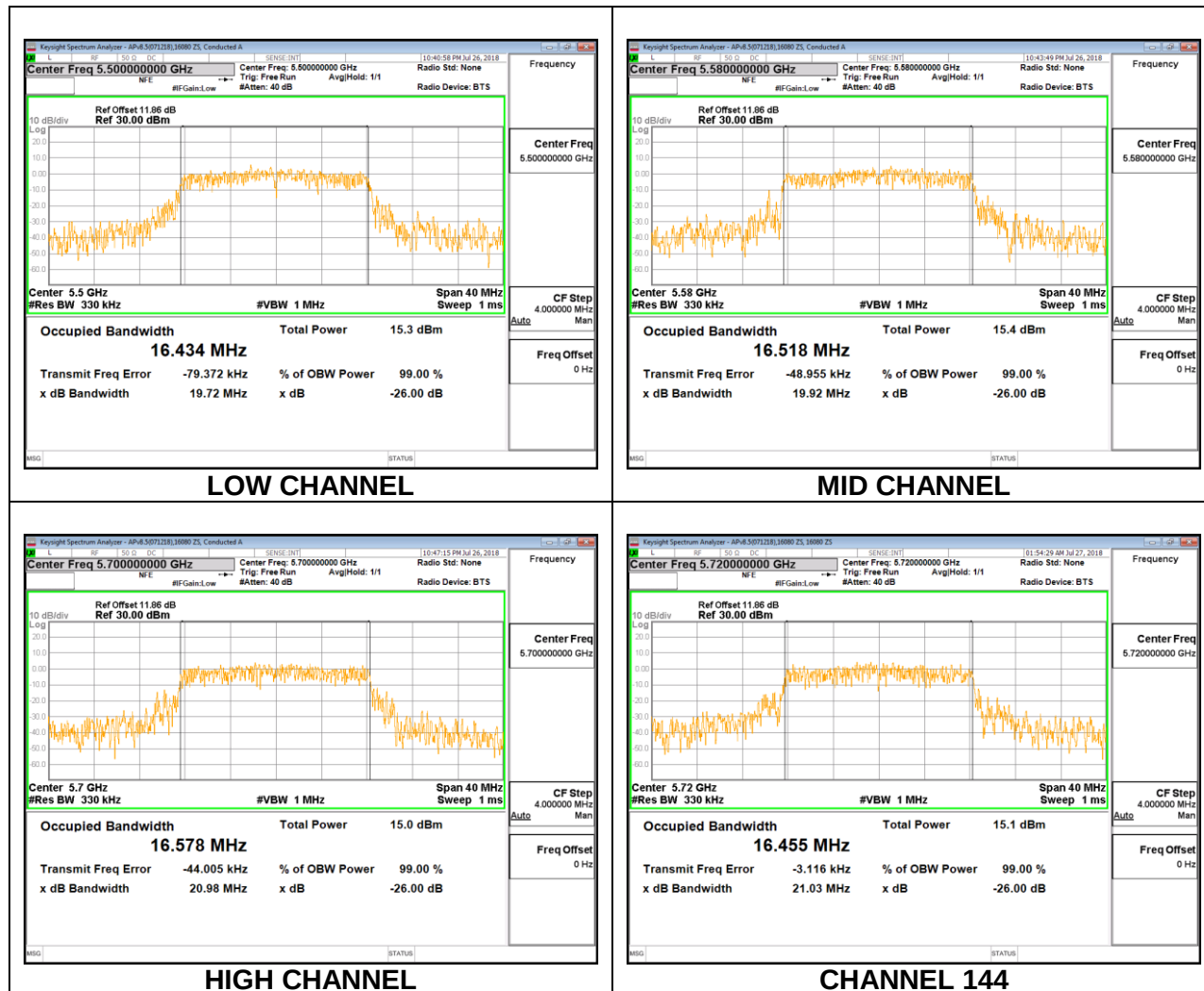


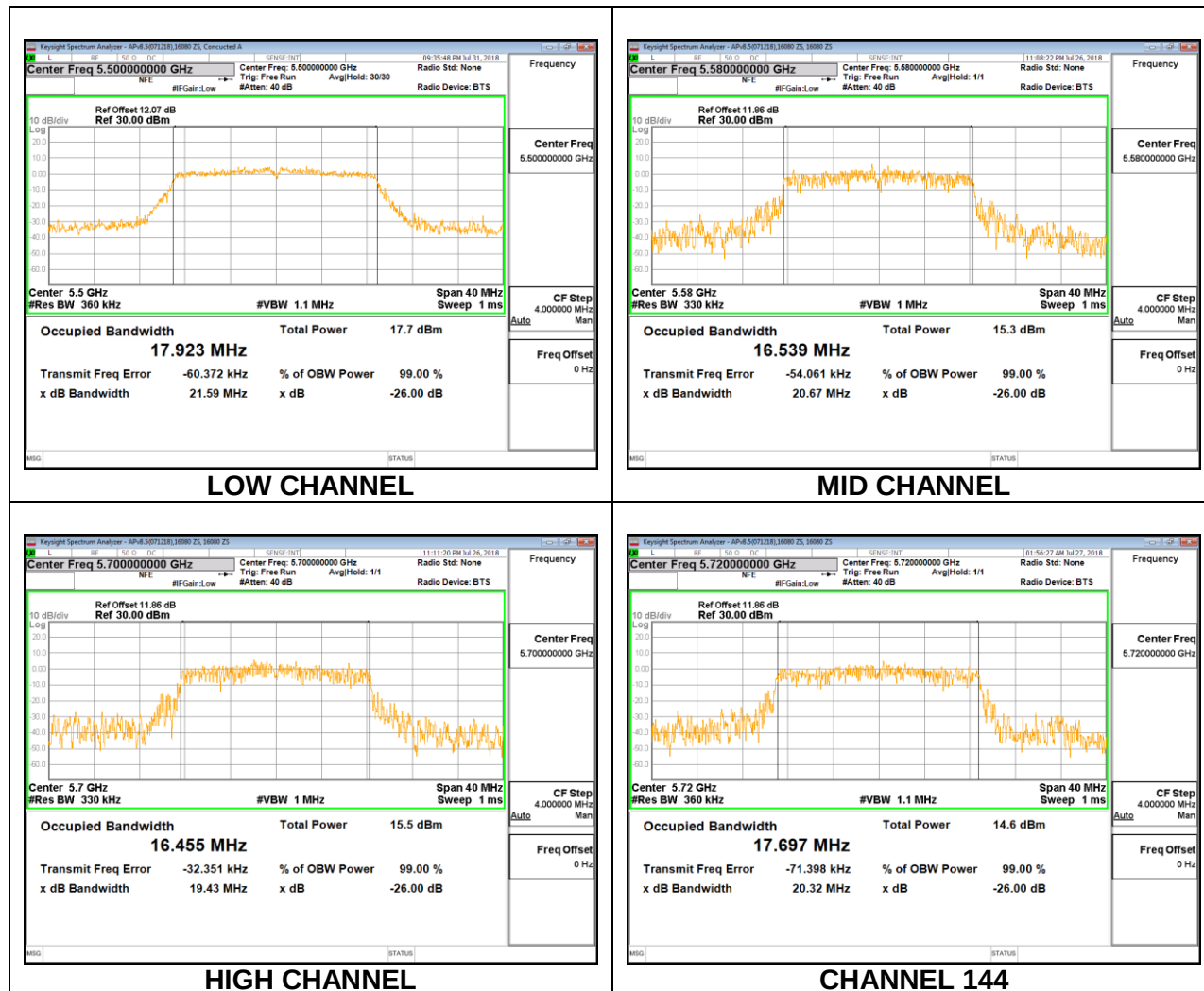
8.3.9. 802.11a MODE IN THE 5.6 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	16.4340
Mid	5580	16.5180
High	5700	16.5780
144	5720	16.4550



8.3.10. 802.11n HT20 MODE IN THE 5.6 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	17.9230
Mid	5580	16.5390
High	5700	16.4550
144	5720	17.6970



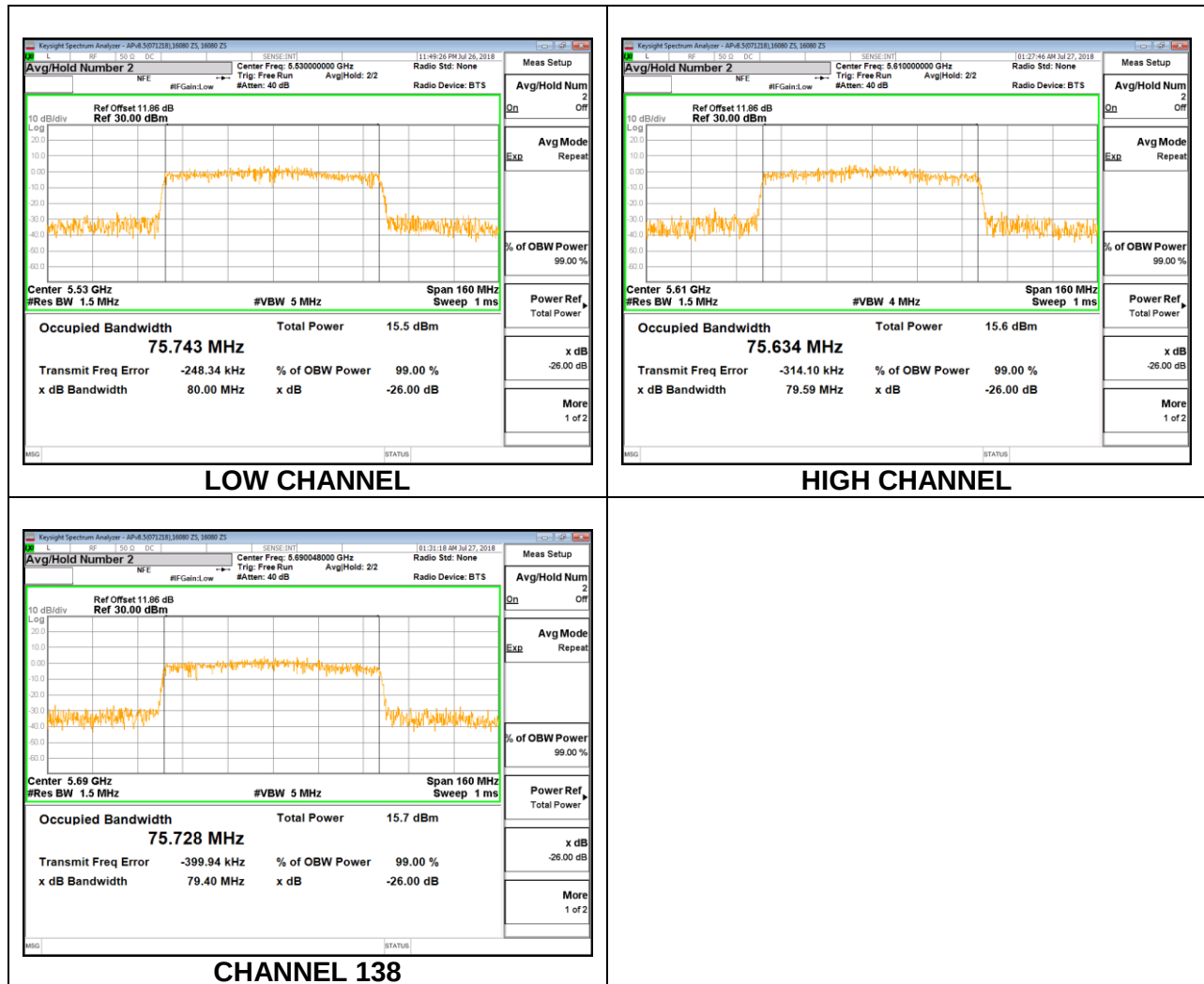
8.3.11. 802.11n HT40 MODE IN THE 5.6 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5510	36.0620
Mid	5550	36.3610
High	5670	36.1800
142	5710	36.2660



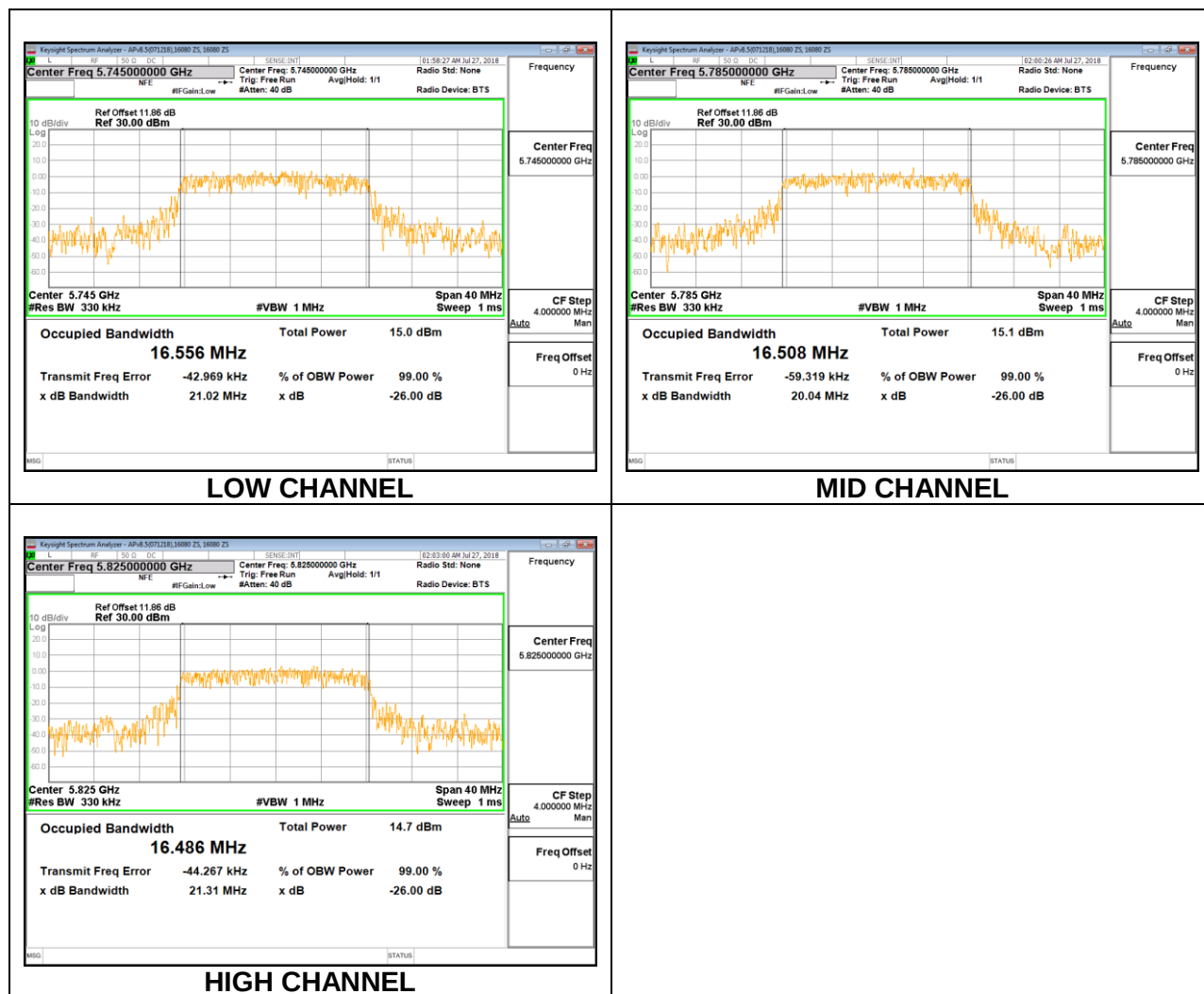
8.3.12. 802.11ac VHT80 MODE IN THE 5.6 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5530	75.7430
High	5610	75.6340
138	5690	75.7280



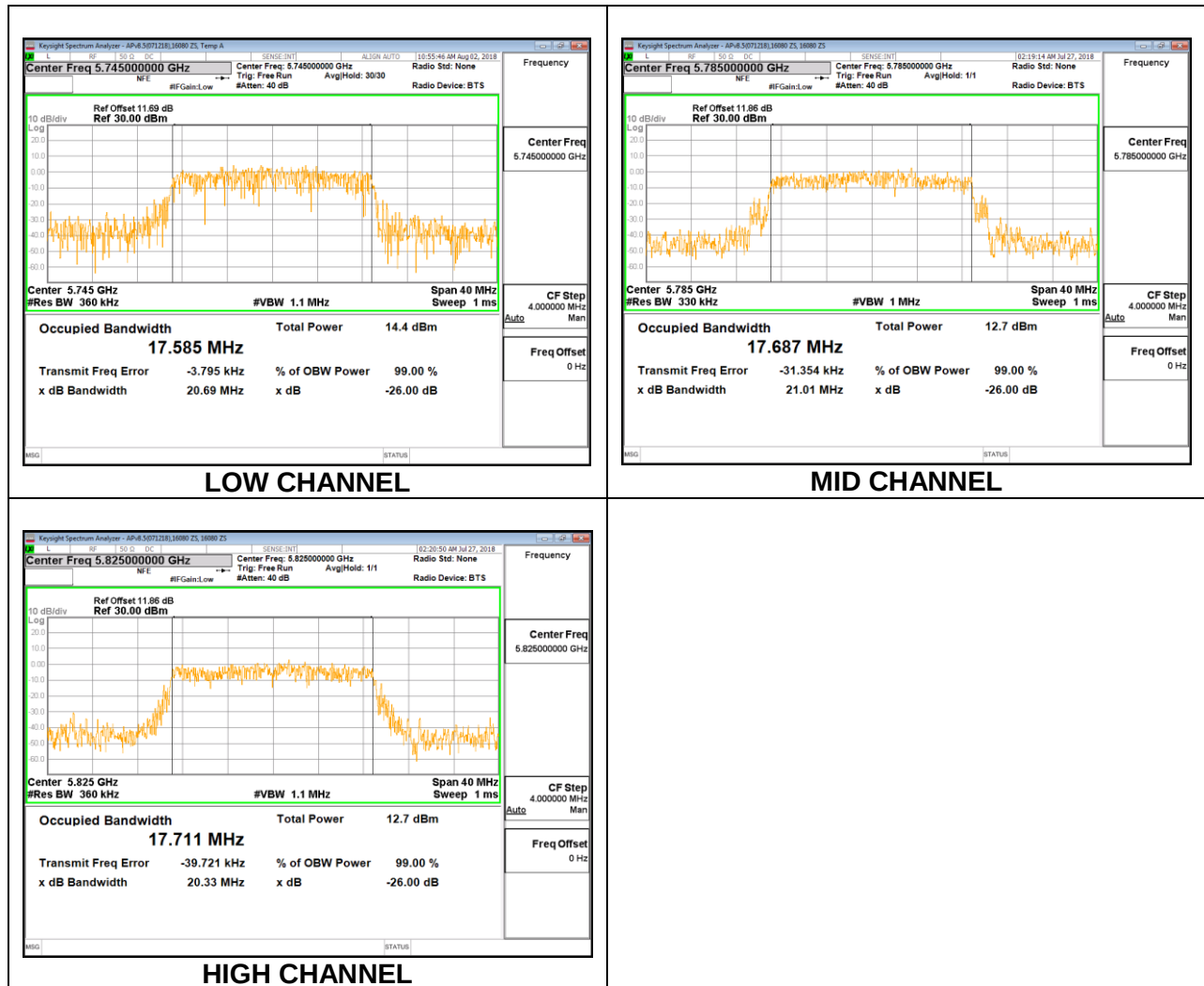
8.3.13. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	16.5560
Mid	5785	16.5080
High	5825	16.4860



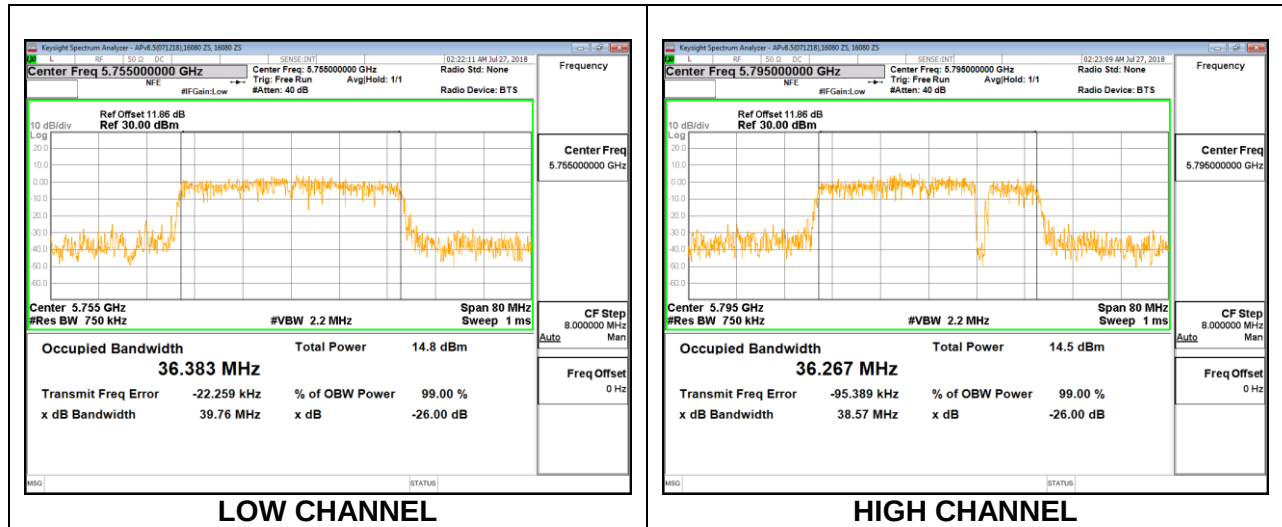
8.3.14. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.5850
Mid	5785	17.6870
High	5825	17.7110



8.3.15. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5755	36.3830
High	5795	36.2670



Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5775	75.7970



8.4. 6 dB BANDWIDTH

LIMITS

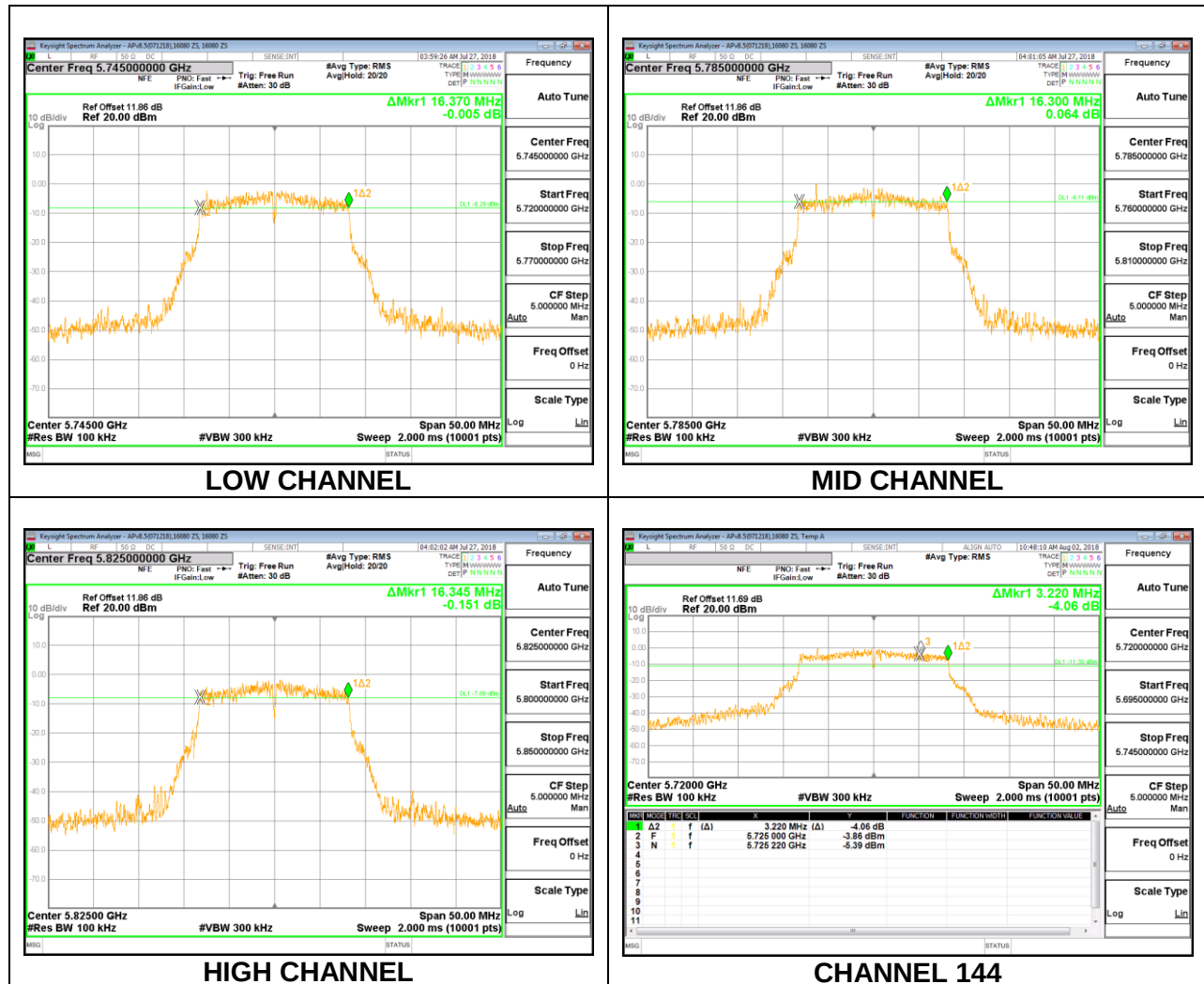
NCC LP0002: 4.7.5

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

RESULTS

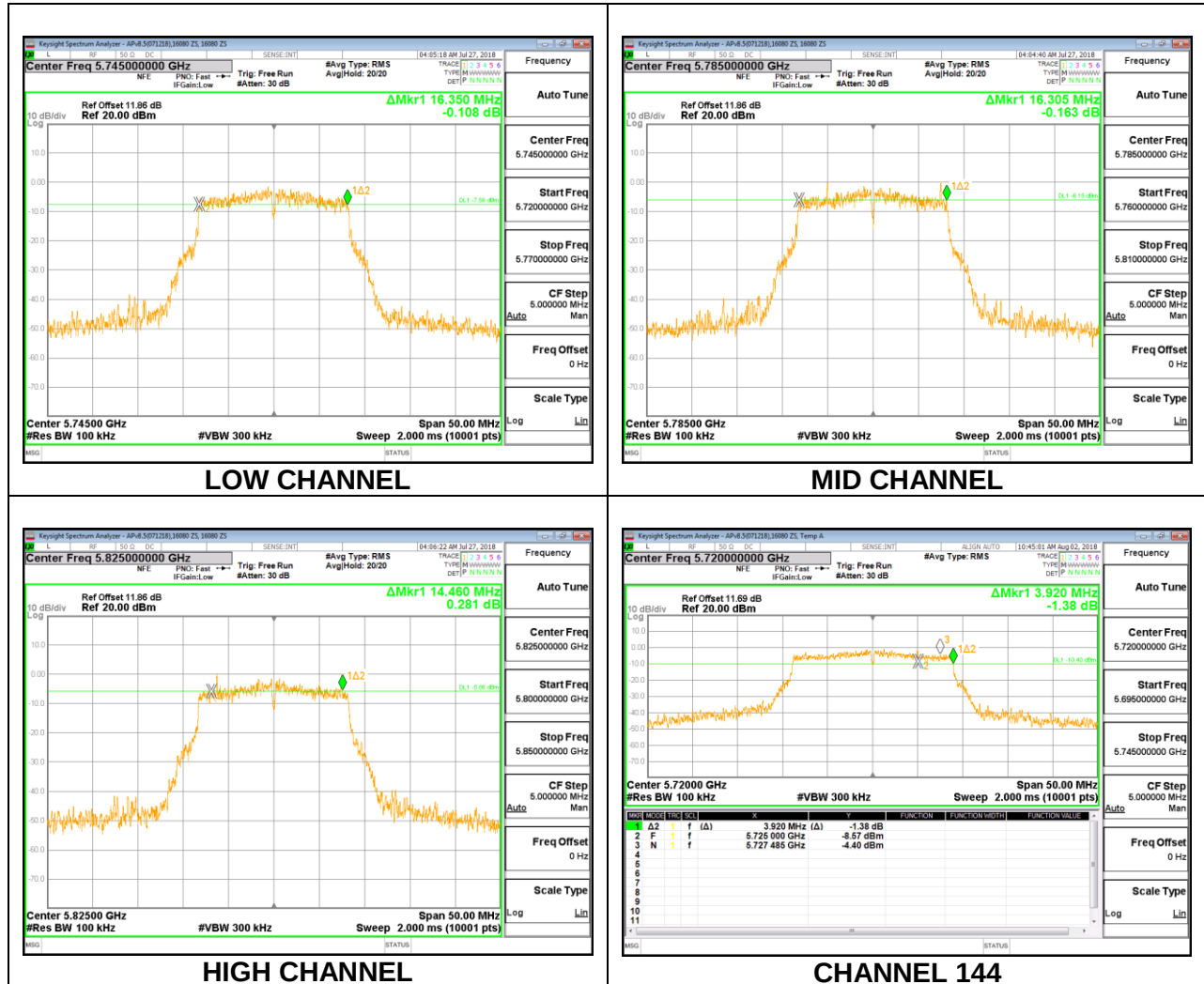
8.4.1. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	16.3700	0.5
Mid	5785	16.3000	0.5
High	5825	16.3450	0.5
144	5720	3.2200	0.5



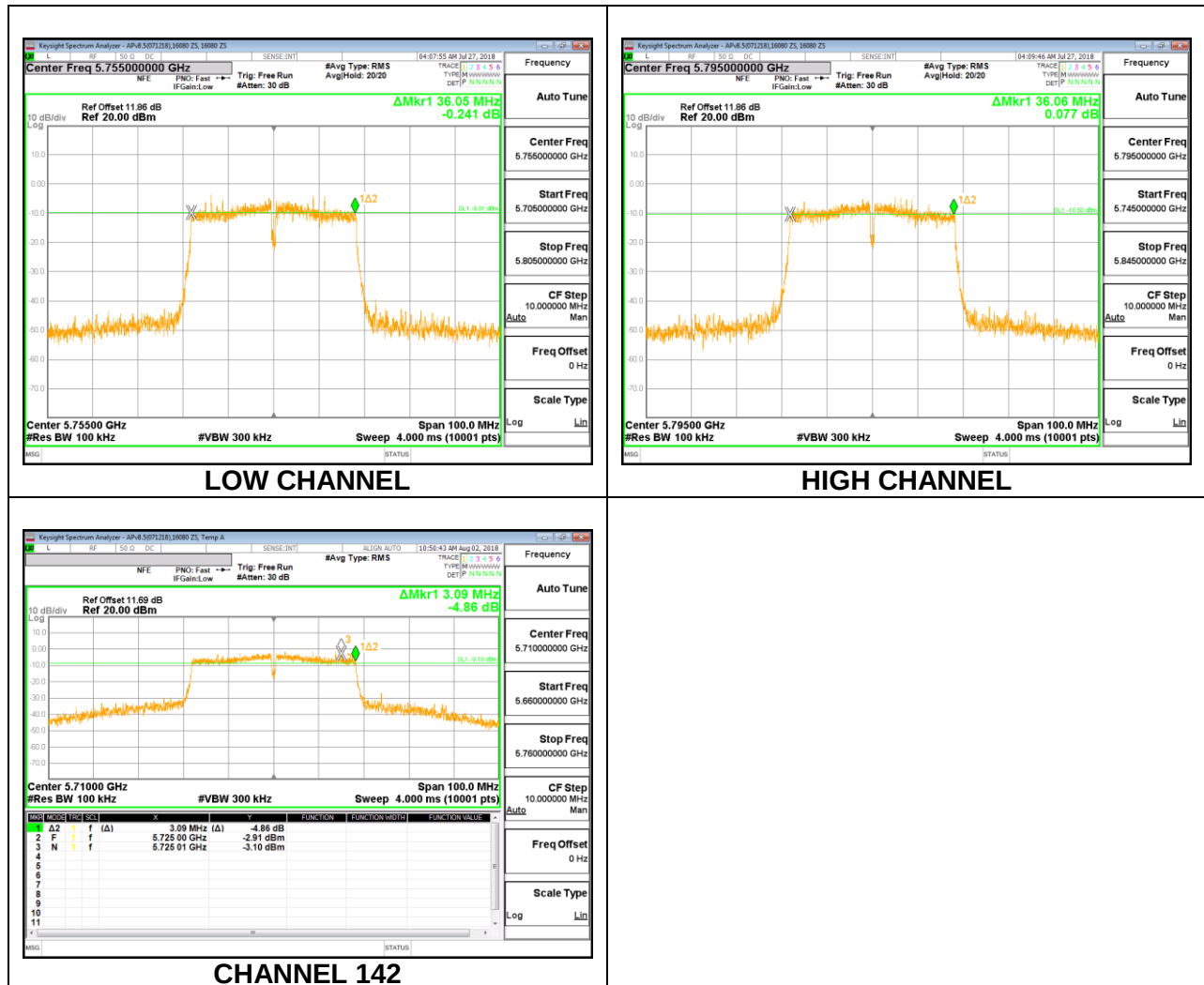
8.4.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	16.3500	0.5
Mid	5785	16.3050	0.5
High	5825	14.4600	0.5
144	5720	3.9200	0.5



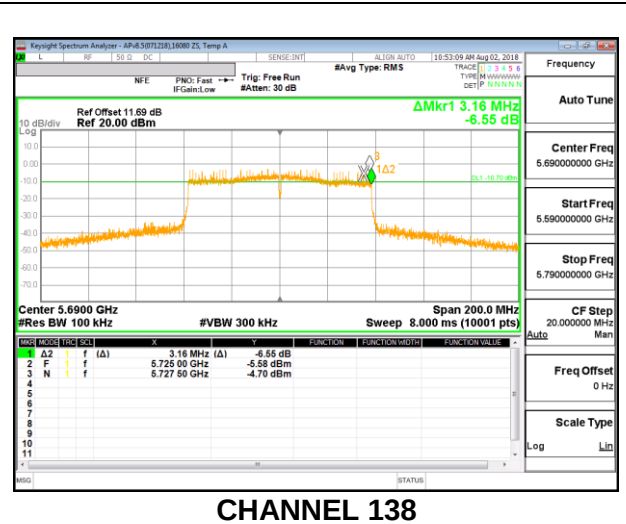
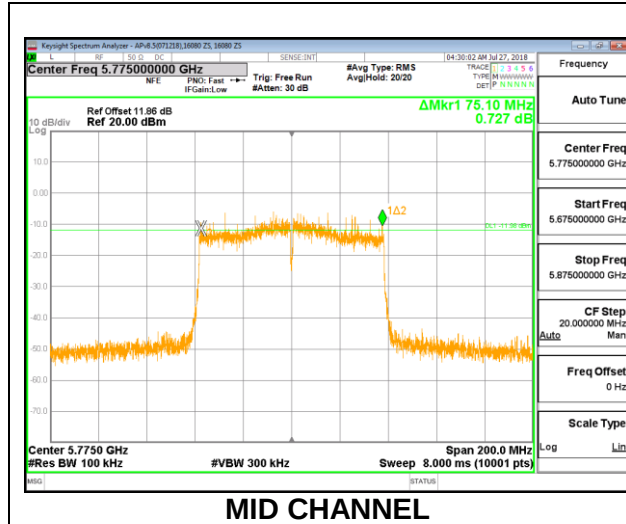
8.4.3. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	36.0500	0.5
High	5795	36.0600	0.5
142	5710	3.0900	0.5



8.4.4. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Mid	5775	75.1000	0.5
138	5690	3.1600	0.5



8.5. OUTPUT POWER AND PSD

LIMITS

NCC LP0002: 4.7.3.1 (4) (A) & 4.7.3.1 (4) (B)

(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.

Cross-polarized antennas. For a system in which the antennas have fixed orientations relative to one another that ensure that the antennas are cross-polarized regardless of any user actions, the directional gain is computed as follows.

(i) Cross-polarized antennas with $NANT = 2$. In the case of a transmitter with only two outputs driving a pair of antennas that are cross-polarized (e.g., vertical and horizontal or left-circular and right-circular), directional gain is the gain of an individual antenna. If the two antennas have different gains, the larger gain applies.

NCC LP0002: 4.7.3.2 (1) & 4.7.3.2 (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 peak 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.

For the band 5.47–5.725 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.

NCC LP0002: 4.7.3.3 (1) & 4.7.3.3 (2)

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. 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

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 1 TX:

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS**8.5.1. 802.11a MODE IN THE 5.2 GHz BAND****Antenna Gain and Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	FCC PSD Limit (dBm/1MHz)
Low	5180	5.00	24.00	11.00
Mid	5200	5.00	24.00	11.00
High	5240	5.00	24.00	11.00

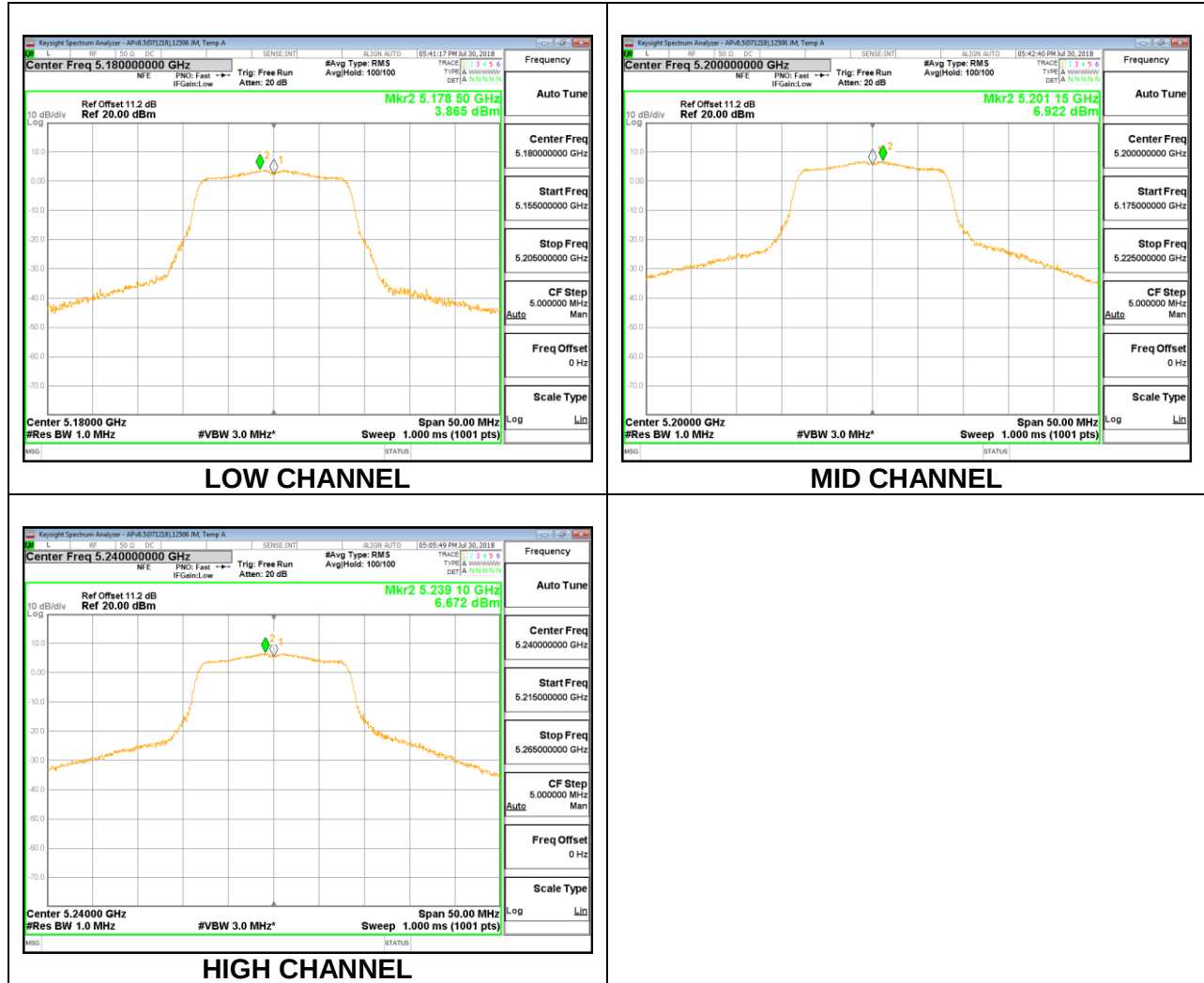
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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Output Power Results

Channel	Frequency (MHz)	Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	14.360	14.36	24.00	-9.64
Mid	5200	17.250	17.25	24.00	-6.75
High	5240	17.320	17.32	24.00	-6.68

PSD Results

Channel	Frequency (MHz)	Measured PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5180	3.865	3.87	11.00	-7.14
Mid	5200	6.922	6.92	11.00	-4.08
High	5240	6.672	6.67	11.00	-4.33

PSD

8.5.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND**Antenna Gain and Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	FCC PSD Limit (dBm/1M Hz)
Low	5180	5.00	24.00	11.00
Mid	5200	5.00	24.00	11.00
High	5240	5.00	24.00	11.00

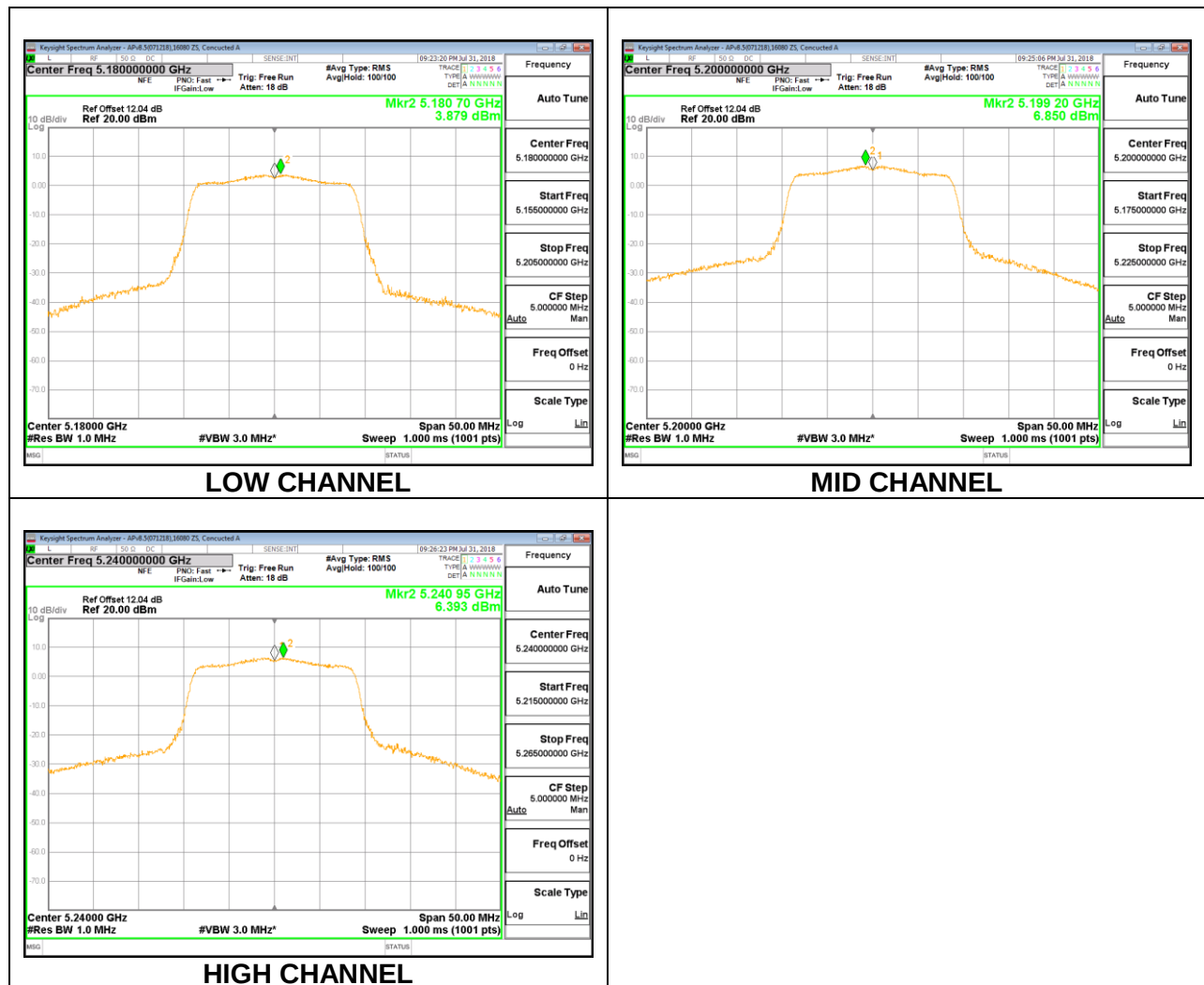
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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Output Power Results

Channel	Frequency (MHz)	Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	13.83	13.83	24.00	-10.17
Mid	5200	17.01	17.01	24.00	-6.99
High	5240	17.02	17.02	24.00	-6.98

PSD Results

Channel	Frequency (MHz)	Measured PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	3.879	3.88	11.00	-7.12
Mid	5200	6.850	6.85	11.00	-4.15
High	5240	6.393	6.39	11.00	-4.61



8.5.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND**Antenna Gain and Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	FCC PSD Limit (dBm/ 1MHz)
Low	5190	5.00	24.00	11.00
High	5230	5.00	24.00	11.00

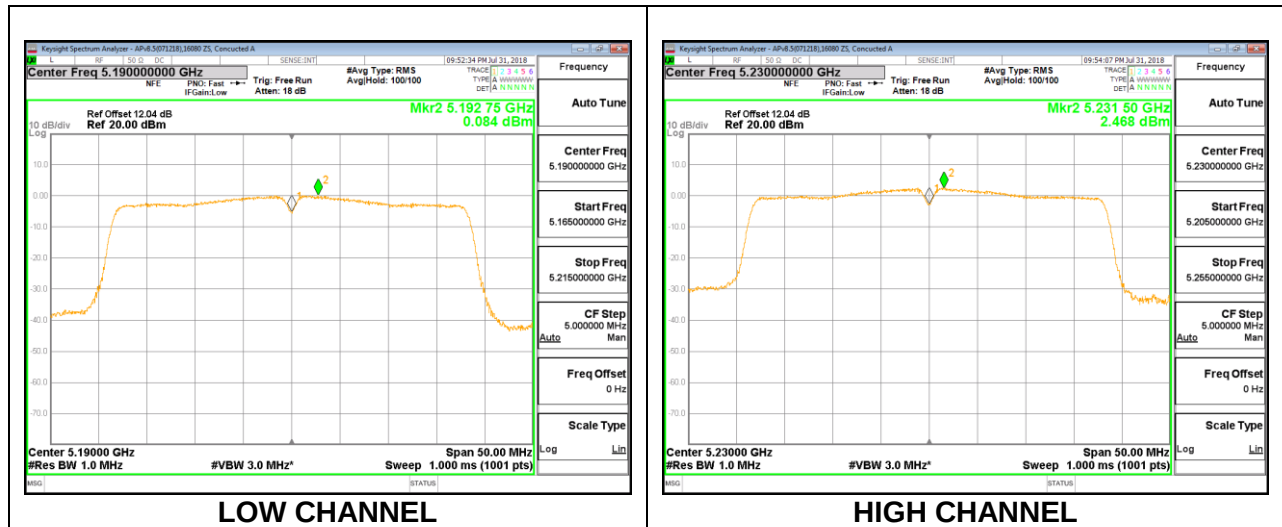
Duty Cycle CF (dB)	0.10	Included in Calculations of Corr'd PSD
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Output Power Results

Channel	Frequency (MHz)	Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	13.020	13.02	24.00	-10.98
High	5230	15.660	15.66	24.00	-8.34

PSD Results

Channel	Frequency (MHz)	Measured PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5190	0.084	0.18	11.00	-10.82
High	5230	2.468	2.57	11.00	-8.43



8.5.4. 802.11ac VHT80 MODE IN THE 5.2 GHz BAND**Antenna Gain and Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	FCC PSD Limit (dBm/ 1MHz)
Mid	5210	5.00	24.00	11.00

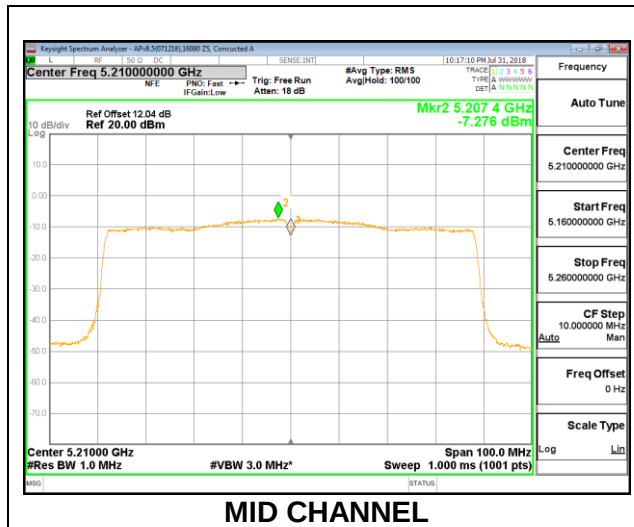
Duty Cycle CF (dB)	0.19	Included in Calculations of Corr'd PSD
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Output Power Results

Channel	Frequency (MHz)	Measured Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5210	9.020	9.02	24.00	-14.98

PPSD Results

Channel	Frequency (MHz)	Measured PSD (dBm/ 1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Mid	5210	-7.276	-7.09	11.00	-18.09



8.5.5. 802.11a MODE IN THE 5.3 GHz BAND**(FCC)****Bandwidth, Antenna Gain, and Limits**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5260	21.70	5.00	24.00	11.00
Mid	5300	21.55	5.00	24.00	11.00
High	5320	21.65	5.00	24.00	11.00

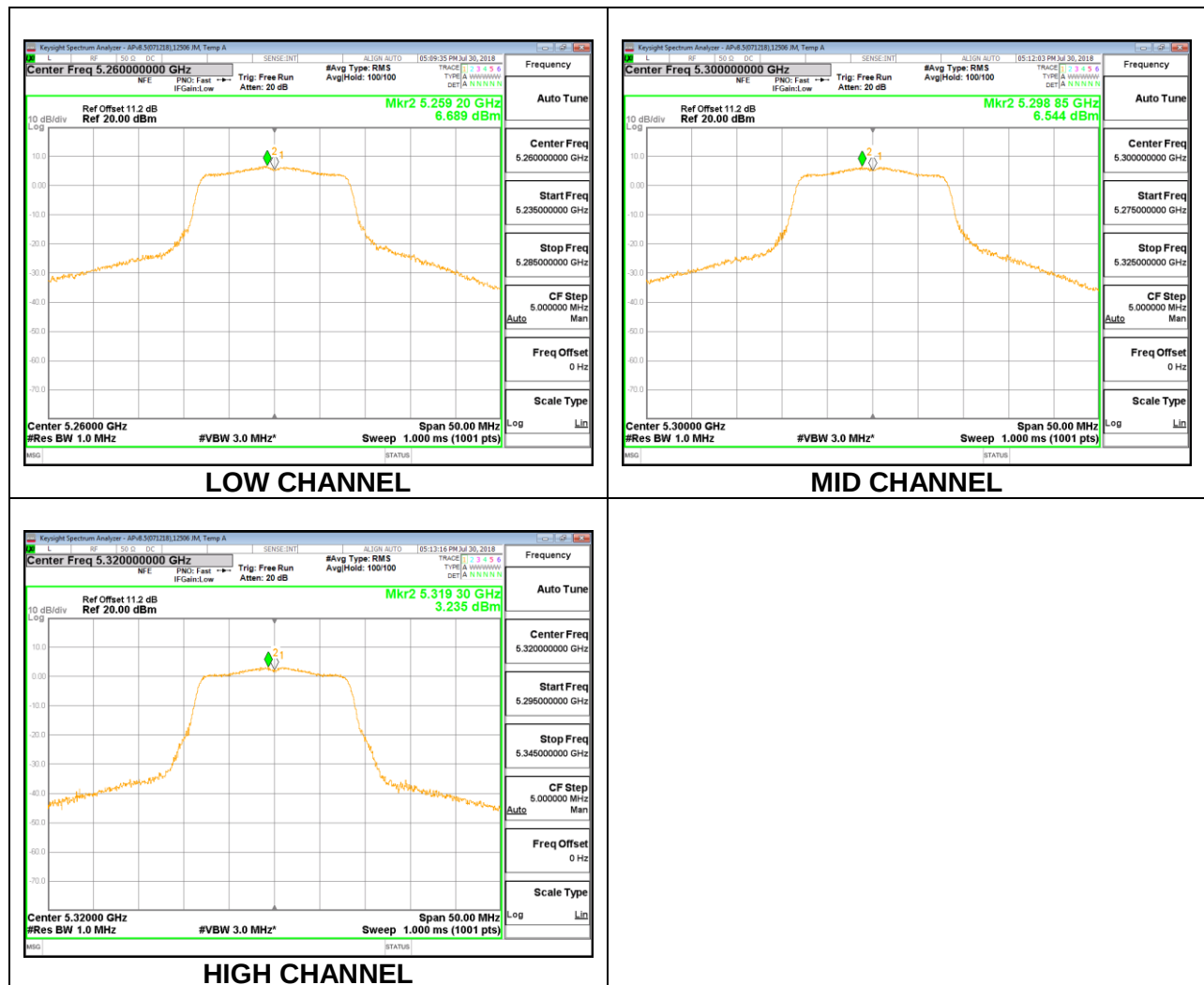
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	17.31	17.31	24.00	-6.69
Mid	5300	17.22	17.22	24.00	-6.78
High	5320	14.17	14.17	24.00	-9.83

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5260	6.689	6.69	11.00	-4.31
Mid	5300	6.544	6.54	11.00	-4.46
High	5320	3.235	3.24	11.00	-7.77



8.5.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND**(FCC)****Bandwidth, Antenna Gain, and Limits**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5260	21.85	5.00	24.00	11.00
Mid	5300	21.80	5.00	24.00	11.00
High	5320	21.95	5.00	24.00	11.00

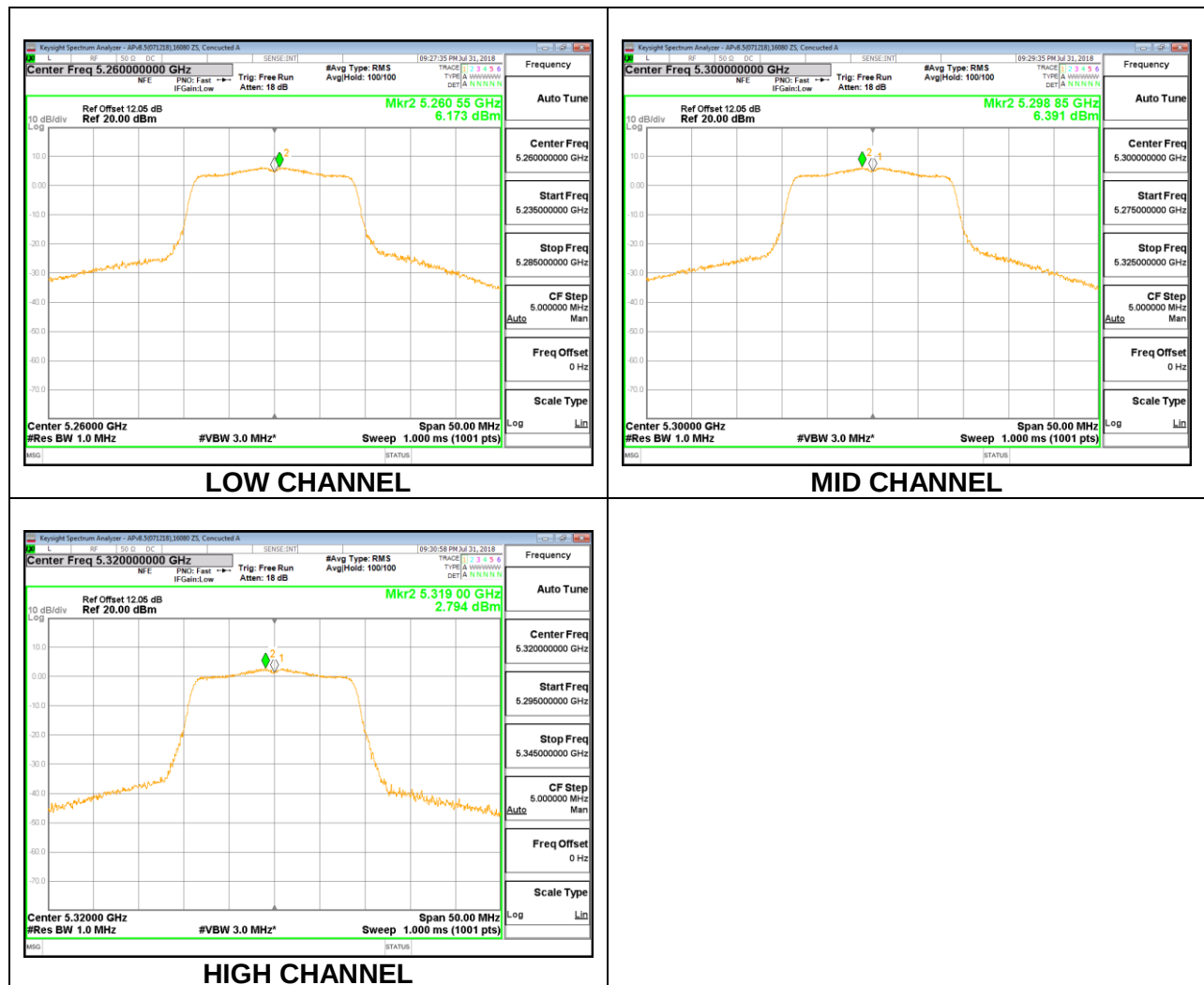
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	17.01	17.01	24.00	-6.99
Mid	5300	16.87	16.87	24.00	-7.13
High	5320	13.53	13.53	24.00	-10.47

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5260	6.173	6.17	11.00	-4.83
Mid	5300	6.391	6.39	11.00	-4.61
High	5320	2.794	2.79	11.00	-8.21



8.5.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND**(FCC)****Bandwidth, Antenna Gain, and Limits**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5270	40.50	5.00	24.00	11.00
High	5310	40.30	5.00	24.00	11.00

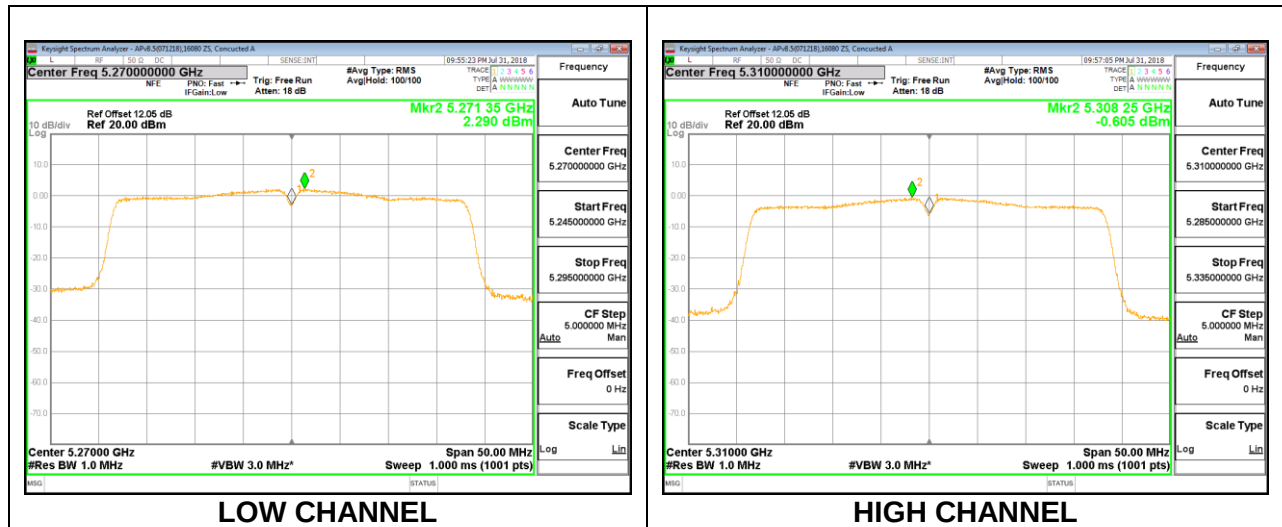
Duty Cycle CF (dB)	0.10	Included in Calculations of Corr'd PSD
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Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	15.16	15.16	24.00	-8.84
High	5310	12.73	12.73	24.00	-11.27

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5270	2.290	2.39	11.00	-8.61
High	5310	-0.605	-0.51	11.00	-11.51



8.5.8. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND**(FCC)****Bandwidth, Antenna Gain, and Limits**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Mid	5290	82.40	5.00	24.00	11.00

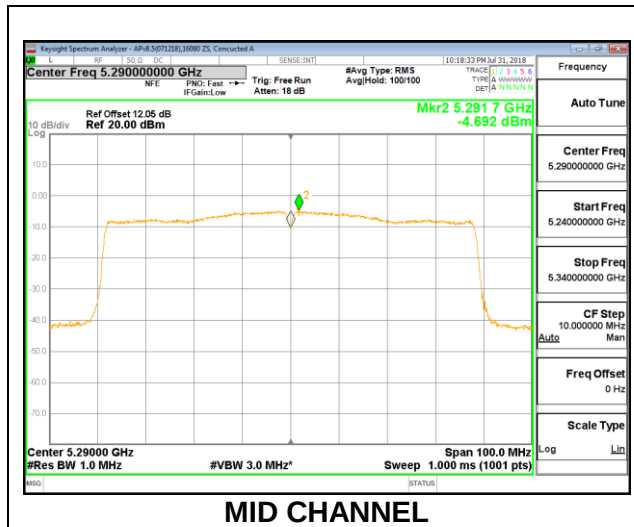
Duty Cycle CF (dB)	0.19	Included in Calculations of Corr'd PSD
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Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5290	11.64	11.64	24.00	-12.36

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Mid	5290	-4.692	-4.50	11.00	-15.50



8.5.9. 802.11a MODE IN THE 5.6 GHz BAND**Antenna Gain and Limits**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	FCC PSD Limit (dBm/1 MHz)
Low	5500	21.65	5.00	24.00	11.00
Mid	5580	21.60	5.00	24.00	11.00
High	5700	21.65	5.00	24.00	11.00
*144	5720	21.60	5.00	24.00	11.00

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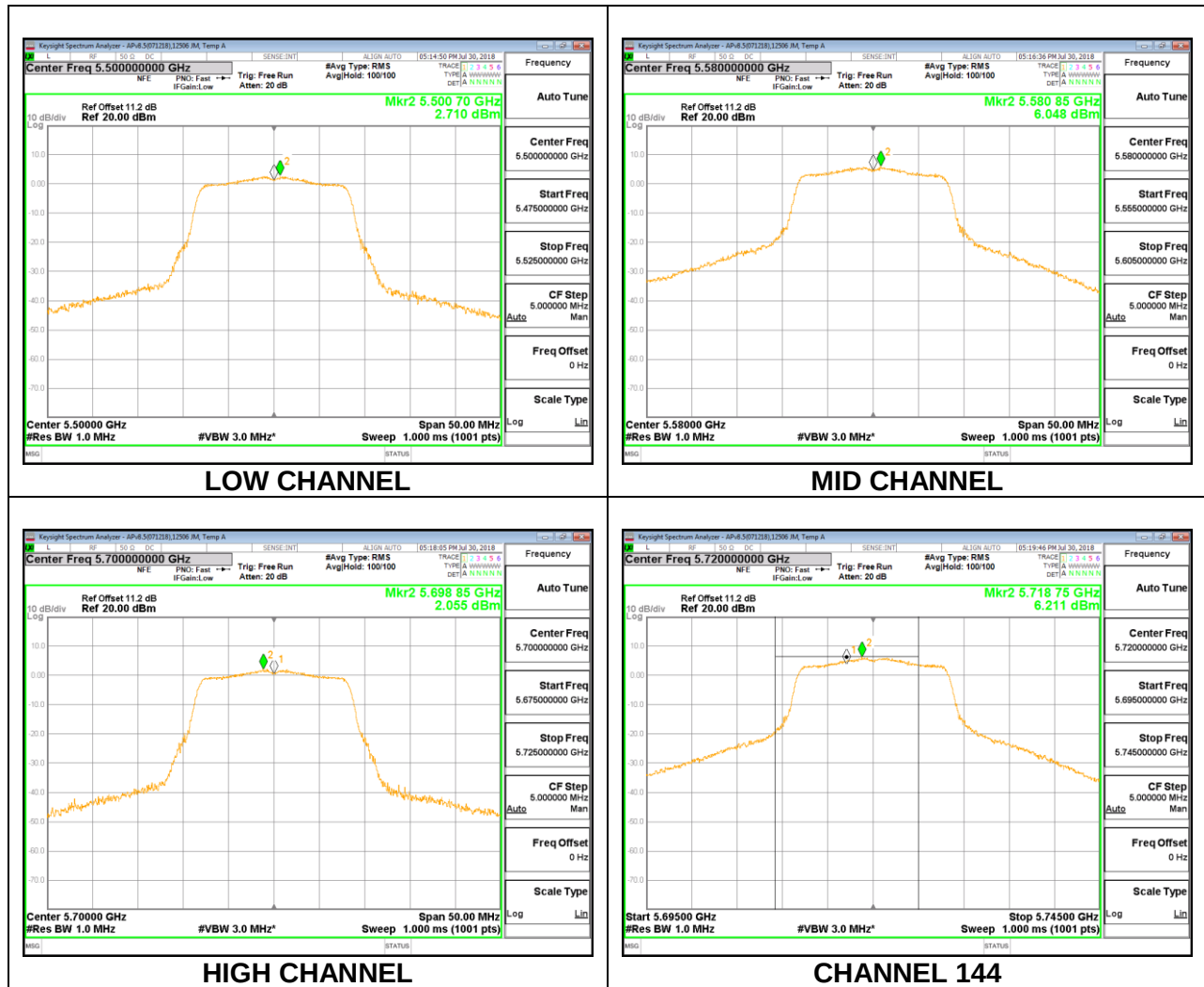
Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	13.960	13.96	24.00	-10.04
Mid	5580	17.060	17.06	24.00	-6.94
High	5700	13.440	13.44	24.00	-10.56
*144	5720	17.020	17.02	24.00	-6.98

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/ 1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5500	2.710	2.710	11.00	-8.29
Mid	5580	6.048	6.048	11.00	-4.95
High	5700	2.055	2.055	11.00	-8.95
*144	5720	6.211	6.211	11.00	-4.79

*Based on the 15.80MHz bandwidth for the portion that the straddle channel occupies in the UNII-2C band, the calculated power limit is $11 + 10 \cdot \log(15.80) = 22.99$ dBm. The total signal power is 17.02 dBm which is less than the limit of 22.99dBm.



8.5.10. 802.11n HT20 MODE IN THE 5.6 GHz BAND**Antenna Gain and Limits**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	FCC PSD Limit (dBm/1MHz)
Low	5500	22.60	5.00	24.00	11.00
Mid	5580	22.00	5.00	24.00	11.00
High	5700	22.00	5.00	24.00	11.00
*144	5720	21.95	5.00	24.00	11.00

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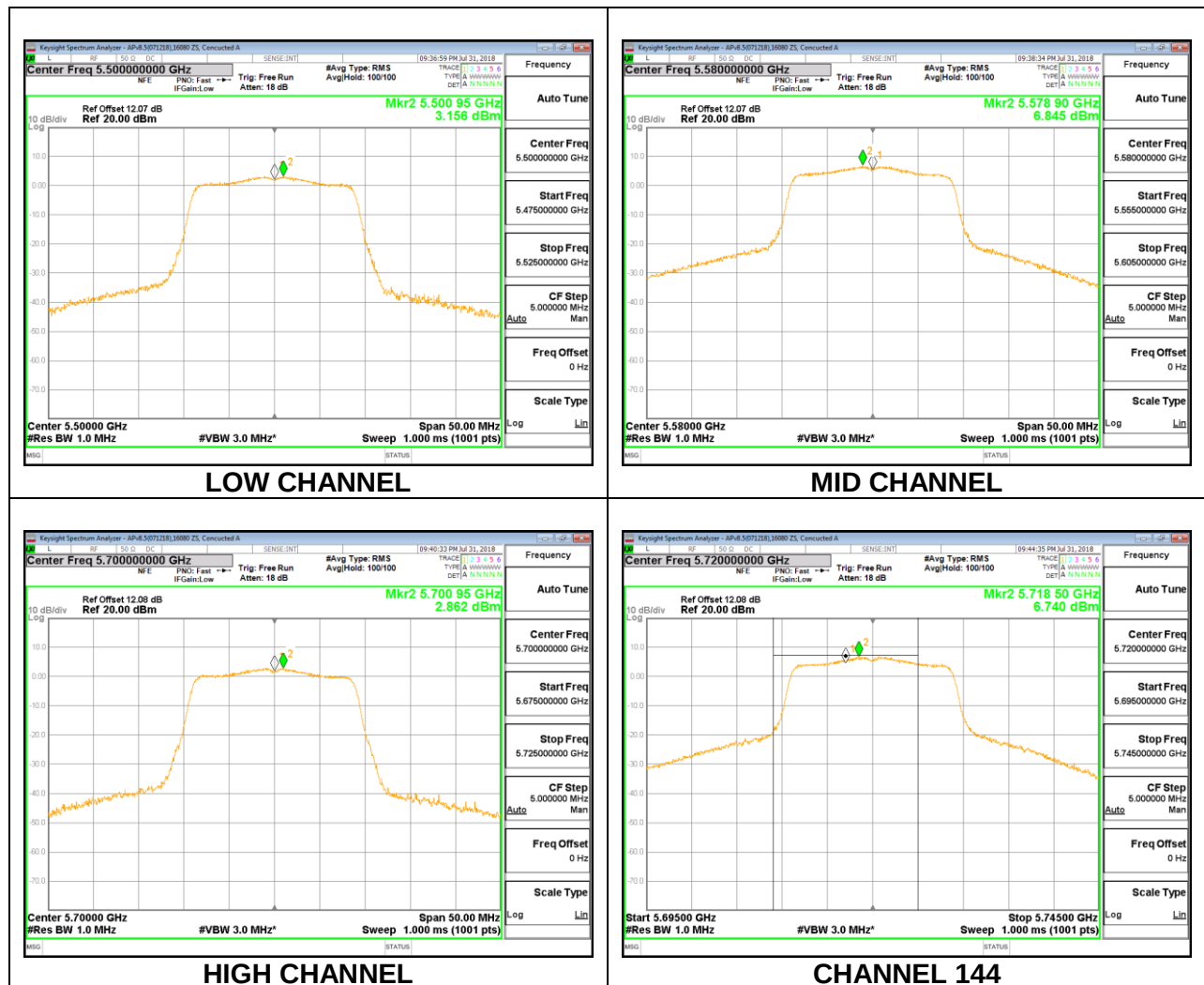
Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	13.620	13.62	24.00	-10.38
Mid	5580	16.870	16.87	24.00	-7.13
High	5700	12.900	12.90	24.00	-11.10
*144	5720	16.780	16.78	24.00	-7.22

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5500	3.156	11.00	-7.84
Mid	5580	6.845	11.00	-4.16
High	5700	2.862	11.00	-8.14
*144	5720	6.740	11.00	-4.26

*Based on the 15.98MHz bandwidth for the portion that the straddle channel occupies in the UNII-2C band, the calculated power limit is $11+10*\log(15.98) = 23.04$ dBm. The total signal power is 16.78 dBm which is less than the limit of 23.04dBm.



8.5.11. 802.11n HT40 MODE IN THE 5.6 GHz BAND**Antenna Gain and Limits**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Direction Gain (dBi)	FCC Power Limit (dBm)	FCC PSD Limit (dBm/1 MHz)
Low	5510	40.60	5.00	24.00	11.00
Mid	5550	40.50	5.00	24.00	11.00
High	5670	40.60	5.00	24.00	11.00
*142	5710	40.70	5.00	24.00	11.00

Duty Cycle CF (dB)	0.10	Included in Calculations of Corr'd PSD
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Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	13.550	13.55	24.00	-10.45
Mid	5550	15.500	15.50	24.00	-8.50
High	5670	15.780	15.78	24.00	-8.22
*142	5710	15.620	15.62	24.00	-8.38

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/ 1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5510	0.207	0.307	11.00	-10.69
Mid	5550	2.878	2.978	11.00	-8.02
High	5670	3.156	3.256	11.00	-7.74
*142	5710	3.855	3.955	11.00	-7.05

*The 26dB signal bandwidth within the 5470 -5725 MHz band clearly exceeds 20MHz and so the limit for the power within the 5470-5725MHz band is 24dBm.