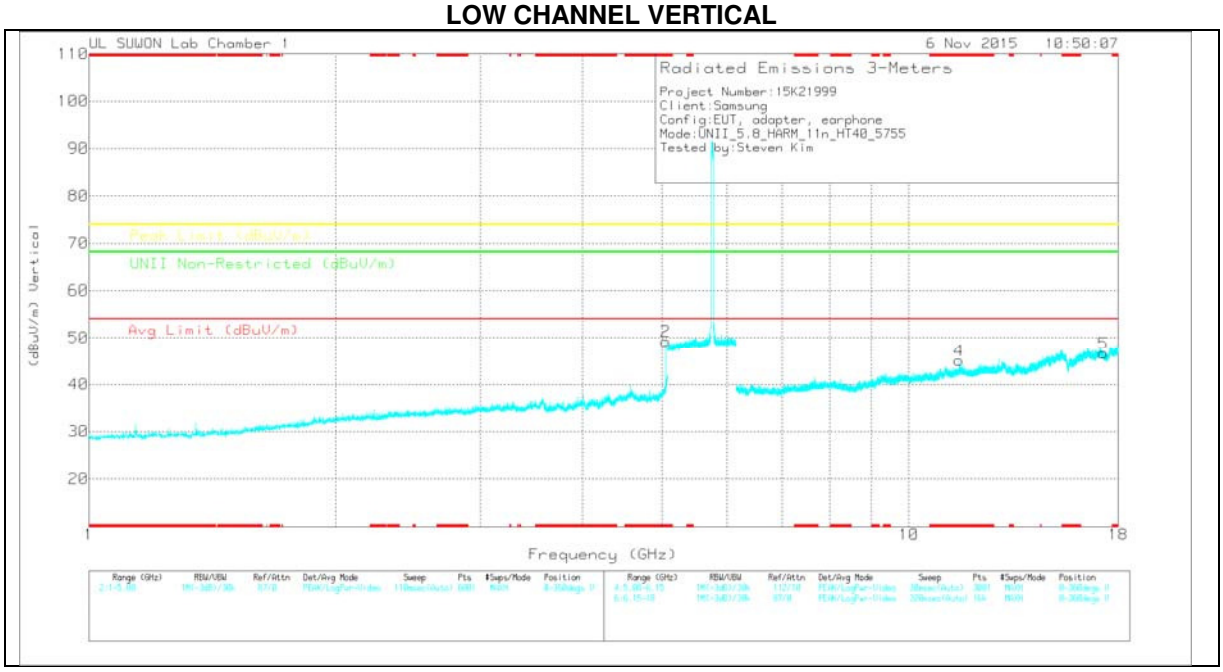
ADR - U-NII AD primary method, RMS average

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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.

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001688717)_150619	Path_4	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	* 5.051	44.85	PK	34.1	-30.9	0	48.05	-	-	74	-25.95	-	-	0-360	100	H
2	* 5.051	46.07	PK	34.1	-30.9	0	49.27	-	-	74	-24.73	-	-	0-360	200	V
3	* 11.509	31.36	PK	38.6	-26.6	0	43.36	-	-	74	-30.64	-	-	0-360	200	H
6	17.262	26.53	PK	41.2	-20.8	0	46.93	-	-	-	-	68.2	-21.27	0-360	100	H
4	* 11.51	33.16	PK	38.6	-26.6	0	45.16	-	-	74	-28.84	-	-	0-360	100	V
5	17.256	26.32	PK	41.2	-20.8	0	46.72	-	-	-	-	68.2	-21.48	0-360	200	V

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

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_4	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
* 5.051	50.26	PK-U	34.1	-31	0	53.36	-	-	74	-20.64	-	-	153	101	H
* 5.051	43.93	ADR	34.1	-31	0	47.03	54	-6.97	-	-	-	-	153	101	H
* 5.051	50.82	PK-U	34.1	-31	0	53.92	-	-	74	-20.08	-	-	282	177	V
* 5.051	41.78	ADR	34.1	-31	0	44.88	54	-9.12	-	-	-	-	282	177	V
* 11.51	28.89	ADR	38.6	-26.6	.63	41.52	54	-12.48	-	-	-	-	41	177	V
* 11.506	41.28	PK-U	38.6	-26.6	0	53.28	-	-	74	-20.72	-	-	41	177	V

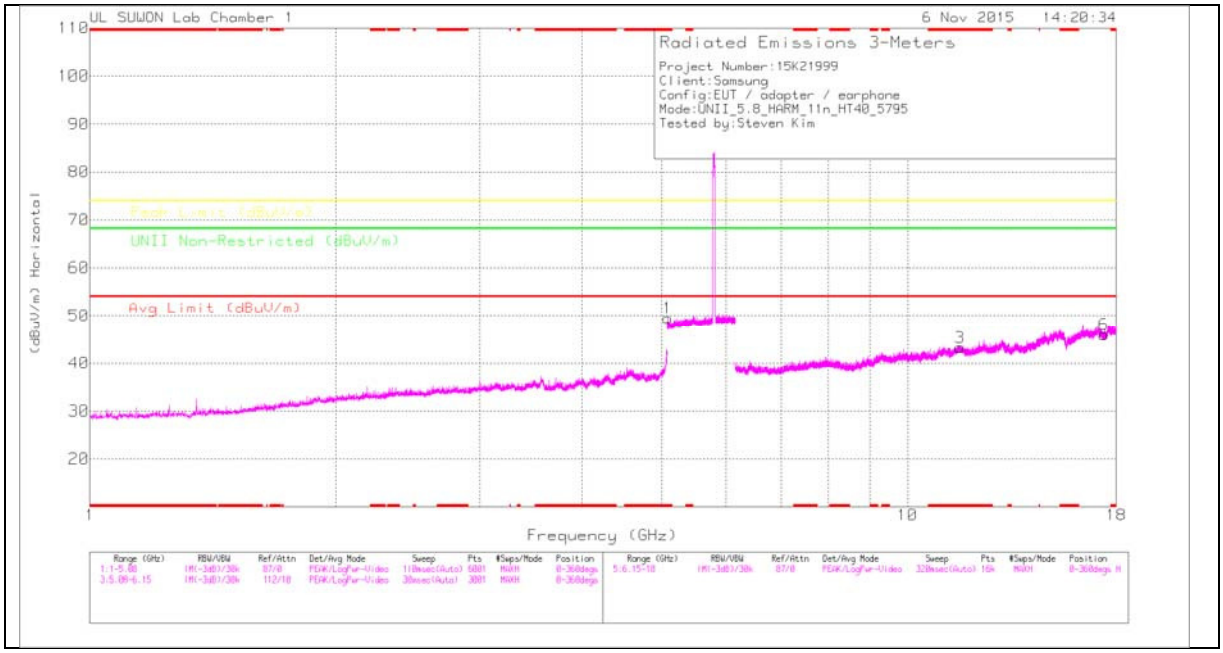
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK-U - U-NII: Maximum Peak

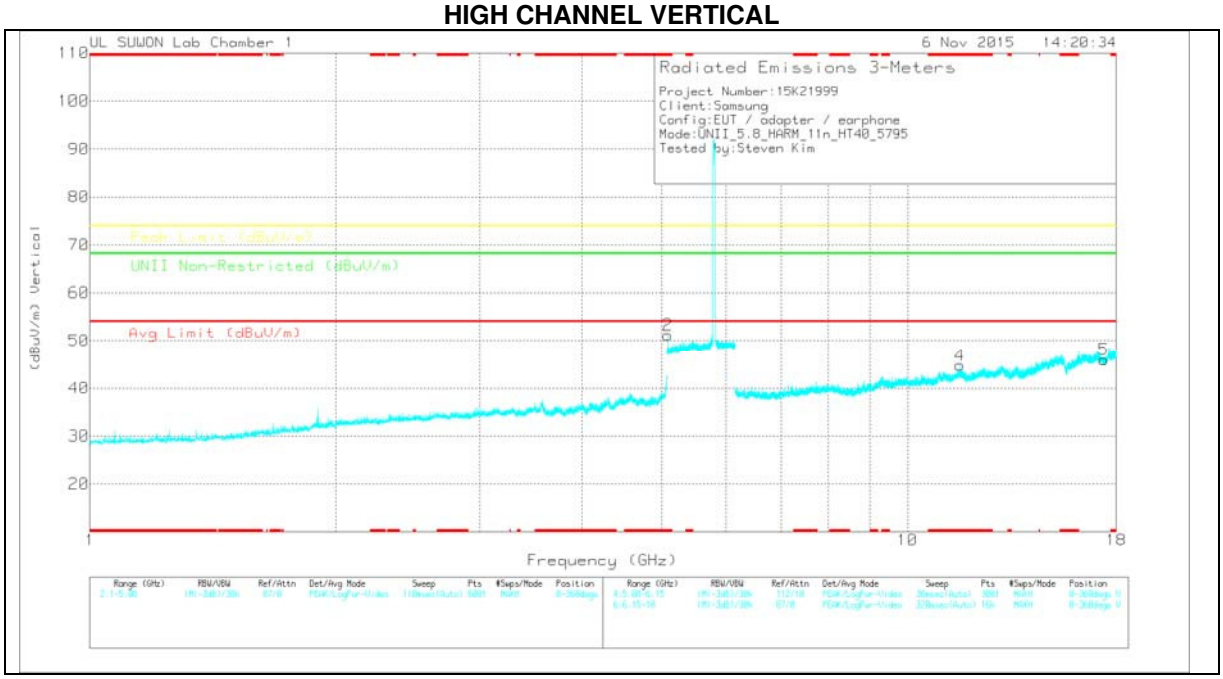
ADR - U-NII AD primary method, RMS average

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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.

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001688717)_150619	Path_2	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	* 5.091	39.04	PK	34.2	-23.7	0	49.54	-	-	74	-24.46	-	-	0-360	100	H
2	* 5.091	40.73	PK	34.2	-23.7	0	51.23	-	-	74	-22.77	-	-	0-360	200	V
3	* 11.59	31.23	PK	38.7	-26.7	0	43.23	-	-	74	-30.77	-	-	0-360	200	H
6	17.387	25.71	PK	41.2	-20.9	0	46.01	-	-	-	-	68.2	-22.19	0-360	200	H
4	* 11.59	32.76	PK	38.7	-26.7	0	44.76	-	-	74	-29.24	-	-	0-360	100	V
5	17.385	25.7	PK	41.2	-20.9	0	46	-	-	-	-	68.2	-22.2	0-360	100	V

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

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_2	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
* 5.101	48.92	PK-U	34.2	-23.7	0	59.42	-	-	74	-14.58	-	-	141	150	H
* 5.091	36.13	ADR	34.2	-23.7	0	46.63	54	-7.37	-	-	-	-	141	150	H
* 5.091	49.63	PK-U	34.2	-23.7	0	60.13	-	-	74	-13.87	-	-	301	265	V
* 5.091	39.76	ADR	34.2	-23.7	0	50.26	54	-3.74	-	-	-	-	301	265	V
* 11.641	29.27	ADR	38.7	-26.9	0	41.07	54	-12.93	-	-	-	-	309	332	V
* 11.649	41.75	PK-U	38.7	-26.9	0	53.55	-	-	74	-20.45	-	-	309	332	V

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

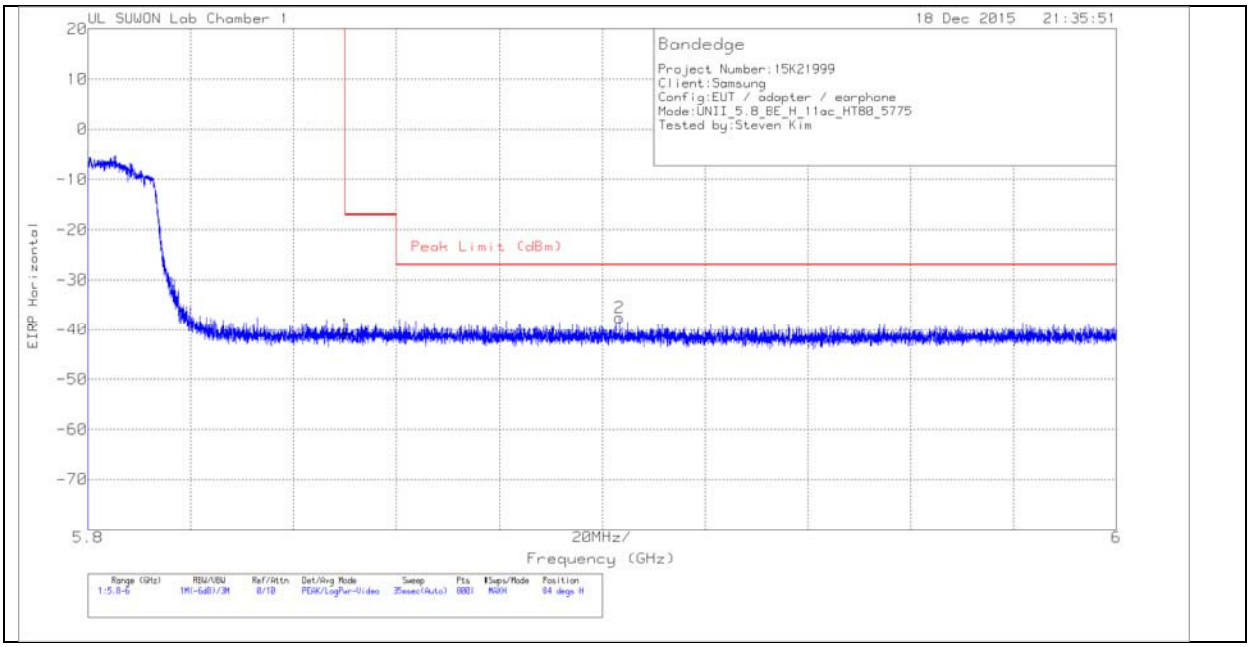
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

11.4.4. TX ABOVE 1GHz 802.11ac HT80 2TX CDD MODE IN THE 5.8GHz BAND HARMONICS AND SPURIOUS EMISSIONS

HORIZONTAL PEAK PLOT



HORIZONTAL DATA

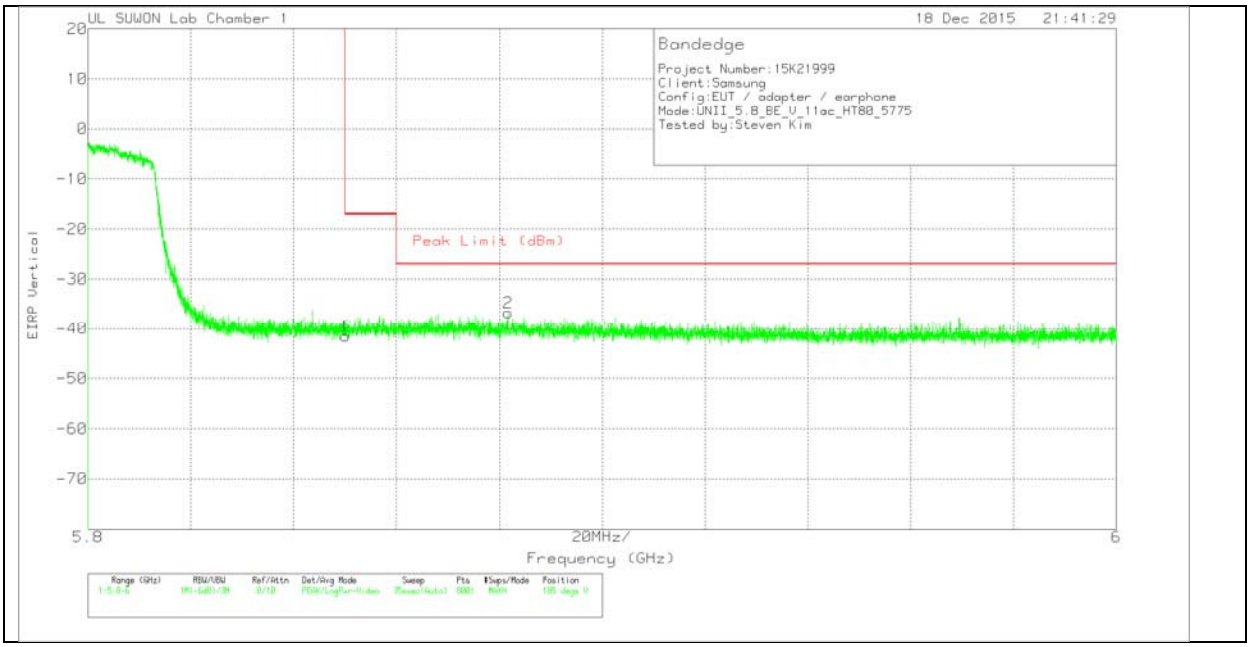
TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(00168717)_150619	Path_2_10 dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-65.39	Pk	34.9	-22.2	11.8	0	-40.89	-17	-23.89	84	340	H
2	5.903	-61.93	Pk	34.9	-22.3	11.8	0	-37.53	-27	-10.53	84	340	H

Pk - Peak detector

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

VERTICAL PEAK PLOT



VERTICAL DATA

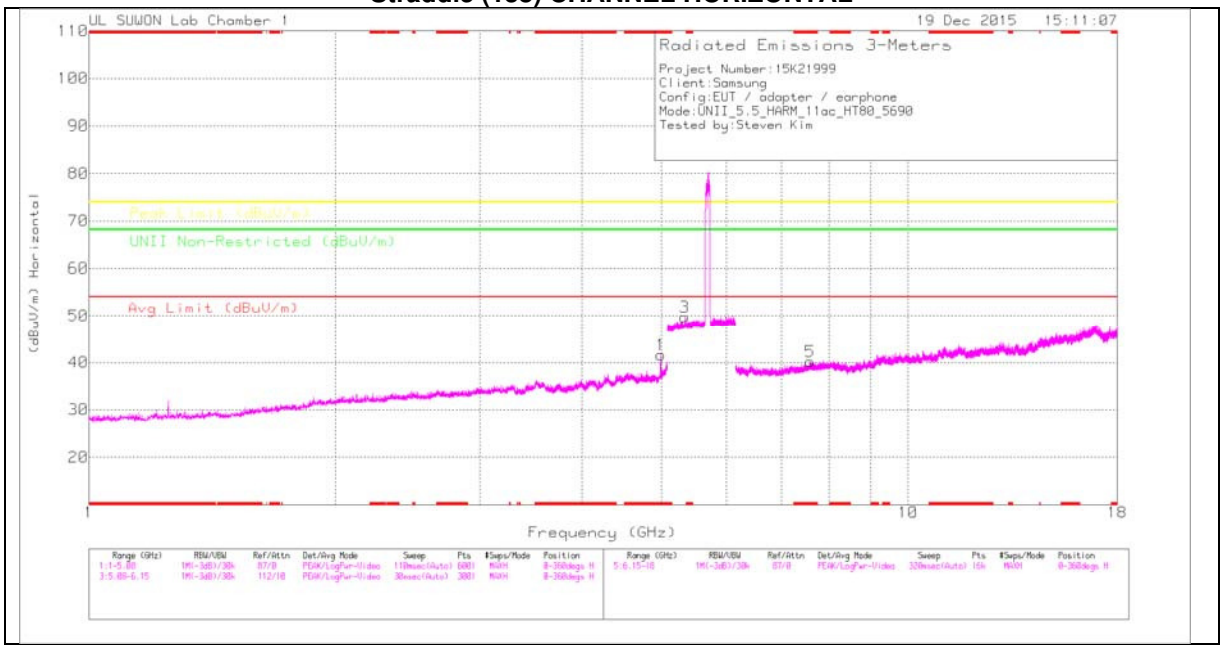
TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(00168717)_150619	Path_2_10 dB	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-65.96	Pk	34.9	-22.2	11.8	0	-41.46	-17	-24.46	185	105	V
2	5.882	-61.11	Pk	34.9	-22.3	11.8	0	-36.71	-27	-9.71	185	105	V

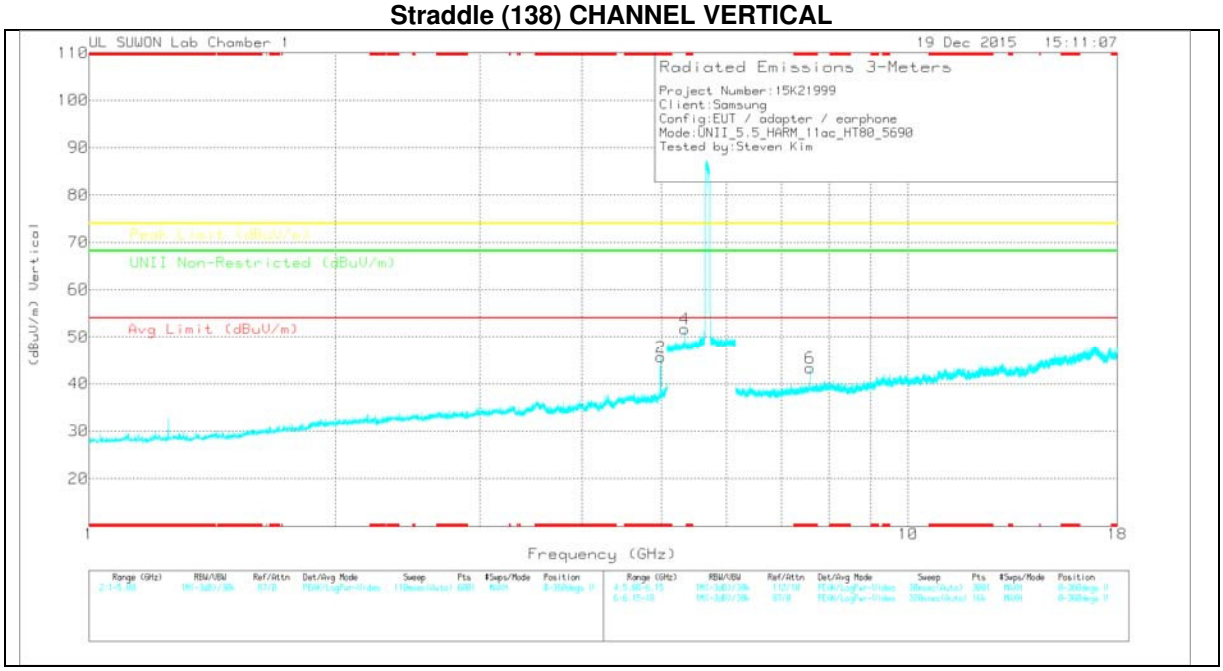
Pk - Peak detector

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

Straddle (138) CHANNEL HORIZONTAL



Straddle (138) 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.

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

Straddle (138) CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_4	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	* 4.986	39.83	PK	34.1	-32.3	0	41.63	-	-	74	-32.37	-	-	0-360	100	H
2	* 4.986	43.84	PK	34.1	-32.3	0	45.64	-	-	74	-28.36	-	-	0-360	100	V
3	5.338	38.54	PK	34.5	-23.3	0	49.74	-	-	-	-	68.2	-18.46	0-360	200	H
4	5.338	40.54	PK	34.5	-23.3	0	51.74	-	-	-	-	68.2	-16.46	0-360	100	V
5	* 7.587	34.45	PK	35.9	-30.2	0	40.15	-	-	74	-33.85	-	-	0-360	100	H
6	* 7.587	37.63	PK	35.9	-30.2	0	43.33	-	-	74	-30.67	-	-	0-360	200	V

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

PK – Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_4	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
* 4.986	48.23	PK-U	34.1	-32.3	0	50.03	-	-	74	-23.97	-	-	93	161	H
* 4.986	38.3	ADR	34.1	-32.3	0	40.1	54	-13.9	-	-	-	-	93	161	H
* 4.986	50.94	PK-U	34.1	-32.3	0	52.74	-	-	74	-21.26	-	-	245	101	V
* 4.986	44.03	ADR	34.1	-32.3	0	45.83	54	-8.17	-	-	-	-	245	101	V
5.338	48.99	PK-U	34.5	-23.3	0	60.19	-	-	-	-	68.2	-8.01	297	108	V

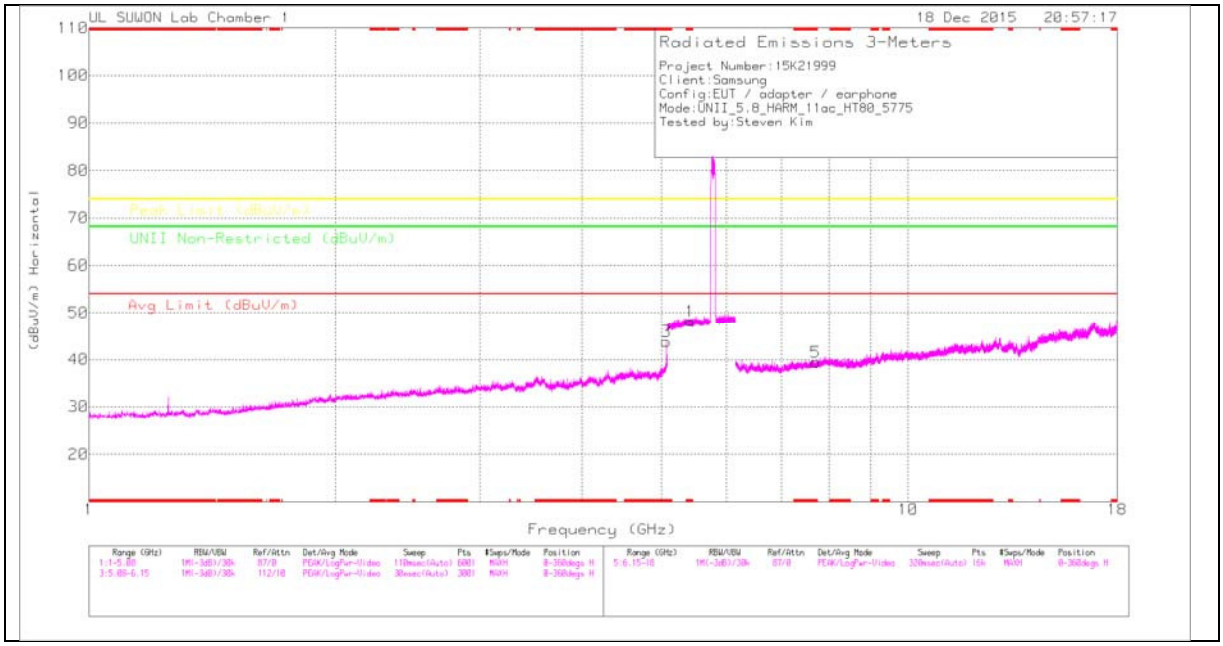
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK-U - U-NII: Maximum Peak

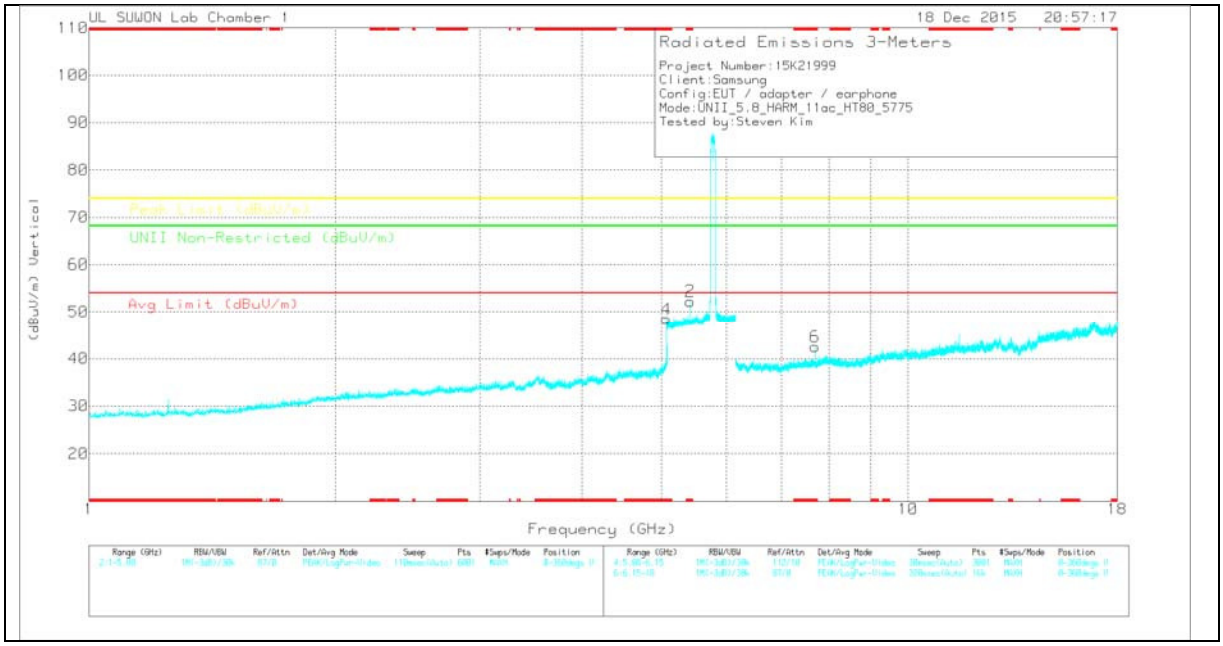
ADR - U-NII AD primary method, RMS average

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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.

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 17)_150619	Path_4	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
3	* 5.071	40.68	PK	34.1	-30.9	0	43.88	-	-	74	-30.12	-	-	0-360	200	H
4	* 5.071	45.24	PK	34.1	-30.9	0	48.44	-	-	74	-25.56	-	-	0-360	100	V
1	* 5.422	36.84	PK	34.6	-23.2	0	48.24	-	-	74	-25.76	-	-	0-360	200	H
2	* 5.423	40.89	PK	34.6	-23.2	0	52.29	-	-	74	-21.71	-	-	0-360	100	V
5	* 7.71	33.68	PK	36.1	-30.3	0	39.48	-	-	74	-34.52	-	-	0-360	200	H
6	* 7.699	36.76	PK	36.1	-30.3	0	42.56	-	-	74	-31.44	-	-	0-360	100	V

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

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 17)_150619	Path_4	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
* 5.071	48.32	PK-U	34.1	-30.9	0	51.52	-	-	74	-22.48	-	-	153	101	H
* 5.071	39.58	ADR	34.1	-30.9	0	42.78	54	-11.22	-	-	-	-	153	101	H
* 5.071	50.67	PK-U	34.1	-30.9	0	53.87	-	-	74	-20.13	-	-	233	110	V
* 5.071	40.51	ADR	34.1	-30.9	0	43.71	54	-10.29	-	-	-	-	233	110	V
* 5.423	39.31	ADR	34.6	-23.2	0	50.71	54	-3.29	-	-	-	-	296	102	V
* 5.423	49.03	PK-U	34.6	-23.2	0	60.43	-	-	74	-13.57	-	-	296	102	V

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

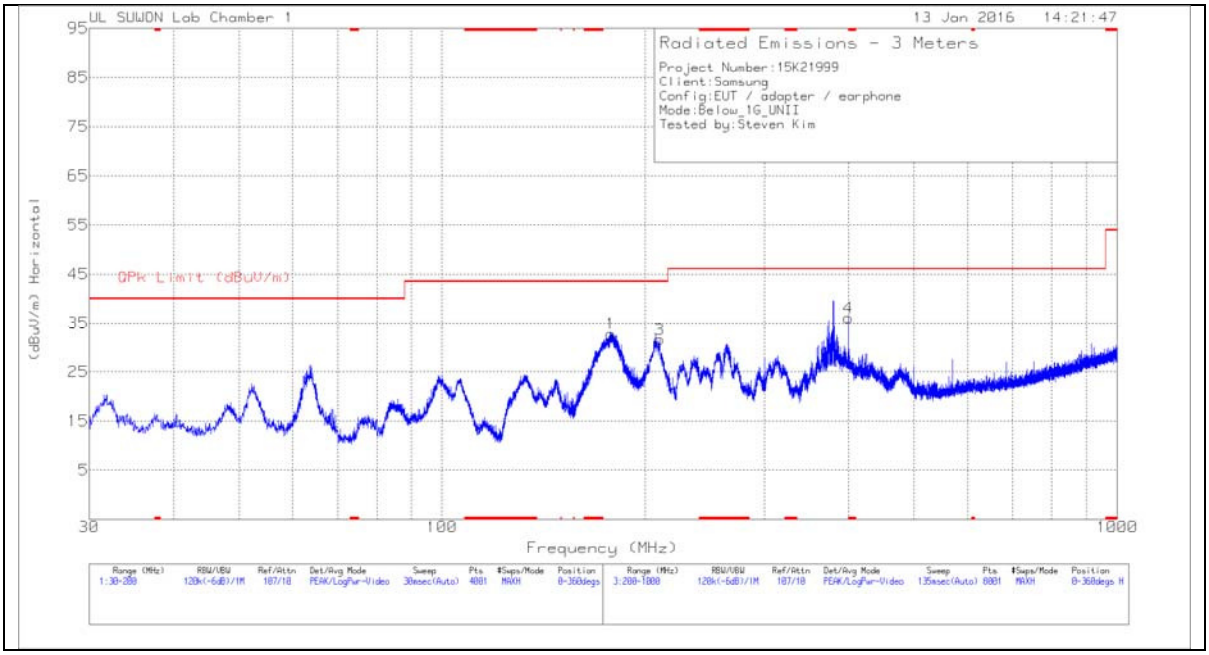
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

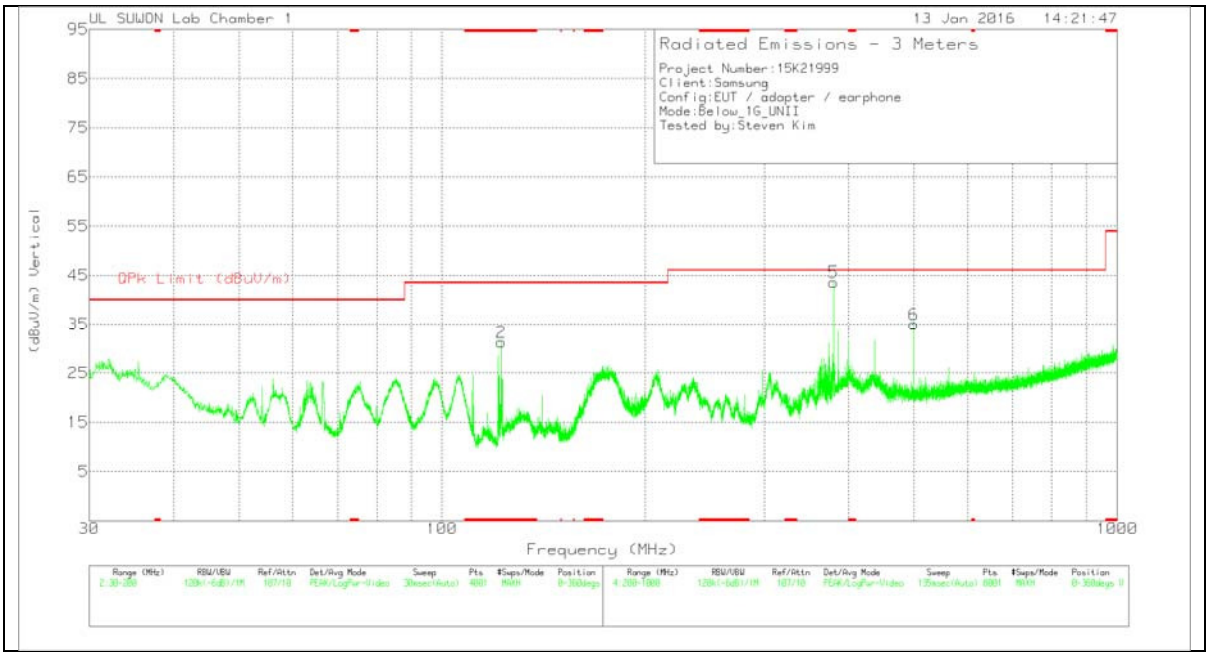
UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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

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



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



UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

Below 1G Data

TRACE MARKERS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163-750	Bi-Log	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity	Marker
1	177.7725	51.82	Pk	9.3	-28.3	32.82	43.52	-10.7	0-360	100	H	1
2	* 122.31	50.5	Pk	9.8	-29	31.3	43.52	-12.22	0-360	100	V	2
3	209.9	48.24	Pk	11.5	-28.1	31.64	43.52	-11.88	0-360	100	H	3
4	* 400	47.19	Pk	15.6	-26.7	36.09	46.02	-9.93	0-360	300	H	4
5	380	55.41	Pk	15.1	-26.9	43.61	46.02	-2.41	0-360	100	V	5
6	500	44.17	Pk	17	-26.2	34.97	46.02	-11.05	0-360	100	V	6

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

Pk - Peak detector

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163-750	Bi-Log	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity	Frequency (MHz)
380	32.76	Qp	15.1	-26.9	20.96	46.02	-25.06	249	291	V	380

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

Qp - Quasi-Peak detector

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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.

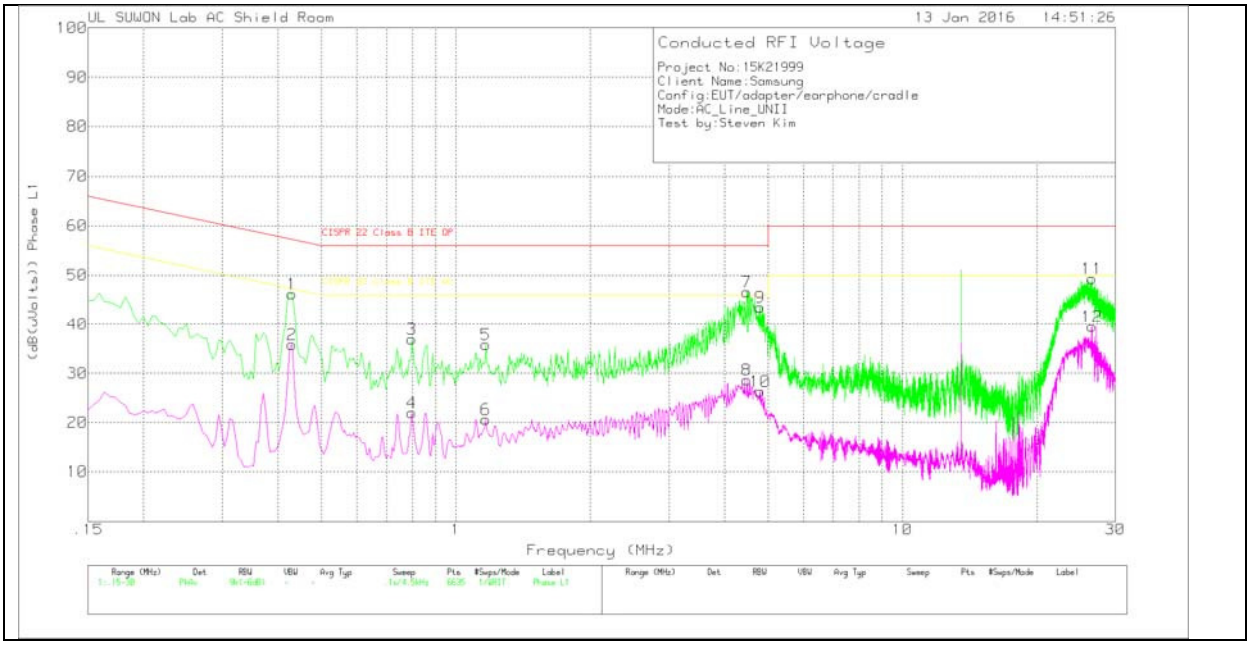
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

6 WORST EMISSIONS

LINE 1 PLOT



LINE 1 RESULTS

TRACE MARKERS

Phase L1 .15 - 30MHz

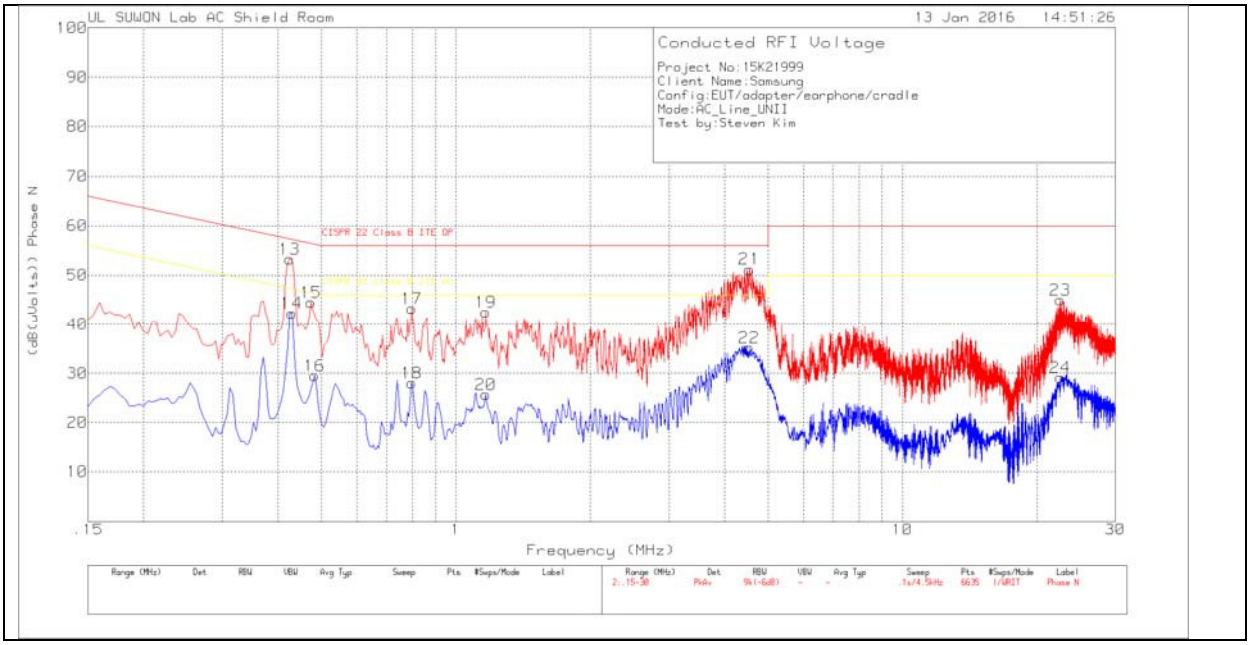
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_with ex-cord_L1	CE Shield Room	Corrected Reading (dB(uVolts))	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
1	.429	36.14	Pk	10.1	0	46.24	57.27	-11.03	-	-
2	.429	25.78	Av	10.1	0	35.88	-	-	47.27	-11.39
3	.798	26.99	Pk	10	0	36.99	56	-19.01	-	-
4	.798	11.96	Av	10	0	21.96	-	-	46	-24.04
5	1.167	25.93	Pk	9.9	0	35.83	56	-20.17	-	-
6	1.167	10.74	Av	9.9	0	20.64	-	-	46	-25.36
7	4.488	36.73	Pk	9.8	.1	46.63	56	-9.37	-	-
8	4.4835	18.74	Av	9.8	.1	28.64	-	-	46	-17.36
9	4.7985	33.65	Pk	9.8	.1	43.55	56	-12.45	-	-
10	4.7985	16.45	Av	9.8	.1	26.35	-	-	46	-19.65
11	26.61	38.41	Pk	10.6	.3	49.31	60	-10.69	-	-
12	26.61	28.6	Av	10.6	.3	39.5	-	-	50	-10.5

Pk - Peak detector

Av - Average detection

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

LINE 2 PLOT



UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

LINE 2 RESULTS

TRACE MARKERS

Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_with ex-cord_N	CE Shield Room	Corrected Reading (dB(uVolts))	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
13	.4245	43.16	Pk	10.1	0	53.26	57.36	-4.1	-	-
14	.429	32.23	Av	10.1	0	42.33	-	-	47.27	-4.94
15	.474	34.4	Pk	10.1	0	44.5	56.44	-11.94	-	-
16	.483	19.46	Av	10.1	0	29.56	-	-	46.29	-16.73
17	.798	33.21	Pk	10	0	43.21	56	-12.79	-	-
18	.798	18.01	Av	10	0	28.01	-	-	46	-17.99
19	1.167	32.76	Pk	9.8	0	42.56	56	-13.44	-	-
20	1.167	15.93	Av	9.8	0	25.73	-	-	46	-20.27
21	4.5465	41.34	Pk	9.8	.1	51.24	56	-4.76	-	-
22	4.5375	25.35	Av	9.8	.1	35.25	-	-	46	-10.75
23	22.551	34.04	Pk	10.7	.2	44.94	60	-15.06	-	-
24	22.605	18.3	Av	10.7	.2	29.2	-	-	50	-20.8

Pk - Peak detector

Av - Average detection

Phase N .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101837_with ex-cord_N	CE Shield Room	Corrected Reading (dB(uVolts))	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
.4425	26.44	Qp	10.1	0	36.54	57.01	-20.47	-	-
4.5015	31.46	Qp	9.8	.1	41.36	56	-14.64	-	-

Qp - Quasi-Peak detector

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

14. DYNAMIC FREQUENCY SELECTION

14.1. OVERVIEW

14.1.1. LIMITS

INDUSTRY CANADA

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

RSS-247 Issue §6.3

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

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

FCC

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

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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.		

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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.	

UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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

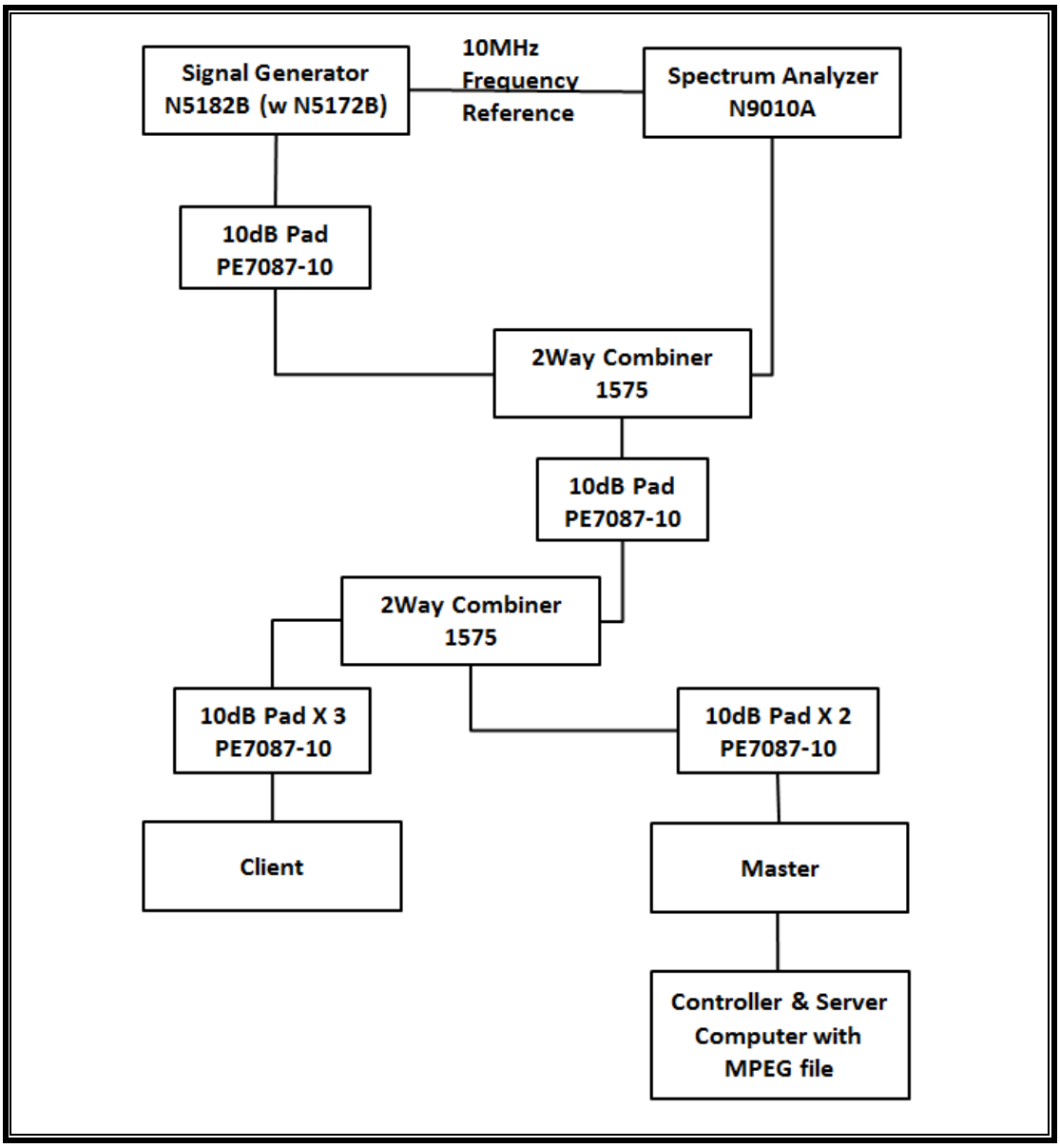
Table 7 – Frequency Hopping Radar Test Signal

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

UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

14.1.1. TEST AND MEASUREMENT SYSTEM

CONDUCTED METHOD SYSTEM BLOCK DIAGRAM



UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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.

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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

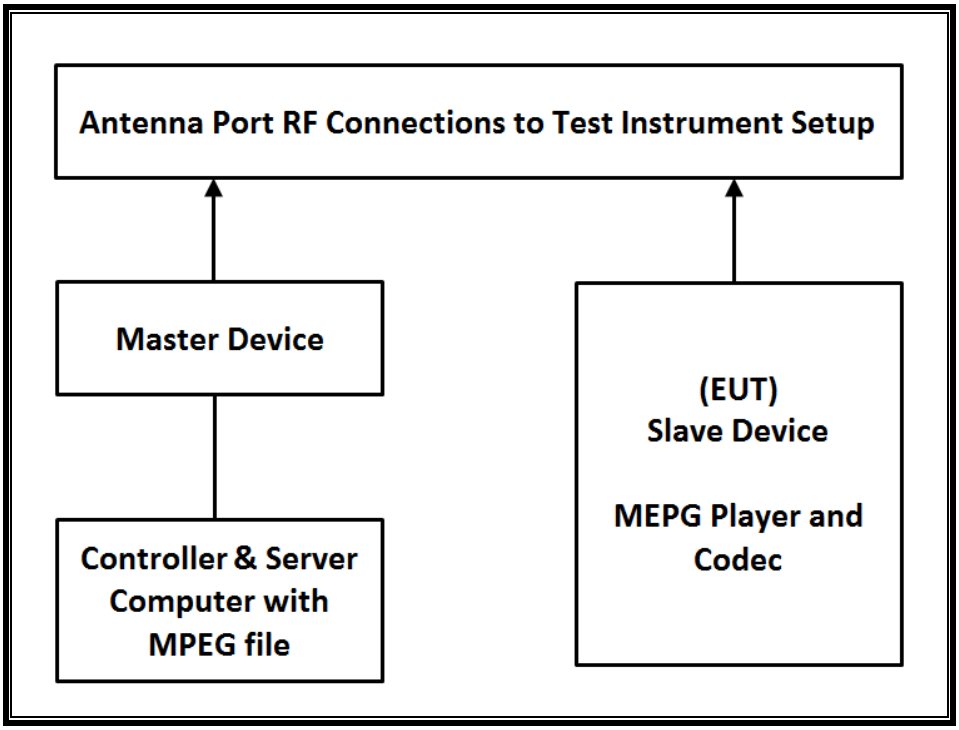
The following test and measurement equipment was utilized for the DFS tests documented in this report:

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**S/N**	**Cal Due**
Spectrum Analyzer, 7 GHz	Agilent / HP	N9010A	MY54200580	08-19-16
Vector Signal Generator, 6GHz	Agilent / HP	N5182B	MY53051241	08-19-16

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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 16.29 dBm in the 5250-5350 MHz band and 16.07 dBm in the 5470-5725 MHz band.

The antenna assembly utilized two antenna with the EUT one is -0.17 dBi, and the other is -2.95 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 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.

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

14.2. RESULTS FOR 20 MHz BANDWIDTH

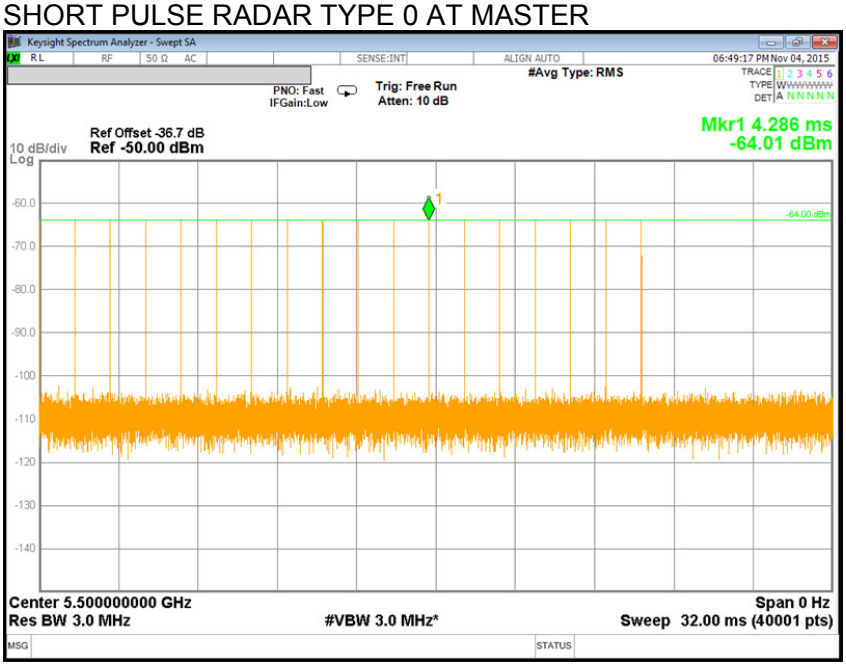
14.2.1. TEST CHANNEL

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

14.2.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM

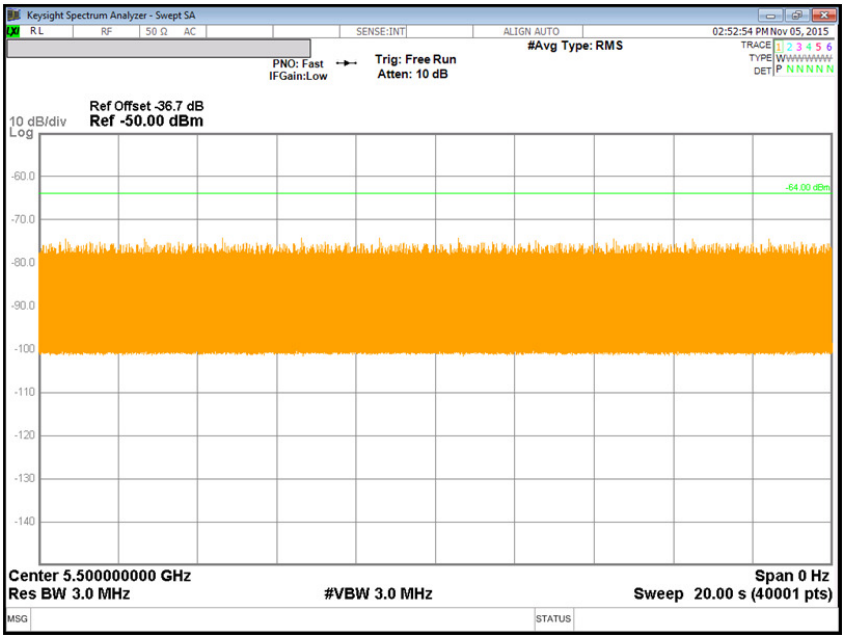
SHORT PULSE RADAR TYPE 0 AT MASTER



UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

TRAFFIC

SLAVE TRAFFIC



UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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)
0.607	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
3.000	60

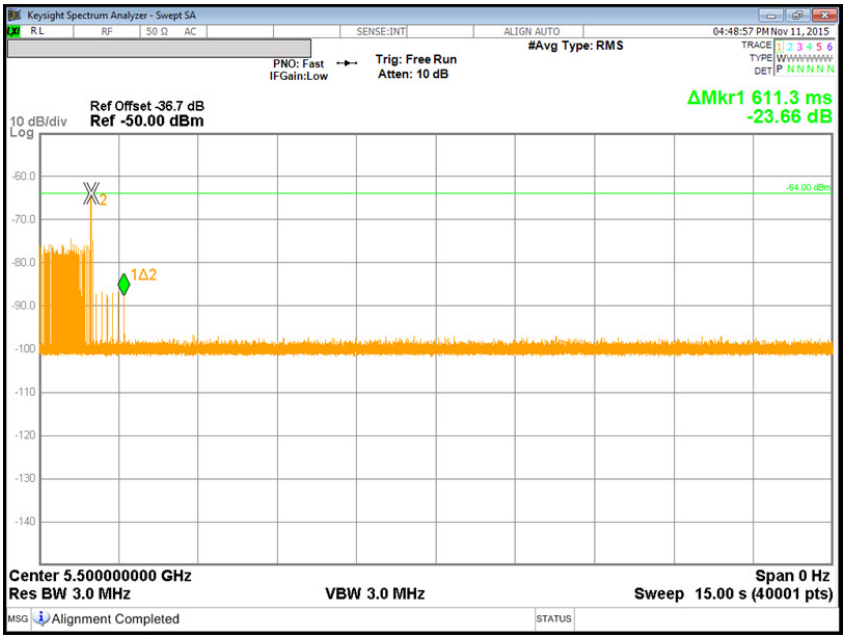
UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

MOVE TIME & CHANNEL CLOSING TIME

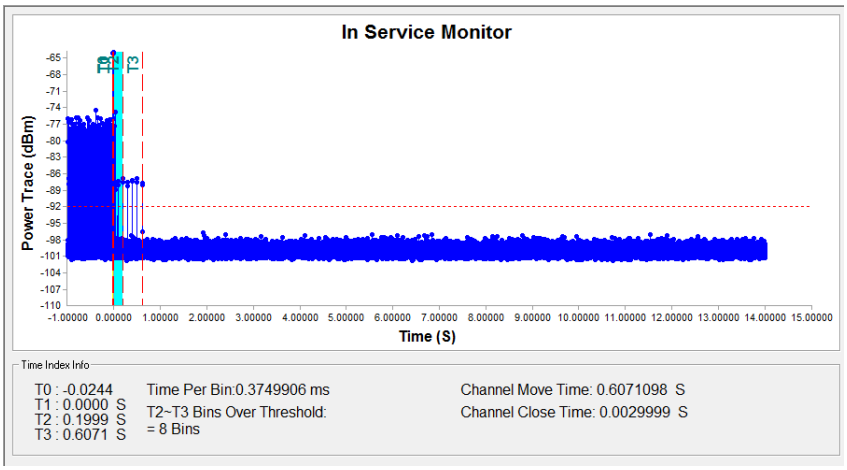
AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.

MOVE TIME & AGGREGATE CHANNEL CLOSING TRANSMISSION TIME



MOVE TIME & CLOSING TIME AT IN SERVISE MONITER



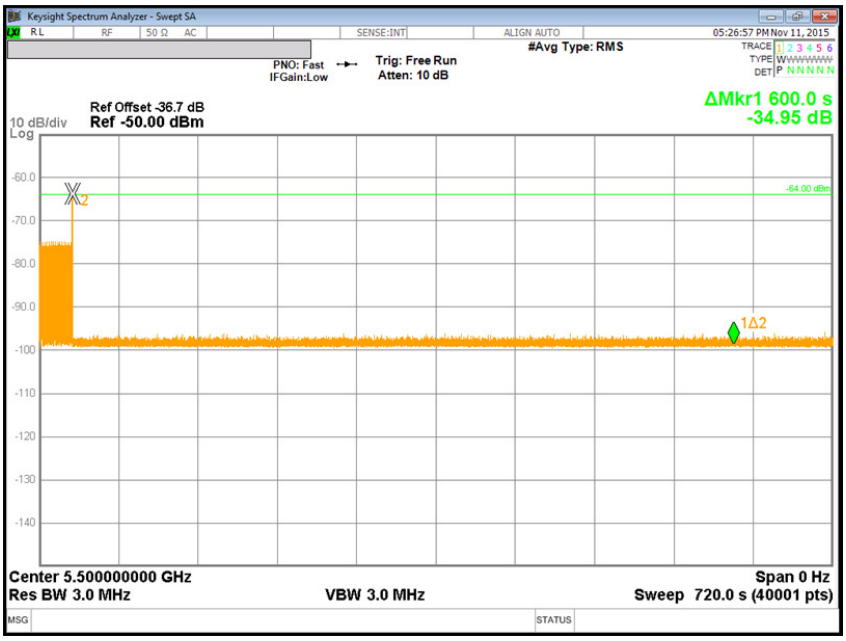
UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

NON-OCCUPANCY PERIOD

RESULTS

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

10-MINUTE BEACON MONITORING PERIOD



UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

14.3. RESULTS FOR 40 MHz BANDWIDTH

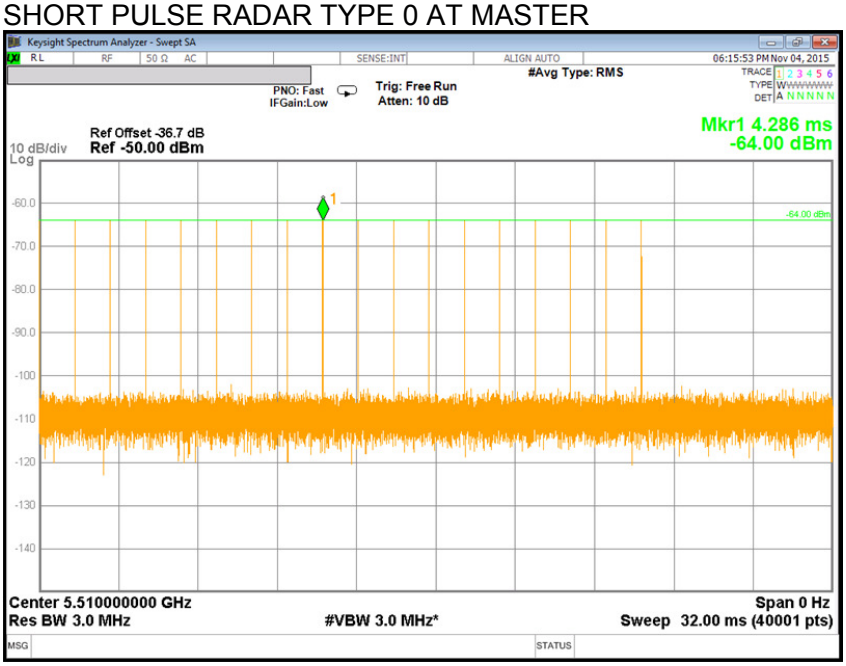
14.3.1. TEST CHANNEL

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

14.3.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM

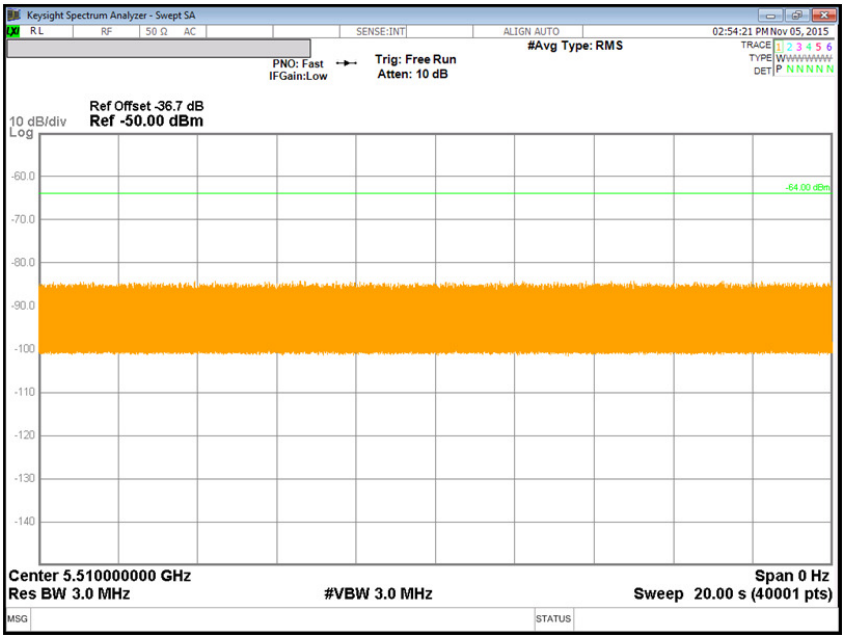
SHORT PULSE RADAR TYPE 0 AT MASTER



UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

TRAFFIC

SLAVE TRAFFIC



UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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)
0.520	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
1.875	60

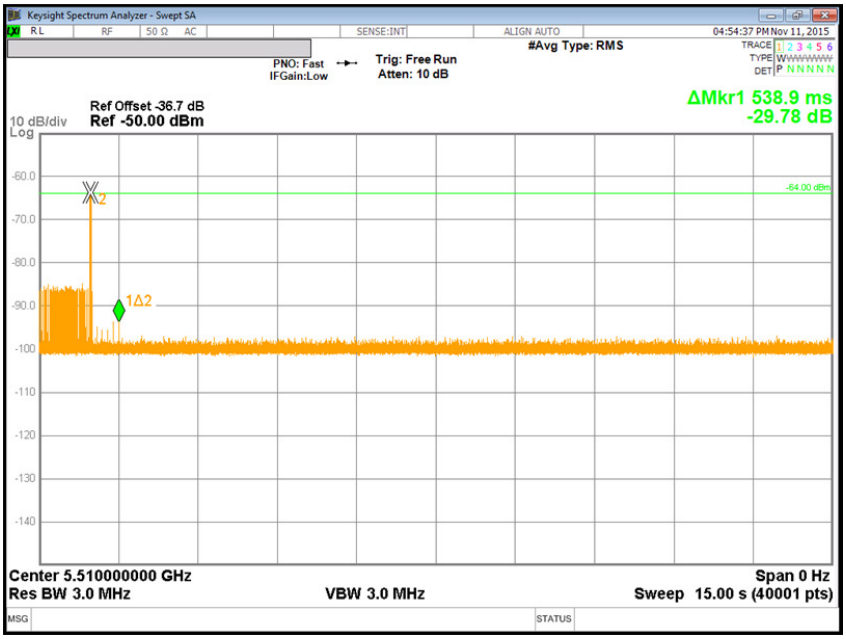
UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

MOVE TIME & CHANNEL CLOSING TIME

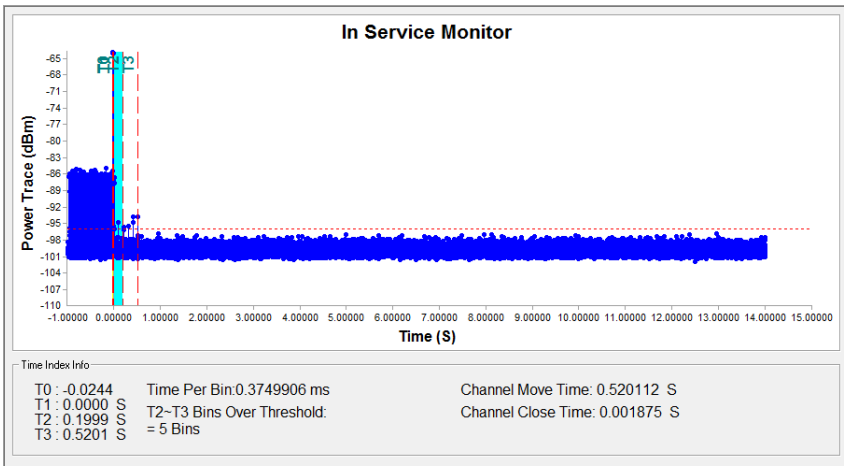
AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.

MOVE TIME & AGGREGATE CHANNEL CLOSING TRANSMISSION TIME



MOVE TIME & CLOSING TIME AT IN SERVISE MONITER



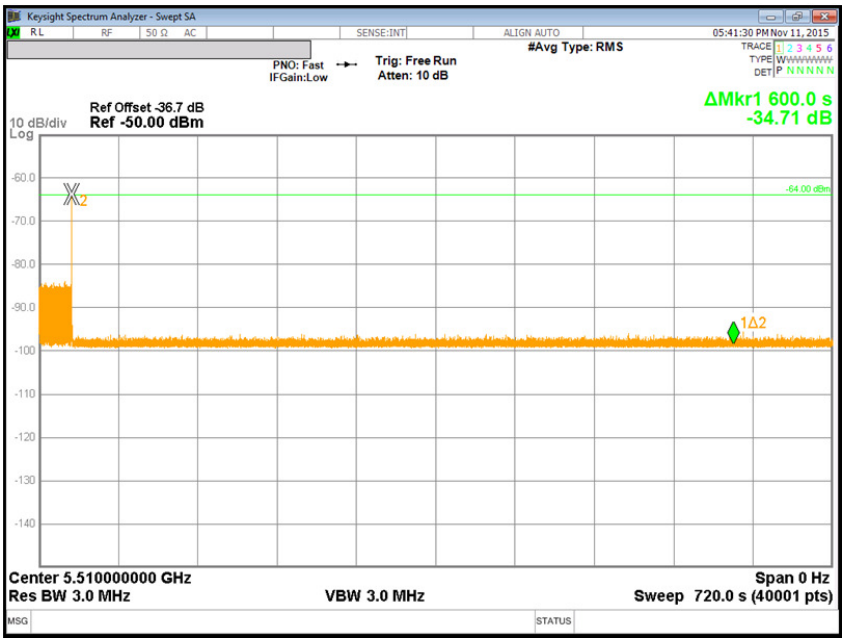
UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

NON-OCCUPANCY PERIOD

RESULTS

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

10-MINUTE BEACON MONITORING PERIOD



UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

14.4. RESULTS FOR 80 MHz BANDWIDTH

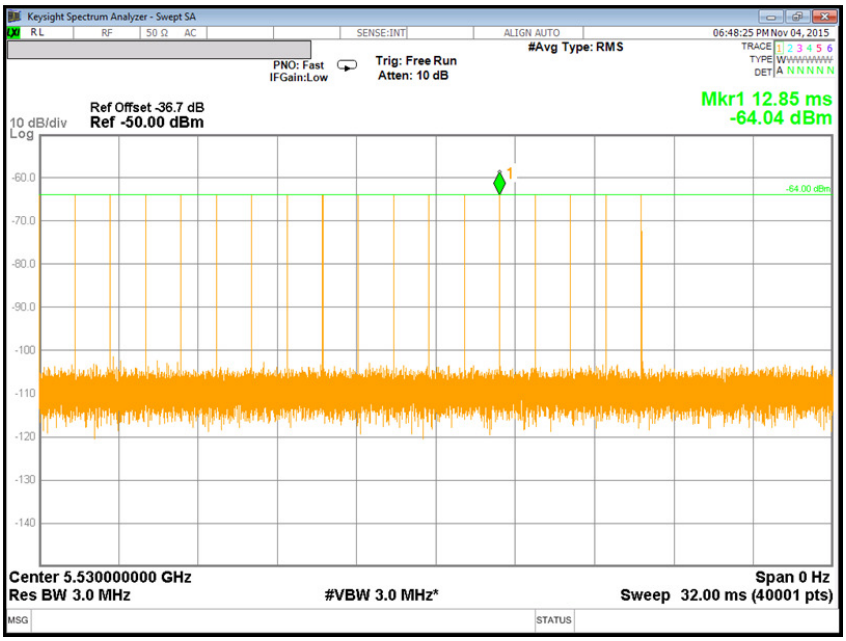
14.4.1. TEST CHANNEL

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

14.4.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM

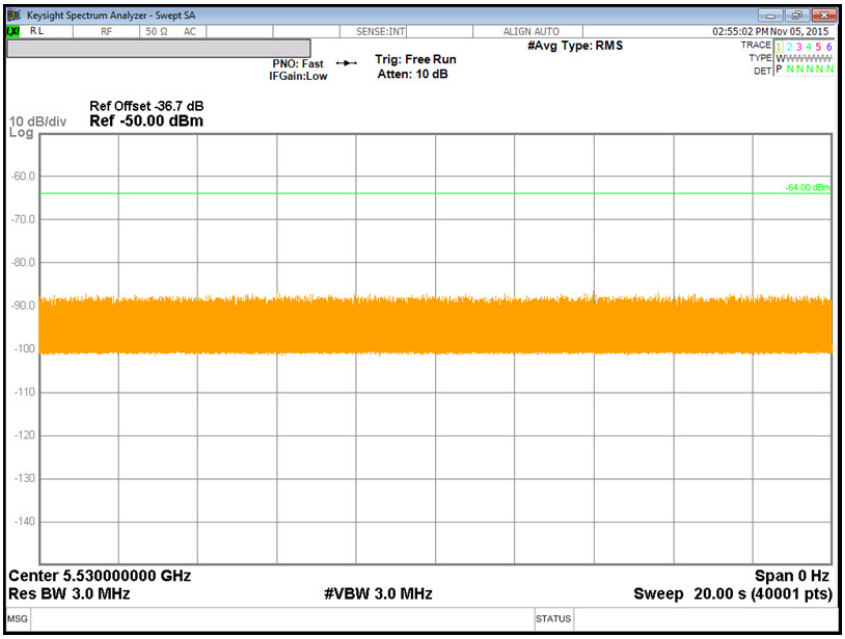
SHORT PULSE RADAR TYPE 0 AT MASTER



UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

TRAFFIC

SLAVE TRAFFIC



UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

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)
0.567	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
3.000	60

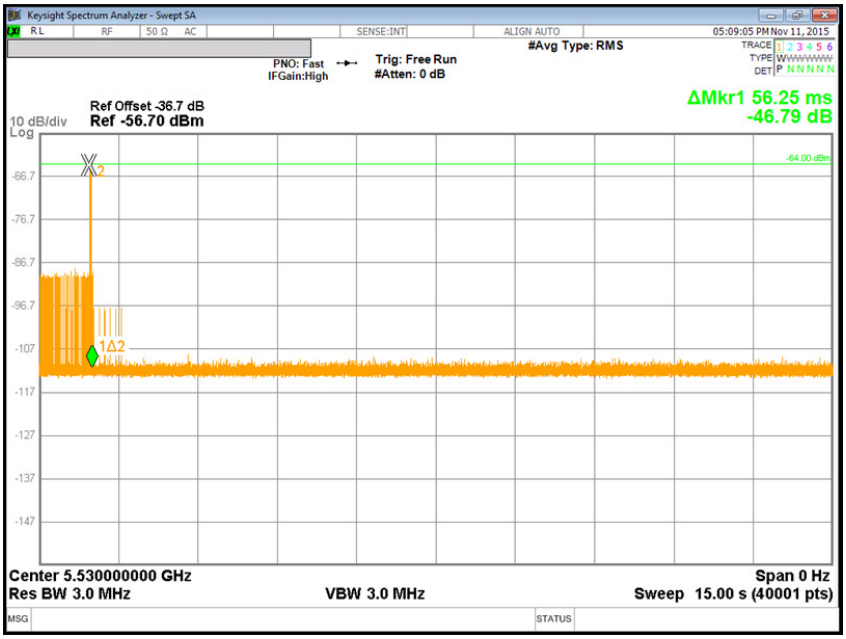
UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

MOVE TIME & CHANNEL CLOSING TIME

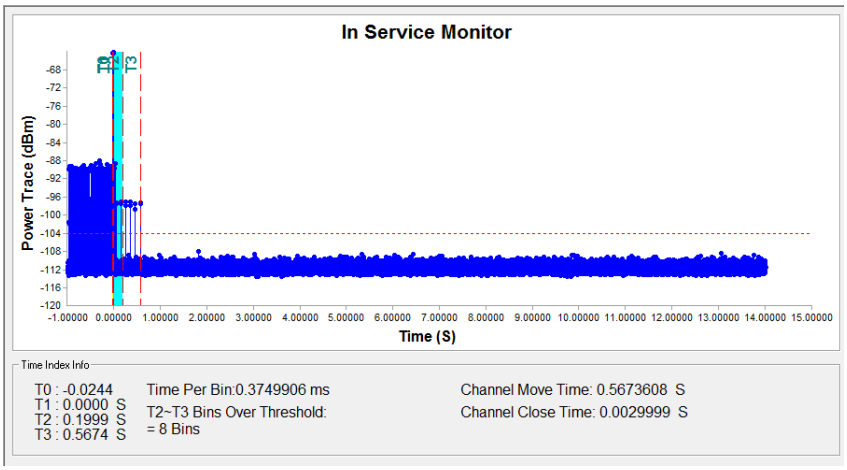
AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.

MOVE TIME & AGGREGATE CHANNEL CLOSING TRANSMISSION TIME



MOVE TIME & CLOSING TIME AT IN SERVISE MONITER



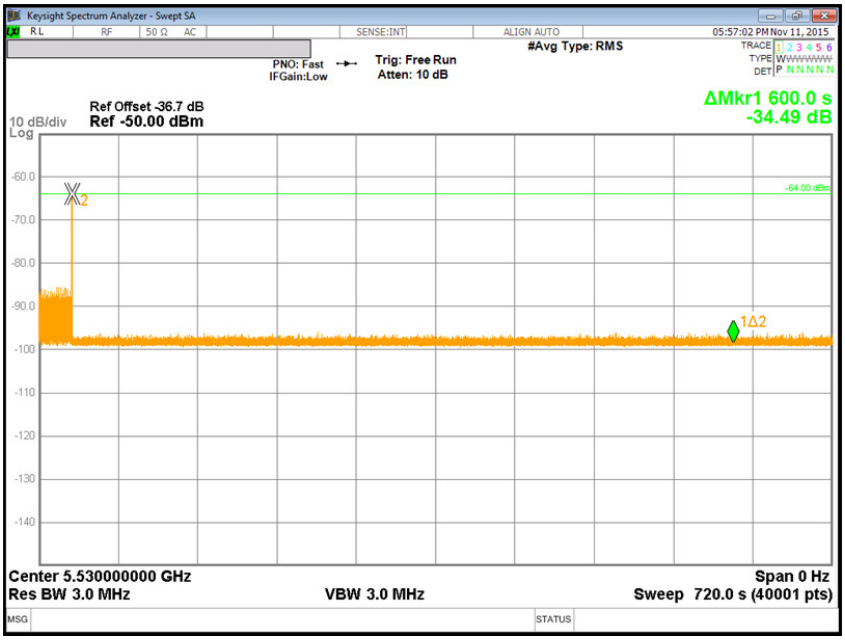
UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

NON-OCCUPANCY PERIOD

RESULTS

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

10-MINUTE BEACON MONITORING PERIOD



UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.