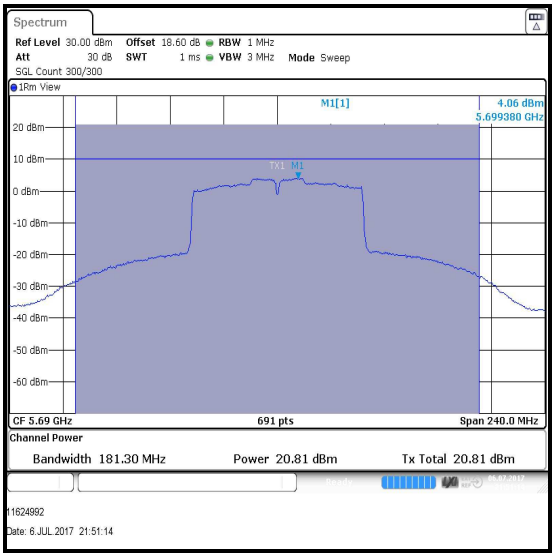
Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)

Results: 802.11ac / 80 MHz / SISO / BPSK / MCS0x1 / Port 2

Channel	Frequency (MHz)	Conducted Power (dBm)	Duty cycle correction factor (dB)	Corrected Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5690	20.8	0.2	21.0	24.0	3.0	Complied

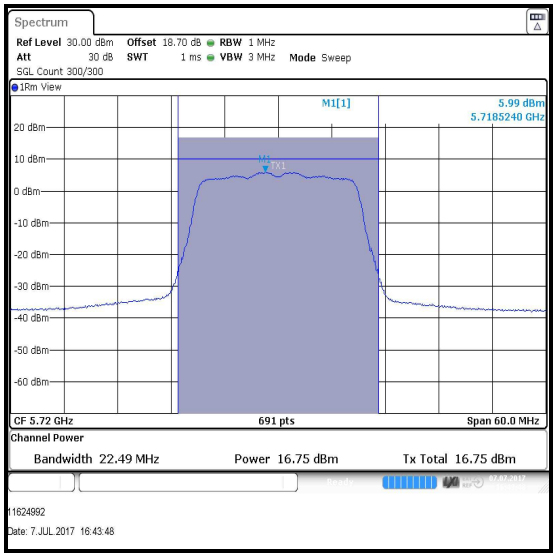


Single Channel

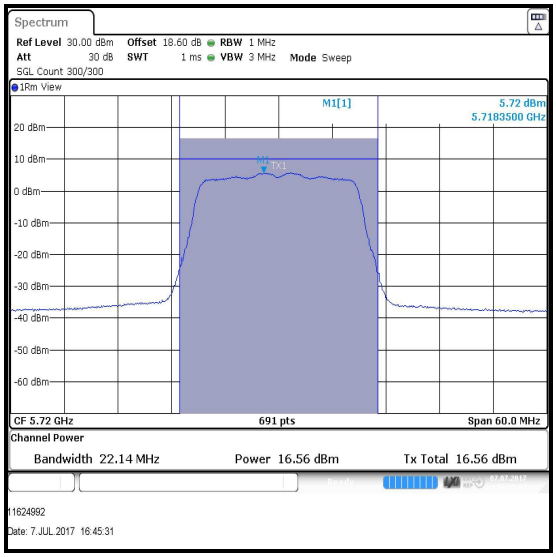
Transmitter Maximum Conducted Output Power (Straddle Channels) (continued)

Results: 802.11n / 20 MHz / MIMO / BPSK / MCS0

Channel	Frequency (MHz)	Conducted Power Port 1 (dBm)	Conducted Power Port 2 (dBm)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5720	16.8	16.6	19.7	23.1	3.4	Complied



Single Channel / Port 1



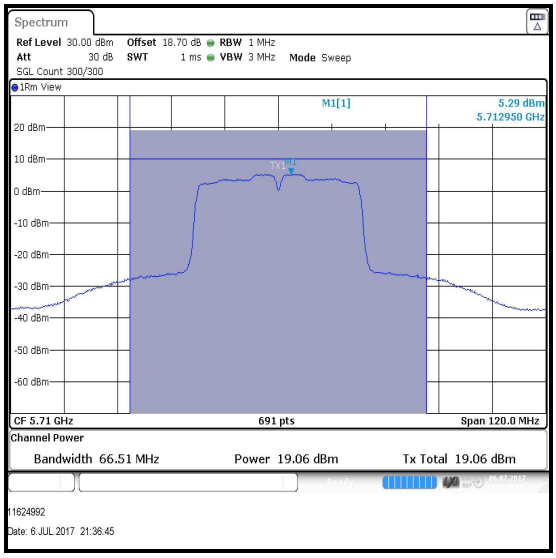
Single Channel / Port 2

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

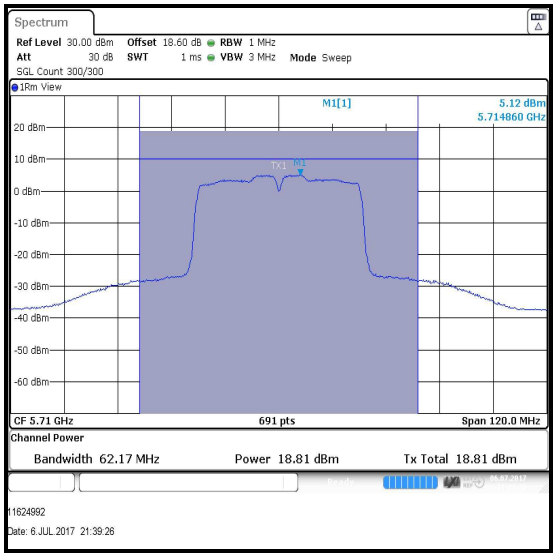
Results: 802.11n / 40 MHz / MIMO / BPSK / MCS0

Channel	Frequency (MHz)	Port 1			Port 2		
		Conducted Power (dBm)	Duty Cycle correction (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction (dB)	Corrected Conducted Power (dBm)
Single	5710	19.1	0.1	19.2	18.8	0.1	18.9

Channel	Frequency (MHz)	Corrected Conducted Power Port 1 (dBm)	Corrected Conducted Power Port 2 (dBm)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5710	19.2	18.9	22.1	24.0	1.9	Complied



Single Channel / Port 1



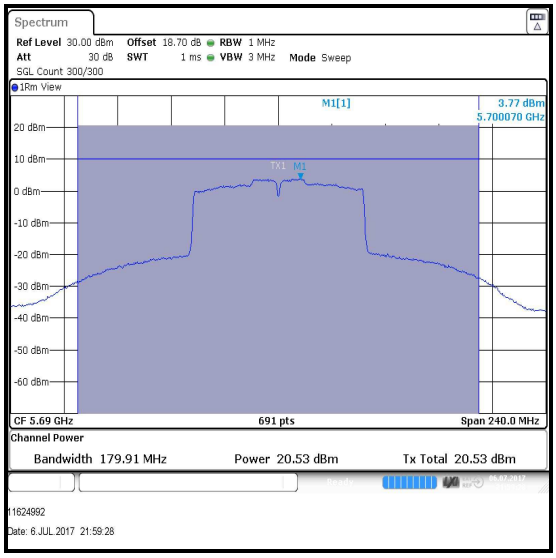
Single Channel / Port 2

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

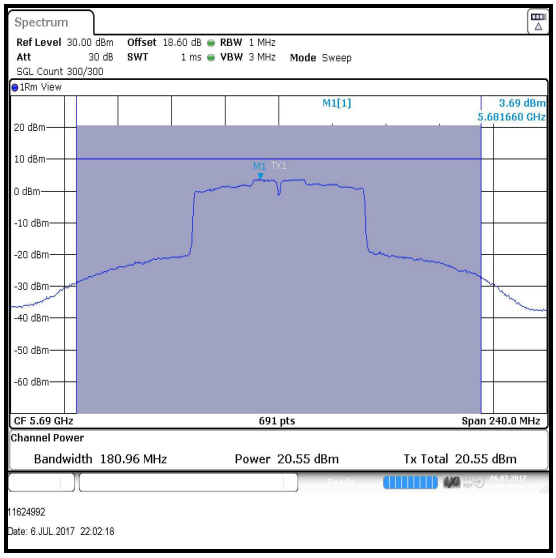
Results: 802.11ac / 80 MHz / MIMO / BPSK / MCS0x1

Channel	Frequency (MHz)	Port 1			Port 2		
		Conducted Power (dBm)	Duty Cycle correction (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction (dB)	Corrected Conducted Power (dBm)
Single	5690	20.5	0.2	20.7	20.6	0.2	20.8

Channel	Frequency (MHz)	Corrected Conducted Power Port 1 (dBm)	Corrected Conducted Power Port 2 (dBm)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5690	20.7	20.8	23.8	24.0	0.2	Complied



Single Channel / Port 1



Single Channel / Port 2

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

4.4.5 5.725-5.85 GHz band

Test Summary:

Test Engineer:	Georgios Vrezas	**Test Dates:**	07 July 2017 to 29 July 2017
Test Sample Serial Number:	C07TK02MJ4C7		

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):	21 to 25
Relative Humidity (%):	42 to 49

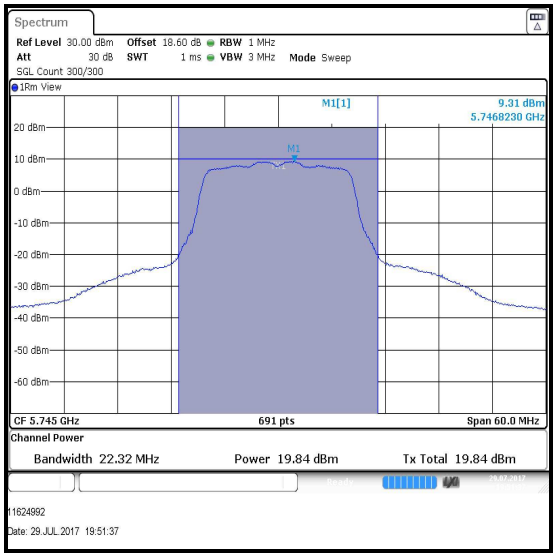
Note(s):

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.
2. Measurements were performed on 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 of this test report was added to the measured power in order to compute the average power during the actual transmission time.
4. For MIMO modes, power was measured on both ports and then combined using the measure-and-sum technique stated in FCC KDB 662911 D01 Section E)1).
5. For all modes of operation, the antenna gain is < 6 dBi.
6. For details on antenna gains refer to Section 3.4 of this test report.
7. The FCC Part 15.407(a)(3) limit shall not exceed 1 W (30.0 dBm).

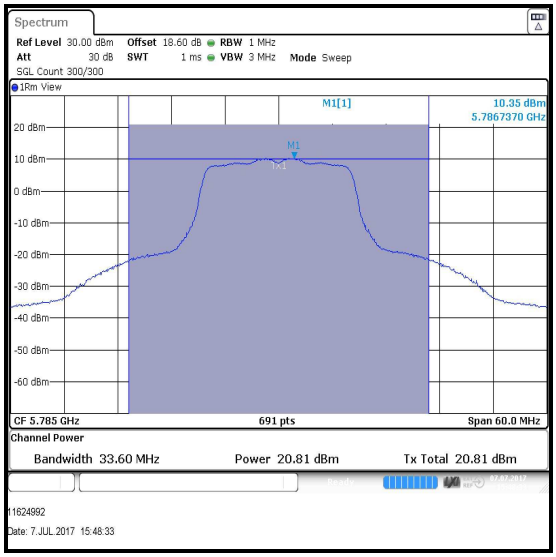
Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)

Results: 802.11a / 20 MHz / SISO / BPSK / 6 Mbit/s / Port 2

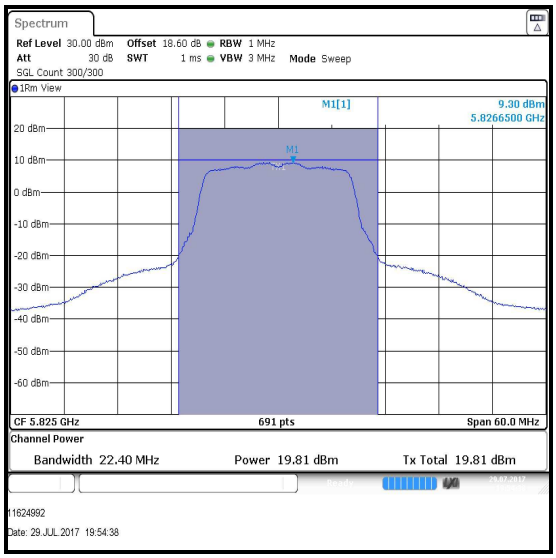
Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5745	19.8	30.0	10.2	Complied
Middle	5785	20.8	30.0	9.2	Complied
Top	5825	19.8	30.0	10.2	Complied



Bottom Channel



Middle Channel

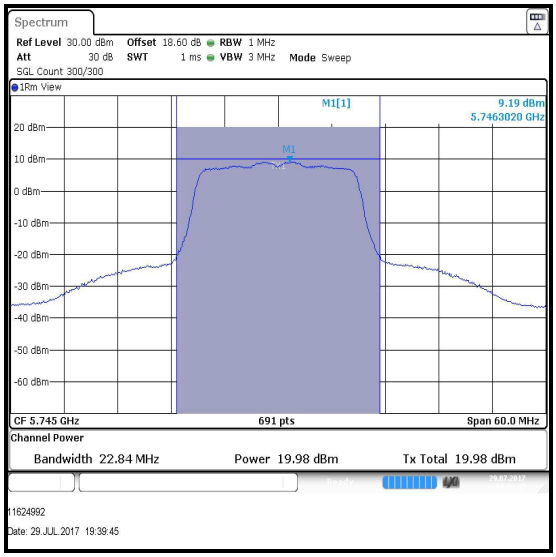


Top Channel

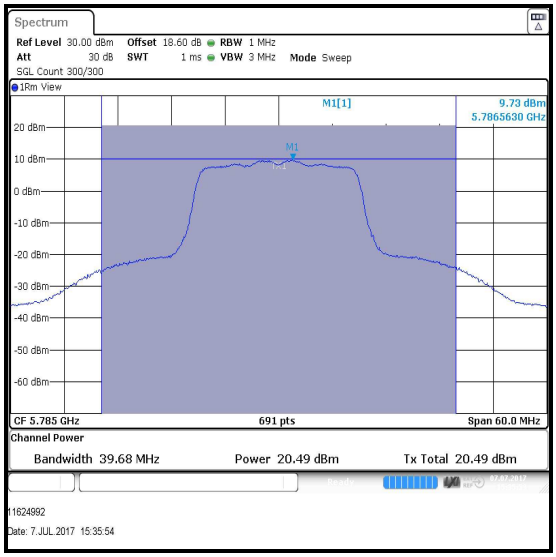
Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)

Results: 802.11n / 20 MHz / SISO / BPSK / MCS0 / Port 2

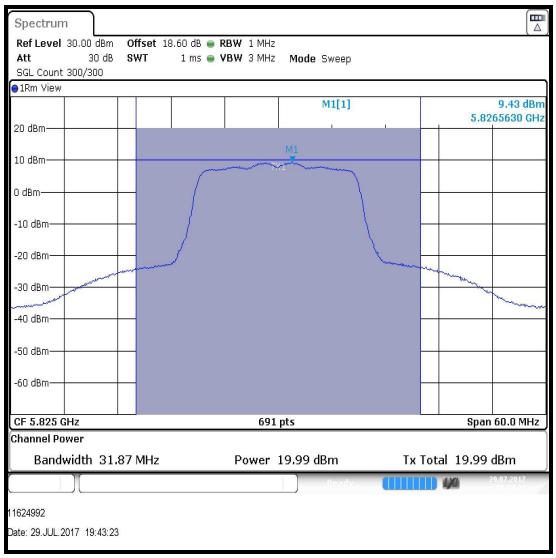
Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5745	20.0	30.0	10.0	Complied
Middle	5785	20.5	30.0	9.5	Complied
Top	5825	20.0	30.0	10.0	Complied



Bottom Channel



Middle Channel

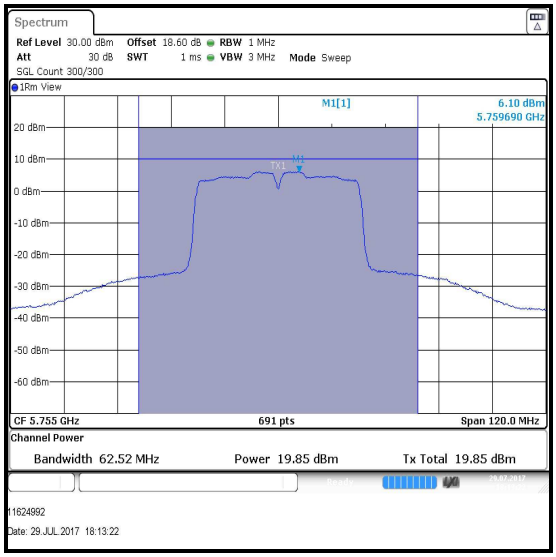


Top Channel

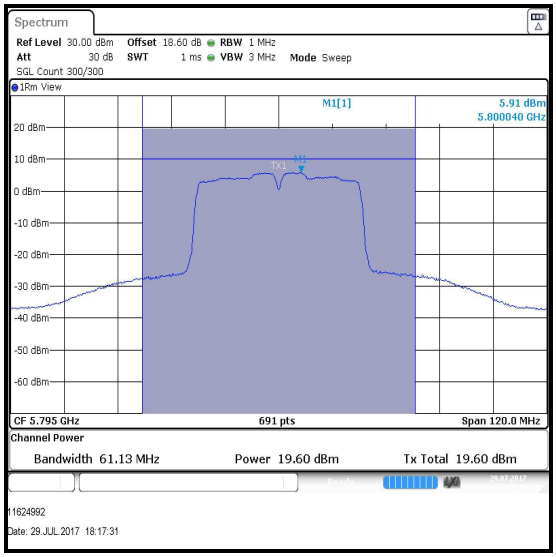
Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)

Results: 802.11n / 40 MHz / SISO / BPSK / MCS0 / Port 2

Channel	Frequency (MHz)	Conducted Power (dBm)	Duty cycle correction factor (dB)	Corrected Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5755	19.9	0.1	20.0	30.0	10.0	Complied
Top	5795	19.6	0.1	19.7	30.0	10.3	Complied



Bottom Channel

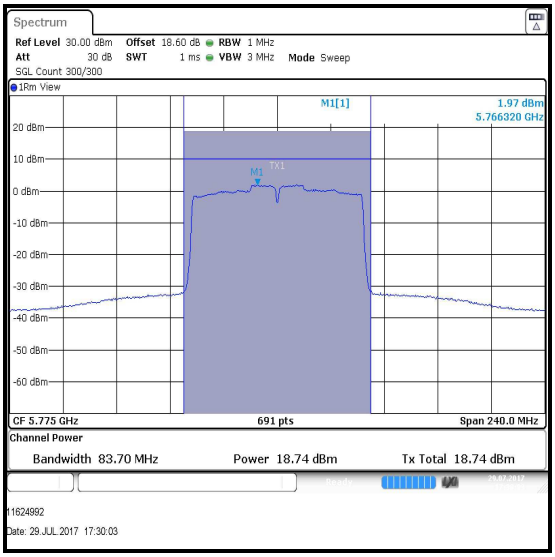


Top Channel

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

Results: 802.11ac / 80 MHz / SISO / BPSK / MCS0x1 / Port 2

Channel	Frequency (MHz)	Conducted Power (dBm)	Duty cycle correction factor (dB)	Corrected Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5775	18.7	0.2	18.9	30.0	11.1	Complied



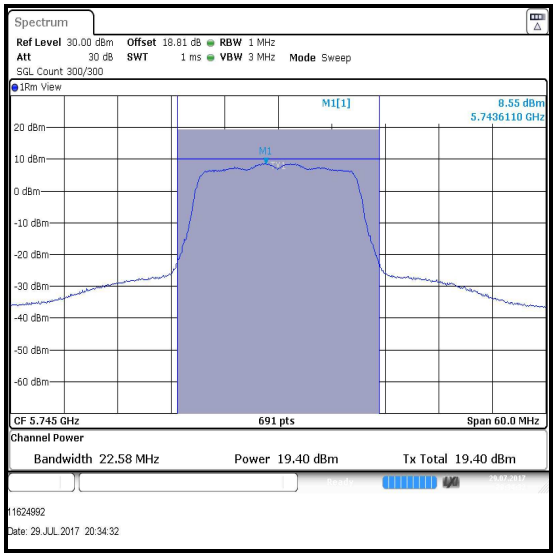
Single Channel

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

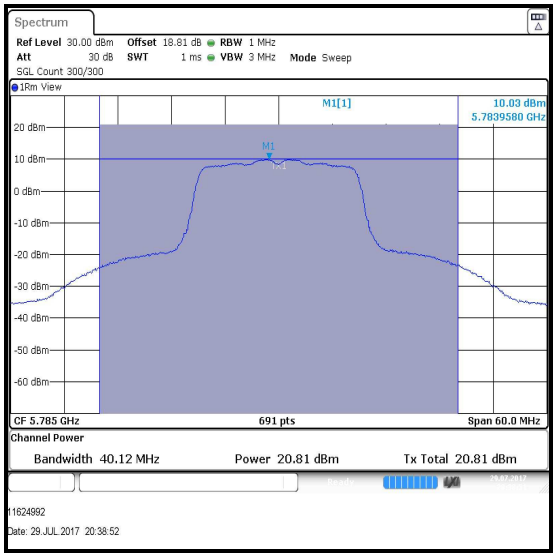
Results: 802.11n / 20 MHz / MIMO / BPSK / MCS0

Channel	Frequency (MHz)	Conducted Power Port 1 (dBm)	Conducted Power Port 2 (dBm)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5745	19.4	18.9	22.2	30.0	7.8	Complied
Middle	5785	20.8	20.1	23.5	30.0	6.5	Complied
Top	5825	19.4	19.1	22.3	30.0	7.7	Complied

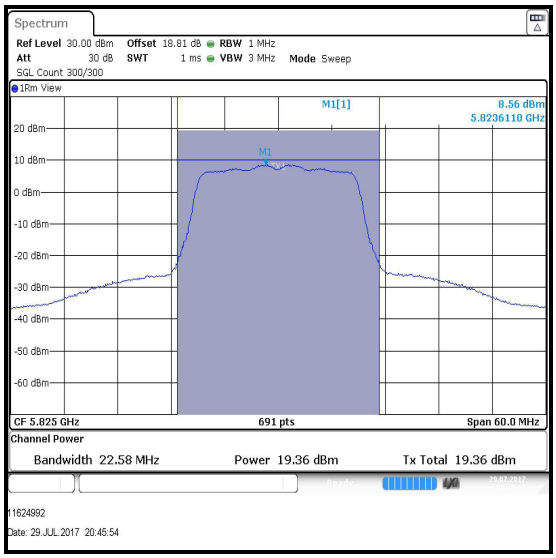
Results: 802.11n / 20 MHz / MIMO / BPSK / MCS0 / Port 1



Bottom Channel



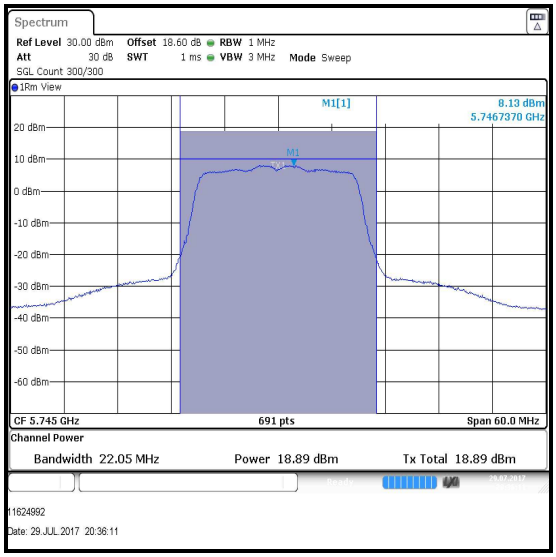
Middle Channel



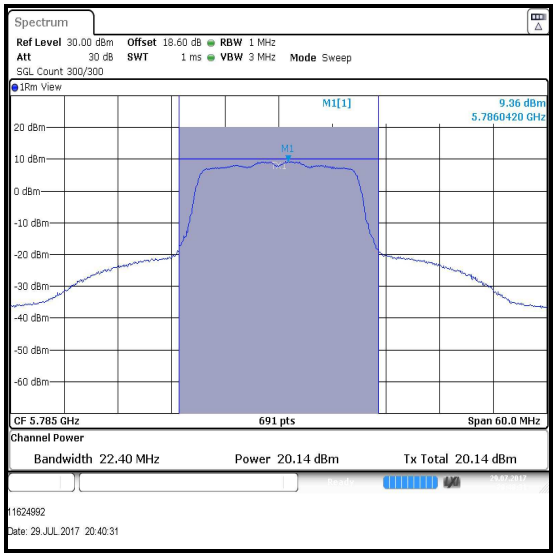
Top Channel

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

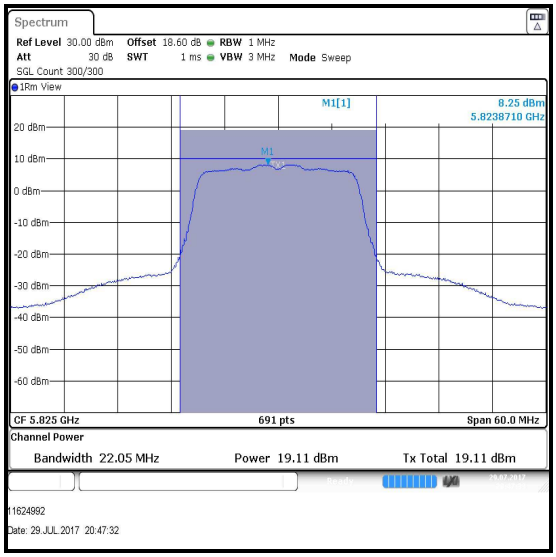
Results: 802.11n / 20 MHz / MIMO / BPSK / MCS0 / Port 2



Bottom Channel



Middle Channel



Top Channel

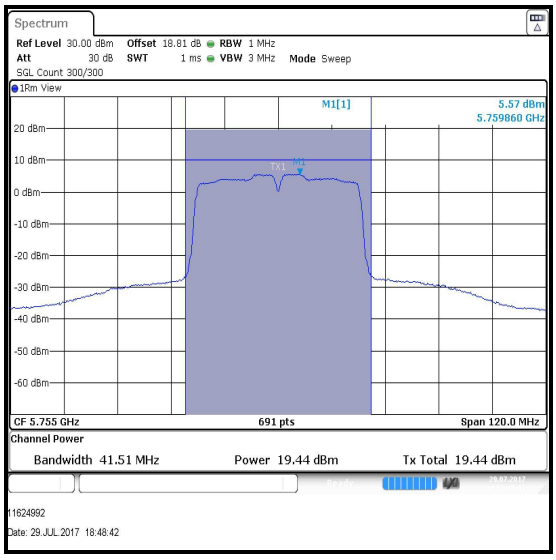
Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)

Results: 802.11n / 40 MHz / MIMO / BPSK / MCS0

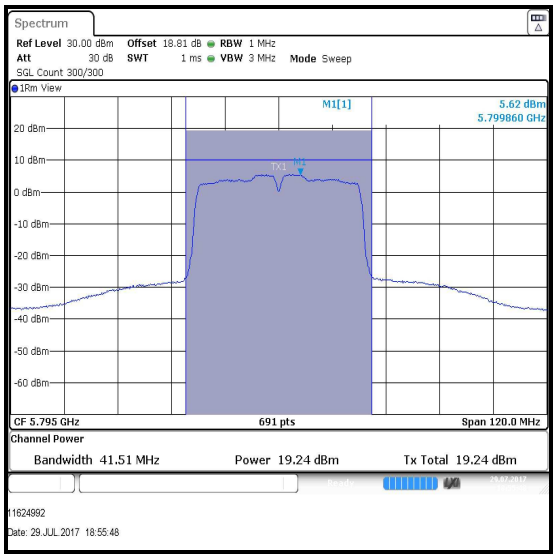
Channel	Frequency (MHz)	Port 1			Port 2		
		Conducted Power (dBm)	Duty Cycle correction (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction (dB)	Corrected Conducted Power (dBm)
Bottom	5755	19.4	0.1	19.5	18.8	0.1	18.9
Top	5795	19.2	0.1	19.3	18.8	0.1	18.9

Channel	Frequency (MHz)	Corrected Conducted Power Port 1 (dBm)	Corrected Conducted Power Port 2 (dBm)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5755	19.5	18.9	22.2	30.0	7.8	Complied
Top	5795	19.3	18.9	22.1	30.0	7.9	Complied

Results: 802.11n / 40 MHz / MIMO / BPSK / MCS0 / Port 1



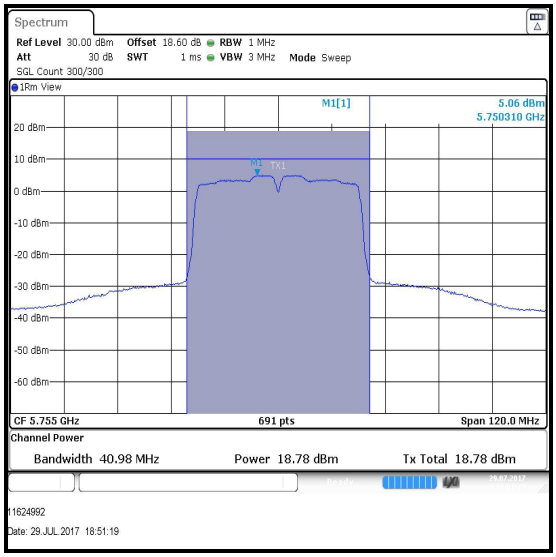
Bottom Channel



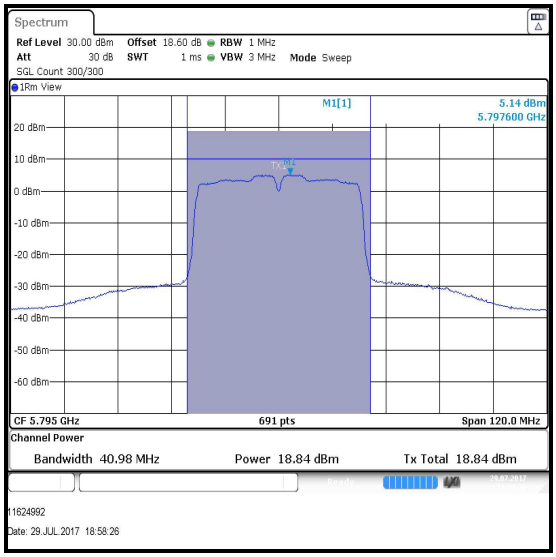
Top Channel

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

Results: 802.11n / 40 MHz / MIMO / BPSK / MCS0 / Port 2



Bottom Channel



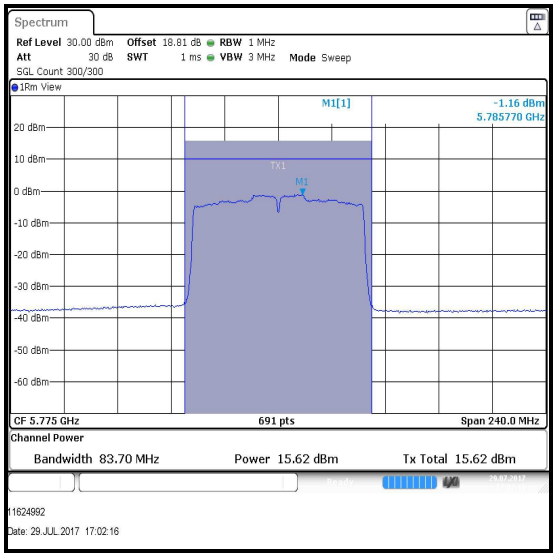
Top Channel

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

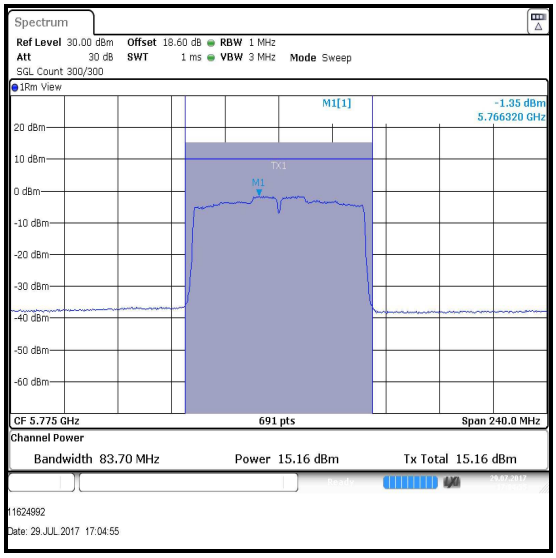
Results: 802.11ac / 80 MHz / MIMO / BPSK / MCS0x1

Channel	Frequency (MHz)	Port 1			Port 2		
		Conducted Power (dBm)	Duty Cycle correction (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle correction (dB)	Corrected Conducted Power (dBm)
Single	5775	15.6	0.2	15.8	15.2	0.2	15.4

Channel	Frequency (MHz)	Corrected Conducted Power Port 1 (dBm)	Corrected Conducted Power Port 2 (dBm)	Combined Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5775	15.8	15.4	18.6	30.0	11.4	Complied



Single Channel / Port 1



Single Channel / Port 2

4.5. Transmitter Maximum Power Spectral Density

4.5.1 5.15-5.25 GHz band

Test Summary:

Test Engineer:	Georgios Vrezas	**Test Dates:**	07 July 2017 to 29 July 2017
Test Sample Serial Number:	C07TK02MJ4C7		

FCC Reference:	Part 15.407(a)(1)(iv)
Test Method Used:	KDB 789033 D02 Section II.F. referencing II.E.2.b) and II.E.2.d)

Environmental Conditions:

Temperature (°C):	21 to 25
Relative Humidity (%):	42 to 49

Note(s):

1. Transmitter Maximum Power Spectral Density tests in all bands were performed using a signal analyser in accordance with KDB 789033 II. F referencing II.E.2.b) Method SA-1 and II.E.2.d) Method SA-2.
2. Measurements were performed on data rates detailed in Section 3.5 of this test report.
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 maximum power spectral density in order to compute the average maximum power spectral density during the actual transmission time.
4. For MIMO modes, PSD was measured on both ports and then combined using the measure and sum spectral maxima across the outputs technique, stated in FCC KDB 662911 D01 Section E)2)b).
5. FCC Part 15.407(a)(1)(iv) limit for PPSD is <11 dBm/MHz.
6. For all modes of operation, the antenna gain is < 6 dBi.
7. For details on antenna gains refer to Section 3.4 of this test report.
8. The signal analyser was connected to the RF port on the EUT using an RF switch, suitable attenuation and RF cables. An RF level offset was entered on the signal analyser to compensate for the loss of the switch, attenuators and RF cables.
9. As the power spectral density test uses the same test method as the output power test, before the power is integrated across the 26 dB bandwidth, the conducted power spectral density plots are located in the conducted output power section 4.4 of this test report. The peak spectral density was measured by placing a marker on the peak of the signal and the results entered in the tables below.

Transmitter Maximum Power Spectral Density (5.15-5.25 GHz band) (continued)

Results: 802.11a / 20 MHz / SISO / BPSK / 6 Mbit/s / Port 1

Channel	Frequency (MHz)	PPSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Bottom	5180	5.0	11.0	6.0	Complied
Middle	5200	9.4	11.0	1.6	Complied
Top	5240	9.3	11.0	1.7	Complied

Results: 802.11n / 20 MHz / SISO / BPSK / MCS0 / Port 1

Channel	Frequency (MHz)	PPSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Bottom	5180	4.7	11.0	6.3	Complied
Middle	5200	9.0	11.0	2.0	Complied
Top	5240	9.0	11.0	2.0	Complied

Results: 802.11n / 40 MHz / SISO / BPSK / MCS0 / Port 1

Channel	Frequency (MHz)	PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Bottom	5190	1.1	0.1	1.2	11.0	9.8	Complied
Top	5230	7.2	0.1	7.3	11.0	3.7	Complied

Results: 802.11ac / 80 MHz / SISO / BPSK / MCS0x1 / Port 1

Channel	Frequency (MHz)	PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Single	5210	-2.0	0.1	-1.9	11.0	12.9	Complied

Transmitter Maximum Power Spectral Density (5.15-5.25 GHz band) (continued)

Results: 802.11n / 20 MHz / MIMO / BPSK / MCS0

Channel	Frequency (MHz)	PPSD Port 1 (dBm/MHz)	PPSD Port 2 (dBm/MHz)	Combined PPSD (dBm/MHz)	Limit (dBm)	Margin (dB)	Result
Bottom	5180	4.1	3.9	7.0	11.0	4.0	Complied
Middle	5200	6.0	5.9	9.0	11.0	2.0	Complied
Top	5240	6.2	5.7	9.0	11.0	2.0	Complied

Results: 802.11n / 40 MHz / MIMO / BPSK / MCS0

Channel	Frequency (MHz)	Port 1			Port 2		
		PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)	PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)
Bottom	5190	0.6	0.1	0.7	0.6	0.1	0.7
Top	5230	5.4	0.1	5.5	5.4	0.1	5.5

Channel	Frequency (MHz)	Corrected PPSD Port 1 (dBm)	Corrected PPSD Port 2 (dBm)	Combined PPSD (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5190	0.7	0.7	3.7	11.0	7.3	Complied
Top	5230	5.5	5.5	8.5	11.0	2.5	Complied

Results: 802.11ac / 80 MHz / MIMO / BPSK / MCS0x1

Channel	Frequency (MHz)	Port 1			Port 2		
		PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)	PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)
Single	5210	-3.7	0.2	-3.5	-3.7	0.2	-3.5

Channel	Frequency (MHz)	Corrected PPSD Port 1 (dBm)	Corrected PPSD Port 2 (dBm)	Combined PPSD (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5210	-3.5	-3.5	-0.5	11.0	11.5	Complied

Transmitter Maximum Power Spectral Density (5.25-5.35 GHz band)

4.5.2 5.25-5.35 GHz band

Test Summary:

Test Engineer:	Georgios Vrezas	**Test Dates:**	07 July 2017 to 29 July 2017
Test Sample Serial Number:	C07TK02MJ4C7		

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

Environmental Conditions:

Temperature (°C):	21 to 25
Relative Humidity (%):	42 to 49

Note(s):

1. Transmitter Maximum Power Spectral Density tests in all bands were performed using a signal analyser in accordance with KDB 789033 II. F referencing II.E.2.b) Method SA-1 and II.E.2.d) Method SA-2.
2. Measurements were performed on data rates detailed in Section 3.5 of this test report.
3. For data rates where the EUT was transmitting at <98% duty cycle, the calculated duty cycle in Section 4.1 of this report was added to the measured maximum power spectral density in order to compute the average maximum power spectral density during the actual transmission time.
4. For MIMO modes, PSD was measured on both ports and then combined using the measure and sum spectral maxima across the outputs technique, stated in FCC KDB 662911 D01 Section E)2)b).
5. FCC Part 15.407(a)(2) limit for PPSD in the 5.25-5.35 GHz band is <11 dBm/MHz.
6. For all modes of operation, the antenna gain is < 6 dBi.
7. For details on antenna gains refer to Section 3.4 of this test report.
8. The signal analyser was connected to the RF port on the EUT using an RF switch, suitable attenuation and RF cables. An RF level offset was entered on the signal analyser to compensate for the loss of the switch, attenuators and RF cables.
9. As the power spectral density test uses the same test method as the output power test, before the power is integrated across the 26 dB bandwidth, the conducted power spectral density plots are located in the conducted output power section 4.4 of this test report. The peak spectral density was measured by placing a marker on the peak of the signal and the results entered in the tables below.

Transmitter Maximum Power Spectral Density (5.25-5.35 GHz band) (continued)

Results: 802.11a / 20 MHz / SISO / BPSK / 6 Mbit/s / Port 1

Channel	Frequency (MHz)	PPSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Bottom	5260	9.4	11.0	1.6	Complied
Middle	5280	9.4	11.0	1.6	Complied
Top	5320	5.4	11.0	5.6	Complied

Results: 802.11n / 20 MHz / SISO / BPSK / MCS0 / Port 1

Channel	Frequency (MHz)	PPSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Bottom	5260	9.1	11.0	1.9	Complied
Middle	5280	9.2	11.0	1.8	Complied
Top	5320	5.0	11.0	6.0	Complied

Results: 802.11n / 40 MHz / SISO / BPSK / MCS0 / Port 1

Channel	Frequency (MHz)	PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Bottom	5270	7.0	0.1	7.1	11.0	3.9	Complied
Top	5310	1.1	0.1	1.2	11.0	9.8	Complied

Results: 802.11ac / 80 MHz / SISO / BPSK / MCS0x1 / Port 1

Channel	Frequency (MHz)	PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Single	5290	-2.2	0.1	-2.1	11.0	13.1	Complied

Transmitter Maximum Power Spectral Density (5.25-5.35 GHz band) (continued)

Results: 802.11n / 20 MHz / MIMO / BPSK / MCS0

Channel	Frequency (MHz)	PPSD Port 1 (dBm/MHz)	PPSD Port 2 (dBm/MHz)	Combined PPSD (dBm/MHz)	Limit (dBm)	Margin (dB)	Result
Bottom	5260	6.3	5.5	8.9	11.0	2.1	Complied
Middle	5280	6.2	5.4	8.8	11.0	2.2	Complied
Top	5320	3.7	3.2	6.5	11.0	4.5	Complied

Results: 802.11n / 40 MHz / MIMO / BPSK / MCS0

Channel	Frequency (MHz)	Port 1			Port 2		
		PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)	PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)
Bottom	5270	5.6	0.1	5.7	5.2	0.1	5.3
Top	5310	0.1	0.1	0.2	-0.6	0.1	-0.5

Channel	Frequency (MHz)	Corrected PPSD Port 1 (dBm)	Corrected PPSD Port 2 (dBm)	Combined PPSD (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5270	5.7	5.3	8.5	11.0	2.5	Complied
Top	5310	0.2	-0.5	2.9	11.0	8.1	Complied

Results: 802.11ac / 80 MHz / MIMO / BPSK / MCS0x1

Channel	Frequency (MHz)	Port 1			Port 2		
		PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)	PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)
Single	5290	-3.9	0.2	-3.7	-3.4	0.2	-3.2

Channel	Frequency (MHz)	Corrected PPSD Port 1 (dBm)	Corrected PPSD Port 2 (dBm)	Combined PPSD (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5290	-3.7	-3.2	-0.4	11.0	11.4	Complied

Transmitter Maximum Power Spectral Density (5.47-5.725 GHz band)

4.5.3 5.47-5.725 GHz band

Test Summary:

Test Engineer:	Georgios Vrezas	**Test Dates:**	06 July 2017 to 29 July 2017
Test Sample Serial Number:	C07TK02MJ4C7		

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

Environmental Conditions:

Temperature (°C):	21 to 25
Relative Humidity (%):	42 to 49

Note(s):

1. Transmitter Maximum Power Spectral Density tests in all bands were performed using a signal analyser in accordance with KDB 789033 II. F referencing II.E.2.b) Method SA-1 and II.E.2.d) Method SA-2.
2. Measurements were performed on data rates detailed in Section 3.5 of this test report.
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 maximum power spectral density in order to compute the average maximum power spectral density during the actual transmission time.
4. For MIMO modes, PSD was measured on both ports and then combined using the measure and sum spectral maxima across the outputs technique, stated in FCC KDB 662911 D01 Section E)2)b).
5. FCC Part 15.407(a)(2) limit for PPSD in the 5.47-5.725 GHz band is <11 dBm/MHz.
6. For all modes of operation, the antenna gain is < 6 dBi.
7. For details on antenna gains refer to Section 3.4 of this test report.
8. The signal analyser was connected to the RF port on the EUT using an RF switch, suitable attenuation and RF cables. An RF level offset was entered on the signal analyser to compensate for the loss of the switch, attenuators and RF cables.
9. As the power spectral density test uses the same test method as the output power test, before the power is integrated across the 26 dB bandwidth, the conducted power spectral density plots are located in the conducted output power Section 4.4 of this test report. The peak spectral density was measured by placing a marker on the peak of the signal and the results entered in the tables below.

Transmitter Maximum Power Spectral Density (5.47-5.725 GHz band) (continued)

Results: 802.11a / 20 MHz / SISO / BPSK / 6 Mbit/s / Port 2

Channel	Frequency (MHz)	PPSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Bottom	5500	5.4	11.0	5.6	Complied
Middle	5580	9.4	11.0	1.6	Complied
Top	5700	5.4	11.0	5.6	Complied

Results: 802.11n / 20 MHz / SISO / BPSK / MCS0 / Port 2

Channel	Frequency (MHz)	PPSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Bottom	5500	5.2	11.0	5.8	Complied
Middle	5580	9.0	11.0	2.0	Complied
Top	5700	5.1	11.0	5.9	Complied

Results: 802.11n / 40 MHz / SISO / BPSK / MCS0 / Port 2

Channel	Frequency (MHz)	PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Bottom	5510	-0.1	0.1	0.0	11.0	11.0	Complied
Middle	5590	7.3	0.1	7.4	11.0	3.6	Complied
Top	5670	3.6	0.1	3.7	11.0	7.3	Complied

Results: 802.11ac / 80 MHz / SISO / BPSK / MCS0x1 / Port 2

Channel	Frequency (MHz)	PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Bottom	5530	-3.1	0.2	-2.9	11.0	13.9	Complied
Top	5610	1.0	0.2	1.2	11.0	9.8	Complied

Transmitter Maximum Power Spectral Density (5.47-5.725 GHz band) (continued)

Results: 802.11n / 20 MHz / MIMO / BPSK / MCS0

Channel	Frequency (MHz)	PPSD Port 1 (dBm/MHz)	PPSD Port 1 (dBm/MHz)	Combined PPSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Bottom	5500	4.5	3.6	7.1	11.0	3.9	Complied
Middle	5580	6.1	5.2	8.7	11.0	2.3	Complied
Top	5700	4.6	4.1	7.4	11.0	3.6	Complied

Results: 802.11n / 40 MHz / MIMO / BPSK / MCS0

Channel	Frequency (MHz)	Port 1			Port 2		
		PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)	PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)
Bottom	5510	-0.8	0.1	-0.7	-1.9	0.1	-1.8
Middle	5590	5.4	0.1	5.5	5.0	0.1	5.1
Top	5670	2.1	0.1	2.2	1.7	0.1	1.8

Channel	Frequency (MHz)	Corrected PPSD Port 1 (dBm)	Corrected PPSD Port 2 (dBm)	Combined PPSD (dBm)	Limit (dBm/MHz)	Margin (dB)	Result
Bottom	5510	-0.7	-1.8	1.8	11.0	9.2	Complied
Middle	5590	5.5	5.1	8.3	11.0	2.7	Complied
Top	5670	2.2	1.8	5.0	11.0	6.0	Complied

Results: 802.11ac / 80 MHz / MIMO / BPSK / MCS0x1

Channel	Frequency (MHz)	Port 1			Port 2		
		PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)	PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)
Bottom	5530	-5.2	0.2	-5.0	-6.3	0.2	-6.1
Top	5610	0.9	0.2	1.1	0.4	0.2	0.6

Channel	Frequency (MHz)	Corrected PPSD Port 1 (dBm/MHz)	Corrected PPSD Port 2 (dBm/MHz)	Combined PPSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Bottom	5530	-5.0	-6.1	-2.5	11.0	13.5	Complied
Top	5610	1.1	0.6	3.9	11.0	7.1	Complied

Transmitter Maximum Power Spectral Density (Straddle channels)

4.5.4 Channels that straddle the U-NII-2C and U-NII-3 bands

Test Summary:

Test Engineer:	Georgios Vrezas	**Test Dates:**	06 July 2017 & 07 July 2017
Test Sample Serial Number:	C07TK02MJ4C7		

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

Environmental Conditions:

Temperature (°C):	21 to 23
Relative Humidity (%):	47 to 49

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 power spectral density 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. Transmitter Maximum Power Spectral Density tests in all bands were performed using a signal analyser in accordance with KDB 789033 II. F referencing II.E.2.b) Method SA-1 and II.E.2.d) Method SA-2.
3. Measurements were performed on data rates detailed in Section 3.5 of this test report.
4. For data rates where the EUT was transmitting at <98% duty cycle, the calculated duty cycle in Section 4.1 of this test report was added to the measured maximum power spectral density in order to compute the average maximum power spectral density during the actual transmission time.
5. For MIMO modes, PSD was measured on both ports and then combined using the measure and sum spectral maxima across the outputs technique, stated in FCC KDB 662911 D01 Section E)2)b).
6. FCC Part 15.407(a)(2) limit for PPSD in the 5.47-5.725 GHz band is <11 dBm/MHz.
7. For all modes of operation, the antenna gain is < 6 dBi.
8. For details on antenna gains refer to Section 3.4 of this test report.
9. The signal analyser was connected to the RF port on the EUT using an RF switch, suitable attenuation and RF cables. An RF level offset was entered on the signal analyser to compensate for the loss of the switch, attenuators and RF cables.
10. As the power spectral density test uses the same test method as the output power test, before the power is integrated across the 26 dB bandwidth, the conducted power spectral density plots are located in the conducted output power Section 4.4 of this test report. The peak spectral density was measured by placing a marker on the peak of the signal and the results entered in the tables below.

Transmitter Maximum Power Spectral Density (Straddle Channels) (continued)

Results: 802.11a / 20 MHz / SISO / BPSK / 6 Mbit/s / Port 2

Channel	Frequency (MHz)	PPSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Single	5720	9.2	11.0	1.8	Complied

Results: 802.11n / 20 MHz / SISO / BPSK / MCS0 / Port 2

Channel	Frequency (MHz)	PPSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Single	5720	9.0	11.0	2.0	Complied

Results: 802.11n / 40 MHz / SISO / BPSK / MCS0 / Port 2

Channel	Frequency (MHz)	PPSD (dBm/MHz)	Duty cycle correction	Corrected PPSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Single	5710	7.0	0.1	7.1	11.0	3.9	Complied

Results: 802.11ac / 80 MHz / SISO / BPSK / MCS0x1 / Port 2

Channel	Frequency (MHz)	PPSD (dBm/MHz)	Duty cycle correction	Corrected PPSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Single	5690	4.1	0.2	4.3	11.0	6.7	Complied

Transmitter Maximum Power Spectral Density (Straddle Channels) (continued)

Results: 802.11n / 20 MHz / MIMO / BPSK / MCS0

Channel	Frequency (MHz)	PPSD Port 2 (dBm/1MHz)	PPSD Port 2 (dBm/1MHz)	Combined PPSD (dBm/1MHz)	Limit (dBm/500 kHz)	Margin (dB)	Result
Single	5720	6.0	5.7	8.9	11.0	2.1	Complied

Results: 802.11n / 40 MHz / MIMO / BPSK / MCS0

Channel	Frequency (MHz)	Port 1			Port 2		
		PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)	PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)
Single	5710	5.3	0.1	5.4	5.1	0.1	5.2

Channel	Frequency (MHz)	Corrected PPSD Port 1 (dBm/MHz)	Corrected PPSD Port 2 (dBm/MHz)	Combined PPSD (dBm/1MHz)	Limit (dBm/500 kHz)	Margin (dB)	Result
Single	5710	5.4	5.2	8.3	11.0	2.7	Complied

Results: 802.11ac / 80 MHz / MIMO / BPSK / MCS0x1

Channel	Frequency (MHz)	Port 1			Port 2		
		PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)	PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)
Single	5690	3.8	0.2	4.0	3.7	0.2	3.9

Channel	Frequency (MHz)	Corrected PPSD Port 1 (dBm/MHz)	Corrected PPSD Port 2 (dBm/MHz)	Combined PPSD (dBm/1MHz)	Limit (dBm/500 kHz)	Margin (dB)	Result
Single	5690	4.0	3.9	7.0	11.0	4.0	Complied

Transmitter Maximum Power Spectral Density (5.725-5.85 GHz band)

4.5.5 5.725-5.85 GHz band

Test Summary:

Test Engineer:	Georgios Vrezas	**Test Dates:**	07 July 2017 to 29 July 2017
Test Sample Serial Number:	C07TK02MJ4C7		

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

Environmental Conditions:

Temperature (°C):	21 to 25
Relative Humidity (%):	42 to 49

Note(s):

1. Transmitter Maximum Power Spectral Density tests in all bands were performed using a signal analyser in accordance with KDB 789033 II. F referencing II.E.2.b) Method SA-1 and II.E.2.d) Method SA-2.
2. Measurements were performed on data rates detailed in Section 3.5 of this test report.
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 maximum power spectral density in order to compute the average maximum power spectral density during the actual transmission time.
4. For MIMO modes, PSD was measured on both ports and then combined using the measure and sum spectral maxima across the outputs technique, stated in FCC KDB 662911 D01 Section E)2)b).
5. FCC Part 15.407(a)(3) limit for PPSD in the 5.725-5.85 GHz operating band is <30 dBm/500 kHz.
6. In accordance with ANSI C63.10 Section 4.1.4.1, use of bandwidths greater than those specified can produce higher readings. Compliance against the applicable limits is shown using a 1 MHz resolution bandwidth. This was deemed worst case.
7. For all modes of operation, the antenna gain is < 6 dBi.
8. For details on antenna gains refer to Section 3.4 of this test report.
9. The signal analyser was connected to the RF port on the EUT using an RF switch, suitable attenuation and RF cables. An RF level offset was entered on the signal analyser to compensate for the loss of the switch, attenuators and RF cables.
10. As the power spectral density test uses the same test method as the output power test, before the power is integrated across the 26 dB bandwidth, the conducted power spectral density plots are located in the conducted output power Section 4.4 of this test report. The peak spectral density was measured by placing a marker on the peak of the signal and the results entered in the tables below.

Transmitter Maximum Power Spectral Density (5.725-5.85 GHz band) (continued)

Results: 802.11a / 20 MHz / SISO / BPSK / 6 Mbit/s / Port 2

Channel	Frequency (MHz)	PPSD (dBm/1MHz)	Limit (dBm/500kHz)	Margin (dB)	Result
Bottom	5745	9.3	30.0	20.7	Complied
Middle	5785	10.4	30.0	19.6	Complied
Top	5825	9.3	30.0	20.7	Complied

Results: 802.11n / 20 MHz / SISO / BPSK / MCS0 / Port 2

Channel	Frequency (MHz)	PPSD (dBm/1MHz)	Limit (dBm/500kHz)	Margin (dB)	Result
Bottom	5745	9.2	30.0	20.8	Complied
Middle	5785	9.7	30.0	20.3	Complied
Top	5825	9.4	30.0	20.6	Complied

Results: 802.11n / 40 MHz / SISO / BPSK / MCS0 / Port 2

Channel	Frequency (MHz)	PPSD (dBm/1MHz)	Duty cycle correction	Corrected PPSD (dBm/1MHz)	Limit (dBm/500 kHz)	Margin (dB)	Result
Bottom	5755	6.1	0.1	6.2	30.0	23.8	Complied
Top	5795	5.9	0.1	6.0	30.0	24.0	Complied

Results: 802.11ac / 80 MHz / SISO / BPSK / MCS0x1 / Port 2

Channel	Frequency (MHz)	PPSD (dBm/1MHz)	Duty cycle correction	Corrected PPSD (dBm/1MHz)	Limit (dBm/500 kHz)	Margin (dB)	Result
Single	5775	2.0	0.2	2.2	30.0	27.8	Complied

Transmitter Maximum Power Spectral Density (5.725-5.85 GHz band) (continued)

Results: 802.11n / 20 MHz / MIMO / BPSK / MCS0

Channel	Frequency (MHz)	PPSD Port 1 (dBm/1MHz)	PPSD Port 2 (dBm/1MHz)	Combined PPSD (dBm/1MHz)	Limit (dBm/500 kHz)	Margin (dB)	Result
Bottom	5745	8.6	8.1	11.4	30.0	18.6	Complied
Middle	5785	10.0	9.4	12.7	30.0	17.3	Complied
Top	5825	8.6	8.3	11.5	30.0	18.5	Complied

Results: 802.11n / 40 MHz / MIMO / BPSK / MCS0

Channel	Frequency (MHz)	Port 1			Port 2		
		PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)	PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)
Bottom	5755	5.6	0.1	5.7	5.1	0.1	5.2
Top	5795	5.6	0.1	5.7	5.1	0.1	5.2

Channel	Frequency (MHz)	Corrected PPSD Port 1 (dBm/MHz)	Corrected PPSD Port 2 (dBm/MHz)	Combined PPSD (dBm/1MHz)	Limit (dBm/500 kHz)	Margin (dB)	Result
Bottom	5755	5.7	5.2	8.5	30.0	21.5	Complied
Top	5795	5.7	5.2	8.5	30.0	21.5	Complied

Results: 802.11ac / 80 MHz / MIMO / BPSK / MCS0x1

Channel	Frequency (MHz)	Port 1			Port 2		
		PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)	PPSD (dBm/MHz)	Duty Cycle correction (dB)	Corrected PPSD (dBm/MHz)
Single	5775	-1.2	0.2	-1.0	-1.3	0.2	-1.1

Channel	Frequency (MHz)	Corrected PPSD Port 1 (dBm/MHz)	Corrected PPSD Port 2 (dBm/MHz)	Combined PPSD (dBm/1MHz)	Limit (dBm/500 kHz)	Margin (dB)	Result
Single	5775	-1.0	-1.1	2.0	30.0	28.0	Complied

5. Radiated Test Results

5.1. Transmitter Out of Band Radiated Emissions <1 GHz

Test Summary:

Test Engineer:	John Ferdinand	**Test Date:**	27 July 2017
Test Sample Serial Number:	C07TK026J4C7		

FCC Reference:	Parts 15.407(b)(4),(6),(7) & 15.209(a)
Test Method Used:	KDB 789033 II.G & ANSI C63.10 Sections 6.3 and 6.5
Frequency Range:	30 MHz to 1000 MHz

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	47

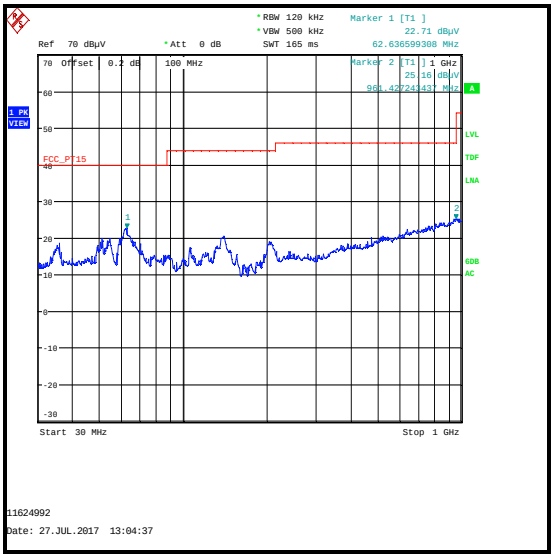
Note(s):

1. The final measured value, for the given emission in the field strength result tables, incorporates the calibrated antenna factor and cable loss.
2. Pre-scans were performed with the EUT transmitting in the band 5.725 to 5.85 GHz band with a configuration of 802.11n / HT20 / MCS0 / MIMO on middle channel in this band as it produced the highest power spectral density and was therefore deemed worst case. An inquiry was made to the FCC and the response was pre-scans could be performed in the band with the highest power spectral density and all final measurements should be performed on any emissions seen in each band.
3. All emissions shown on the pre-scan plots were investigated and found to be ambient, or >20 dB below the applicable limit or below the measurement system noise floor. Therefore the highest peak noise floor reading of the measuring receiver was recorded in the table below.
4. Measurements below 1 GHz were performed in a fully anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
5. Pre-scans were performed and markers placed on the highest measured levels. The test receiver resolution bandwidth was set to 120 kHz and video bandwidth 500 kHz. The sweep time was set to auto. A peak detector was used, sweep time was set to auto and trace mode was Max Hold.

Transmitter Out of Band Radiated Emissions (5.725-5.85 GHz band operation) (continued)

Results: Middle Channel / Field Strength

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
961.427	Vertical	25.2	54.0	28.8	Complied



5.2. Transmitter Out of Band Radiated Emissions >1 GHz

Transmitter Out of Band Radiated Emissions (5.15-5.25 GHz band operation)

Test Summary:

Test Engineer:	John Ferdinand	**Test Dates:**	27 July 2017 & 28 July 2017
Test Sample Serial Number:	C07TK026J4C7		

FCC Reference:	Part 15.407(b)(1),(7) & 15.209(a)
Test Method Used:	KDB 789033 II.G & ANSI C63.10 Sections 6.3 and 6.6
Frequency Range:	1 GHz to 40 GHz

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	47

Note(s):

1. FCC Part 15.407(b)(1) states for transmitters operating in the band 5.15 to 5.25 GHz: all emissions outside of the 5.15 to 5.35 GHz band will not exceed -27 dBm/MHz. Part(b)(7) states the provisions of 15.205 apply, i.e. restricted bands of operation.
2. In accordance with ANSI C63.10-2013 Section 6.5.4, emissions more than 20 dB below the limit do not need to be reported.
3. Pre-scans were performed with the EUT transmitting in the band 5.725 to 5.85 GHz band with a data rate of 802.11n / HT20 /MCS0 / MIMO on middle channel in this band as it produced the highest power spectral density and was therefore deemed worst case. An inquiry was made to the FCC and the response was pre-scans could be performed in the band with the highest power spectral density and all final measurements should be performed on any emissions seen in each band.
4. All emissions shown on the pre-scan plots were investigated and found to be ambient, or >20 dB below the applicable limit or below the measurement system noise floor. Therefore the highest peak and average noise floor readings of the measuring receiver were recorded in the 5.725-5.85 GHz results section of this report.
5. Appropriate RF filters and attenuators were used during pre-scans. Insertion losses were entered on the test receiver as RF levels offsets.
6. Measurements above 1 GHz were performed in a fully anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Transmitter Out of Band Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Test Summary:

Test Engineer:	John Ferdinand	**Test Dates:**	27 July 2017 & 28 July 2017
Test Sample Serial Number:	C07TK026J4C7		

FCC Reference:	Part 15.407(b)(2),(7) & 15.209(a)
Test Method Used:	KDB 789033 II.G. & ANSI C63.10 Sections 6.3 and 6.6
Frequency Range:	1 GHz to 40 GHz

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	47

Note(s):

1. FCC Part 15.407(b)(2) states for transmitters operating in the band 5.25 to 5.35 GHz: all emissions outside of the 5.15-5.35 GHz band will not exceed -27 dBm/MHz. Part(b)(7) states the provisions of 15.205 apply, i.e. restricted bands of operation.
2. Appropriate RF filters and attenuators were used during pre-scans and final measurements. Insertion losses were entered on the test receiver as RF levels offsets.
3. In accordance with ANSI C63.10-2013 Section 6.5.4, emissions more than 20 dB below the limit do not need to be reported.
4. Pre-scans were performed with the EUT transmitting in the band 5.725 to 5.85 GHz band with a data rate of 802.11n / HT20 /MCS0 / MIMO on middle channel in this band as it produced the highest power spectral density and was therefore deemed worst case. An inquiry was made to the FCC and the response was pre-scans could be performed in the band with the highest power spectral density and all final measurements should be performed on any emissions seen in each band.
5. All emissions shown on the pre-scan plots were investigated and found to be ambient, or >20 dB below the applicable limit or below the measurement system noise floor. Therefore the highest peak and average noise floor readings of the measuring receiver were recorded in the 5.725-5.85 GHz results section of this report.
6. Appropriate RF filters and attenuators were used during pre-scans. Insertion losses were entered on the test receiver as RF levels offsets.
7. Measurements above 1 GHz were performed in a fully anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Transmitter Out of Band Radiated Emissions (5.47-5.725 GHz band operation) (continued)

Test Summary:

Test Engineer:	John Ferdinand	**Test Dates:**	27 July 2017 & 28 July 2017
Test Sample Serial Number:	C07TK026J4C7		

FCC Reference:	Part 15.407(b)(3),(7) & 15.209(a)
Test Method Used:	KDB 789033 II.G. & ANSI C63.10 Sections 6.3 and 6.6
Frequency Range:	1 GHz to 40 GHz

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	47

Note(s):

1. FCC Part 15.407(b)(3) states for transmitters operating in the band 5.47 to 5.725 GHz: all emissions outside of the band will not exceed -27 dBm/MHz. Part(b)(7) states the provisions of 15.205 apply, i.e. restricted bands of operation.
2. Appropriate RF filters and attenuators were used during pre-scans and final measurements. Insertion losses were entered on the test receiver as RF levels offsets.
3. In accordance with ANSI C63.10-2013 Section 6.5.4, emissions more than 20 dB below the limit do not need to be reported.
4. Pre-scans were performed with the EUT transmitting in the band 5.725 to 5.85 GHz band with a data rate of 802.11n / HT20 /MCS0 / MIMO on middle channel in this band as it produced the highest power spectral density and was therefore deemed worst case. An inquiry was made to the FCC and the response was pre-scans could be performed in the band with the highest power spectral density and all final measurements should be performed on any emissions seen in each band.
5. All emissions shown on the pre-scan plots were investigated and found to be ambient, or >20 dB below the applicable limit or below the measurement system noise floor. Therefore the highest peak and average noise floor readings of the measuring receiver were recorded in the 5.725-5.85 GHz results section of this report.
6. Appropriate RF filters and attenuators were used during pre-scans. Insertion losses were entered on the test receiver as RF levels offsets.
7. Measurements above 1 GHz were performed in a fully anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Transmitter Out of Band Radiated Emissions (Channels that straddle the U-NII-2C and U-NII-3 bands at 5725 MHz) (continued)

Test Summary:

Test Engineer:	John Ferdinand	**Test Dates:**	27 July 2017 & 28 July 2017
Test Sample Serial Number:	C07TK026J4C7		

FCC Reference:	Part 15.407(b)(3),(4)(i),(7) & 15.209(a)
Test Method Used:	KDB 789033 II.G. & ANSI C63.10 Sections 6.3 and 6.6
Frequency Range:	1 GHz to 40 GHz

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	47

Note(s):

1. FCC Part 15.407(b)(3) states for transmitters operating in the band 5.47 to 5.725 GHz: all emissions outside of the band will not exceed -27 dBm/MHz. Part(b)(7) states the provisions of 15.205 apply, i.e. restricted bands of operation.
2. FCC Part 15.407(b)(4)(i) states for transmitters operating in the band 5.725 to 5.85 GHz: all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
3. In accordance with ANSI C63.10-2013 Section 6.5.4, emissions more than 20 dB below the limit do not need to be reported.
4. Pre-scans were performed with the EUT transmitting in the band 5.725 to 5.85 GHz band with a data rate of 802.11n / HT20 /MCS0 / MIMO on middle channel in this band as it produced the highest power spectral density and was therefore deemed worst case. An inquiry was made to the FCC and the response was pre-scans could be performed in the band with the highest power spectral density and all final measurements should be performed on any emissions seen in each band.
5. All emissions shown on the pre-scan plots were investigated and found to be ambient, or >20 dB below the applicable limit or below the measurement system noise floor. Therefore the highest peak and average noise floor readings of the measuring receiver were recorded in the 5.725-5.85 GHz results section of this report.
6. Appropriate RF filters and attenuators were used during pre-scans. Insertion losses were entered on the test receiver as RF levels offsets.
7. Measurements above 1 GHz were performed in a semi-anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Transmitter Out of Band Radiated Emissions (5.725-5.85 GHz band operation) (continued)

Test Summary:

Test Engineer:	John Ferdinand	**Test Dates:**	27 July 2017 & 28 July 2017
Test Sample Serial Number:	C07TK026J4C7		

FCC Reference:	Part 15.407(b)(4),(7) & 15.209(a)
Test Method Used:	KDB 789033 II.G. & ANSI C63.10 Sections 6.3 and 6.6
Frequency Range:	1 GHz to 40 GHz

Environmental Conditions:

Temperature (°C):	23 to 24
Relative Humidity (%):	46 to 47

Note(s):

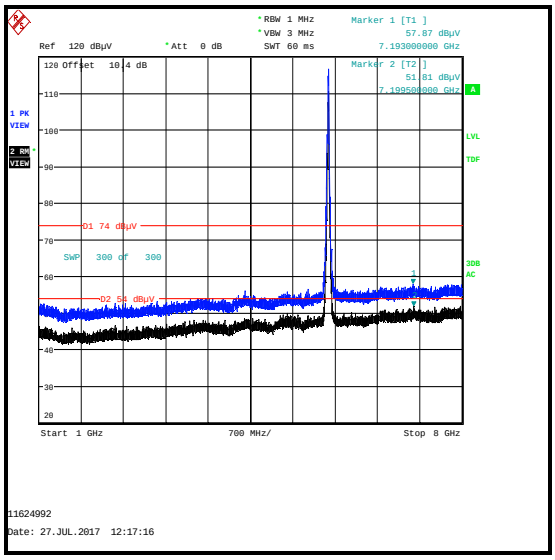
1. FCC Part 15.407(b)(4) states for transmitters operating in the band 5.725 to 5.85 GHz: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. Part(b)(7) states the provisions of 15.205 apply, i.e. restricted bands of operation.
2. Pre-scans were performed with the EUT transmitting in the band 5.725 to 5.85 GHz band with a data rate of 802.11n / HT20 /MCS0 / MIMO on middle channel in this band as it produced the highest power spectral density and was therefore deemed worst case. An inquiry was made to the FCC and the response was pre-scans could be performed in the band with the highest spectral power density and all final measurements should be performed on any emissions seen in each band.
3. Appropriate RF filters and attenuators were used during pre-scans and final measurements. Insertion losses were entered on the test receiver as RF levels offsets.
4. All other emissions shown on the pre-scan plots were investigated and found to be ambient or >20 dB below the applicable limit or below the measurement system noise floor. Therefore the highest peak and average noise floor readings of the measuring receiver were recorded.
5. The emission shown on the 1 GHz to 8 GHz plot is the EUT fundamental.
6. Measurements were performed across the two restricted bands closest to the bands of operation with the EUT transmitting on the bottom channel in the 5.15 to 5.25 GHz band and bottom channel 5.47 to 5.725 GHz range. Plots are included in this section of the test report. Peak and average measurements were made.
7. Pre-scans above 1 GHz were performed in a fully anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the reference ground plane in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT.

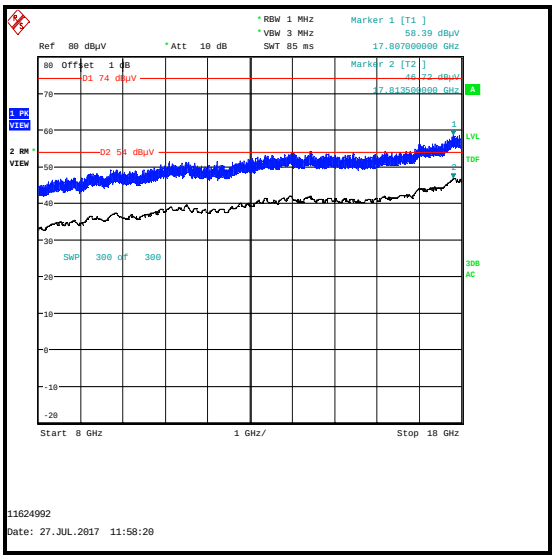
Transmitter Out of Band Radiated Emissions (5.725-5.85 GHz band operation) (continued)
Results: 802.11n / 20 MHz / MCS0 / Middle Channel / Field Strength / Peak

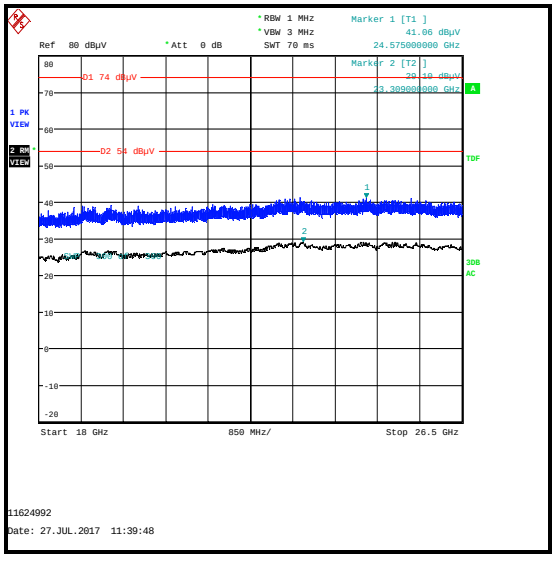
Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Peak Limit (dBµV/m)	Margin (dB)	Result
17807.000	Vertical	58.4	74.0	15.6	Complied

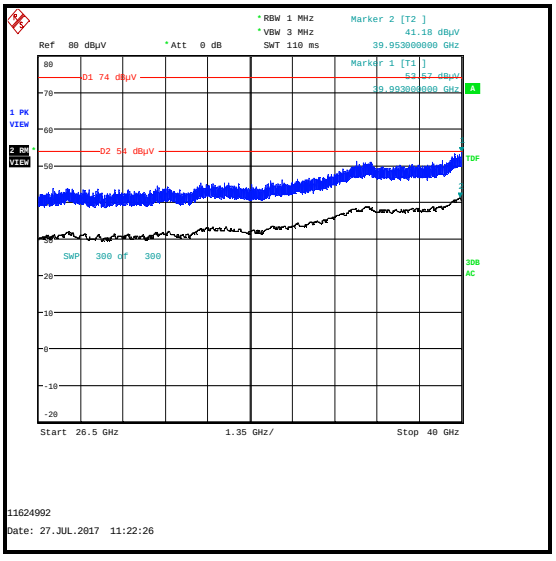
Results: 802.11n / 20 MHz / MCS0 / Middle Channel / Field Strength / Average

Frequency (MHz)	Antenna Polarity	Average Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
7199.500	Vertical	51.8	54.0	2.2	Complied

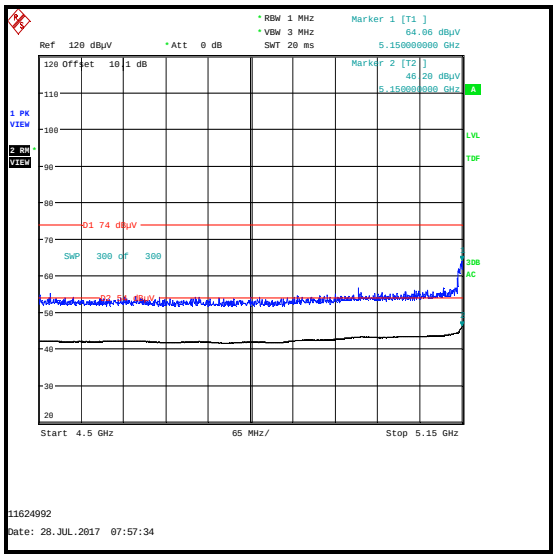




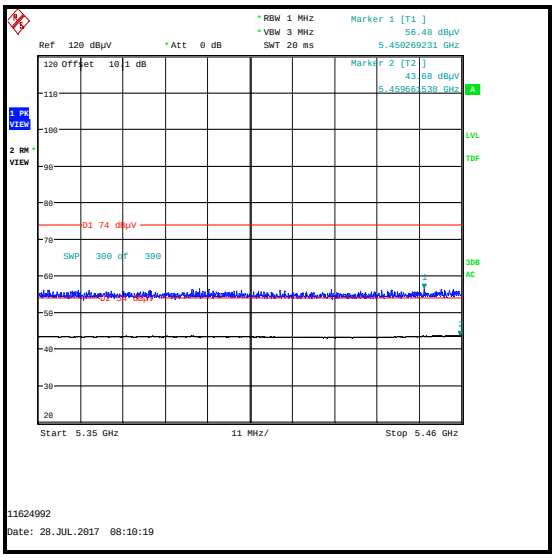




Transmitter Out of Band Radiated Emissions (5.725-5.85 GHz band operation) (continued)



Restricted Band 4.5 GHz to 5.15 GHz



Restricted Band 5.35 GHz to 5.46 GHz

5.3. Transmitter Band Edge Radiated Emissions

5.3.1 5.15-5.25 GHz band

Test Summary:

Test Engineers:	Alan Withers & David Doyle	**Test Dates:**	22 May 2017 to 08 August 2017
Test Sample Serial Number:	C07TK026J4C7		

FCC Reference:	Parts 15.407(b)(1),(7), 15.205 & 15.209(a)
Test Method Used:	ANSI C63.10 Section 6.10 & KDB 789033 II.G

Environmental Conditions:

Temperature (°C):	22 to 24
Relative Humidity (%):	41 to 43

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Note(s):

1. The following modes were tested:
    - 802.11a SISO– BPSK / 6 Mbit/s / Port 1
    - 802.11n HT20 / SISO – BPSK / 6.5 Mbit/s / MCS0 / Port 1
    - 802.11n HT40 / SISO – BPSK / 13.5 Mbit/s / MCS0 / Port 1
    - 802.11ac VHT80 / SISO – BPSK / 29.3 Mbit/s / MCS0 / Port 1
    - 802.11n HT20 / MIMO / 2Tx CDD – BPSK / 6.5 Mbit/s / MCS0
    - 802.11n HT40 / MIMO / 2Tx CDD – BPSK / 13.5 Mbit/s / MCS0
    - 802.11ac VHT80 / MIMO / 2Tx CDD – BPSK / 29.3 Mbit/s / MCS0x1
2. Lower band edge measurements were performed with the EUT transmitting on the bottom channel. Upper band edge measurements were performed with the EUT transmitting on the top channel.
3. For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. However, there are restricted bands of operation below the lower band edge at 4.5-5.15 GHz and also above the upper band edge at 5.35-5.46 GHz therefore the provisions of FCC Part 15.205 apply.
4. Field strength measurements using peak and average detectors were performed in the restricted bands below 5.15 GHz and above 5.35 GHz. Field strength and EIRP results were found to be compliant with the restricted band limits and Part 15.407 out-of-band limits.
5. In accordance with KDB 789033 Section II.G.1.c) if the peak measurement is below the average limit, it is not necessary to perform a separate average measurement.
6. For all average measurements of this section, 300 sweeps were used. This satisfies the requirement for the minimum number of sweep points, as stated in ANSI C63.10 Section 12.7.7.2 Method AD f). Power averaging was used.
7. In accordance with KDB 789033 Section II.G.6.c) Method AD (vi), the average measurements were performed using an increased number of sweeps as calculated below:
    - 802.11a / 6.0 Mbit/s – 103 sweeps
    - 802.11n HT20 SISO / 6.5 Mbit/s / MCS0 – 100 sweeps
    - 802.11n HT40 SISO / 13.5 Mbit/s / MCS0 – 100 sweeps
    - 802.11n HT20 MIMO / 6.5 Mbit/s / MCS0 – 100 sweeps
    - 802.11n HT40 MIMO / 13.5 Mbit/s / MCS0 – 100 sweeps
8. In accordance with KDB 789033 Section II.G.6.c) Method AD (vii), for average measurements, data rates where the EUT was transmitting <98% duty cycle, the duty cycle correction factor calculated in Section 4.1 of this report was added to the measured result.

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11a / 20 MHz / BPSK / 6 Mbit/s / Port 1 / Peak

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5150	67.3	74.0	6.7	Complied
5350	55.2	74.0	18.8	Complied

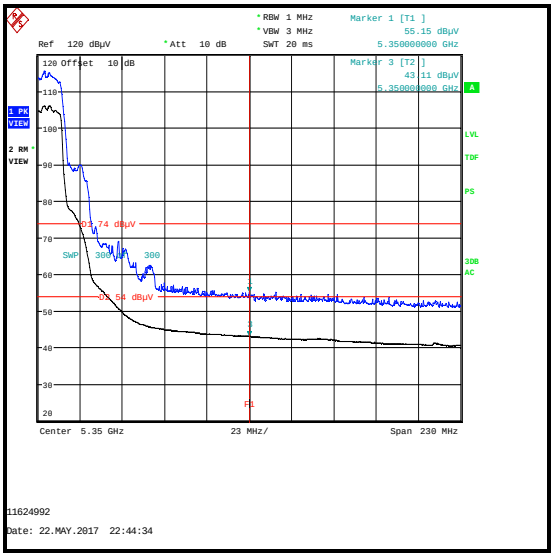
Results: 802.11a / 20 MHz / BPSK / 6 Mbit/s / Port 1 / Average

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5150	51.2	54.0	2.8	Complied
5350	43.1	54.0	10.9	Complied

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11a / 20 MHz / BPSK / 6 Mbit/s / Port 1

Lower Band Edge



Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11n / 20 MHz / SISO / BPSK / 6.5 Mbit/s / MCS0 / Port 1 / Peak

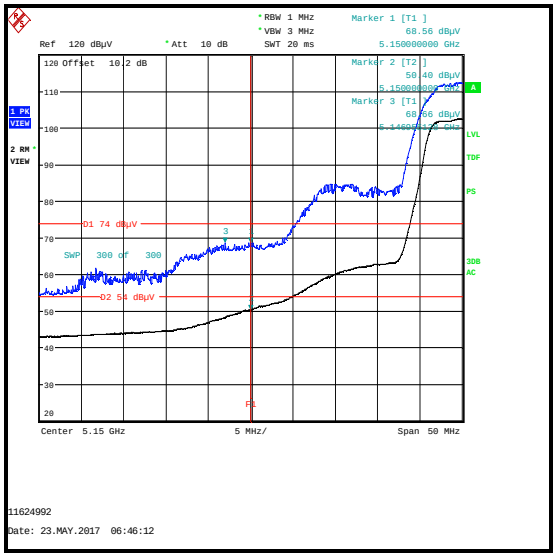
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5146.955	68.7	74.0	5.3	Complied
5150	68.6	74.0	5.4	Complied
5350	55.2	74.0	18.8	Complied

Results: 802.11n / 20 MHz / SISO / BPSK / 6.5 Mbit/s / MCS0 / Port 1 / Average

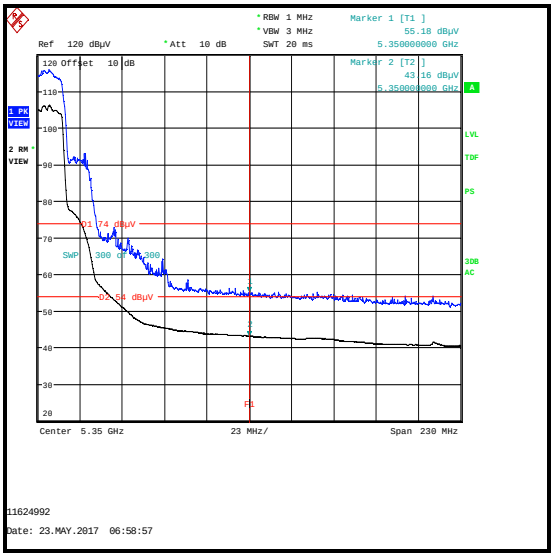
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5150	50.4	54.0	3.6	Complied
5350	43.2	54.0	10.8	Complied

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11n / 20 MHz / SISO / BPSK / 6.5 Mbit/s / MCS0 / Port 1



Lower Band Edge



Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11n / 40 MHz / SISO / BPSK / 13.5 Mbit/s / MCS0 / Port 1 / Peak

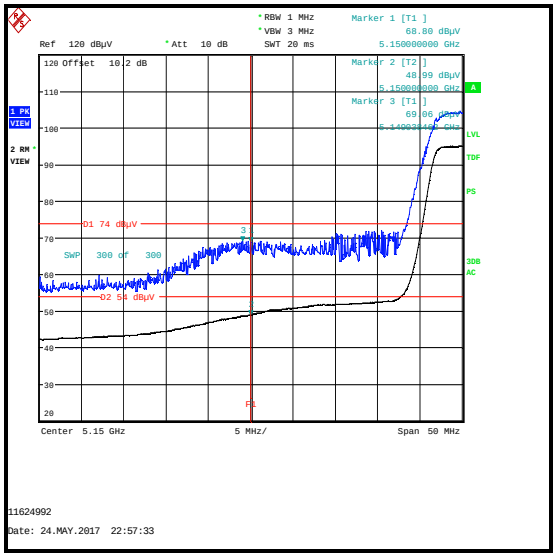
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5149.038	69.1	74.0	4.9	Complied
5150	68.8	74.0	5.2	Complied
5350	56.3	74.0	17.7	Complied
5395.833	56.9	74.0	17.1	Complied

Results: 802.11n / 40 MHz / SISO / BPSK / 13.5 Mbit/s / MCS0 / Port 1 / Average

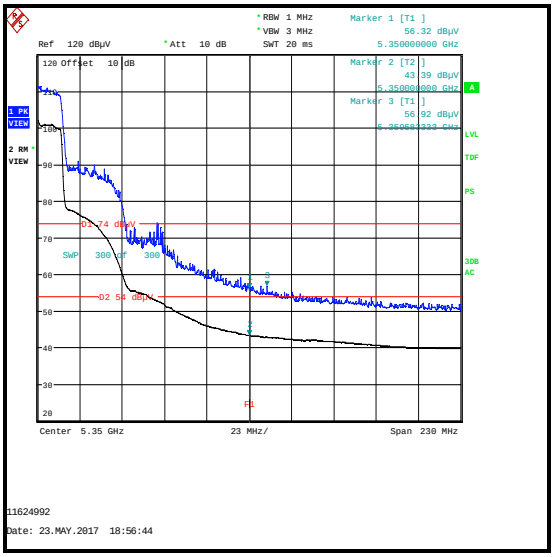
Frequency (MHz)	Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5150	49.0	0.1	49.1	54.0	4.9	Complied
5350	43.4	0.1	43.5	54.0	10.5	Complied

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11n / 40 MHz / SISO / BPSK / 13.5 Mbit/s / MCS0 / Port 1



Lower Band Edge



Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11ac / 80 MHz / SISO / BPSK / 29.3 Mbit/s / MCS0 / Port 1 / Peak

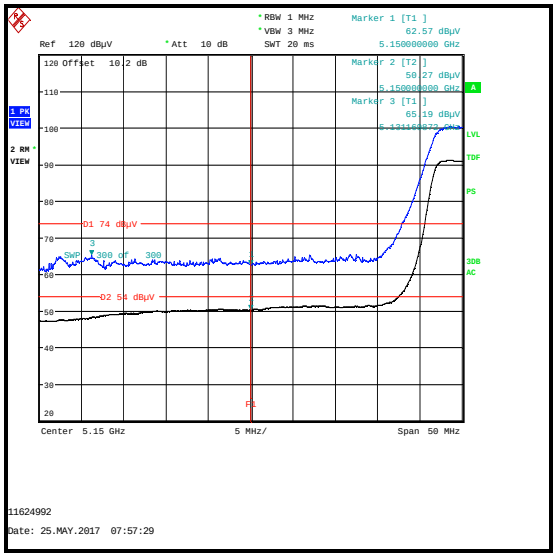
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5131.117	65.2	74.0	8.8	Complied
5150	62.6	74.0	11.4	Complied
5350	52.8	74.0	21.2	Complied
5355.897	53.3	74.0	20.7	Complied

Results: 802.11ac / 80 MHz / SISO / BPSK / 29.3 Mbit/s / MCS0 / Port 1 / Average

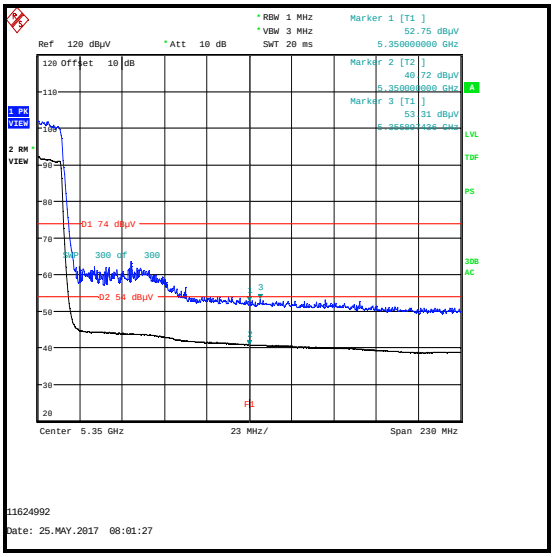
Frequency (MHz)	Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5150	50.3	0.2	50.5	54.0	3.5	Complied
5350	40.7	0.2	40.9	54.0	13.1	Complied

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11ac / 80 MHz / SISO / BPSK / 29.3 Mbit/s / MCS0 / Port 1



Lower Band Edge



Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11n / 20 MHz / MIMO / CDD / BPSK / 6.5 Mbit/s / MCS0 / Peak

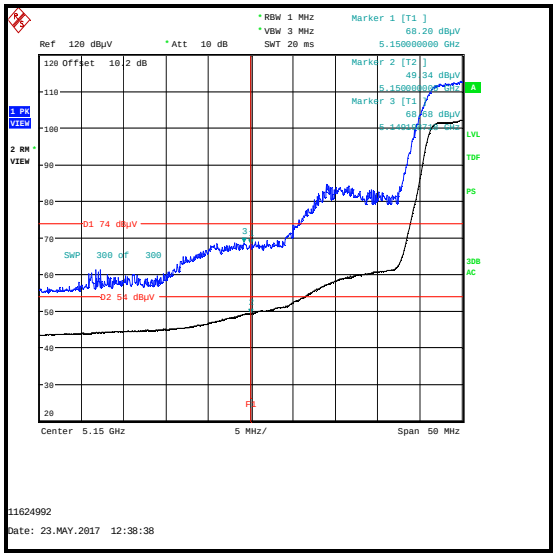
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5150	68.2	74.0	5.8	Complied
5149.199	68.7	74.0	5.3	Complied
5371.378	57.2	74.0	16.8	Complied

Results: 802.11n / 20 MHz / MIMO / CDD / BPSK / 6.5 Mbit/s / MCS0 / Average

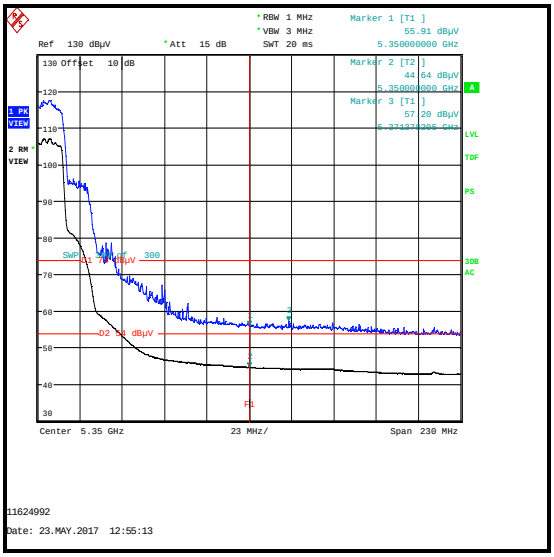
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5150	49.3	54.0	4.7	Complied
5350	44.6	54.0	9.4	Complied

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11n / 20 MHz / MIMO / CDD / BPSK / 6.5 Mbit/s / MCS0



Lower Band Edge



Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11n / 40 MHz / MIMO / CDD / BPSK/ 13.5 Mbit/s / MCS0 / Peak

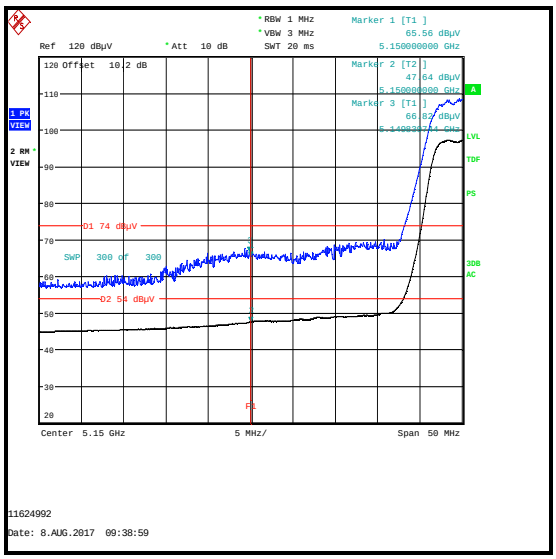
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5149.840	66.8	74.0	7.2	Complied
5150	65.6	74.0	8.4	Complied
5350	58.2	74.0	15.8	Complied
5354.054	59.7	74.0	14.3	Complied

Results: 802.11n / 40 MHz / MIMO / CDD / BPSK/ 13.5 Mbit/s / MCS0 / Average

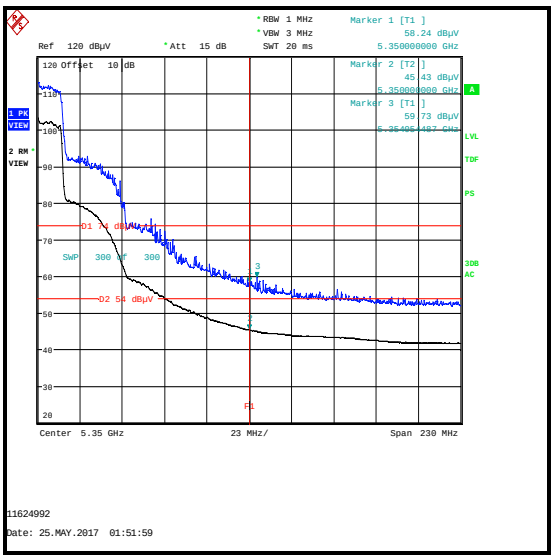
Frequency (MHz)	Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5150	46.9	0.1	47.0	54.0	7.0	Complied
5350	45.4	0.1	45.5	54.0	8.5	Complied

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11n / 40 MHz / MIMO / CDD / BPSK/ 13.5 Mbit/s / MCS0



Lower Band Edge



Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11ac / 80 MHz / MIMO / CDD / BPSK / 29.3 Mbit/s / MCS0x1 / Peak

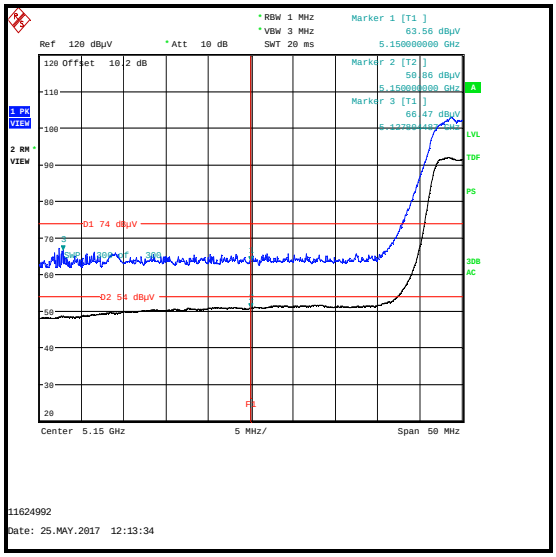
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5127.804	66.5	74.0	7.5	Complied
5150	63.6	74.0	10.4	Complied
5350	52.8	74.0	21.2	Complied
5354.054	53.9	74.0	20.1	Complied

Results: 802.11ac / 80 MHz / MIMO / CDD / BPSK / 29.3Mbit/s / MCS0x1 / Average

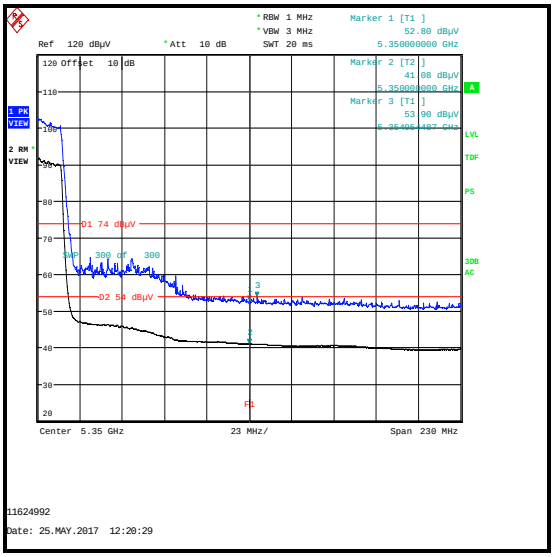
Frequency (MHz)	Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5150	50.9	0.2	51.1	54.0	2.9	Complied
5350	41.1	0.2	41.3	54.0	12.7	Complied

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11ac / 80 MHz / MIMO / CDD / BPSK / 29.3 Mbit/s / MCS0x1



Lower Band Edge



Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band)

5.3.2 5.25-5.35 GHz band

Test Summary:

Test Engineers:	Alan Withers & David Doyle	**Test Dates:**	22 May 2017 to 25 May 2017
Test Sample Serial Number:	C07TK026J4C7		

FCC Reference:	Parts 15.407(b)(2),(7), 15.205 & 15.209(a)
Test Method Used:	ANSI C63.10 Section 6.10 & KDB 789033 II.G

Environmental Conditions:

Temperature (°C):	22 to 24
Relative Humidity (%):	41 to 43

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Note(s):

1. The following modes were tested:
    - 802.11a SISO– BPSK / 6 Mbit/s / Port 1
    - 802.11n HT20 / SISO – BPSK / 6.5 Mbit/s / MCS0 / Port 1
    - 802.11n HT40 / SISO – BPSK / 13.5 Mbit/s / MCS0 / Port 1
    - 802.11ac VHT80 / SISO – BPSK / 29.3 Mbit/s / MCS0 / Port 1
    - 802.11n HT20 / MIMO / 2Tx CDD – BPSK / 6.5 Mbit/s / MCS0
    - 802.11n HT40 / MIMO / 2Tx CDD – BPSK / 13.5 Mbit/s / MCS0
    - 802.11ac VHT80 / MIMO / 2Tx CDD – BPSK / 29.3 Mbit/s / MCS0x1

1. Lower band edge measurements were performed with the EUT transmitting on the bottom channel. Upper band edge measurements were performed with the EUT transmitting on the top channel.
2. For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. However, there are restricted bands of operation below the lower band edge at 4.5-5.15 GHz and also above the upper band edge at 5.35-5.46 GHz therefore the provisions of FCC Part 15.205 apply. Tests were performed in these restricted bands of operation with the EUT transmitting on the bottom and top channels within 5.25-5.35 GHz band, the results are included in the transmitter 5.25-5.35 GHz band radiated spurious emissions section of this test report.
3. Field strength measurements using peak and average detectors were performed in the restricted bands below 5.15 GHz and above 5.35 GHz. Field strength and EIRP results were found to be compliant with the restricted band limits and Part 15.407 out-of-band limits.
4. In accordance with KDB 789033 Section II.G.1.c) if the peak measurement is below the average limit, it is not necessary to perform a separate average measurement.
5. For all average measurements of this section, 300 sweeps were used. This satisfies the requirement for the minimum number of sweep points, as stated in ANSI C63.10 Section 12.7.7.2 Method AD f). Power averaging was used.
6. In accordance with KDB 789033 Section II.G.6.c) Method AD (vi), the average measurements were performed using an increased number of sweeps as calculated below:
    - 802.11a / 20 MHz / BPSK / 6 Mbit/s – 103 sweeps
    - 802.11n HT20 SISO / 6.5 Mbit/s / MCS0 – 100 sweeps
    - 802.11n HT40 SISO / 13.5 Mbit/s / MCS0 – 100 sweeps
    - 802.11n HT20 MIMO / 6.5 Mbit/s / MCS0 – 100 sweeps
    - 802.11n HT40 MIMO / 13.5 Mbit/s / MCS0 – 100 sweeps
    - In accordance with KDB 789033 Section II.G.6.c) Method AD (vii), for average measurements, data rates where the EUT was transmitting <98% duty cycle, the duty cycle correction factor calculated in Section 4.1 was added to the measured result.

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11a / 20 MHz / BPSK / 6 Mbit/s / Port 1 / Peak

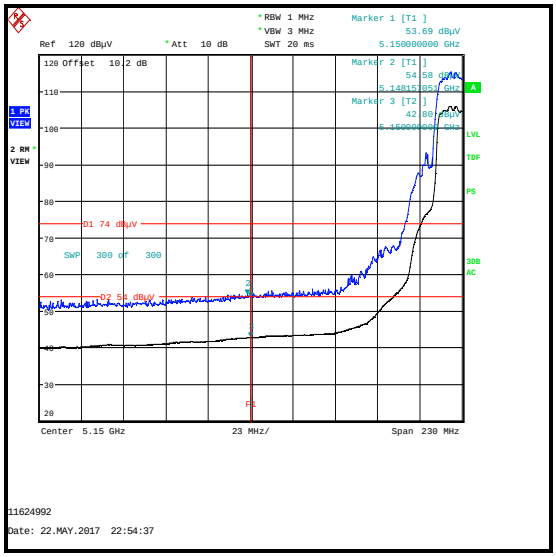
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5148.157	54.6	74.0	19.4	Complied
5150	53.7	74.0	20.3	Complied
5350	66.6	74.0	7.4	Complied
5351.202	67.1	74.0	6.9	Complied

Results: 802.11a / 20 MHz / BPSK / 6 Mbit/s / Port 1 / Average

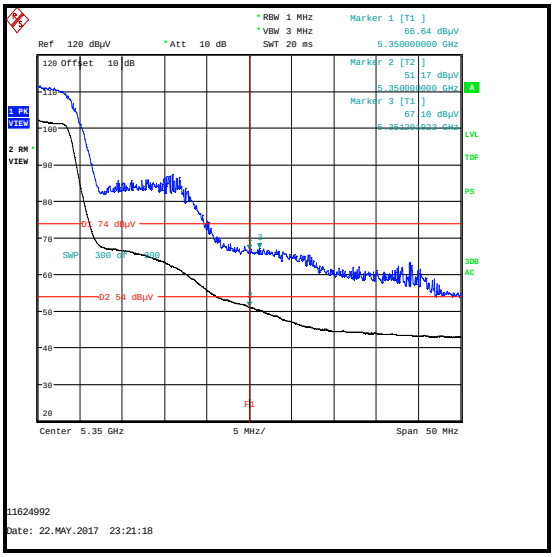
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5150	42.8	54.0	11.2	Complied
5350	51.2	54.0	2.8	Complied

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11a / 20 MHz / BPSK / 6 Mbit/s / Port 1



Lower Band Edge



Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11n / 20 MHz / SISO / BPSK / 6.5 Mbit/s / MCS0 / Port 1 / Peak

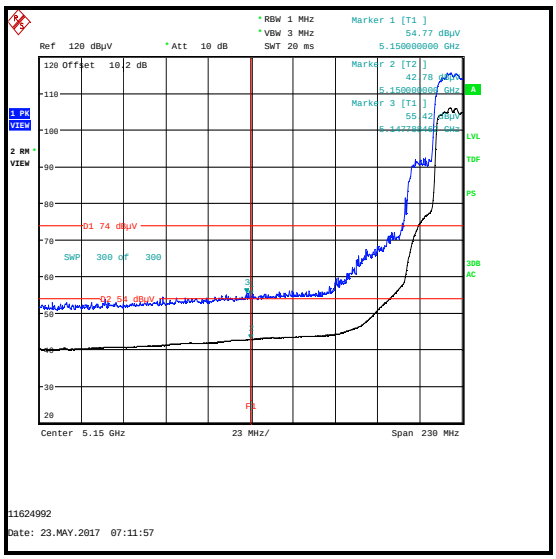
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5147.779	55.4	74.0	18.6	Complied
5150	54.8	74.0	19.2	Complied
5350	66.2	74.0	7.8	Complied
5350.961	68.9	74.0	5.1	Complied

Results: 802.11n / 20 MHz / SISO / BPSK / 6.5 Mbit/s / MCS0 / Port 1 / Average

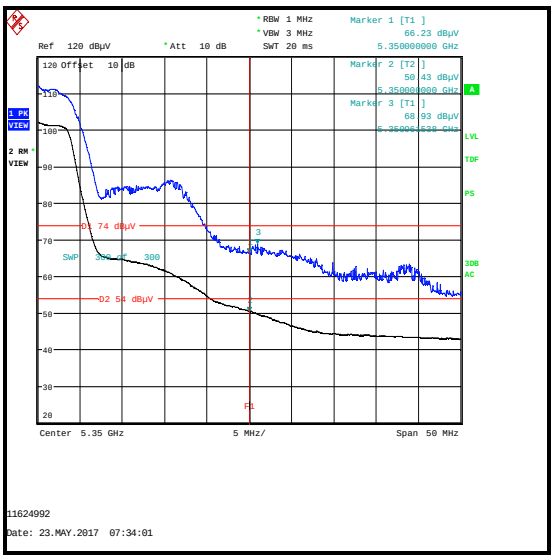
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5150	42.8	54.0	11.2	Complied
5350	50.4	54.0	3.6	Complied

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11n / 20 MHz / SISO / BPSK / 6.5 Mbit/s / MCS0 / Port 1



Lower Band Edge



Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11n / 40 MHz / SISO / BPSK / 13.5 Mbit/s / MCS0 / Port 1 / Peak

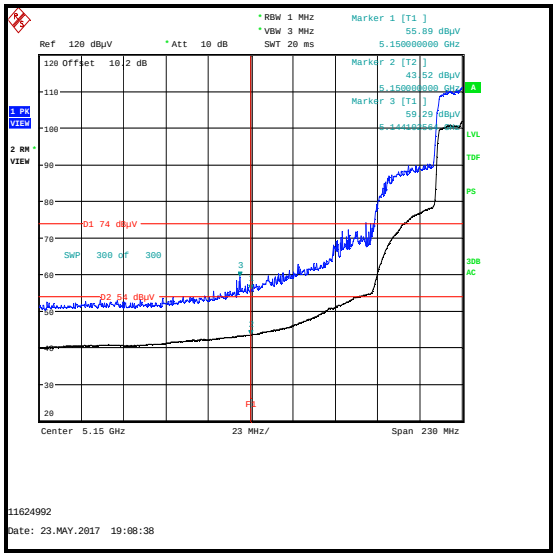
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5144.102	59.3	74.0	14.7	Complied
5150	55.9	74.0	18.1	Complied
5350	67.0	74.0	7.0	Complied
5351.122	68.0	74.0	6.0	Complied

Results: 802.11n / 40 MHz / SISO / BPSK / 13.5 Mbit/s / MCS0 / Port 1 / Average

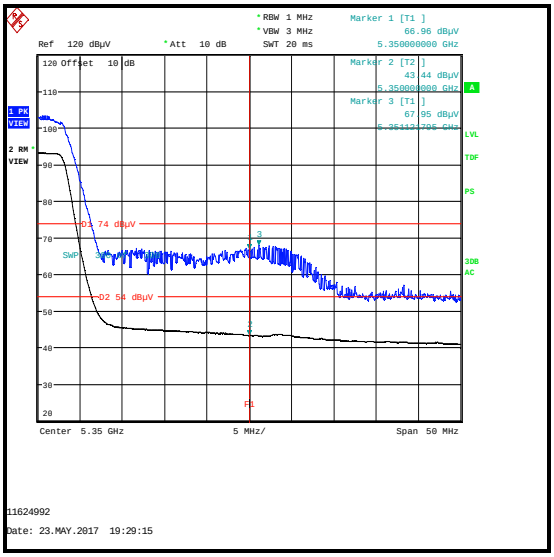
Frequency (MHz)	Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5150	43.5	0.1	43.6	54.0	10.4	Complied
5350	43.4	0.1	43.5	54.0	10.5	Complied

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11n / 40 MHz / SISO / BPSK / 13.5 Mbit/s / MCS0 / Port 1



Lower Band Edge



Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11ac / 80 MHz / SISO / BPSK / 29.3 Mbit/s / MCS0 / Port 1 / Peak

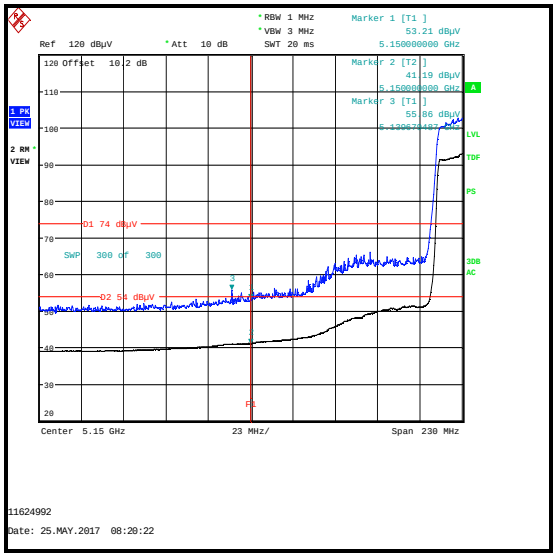
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5139.679	55.9	74.0	18.1	Complied
5150	53.2	74.0	20.8	Complied
5350	63.9	74.0	10.1	Complied
5365.705	68.4	74.0	5.6	Complied

Results: 802.11ac / 80 MHz / SISO / BPSK / 29.3 Mbit/s / MCS0 / Port 1 / Average

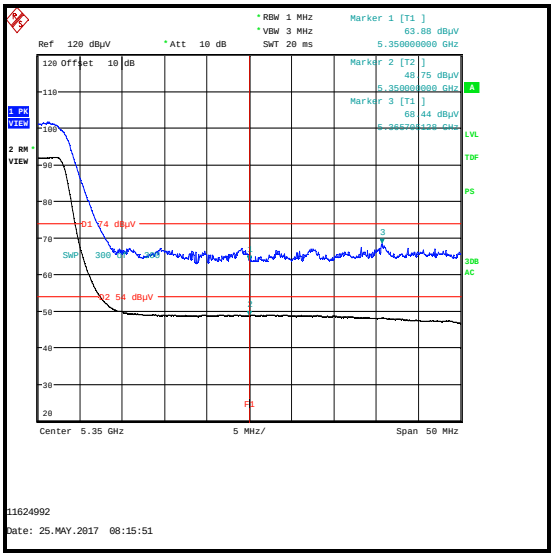
Frequency (MHz)	Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5150	41.2	0.2	41.3	54.0	12.6	Complied
5350	48.8	0.2	50.0	54.0	5.0	Complied

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11ac / 80 MHz / SISO / BPSK / 29.3 Mbit/s / MCS0 / Port 1



Lower Band Edge



Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11n / 20 MHz / MIMO / CDD / BPSK / 6.5 Mbit/s / MCS0 / Peak

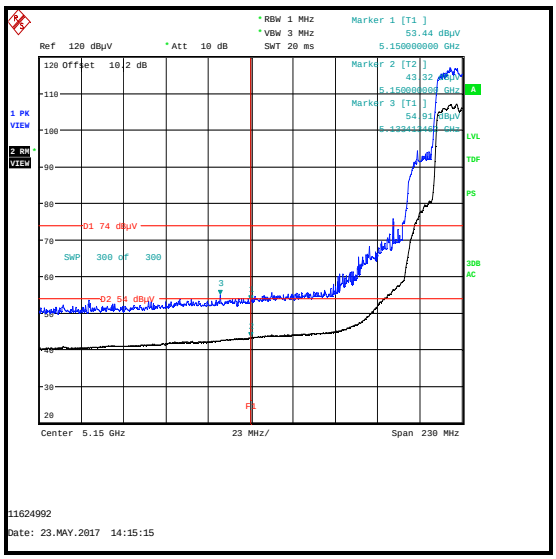
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5133.413	54.9	74.0	19.1	Complied
5150	53.4	74.0	20.6	Complied
5350	65.8	74.0	8.2	Complied
5351.042	68.4	74.0	5.6	Complied

Results: 802.11n / 20 MHz / MIMO / CDD / BPSK / 6.5 Mbit/s / MCS0 / Average

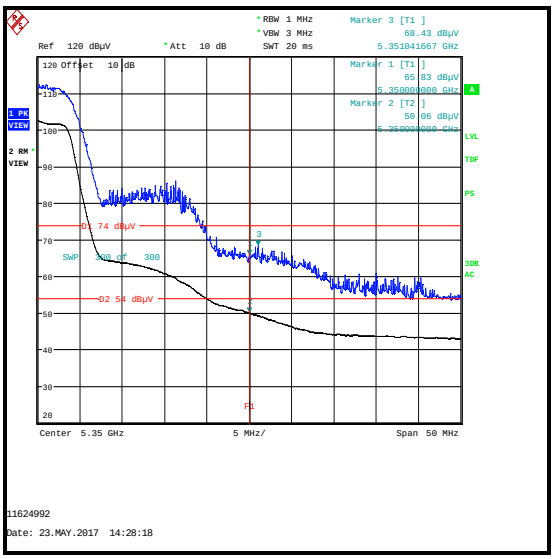
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5150	43.3	54.0	10.7	Complied
5350	50.1	54.0	3.9	Complied

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11n / 20 MHz / MIMO / CDD / BPSK / 6.5 Mbit/s / MCS0



Lower Band Edge



Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11n / 40 MHz / MIMO / CDD / BPSK/ 13.5 Mbit/s / MCS0 / Peak

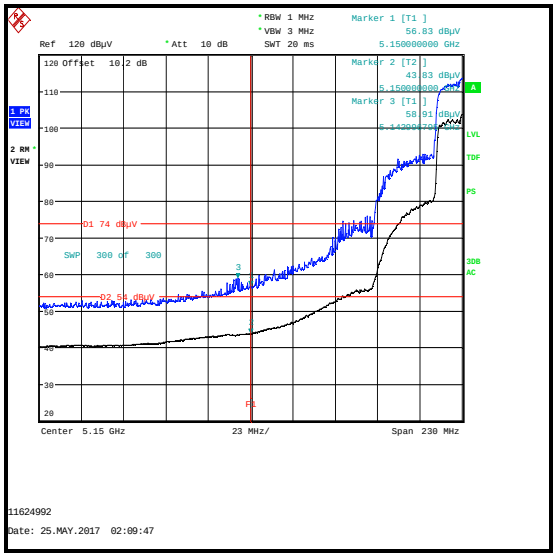
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5142.997	58.9	74.0	15.1	Complied
5150	56.8	74.0	17.2	Complied
5350	68.2	74.0	5.8	Complied
5352.163	69.0	74.0	5.0	Complied

Results: 802.11n / 40 MHz / MIMO / CDD / BPSK/ 13.5 Mbit/s / MCS0 / Average

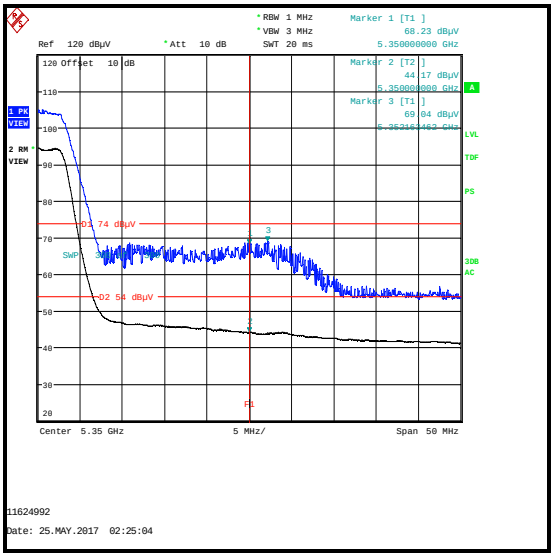
Frequency (MHz)	Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5150	43.8	0.1	43.9	54.0	10.1	Complied
5350	44.2	0.1	44.3	54.0	9.7	Complied

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11n / 40 MHz / MIMO / CDD / BPSK/ 13.5 Mbit/s / MCS0



Lower Band Edge



Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11ac / 80 MHz / MIMO / CDD / BPSK / 29.3 Mbit/s / MCS0x1 / Peak

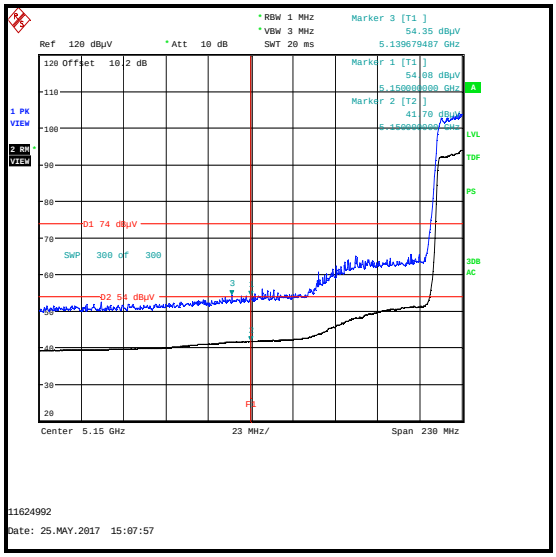
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5139.680	54.4	74.0	19.6	Complied
5150	54.1	74.0	19.9	Complied
5350	65.1	74.0	8.9	Complied
5365.865	68.9	74.0	5.1	Complied

Results: 802.11ac / 80 MHz / MIMO / CDD / BPSK / 29.3 Mbit/s / MCS0x1 / Average

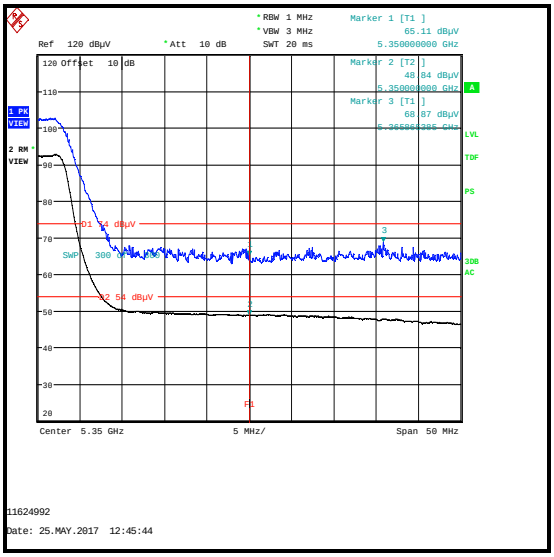
Frequency (MHz)	Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5150	41.7	0.2	41.9	54.0	12.1	Complied
5350	48.8	0.2	50.0	54.0	4.0	Complied

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11ac / 80 MHz / MIMO / CDD / BPSK / 29.3 Mbit/s / MCS0x1



Lower Band Edge



Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band)

5.3.3 5.47-5.725 GHz band

Test Summary:

Test Engineers:	Alan Withers & David Doyle	**Test Dates:**	23 May 2017 to 25 May 2017
Test Sample Serial Number:	C07TK026J4C7		

FCC Reference:	Parts 15.407(b)(3),(7), 15.205 & 15.209(a)
Test Method Used:	ANSI C63.10 Section 6.10 & KDB 789033 II.G

Environmental Conditions:

Temperature (°C):	22 to 24
Relative Humidity (%):	41 to 43

Note(s):

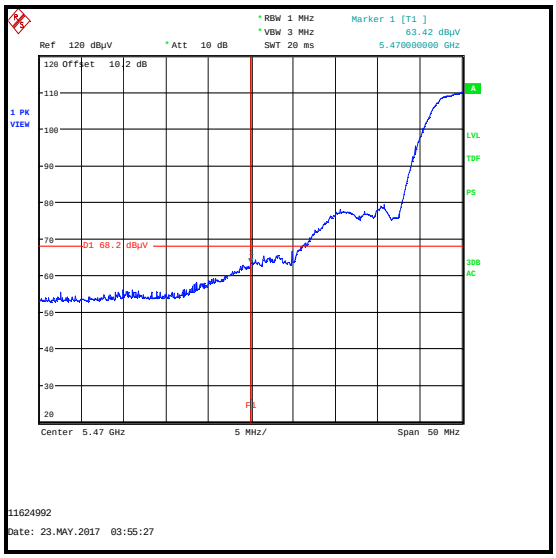
1. The following modes were tested:
    - 802.11a SISO– BPSK / 6 Mbit/s / Port 2
    - 802.11n HT20 / SISO – BPSK / 6.5 Mbit/s / MCS0 / Port 2
    - 802.11n HT40 / SISO – BPSK / 13.5 Mbit/s / MCS0 / Port 2
    - 802.11ac VHT80 / SISO – BPSK / 29.3 Mbit/s / MCS0 / Port 2
    - 802.11n HT20 / MIMO / 2Tx CDD – BPSK / 6.5 Mbit/s / MCS0
    - 802.11n HT40 / MIMO / 2Tx CDD – BPSK / 13.5 Mbit/s / MCS0
    - 802.11ac VHT80 / MIMO / 2Tx CDD – BPSK / 29.3 Mbit/s / MCS0x1
2. Lower band edge measurements were performed with the EUT transmitting on the bottom channel. Upper band edge measurements were performed with the EUT transmitting on the top channel.
3. For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz. However, there are restricted bands of operation below the lower band edge at 4.5-5.15 GHz and also at 5.35-5.46 GHz therefore the provisions of FCC Part 15.205 apply. Tests were performed in these restricted bands of operation with the EUT transmitting on the bottom and top channels within 5.47-5.725 GHz band, the results are included in the transmitter 5.25-5.35 GHz band radiated spurious emissions section of this test report.
4. For completeness, results are shown as EIRP in dBm and also as field strength in dBµV/m. Measured field strength was converted to EIRP in accordance with KDB 789033 II.G.2.d.(iii) using a conversion factor of 95.2.

Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)

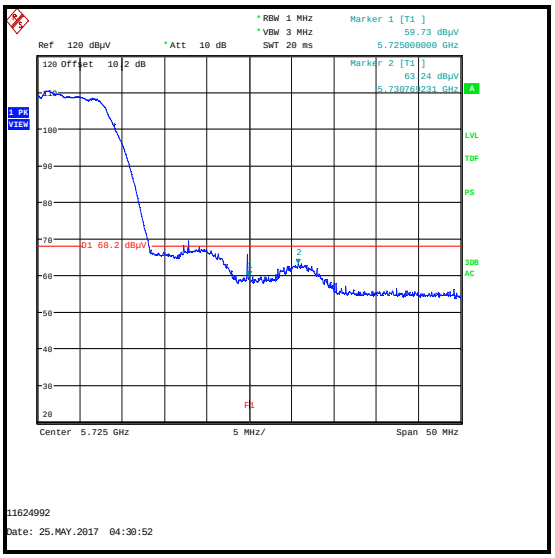
Results: 802.11a / 20 MHz / BPSK / 6 Mbit/s / Port 2 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5470	-31.8	-27.0	4.8	Complied
5725	-35.5	-27.0	8.5	Complied
5730.769	-32.0	-27.0	5.0	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5470	63.4	68.2	4.8	Complied
5725	59.7	68.2	8.5	Complied
5730.769	63.2	68.2	5.0	Complied



Lower Band Edge



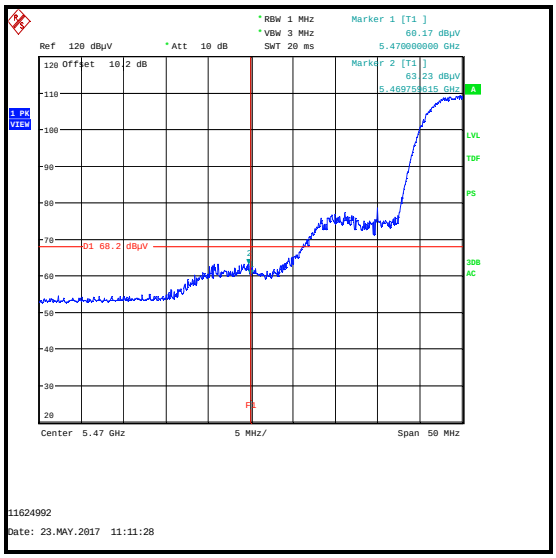
Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)

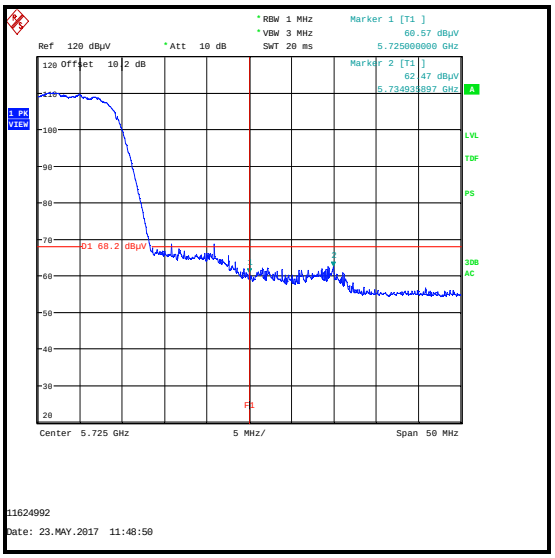
Results: 802.11n / 20 MHz / SISO / BPSK / 6.5 Mbit/s / MCS0 / Port 2 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5469.760	-32.0	-27.0	5.0	Complied
5470	-35.0	-27.0	8.0	Complied
5725	-34.6	-27.0	7.6	Complied
5734.936	-32.7	-27.0	5.7	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5469.760	63.2	68.2	5.0	Complied
5470	60.2	68.2	8.0	Complied
5725	60.6	68.2	7.6	Complied
5734.936	62.5	68.2	5.7	Complied



Lower Band Edge



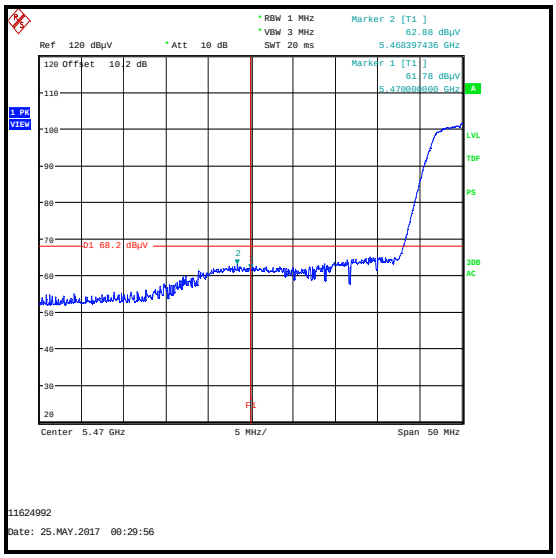
Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)

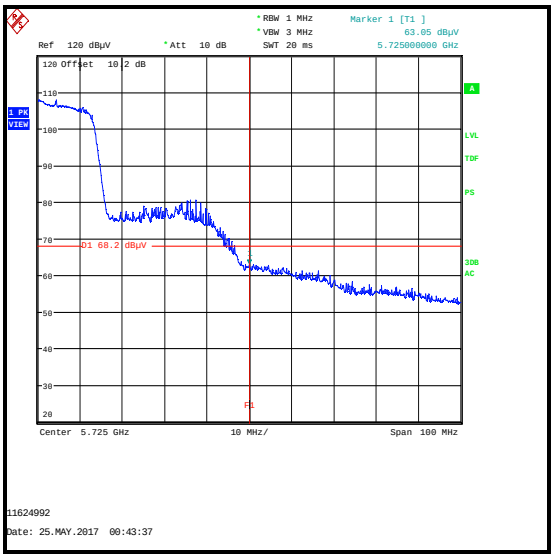
Results: 802.11n / 40 MHz / SISO / BPSK / 13.5 Mbit/s / MCS0 / Port 2 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5468.397	-32.3	-27.0	5.3	Complied
5470	-33.4	-27.0	6.4	Complied
5725	-32.1	-27.0	5.1	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5468.397	62.9	68.2	5.3	Complied
5470	61.8	68.2	6.4	Complied
5725	63.1	68.2	5.1	Complied



Lower Band Edge



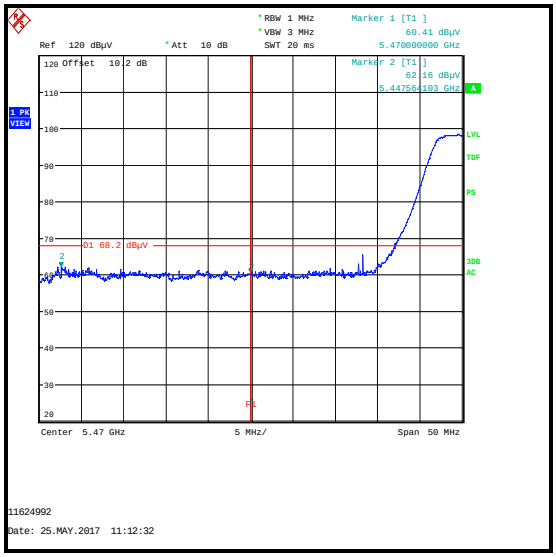
Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)

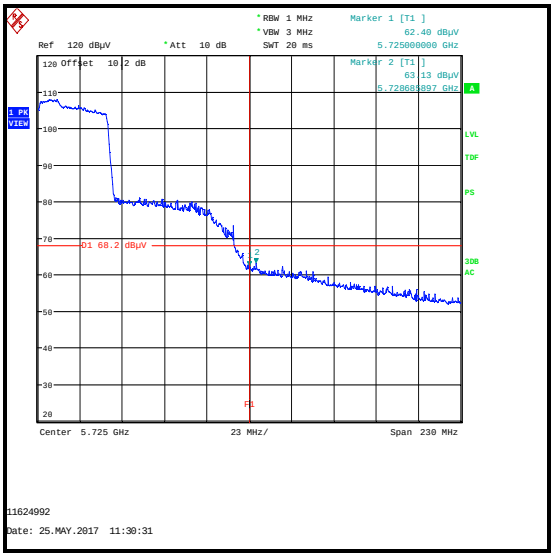
Results: 802.11ac / 80 MHz / SISO / BPSK / 29.3 Mbit/s / MCS0 / Port 2 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5447.564	-34.0	-27.0	7.0	Complied
5470	-34.8	-27.0	7.8	Complied
5725	-32.8	-27.0	5.8	Complied
5728.686	-32.1	-27.0	5.1	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5447.564	61.2	68.2	7.0	Complied
5470	60.4	68.2	7.8	Complied
5725	62.4	68.2	5.8	Complied
5728.686	63.1	68.2	5.1	Complied



Lower Band Edge



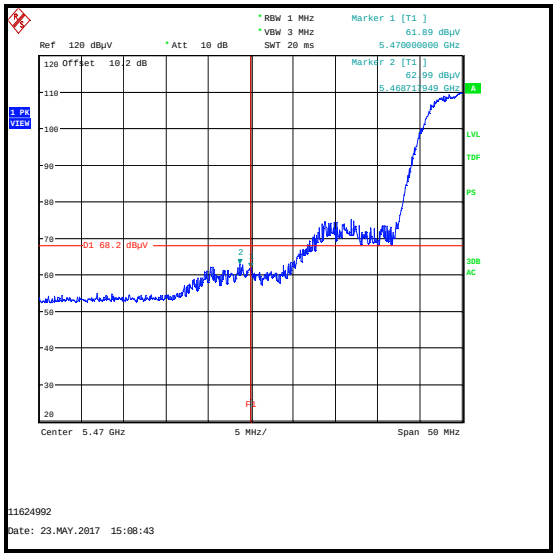
Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)

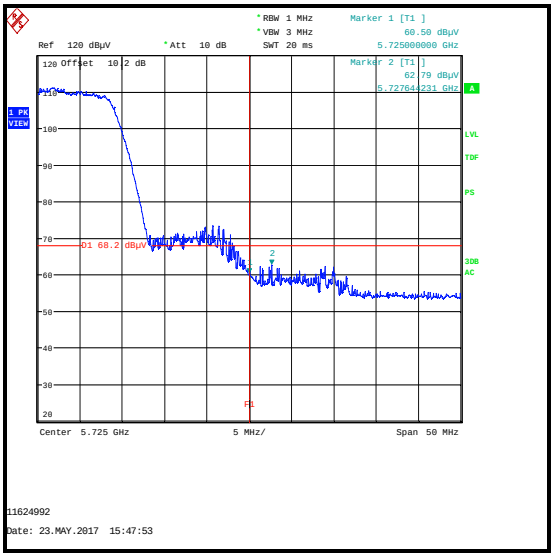
Results: 802.11n / 20 MHz / MIMO / BPSK / 6.5 Mbit/s / MCS0 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5468.718	-32.2	-27.0	5.2	Complied
5470	-33.3	-27.0	6.3	Complied
5725	-34.7	-27.0	7.7	Complied
5727.644	-32.4	-27.0	5.4	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5468.718	63.0	68.2	5.2	Complied
5470	61.9	68.2	6.3	Complied
5725	60.5	68.2	7.7	Complied
5727.644	62.8	68.2	5.4	Complied



Lower Band Edge



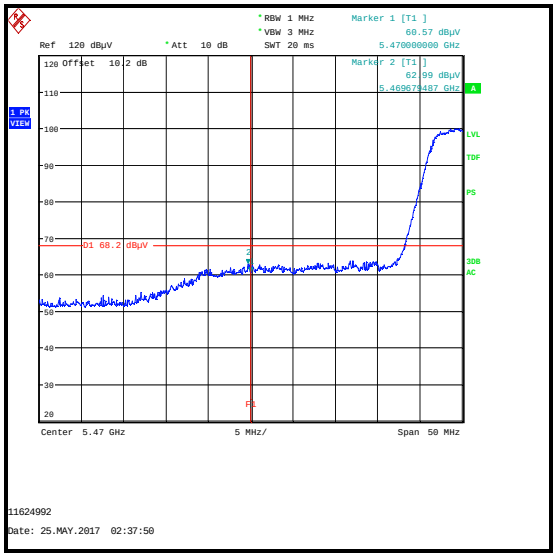
Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)

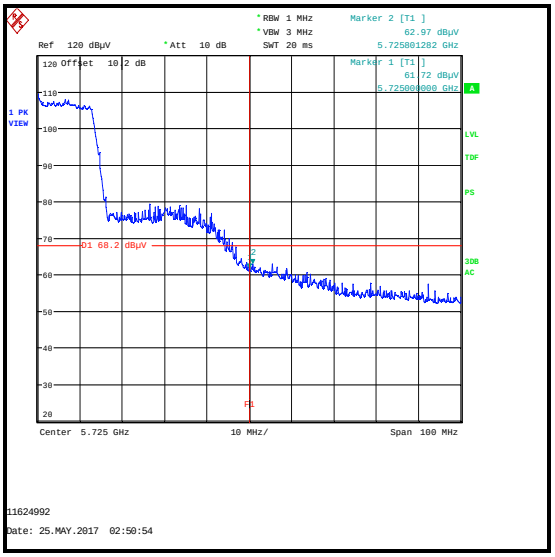
Results: 802.11n / 40 MHz / MIMO / BPSK / 13.5 Mbit/s / MCS0 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5469.676	-32.2	-27.0	5.2	Complied
5470	-34.6	-27.0	7.6	Complied
5725	-34.5	-27.0	7.5	Complied
5725.801	-32.2	-27.0	5.2	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5469.676	63.0	68.2	5.2	Complied
5470	60.6	68.2	7.6	Complied
5725	61.7	68.2	7.5	Complied
5725.801	63.0	68.2	5.2	Complied



Lower Band Edge



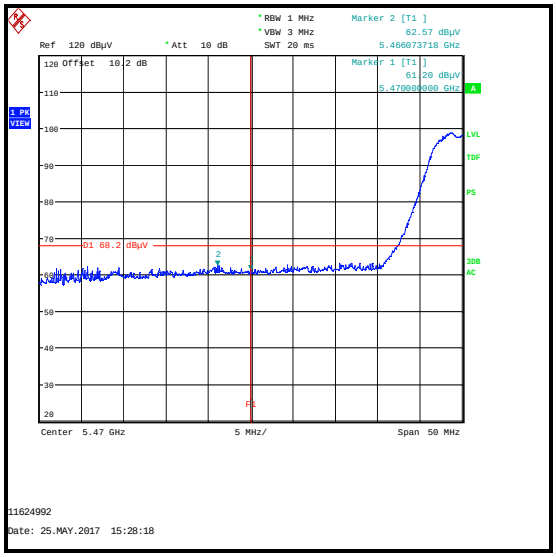
Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)

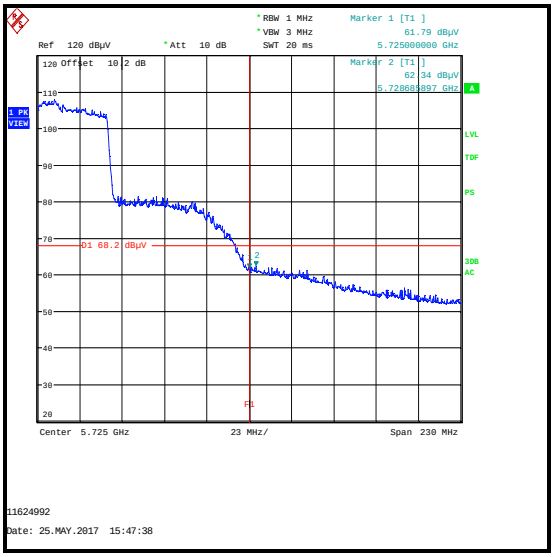
Results: 802.11ac / 80 MHz / MIMO / BPSK / 29.3 Mbit/s / MCS0x1 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5466.074	-32.6	-27.0	5.6	Complied
5470	-34.0	-27.0	7.0	Complied
5725	-34.4	-27.0	7.4	Complied
5725.686	-34.9	-27.0	7.9	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5466.074	62.6	68.2	5.6	Complied
5470	61.2	68.2	7.0	Complied
5725	61.8	68.2	7.4	Complied
5725.686	62.3	68.2	7.9	Complied



Lower Band Edge



Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.725-5.85 GHz band)

5.3.4 5.725-5.85 GHz band

Test Summary:

Test Engineers:	Alan Withers & David Doyle	**Test Dates:**	22 May 2017 to 25 May 2017
Test Sample Serial Numbers:	C07TK026J4C7 & C07TK007J4C6		

FCC Reference:	Parts 15.407(b)(4)(i),(7), 15.205 & 15.209(a)
Test Method Used:	ANSI C63.10 Section 6.10 & KDB 789033 II.G

Environmental Conditions:

Temperature (°C):	22 to 23
Relative Humidity (%):	41 to 42

Note(s):

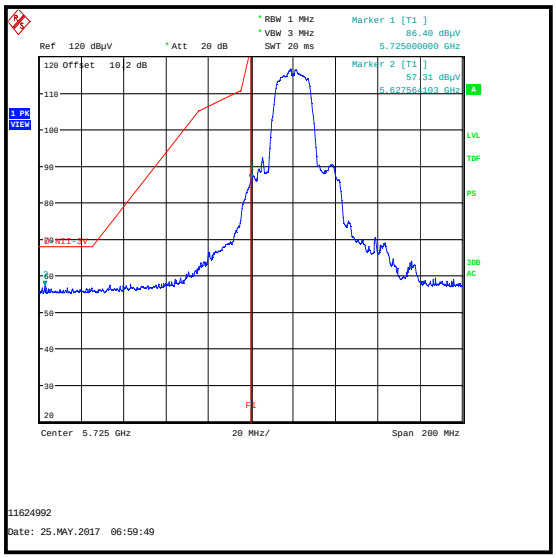
1. The following modes were tested:
    - 802.11a SISO– BPSK / 6 Mbit/s / Port 2
    - 802.11n HT20 / SISO – BPSK / 6.5 Mbit/s / MCS0 / Port 2
    - 802.11n HT40 / SISO – BPSK / 13.5 Mbit/s / MCS0 / Port 2
    - 802.11ac VHT80 / SISO – BPSK / 29.3 Mbit/s / MCS0 / Port 2
    - 802.11n HT20 / MIMO / 2Tx CDD – BPSK / 6.5 Mbit/s / MCS0
    - 802.11n HT40 / MIMO / 2Tx CDD – BPSK / 13.5 Mbit/s / MCS0
    - 802.11ac VHT80 / MIMO / 2Tx CDD – BPSK / 29.3 Mbit/s / MCS0x1
2. Lower band edge measurements were performed with the EUT transmitting on the bottom channel. Upper band edge measurements were performed with the EUT transmitting on the top channel.
3. For completeness, results are shown as EIRP in dBm and also as field strength in dBµV/m. Measured field strength was converted to EIRP in accordance with KDB 789033 G.2.d)(iii) using a conversion factor of 95.2.

Transmitter Band Edge Radiated Emissions (5.725-5.85 GHz band operation) (continued)

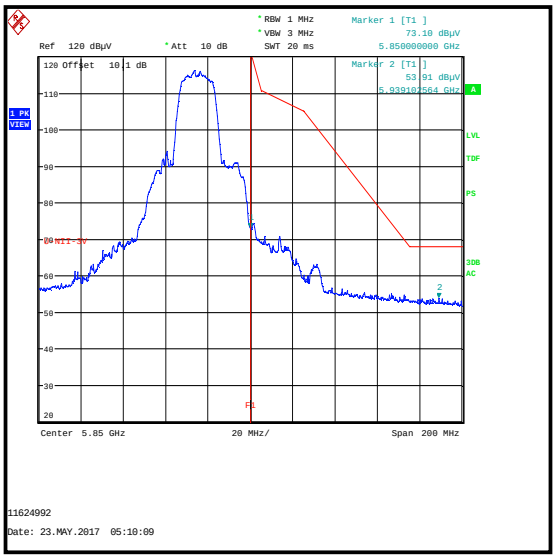
Results: 802.11a / 20 MHz / BPSK / 6 Mbit/s / Port 2 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm/MHz)	Margin (dB)	Result
5627.564	-37.9	-27.0	10.9	Complied
5725	-8.8	27.0	35.8	Complied
5850	-22.1	27.0	49.1	Complied
5939.103	-41.3	-27.0	14.3	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5627.564	57.3	68.2	10.9	Complied
5725	86.4	122.2	35.8	Complied
5850	73.1	122.2	49.1	Complied
5939.103	53.9	68.2	14.3	Complied



Lower Band Edge



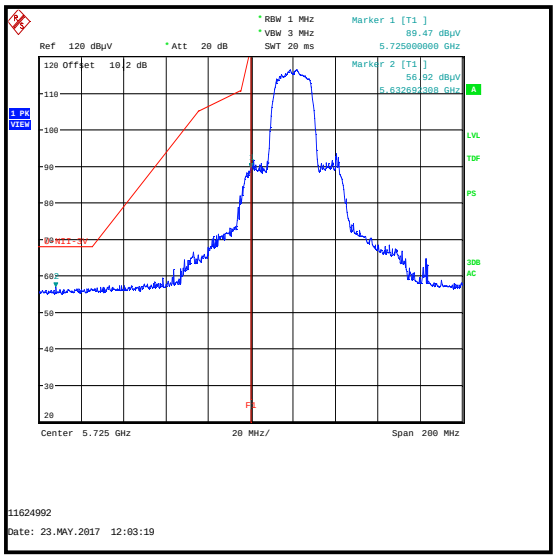
Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.725-5.85 GHz band operation) (continued)

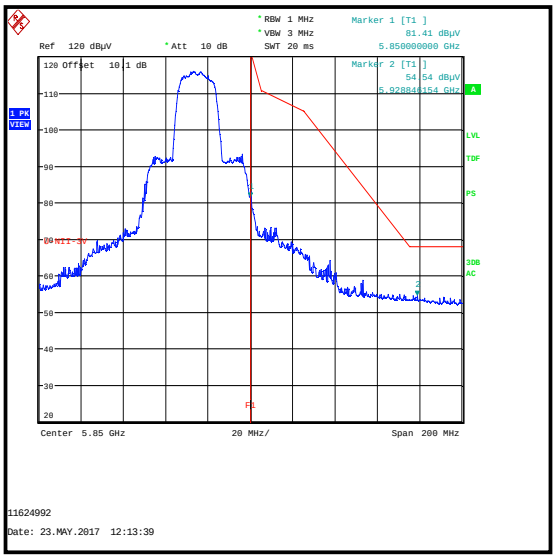
Results: 802.11n / 20 MHz / SISO / BPSK / 6.5 Mbit/s / MCS0 / Port 2 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm/MHz)	Margin (dB)	Result
5632.692	-38.3	-27.0	11.3	Complied
5725	-5.7	27.0	32.7	Complied
5850	-13.8	27.0	40.8	Complied
5928.846	-40.7	-27.0	13.7	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5632.692	56.9	68.2	11.3	Complied
5725	89.5	122.2	32.7	Complied
5850	81.4	122.2	40.8	Complied
5928.846	54.5	68.2	13.7	Complied



Lower Band Edge



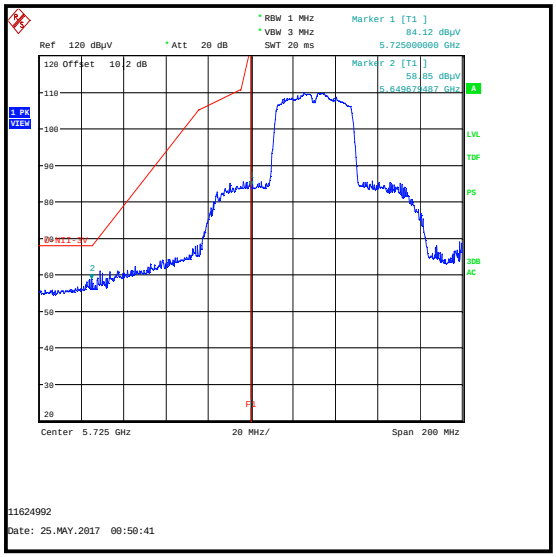
Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.725-5.85 GHz band operation) (continued)

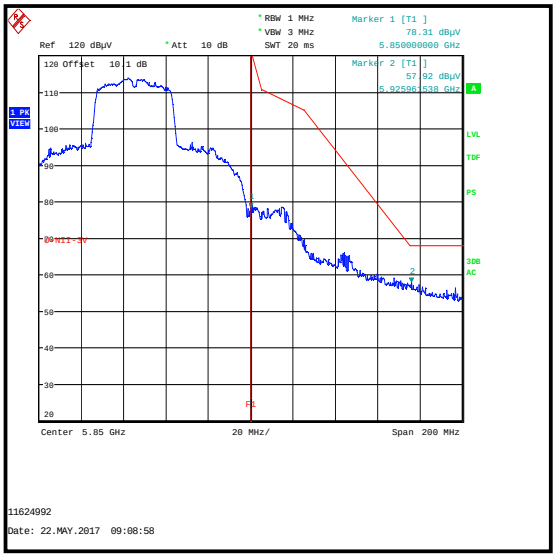
Results: 802.11n / 40 MHz / SISO / BPSK / 13.5 Mbit/s / MCS0 / Port 2 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm/MHz)	Margin (dB)	Result
5649.676	-36.3	-27.0	9.3	Complied
5725	-11.1	27.0	38.1	Complied
5850	-16.9	27.0	43.9	Complied
5925.964	-37.3	-27.0	10.3	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5649.676	58.9	68.2	9.3	Complied
5725	84.1	122.2	38.1	Complied
5850	78.3	122.2	43.9	Complied
5925.964	57.9	68.2	10.3	Complied



Lower Band Edge



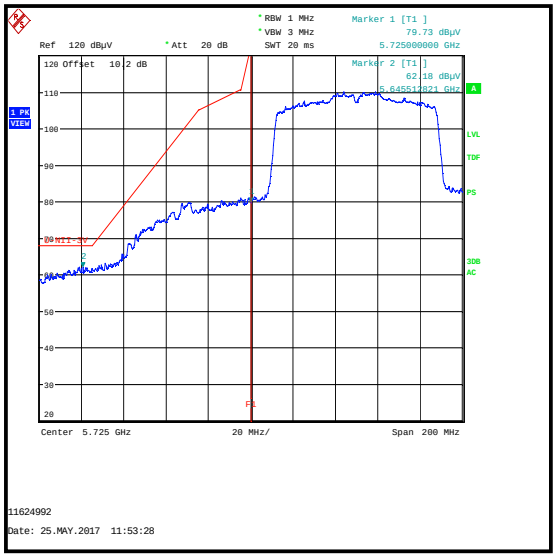
Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.725-5.85 GHz band operation) (continued)

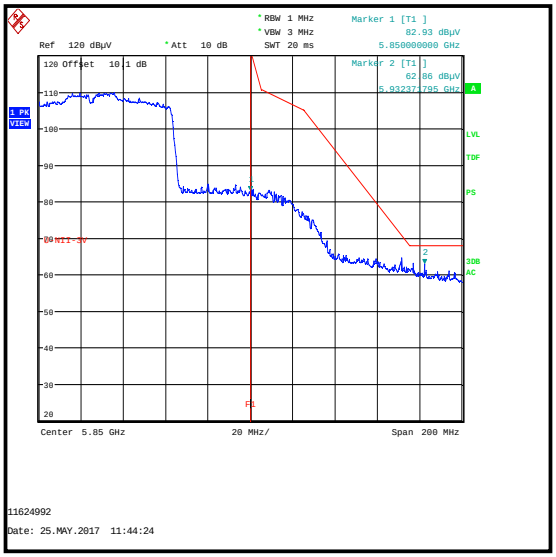
Results: 802.11ac / 80 MHz / SISO / BPSK / 29.3 Mbit/s / MCS0 / Port 2 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm/MHz)	Margin (dB)	Result
5645.513	-33.0	-27.0	6.0	Complied
5725	-15.5	27.0	42.5	Complied
5850	-12.3	27.0	39.3	Complied
5932.372	-32.3	-27.0	5.3	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5645.513	62.2	68.2	6.0	Complied
5725	79.7	122.2	42.5	Complied
5850	82.9	122.2	39.3	Complied
5932.372	62.9	68.2	5.3	Complied



Lower Band Edge



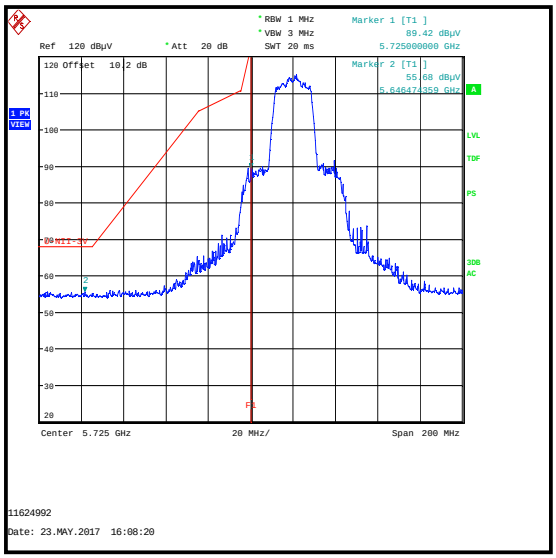
Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.725-5.85 GHz band operation) (continued)

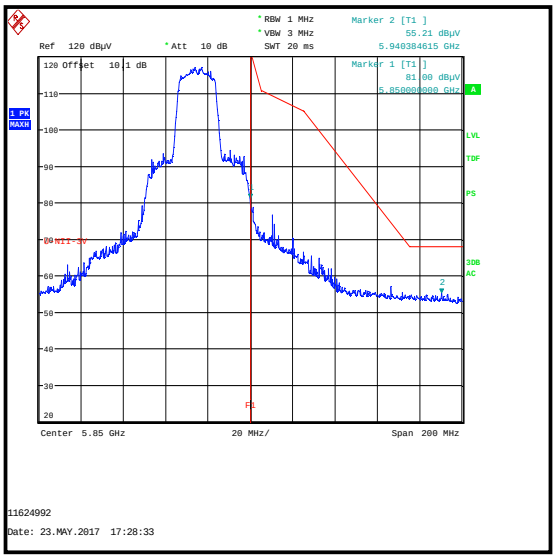
Results: 802.11n / 20 MHz / MIMO / BPSK / 6.5 Mbit/s / MCS0 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm/MHz)	Margin (dB)	Result
5646.474	-39.5	-27.0	12.5	Complied
5725	-5.8	27.0	32.8	Complied
5850	-14.2	27.0	41.2	Complied
5940.385	-40.0	-27.0	13.0	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5646.474	55.7	68.2	12.5	Complied
5725	89.4	122.2	32.8	Complied
5850	81.0	122.2	41.2	Complied
5940.385	55.2	68.2	13.0	Complied



Lower Band Edge



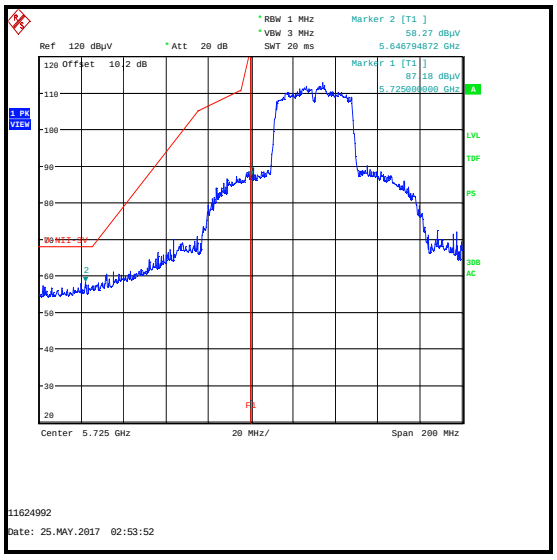
Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.725-5.85 GHz band operation) (continued)

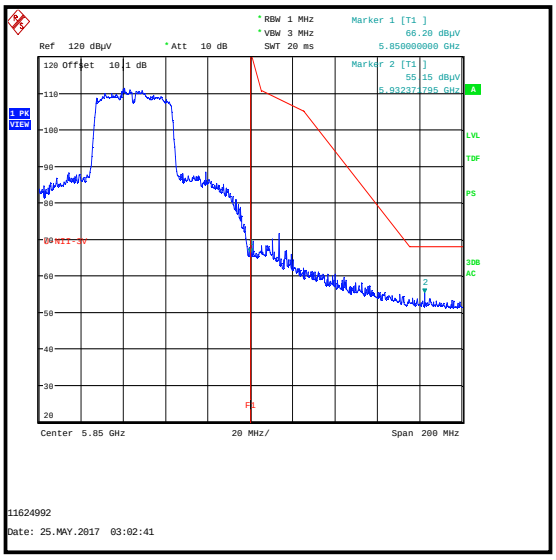
Results: 802.11n / 40 MHz / MIMO / BPSK / 13.5 Mbit/s / MCS0 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm/MHz)	Margin (dB)	Result
5646.795	-36.9	-27.0	9.9	Complied
5725	-8.0	27.0	35.0	Complied
5850	-28.8	27.0	55.8	Complied
5932.373	-40.0	-27.0	13.0	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5646.795	58.3	68.2	9.9	Complied
5725	87.2	122.2	35.0	Complied
5850	66.2	122.2	55.8	Complied
5932.373	55.2	68.2	13.0	Complied



Lower Band Edge



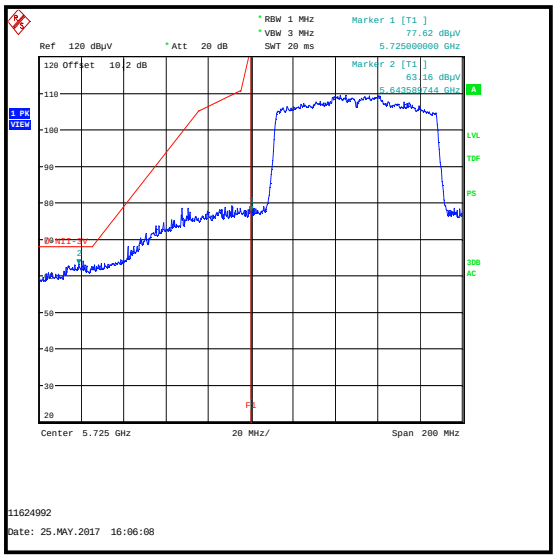
Upper Band Edge

Transmitter Band Edge Radiated Emissions (5.725-5.85 GHz band operation) (continued)

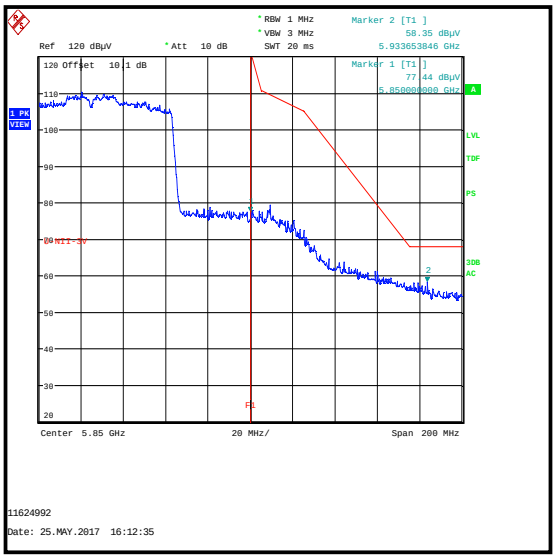
Results: 802.11ac / 80 MHz / MIMO / BPSK / 29.3 Mbit/s / MCS0x1 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm/MHz)	Margin (dB)	Result
5643.590	-32.0	-27.0	5.0	Complied
5725	-17.6	27.0	44.6	Complied
5850	-17.8	27.0	44.8	Complied
5933.653	-36.8	-27.0	9.8	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5643.590	63.2	68.2	5.0	Complied
5725	77.6	122.2	44.6	Complied
5850	77.4	122.2	44.8	Complied
5933.653	58.4	68.2	9.8	Complied



Lower Band Edge



Upper Band Edge

Appendix 1

Directional Antenna Gain Calculations for power measurements

Frequency Band 5150-5250 MHz

For 2Tx CDD modes, in accordance with KDB 662911 D01 v02r01 Section 2)f)(ii) directional antenna gain was calculated using the formulas applicable to equal antenna gains. G_{ANT} was set equal to the gain of the antenna having the highest gain. In accordance with KDB 662911 D01 v02r01 Section 2)f)(i) and for N_{ANT}=2:

Directional gain = G_{ANT} + Array Gain = 1.86 dBi + 0 dB = 1.86 dBi

Frequency Band 5250-5350 MHz

For 2Tx CDD modes, in accordance with KDB 662911 D01 v02r01 Section 2)f)(ii) directional antenna gain was calculated using the formulas applicable to equal antenna gains. G_{ANT} was set equal to the gain of the antenna having the highest gain. In accordance with KDB 662911 D01 v02r01 Section 2)f)(i) and for N_{ANT}=2:

Directional gain = G_{ANT} + Array Gain = 1.95 dBi + 0 dB = 1.95 dBi

Frequency Band 5470-5725 MHz

For 2Tx CDD modes, in accordance with KDB 662911 D01 v02r01 Section 2)f)(ii) directional antenna gain was calculated using the formulas applicable to equal antenna gains. G_{ANT} was set equal to the gain of the antenna having the highest gain. In accordance with KDB 662911 D01 v02r01 Section 2)f)(i) and for N_{ANT}=2:

Directional gain = G_{ANT} + Array Gain = 1.22 dBi + 0 dB = 1.22 dBi

Frequency Band 5725-5850 MHz

For 2Tx CDD modes, in accordance with KDB 662911 D01 v02r01 Section 2)f)(ii) directional antenna gain was calculated using the formulas applicable to equal antenna gains. G_{ANT} was set equal to the gain of the antenna having the highest gain. In accordance with KDB 662911 D01 v02r01 Section 2)f)(i) and for N_{ANT}=2:

Directional gain = G_{ANT} + Array Gain = 1.56 dBi + 0 dB = 1.56 dBi

Appendix 1 (continued)

Directional Antenna Gain Calculations for PSD measurements

Frequency Band 5150-5250 MHz

For 2Tx CDD modes, in accordance with KDB 662911 D01 v02r01 Section 2)f)(ii) and for N_{SS}=1, N_{ANT}=2, $G_1 = G_{ANTENNA\ 1}$ = 1.86 dBi, $G_2 = G_{ANTENNA\ 2}$ = 1.71 dBi:

$$\text{Directional Gain} = 10\log\left[\frac{\sum_{j=1}^{N_{SS}}\left(\sum_{k=1}^{N_{ANT}} g_{j,k}\right)^2}{N_{ANT}}\right] = 10\log\left[\frac{\sum_{j=1}^{1}\left(\sum_{k=1}^{2} g_{j,k}\right)^2}{2}\right]$$

$$= 10\log\left[\frac{(g_{1,1}+g_{1,2})^2}{2}\right] = 10\log\left[\frac{\left(10^{\frac{G_1}{20}}+10^{\frac{G_2}{20}}\right)^2}{2}\right] = 10\log\left[\frac{\left(10^{\frac{1.86}{20}}+10^{\frac{1.71}{20}}\right)^2}{2}\right] = 4.8\ \text{dBi}$$

Frequency Band 5250-5350 MHz

For 2Tx CDD modes, in accordance with KDB 662911 D01 v02r01 Section 2)f)(ii) and for N_{SS}=1, N_{ANT}=2, $G_1 = G_{ANTENNA\ 1}$ = 1.95 dBi, $G_2 = G_{ANTENNA\ 2}$ = 1.92 dBi:

$$\text{Directional Gain} = 10\log\left[\frac{\sum_{j=1}^{N_{SS}}\left(\sum_{k=1}^{N_{ANT}} g_{j,k}\right)^2}{N_{ANT}}\right] = 10\log\left[\frac{\sum_{j=1}^{1}\left(\sum_{k=1}^{2} g_{j,k}\right)^2}{2}\right]$$

$$= 10\log\left[\frac{(g_{1,1}+g_{1,2})^2}{2}\right] = 10\log\left[\frac{\left(10^{\frac{G_1}{20}}+10^{\frac{G_2}{20}}\right)^2}{2}\right] = 10\log\left[\frac{\left(10^{\frac{1.95}{20}}+10^{\frac{1.92}{20}}\right)^2}{2}\right] = 4.9\ \text{dBi}$$

Frequency Band 5470-5725 MHz

For 2Tx CDD modes, in accordance with KDB 662911 D01 v02r01 Section 2)f)(ii) and for N_{SS}=1, N_{ANT}=2, $G_1 = G_{ANTENNA\ 1}$ = 0.73 dBi, $G_2 = G_{ANTENNA\ 2}$ = 1.22 dBi:

$$\text{Directional Gain} = 10\log\left[\frac{\sum_{j=1}^{N_{SS}}\left(\sum_{k=1}^{N_{ANT}} g_{j,k}\right)^2}{N_{ANT}}\right] = 10\log\left[\frac{\sum_{j=1}^{1}\left(\sum_{k=1}^{2} g_{j,k}\right)^2}{2}\right]$$

$$= 10\log\left[\frac{(g_{1,1}+g_{1,2})^2}{2}\right] = 10\log\left[\frac{\left(10^{\frac{G_1}{20}}+10^{\frac{G_2}{20}}\right)^2}{2}\right] = 10\log\left[\frac{\left(10^{\frac{0.73}{20}}+10^{\frac{1.22}{20}}\right)^2}{2}\right] = 4.0\ \text{dBi}$$

Frequency Band 5725-5850 MHz

For 2Tx CDD modes, in accordance with KDB 662911 D01 v02r01 Section 2)f)(ii) and for N_{SS}=1, N_{ANT}=2, $G_1 = G_{ANTENNA\ 1}$ = -0.15 dBi, $G_2 = G_{ANTENNA\ 2}$ = 1.56 dBi:

$$\text{Directional Gain} = 10\log\left[\frac{\sum_{j=1}^{N_{SS}}\left(\sum_{k=1}^{N_{ANT}} g_{j,k}\right)^2}{N_{ANT}}\right] = 10\log\left[\frac{\sum_{j=1}^{1}\left(\sum_{k=1}^{2} g_{j,k}\right)^2}{2}\right]$$

$$= 10\log\left[\frac{(g_{1,1}+g_{1,2})^2}{2}\right] = 10\log\left[\frac{\left(10^{\frac{G_1}{20}}+10^{\frac{G_2}{20}}\right)^2}{2}\right] = 10\log\left[\frac{\left(10^{\frac{-0.15}{20}}+10^{\frac{1.56}{20}}\right)^2}{2}\right] = 3.8\ \text{dBi}$$

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