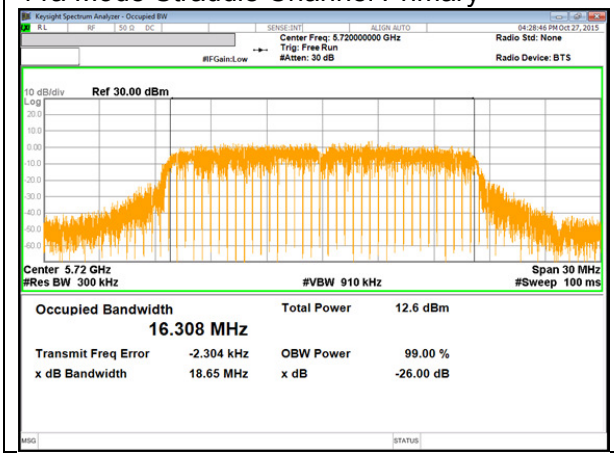
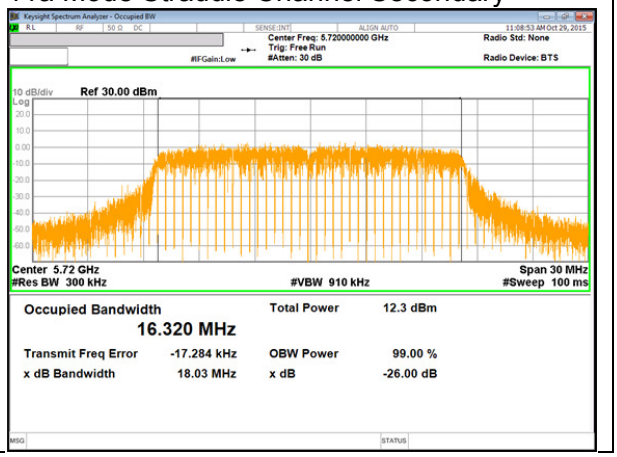
11a Mode Straddle Channel Primary

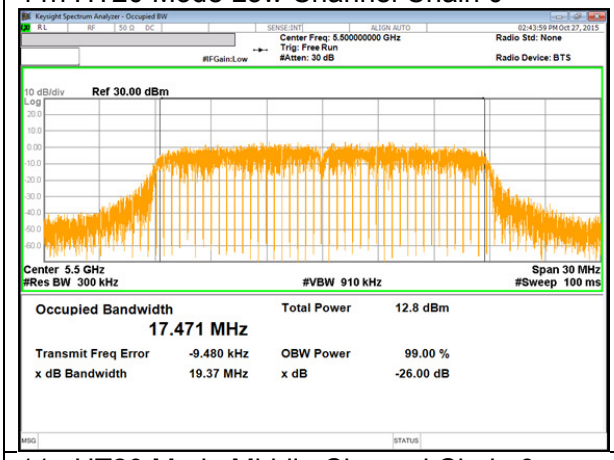


11a Mode Straddle Channel Secondary

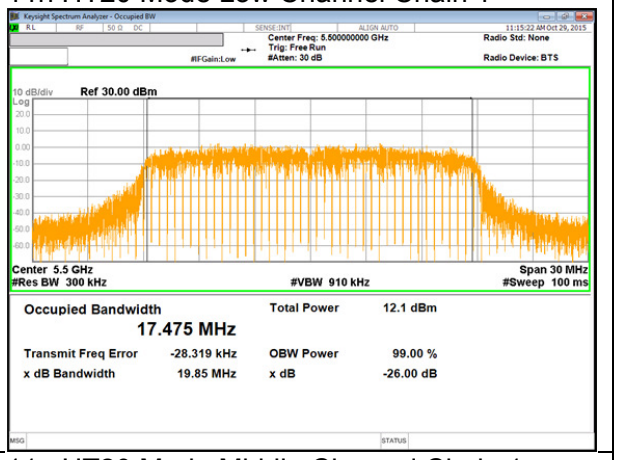


UNII 5.5 GHz IEEE 802.11n HT20 mode

11n HT20 Mode Low Channel Chain 0



11n HT20 Mode Low Channel Chain 1



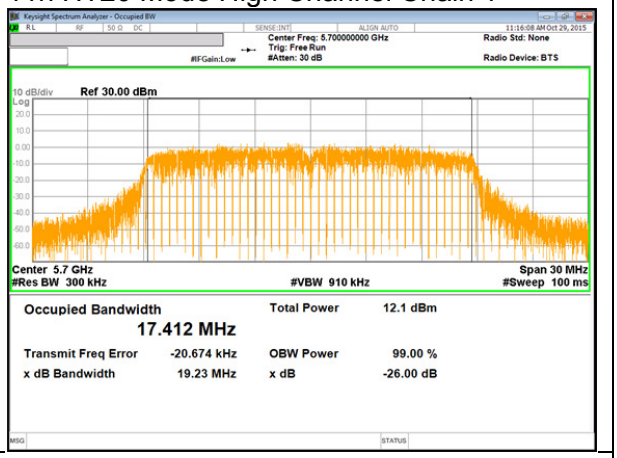
11n HT20 Mode Middle Channel Chain 0

11n HT20 Mode Middle Channel Chain 1

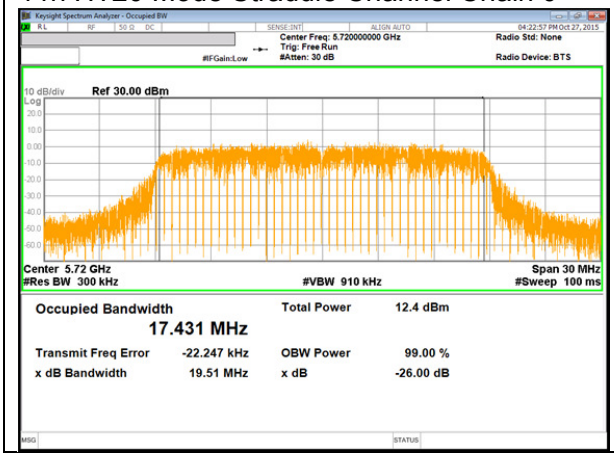
UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

11n HT20 Mode High Channel Chain 0

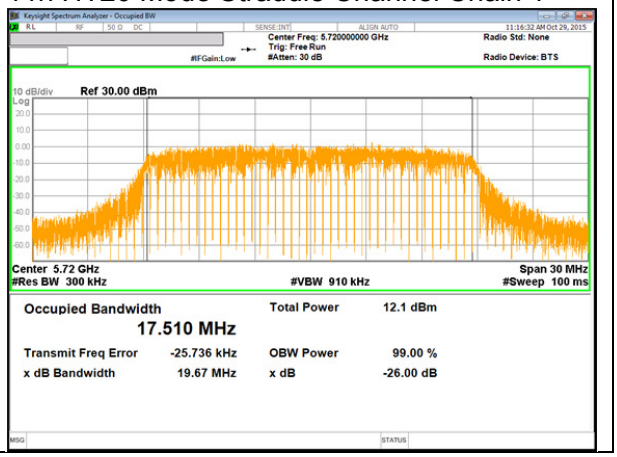
11n HT20 Mode High Channel Chain 1



11n HT20 Mode Straddle Channel Chain 0



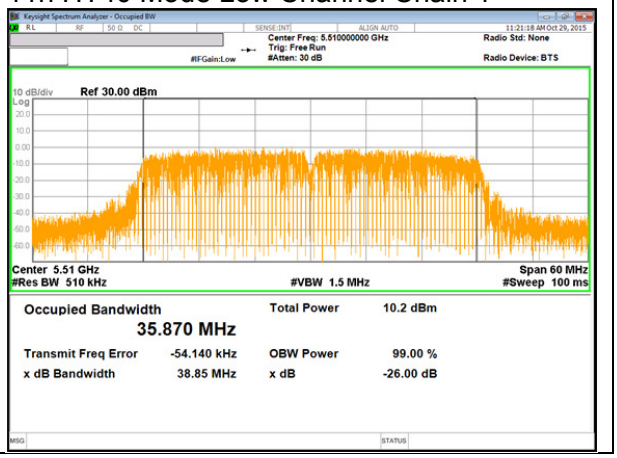
11n HT20 Mode Straddle Channel Chain 1



UNII 5.5 GHz IEEE 802.11n HT40 mode

11n HT40 Mode Low Channel Chain 0

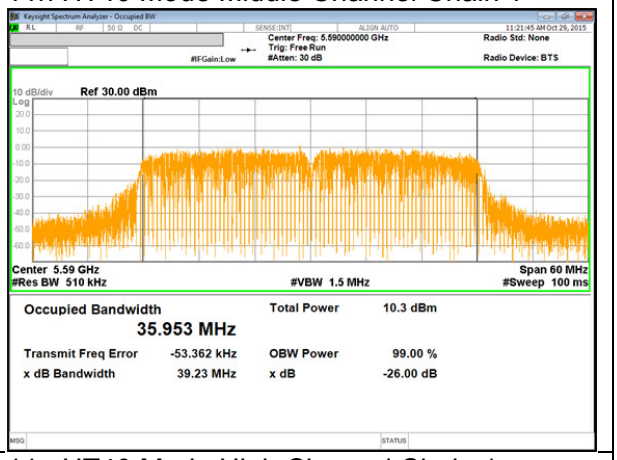
11n HT40 Mode Low Channel Chain 1



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

11n HT40 Mode Middle Channel Chain 0

11n HT40 Mode Middle Channel Chain 1

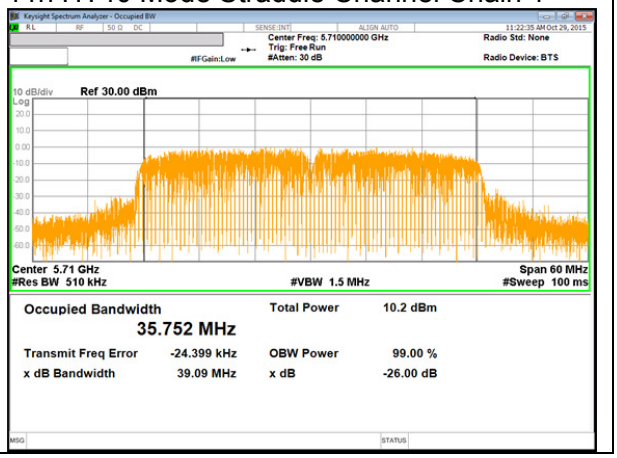


11n HT40 Mode High Channel Chain 0

11n HT40 Mode High Channel Chain 1

11n HT40 Mode Straddle Channel Chain 0

11n HT40 Mode Straddle Channel Chain 1

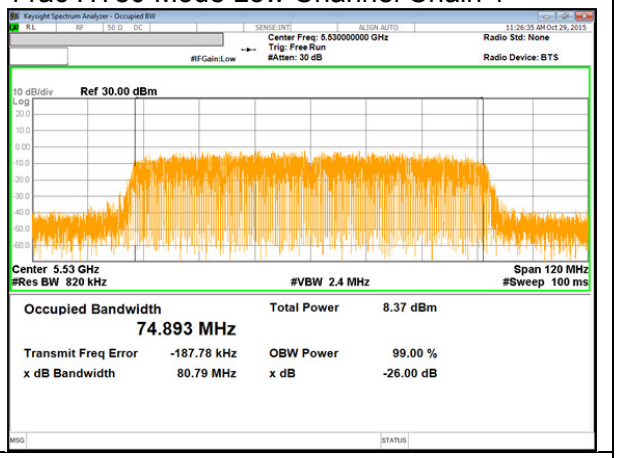


UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

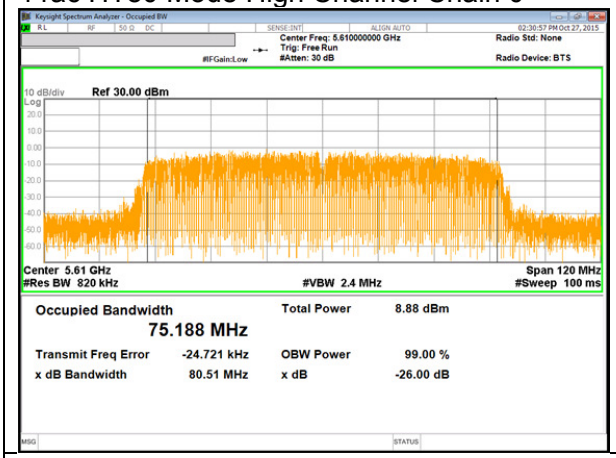
UNII 5.5 GHz IEEE 802.11ac VHT80 mode

11ac HT80 Mode Low Channel Chain 0

11ac HT80 Mode Low Channel Chain 1

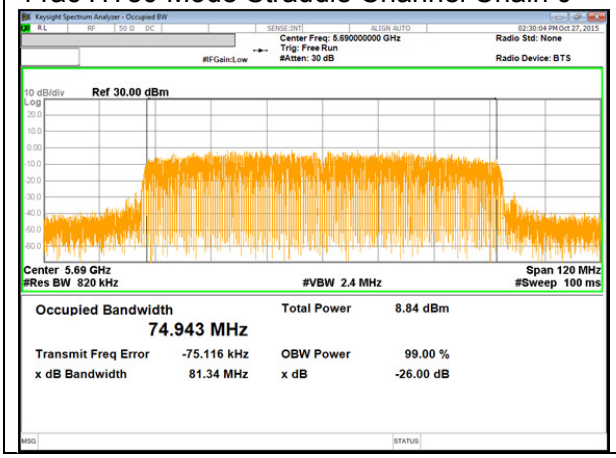


11ac HT80 Mode High Channel Chain 0

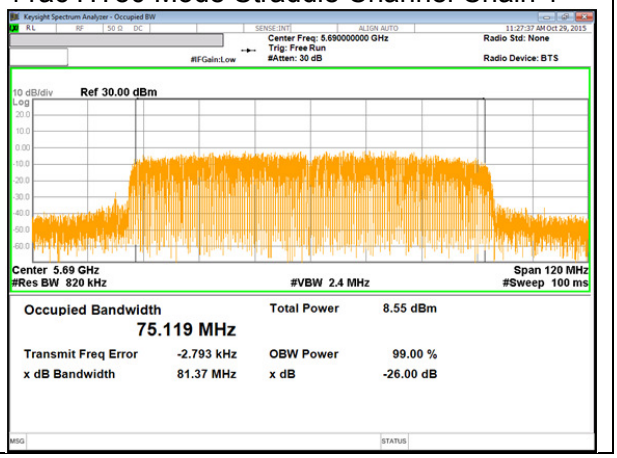


11ac HT80 Mode High Channel Chain 1

11ac HT80 Mode Straddle Channel Chain 0



11ac HT80 Mode Straddle Channel Chain 1

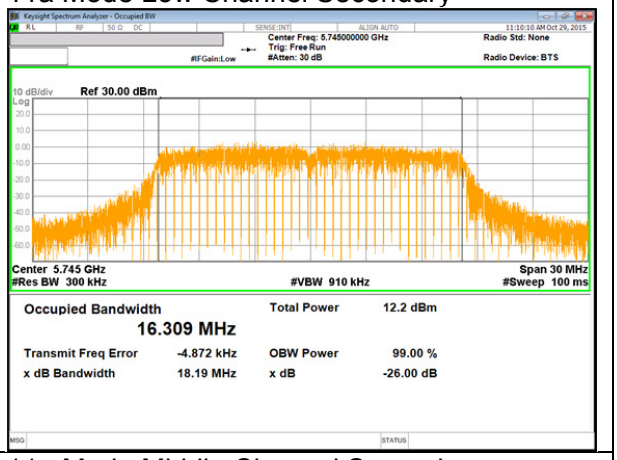


UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

UNII 5.8 GHz IEEE 802.11a mode

11a Mode Low Channel Primary

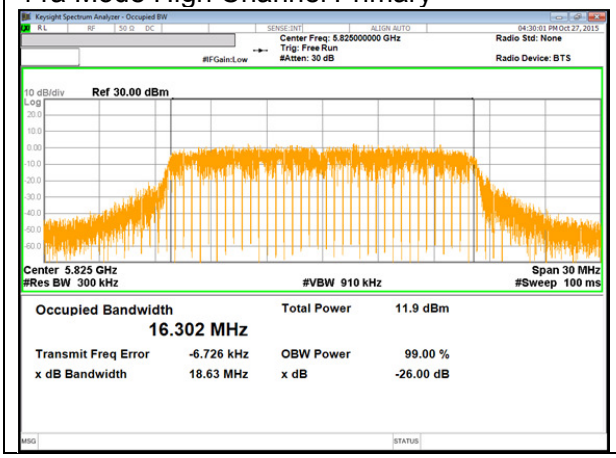
11a Mode Low Channel Secondary



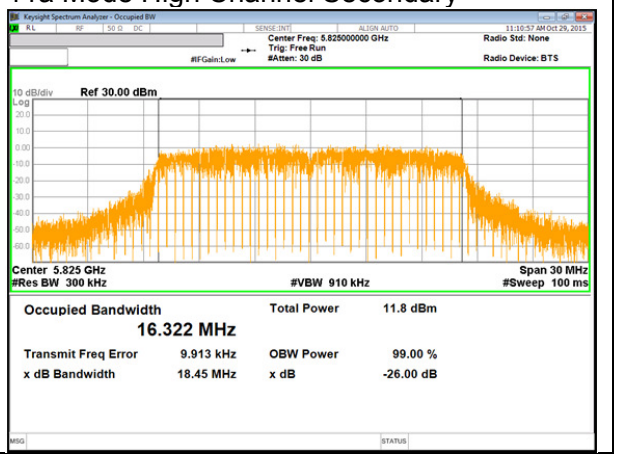
11a Mode Middle Channel Primary

11a Mode Middle Channel Secondary

11a Mode High Channel Primary



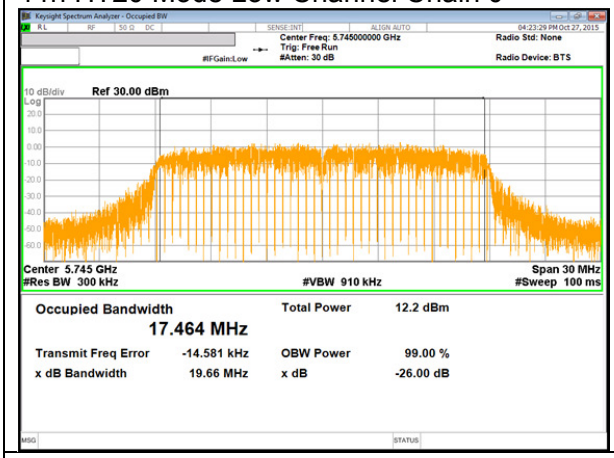
11a Mode High Channel Secondary



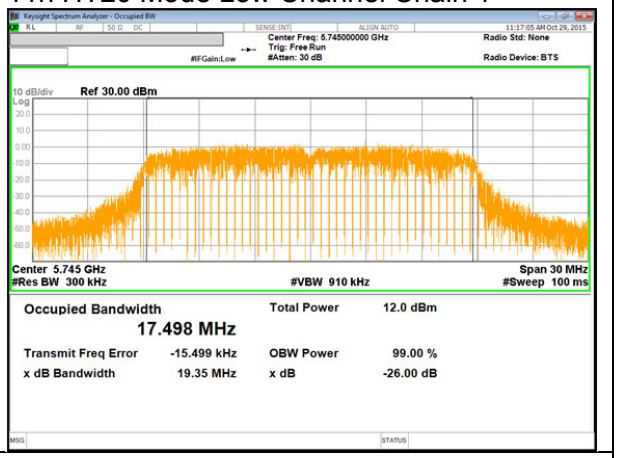
UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

UNII 5.8 GHz IEEE 802.11n HT20 mode

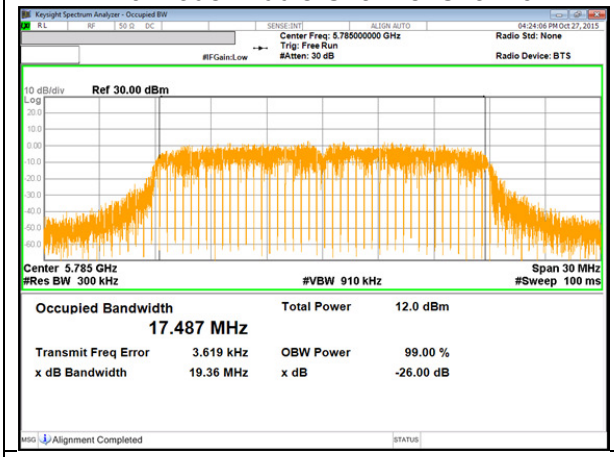
11n HT20 Mode Low Channel Chain 0



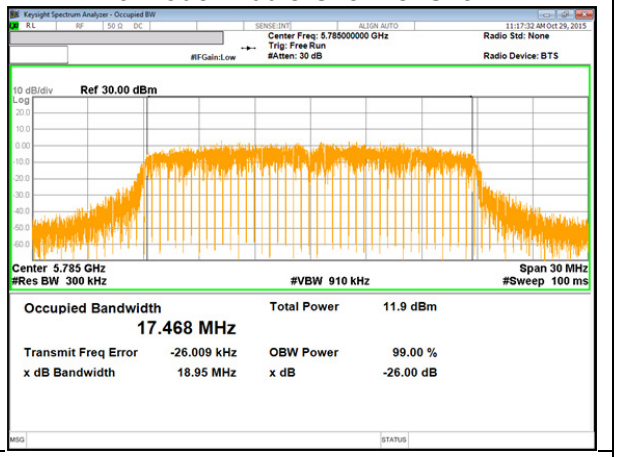
11n HT20 Mode Low Channel Chain 1



11n HT20 Mode Middle Channel Chain 0

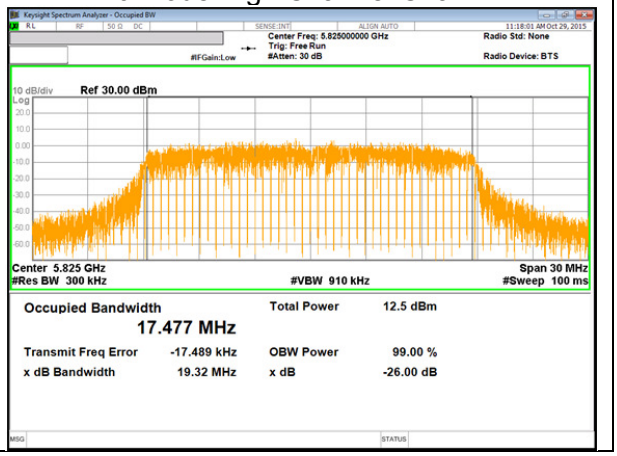


11n HT20 Mode Middle Channel Chain 1



11n HT20 Mode High Channel Chain 0

11n HT20 Mode High Channel Chain 1

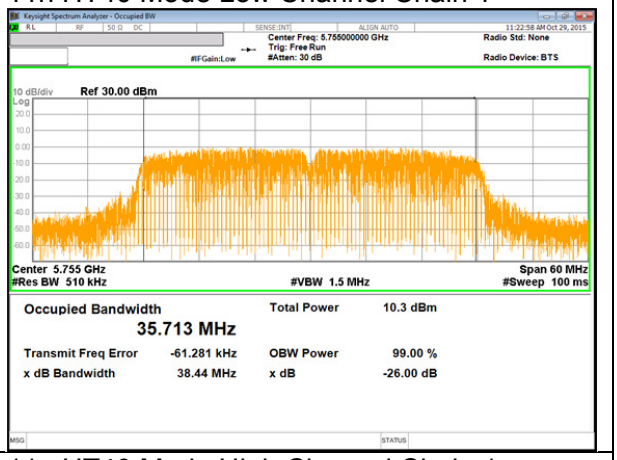


UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

UNII 5.8 GHz IEEE 802.11n HT40 mode

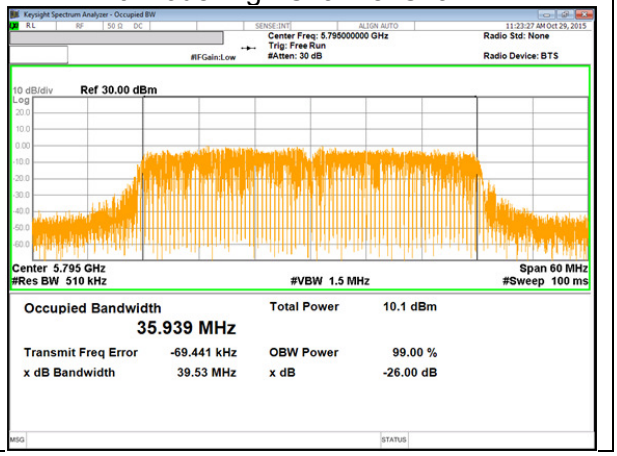
11n HT40 Mode Low Channel Chain 0

11n HT40 Mode Low Channel Chain 1



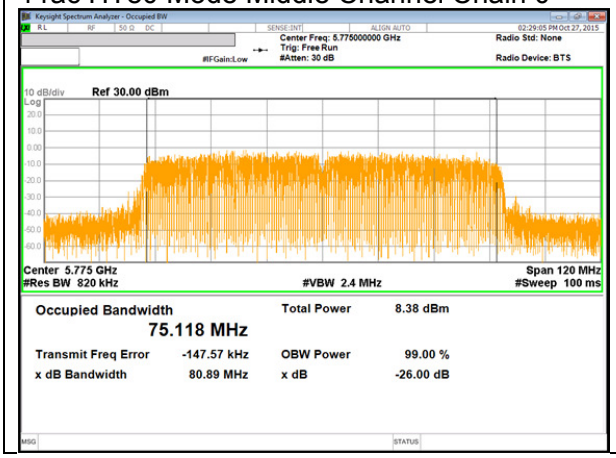
11n HT40 Mode High Channel Chain 0

11n HT40 Mode High Channel Chain 1

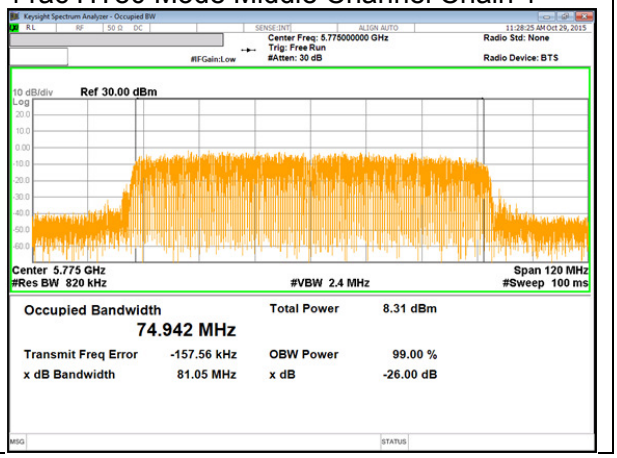


UNII 5.8 GHz IEEE 802.11ac VHT80 mode

11ac HT80 Mode Middle Channel Chain 0



11ac HT80 Mode Middle Channel Chain 1



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.

10.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1) (2) (3)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectraensity shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

DIRECTIONAL ANTENNA GAIN

For Power: The TX chains are uncorrelated and the antenna gain is the same for each chain. The directional gain is equal to the antenna gain.

For PSD: The TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

5 GHz

Frequency Band [MHz]	Chain 0 Antenna Gain [dBi]	Chain 1 Antenna Gain [dBi]	Uncorrelated Directional Gain [dBi]	Correlated Directional Gain [dBi]
5150 - 5250	0.13	-4.65	-1.63	1.08
5250 - 5350	-1.23	-2.95	-2.01	0.96
5470 - 5725	-0.07	-4.45	-1.73	1.02
5725 - 5850	-1.05	-1.94	-1.47	1.53

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

RESULTS

10.4.1. 802.11a MODE IN THE 5.2 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency [MHz]	Min 26 dB BW [MHz]	Min 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
Low	5180	18.57	16.32	-1.63	1.08
Mid	5200	18.53	16.32	-1.63	1.08
High	5240	18.44	16.33	-1.63	1.08

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Low	5180	23.69	11.00
Mid	5200	23.68	11.00
High	5240	23.66	11.00

Duty Cycle CF [dB]	0.31	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Primary Antenna 1 Power [dBm]	Secendary Antenna 2 Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	5180	12.60	12.14	15.70	23.69	-7.99
Mid	5200	12.64	12.19	15.74	23.68	-7.94
High	5240	12.07	12.34	15.53	23.66	-8.13

PPSD Results

Channel	Frequency [MHz]	Primary Antenna 1 PPSD [dBm]	Secondary Antenna 2 PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Low	5180	2.64	2.11	5.71	11.00	-5.29
Mid	5200	2.68	2.26	5.79	11.00	-5.21
High	5240	1.90	2.26	5.40	11.00	-5.60

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.

10.4.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency [MHz]	Min 26 dB BW [MHz]	Min 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
Low	5180	19.56	17.47	-1.63	1.08
Mid	5200	19.65	17.49	-1.63	1.08
High	5240	19.55	17.50	-1.63	1.08

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Low	5180	23.91	11.00
Mid	5200	23.93	11.00
High	5240	23.91	11.00

Duty Cycle CF [dB]	0.33	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Chain 0 Meas Power [dBm]	Chain 1 Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	5180	12.28	12.86	15.91	23.91	-8.00
Mid	5200	12.42	12.92	16.01	23.93	-7.92
High	5240	12.82	12.06	15.79	23.91	-8.12

PPSD Results

Channel	Frequency [MHz]	Chain 0 Meas PPSD [dBm]	Chain 1 Meas PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Low	5180	2.51	2.80	5.99	11.00	-5.01
Mid	5200	2.49	2.79	5.98	11.00	-5.02
High	5240	2.83	1.95	5.75	11.00	-5.25

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.

10.4.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency [MHz]	Min 26 dB BW [MHz]	Min 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
Low	5190	40.53	35.94	-1.63	1.08
High	5230	39.95	35.91	-1.63	1.08

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Low	5190	24.00	11.00
High	5230	24.00	11.00

Duty Cycle CF [dB]	0.63	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Chain 0 Meas Power [dBm]	Chain 1 Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	5190	10.76	10.81	14.43	24.00	-9.57
High	5230	9.98	10.47	13.87	24.00	-10.13

PPSD Results

Channel	Frequency [MHz]	Chain 0 Meas PPSD [dBm]	Chain 1 Meas PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Low	5190	-2.50	-2.31	1.24	11.00	-9.76
High	5230	-3.11	-2.67	0.76	11.00	-10.24

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.

10.4.4. 802.11ac HT80 MODE IN THE 5.2 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency [MHz]	Min 26 dB BW [MHz]	Min 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
Middle	5210	81.99	75.04	-1.63	1.08

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Middle	5210	24.00	11.00

Duty Cycle CF [dB]	1.20	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Chain 0 Meas Power [dBm]	Chain 1 Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Middle	5210	8.91	8.60	12.97	24.00	-11.03

PPSD Results

Channel	Frequency [MHz]	Chain 0 Meas PPSD [dBm]	Chain 1 Meas PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Middle	5210	-6.99	-7.65	-3.10	11.00	-14.10

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.

10.4.5. 802.11a MODE IN THE 5.3 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency [MHz]	Min 26 dB BW [MHz]	Min 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
Low	5260	18.71	16.31	-2.01	0.96
Mid	5300	18.26	16.34	-2.01	0.96
High	5320	18.46	16.31	-2.01	0.96

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Low	5260	23.72	11.00
Mid	5300	23.62	11.00
High	5320	23.66	11.00

Duty Cycle CF [dB]	0.31	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Primary Antenna 1 Power [dBm]	Secendary Antenna 2 Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	5260	12.91	12.38	15.97	23.72	-7.75
Mid	5300	12.96	12.24	15.94	23.62	-7.68
High	5320	12.88	12.25	15.90	23.66	-7.76

PPSD Results

Channel	Frequency [MHz]	Primary Antenna 1 PPSD [dBm]	Secendary Antenna 2 PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Low	5260	2.86	2.36	5.94	11.00	-5.06
Mid	5300	2.78	2.11	5.78	11.00	-5.22
High	5320	2.74	2.36	5.88	11.00	-5.12

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.

10.4.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency [MHz]	Min 26 dB BW [MHz]	Min 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
Low	5260	19.48	17.51	-2.01	0.96
Mid	5300	19.54	17.45	-2.01	0.96
High	5320	19.49	17.50	-2.01	0.96

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Low	5260	23.90	11.00
Mid	5300	23.91	11.00
High	5320	23.90	11.00

Duty Cycle CF [dB]	0.33	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Chain 0 Meas Power [dBm]	Chain 1 Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	5260	12.79	12.13	15.81	23.90	-8.09
Mid	5300	12.81	13.08	16.29	23.91	-7.62
High	5320	12.72	13.05	16.22	23.90	-7.67

PPSD Results

Channel	Frequency [MHz]	Chain 0 Meas PPSD [dBm]	Chain 1 Meas PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Low	5260	2.52	1.93	5.57	11.00	-5.43
Mid	5300	2.63	2.81	6.06	11.00	-4.94
High	5320	2.77	2.95	6.19	11.00	-4.81

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.

10.4.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency [MHz]	Min 26 dB BW [MHz]	Min 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
Low	5270	39.91	35.88	-2.01	0.96
High	5310	40.16	35.84	-2.01	0.96

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Low	5270	24.00	11.00
High	5310	24.00	11.00

Duty Cycle CF [dB]	0.63	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Chain 0 Meas Power [dBm]	Chain 1 Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	5270	9.89	10.38	13.79	24.00	-10.21
High	5310	9.84	10.10	13.61	24.00	-10.39

PPSD Results

Channel	Frequency [MHz]	Chain 0 Meas PPSD [dBm]	Chain 1 Meas PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Low	5270	-3.29	-2.95	0.53	11.00	-10.47
High	5310	-3.47	-3.17	0.32	11.00	-10.68

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.

10.4.8. 802.11ac HT80 MODE IN THE 5.3 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency [MHz]	Min 26 dB BW [MHz]	Min 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
Middle	5290	81.73	75.10	-2.01	0.96

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Middle	5290	24.00	11.00

Duty Cycle CF [dB]	1.20	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Chain 0 Meas Power [dBm]	Chain 1 Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Middle	5290	9.13	8.49	13.03	24.00	-10.97

PPSD Results

Channel	Frequency [MHz]	Chain 0 Meas PPSD [dBm]	Chain 1 Meas PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Middle	5290	-7.11	-7.61	-3.15	11.00	-14.15

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.

10.4.9. 802.11a MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency [MHz]	Min 26 dB BW [MHz]	Min 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
Low	5500	18.46	16.33	-1.73	1.02
Mid	5580	18.34	16.32	-1.73	1.02
High	5700	18.52	16.31	-1.73	1.02

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Low	5500	23.66	11.00
Mid	5580	23.63	11.00
High	5700	23.68	11.00

Duty Cycle CF [dB]	0.31	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Primary Antenna 1 Power [dBm]	Secendary Antenna 2 Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	5500	12.17	12.61	15.71	23.66	-7.95
Mid	5580	12.39	12.66	15.85	23.63	-7.78
High	5700	12.47	12.39	15.75	23.68	-7.93

PPSD Results

Channel	Frequency [MHz]	Primary Antenna 1 PPSD [dBm]	Secendary Antenna 2 PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Low	5500	2.30	2.51	5.73	11.00	-5.27
Mid	5580	2.43	2.85	5.97	11.00	-5.03
High	5700	2.53	2.57	5.87	11.00	-5.13

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.

10.4.10. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency [MHz]	Min 26 dB BW [MHz]	Min 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
Low	5500	19.46	17.48	-1.73	1.02
Mid	5580	19.44	17.45	-1.73	1.02
High	5700	19.66	17.51	-1.73	1.02

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Low	5500	23.89	11.00
Mid	5580	23.89	11.00
High	5700	23.94	11.00

Duty Cycle CF [dB]	0.33	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Chain 0 Meas Power [dBm]	Chain 1 Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	5500	13.00	12.43	16.06	23.89	-7.83
Mid	5580	12.11	12.44	15.61	23.89	-8.27
High	5700	12.39	12.33	15.70	23.94	-8.24

PPSD Results

Channel	Frequency [MHz]	Chain 0 Meas PPSD [dBm]	Chain 1 Meas PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Low	5500	2.92	2.29	5.95	11.00	-5.05
Mid	5580	2.05	2.15	5.43	11.00	-5.57
High	5700	2.24	2.28	5.60	11.00	-5.40

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

10.4.11. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency [MHz]	Min 26 dB BW [MHz]	Min 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
Low	5510	39.79	35.87	-1.73	1.02
Mid	5550	40.22	35.95	-1.73	1.02
High	5670	39.93	35.85	-1.73	1.02

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Low	5510	24.00	11.00
Mid	5550	24.00	11.00
High	5670	24.00	11.00

Duty Cycle CF [dB]	0.63	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Chain 0 Meas Power [dBm]	Chain 1 Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	5510	9.62	10.11	13.52	24.00	-10.48
Mid	5550	10.36	10.53	14.09	24.00	-9.91
High	5670	10.77	10.76	14.40	24.00	-9.60

PPSD Results

Channel	Frequency [MHz]	Chain 0 Meas PPSD [dBm]	Chain 1 Meas PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Low	5510	-3.57	-2.62	0.57	11.00	-10.43
Mid	5550	-2.87	-2.61	0.90	11.00	-10.10
High	5670	-2.62	-2.24	1.22	11.00	-9.78

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.

10.4.12. 802.11ac HT80 MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency [MHz]	Min 26 dB BW [MHz]	Min 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
Low	5530	82.38	75.01	-1.73	1.02
High	5610	81.97	75.19	-1.73	1.02

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Low	5530	24.00	11.00
High	5610	24.00	11.00

Duty Cycle CF [dB]	1.20	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Chain 0 Meas Power [dBm]	Chain 1 Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	5530	8.36	8.47	12.62	24.00	-11.38
High	5610	8.57	8.87	12.93	24.00	-11.07

PPSD Results

Channel	Frequency [MHz]	Chain 0 Meas PPSD [dBm]	Chain 1 Meas PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Low	5530	-7.75	-7.82	-3.58	11.00	-14.58
High	5610	-7.58	-7.20	-3.18	11.00	-14.18

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.

10.4.13. 802.11a MODE IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency [MHz]	Min 26 dB BW [MHz]	Min 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
Low	5745	18.46	16.31	-1.47	1.53
Mid	5785	18.60	16.34	-1.47	1.53
High	5825	18.53	16.32	-1.47	1.53

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Low	5745	30.00	30.00
Mid	5785	30.00	30.00
High	5825	30.00	30.00

Duty Cycle CF [dB]	0.31	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Primary Antenna 1 Power [dBm]	Secendary Antenna 2 Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	5745	12.45	12.57	15.83	30.00	-14.17
Mid	5785	12.53	12.63	15.90	30.00	-14.10
High	5825	12.18	12.38	15.60	30.00	-14.40

PPSD Results

Channel	Frequency [MHz]	Primary Antenna 1 PPSD [dBm]	Secendary Antenna 2 PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Low	5745	-0.84	-0.41	2.71	30.00	-27.29
Mid	5785	-0.53	-0.23	2.94	30.00	-27.06
High	5825	-0.85	-0.88	2.46	30.00	-27.54

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.

10.4.14. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency [MHz]	Min 26 dB BW [MHz]	Min 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
Low	5745	19.61	17.50	-1.47	1.53
Mid	5785	19.60	17.49	-1.47	1.53
High	5825	19.54	17.50	-1.47	1.53

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Low	5745	30.00	30.00
Mid	5785	30.00	30.00
High	5825	30.00	30.00

Duty Cycle CF [dB]	0.33	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Chain 0 Meas Power [dBm]	Chain 1 Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	5745	12.33	12.49	15.75	30.00	-14.25
Mid	5785	12.43	12.60	15.85	30.00	-14.15
High	5825	12.53	12.67	15.94	30.00	-14.06

PPSD Results

Channel	Frequency [MHz]	Chain 0 Meas PPSD [dBm]	Chain 1 Meas PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Low	5745	-1.23	-0.48	2.50	30.00	-27.50
Mid	5785	-0.96	-0.67	2.52	30.00	-27.48
High	5825	-0.54	-0.44	2.84	30.00	-27.16

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.

10.4.15. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency [MHz]	Min 26 dB BW [MHz]	Min 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
Low	5755	39.76	35.93	-1.47	1.53
High	5795	39.87	35.94	-1.47	1.53

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Low	5755	30.00	30.00
High	5795	30.00	30.00

Duty Cycle CF [dB]	0.63	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Chain 0 Meas Power [dBm]	Chain 1 Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	5755	10.73	10.82	14.42	30.00	-15.58
High	5795	10.75	10.79	14.41	30.00	-15.59

PPSD Results

Channel	Frequency [MHz]	Chain 0 Meas PPSD [dBm]	Chain 1 Meas PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Low	5755	-5.57	-5.69	-1.99	30.00	-31.99
High	5795	-5.68	-5.47	-1.93	30.00	-31.93

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.

10.4.16. 802.11ac HT80 MODE IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency [MHz]	Min 26 dB BW [MHz]	Min 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
Middle	5775	81.77	75.12	-1.47	1.53

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Middle	5775	30.00	30.00

Duty Cycle CF [dB]	1.20	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Chain 0 Meas Power [dBm]	Chain 1 Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Middle	5775	8.82	9.28	13.26	30.00	-16.74

PPSD Results

Channel	Frequency [MHz]	Chain 0 Meas PPSD [dBm]	Chain 1 Meas PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Middle	5775	-10.41	-10.10	-6.05	30.00	-36.05

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.

10.4.17. 802.11a MODE AT STRADDLE CHANNEL

Bandwidth and Antenna Gain

Portion	Frequency [MHz]	Antenna 1 26 dB BW [MHz]	Antenna 2 26 dB BW [MHz]	Antenna 1 99% BW [MHz]	Antenna 2 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
UNII-2C	5720	14.20	14.21	13.15	13.16	-1.73	1.02
UNII-3	5720	4.20	4.21	3.15	3.16	-1.73	1.02
Whole	5720	18.40	18.42	16.31	16.32	-1.73	1.02

Limits

Portion	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
UNII-2C	5720	22.52	11.00
UNII-3	5720	17.23	11.00
Whole	5720	23.65	11.00

Duty Cycle CF [dB]	0.31	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Portion	Frequency [MHz]	Primary Antenna 1 Power [dBm]	Secendary Antenna 2 Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
UNII-2C	5720	11.76	11.93	15.17	22.52	-7.36
UNII-3	5720	4.47	4.55	7.83	17.23	-9.40
Whole	5720	12.50	12.66	15.90	23.65	-7.74

PPSD Results

Channel	Frequency [MHz]	Primary Antenna 1 PPSD [dBm]	Secendary Antenna 2 PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
144	5720	2.49	2.62	5.88	11.00	-5.12

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.

10.4.18. 802.11n HT20 MODE AT STRADDLE CHANNEL

Bandwidth and Antenna Gain

Portion	Frequency [MHz]	Chain 0 26 dB BW [MHz]	Chain 1 26 dB BW [MHz]	Chain 0 99% BW [MHz]	Chain 1 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
UNII-2C	5720	14.72	14.70	13.72	13.76	-1.73	1.02
UNII-3	5720	4.72	4.70	3.72	3.76	-1.73	1.02
Whole	5720	19.44	19.40	17.43	17.51	-1.73	1.02

Limits

Portion	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
UNII-2C	5720	22.68	11.00
UNII-3	5720	17.74	11.00
Whole	5720	23.89	11.00

Duty Cycle CF [dB]	0.33	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Portion	Frequency [MHz]	Chain 0 Meas Power [dBm]	Chain 1 Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
UNII-2C	5720	11.54	11.71	14.96	22.68	-7.72
UNII-3	5720	4.56	4.63	7.93	17.74	-9.81
Whole	5720	12.34	12.49	15.75	23.89	-8.14

PPSD Results

Channel	Frequency [MHz]	Chain 0 Meas PPSD [dBm]	Chain 1 Meas PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
144	5720	2.26	2.31	5.62	11.00	-5.38

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.

10.4.19. 802.11n HT40 MODE AT STRADDLE CHANNEL

Bandwidth and Antenna Gain

Portion	Frequency [MHz]	Chain 0 26 dB BW [MHz]	Chain 1 26 dB BW [MHz]	Chain 0 99% BW [MHz]	Chain 1 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
UNII-2C	5710	34.89	34.86	32.92	32.88	-1.73	1.02
UNII-3	5710	4.89	4.86	2.92	2.88	-1.73	1.02
Whole	5710	39.77	39.72	35.84	35.75	-1.73	1.02

Limits

Portion	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
UNII-2C	5710	24.00	11.00
UNII-3	5710	17.89	11.00
Whole	5710	24.00	11.00

Duty Cycle CF [dB]	0.63	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Portion	Frequency [MHz]	Chain 0 Meas Power [dBm]	Chain 1 Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
UNII-2C	5710	10.58	10.60	14.23	24.00	-9.77
UNII-3	5710	-1.98	-1.96	1.67	17.89	-16.22
Whole	5710	10.81	10.84	14.47	24.00	-9.53

PPSD Results

Channel	Frequency [MHz]	Chain 0 Meas PPSD [dBm]	Chain 1 Meas PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
142	5710	-2.42	-2.44	1.21	11.00	-9.79

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.

10.4.20. 802.11ac VHT80 MODE AT STRADDLE CHANNEL

Bandwidth and Antenna Gain

Portion	Frequency [MHz]	Chain 0 26 dB BW [MHz]	Chain 1 26 dB BW [MHz]	Chain 0 99% BW [MHz]	Chain 1 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
UNII-2C	5690	75.89	75.89	72.47	72.56	-1.73	1.02
UNII-3	5690	5.89	5.89	2.47	2.56	-1.73	1.02
Whole	5690	81.77	81.77	74.94	75.12	-1.73	1.02

Limits

Portion	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
UNII-2C	5690	24.00	11.00
UNII-3	5690	18.70	11.00
Whole	5690	24.00	11.00

Duty Cycle CF [dB]	1.20	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Portion	Frequency [MHz]	Chain 0 Meas Power [dBm]	Chain 1 Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Power Margin [dB]
UNII-2C	5690	8.89	9.06	13.19	24.00	-10.81
UNII-3	5690	-8.13	-7.93	-3.82	18.70	-22.52
Whole	5690	8.98	9.15	13.27	24.00	-10.73

PPSD Results

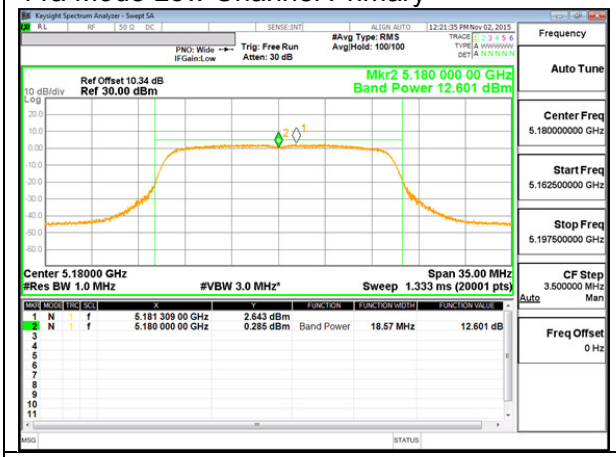
Channel	Frequency [MHz]	Chain 0 Meas PPSD [dBm]	Chain 1 Meas PPSD [dBm]	Total Corr'd PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
138	5690	-7.14	-7.02	-2.87	11.00	-13.87

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.

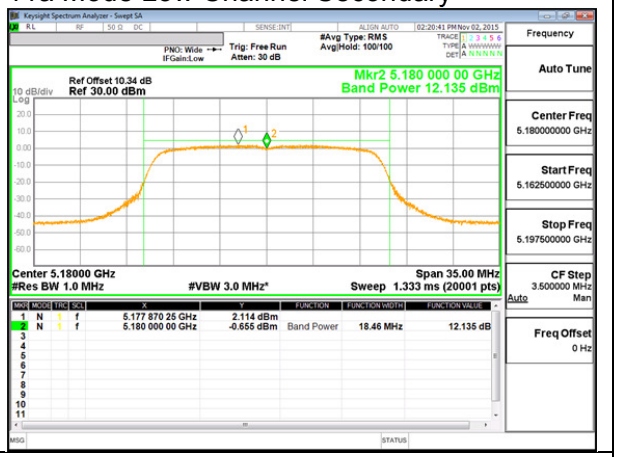
10.4.21. OUTPUT POWER AND PPSD PLOTS

UNII 5.2 GHz IEEE 802.11a mode

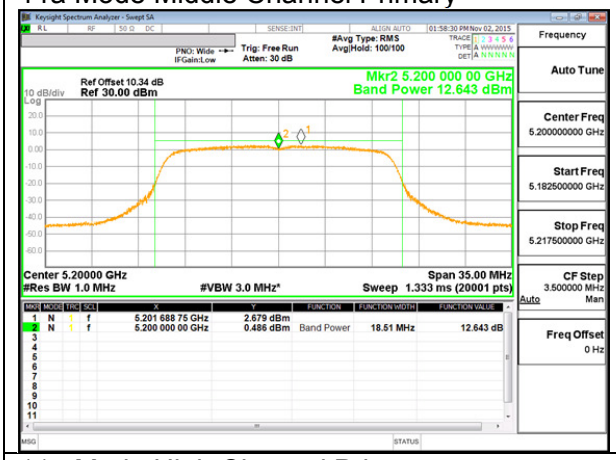
11a Mode Low Channel Primary



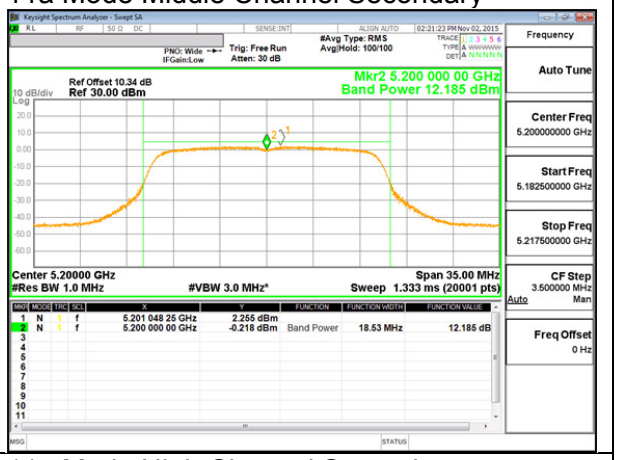
11a Mode Low Channel Secondary



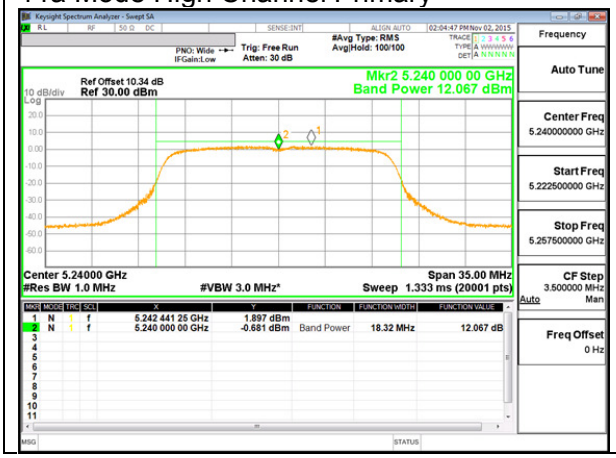
11a Mode Middle Channel Primary



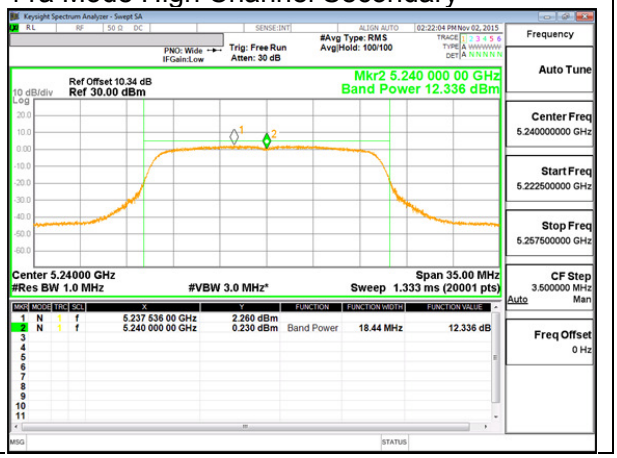
11a Mode Middle Channel Secondary



11a Mode High Channel Primary



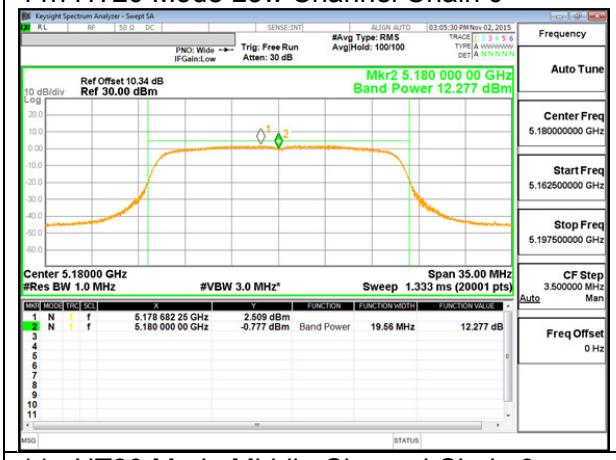
11a Mode High Channel Secondary



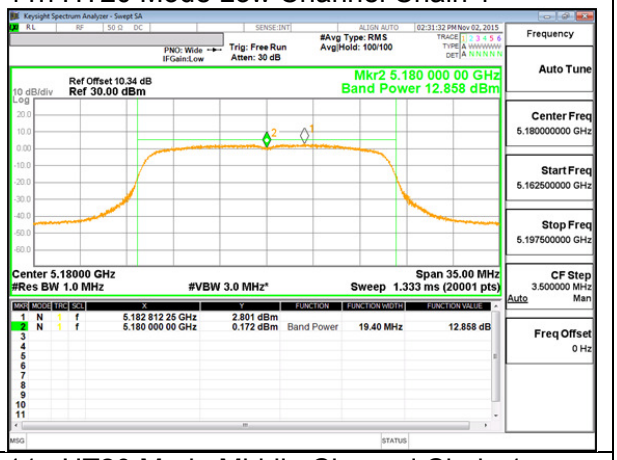
UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

UNII 5.2 GHz IEEE 802.11n HT20 mode

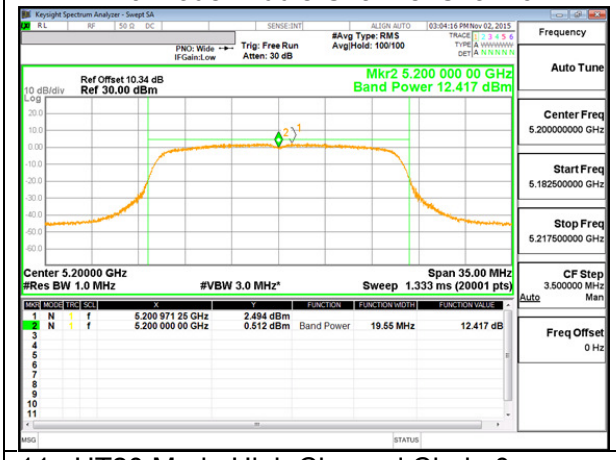
11n HT20 Mode Low Channel Chain 0



11n HT20 Mode Low Channel Chain 1

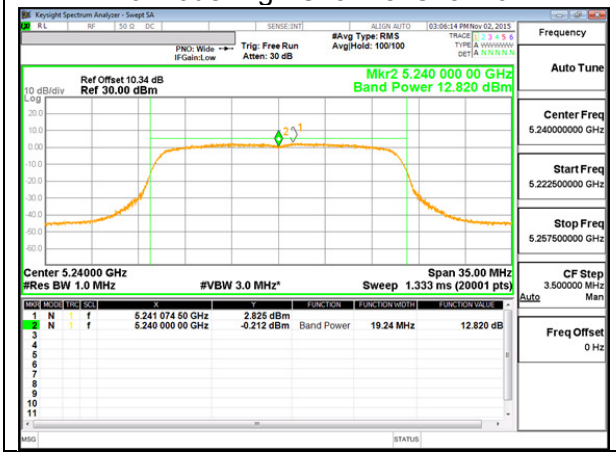


11n HT20 Mode Middle Channel Chain 0

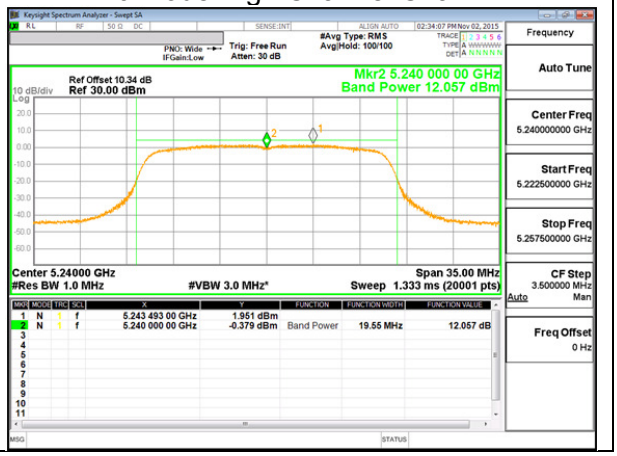


11n HT20 Mode Middle Channel Chain 1

11n HT20 Mode High Channel Chain 0



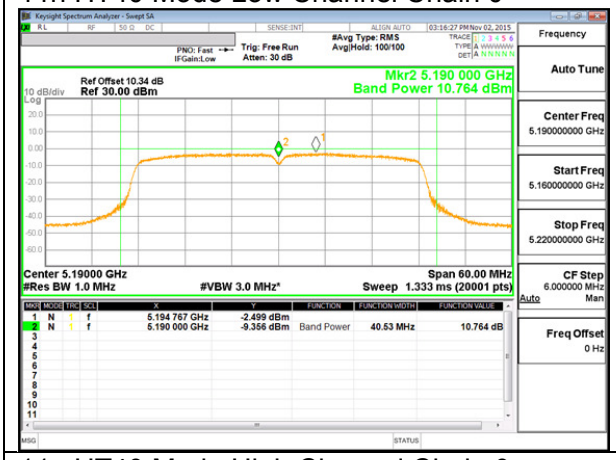
11n HT20 Mode High Channel Chain 1



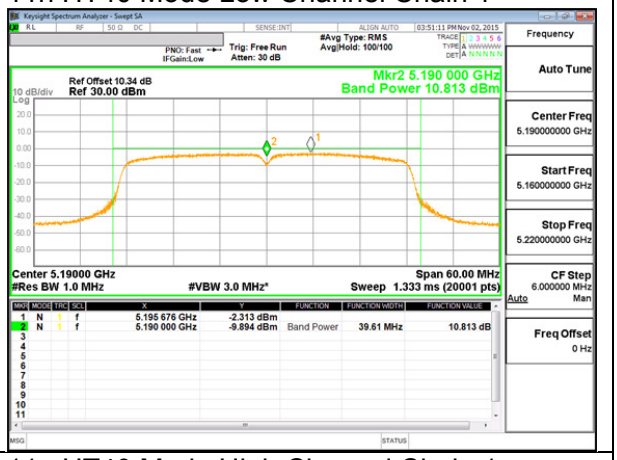
UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902 FAX: (031) 213-5433
UL Korea, Ltd. Confidential
This report shall not be reproduced except in full, without the written approval of UL Korea, Ltd.

UNII 5.2 GHz IEEE 802.11n HT40 mode

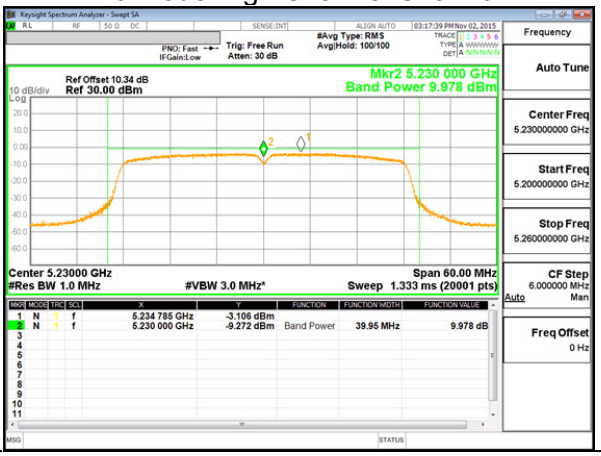
11n HT40 Mode Low Channel Chain 0



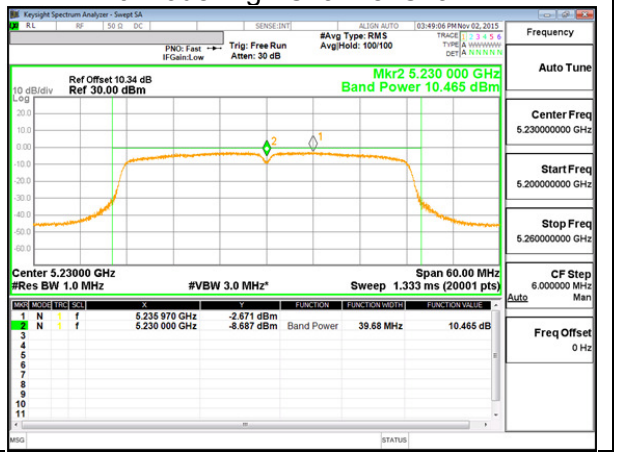
11n HT40 Mode Low Channel Chain 1



11n HT40 Mode High Channel Chain 0

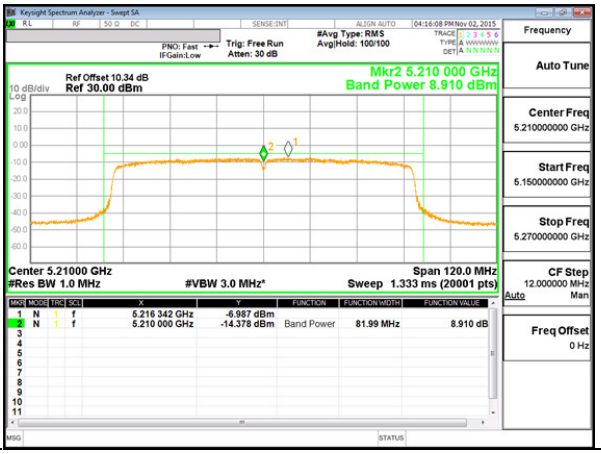


11n HT40 Mode High Channel Chain 1

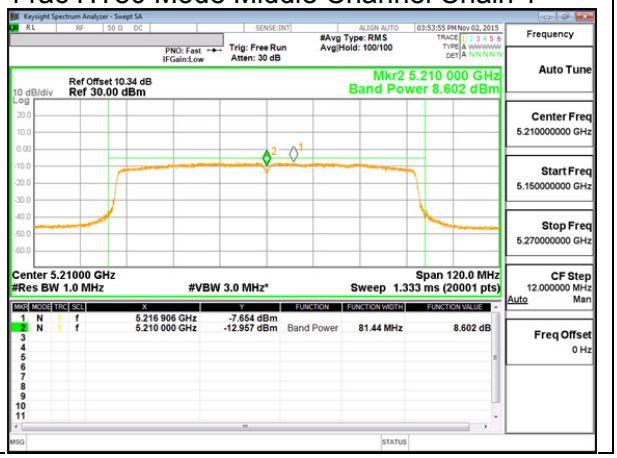


UNII 5.2 GHz IEEE 802.11ac VHT80 mode

11ac HT80 Mode Middle Channel Chain 0



11ac HT80 Mode Middle Channel Chain 1



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.