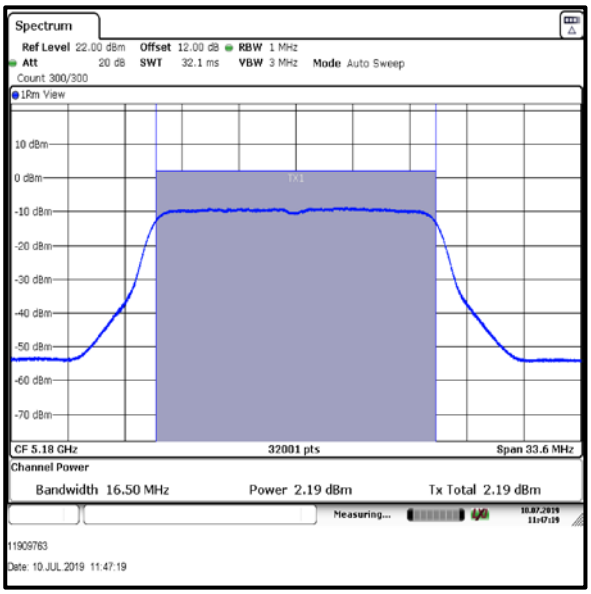
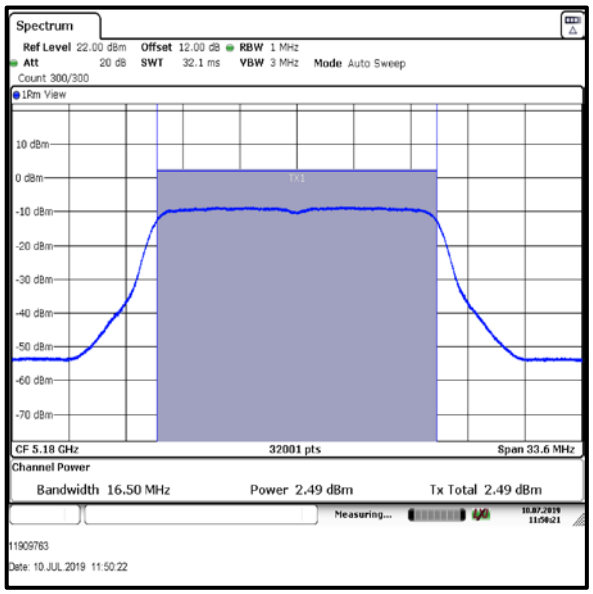
Transmitter Maximum Conducted Output Power (continued)

Results: 802.11a / 20 MHz / 6Mbps / MIMO / Port 1 / PWL 8 / 23 dBi Antenna Group



Bottom Channel

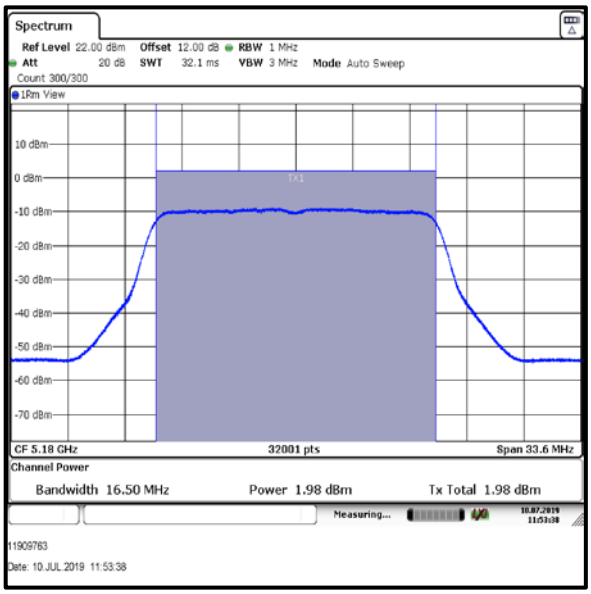
Results: 802.11a / 20 MHz / 6Mbps / MIMO / Port 2 / PWL 8 / 23 dBi Antenna Group



Bottom Channel

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11a / 20 MHz / 6Mbps / MIMO / Port 3 / PWL 8 / 23 dBi Antenna Group



Bottom Channel

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11n / 20 MHz / MCS0 / MIMO / Port 1+2+3 / PWL 9 / 23 dBi Antenna Group

Channel	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 +1	3.8	0.5	4.3	3.8	0.5	4.3
Middle	3.4	0.5	3.9	3.3	0.5	3.8
Top	3.5	0.5	4.0	3.5	0.5	4.0

Channel	Port 3		
	Conducted Power (dBm)	Duty Cycle Correction (dB)	Corrected Conducted Power (dBm)
Bottom +1	3.2	0.5	3.7
Middle	3.3	0.5	3.8
Top	3.3	0.5	3.8

Channel	Corrected Conducted Power Port 1 (dBm)	Corrected Conducted Power Port 2 (dBm)	Corrected Conducted Power Port 3 (dBm)	Port 1+2+3 Combined Conducted Power (dBm)	Conducted Power Limit (dBm)	Margin (dB)	Result
Bottom +1	4.3	4.3	3.7	8.9	15.8	6.9	Complied
Middle	3.9	3.8	3.8	8.6	15.8	7.2	Complied
Top	4.0	4.0	3.8	8.7	15.8	7.1	Complied

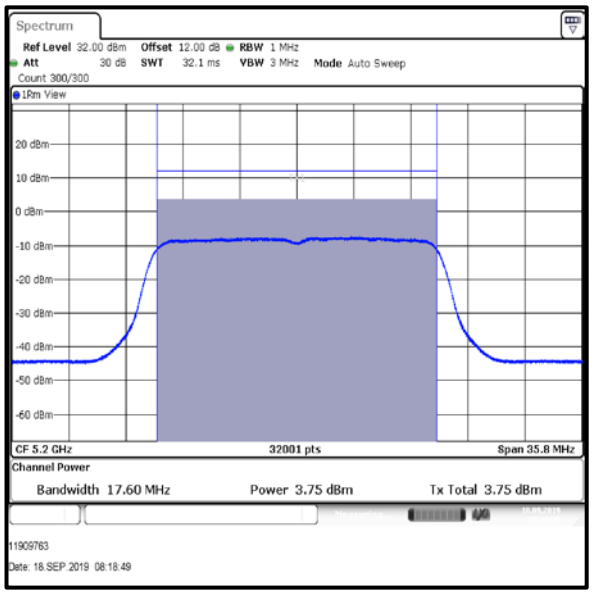
De Facto EIRP Limit Comparison

Channel	Port 1+2+3 Combined Conducted Power (dBm)	Directional Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom +1	8.9	14.2	23.1	30.0	6.9	Complied
Middle	8.6	14.2	22.8	30.0	7.2	Complied
Top	8.7	14.2	22.9	30.0	7.1	Complied

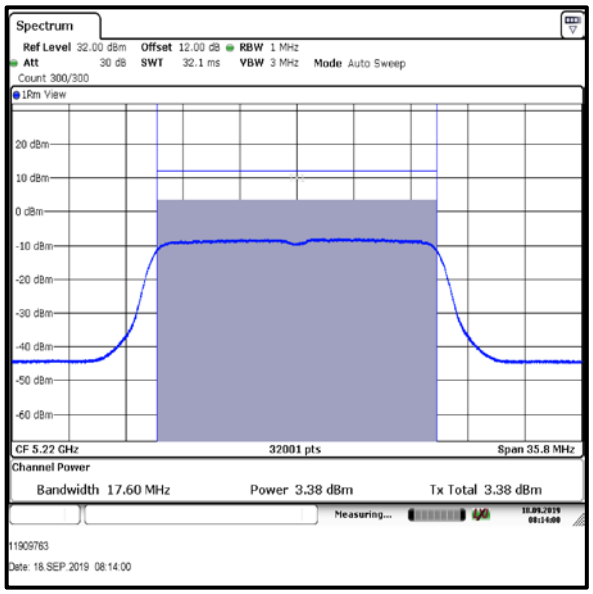
Result: Pass

Transmitter Maximum Conducted Output Power (continued)

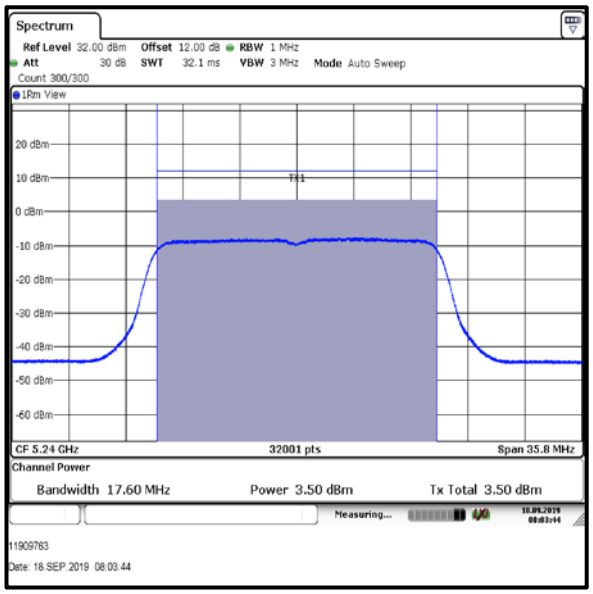
Results: 802.11n / 20 MHz / MCS0 / MIMO / Port 1 / PWL 9 / 23 dBi Antenna Group



Bottom +1 Channel



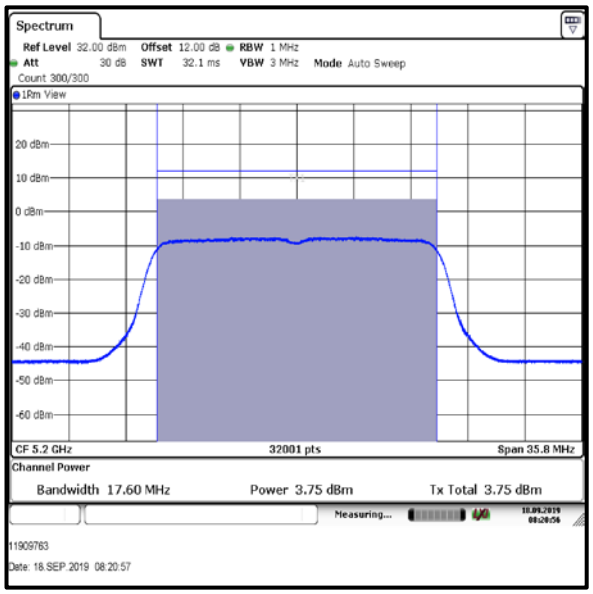
Middle Channel



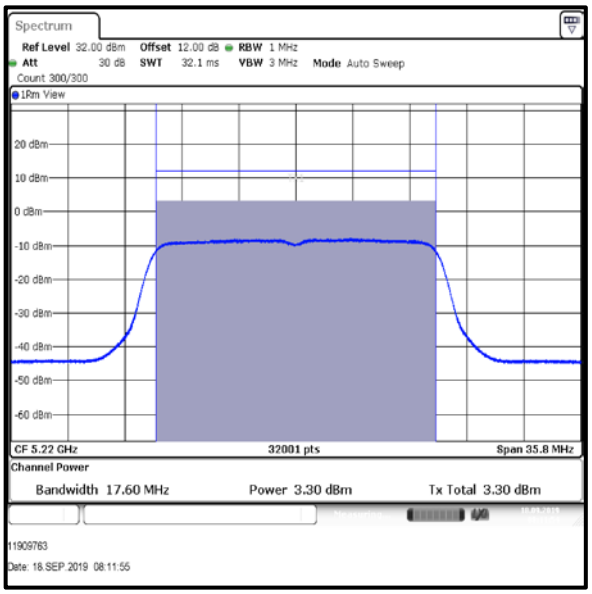
Top Channel

Transmitter Maximum Conducted Output Power (continued)

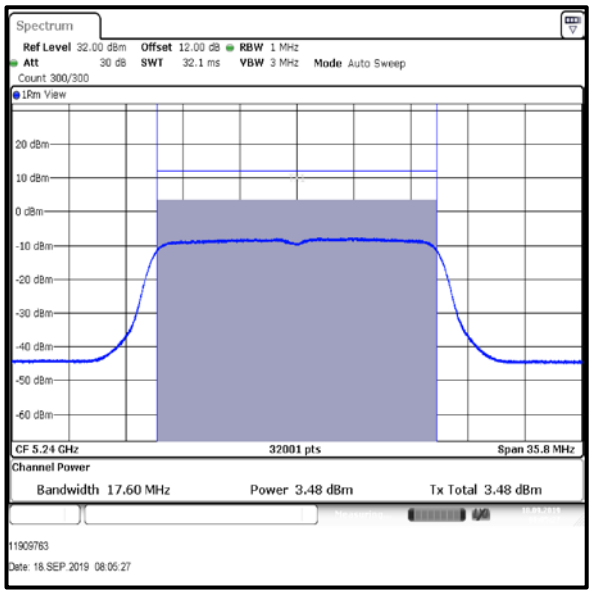
Results: 802.11n / 20 MHz / MCS0 / MIMO / Port 2 / PWL 9 / 23 dBi Antenna Group



Bottom +1 Channel



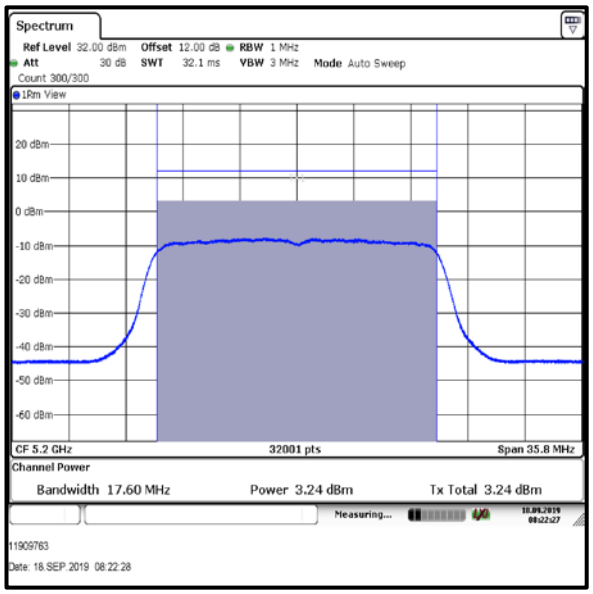
Middle Channel



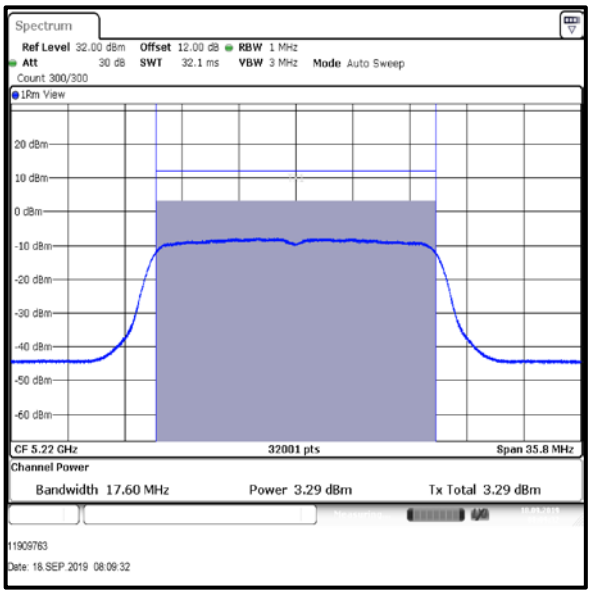
Top Channel

Transmitter Maximum Conducted Output Power (continued)

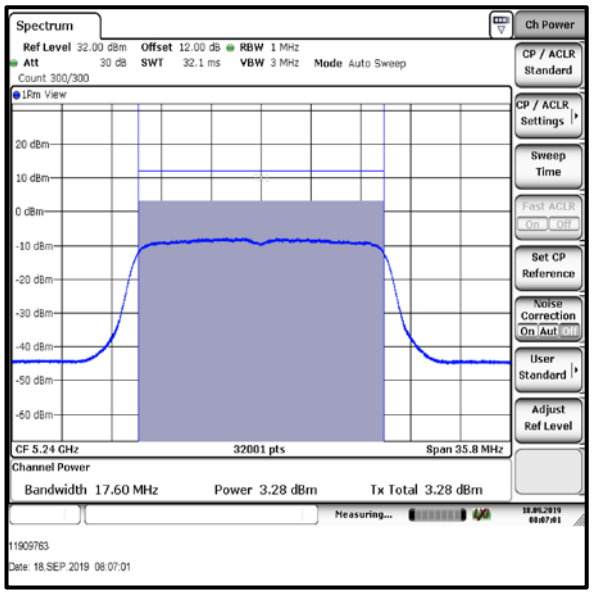
Results: 802.11n / 20 MHz / MCS0 / MIMO / Port 3 / PWL 9 / 23 dBi Antenna Group



Bottom +1 Channel



Middle Channel



Top Channel

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11n / 20 MHz / MCS0 / MIMO / Port 1+2+3 / PWL 8 / 23 dBi Antenna Group

Channel	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	2.4	0.5	2.9	2.4	0.5	2.9

Channel	Port 3		
	Conducted Power (dBm)	Duty Cycle Correction (dB)	Corrected Conducted Power (dBm)
Bottom	2.0	0.5	2.5

Channel	Corrected Conducted Power Port 1 (dBm)	Corrected Conducted Power Port 2 (dBm)	Corrected Conducted Power Port 3 (dBm)	Port 1+2+3 Combined Conducted Power (dBm)	Conducted Power Limit (dBm)	Margin (dB)	Result
Bottom	2.9	2.9	2.5	7.5	15.8	8.3	Complied

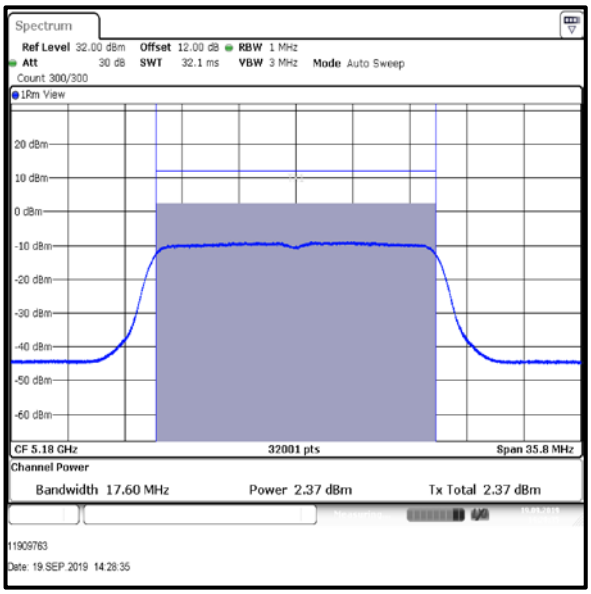
De Facto EIRP Limit Comparison

Channel	Port 1+2+3 Combined Conducted Power (dBm)	Directional Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	7.5	14.2	21.7	30.0	8.3	Complied

Result: Pass

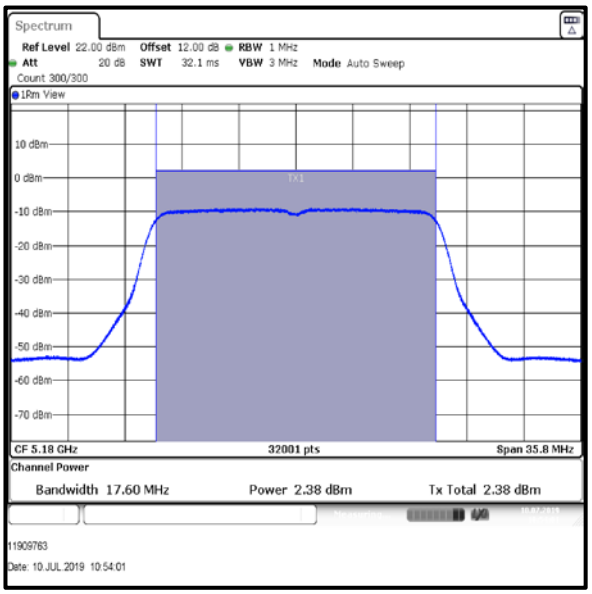
Transmitter Maximum Conducted Output Power (continued)

Results: 802.11n / 20 MHz / MCS0 / MIMO / Port 1 / PWL 8 / 23 dBi Antenna Group



Bottom Channel

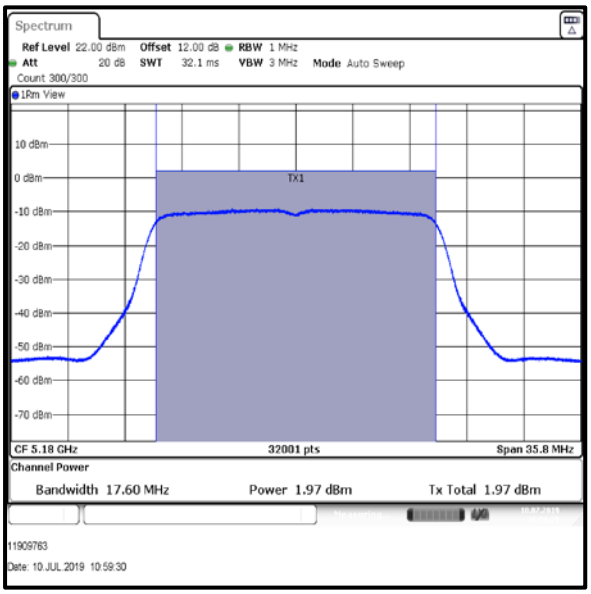
Results: 802.11n / 20 MHz / MCS0 / MIMO / Port 2 / PWL 8 / 23 dBi Antenna Group



Bottom Channel

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11n / 20 MHz / MCS0 / MIMO / Port 3 / PWL 8 / 23 dBi Antenna Group



Bottom Channel

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11ac / 20 MHz / MCS0 / MIMO / Port 1+2+3 / PWL 9 / 23 dBi Antenna Group

Channel	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 +1	3.7	0.4	4.1	4.0	0.4	4.4
Middle	3.3	0.4	3.7	3.5	0.4	3.9
Top	3.3	0.4	3.7	3.5	0.4	3.9

Channel	Port 3		
	Conducted Power (dBm)	Duty Cycle Correction (dB)	Corrected Conducted Power (dBm)
Bottom +1	3.5	0.4	3.9
Middle	3.4	0.4	3.8
Top	3.4	0.4	3.8

Channel	Corrected Conducted Power Port 1 (dBm)	Corrected Conducted Power Port 2 (dBm)	Corrected Conducted Power Port 3 (dBm)	Port 1+2+3 Combined Conducted Power (dBm)	Conducted Power Limit (dBm)	Margin (dB)	Result
Bottom +1	4.1	4.4	3.9	8.9	15.8	6.9	Complied
Middle	3.7	3.9	3.8	8.6	15.8	7.2	Complied
Top	3.7	3.9	3.8	8.6	15.8	7.2	Complied

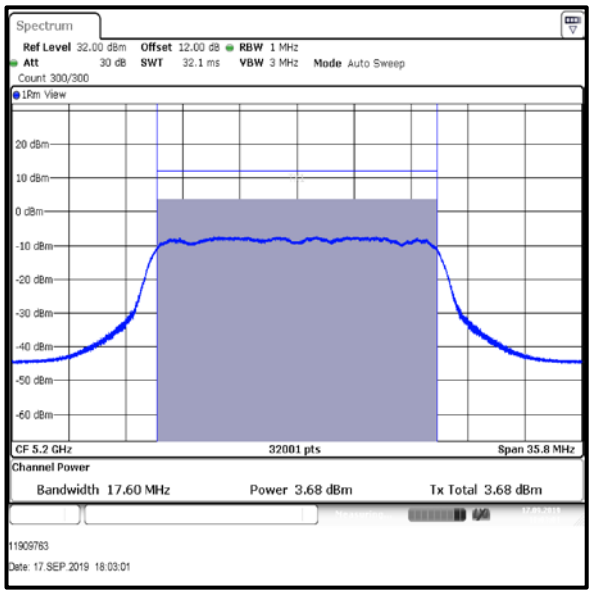
De Facto EIRP Limit Comparison

Channel	Port 1+2+3 Combined Conducted Power (dBm)	Directional Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom +1	8.9	14.2	23.1	30.0	6.9	Complied
Middle	8.6	14.2	22.8	30.0	6.2	Complied
Top	8.6	14.2	22.8	30.0	6.2	Complied

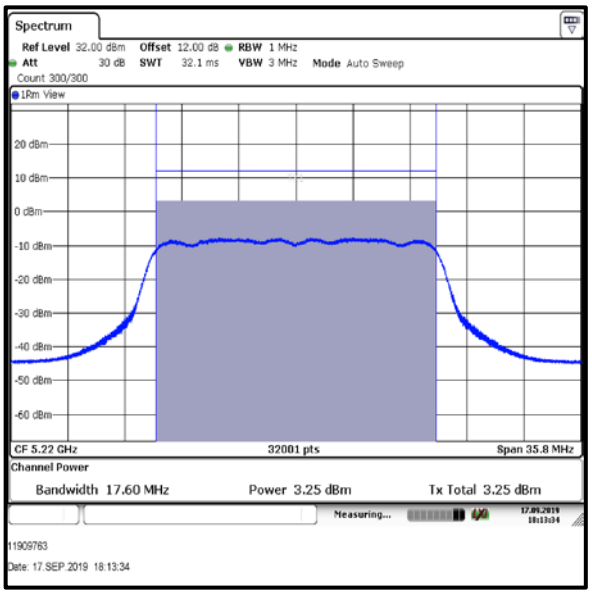
Result: Pass

Transmitter Maximum Conducted Output Power (continued)

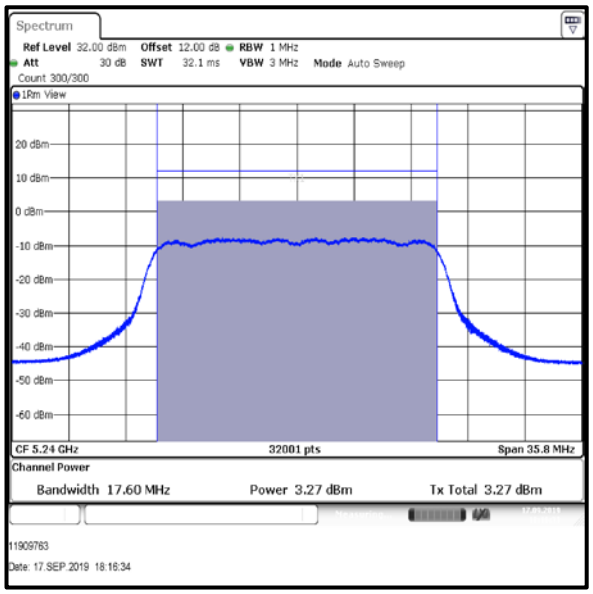
Results: 802.11ac / 20 MHz / MCS0 / MIMO / Port 1 / PWL 9 / 23 dBi Antenna Group



Bottom +1 Channel



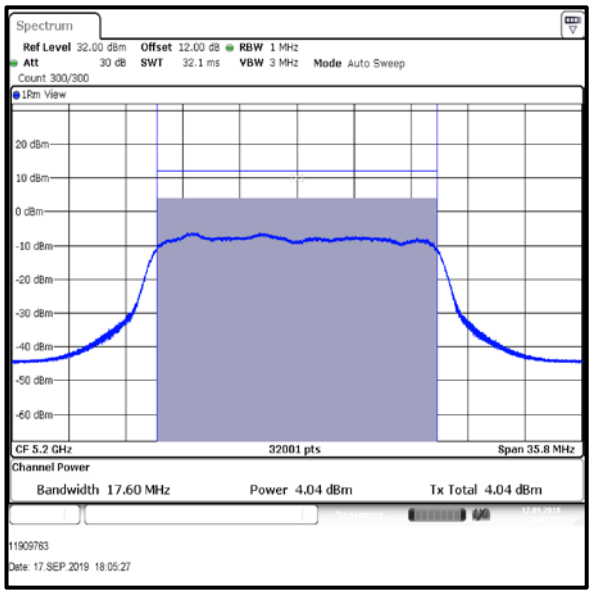
Middle Channel



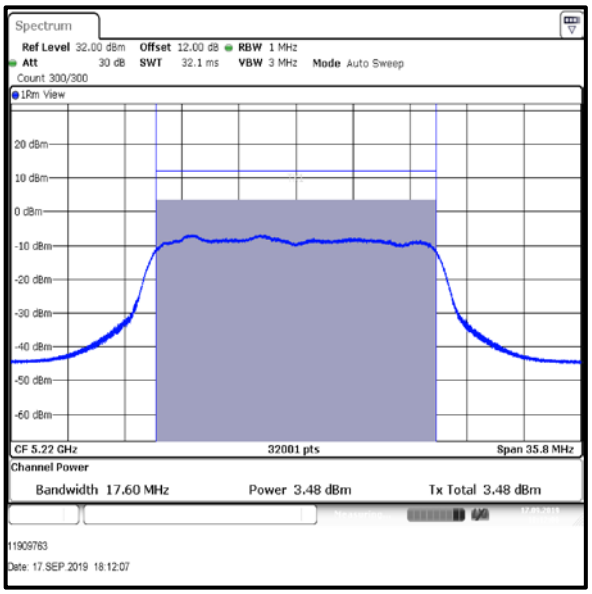
Top Channel

Transmitter Maximum Conducted Output Power (continued)

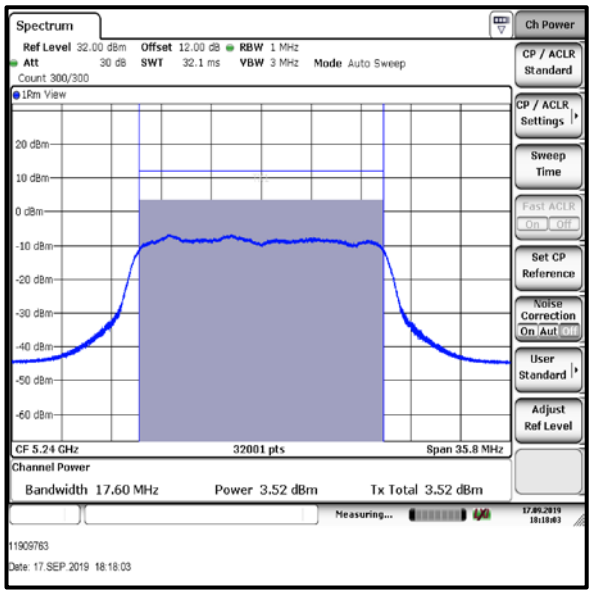
Results: 802.11ac / 20 MHz / MCS0 / MIMO / Port 2 / PWL 9 / 23 dBi Antenna Group



Bottom +1 Channel



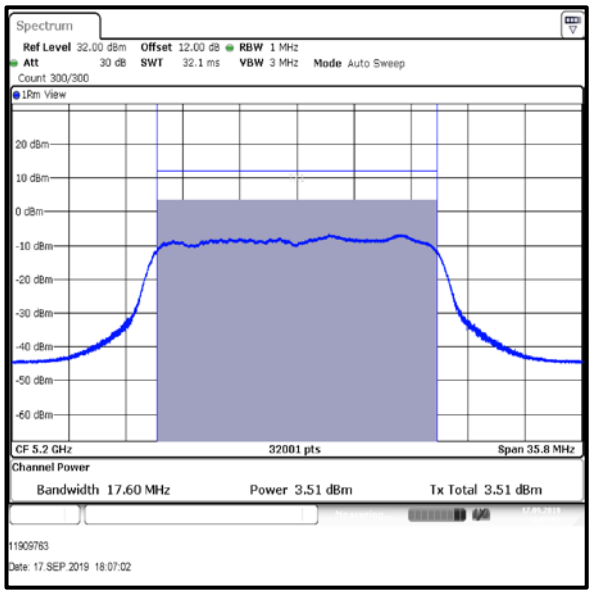
Middle Channel



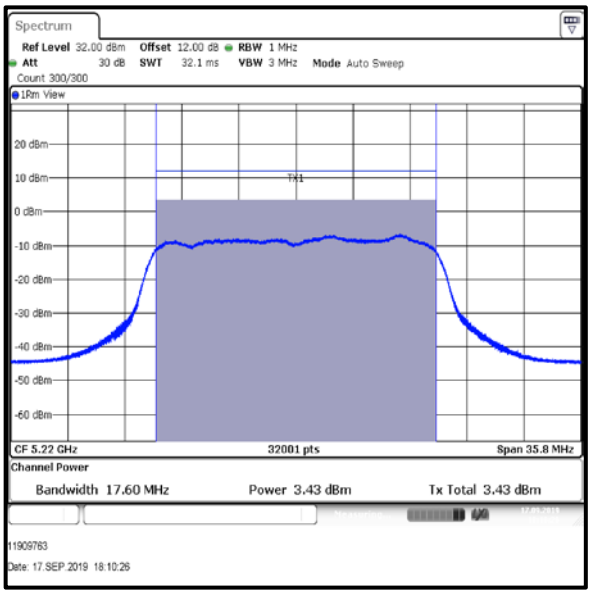
Top Channel

Transmitter Maximum Conducted Output Power (continued)

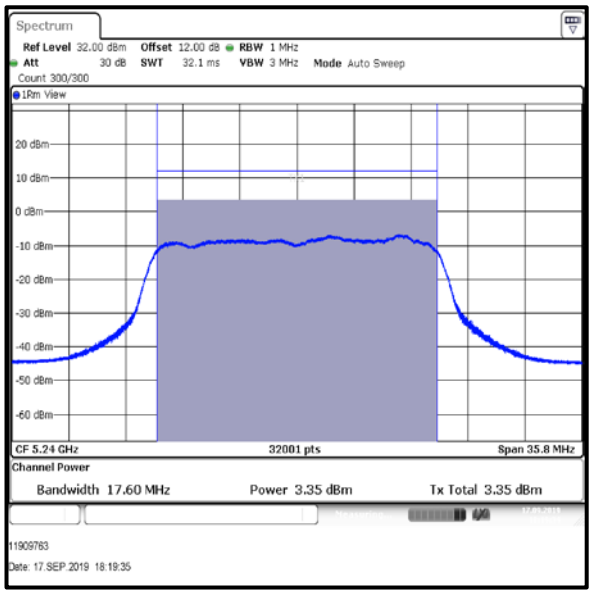
Results: 802.11ac / 20 MHz / MCS0 / MIMO / Port 3 / PWL 9 / 23 dBi Antenna Group



Bottom +1 Channel



Middle Channel



Top Channel

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11ac / 20 MHz / MCS0 / MIMO / Port 1+2+3 / PWL 8 / 23 dBi Antenna Group

Channel	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	2.2	0.4	2.6	2.8	0.4	3.2

Channel	Port 3		
	Conducted Power (dBm)	Duty Cycle Correction (dB)	Corrected Conducted Power (dBm)
Bottom	2.5	0.4	2.9

Channel	Corrected Conducted Power Port 1 (dBm)	Corrected Conducted Power Port 2 (dBm)	Corrected Conducted Power Port 3 (dBm)	Port 1+2+3 Combined Conducted Power (dBm)	Conducted Power Limit (dBm)	Margin (dB)	Result
Bottom	2.6	3.2	2.9	7.7	15.8	8.1	Complied

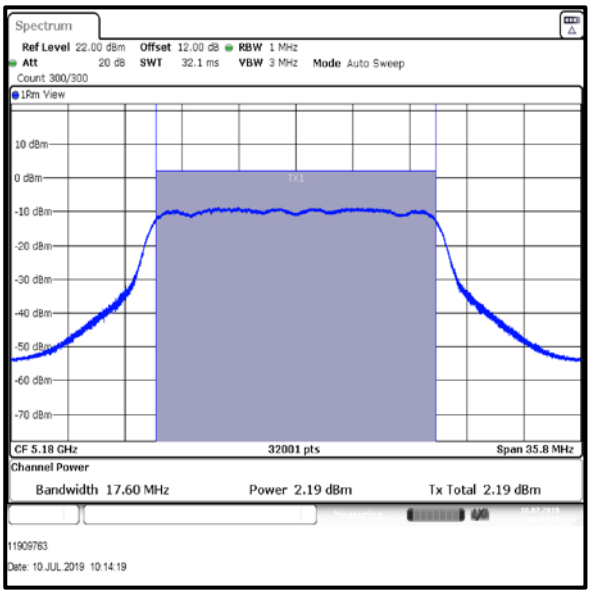
De Facto EIRP Limit Comparison

Channel	Port 1+2+3 Combined Conducted Power (dBm)	Directional Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	7.7	14.2	21.9	30.0	8.1	Complied

Result: Pass

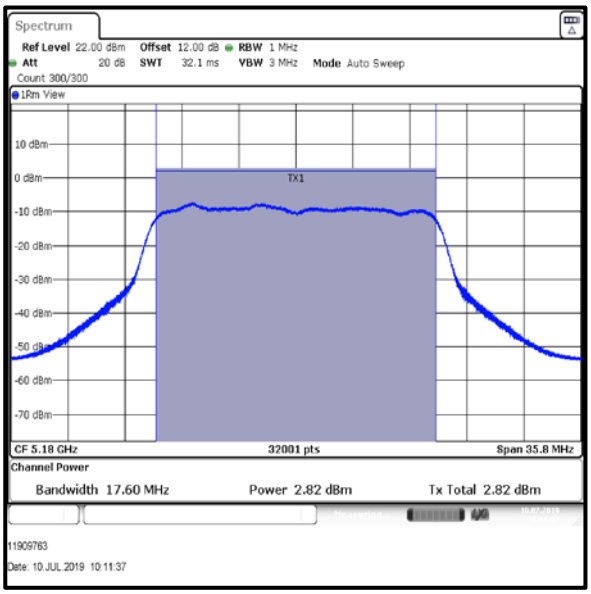
Transmitter Maximum Conducted Output Power (continued)

Results: 802.11ac / 20 MHz / MCS0 / MIMO / Port 1 / PWL 8 / 23 dBi Antenna Group



Bottom Channel

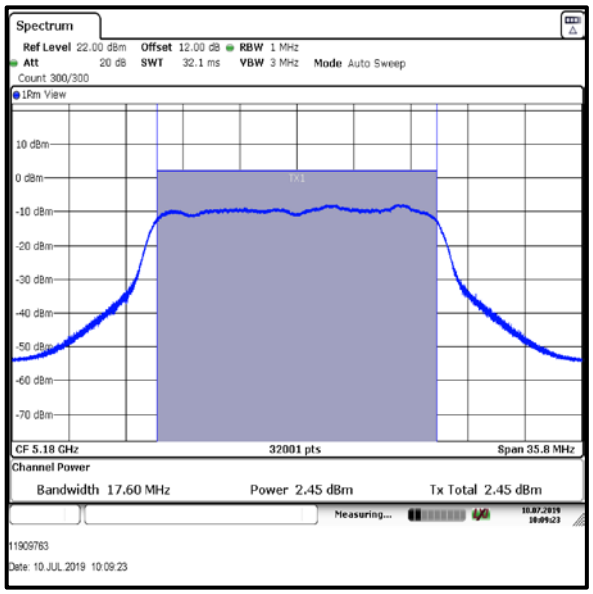
Results: 802.11ac / 20 MHz / MCS0 / MIMO / Port 2 / PWL 8 / 23 dBi Antenna Group



Bottom Channel

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11ac / 20 MHz / MCS0 / MIMO / Port 3 / PWL 8 / 23 dBi Antenna Group



Bottom Channel

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11n / HT40 / MCS0 / MIMO / Port 1+2+3 / PWL 8 / 23 dBi Antenna Group

Channel	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	2.0	0.4	2.4	2.0	0.4	2.4
Top	1.9	0.4	2.3	1.7	0.4	2.1

Channel	Port 3		
	Conducted Power (dBm)	Duty Cycle Correction (dB)	Corrected Conducted Power (dBm)
Bottom	1.5	0.4	1.9
Top	1.3	0.4	1.7

Channel	Corrected Conducted Power Port 1 (dBm)	Corrected Conducted Power Port 2 (dBm)	Corrected Conducted Power Port 3 (dBm)	Port 1+2+3 Combined Conducted Power (dBm)	Conducted Power Limit (dBm)	Margin (dB)	Result
Bottom	2.4	2.4	1.9	7.0	15.8	8.8	Complied
Top	2.3	2.1	1.7	6.8	15.8	9	Complied

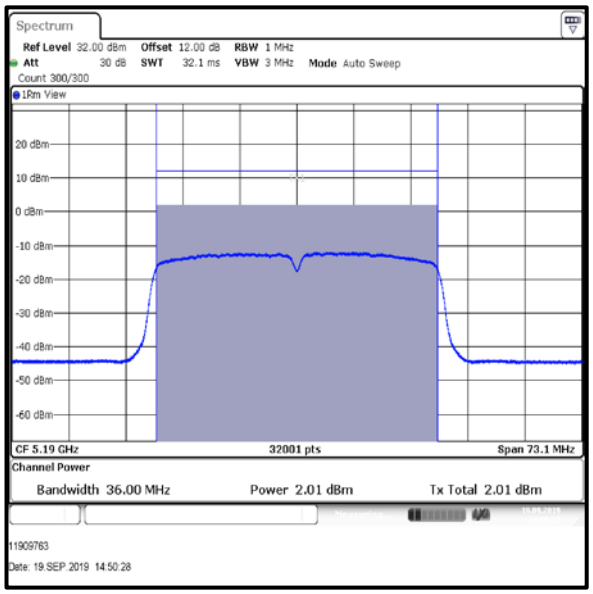
De Facto EIRP Limit Comparison

Channel	Port 1+2+3 Combined Conducted Power (dBm)	Directional Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	7.0	14.2	21.2	30.0	8.8	Complied
Top	6.8	14.2	21.0	30.0	9	Complied

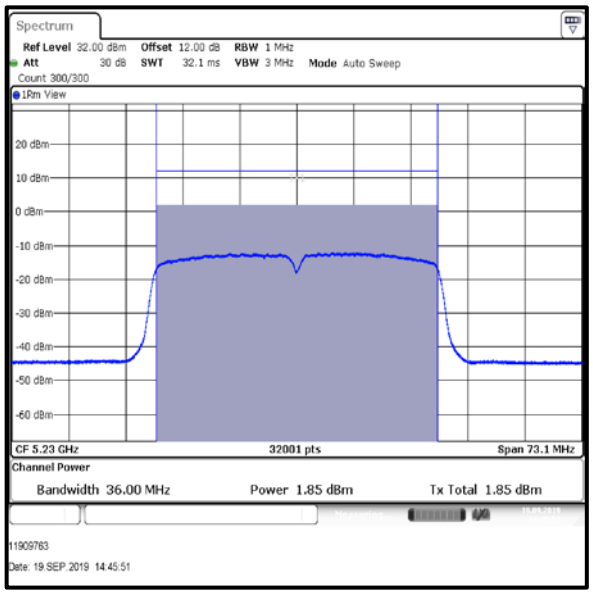
Result: Pass

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11n / HT40 / MCS0 / MIMO / Port 1 / PWL 8 / 23 dBi Antenna Group

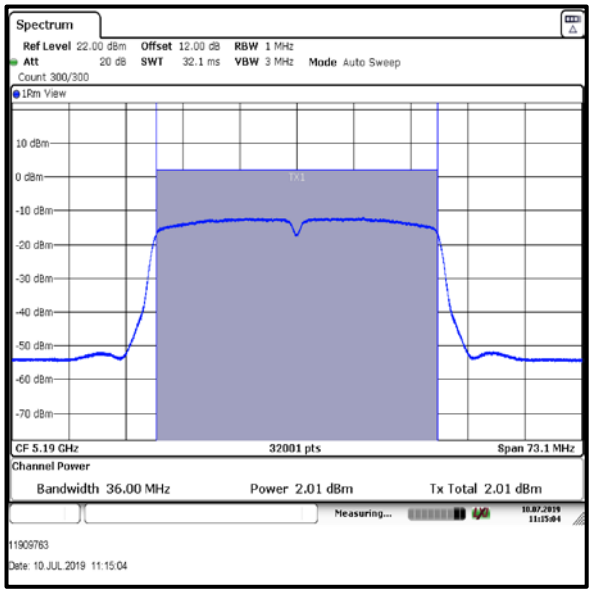


Bottom Channel

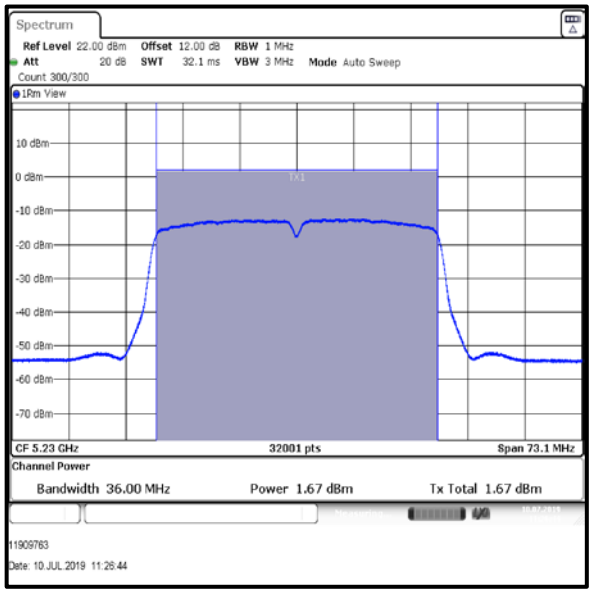


Top Channel

Results: 802.11n / HT40 / MCS0 / MIMO / Port 2 / PWL 8 / 23 dBi Antenna Group



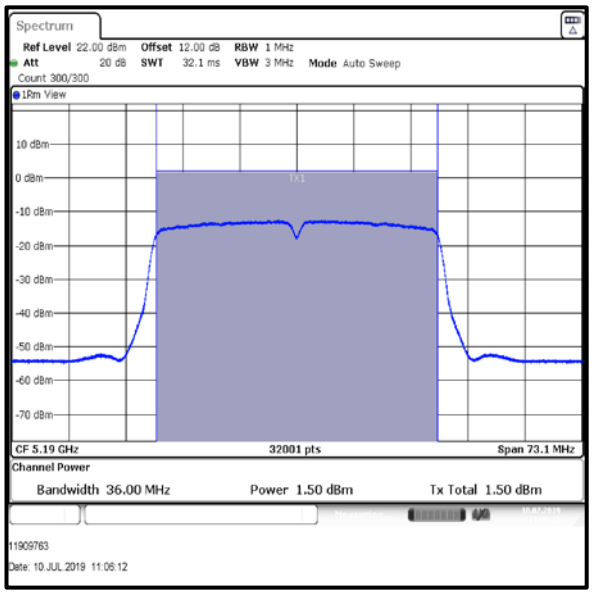
Bottom Channel



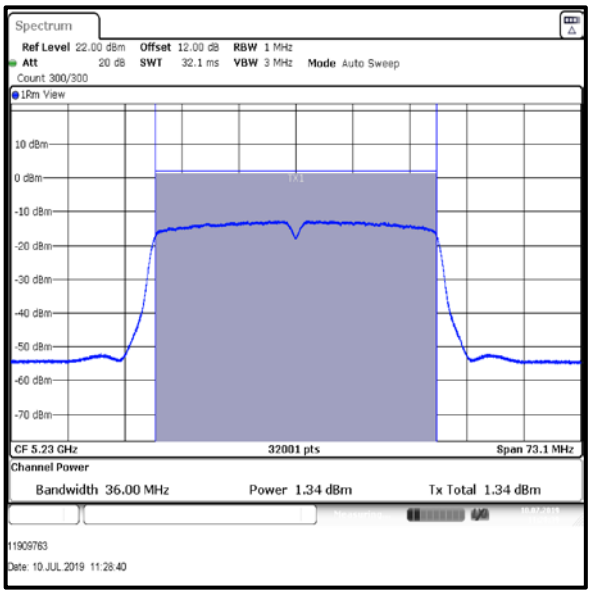
Top Channel

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11n / HT40 / MCS0 / MIMO / Port 3 / PWL 8 / 23 dBi Antenna Group



Bottom Channel



Top Channel

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11ac / HT40 / MCS0 / MIMO / Port 1+2+3 / PWL 8 / 23 dBi Antenna Group

Channel	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	0.5	0.4	0.9	1.1	0.4	1.5
Top	-0.4	0.4	0.0	0.7	0.4	1.1

Channel	Port 3		
	Conducted Power (dBm)	Duty Cycle Correction (dB)	Corrected Conducted Power (dBm)
Bottom	0.6	0.4	1.0
Top	0.4	0.4	0.8

Channel	Corrected Conducted Power Port 1 (dBm)	Corrected Conducted Power Port 2 (dBm)	Corrected Conducted Power Port 3 (dBm)	Port 1+2+3 Combined Conducted Power (dBm)	Conducted Power Limit (dBm)	Margin (dB)	Result
Bottom	0.9	1.5	1.0	5.9	15.8	9.9	Complied
Top	0.0	1.1	0.8	5.4	15.8	10.4	Complied

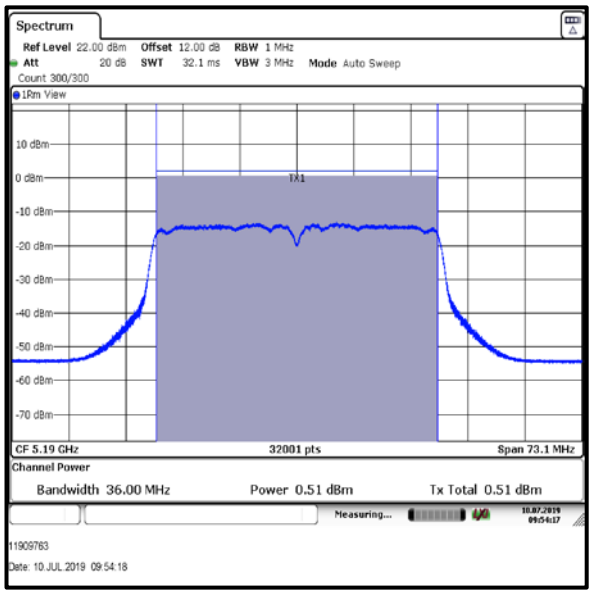
De Facto EIRP Limit Comparison

Channel	Port 1+2+3 Combined Conducted Power (dBm)	Directional Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	5.9	14.2	20.1	30.0	9.9	Complied
Top	5.4	14.2	19.6	30.0	10.4	Complied

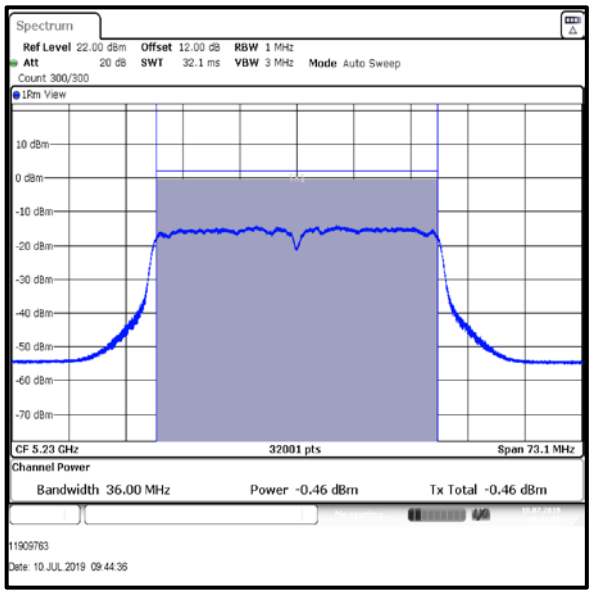
Result: Pass

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11ac / HT40 / MCS0 / MIMO / Port 1 / PWL 8 / 23 dBi Antenna Group

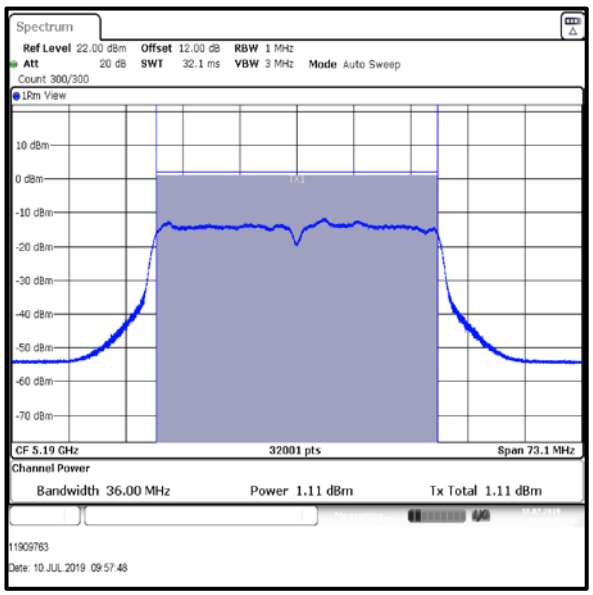


Bottom Channel

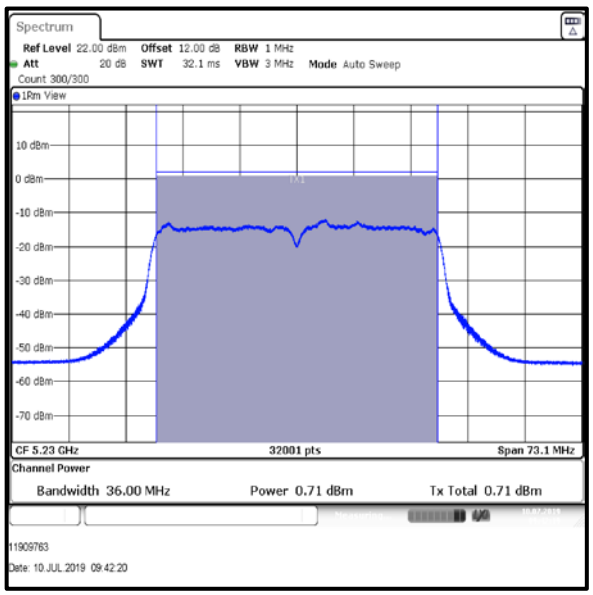


Top Channel

Results: 802.11ac / HT40 / MCS0 / MIMO / Port 2 / PWL 8 / 23 dBi Antenna Group



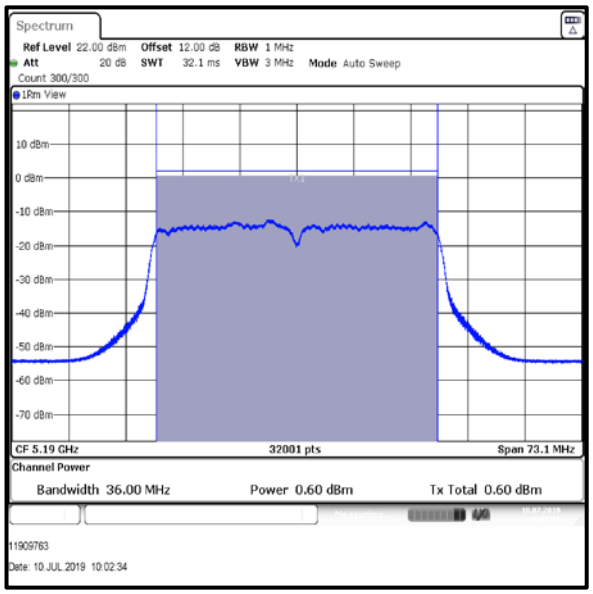
Bottom Channel



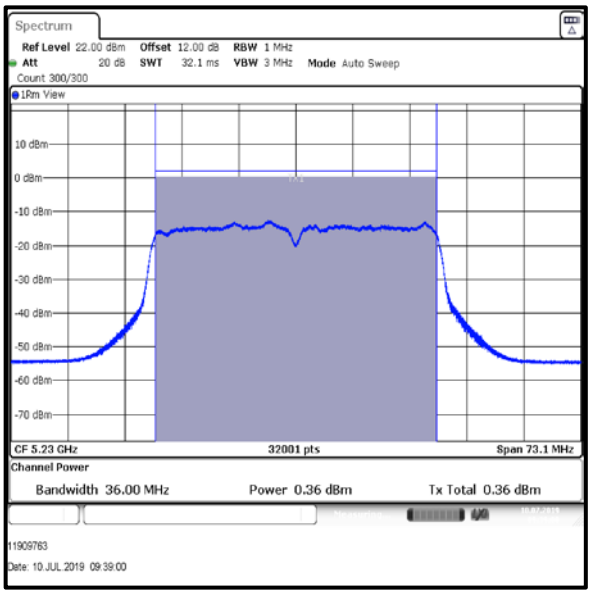
Top Channel

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11ac / HT40 / MCS0 / MIMO / Port 3 / PWL 8 / 23 dBi Antenna Group



Bottom Channel



Top Channel

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11ac / HT80 / MCS0 / MIMO / Port 1+2+3 / PWL 8 / 23 dBi Antenna Group

Channel	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	0.3	0.5	0.8	0.4	0.5	0.9

Channel	Port 3		
	Conducted Power (dBm)	Duty Cycle Correction (dB)	Corrected Conducted Power (dBm)
Single	0.0	0.5	0.5

Channel	Corrected Conducted Power Port 1 (dBm)	Corrected Conducted Power Port 2 (dBm)	Corrected Conducted Power Port 3 (dBm)	Port 1+2+3 Combined Conducted Power (dBm)	Conducted Power Limit (dBm)	Margin (dB)	Result
Single	0.8	0.9	0.5	5.5	15.8	10.3	Complied

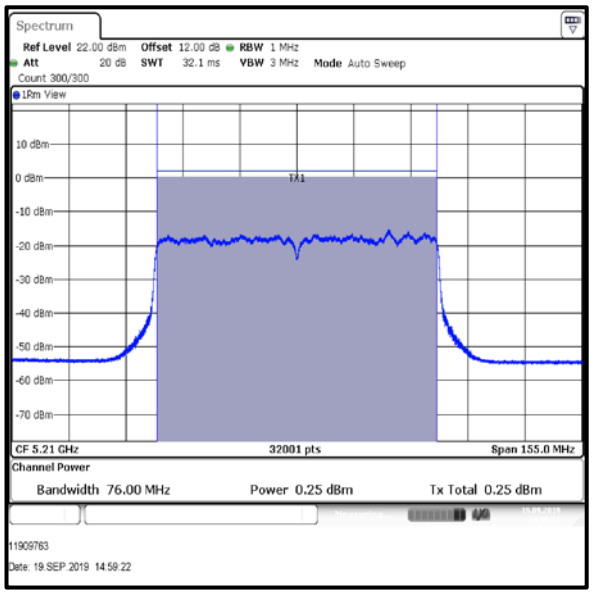
De Facto EIRP Limit Comparison

Channel	Port 1+2+3 Combined Conducted Power (dBm)	Directional Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Single	5.5	14.2	19.7	30.0	10.3	Complied

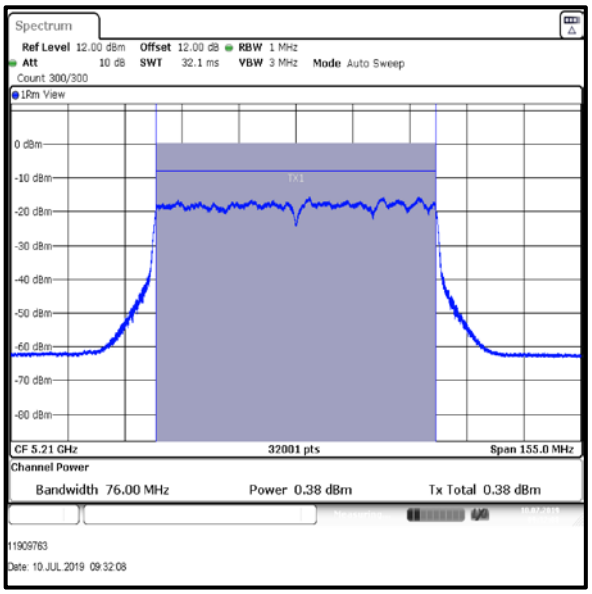
Result: Pass

Transmitter Maximum Conducted Output Power (continued)

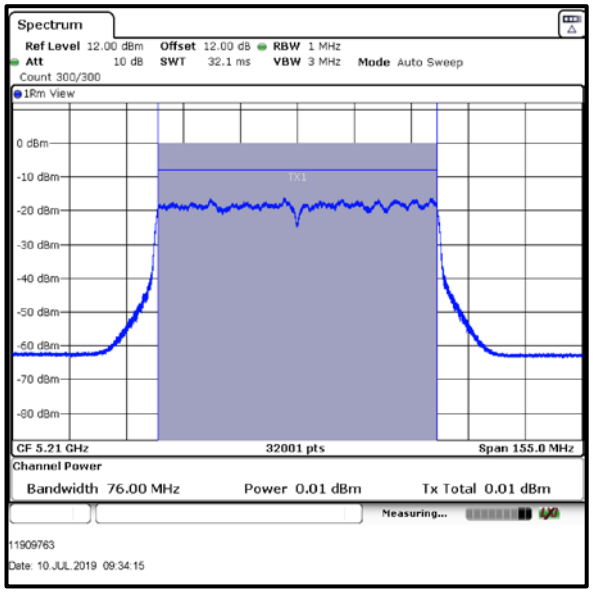
Results: 802.11ac / HT80 / MCS0 / MIMO / Port 1+2+3 / PWL 8 / 23 dBi Antenna Group



Single Channel Port 1



Single Channel Port 2



Single Channel Port 3

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11a / 20 MHz / 6Mbps / MIMO / Port 1+2+3+4 / PWL 7 / 23 dBi Antenna Group

Channel	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	0.5	0.3	0.8	0.4	0.3	0.7
Middle	0.5	0.3	0.8	0.4	0.3	0.7
Top	0.5	0.3	0.8	0.3	0.3	0.6

Channel	Port 3			Port 4		
	Conducted Power (dBm)	Duty Cycle Correction (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle Correction (dB)	Corrected Conducted Power (dBm)
Bottom	0.2	0.3	0.5	0.6	0.3	0.9
Middle	-0.1	0.3	0.2	0.5	0.3	0.8
Top	-0.2	0.3	0.1	0.3	0.3	0.6

Channel	Corrected Conducted Power Port 1 (dBm)	Corrected Conducted Power Port 2 (dBm)	Corrected Conducted Power Port 3 (dBm)	Corrected Conducted Power Port 4 (dBm)	Port 1+2+3+4 Combined Conducted Power (dBm)	Conducted Power Limit (dBm)	Margin (dB)	Result
Bottom	0.8	0.7	0.5	0.9	6.7	15.8	9.1	Complied
Middle	0.8	0.7	0.2	0.8	6.7	15.8	9.1	Complied
Top	0.8	0.6	0.1	0.6	6.6	15.8	9.2	Complied

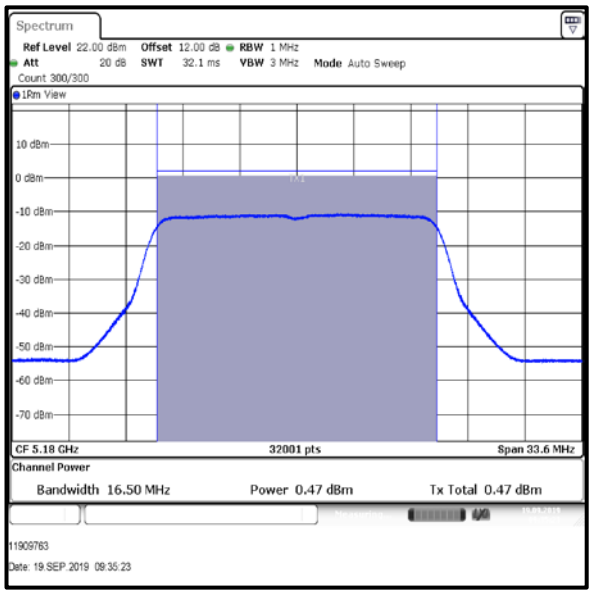
De Facto EIRP Limit Comparison

Channel	Port 1+2+3+4 Combined Conducted Power (dBm)	Directional Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	6.7	14.2	20.9	30.0	9.1	Complied
Middle	6.7	14.2	20.9	30.0	9.1	Complied
Top	6.6	14.2	20.8	30.0	9.2	Complied

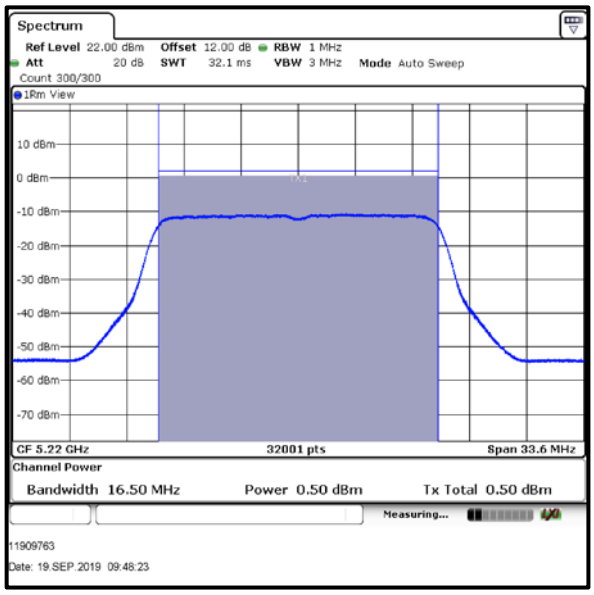
Result: Pass

Transmitter Maximum Conducted Output Power (continued)

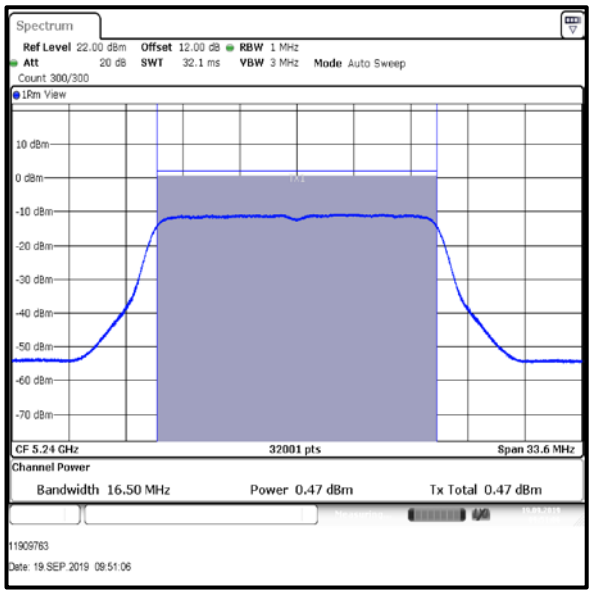
Results: 802.11a / 20 MHz / 6Mbps / MIMO / Port 1 / PWL 7 / 23 dBi Antenna Group



Bottom Channel



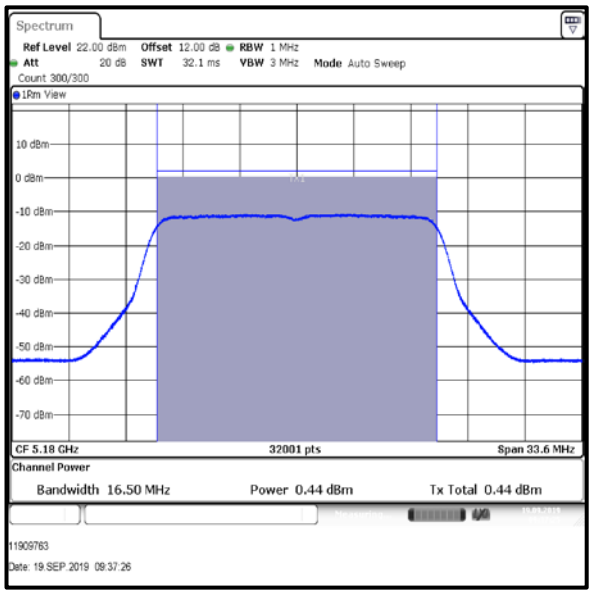
Middle Channel



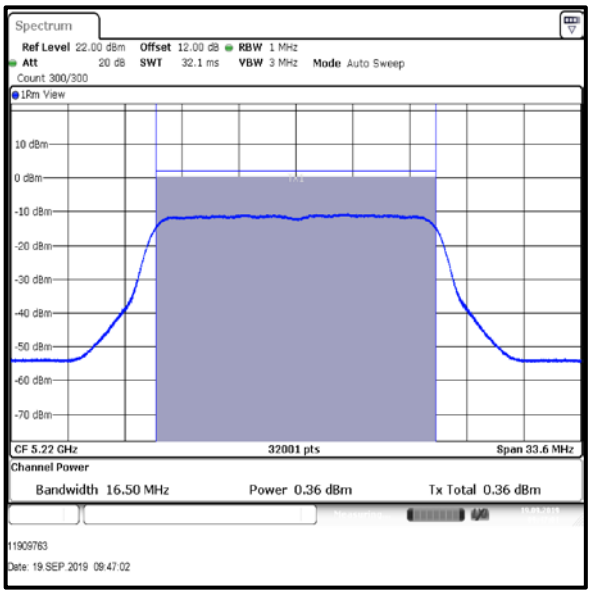
Top Channel

Transmitter Maximum Conducted Output Power (continued)

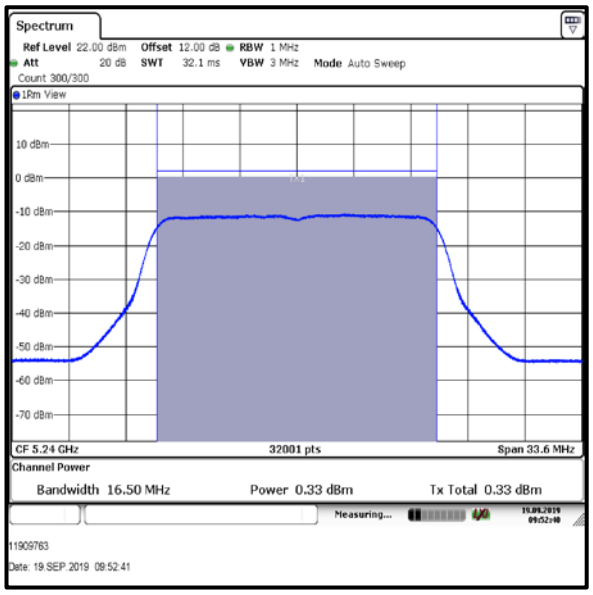
Results: 802.11a / 20 MHz / 6Mbps / MIMO / Port 2 / PWL 7 / 23 dBi Antenna Group



Bottom Channel



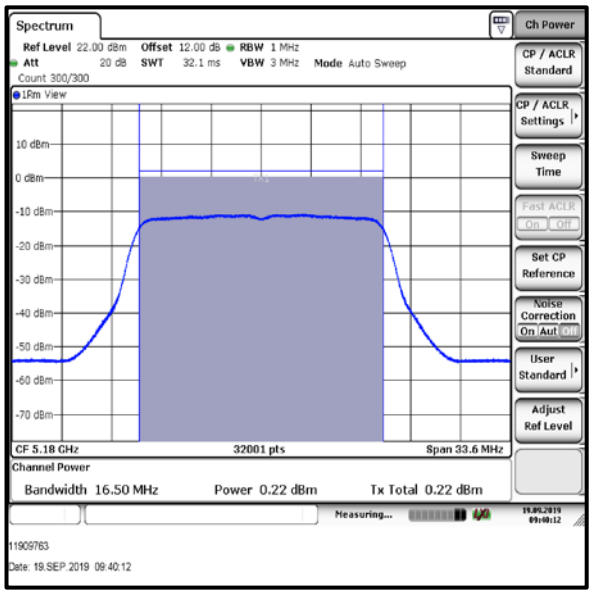
Middle Channel



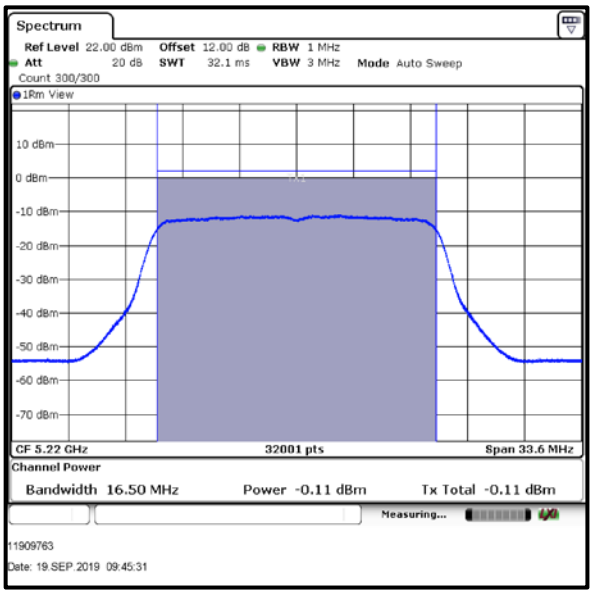
Top Channel

Transmitter Maximum Conducted Output Power (continued)

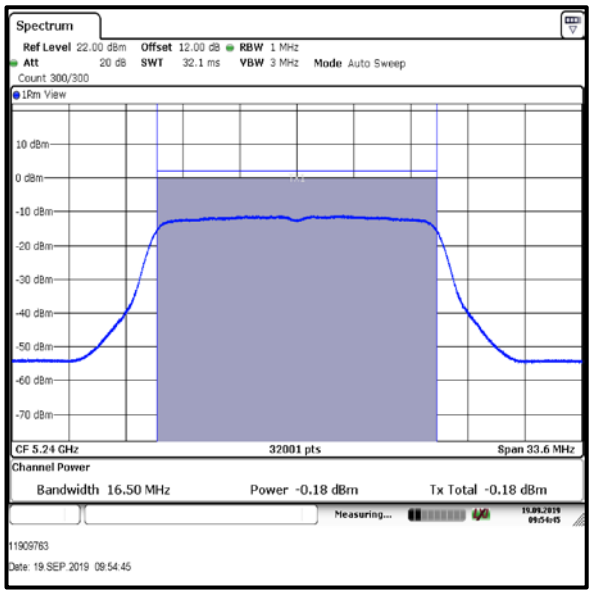
Results: 802.11a / 20 MHz / 6Mbps / MIMO / Port 3 / PWL 7 / 23 dBi Antenna Group



Bottom Channel



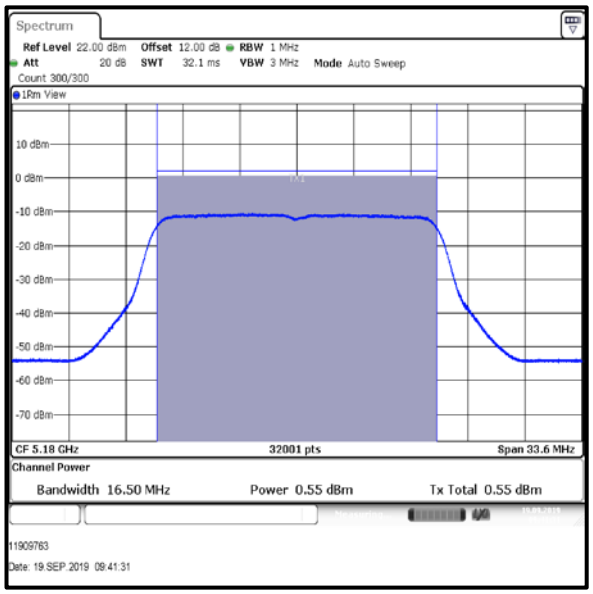
Middle Channel



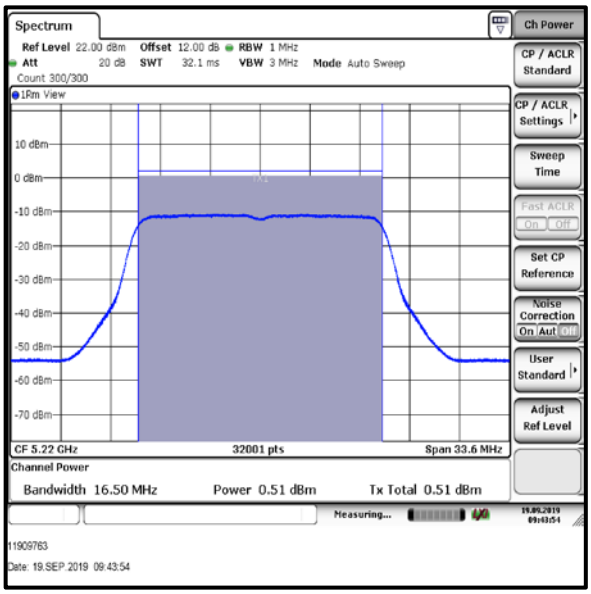
Top Channel

Transmitter Maximum Conducted Output Power (continued)

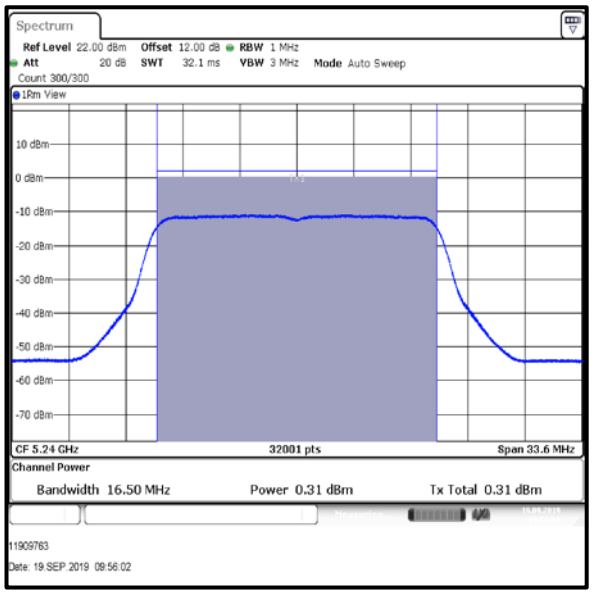
Results: 802.11a / 20 MHz / 6Mbps / MIMO / Port 4 / PWL 7 / 23 dBi Antenna Group



Bottom Channel



Middle Channel



Top Channel

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11n / 20 MHz / MCS0 / MIMO / Port 1+2+3+4 / PWL 7 / 23 dBi Antenna Group

Channel	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	0.2	0.5	0.7	0.1	0.5	0.6
Middle	0.2	0.5	0.7	0.1	0.5	0.6
Top	0.2	0.5	0.7	0.1	0.5	0.6

Channel	Port 3			Port 4		
	Conducted Power (dBm)	Duty Cycle Correction (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle Correction (dB)	Corrected Conducted Power (dBm)
Bottom	-0.2	0.5	0.3	0.4	0.5	0.9
Middle	-0.4	0.5	0.1	0.2	0.5	0.7
Top	-0.4	0.5	0.1	0.1	0.5	0.6

Channel	Corrected Conducted Power Port 1 (dBm)	Corrected Conducted Power Port 2 (dBm)	Corrected Conducted Power Port 3 (dBm)	Corrected Conducted Power Port 4 (dBm)	Port 1+2+3+4 Combined Conducted Power (dBm)	Conducted Power Limit (dBm)	Margin (dB)	Result
Bottom	0.7	0.6	0.3	0.9	6.7	15.8	9.1	Complied
Middle	0.7	0.6	0.1	0.7	6.6	15.8	9.2	Complied
Top	0.7	0.6	0.1	0.6	6.5	15.8	9.3	Complied

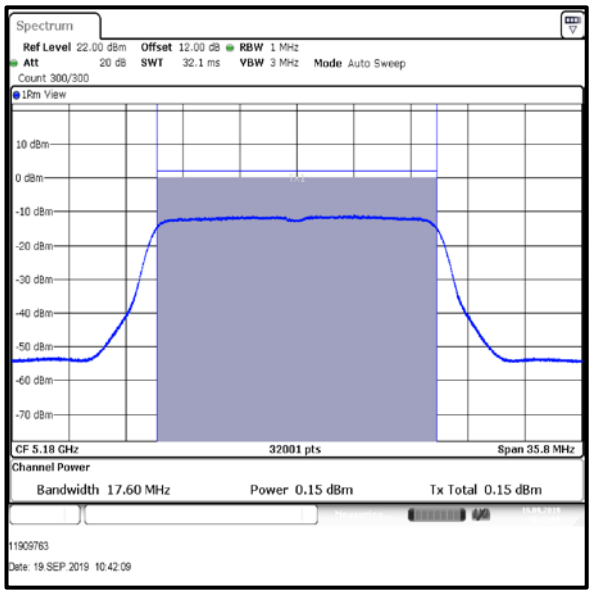
De Facto EIRP Limit Comparison

Channel	Port 1+2+3+4 Combined Conducted Power (dBm)	Directional Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	6.7	14.2	20.9	30.0	9.1	Complied
Middle	6.6	14.2	20.8	30.0	9.2	Complied
Top	6.5	14.2	20.7	30.0	9.3	Complied

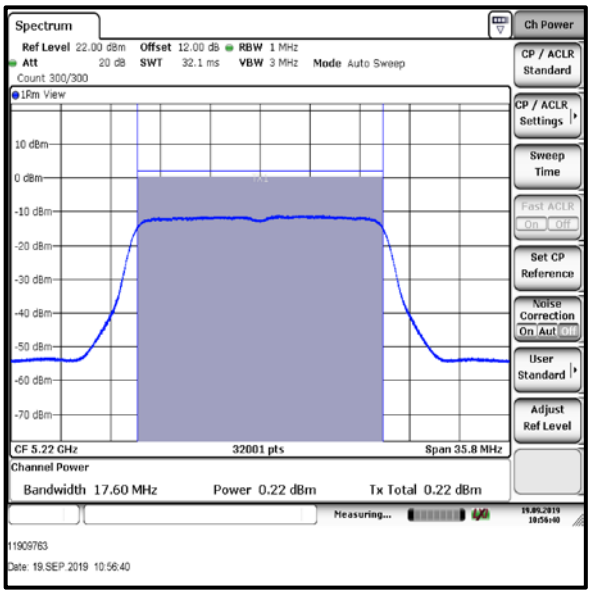
Result: Pass

Transmitter Maximum Conducted Output Power (continued)

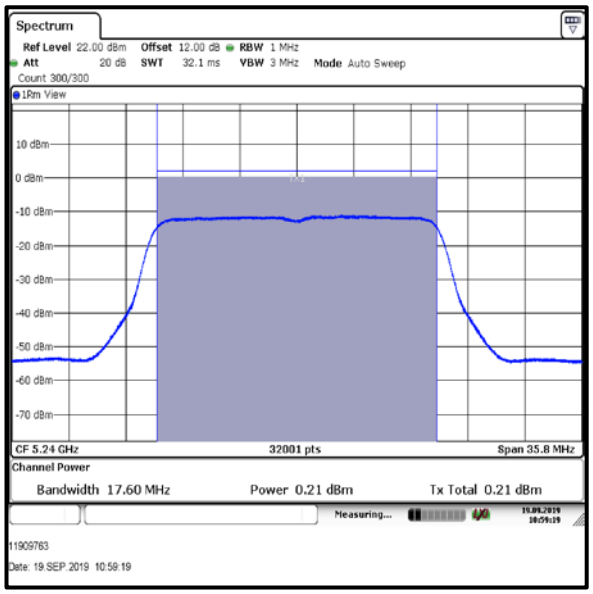
Results: 802.11n / 20 MHz / MCS0 / MIMO / Port 1 / PWL 7 / 23 dBi Antenna Group



Bottom Channel



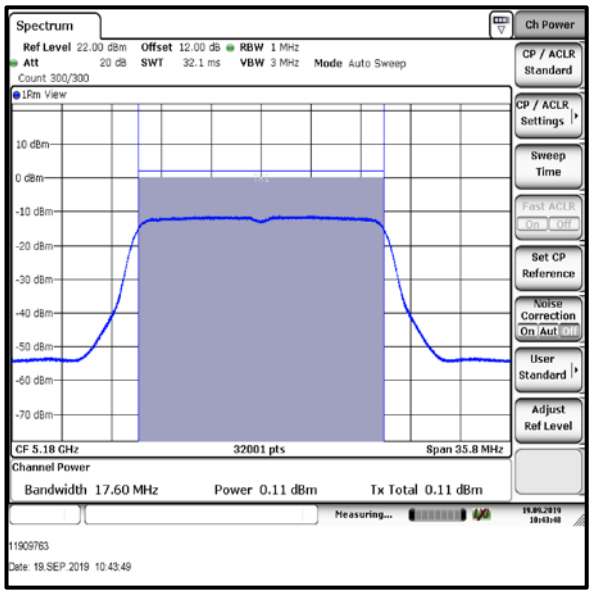
Middle Channel



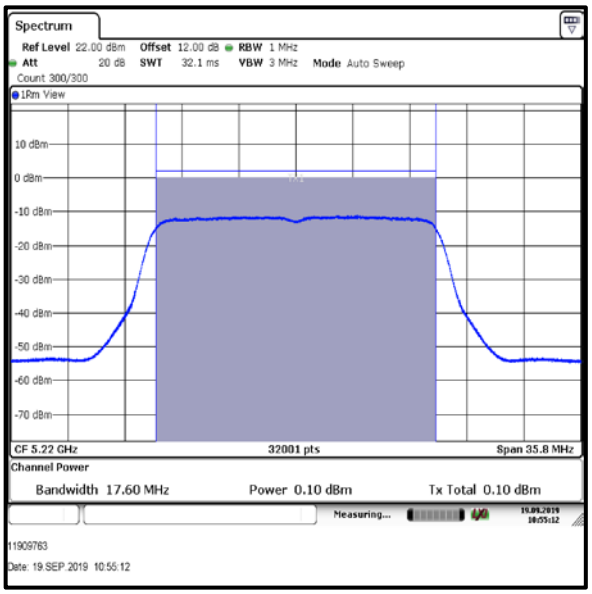
Top Channel

Transmitter Maximum Conducted Output Power (continued)

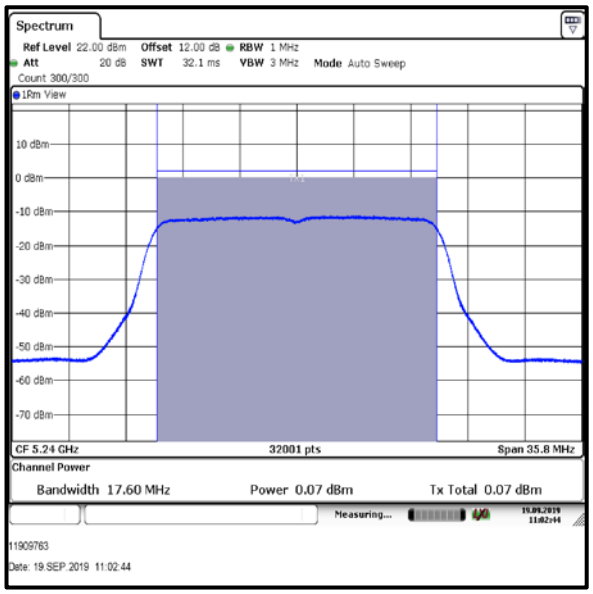
Results: 802.11n / 20 MHz / MCS0 / MIMO / Port 2 / PWL 7 / 23 dBi Antenna Group



Bottom Channel



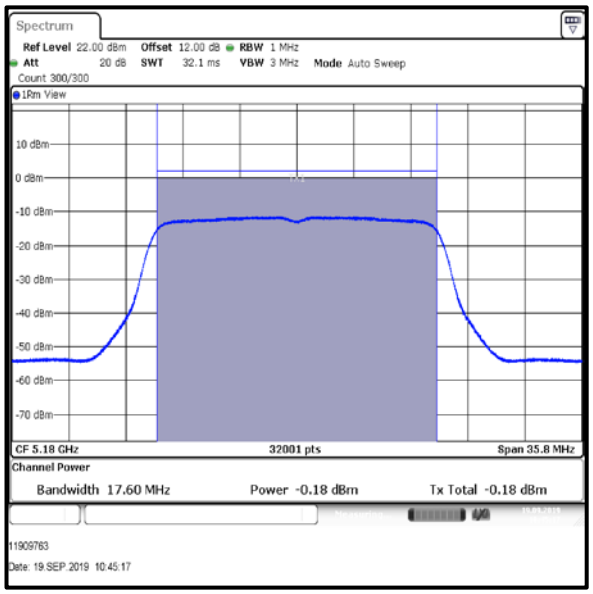
Middle Channel



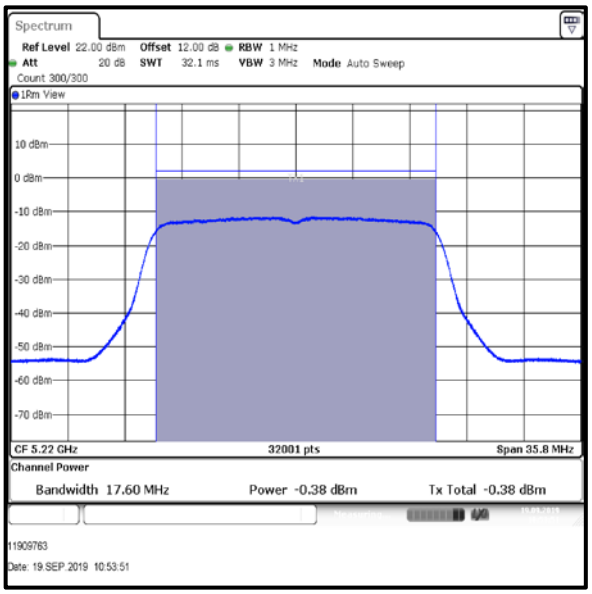
Top Channel

Transmitter Maximum Conducted Output Power (continued)

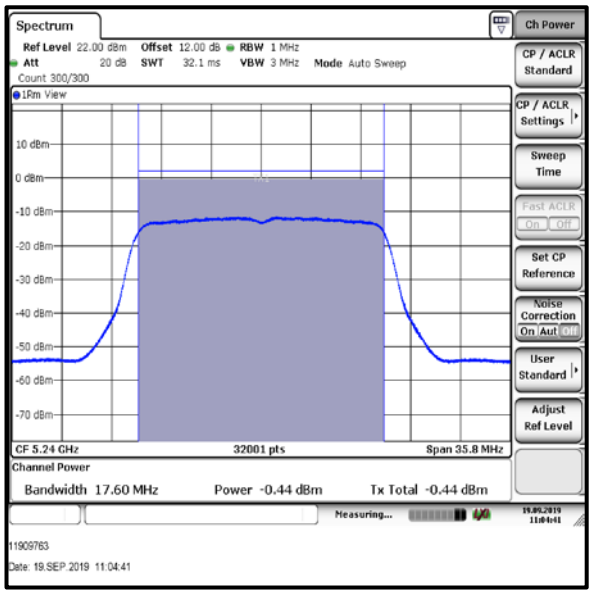
Results: 802.11n / 20 MHz / MCS0 / MIMO / Port 3 / PWL 7 / 23 dBi Antenna Group



Bottom Channel



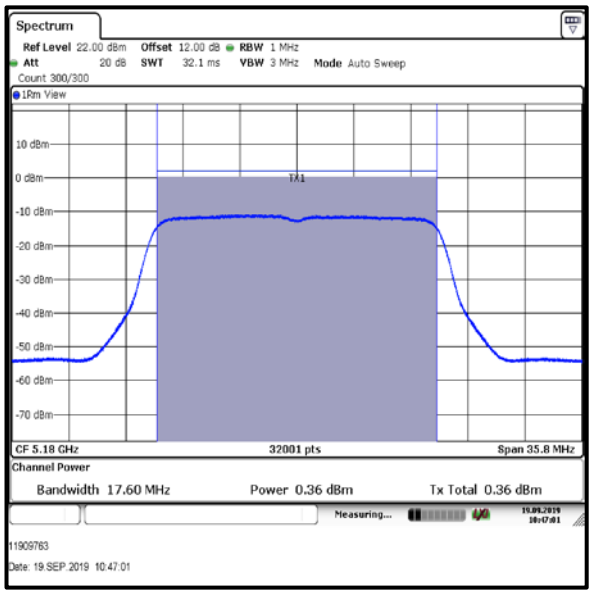
Middle Channel



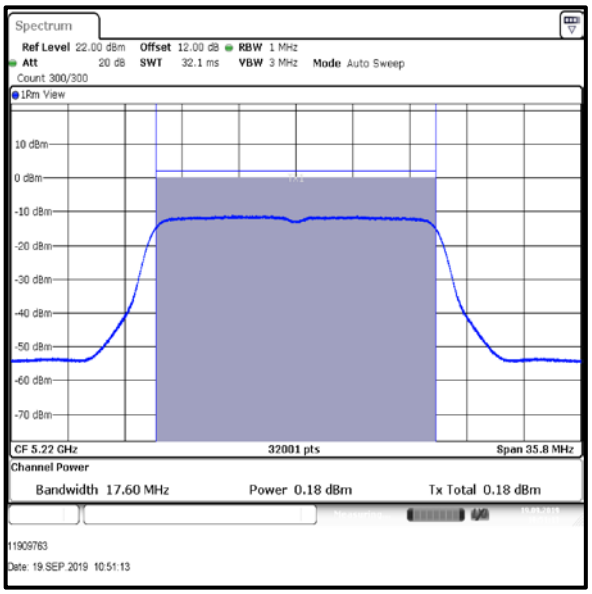
Top Channel

Transmitter Maximum Conducted Output Power (continued)

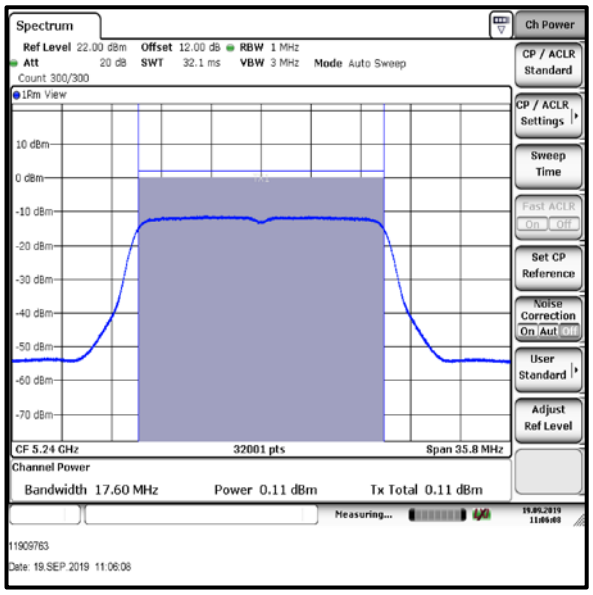
Results: 802.11n / 20 MHz / MCS0 / MIMO / Port 4 / PWL 7 / 23 dBi Antenna Group



Bottom Channel



Middle Channel



Top Channel

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11ac / 20 MHz / MCS0 / MIMO / Port 1+2+3+4 / PWL 7 / 23 dBi Antenna Group

Channel	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	0.5	0.4	0.9	0.3	0.4	0.7
Middle	0.5	0.4	0.9	0.3	0.4	0.7
Top	0.5	0.4	0.9	0.3	0.4	0.7

Channel	Port 3			Port 4		
	Conducted Power (dBm)	Duty Cycle Correction (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle Correction (dB)	Corrected Conducted Power (dBm)
Bottom	-0.1	0.4	0.3	0.4	0.4	0.8
Middle	-0.4	0.4	0.0	0.2	0.4	0.6
Top	-0.5	0.4	-0.1	0.1	0.4	0.5

Channel	Corrected Conducted Power Port 1 (dBm)	Corrected Conducted Power Port 2 (dBm)	Corrected Conducted Power Port 3 (dBm)	Corrected Conducted Power Port 4 (dBm)	Port 1+2+3+4 Combined Conducted Power (dBm)	Conducted Power Limit (dBm)	Margin (dB)	Result
Bottom	0.9	0.7	0.3	0.8	6.7	15.8	9.1	Complied
Middle	0.9	0.7	0.0	0.6	6.6	15.8	9.2	Complied
Top	0.9	0.7	-0.1	0.5	6.5	15.8	9.3	Complied

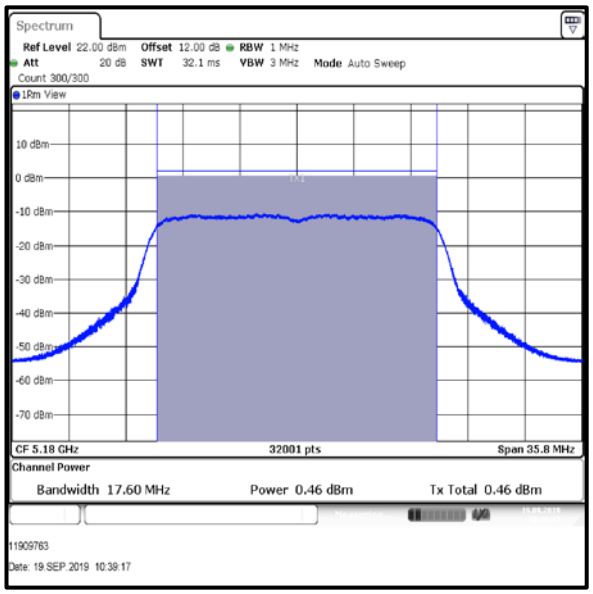
De Facto EIRP Limit Comparison

Channel	Port 1+2+3+4 Combined Conducted Power (dBm)	Directional Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	6.7	14.2	20.9	30.0	9.1	Complied
Middle	6.6	14.2	20.8	30.0	9.1	Complied
Top	6.5	14.2	20.7	30.0	9.3	Complied

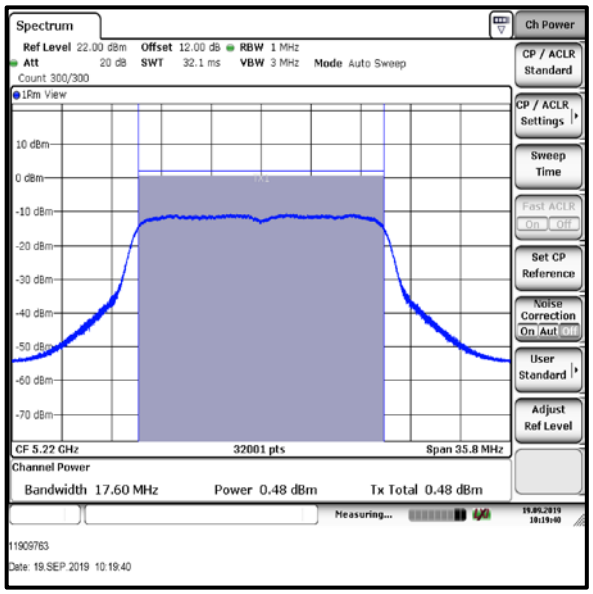
Result: Pass

Transmitter Maximum Conducted Output Power (continued)

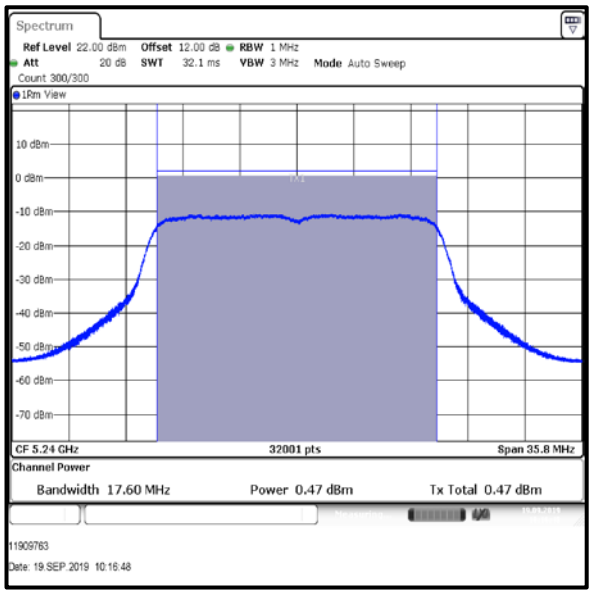
Results: 802.11ac / 20 MHz / MCS0 / MIMO / Port 1 / PWL 7 / 23 dBi Antenna Group



Bottom Channel



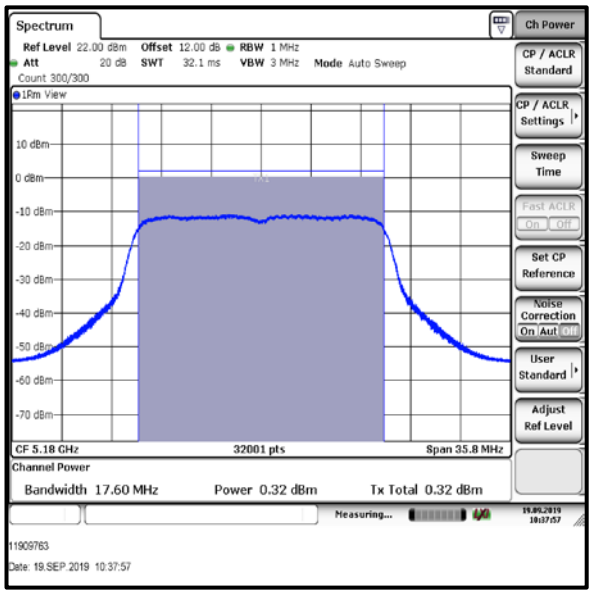
Middle Channel



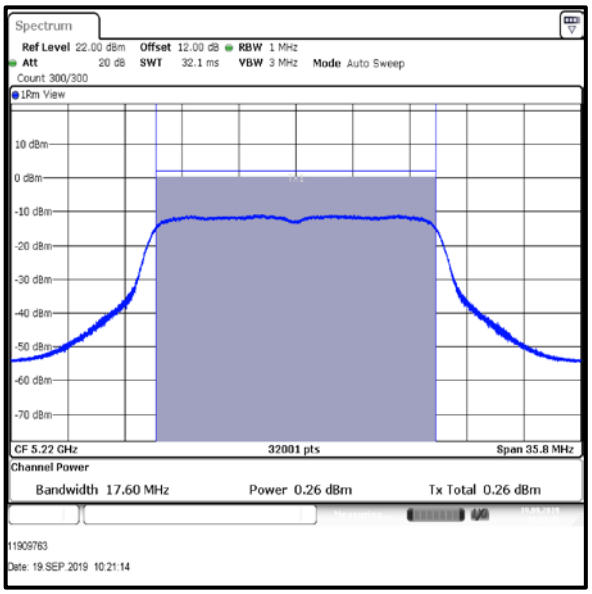
Top Channel

Transmitter Maximum Conducted Output Power (continued)

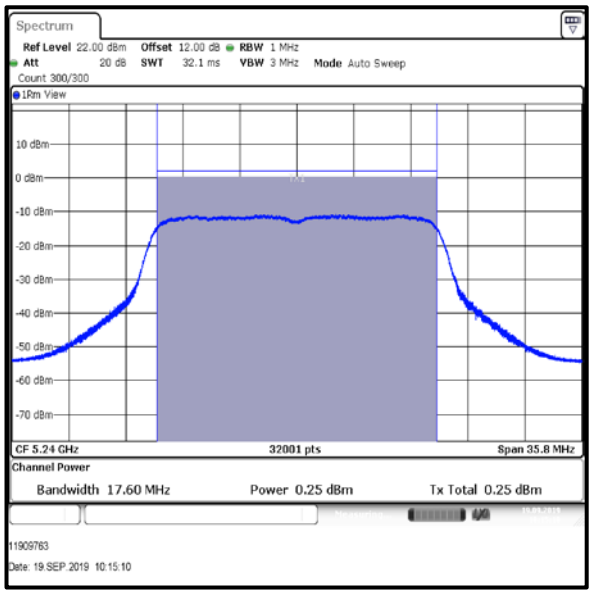
Results: 802.11ac / 20 MHz / MCS0 / MIMO / Port 2 / PWL 7 / 23 dBi Antenna Group



Bottom Channel



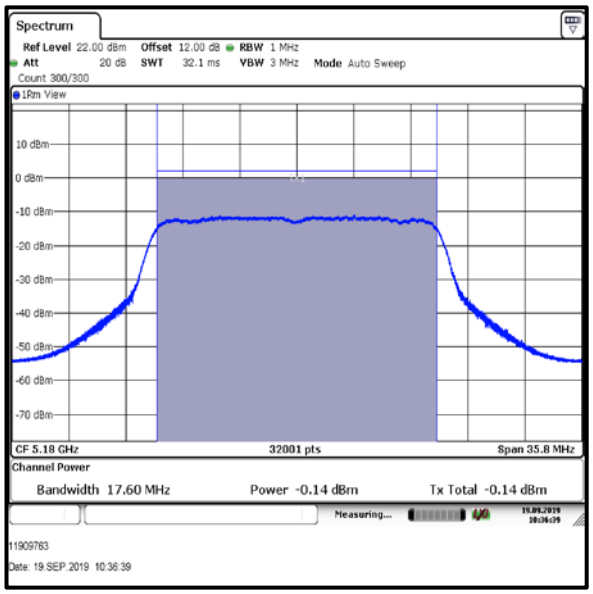
Middle Channel



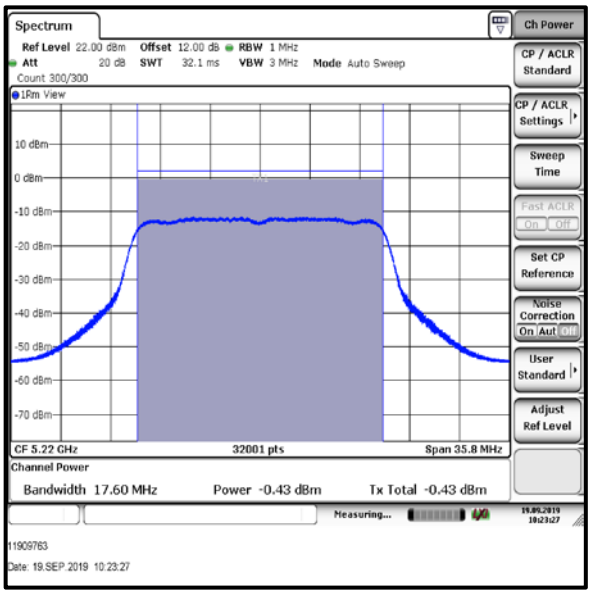
Top Channel

Transmitter Maximum Conducted Output Power (continued)

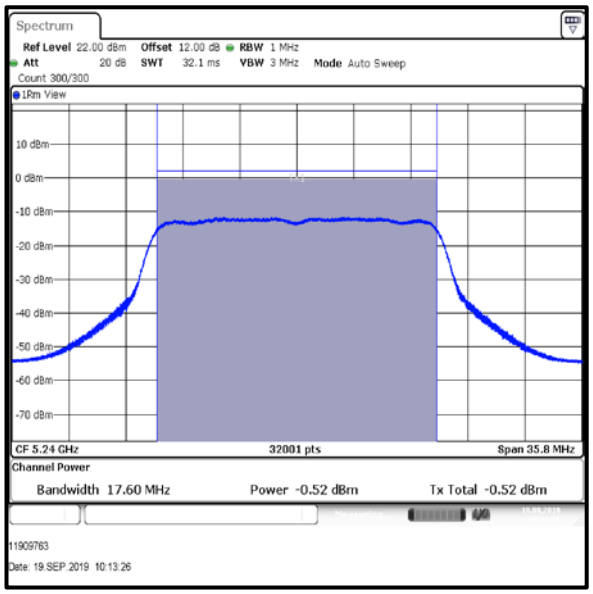
Results: 802.11ac / 20 MHz / MCS0 / MIMO / Port 3 / PWL 7 / 23 dBi Antenna Group



Bottom Channel



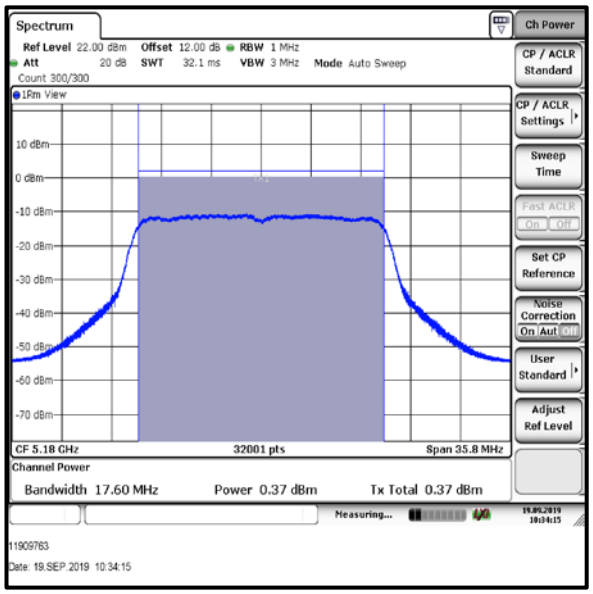
Middle Channel



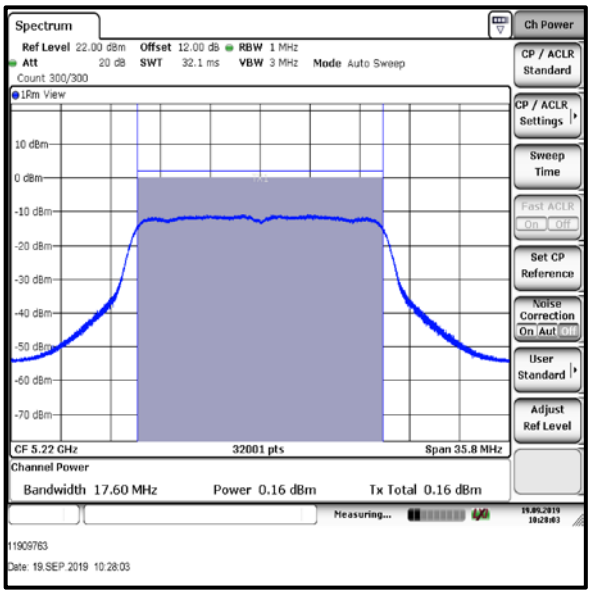
Top Channel

Transmitter Maximum Conducted Output Power (continued)

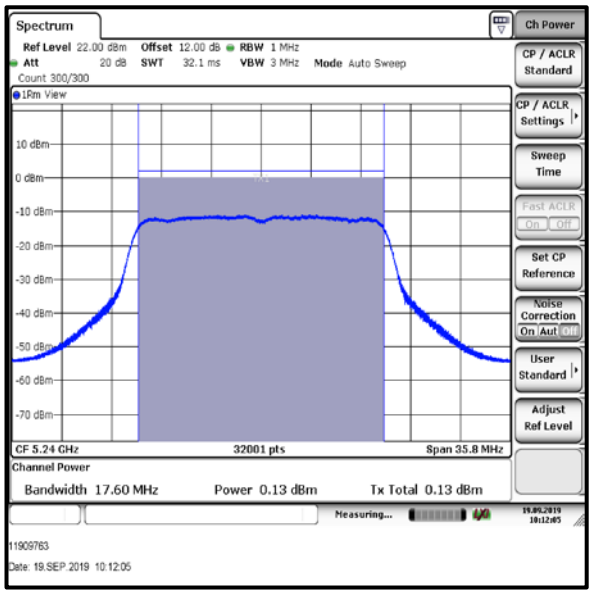
Results: 802.11ac / 20 MHz / MCS0 / MIMO / Port 4 / PWL 7 / 23 dBi Antenna Group



Bottom Channel



Middle Channel



Top Channel

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11n / HT40 / MCS0 / MIMO / Port 1+2+3+4 / PWL 9 / 23 dBi Antenna Group

Channel	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	2.0	0.4	2.4	2.1	0.4	2.5
Top	1.8	0.4	2.2	1.7	0.4	2.1

Channel	Port 3			Port 4		
	Conducted Power (dBm)	Duty Cycle Correction (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle Correction (dB)	Corrected Conducted Power (dBm)
Bottom	1.4	0.4	1.8	1.8	0.4	2.2
Top	1.1	0.4	1.5	1.6	0.4	2.0

Channel	Corrected Conducted Power Port 1 (dBm)	Corrected Conducted Power Port 2 (dBm)	Corrected Conducted Power Port 3 (dBm)	Corrected Conducted Power Port 4 (dBm)	Port 1+2+3+4 Combined Conducted Power (dBm)	Conducted Power Limit (dBm)	Margin (dB)	Result
Bottom	2.4	2.5	1.8	2.2	8.3	15.8	7.5	Complied
Top	2.2	2.1	1.5	2.0	8.0	15.8	7.8	Complied

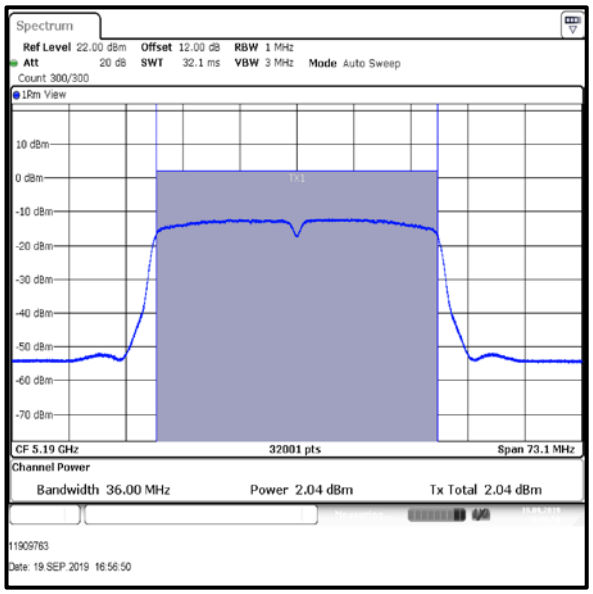
De Facto EIRP Limit Comparison

Channel	Port 1+2+3+4 Combined Conducted Power (dBm)	Directional Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	8.3	14.2	22.5	30.0	7.5	Complied
Top	8.0	14.2	22.2	30.0	7.8	Complied

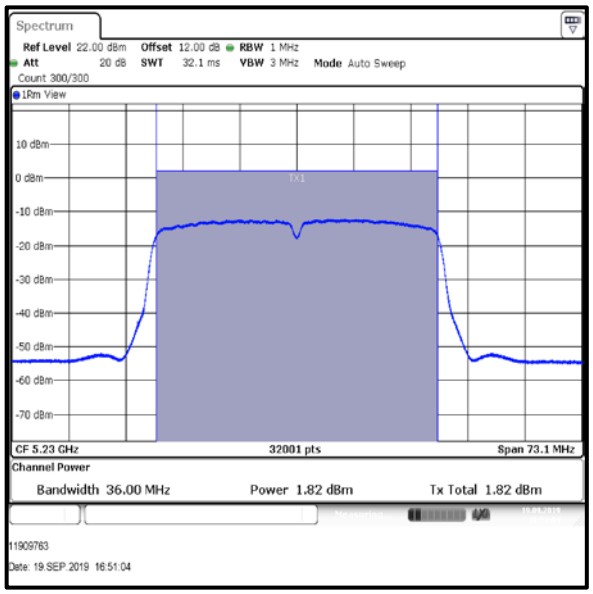
Result: Pass

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11n / HT40 / MCS0 / MIMO / Port 1 / PWL 9 / 23 dBi Antenna Group

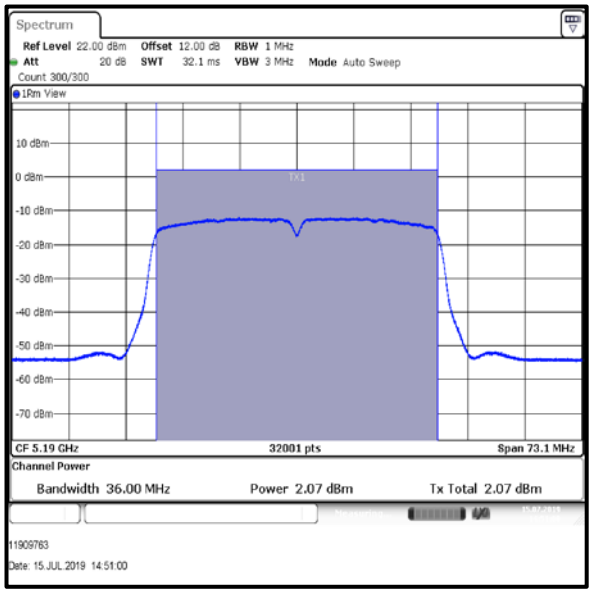


Bottom Channel

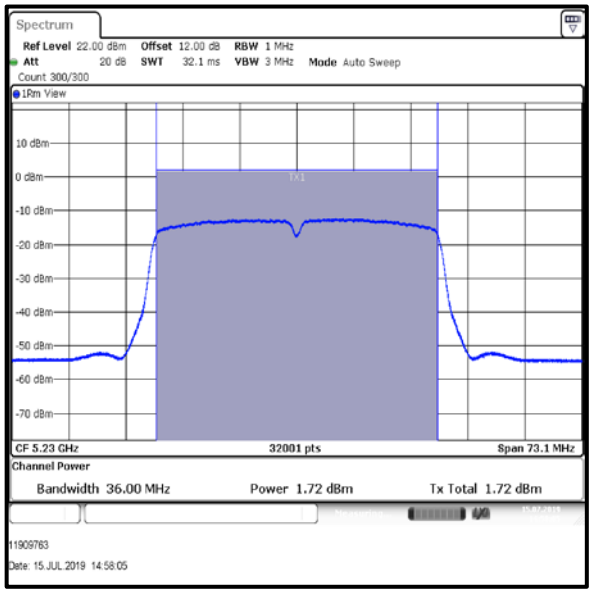


Top Channel

Results: 802.11n / HT40 / MCS0 / MIMO / Port 2 / PWL 9 / 23 dBi Antenna Group



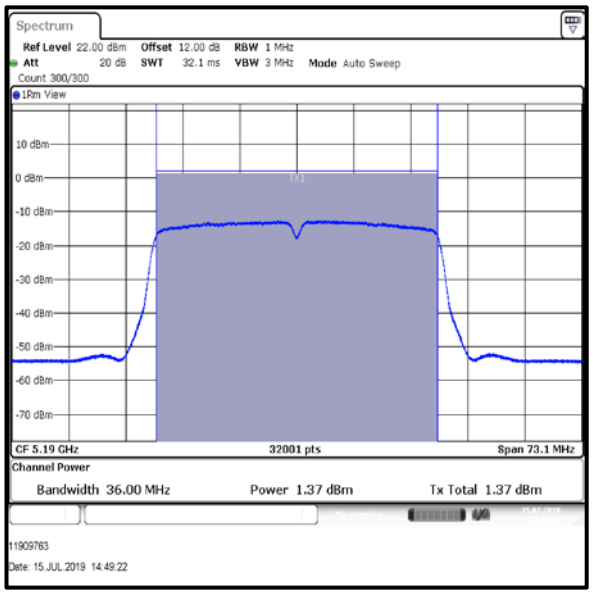
Bottom Channel



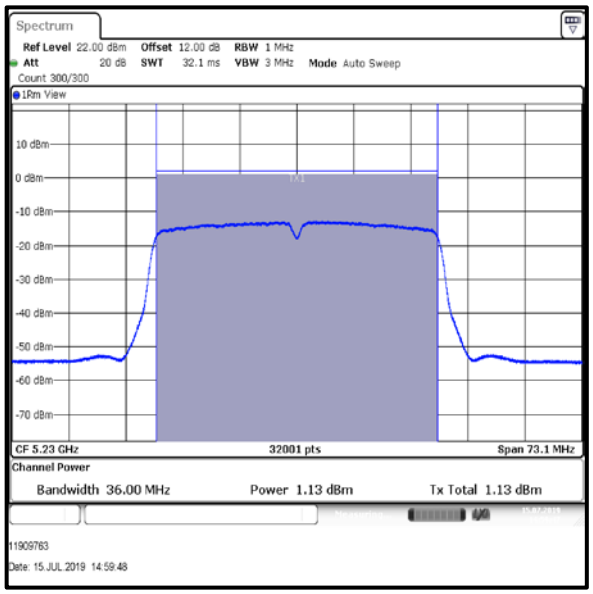
Top Channel

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11n / HT40 / MCS0 / MIMO / Port 3 / PWL 9 / 23 dBi Antenna Group

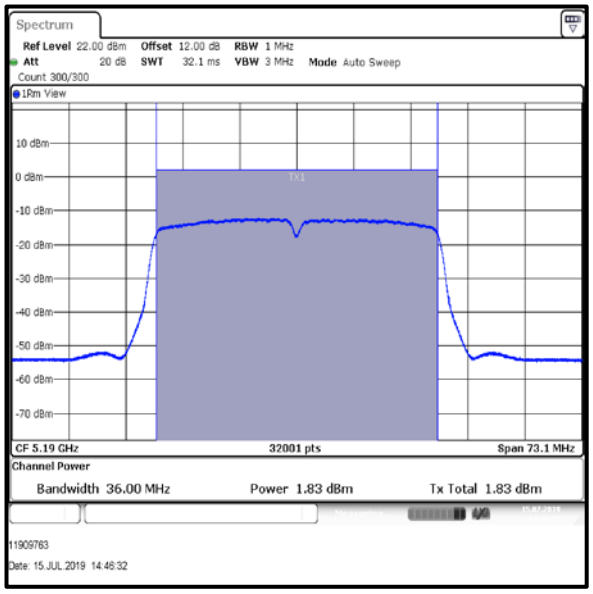


Bottom Channel

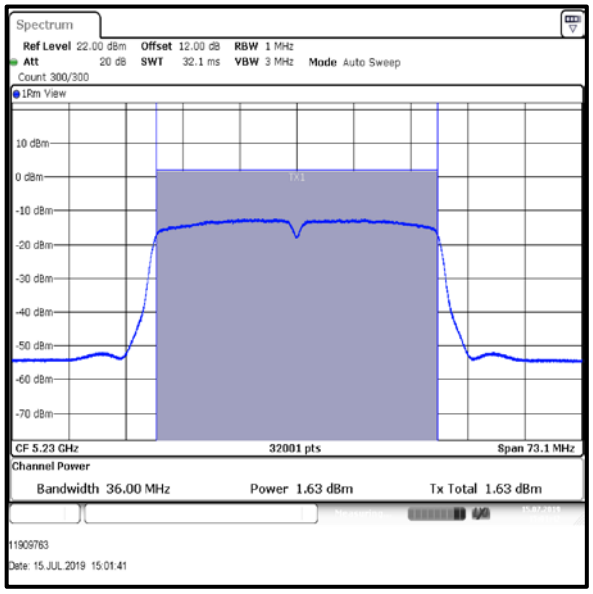


Top Channel

Results: 802.11n / HT40 / MCS0 / MIMO / Port 4 / PWL 9 / 23 dBi Antenna Group



Bottom Channel



Top Channel

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11ac / HT40 / MCS0 / MIMO / Port 1+2+3 / PWL 9 / 23 dBi Antenna Group

Channel	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	0.7	0.4	1.1	0.7	0.4	1.1
Top	0.5	0.4	0.9	0.4	0.4	0.8

Channel	Port 3			Port 4		
	Conducted Power (dBm)	Duty Cycle Correction (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle Correction (dB)	Corrected Conducted Power (dBm)
Bottom	-0.2	0.4	0.2	0.4	0.4	0.8
Top	-0.2	0.4	0.2	0.2	0.4	0.6

Channel	Corrected Conducted Power Port 1 (dBm)	Corrected Conducted Power Port 2 (dBm)	Corrected Conducted Power Port 3 (dBm)	Corrected Conducted Power Port 4 (dBm)	Port 1+2+3+4 Combined Conducted Power (dBm)	Conducted Power Limit (dBm)	Margin (dB)	Result
Bottom	1.1	1.1	0.2	0.8	6.8	15.8	9	Complied
Top	0.9	0.8	0.2	0.6	6.7	15.8	9.1	Complied

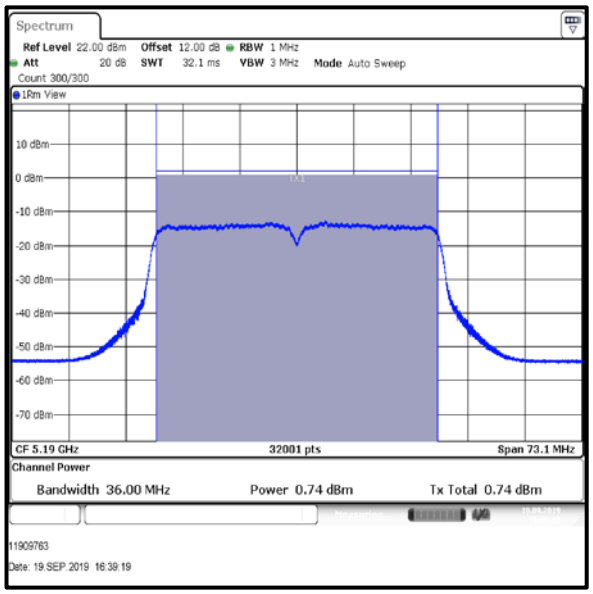
De Facto EIRP Limit Comparison

Channel	Port 1+2+3+4 Combined Conducted Power (dBm)	Directional Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	6.8	14.2	21.0	30.0	9.0	Complied
Top	6.7	14.2	20.9	30.0	9.1	Complied

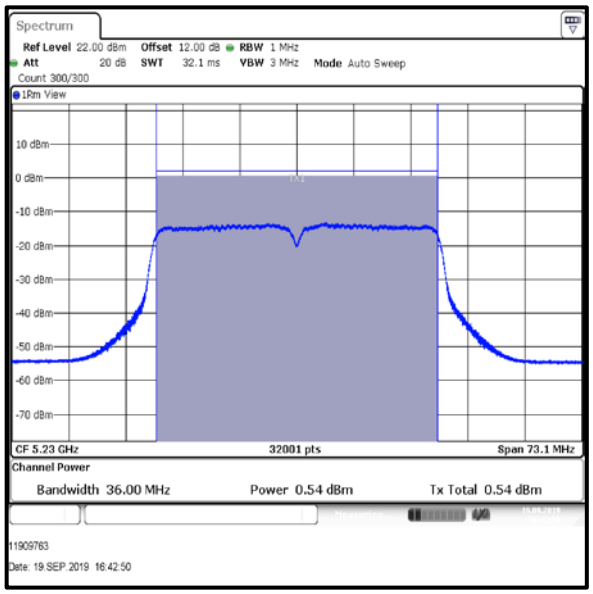
Result: Pass

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11ac / HT40 / MCS0 / MIMO / Port 1 / PWL 9 / 23 dBi Antenna Group

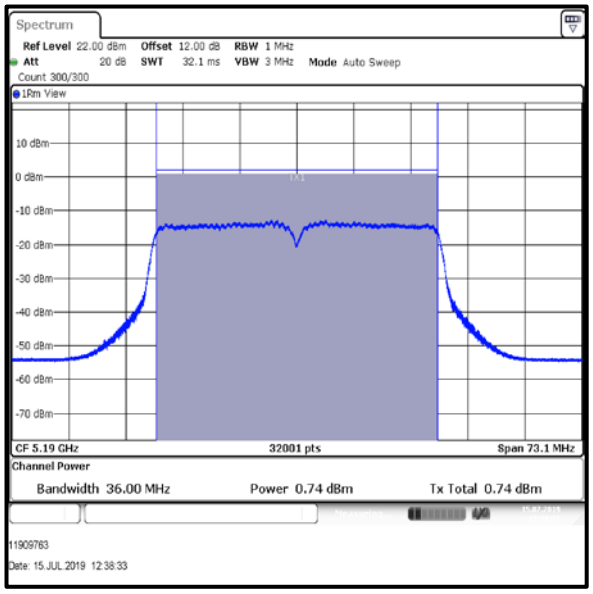


Bottom Channel

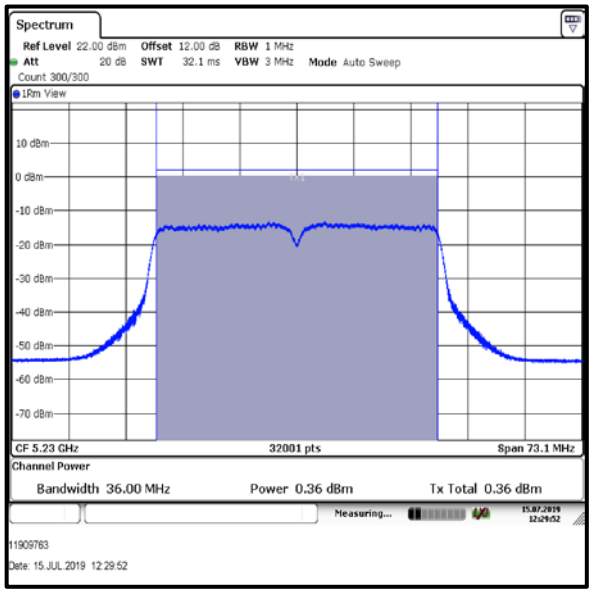


Top Channel

Results: 802.11ac / HT40 / MCS0 / MIMO / Port 2 / PWL 9 / 23 dBi Antenna Group



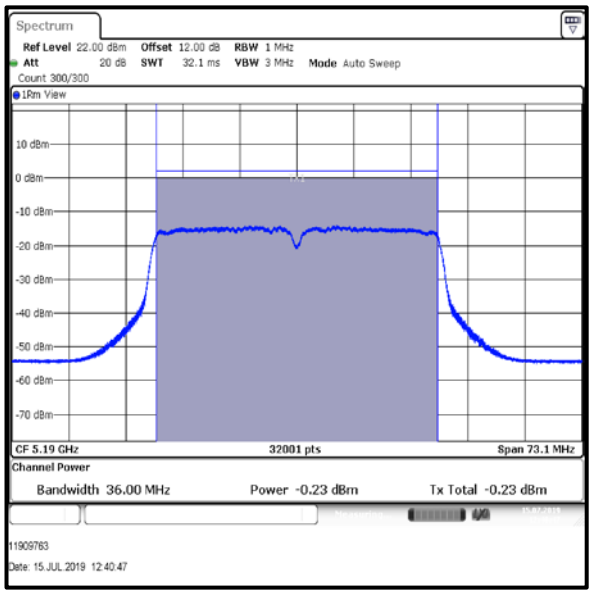
Bottom Channel



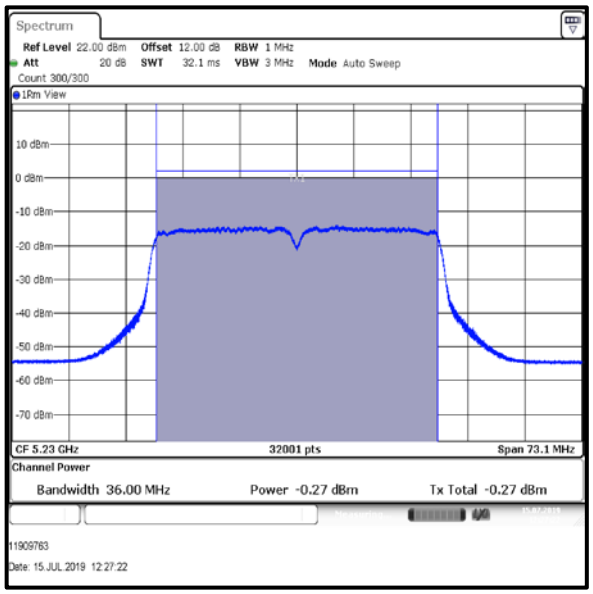
Top Channel

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11ac / HT40 / MCS0 / MIMO / Port 3 / PWL 9 / 23 dBi Antenna Group

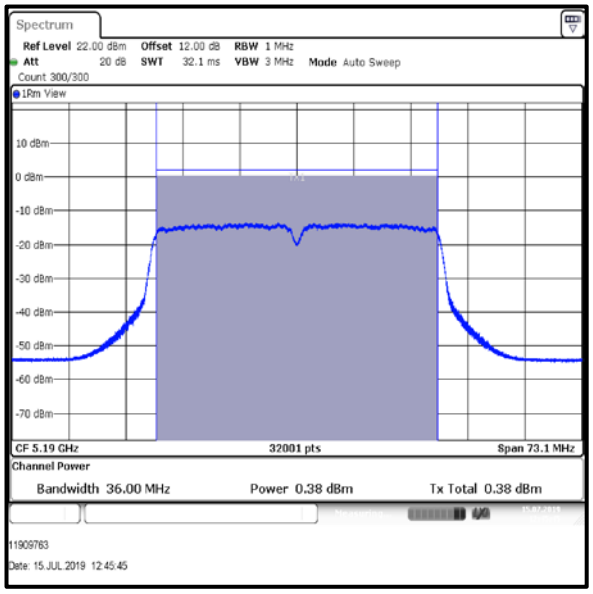


Bottom Channel

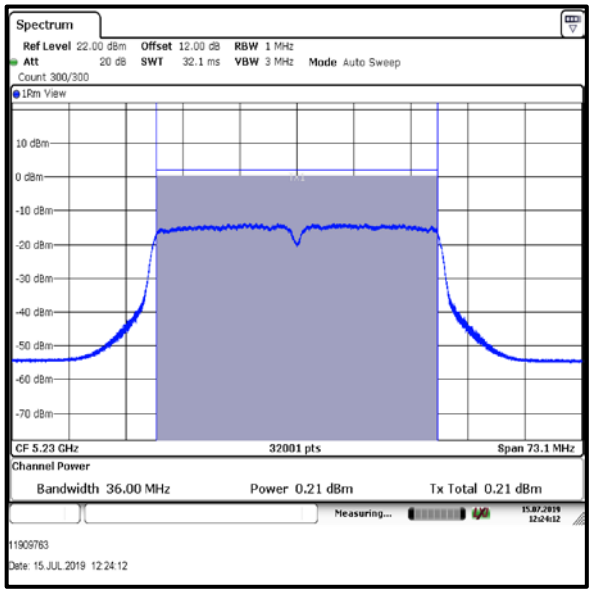


Top Channel

Results: 802.11ac / HT40 / MCS0 / MIMO / Port 4 / PWL 9 / 23 dBi Antenna Group



Bottom Channel



Top Channel

Transmitter Maximum Conducted Output Power (continued)

Results: 802.11ac / HT80 / MCS0 / MIMO / Port 1+2+3+4 / PWL 9 / 23 dBi Antenna Group

Channel	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	0.0	0.5	0.5	0.0	0.5	0.5

Channel	Port 3			Port 4		
	Conducted Power (dBm)	Duty Cycle Correction (dB)	Corrected Conducted Power (dBm)	Conducted Power (dBm)	Duty Cycle Correction (dB)	Corrected Conducted Power (dBm)
Single	-0.7	0.5	-0.2	-0.3	0.5	0.2

Channel	Corrected Conducted Power Port 1 (dBm)	Corrected Conducted Power Port 2 (dBm)	Corrected Conducted Power Port 3 (dBm)	Corrected Conducted Power Port 4 (dBm)	Port 1+2+3+4 Combined Conducted Power (dBm)	Conducted Power Limit (dBm)	Margin (dB)	Result
Single	0.5	0.5	-0.2	0.2	6.3	15.8	9.5	Complied

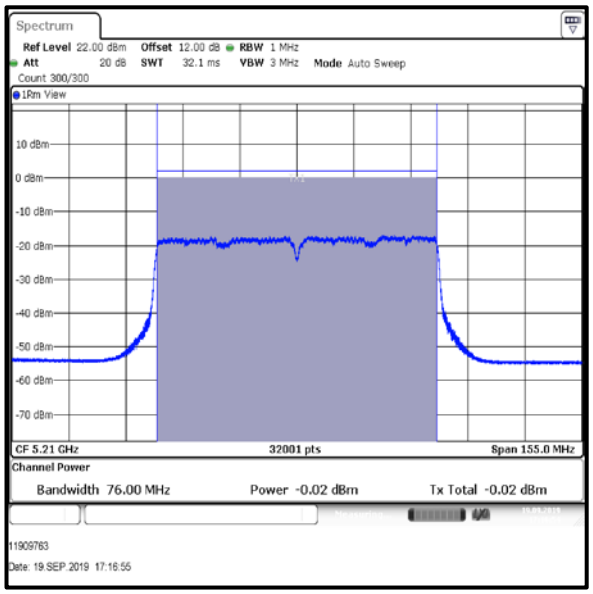
De Facto EIRP Limit Comparison

Channel	Port 1+2+3+4 Combined Conducted Power (dBm)	Directional Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Single	6.3	14.2	20.5	30.0	9.5	Complied

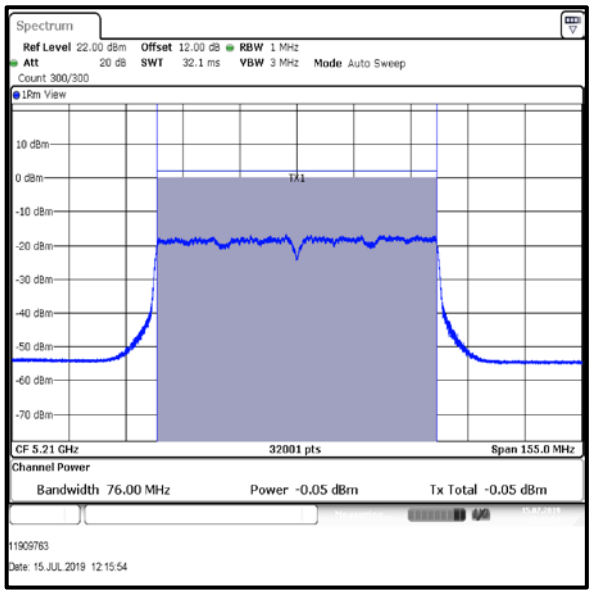
Result: Pass

Transmitter Maximum Conducted Output Power (continued)

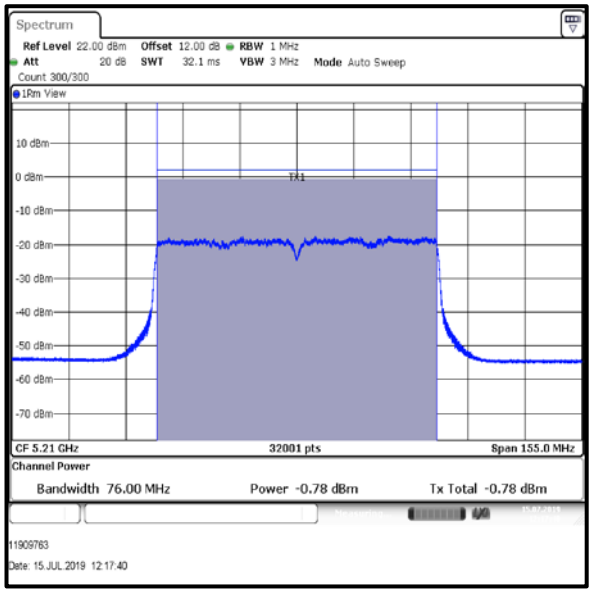
Results: 802.11ac / HT80 / MCS0 / MIMO / Port 1+2+3+4 / PWL 9 / 23 dBi Antenna Group



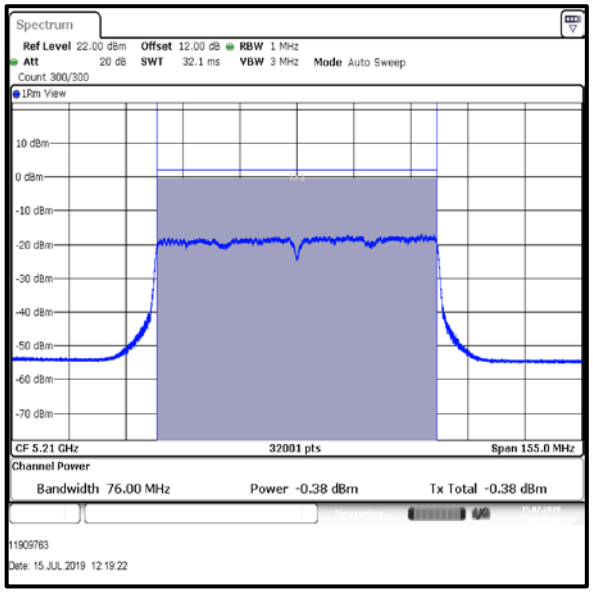
Single Channel Port 1



Single Channel Port 2



Single Channel Port 3



Single Channel Port 4

5.2.5. Transmitter Maximum Power Spectral Density

Test Summary:

Test Engineer:	Abdoufataou Salifou	**Test Date:**	27 February 2019 to 20 September 2019
Test Sample Serial Number:	192.168.0.60		
Test Site Identification	SR 9		

FCC Reference:	Part 15.407(a)(1)(iv)
Test Method Used:	KDB 789033 D02 Section II.F. referencing II.E.2.d) KDB 662911 D01 Section E) 2) a)

Environmental Conditions:

Temperature (°C):	20 to 27
Relative Humidity (%):	23 to 36

Notes:

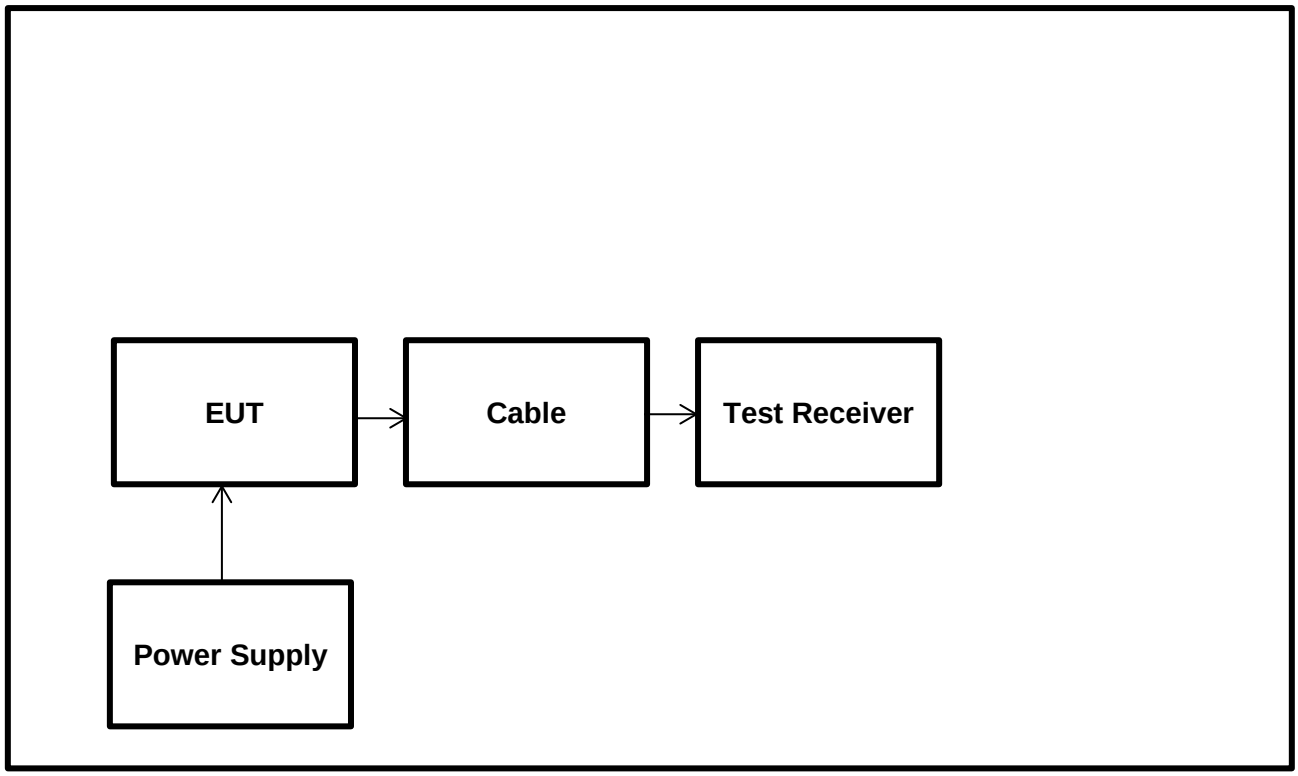
1. Transmitter Maximum Power Spectral Density tests in all bands were performed using a test receiver in accordance with KDB 789033 II. F referencing II.E.2.d)
2. Method SA-2 : The signal analyser's integration function was used to integrate across the 99% emission bandwidth. The resolution bandwidth was set to 1 MHz and video bandwidth 3 MHz. An RMS detector was used and sweep time was set to auto and 300 traces performed. The span was set to encompass the entire 99% occupied bandwidth.The Power Spectral Density was measured by placing a marker on the peak of the signal.
3. For all data rates where the EUT was transmitting at <98% duty cycle, the calculated duty cycle in section 5.2.3 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. The RF port on the EUT was connected to the spectrum analyser using suitable attenuation and RF cable. The measured values takes into consideration the external attenuation correction factors. The RF cable attenuation (maximum 2.0 dB@5GHz) from the EUT to Analyzer including the 10 dB attenuation at the Spectrum Analyzer input was added as a reference level offset (12.0 dB) to each of the conducted plots.
5. For MIMO, PSD was measured across relevant ports and then combined using the measure-and-sum technique stated in FCC KDB 662911 D01 Section E)2)a).
6. The EUT may be used either as Master or as Client WLAN device, so the EUT has been tested to the limits for a client device as these are more stringent.
9. The EUT antennas have a directional gain of > 6 dBi.
10. In accordance with 15.407(a)(1)(iv), transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
11. Therefore reduced PSD limits are as follows:
    - 8 dBi Antenna Group :
    - SISO Port 1: Client device limit of 11 dBm / 1 MHz has been reduced by 2 dB to 9 dBm / 1 MHz
    - MIMO Port1+2: Client device limit of 11 dBm / 1 MHz reduced by 2 dB + 10 Log (2) to 5.9 dBm/ 1 MHz
    - MIMO Port1+2+3: Client device limit of 11 dBm / 1 MHz reduced by 2 dB + 10 Log (3) to 4.2dBm/1MHz
    - MIMO Port1+2+3+4 Client device limit of 11 dBm / 1 MHz reduced by 2 dB + 10 Log (4) to 2.9dBm/1MHz

Transmitter Maximum Power Spectral Density (continued)

Notes (continued):

- 9 dBi Antenna Group :
  - SISO Port 1: Client device limit of 11 dBm / 1 MHz has been reduced by 3 dB to 8 dBm / 1 MHz
  - MIMO Port1+2: Client device limit of 11 dBm / 1 MHz reduced by 3 dB + 10 Log (2) to 4.9 dBm/ 1 MHz
  - MIMO Port1+2+3: Client device limit of 11 dBm / 1 MHz reduced by 3 dB + 10 Log (3) to 3.2dBm/1MHz
  - MIMO Port1+2+3+4 Client device limit of 11 dBm / 1 MHz reduced by 3 dB + 10 Log (4) to 1.9dBm/1MHz
- 23 dBi Antenna Group:
  - As per applicant's declaration 23 dBi Antenna shall be only used with RF cable of length 10 m having 8.8 dB Attenuation @ 5 GHz bands.
  - Effective Antenna Gain = 23 dBi – 8.8 dB = 14.2 dBi
  - SISO Port 1: Client device limit of 11 dBm / 1 MHz has been reduced by 8.2 dB to 2.8 dBm / 1 MHz
  - MIMO Port1+2: Client device limit of 11 dBm / 1 MHz reduced by 8.2 dB + 10 Log (2) to -0.1 dBm/ 1 MHz
  - MIMO Port1+2+3: Client device limit of 11 dBm / 1 MHz reduced by 8.2 dB + 10 Log (3) to -2dBm/1MHz
  - MIMO Port1+2+3+4 Client device limit of 11 dBm / 1 MHz reduced by 8.2 dB + 10 Log (4) to -3.1dBm/1MHz

Test setup:

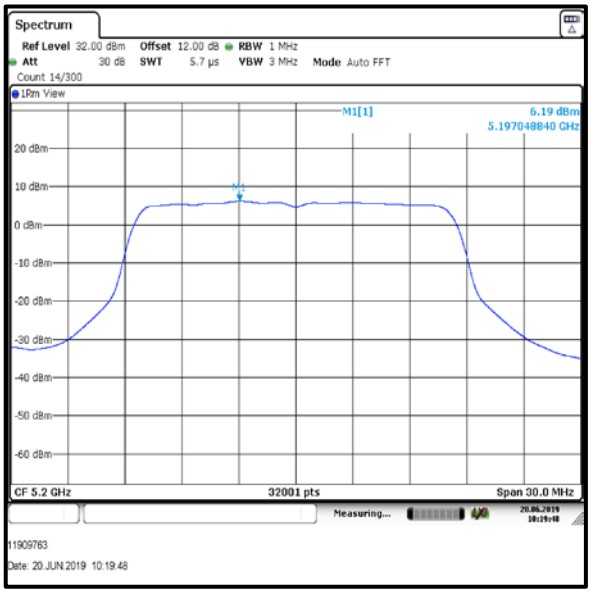


Transmitter Maximum Power Spectral Density (continued)

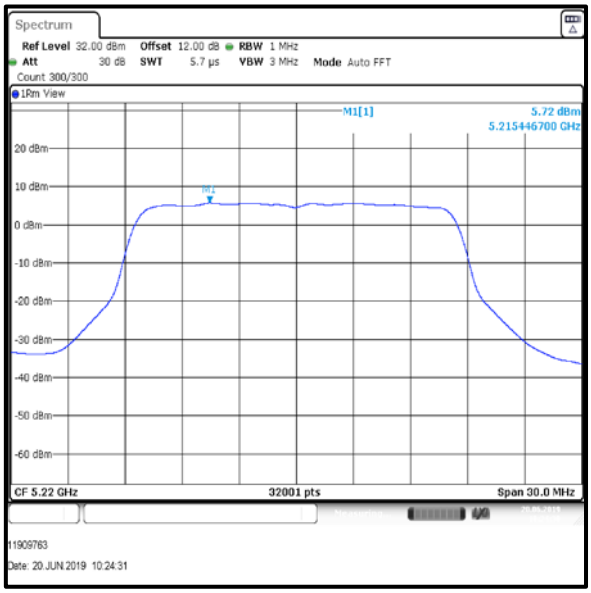
8 dBi Antenna Group

Results: 802.11a / 20 MHz / 6 Mbps / SISO / Port 1 / PWL 18 / 8 dBi Antenna Group

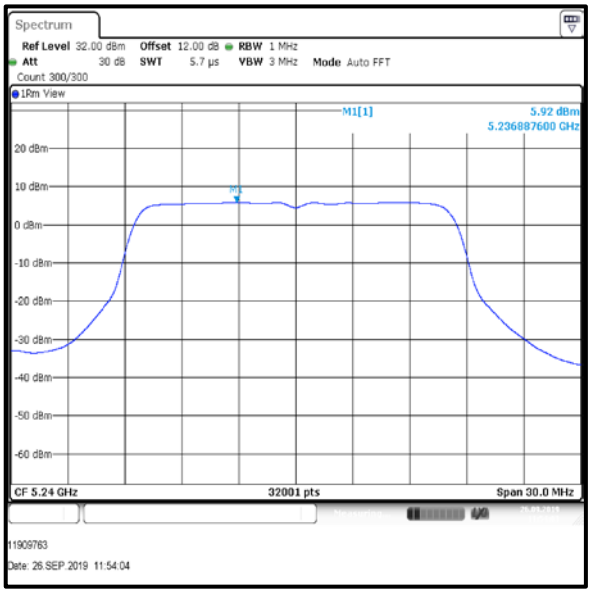
Channel	PSD (dBm /MHz)	Duty Cycle Correction (dB)	Corrected PSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom +1	6.2	0.3	6.5	9.0	2.5	Complied
Middle	5.7	0.3	6.0	9.0	3.0	Complied
Top	5.9	0.3	6.2	9.0	2.8	Complied



Bottom +1 Channel



Middle Channel



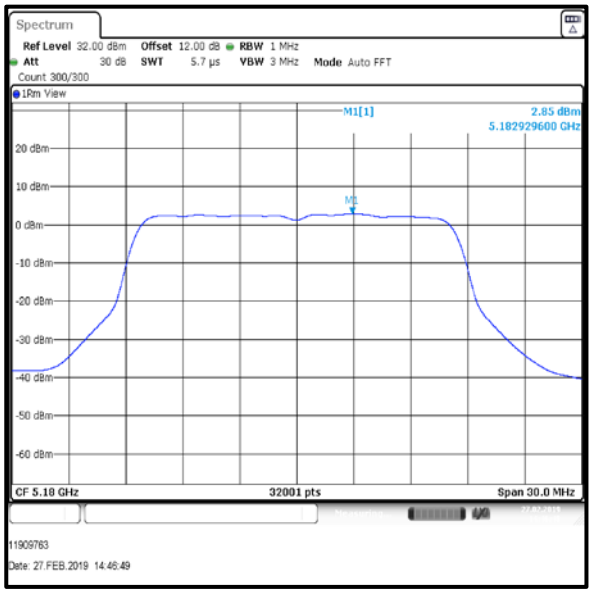
Top Channel

Result: Pass

Transmitter Maximum Power Spectral Density (continued)

Results: 802.11a / 20 MHz / 6 Mbps / SISO / Port 1 / PWL 15 / 8 dBi Antenna Group

Channel	PSD (dBm /MHz)	Duty Cycle Correction (dB)	Corrected PSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	2.9	0.3	3.2	9.0	5.8	Complied



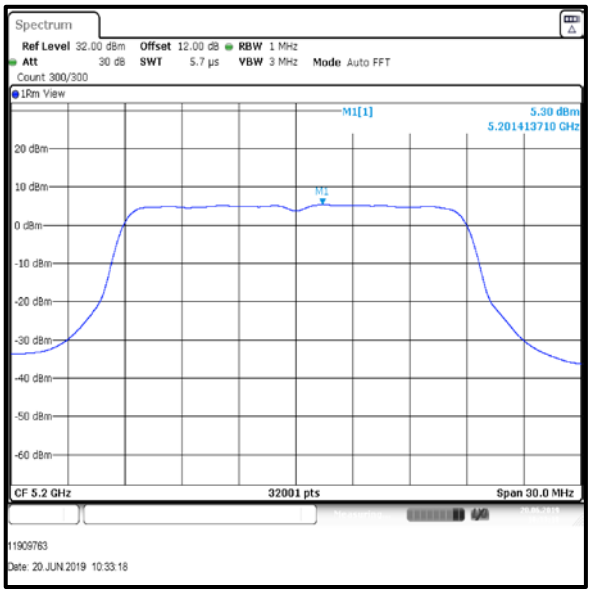
Bottom Channel

Result: Pass

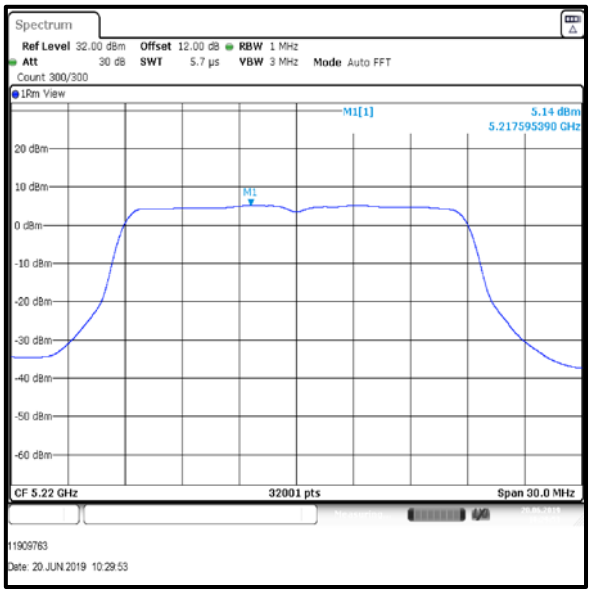
Transmitter Maximum Power Spectral Density (continued)

Results: 802.11n / 20 MHz / MCS0 / SISO / Port 1 / PWL 18 / 8 dBi Antenna Group

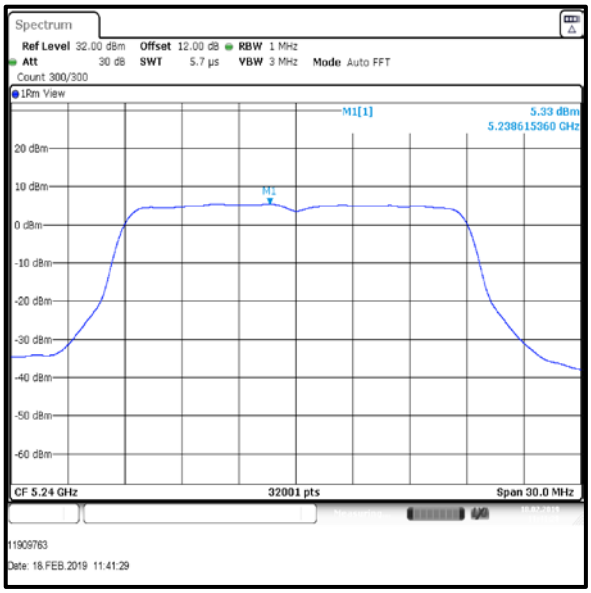
Channel	PSD (dBm /MHz)	Duty Cycle Correction (dB)	Corrected PSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom +1	5.3	0.5	5.8	9.0	3.2	Complied
Middle	5.1	0.5	5.6	9.0	3.4	Complied
Top	5.3	0.5	5.8	9.0	3.2	Complied



Bottom +1 Channel



Middle Channel



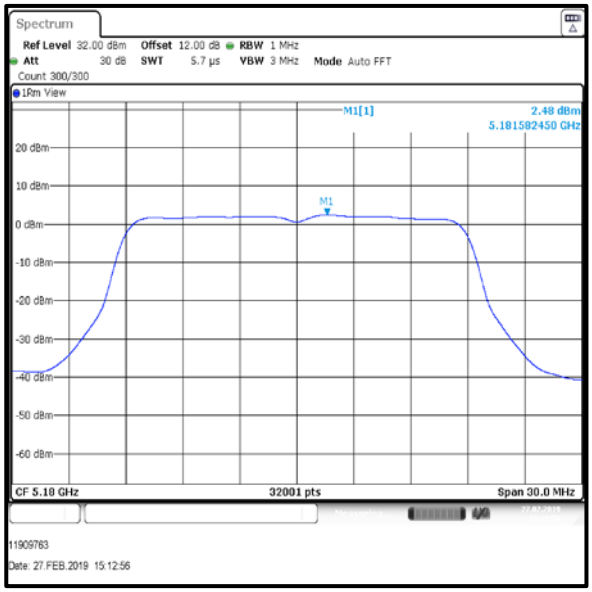
Top Channel

Result: Pass

Transmitter Maximum Power Spectral Density (continued)

Results: 802.11n / 20 MHz / MCS0 / SISO / Port 1 / PWL 15 / 8 dBi Antenna Group

Channel	PSD (dBm /MHz)	Duty Cycle Correction (dB)	Corrected PSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	2.5	0.5	3.0	9.0	6.0	Complied



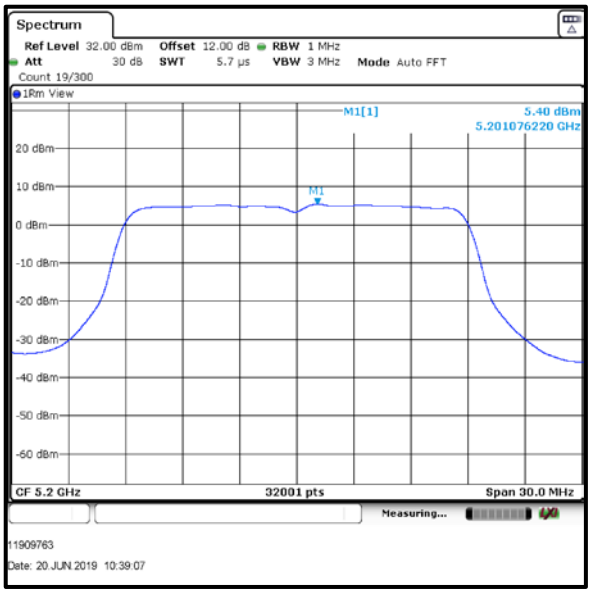
Bottom Channel

Result: Pass

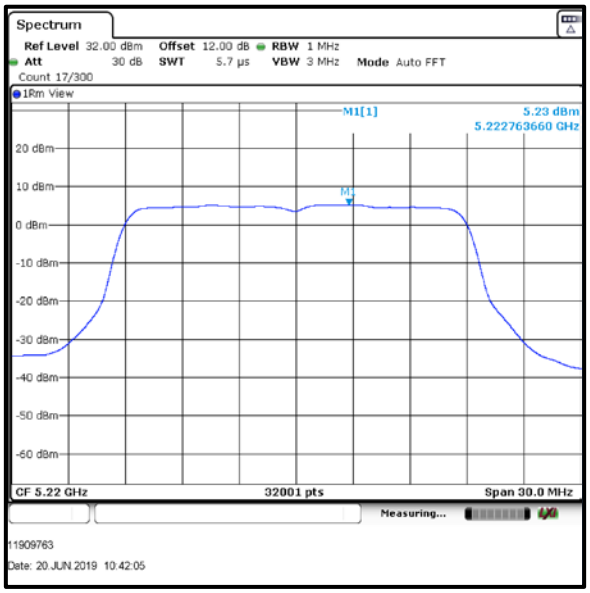
Transmitter Maximum Power Spectral Density (continued)

Results: 802.11ac / 20 MHz / MCS0 / SISO / Port 1 / PWL 18 / 8 dBi Antenna Group

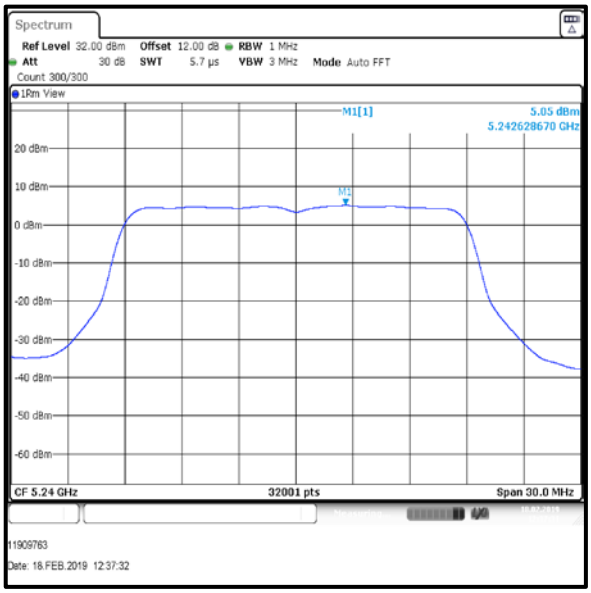
Channel	PSD (dBm /MHz)	Duty Cycle Correction (dB)	Corrected PSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom +1	5.4	0.4	5.8	9.0	3.2	Complied
Middle	5.2	0.4	5.6	9.0	3.4	Complied
Top	5.1	0.4	5.5	9.0	3.5	Complied



Bottom +1 Channel



Middle Channel



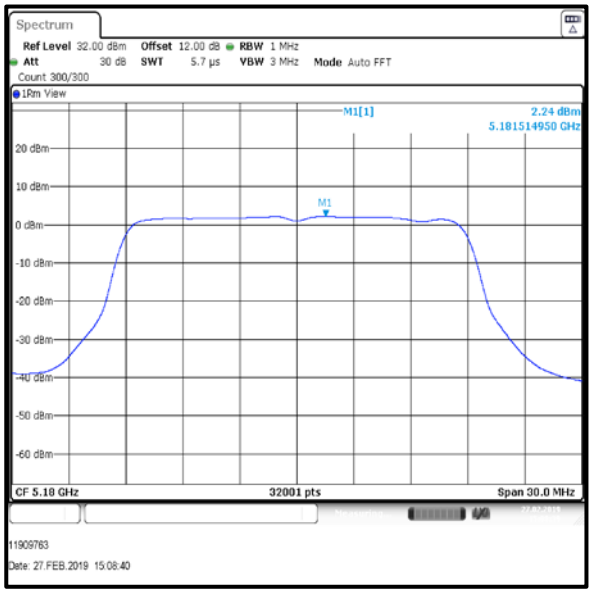
Top Channel

Result: Pass

Transmitter Maximum Power Spectral Density (continued)

Results: 802.11ac / 20 MHz / MCS0 / SISO / Port 1 / PWL 15 / 8 dBi Antenna Group

Channel	PSD (dBm /MHz)	Duty Cycle Correction (dB)	Corrected PSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	2.2	0.4	2.6	9.0	6.4	Complied



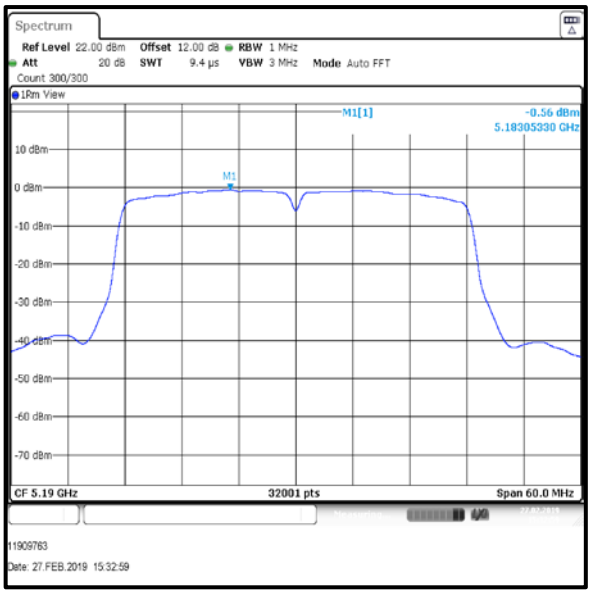
Bottom Channel

Result: Pass

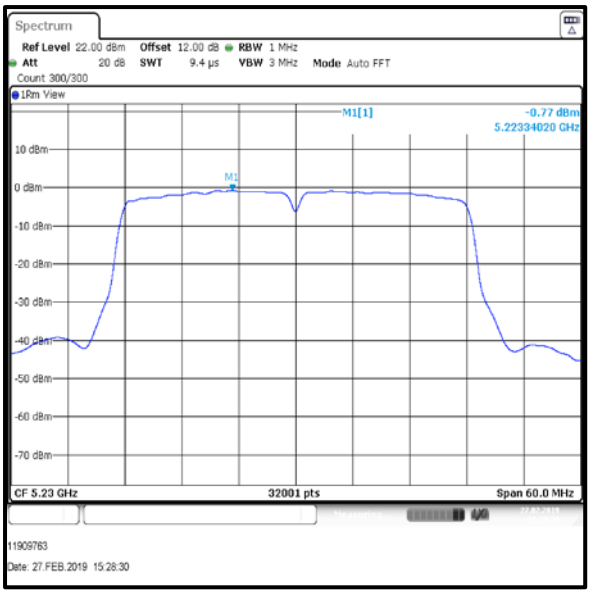
Transmitter Maximum Power Spectral Density (continued)

Results: 802.11n / HT40 / MCS0 / SISO / Port 1 / PWL 15 / 8 dBi Antenna Group

Channel	PSD (dBm /MHz)	Duty Cycle Correction (dB)	Corrected PSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	-0.6	0.4	-0.2	9.0	9.2	Complied
Top	-0.8	0.4	-0.4	9.0	9.4	Complied



Bottom Channel



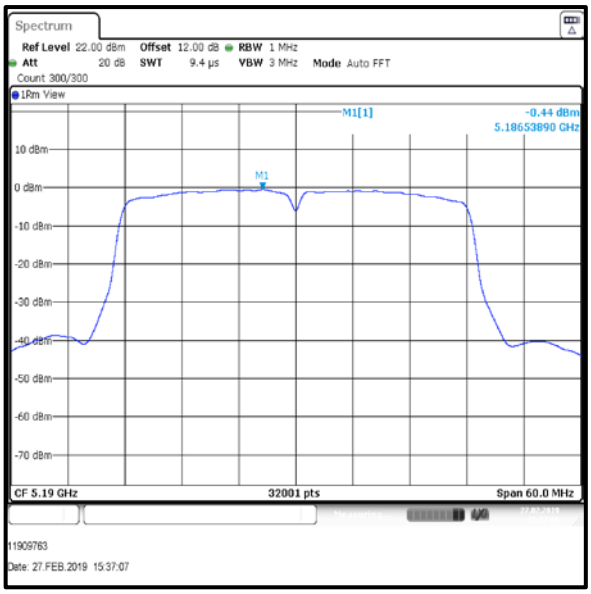
Top Channel

Result: Pass

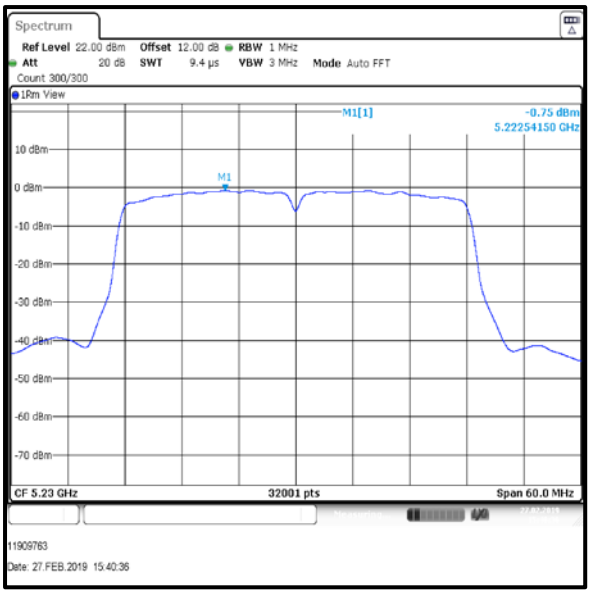
Transmitter Maximum Power Spectral Density (continued)

Results: 802.11ac / HT40 / MCS0 / SISO / Port 1 / PWL 15 / 8 dBi Antenna Group

Channel	PSD (dBm /MHz)	Duty Cycle Correction (dB)	Corrected PSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	-0.4	0.4	0.0	9.0	9.0	Complied
Top	-0.7	0.4	-0.3	9.0	9.3	Complied



Bottom Channel



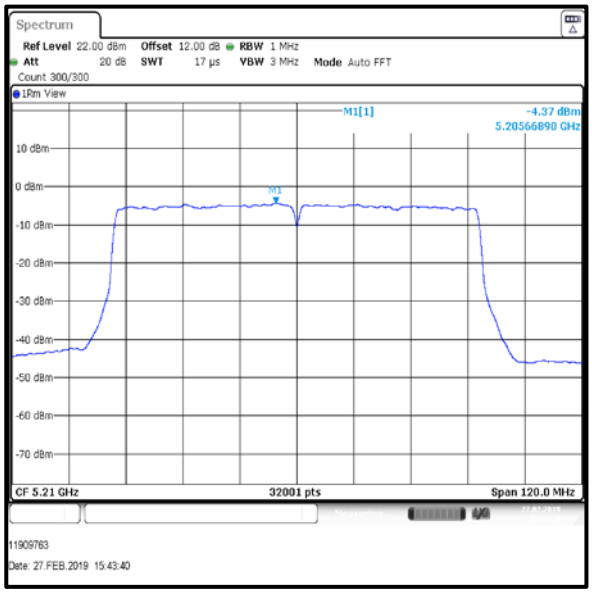
Top Channel

Result: Pass

Transmitter Maximum Power Spectral Density (continued)

Results: 802.11ac / HT80 / MCS0 / SISO / Port 1 / PWL 15 / 8 dBi Antenna Group

Channel	PSD (dBm /MHz)	Duty Cycle Correction (dB)	Corrected PSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Single	-4.3	0.5	-3.8	9.0	12.8	Complied



Single Channel

Result: Pass

Transmitter Maximum Power Spectral Density (continued)

Results: 802.11a / 20 MHz / 6 Mbps / MIMO / Port 1+2 / PWL 17 / 8 dBi Antenna Group

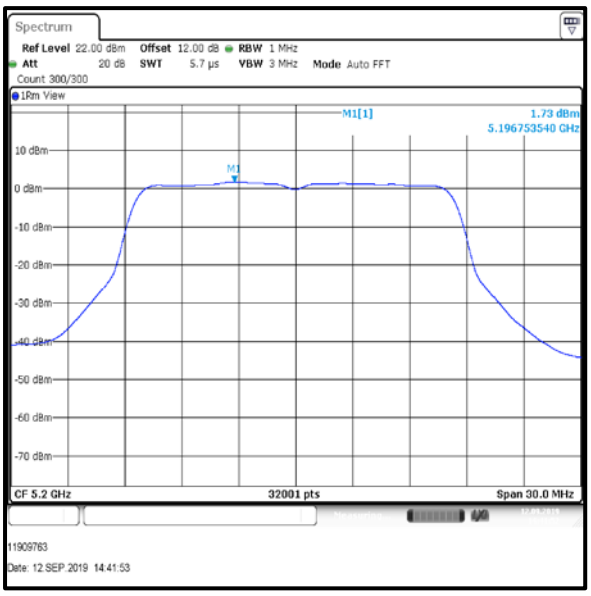
Channel	Port 1			Port 2		
	PSD (dBm /MHz)	Duty Cycle Correction (dB)	Corrected PSD (dBm /MHz)	PSD (dBm /MHz)	Duty Cycle Correction (dB)	Corrected PSD (dBm /MHz)
Bottom + 1	1.7	0.3	2.0	1.6	0.3	1.9
Middle	1.5	0.3	1.8	1.7	0.3	2.0
Top	1.9	0.3	2.2	1.6	0.3	1.9

Channel	Corrected PSD Port 1 (dBm /MHz)	Corrected PSD Port 2 (dBm /MHz)	Combined PSD (dBm /MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Bottom + 1	2.0	1.9	5.0	5.9	0.9	Complied
Middle	1.8	2.0	4.9	5.9	1	Complied
Top	2.2	1.9	5.1	5.9	0.8	Complied

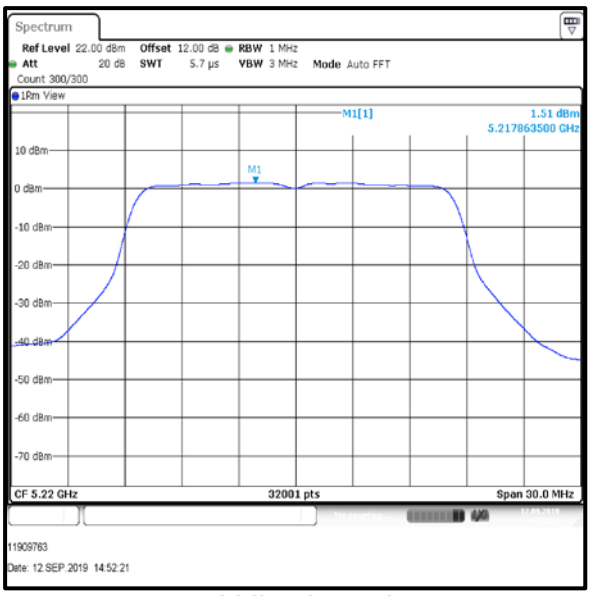
Result: Pass

Transmitter Maximum Power Spectral Density (continued)

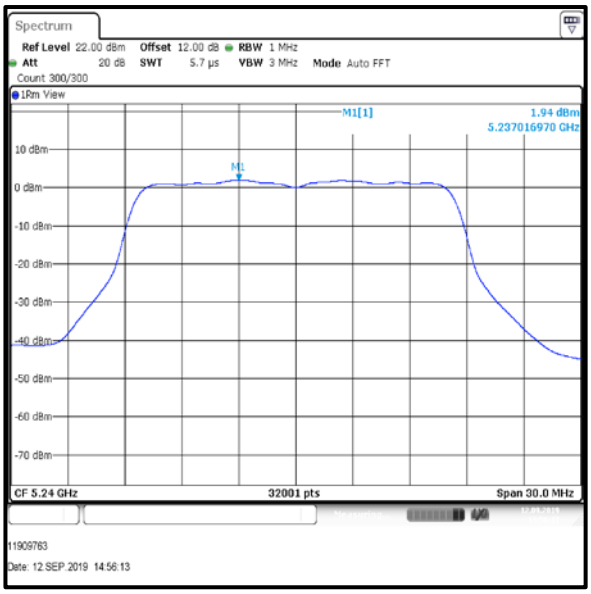
Results: 802.11a / 20 MHz / 6 Mbps / MIMO / Port 1 / PWL 17 / 8 dBi Antenna Group



Bottom +1 Channel



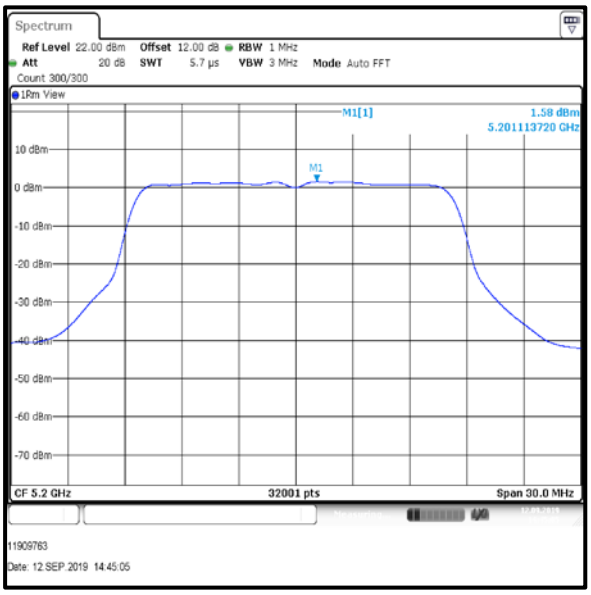
Middle Channel



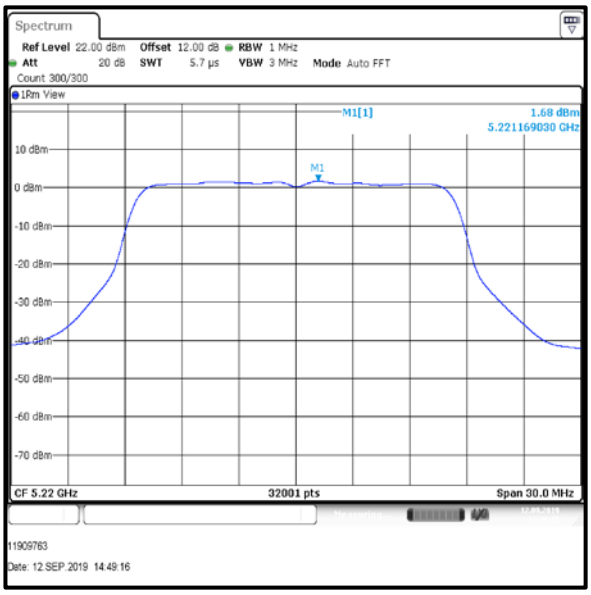
Top Channel

Transmitter Maximum Power Spectral Density (continued)

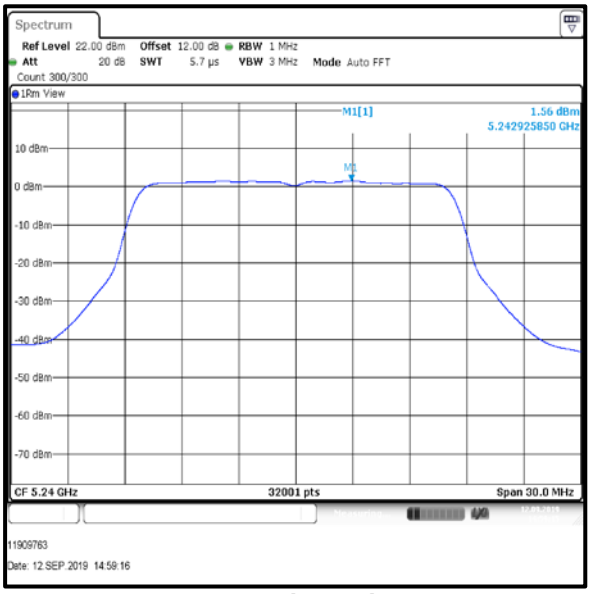
Results: 802.11a / 20 MHz / 6 Mbps / MIMO / Port 2 / PWL 17 / 8 dBi Antenna Group



Bottom +1 Channel



Middle Channel



Top Channel

Transmitter Maximum Power Spectral Density (continued)

Results: 802.11a / 20 MHz / 6 Mbps / MIMO / Port 1+2 / PWL 16 / 8 dBi Antenna Group

Channel	Port 1			Port 2		
	PSD (dBm /MHz)	Duty Cycle Correction (dB)	Corrected PSD (dBm /MHz)	PSD (dBm /MHz)	Duty Cycle Correction (dB)	Corrected PSD (dBm /MHz)
Bottom	0.6	0.3	0.9	0.3	0.3	0.6

Channel	Corrected PSD Port 1 (dBm /MHz)	Corrected PSD Port 2 (dBm /MHz)	Combined PSD (dBm /MHz)	Limit (dBm/MHz)	Margin (dB)	Result
Bottom	0.9	0.6	3.8	5.9	2.1	Complied

Result: Pass