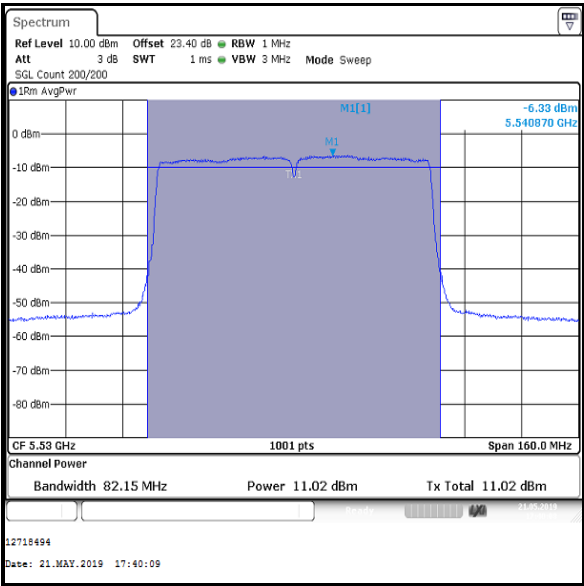
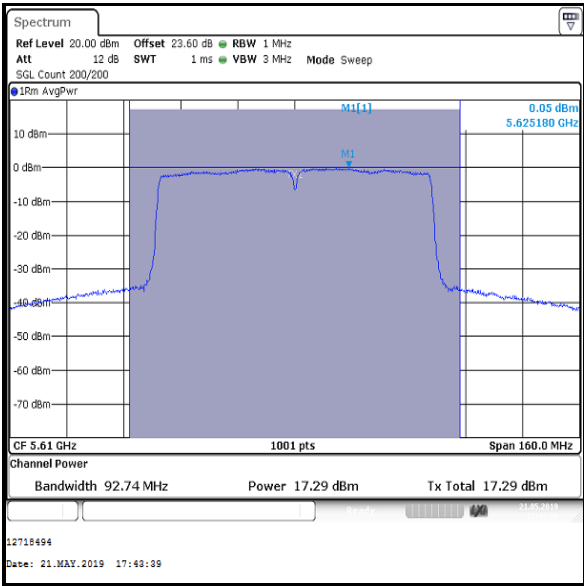


Transmitter Maximum Conducted Output Power (5.47-5.725 GHz band) (continued)

Results: 802.11ac / 80 MHz / MIMO / 3Tx SDM / BPSK / MCS0x3 / Core 1

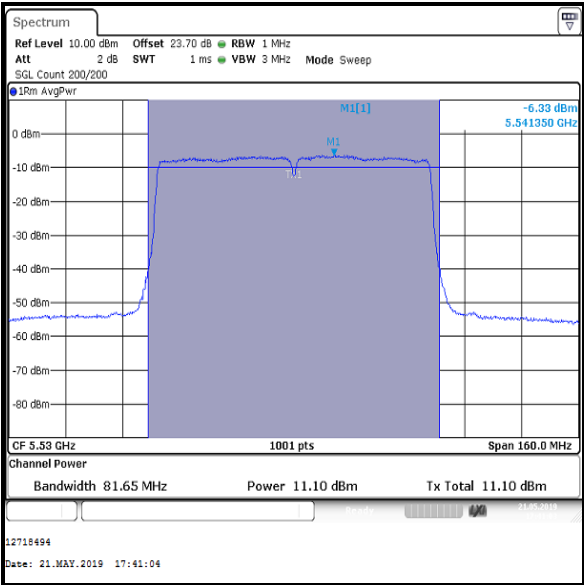


Bottom Channel

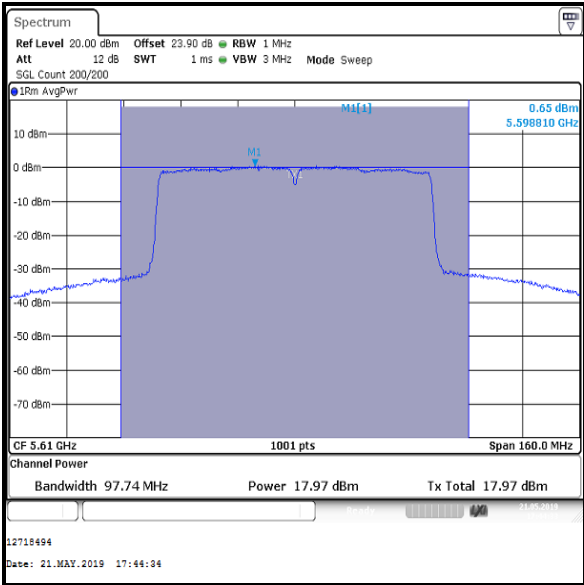


Top Channel

Results: 802.11ac / 80 MHz / MIMO / 3Tx SDM / BPSK / MCS0x3 / Core 2



Bottom Channel



Top Channel

Transmitter Maximum Conducted Output Power (5.47-5.725 GHz band) (continued)**Results: 802.11n / 20 MHz / MIMO / 3Tx TXBF / BPSK / MCS0**

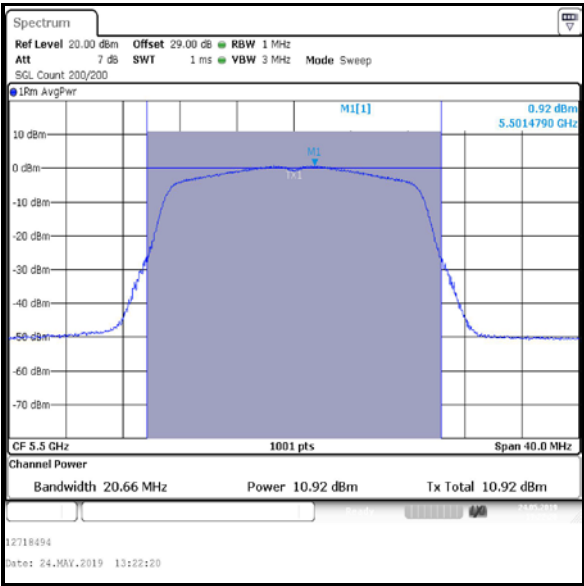
Channel	Frequency (MHz)	Core 0			Core 1		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)
Bottom	5500	10.9	0.1	11.0	10.9	0.1	11.0
Middle	5580	10.5	0.1	10.6	11.1	0.1	11.2
Top	5700	9.6	0.1	9.7	10.8	0.1	10.9

Channel	Frequency (MHz)	Core 2			Core 0, Core 1 & Core 2		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Corrected Conducted Power Core 0 (dBm)	Corrected Conducted Power Core 1 (dBm)	Corrected Conducted Power Core 2 (dBm)
Bottom	5500	10.9	0.1	11.0	11.0	11.0	11.0
Middle	5580	10.7	0.1	10.8	10.6	11.2	10.8
Top	5700	10.9	0.1	11.0	9.7	10.9	11.0

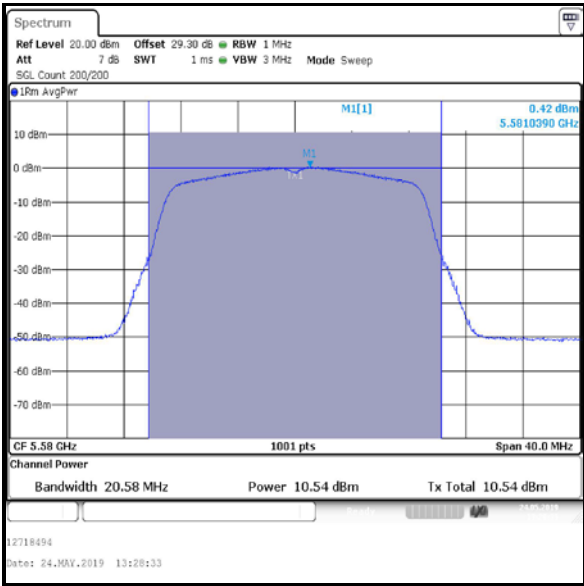
Channel	Frequency (MHz)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5500	15.8	19.9	4.1	Complied
Middle	5580	15.6	19.9	4.3	Complied
Top	5700	15.3	19.9	4.6	Complied

Transmitter Maximum Conducted Output Power (5.47-5.725 GHz band) (continued)

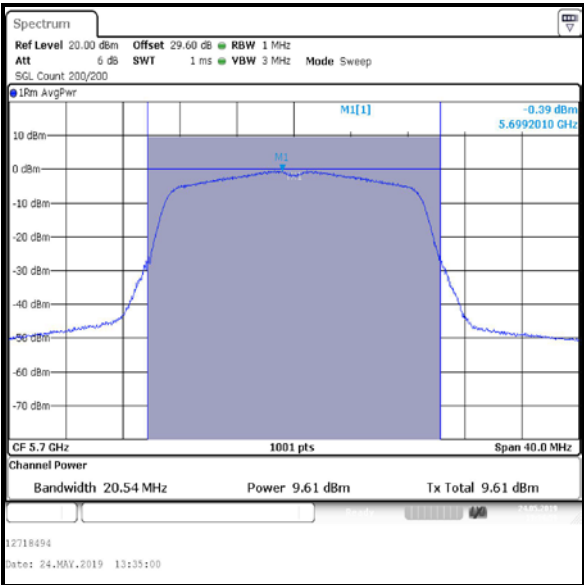
Results: 802.11n / 20 MHz / MIMO / 3Tx TXBF / BPSK / MCS0 / Core 0



Bottom Channel



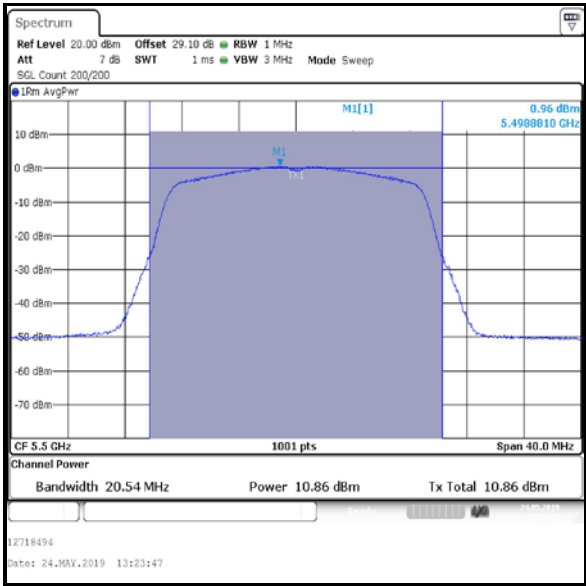
Middle Channel



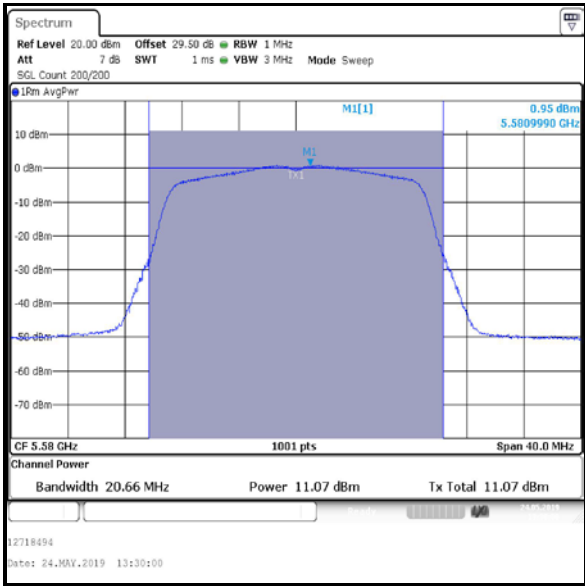
Top Channel

Transmitter Maximum Conducted Output Power (5.47-5.725 GHz band) (continued)

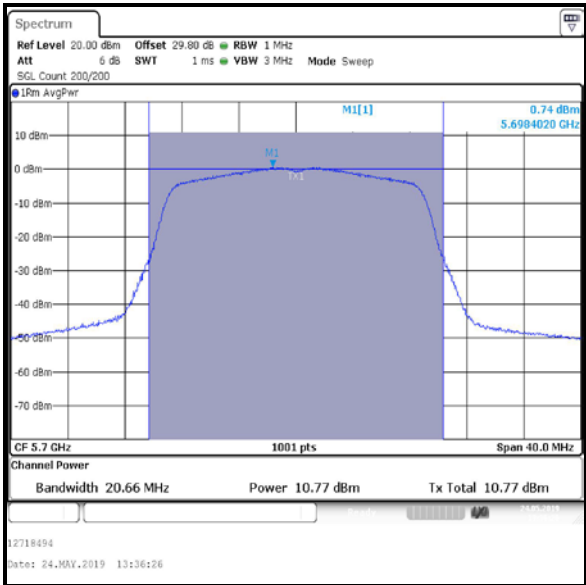
Results: 802.11n / 20 MHz / MIMO / 3Tx TXBF / BPSK / MCS0 / Core 1



Bottom Channel



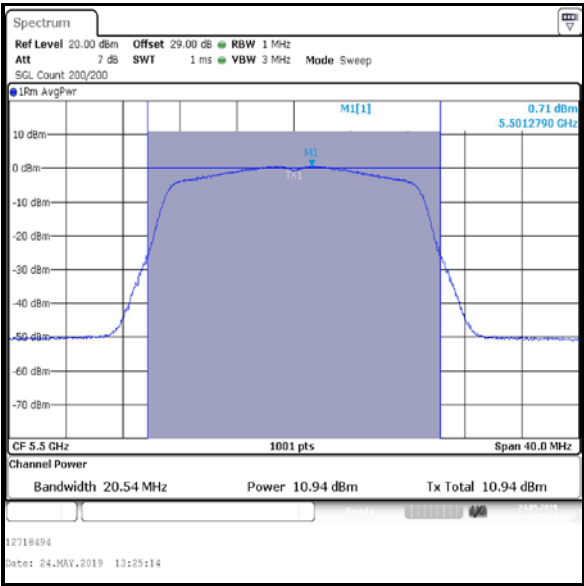
Middle Channel



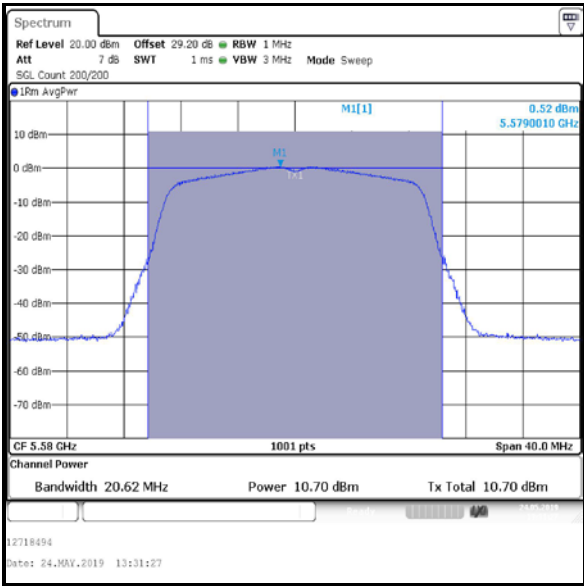
Top Channel

Transmitter Maximum Conducted Output Power (5.47-5.725 GHz band) (continued)

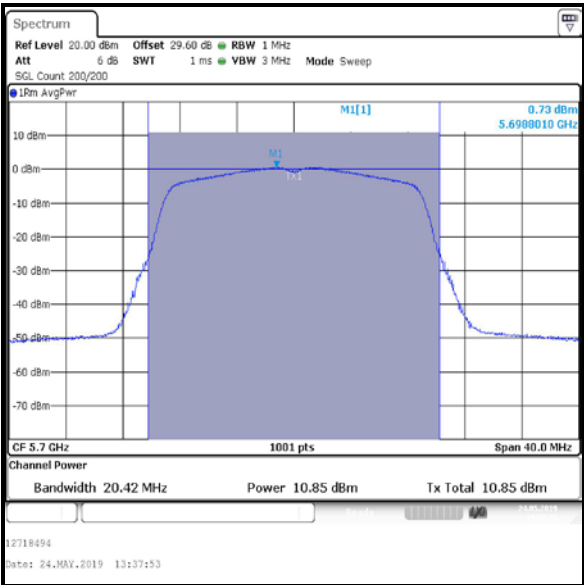
Results: 802.11n / 20 MHz / MIMO / 3Tx TXBF / BPSK / MCS0 / Core 2



Bottom Channel



Middle Channel



Top Channel

Transmitter Maximum Conducted Output Power (5.47-5.725 GHz band) (continued)**Results: 802.11n / 40 MHz / MIMO / 3Tx TXBF / BPSK / MCS0**

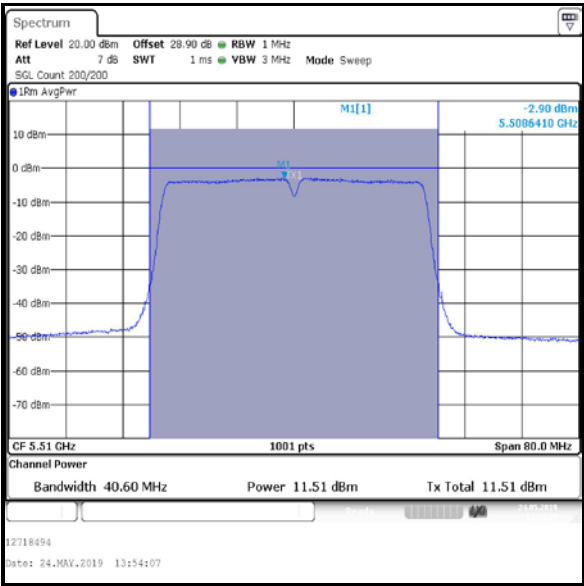
Channel	Frequency (MHz)	Core 0			Core 1		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)
Bottom	5510	11.5	0.1	11.6	11.5	0.1	11.6
Middle	5590	12.6	0.1	12.7	13.3	0.1	13.4
Top	5670	13.7	0.1	13.8	13.6	0.1	13.7

Channel	Frequency (MHz)	Core 2			Core 0, Core 1 & Core 2		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Corrected Conducted Power Core 0 (dBm)	Corrected Conducted Power Core 1 (dBm)	Corrected Conducted Power Core 2 (dBm)
Bottom	5510	11.6	0.1	11.7	11.6	11.6	11.7
Middle	5590	13.0	0.1	13.1	12.7	13.4	13.1
Top	5670	13.6	0.1	13.7	13.8	13.7	13.7

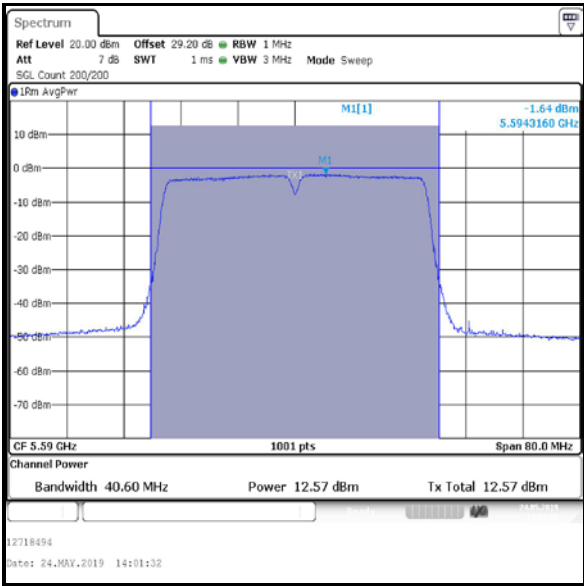
Channel	Frequency (MHz)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5510	16.4	19.9	3.5	Complied
Middle	5590	17.8	19.9	2.1	Complied
Top	5670	18.5	19.9	1.4	Complied

Transmitter Maximum Conducted Output Power (5.47-5.725 GHz band) (continued)

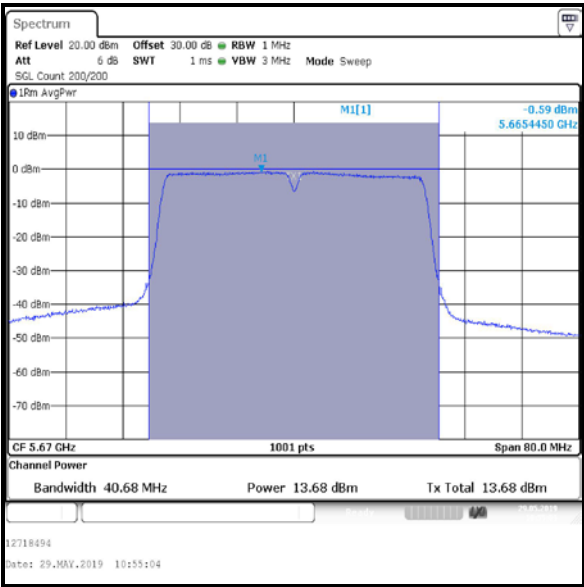
Results: 802.11n / 40 MHz / MIMO / 3Tx TXBF / BPSK / MCS0 / Core 0



Bottom Channel



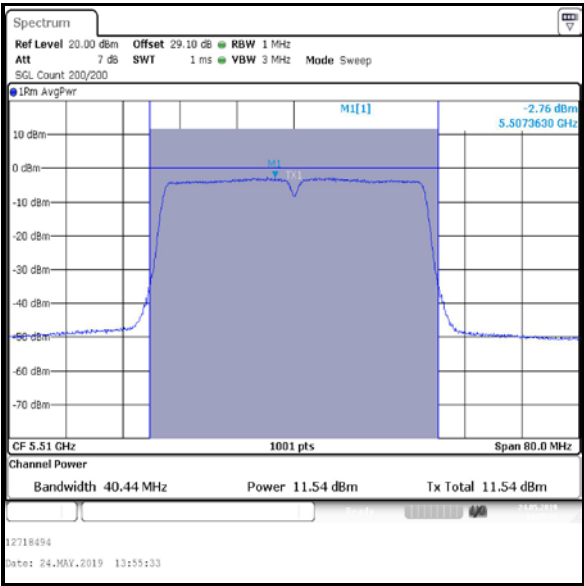
Middle Channel



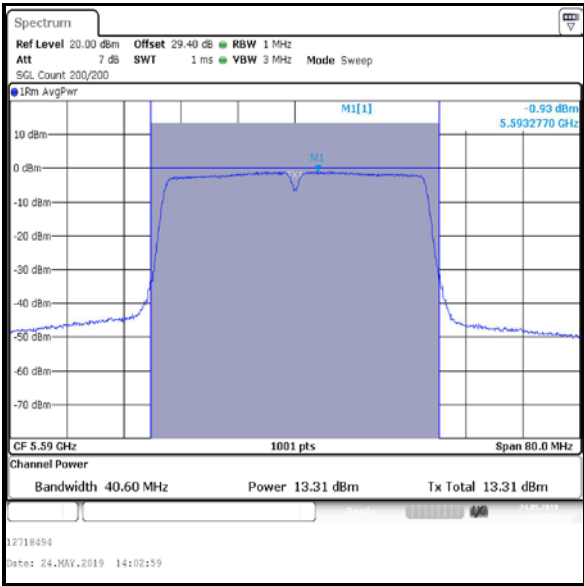
Top Channel

Transmitter Maximum Conducted Output Power (5.47-5.725 GHz band) (continued)

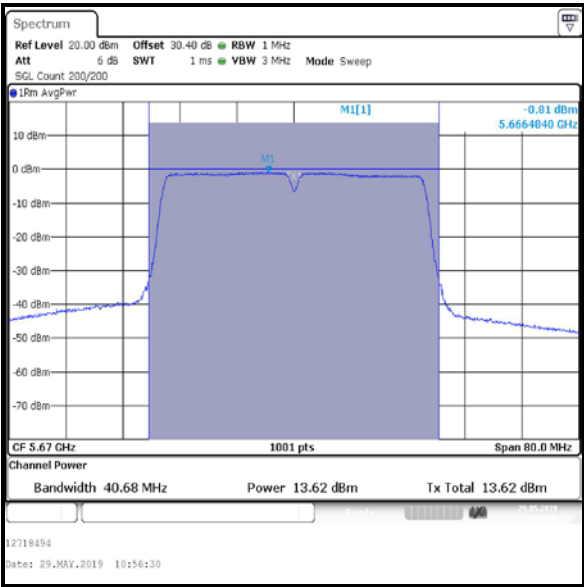
Results: 802.11n / 40 MHz / MIMO / 3Tx TXBF / BPSK / MCS0 / Core 1



Bottom Channel



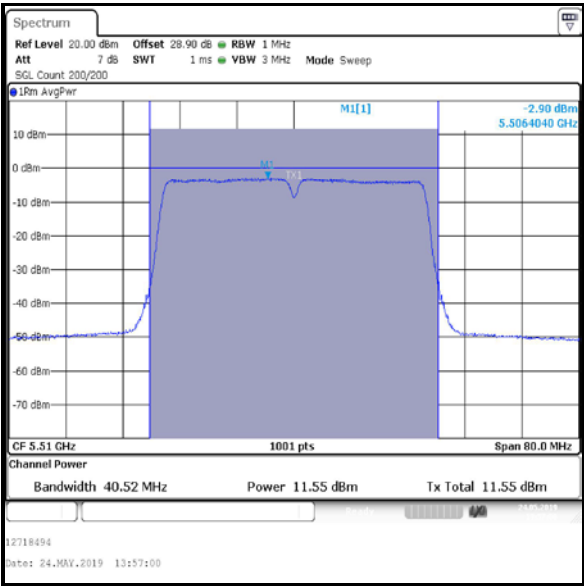
Middle Channel



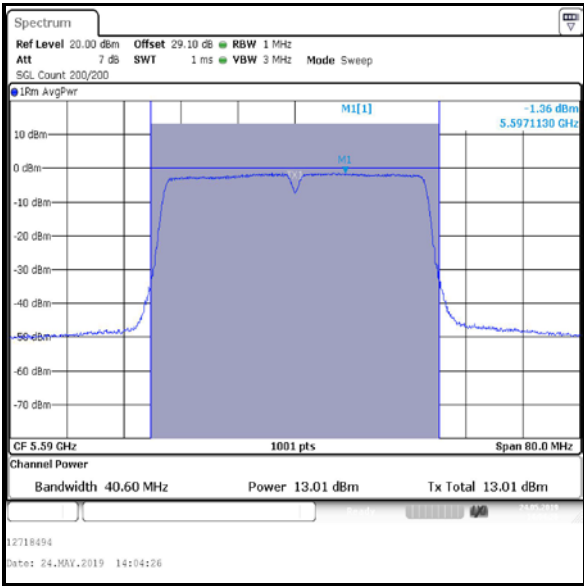
Top Channel

Transmitter Maximum Conducted Output Power (5.47-5.725 GHz band) (continued)

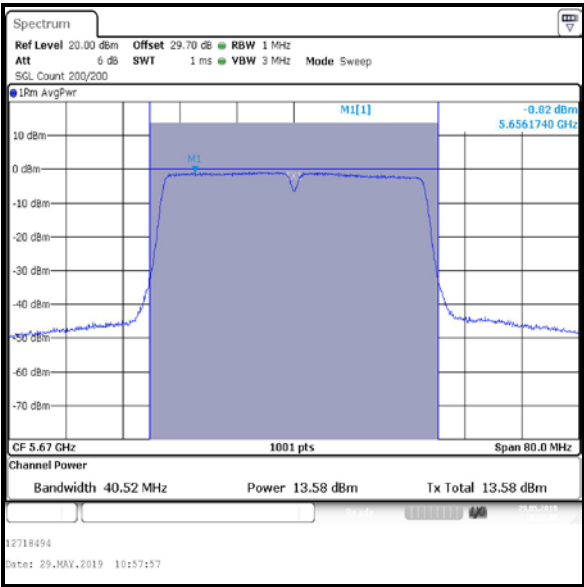
Results: 802.11n / 40 MHz / MIMO / 3Tx TXBF / BPSK / MCS0 / Core 2



Bottom Channel



Middle Channel



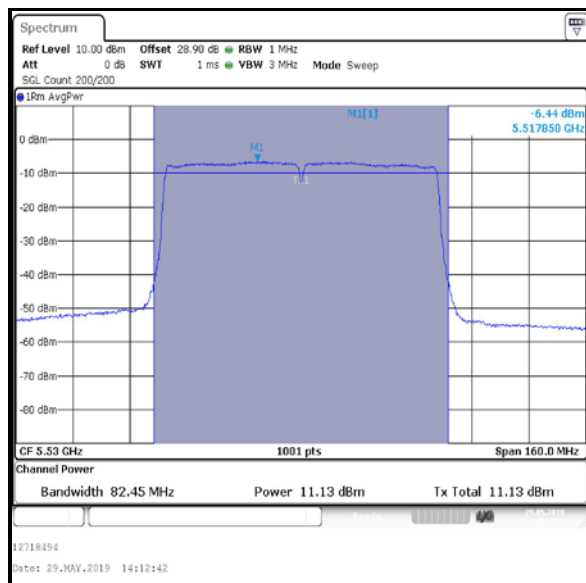
Top Channel

Transmitter Maximum Conducted Output Power (5.47-5.725 GHz band) (continued)**Results: 802.11ac / 80 MHz / MIMO / 3Tx TXBF / BPSK / MCS0x1**

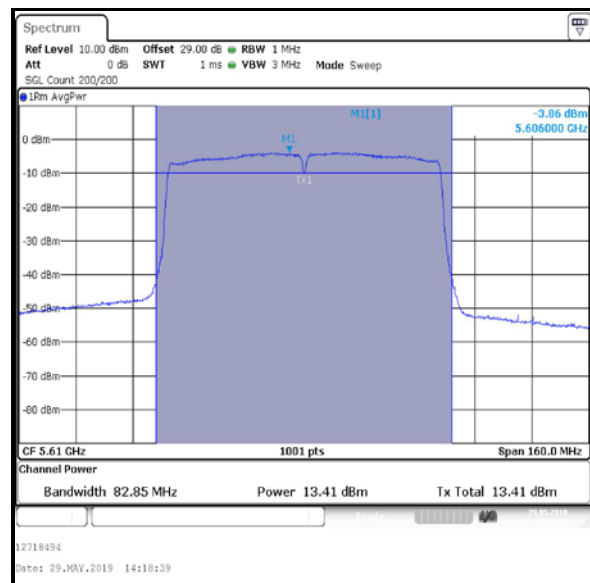
Channel	Frequency (MHz)	Core 0			Core 1		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)
Bottom	5530	11.1	0.1	11.2	11.0	0.1	11.1
Top	5610	13.4	0.1	13.5	13.4	0.1	13.5

Channel	Frequency (MHz)	Core 2			Core 0, Core 1 & Core 2		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Corrected Conducted Power Core 0 (dBm)	Corrected Conducted Power Core 1 (dBm)	Corrected Conducted Power Core 2 (dBm)
Bottom	5530	10.7	0.1	10.8	11.2	11.1	10.8
Top	5610	13.2	0.1	13.3	13.5	13.5	13.3

Channel	Frequency (MHz)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5530	15.8	19.9	4.1	Complied
Top	5610	18.2	19.9	1.7	Complied

Results: 802.11ac / 80 MHz / MIMO / 3Tx TXBF / BPSK / MCS0x1 / Core 0

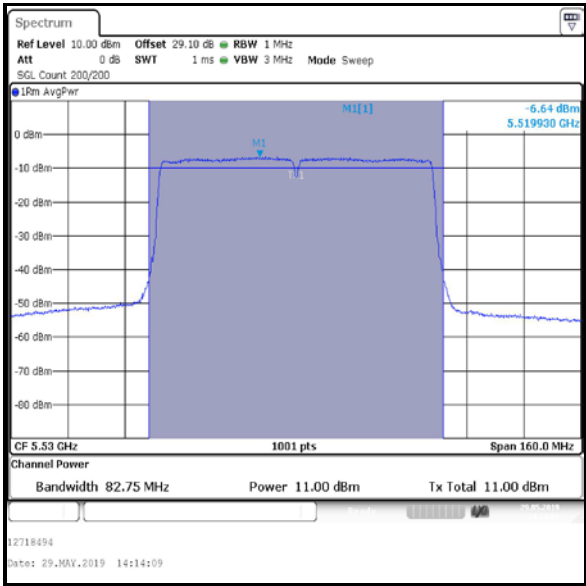
Bottom Channel



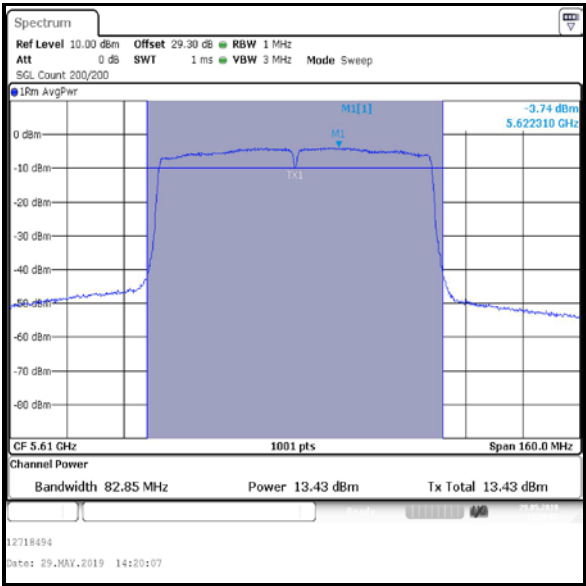
Top Channel

Transmitter Maximum Conducted Output Power (5.47-5.725 GHz band) (continued)

Results: 802.11ac / 80 MHz / MIMO / 3Tx TXBF / BPSK / MCS0x1 / Core 1

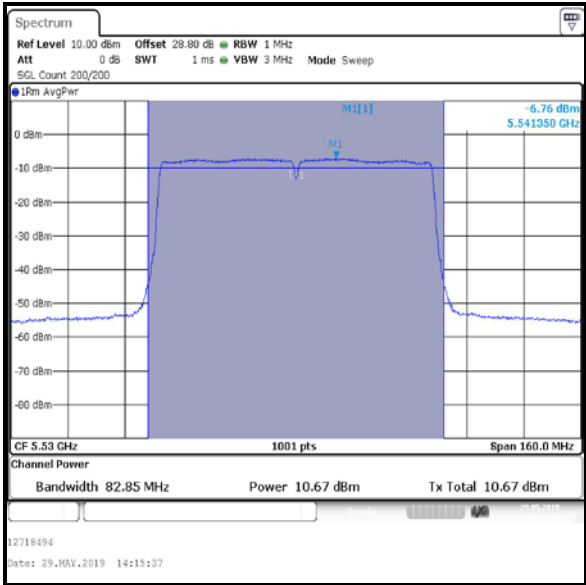


Bottom Channel

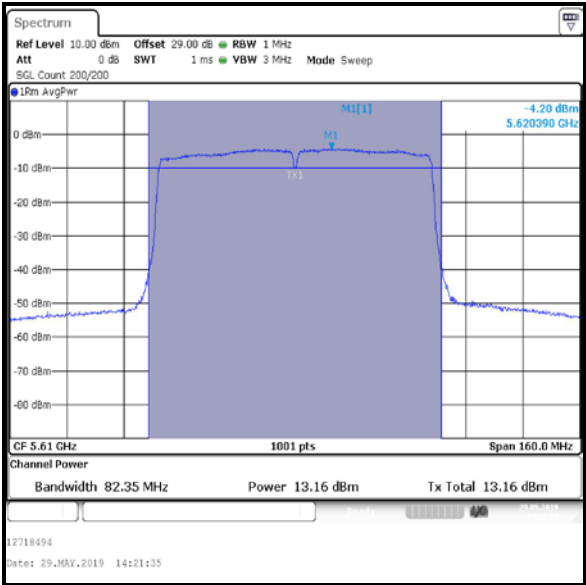


Top Channel

Results: 802.11ac / 80 MHz / MIMO / 3Tx TXBF / BPSK / MCS0x1 / Core 2



Bottom Channel



Top Channel

Transmitter Maximum Conducted Output Power (Straddle Channels)**4.4.4. Channels that straddle the U-NII-2C and U-NII-3 bands****Test Summary:**

Test Engineers:	Max Passell, Victor Carmon & Matthew Botfield	Test Dates:	19 May 2019 to 30 May 2019
Test Sample Serial Numbers:	C02YF007MFLF & C02YD003MFLQ		

FCC Reference:	Part 15.407(a)(2)
Test Method Used:	KDB 789033 D02 Section II.E.2.b) and II.E.2.d)

Environmental Conditions:

Temperature (°C):	20 to 23
Relative Humidity (%):	40 to 54

Note(s):

1. Channels that straddle the U-NII-2C and U-NII-3 bands at 5725 MHz need to meet requirements of both U-NII bands. Due to maximum conducted power limit being more stringent on U-NII-2C, compliance is shown against the limits of U-NII-2C. By default, the EUT also complies on U-NII-3.
2. For conducted power tests where the duty cycle is >98%, the measurements were performed using a signal analyser in accordance with FCC KDB 789033 II.E.2.b) Method SA-1. Where the duty cycle is <98%, the measurements were performed in accordance with FCC KDB 789033 II.E.2.d) Method SA-2. The signal analyser's integration function was used to integrate across the 26 dB emission bandwidth. The resolution bandwidth was set to 1 MHz and video bandwidth 3 MHz. An RMS detector was used and sweep time was set to auto and 200 traces performed. The span was set to encompass the entire 26 dB emission bandwidth. The channel power results are recorded in the tables below.
3. Measurements were performed using configurations detailed in Section 3.5 of this test report on the relevant channels.
4. For data rates where the EUT was transmitting at <98% duty cycle, the calculated duty cycle in Section 4.1 was added to the measured power in order to compute the average power during the actual transmission time.

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Note(s):**

5. The FCC Part 15.407(a)(2) limit is the lesser of 250 mW (24.0 dBm) or $11 \text{ dBm} + 10 \log_{10} B$, where B is the previously measured 26 dB emission bandwidth in MHz.

$$\begin{aligned} &\text{For } B > 20 \text{ MHz} \rightarrow \\ &\rightarrow \log_{10} B > \log_{10} 20 \rightarrow \\ &\rightarrow 10 \log_{10} B > 10 \log_{10} 20 \rightarrow \\ &\rightarrow 11 + 10 \log_{10} B > 11 + 10 \log_{10} 20 \rightarrow \\ &\rightarrow 11 + 10 \log_{10} B > 24.0 \text{ dBm} \end{aligned}$$

Therefore for measured emission bandwidths greater than 20 MHz, the lesser of the two limits is the fixed limit of 250 mW (24.0 dBm). This was applied to the relevant results.

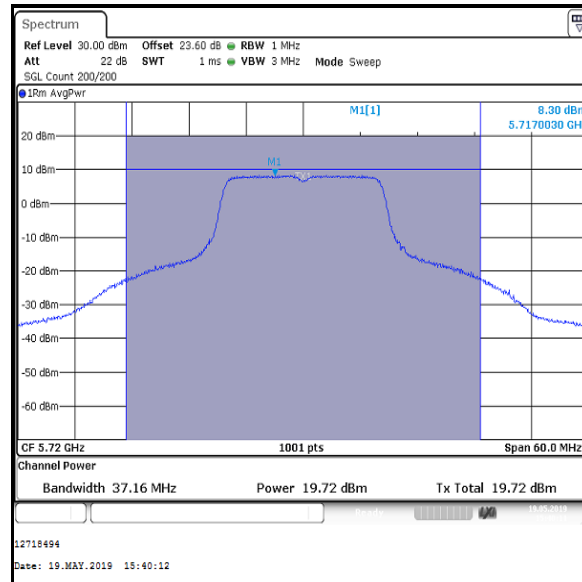
For measured emission bandwidths of less than 20 MHz, the limit for each channel was calculated as below:

$$\begin{aligned} 802.11n \text{ HT20 / MIMO 2Tx CDD / Single channel} &= 11 \text{ dBm} + 10 \log_{10} 15.749 = 23.0 \text{ dBm} \\ 802.11n \text{ HT20 / MIMO 2Tx SDM / Single channel} &= 11 \text{ dBm} + 10 \log_{10} 15.789 = 23.0 \text{ dBm} \\ 802.11n \text{ HT20 / MIMO 2Tx TXBF / Single channel} &= 11 \text{ dBm} + 10 \log_{10} 15.030 = 22.8 \text{ dBm} \\ 802.11n \text{ HT20 / MIMO 3Tx CDD / Single channel} &= 11 \text{ dBm} + 10 \log_{10} 15.710 = 23.0 \text{ dBm} \\ 802.11n \text{ HT20 / MIMO 3Tx SDM / Single channel} &= 11 \text{ dBm} + 10 \log_{10} 15.749 = 23.0 \text{ dBm} \\ 802.11n \text{ HT20 / MIMO 3Tx TXBF / Single channel} &= 11 \text{ dBm} + 10 \log_{10} 15.190 = 22.8 \text{ dBm} \end{aligned}$$

6. For MIMO modes, conducted power was measured on both ports and then combined using the measure-and-sum method stated in FCC KDB 662911 D01 Section E)1).
7. For SISO, MIMO CDD and MIMO SDM modes of operation, the antenna gain is < 6 dBi.
8. For 2Tx TXBF modes of operation presented in this section of the test report, the EUT has a directional antenna gain of 8.6 dBi. In accordance with Part 15.407(a)(2), the limit was reduced by the amount in dB the antenna gain exceeds 6 dBi. Therefore the limit of 24.0 dBm has been reduced by 2.6 dB to 21.4 dBm for 40 MHz and 80 MHz channel bandwidths. For 20 MHz channel bandwidth, the calculated limit in note 5 is higher than the calculated limit with the antenna gain reduction. The more stringent limit of 21.4 dBm was applied.
9. For 3Tx TXBF modes of operation presented in this section of the test report, the EUT has a directional antenna gain of 10.1 dBi. In accordance with Part 15.407(a)(2), the limit was reduced by the amount in dB the antenna gain exceeds 6 dBi. Therefore the limit of 24.0 dBm has been reduced by 4.1 dB to 19.9 dBm for all channel bandwidths.
10. For details on antenna gains refer to Section 3.4 of this test report.
11. The signal analyser was connected to the RF port on the EUT using an RF switch, suitable attenuation and RF cable. An RF level offset was entered on the signal analyser to compensate for the loss of the attenuator and RF cable.
12. The EUT with serial number C02YF007MFLF was used for non-TXBF tests, the EUT with serial C02YD003MFLQ number was used for TXBF tests.

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11a / 20 MHz / SISO / BPSK / 6 Mbps / Core 0**

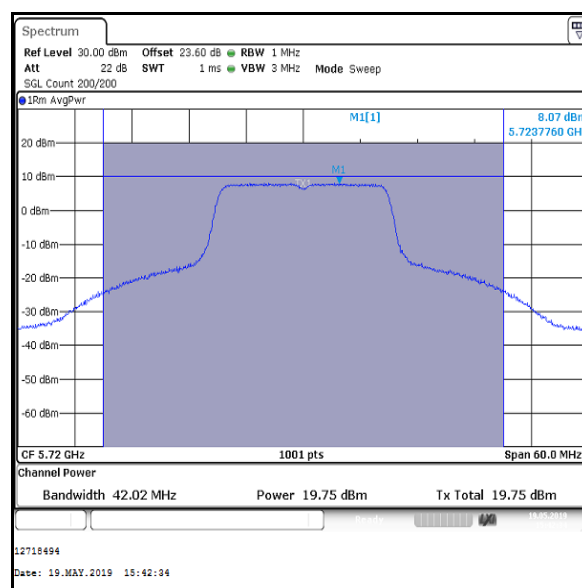
Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5720	19.7	24.0	4.3	Complied



Single Channel

Results: 802.11n / 20 MHz / SISO / BPSK / MCS0 / Core 0

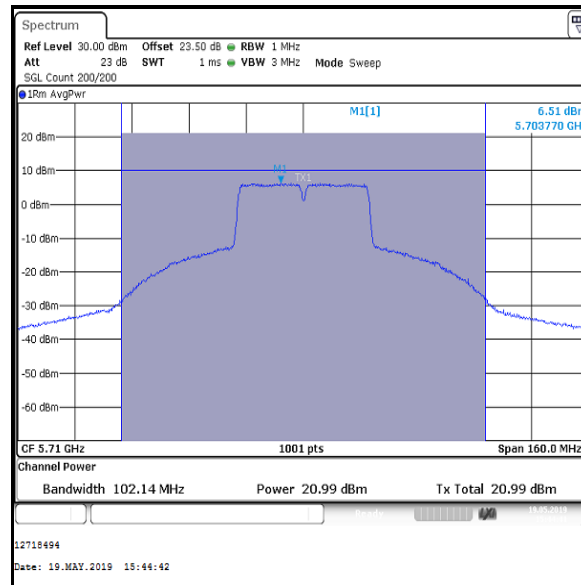
Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5720	19.8	24.0	4.2	Complied



Single Channel

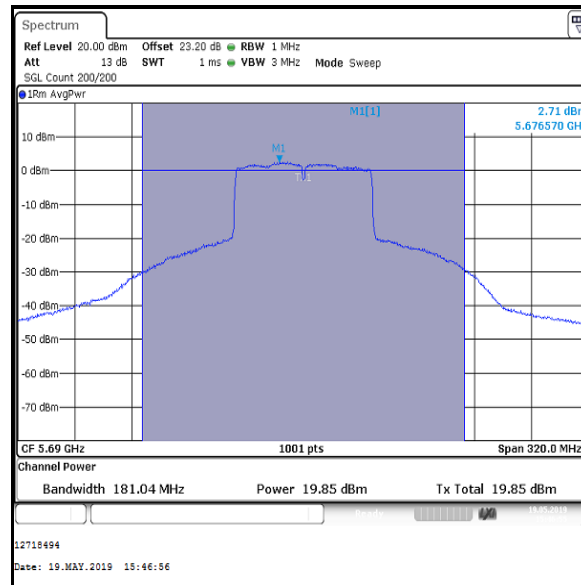
Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11n / 40 MHz / SISO / BPSK / MCS0 / Core 0**

Channel	Frequency (MHz)	Conducted Power (dBm)	Duty cycle correction factor (dB)	Corrected Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5710	21.0	0.1	21.1	24.0	2.9	Complied

**Single Channel**

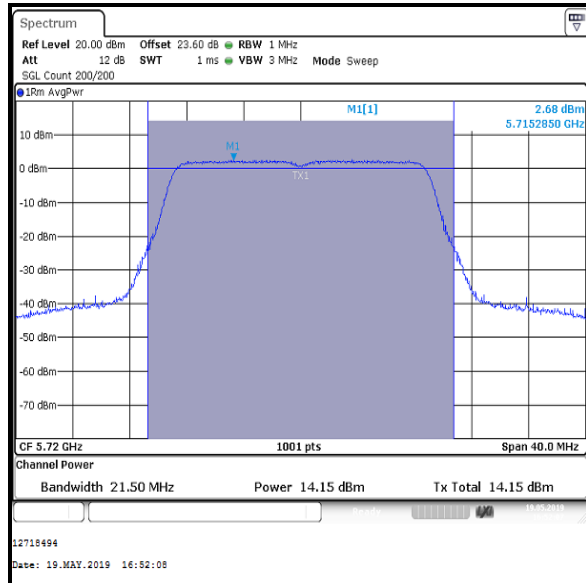
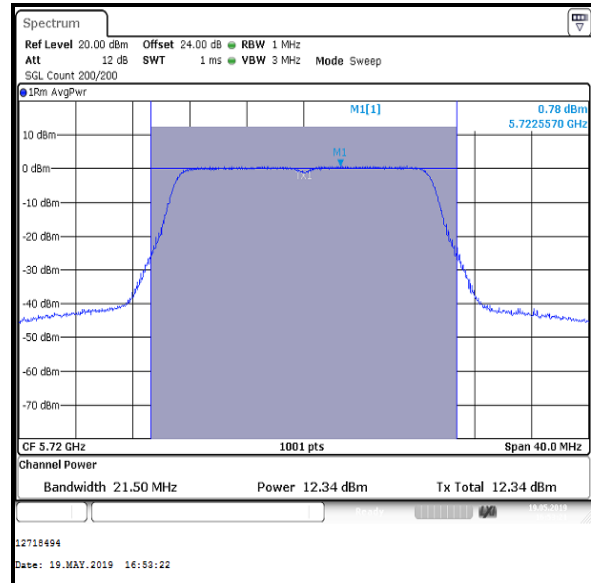
Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11ac / 80 MHz / SISO / BPSK / MCS0 / Core 0**

Channel	Frequency (MHz)	Conducted Power (dBm)	Duty cycle correction factor (dB)	Corrected Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5690	19.9	0.2	20.1	24.0	3.9	Complied

**Single Channel**

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11n / 20 MHz / MIMO / 2Tx CDD / BPSK / MCS0**

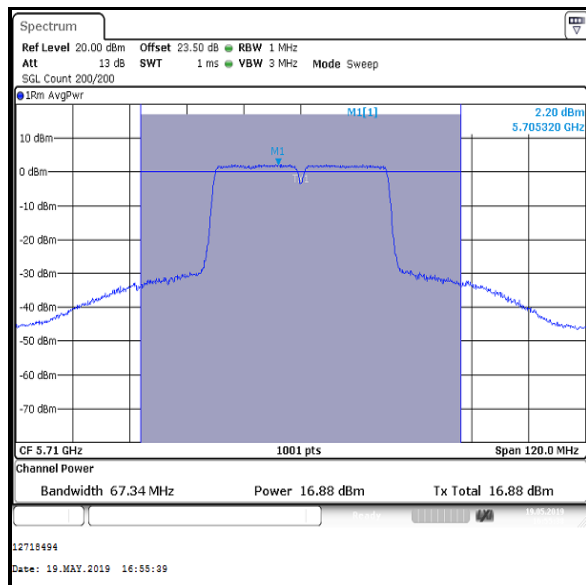
Channel	Frequency (MHz)	Conducted Power Core 0 (dBm)	Conducted Power Core 1 (dBm)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5720	14.2	12.3	16.4	23.0	6.6	Complied

**Single Channel / Core 0****Single Channel / Core 1**

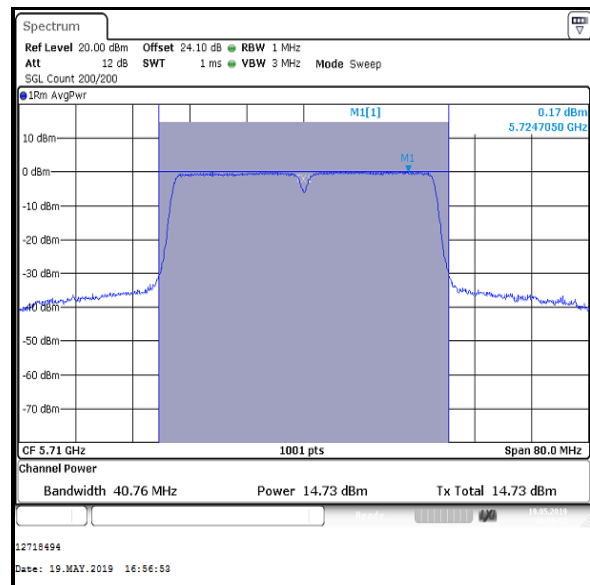
Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11n / 40 MHz / MIMO / 2Tx CDD / BPSK / MCS0**

Channel	Frequency (MHz)	Core 0			Core 1		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)
Single	5710	16.9	0.1	17.0	14.7	0.1	14.8

Channel	Frequency (MHz)	Corrected Conducted Power Core 0 (dBm)	Corrected Conducted Power Core 1 (dBm)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5710	17.0	14.8	19.0	24.0	5.0	Complied



Single Channel / Core 0

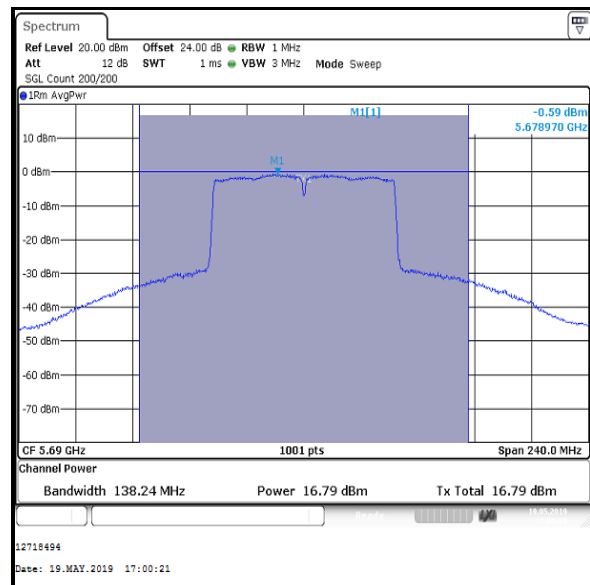
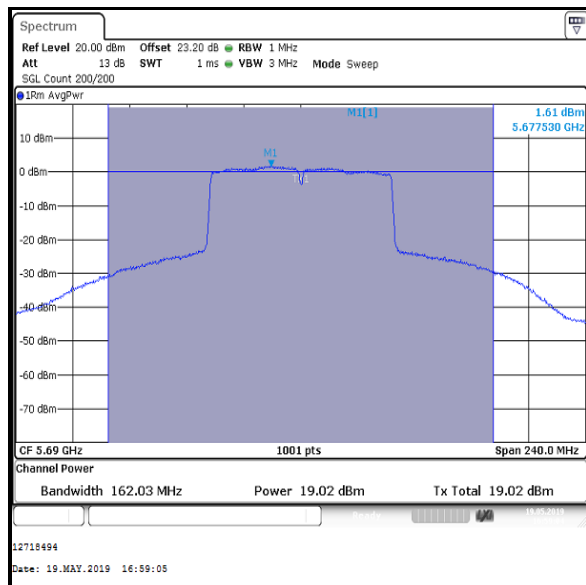


Single Channel / Core 1

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11ac / 80 MHz / MIMO / 2Tx CDD / BPSK / MCS0x1**

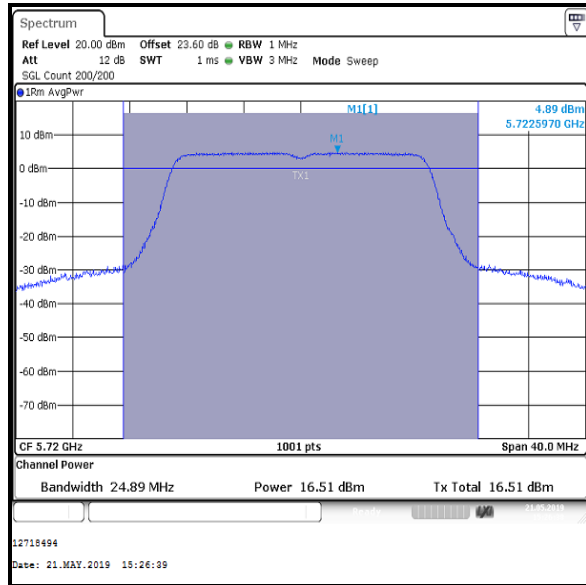
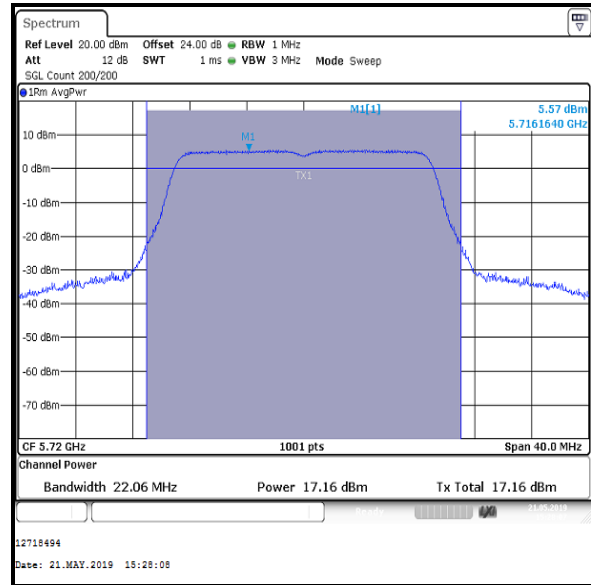
Channel	Frequency (MHz)	Core 0			Core 1		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)
Single	5690	19.0	0.2	19.2	16.8	0.2	17.0

Channel	Frequency (MHz)	Corrected Conducted Power Core 0 (dBm)	Corrected Conducted Power Core 1 (dBm)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5690	19.2	17.0	21.2	24.0	2.8	Complied



Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11n / 20 MHz / MIMO / 2Tx SDM / BPSK / MCS8**

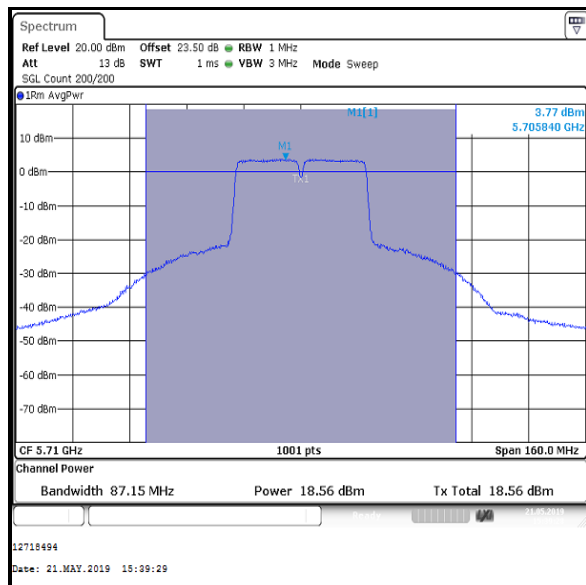
Channel	Frequency (MHz)	Conducted Power Core 0 (dBm)	Conducted Power Core 1 (dBm)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5720	16.5	17.2	19.9	23.0	3.1	Complied

**Single Channel / Core 0****Single Channel / Core 1**

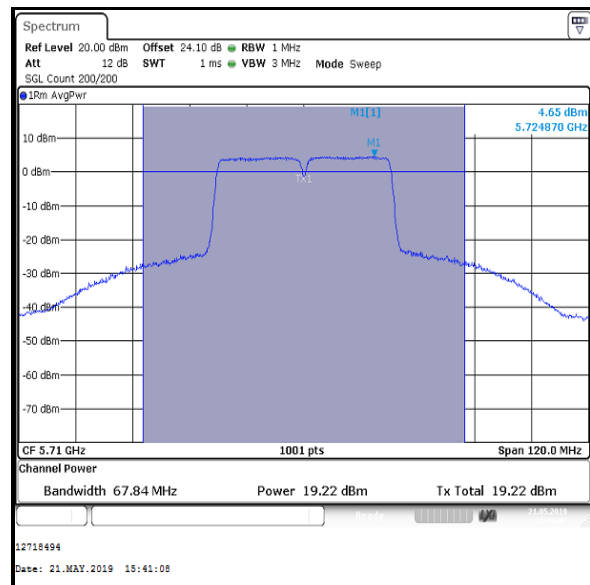
Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11n / 40 MHz / MIMO / 2Tx SDM / BPSK / MCS8**

Channel	Frequency (MHz)	Core 0			Core 1		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)
Single	5710	18.6	0.1	18.7	19.2	0.1	19.3

Channel	Frequency (MHz)	Corrected Conducted Power Core 0 (dBm)	Corrected Conducted Power Core 1 (dBm)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5710	18.7	19.3	22.0	24.0	2.0	Complied



Single Channel / Core 0

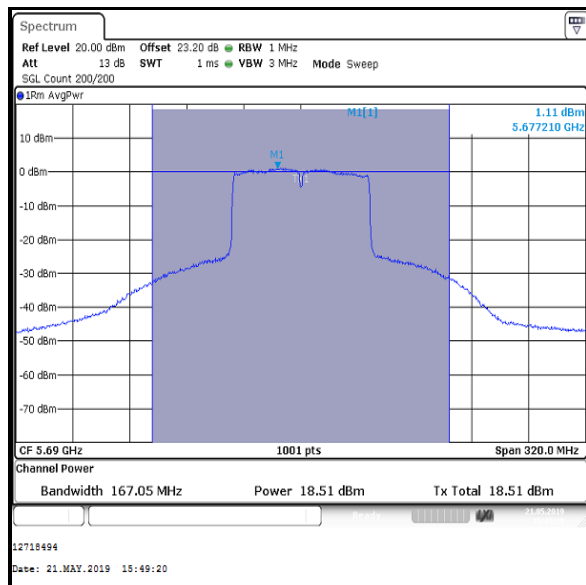


Single Channel / Core 1

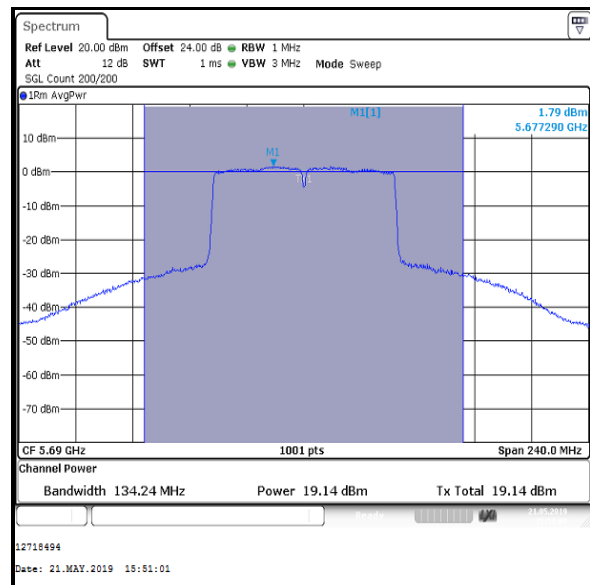
Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11ac / 80 MHz / MIMO / 2Tx SDM / BPSK / MCS0x2**

Channel	Frequency (MHz)	Core 0			Core 1		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)
Single	5690	18.5	0.2	18.7	19.1	0.2	19.3

Channel	Frequency (MHz)	Corrected Conducted Power Core 0 (dBm)	Corrected Conducted Power Core 1 (dBm)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5690	18.7	19.3	22.0	24.0	2.0	Complied



Single Channel / Core 0

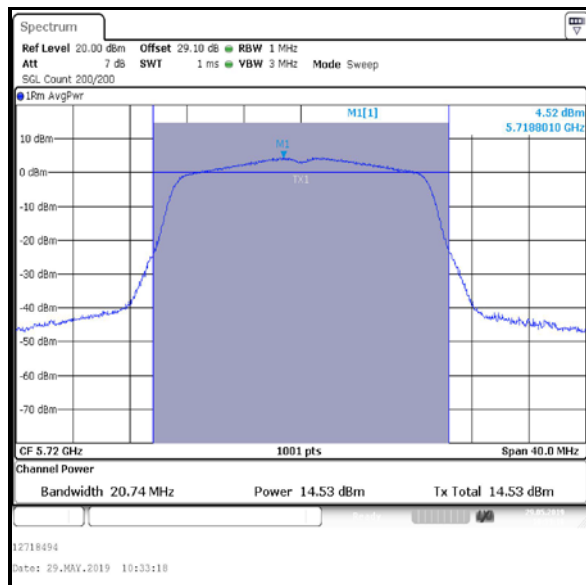


Single Channel / Core 1

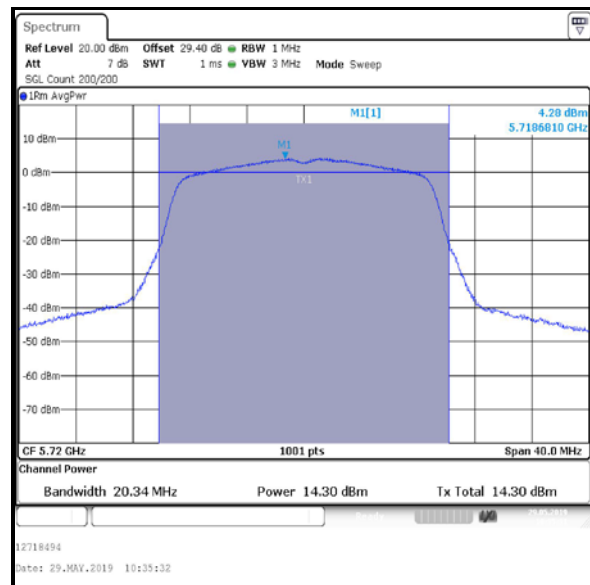
Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11n / 20 MHz / MIMO / 2Tx TXBF / BPSK / MCS0**

Channel	Frequency (MHz)	Core 0			Core 1		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)
Single	5720	14.5	0.1	14.6	14.3	0.1	14.4

Channel	Frequency (MHz)	Corrected Conducted Power Core 0 (dBm)	Corrected Conducted Power Core 1 (dBm)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5720	14.6	14.4	17.5	21.4	3.9	Complied



Single Channel / Core 0

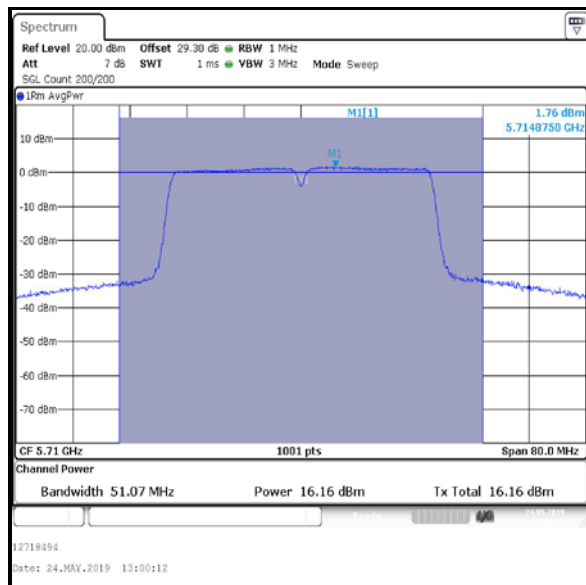


Single Channel / Core 1

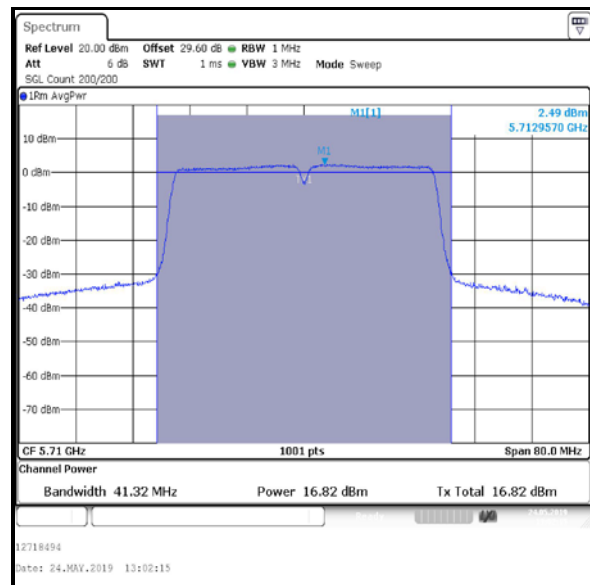
Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11n / 40 MHz / MIMO / 2Tx TXBF / BPSK / MCS0**

Channel	Frequency (MHz)	Core 0			Core 1		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)
Single	5710	16.2	0.1	16.3	16.8	0.1	16.9

Channel	Frequency (MHz)	Corrected Conducted Power Core 0 (dBm)	Corrected Conducted Power Core 1 (dBm)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5710	16.3	16.9	19.6	21.4	1.8	Complied



Single Channel / Core 0

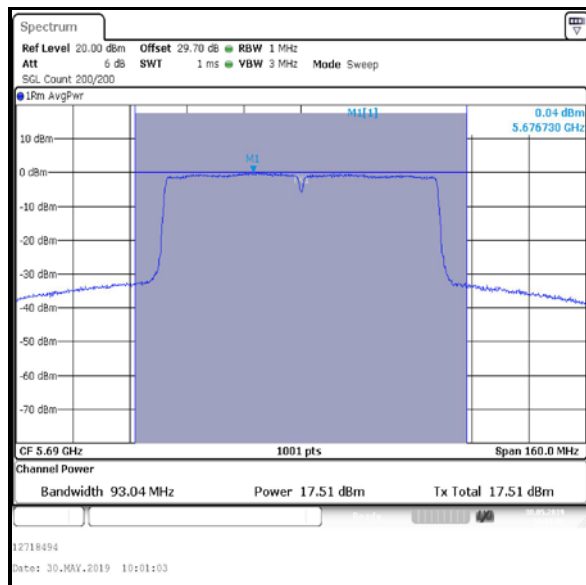


Single Channel / Core 1

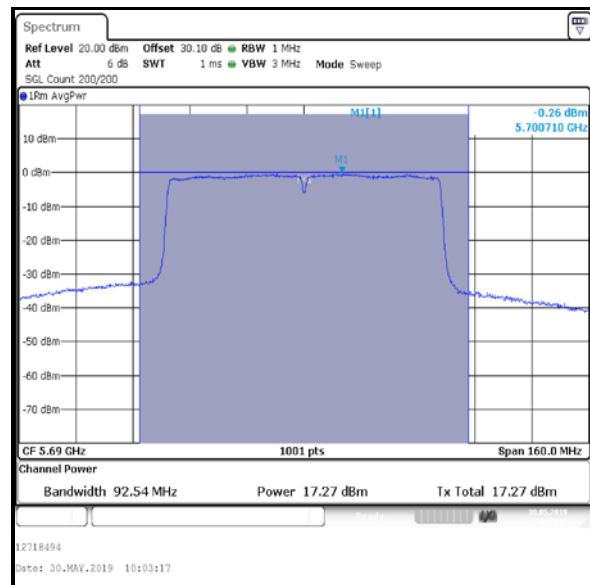
Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11ac / 80 MHz / MIMO / 2Tx TXBF / BPSK / MCS0x1**

Channel	Frequency (MHz)	Core 0			Core 1		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)
Single	5690	17.5	0.1	17.6	17.3	0.1	17.4

Channel	Frequency (MHz)	Corrected Conducted Power Core 0 (dBm)	Corrected Conducted Power Core 1 (dBm)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5690	17.6	17.4	20.5	21.4	0.9	Complied



Single Channel / Core 0

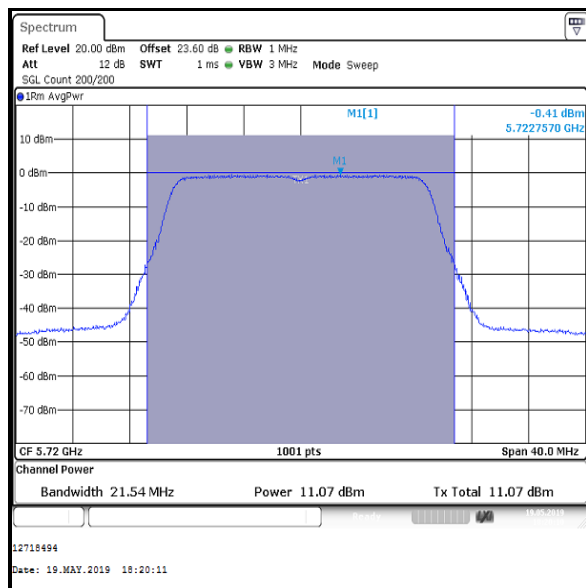
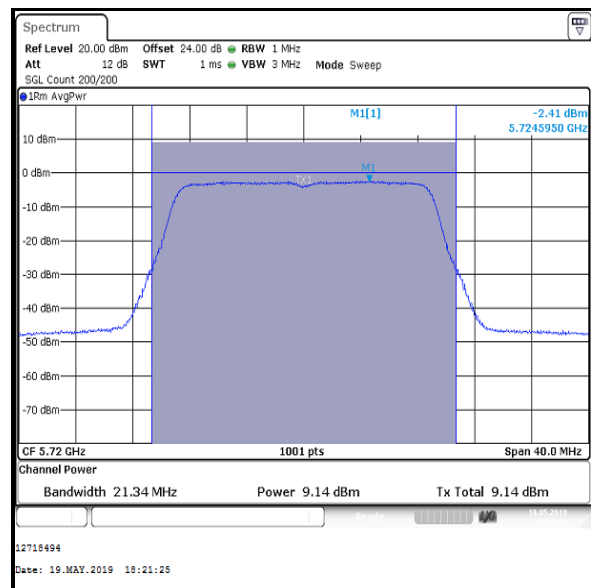
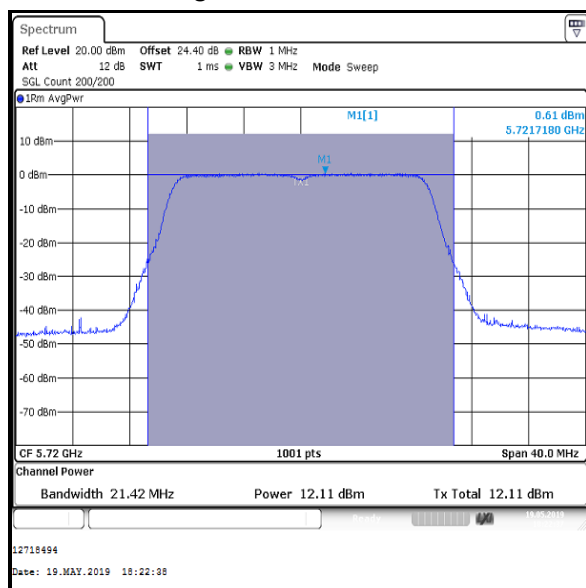


Single Channel / Core 1

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11n / 20 MHz / MIMO / 3Tx CDD / BPSK / MCS0**

Channel	Frequency (MHz)	Conducted Power Core 0 (dBm)	Conducted Power Core 1 (dBm)	Conducted Power Core 2 (dBm)	Combined Conducted Power (dBm)
Single	5720	11.1	9.1	12.1	15.7

Channel	Frequency (MHz)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5720	15.7	23.0	7.3	Complied

**Single Channel / Core 0****Single Channel / Core 1****Single Channel / Core 2**

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11n / 40 MHz / MIMO / 3Tx CDD / BPSK / MCS0**

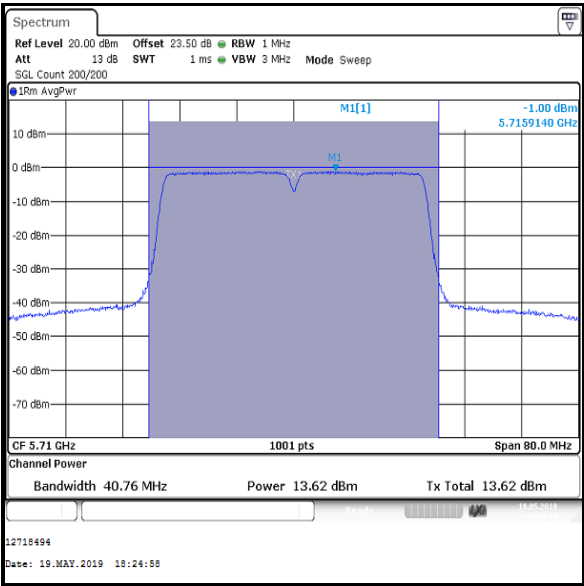
Channel	Frequency (MHz)	Core 0			Core 1		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)
Single	5710	13.6	0.1	13.7	11.4	0.1	11.5

Channel	Frequency (MHz)	Core 2			Core 0, Core 1 & Core 2		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Corrected Conducted Power Core 0 (dBm)	Corrected Conducted Power Core 1 (dBm)	Corrected Conducted Power Core 2 (dBm)
Single	5710	14.9	0.1	15.0	13.7	11.5	15.0

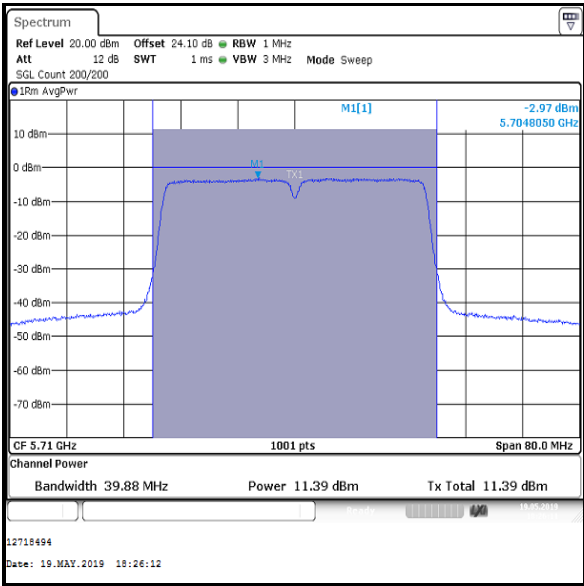
Channel	Frequency (MHz)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5710	18.4	24.0	5.6	Complied

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)

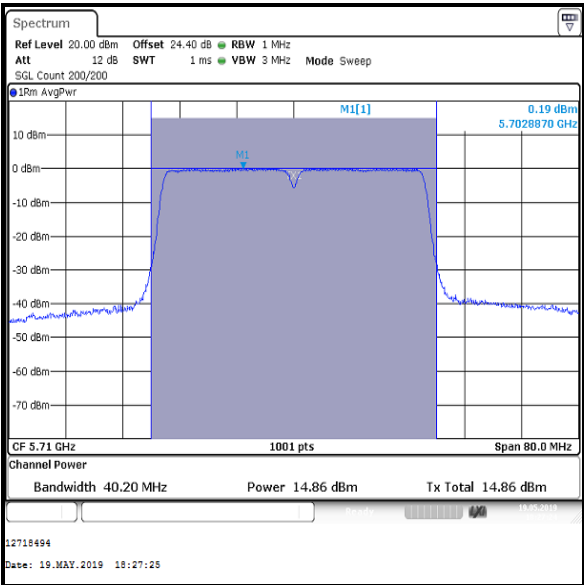
Results: 802.11n / 40 MHz / MIMO / 3Tx CDD / BPSK / MCS0



Single Channel / Core 0



Single Channel / Core 1



Single Channel / Core 2

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11ac / 80 MHz / MIMO / 3Tx CDD / BPSK / MCS0x1**

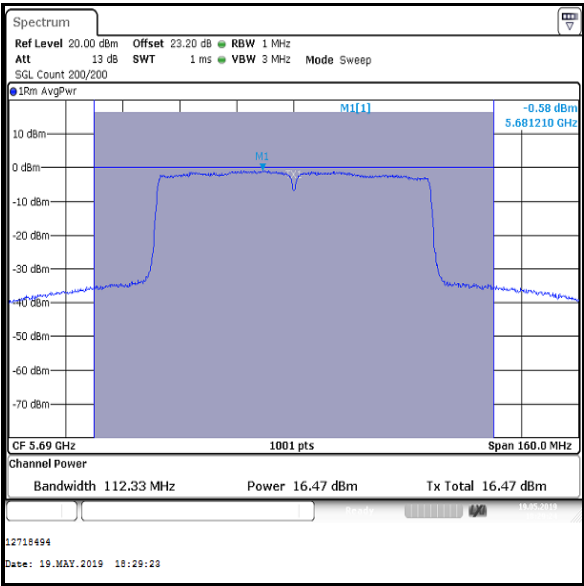
Channel	Frequency (MHz)	Core 0			Core 1		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)
Single	5690	16.5	0.2	16.7	14.3	0.2	14.5

Channel	Frequency (MHz)	Core 2			Core 0, Core 1 & Core 2		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Corrected Conducted Power Core 0 (dBm)	Corrected Conducted Power Core 1 (dBm)	Corrected Conducted Power Core 2 (dBm)
Single	5690	17.8	0.2	18.0	16.7	14.5	18.0

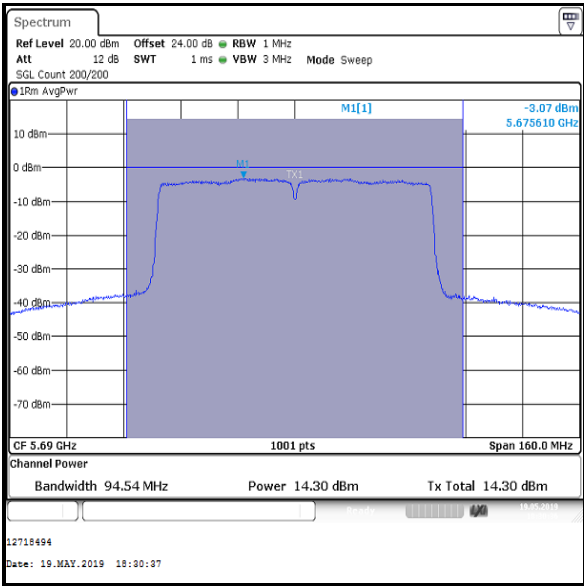
Channel	Frequency (MHz)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5690	21.4	24.0	2.6	Complied

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)

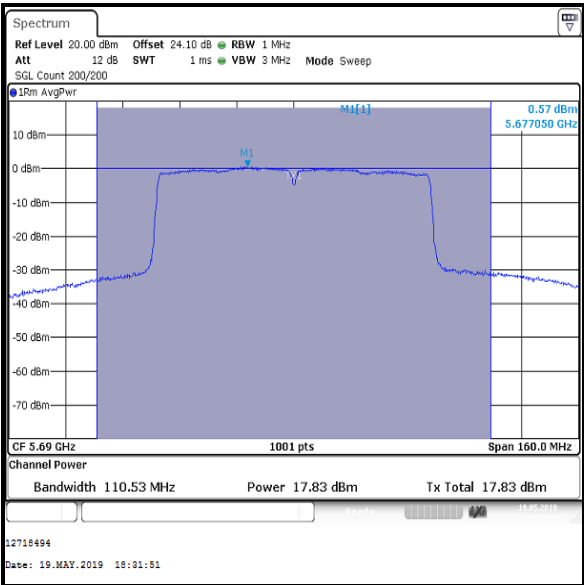
Results: 802.11ac / 80 MHz / MIMO / 3Tx CDD / BPSK / MCS0x1



Single Channel / Core 0



Single Channel / Core 1

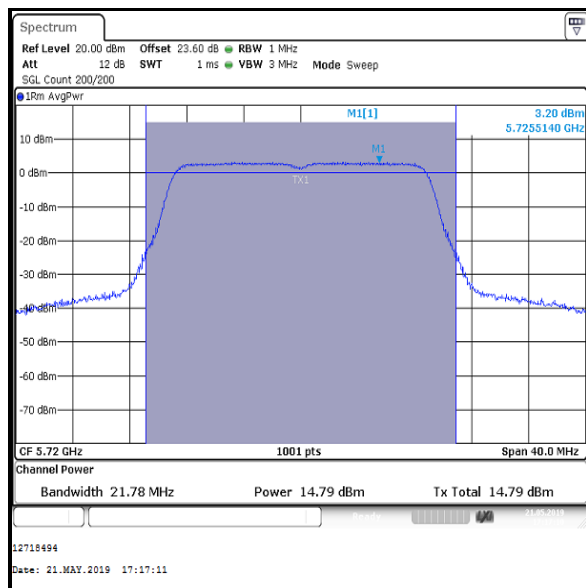
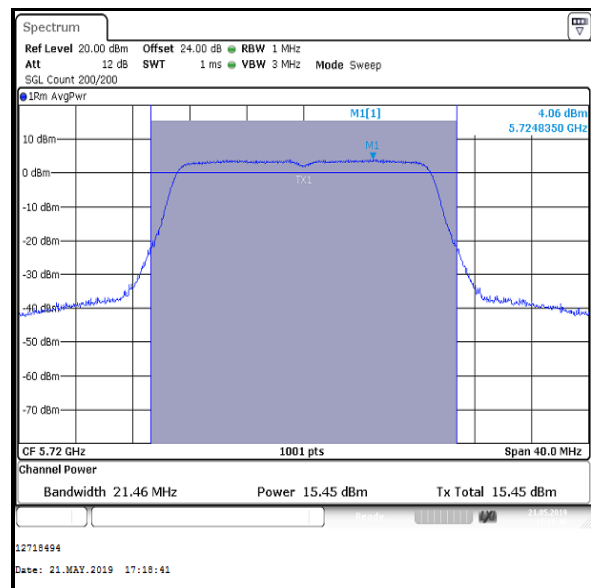
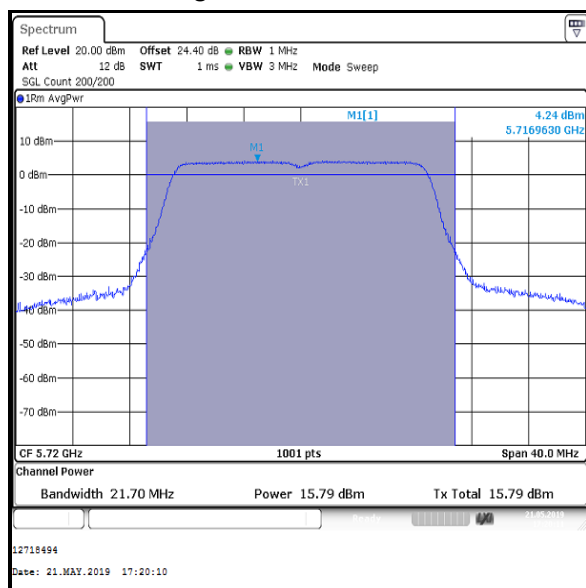


Single Channel / Core 2

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11n / 20 MHz / MIMO / 3Tx SDM / BPSK / MCS16**

Channel	Frequency (MHz)	Conducted Power Core 0 (dBm)	Conducted Power Core 1 (dBm)	Conducted Power Core 2 (dBm)	Combined Conducted Power (dBm)
Single	5720	14.8	15.5	15.8	20.2

Channel	Frequency (MHz)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5720	20.2	23.0	2.8	Complied

**Single Channel / Core 0****Single Channel / Core 1****Single Channel / Core 2**

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11n / 40 MHz / MIMO / 3Tx SDM / BPSK / MCS16**

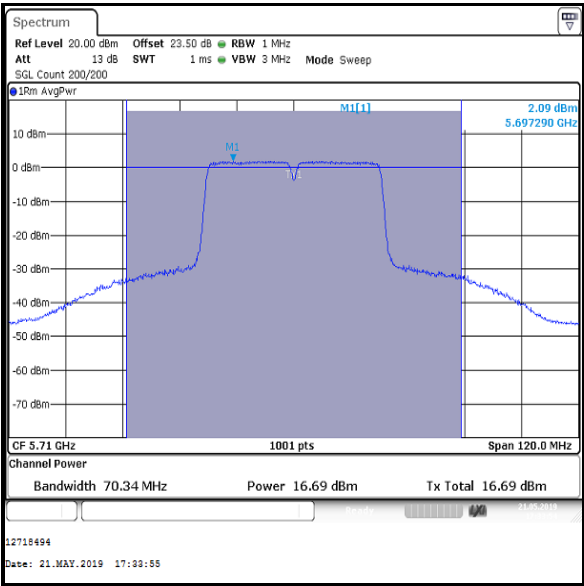
Channel	Frequency (MHz)	Core 0			Core 1		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)
Single	5710	16.7	0.1	16.8	17.4	0.1	17.5

Channel	Frequency (MHz)	Core 2			Core 0, Core 1 & Core 2		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Corrected Conducted Power Core 0 (dBm)	Corrected Conducted Power Core 1 (dBm)	Corrected Conducted Power Core 2 (dBm)
Single	5710	18.0	0.1	18.1	16.8	17.5	18.1

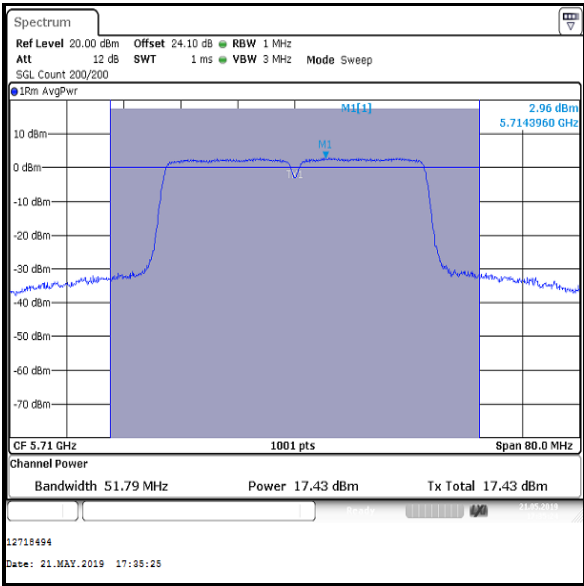
Channel	Frequency (MHz)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5710	22.3	24.0	1.7	Complied

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)

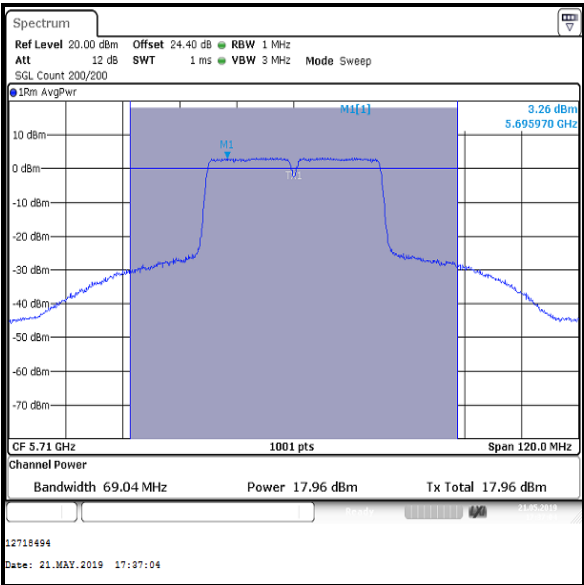
Results: 802.11n / 40 MHz / MIMO / 3Tx SDM / BPSK / MCS16



Single Channel / Core 0



Single Channel / Core 1



Single Channel / Core 2

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11ac / 80 MHz / MIMO / 3Tx SDM / BPSK / MCS0x3**

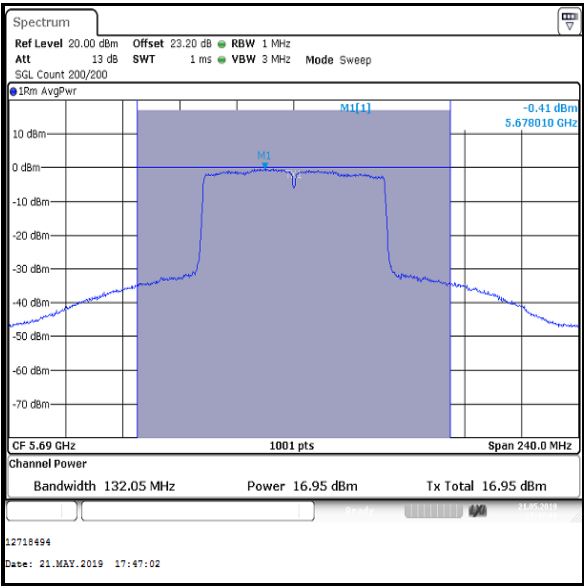
Channel	Frequency (MHz)	Core 0			Core 1		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)
Single	5690	17.0	0.2	17.2	17.5	0.2	17.7

Channel	Frequency (MHz)	Core 2			Core 0, Core 1 & Core 2		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Corrected Conducted Power Core 0 (dBm)	Corrected Conducted Power Core 1 (dBm)	Corrected Conducted Power Core 2 (dBm)
Single	5690	18.1	0.2	18.3	17.2	17.7	18.3

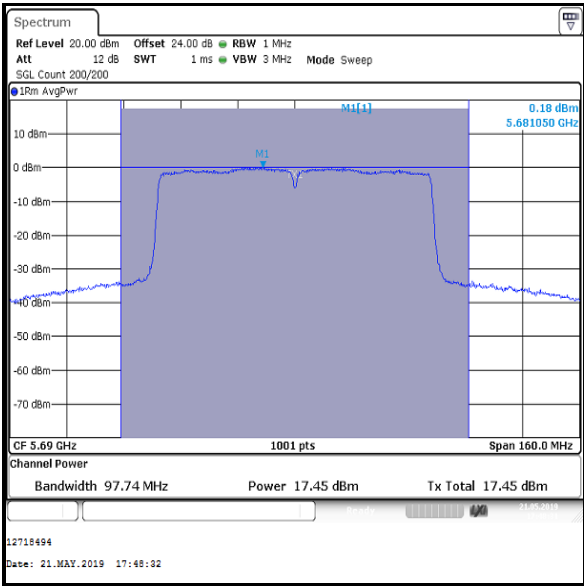
Channel	Frequency (MHz)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5690	22.5	24.0	1.5	Complied

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)

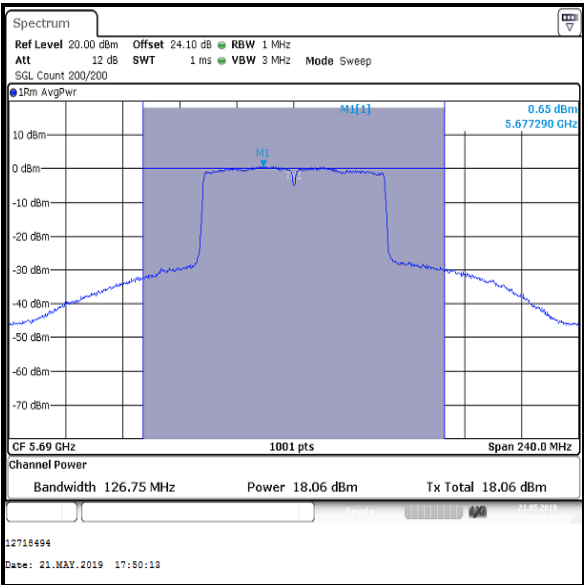
Results: 802.11ac / 80 MHz / MIMO / 3Tx SDM / BPSK / MCS0x3



Single Channel / Core 0



Single Channel / Core 1



Single Channel / Core 2

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11n / 20 MHz / MIMO / 3Tx TXBF / BPSK / MCS0**

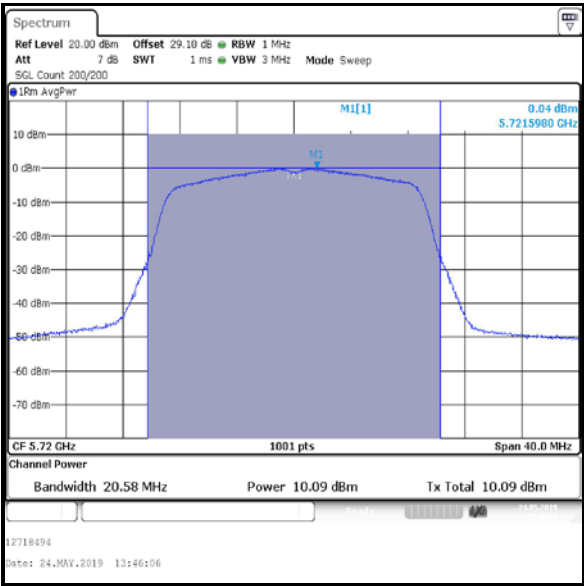
Channel	Frequency (MHz)	Core 0			Core 1		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)
Single	5720	10.1	0.1	10.2	11.0	0.1	11.1

Channel	Frequency (MHz)	Core 2			Core 0, Core 1 & Core 2		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Corrected Conducted Power Core 0 (dBm)	Corrected Conducted Power Core 1 (dBm)	Corrected Conducted Power Core 2 (dBm)
Single	5720	10.6	0.1	10.7	10.2	11.1	10.7

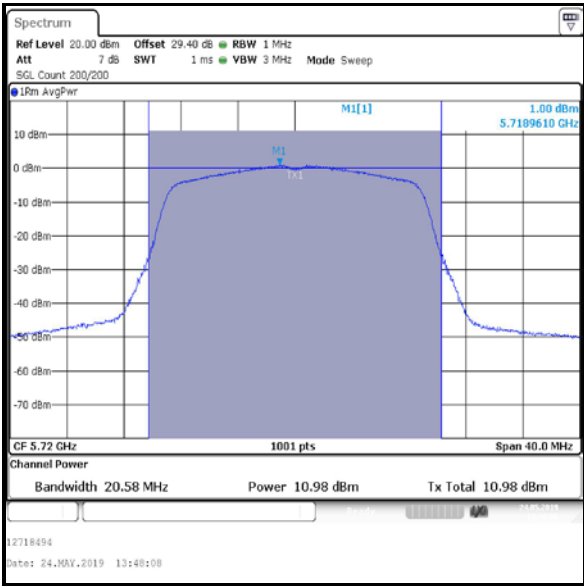
Channel	Frequency (MHz)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5720	15.5	19.9	4.4	Complied

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)

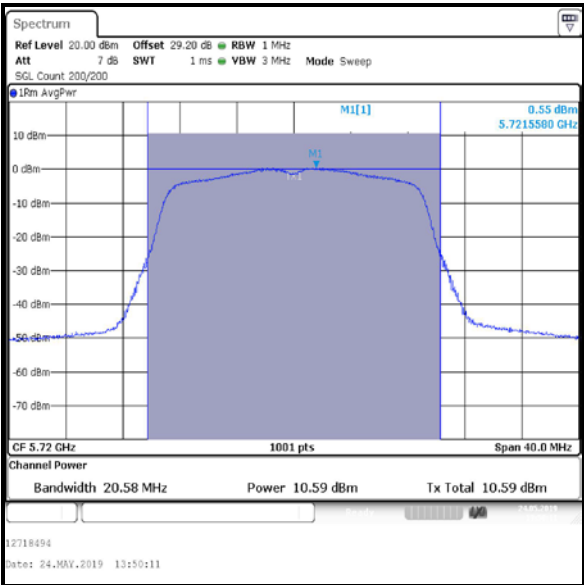
Results: 802.11n / 20 MHz / MIMO / 3Tx TXBF / BPSK / MCS0



Single Channel / Core 0



Single Channel / Core 1



Single Channel / Core 2

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11n / 40 MHz / MIMO / 3Tx TXBF / BPSK / MCS0**

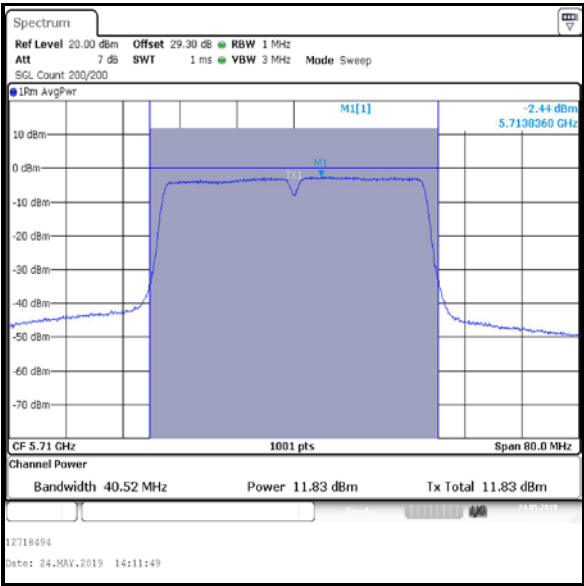
Channel	Frequency (MHz)	Core 0			Core 1		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)
Single	5710	11.8	0.1	11.9	13.0	0.1	13.1

Channel	Frequency (MHz)	Core 2			Core 0, Core 1 & Core 2		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Corrected Conducted Power Core 0 (dBm)	Corrected Conducted Power Core 1 (dBm)	Corrected Conducted Power Core 2 (dBm)
Single	5710	12.7	0.1	12.8	11.9	13.1	12.8

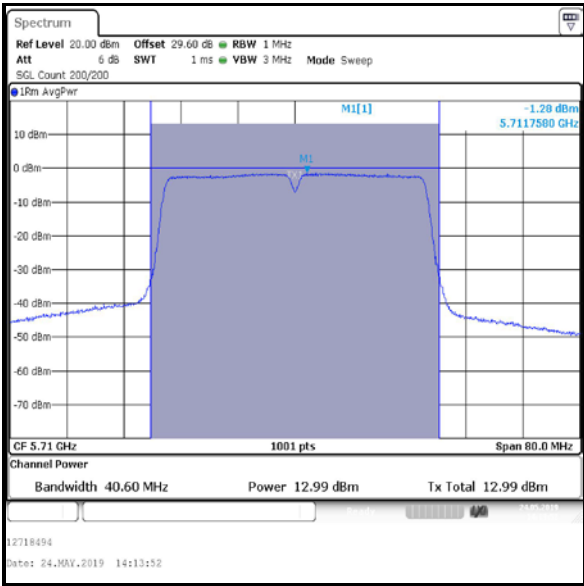
Channel	Frequency (MHz)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5710	17.4	19.9	2.5	Complied

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)

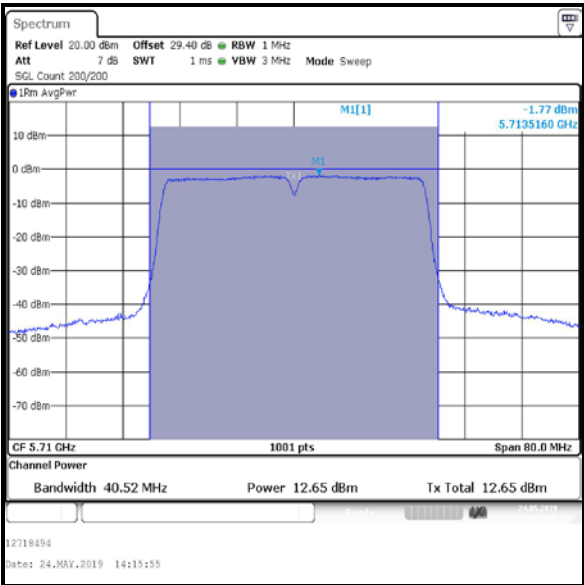
Results: 802.11n / 40 MHz / MIMO / 3Tx TXBF / BPSK / MCS0



Single Channel / Core 0



Single Channel / Core 1



Single Channel / Core 2

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)**Results: 802.11ac / 80 MHz / MIMO / 3Tx TXBF / BPSK / MCS0x1**

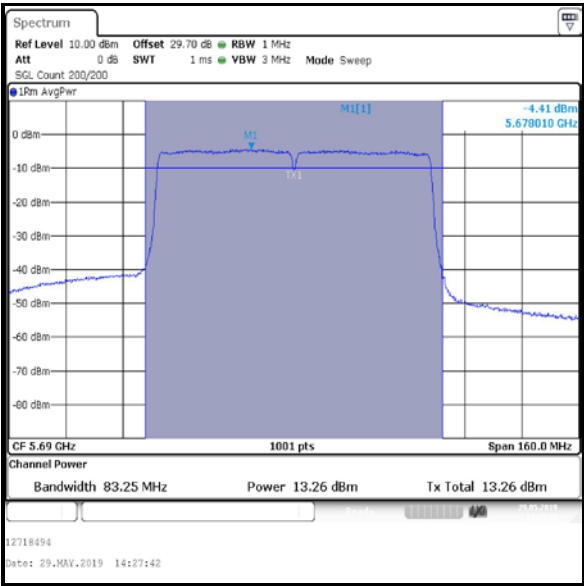
Channel	Frequency (MHz)	Core 0			Core 1		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)
Single	5690	13.3	0.1	13.4	13.3	0.1	13.4

Channel	Frequency (MHz)	Core 2			Core 0, Core 1 & Core 2		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Corrected Conducted Power Core 0 (dBm)	Corrected Conducted Power Core 1 (dBm)	Corrected Conducted Power Core 2 (dBm)
Single	5690	13.3	0.1	13.4	13.4	13.4	13.4

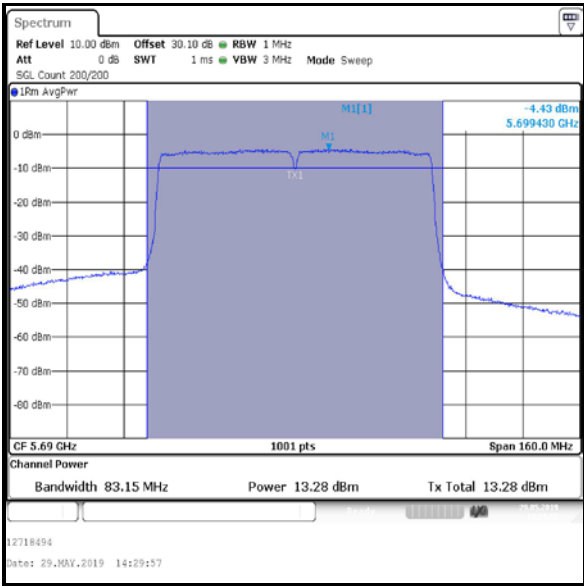
Channel	Frequency (MHz)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5690	18.2	19.9	1.7	Complied

Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)

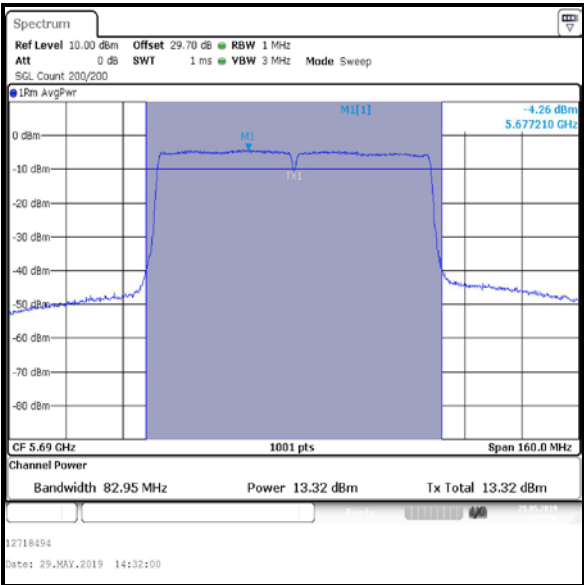
Results: 802.11ac / 80 MHz / MIMO / 3Tx TXBF / BPSK / MCS0x1



Single Channel / Core 0



Single Channel / Core 1



Single Channel / Core 2

Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band)**4.4.5. 5.725-5.85 GHz band****Test Summary:**

Test Engineers:	Max Passell, Victor Carmon & Matthew Botfield	Test Dates:	19 May 2019 to 30 May 2019
Test Sample Serial Numbers:	C02YF007MFLF & C02YD003MFLQ		

FCC Reference:	Part 15.407(a)(3)
Test Method Used:	KDB 789033 D02 Section II.E.2.b) and II.E.2.d)

Environmental Conditions:

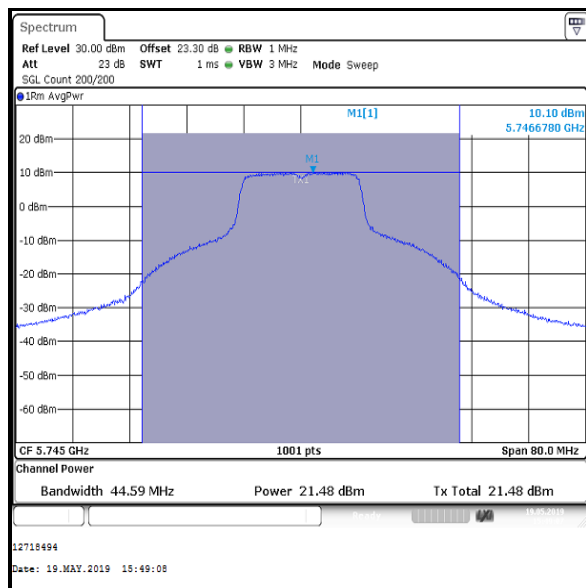
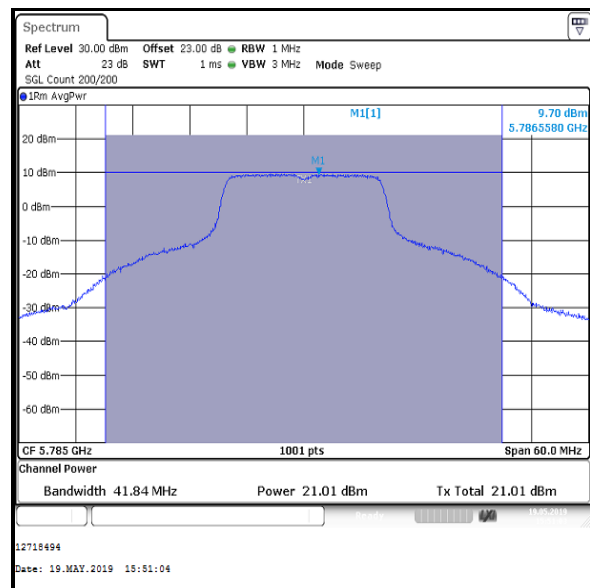
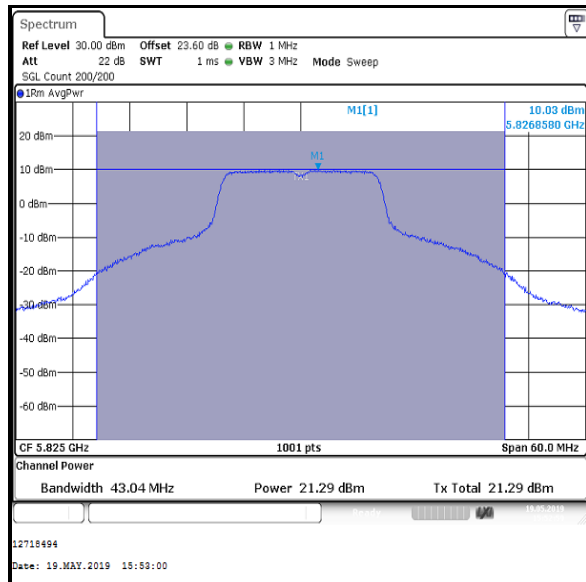
Temperature (°C):	20 to 23
Relative Humidity (%):	40 to 54

Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)**Note(s):**

1. For conducted power tests where the duty cycle is >98%, the measurements were performed using a signal analyser in accordance with FCC KDB 789033 II.E.2.b) Method SA-1. Where the duty cycle is <98%, the measurements were performed in accordance with FCC KDB 789033 II.E.2.d) Method SA-2. The signal analyser's integration function was used to integrate across the 26 dB emission bandwidth. The resolution bandwidth was set to 1 MHz and video bandwidth 3 MHz. An RMS detector was used and sweep time was set to auto and 200 traces performed. The span was set to encompass the entire 26 dB emission bandwidth. The channel power results are recorded in the tables below.
2. Measurements were performed using configurations detailed in Section 3.5 of this test report on the relevant channels.
3. For data rates where the EUT was transmitting at <98% duty cycle, the calculated duty cycle in Section 4.1 was added to the measured power in order to compute the average power during the actual transmission time.
4. The FCC Part 15.407(a)(3) limit shall not exceed 1 W (30.0 dBm).
5. For MIMO modes, conducted power was measured on both ports and then combined using the measure-and-sum method stated in FCC KDB 662911 D01 Section E)1).
6. For MIMO SDM modes of operation, the antenna gain is < 6 dBi.
7. For SISO and MIMO CDD modes of operation presented in this section of the test report, the EUT has a directional antenna gain of 6.1 dBi. In accordance with Part 15.407(a)(3), the limit was reduced by the amount in dB the antenna gain exceeds 6 dBi. Therefore the limit of 30 dBm has been reduced by 0.1 dB to 29.9 dBm.
8. For 2Tx TXBF modes of operation presented in this section of the test report, the EUT has a directional antenna gain of 8.9 dBi. In accordance with Part 15.407(a)(3), the limit was reduced by the amount in dB the antenna gain exceeds 6 dBi. Therefore the limit of 30 dBm has been reduced by 2.9 dB to 27.1 dBm.
9. For 3Tx TXBF modes of operation presented in this section of the test report, the EUT has a directional antenna gain of 10.3 dBi. In accordance with Part 15.407(a)(3), the limit was reduced by the amount in dB the antenna gain exceeds 6 dBi. Therefore the limit of 30 dBm has been reduced by 4.3 dB to 25.7 dBm.
10. For details on antenna gains refer to Section 3.4 of this test report.
11. The signal analyser was connected to the RF port on the EUT using an RF switch, suitable attenuation and RF cable. An RF level offset was entered on the signal analyser to compensate for the loss of the attenuator and RF cable.
12. The EUT with serial number C02YF007MFLF was used for non-TxBF tests, the EUT with serial C02YD003MFLQ number was used for TxBF tests.

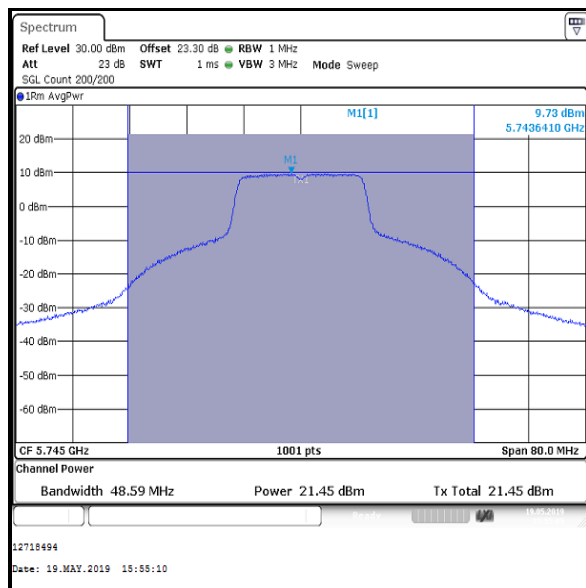
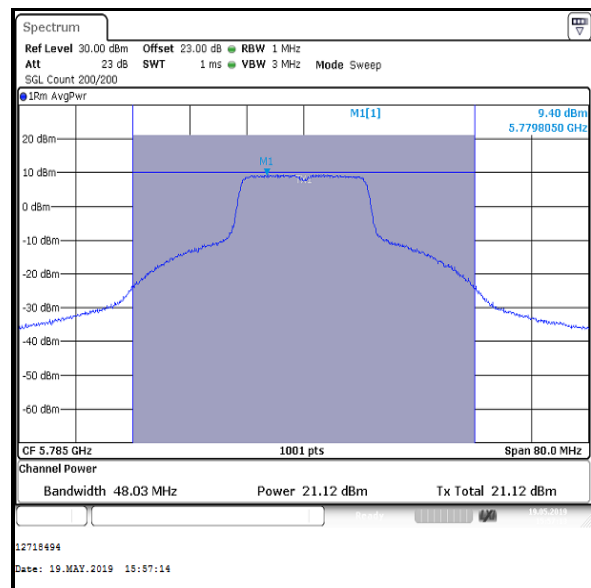
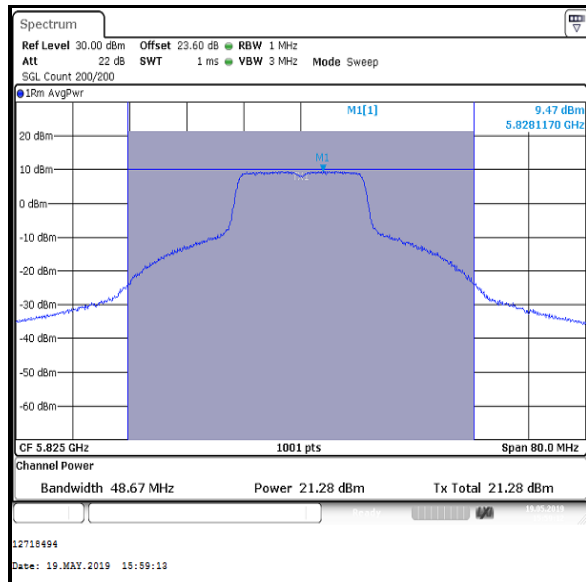
Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)**Results: 802.11a / 20 MHz / SISO / BPSK / 6 Mbps / Core 0**

Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5745	21.5	29.9	8.4	Complied
Middle	5785	21.0	29.9	8.9	Complied
Top	5825	21.3	29.9	8.6	Complied

**Bottom Channel****Middle Channel****Top Channel**

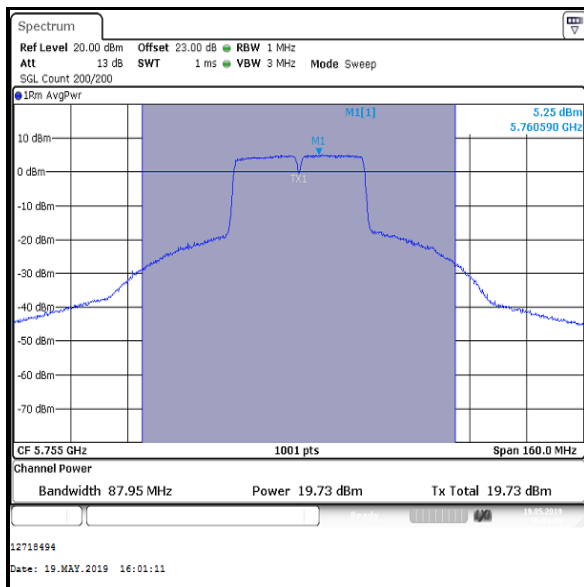
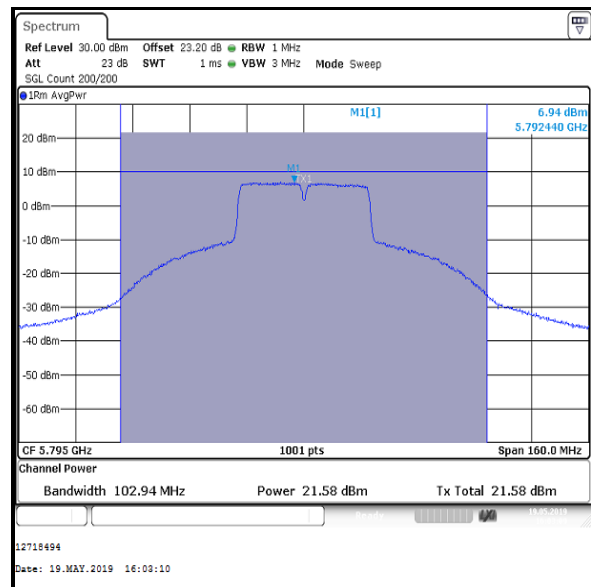
Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)**Results: 802.11n / 20 MHz / SISO / BPSK / MCS0 / Core 0**

Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5745	21.5	29.9	8.4	Complied
Middle	5785	21.1	29.9	8.8	Complied
Top	5825	21.3	29.9	8.6	Complied

**Bottom Channel****Middle Channel****Top Channel**

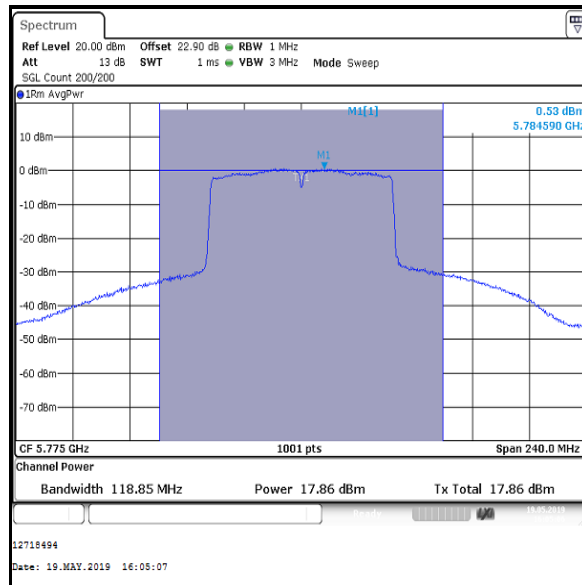
Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)**Results: 802.11n / 40 MHz / SISO / BPSK / MCS0 / Core 0**

Channel	Frequency (MHz)	Conducted Power (dBm)	Duty cycle correction factor (dB)	Corrected Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5755	19.7	0.1	19.8	29.9	10.1	Complied
Top	5795	21.6	0.1	21.7	29.9	8.2	Complied

**Bottom Channel****Top Channel**

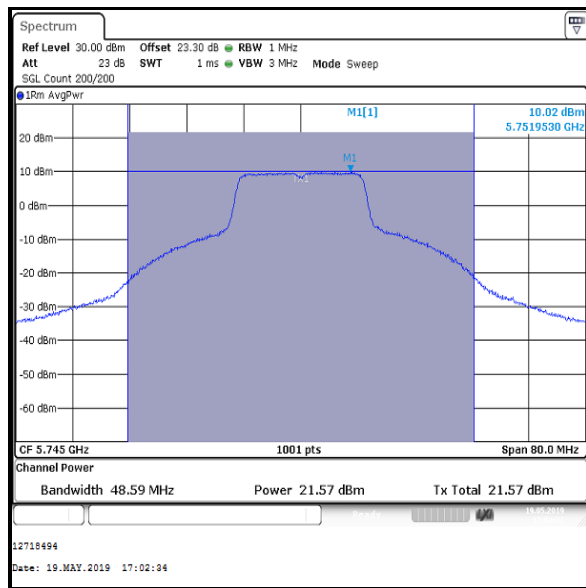
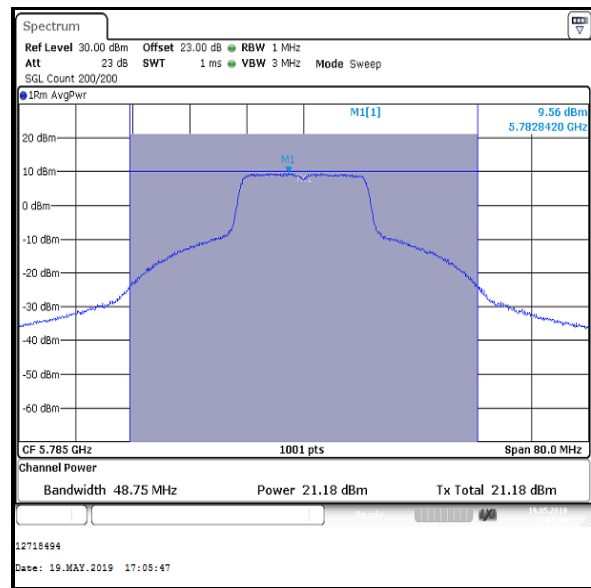
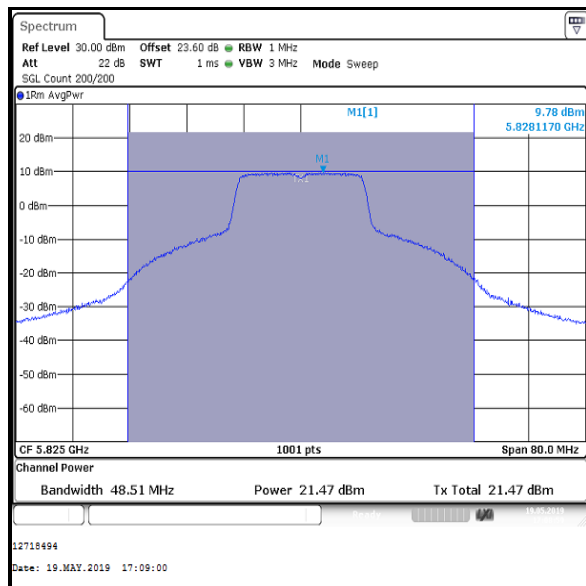
Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)**Results: 802.11ac / 80 MHz / SISO / BPSK / MCS0x1 / Core 0**

Channel	Frequency (MHz)	Conducted Power (dBm)	Duty cycle correction factor (dB)	Corrected Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5775	17.9	0.2	18.1	29.9	11.8	Complied

**Single Channel**

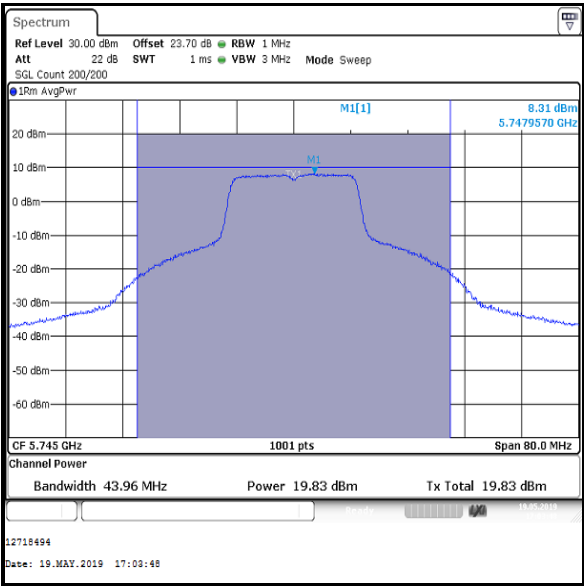
Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)**Results: 802.11n / 20 MHz / MIMO / 2Tx CDD / BPSK / MCS0**

Channel	Frequency (MHz)	Conducted Power Core 0 (dBm)	Conducted Power Core 1 (dBm)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5745	21.6	19.8	23.8	29.9	6.1	Complied
Middle	5785	21.2	19.8	23.6	29.9	6.3	Complied
Top	5825	21.5	20.6	24.1	29.9	5.8	Complied

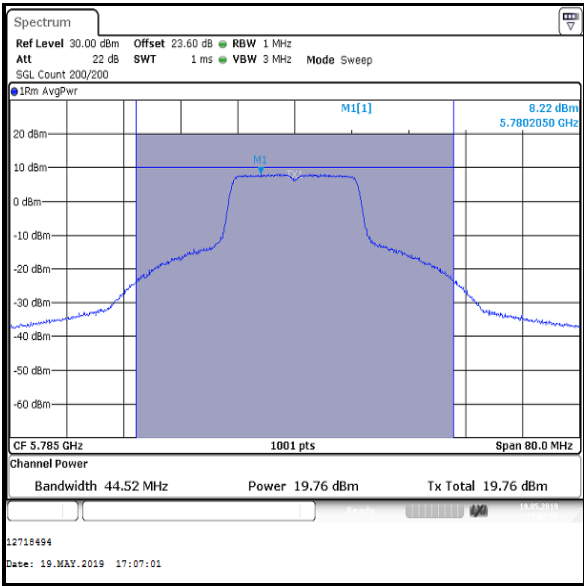
Results: 802.11n / 20 MHz / MIMO / 2Tx CDD / BPSK / MCS0 / Core 0**Bottom Channel****Middle Channel****Top Channel**

Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)

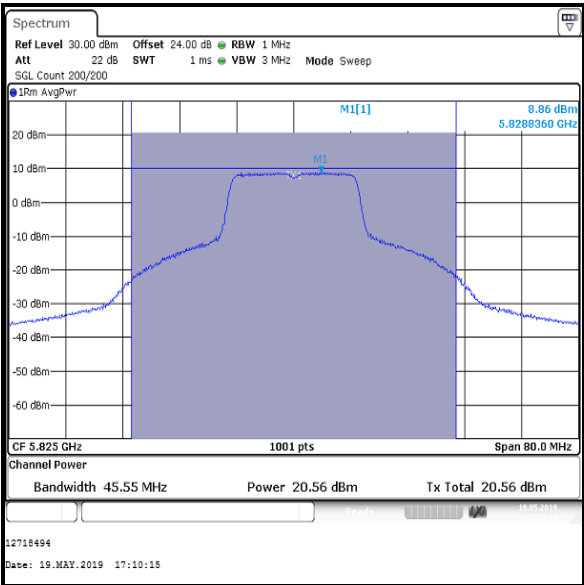
Results: 802.11n / 20 MHz / MIMO / 2Tx CDD / BPSK / MCS0 / Core 1



Bottom Channel



Middle Channel

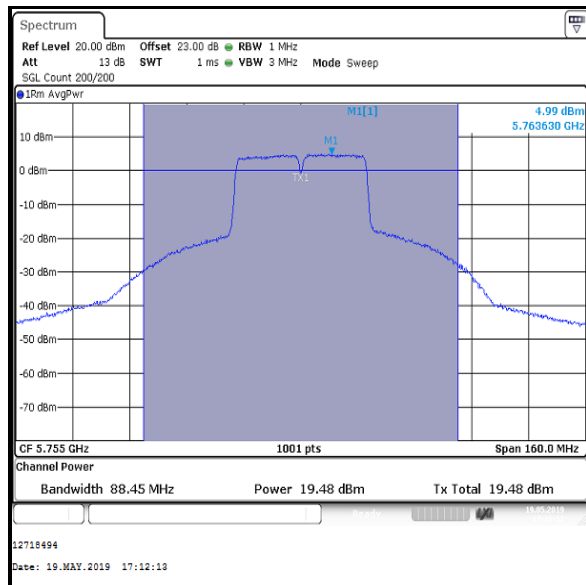


Top Channel

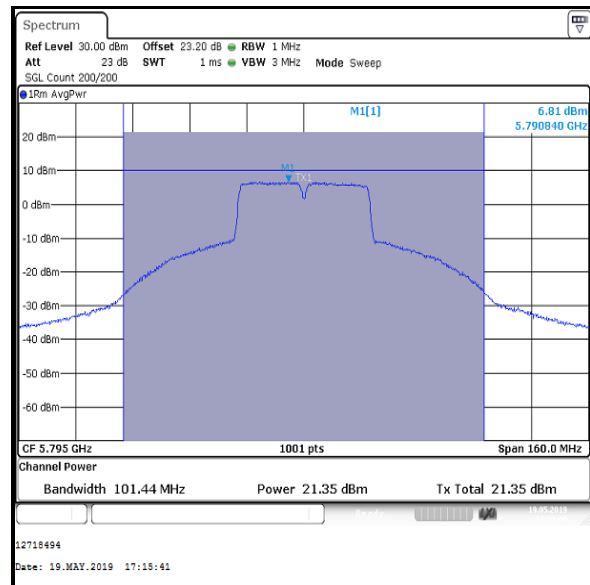
Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)**Results: 802.11n / 40 MHz / MIMO / 2Tx CDD / BPSK / MCS0**

Channel	Frequency (MHz)	Core 0			Core 1		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)
Bottom	5755	19.5	0.1	19.6	17.8	0.1	17.9
Top	5795	21.4	0.1	21.5	19.9	0.1	20.0

Channel	Frequency (MHz)	Corrected Conducted Power Core 0 (dBm)	Corrected Conducted Power Core 1 (dBm)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5755	19.6	17.9	21.8	29.9	8.1	Complied
Top	5795	21.5	20.0	23.8	29.9	6.1	Complied

Results: 802.11n / 40 MHz / MIMO / 2Tx CDD / BPSK / MCS0 / Core 0

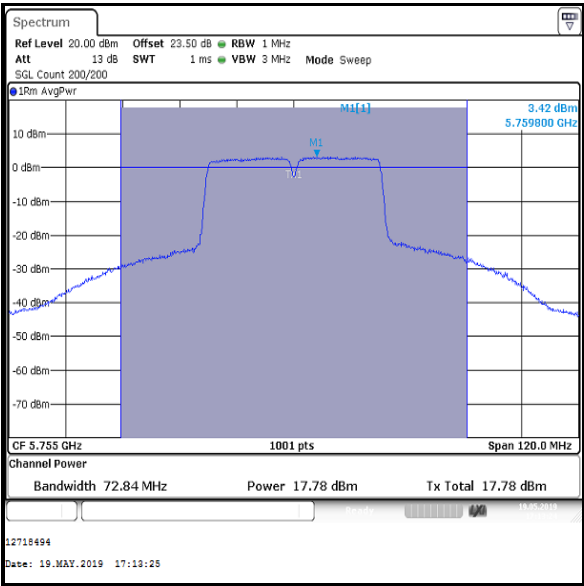
Bottom Channel



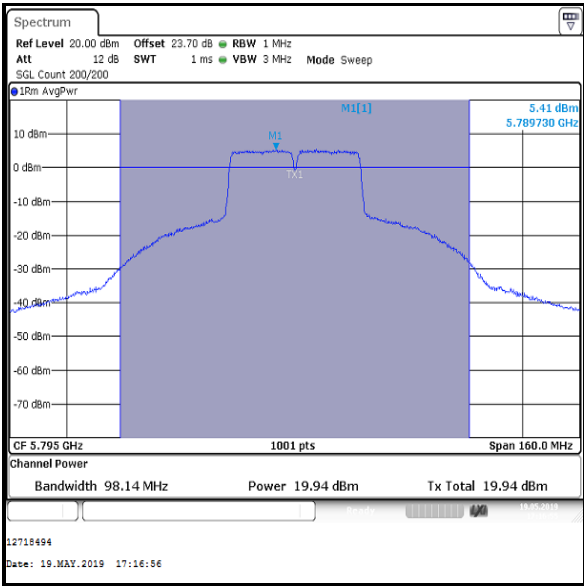
Top Channel

Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)

Results: 802.11n / 40 MHz / MIMO / 2Tx CDD / BPSK / MCS0 / Core 1



Bottom Channel

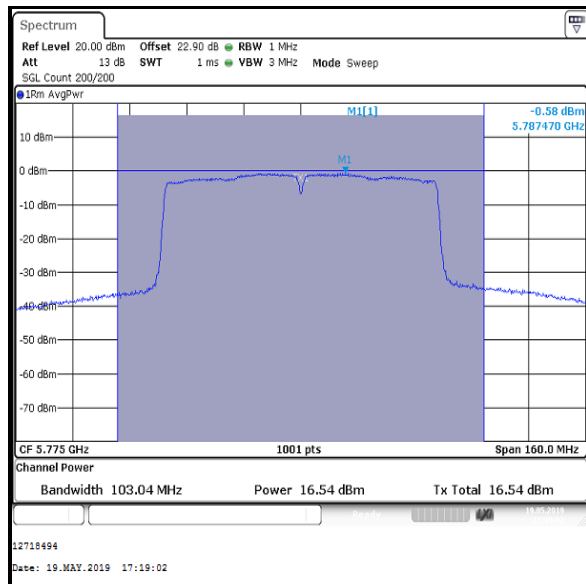


Top Channel

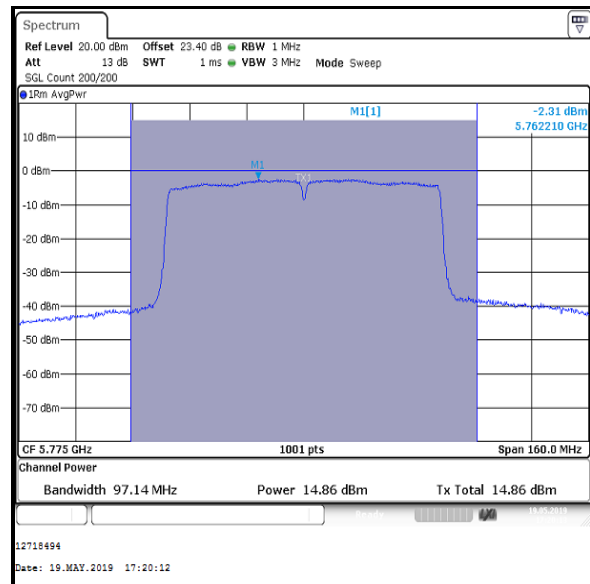
Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)**Results: 802.11ac / 80 MHz / MIMO / 2Tx CDD / BPSK / MCS0x1**

Channel	Frequency (MHz)	Core 0			Core 1		
		Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction factor (dB)	Corrected Conducted Power (dBm)
Single	5775	16.5	0.2	16.7	14.9	0.2	15.1

Channel	Frequency (MHz)	Corrected Conducted Power Core 0 (dBm)	Corrected Conducted Power Core 1 (dBm)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5775	16.7	15.1	19.0	29.9	10.9	Complied



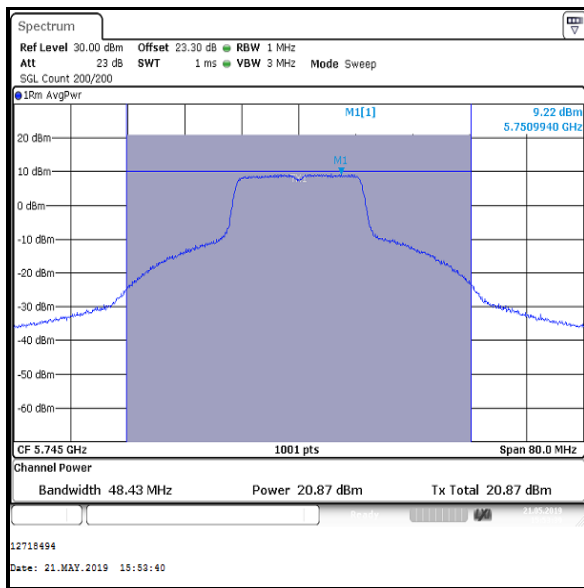
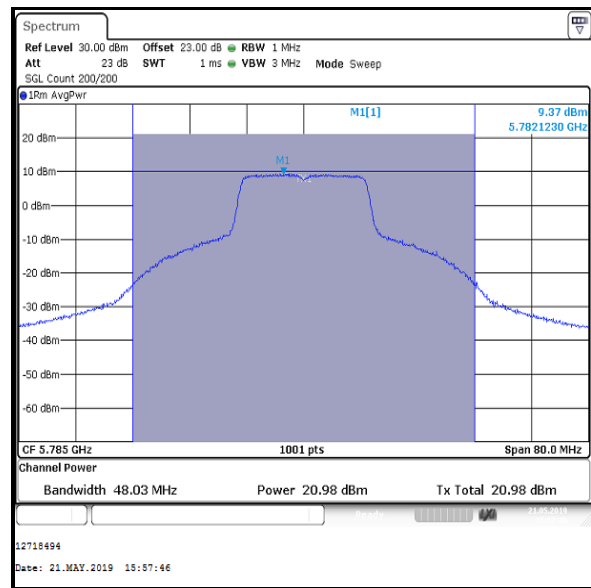
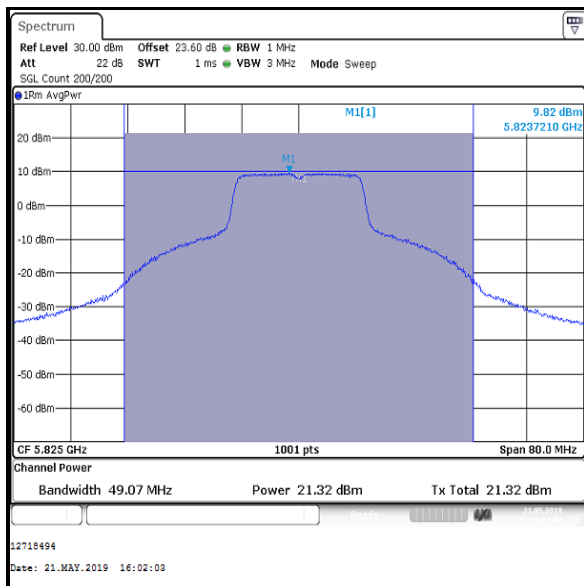
Single Channel / Core 0



Single Channel / Core 1

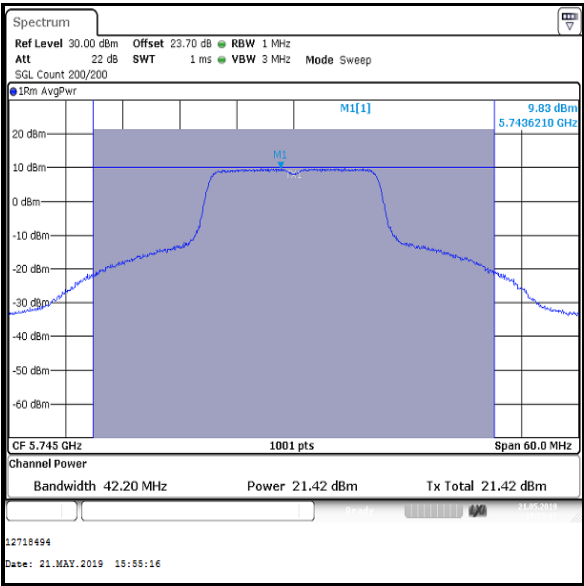
Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)**Results: 802.11n / 20 MHz / MIMO / 2Tx SDM / BPSK / MCS8**

Channel	Frequency (MHz)	Conducted Power Core 0 (dBm)	Conducted Power Core 1 (dBm)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5745	20.9	21.4	24.2	30.0	5.8	Complied
Middle	5785	21.0	21.5	24.3	30.0	5.7	Complied
Top	5825	21.3	21.9	24.6	30.0	5.4	Complied

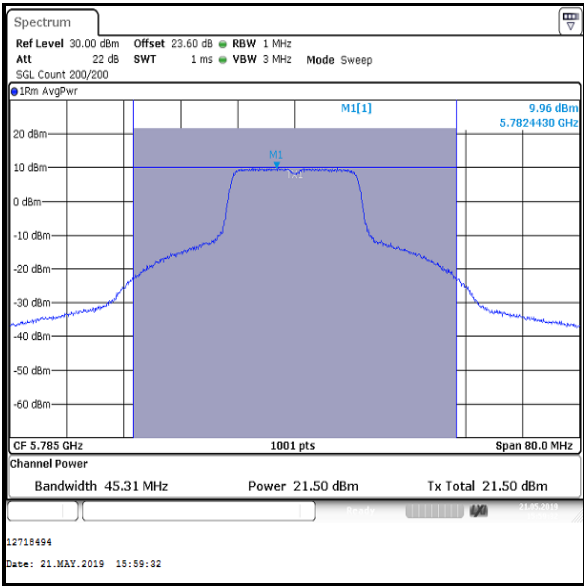
Results: 802.11n / 20 MHz / MIMO / 2Tx SDM / BPSK / MCS8 / Core 0**Bottom Channel****Middle Channel****Top Channel**

Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)

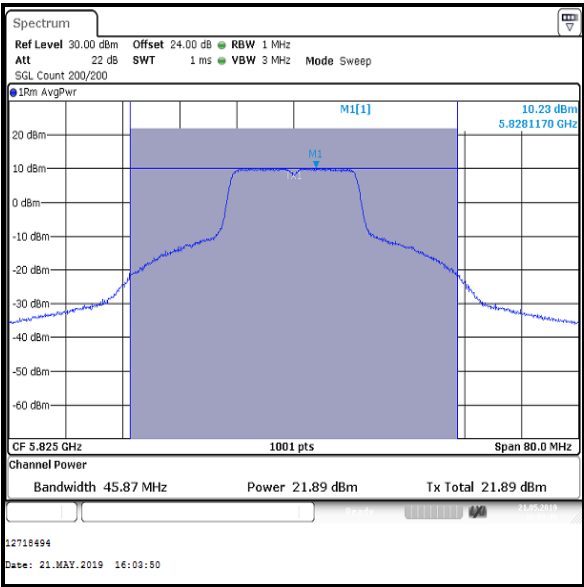
Results: 802.11n / 20 MHz / MIMO / 2Tx SDM / BPSK / MCS8 / Core 1



Bottom Channel



Middle Channel



Top Channel