

| Keysight Spectrum Analyzer - Occupied BV | V | | | | - 6 <u>×</u> |
|--|---------------------------|--|-------------------------------|--------------------------|--------------------------|
| L RF 50Ω DC | Trig: | SENSE:INT er Freq: 5.755000000 GHz Free Run Avg Hol en: 20 dB | | | Trace/Detector |
| 10 dB/div Ref 20.00 dBn | n | | | | |
| 0.00 | wheels borney and the MA | ender per for her make a hope of the | | | Clear Write |
| -10.0 -20.0 -30.0 | 1,11,40 | | Manulay Contractor Contractor | th Million Marcar Marker | Average |
| -60.0 -60.0 -70.0 | | | | | Max Hold |
| Center 5.75500 GHz #Res BW 100 kHz | | #VBW 300 kHz | Swee | 100.0 MHz ep 9.6 ms | Min Hold |
| Occupied Bandwidt | ^h 7.791 MHz | Total Power | 30.4 dBm | | Detector Peak▶ |
| Transmit Freq Error x dB Bandwidth | 48.341 kHz 36.81 MHz | % of OBW Pov x dB | ver 99.00 % -6.00 dB | | Peak≯ Auto <u>Man</u> |
| MSG | | | STATUS | | |

Plot 7-220. 6dB Bandwidth Plot ANT3 (40MHz BW 802.11ax (UNII Band 3) - Ch. 151)



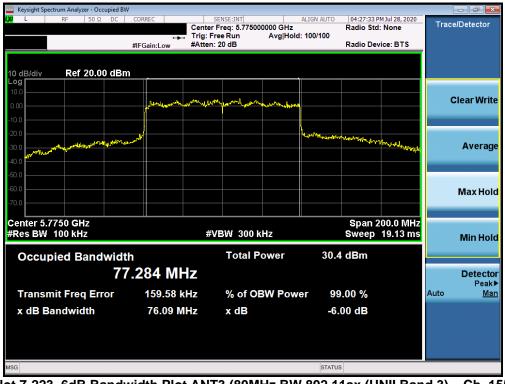
Plot 7-221. 6dB Bandwidth Plot ANT3 (40MHz BW 802.11ax (UNII Band 3) - Ch. 159)

| FCC ID: A3LSMH204V | PCTEST Proud to be part of @ element | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|---|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dama 404 of 044 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 134 of 344 |
| © 2020 PCTEST | | | | V 9.0 02/01/2019 |





Plot 7-222. 6dB Bandwidth Plot ANT3 (80MHz BW 802.11ac (UNII Band 3) - Ch. 155)



Plot 7-223. 6dB Bandwidth Plot ANT3 (80MHz BW 802.11ax (UNII Band 3) - Ch. 155)

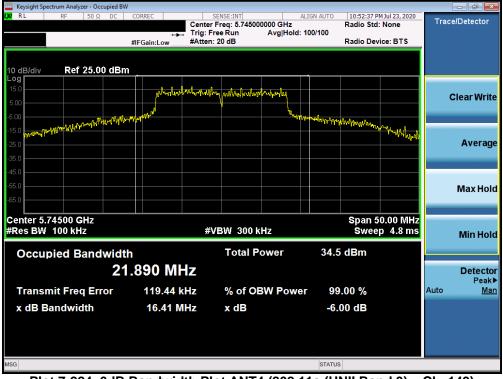
| FCC ID: A3LSMH204V | PCTEST | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
|---------------------|------------------|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dama 425 cf 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 135 of 344 |
| © 2020 PCTEST | | | | V 9.0 02/01/2019 |



Antenna-4 6dB Bandwidth Measurements

| | Frequency [MHz] | Channel No. | 802.11 Mode | Data Rate [Mbps] | Measured 6dB Bandwidth [MHz] |
|----------|--------------------|----------------|-------------|------------------|------------------------------------|
| | 5745 | 149 | а | 6 | 16.41 |
| | 5785 | 157 | а | 6 | 16.36 |
| | 5825 | 165 | а | 6 | 16.42 |
| | 5745 | 149 | n (20MHz) | 6.5/7.2 (MCS0) | 17.52 |
| | 5785 | 157 | n (20MHz) | 6.5/7.2 (MCS0) | 17.59 |
| | 5825 | 165 | n (20MHz) | 6.5/7.2 (MCS0) | 17.20 |
| <u>.</u> | 5745 | 149 | ax (20MHz) | 6.5/7.2 (MCS0) | 17.57 |
| Band | 5785 | 157 | ax (20MHz) | 6.5/7.2 (MCS0) | 17.57 |
| ä | 5825 | 165 | ax (20MHz) | 6.5/7.2 (MCS0) | 17.28 |
| | 5755 | 151 | n (40MHz) | 13.5/15 (MCS0) | 36.18 |
| | 5795 | 159 | n (40MHz) | 13.5/15 (MCS0) | 36.01 |
| | 5755 | 151 | ax (40MHz) | 13.5/15 (MCS0) | 37.66 |
| | 5795 | 159 | ax (40MHz) | 13.5/15 (MCS0) | 38.12 |
| | 5775 | 155 | ac (80MHz) | 29.3/32.5 (MCS0) | 77.19 |
| | 5775 | 155 | ax (80MHz) | 29.3/32.5 (MCS0) | 75.56 |

Table 7-8. Conducted Bandwidth Measurements



Plot 7-224. 6dB Bandwidth Plot ANT4 (802.11a (UNII Band 3) – Ch. 149)

| FCC ID: A3LSMH204V | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
|---------------------|------------------|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dama 400 af 044 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 136 of 344 |
| © 2020 PCTEST | | • | | V 9.0 02/01/2019 |





Plot 7-225. 6dB Bandwidth Plot ANT4 (802.11a (UNII Band 3) – Ch. 157)



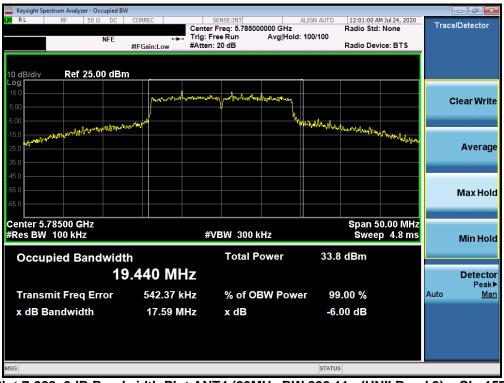
Plot 7-226. 6dB Bandwidth Plot ANT4 (802.11a (UNII Band 3) - Ch. 165)

| FCC ID: A3LSMH204V | PCTEST Présid to be part of @ vienned: | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager | |
|--------------------------------|---|--|---------|---------------------------------|--|
| Test Report S/N: | Test Dates: | EUT Type: | | De r.a. 407. af 0.44 | |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 137 of 344 | |
| © 2020 PCTEST V 9.0 02/01/2019 | | | | | |





Plot 7-227. 6dB Bandwidth Plot ANT4 (20MHz BW 802.11n (UNII Band 3) - Ch. 149)



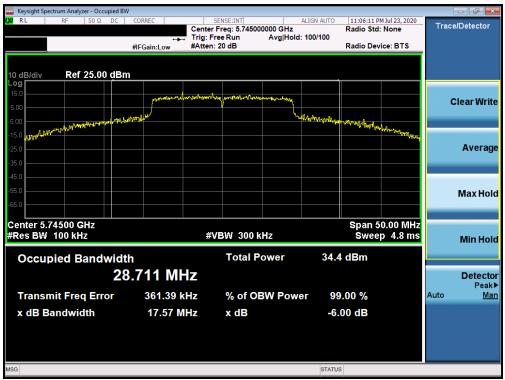
Plot 7-228. 6dB Bandwidth Plot ANT4 (20MHz BW 802.11n (UNII Band 3) - Ch. 157)

| FCC ID: A3LSMH204V | houd to be part of @ electric | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
|---------------------|-------------------------------|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dama 400 at 044 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 138 of 344 |
| © 2020 PCTEST | | | | V 9.0 02/01/2019 |





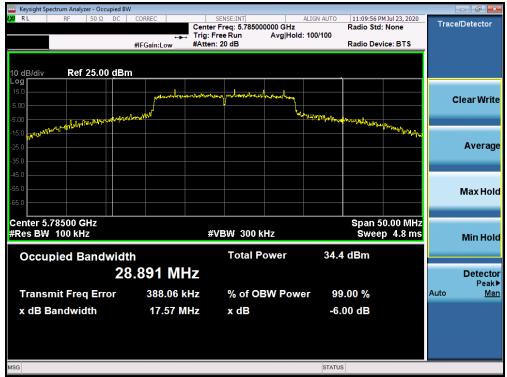
Plot 7-229. 6dB Bandwidth Plot ANT4 (20MHz BW 802.11n (UNII Band 3) - Ch. 165)



Plot 7-230. 6dB Bandwidth Plot ANT4 (20MHz BW 802.11ax (UNII Band 3) - Ch. 149)

| FCC ID: A3LSMH204V | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
|---------------------|------------------|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 120 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 139 of 344 |
| © 2020 PCTEST | • | | | V 9.0 02/01/2019 |





Plot 7-231. 6dB Bandwidth Plot ANT4 (20MHz BW 802.11ax (UNII Band 3) - Ch. 157)



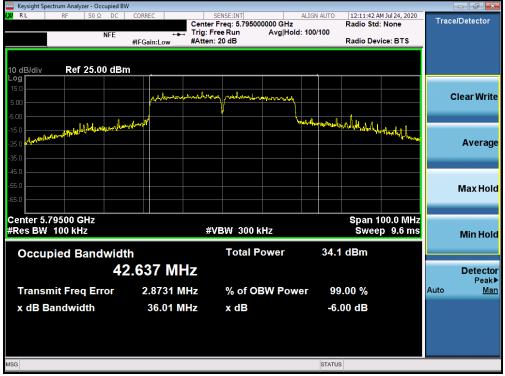
Plot 7-232. 6dB Bandwidth Plot ANT4 (20MHz BW 802.11ax (UNII Band 3) - Ch. 165)

| FCC ID: A3LSMH204V | PCTEST Provid to law part of @ element | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|---|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 140 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 140 of 344 |
| © 2020 PCTEST | - | • | | V 9.0 02/01/2019 |





Plot 7-233. 6dB Bandwidth Plot ANT4 (40MHz BW 802.11n (UNII Band 3) - Ch. 151)



Plot 7-234. 6dB Bandwidth Plot ANT4 (40MHz BW 802.11n (UNII Band 3) - Ch. 159)

| FCC ID: A3LSMH204V | PCTEST Possal to be part of @ element | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
|---------------------|--|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dama 444 -4 044 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 141 of 344 |
| © 2020 PCTEST | | | | V 9.0 02/01/2019 |



| Keysight Spectrum Analyzer - Occupied B | | | | | |
|--|--------------------|--|-----------------------|---------------------------------|-----------------|
| X/RL RF 50Ω DC | CORREC | SENSE:INT er Freg: 5.755000000 GHz | | 40 PM Jul 23, 2020 Std: None | Trace/Detector |
| | Trig: | | d: 100/100 | Device: BTS | |
| | #IFGain:Low #Atte | en: 20 ab | Radio | Device: B15 | |
| | | | | | |
| 10 dB/div Ref 25.00 dB Log | m | | | | |
| 15.0 | angraph hat marine | Leve monthly the produced and | | | |
| 5.00 | | water and and a second se | 1 | | Clear Write |
| | wante | | harmon and prover the | MAN MUHAMBAL | |
| -15.0 what rough the second se | | | | month and all of | |
| -25.0 | | | | | Averag |
| -35.0 | | | | | |
| -45.0 | | | | | |
| -55.0 | | | | | Max Hole |
| -65.0 | | | | | |
| Center 5.75500 GHz | | | Sna | n 100.0 MHz | |
| #Res BW 100 kHz | 7 | #VBW 300 kHz | | reep 9.6 ms | Min Hol |
| | | | | | MITTO |
| Occupied Bandwid | | Total Power | 35.1 dBm | | |
| 6 | 9.041 MHz | | | | Detecto |
| Transmit Freq Error | 609.23 kHz | % of OBW Pow | ver 99.00 % | | Peak Auto Ma |
| | | | | | Auto <u>me</u> |
| x dB Bandwidth | 37.66 MHz | x dB | -6.00 dB | | |
| | | | | | |
| | | | | | |
| | | | | | |
| SG | | | STATUS | | |

Plot 7-235. 6dB Bandwidth Plot ANT4 (40MHz BW 802.11ax (UNII Band 3) - Ch. 151)



Plot 7-236. 6dB Bandwidth Plot ANT4 (40MHz BW 802.11ax (UNII Band 3) - Ch. 159)

| FCC ID: A3LSMH204V | PCTEST Proved to be part of @ viencent | MEASUREMENT REPORT (CERTIFICATION) | SAMBUND | Approved by: Quality Manager |
|---------------------|---|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dama 440 at 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 142 of 344 |
| © 2020 PCTEST | | | | V 9.0 02/01/2019 |



| Keysight Spectrum Analyzer - Oc | | | | | | | | | |
|--------------------------------------|------------|--|-----------------------------------|--------------------|------------|--|--------------------------|-------|-------------|
| Ι XI RE 50 Ω | DC CORREC | | NSE:INT req: 5.775000 e Run | | ALIGN AUTO | 12:19:21 A Radio Std | M Jul 24, 2020 : None | Trace | e/Detector |
| | #IFGain: | Low #Atten: 2 | 20 dB | | | Radio Dev | ice: BTS | | |
| 10 dB/div Ref 25.0 | 0 dBm | | | , | | | | | |
| Log 15.0 | | | 1 | | | | | c | Clear Write |
| -5.00 | and h | antaileadhanna an an An Anna an An Anna an An Anna an An An Anna Anna | War Han Hilling | ****************** | | | | | |
| 15.0 | ionterdund | | | | welding | vitter of the state of the stat | Manual Martin | | Average |
| -35.0 | | | | | | | | | |
| -45.0 | | | | | | | | | |
| -55.0 | | | | | | | | | Max Hold |
| -65.0 | | | | | | | | | |
| Center 5.7750 GHz #Res BW 100 kHz | | #\/ | 300 ki | H7 | | | 200.0 MHz 19.13 ms | | |
| THES DW TOO KITZ | | <i></i> | | | | | 19.15 1119 | | Min Hold |
| Occupied Band | width | | Total Po | ower | 32.4 | dBm | | | |
| | 77.894 MHz | | | | | | Detector Peak▶ | | |
| Transmit Freq Er | ror 10: | 3.35 kHz | % of OB | W Powe | er 99 | .00 % | | Auto | <u>Man</u> |
| x dB Bandwidth | 77 | .19 MHz | x dB | | -6.0 | 00 dB | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| MSG | | | | | STATUS | | | | |

Plot 7-237. 6dB Bandwidth Plot ANT4 (80MHz BW 802.11ac (UNII Band 3) - Ch. 155)



Plot 7-238. 6dB Bandwidth Plot ANT4 (80MHz BW 802.11ax (UNII Band 3) - Ch. 155)

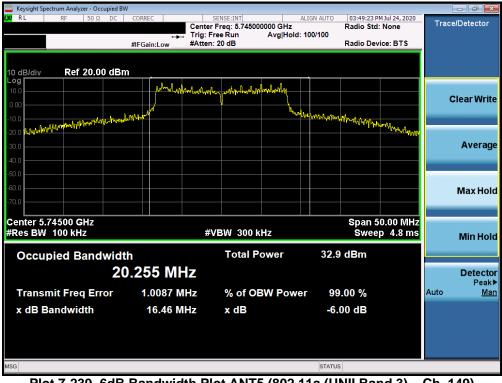
| FCC ID: A3LSMH204V | PCTEST Présai to las part of @ viscand | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|---------------------|---|--|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dama 442 -6 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | Page 143 of 344 |
| © 2020 PCTEST | | · · · · · · · · · · · · · · · · · · · | V 9.0 02/01/2019 |



Antenna-5 6dB Bandwidth Measurements

| | Frequenc y [MHz] | Chann el No. | 802.11 Mode | Data Rate [Mbps] | Measured 6dB Bandwidth [MHz] |
|----------|---------------------|-----------------|----------------|------------------|------------------------------------|
| | 5745 | 149 | а | 6 | 16.46 |
| | 5785 | 157 | а | 6 | 16.41 |
| | 5825 | 165 | а | 6 | 16.46 |
| | 5745 | 149 | n (20MHz) | 6.5/7.2 (MCS0) | 17.60 |
| | 5785 | 157 | n (20MHz) | 6.5/7.2 (MCS0) | 17.63 |
| | 5825 | 165 | n (20MHz) | 6.5/7.2 (MCS0) | 17.65 |
| <u>.</u> | 5745 | 149 | ax (20MHz) | 6.5/7.2 (MCS0) | 18.38 |
| Band | 5785 | 157 | ax (20MHz) | 6.5/7.2 (MCS0) | 18.93 |
| ä | 5825 | 165 | ax (20MHz) | 6.5/7.2 (MCS0) | 19.09 |
| | 5755 | 151 | n (40MHz) | 13.5/15 (MCS0) | 35.71 |
| | 5795 | 159 | n (40MHz) | 13.5/15 (MCS0) | 36.00 |
| | 5755 | 151 | ax (40MHz) | 13.5/15 (MCS0) | 38.19 |
| - | 5795 | 159 | ax (40MHz) | 13.5/15 (MCS0) | 38.01 |
| | 5775 | 155 | ac (80MHz) | 29.3/32.5 (MCS0) | 76.21 |
| | 5775 | 155 | ax (80MHz) | 29.3/32.5 (MCS0) | 76.77 |

Table 7-9. Conducted Bandwidth Measurements



Plot 7-239. 6dB Bandwidth Plot ANT5 (802.11a (UNII Band 3) – Ch. 149)

| FCC ID: A3LSMH204V | PCTEST Présai to las part of @ element | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager | |
|--------------------------------------|---|--|---------|---------------------------------|--|
| Test Report S/N: Test Dates: | | EUT Type: | | Dogo 144 of 244 | |
| 1M2004140062-08.A3L 4/29 - 8/12/2020 | | Indoor Customer Premises Equipment (CPE) | | Page 144 of 344 | |
| © 2020 PCTEST | • | | | V 9.0 02/01/2019 | |





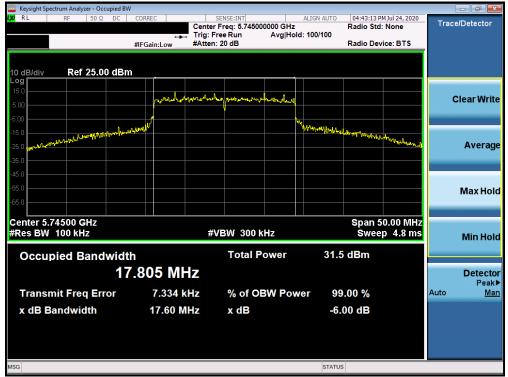
Plot 7-240. 6dB Bandwidth Plot ANT5 (802.11a (UNII Band 3) – Ch. 157)



Plot 7-241. 6dB Bandwidth Plot ANT5 (802.11a (UNII Band 3) - Ch. 165)

| FCC ID: A3LSMH204V | PCTEST Procei to be part of @ element | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
|------------------------------|--|--|---------|---------------------------------|
| Test Report S/N: Test Dates: | | EUT Type: | | Dama 445 at 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 145 of 344 |
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Plot 7-242. 6dB Bandwidth Plot ANT5 (20MHz BW 802.11n (UNII Band 3) - Ch. 149)



Plot 7-243. 6dB Bandwidth Plot ANT5 (20MHz BW 802.11n (UNII Band 3) - Ch. 157)

| FCC ID: A3LSMH204V | PCTEST Présid to be part of @ vienned: | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager | | |
|--------------------------------|---|--|---------------------------------|--|--|
| Test Report S/N: | Test Dates: | EUT Type: | Dama 440 at 244 | | |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | Page 146 of 344 | | |
| © 2020 PCTEST V 9.0 02/01/2019 | | | | | |





Plot 7-244. 6dB Bandwidth Plot ANT5 (20MHz BW 802.11n (UNII Band 3) - Ch. 165)



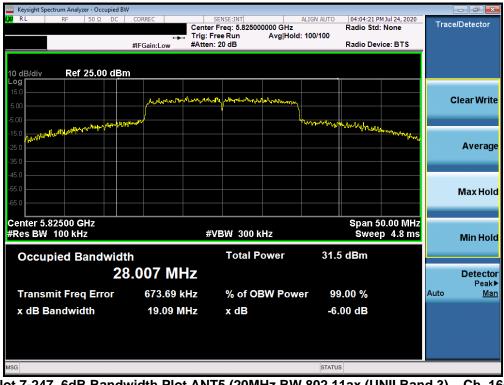
Plot 7-245. 6dB Bandwidth Plot ANT5 (20MHz BW 802.11ax (UNII Band 3) - Ch. 149)

| FCC ID: A3LSMH204V | PCTEST Proved to be part of @ viencent | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|---|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 147 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 147 of 344 |
| © 2020 PCTEST | | | | V 9.0 02/01/2019 |



| Keysight Spectrum Analyzer - Occupied B\ | N | | | | |
|---|---------------|---|---------------------------|-------------------------|-----------------|
| <mark>(X)</mark> RL RF 50Ω DC | CORREC | SENSE:INT | | PM Jul 24, 2020 | Trace/Detector |
| | | r Freq: 5.785000000 GHz Free Run Avg Hol | Radio Sto Id: 100/100 | d: None | ThaterDetector |
| | | n: 20 dB | | vice: BTS | |
| | In Gam. EOW | | | | |
| | | | | | |
| 10 dB/div Ref 25.00 dBr | n | | | | |
| Log 15.0 | | | | | |
| | moundermonten | with polow have wear a few war and a few | | | Clear Write |
| 5.00 | | | 1 | | erea mine |
| -5.00 | W.L. | | Marna de Instrumbled must | | |
| -5.00 -15.0 เลาเป็นสายหาวิทางาายาการเสียงที่การเสียง | | | 1.1.0.0 | dhad the and the | |
| | | | | | Average |
| -25.0 | | | | | Average |
| -35.0 | | | | | |
| -45.0 | | | | | |
| -55.0 | | | | | Manufacture |
| | | | | | Max Hold |
| -65.0 | | | | | |
| Center 5.78500 GHz | | | Snan | 50.00 MHz | |
| #Res BW 100 kHz | # | VBW 300 kHz | | ep 4.8 ms | |
| TOO KITZ | " | VDVV JOO KIIZ | OWC | -p - 1 .0 ms | Min Hold |
| Occupied Bandwidt | th | Total Power | 32.4 dBm | | |
| | | | OLIT GBII | | |
| 37 | 2.400 MHz | | | | Detector |
| | | | | | Peak► |
| Transmit Freq Error | 583.67 kHz | % of OBW Pov | ver 99.00 % | 4 | Auto <u>Man</u> |
| x dB Bandwidth | 18.93 MHz | x dB | -6.00 dB | | |
| | 10.00 11112 | X GD | -0.00 ab | | |
| | | | | | |
| | | | | | |
| | | | | | |
| MSG | | | STATUS | | |
| | | | 014100 | | |

Plot 7-246. 6dB Bandwidth Plot ANT5 (20MHz BW 802.11ax (UNII Band 3) - Ch. 157)



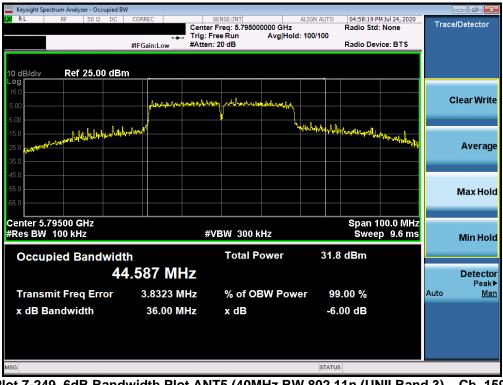
Plot 7-247. 6dB Bandwidth Plot ANT5 (20MHz BW 802.11ax (UNII Band 3) - Ch. 165)

| FCC ID: A3LSMH204V | PCTEST Proced to be part of @ element | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dama 440 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 148 of 344 |
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Plot 7-248. 6dB Bandwidth Plot ANT5 (40MHz BW 802.11n (UNII Band 3) - Ch. 151)



Plot 7-249. 6dB Bandwidth Plot ANT5 (40MHz BW 802.11n (UNII Band 3) – Ch. 159)

| FCC ID: A3LSMH204V | PCTEST Présid to be part of @ vienned: | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager | |
|---------------------|---|--|---------|---------------------------------|--|
| Test Report S/N: | Test Dates: | EUT Type: | | Dama 440 at 244 | |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 149 of 344 | |
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Plot 7-250. 6dB Bandwidth Plot ANT5 (40MHz BW 802.11ax (UNII Band 3) - Ch. 151)



Plot 7-251. 6dB Bandwidth Plot ANT5 (40MHz BW 802.11ax (UNII Band 3) - Ch. 159)

| FCC ID: A3LSMH204V | PCTEST Proved to be part of (windowski | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|---------------------|--|--|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dama 450 -6 044 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | Page 150 of 344 |
| © 2020 PCTEST | · | · | V 9.0 02/01/2019 |



| Keysight Spectrum Analyzer - Occupied BV | V | | | | - ē 🔀 |
|--|----------------|--|---|--|--------------------------|
| IXI RL RF 50Ω DC | Trig: | SENSE:INT er Freq: 5.775000000 GHz Free Run Avg Holo n: 20 dB | ALIGN AUTO 06:11:31 F Radio Std d: 100/100 Radio Dev | | Trace/Detector |
| 10 dB/div Ref 25.00 dBn | n | | 1 | | |
| 5.00 | لسميمهم | halling proved the share land and and and a star | | | Clear Write |
| -5.00 -15.0 -25.0 | | | Mistrational March martineshing and the | | Average |
| -25.0 | | | | an in the second se | Average |
| -55.0 | | | | | Max Hold |
| Center 5.7750 GHz #Res BW 100 kHz | # | ≇VBW 300 kHz | | 200.0 MHz 19.13 ms | Min Hold |
| Occupied Bandwidt | հ Տ.040 MHz | Total Power | 30.7 dBm | | Detector |
| Transmit Freq Error | 147.13 kHz | % of OBW Pow | ver 99.00 % | | Peak► Auto <u>Man</u> |
| x dB Bandwidth | 76.21 MHz | x dB | -6.00 dB | | |
| | | | | | |
| MSG | | | STATUS | | |

Plot 7-252. 6dB Bandwidth Plot ANT5 (80MHz BW 802.11ac (UNII Band 3) - Ch. 155)



Plot 7-253. 6dB Bandwidth Plot ANT5 (80MHz BW 802.11ax (UNII Band 3) - Ch. 155)

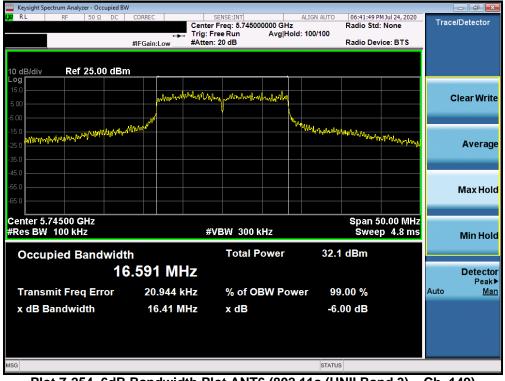
| FCC ID: A3LSMH204V | PCTEST Proved to be part of (windowski | MEASUREMENT REPORT (CERTIFICATION) | MSUNG | Approved by: Quality Manager |
|---------------------|--|--|-------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | De |
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Antenna-6 6dB Bandwidth Measurements

| | Frequency [MHz] | Channel No. | 802.11 Mode | Data Rate [Mbps] | Measured 6dB Bandwidth [MHz] |
|------|--------------------|----------------|-------------|------------------|------------------------------------|
| | 5745 | 149 | а | 6 | 16.41 |
| | 5785 | 157 | а | 6 | 16.42 |
| | 5825 | 165 | а | 6 | 16.42 |
| | 5745 | 149 | n (20MHz) | 6.5/7.2 (MCS0) | 17.64 |
| | 5785 | 157 | n (20MHz) | 6.5/7.2 (MCS0) | 17.60 |
| | 5825 | 165 | n (20MHz) | 6.5/7.2 (MCS0) | 17.63 |
| 3 | 5745 | 149 | ax (20MHz) | 6.5/7.2 (MCS0) | 18.81 |
| Band | 5785 | 157 | ax (20MHz) | 6.5/7.2 (MCS0) | 18.10 |
| ä | 5825 | 165 | ax (20MHz) | 6.5/7.2 (MCS0) | 19.03 |
| | 5755 | 151 | n (40MHz) | 13.5/15 (MCS0) | 35.81 |
| | 5795 | 159 | n (40MHz) | 13.5/15 (MCS0) | 36.02 |
| | 5755 | 151 | ax (40MHz) | 13.5/15 (MCS0) | 37.71 |
| | 5795 | 159 | ax (40MHz) | 13.5/15 (MCS0) | 37.94 |
| | 5775 | 155 | ac (80MHz) | 29.3/32.5 (MCS0) | 75.89 |
| | 5775 | 155 | ax (80MHz) | 29.3/32.5 (MCS0) | 77.90 |

Table 7-10. Conducted Bandwidth Measurements



Plot 7-254. 6dB Bandwidth Plot ANT6 (802.11a (UNII Band 3) – Ch. 149)

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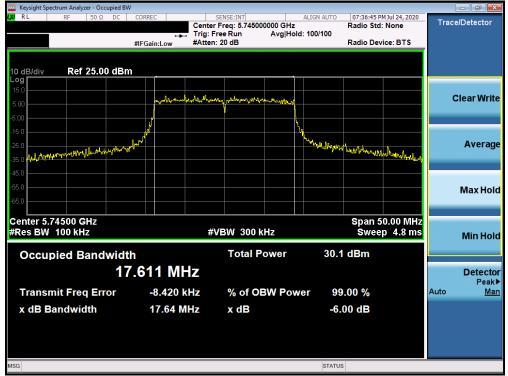
Plot 7-255. 6dB Bandwidth Plot ANT6 (802.11a (UNII Band 3) - Ch. 157)



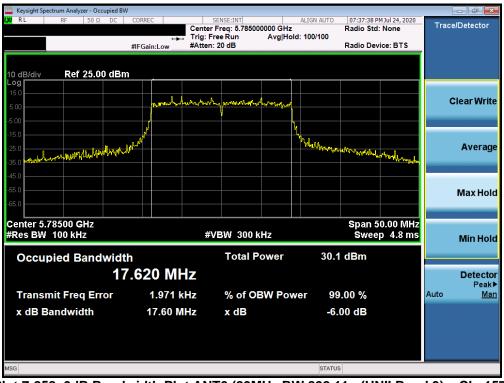
Plot 7-256. 6dB Bandwidth Plot ANT6 (802.11a (UNII Band 3) - Ch. 165)

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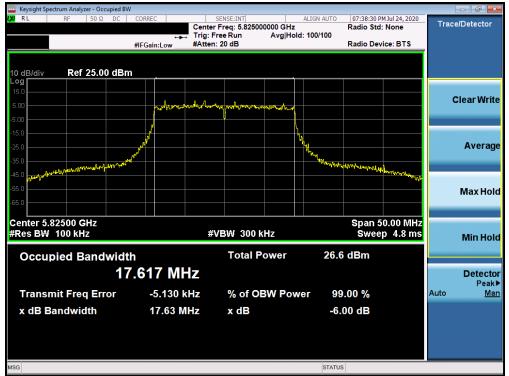
Plot 7-257. 6dB Bandwidth Plot ANT6 (20MHz BW 802.11n (UNII Band 3) - Ch. 149)



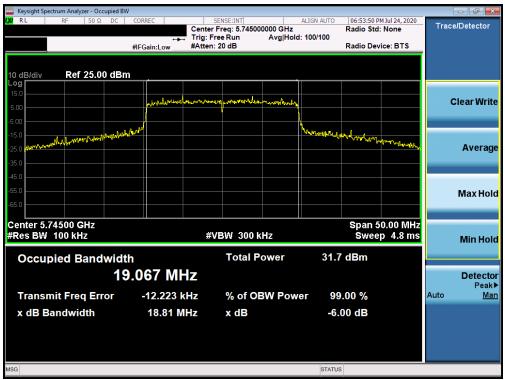
Plot 7-258. 6dB Bandwidth Plot ANT6 (20MHz BW 802.11n (UNII Band 3) - Ch. 157)

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Plot 7-259. 6dB Bandwidth Plot ANT6 (20MHz BW 802.11n (UNII Band 3) - Ch. 165)



Plot 7-260. 6dB Bandwidth Plot ANT6 (20MHz BW 802.11ax (UNII Band 3) - Ch. 149)

| FCC ID: A3LSMH204V | htud to be part of @ vieneet | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
|---------------------|------------------------------|--|---------|---------------------------------|
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Plot 7-261. 6dB Bandwidth Plot ANT6 (20MHz BW 802.11ax (UNII Band 3) - Ch. 157)



Plot 7-262. 6dB Bandwidth Plot ANT6 (20MHz BW 802.11ax (UNII Band 3) - Ch. 165)

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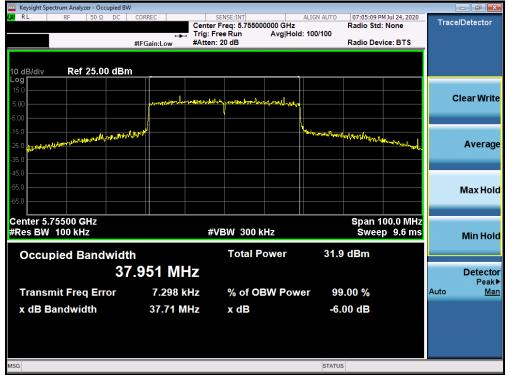
Plot 7-263. 6dB Bandwidth Plot ANT6 (40MHz BW 802.11n (UNII Band 3) - Ch. 151)



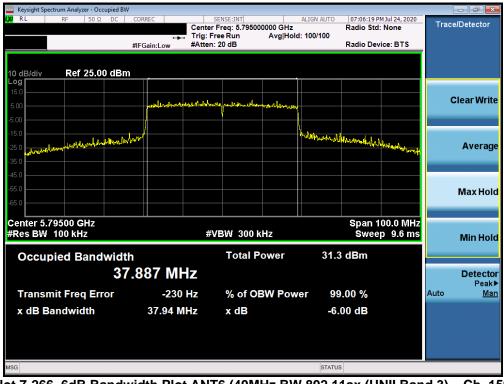
Plot 7-264. 6dB Bandwidth Plot ANT6 (40MHz BW 802.11n (UNII Band 3) - Ch. 159)

| FCC ID: A3LSMH204V | PCTEST Prisual to be part of (@ element | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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Plot 7-265. 6dB Bandwidth Plot ANT6 (40MHz BW 802.11ax (UNII Band 3) - Ch. 151)



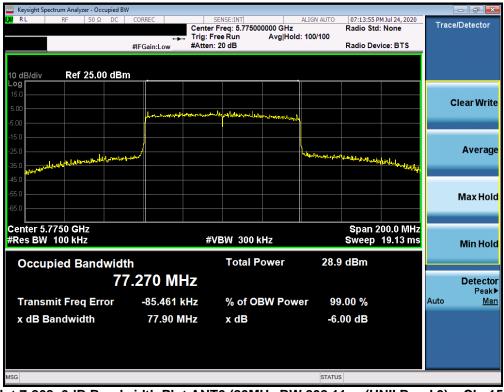
Plot 7-266. 6dB Bandwidth Plot ANT6 (40MHz BW 802.11ax (UNII Band 3) - Ch. 159)

| FCC ID: A3LSMH204V | PCTEST Proved to be part of (windowski | MEASUREMENT REPORT (CERTIFICATION) | AMSUNG | Approved by: Quality Manager |
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| Keysight Spectrum Analyzer - Occupied BW | 1 | | | | |
|--|--|---|-------------------------|---|-------------------------------|
| μ X0 RL RF 50Ω DC | Trig: | SENSE:INT er Freq: 5.775000000 GHz Free Run Avg Hol n: 20 dB | Radio Sto d: 100/100 | PM Jul 24, 2020 I: None vice: BTS | Trace/Detector |
| 10 dB/div Ref 25.00 dBm | · | | 1 | | |
| 5.00 | المعالية معالية المعالية معالية معالي | Inon roman barry | 1 | | Clear Write |
| -5.00 | | | | | |
| -25.0 | kover | | | month allow | Average |
| -45.0 -55.0 -65.0 | | | | | Max Hold |
| Center 5.7750 GHz #Res BW 100 kHz | # | ≇VBW 300 kHz | | 200.0 MHz 19.13 ms | Min Hold |
| Occupied Bandwidt | | Total Power | 29.3 dBm | | |
| / 5 Transmit Freq Error | 5.558 MHz -50.993 kHz | % of OBW Pow | ver 99.00 % | | Detector Peak► Auto Man |
| x dB Bandwidth | 75.89 MHz | x dB | -6.00 dB | | TTAL |
| MSG | | | STATUS | | |

Plot 7-267. 6dB Bandwidth Plot ANT6 (80MHz BW 802.11ac (UNII Band 3) - Ch. 155)



Plot 7-268. 6dB Bandwidth Plot ANT6 (80MHz BW 802.11ax (UNII Band 3) - Ch. 155)

| FCC ID: A3LSMH204V | houd to be part of @ electric | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|---------------------|-------------------------------|--|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dage 150 of 244 |
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7.4 UNII Output Power Measurement – 802.11a §15.407(a.1.iv) §15.407(a.2) §15.407(a.3); RSS-247 [6.2]

Test Overview and Limits

A transmitter antenna terminal of the EUT is connected to the input of an RF pulse power sensor. Measurement is made using a broadband average power meter while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies.

In the 5.15 – 5.25GHz band, the maximum permissible conducted output power is 250mW (23.98dBm). The maximum e.i.r.p. shall not exceed the lesser of 200 mW or 10 + 10 log10B, dBm.

In the 5.25 – 5.35GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) or 11 dBm + $10\log_{10}(26dB BW) = 11 dBm + 10\log_{10}(19.76) = 23.96dBm$. The maximum e.i.r.p. shall not exceed the lesser of 1.0 W or 17 + 10 log10B, dBm.

In the 5.47 – 5.725GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) or 11 dBm + $10\log_{10}(26dB BW) = 11 dBm + 10\log_{10}(36.55) = 26.63dBm$. The maximum e.i.r.p. shall not exceed the lesser of 1.0 W or 17 + 10 log10B, dBm.

In the 5.725 – 5.850GHz band, the maximum permissible conducted output power is 1W (30dBm). The maximum e.i.r.p. is 36 dBm.

Test Procedure Used

ANSI C63.10-2013 – Section 12.3.3.2 Method PM-G KDB 789033 D02 v02r01 – Section E)3)b) Method PM-G ANSI C63.10-2013 – Section 14.2 Measure-and-Sum Technique KDB 662911 v02r01 – Section E)1) Measure-and-Sum Technique

Test Settings

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-3. Test Instrument & Measurement Setup

Test Notes

Per RSS-247 Section 6.2.3, transmission on channels which overlap the 5600-5650 MHz is prohibited. This device operates under these frequencies only under the control of a certified master device and does not support active scanning on these channels. This device does not transmit any beacons or initiate any transmissions in UNII Bands 2A or 2C.

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MIMO Maximum Conducted Output Power Measurements

20MHz Bandwidth

| | | 5GH | lz (20MHz) 80 | 2.11a Conduc | ted Power [d | (20MHz) 802.11a Conducted Power [dBm] | | | | |
|-----------|------------|---------|---------------|--------------|--------------|---------------------------------------|-------|--|--|--|
| | Freq [MHz] | Channel | ANT3 | ANT4 | ANT5 | ANT6 | MIMO | | | |
| N | 5180 | 36 | 16.99 | 16.96 | 16.57 | 16.96 | 22.89 | | | |
| E H | 5200 | 40 | 22.49 | 22.30 | 22.35 | 22.17 | 28.35 | | | |
| E A | 5240 | 48 | 22.23 | 22.43 | 21.06 | 20.86 | 27.72 | | | |
| NO P | 5260 | 52 | 15.86 | 15.40 | 15.43 | 14.96 | 21.44 | | | |
| <u>×</u> | 5280 | 56 | 15.89 | 15.98 | 15.43 | 15.62 | 21.76 | | | |
| 77 | 5320 | 64 | 14.54 | 14.85 | 14.63 | 14.29 | 20.60 | | | |
| P C | 5500 | 100 | 14.41 | 14.57 | 15.07 | 15.47 | 20.92 | | | |
| SH | 5600 | 120 | 15.97 | 16.00 | 15.23 | 13.10 | 21.24 | | | |
| B. SG | 5720 | 144 | 15.75 | 15.43 | 15.27 | 14.03 | 21.19 | | | |
| | 5745 | 149 | 20.27 | 23.11 | 19.61 | 18.35 | 26.73 | | | |
| | 5785 | 157 | 20.55 | 23.38 | 20.70 | 19.38 | 27.29 | | | |
| | 5825 | 165 | 21.19 | 23.11 | 22.74 | 21.86 | 28.31 | | | |

Table 7-11. MIMO/CDD 20MHz BW 802.11a (UNII) Maximum Conducted Output Power

| | | 5GHz (20MHz) 802.11n Conducted Power [dBm] | | | | | | | |
|-----------|------------|--|-------|-------|-------|-------|-------|--|--|
| | Freq [MHz] | Channel | ANT3 | ANT4 | ANT5 | ANT6 | MIMO | | |
| N | 5180 | 36 | 16.86 | 16.40 | 16.76 | 16.32 | 22.61 | | |
| | 5200 | 40 | 22.50 | 21.02 | 21.45 | 22.42 | 27.91 | | |
| MH | 5240 | 48 | 22.35 | 22.21 | 22.34 | 21.79 | 28.20 | | |
| 0M idt | 5260 | 52 | 15.48 | 15.69 | 15.35 | 15.47 | 21.52 | | |
| κ n | 5280 | 56 | 15.61 | 15.77 | 15.44 | 15.45 | 21.59 | | |
| | 5320 | 64 | 14.36 | 14.35 | 14.15 | 13.94 | 20.22 | | |
| р Ч | 5500 | 100 | 14.98 | 14.20 | 14.90 | 15.49 | 20.94 | | |
| GH Bar | 5600 | 120 | 14.99 | 15.26 | 15.67 | 14.99 | 21.26 | | |
| B S G | 5720 | 144 | 15.13 | 14.72 | 15.82 | 15.82 | 21.42 | | |
| | 5745 | 149 | 21.92 | 22.26 | 22.31 | 20.77 | 27.88 | | |
| | 5785 | 157 | 22.46 | 23.10 | 22.21 | 20.50 | 28.19 | | |
| | 5825 | 165 | 22.05 | 22.44 | 22.29 | 21.41 | 28.09 | | |

Table 7-12. MIMO 20MHz BW 802.11n (UNII) Maximum Conducted Output Power

| FCC ID: A3LSMH204V | httud to be part of @ element: | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager | |
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| | 5GHz (20MHz) 802.11ac Conducted Power [dBm] | | | | | | | | |
|-------------|---|---------|-------|-------|-------|-------|-------|--|--|
| | Freq [MHz] | Channel | ANT3 | ANT4 | ANT5 | ANT6 | MIMO | | |
| N | 5180 | 36 | 16.79 | 16.34 | 16.74 | 16.29 | 22.57 | | |
| Hz H | 5200 | 40 | 22.45 | 21.48 | 22.09 | 21.59 | 27.94 | | |
| th A | 5240 | 48 | 22.41 | 22.26 | 22.11 | 22.44 | 28.33 | | |
| 0M dtl | 5260 | 52 | 16.89 | 16.81 | 16.69 | 16.27 | 22.69 | | |
| V | 5280 | 56 | 16.90 | 16.95 | 16.62 | 16.21 | 22.70 | | |
| | 5320 | 64 | 14.92 | 14.65 | 14.16 | 14.08 | 20.49 | | |
| h L Z | 5500 | 100 | 13.96 | 14.84 | 15.07 | 15.46 | 20.89 | | |
| GF 3a | 5600 | 120 | 15.97 | 15.66 | 15.23 | 14.53 | 21.40 | | |
| B B | 5720 | 144 | 15.80 | 15.96 | 15.09 | 13.84 | 21.27 | | |
| | 5745 | 149 | 22.92 | 23.27 | 22.18 | 20.70 | 28.39 | | |
| | 5785 | 157 | 22.55 | 23.10 | 22.25 | 20.47 | 28.22 | | |
| | 5825 | 165 | 22.59 | 23.47 | 22.74 | 21.42 | 28.64 | | |

Table 7-13. MIMO 20MHz BW 802.11ac (UNII) Maximum Conducted Output Power

| | | 5GH | z (20MHz) 802 | 2.11ax Condu | cted Power [| dBm] | |
|---------------|------------|---------|---------------|--------------|--------------|-------|-------|
| | Freq [MHz] | Channel | ANT3 | ANT4 | ANT5 | ANT6 | MIMO |
| N | 5180 | 36 | 16.83 | 16.95 | 16.90 | 16.65 | 22.85 |
| H A | 5200 | 40 | 22.43 | 21.92 | 21.86 | 21.82 | 28.04 |
| M | 5240 | 48 | 22.16 | 22.18 | 22.27 | 22.30 | 28.25 |
| 0M idt | 5260 | 52 | 16.22 | 16.36 | 16.23 | 15.72 | 22.16 |
| Š S | 5280 | 56 | 16.38 | 16.40 | 16.20 | 15.79 | 22.22 |
| | 5320 | 64 | 14.97 | 14.99 | 14.33 | 14.23 | 20.66 |
| ₽ ŭ | 5500 | 100 | 15.50 | 14.96 | 14.33 | 13.71 | 20.70 |
| G Sa Sa | 5600 | 120 | 15.78 | 15.62 | 15.73 | 15.92 | 21.78 |
| B S G | 5720 | 144 | 15.82 | 15.47 | 15.85 | 15.99 | 21.81 |
| | 5745 | 149 | 21.76 | 21.83 | 21.57 | 20.55 | 27.94 |
| | 5785 | 157 | 21.81 | 21.92 | 21.68 | 20.22 | 27.81 |
| | 5825 | 165 | 21.87 | 21.98 | 21.58 | 20.69 | 27.99 |

Table 7-14. MIMO 20MHz BW 802.11ax (UNII) Maximum Conducted Output Power

| FCC ID: A3LSMH204V | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager | |
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40MHz Bandwidth

| | 5GHz (40MHz) 802.11n Conducted Power [dBm] | | | | | | | | |
|--------|--|---------|-------|-------|-------|-------|-------|--|--|
| N | Freq [MHz] | Channel | ANT3 | ANT4 | ANT5 | ANT6 | MIMO | | |
| I I I | 5190 | 38 | 12.87 | 12.99 | 12.30 | 12.94 | 18.80 | | |
| | 5230 | 46 | 22.49 | 22.10 | 22.01 | 21.64 | 28.09 | | |
| lo i | 5270 | 54 | 16.81 | 16.65 | 16.61 | 16.11 | 22.57 | | |
| 4 ≥ | 5310 | 62 | 12.18 | 12.50 | 12.49 | 12.49 | 18.44 | | |
| И | 5510 | 102 | 10.91 | 11.02 | 11.45 | 11.47 | 17.24 | | |
| ar | 5590 | 118 | 16.45 | 16.23 | 15.59 | 14.43 | 21.76 | | |
| С Ш | 5710 | 142 | 16.49 | 16.49 | 15.66 | 14.25 | 21.83 | | |
| 2 | 5755 | 151 | 22.24 | 23.41 | 21.76 | 20.57 | 28.13 | | |
| | 5795 | 159 | 22.14 | 23.24 | 21.77 | 20.17 | 27.99 | | |

Table 7-15. MIMO 40MHz BW 802.11n (UNII) Maximum Conducted Output Power

| | | 5GHz (40MHz) 802.11ac Conducted Power [dBm] | | | | | | | |
|------------|------------|---|-------|-------|-------|-------|-------|--|--|
| N | Freq [MHz] | Channel | ANT3 | ANT4 | ANT5 | ANT6 | MIMO | | |
| <u>ד</u> ב | 5190 | 38 | 11.30 | 11.52 | 10.75 | 11.22 | 17.23 | | |
| Z₩ | 5230 | 46 | 22.43 | 22.15 | 21.94 | 21.59 | 28.06 | | |
| ic to | 5270 | 54 | 16.64 | 16.81 | 16.55 | 16.43 | 22.63 | | |
| (4) 1 | 5310 | 62 | 12.17 | 12.45 | 12.49 | 11.48 | 18.19 | | |
| ър | 5510 | 102 | 10.91 | 10.94 | 11.41 | 11.44 | 17.20 | | |
| H F | 5590 | 118 | 16.24 | 15.83 | 15.60 | 16.01 | 21.95 | | |
| С Ш | 5710 | 142 | 16.35 | 15.02 | 15.95 | 16.45 | 22.00 | | |
| 2 | 5755 | 151 | 22.41 | 23.47 | 21.41 | 20.65 | 28.14 | | |
| | 5795 | 159 | 22.13 | 23.22 | 21.85 | 20.24 | 28.01 | | |

Table 7-16. MIMO 40MHz BW 802.11ac (UNII) Maximum Conducted Output Power

| | | 5GHz (40MHz) 802.11ax Conducted Power [dBm] | | | | | | | | | |
|-----------|------------|---|-------|-------|-------|-------|-------|--|--|--|--|
| N | Freq [MHz] | Channel | ANT3 | ANT4 | ANT5 | ANT6 | MIMO | | | | |
| E E | 5190 | 38 | 12.91 | 12.97 | 12.38 | 12.96 | 18.83 | | | | |
| Z ₹ | 5230 | 46 | 22.49 | 22.20 | 22.03 | 21.73 | 28.14 | | | | |
| hon bi | 5270 | 54 | 16.95 | 16.61 | 16.23 | 15.83 | 22.45 | | | | |
| 4) > | 5310 | 62 | 12.32 | 12.50 | 12.34 | 11.74 | 18.25 | | | | |
| N | 5510 | 102 | 10.75 | 11.01 | 11.47 | 11.40 | 17.19 | | | | |
| ar | 5590 | 118 | 16.45 | 16.34 | 15.84 | 14.72 | 21.91 | | | | |
| С й | 5710 | 142 | 16.41 | 16.88 | 15.83 | 14.39 | 21.99 | | | | |
| 2 | 5755 | 151 | 22.41 | 23.41 | 21.78 | 20.39 | 28.15 | | | | |
| | 5795 | 159 | 22.41 | 23.32 | 21.99 | 20.41 | 28.18 | | | | |

Table 7-17. MIMO 40MHz BW 802.11ax (UNII) Maximum Conducted Output Power

| FCC ID: A3LSMH204V | Abud to be part of @ element | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager | |
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80MHz Bandwidth

| | | 5GHz (80MHz) 802.11ac Conducted Power [dBm] | | | | | | | | |
|------------------|------------|---|-------|-------|-------|-------|-------|--|--|--|
| Ŧ(| Freq [MHz] | Channel | ANT3 | ANT4 | ANT5 | ANT6 | MIMO | | | |
| oMI | 5210 | 42 | 8.29 | 8.31 | 8.28 | 7.62 | 14.16 | | | |
| (80MH Iwidth) | 5290 | 58 | 8.90 | 9.40 | 9.41 | 9.29 | 15.28 | | | |
| | 5530 | 106 | 7.64 | 8.24 | 8.38 | 9.33 | 14.46 | | | |
| GHz Banc | 5610 | 122 | 16.29 | 16.48 | 15.98 | 14.34 | 21.87 | | | |
| B 2G | 5690 | 138 | 16.20 | 16.42 | 15.59 | 14.21 | 21.71 | | | |
| | 5775 | 155 | 20.90 | 20.66 | 20.64 | 20.87 | 26.79 | | | |

Table 7-18. MIMO 80MHz BW 802.11ac (UNII) Maximum Conducted Output Power

| | | 5GHz (80MHz) 802.11ax Conducted Power [dBm] | | | | | | | | | |
|---------------|------------|---|-------|-------|-------|-------|-------|--|--|--|--|
| HZ (c | Freq [MHz] | Channel | ANT3 | ANT4 | ANT5 | ANT6 | MIMO | | | | |
| 0MHz idth) | 5210 | 42 | 8.33 | 8.47 | 7.82 | 8.02 | 14.19 | | | | |
| (80M widtl | 5290 | 58 | 9.44 | 9.48 | 9.04 | 9.17 | 15.31 | | | | |
| | 5530 | 106 | 8.85 | 9.34 | 9.49 | 9.42 | 15.30 | | | | |
| iHz ano | 5610 | 122 | 16.45 | 15.60 | 15.93 | 16.21 | 22.08 | | | | |
| B: B: | 5690 | 138 | 16.29 | 15.26 | 15.87 | 16.45 | 22.01 | | | | |
| | 5775 | 155 | 20.59 | 19.91 | 20.69 | 20.92 | 26.56 | | | | |

Table 7-19. MIMO 80MHz BW 802.11ax (UNII) Maximum Conducted Output Power

80+80MHz Bandwidth

| <u>د</u> | 5GHz (160MHz) 802.11ac Conducted Power [dBm] | | | | | | | | |
|---------------------|--|---------|------|------|------|------|-------|--|--|
| 지 수 홍 | Freq [MHz] | Channel | ANT3 | ANT4 | ANT5 | ANT6 | MIMO | | |
| AH HI | 5210 | 42 | 6.04 | 6.29 | | | 9.18 | | |
| 5G (160 Bandv | 5290 | 58 | | | 6.10 | 5.97 | 9.05 | | |
| | 5530 | 106 | 9.35 | 9.70 | | | 12.54 | | |
| | 5610 | 122 | | | 9.22 | 9.48 | 12.36 | | |

Table 7-20. MIMO 80+80MHz BW 802.11ac (UNII) Maximum Conducted Output Power

| <u>ر</u> | | 5GHz (160MHz) 802.11ax Conducted Power [dBm] | | | | | | | |
|-------------------|------------|--|-------|------|-------|------|-------|--|--|
| , 2 2 | Freq [MHz] | Channel | ANT3 | ANT4 | ANT5 | ANT6 | MIMO | | |
| MH MH | 5210 | 42 | 10.38 | 9.75 | | | 13.09 | | |
| 5GI 601 1dv | 5290 | 58 | | | 10.19 | 9.46 | 12.85 | | |
| a (1 | 5530 | 106 | 7.66 | 9.62 | | | 11.76 | | |
| B | 5610 | 122 | | | 8.41 | 8.58 | 11.51 | | |

Table 7-21. MIMO 80+80MHz BW 802.11ax (UNII) Maximum Conducted Output Power

| FCC ID: A3LSMH204V | PCTEST Présid to be part of @ vienned: | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|---|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 164 of 244 |
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Note:

Per ANSI C63.10-2013 and KDB 662911 v02r01 Section E)1), the conducted powers at Antenna 3, Antenna 4, Antenna 5 and Antenna 6 were first measured separately during MIMO transmission as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

Per ANSI C63.10-2013 Section 14.4.3, the directional gain is calculated using the following formula, where G_N is the gain of the nth antenna and N_{ANT} , the total number of antennas used.

Directional gain = $10 \log[(10^{G_{1/20}} + 10^{G_{2/20}} + ... + 10^{G_{N/20}})^2 / N_{ANT}] dBi$

Sample MIMO Calculation:

At 5745MHz in 802.11n (20MHz BW) mode, the average conducted output power was measured to be 22.92 dBm for Antenna-3, 23.26 dBm for Antenna-4, 22.31 dBm for Antenna-5 and 20.77 dBm for Antenna-6.

Antenna 3 + Antenna 4 + Antenna 5 + Antenna 6 = MIMO

(22.92 dBm + 23.26 dBm + 22.31dBm + 20.77 dBm) = (195.884 mW + 211.836 mW + 170.216 mW+ 119.399 mW) = 697.335N/A mW = 28.43 dBm

Sample e.i.r.p. Calculation:

At 5180MHz in 802.11n (20MHz BW) mode, the average MIMO conducted power was calculated to be 28.43 dBm with directional gain of 4.28 dBi.

e.i.r.p. (dBm) = Conducted Power (dBm) + Ant gain (dBi)

28.43 dBm + 4.28 dBi = 32.71 dBm

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| Test Report S/N: | Test Dates: | EUT Type: | | Dage 165 of 244 |
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7.5 Maximum Power Spectral Density – 802.11a §15.407(a.1.iv) §15.407(a.2) §15.407(a.3); RSS-247 [6.2]

Test Overview and Limit

The spectrum analyzer was connected to the antenna terminal while the EUT was operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. Method SA-1, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, was used to measure the power spectral density.

In the 5.15 – 5.25GHz bands, the maximum permissible power spectral density is 17dBm/MHz.

In the 5.25 – 5.35GHz, 5.47 – 5.725GHz bands, the maximum permissible power spectral density is 11dBm/MHz.

In the 5.725 – 5.850GHz band, the maximum permissible power spectral density is 30dBm/500kHz.

Test Procedure Used

ANSI C63.10-2013 – Section 12.3.2.2 KDB 789033 D02 v02r01 – Section F ANSI C63.10-2013 – Section 14.3.2.2 Measure-and-Sum Technique KDB 662911 v02r01 – Section E)2) Measure-and-Sum Technique

Test Settings

- 1. Analyzer was set to the center frequency of the UNII channel under investigation
- 2. Span was set to encompass the entire emission bandwidth of the signal
- 3. RBW = 1MHz
- 4. VBW = 3MHz
- 5. Number of sweep points $\geq 2 \times (\text{span/RBW})$
- 6. Sweep time = auto
- 7. Detector = power averaging (RMS)
- 8. Trigger was set to free run for all modes
- 9. Trace was averaged over 100 sweeps
- 10. The peak search function of the spectrum analyzer was used to find the peak of the spectrum.

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.





Test Notes

None

| FCC ID: A3LSMH204V | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
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MIMO Power Spectral Density Measurements

| | Frequency | Channel | 802 11 Mode | Data Rate [Mbps] | Antenna-3 | Antenna-4 Power Density | Antenna-5 | Antenna-6 | Summed MIMO | Max Power Density | Margin |
|-------------|--------------|------------|--------------------------|----------------------------------|---------------|----------------------------|---------------|-----------|---------------|----------------------|----------------|
| | [MHz] | No. | 002.11 11000 | Data Nate [mbp3] | [dBm] | [dBm] | [dBm] | [dBm] | [dBm] | [dBm/MHz] | [dB] |
| | 5180 | 36 | а | 6 | 5.43 | 6.07 | 5.32 | 5.18 | 11.53 | 17.0 | -5.47 |
| | 5200 | 40 | а | 6 | 11.12 | 10.64 | 10.86 | 10.11 | 16.72 | 17.0 | -0.28 |
| | 5240 | 48 | а | 6 | 10.26 | 10.51 | 10.76 | 10.89 | 16.63 | 17.0 | -0.37 |
| - | 5180 | 36 | n (20MHz) | 6.5/7.2 (MCS0) | 2.94 | 2.82 | 2.31 | 2.30 | 8.62 | 17.0 | -8.38 |
| - | 5200 | 40 | n (20MHz) | 6.5/7.2 (MCS0) | 10.37 | 10.20 | 10.10 | 9.92 | 16.17 | 17.0 | -0.83 |
| | 5240 | 48 | n (20MHz) | 6.5/7.2 (MCS0) | 10.85 | 10.55 | 10.36 | 10.68 | 16.63 | 17.0 | -0.37 |
| | 5180 | 36 | ax (20MHz) | 6.5/7.2 (MCS0) | 6.74 | 6.69 | 6.07 | 6.35 | 12.49 | 17.0 | -4.51 |
| Band 1 | 5200 | 40 | ax (20MHz) | 6.5/7.2 (MCS0) | 10.69 | 10.87 | 10.49 | 10.80 | 16.74 | 17.0 | -0.26 |
| Ba | 5240 | 48 | ax (20MHz) | 6.5/7.2 (MCS0) | 10.43 | 10.59 | 10.57 | 10.56 | 16.56 | 17.0 | -0.44 |
| | 5190 | 38 | n (40MHz) | 13.5/15 (MCS0) | -2.66 | -2.45 | -2.90 | -2.71 | 3.34 | 17.0 | -13.66 |
| | 5230 | 46 | n (40MHz) | 13.5/15 (MCS0) | 9.27 | 8.61 | 8.53 | 8.83 | 14.84 | 17.0 | -2.16 |
| | 5190 | 38 | ax (40MHz) | 13.5/15 (MCS0) | -0.07 | 0.26 | -0.43 | -0.13 | 5.94 | 17.0 | -11.06 |
| - | 5230 | 46 | ax (40MHz) | 13.5/15 (MCS0) | 9.73 | 9.65 | 10.09 | 9.57 | 15.79 | 17.0 | -1.21 |
| - | 5210 | 42 | ac (80MHz) | 29.3/32.5 (MCS0) | -7.85 | -7.50 | -7.96 | -8.08 | -1.82 | 17.0 | -18.82 |
| | 5210 | 42 | ax (80MHz) | 29.3/32.5 (MCS0) | -7.51 | -7.72 | -8.02 | -8.24 | -1.84 | 17.0 | -18.84 |
| | 5260 | 52 | a | 6 | 4.94 | 4.97 | 4.23 | 4.82 | 10.77 | 11.0 | -0.23 |
| - | 5280 | 56 | a | 6 | 4.44 | 4.42 | 4.75 | 5.02 | 10.68 | 11.0 | -0.32 |
| | 5320 | 64 | a | 6 | 2.93 | 2.27 | 2.77 | 2.09 | 8.55 | 11.0 | -2.45 |
| - | 5260 | 52 | n (20MHz) | 6.5/7.2 (MCS0) | 4.85 | 4.77 | 4.46 | 5.12 | 10.83 | 11.0 | -0.17 |
| - | 5280 | 56 | n (20MHz) | 6.5/7.2 (MCS0) | 4.88 | 5.24 | 4.51 | 4.76 | 10.88 | 11.0 | -0.12 |
| - | 5320 | 64 | n (20MHz) | 6.5/7.2 (MCS0) | 2.95 | 3.65 | 2.91 | 3.30 | 9.23 | 11.0 | -1.77 |
| ٩. | 5260 | 52 | ax (20MHz) | 6.5/7.2 (MCS0) | 4.52 | 4.61 | 4.29 | 4.36 | 10.47 | 11.0 | -0.53 |
| q 7 | 5280 | 56 | ax (20MHz) | 6.5/7.2 (MCS0) | 4.57 | 4.88 | 4.28 | 4.66 | 10.47 | 11.0 | -0.38 |
| Band 2A | 5320 | 64 | ax (20MHz) | 6.5/7.2 (MCS0) | 4.47 | 4.87 | 4.84 | 5.03 | 10.83 | 11.0 | -0.17 |
| - | 5270 | 54 | n (40MHz) | 13.5/15 (MCS0) | 4.38 | 4.50 | 3.93 | 4.33 | 10.31 | 11.0 | -0.69 |
| - | 5310 | 62 | n (40MHz) | 13.5/15 (MCS0) | -2.71 | -2.74 | -3.03 | -2.72 | 3.22 | 11.0 | -7.78 |
| - | 5270 | 54 | ax (40MHz) | 13.5/15 (MCS0) | 4.45 | 4.73 | 4.42 | 4.47 | 10.54 | 11.0 | -0.46 |
| - | 5310 | 62 | ax (40MHz) | 13.5/15 (MCS0) | -1.11 | -0.72 | -0.85 | -1.20 | 5.05 | 11.0 | -5.95 |
| - | 5290 | 58 | ac (80MHz) | 29.3/32.5 (MCS0) | -7.10 | -6.80 | -7.00 | -6.94 | -0.94 | 11.0 | -11.94 |
| - | 5290 | 58 | ac (80MHz) | 29.3/32.5 (MCS0) | -6.64 | -6.26 | -6.89 | -6.70 | -0.60 | 11.0 | -11.60 |
| | 5500 | 100 | ax (001vii iz) | 6 | 2.49 | 2.88 | 3.14 | 3.64 | 9.08 | 11.0 | -1.92 |
| - | 5600 | 120 | a | 6 | 5.35 | 4.72 | 4.46 | 4.41 | 10.77 | 11.0 | -0.23 |
| - | 5720 | 144 | a | 6 | 5.31 | 3.41 | 4.40 | 5.59 | 10.74 | 11.0 | -0.25 |
| - | 5500 | 100 | n (20MHz) | 6.5/7.2 (MCS0) | 1.29 | 1.73 | 2.26 | 2.89 | 8.10 | 11.0 | -2.90 |
| - | 5600 | 120 | n (20MHz) | 6.5/7.2 (MCS0) | 4.84 | 4.78 | 4.62 | 5.20 | 10.89 | 11.0 | -0.11 |
| - | 5720 | 144 | n (20MHz) | 6.5/7.2 (MCS0) | 4.85 | 3.54 | 4.58 | 5.32 | 10.64 | 11.0 | -0.36 |
| - | 5500 | 100 | ax (20MHz) | 6.5/7.2 (MCS0) | 4.03 | 4.57 | 4.88 | 5.00 | 10.67 | 11.0 | -0.33 |
| - | 5600 | 120 | ax (20MHz) | 6.5/7.2 (MCS0) | 5.33 | 5.15 | 4.00 | 4.19 | 10.73 | 11.0 | -0.33 |
| - | 5720 | 144 | ax (20MHz) | | 4.53 | 3.90 | 4.02 | 5.53 | 10.66 | 11.0 | -0.27 |
| U | 5720 | 144 | n (40MHz) | 6.5/7.2 (MCS0) | 4.53 | -4.24 | -3.39 | -2.79 | 2.37 | 11.0 | -0.34 |
| Band 2C | 5590 | 102 | n (40101HZ) n (40MHz) | 13.5/15 (MCS0) 13.5/15 (MCS0) | 4.84 | 4.88 | 4.90 | -2.79 | 10.98 | 11.0 | -8.63 |
| gan | | | | | | | | | | | |
| ш | 5710 5510 | 142 102 | n (40MHz) | 13.5/15 (MCS0) | 4.81 -2.12 | 3.53 -2.19 | 4.57 -2.51 | 5.25 | 10.61 3.86 | 11.0 | -0.39 -7.14 |
| | | | ax (40MHz) | 13.5/15 (MCS0) | | | | -1.85 | | 11.0 | - |
| | 5590 | 118 | ax (40MHz) | 13.5/15 (MCS0) | 4.94 | 5.00 | 4.50 | 4.66 | 10.80 | 11.0 | -0.20 |
| | 5710 | 142 | ax (40MHz) | 13.5/15 (MCS0) | 5.25 | 4.07 | 4.48 | 5.73 | 10.95 | 11.0 | |
| | 5530 | 106 | ac (80MHz) | 29.3/32.5 (MCS0) | -8.52 | -7.76 | -7.23 | -7.16 | -1.61 | 11.0 | -12.61 |
| | 5610 | 122 | ac (80MHz) | 29.3/32.5 (MCS0) | 5.03 | 4.61 | 4.58 | 4.65 | 10.74 | 11.0 | -0.26 |
| | 5690 | 138 | ac (80MHz) | 29.3/32.5 (MCS0) | 4.80 | 4.35 | 4.83 | 5.48 | 10.90 | 11.0 | -0.10 |
| | 5530 | 106 | ax (80MHz) | 29.3/32.5 (MCS0) | -7.63 | -7.11 | -6.60 | -6.83 | -1.01 | 11.0 | -12.01 |
| | 5610 | 122 | ax (80MHz) | 29.3/32.5 (MCS0) | 4.51 | 4.11 | 4.66 | 4.70 | 10.52 | 11.0 | -0.48 |
| | 5690 | 138 | ax (80MHz) | 29.3/32.5 (MCS0) | 5.50 | 5.83 | 4.15 | 3.32 | 10.84 | 11.0 | -0.16 |

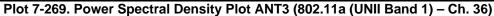
Table 7-22. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements

| FCC ID: A3LSMH204V | htud to be part of @ element | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
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| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 167 of 244 |
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Antenna-3 Power Spectral Density Measurements



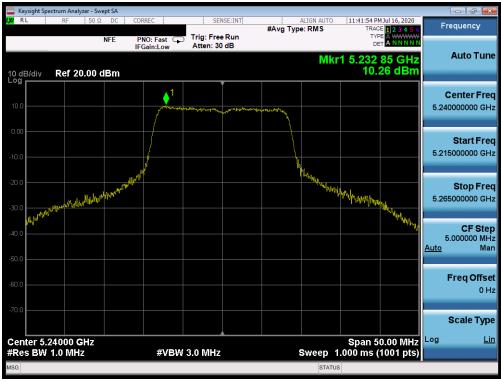


Plot 7-270. Power Spectral Density Plot ANT3 (802.11a (UNII Band 1) - Ch. 40)

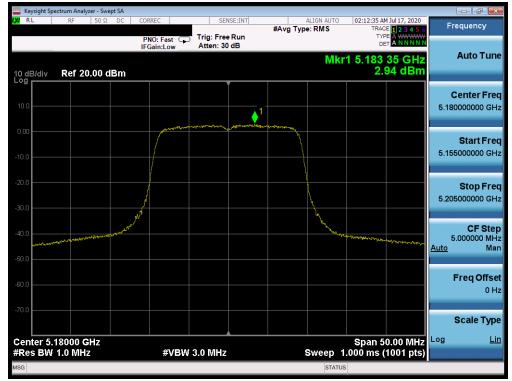
| FCC ID: A3LSMH204V | PCTEST Possal to be part of @ element | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
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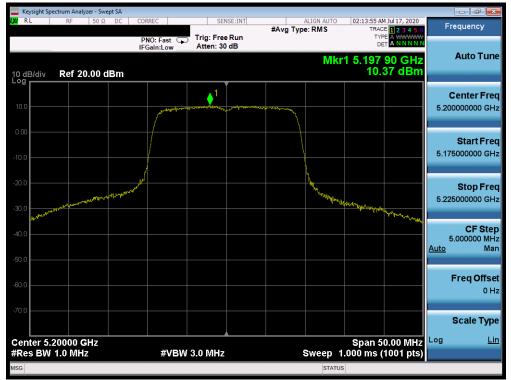




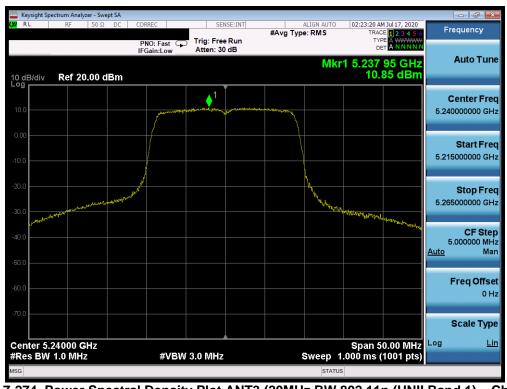
Plot 7-272. Power Spectral Density Plot ANT3 (20MHz BW 802.11n (UNII Band 1) - Ch. 36)

| FCC ID: A3LSMH204V | httud to be part of @ element: | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 160 of 244 |
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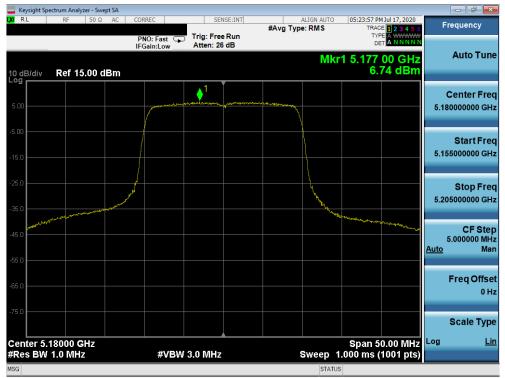
Plot 7-273. Power Spectral Density Plot ANT3 (20MHz BW 802.11n (UNII Band 1) - Ch. 40)



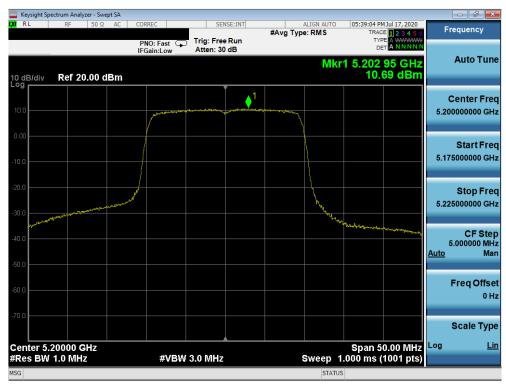
Plot 7-274. Power Spectral Density Plot ANT3 (20MHz BW 802.11n (UNII Band 1) - Ch. 48)

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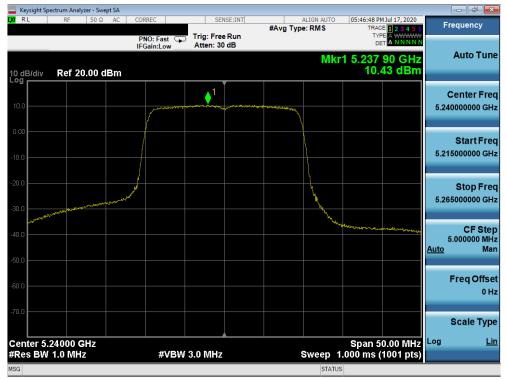
Plot 7-275. Power Spectral Density Plot ANT3 (20MHz BW 802.11ax (UNII Band 1) - Ch. 36)



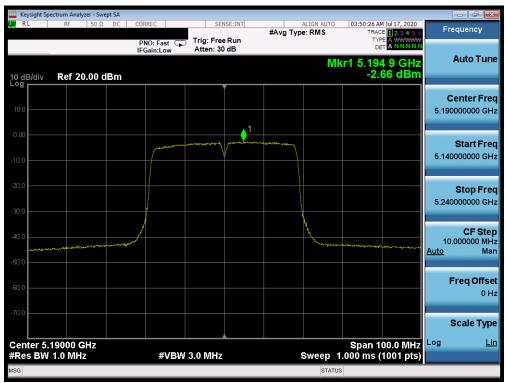
Plot 7-276. Power Spectral Density Plot ANT3 (20MHz BW 802.11ax (UNII Band 1) - Ch. 40)

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|---------------------|---|--|------------------------------|
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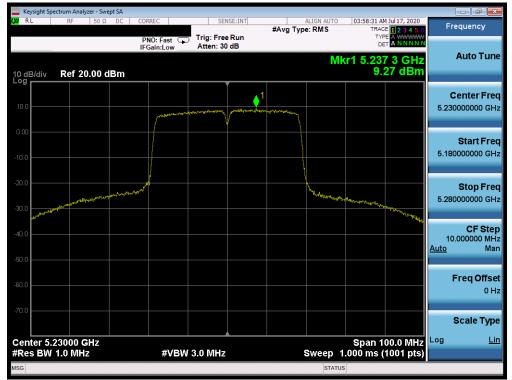
Plot 7-277. Power Spectral Density Plot ANT3 (20MHz BW 802.11ax (UNII Band 1) - Ch. 48)



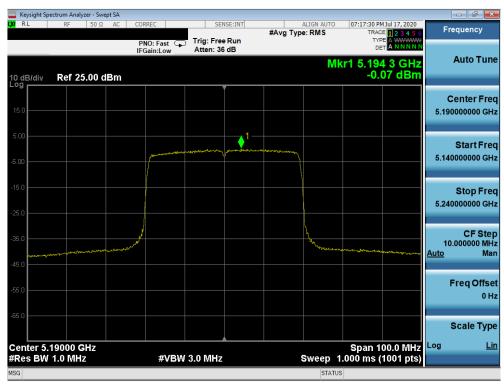
Plot 7-278. Power Spectral Density Plot ANT3 (40MHz BW 802.11n (UNII Band 1) - Ch. 38)

| FCC ID: A3LSMH204V | Posed to be part of @ wiensent | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
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| Test Report S/N: | Test Dates: | EUT Type: | | Dega 170 of 244 |
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Plot 7-279. Power Spectral Density Plot ANT3 (40MHz BW 802.11n (UNII Band 1) - Ch. 46)



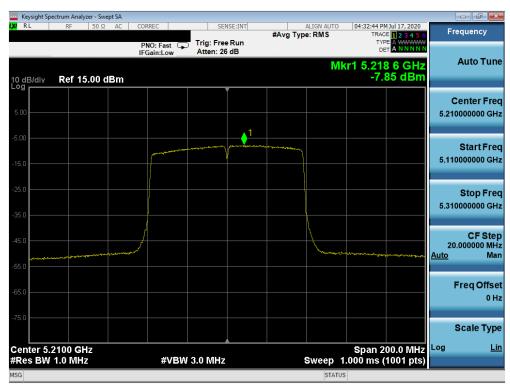
Plot 7-280. Power Spectral Density Plot ANT3 (40MHz BW 802.11ax (UNII Band 1) - Ch. 38)

| FCC ID: A3LSMH204V | Acut to be part of the windows | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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| Test Report S/N: | Test Dates: | EUT Type: | | Dage 172 of 244 |
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| 🤤 Keysight Spectrum Analyzer - Swept SA | | | | | - 7 💌 |
|---|----------|--|------------------------------|--|---|
| LXX RL RF 50Ω AC | CORREC | SENSE:INT | ALIGN AUTO #Avg Type: RMS | 07:53:04 PM Jul 17, 2020 TRACE 1 2 3 4 5 6 | Frequency |
| 10 dB/div Ref 25.00 dBm | | rig: Free Run Atten: 36 dB | Mk | type A WANNEN DET A NNNN N (r1 5.233 0 GHz 9.73 dBm | Auto Tune |
| 15.0 | | and the state of t | | | Center Freq 5.230000000 GHz |
| -5.00 | | | | | Start Freq 5.180000000 GHz |
| -15.0 -25.0 | ~ | | | Manuford Jones | Stop Freq 5.28000000 GHz |
| -35.0 | | | | | CF Step 10.000000 MHz <u>Auto</u> Man |
| -56.0 | | | | | Freq Offset 0 Hz |
| -65.0 | | | | Shop 100 0 Mile | Scale Type |
| Center 5.23000 GHz #Res BW 1.0 MHz | #VBW 3.0 | 0 MHz | Sweep 1 | Span 100.0 MHz .000 ms (1001 pts) | |
| MSG | | | STATUS | | |

Plot 7-281. Power Spectral Density Plot ANT3 (40MHz BW 802.11ax (UNII Band 1) - Ch. 42)



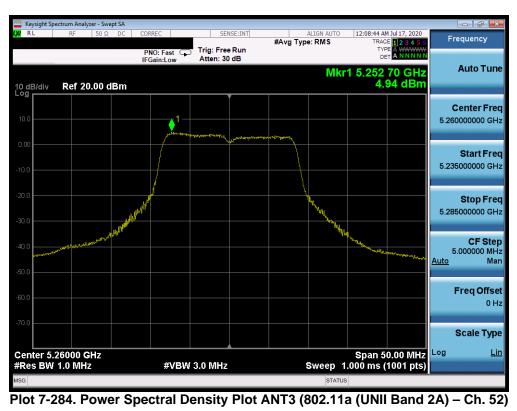
Plot 7-282. Power Spectral Density Plot ANT3 (80MHz BW 802.11ac (UNII Band 1) - Ch. 42)

| FCC ID: A3LSMH204V | PCTEST Présul to les part of @ viennet | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|---------------------|---|--|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dogo 174 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | Page 174 of 344 |
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| Keysight Spectrum | | | | | | | | | |
|------------------------------|----------------------------|---------------------------|-------------------------|---------|----------|----------------|------------------------|---|---|
| LXIRL RF | 50 Ω AC | CORREC | | ISE:INT | #Avg Typ | ALIGN AUTO | 09:41:18 PM J TRACE | ul 17, 2020 | Frequency |
| 10 dB/div Ref | f 20.00 dBm | PNO: Fast 🕞 IFGain:Low | Trig: Free Atten: 30 | | | Mk | DET | 2 GHz 1 dBm | Auto Tune |
| 10.0 | | | | | | | | | Center Freq 5.210000000 GHz |
| -10.0 | | (maximum) | Replansafier | | 1 | | | | Start Freq 5.110000000 GHz |
| -20.0 | | | | | | | | | Stop Freq 5.310000000 GHz |
| -40.0 | naliter and marked and and | ~ | | | | Me and a start | former to Automatic | ang la a training ang ang ang ang ang ang ang ang ang a | CF Step 20.000000 MHz <u>Auto</u> Man |
| -60.0 | | | | | | | | | Freq Offset 0 Hz |
| -70.0 | | | | | | | | | Scale Type |
| Center 5.2100 #Res BW 1.0 | | #VBW | 3.0 MHz | | | Sweep 1 | Span 20 .000 ms (1 | 0.0 MHz 001 pts) | Log <u>Lin</u> |
| MSG | | | | | | STATUS | | | |

Plot 7-283. Power Spectral Density Plot ANT3 (80MHz BW 802.11ax (UNII Band 1) - Ch. 42)



PCTEST G Approved by: MEASUREMENT REPORT SAMSUND FCC ID: A3LSMH204V (CERTIFICATION) Quality Manager Provid to be part of 📵 element Test Report S/N: EUT Type: Test Dates: Page 175 of 344 1M2004140062-08.A3L 4/29 - 8/12/2020 Indoor Customer Premises Equipment (CPE) © 2020 PCTEST V 9.0 02/01/2019





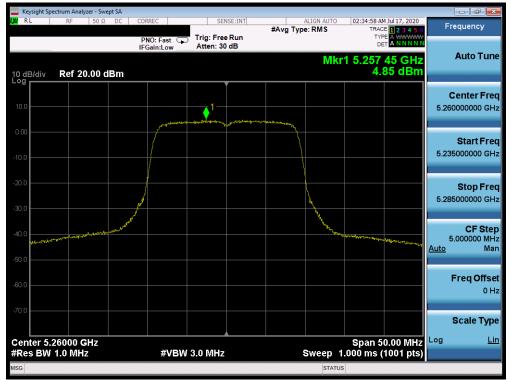




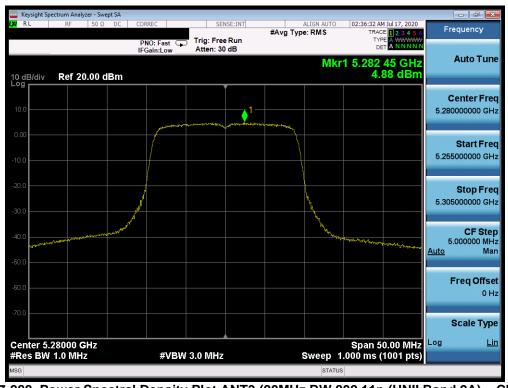
Plot 7-286. Power Spectral Density Plot ANT3 (802.11a (UNII Band 2A) - Ch. 64)

| FCC ID: A3LSMH204V | PCTEST Adeal to be part of @ element | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|---------------------|---|--|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Daga 176 at 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | Page 176 of 344 |
| © 2020 PCTEST | | | V 9.0 02/01/2019 |





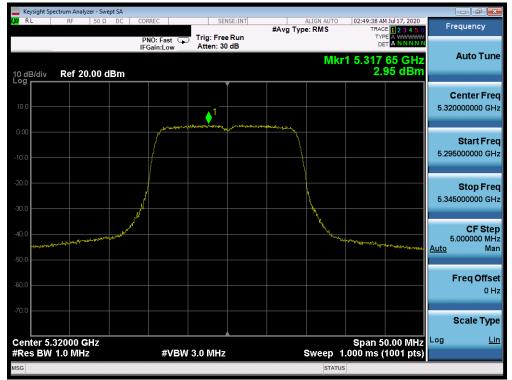
Plot 7-287. Power Spectral Density Plot ANT3 (20MHz BW 802.11n (UNII Band 2A) - Ch. 52)



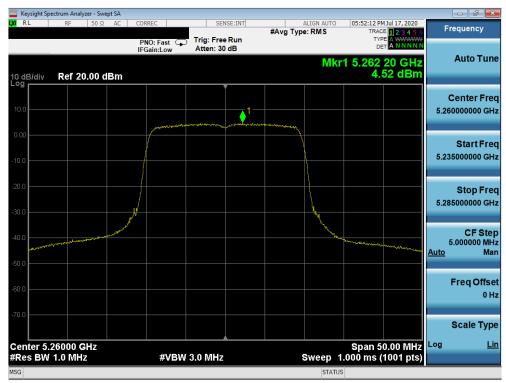
Plot 7-288. Power Spectral Density Plot ANT3 (20MHz BW 802.11n (UNII Band 2A) - Ch. 56)

| FCC ID: A3LSMH204V | PCTEST Présai to las part of @ viscand | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|---|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 177 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 177 of 344 |
| © 2020 PCTEST | | | | V 9.0 02/01/2019 |





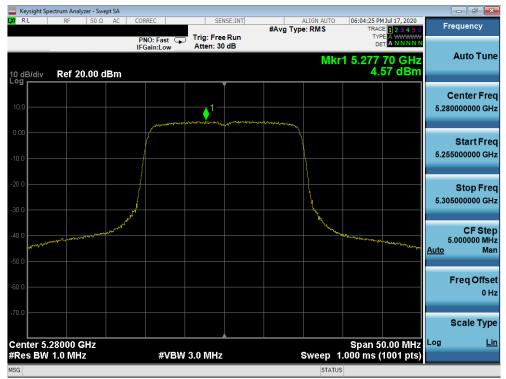
Plot 7-289. Power Spectral Density Plot ANT3 (20MHz BW 802.11n (UNII Band 2A) - Ch. 64)



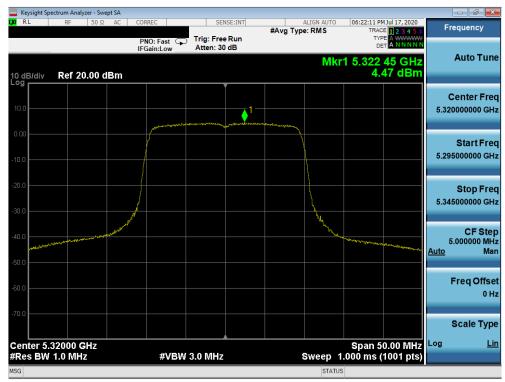
Plot 7-290. Power Spectral Density Plot ANT3 (20MHz BW 802.11ax (UNII Band 2A) - Ch. 52)

| FCC ID: A3LSMH204V | Acut to be part of the windows | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
|---------------------|--------------------------------|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 179 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 178 of 344 |
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Plot 7-291. Power Spectral Density Plot ANT3 (20MHz BW 802.11ax (UNII Band 2A) - Ch. 56)



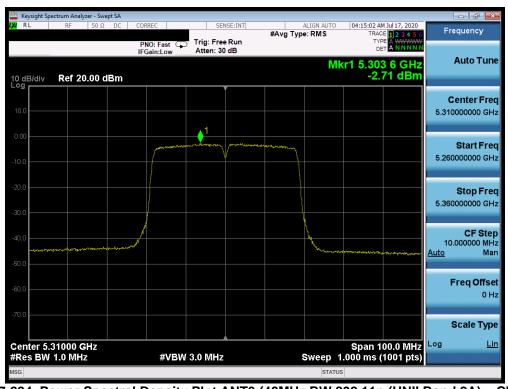
Plot 7-292. Power Spectral Density Plot ANT3 (20MHz BW 802.11ax (UNII Band 2A) - Ch. 64)

| FCC ID: A3LSMH204V | PCTEST Adeal to be part of @ element | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|---|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 170 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 179 of 344 |
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Plot 7-293. Power Spectral Density Plot ANT3 (40MHz BW 802.11n (UNII Band 2A) - Ch. 54)



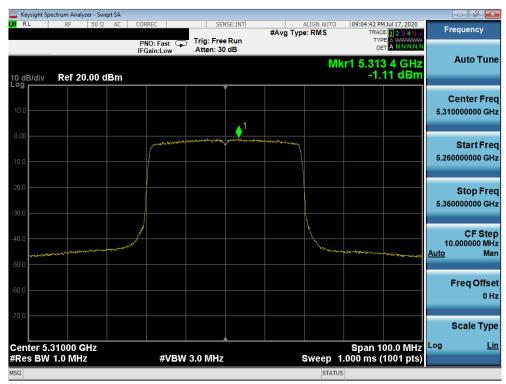
Plot 7-294. Power Spectral Density Plot ANT3 (40MHz BW 802.11n (UNII Band 2A) - Ch. 62)

| FCC ID: A3LSMH204V | PCTEST Head to be part of @ elected | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|---------------------|--|--|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dage 190 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | Page 180 of 344 |
| © 2020 PCTEST | | | V 9.0 02/01/2019 |



| 🤤 Keysight Spectrum Analyzer - Swept SA 🚽 | | | | | | |
|---|---|--------------------------------|--------------------------------|--|--------------------------------|----------------------------------|
| LX/ RL RF 50Ω AC | CORREC | SENSE:INT | AL | | TRACE 1 2 3 4 5 6 | Frequency |
| | PNO: Fast 📮 IFGain:Low | Trig: Free Run Atten: 30 dB | • // | | | Auto Tune |
| 10 dB/div Ref 20.00 dBm | | | | | 4.45 dBm | |
| | | Ĭ | | | | Center Freq |
| 10.0 | مىمىلى مەلكى بىرىمىلىرىمى | | how doge the man agent and the | | | 5.270000000 GHz |
| 0.00 | | | | | | Start Freq |
| -10.0 | | | | | | 5.220000000 GHz |
| -20.0 | | | | | | Stop Freq |
| -30.0 | | | | | | 5.320000000 GHz |
| Mar Mar Sun Branch and and an and an | Strate of the second | | | have an and a second and a second and a second and a second a seco | manne | CF Step |
| -40.0 | | | | | and the second | 10.000000 MHz <u>Auto</u> Man |
| -50.0 | | | | | | |
| -60.0 | | | | | | Freq Offset 0 Hz |
| -70.0 | | | | | | |
| | | | | | | Scale Type |
| Center 5.27000 GHz #Res BW 1.0 MHz | #\/ B \\ | 3.0 MHz | | S | oan 100.0 MHz ms (1001 pts) | Log <u>Lin</u> |
| #Res BW 1.0 MHZ | #VBW | 3.0 MIAZ | 5) | status | ms (1001 pts) | |

Plot 7-295. Power Spectral Density Plot ANT3 (40MHz BW 802.11ax (UNII Band 2A) - Ch. 54)



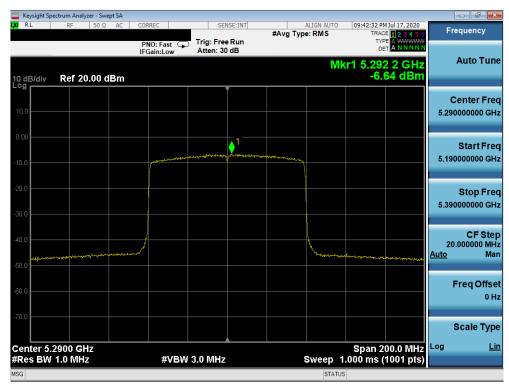
Plot 7-296. Power Spectral Density Plot ANT3 (40MHz BW 802.11ax (UNII Band 2A) - Ch. 62)

| FCC ID: A3LSMH204V | PCTEST Adeal to be part of @ element | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|---|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 191 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 181 of 344 |
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| Keysight Spectrum Analyzer - Swept SA | | | | | |
|---------------------------------------|---------------------------|--------------------------------|---|--|---|
| LX/RL RF 50Ω AC | CORREC | SENSE:INT | ALIGN | | Frequency |
| 10 dB/div Ref 15.00 dBm | PNO: Fast 🖵 IFGain:Low | Trig: Free Run Atten: 26 dB | | Mkr1 5.294 2 GHz -7.10 dBm | Auto Tune |
| 5.00 | | .1 | | | Center Freq 5.290000000 GHz |
| -5.00 | | | | | Start Freq 5.190000000 GHz |
| -25.0 | | | | | Stop Freq 5.390000000 GHz |
| -45.0 | | | | an ang an ang ang ang ang ang ang ang an | CF Step 20.000000 MHz <u>Auto</u> Man |
| -66.0 | | | | | Freq Offset 0 Hz |
| -75.0 Center 5.2900 GHz | | | | Span 200.0 MHz | Scale Type |
| #Res BW 1.0 MHz | #VBW | 3.0 MHz | Swee | p 1.000 ms (1001 pts) | |
| MSG | | | | TATUS | |

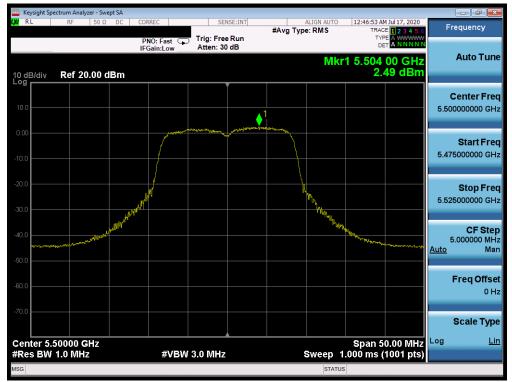
Plot 7-297. Power Spectral Density Plot ANT3 (80MHz BW 802.11ac (UNII Band 2A) - Ch. 58)



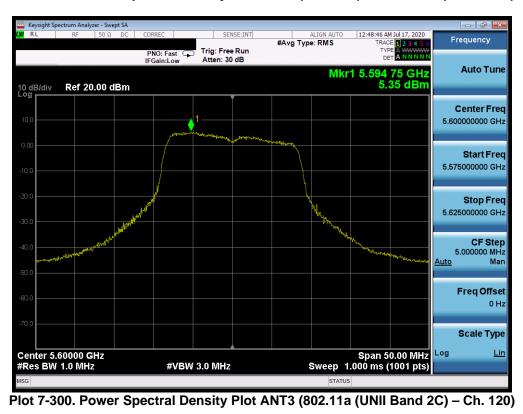
Plot 7-298. Power Spectral Density Plot ANT3 (80MHz BW 802.11ax (UNII Band 2A) - Ch. 58)

| FCC ID: A3LSMH204V | | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|---------------------|------------------|--|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dama 400 at 044 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | Page 182 of 344 |
| © 2020 PCTEST | | | V 9.0 02/01/2019 |



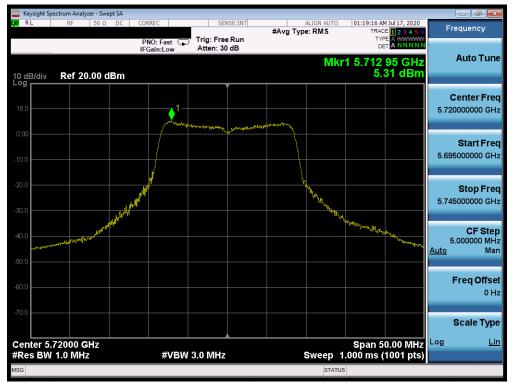


Plot 7-299. Power Spectral Density Plot ANT3 (802.11a (UNII Band 2C) - Ch. 100)

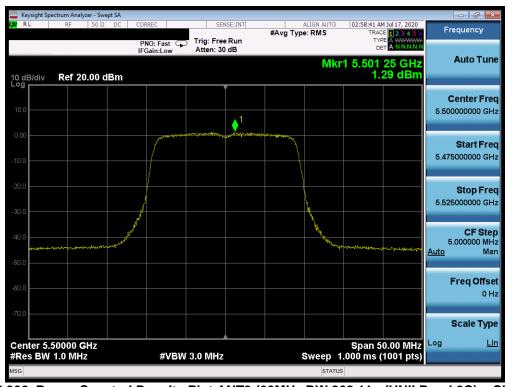


PCTEST Approved by: Ge MEASUREMENT REPORT SAMSUNG FCC ID: A3LSMH204V (CERTIFICATION) **Quality Manager** Protect to her post of 📵 element Test Report S/N: EUT Type: Test Dates: Page 183 of 344 1M2004140062-08.A3L 4/29 - 8/12/2020 Indoor Customer Premises Equipment (CPE) © 2020 PCTEST V 9.0 02/01/2019





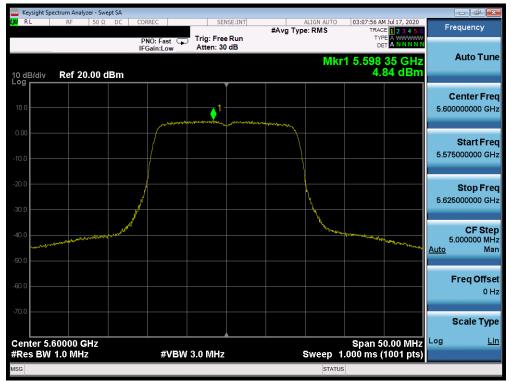
Plot 7-301. Power Spectral Density Plot ANT3 (802.11a (UNII Band 2C) - Ch. 144)



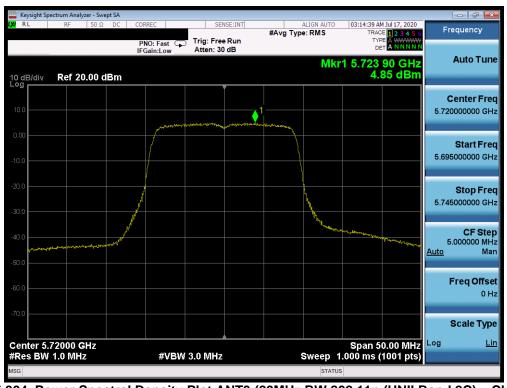
Plot 7-302. Power Spectral Density Plot ANT3 (20MHz BW 802.11n (UNII Band 2C) - Ch. 100)

| FCC ID: A3LSMH204V | PCTEST Adeal to be part of @ element | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|---|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 194 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 184 of 344 |
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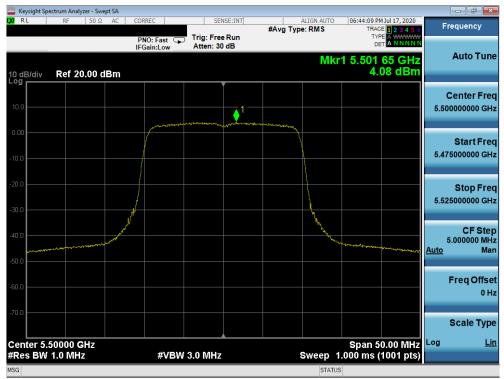
Plot 7-303. Power Spectral Density Plot ANT3 (20MHz BW 802.11n (UNII Band 2C) - Ch. 120)



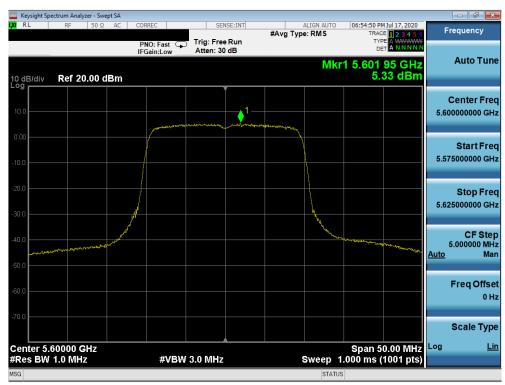
Plot 7-304. Power Spectral Density Plot ANT3 (20MHz BW 802.11n (UNII Band 2C) - Ch. 144)

| FCC ID: A3LSMH204V | PCTEST Présai to las part of @ viscand | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|---------------------|---|--|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dage 195 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | Page 185 of 344 |
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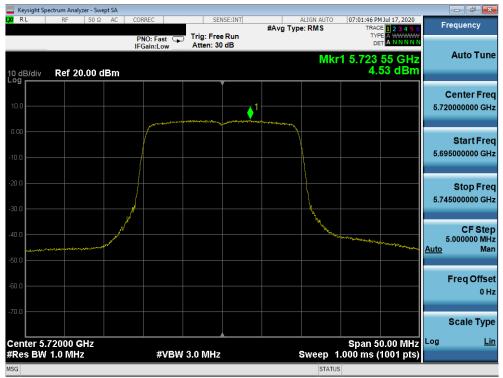
Plot 7-305. Power Spectral Density Plot ANT3 (20MHz BW 802.11ax (UNII Band 2C) - Ch. 100)



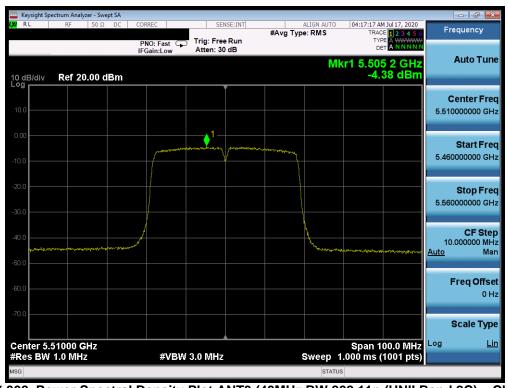
Plot 7-306. Power Spectral Density Plot ANT3 (20MHz BW 802.11ax (UNII Band 2C) - Ch. 120)

| FCC ID: A3LSMH204V | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
|---------------------|------------------|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 196 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 186 of 344 |
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Plot 7-307. Power Spectral Density Plot ANT3 (20MHz BW 802.11ax (UNII Band 2C) - Ch. 120)



Plot 7-308. Power Spectral Density Plot ANT3 (40MHz BW 802.11n (UNII Band 2C) - Ch. 102)

| FCC ID: A3LSMH204V | PCTEST Adeal to be part of @ element | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
|---------------------|---|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | De 407 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 187 of 344 |
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Plot 7-309. Power Spectral Density Plot ANT3 (40MHz BW 802.11n (UNII Band 2C) - Ch. 118)



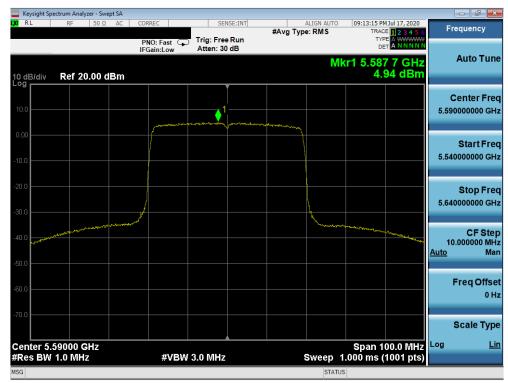
Plot 7-310. Power Spectral Density Plot ANT3 (40MHz BW 802.11n (UNII Band 2C) - Ch. 142)

| FCC ID: A3LSMH204V | PCTEST Nout to be part of @ viewment | MEASUREMENT REPORT (CERTIFICATION) | ASUNE | Approved by: Quality Manager |
|---------------------|---|--|-------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 199 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 188 of 344 |
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| | um Analyzer - Swe | | | | | | | | | - 6 |
|---------------------------|-------------------|---|--|-------------------------|-------------------|----------|------------|---------------------|---|--|
| LX/I RL | RF 50 Ω | AC COF | RREC | SEN | ISE:INT | #Avg Typ | ALIGN AUTO | | I Jul 17, 2020 | Frequency |
| | | IFC | NO: Fast 🕞 Gain:Low | Trig: Free Atten: 30 | | | M | ort 5.503 | ² 2 GHz 12 dBm | Auto Tur |
| 10 dB/div Log | Ref 20.00 d | lBm | | | | | | -2.* | | |
| 10.0 | | | | | | | | | | Center Fre 5.510000000 GF |
| -10.0 | | | for a second | and and a second second | front to allow of | | | | | Start Fre 5.460000000 GH |
| -20.0 | | | | | | | | | | Stop Fre 5.56000000 GH |
| -30.0 | | A summer of the second s | | | | | hy | | | CF Ste 10.000000 MH <u>Auto</u> Ma |
| -50.0 | | | | | | | | | 9 (6a) ¹⁰ (an Shan y Couly | FreqOffs |
| -70.0 | | | | | | | | | | 0 ⊦ I Scale Typ |
| Center 5.51 #Res BW 1. | | | #VBN | / 3.0 MHz | | | Sweep 1 | Span 1 .000 ms (| | Log <u>L</u> |
| MSG | | | | | | | STATUS | 5 | | |

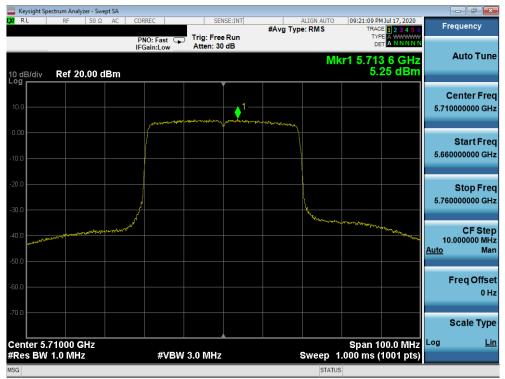
Plot 7-311. Power Spectral Density Plot ANT3 (40MHz BW 802.11ax (UNII Band 2C) - Ch. 102)



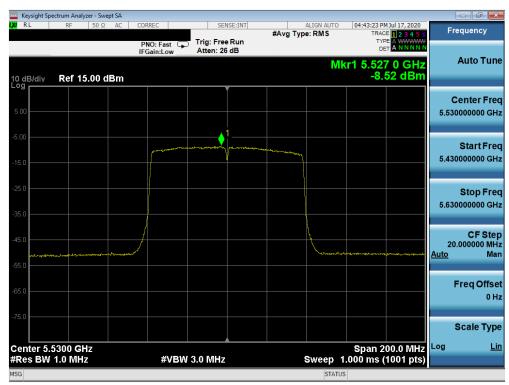
Plot 7-312. Power Spectral Density Plot ANT3 (40MHz BW 802.11ax (UNII Band 2C) - Ch. 118)

| FCC ID: A3LSMH204V | POLI to be part of @ viencent | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
|---------------------|-------------------------------|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dama 400 at 044 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 189 of 344 |
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Plot 7-313. Power Spectral Density Plot ANT3 (40MHz BW 802.11ax (UNII Band 2C) - Ch. 142)



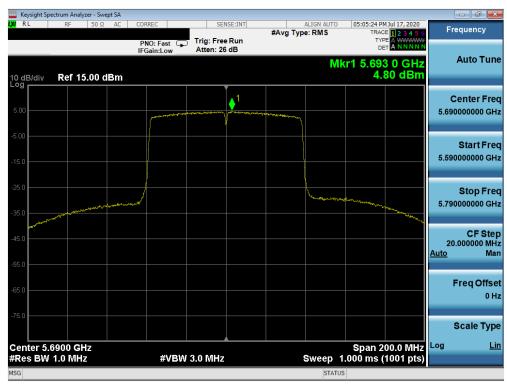
Plot 7-314. Power Spectral Density Plot ANT3 (80MHz BW 802.11ac (UNII Band 2C) - Ch. 106)

| FCC ID: A3LSMH204V | PCTEST Proved to be part of (windowski | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
|---------------------|--|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 100 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 190 of 344 |
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| | ctrum Analyzer - Swept | SA | | | | | | | | | |
|-------------------------|------------------------|-----------------------|-----------------------|-------------------------|-----------------------|--------------------------|----------------------|----------------------|--|-------------------|-------------------------------|
| LXIRL | RF 50 Ω | AC CORRE | | | ISE:INT | #Avg Typ | ALIGN AUTO e: RMS | TRAC | 4 Jul 17, 2020 E 1 2 3 4 5 6 E A WWWWW | Fr | equency |
| 10 dB/div Log | Ref 15.00 dB | IFGa |):Fast 😱 in:Low | Trig: Free Atten: 26 | | | М | ⊳⊧ kr1 5.61 | | | Auto Tune |
| 5.00 | | (| ىسىرىمۇلارىيەر بەرمىر | | ↓ ¹ | the product and a string | | | | | enter Freq |
| -5.00 | | | | | | | | | | 5.51 | Start Freq |
| -25.0 | | an serve and a served | | | | | wardsmanny. | My we know we | and the second second | 5.71 | Stop Freq |
| -45.0 | | | | | | | | | | 20 <u>Auto</u> | CF Step .000000 MHz Man |
| -65.0 | | | | | | | | | | ' | Freq Offsel 0 Hz |
| -75.0 | | | | | | | | | | | Scale Type Lin |
| Center 5.6 #Res BW 1 | | | #VBW | 3.0 MHz | | | Sweep | 2 Span 1.000 ms (| 00.0 MHz 1001 pts) | LUg | <u>LIN</u> |
| MSG | | | | | | | STATU | | ree i proj | | |

Plot 7-315. Power Spectral Density Plot ANT3 (80MHz BW 802.11ac (UNII Band 2C) - Ch. 122)



Plot 7-316. Power Spectral Density Plot ANT3 (80MHz BW 802.11ac (UNII Band 2C) - Ch. 138)

| FCC ID: A3LSMH204V | PCTEST Proved to be part of (windowski | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dama 404 af 044 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 191 of 344 |
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| | m Analyzer - Swept S | | | | | | | | - đ | × |
|--------------|----------------------|--|--------------|---|--------------|----------------------|-------------------|--|------------------------|---------------|
| LXI RL | RF 50 Ω A | C CORREC | | ISE:INT | #Avg Typ | ALIGN AUTO e: RMS | | 1 2 3 4 5 6 | Frequency | у |
| | | PNO: F IFGain:l | ast | | | | TYP DE | A WWWWW A N N N N N | | |
| 10 dB/div R | ef 20.00 dBr | n | | | | Mł | (r1 5.523 -7.6 | 0 GHz 63 dBm | Auto T | rune |
| | | | | | | | | | Center | Freq |
| 10.0 | | | | | | | | | 5.53000000 | GHz |
| 0.00 | | | . 1 | | | | | | | - |
| -10.0 | | ward | manument | had a second statement of the second s | al summer of | | | | Start 5.430000000 | |
| -10.0 | | | | | | | | | | |
| -20.0 | | | | | | | | | Stop | Freq |
| -30.0 | | | | | | | | | 5.63000000 | GHz |
| | | | | | | | | | CES | Step |
| -40.0 | | and the second s | | | | - | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | 20.000000 Auto | |
| -50.0 | | | | | | | | | | |
| -60.0 | | | | | | | | | Freq O | ffset 0 Hz |
| | | | | | | | | | | UHZ |
| -70.0 | | | | | | | | | Scale 1 | Гуре |
| Center 5.530 | | | | | | | Snan 2 | 0.0 MHz | Log | Lin |
| #Res BW 1.0 | | - | #VBW 3.0 MHz | | | Sweep 1 | .000 ms (| 001 pts) | | |
| MSG | | | | | | STATUS | 5 | | | |

Plot 7-317. Power Spectral Density Plot ANT3 (80MHz BW 802.11ax (UNII Band 2C) - Ch. 106)



Plot 7-318. Power Spectral Density Plot ANT3 (80MHz BW 802.11ax (UNII Band 2C) - Ch. 122)

| FCC ID: A3LSMH204V | Assal to be part of @ element | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
|---------------------|-------------------------------|--|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dama 400 af 044 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 192 of 344 |
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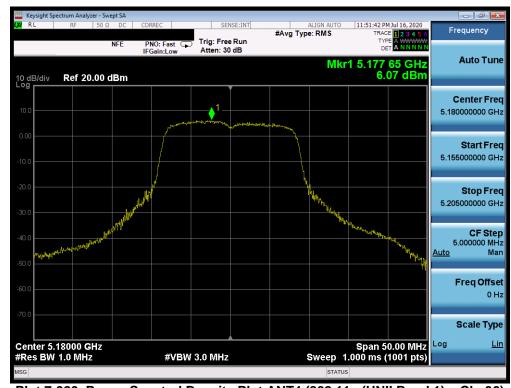




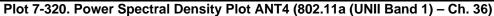
Plot 7-319. Power Spectral Density Plot ANT3 (80MHz BW 802.11ax (UNII Band 2C) - Ch. 138)

| FCC ID: A3LSMH204V | PCTEST Présid to be part of @ vienned: | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
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| Test Report S/N: Test Dates: | | EUT Type: | Dago 102 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | Page 193 of 344 |
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Antenna-4 Power Spectral Density Measurements



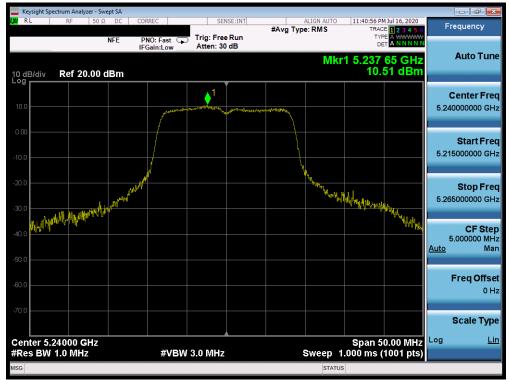


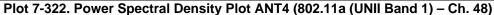
Plot 7-321. Power Spectral Density Plot ANT4 (802.11a (UNII Band 1) - Ch. 40)

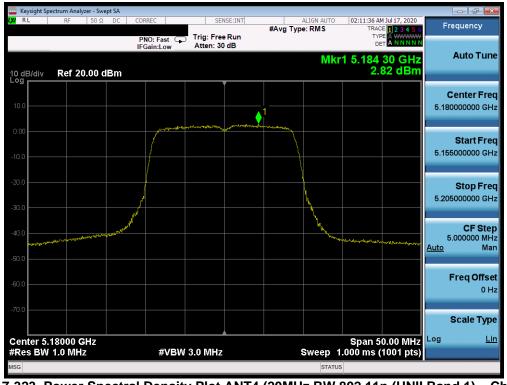
| FCC ID: A3LSMH204V | PCTEST Proud to be part of @ element | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
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| Test Report S/N: | Test Dates: | EUT Type: | | Daga 104 of 244 |
| 1M2004140062-08.A3L | | Indoor Customer Premises Equipment (CPE) | | Page 194 of 344 |
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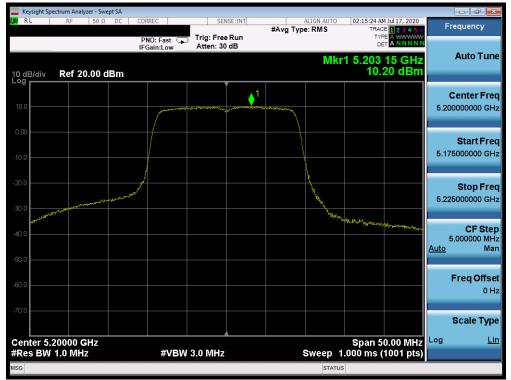




Plot 7-323. Power Spectral Density Plot ANT4 (20MHz BW 802.11n (UNII Band 1) - Ch. 36)

| FCC ID: A3LSMH204V | PCTEST Présai to las part of @ element | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
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| Test Report S/N: Test Dates: | | EUT Type: | Dogo 105 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | Page 195 of 344 |
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Plot 7-324. Power Spectral Density Plot ANT4 (20MHz BW 802.11n (UNII Band 1) - Ch. 40)



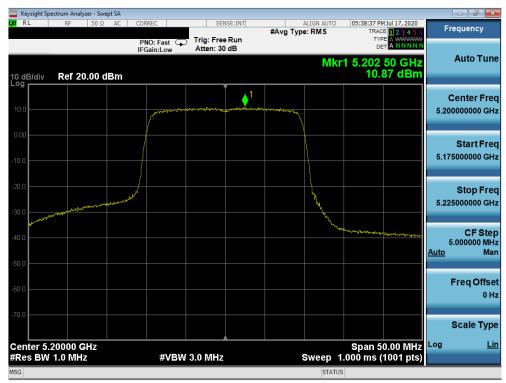
Plot 7-325. Power Spectral Density Plot ANT4 (20MHz BW 802.11n (UNII Band 1) - Ch. 48)

| FCC ID: A3LSMH204V | PCTEST Head to be part of @ elected | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
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| Test Report S/N: Test Dates: | | EUT Type: | Dage 106 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | Page 196 of 344 |
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Plot 7-326. Power Spectral Density Plot ANT4 (20MHz BW 802.11ax (UNII Band 1) - Ch. 36)



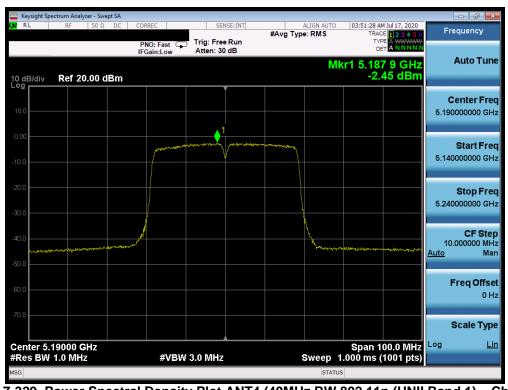
Plot 7-327. Power Spectral Density Plot ANT4 (20MHz BW 802.11ax (UNII Band 1) - Ch. 40)

| FCC ID: A3LSMH204V | PCTEST Présai to las part of @ viscand | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
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| Test Report S/N: Test Dates: | | EUT Type: | Dage 107 of 211 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | Page 197 of 344 |
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Plot 7-328. Power Spectral Density Plot ANT4 (20MHz BW 802.11ax (UNII Band 1) - Ch. 48)



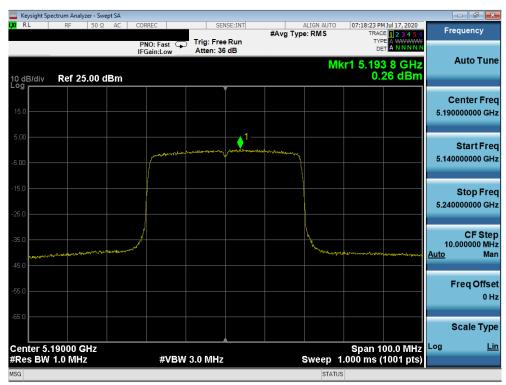
Plot 7-329. Power Spectral Density Plot ANT4 (40MHz BW 802.11n (UNII Band 1) - Ch. 38)

| FCC ID: A3LSMH204V | PCTEST Adeal to be part of @ element | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
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| Test Report S/N: Test Dates: | | EUT Type: | | Dage 109 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | | Page 198 of 344 |
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Plot 7-330. Power Spectral Density Plot ANT4 (40MHz BW 802.11n (UNII Band 1) - Ch. 46)



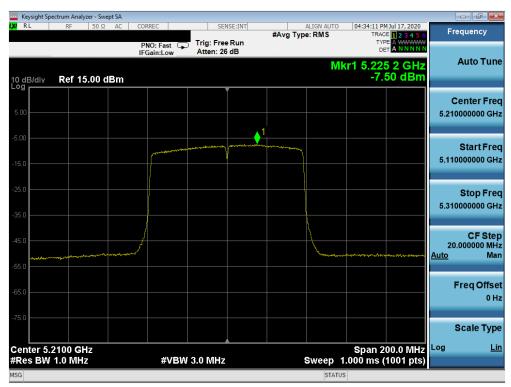
Plot 7-331. Power Spectral Density Plot ANT4 (40MHz BW 802.11ax (UNII Band 1) - Ch. 38)

| FCC ID: A3LSMH204V | PCTEST Noul to be part of @ vivorent | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
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| Test Report S/N: Test Dates: | | EUT Type: | Dage 100 of 211 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | Page 199 of 344 |
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Plot 7-332. Power Spectral Density Plot ANT4 (40MHz BW 802.11ax (UNII Band 1) - Ch. 46)



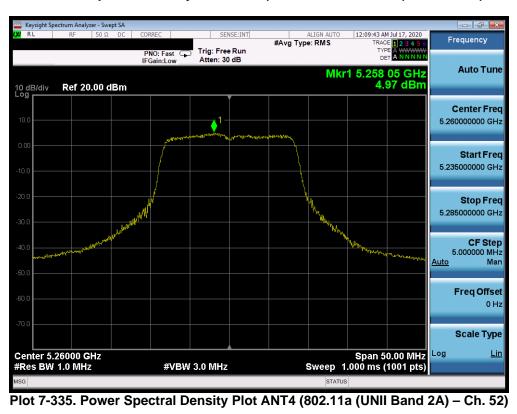
Plot 7-333. Power Spectral Density Plot ANT4 (80MHz BW 802.11ac (UNII Band 1) - Ch. 42)

| FCC ID: A3LSMH204V | PCTEST House to be part of @ elected | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|---------------------|---|--|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dage 200 of 244 |
| 1M2004140062-08.A3L | 4/29 - 8/12/2020 | Indoor Customer Premises Equipment (CPE) | Page 200 of 344 |
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| weysight Spectrum Analyzer - Swept SA | | | | | |
|---------------------------------------|--|--------------------------------|------------------------------|---|---|
| KL RF 50Ω AC | CORREC | SENSE:INT | ALIGN AUTO #Avg Type: RMS | 09:40:08 PM Jul 17, 2020 TRACE 1 2 3 4 5 6 | Frequency |
| 10 dB/div Ref 20.00 dBm | PNO: Fast 😱 IFGain:Low | Trig: Free Run Atten: 30 dB | M | cr1 5.219 8 GHz -7.72 dBm | Auto Tune |
| 10.0 | | | | | Center Freq 5.210000000 GHz |
| -10.0 | f and the second s | | | | Start Freq 5.110000000 GHz |
| -20.0 | | | | | Stop Freq 5.310000000 GHz |
| -40.0 | and the second sec | | | al | CF Step 20.000000 MHz <u>Auto</u> Man |
| -60.0 | | | | | Freq Offset 0 Hz |
| -70.0 Center 5.2100 GHz | | | | Span 200.0 MHz | Scale Type |
| #Res BW 1.0 MHz | #VBW | 3.0 MHz | Sweep 1 | 1.000 ms (1001 pts) | |
| MSG | | | STATUS | - | |

Plot 7-334. Power Spectral Density Plot ANT4 (80MHz BW 802.11ax (UNII Band 1) - Ch. 42)



| FCC ID: A3LSMH204V | PCTEST Presal to be part of @ element | MEASUREMENT REPORT (CERTIFICATION) | SAMSUND | Approved by: Quality Manager |
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