

Appendix C

RF Test Data for 5.8G WLAN (Conducted Measurement)

Product Name: Mini 802.11ac Wireless USB Adapter

Trade Mark: N/A

Test Model: U0633

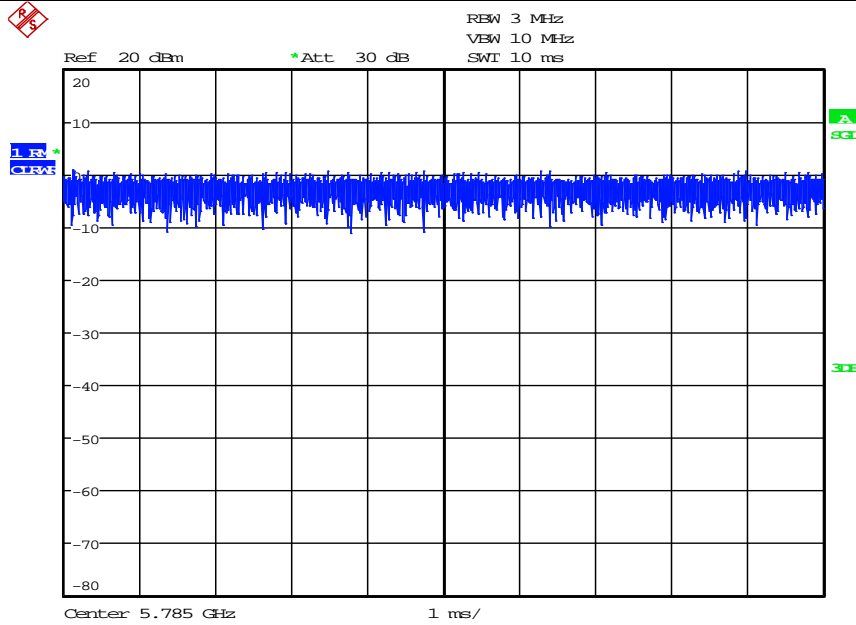
Environmental Conditions

| | |
|--------------------|-------------|
| Temperature: | 22.5 ° C |
| Relative Humidity: | 53.6% |
| ATM Pressure: | 100.0 kPa |
| Test Engineer: | David Luo |
| Supervised by: | Wang.Chuang |

D.1 Duty Cycle

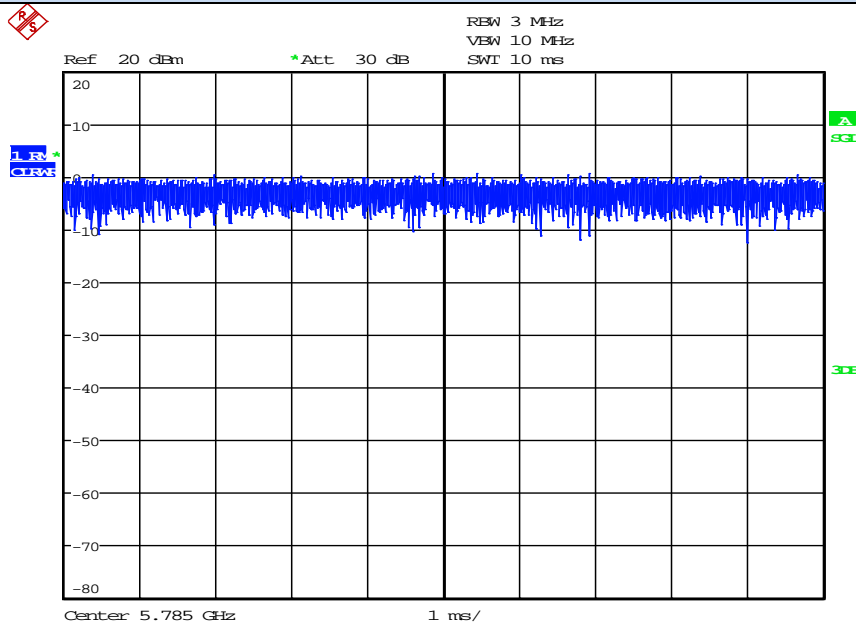
| Test Mode | Test Frequency (MHz) | Duty Cycle (%) | 10log(1/x) Factor (dB) | 1/B Minimum VBW(KHz) |
|-------------|----------------------|----------------|------------------------|----------------------|
| 11A | 5785 | 100 | 0.00 | 0.01 |
| 11N20 SISO | 5785 | 100 | 0.00 | 0.01 |
| 11N40 SISO | 5755 | 100 | 0.00 | 0.01 |
| 11AC20 SISO | 5785 | 100 | 0.00 | 0.01 |
| 11AC40 SISO | 5755 | 100 | 0.00 | 0.01 |
| 11AC80 SISO | 5775 | 100 | 0.00 | 0.01 |

On Time and Duty Cycle



Date: 17.SEP.2019 14:14:39

IEEE 802.11a

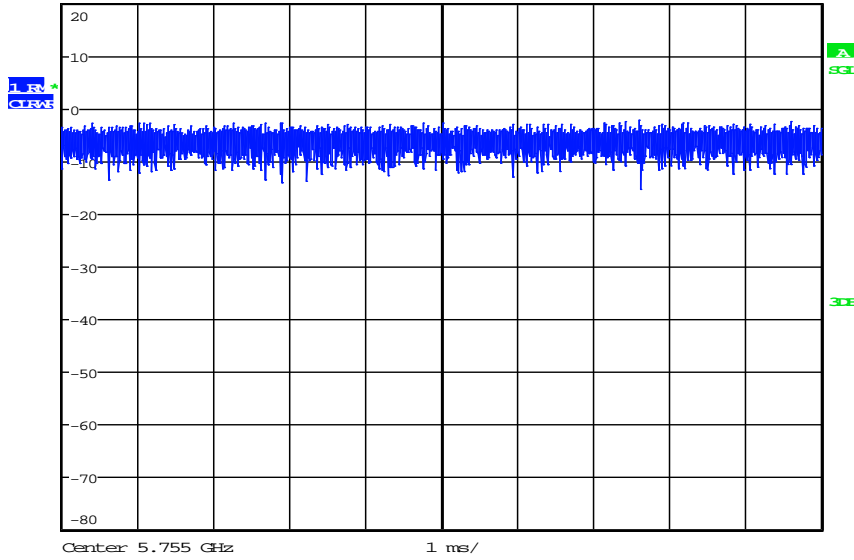


Date: 17.SEP.2019 14:38:42

IEEE 802.11n HT20



Ref 20 dBm *Att 30 dB RBW 3 MHz
VIEW 10 MHz
SWT 10 ms

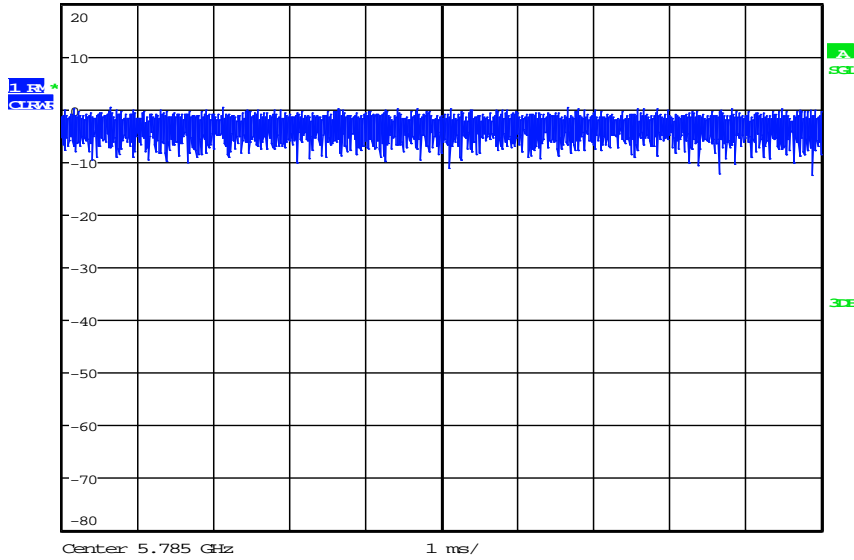


Date: 17.SEP.2019 14:51:55

IEEE 802.11n HT40

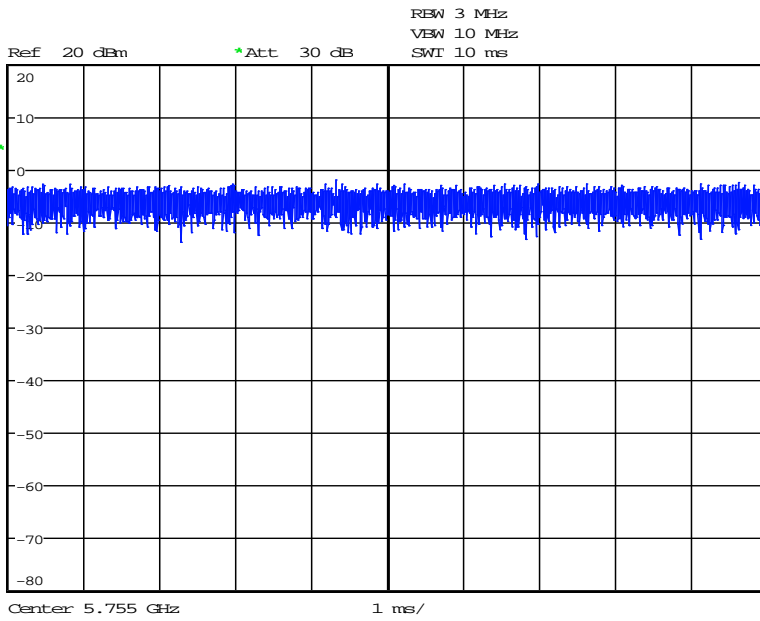


Ref 20 dBm *Att 30 dB RBW 3 MHz
VIEW 10 MHz
SWT 10 ms



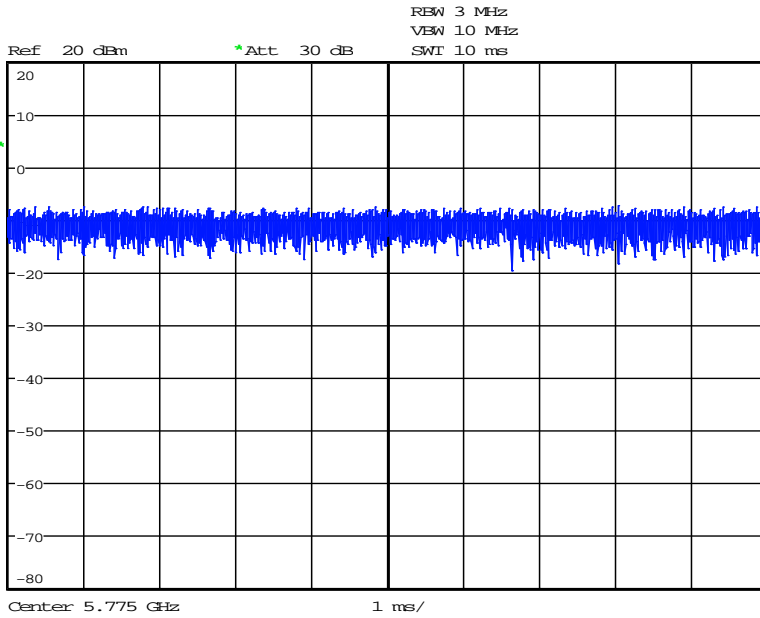
Date: 17.SEP.2019 15:30:00

IEEE 802.11AC20



Date: 17.SEP.2019 15:42:09

IEEE 802.11AC40

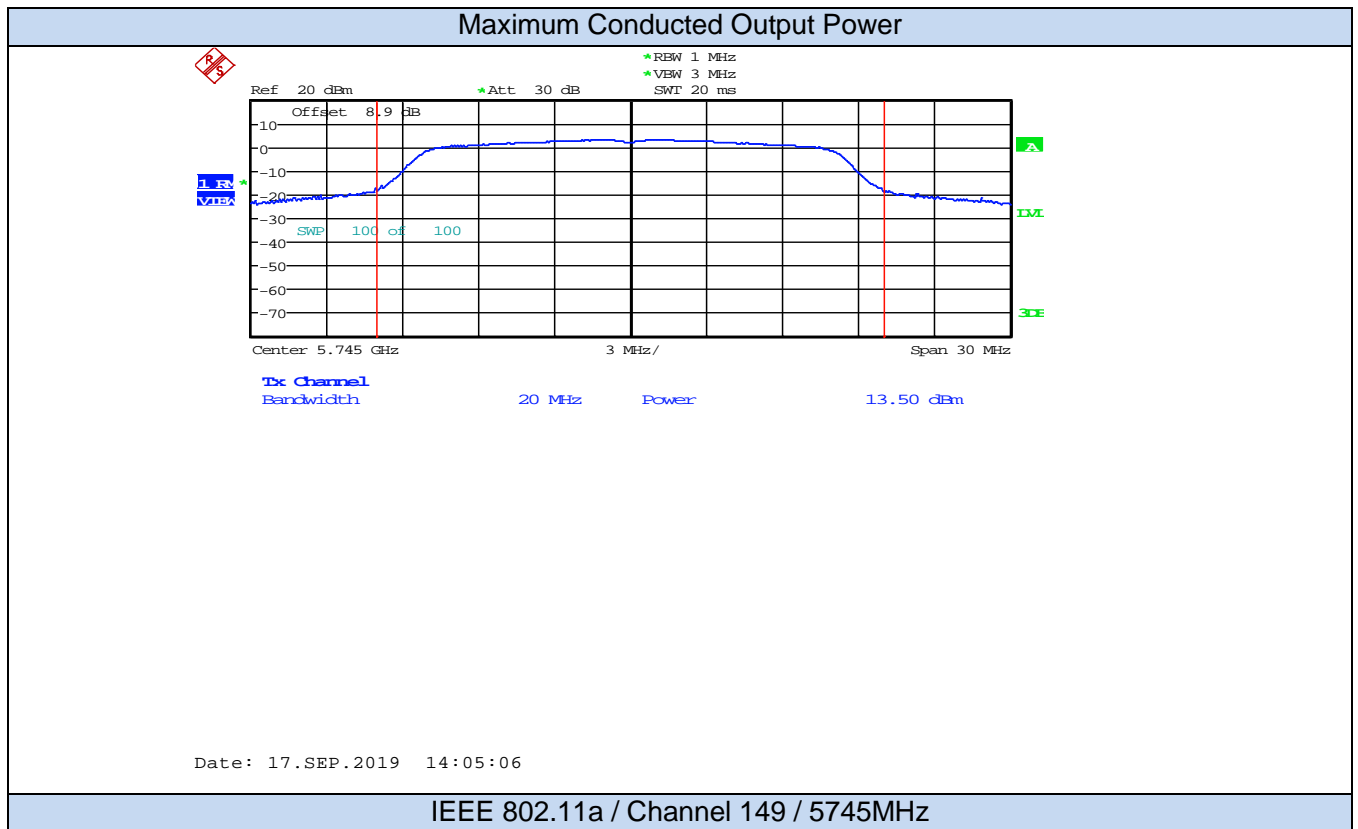


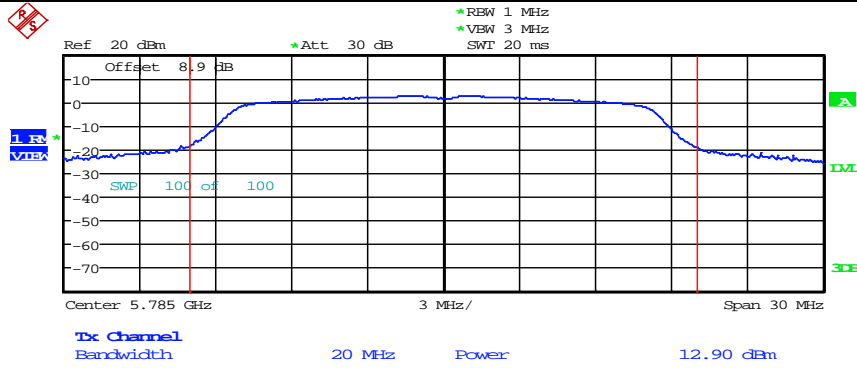
Date: 17.SEP.2019 16:07:55

IEEE 802.11AC80

D.2 Maximum Conduct Output Power

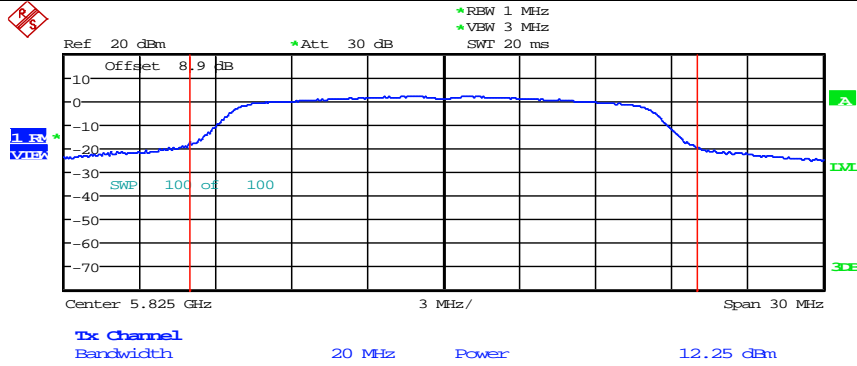
| Test Mode | Channel I | Frequency (MHz) | AVG Conducted Power (dBm) | Duty Cycle Factor(dB) | Report Conducted Power(dBm) | Limit (dBm) | Verdict |
|-------------|-----------|-----------------|---------------------------|-----------------------|-----------------------------|-------------|---------|
| 11A | 149 | 5745 | 13.5 | 0 | 13.5 | 30 | Pass |
| | 157 | 5785 | 12.9 | 0 | 12.9 | | Pass |
| | 165 | 5825 | 12.25 | 0 | 12.25 | | Pass |
| 11N20 SISO | 149 | 5745 | 13.39 | 0 | 13.39 | 30 | Pass |
| | 157 | 5785 | 12.81 | 0 | 12.81 | | Pass |
| | 165 | 5825 | 12.06 | 0 | 12.06 | | Pass |
| 11N40 SISO | 151 | 5755 | 13.6 | 0 | 13.6 | 30 | Pass |
| | 159 | 5795 | 12.27 | 0 | 12.27 | | Pass |
| 11AC20 SISO | 149 | 5745 | 13.15 | 0 | 13.15 | 30 | Pass |
| | 157 | 5785 | 12.96 | 0 | 12.96 | | Pass |
| | 165 | 5825 | 12.22 | 0 | 12.22 | | Pass |
| 11AC40 SISO | 151 | 5755 | 13.65 | 0 | 13.65 | 30 | Pass |
| | 159 | 5795 | 13.03 | 0 | 13.03 | | Pass |
| 11AC80 SISO | 155 | 5775 | 11.99 | 0 | 11.99 | 30 | Pass |





Date: 17.SEP.2019 14:15:29

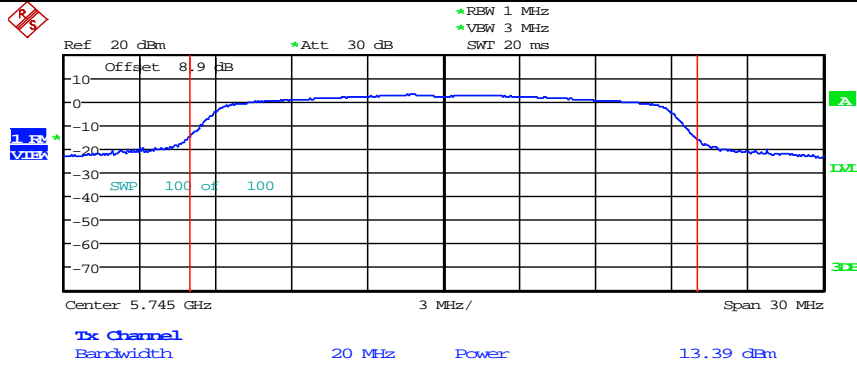
IEEE 802.11a / Channel 157 / 5785MHz



Date: 17.SEP.2019 14:16:54

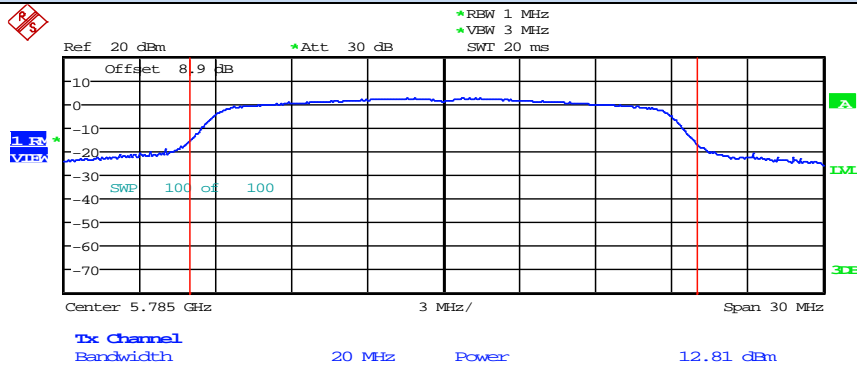
IEEE 802.11a / Channel 165 / 5825MHz

Maximum Conducted Output Power



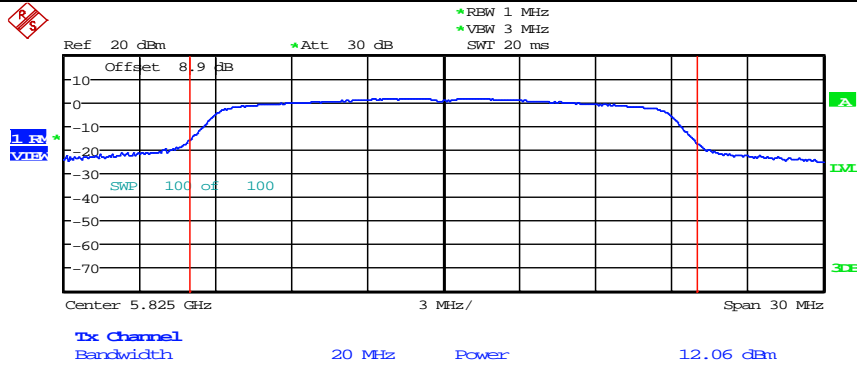
Date: 17.SEP.2019 14:34:12

IEEE 802.11n20 / Channel 149 / 5745MHz



Date: 17.SEP.2019 14:39:32

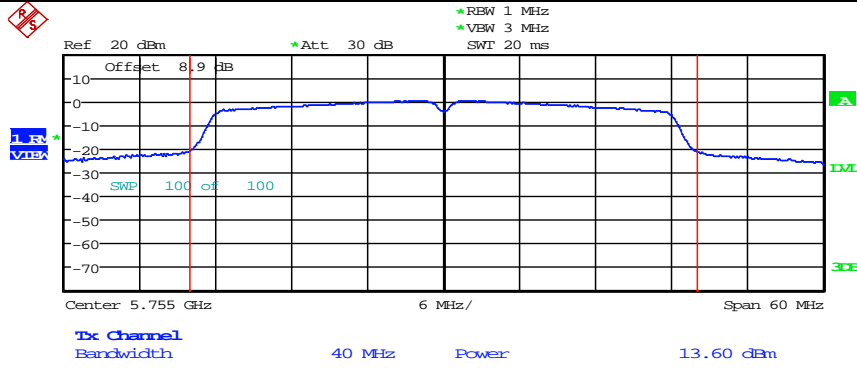
IEEE 802.11n20 / Channel 157 / 5785MHz



Date: 17.SEP.2019 14:40:58

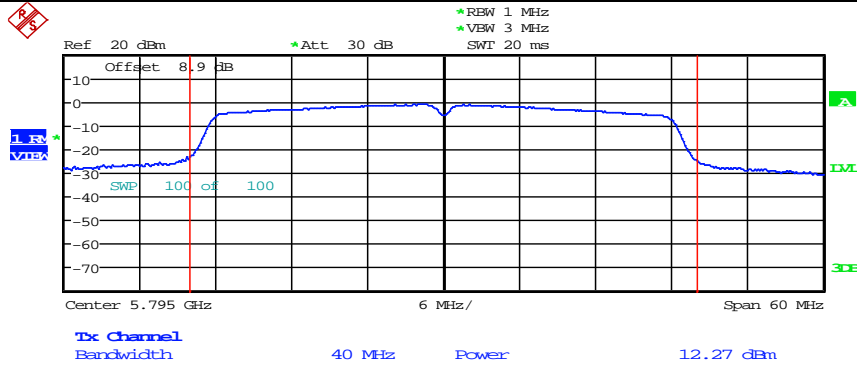
IEEE 802.11n20 / Channel 165 / 5825MHz

Maximum Conducted Output Power



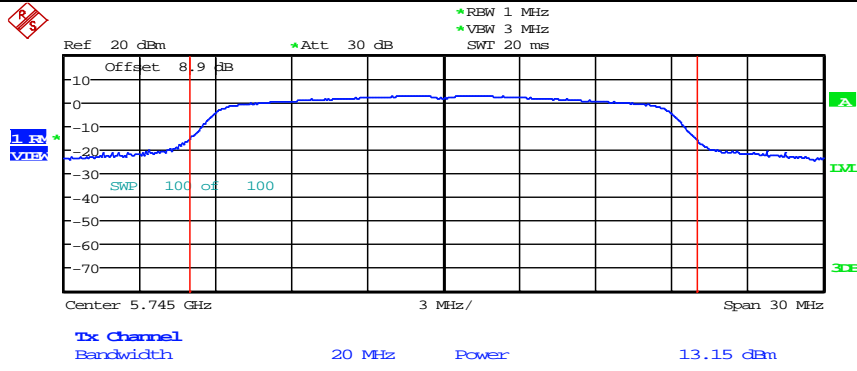
Date: 17.SEP.2019 14:52:45

IEEE 802.11n40 / Channel 151 / 5755MHz



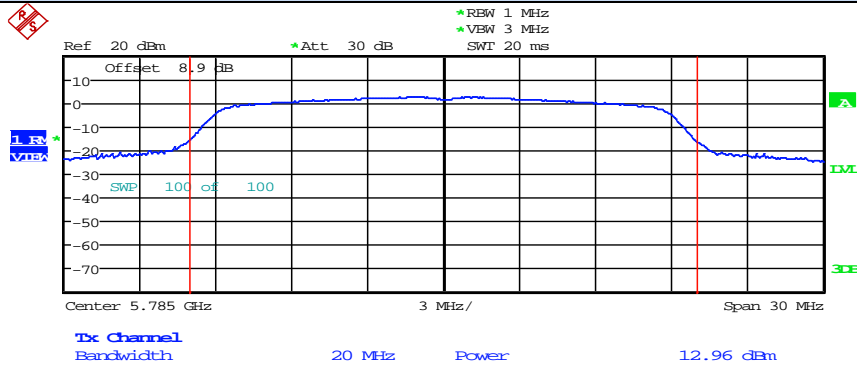
Date: 17.SEP.2019 15:10:02

IEEE 802.11n40 / Channel 159 / 5795MHz



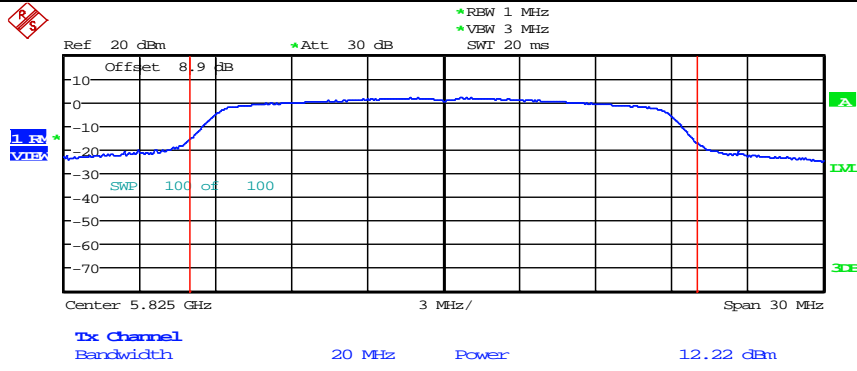
Date: 17.SEP.2019 15:25:26

IEEE 802.11ac20 / Channel 149 / 5745MHz



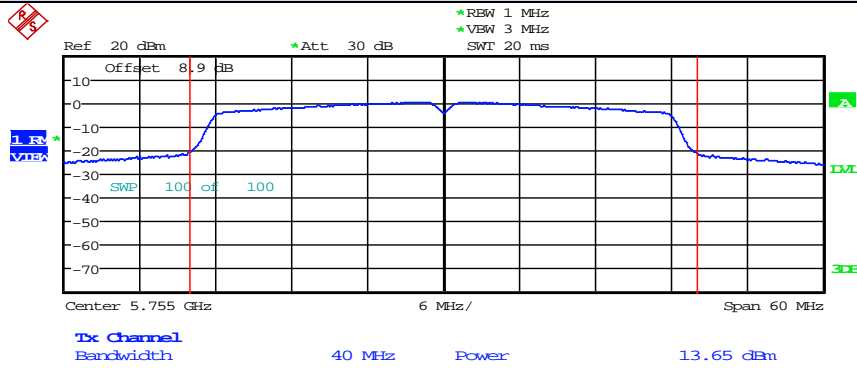
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IEEE 802.11ac20 / Channel 157 / 5785MHz



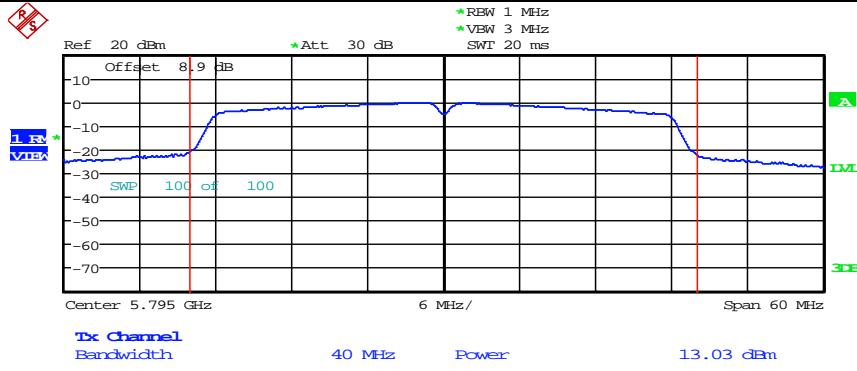
Date: 17.SEP.2019 15:32:14

IEEE 802.11ac20 / Channel 165/ 5825MHz



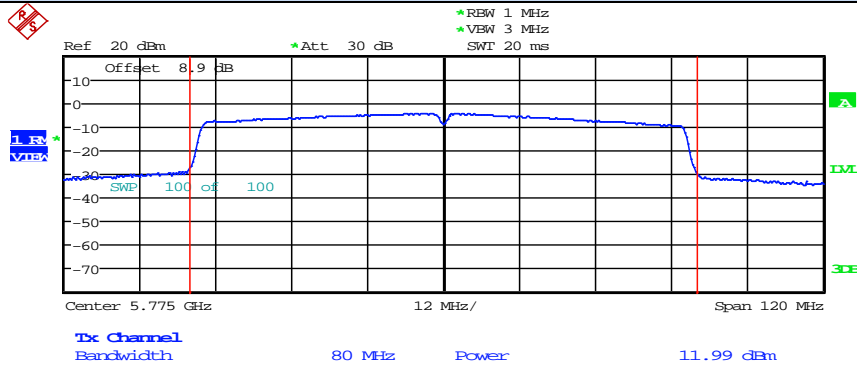
Date: 17.SEP.2019 15:42:59

IEEE 802.11ac40 / Channel 151 / 5755MHz



Date: 17.SEP.2019 15:52:24

IEEE 802.11ac40 / Channel 159 / 5795MHz

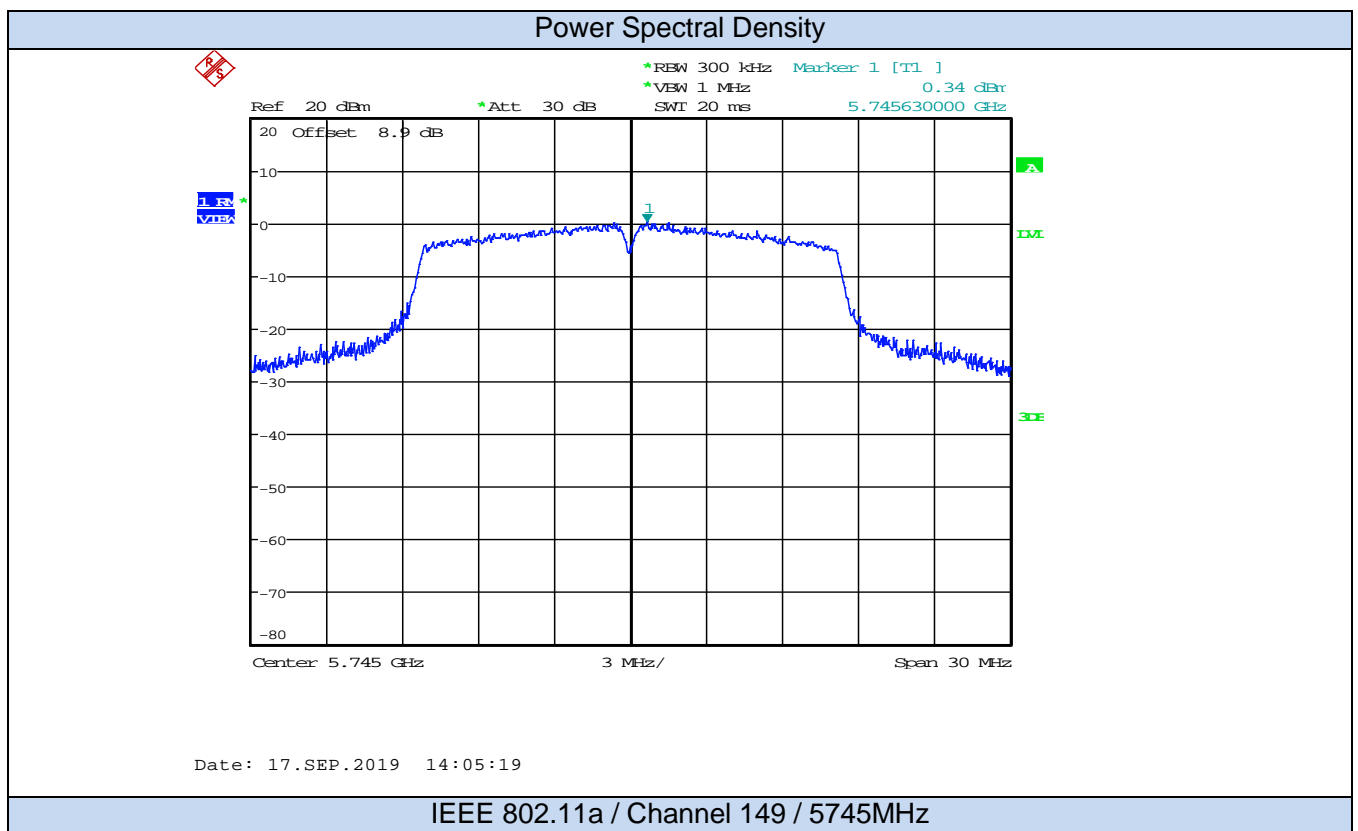


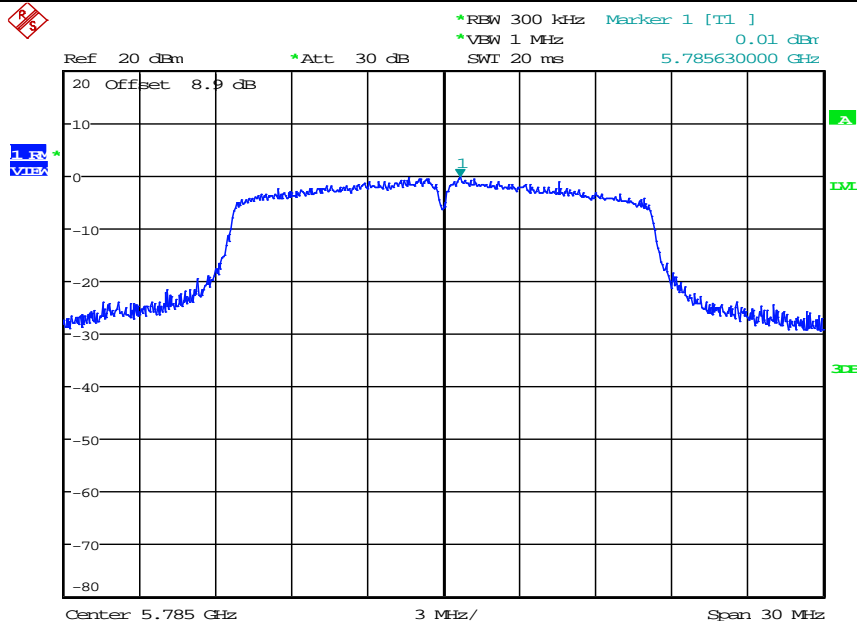
Date: 17.SEP.2019 16:08:45

IEEE 802.11ac80 / Channel 155 / 5775MHz

D.3 Power Spectral Density

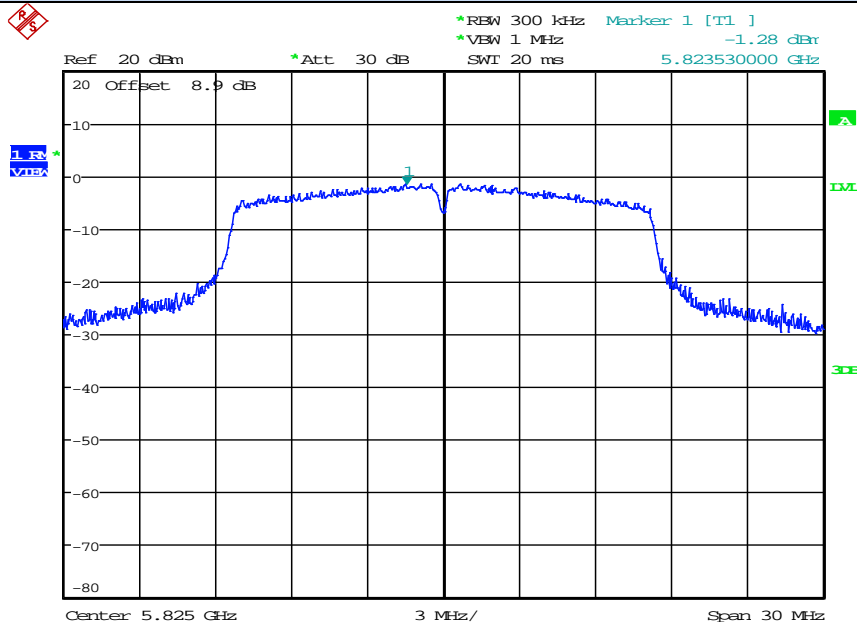
| Test Mode | Channel | Frequency (MHz) | Power Density (dBm/300KHz) | Duty Cycle Factor (dB) | RBW Factor (dB) | Report Power Density (dBm/500KHz) | Limit (dBm/500KHz) | Verdict |
|-------------|---------|-----------------|----------------------------|------------------------|-----------------|-----------------------------------|--------------------|---------|
| 11A | 149 | 5745 | 0.34 | 0 | 2.22 | 2.56 | 30 | Pass |
| | 157 | 5785 | 0.01 | 0 | 2.22 | 2.23 | | Pass |
| | 165 | 5825 | -1.28 | 0 | 2.22 | 0.94 | | Pass |
| 11N20 SISO | 149 | 5745 | -0.09 | 0 | 2.22 | 2.13 | 30 | Pass |
| | 157 | 5785 | -0.99 | 0 | 2.22 | 1.23 | | Pass |
| | 165 | 5825 | -1.68 | 0 | 2.22 | 0.54 | | Pass |
| 11N40 SISO | 151 | 5755 | -2.38 | 0 | 2.22 | -0.16 | 30 | Pass |
| | 159 | 5795 | -4.09 | 0 | 2.22 | -1.87 | | Pass |
| 11AC20 SISO | 149 | 5745 | -0.23 | 0 | 2.22 | 1.99 | 30 | Pass |
| | 157 | 5785 | -0.62 | 0 | 2.22 | 1.60 | | Pass |
| | 165 | 5825 | -1.11 | 0 | 2.22 | 1.11 | | Pass |
| 11AC40 SISO | 151 | 5755 | -2.98 | 0 | 2.22 | -0.76 | 30 | Pass |
| | 159 | 5795 | -3.46 | 0 | 2.22 | -1.24 | | Pass |
| 11AC80 SISO | 155 | 5775 | -7.63 | 0 | 2.22 | -5.41 | 30 | Pass |





Date: 17.SEP.2019 14:15:42

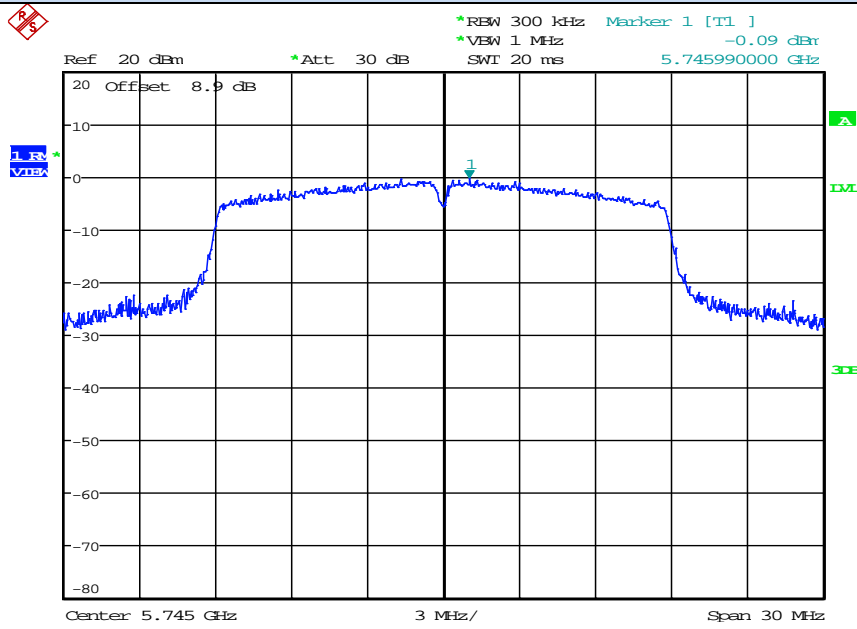
IEEE 802.11na / Channel 157 / 5785MHz



Date: 17.SEP.2019 14:17:08

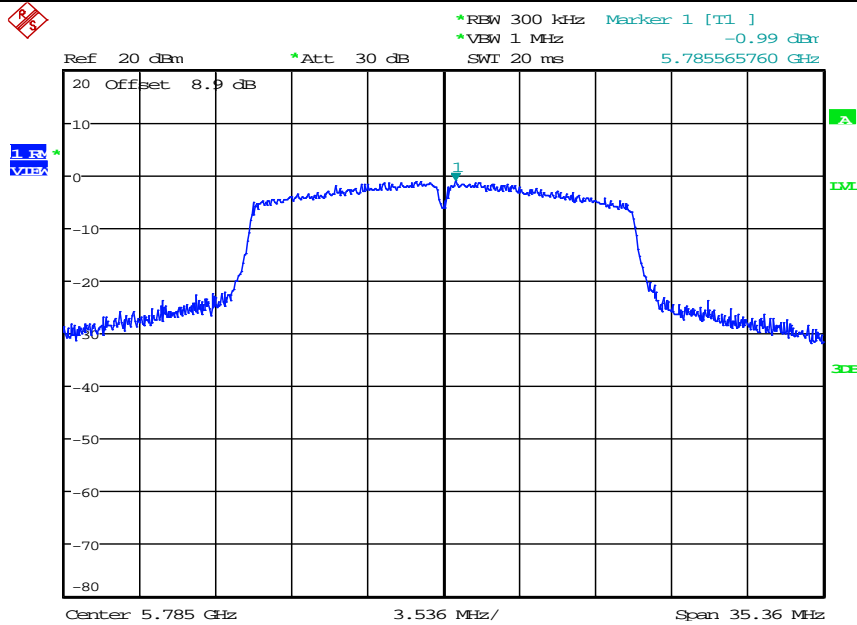
IEEE 802.11na / Channel 165 / 5825MHz

Power Spectral Density



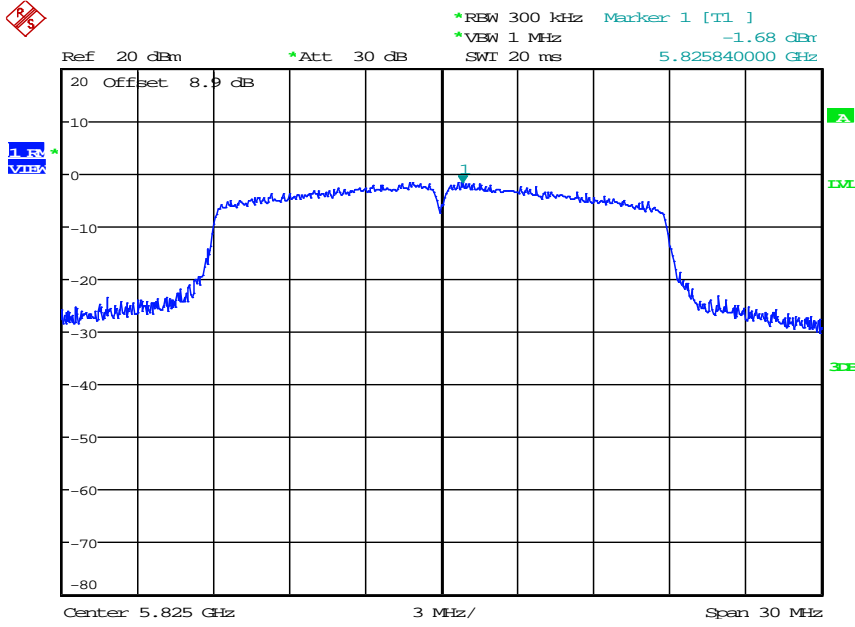
Date: 17.SEP.2019 14:34:26

IEEE 802.11n20 / Channel 149 / 5745MHz



Date: 17.SEP.2019 14:39:46

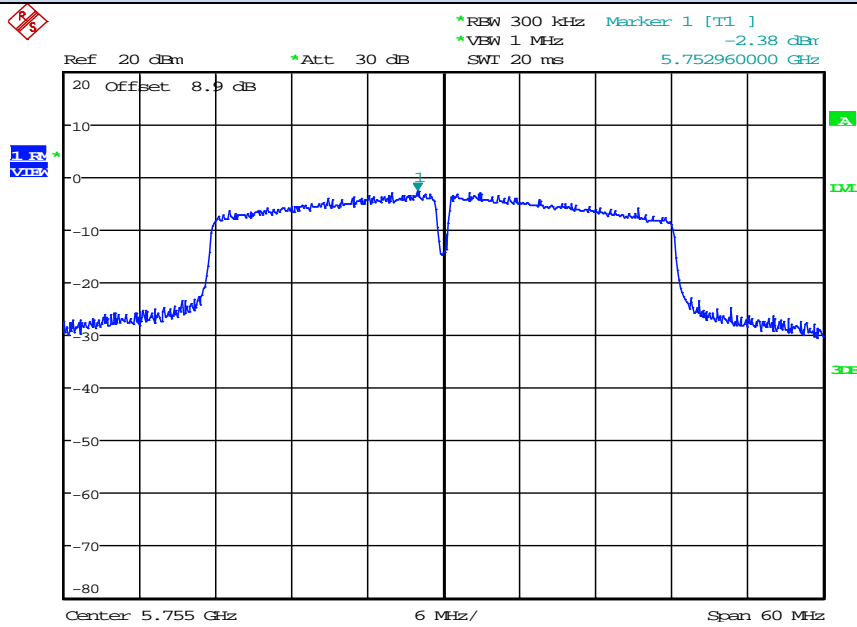
IEEE 802.11n20 / Channel 157 / 5785MHz



Date: 17.SEP.2019 14:41:12

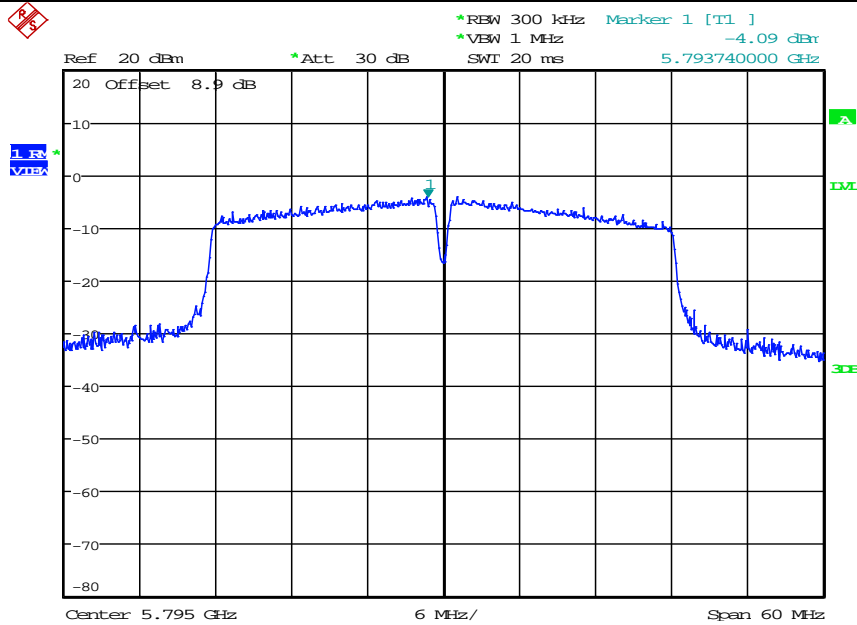
IEEE 802.11n20 / Channel 165 / 5825MHz

Power Spectral Density



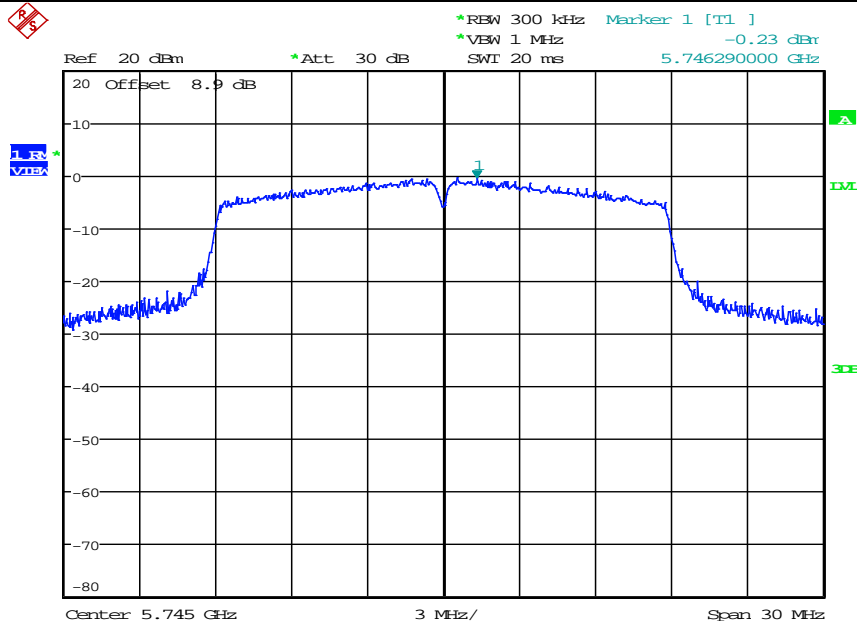
Date: 17.SEP.2019 14:52:58

IEEE 802.11n40 / Channel 151 / 5755MHz



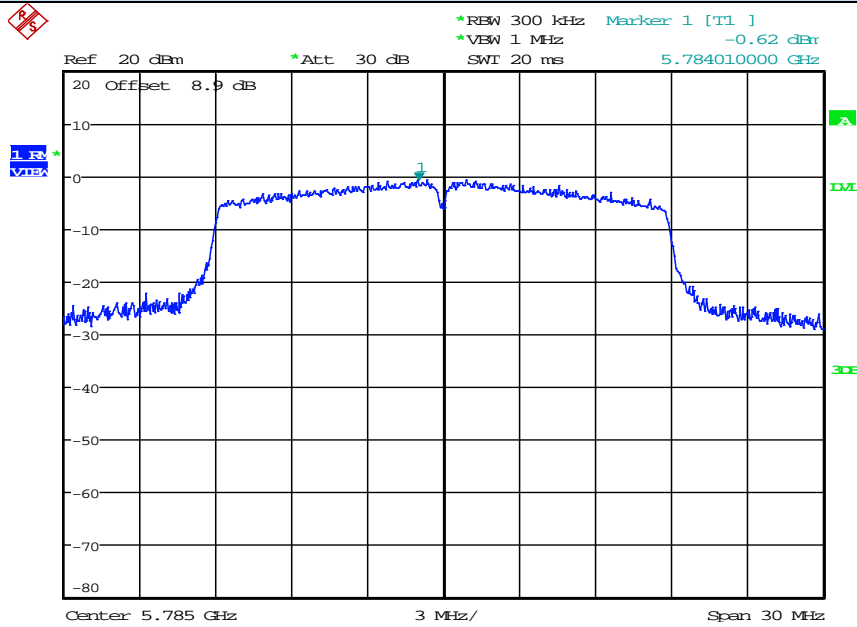
Date: 17.SEP.2019 15:10:16

IEEE 802.11n40 / Channel 159 / 5795MHz



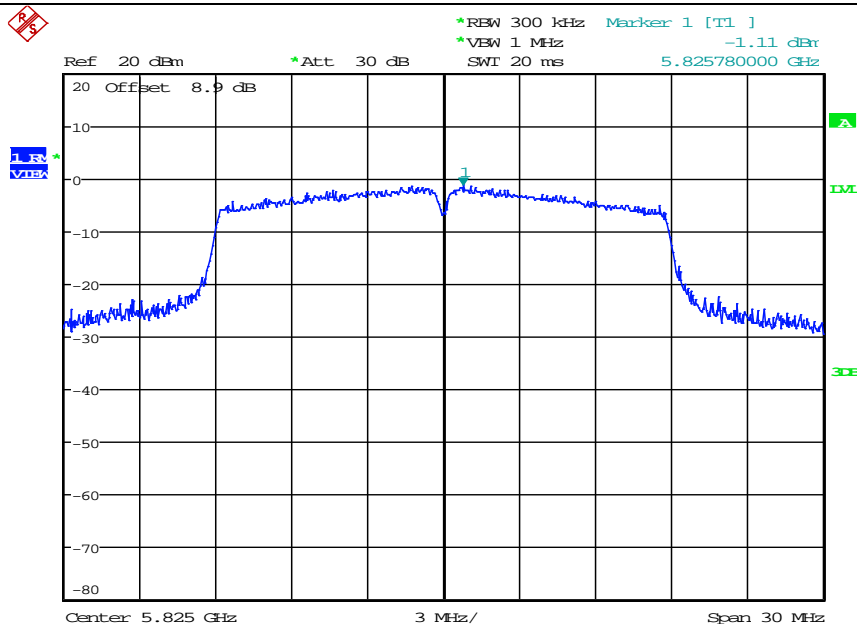
Date: 17.SEP.2019 15:25:39

IEEE 802.11ac20 / Channel 149 / 5745MHz



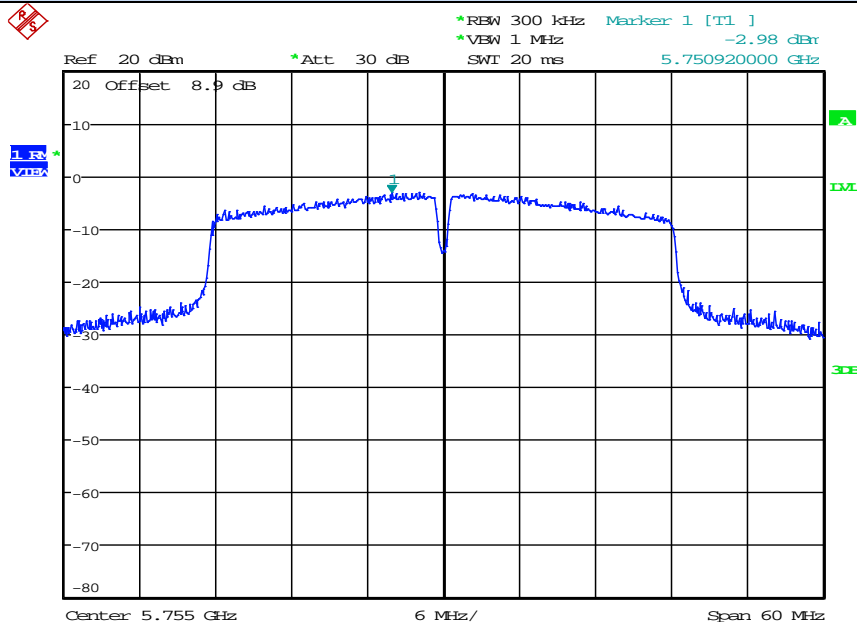
Date: 17.SEP.2019 15:31:04

IEEE 802.11ac20 / Channel 157 / 5785MHz



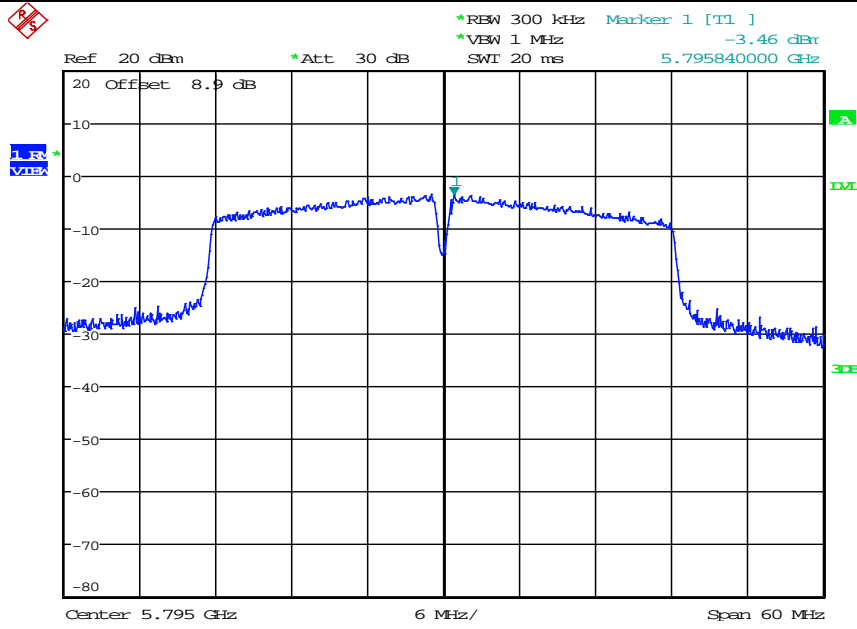
Date: 17.SEP.2019 15:32:27

IEEE 802.11ac20 / Channel 165 / 5825MHz



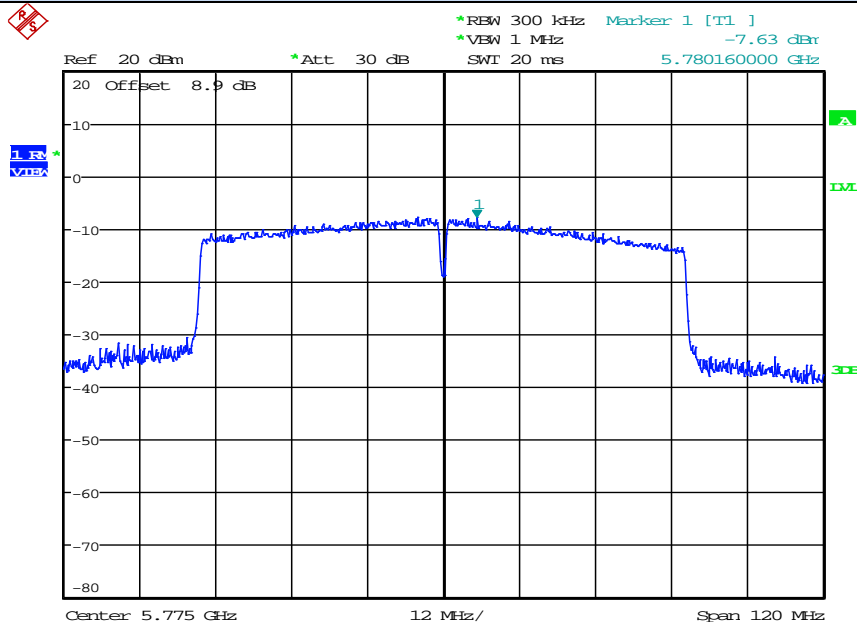
Date: 17.SEP.2019 15:43:12

IEEE 802.11ac40 / Channel 151 / 5755MHz



Date: 17.SEP.2019 15:52:37

IEEE 802.11ac40 / Channel 159 / 5795MHz

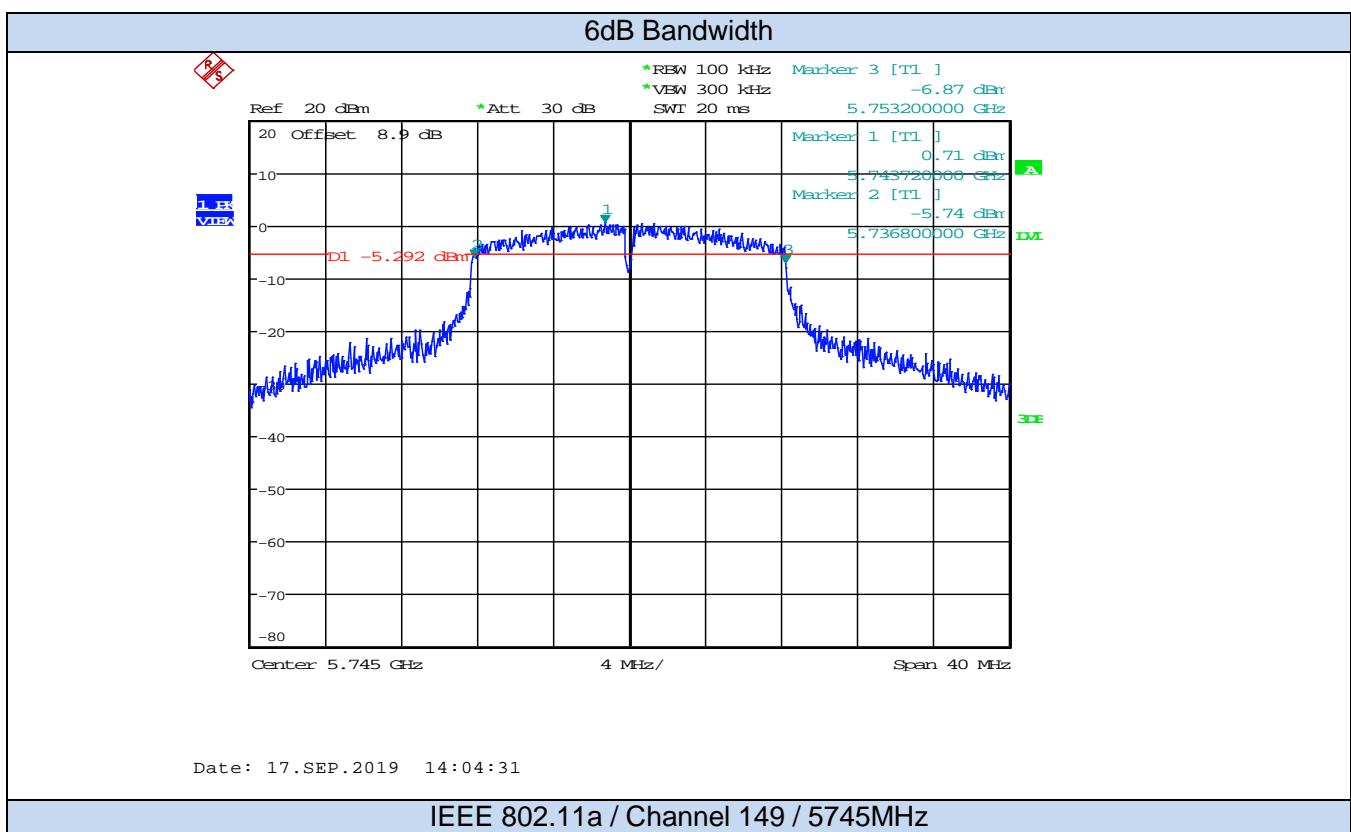


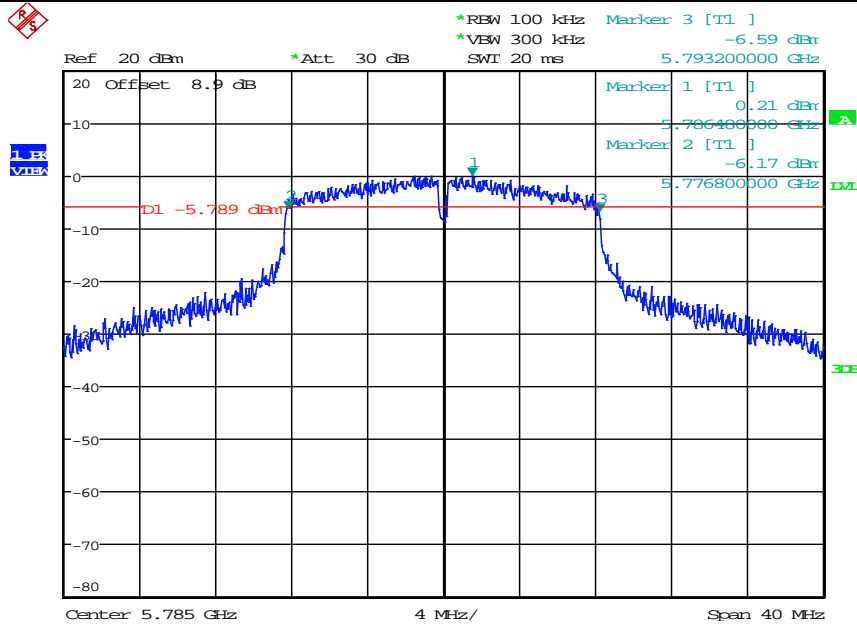
Date: 17.SEP.2019 16:08:59

IEEE 802.11ac80 / Channel 155 / 5775MHz

D.4 Emission Bandwidth

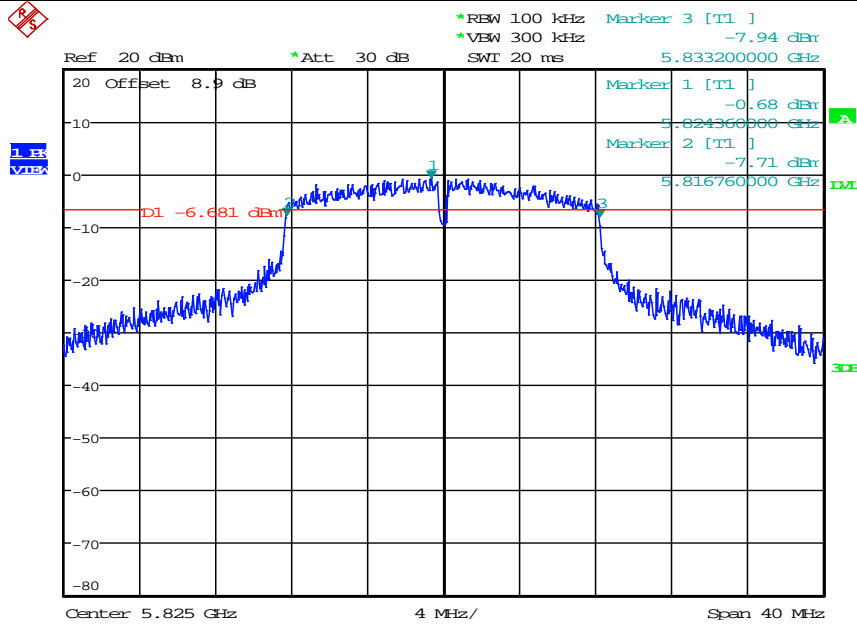
| Test Mode | Channel | Frequency (MHz) | 6dB Bandwidth (MHz) | Limit (MHz) | Verdict |
|-------------|---------|-----------------|---------------------|-------------|---------|
| 11A | 149 | 5745 | 16.400 | >=0.5 | Pass |
| | 157 | 5785 | 16.400 | | Pass |
| | 165 | 5825 | 16.440 | | Pass |
| 11N20 SISO | 149 | 5745 | 17.640 | >=0.5 | Pass |
| | 157 | 5785 | 17.680 | | Pass |
| | 165 | 5825 | 17.640 | | Pass |
| 11N40 SISO | 151 | 5755 | 35.840 | >=0.5 | Pass |
| | 159 | 5795 | 35.840 | | Pass |
| 11AC20S ISO | 149 | 5745 | 17.680 | >=0.5 | Pass |
| | 157 | 5785 | 17.640 | | Pass |
| | 165 | 5825 | 17.640 | | Pass |
| 11AC40S ISO | 151 | 5755 | 36.480 | >=0.5 | Pass |
| | 159 | 5795 | 36.480 | | Pass |
| 11AC80S ISO | 155 | 5775 | 75.680 | >=0.5 | Pass |





Date: 17.SEP.2019 14:14:54

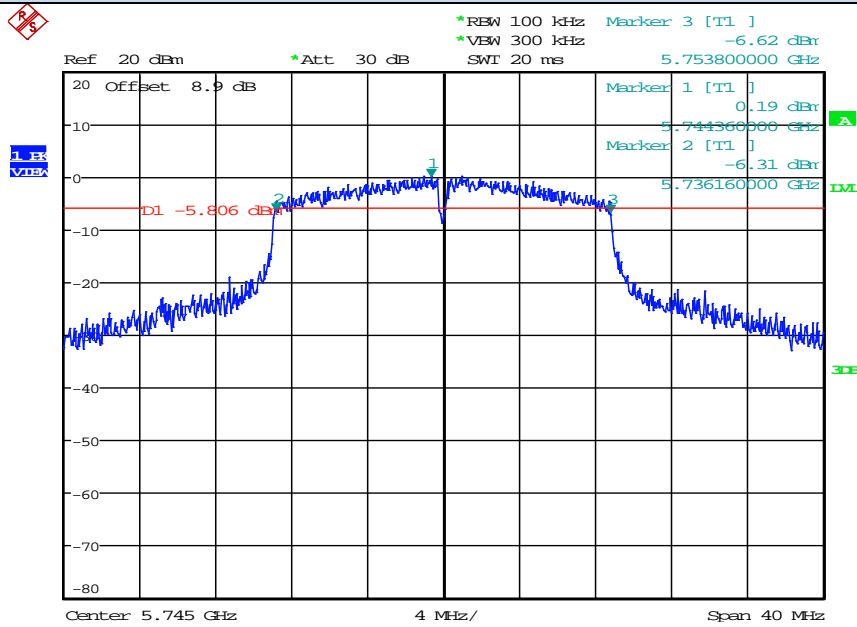
IEEE 802.11a / Channel 157 / 5785MHz



Date: 17.SEP.2019 14:16:19

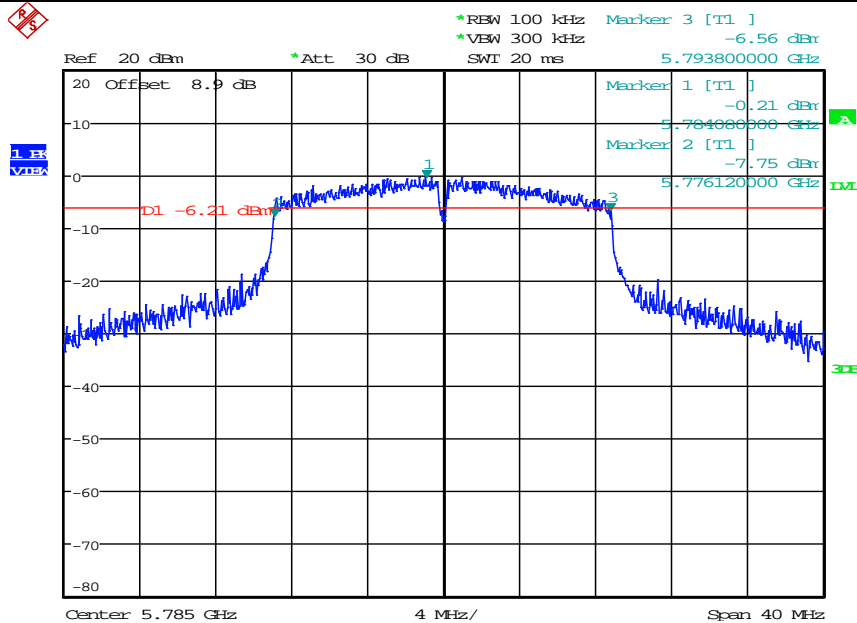
IEEE 802.11a / Channel 165 / 5825MHz

6dB Bandwidth



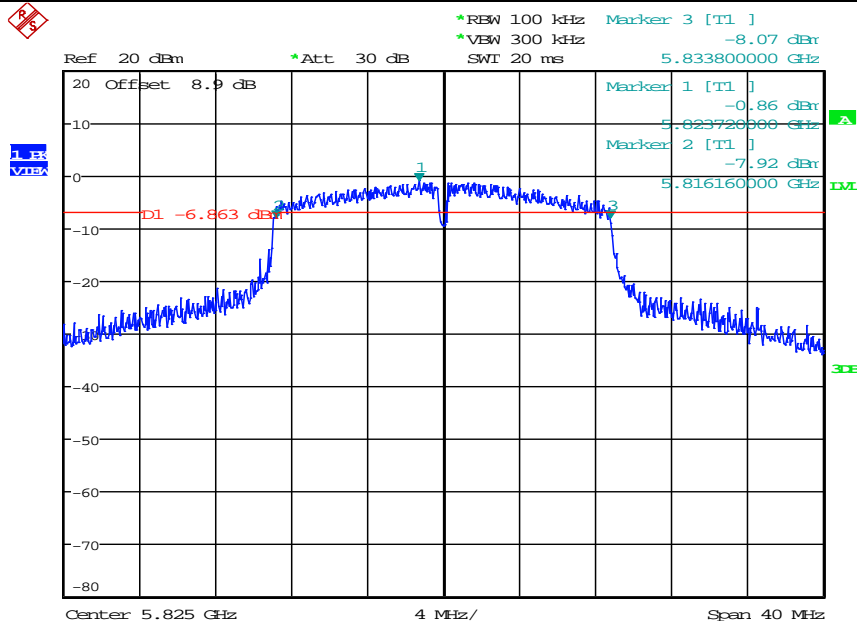
Date: 17.SEP.2019 14:33:18

IEEE 802.11n20 / Channel 149 / 5745MHz



Date: 17.SEP.2019 14:38:57

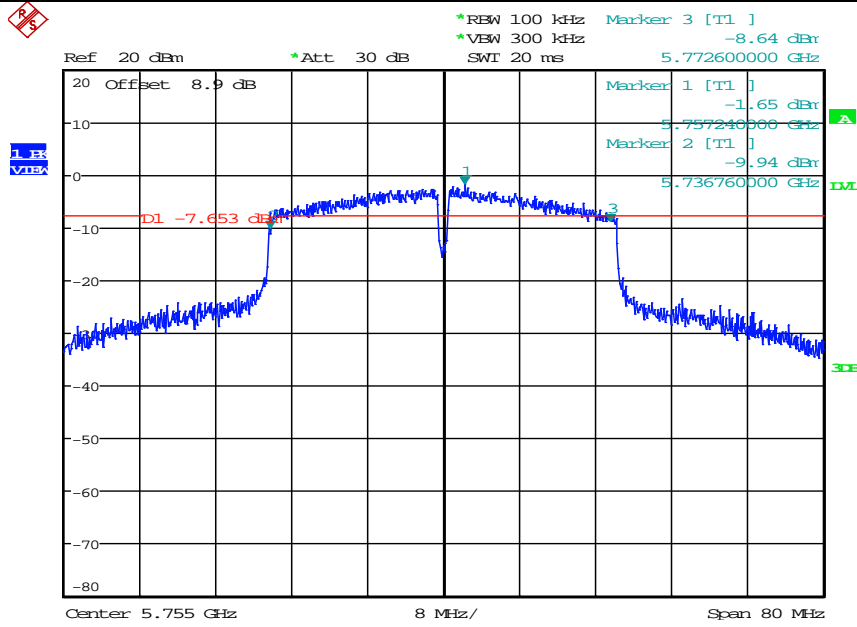
IEEE 802.11n20 / Channel 157 / 5785MHz



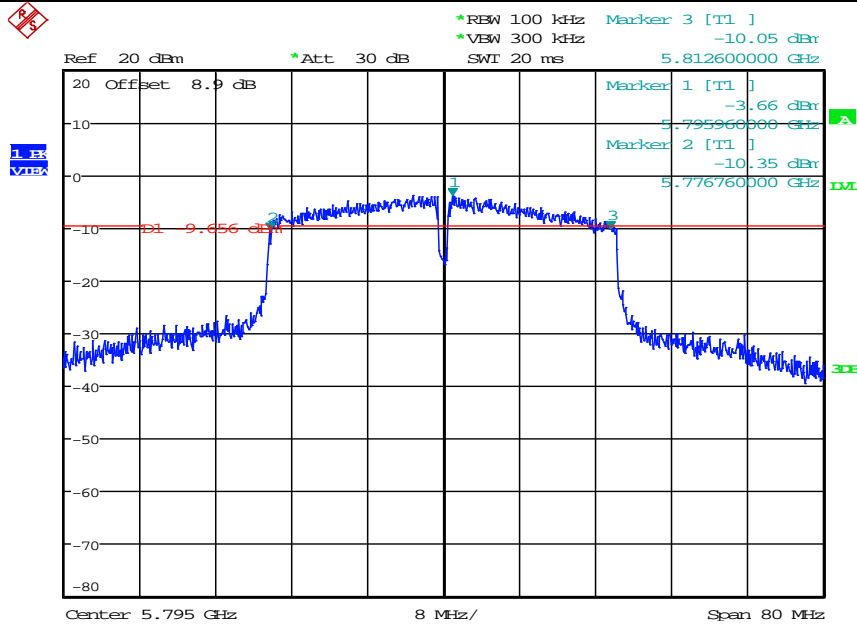
Date: 17.SEP.2019 14:40:23

IEEE 802.11n20 / Channel 165 / 5825MHz

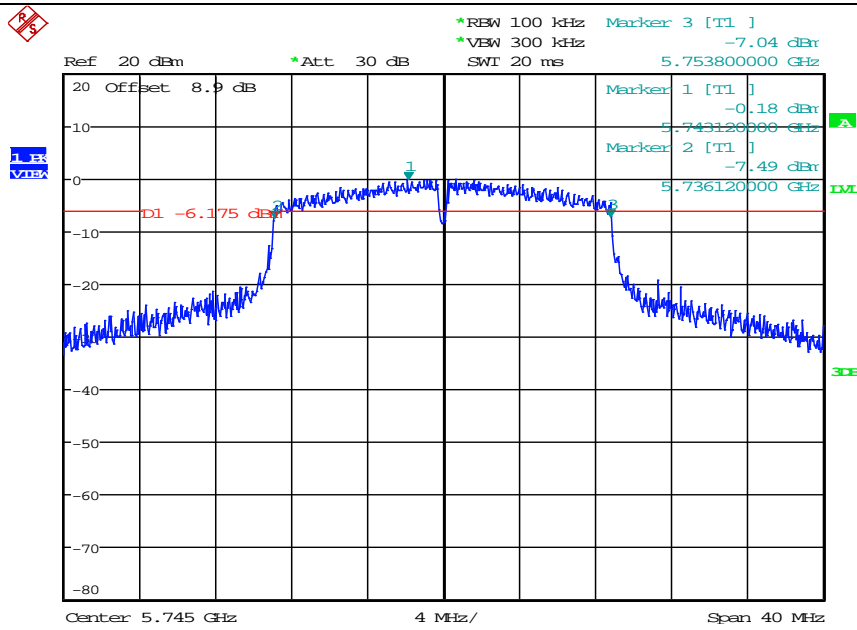
26dB Bandwidth



IEEE 802.11n40 / Channel 151 / 5755MHz

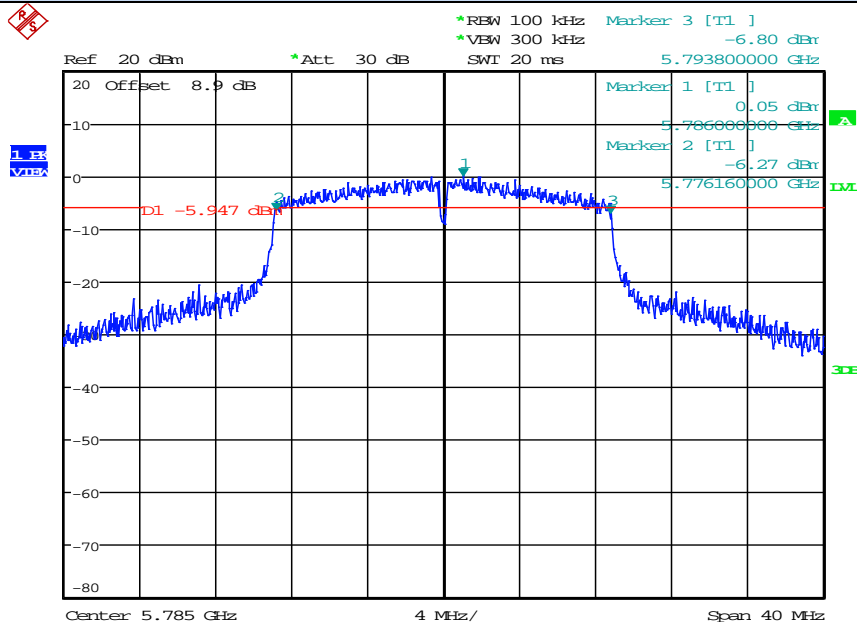


IEEE 802.11n40 / Channel 159 / 5795MHz



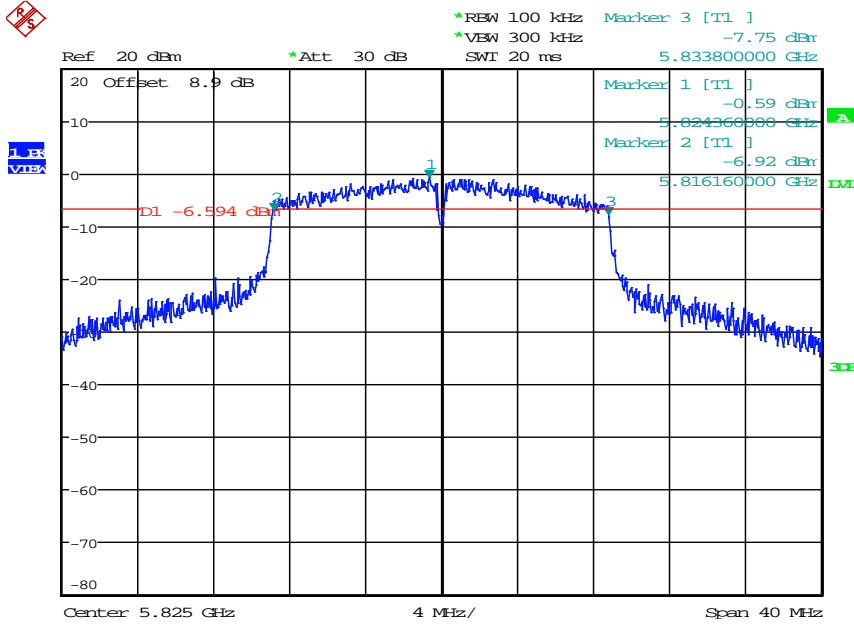
Date: 17.SEP.2019 15:24:51

IEEE 802.11ac20 / Channel 149 / 5745MHz



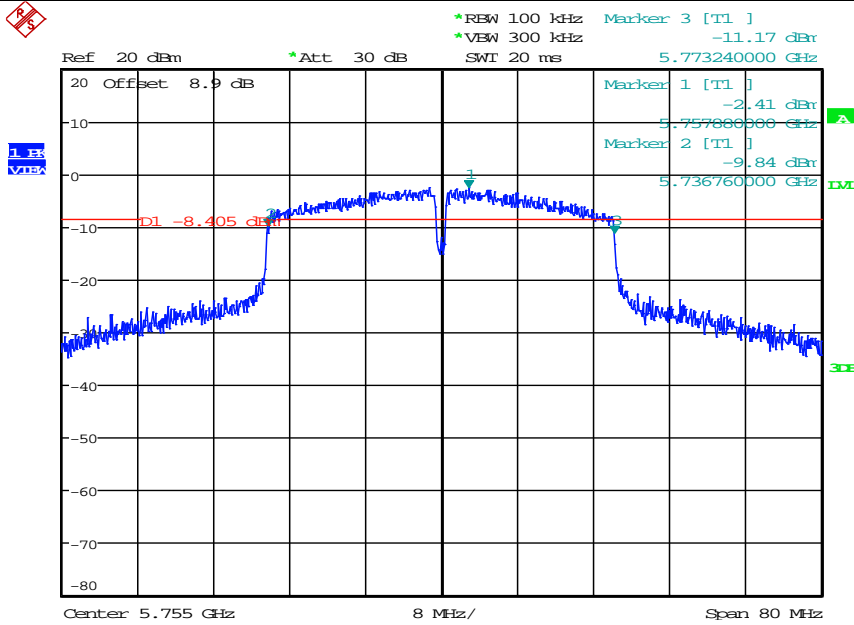
Date: 17.SEP.2019 15:30:16

IEEE 802.11ac20 / Channel 157 / 5785MHz



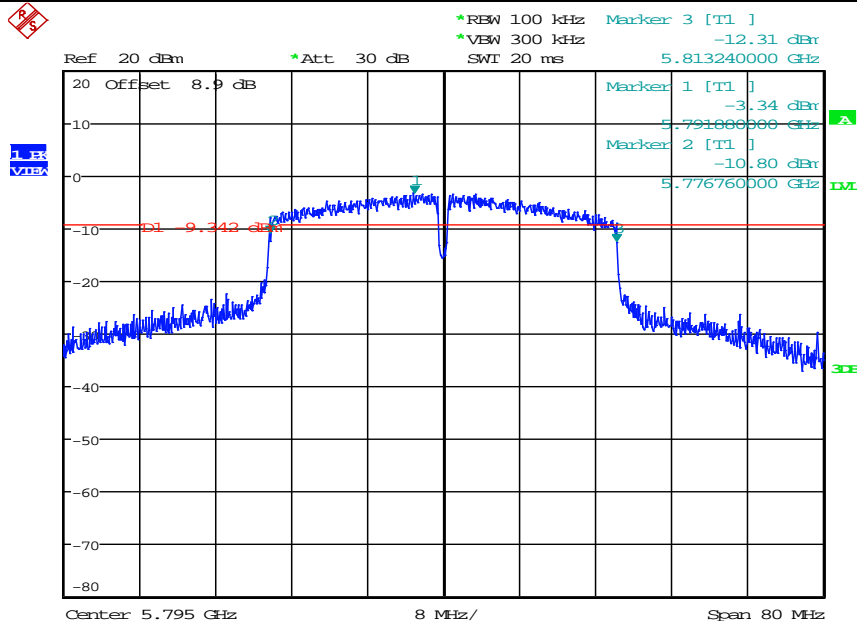
Date: 17.SEP.2019 15:31:39

IEEE 802.11ac20 / Channel 165 / 5825MHz



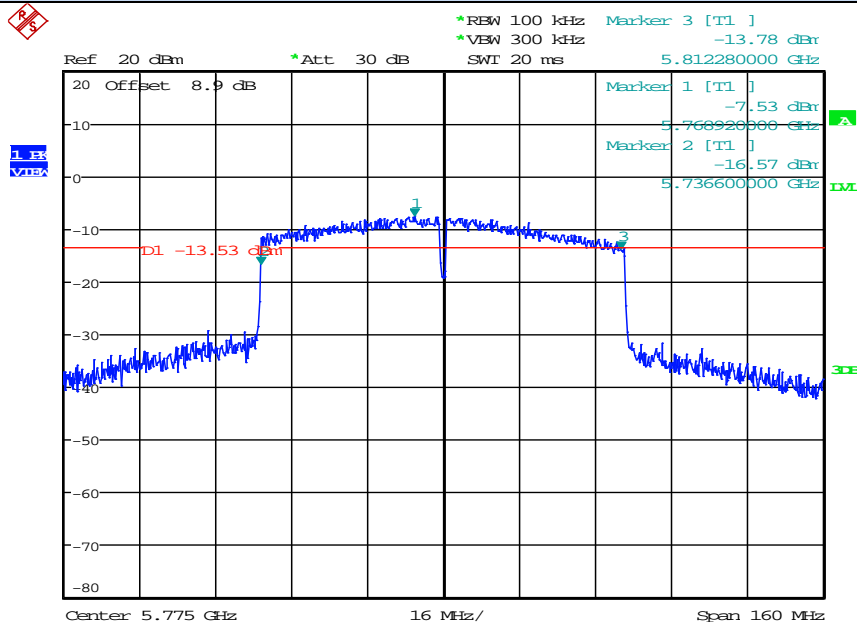
Date: 17.SEP.2019 15:42:24

IEEE 802.11ac40 / Channel 151 / 5755MHz



Date: 17.SEP.2019 15:51:46

IEEE 802.11ac40 / Channel 159 / 5795MHz



Date: 17.SEP.2019 16:08:11

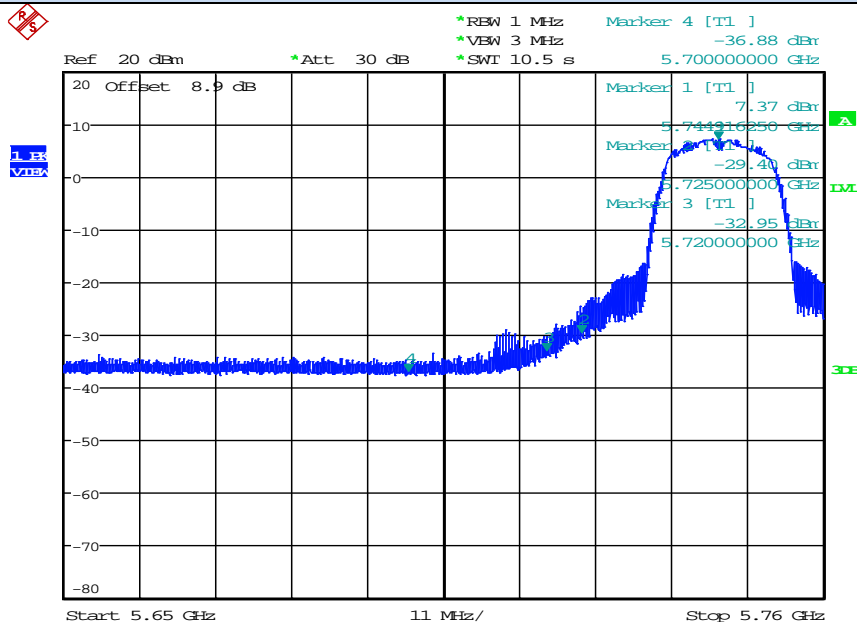
IEEE 802.11ac80 / Channel 155 / 5775MHz

D.5 Undesirable Emissions Measurement

| Test Mode | Channel | Frequency (MHz) | Conducted Power (dBm) | Antenna Gain (dBi) | EIRP (dBm/MHz) | Detector | Limit (dBm/MHz) | Verdict |
|------------|---------|-----------------|-----------------------|--------------------|----------------|----------|-----------------|---------|
| 11A | 149 | 5700.0 | -36.88 | 2.00 | -34.88 | Peak | 10 | Pass |
| | | 5700.0 | -48.18 | 2.00 | -46.18 | Average | 10 | Pass |
| | | 5720.0 | -32.95 | 2.00 | -30.95 | Peak | 15.6 | Pass |
| | | 5720.0 | -47.74 | 2.00 | -45.74 | Average | 15.6 | Pass |
| | | 5725.0 | -29.40 | 2.00 | -27.40 | Peak | 27.0 | Pass |
| | 5725.0 | -47.24 | 2.00 | -45.24 | Average | 27.0 | Pass | |
| | 165 | 5850.0 | -33.62 | 2.00 | -31.62 | Peak | 27.0 | Pass |
| | | 5850.0 | -47.38 | 2.00 | -45.38 | Average | 27.0 | Pass |
| | | 5855.0 | -35.79 | 2.00 | -33.79 | Peak | 15.6 | Pass |
| | | 5855.0 | -47.77 | 2.00 | -45.77 | Average | 15.6 | Pass |
| 5875.0 | | -37.44 | 2.00 | -35.44 | Peak | 10 | Pass | |
| 5875.0 | -48.00 | 2.00 | -46.00 | Average | 10 | Pass | | |
| 11N20 SISO | 149 | 5700.0 | -36.32 | 2.00 | -34.32 | Peak | 10 | Pass |
| | | 5700.0 | -47.80 | 2.00 | -45.80 | Average | 10 | Pass |
| | | 5720.0 | -32.00 | 2.00 | -30.00 | Peak | 15.6 | Pass |
| | | 5720.0 | -48.24 | 2.00 | -46.24 | Average | 15.6 | Pass |
| | | 5725.0 | -29.57 | 2.00 | -27.57 | Peak | 27.0 | Pass |
| | 5725.0 | -47.31 | 2.00 | -45.31 | Average | 27.0 | Pass | |
| | 165 | 5850.0 | -33.76 | 2.00 | -31.76 | Peak | 27.0 | Pass |
| | | 5850.0 | -47.46 | 2.00 | -45.46 | Average | 27.0 | Pass |
| | | 5855.0 | -35.28 | 2.00 | -33.28 | Peak | 15.6 | Pass |
| | | 5855.0 | -47.89 | 2.00 | -45.89 | Average | 15.6 | Pass |
| | | 5875.0 | -36.78 | 2.00 | -34.78 | Peak | 10 | Pass |
| | | 5875.0 | -48.01 | 2.00 | -46.01 | Average | 10 | Pass |

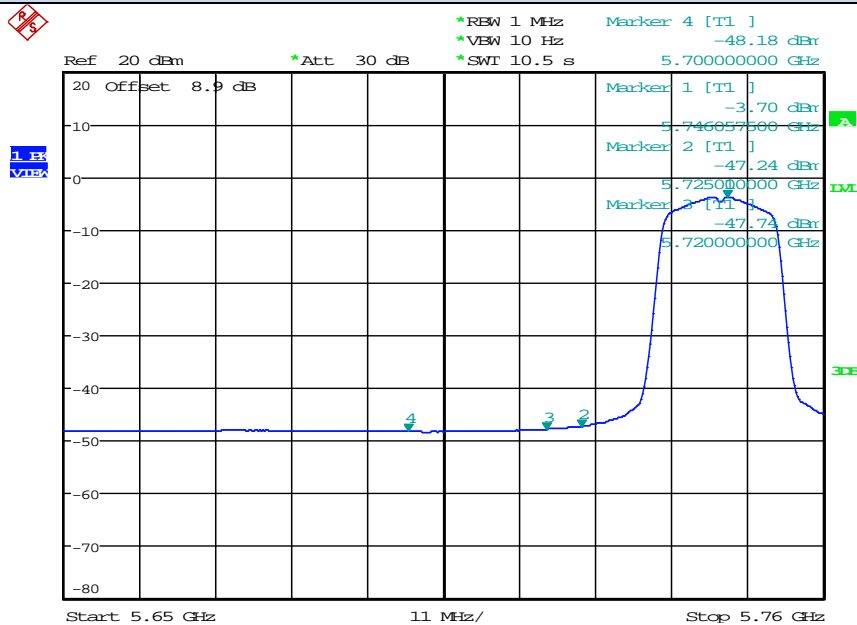
| Test Mode | Channel | Frequency (MHz) | Conducted Power (dBm) | Antenna Gain (dBi) | EIRP (dBm/MHz) | Detector | Limit (dBm/MHz) | Verdict |
|--------------|---------|-----------------|-----------------------|--------------------|----------------|----------|-----------------|---------|
| 11N40 SISO | 151 | 5700.0 | -36.13 | 2.00 | -34.13 | Peak | 10 | Pass |
| | | 5700.0 | -47.79 | 2.00 | -45.79 | Average | 10 | Pass |
| | | 5720.0 | -29.74 | 2.00 | -27.74 | Peak | 15.6 | Pass |
| | | 5720.0 | -46.43 | 2.00 | -44.43 | Average | 15.6 | Pass |
| | | 5725.0 | -30.16 | 2.00 | -28.16 | Peak | 27.0 | Pass |
| | 159 | 5725.0 | -45.47 | 2.00 | -43.47 | Average | 27.0 | Pass |
| | | 5850.0 | -32.94 | 2.00 | -30.94 | Peak | 27.0 | Pass |
| | | 5850.0 | -45.08 | 2.00 | -43.08 | Average | 27.0 | Pass |
| | | 5855.0 | -33.19 | 2.00 | -31.19 | Peak | 15.6 | Pass |
| | | 5855.0 | -46.00 | 2.00 | -44.00 | Average | 15.6 | Pass |
| 11AC2 0 SISO | 149 | 5875.0 | -36.08 | 2.00 | -34.08 | Peak | 10 | Pass |
| | | 5875.0 | -47.53 | 2.00 | -45.53 | Average | 10 | Pass |
| | | 5700.0 | -34.84 | 2.00 | -32.84 | Peak | 10 | Pass |
| | | 5700.0 | -48.00 | 2.00 | -46.00 | Average | 10 | Pass |
| | | 5720.0 | -31.79 | 2.00 | -29.79 | Peak | 15.6 | Pass |
| | 165 | 5720.0 | -48.27 | 2.00 | -46.27 | Average | 15.6 | Pass |
| | | 5725.0 | -30.39 | 2.00 | -28.39 | Peak | 27.0 | Pass |
| | | 5725.0 | -47.75 | 2.00 | -45.75 | Average | 27.0 | Pass |
| | | 5850.0 | -32.23 | 2.00 | -30.23 | Peak | 27.0 | Pass |
| | | 5850.0 | -47.29 | 2.00 | -45.29 | Average | 27.0 | Pass |
| 11AC4 0 SISO | 151 | 5855.0 | -34.35 | 2.00 | -32.35 | Peak | 15.6 | Pass |
| | | 5855.0 | -47.83 | 2.00 | -45.83 | Average | 15.6 | Pass |
| | | 5875.0 | -36.28 | 2.00 | -34.28 | Peak | 10 | Pass |
| | | 5875.0 | -48.04 | 2.00 | -46.04 | Average | 10 | Pass |
| | | 5700.0 | -36.65 | 2.00 | -34.65 | Peak | 10 | Pass |
| | 159 | 5700.0 | -48.04 | 2.00 | -46.04 | Average | 10 | Pass |
| | | 5720.0 | -33.22 | 2.00 | -31.22 | Peak | 15.6 | Pass |
| | | 5720.0 | -47.73 | 2.00 | -45.73 | Average | 15.6 | Pass |
| | | 5725.0 | -31.27 | 2.00 | -29.27 | Peak | 27.0 | Pass |
| | | 5725.0 | -47.12 | 2.00 | -45.12 | Average | 27.0 | Pass |
| 11AC8 0 SISO | 155 | 5850.0 | -31.49 | 2.00 | -29.49 | Peak | 27.0 | Pass |
| | | 5850.0 | -43.42 | 2.00 | -41.42 | Average | 27.0 | Pass |
| | | 5855.0 | -32.47 | 2.00 | -30.47 | Peak | 15.6 | Pass |
| | | 5855.0 | -44.51 | 2.00 | -42.51 | Average | 15.6 | Pass |
| | | 5875.0 | -34.34 | 2.00 | -32.34 | Peak | 10 | Pass |
| | 155 | 5875.0 | -47.03 | 2.00 | -45.03 | Average | 10 | Pass |
| | | 5725.0 | -30.82 | 2.00 | -28.82 | Peak | 27.0 | Pass |
| | | 5720.0 | -29.81 | 2.00 | -27.81 | Peak | 15.6 | Pass |
| | | 5700.0 | -33.26 | 2.00 | -31.26 | Peak | 10 | Pass |
| | | 5725.0 | -46.89 | 2.00 | -44.89 | Average | 27.0 | Pass |
| 155 | 5720.0 | -47.46 | 2.00 | -45.46 | Average | 15.6 | Pass | |
| | 5700.0 | -47.66 | 2.00 | -45.66 | Average | 10 | Pass | |
| | 5850.0 | -33.88 | 2.00 | -31.88 | Peak | 27.0 | Pass | |
| | 5855.0 | -35.93 | 2.00 | -33.93 | Peak | 15.6 | Pass | |
| | 5875.0 | -36.39 | 2.00 | -34.39 | Peak | 10 | Pass | |
| 155 | 5850.0 | -47.72 | 2.00 | -45.72 | Average | 27.0 | Pass | |
| | 5855.0 | -47.87 | 2.00 | -45.87 | Average | 15.6 | Pass | |
| | 5875.0 | -47.91 | 2.00 | -45.91 | Average | 10 | Pass | |

Undesirable Emissions Measurement



Date: 17.SEP.2019 14:13:27

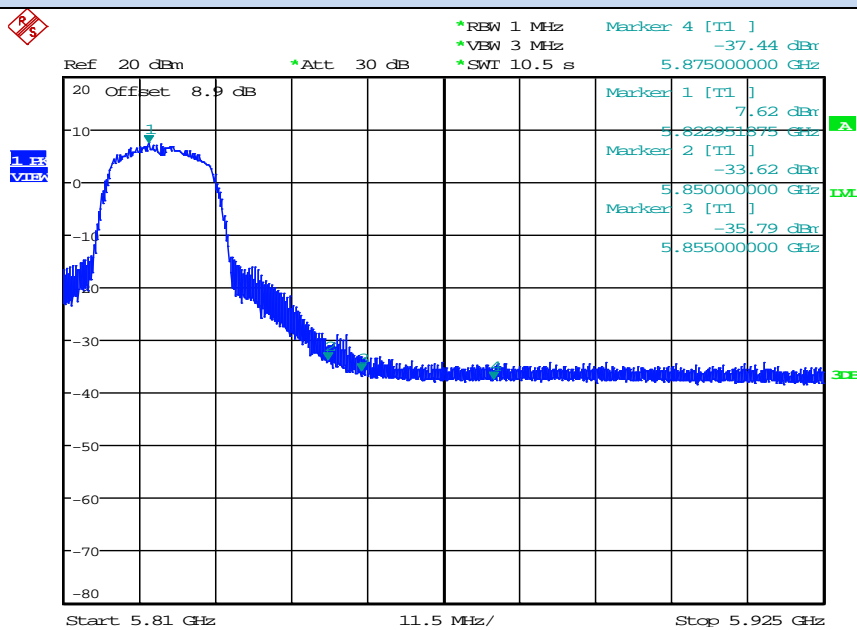
IEEE 802.11a / Channel 149 / 5745MHz / Peak



Date: 17.SEP.2019 14:14:06

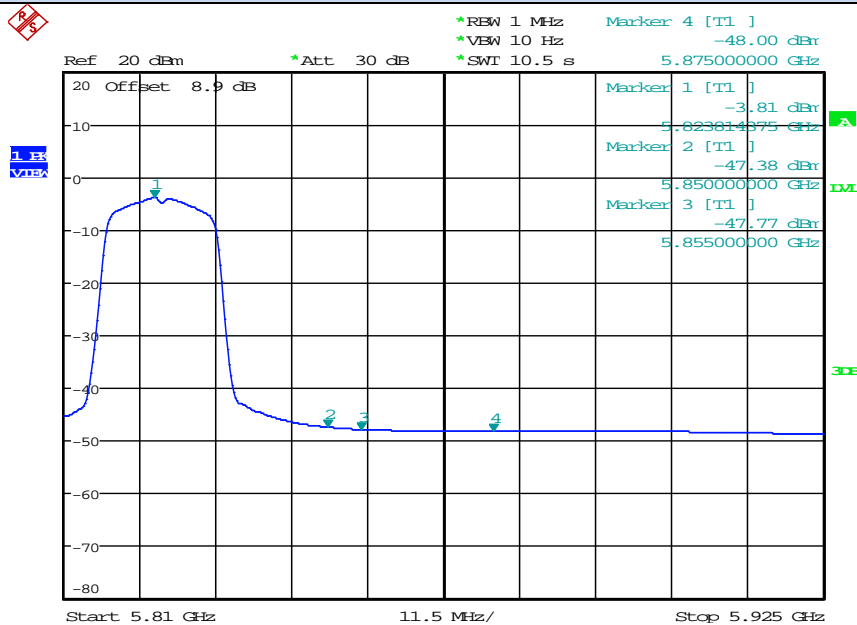
IEEE 802.11a / Channel 148 / 5745MHz / Average

Undesirable Emissions Measurement



Date: 17.SEP.2019 14:21:09

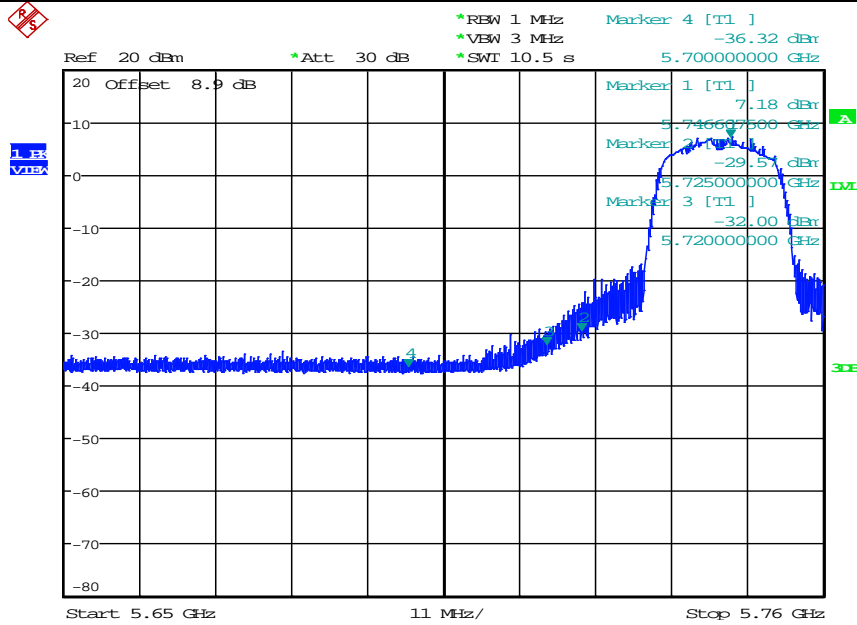
IEEE 802.11a / Channel 165 / 5825MHz / Peak



Date: 17.SEP.2019 14:21:56

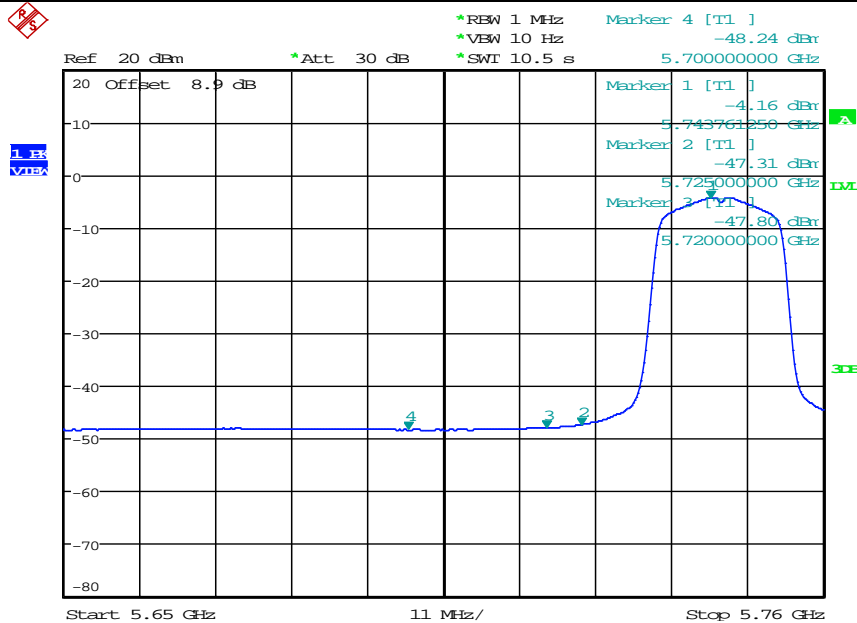
IEEE 802.11a / Channel 165 / 5825MHz / Average

Undesirable Emissions Measurement



Date: 17.SEP.2019 14:37:33

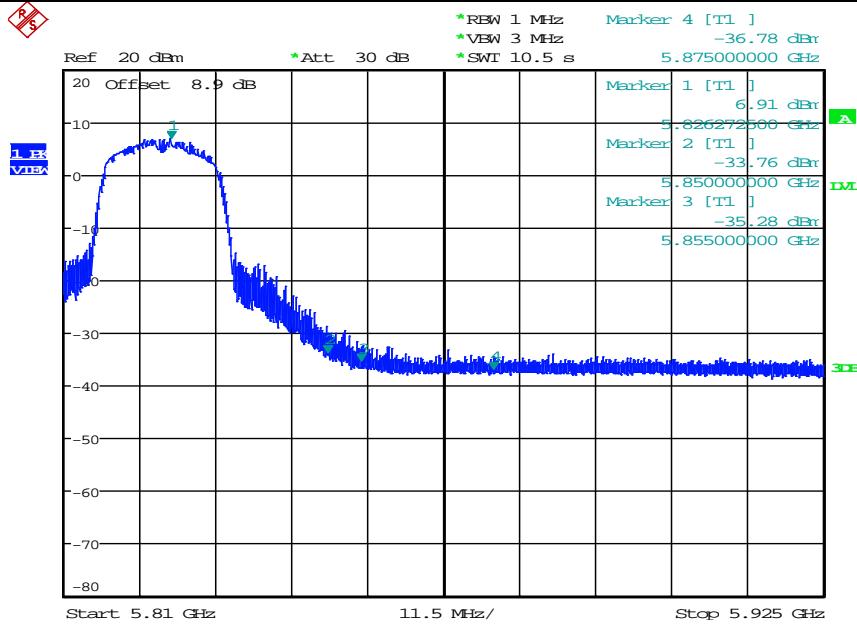
IEEE 802.11n20 / Channel 149 / 5745MHz / Peak



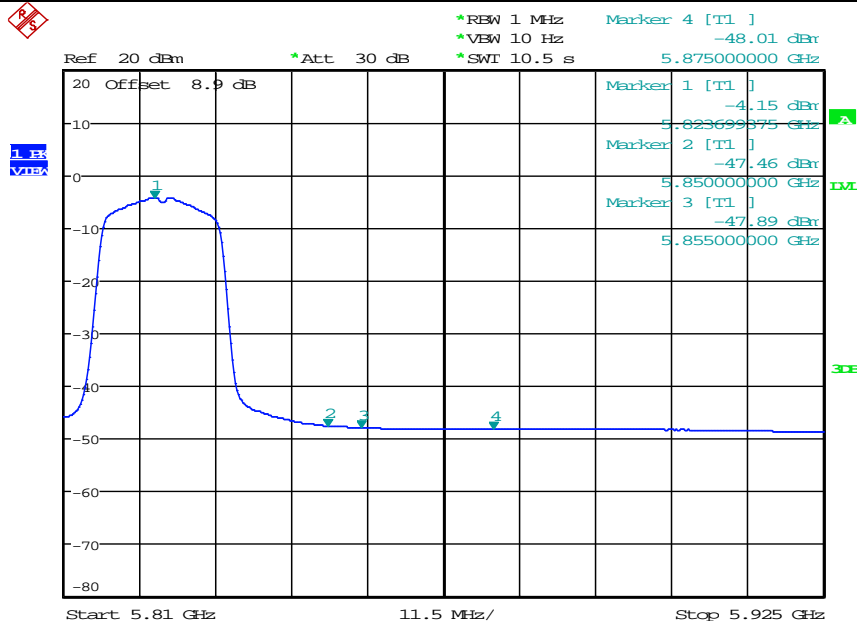
Date: 17.SEP.2019 14:38:10

IEEE 802.11n20 / Channel 149 / 5745MHz / Average

Undesirable Emissions Measurement

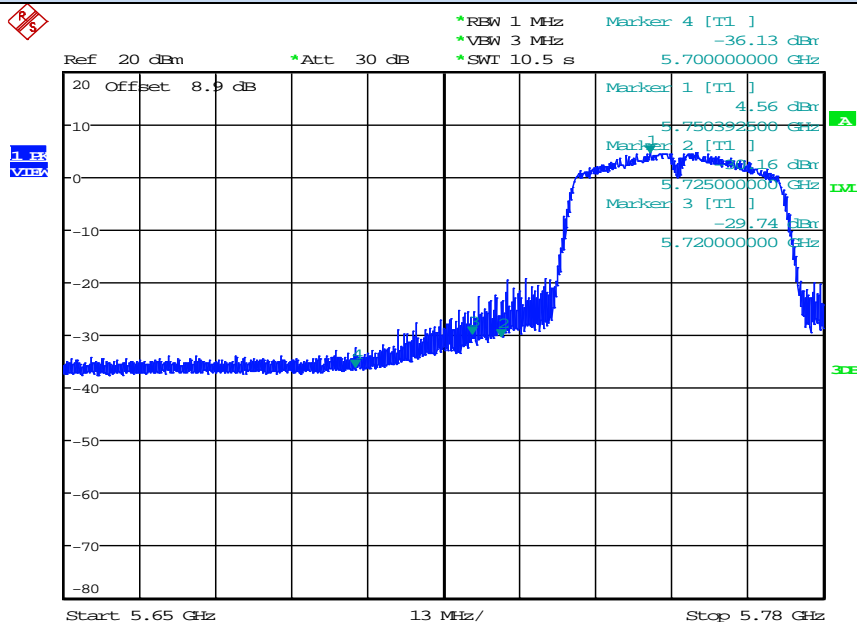


IEEE 802.11n20 / Channel 165 / 5825MHz / Peak



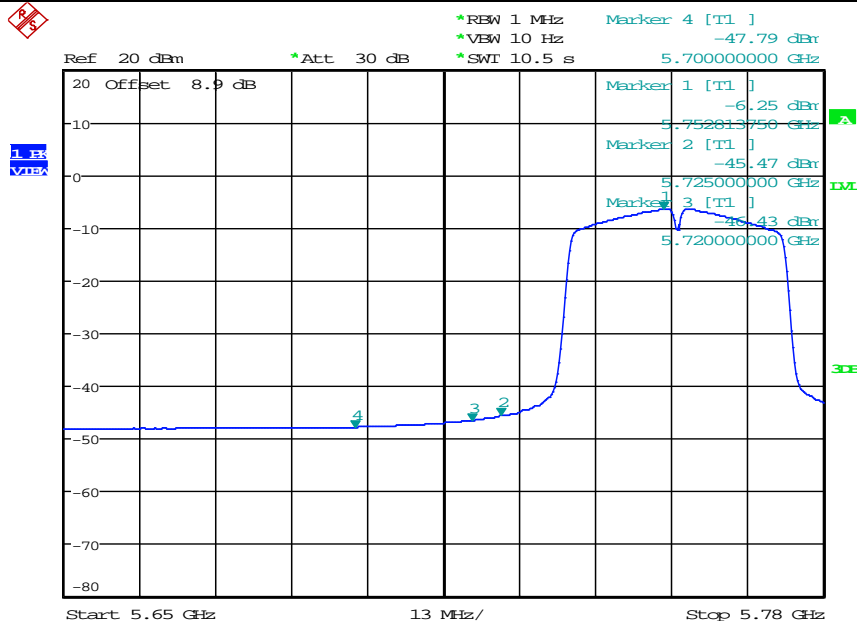
IEEE 802.11n20 / Channel 165 / 5825MHz / Average

Undesirable Emissions Measurement



Date: 17.SEP.2019 15:08:02

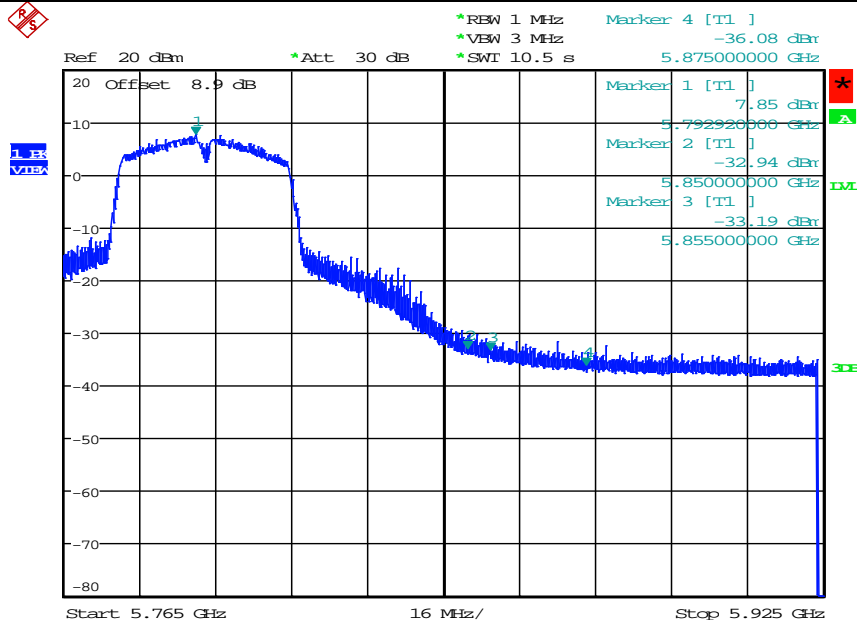
IEEE 802.11n40 / Channel 151 / 5755MHz / Peak



Date: 17.SEP.2019 15:08:40

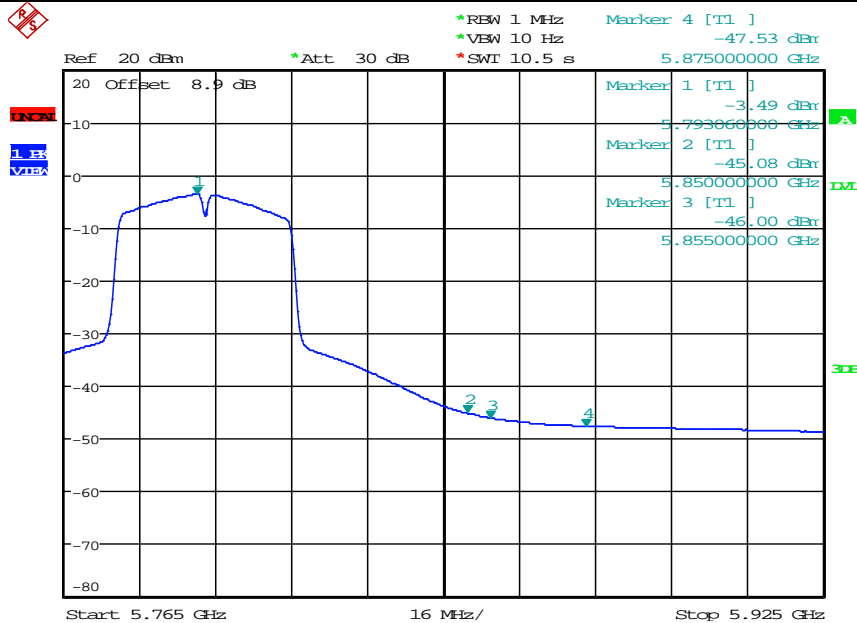
IEEE 802.11n40 / Channel 151 / 5755MHz / Average

Undesirable Emissions Measurement



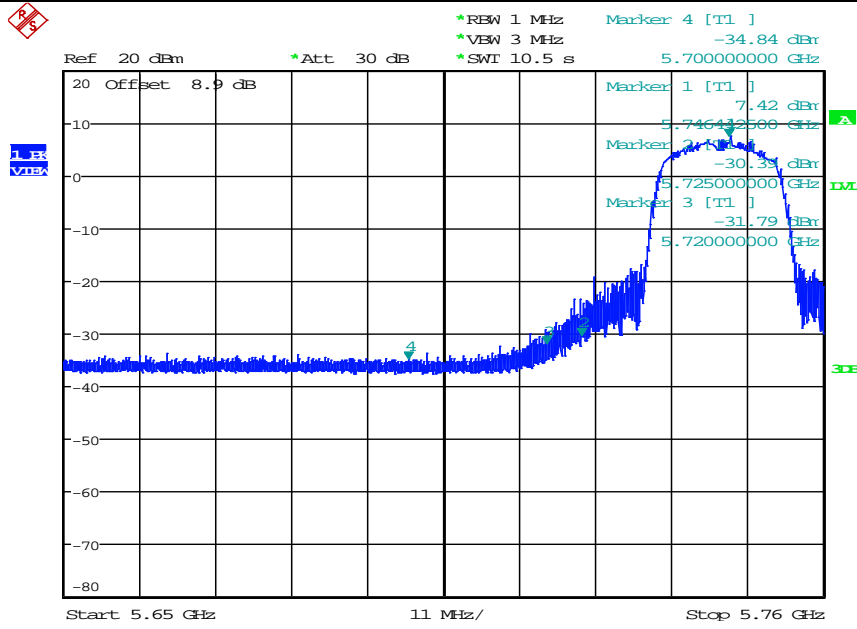
Date: 17.SEP.2019 15:10:54

IEEE 802.11n40 / Channel 159 / 5795MHz / Peak



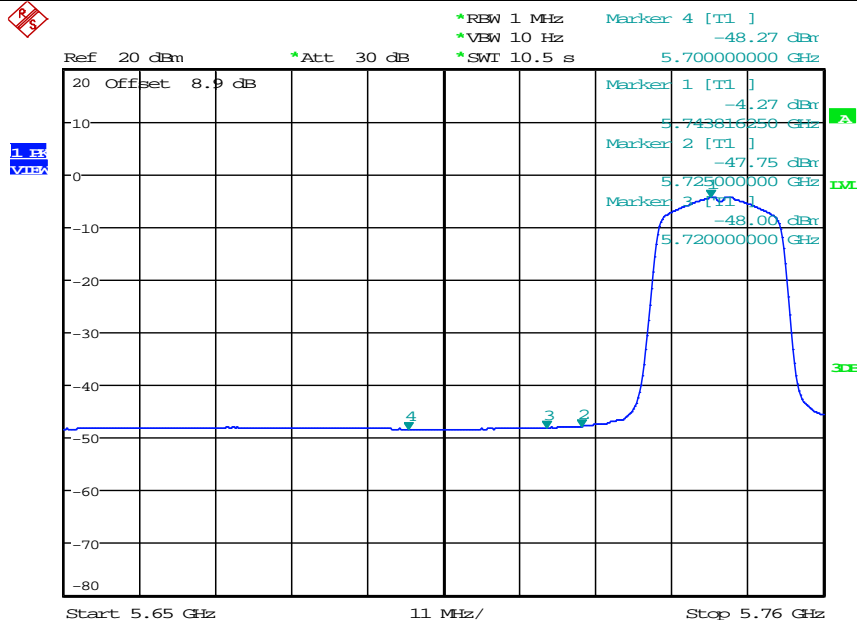
Date: 17.SEP.2019 15:11:32

IEEE 802.11n40 / Channel 159 / 5795MHz / Average



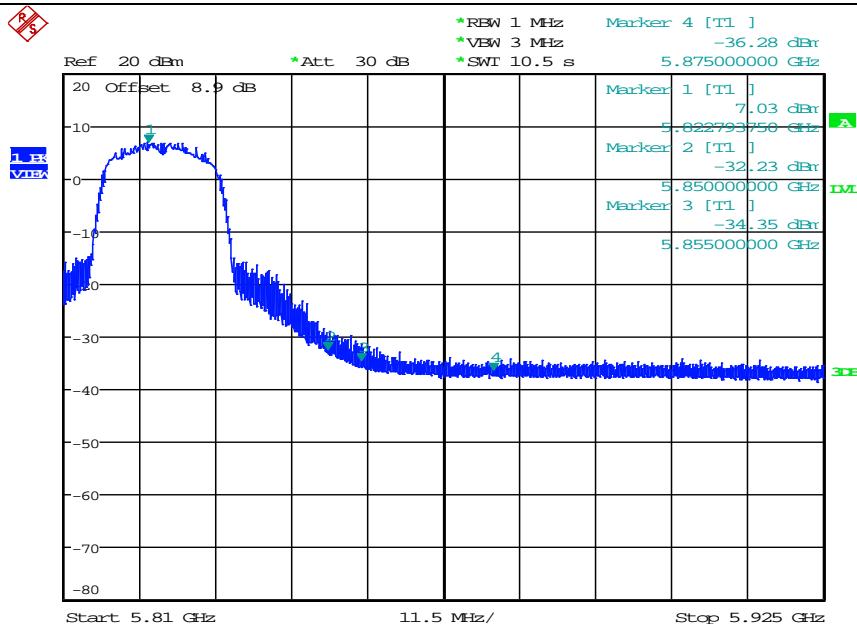
Date: 17.SEP.2019 15:28:53

IEEE 802.11ac20 / Channel 149 / 5745MHz / Peak



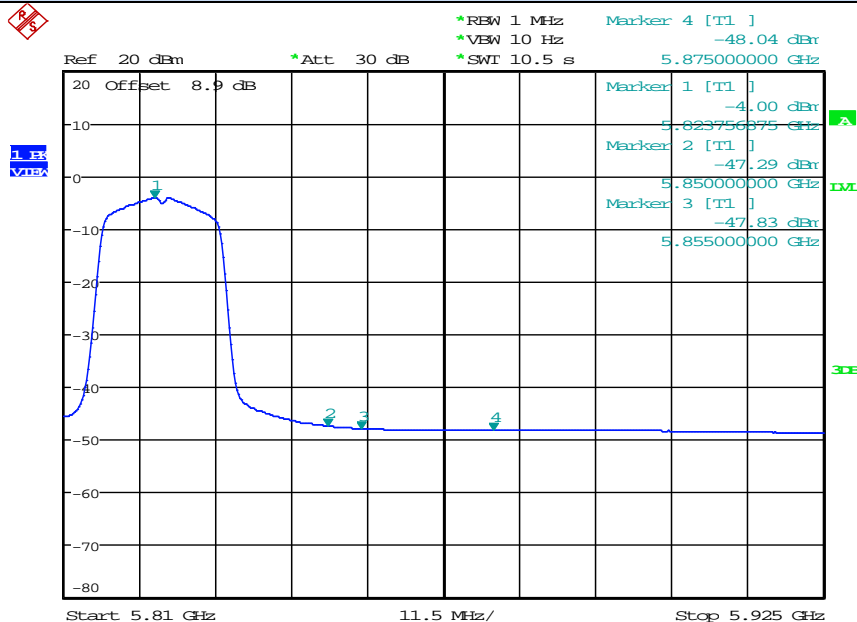
Date: 17.SEP.2019 15:29:30

IEEE 802.11ac20 / Channel 149 / 5745MHz / Average



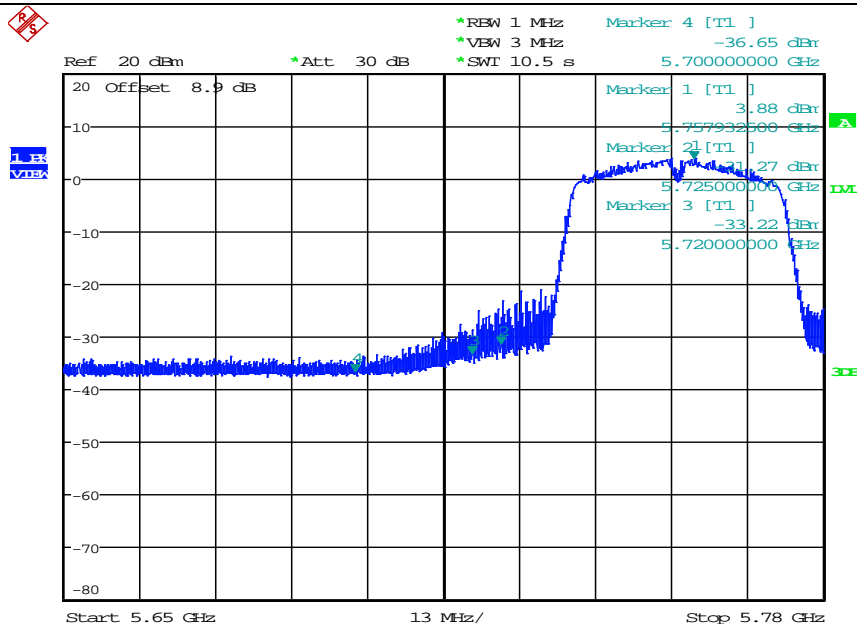
Date: 17.SEP.2019 15:34:19

IEEE 802.11ac20 / Channel 165 / 5825MHz / Peak



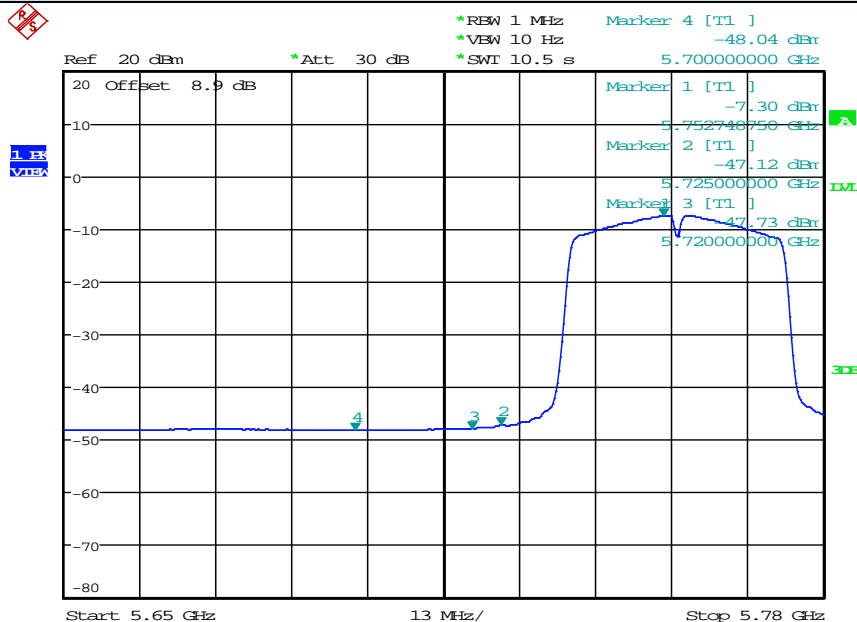
Date: 17.SEP.2019 15:34:56

IEEE 802.11ac20 / Channel 165 / 5825MHz / Average



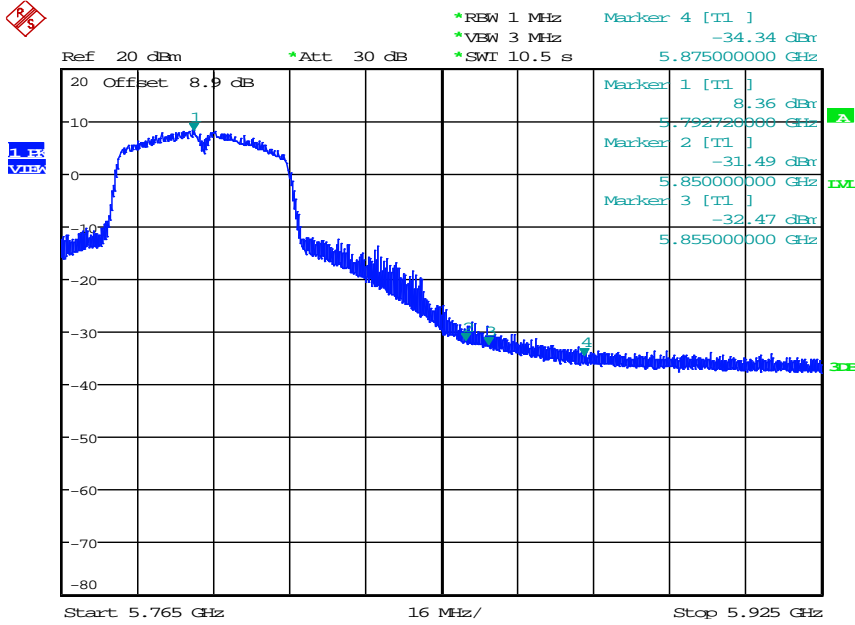
Date: 17.SEP.2019 15:50:26

IEEE 802.11ac40 / Channel 151 / 5755MHz / Peak



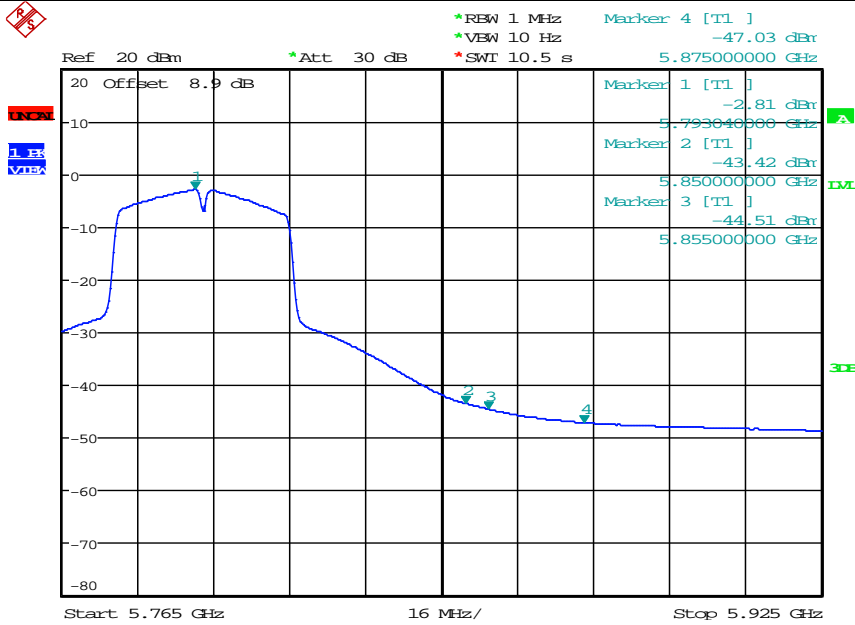
Date: 17.SEP.2019 15:51:05

IEEE 802.11ac40 / Channel 151 / 5755MHz / Average



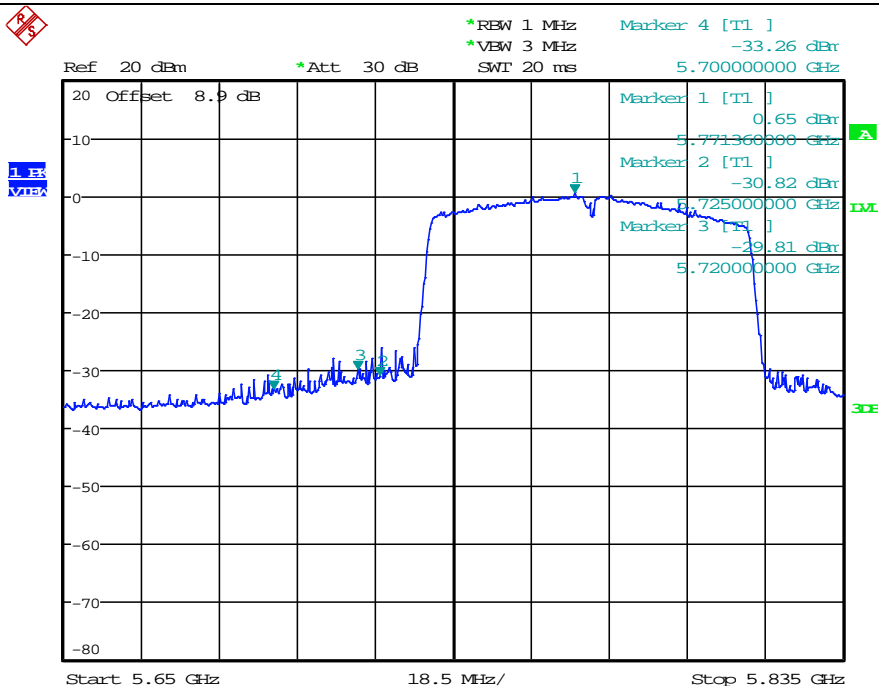
Date: 17.SEP.2019 15:55:48

IEEE 802.11ac40 / Channel 159 / 5795MHz / Peak



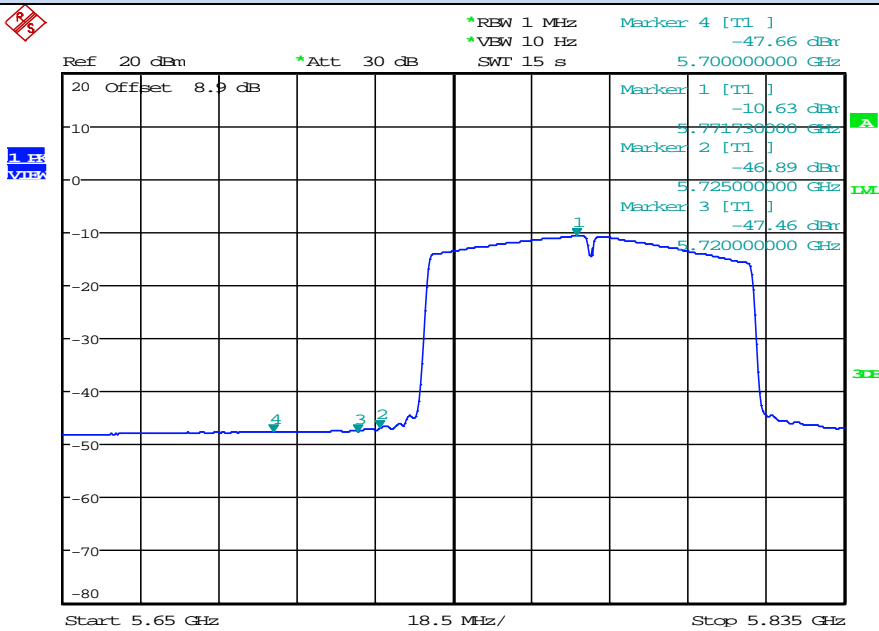
Date: 17.SEP.2019 15:56:26

IEEE 802.11ac40 / Channel 159 / 5795MHz / Average



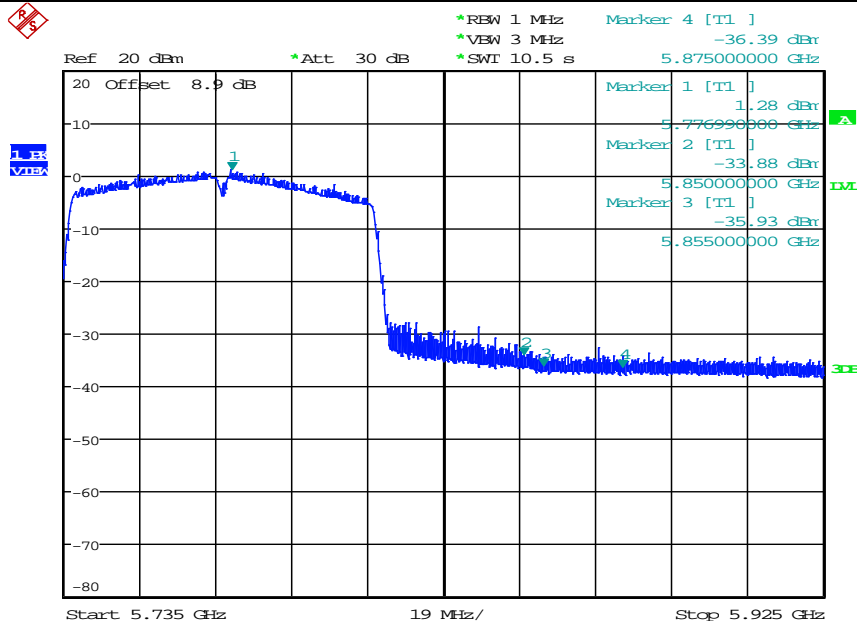
Date: 17.SEP.2019 16:10:32

IEEE 802.11ac80 / Channel 155 / 5775MHz / Peak



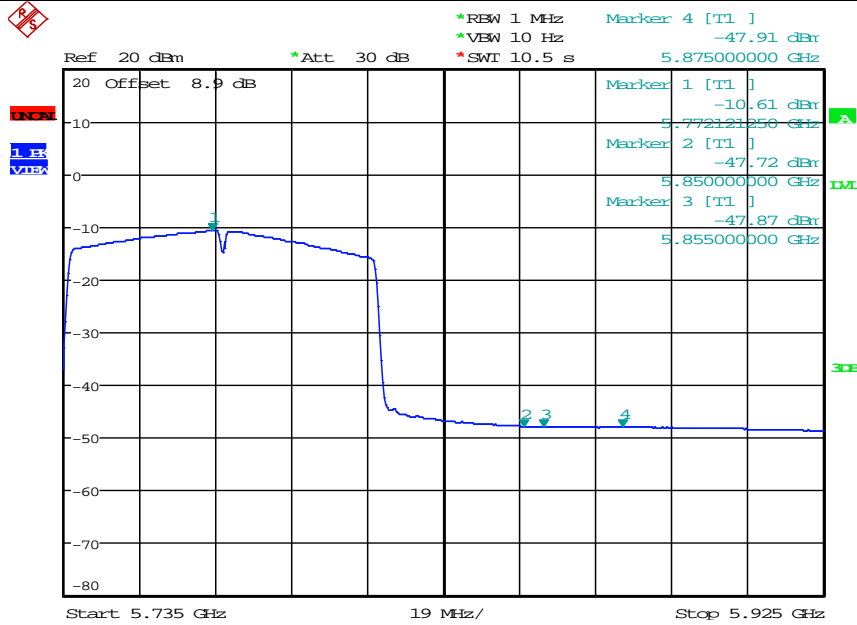
Date: 17.SEP.2019 16:11:16

IEEE 802.11ac80 / Channel 155 / 5775MHz / Average



Date: 17.SEP.2019 16:12:03

IEEE 802.11ac80 / Channel 155 / 5775MHz / Peak



Date: 17.SEP.2019 16:12:42

IEEE 802.11ac80 / Channel 155 / 5775MHz / Average