

RESULTS

ID:	GE43578	Date:	12/12/17
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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	41.10	36.114	-2.92	-0.19
High	5230	41.10	36.159	-2.92	-0.19

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5190	24.00	23.00	25.92	24.00	11.00	10.00	10.19
High	5230	24.00	23.00	25.92	24.00	11.00	10.00	10.19

Duty Cycle CF (dB)	0.39	Included in Calculations of Corr'd PPSD
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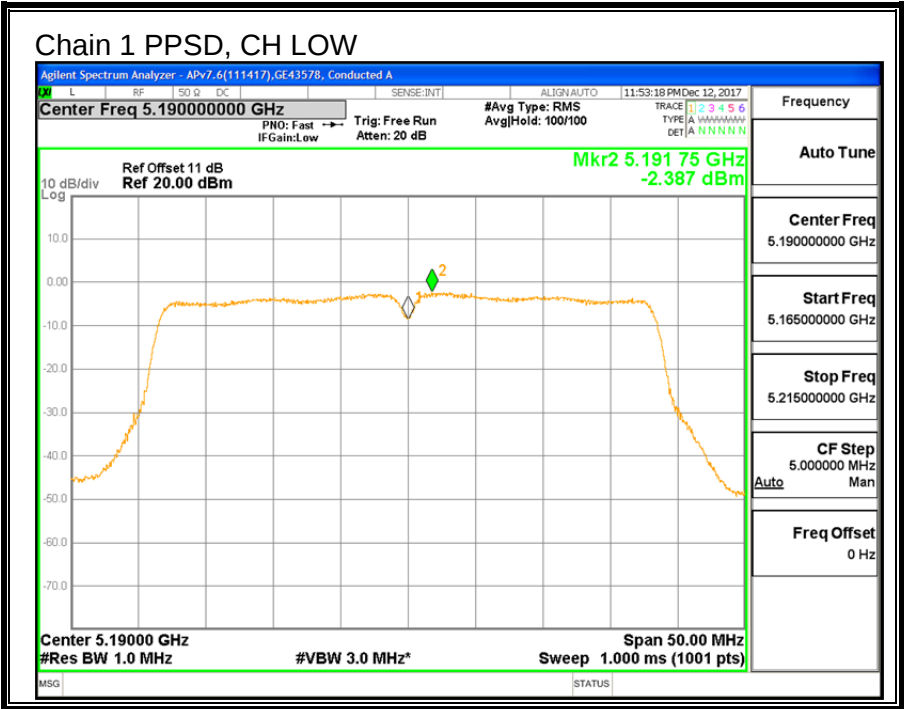
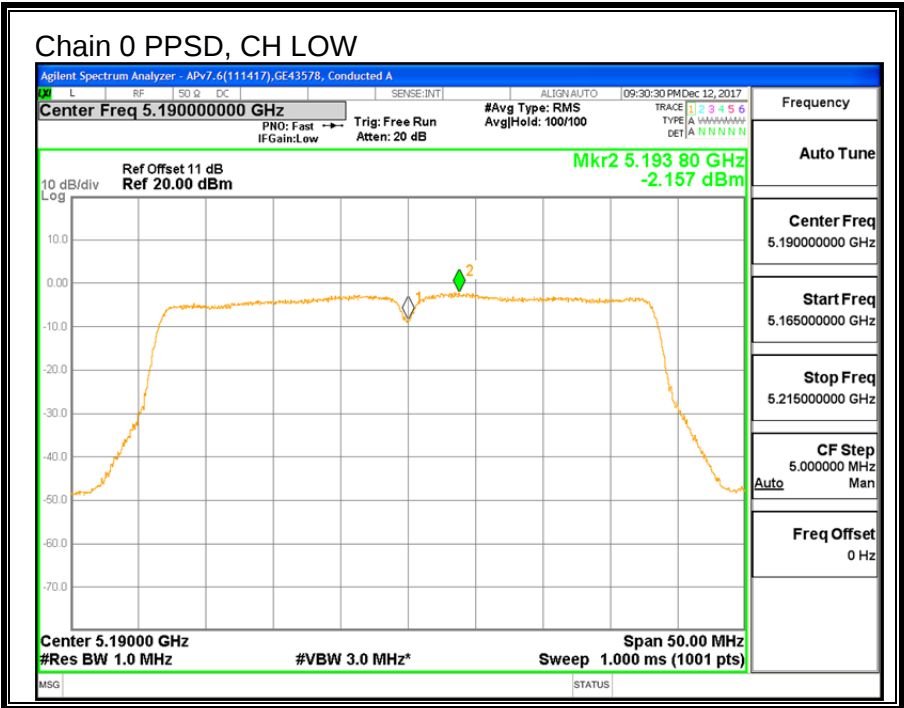
Output Power Results

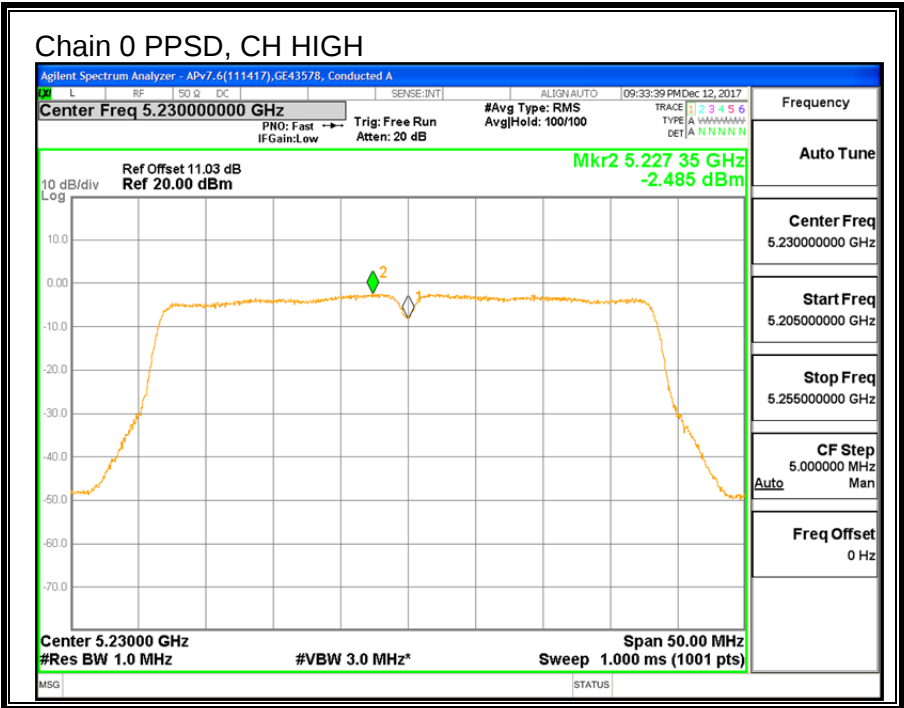
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	11.26	11.30	14.29	24.00	-9.71
High	5230	11.38	11.55	14.48	24.00	-9.52

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	-2.157	-2.387	1.13	10.19	-9.06
High	5230	-2.485	-1.689	1.33	10.19	-8.86

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.





9.4. 11ac HT80 2TX CDD MIMO MODE IN THE 5.2GHz BAND

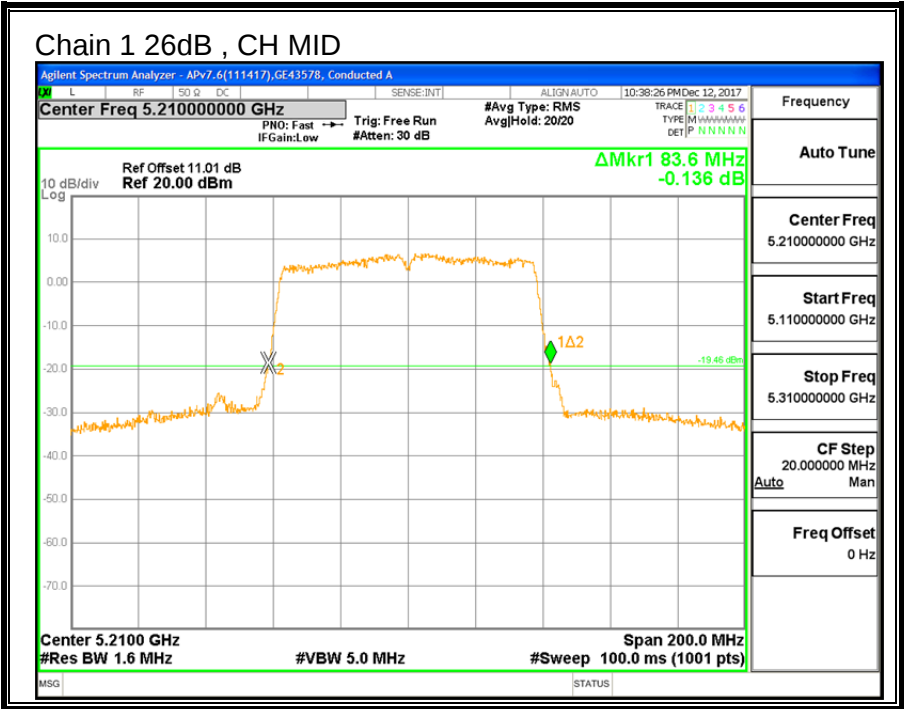
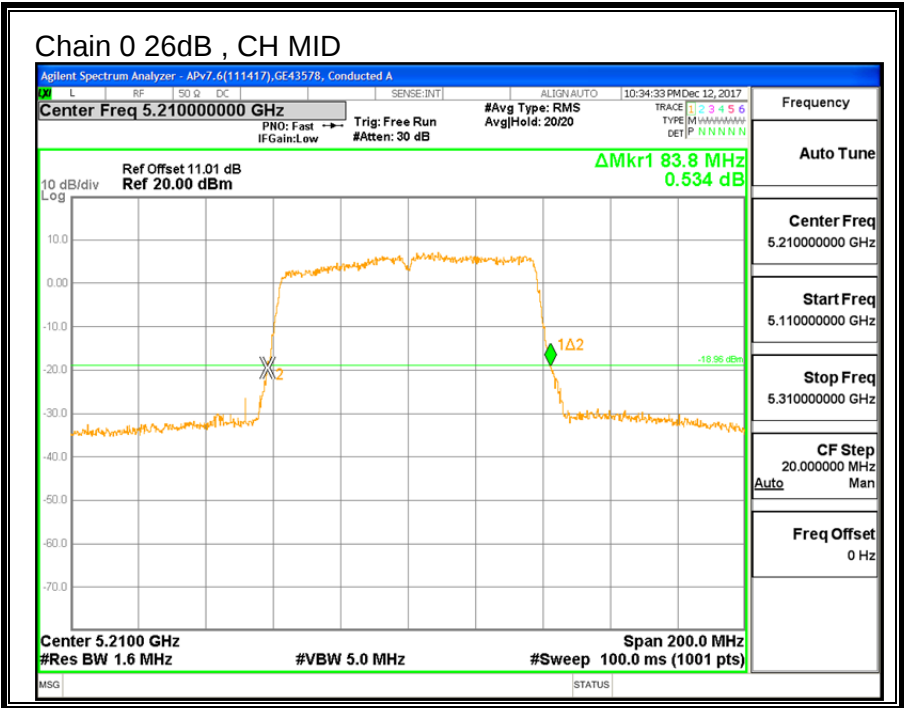
9.4.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Mid	5210	83.8	83.6



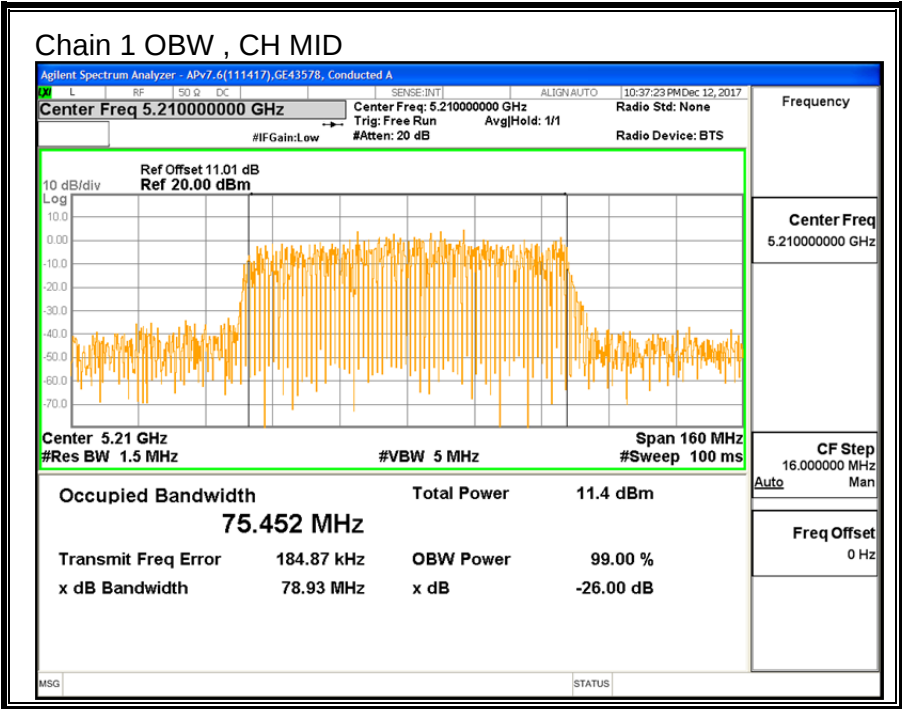
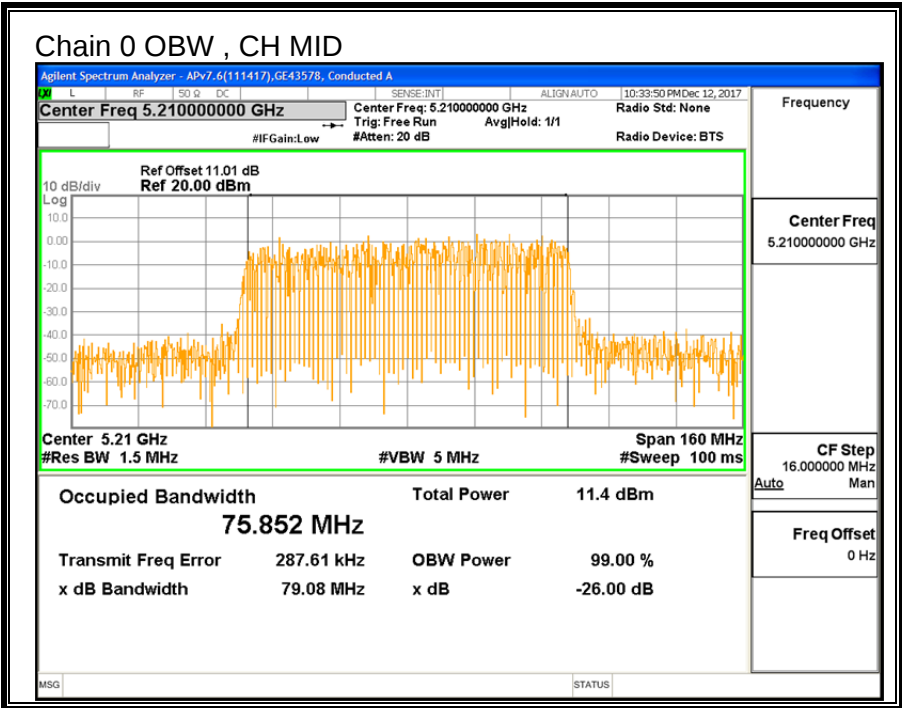
9.4.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Mid	5210	75.852	75.452



9.4.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple colocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. 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.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

For power, the TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

5150-5250 MHz

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
-1.20	-5.80	-2.92

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

5150-5250 MHz

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Correlated Chains Directional Gain (dBi)
-1.20	-5.80	-0.19

RESULTS

ID:	GE43578	Date:	12/12/17
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Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSP (dBi)
Low	5210	83.60	75.452	-2.92	-0.19

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSP Limit (dBm)	IC eirp PSD Limit (dBm)	PPSP Limit (dBm)
Low	5210	24.00	23.00	25.92	24.00	11.00	10.00	10.19

Duty Cycle CF (dB)	0.77	Included in Calculations of Corr'd PPSP
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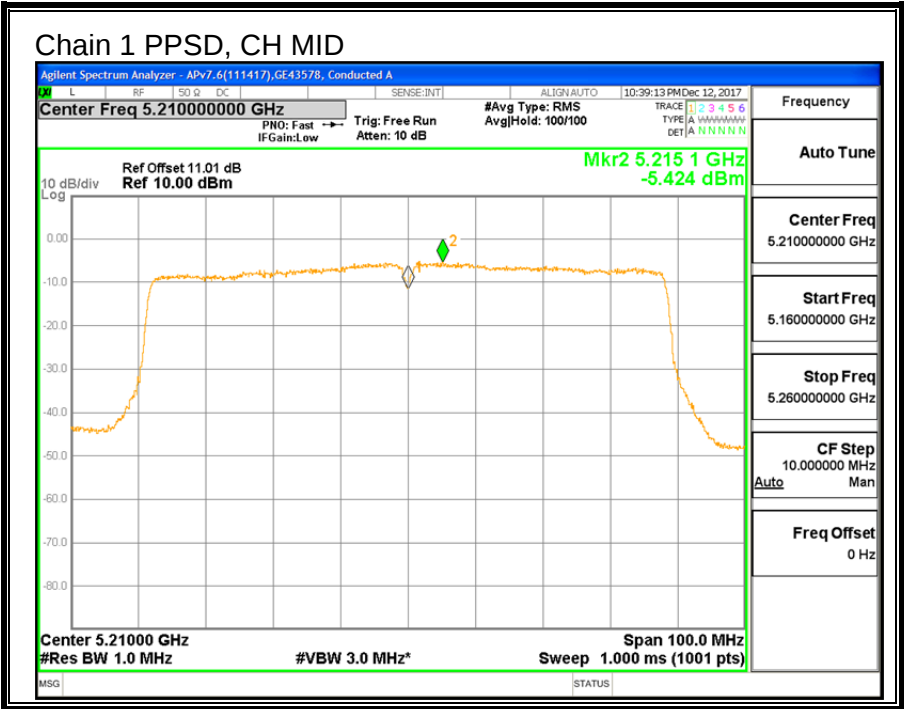
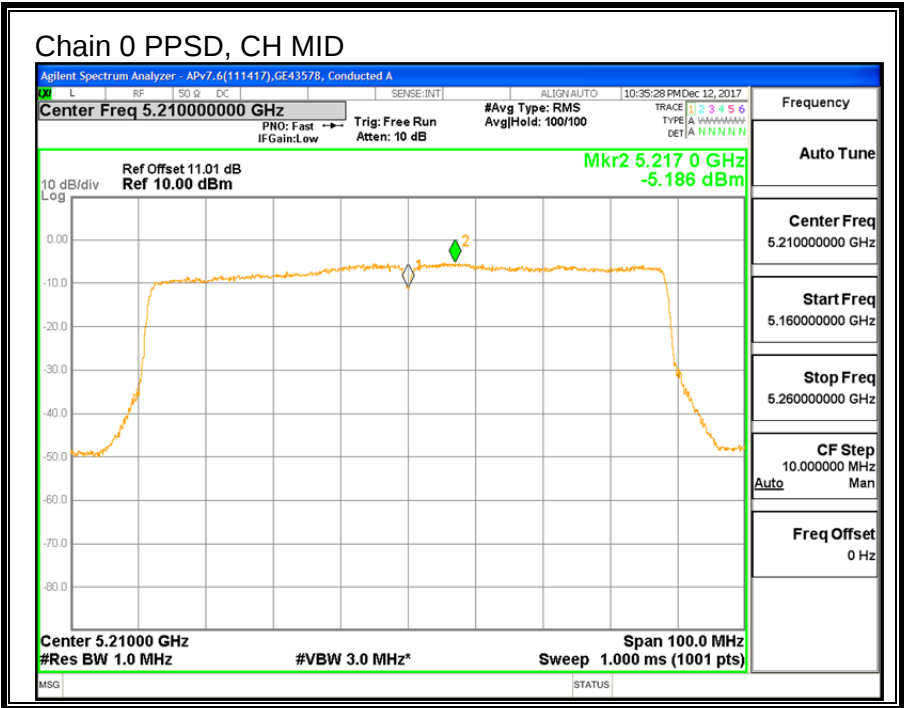
Output Power Results

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	5210	11.60	11.59	14.61	24.00	-9.39

PPSP Results

Channel	Frequency (MHz)	Chain 0 Meas PPSP (dBm)	Chain 1 Meas PPSP (dBm)	Total Corr'd PPSP (dBm)	PPSP Limit (dBm)	PPSP Margin (dB)
Low	5210	-5.186	-5.424	-1.52	10.19	-11.71

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.



9.5. 11a 2TX CDD MIMO MODE IN THE 5.3GHz BAND

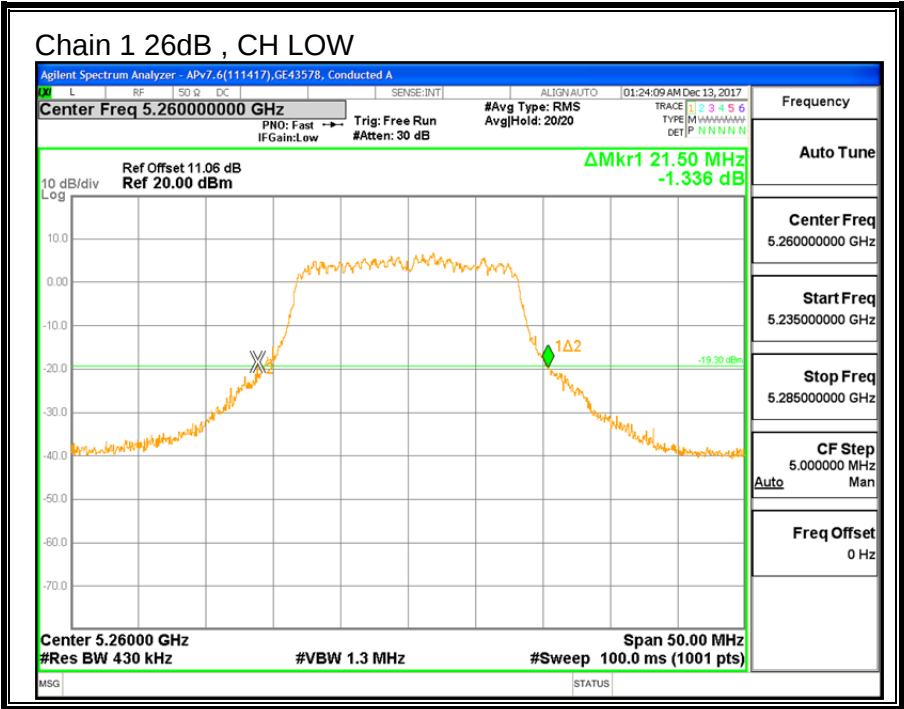
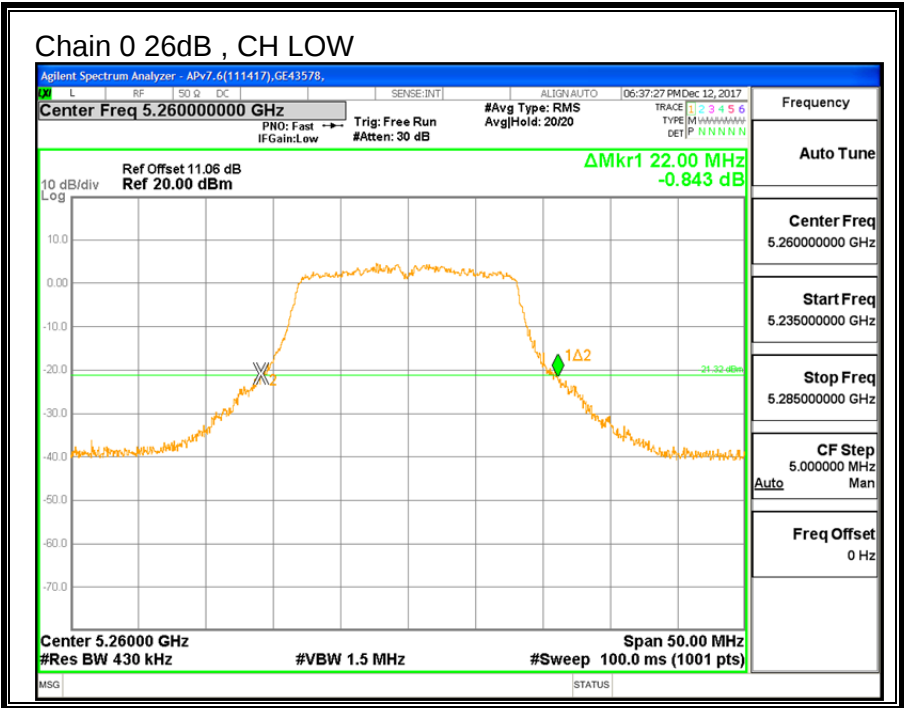
9.5.1. 26 dB BANDWIDTH

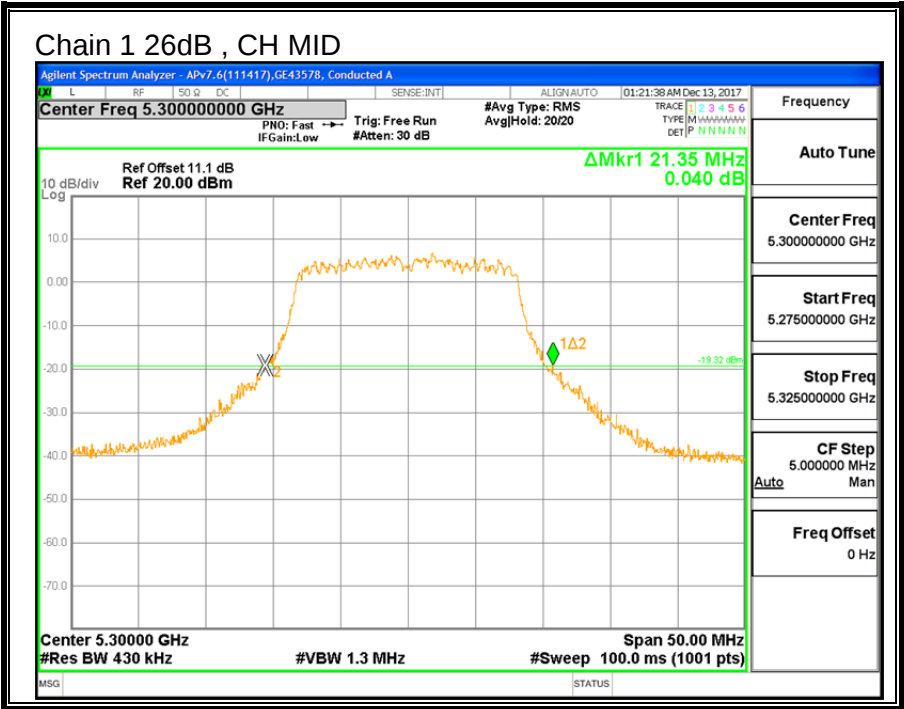
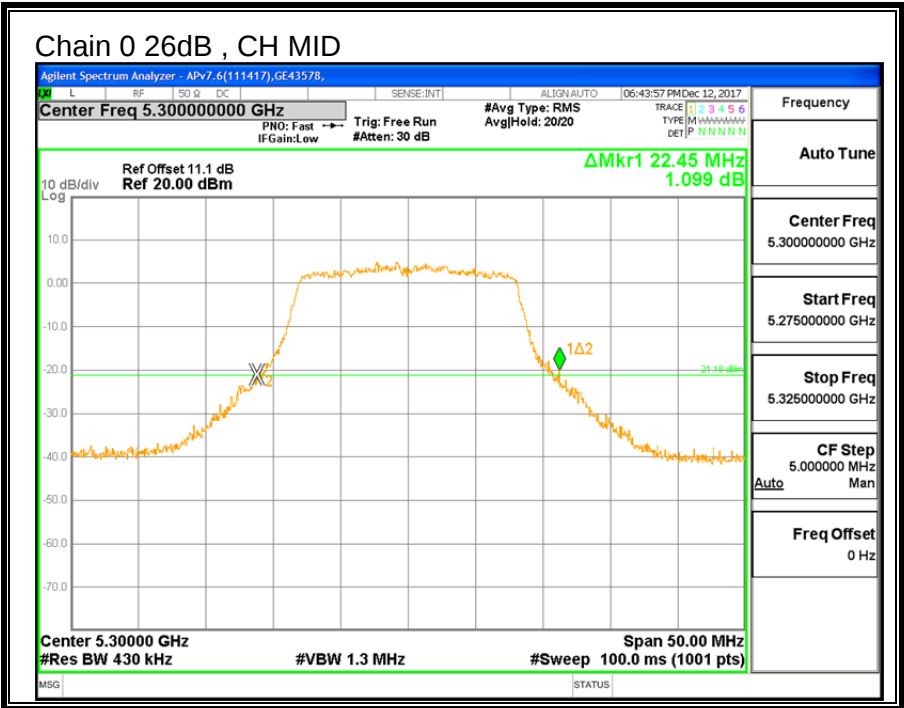
LIMITS

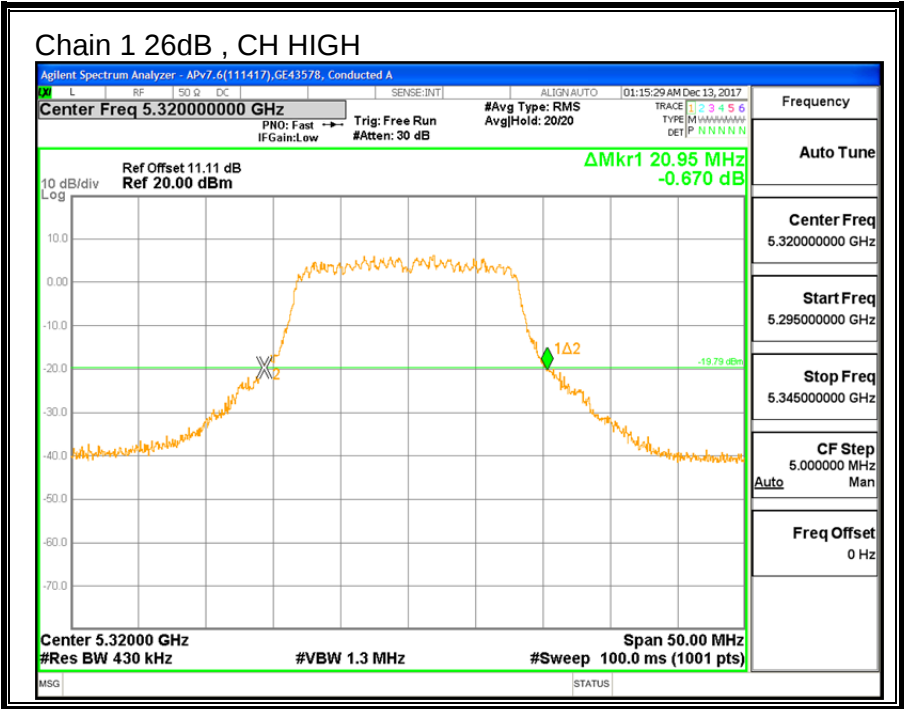
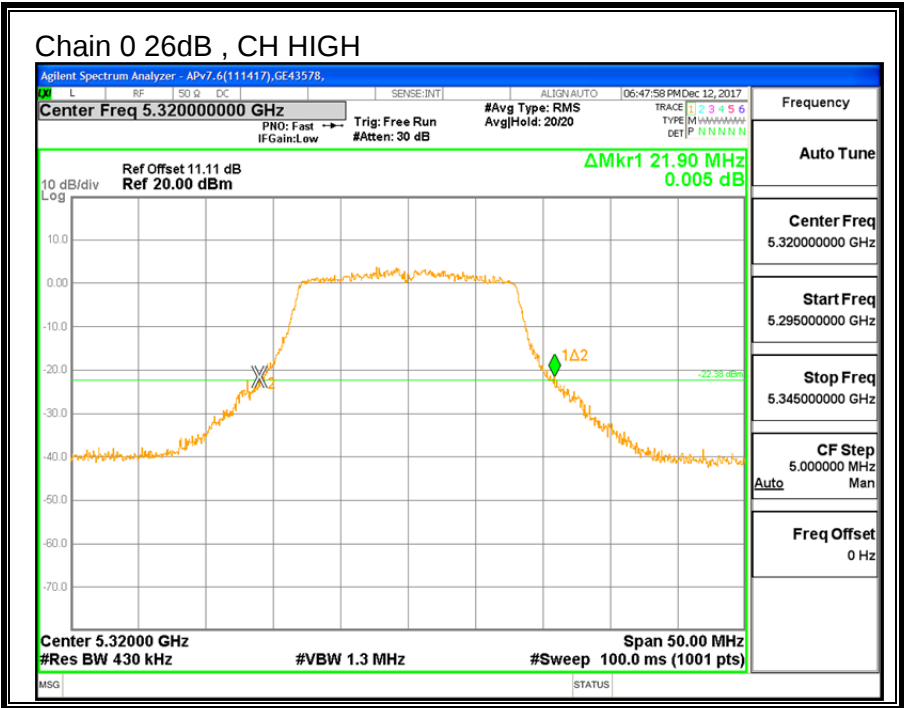
None; for reporting purposes only.

RESULTS

Channel	Frequency	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5260	22.00	21.50
Mid	5300	22.45	21.35
High	5320	21.90	20.95







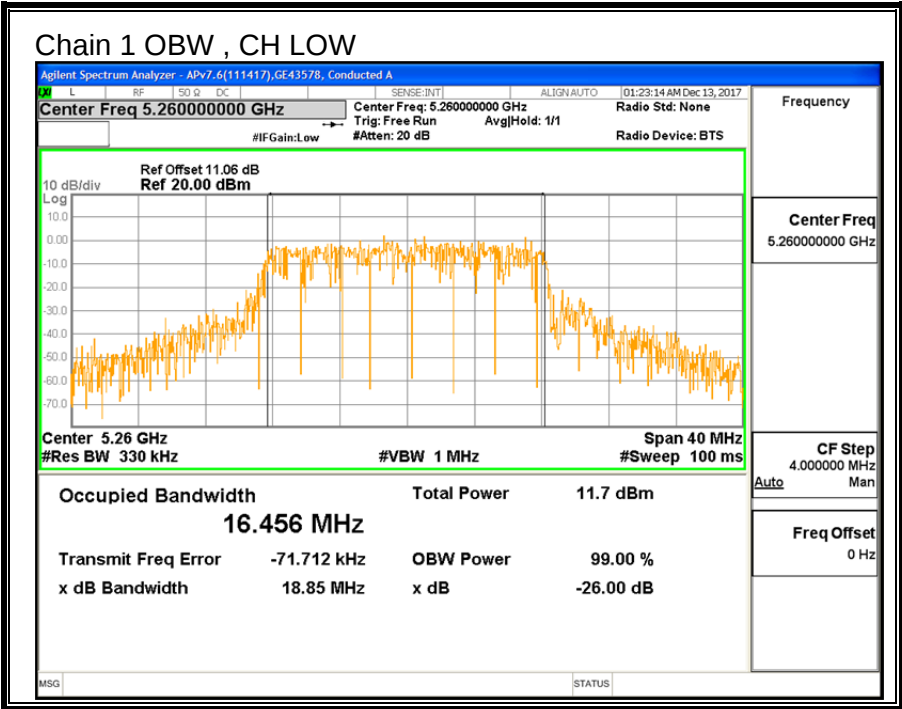
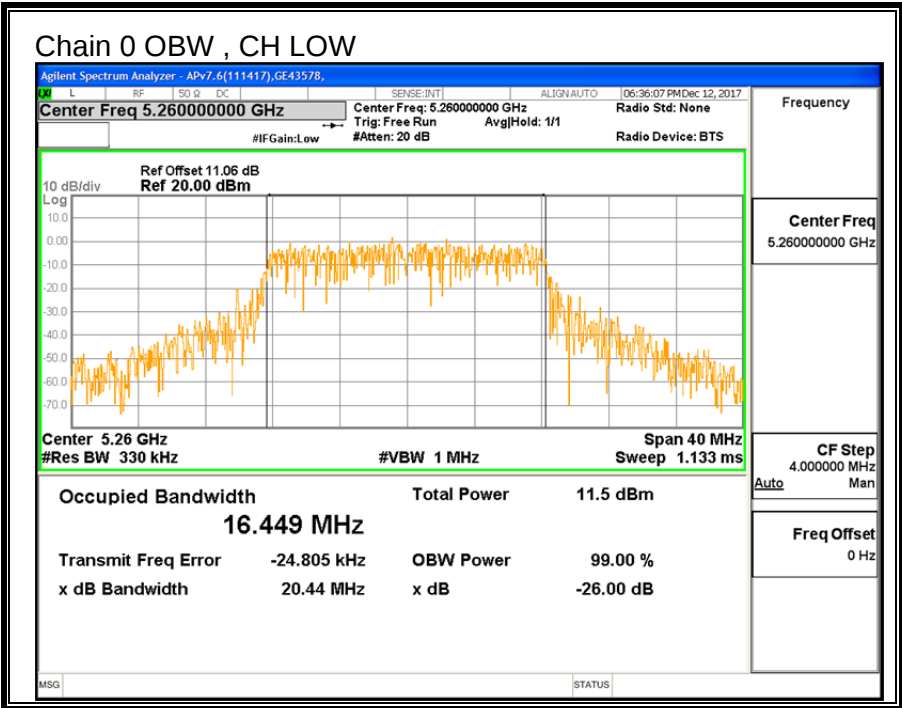
9.5.2. 99% BANDWIDTH

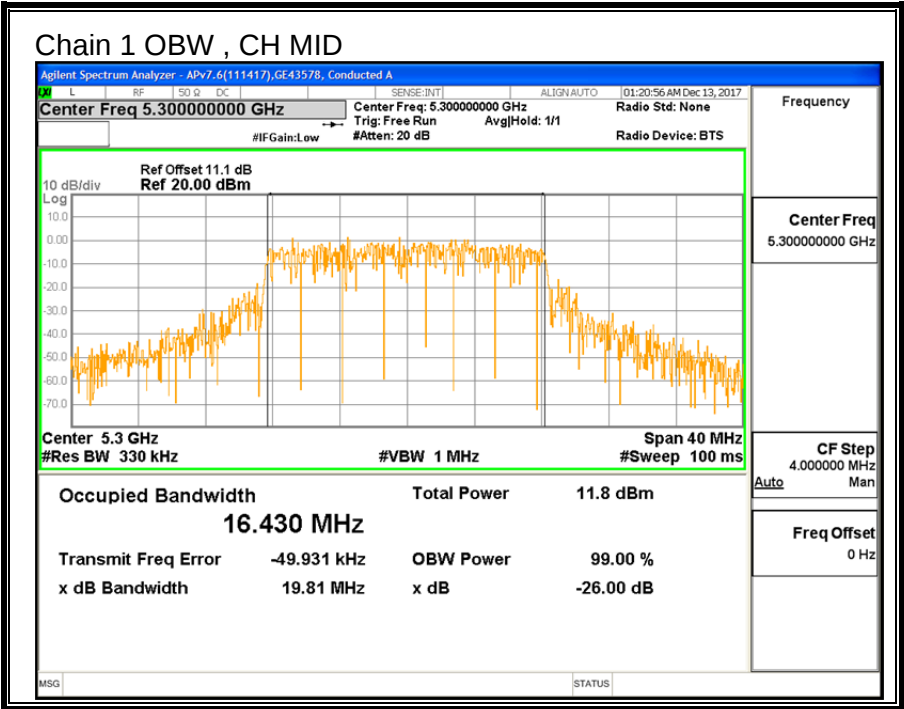
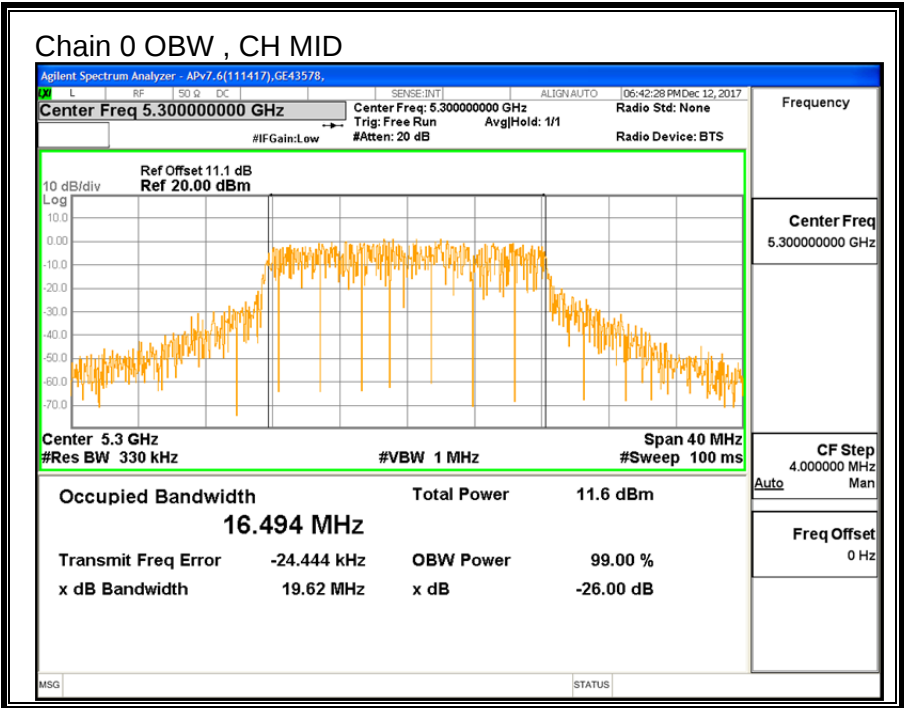
LIMITS

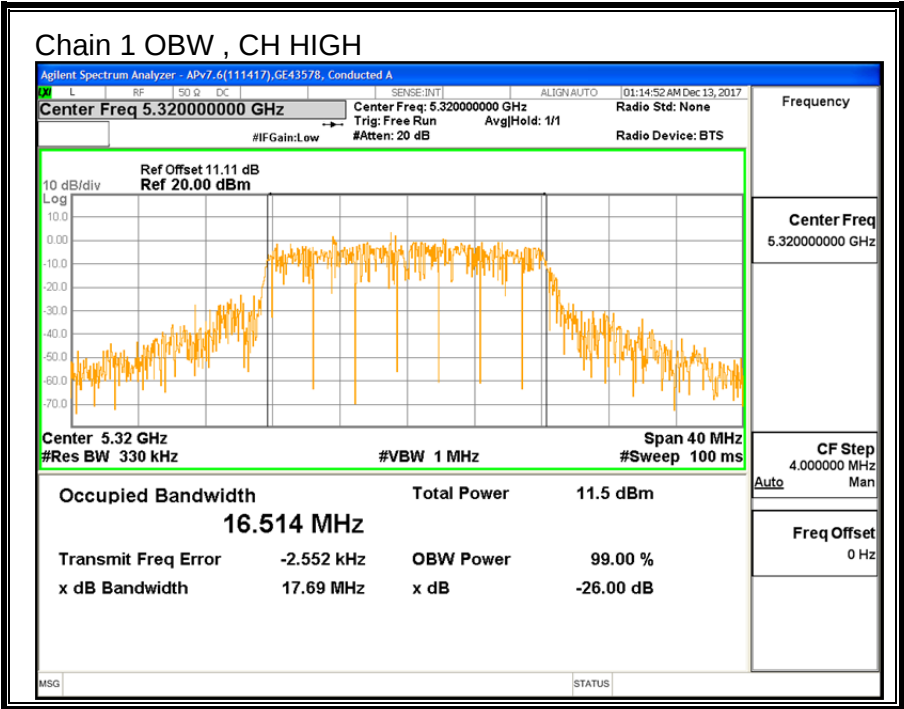
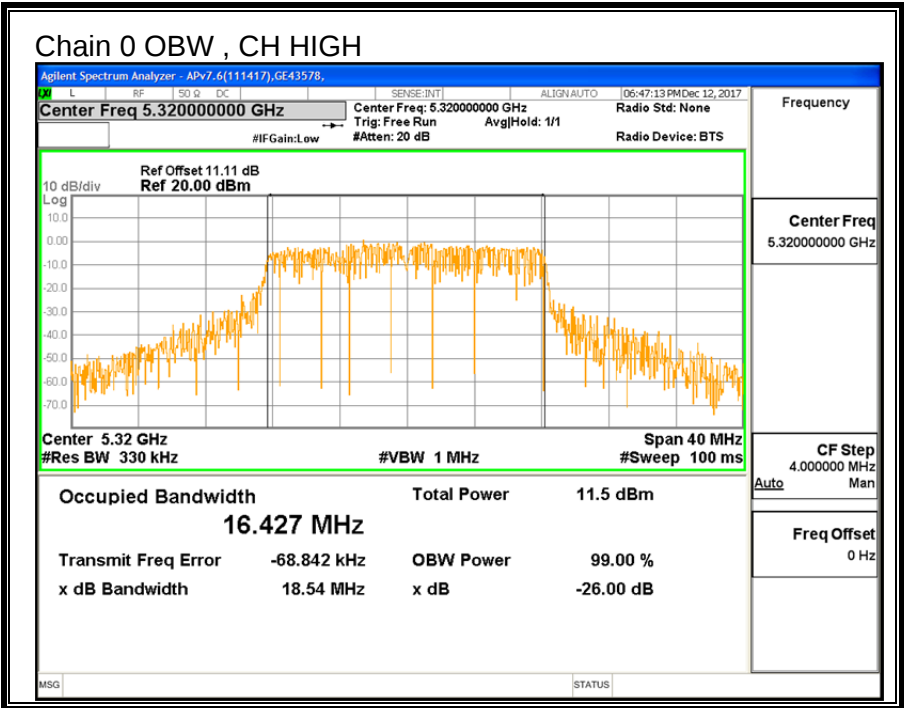
None; for reporting purposes only.

RESULTS

Channel	Frequency	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5260	16.449	16.456
Mid	5300	16.494	16.430
High	5320	16.427	16.514







9.5.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26-dB emission bandwidth in MHz. In addition, the maximum power spectral density 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.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

For power, the TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

5250-5350 MHz

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
-1.20	-5.80	-2.92

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

5250-5230 MHz

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Correlated Chains Directional Gain (dBi)
-1.20	-5.80	-0.19

RESULTS

ID:	GE43578	Date:	12/12/17
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Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSP (dBi)
Low	5260	21.50	16.449	-2.92	-0.19
Mid	5300	21.35	16.430	-2.92	-0.19
High	5320	20.95	16.427	-2.92	-0.19

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSP Limit (dBm)	IC PSD Limit (dBm)	PPSP Limit (dBm)
Low	5260	24.00	23.16	29.16	23.16	11.00	11.00	11.00
Mid	5300	24.00	23.16	29.16	23.16	11.00	11.00	11.00
High	5320	24.00	23.16	29.16	23.16	11.00	11.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PPSP
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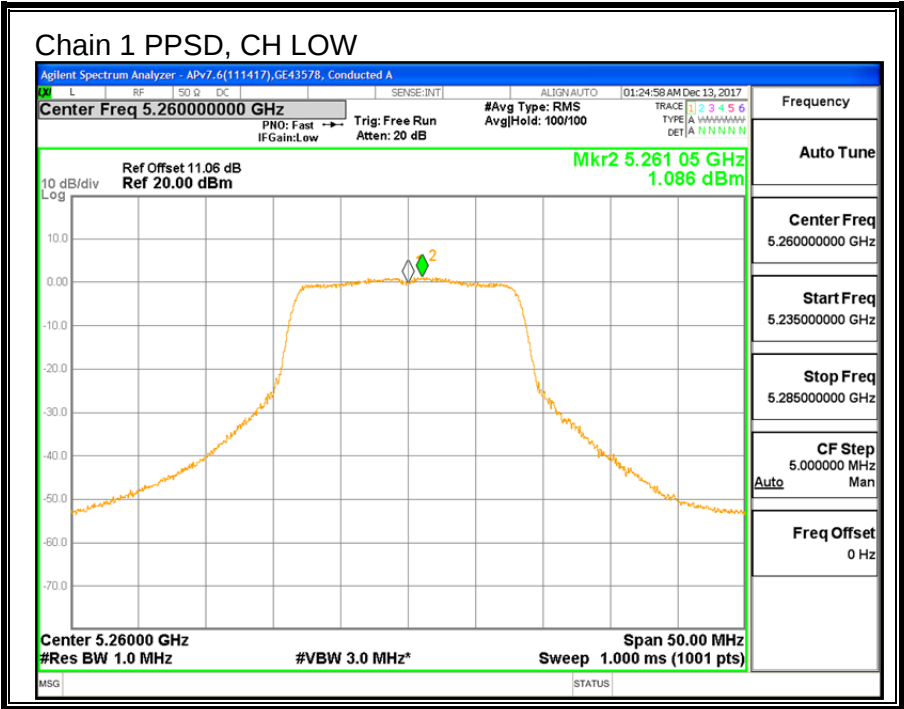
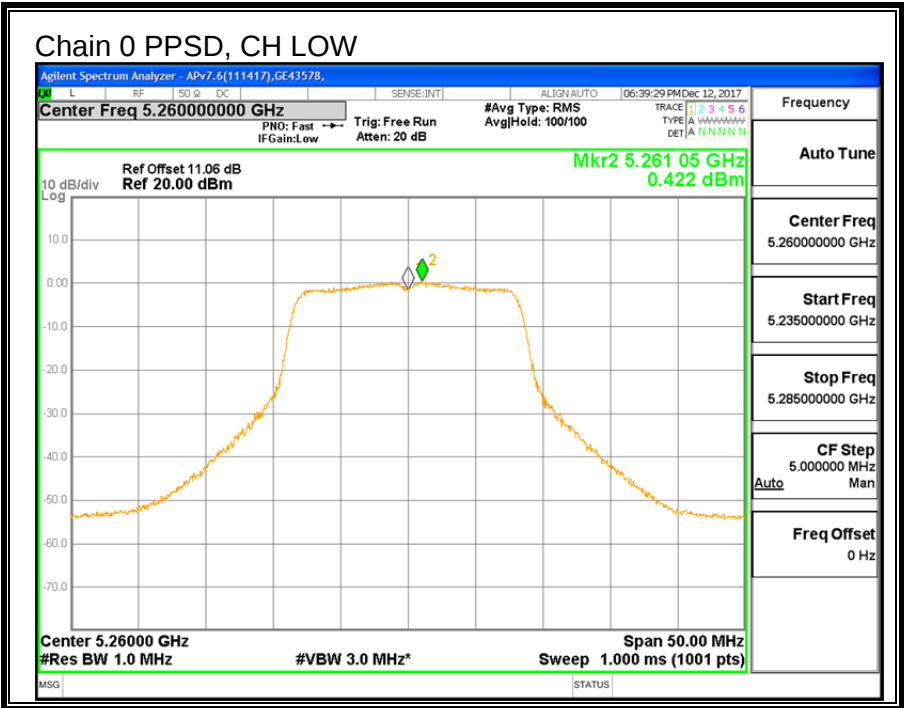
Output Power Results

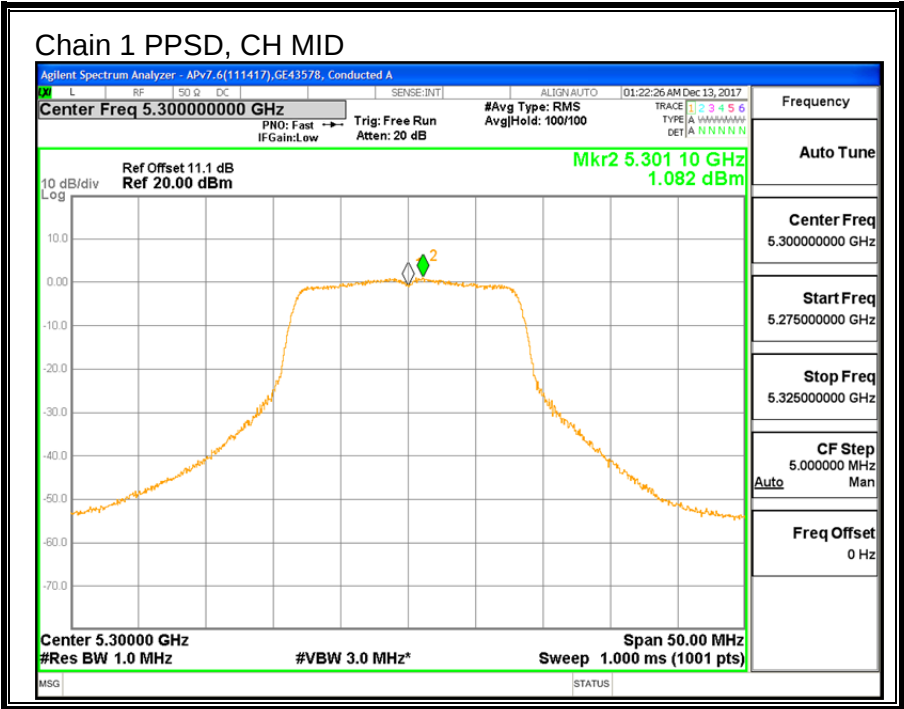
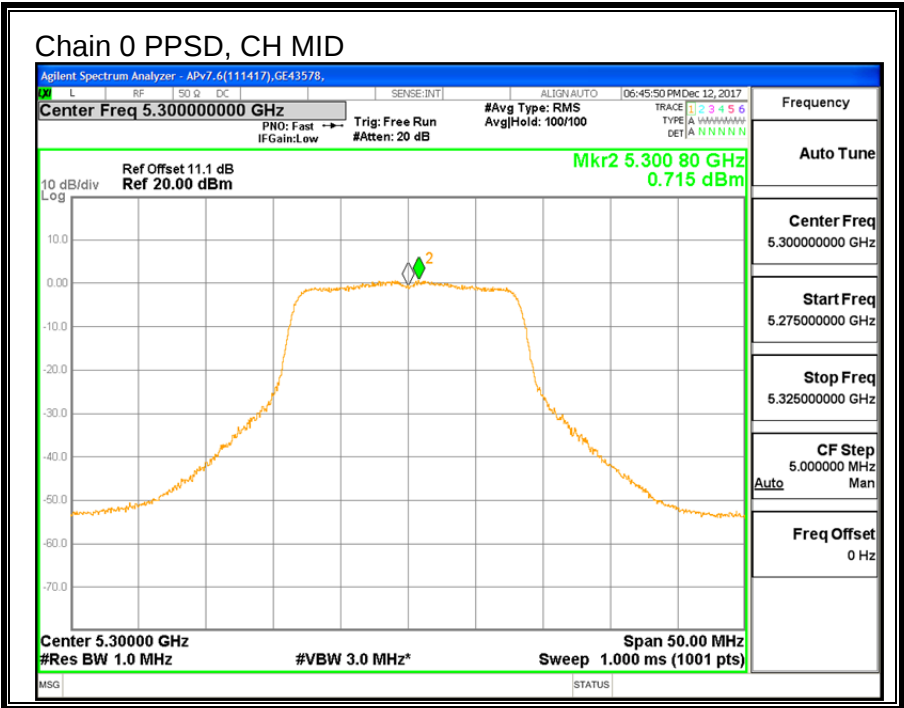
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	11.48	11.70	14.60	23.16	-8.56
Mid	5300	11.46	11.42	14.45	23.16	-8.71
High	5320	11.13	11.61	14.39	23.16	-8.77

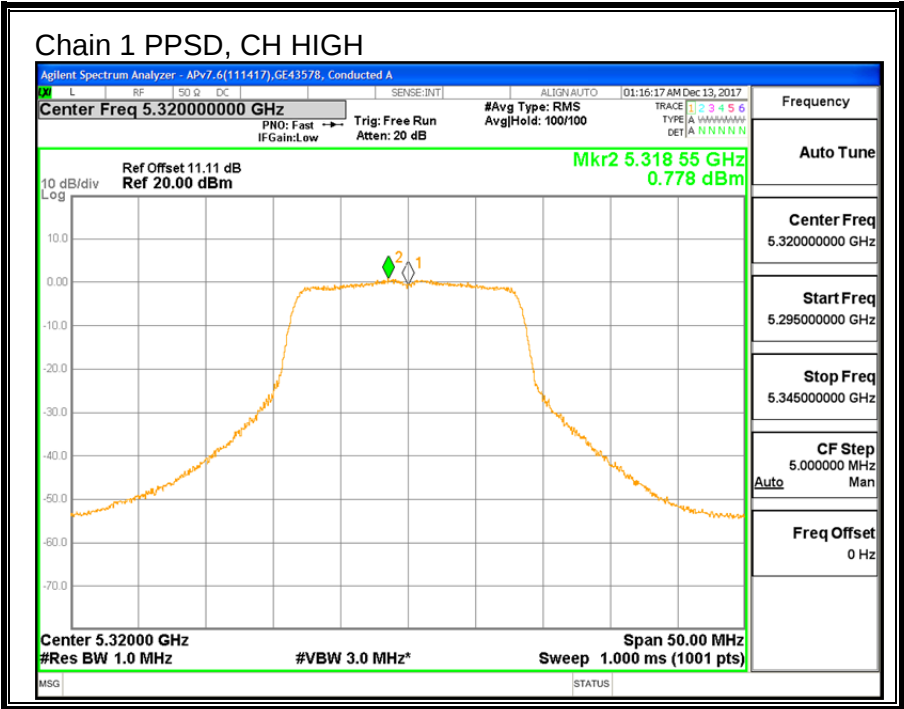
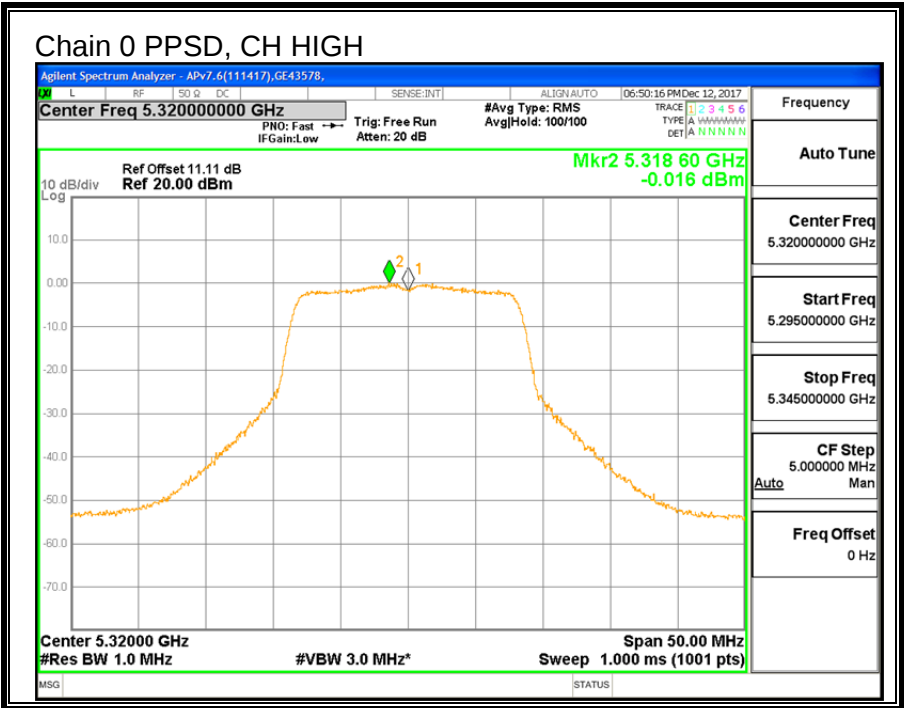
PPSP Results

Channel	Frequency (MHz)	Chain 0 Meas PPSP (dBm)	Chain 1 Meas PPSP (dBm)	Total Corr'd PPSP (dBm)	PPSP Limit (dBm)	PPSP Margin (dB)
Low	5260	0.422	1.086	3.78	11.00	-7.22
Mid	5300	0.715	1.082	3.91	11.00	-7.09
High	5320	-0.016	0.778	3.41	11.00	-7.59

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.







9.6. 11n HT20 2TX CDD MIMO MODE IN THE 5.3GHz BAND

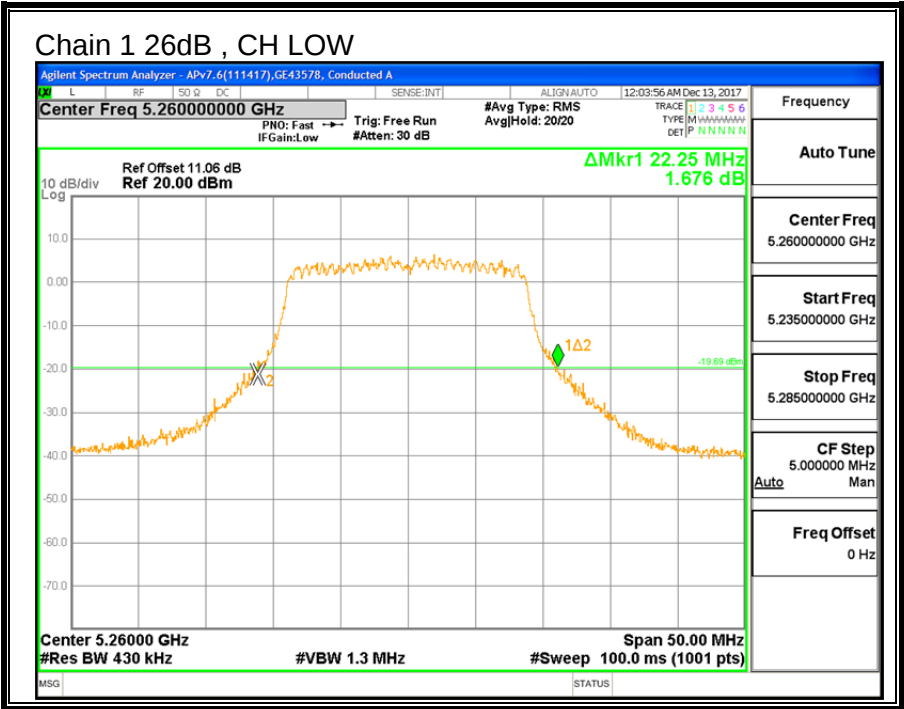
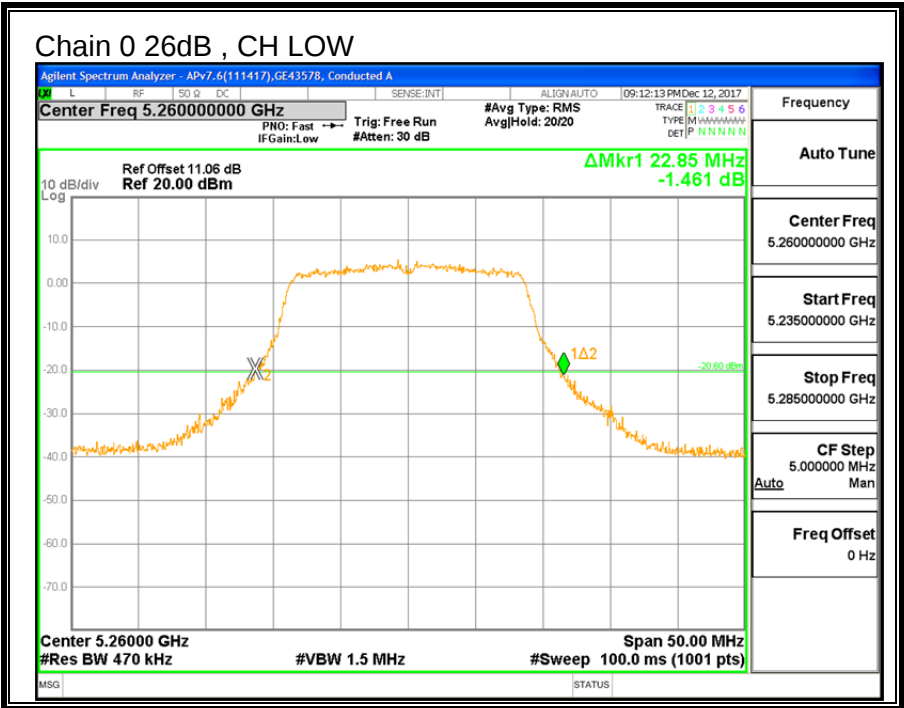
9.6.1. 26 dB BANDWIDTH

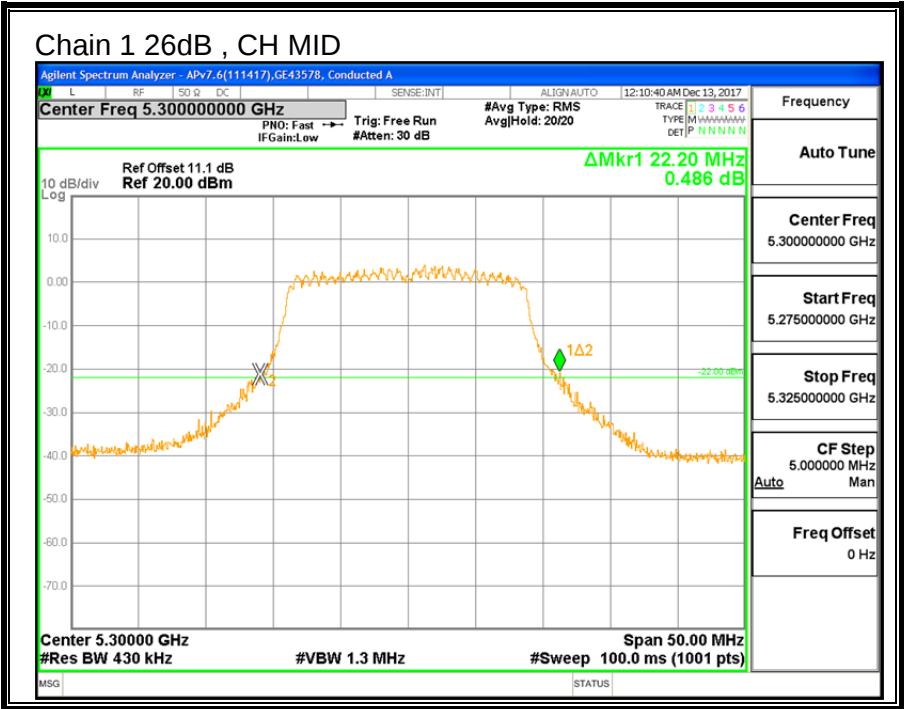
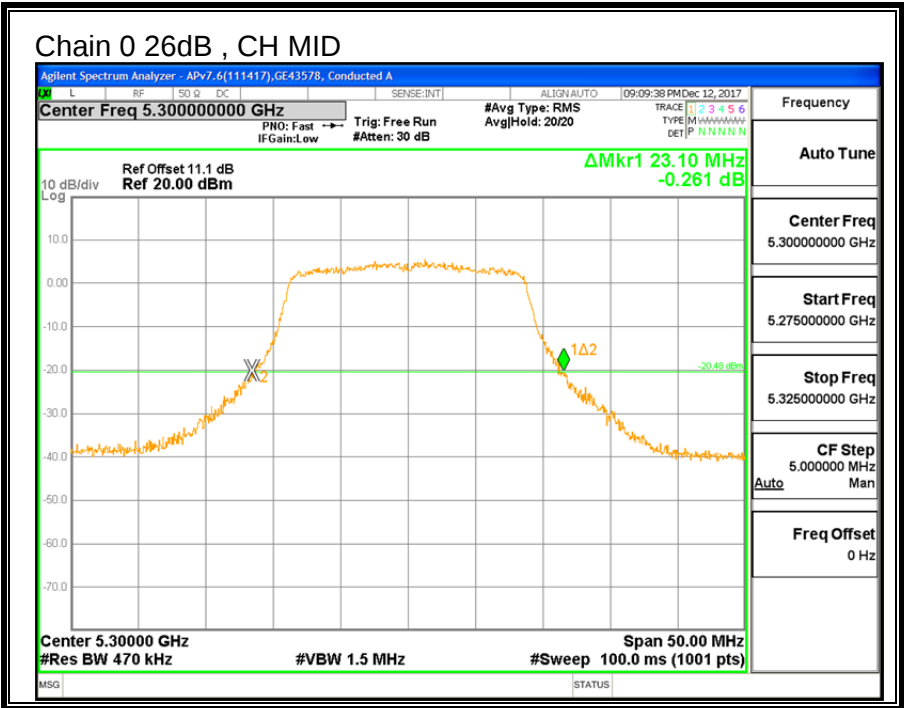
LIMITS

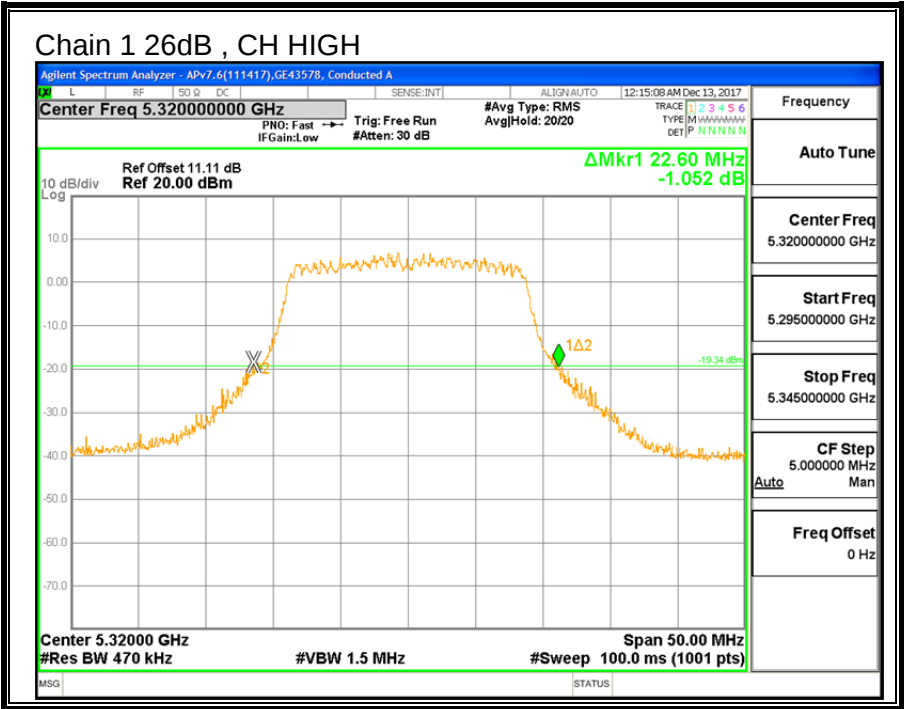
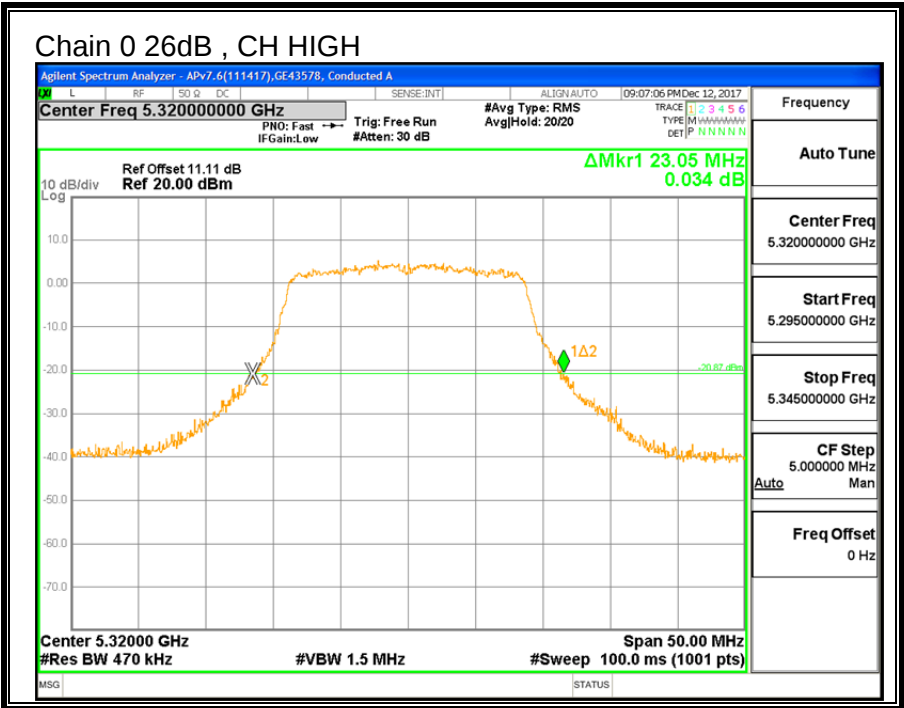
None; for reporting purposes only.

RESULTS

Channel	Frequency	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5260	22.85	22.25
Mid	5300	23.10	22.20
High	5320	23.05	22.60







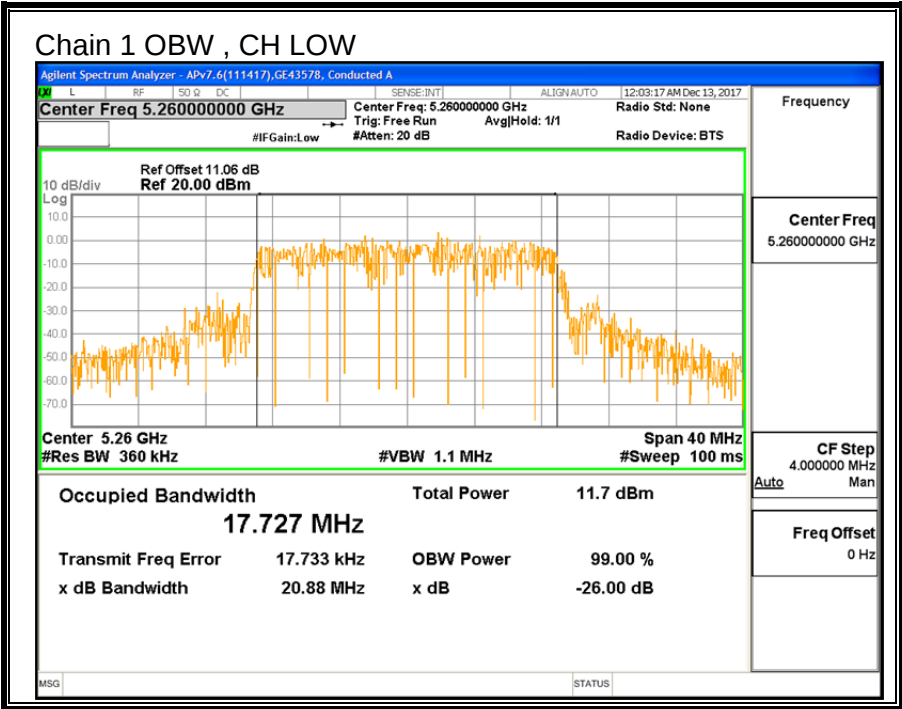
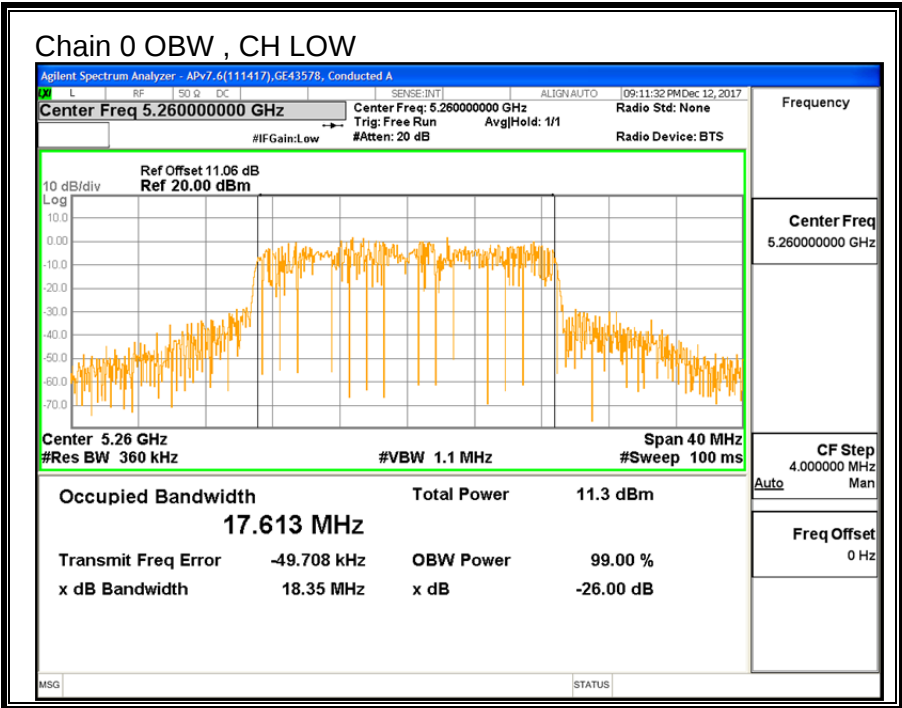
9.6.2. 99% BANDWIDTH

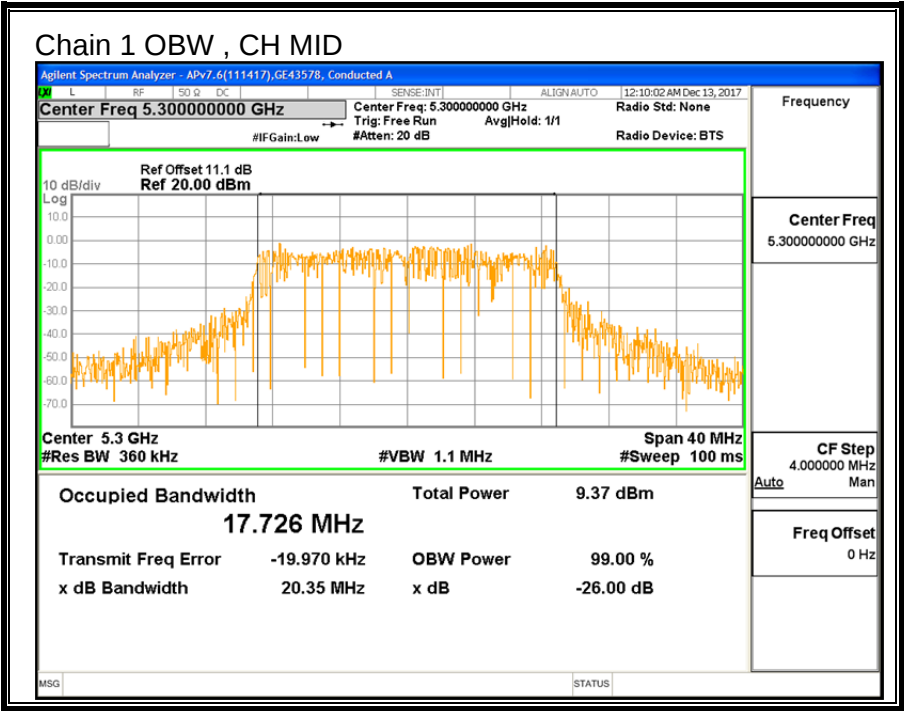
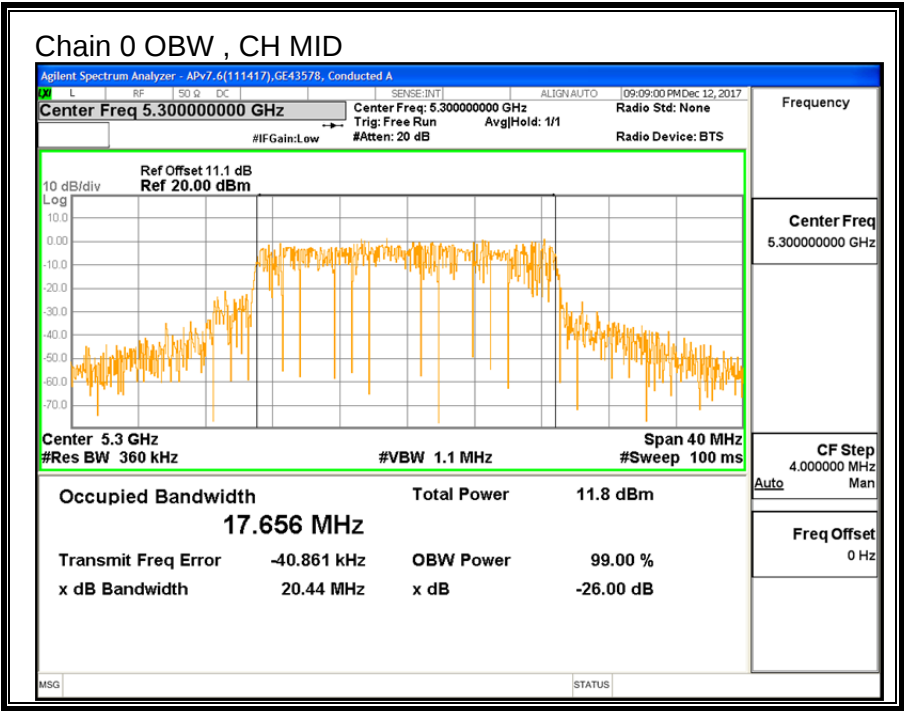
LIMITS

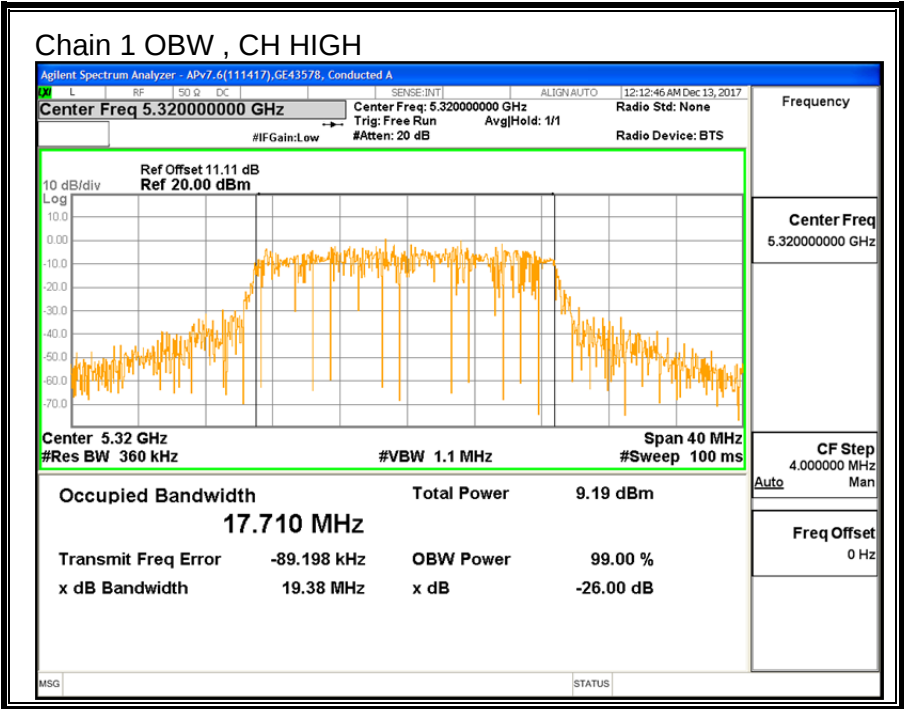
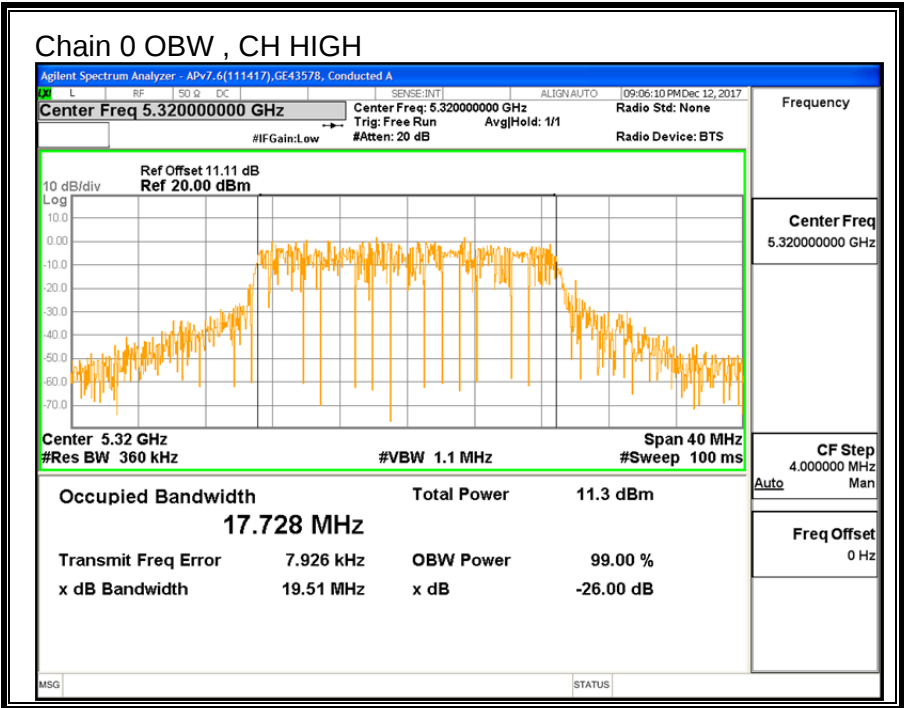
None; for reporting purposes only.

RESULTS

Channel	Frequency	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5260	17.613	17.727
Mid	5300	17.656	17.726
High	5320	17.728	17.710







9.6.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26-dB emission bandwidth in MHz. In addition, the maximum power spectral density 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.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

For power, the TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

5250-5350 MHz

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
-1.20	-5.80	-2.92

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

5250-5230 MHz

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Correlated Chains Directional Gain (dBi)
-1.20	-5.80	-0.19

RESULTS

ID:	GE43578	Date:	12/12/17
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Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSP (dBi)
Low	5260	22.25	17.613	-2.92	-0.19
Mid	5300	22.20	17.656	-2.92	-0.19
High	5320	22.60	17.710	-2.92	-0.19

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSP Limit (dBm)	IC PSD Limit (dBm)	PPSP Limit (dBm)
Low	5260	24.00	23.46	29.46	23.46	11.00	11.00	11.00
Mid	5300	24.00	23.47	29.47	23.47	11.00	11.00	11.00
High	5320	24.00	23.48	29.48	23.48	11.00	11.00	11.00

Duty Cycle CF (dB)	0.11	Included in Calculations of Corr'd PPSP
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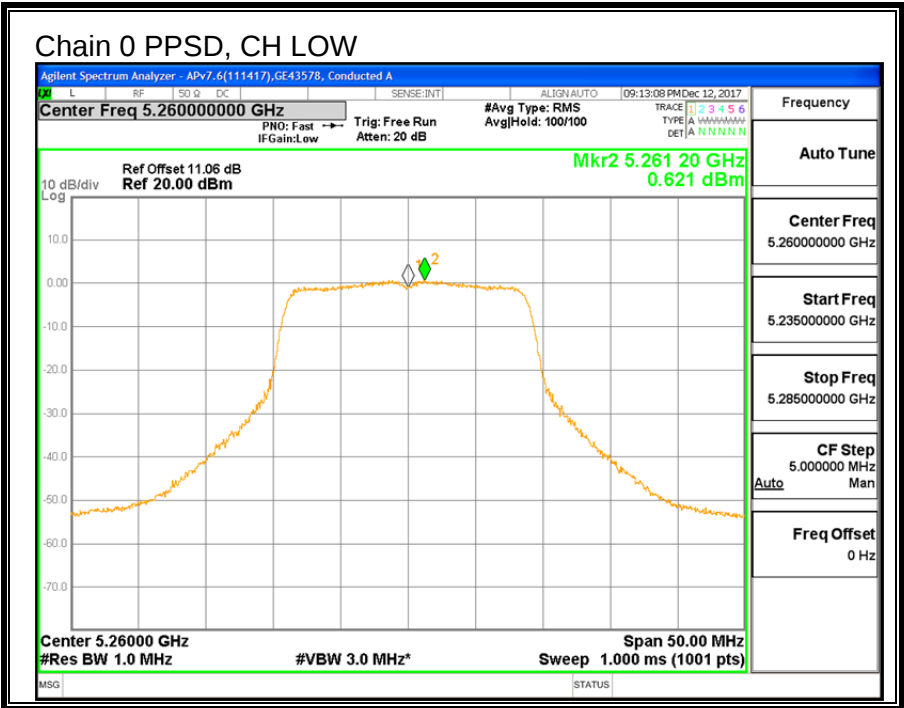
Output Power Results

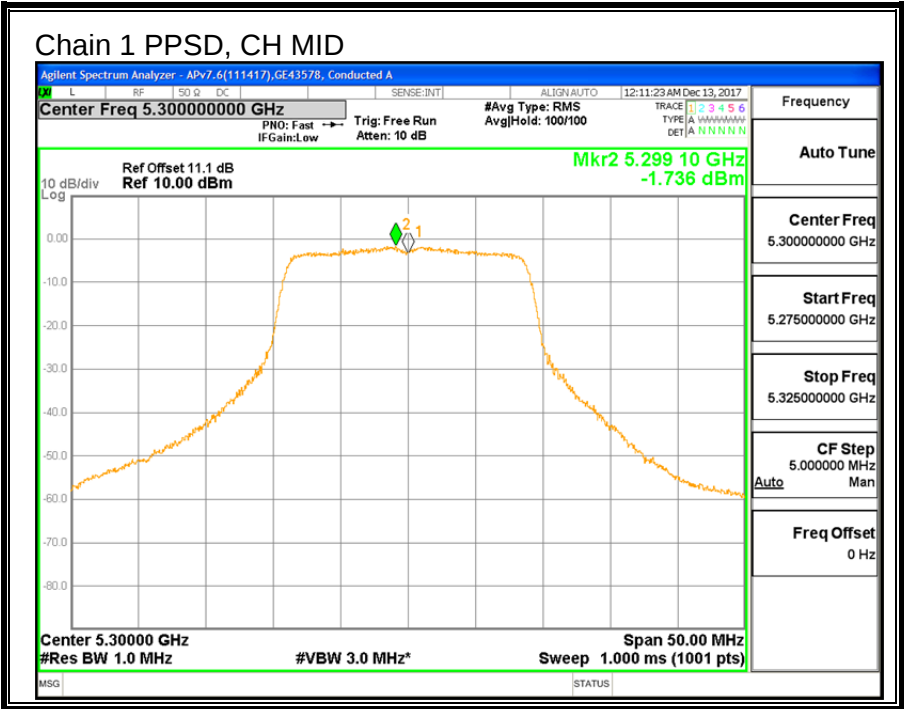
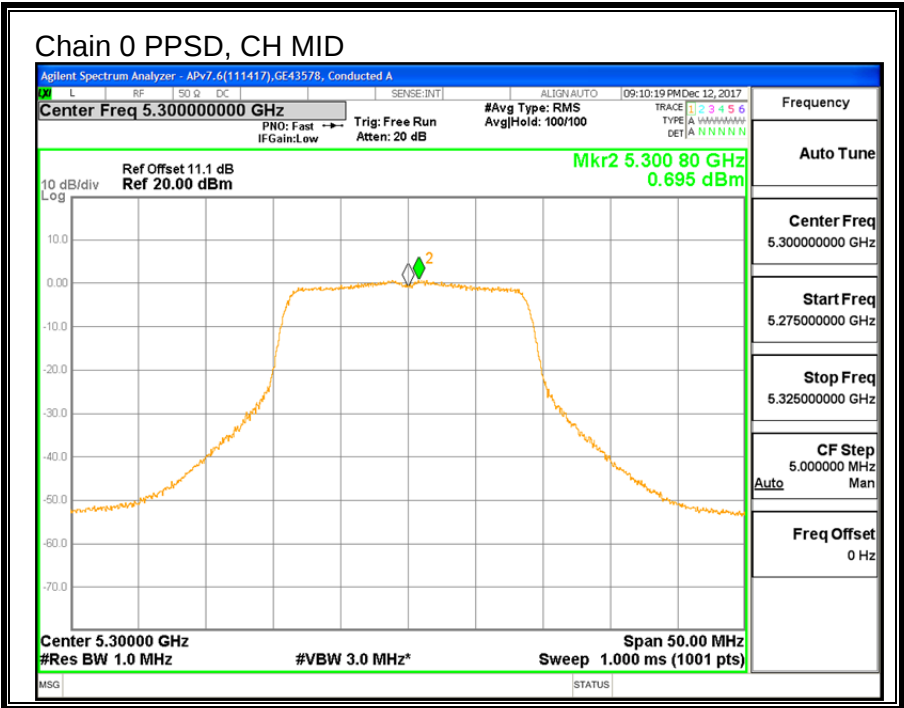
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	11.35	11.76	14.57	23.46	-8.89
Mid	5300	11.43	11.67	14.56	23.47	-8.91
High	5320	11.15	11.40	14.29	23.48	-9.20

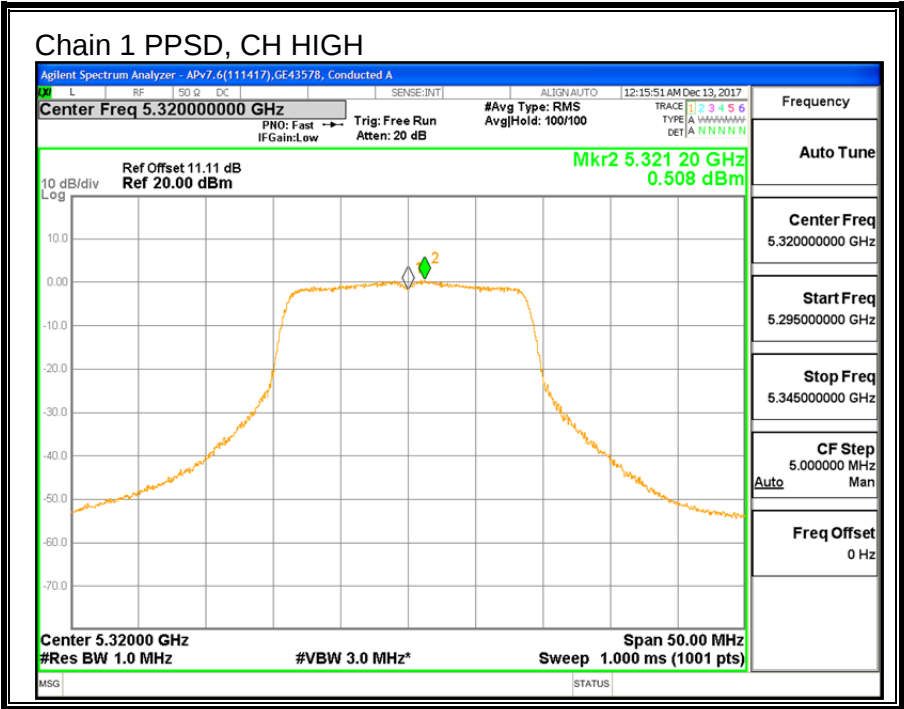
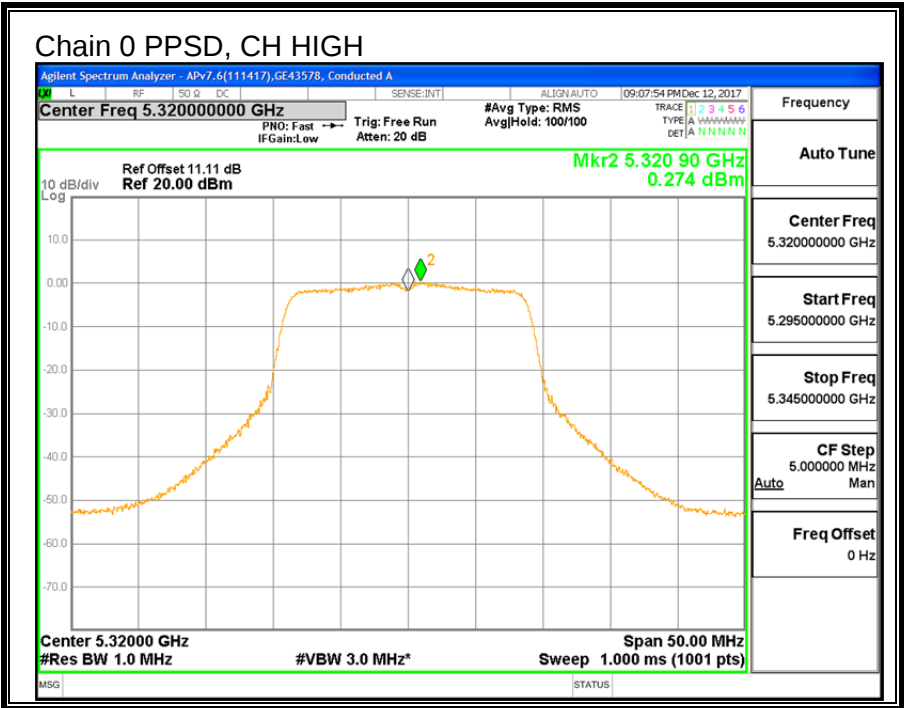
PPSP Results

Channel	Frequency (MHz)	Chain 0 Meas PPSP (dBm)	Chain 1 Meas PPSP (dBm)	Total Corr'd PPSP (dBm)	PPSP Limit (dBm)	PPSP Margin (dB)
Low	5260	0.621	-0.325	3.29	11.00	-7.71
Mid	5300	0.695	-1.736	2.77	11.00	-8.23
High	5320	0.274	0.508	3.51	11.00	-7.49

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.







9.7. 11n HT40 2TX CDD MIMO MODE IN THE 5.3GHz BAND

9.7.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5270	41.3	41.0
High	5310	41.3	41.2