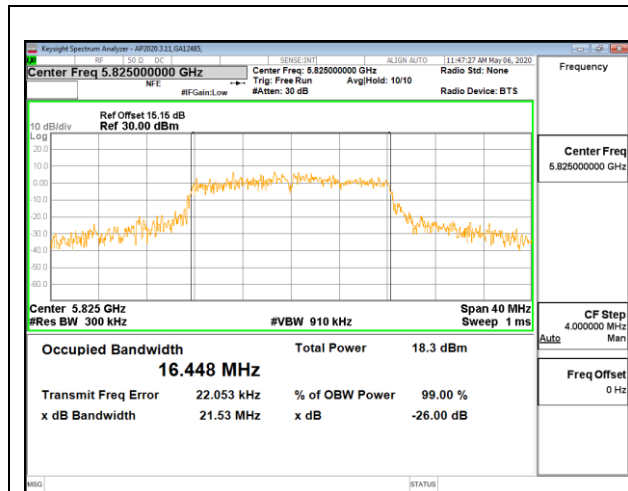
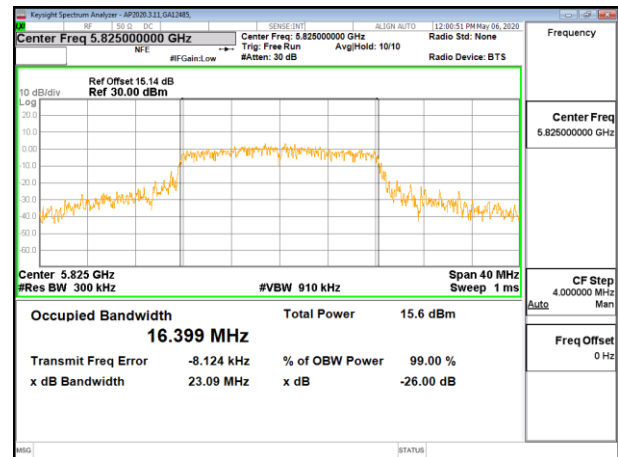


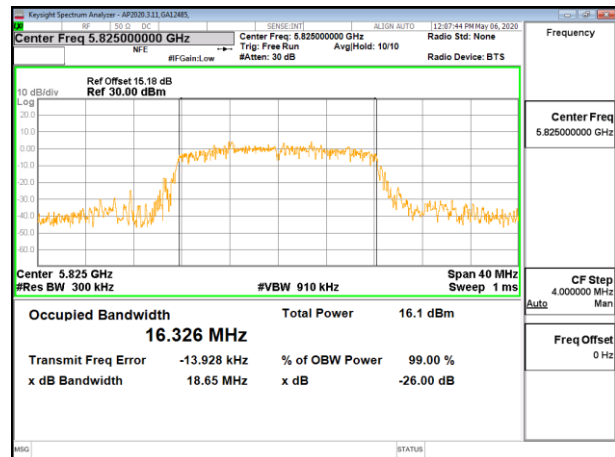
HIGH CHANNEL



HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1

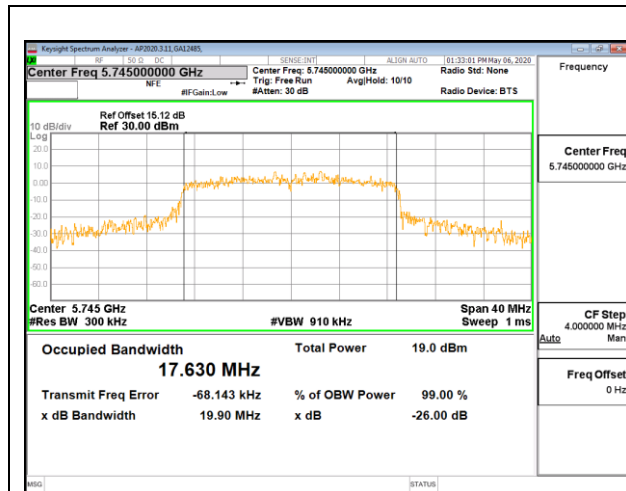


HIGH CHANNEL CHAIN 2

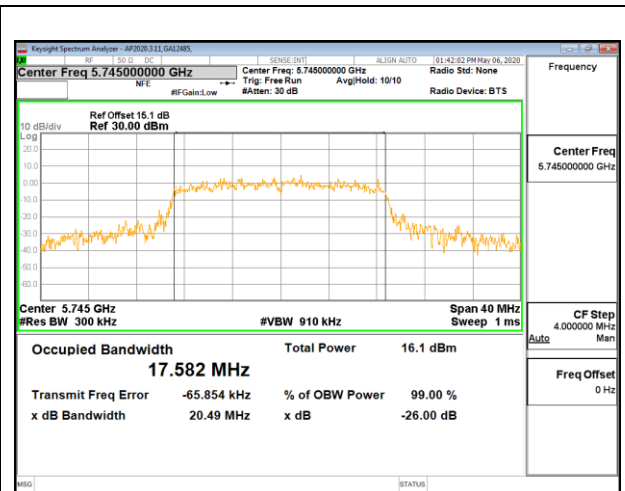
8.3.8. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 3 (MHz)
Low	5745	17.630	17.582	17.628
Mid	5785	17.649	17.511	17.536
High	5825	17.639	17.652	17.595

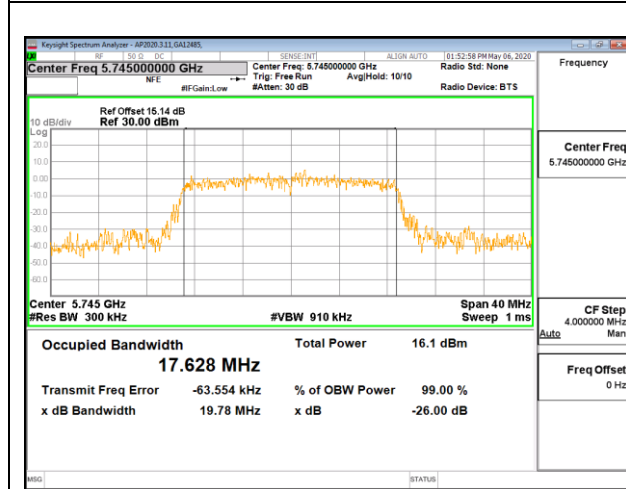
LOW CHANNEL



LOW CHANNEL CHAIN 0

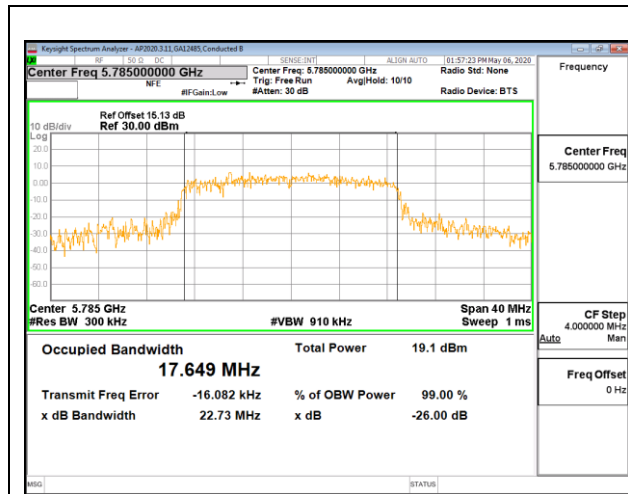


LOW CHANNEL CHAIN 1

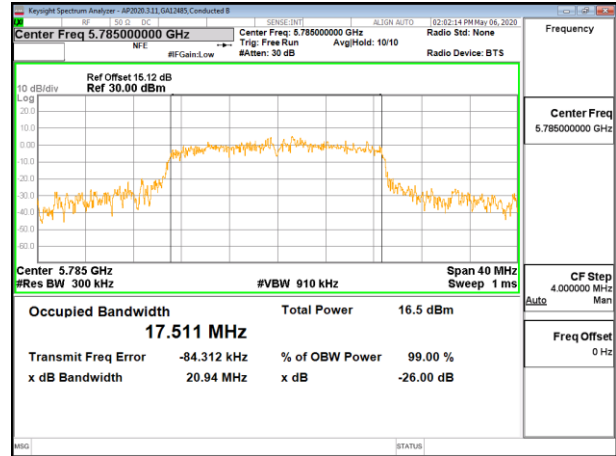


LOW CHANNEL CHAIN 2

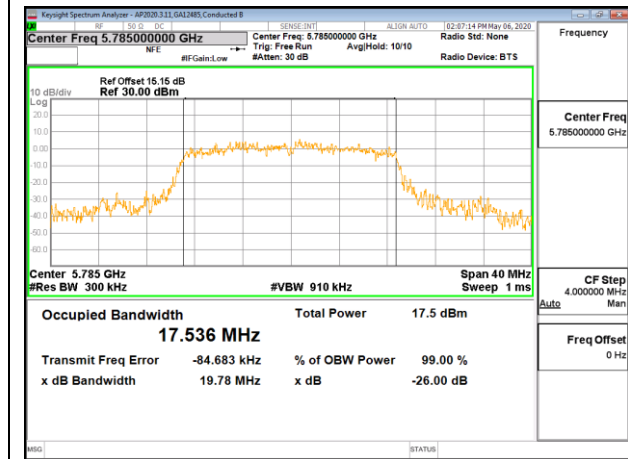
MID CHANNEL



MID CHANNEL CHAIN 0

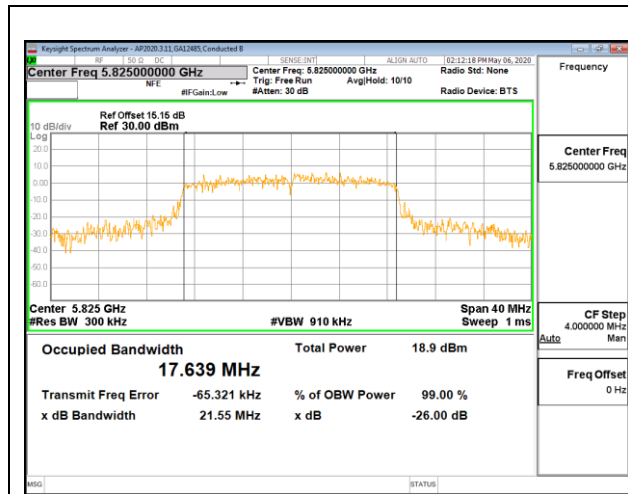


MID CHANNEL CHAIN 1

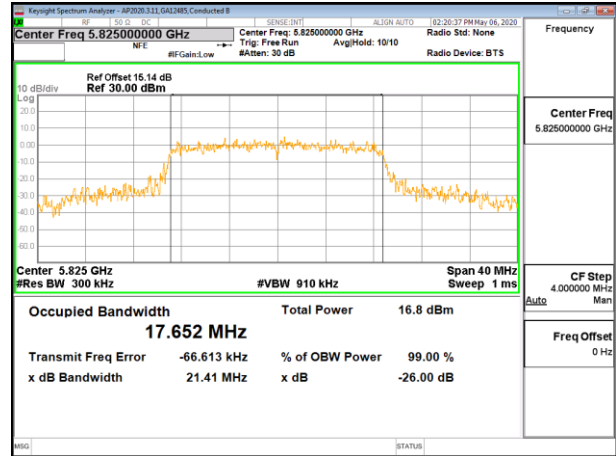


MID CHANNEL CHAIN 2

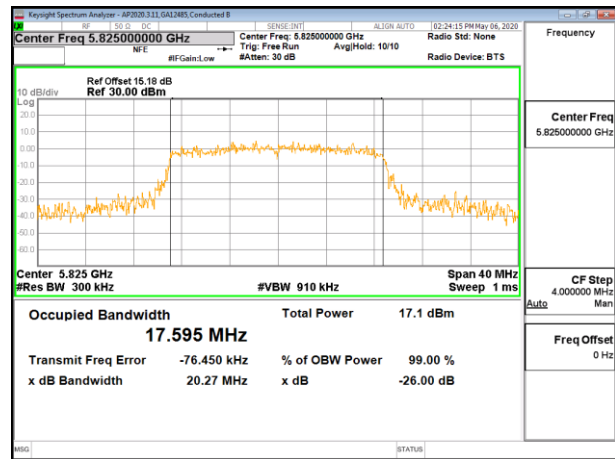
HIGH CHANNEL



HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2

8.4. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

RSS-247 6.2.4.1

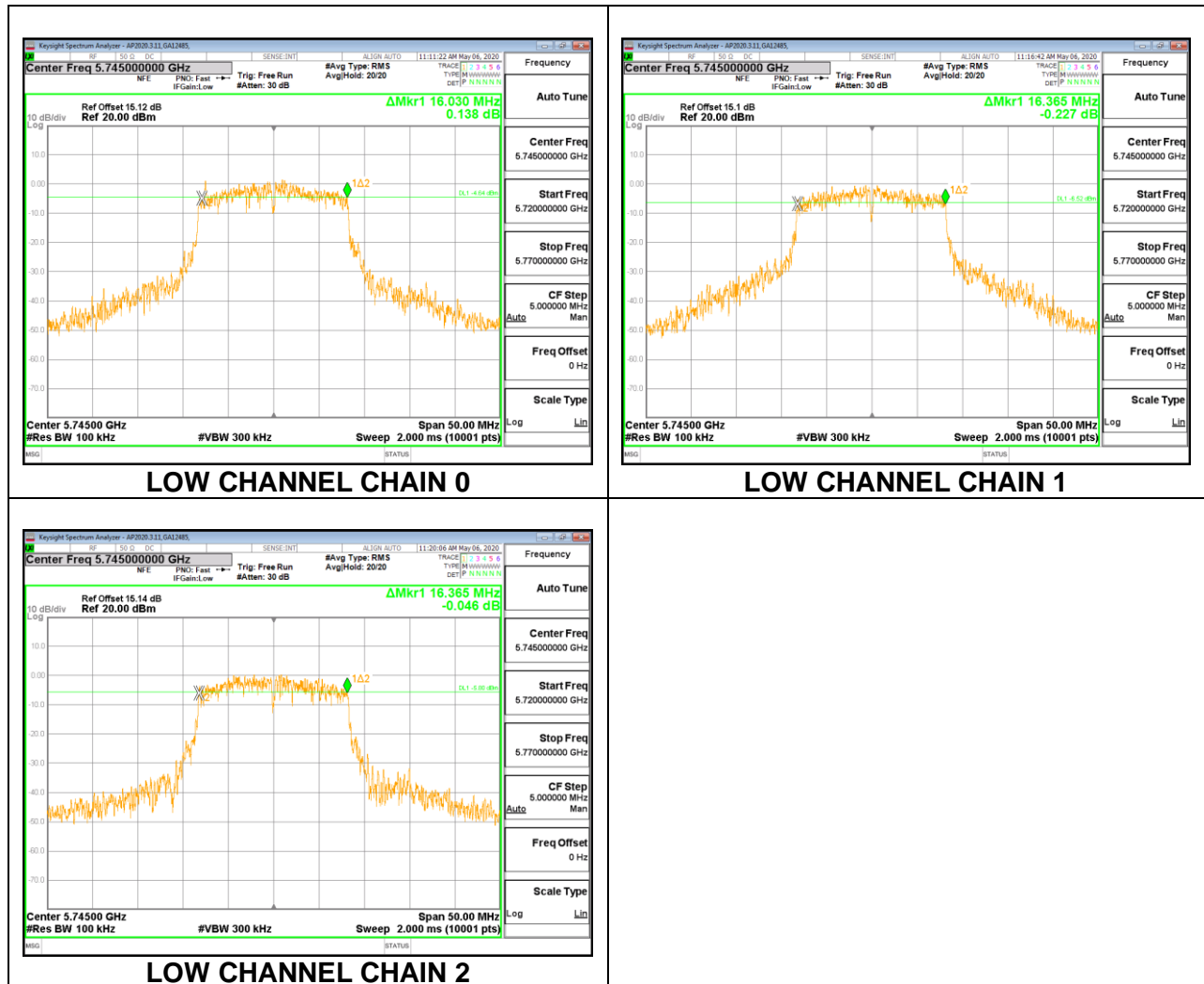
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

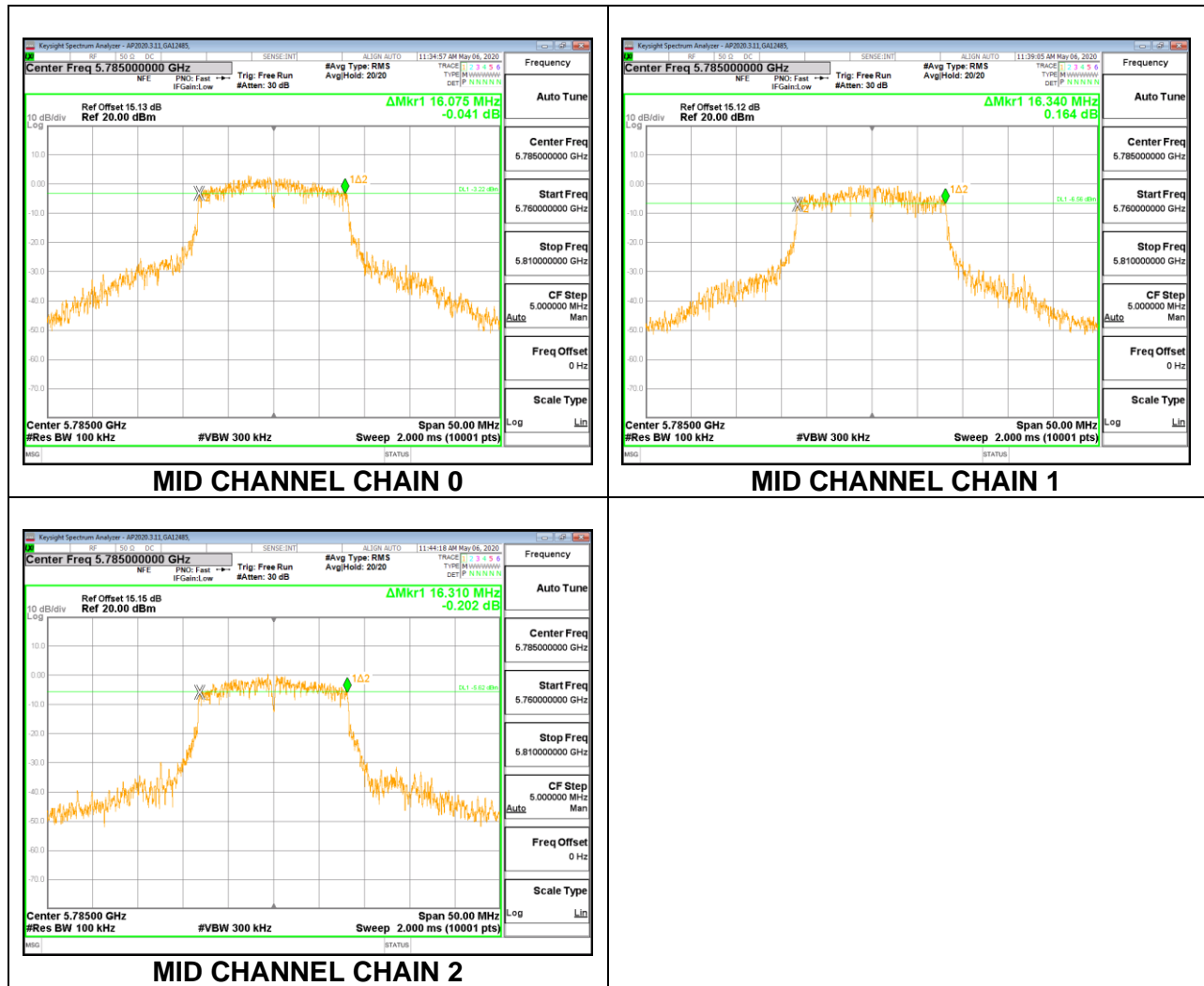
8.4.1. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	6 dB BW Chain 2 (MHz)	Minimum Limit (MHz)
Low	5745	16.030	16.365	16.365	0.5
Mid	5785	16.075	16.340	16.310	0.5
High	5825	16.330	16.325	16.340	0.5

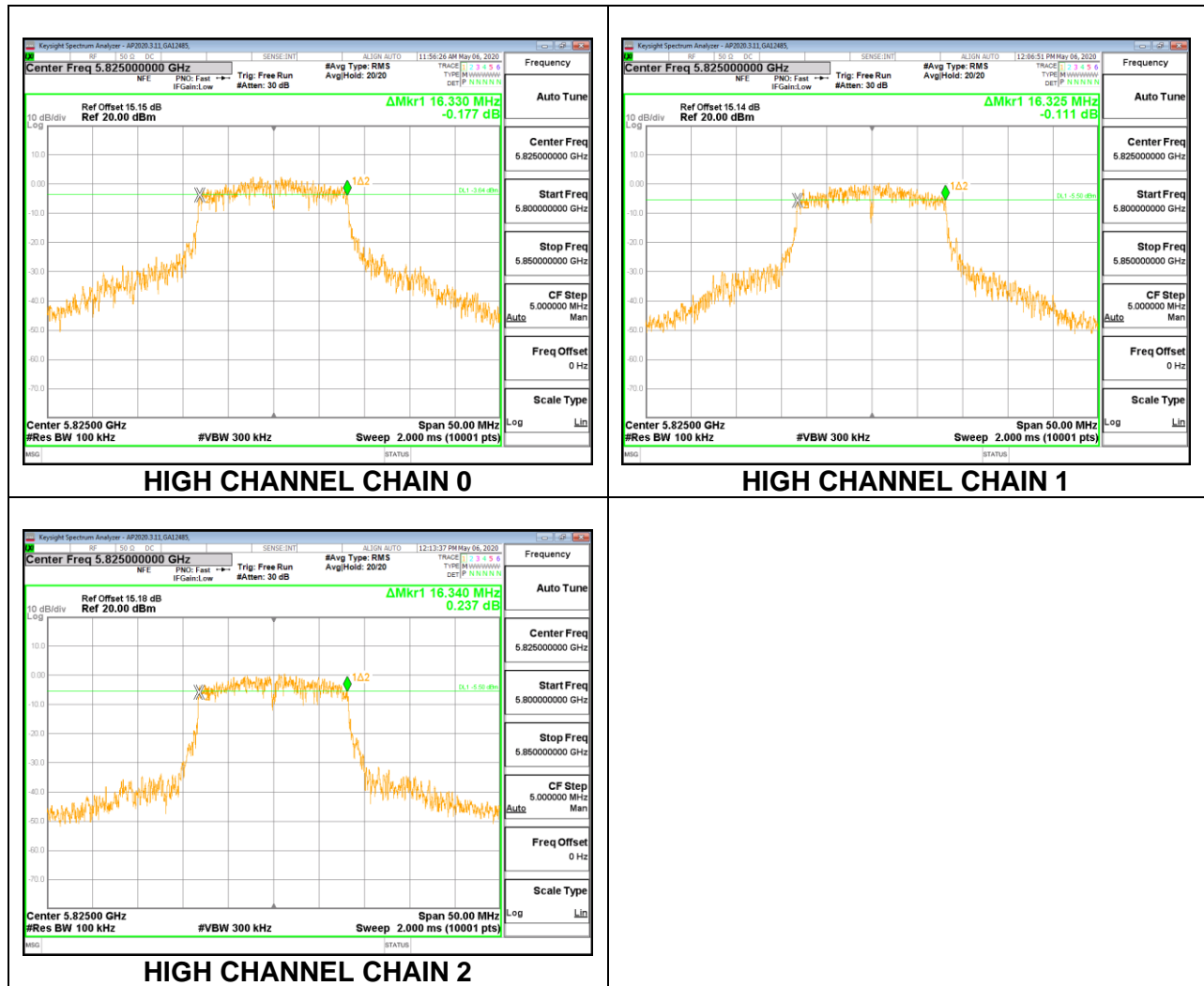
LOW CHANNEL



MID CHANNEL



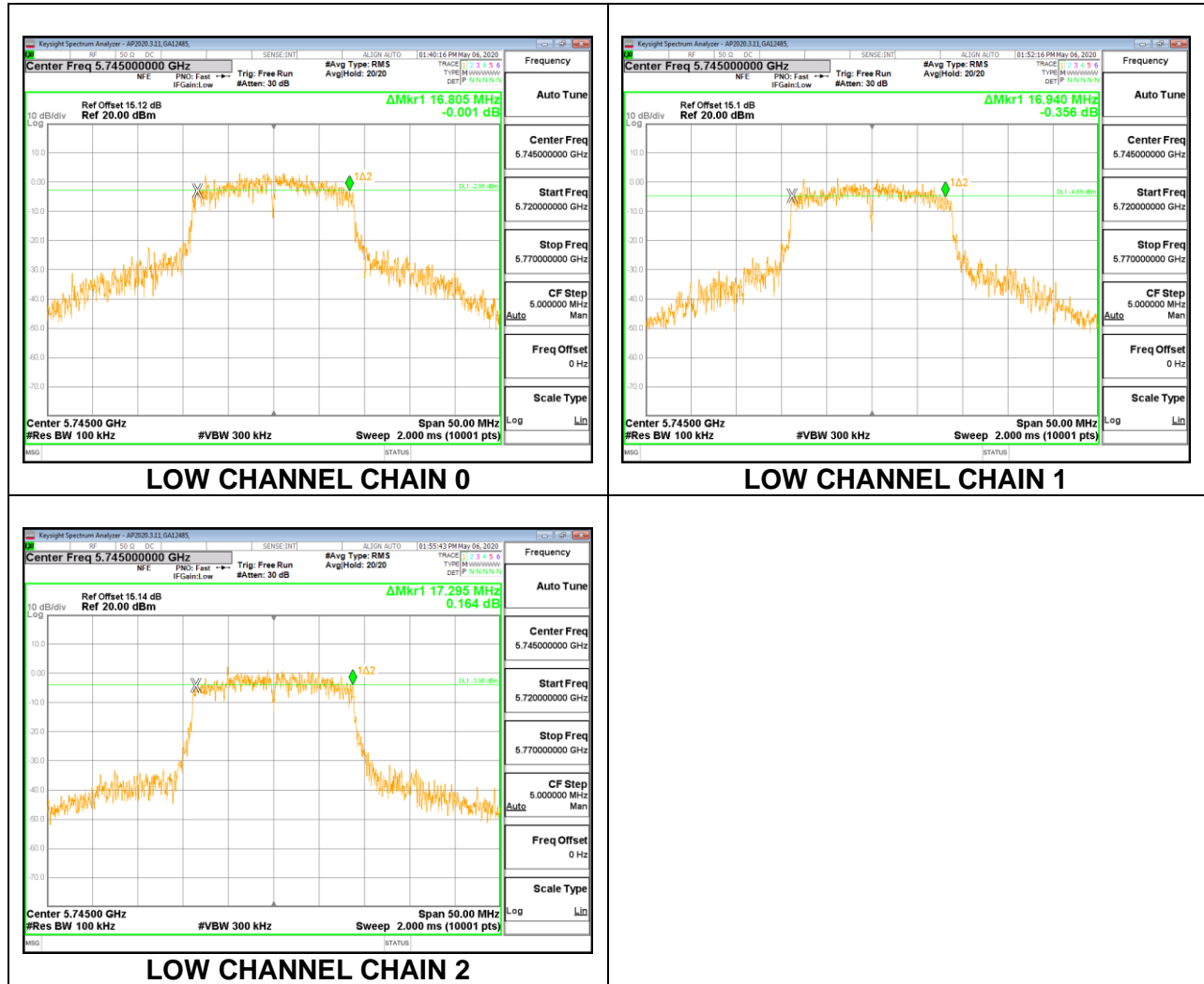
HIGH CHANNEL



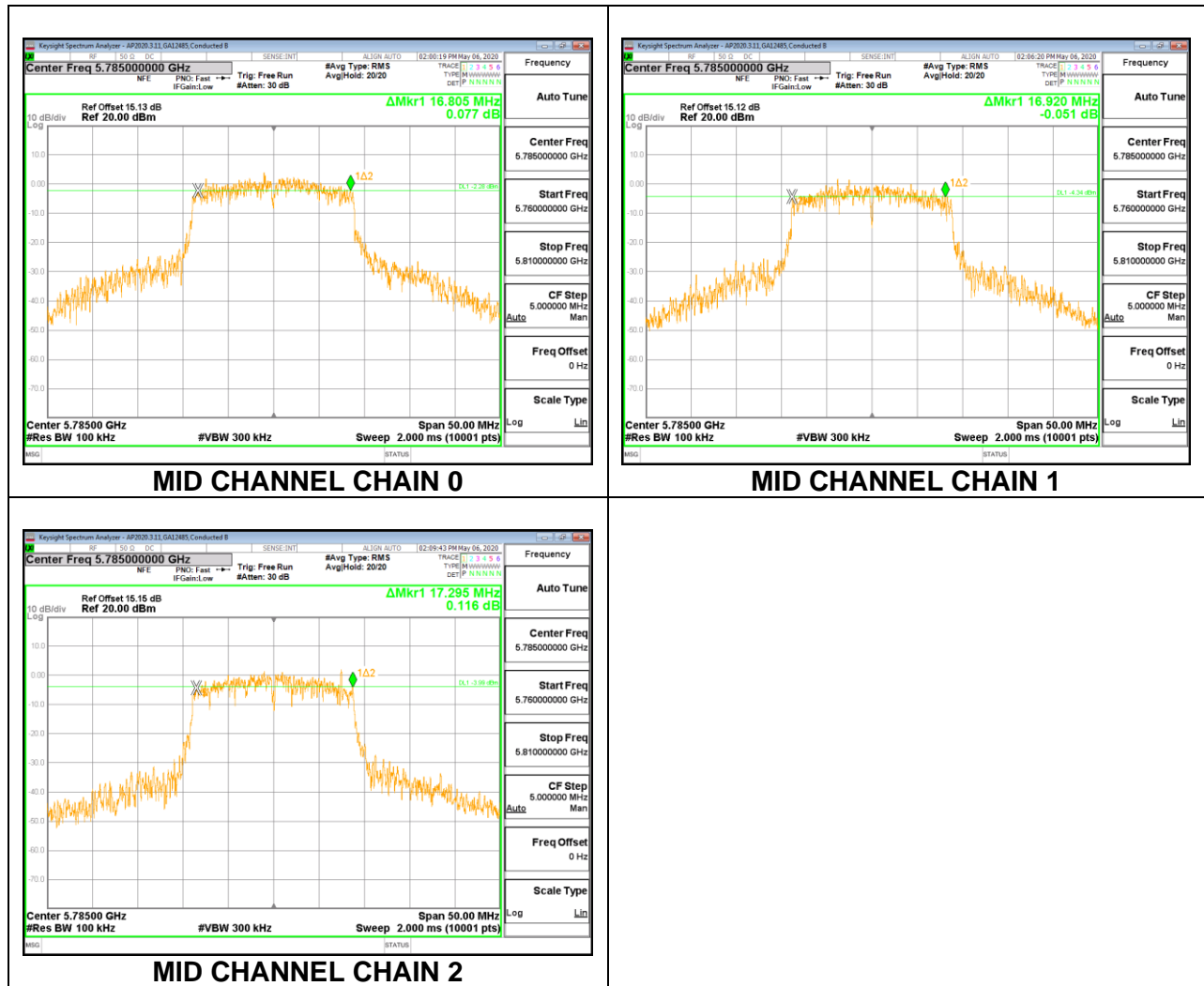
8.4.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	6 dB BW Chain 2 (MHz)	Minimum Limit (MHz)
Low	5745	16.805	16.940	17.295	0.5
Mid	5785	16.805	16.920	17.295	0.5
High	5825	17.320	16.940	17.575	0.5

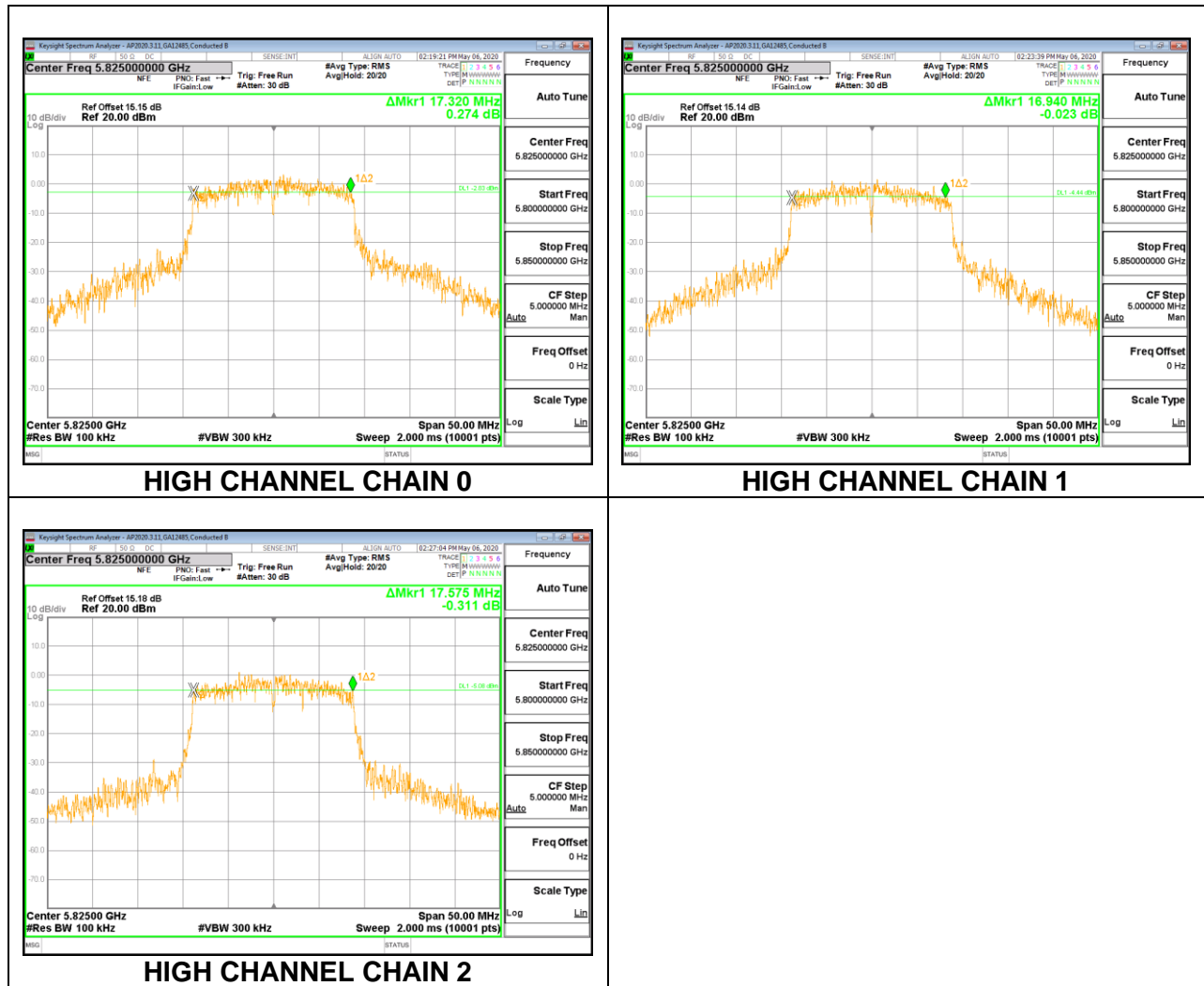
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



8.5. OUTPUT POWER AND PSD

LIMITS

FCC §15.407

Band 5.15–5.25 GHz (pick the section that applies to your product)

(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. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. 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 collocated transmitters transmitting the same information.

(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.

Bands 5.25-5.35 GHz and 5.47-5.725 GHz

The maximum conducted output power over the frequency bands 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 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.

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. 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. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information.

RSS-247

Band 5.15-5.25 GHz

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10}B$, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

Band 5.25-5.35 GHz

The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10}B$, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10}B$, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Bands 5.47-5.6 GHz and 5.65-5.725 GHz

The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10}B$, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10}B$, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Band 5.725-5.85 GHz

The maximum conducted output power shall not exceed 1 W. The power spectral density shall not exceed 30 dBm in any 500 kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

TEST PROCEDURE

The measurement method used for output power is KDB 789033 D02 v02r01, Section E.3.b (Method PM-G) and for straddles channels KDB 789033 D02 v02r01, Section E.2.b (Method SA-1) was used.

The measurement method used for power spectral density is KDB 789033 D02 v02r01, Section F

DIRECTIONAL ANTENNA GAIN

For 3 TX:

Tx chains are uncorrelated for power and correlated for PSD due to the device supporting CDD in all MIMO modes. The directional gains are as follows:

Vertical Polarization (Worst Case)

Band (GHz)	Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
5.2	0.60	2.60	1.71	4.67
5.3	0.60	2.60	1.71	4.67
5.6	0.60	2.60	1.71	4.67
5.8	0.60	2.60	1.71	4.67

Horizontal Polarization

Band (GHz)	Chain 2 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
5.2-5.8	2.20	2.20	2.20

RESULTS

8.5.1. 802.11a MODE IN THE 5.2 GHz BAND

(FCC+IC) MOBILE

Test Engineer:	GA12485
Test Date:	05/05/2020

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)
Low	5180	16.351	2.20	4.67
Mid	5200	16.339	2.20	4.67
High	5240	16.367	2.20	4.67

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	ISED EIRP Limit (dBm)	Max ISED Power (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm/1MHz)	ISED eirp PSD Limit (dBm/1MHz)	PSD Limit (dBm/1MHz)
Low	5180	24.00	22.14	19.94	19.94	11.00	10.00	5.33
Mid	5200	24.00	22.13	19.93	19.93	11.00	10.00	5.33
High	5240	24.00	22.14	19.94	19.94	11.00	10.00	5.33

Duty Cycle CF (dB)	2.93	Included in Calculations of Corr'd PSD
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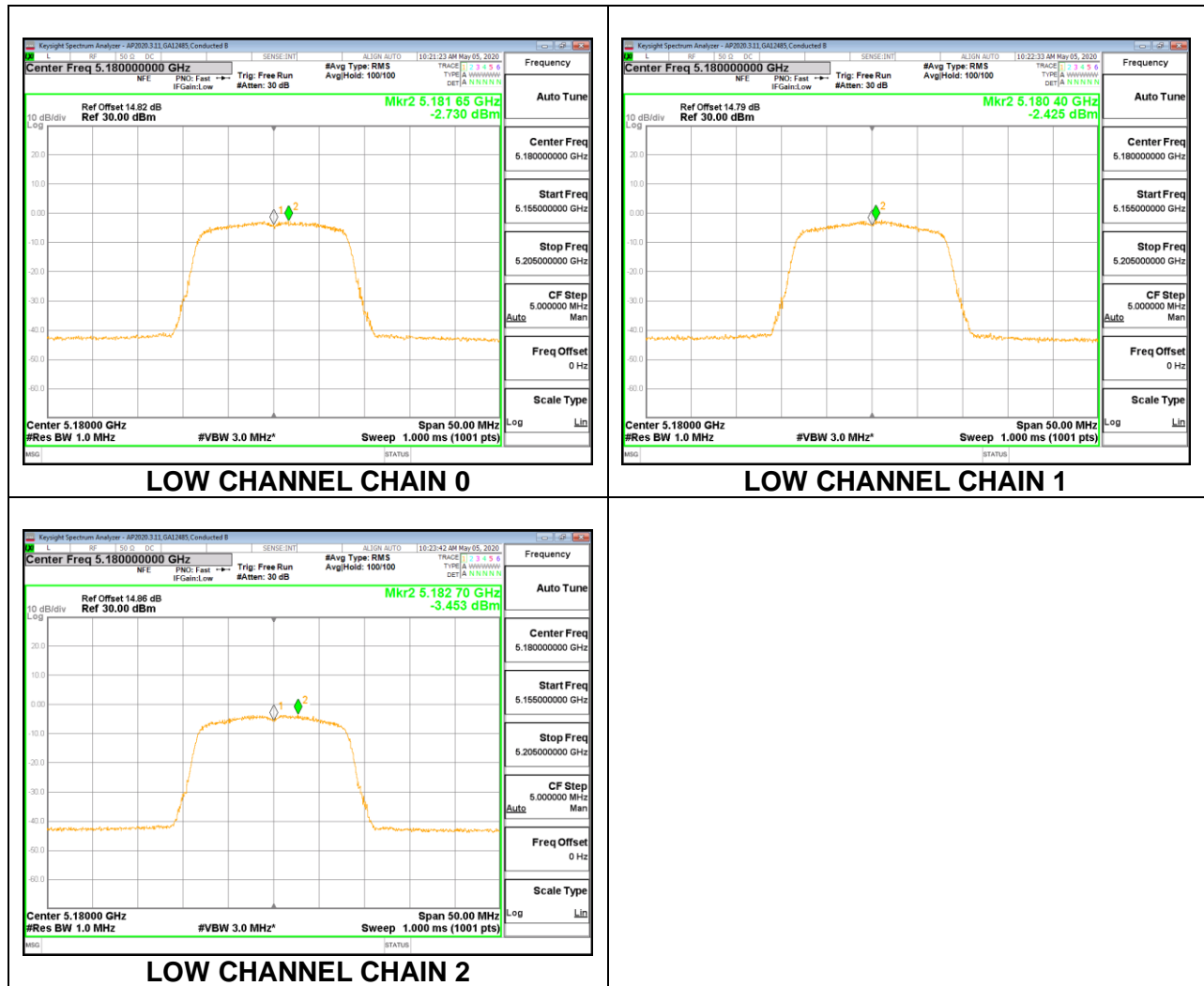
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	9.16	9.21	8.53	13.75	19.94	-6.19
Mid	5200	8.74	8.83	8.25	13.39	19.93	-6.55
High	5240	8.81	8.44	8.18	13.26	19.94	-6.68

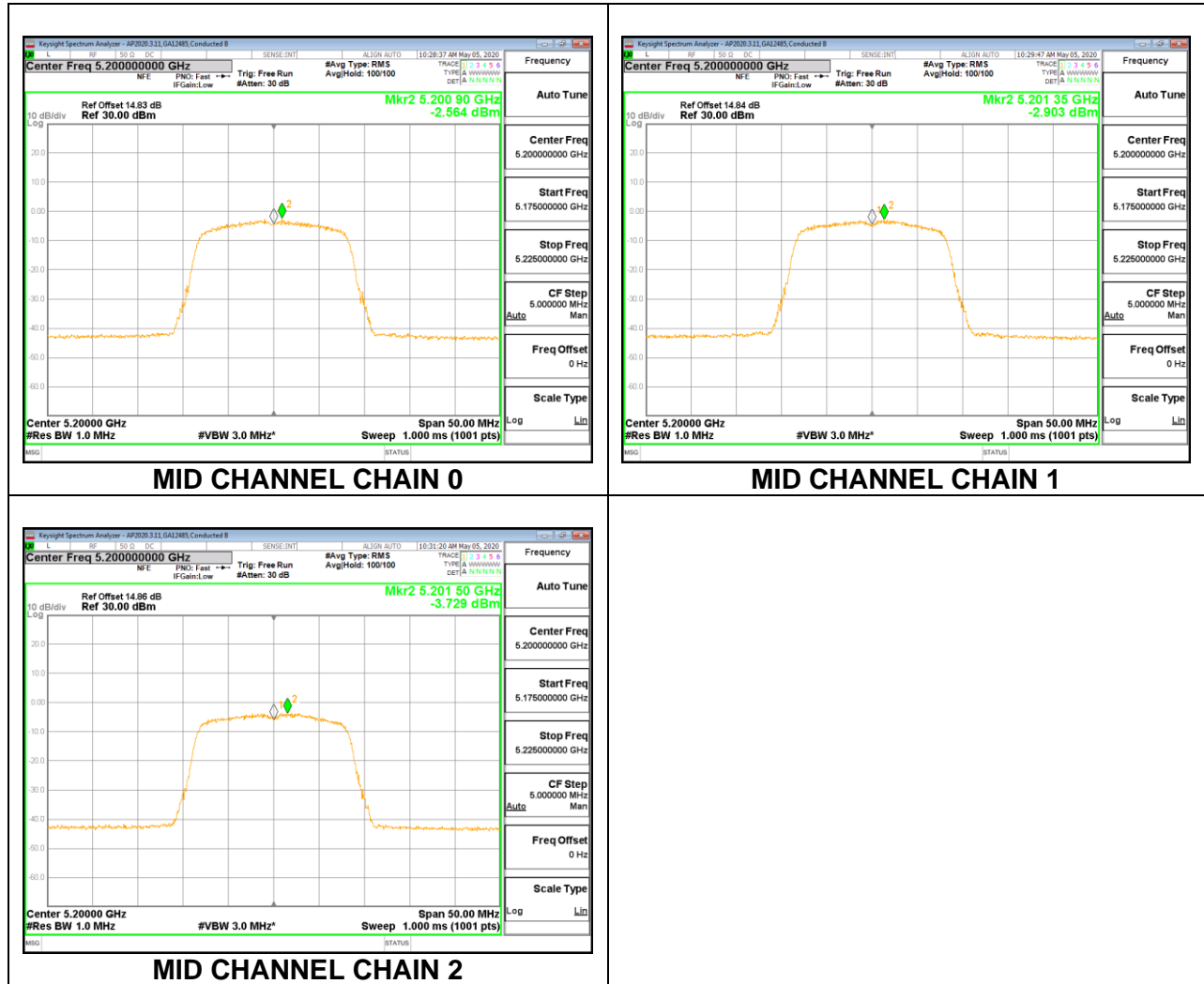
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/1MHz)	Antenna 2 Meas PSD (dBm/1MHz)	Antenna 3 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5180	-2.730	-2.425	-3.453	4.85	5.33	-0.48
Mid	5200	-2.564	-2.903	-3.729	4.66	5.33	-0.67
High	5240	-2.405	-2.789	-3.881	4.72	5.33	-0.61

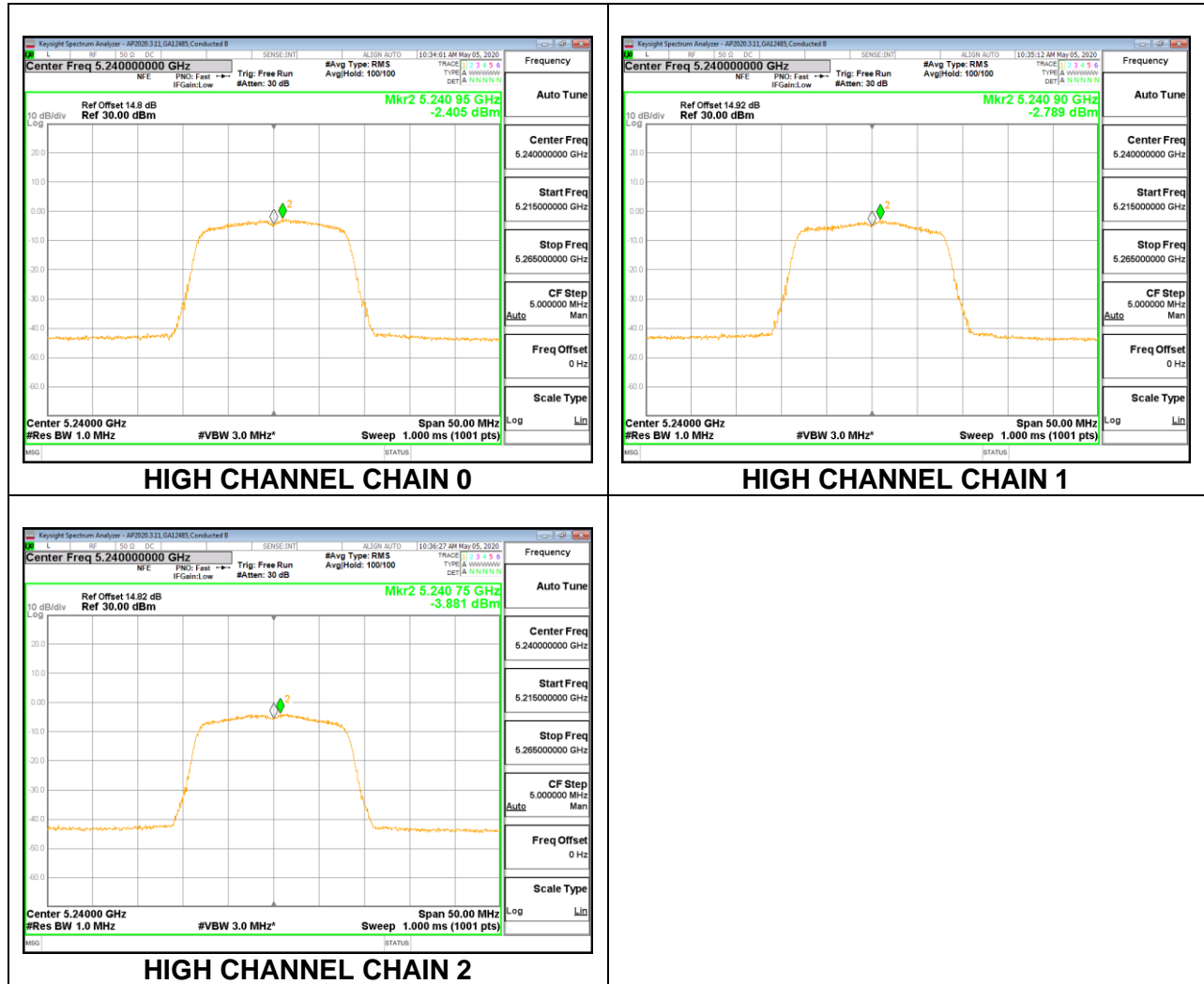
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



8.5.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

(FCC+IC) MOBILE

Test Engineer:	GA12485
Test Date:	05/05/2020

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)
Low	5180	17.518	2.20	4.67
Mid	5200	17.488	2.20	4.67
High	5240	17.526	2.20	4.67

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	ISED EIRP Limit (dBm)	Max ISED Power (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm/1MHz)	ISED eirp PSD Limit (dBm/1MHz)	PSD Limit (dBm/1MHz)
Low	5180	24.00	22.43	20.23	20.23	11.00	10.00	5.33
Mid	5200	24.00	22.43	20.23	20.23	11.00	10.00	5.33
High	5240	24.00	22.44	20.24	20.24	11.00	10.00	5.33

Duty Cycle CF (dB)	3.83	Included in Calculations of Corr'd PSD
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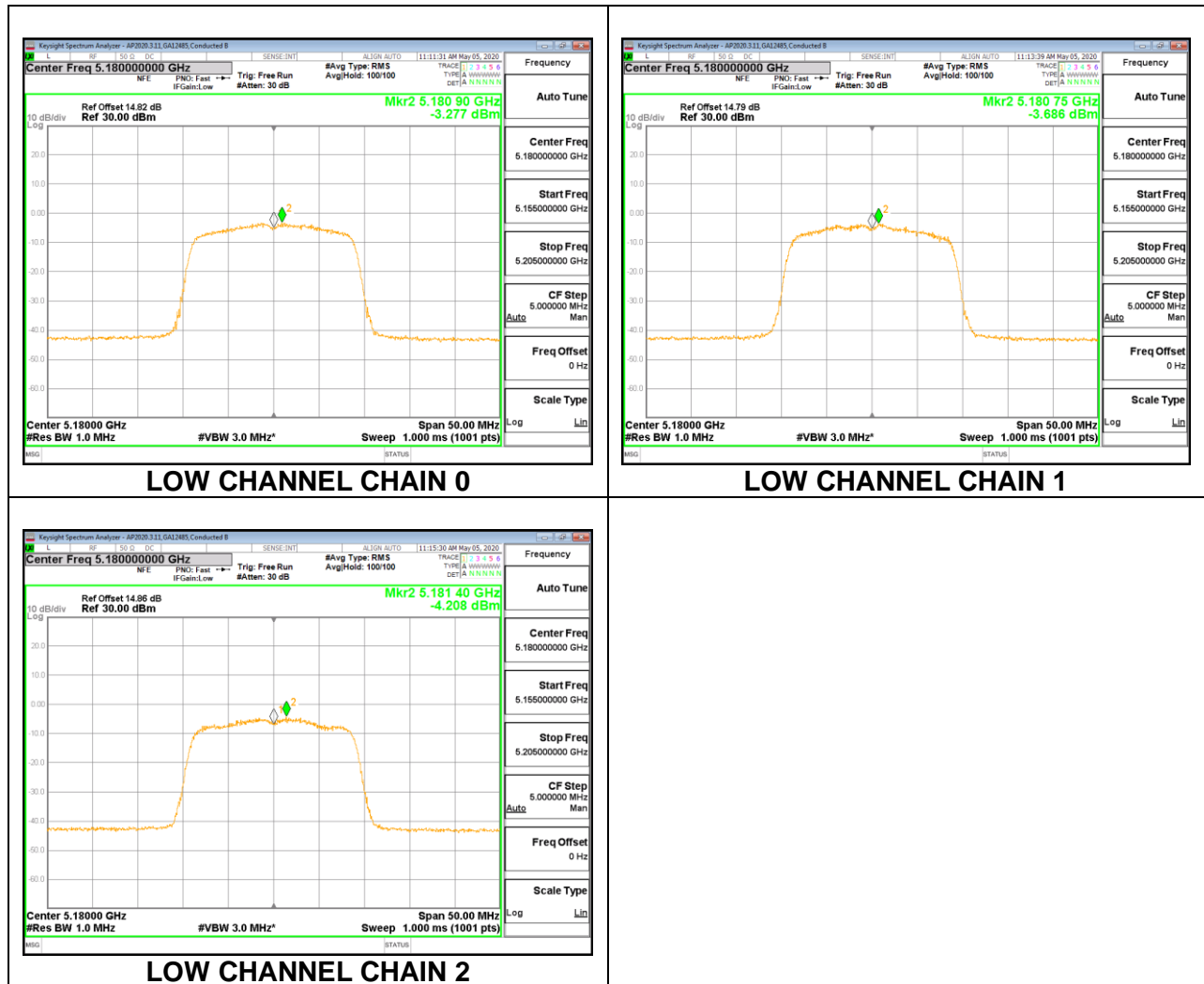
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	10.11	10.06	9.46	14.66	20.23	-5.58
Mid	5200	9.97	9.64	9.11	14.36	20.23	-5.87
High	5240	9.83	9.58	9.04	14.27	20.24	-5.97

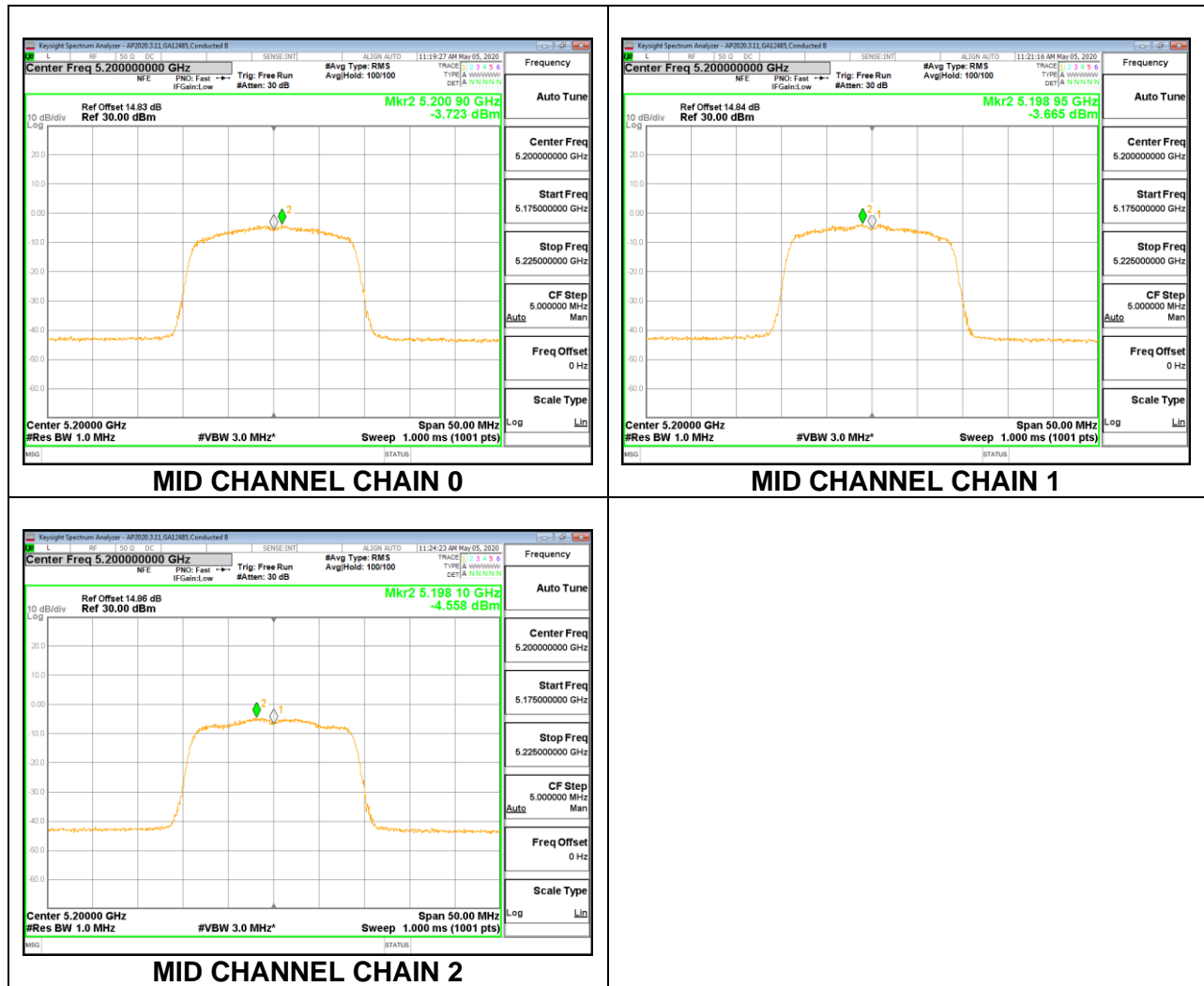
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/1MHz)	Antenna 2 Meas PSD (dBm/1MHz)	Antenna 3 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5180	-3.277	-3.686	-4.208	4.89	5.33	-0.44
Mid	5200	-3.723	-3.665	-4.558	4.64	5.33	-0.69
High	5240	-3.096	-3.162	-4.600	5.04	5.33	-0.29

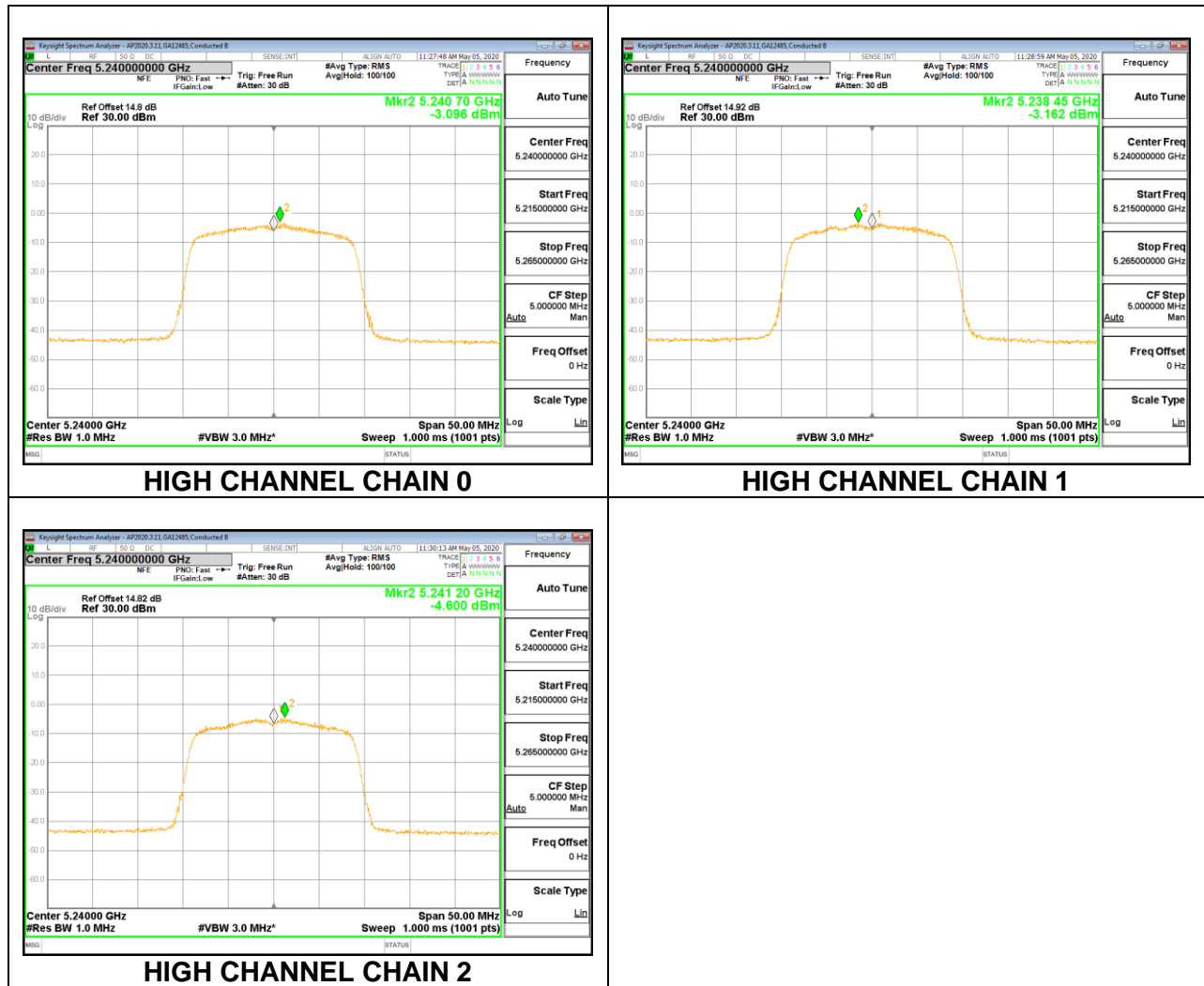
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



8.5.3. 802.11a MODE IN THE 5.3 GHz BAND

(FCC+IC)

Test Engineer:	GA12485
Test Date:	05/05/2020

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Direction Gain for PSD (dBi)
Low	5260	19.85	16.374	2.20	4.67
Mid	5300	19.90	16.366	2.20	4.67
High	5320	20.00	16.443	2.20	4.67

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm/1Mhz)	ISED PSD Limit (dBm/1Mhz)
Low	5260	23.98	23.14	29.14	23.14	11.00	11.00
Mid	5300	23.99	23.14	29.14	23.14	11.00	11.00
High	5320	24.00	23.16	29.16	23.16	11.00	11.00

Duty Cycle CF (dB)	2.93	Included in Calculations of Corr'd Power & PSD
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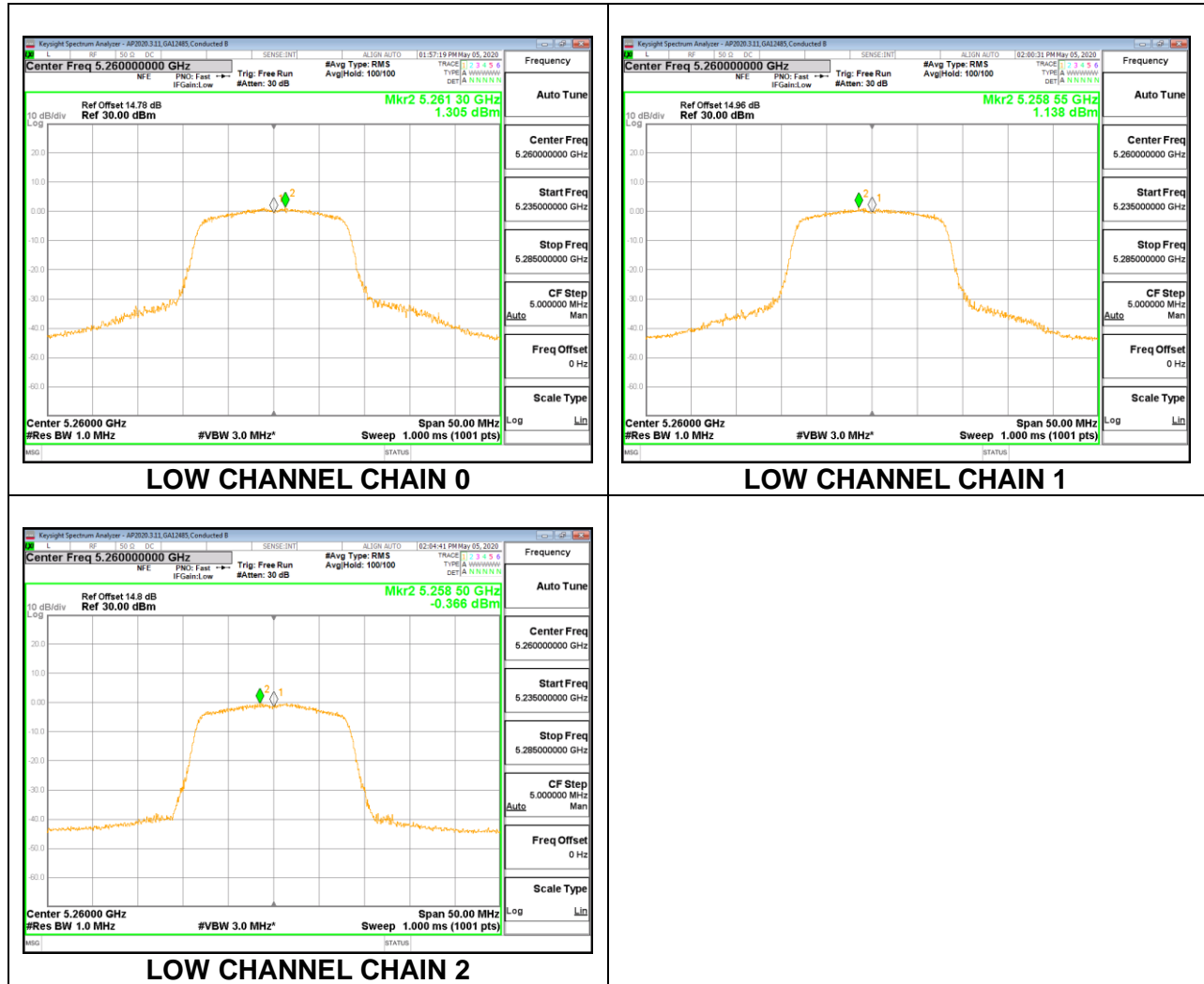
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	14.83	14.44	13.79	19.15	23.14	-4.00
Mid	5300	14.43	14.72	13.98	19.16	23.14	-3.98
High	5320	14.08	14.82	12.85	18.76	23.16	-4.40

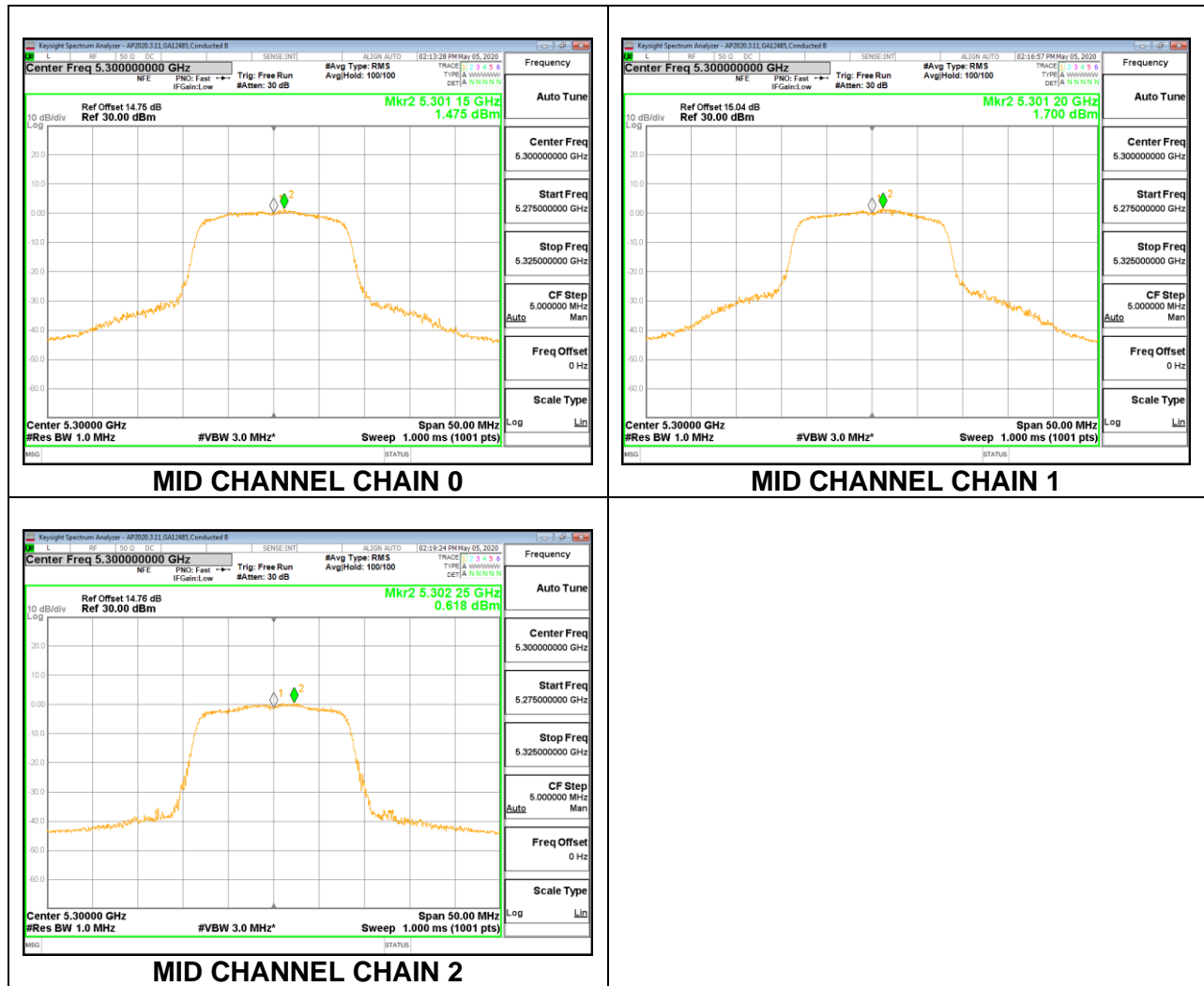
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 1MHz)	Antenna 2 Meas PSD (dBm/ 1MHz)	Antenna 3 Meas PSD (dBm/ 1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5260	1.305	1.138	-0.366	8.456	11.00	-2.54
Mid	5300	1.475	1.700	0.618	8.990	11.00	-2.01
High	5320	0.300	1.536	-0.601	8.202	11.00	-2.80

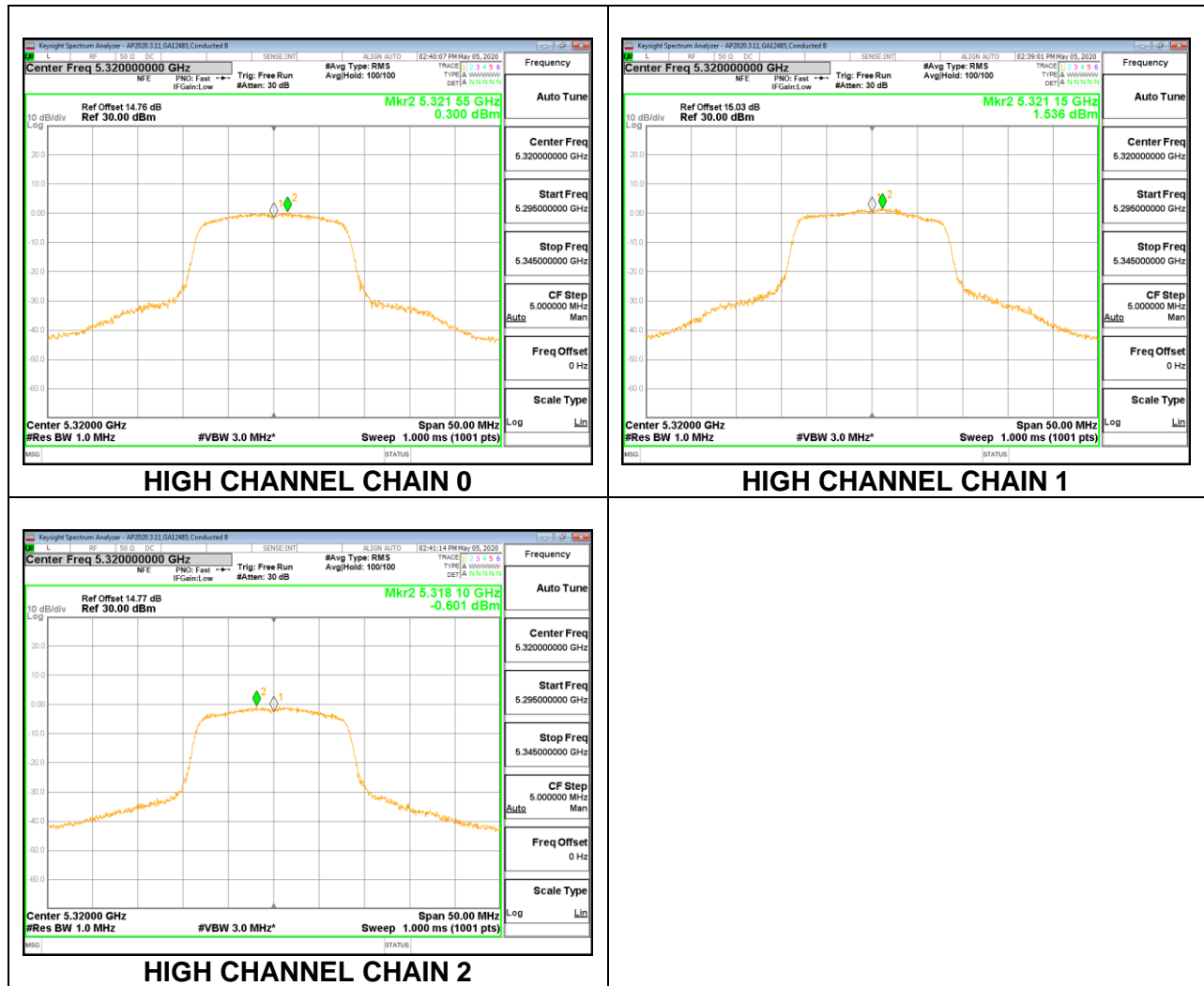
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



8.5.4. 802.11n HT20 MODE IN THE 5.3 GHz BAND

(FCC+IC)

Test Engineer:	GA12485
Test Date:	05/05/2020

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)
Low	5260	20.30	17.484	2.20	4.67
Mid	5300	20.55	17.552	2.20	4.67
High	5320	20.25	17.589	2.20	4.67

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm/1MHz)	ISED PSD Limit (dBm/1MHz)	PSD Limit (dBm/1MHz)
Low	5260	24.00	23.43	29.43	23.43	11.00	11.00	11.00
Mid	5300	24.00	23.44	29.44	23.44	11.00	11.00	11.00
High	5320	24.00	23.45	29.45	23.45	11.00	11.00	11.00

Duty Cycle CF (dB)	3.83	Included in Calculations of Corr'd Power & PSD
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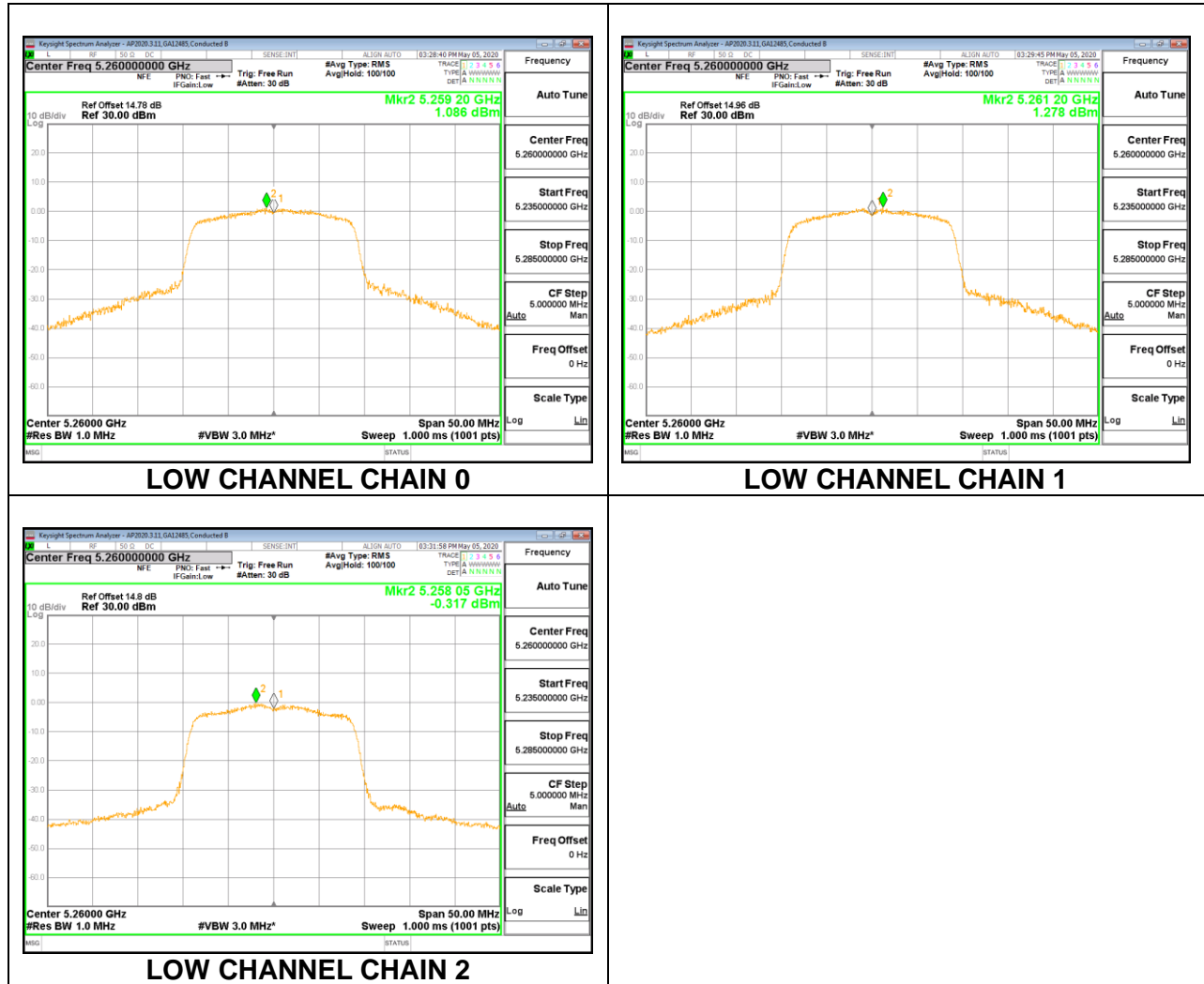
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	14.87	14.93	13.18	19.17	23.43	-4.26
Mid	5300	15.79	15.84	14.12	20.09	23.44	-3.35
High	5320	11.94	12.74	11.88	16.98	23.45	-6.48

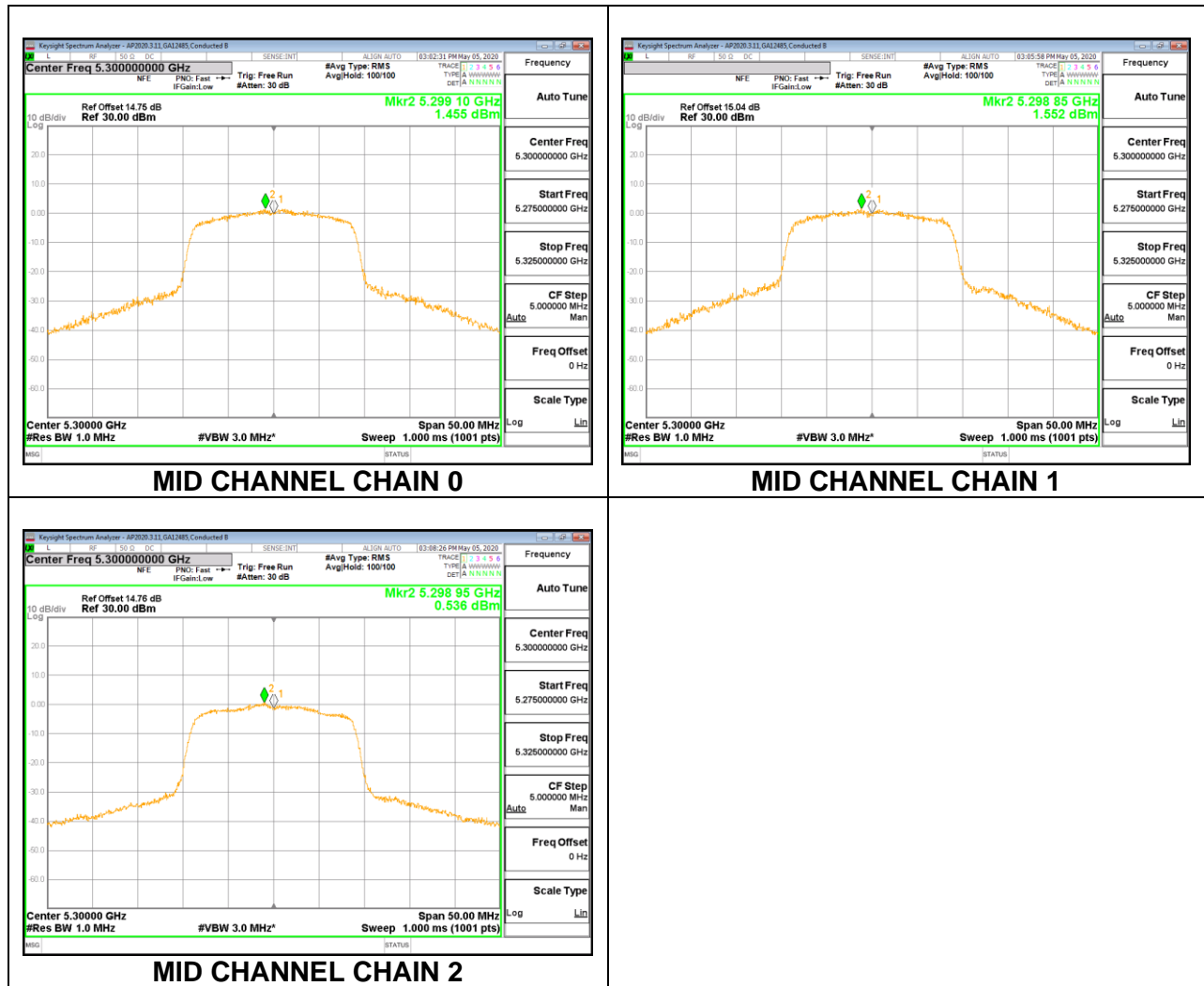
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/1MHz)	Antenna 2 Meas PSD (dBm/1MHz)	Antenna 3 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5260	1.086	1.278	-0.317	9.339	11.00	-1.66
Mid	5300	1.455	1.552	0.536	9.806	11.00	-1.19
High	5320	0.913	1.462	0.358	9.536	11.00	-1.46

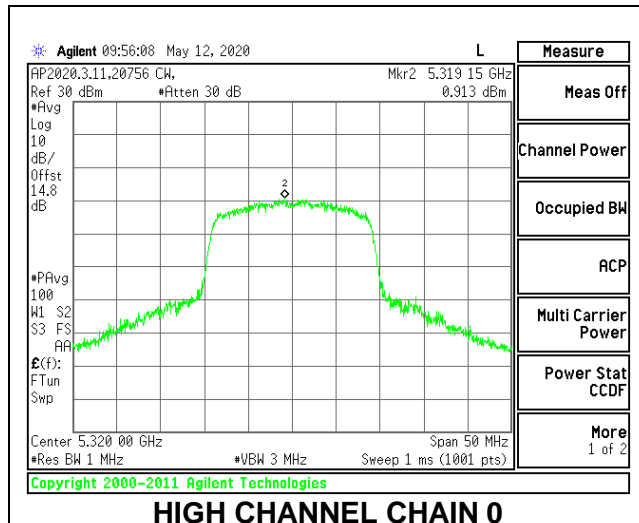
LOW CHANNEL



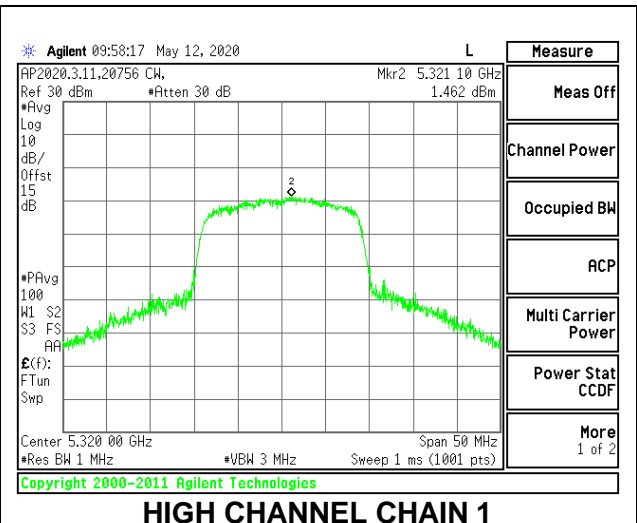
MID CHANNEL



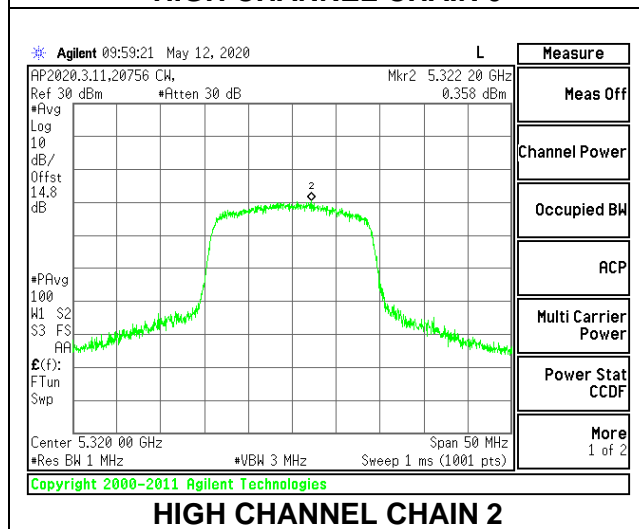
HIGH CHANNEL



HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2

8.5.5. 802.11a MODE IN THE 5.6 GHz BAND

(FCC+IC)

Test Engineer:	GA12485
Test Date:	05/05/2020

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Direction Gain for PSD (dBi)
Low	5500	19.95	16.466	2.20	4.67
Mid	5580	19.80	16.444	2.20	4.67
High	5700	19.85	16.398	2.20	4.67

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm/1Mhz)	ISED PSD Limit (dBm/1Mhz)
Low	5500	24.00	23.17	29.17	23.17	11.00	11.00
Mid	5580	23.97	23.16	29.16	23.16	11.00	11.00
High	5700	23.98	23.15	29.15	23.15	11.00	11.00

Duty Cycle CF (dB)	2.93	Included in Calculations of Corr'd Power & PSD
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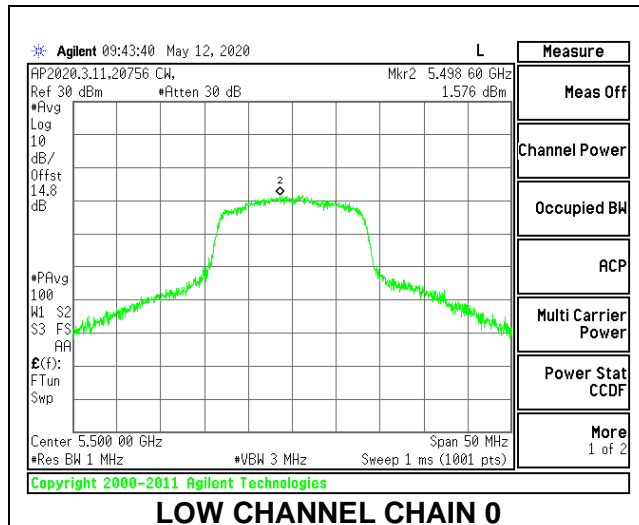
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	13.02	13.04	12.28	17.57	23.17	-5.60
Mid	5580	14.84	15.22	14.10	19.52	23.16	-3.64
High	5700	12.86	12.04	11.93	17.07	23.15	-6.08

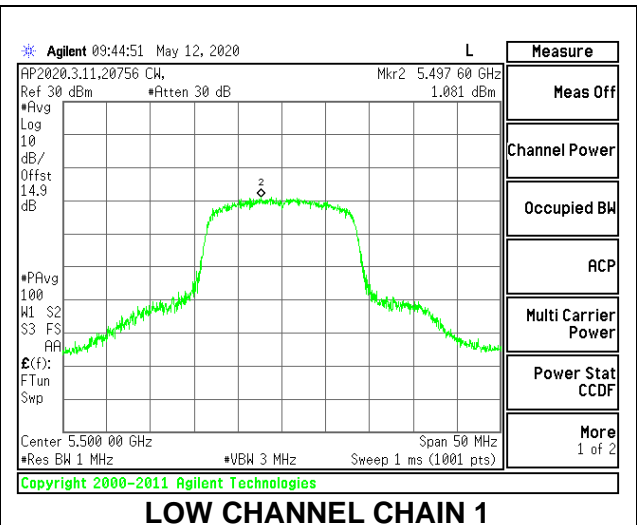
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 1MHz)	Antenna 2 Meas PSD (dBm/ 1MHz)	Antenna 3 Meas PSD (dBm/ 1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5500	1.576	1.081	0.775	8.858	11.00	-2.14
Mid	5580	1.278	1.405	0.608	8.812	11.00	-2.19
High	5700	1.248	1.357	0.533	8.762	11.00	-2.24

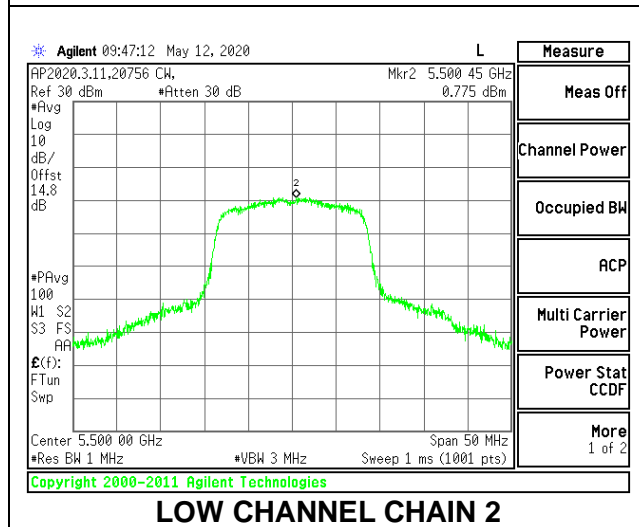
LOW CHANNEL



LOW CHANNEL CHAIN 0

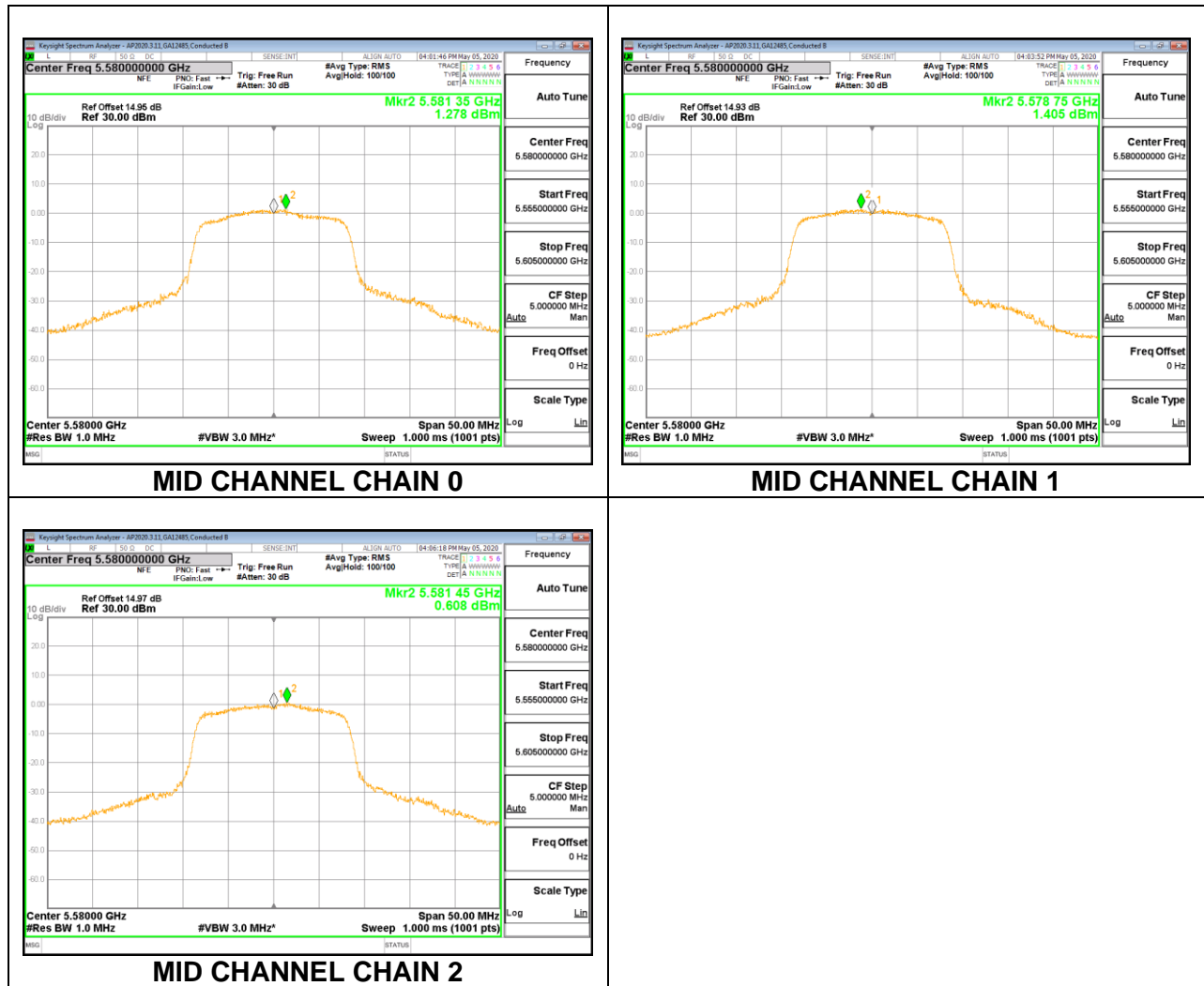


LOW CHANNEL CHAIN 1

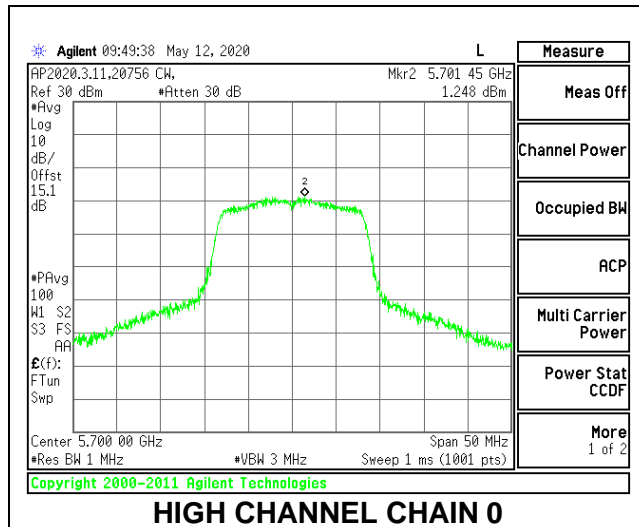


LOW CHANNEL CHAIN 2

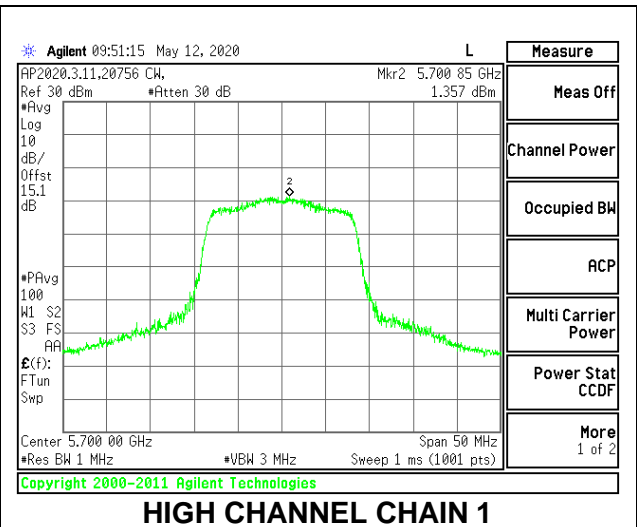
MID CHANNEL



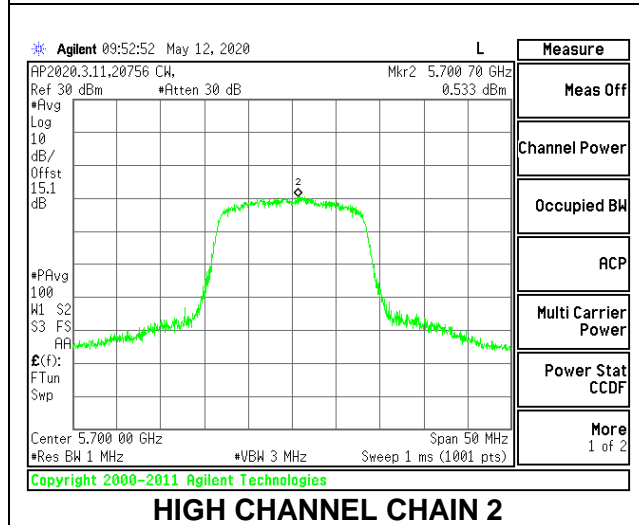
HIGH CHANNEL



HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2