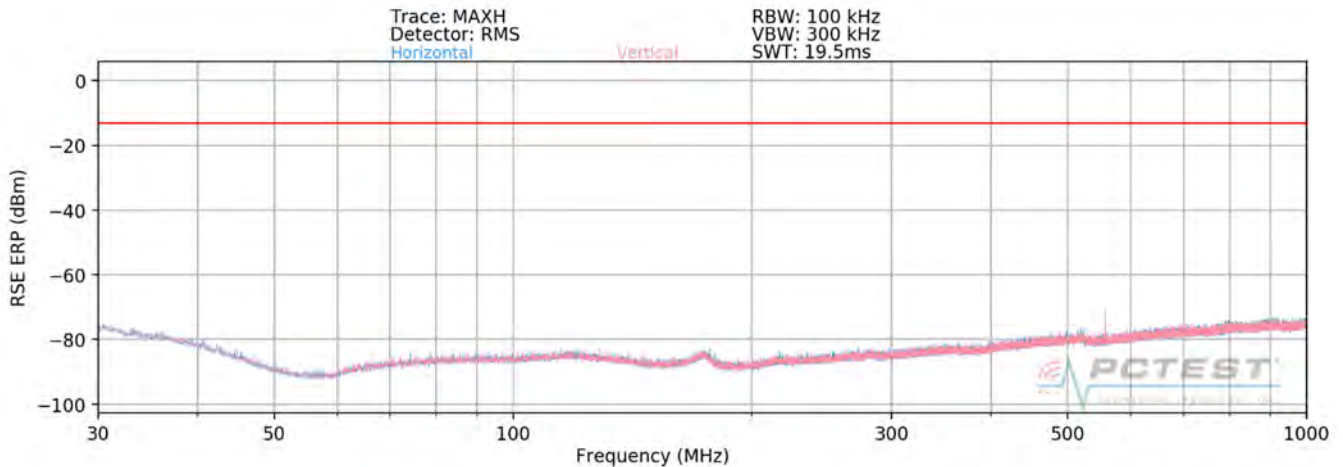
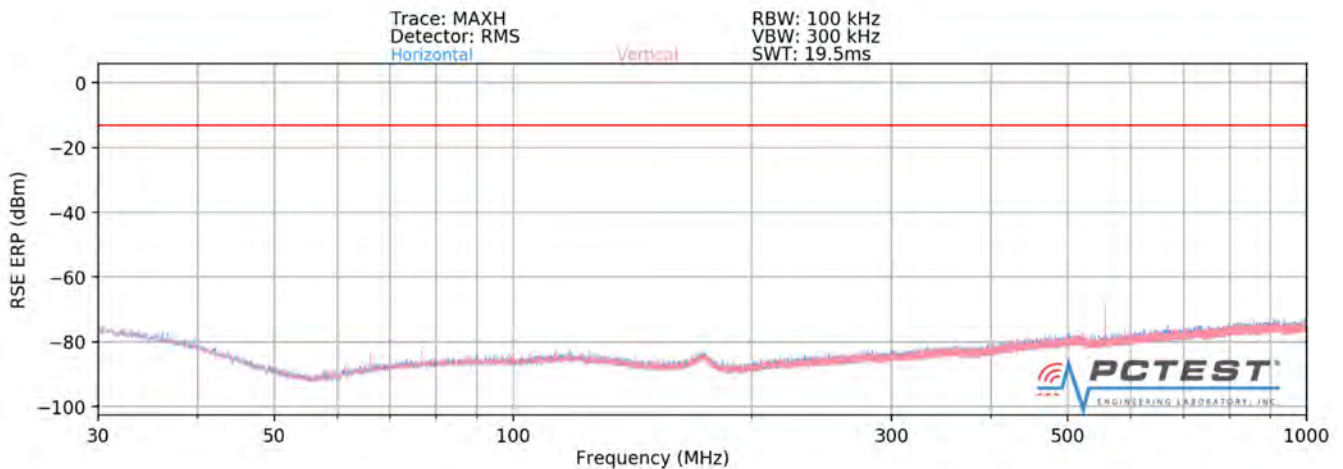


K Patch Radiated Spurious Emissions(n261)

30MHz – 1GHz(n261)



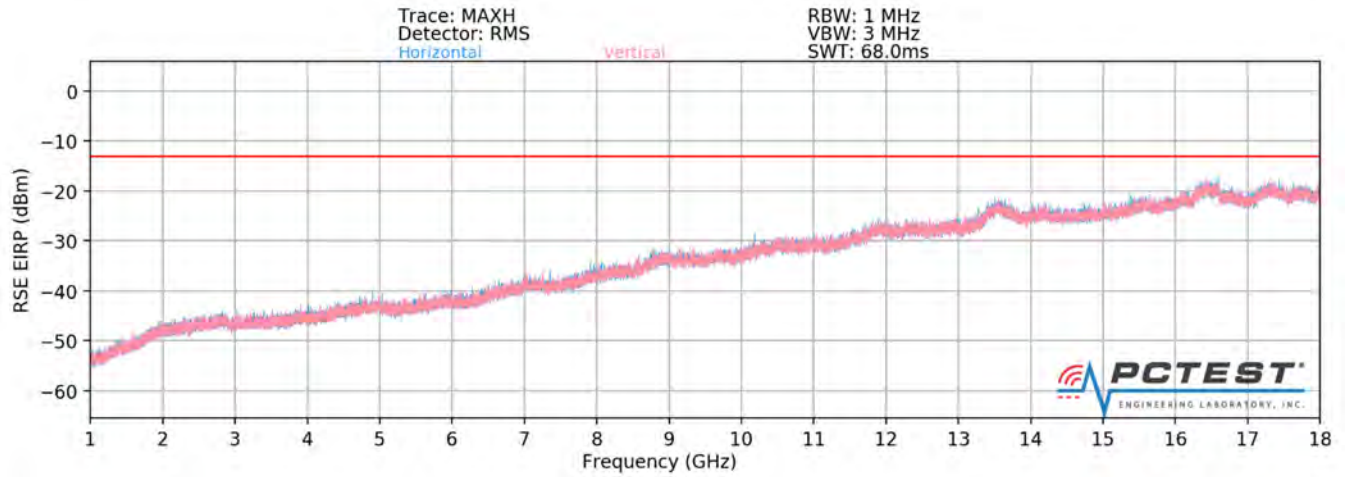
Plot 7-165. K Patch Radiated Spurious Plot 30 MHz - 1 GHz (1CC QPSK Mid Channel H Beam – n261)



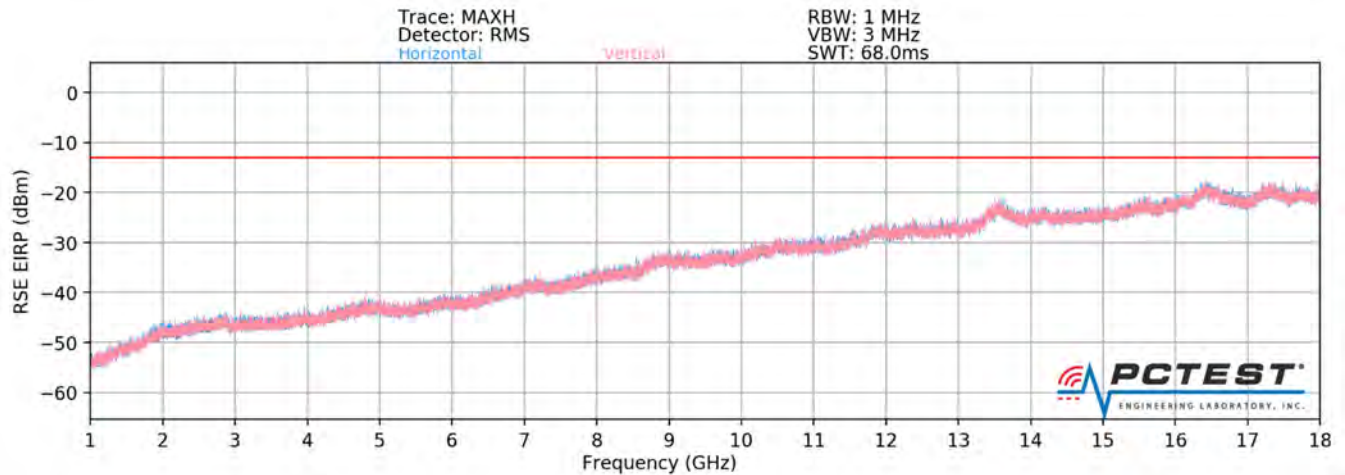
Plot 7-166. K Patch Radiated Spurious Plot 30 MHz - 1 GHz (1CC QPSK Mid Channel V Beam – n261)

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| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | Page 118 of 371 |

1 – 18GHz



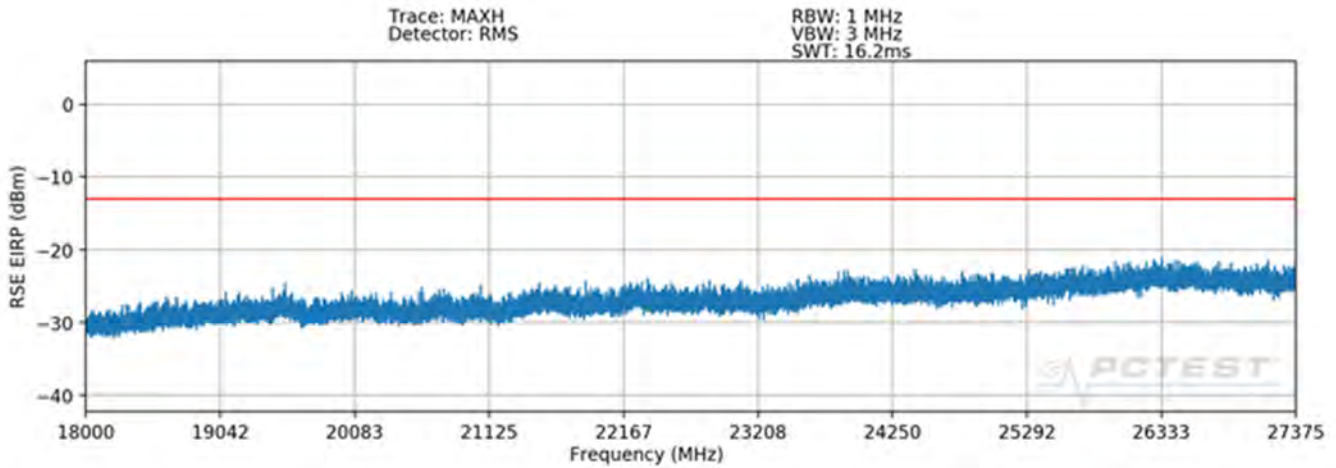
Plot 7-167. K Patch Radiated Spurious Plot 1-18 GHz (1CC QPSK Mid Channel H Beam – n261)



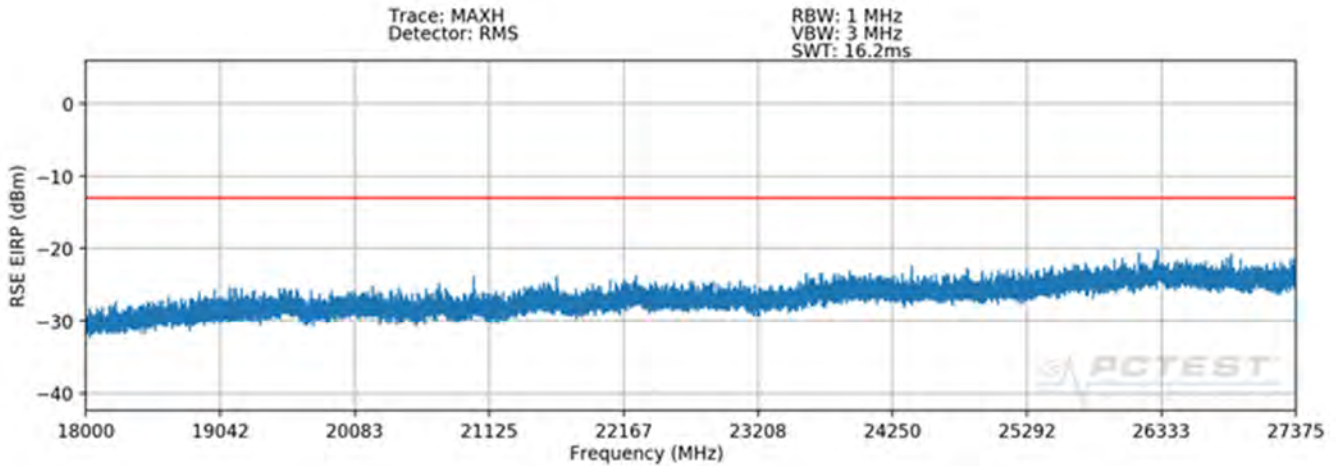
Plot 7-168. K Patch Radiated Spurious Plot 1-18 GHz (1CC QPSK Mid Channel V Beam – n261)

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|--|---|--|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 119 of 371 |

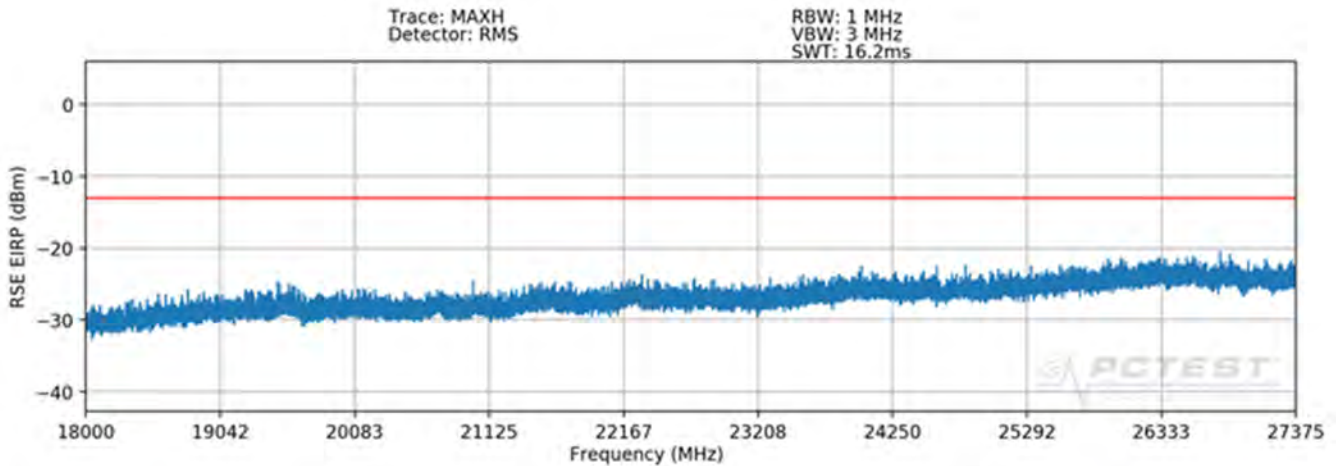
18 – 27.375GHz



Plot 7-169. K Patch Radiated Spurious Plot 18-27.375 GHz (1CC QPSK Low Channel H Beam – n261)

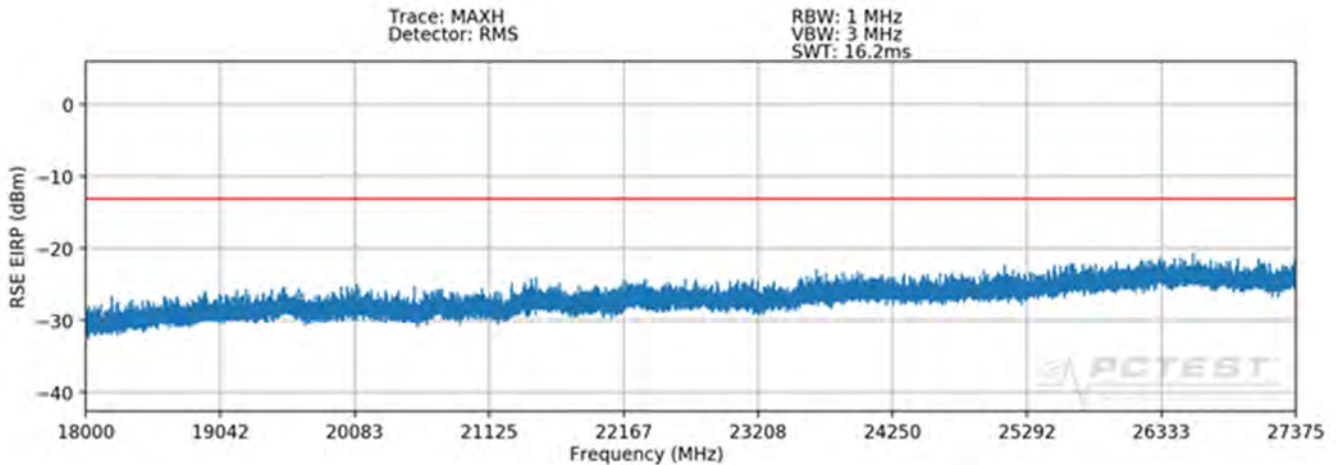


Plot 7-170. K Patch Radiated Spurious Plot 18-27.375 GHz (1CC QPSK Mid Channel H Beam – n261)

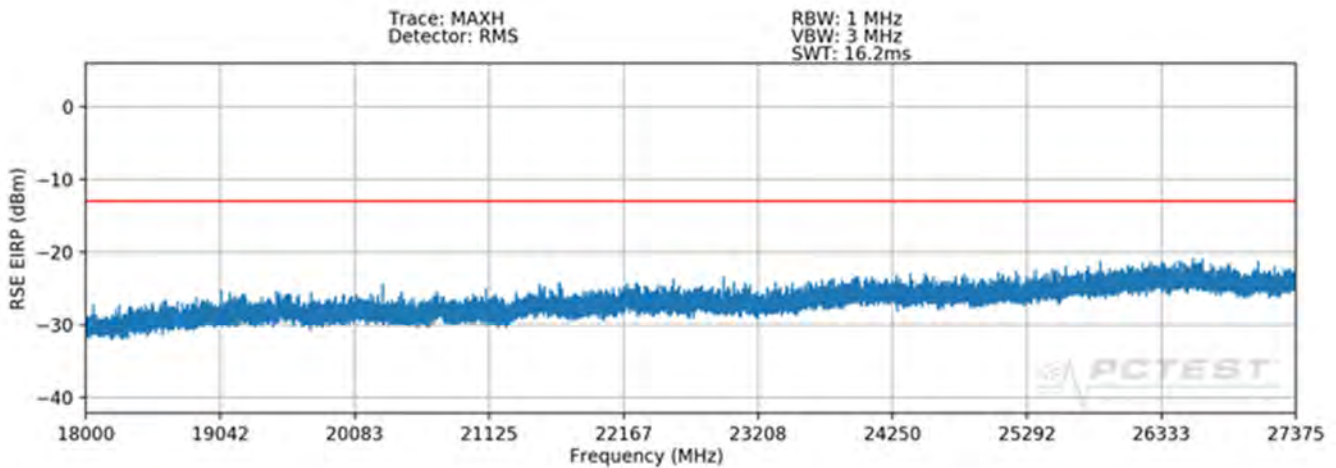


Plot 7-171. K Patch Radiated Spurious Plot 18-27.375 GHz (1CC QPSK High Channel H Beam – n261)

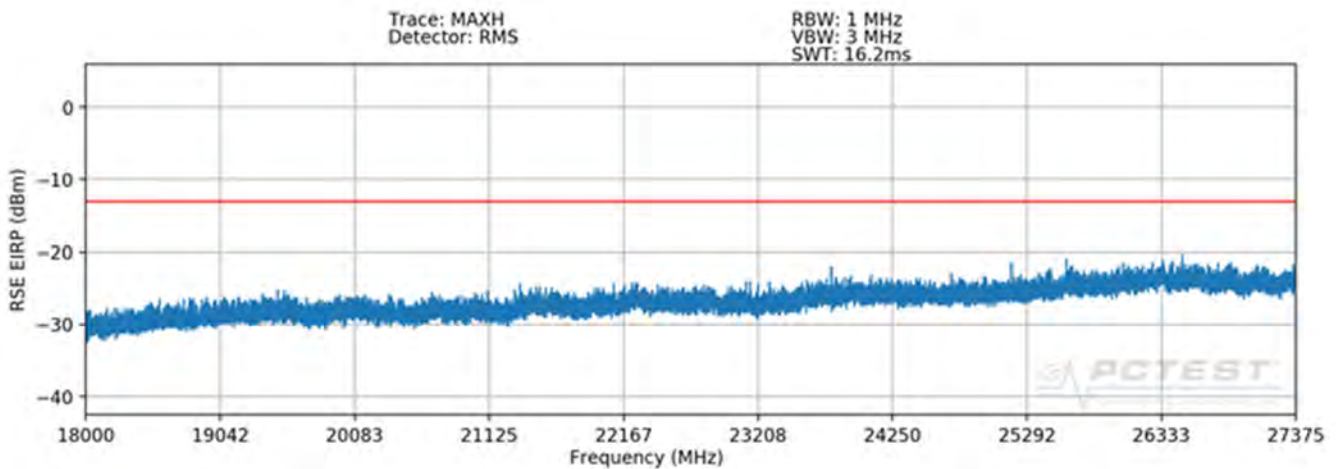
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| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 120 of 371 |



Plot 7-172. K Patch Radiated Spurious Plot 18-27.375 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-173. K Patch Radiated Spurious Plot 18-27.375 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-174. K Patch Radiated Spurious Plot 18-27.375 GHz (1CC QPSK High Channel V Beam – n261)

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|--|---|---|----------------|---------------------------------|
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| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 121 of 371 |

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turntable Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|----------------------------|-----------------------------|----------------|-------------|-------------|
| 25674.80 | RMS/Avg | Low | 50 | QPSK | H | H | - | - | -35.98 | -13.00 | -22.98 |
| 25645.80 | RMS/Avg | Mid | 50 | QPSK | H | H | - | - | -36.21 | -13.00 | -23.21 |
| 25693.60 | RMS/Avg | High | 50 | QPSK | H | H | - | - | -36.26 | -13.00 | -23.26 |
| 26266.40 | RMS/Avg | Low | 50 | QPSK | V | V | - | - | -36.45 | -13.00 | -23.45 |
| 26125.30 | RMS/Avg | Mid | 50 | QPSK | V | V | - | - | -36.98 | -13.00 | -23.98 |
| 25675.80 | RMS/Avg | High | 50 | QPSK | V | V | - | - | -36.80 | -13.00 | -23.80 |

Table 7-37. K Patch Spurious Emissions Table (18-27.375GHz – n261)

Notes

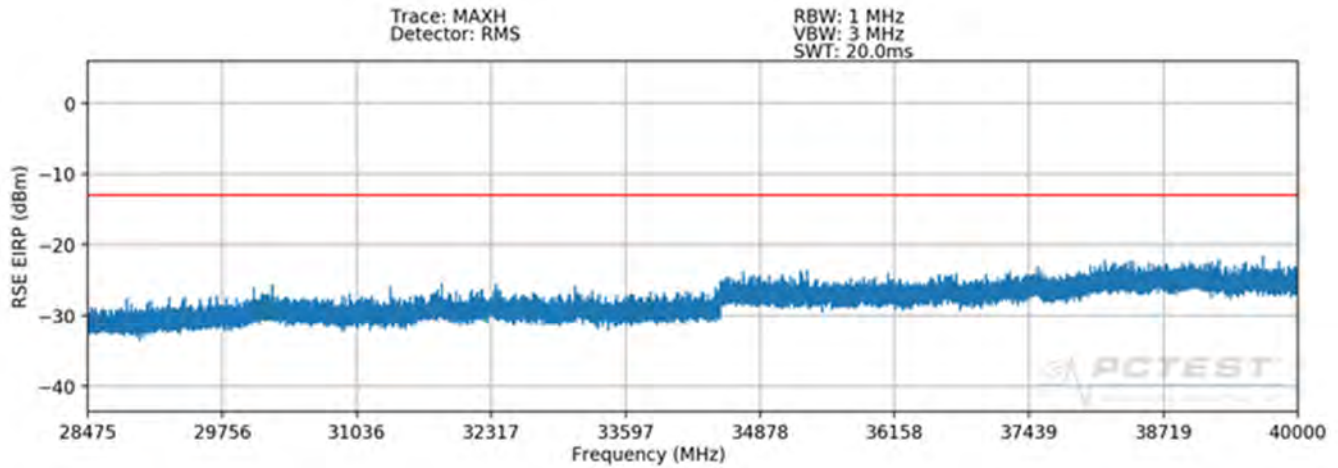
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

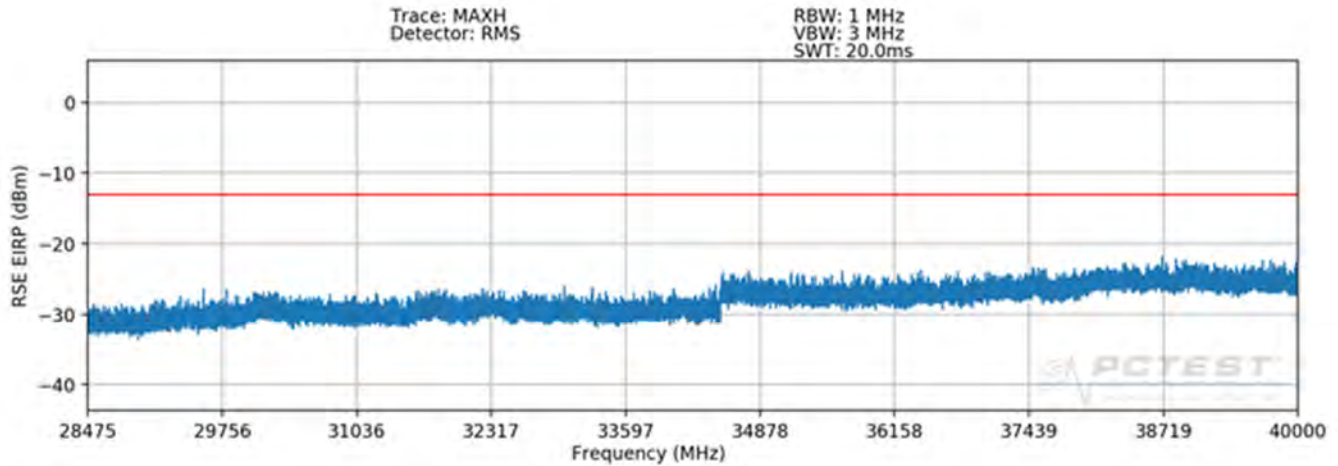
$$(-35.98 \text{ dBm} + -36.45 \text{ dBm}) = (252.35 \text{ nW} + 226.73 \text{ nW}) = (479.07 \text{ nW}) = -33.20 \text{ dBm}$$

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|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 122 of 371 |

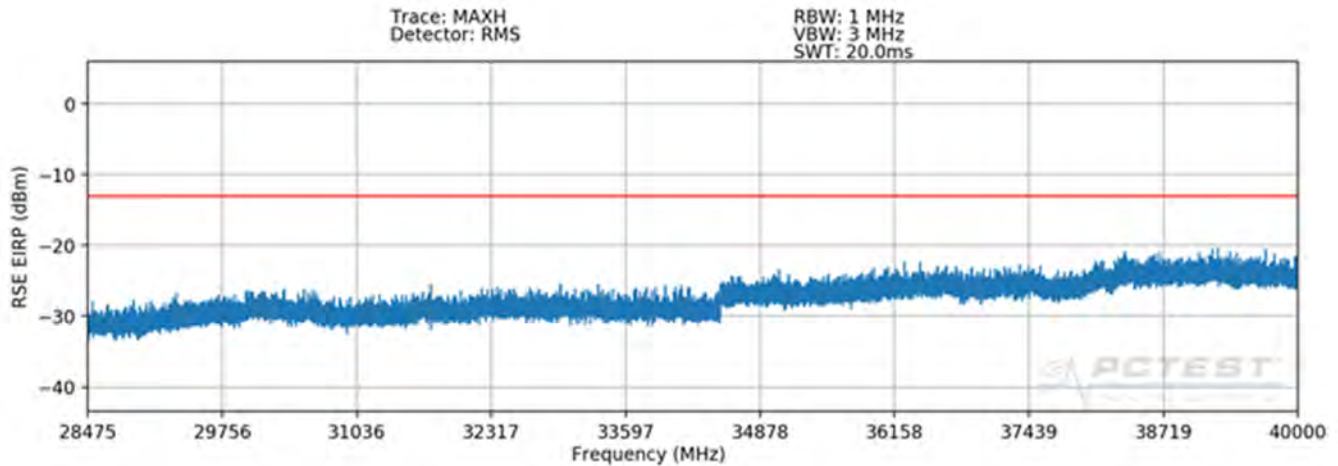
28.475 – 40GHz(n261)



Plot 7-175. K Patch Radiated Spurious Plot 28.475-40 GHz (1CC QPSK Low Channel H Beam – n261)

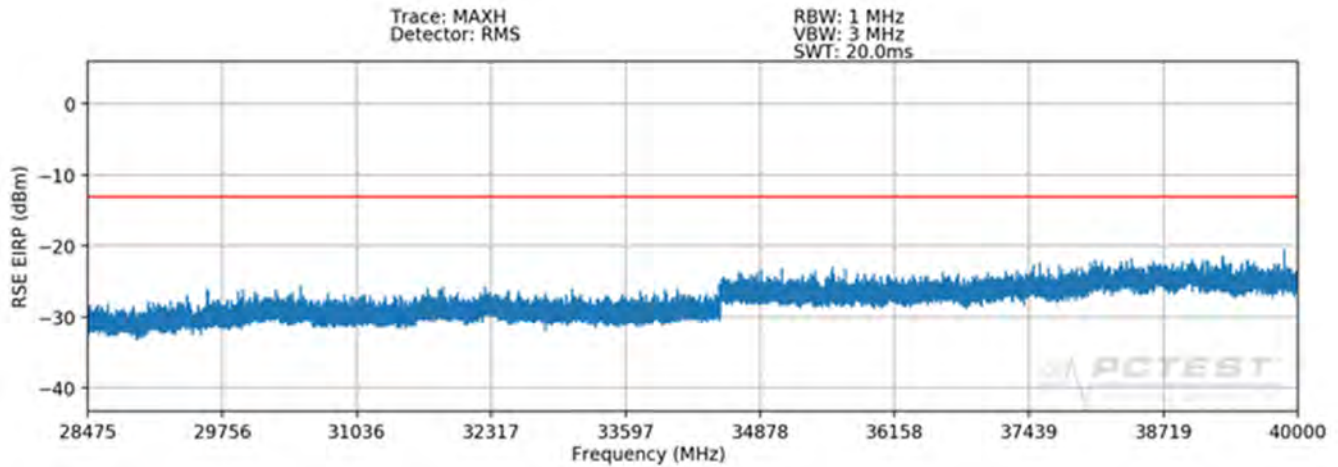


Plot 7-176. K Patch Radiated Spurious Plot 28.475-40 GHz (1CC QPSK Mid Channel H Beam – n261)

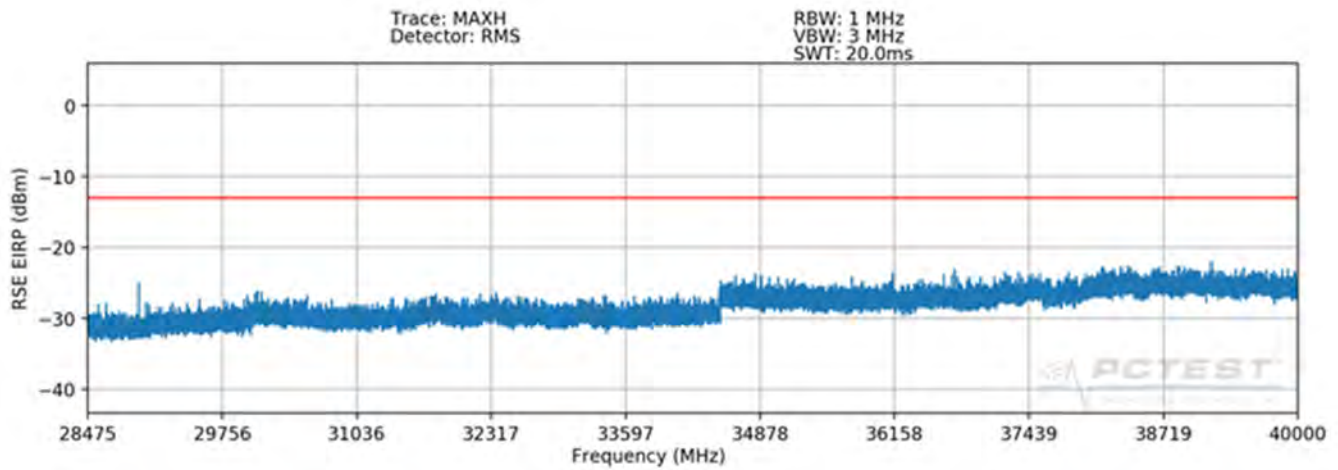


Plot 7-177. K Patch Radiated Spurious Plot 28.475-40 GHz (1CC QPSK High Channel H Beam – n261)

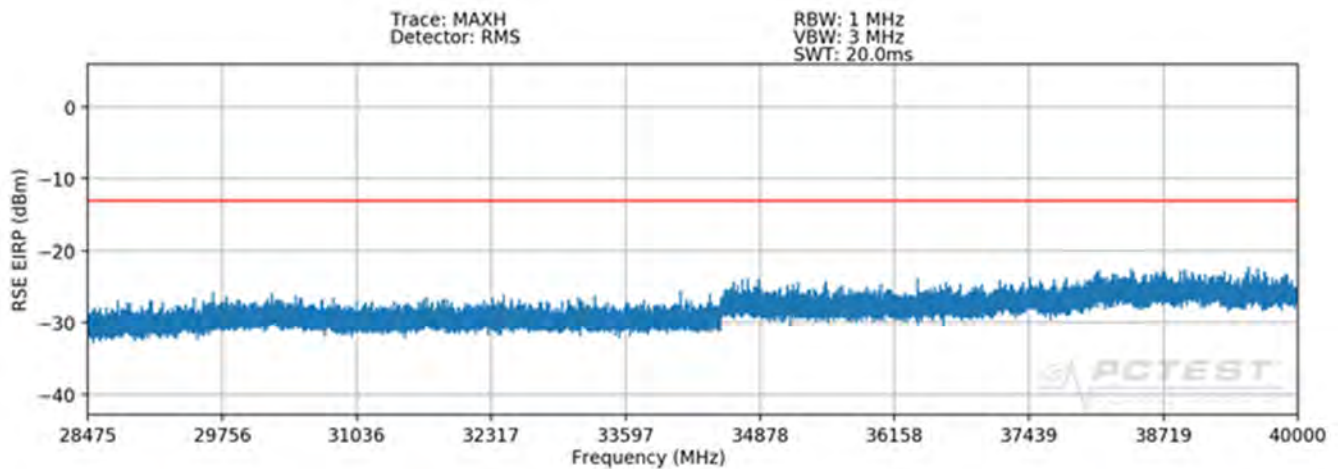
| | | | | |
|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 123 of 371 |



Plot 7-178. K Patch Radiated Spurious Plot 28.475-40 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-179. K Patch Radiated Spurious Plot 28.475-40 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-180. K Patch Radiated Spurious Plot 28.475-40 GHz (1CC QPSK High Channel V Beam – n261)

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|--|---|---|--|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 124 of 371 |

Spurious Emissions EIRP Sample Calculation(n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turntable Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|----------------------------|-----------------------------|----------------|-------------|-------------|
| 38945.00 | RMS/Avg | Low | 50 | QPSK | H | H | - | - | -29.56 | -13.00 | -16.56 |
| 38979.60 | RMS/Avg | Mid | 50 | QPSK | H | H | - | - | -29.51 | -13.00 | -16.51 |
| 39053.00 | RMS/Avg | High | 50 | QPSK | H | H | - | - | -29.60 | -13.00 | -16.60 |
| 28761.50 | RMS/Avg | Low | 50 | QPSK | V | V | 340 | 3 | -28.36 | -13.00 | -15.36 |
| 28959.50 | RMS/Avg | Mid | 50 | QPSK | V | V | 33 | 357 | -28.20 | -13.00 | -15.20 |
| 38928.20 | RMS/Avg | High | 50 | QPSK | V | V | - | - | -30.92 | -13.00 | -17.92 |

Table 7-38. K Patch Spurious Emissions Table (28.475-40 GHz – n261)

Notes

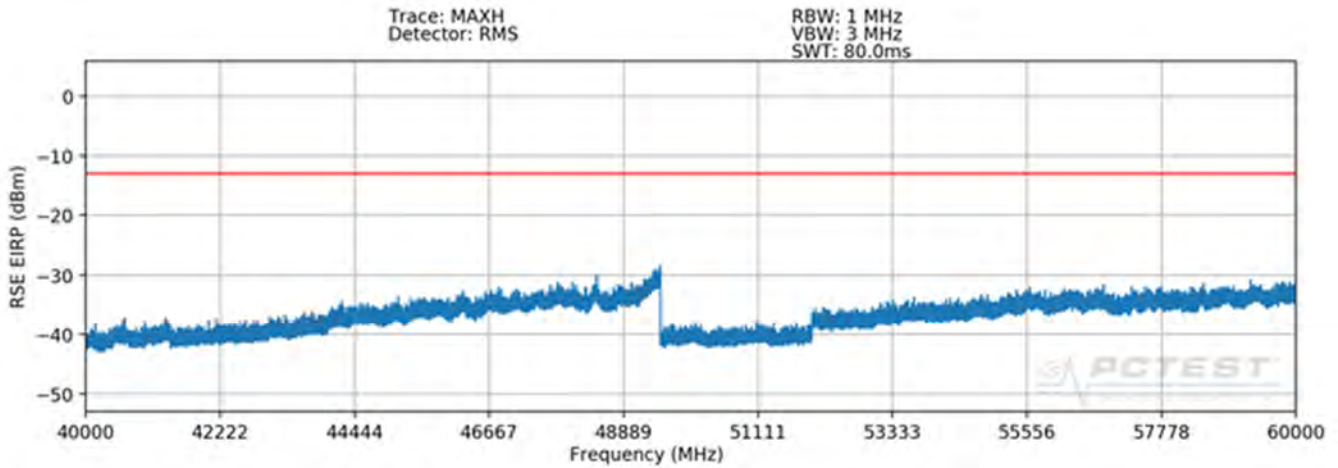
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

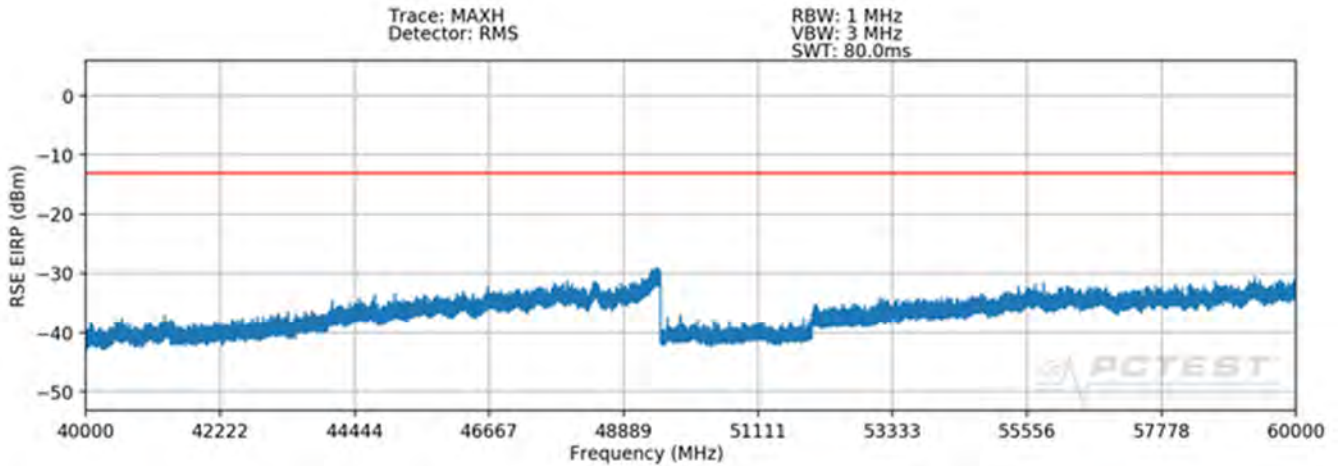
$$(-29.51 \text{ dBm} + -28.20 \text{ dBm}) = (1120.73 \text{ nW} + 1514.61 \text{ nW}) = (2635.34 \text{ nW}) = -25.79 \text{ dBm}$$

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| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 125 of 371 |

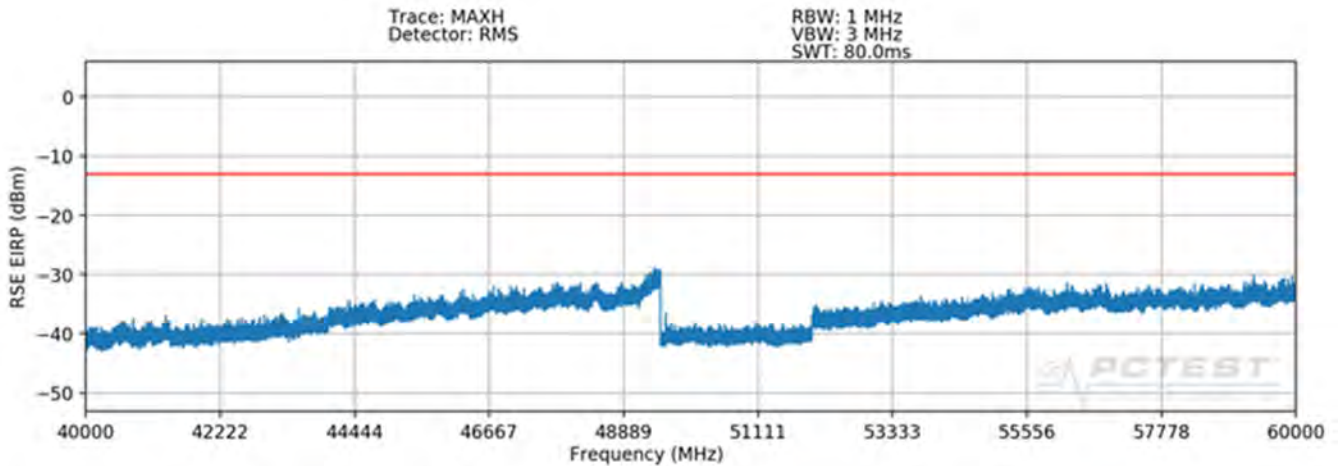
40 – 60GHz(n261)



Plot 7-181. K Patch Radiated Spurious Plot 40-60 GHz (1CC QPSK Low Channel H Beam – n261)

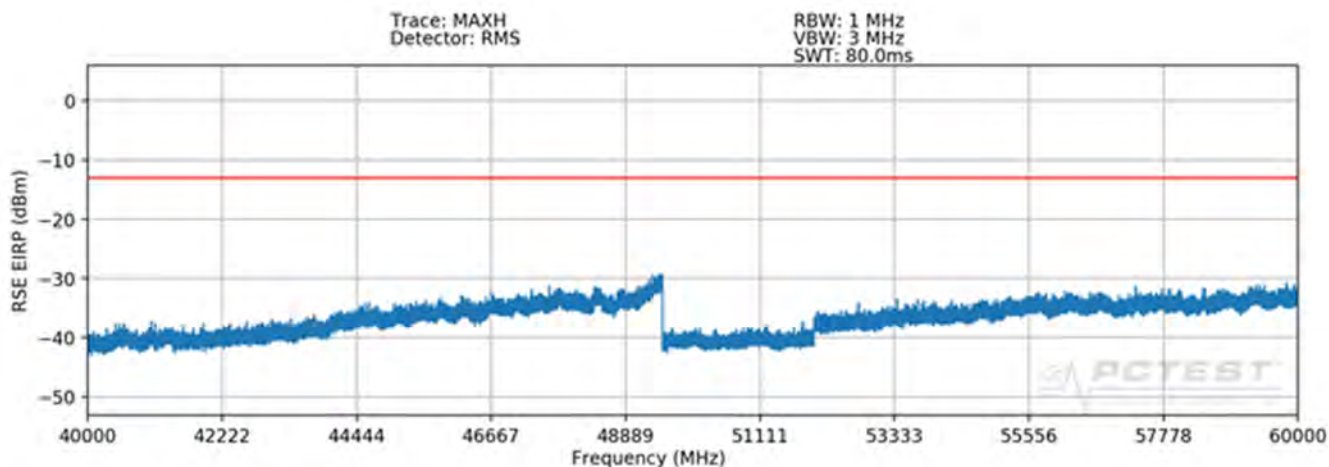


Plot 7-182. K Patch Radiated Spurious Plot 40-60 GHz (1CC QPSK Mid Channel H Beam – n261)

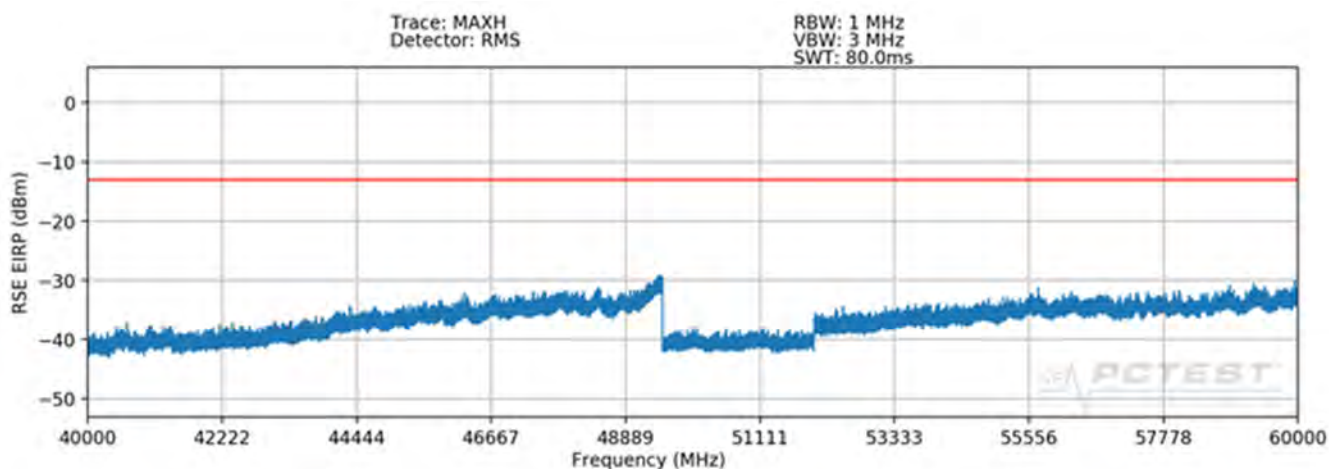


Plot 7-183. K Patch Radiated Spurious Plot 40-60 GHz (1CC QPSK High Channel H Beam – n261)

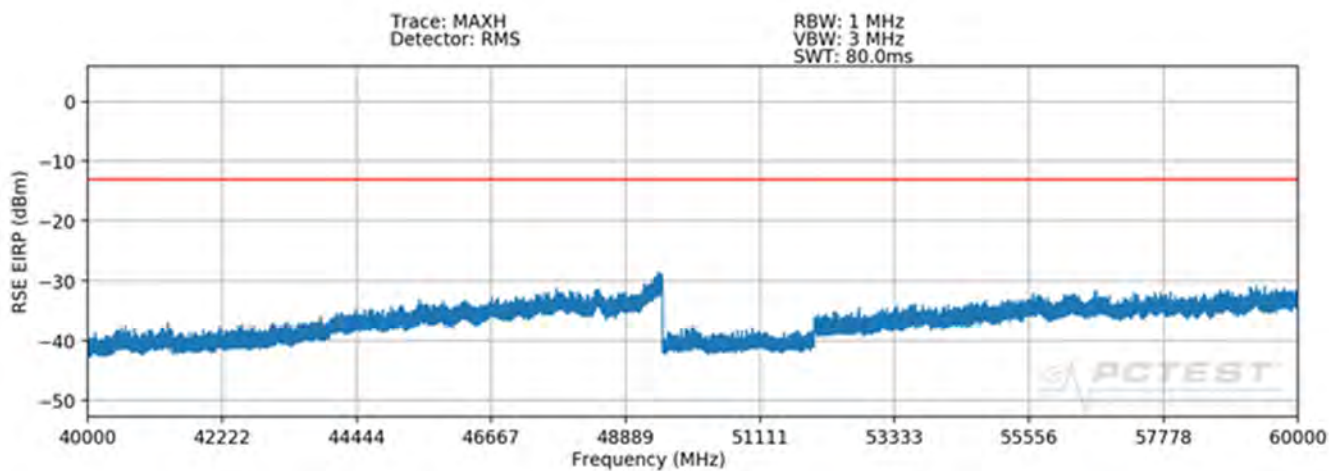
| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
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Plot 7-184. K Patch Radiated Spurious Plot 40-60 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-185. K Patch Radiated Spurious Plot 40-60 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-186. K Patch Radiated Spurious Plot 40-60 GHz (1CC QPSK High Channel V Beam – n261)

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|--|---|---|--|---------------------------------|
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| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 127 of 371 |

Spurious Emissions EIRP Sample Calculation(n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turntable Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|----------------------------|-----------------------------|----------------|-------------|-------------|
| 49492.75 | RMS/Avg | Low | 50 | QPSK | H | H | - | - | -37.72 | -13.00 | -24.72 |
| 49498.75 | RMS/Avg | Mid | 50 | QPSK | H | H | - | - | -37.40 | -13.00 | -24.40 |
| 49498.75 | RMS/Avg | High | 50 | QPSK | H | H | - | - | -37.49 | -13.00 | -24.49 |
| 49498.95 | RMS/Avg | Low | 50 | QPSK | V | H | - | - | -37.50 | -13.00 | -24.50 |
| 49493.75 | RMS/Avg | Mid | 50 | QPSK | V | H | - | - | -37.57 | -13.00 | -24.57 |
| 49497.95 | RMS/Avg | High | 50 | QPSK | V | H | - | - | -37.70 | -13.00 | -24.70 |

Table 7-39. K Patch Spurious Emissions Table (40 - 60GHz – n261)

Notes

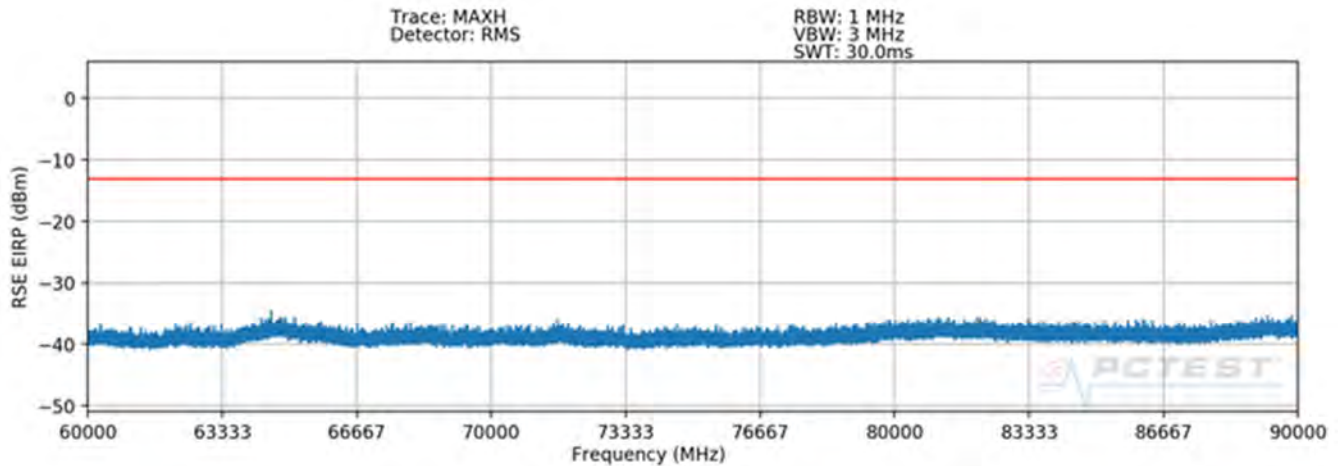
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1.5 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

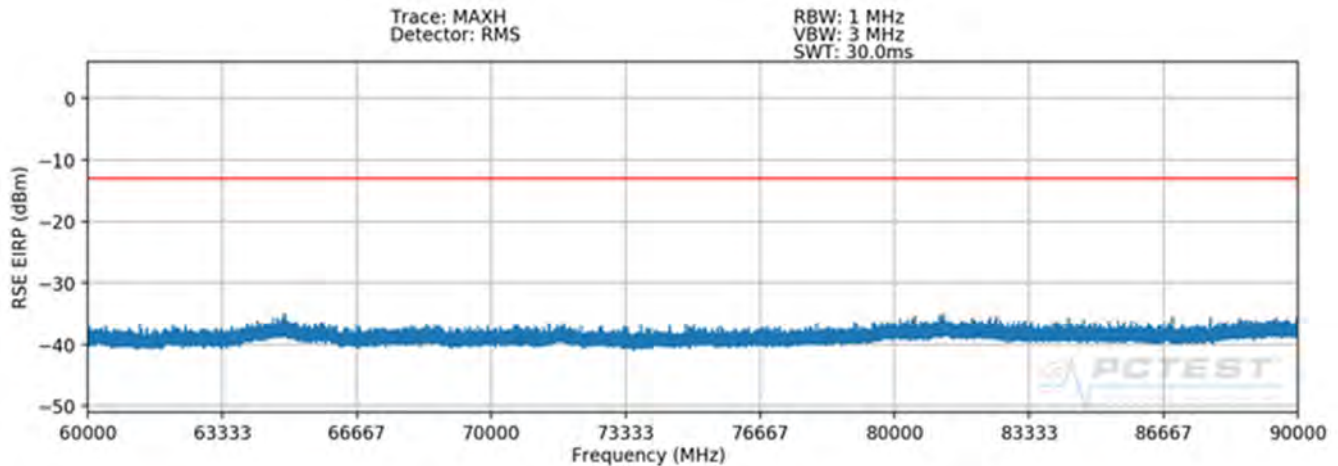
$$(-37.40 \text{ dBm} + -37.57 \text{ dBm}) = (181.97 \text{ nW} + 174.98 \text{ nW}) = (356.95 \text{ nW}) = -34.47 \text{ dBm}$$

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| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 128 of 371 |

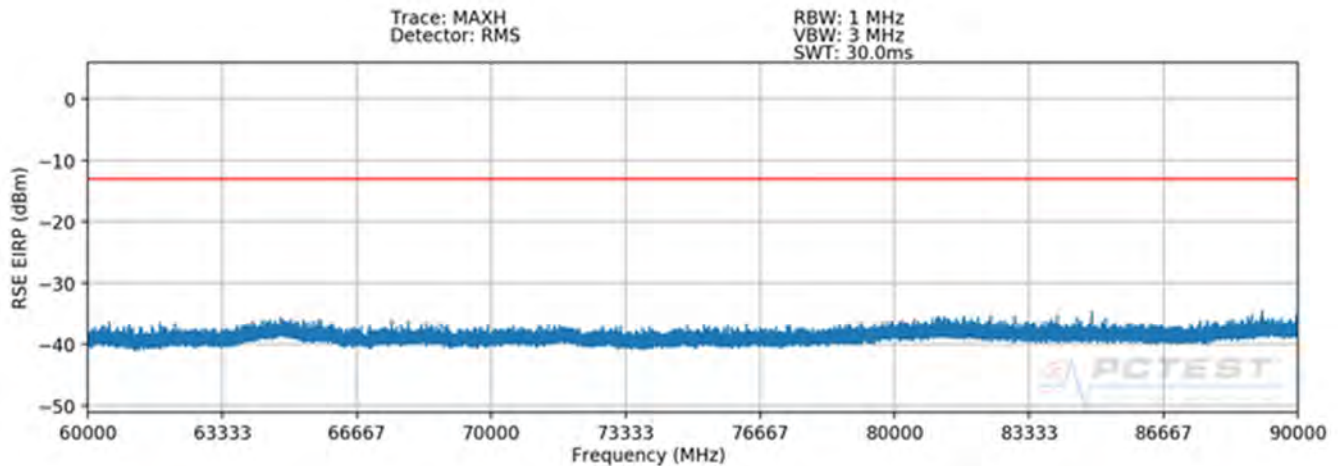
60 – 90GHz(n261)



Plot 7-187. K Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Low Channel H Beam – n261)

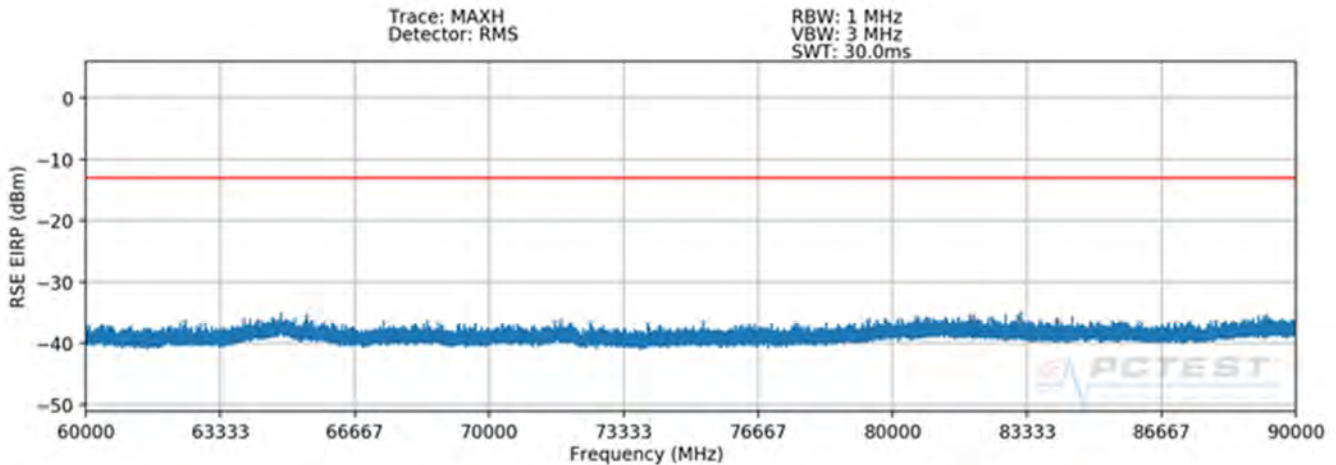


Plot 7-188. K Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Mid Channel H Beam – n261)

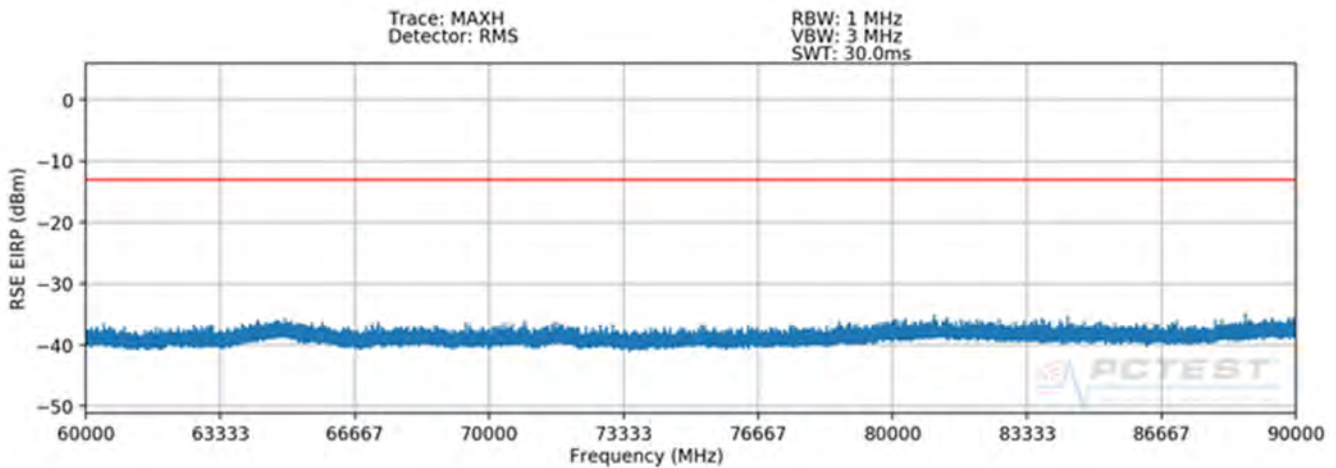


Plot 7-189. K Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK High Channel H Beam – n261)

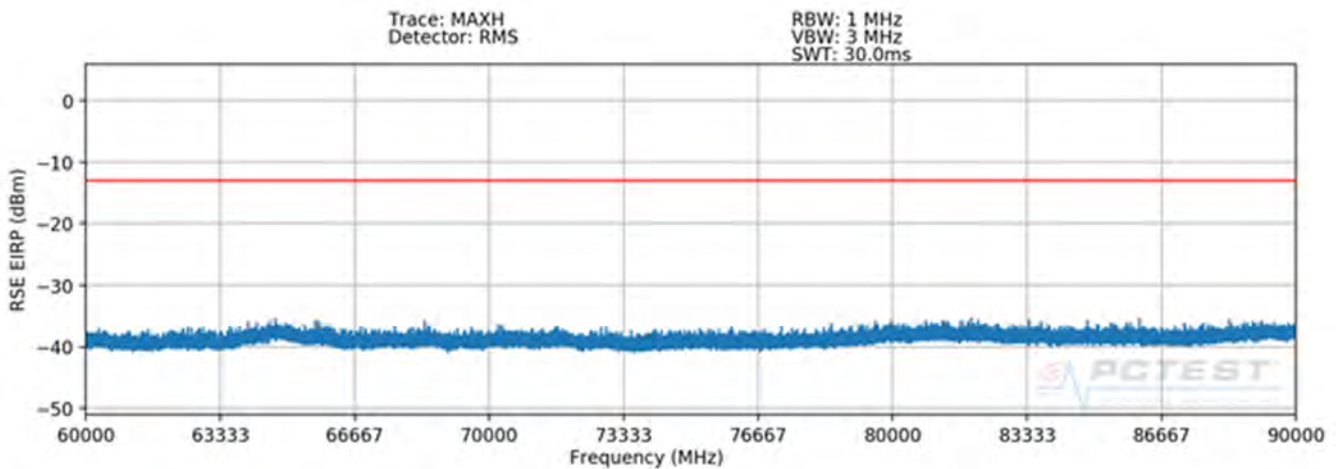
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|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 129 of 371 |



Plot 7-190. K Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-191. K Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-192. K Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK High Channel V Beam – n261)

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|--|---|---|----------------|---------------------------------|
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| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 130 of 371 |

Spurious Emissions EIRP Sample Calculation(n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turntable Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|----------------------------|-----------------------------|----------------|-------------|-------------|
| 82539.00 | RMS/Avg | Low | 50 | QPSK | H | H | 105 | 306 | -41.06 | -13.00 | -28.06 |
| 83701.50 | RMS/Avg | Mid | 50 | QPSK | H | H | 102 | 311 | -42.57 | -13.00 | -29.57 |
| 85538.00 | RMS/Avg | High | 50 | QPSK | H | H | 105 | 304 | -43.81 | -13.00 | -30.81 |
| 82539.50 | RMS/Avg | Low | 50 | QPSK | V | V | 355 | 355 | -41.07 | -13.00 | -28.07 |
| 84345.00 | RMS/Avg | Mid | 50 | QPSK | V | V | 360 | 353 | -40.18 | -13.00 | -27.18 |
| 84893.50 | RMS/Avg | High | 50 | QPSK | V | V | 359 | 355 | -41.98 | -13.00 | -28.98 |

Table 7-40. K Patch Spurious Emissions Table (60-90GHz – n261)

Notes

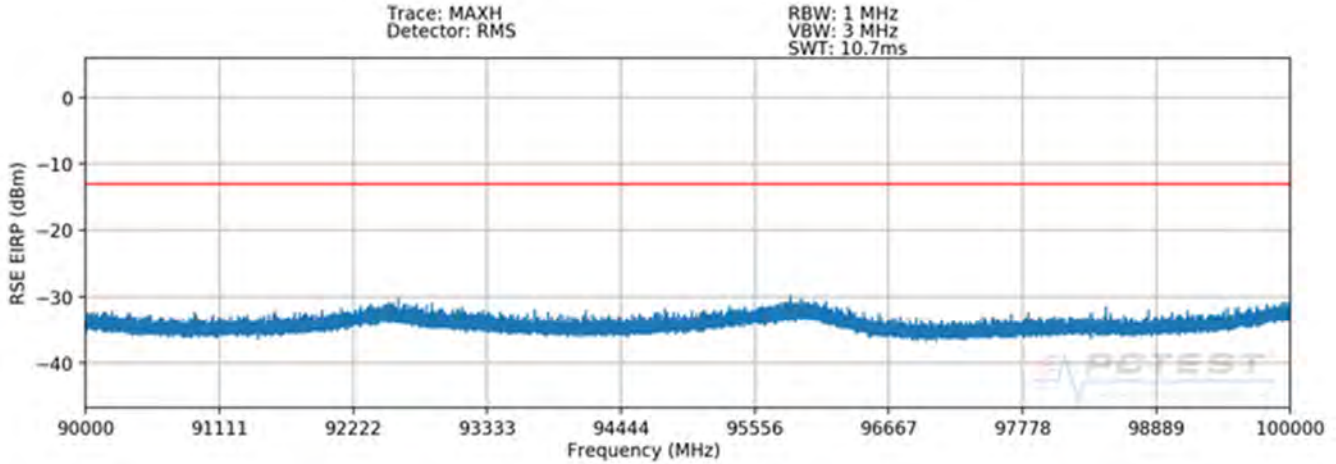
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

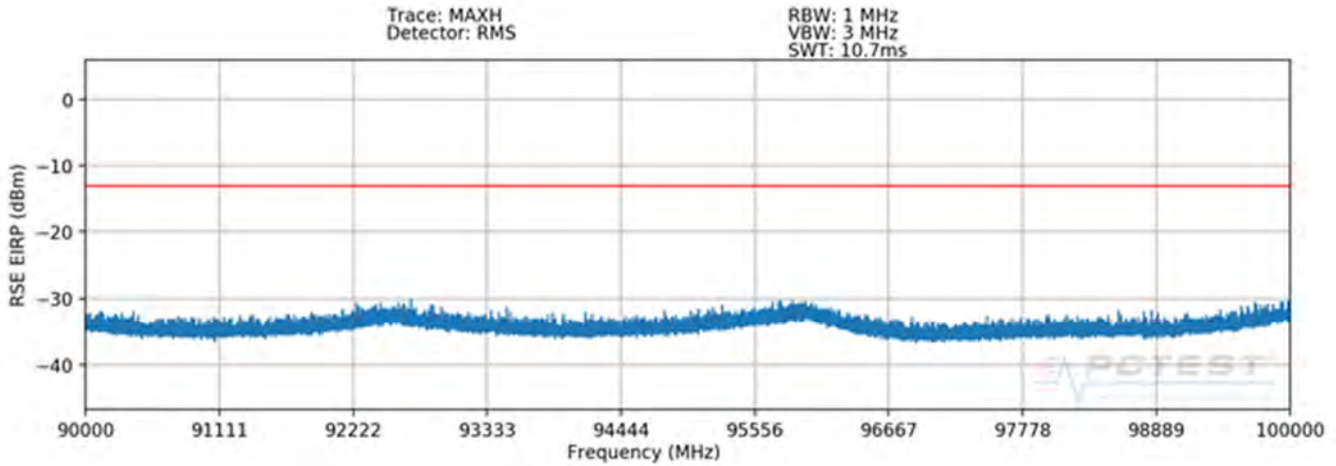
$$(-41.06 \text{ dBm} + -41.07 \text{ dBm}) = (78.36 \text{ nW} + 78.11 \text{ nW}) = (156.47 \text{ nW}) = -38.06 \text{ dBm}$$

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|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 131 of 371 |

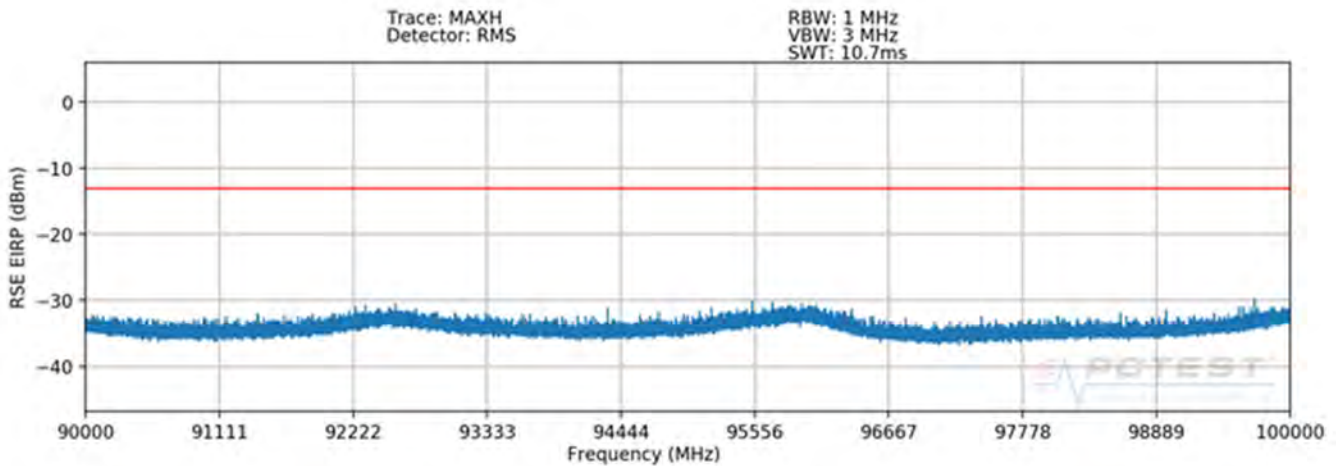
90 – 100GHz(n261)



Plot 7-193. K Patch Radiated Spurious Plot 90-100 GHz (1CC QPSK Low Channel H Beam – n261)

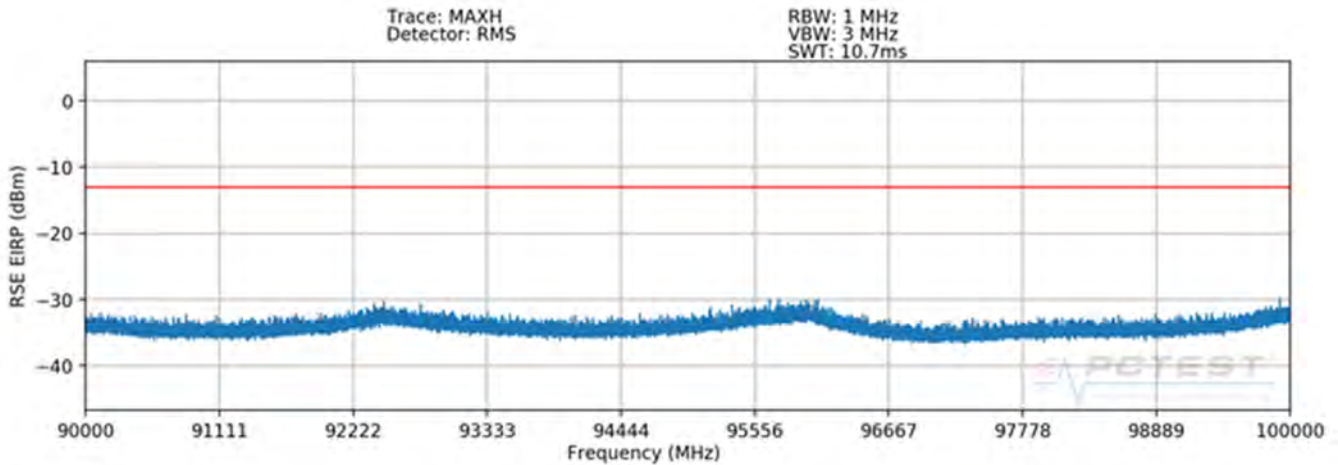


Plot 7-194. K Patch Radiated Spurious Plot 90-100 GHz (1CC QPSK Mid Channel H Beam – n261)

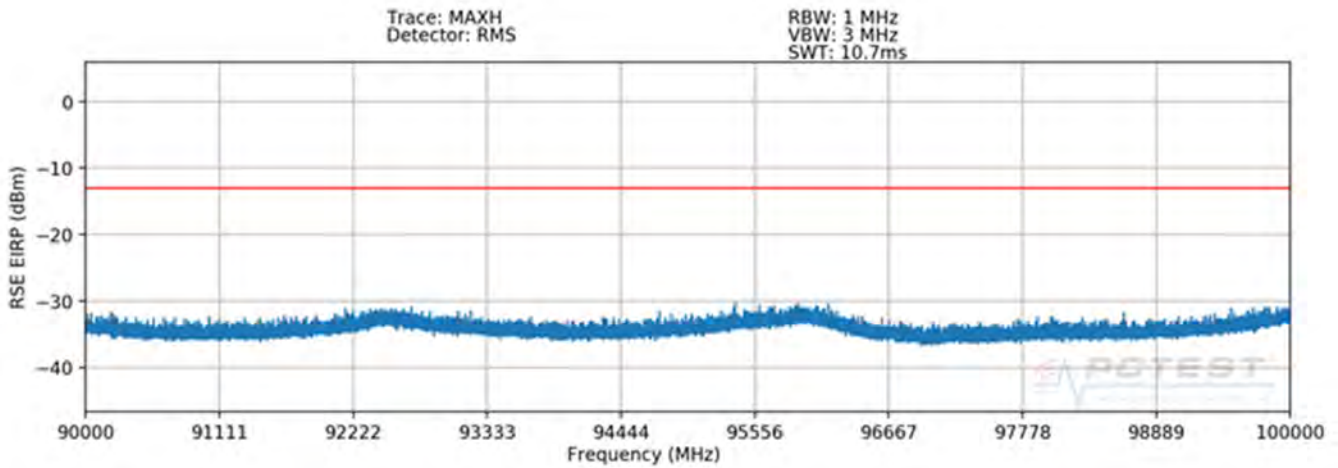


Plot 7-195. K Patch Radiated Spurious Plot 90-100 GHz (1CC QPSK High Channel H Beam – n261)

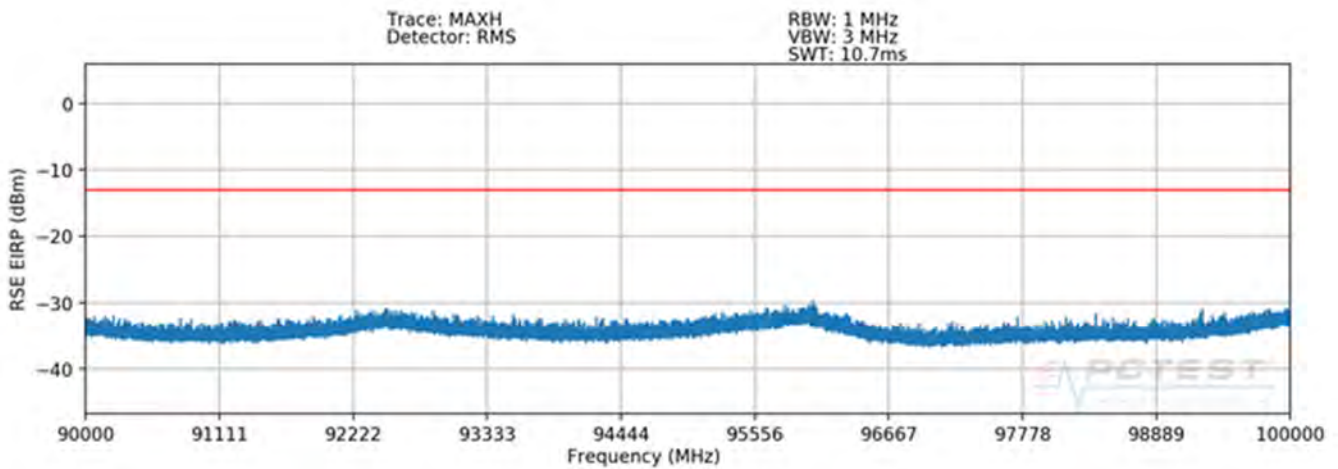
| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 132 of 371 |



Plot 7-196. K Patch Radiated Spurious Plot 90-100 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-197. K Patch Radiated Spurious Plot 90-100 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-198. K Patch Radiated Spurious Plot 90-100 GHz (1CC QPSK High Channel V Beam – n261)

| | | | |
|--|--|-------------------------------|---------------------------------|
| FCC ID: A3LSMN976V |  MEASUREMENT REPORT (CERTIFICATION)  | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | Page 133 of 371 |

Spurious Emissions EIRP Sample Calculation(n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL[dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | Beam Polarization | Ant. Pos [H/V] | Turntable Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-------------------|----------------|----------------------------|-----------------------------|----------------|-------------|-------------|
| 96019.00 | RMS/Avg | Low | 50 | QPSK | H | H | - | - | -39.73 | -13.00 | -26.73 |
| 96000.50 | RMS/Avg | Mid | 50 | QPSK | H | H | - | - | -39.61 | -13.00 | -26.61 |
| 95989.00 | RMS/Avg | High | 50 | QPSK | H | H | - | - | -40.11 | -13.00 | -27.11 |
| 95915.00 | RMS/Avg | Low | 50 | QPSK | V | V | - | - | -39.82 | -13.00 | -26.82 |
| 95960.00 | RMS/Avg | Mid | 50 | QPSK | V | V | - | - | -39.89 | -13.00 | -26.89 |
| 95843.50 | RMS/Avg | High | 50 | QPSK | V | V | - | - | -39.89 | -13.00 | -26.89 |

Table 7-41. K Patch Spurious Emissions Table (90-100GHz – n261)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

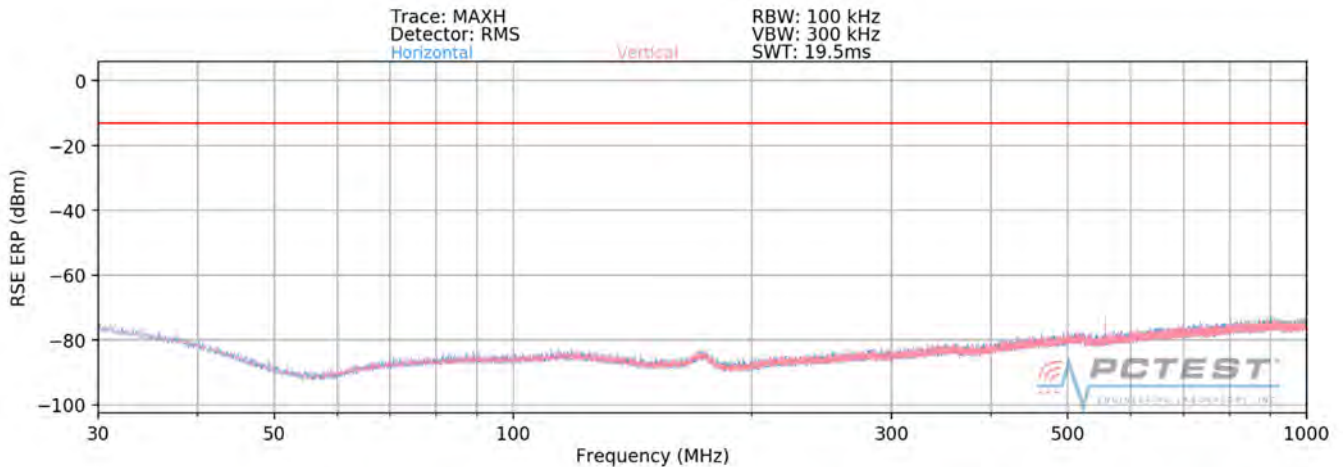
$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

$$(-39.61 \text{ dBm} + -39.89 \text{ dBm}) = (109.32 \text{ nW} + 102.66 \text{ nW}) = (211.98 \text{ nW}) = -36.74 \text{ dBm}$$

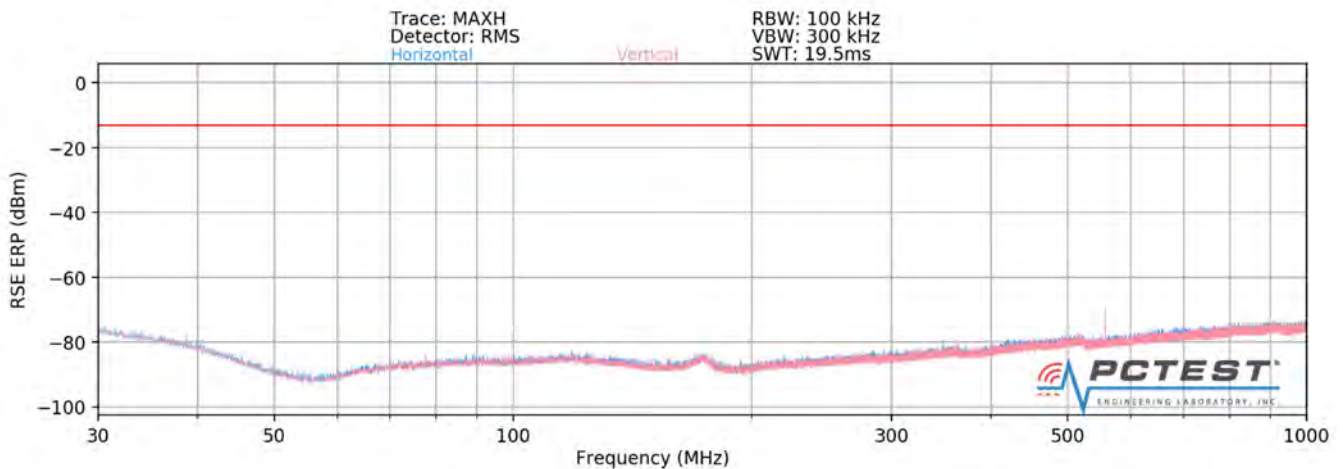
| | | | | |
|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 134 of 371 |

L Patch Radiated Spurious Emissions(n261)

30MHz – 1GHz(n261)



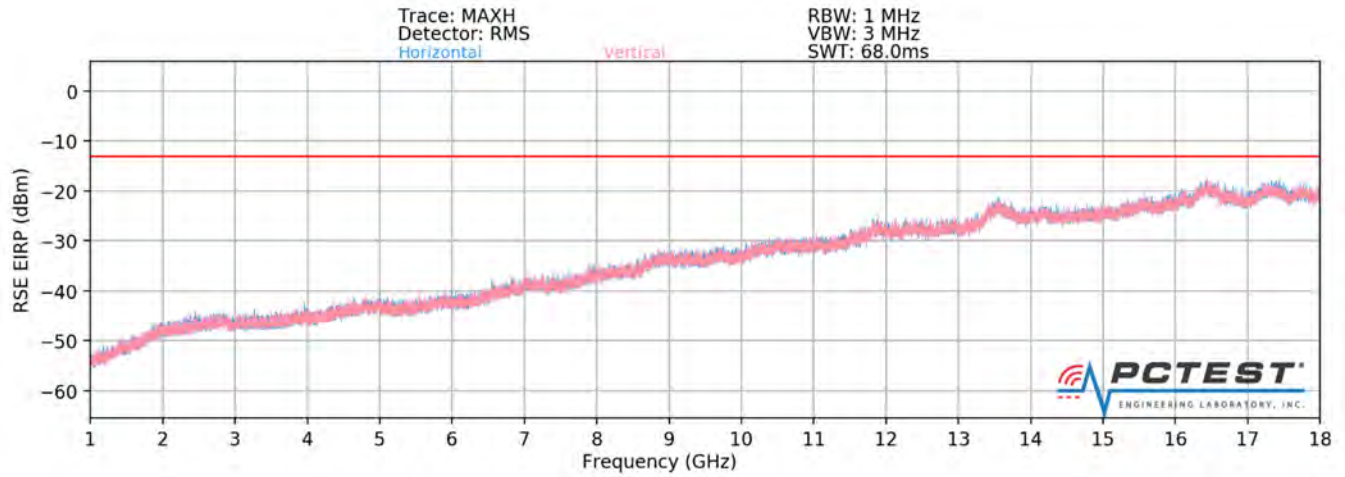
Plot 7-199. L Patch Radiated Spurious Plot 30 MHz - 1 GHz (1CC QPSK Mid Channel H Beam – n261)



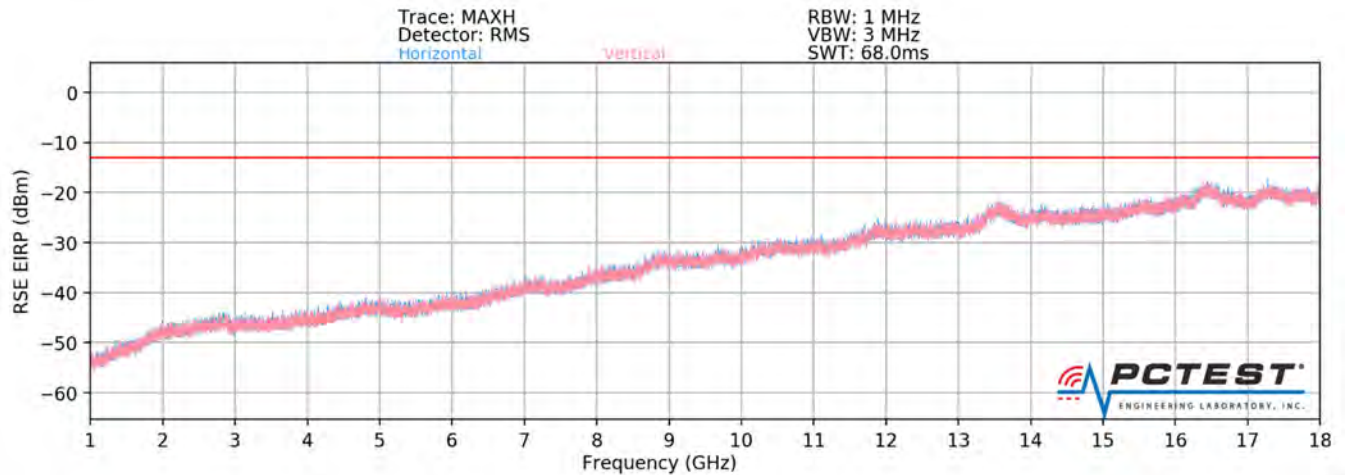
Plot 7-200. L Patch Radiated Spurious Plot 30 MHz - 1 GHz (1CC QPSK Mid Channel V Beam – n261)

| | | | | |
|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 135 of 371 |

1 – 18GHz



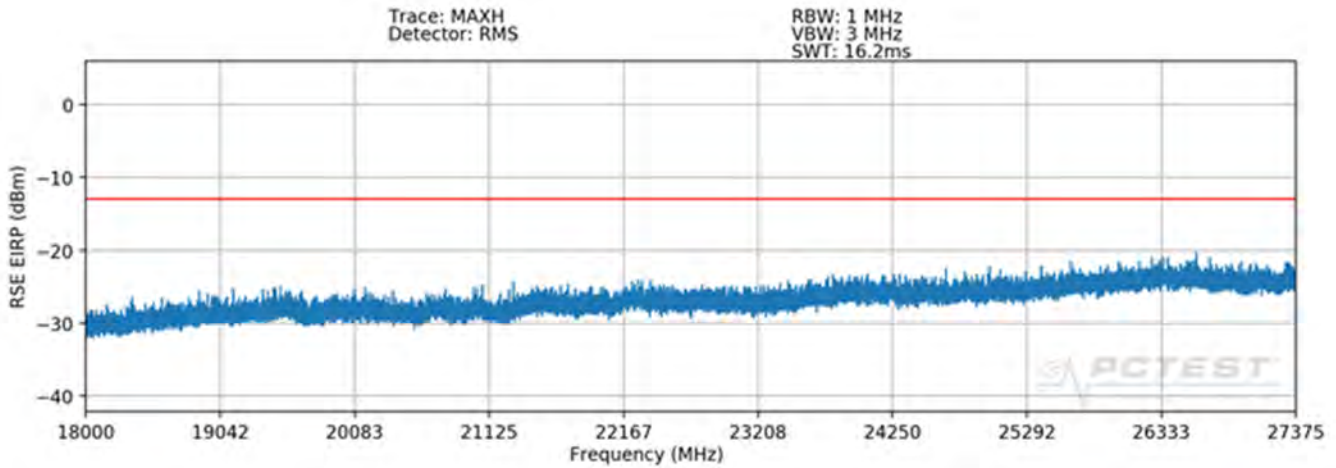
Plot 7-201. L Patch Radiated Spurious Plot 1-18 GHz (1CC QPSK Mid Channel H Beam – n261)



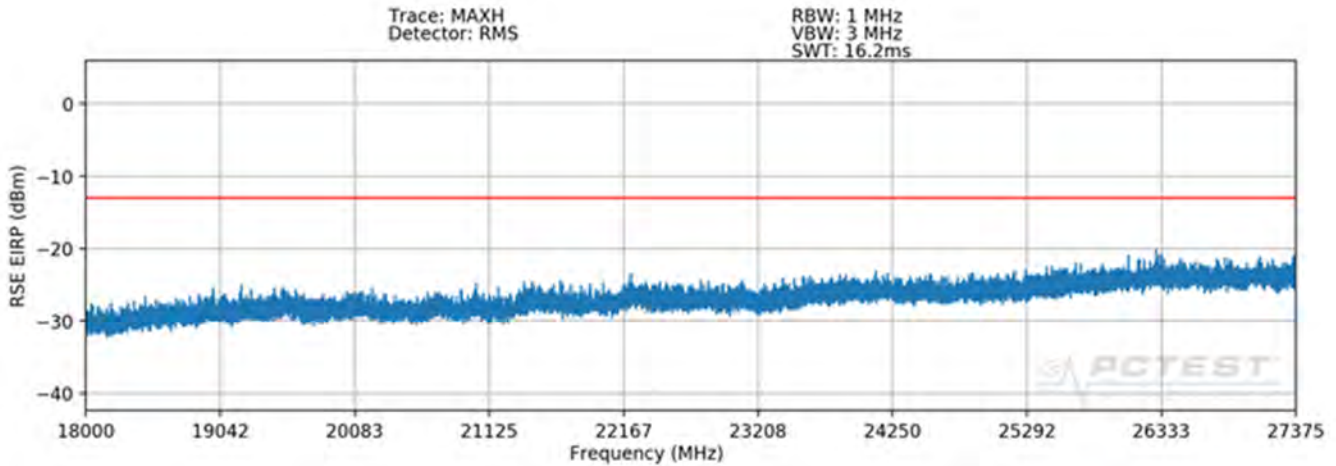
Plot 7-202. L Patch Radiated Spurious Plot 1-18 GHz (1CC QPSK Mid Channel V Beam – n261)

| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 136 of 371 |

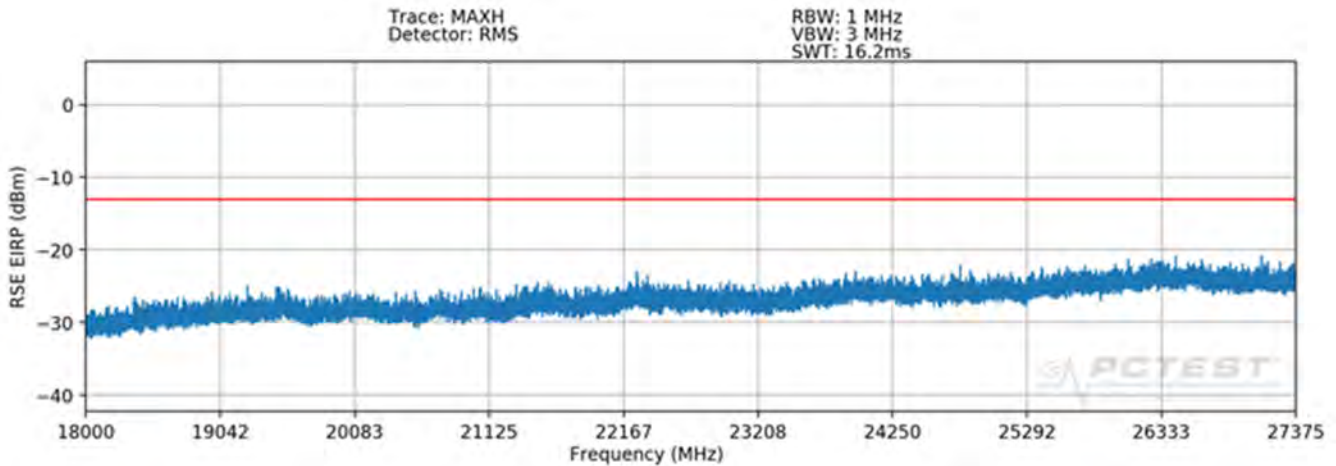
18 – 27.375GHz



Plot 7-203. L Patch Radiated Spurious Plot 18-27.375 GHz (1CC QPSK Low Channel H Beam – n261)

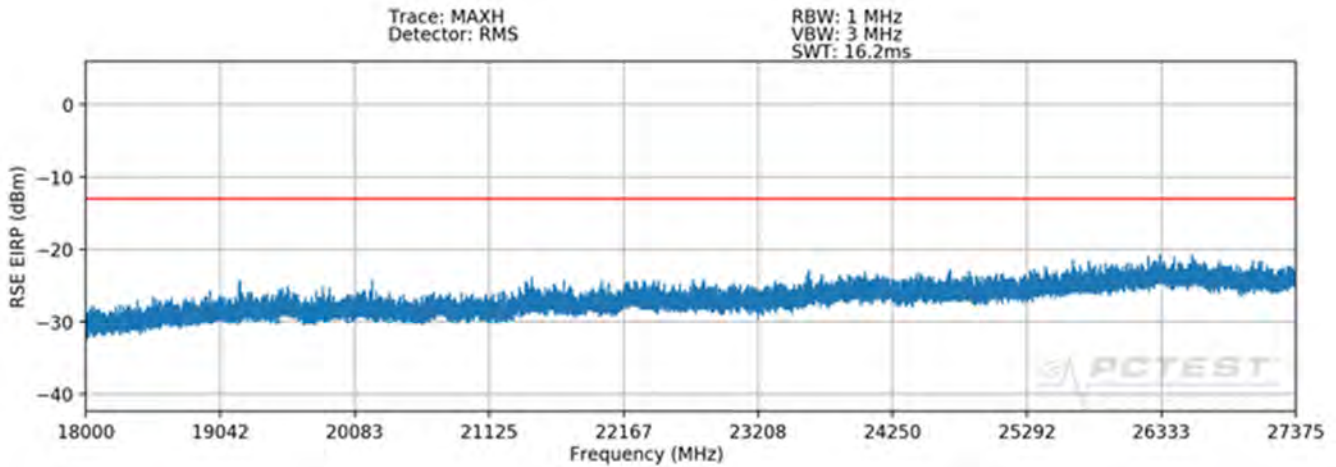


Plot 7-204. L Patch Radiated Spurious Plot 18-27.375 GHz (1CC QPSK Mid Channel H Beam – n261)

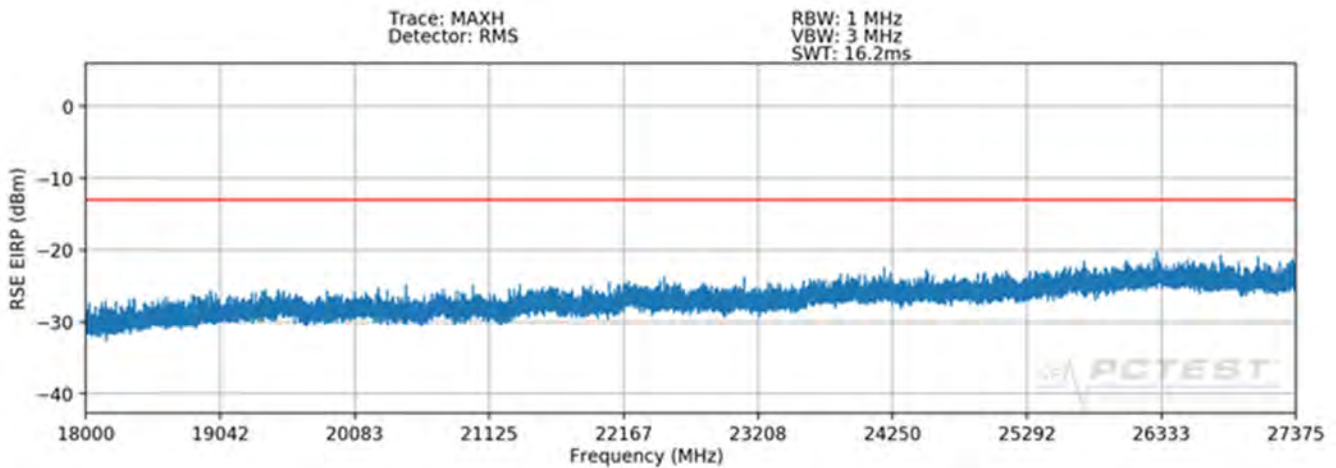


Plot 7-205. L Patch Radiated Spurious Plot 18-27.375 GHz (1CC QPSK High Channel H Beam – n261)

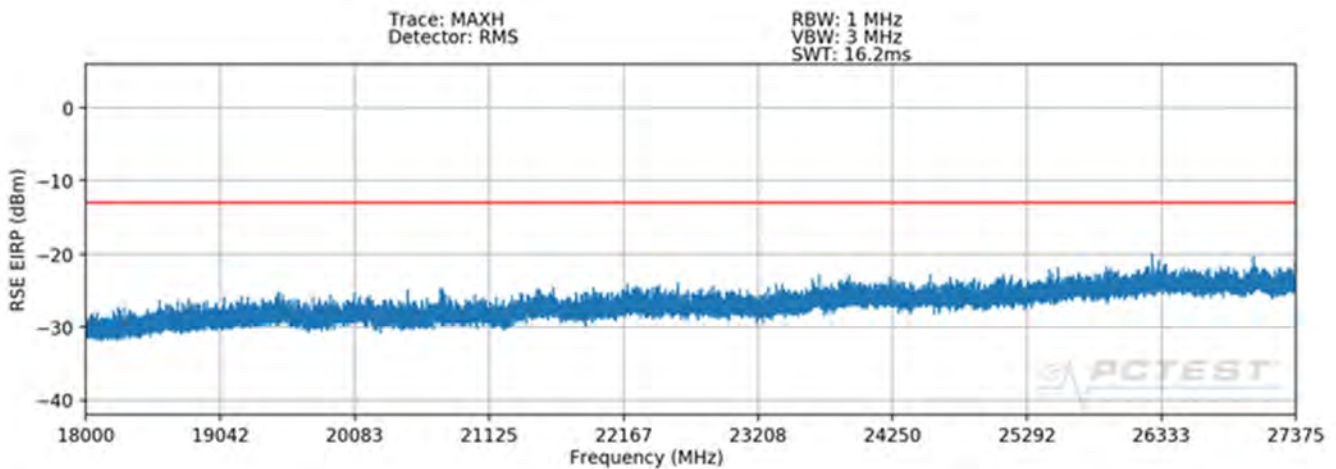
| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 137 of 371 |



Plot 7-206. L Patch Radiated Spurious Plot 18-27.375 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-207. L Patch Radiated Spurious Plot 18-27.375 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-208. L Patch Radiated Spurious Plot 18-27.375 GHz (1CC QPSK High Channel V Beam – n261)

| | | | | |
|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 138 of 371 |

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turntable Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|----------------------------|-----------------------------|----------------|-------------|-------------|
| 26961.60 | RMS/Avg | Low | 50 | QPSK | H | H | 235 | 334 | -35.65 | -13.00 | -22.65 |
| 27343.10 | RMS/Avg | Mid | 50 | QPSK | H | H | 233 | 314 | -35.06 | -13.00 | -22.06 |
| 25601.60 | RMS/Avg | High | 50 | QPSK | H | H | 311 | 324 | -36.13 | -13.00 | -23.13 |
| 25663.10 | RMS/Avg | Low | 50 | QPSK | V | V | 280 | 353 | -35.94 | -13.00 | -22.94 |
| 26765.20 | RMS/Avg | Mid | 50 | QPSK | V | V | 277 | 350 | -36.77 | -13.00 | -23.77 |
| 27190.80 | RMS/Avg | High | 50 | QPSK | V | V | 277 | 2 | -35.15 | -13.00 | -22.15 |

Table 7-42. L Patch Spurious Emissions Table (18-27.375GHz – n261)

Notes

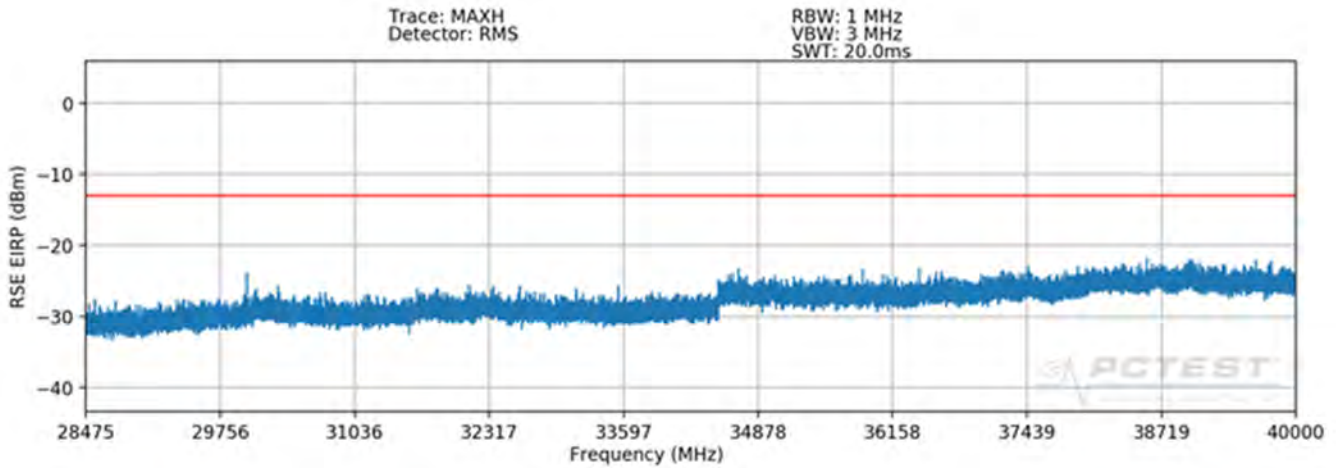
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

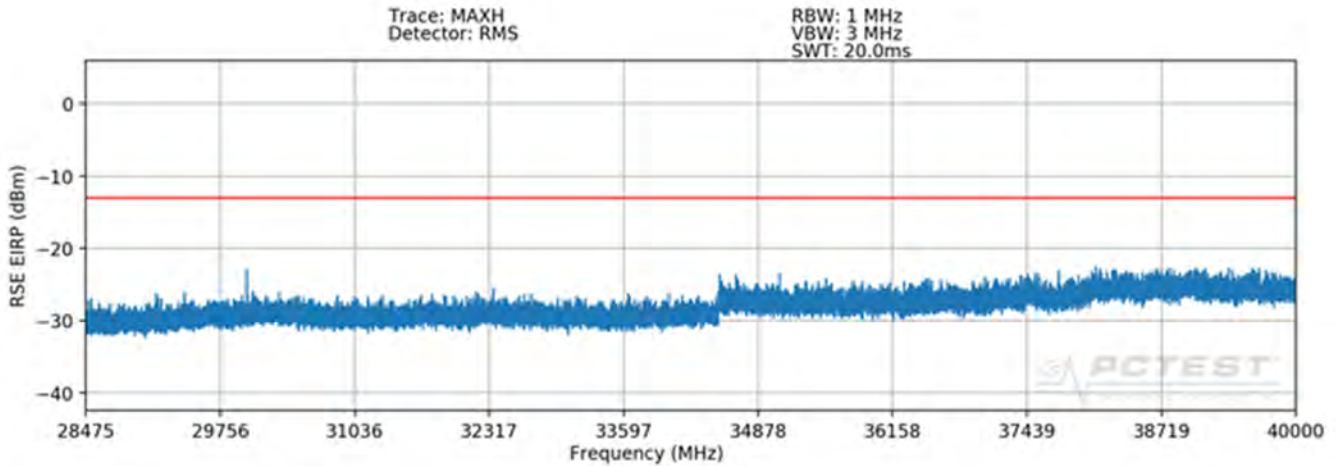
$$(-36.13 \text{ dBm} + -35.15 \text{ dBm}) = (243.67 \text{ nW} + 305.70 \text{ nW}) = (549.37 \text{ nW}) = -32.60 \text{ dBm}$$

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|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 139 of 371 |

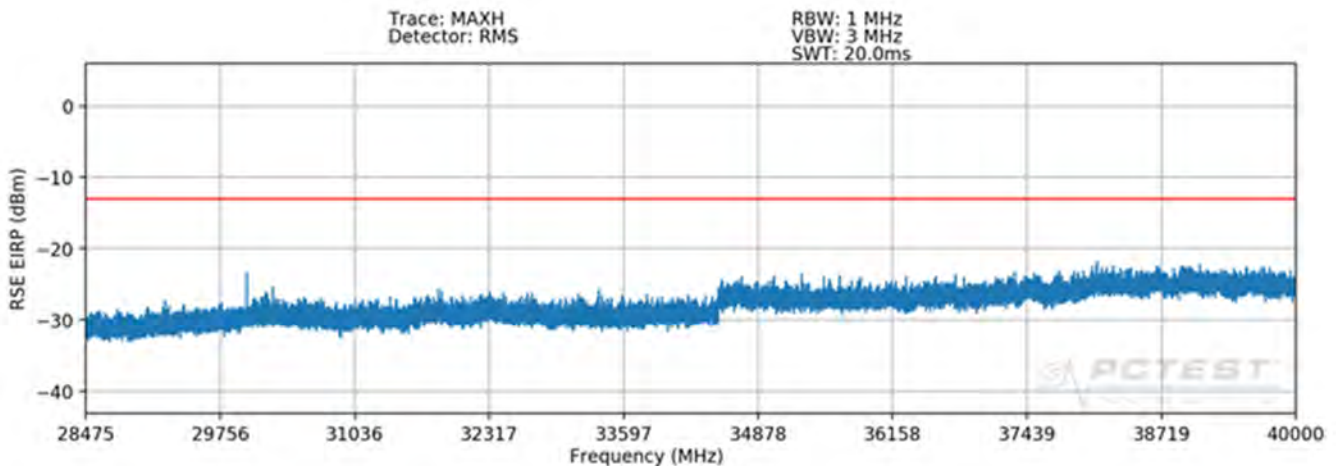
28.475 – 40GHz(n261)



Plot 7-209. L Patch Radiated Spurious Plot 28.475-40 GHz (1CC QPSK Low Channel H Beam – n261)

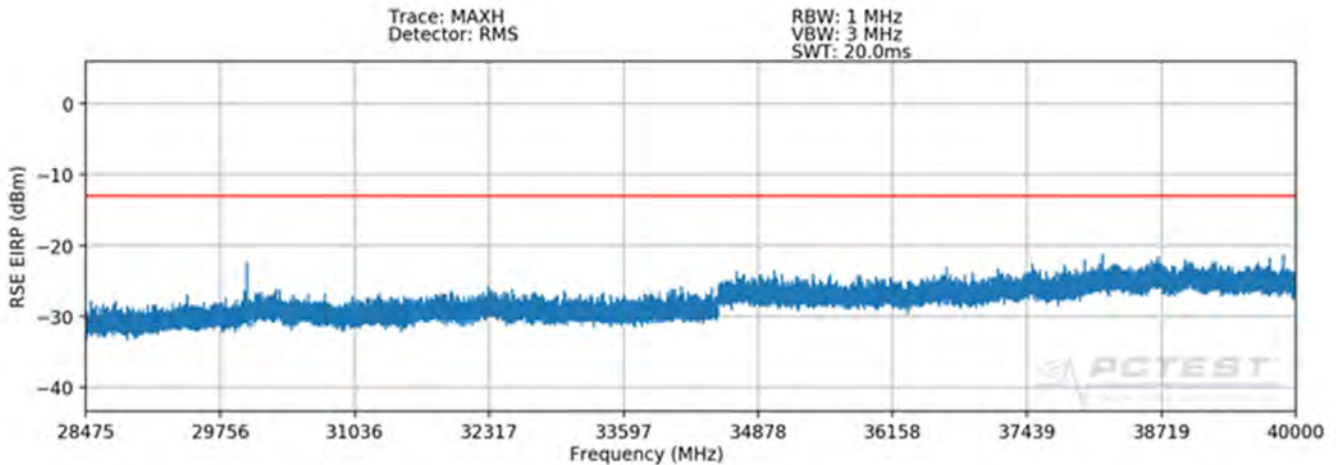


Plot 7-210. L Patch Radiated Spurious Plot 28.475-40 GHz (1CC QPSK Mid Channel H Beam – n261)

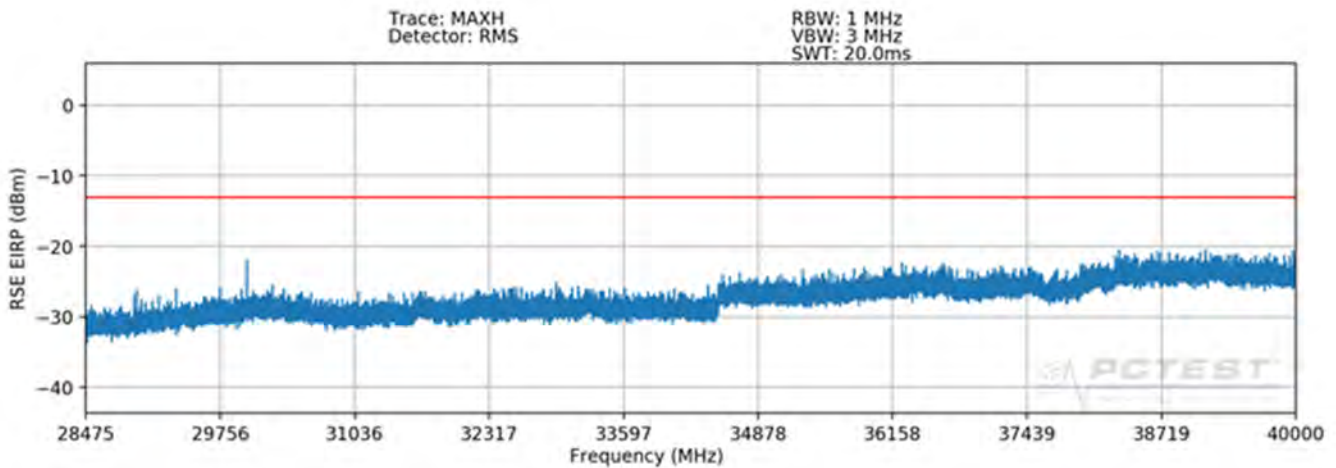


Plot 7-211. L Patch Radiated Spurious Plot 28.475-40 GHz (1CC QPSK High Channel H Beam – n261)

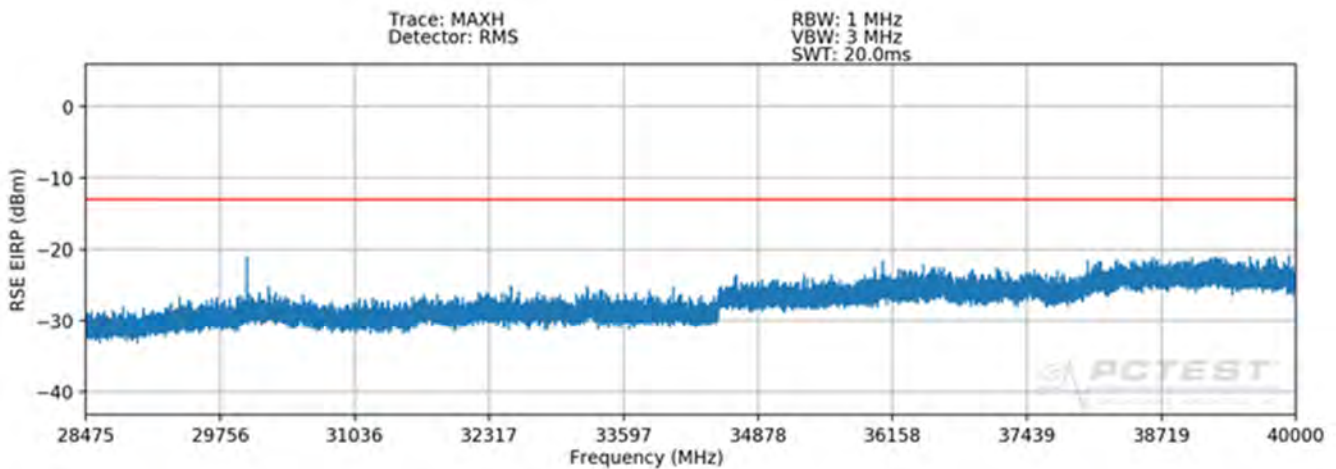
| | | | | |
|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 140 of 371 |



Plot 7-212. L Patch Radiated Spurious Plot 28.475-40 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-213. L Patch Radiated Spurious Plot 28.475-40 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-214. L Patch Radiated Spurious Plot 28.475-40 GHz (1CC QPSK High Channel V Beam – n261)

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|--|--|-------------------------------|---------------------------------|
| FCC ID: A3LSMN976V |  MEASUREMENT REPORT (CERTIFICATION)  | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | Page 141 of 371 |

Spurious Emissions EIRP Sample Calculation(n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turntable Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|----------------------------|-----------------------------|----------------|-------------|-------------|
| 28761.70 | RMS/Avg | Low | 50 | QPSK | H | H | 238 | 336 | -31.29 | -13.00 | -18.29 |
| 28959.82 | RMS/Avg | Mid | 50 | QPSK | H | H | 236 | 314 | -31.82 | -13.00 | -18.82 |
| 29372.65 | RMS/Avg | High | 50 | QPSK | H | H | 308 | 324 | -31.58 | -13.00 | -18.58 |
| 28761.00 | RMS/Avg | Low | 50 | QPSK | V | V | 282 | 353 | -29.71 | -13.00 | -16.71 |
| 28959.50 | RMS/Avg | Mid | 50 | QPSK | V | V | 279 | 355 | -30.84 | -13.00 | -17.84 |
| 29373.50 | RMS/Avg | High | 50 | QPSK | V | V | 276 | 5 | -30.61 | -13.00 | -17.61 |

Table 7-43. L Patch Spurious Emissions Table (28.475-40 GHz – n261)

Notes

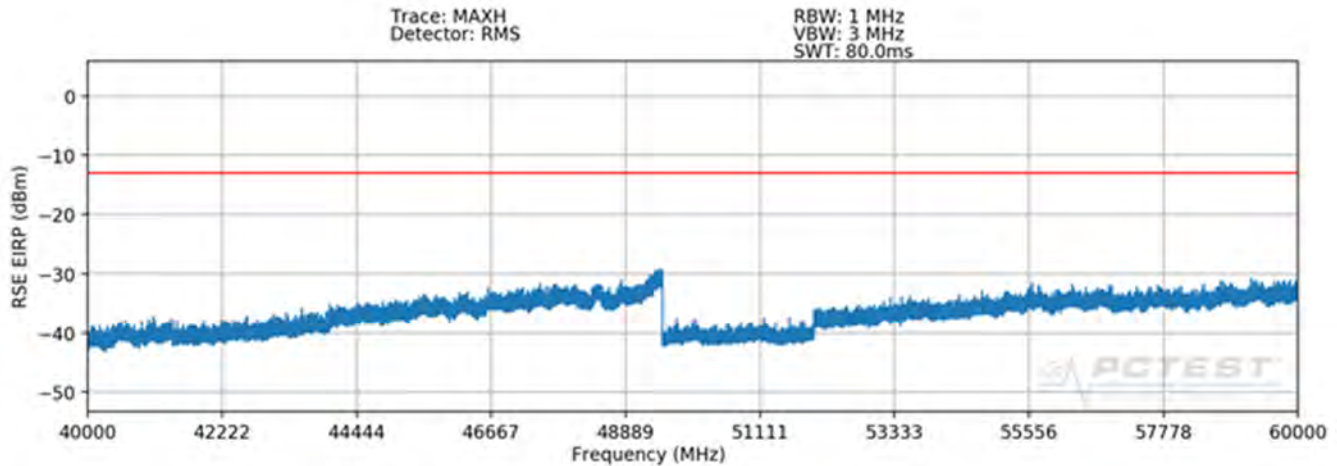
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

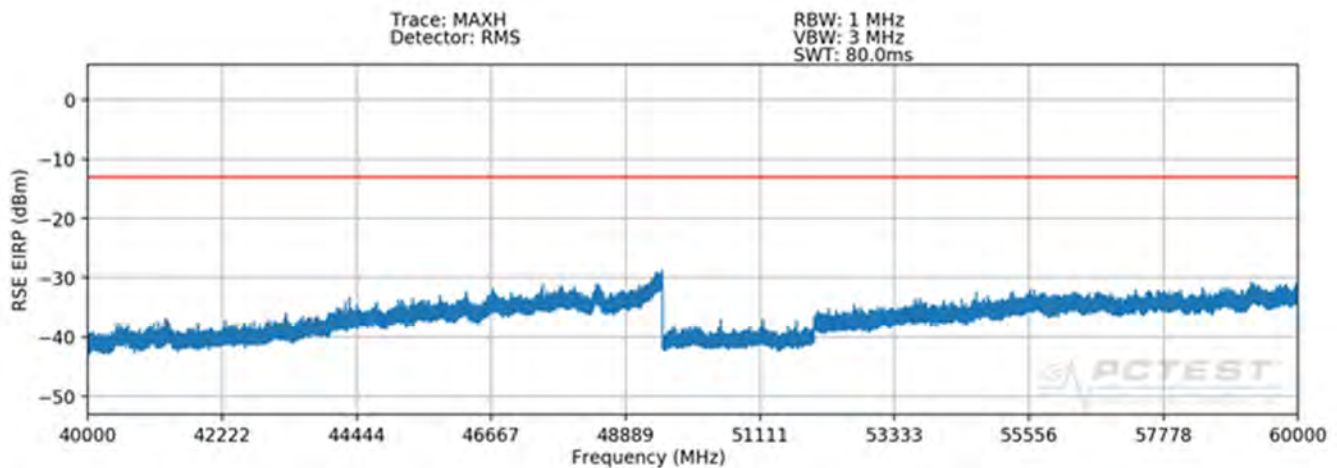
$$(-31.29 \text{ dBm} + -29.71 \text{ dBm}) = (743.02 \text{ nW} + 1069.06 \text{ nW}) = (1812.07 \text{ nW}) = -27.42 \text{ dBm}$$

| | | | | |
|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 142 of 371 |

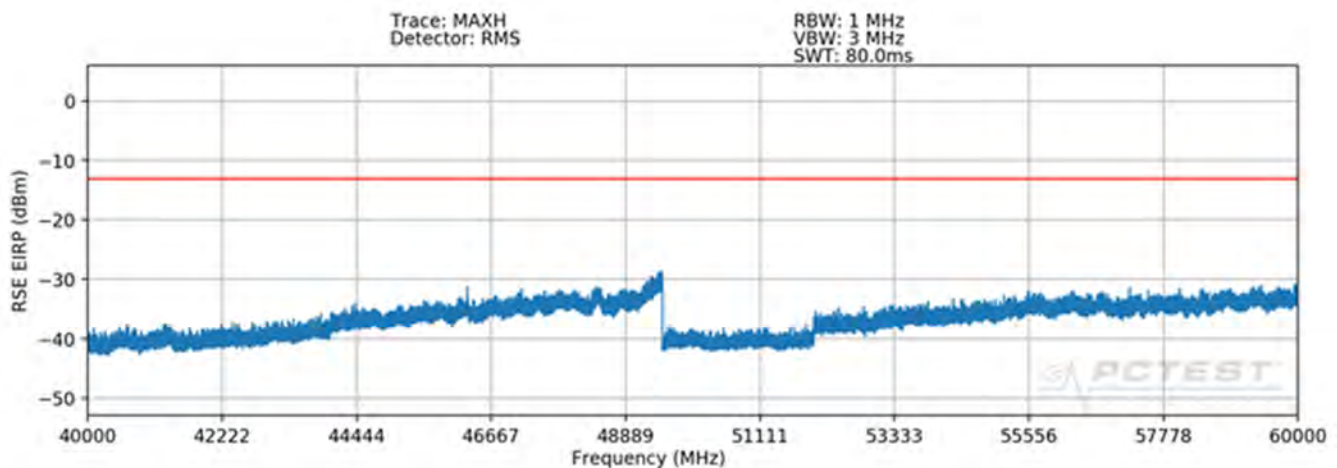
40 – 60GHz(n261)



Plot 7-215. L Patch Radiated Spurious Plot 40-60 GHz (1CC QPSK Low Channel H Beam – n261)

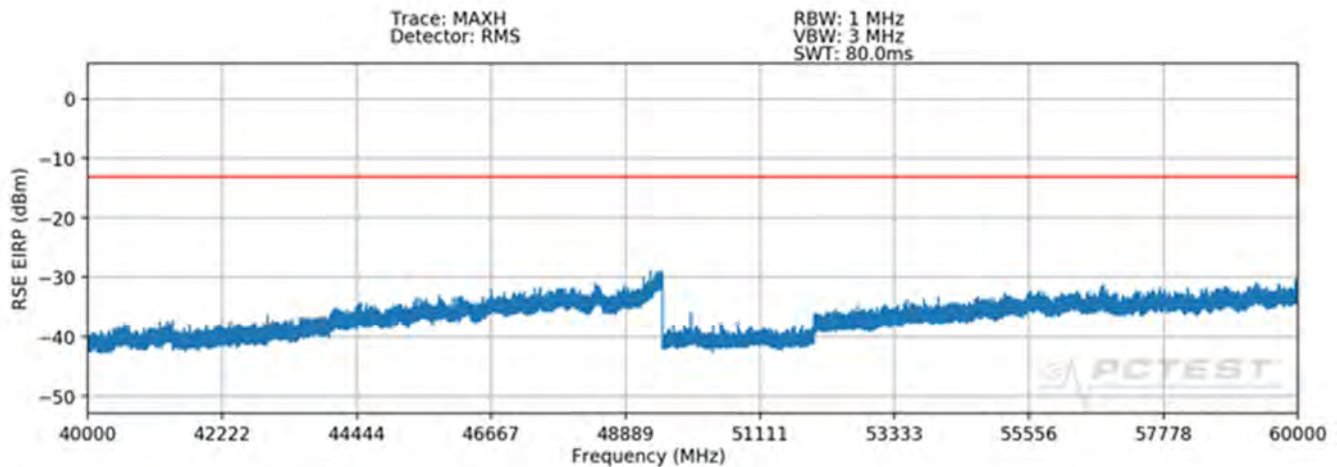


Plot 7-216. L Patch Radiated Spurious Plot 40-60 GHz (1CC QPSK Mid Channel H Beam – n261)

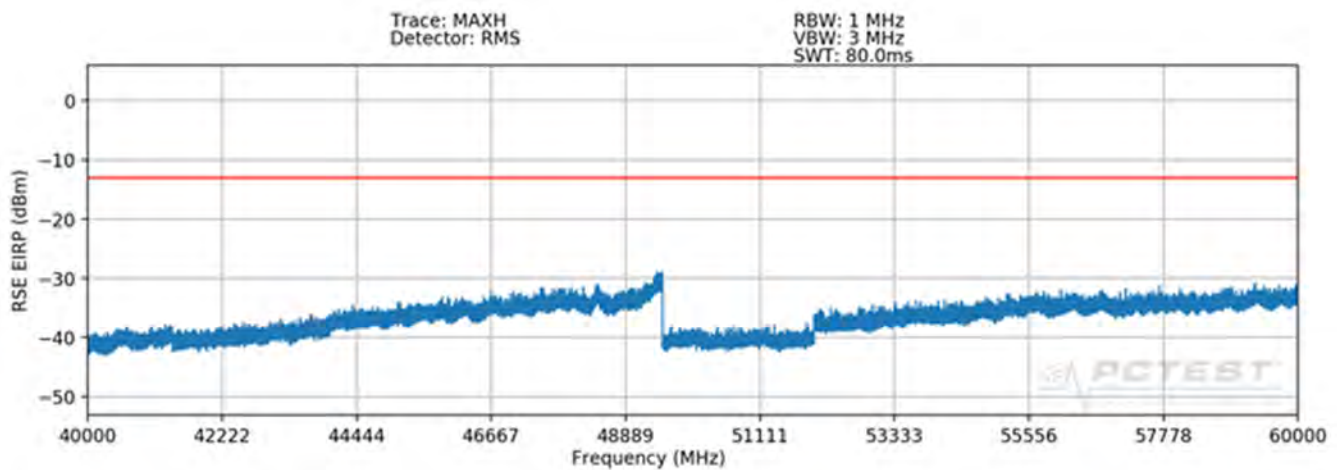


Plot 7-217. L Patch Radiated Spurious Plot 40-60 GHz (1CC QPSK High Channel H Beam – n261)

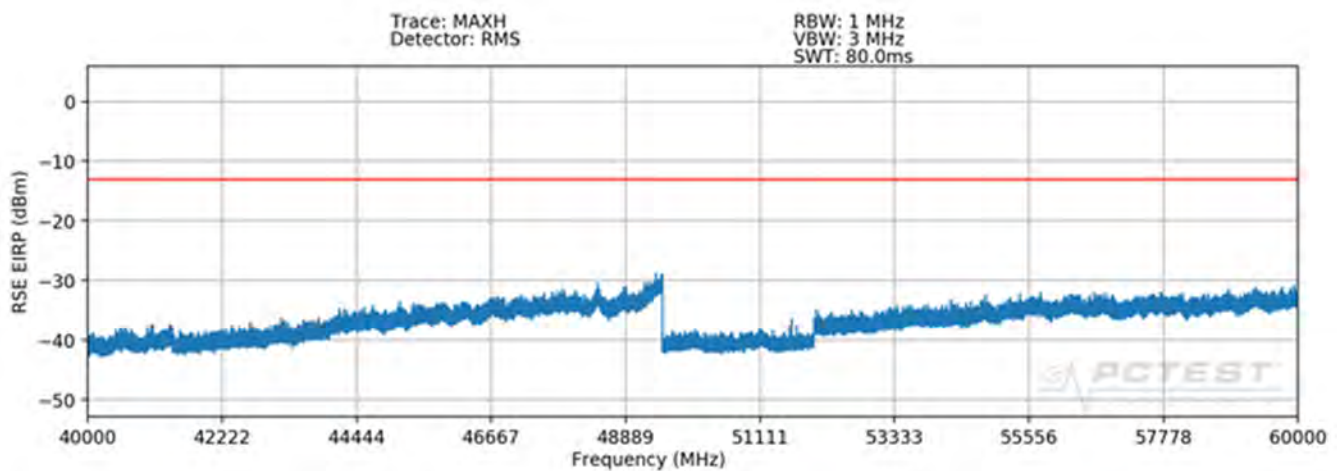
| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 143 of 371 |



Plot 7-218. L Patch Radiated Spurious Plot 40-60 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-219. L Patch Radiated Spurious Plot 40-60 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-220. L Patch Radiated Spurious Plot 40-60 GHz (1CC QPSK High Channel V Beam – n261)

| | | | | |
|--|---|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 144 of 371 |

Spurious Emissions EIRP Sample Calculation(n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turntable Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|----------------------------|-----------------------------|----------------|-------------|-------------|
| 49487.75 | RMS/Avg | Low | 50 | QPSK | H | H | - | - | -37.58 | -13.00 | -24.58 |
| 49498.65 | RMS/Avg | Mid | 50 | QPSK | H | H | - | - | -37.49 | -13.00 | -24.49 |
| 49494.55 | RMS/Avg | High | 50 | QPSK | H | H | - | - | -37.53 | -13.00 | -24.53 |
| 49491.25 | RMS/Avg | Low | 50 | QPSK | V | H | - | - | -37.77 | -13.00 | -24.77 |
| 49499.75 | RMS/Avg | Mid | 50 | QPSK | V | H | - | - | -37.55 | -13.00 | -24.55 |
| 49490.55 | RMS/Avg | High | 50 | QPSK | V | H | - | - | -37.51 | -13.00 | -24.51 |

Table 7-44. L Patch Spurious Emissions Table (40 - 60GHz – n261)

Notes

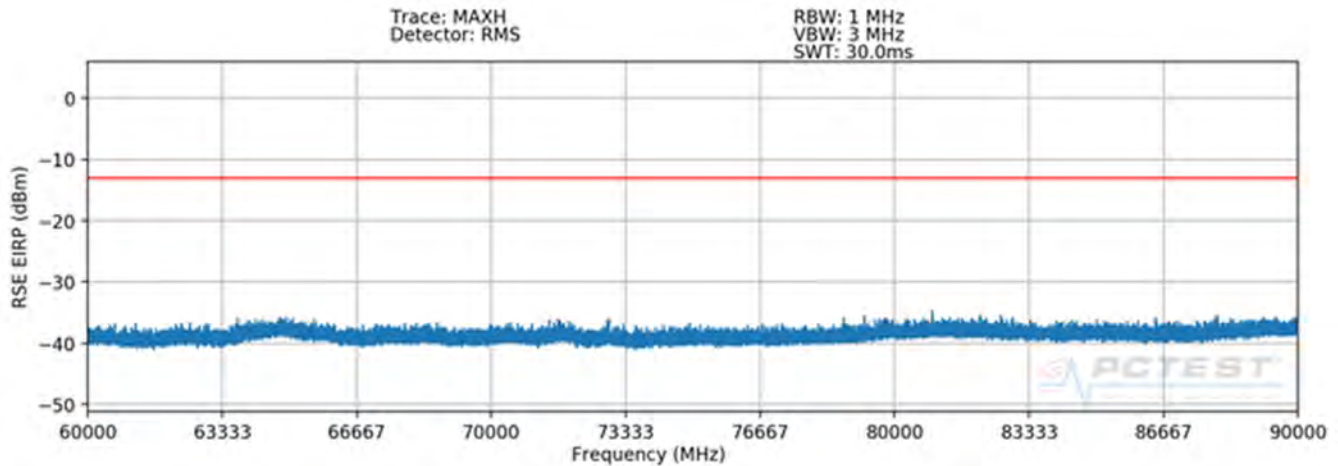
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1.5 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

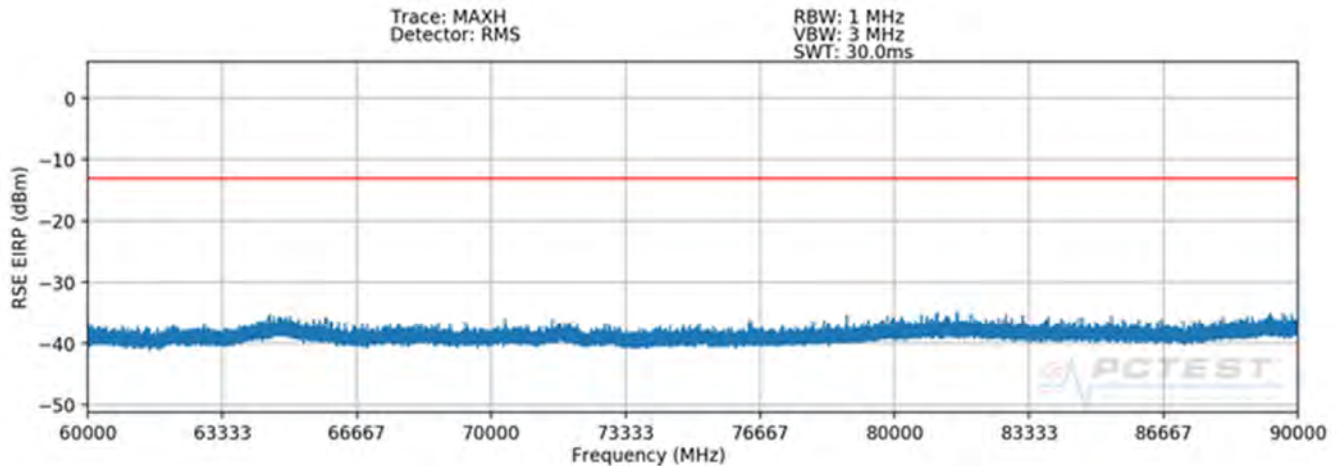
$$(-37.49 \text{ dBm} + -37.55 \text{ dBm}) = (178.24 \text{ nW} + 175.79 \text{ nW}) = (354.03 \text{ nW}) = -34.51 \text{ dBm}$$

| | | | | |
|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 145 of 371 |

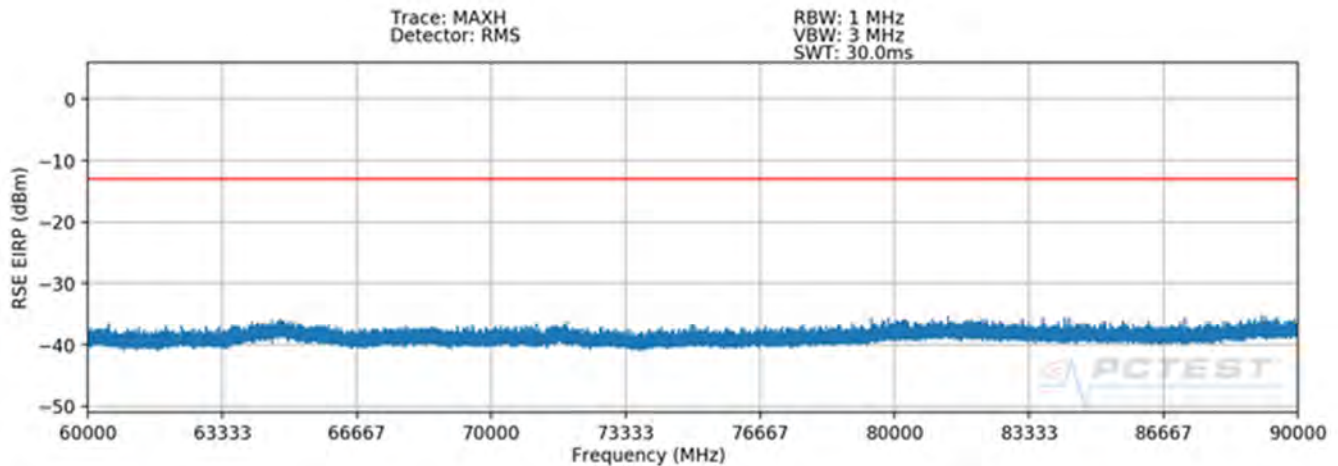
60 – 90GHz(n261)



Plot 7-221. L Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Low Channel H Beam – n261)

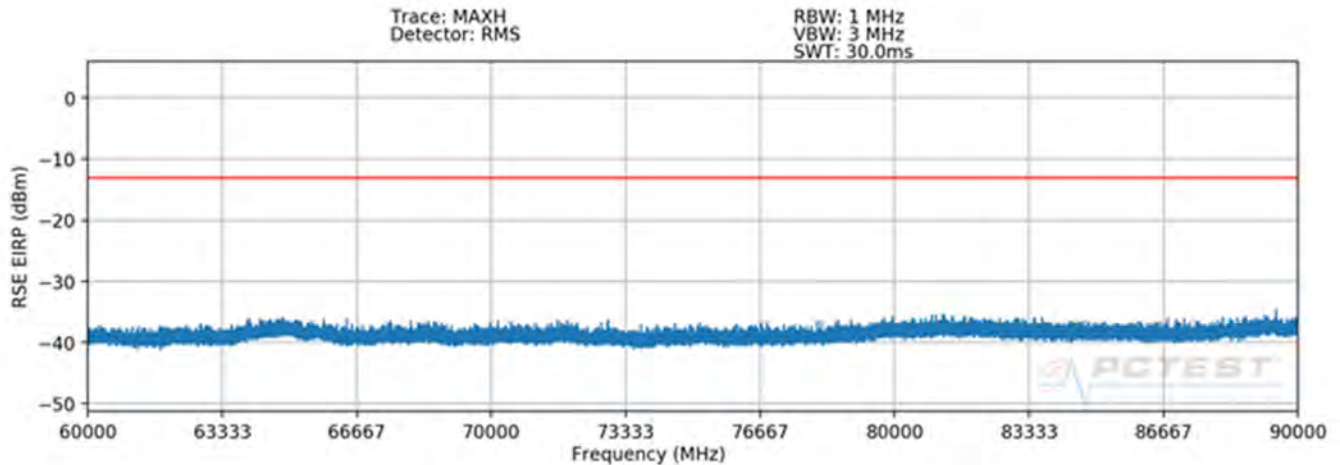


Plot 7-222. L Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Mid Channel H Beam – n261)

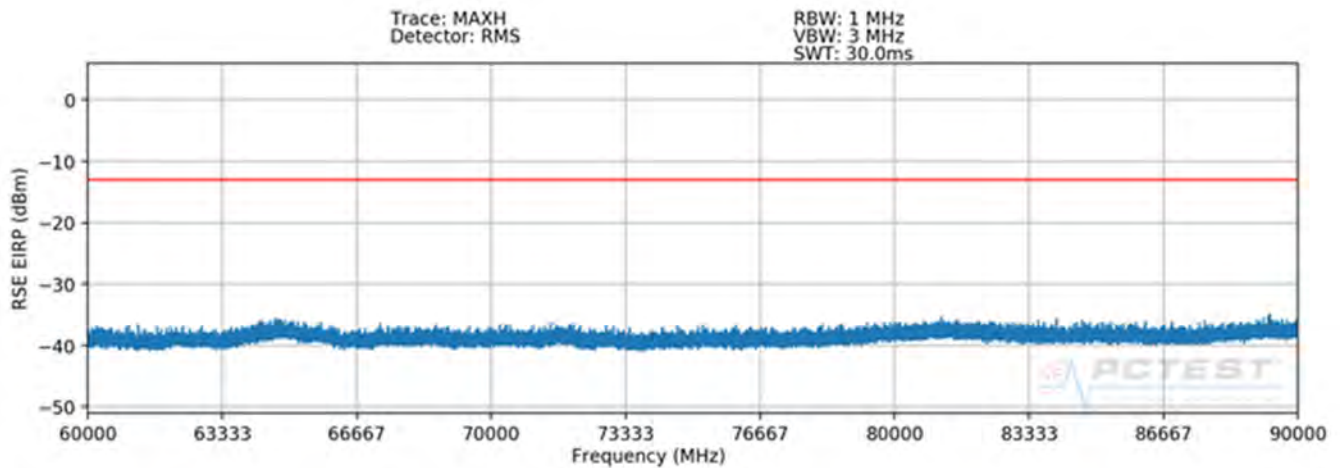


Plot 7-223. L Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK High Channel H Beam – n261)

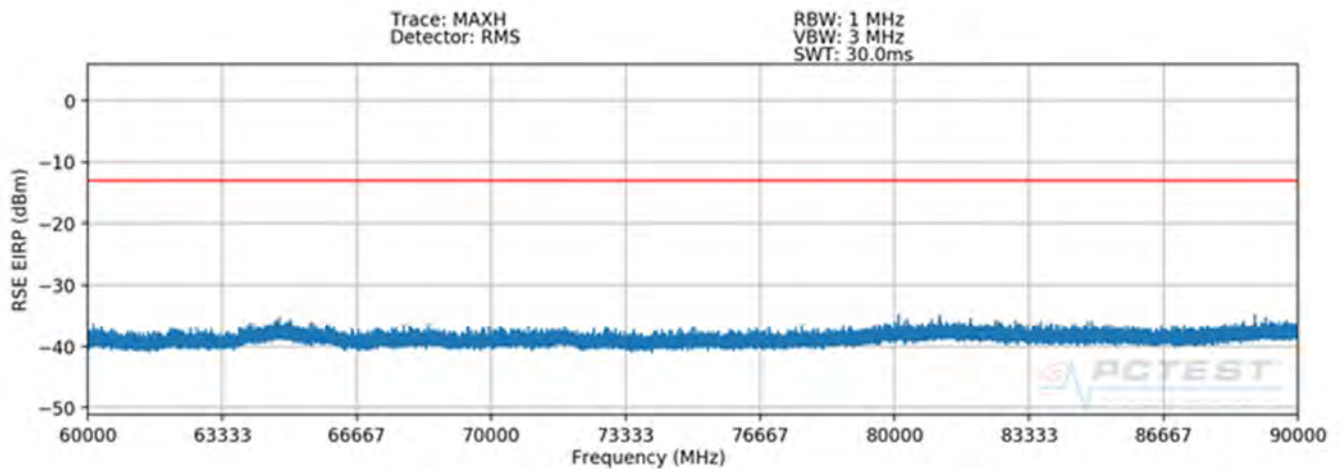
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| FCC ID: A3LSMN976V |  MEASUREMENT REPORT (CERTIFICATION)  | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | Page 146 of 371 |



Plot 7-224. L Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-225. L Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-226. L Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK High Channel V Beam – n261)

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| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 147 of 371 |

Spurious Emissions EIRP Sample Calculation(n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turntable Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|----------------------------|-----------------------------|----------------|-------------|-------------|
| 82539.00 | RMS/Avg | Low | 50 | QPSK | H | H | 235 | 307 | -43.36 | -13.00 | -30.36 |
| 84346.00 | RMS/Avg | Mid | 50 | QPSK | H | H | 236 | 319 | -43.70 | -13.00 | -30.70 |
| 84893.50 | RMS/Avg | High | 50 | QPSK | H | H | 250 | 319 | -43.56 | -13.00 | -30.56 |
| 82539.00 | RMS/Avg | Low | 50 | QPSK | V | V | 237 | 20 | -40.90 | -13.00 | -27.90 |
| 83701.50 | RMS/Avg | Mid | 50 | QPSK | V | V | 250 | 33 | -43.39 | -13.00 | -30.39 |
| 84893.50 | RMS/Avg | High | 50 | QPSK | V | V | 289 | 28 | -43.19 | -13.00 | -30.19 |

Table 7-45. L Patch Spurious Emissions Table (60-90GHz – n261)

Notes

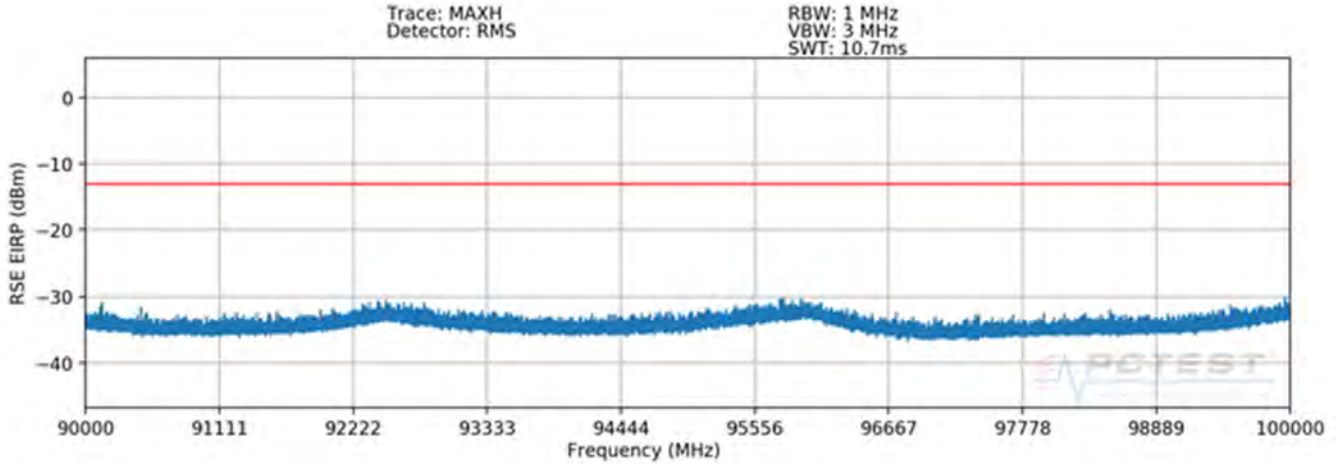
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

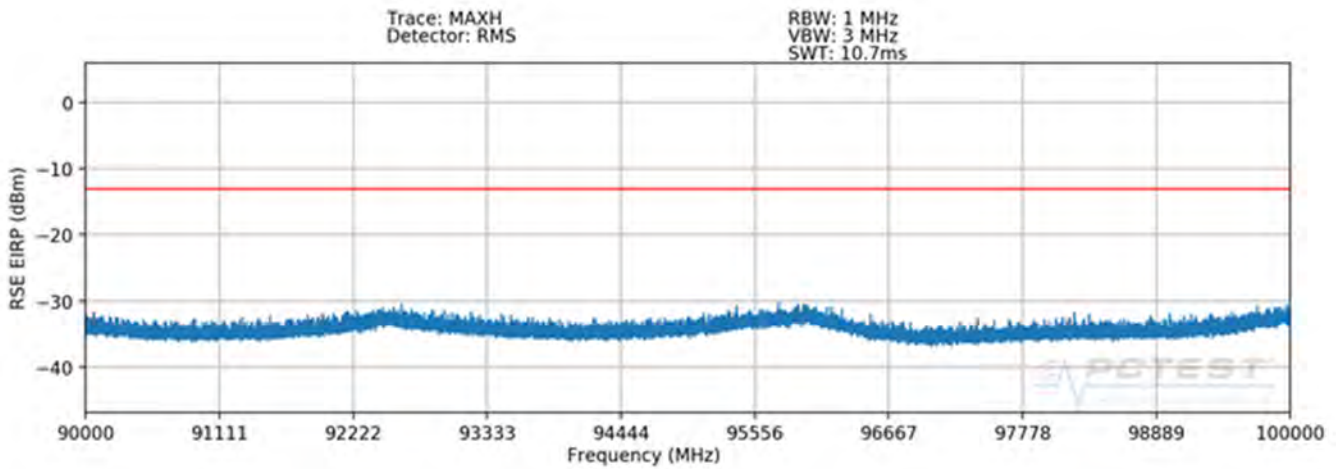
$$(-43.36 \text{ dBm} + -40.90 \text{ dBm}) = (46.10 \text{ nW} + 81.38 \text{ nW}) = (127.48 \text{ nW}) = -38.95 \text{ dBm}$$

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| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 148 of 371 |

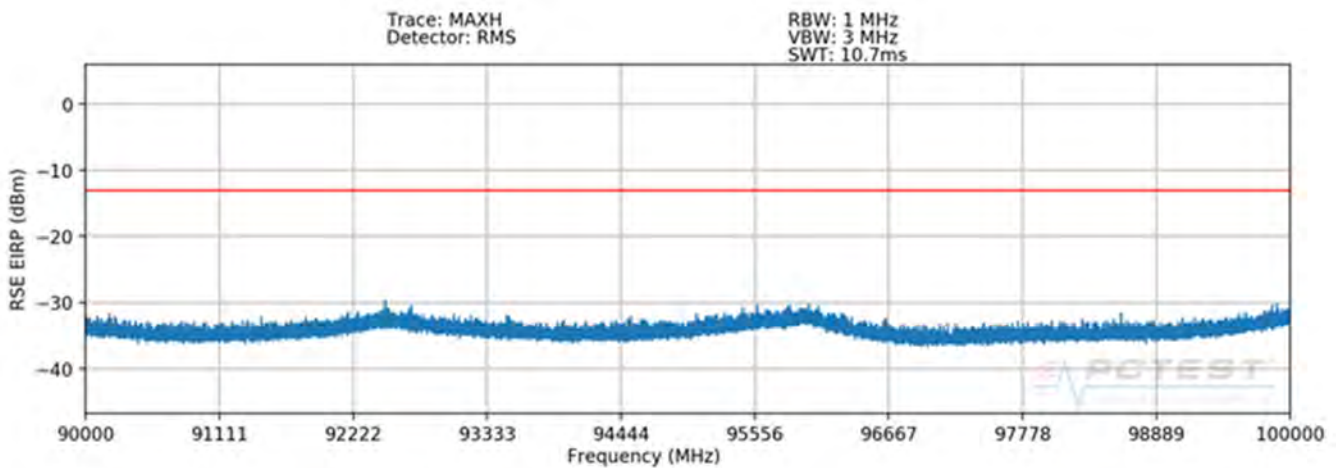
90 – 100GHz(n261)



Plot 7-227. L Patch Radiated Spurious Plot 90-100 GHz (1CC QPSK Low Channel H Beam – n261)

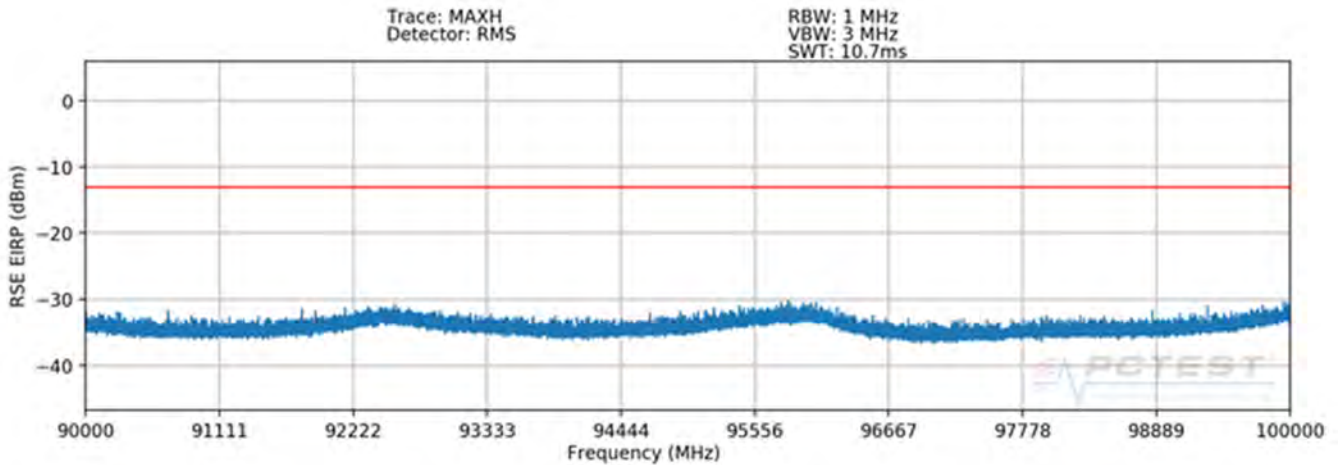


Plot 7-228. L Patch Radiated Spurious Plot 90-100 GHz (1CC QPSK Mid Channel H Beam – n261)

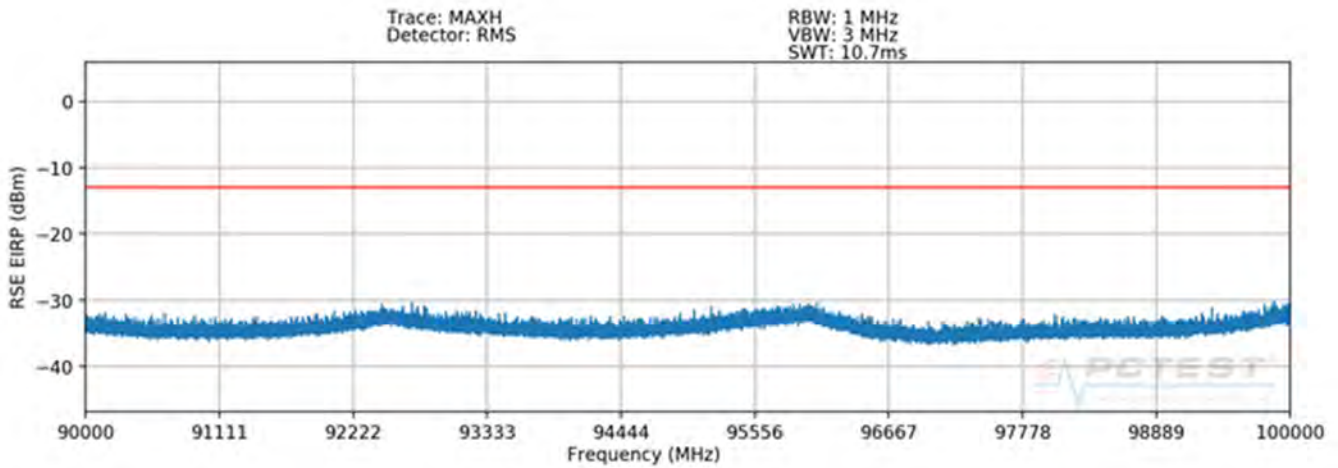


Plot 7-229. L Patch Radiated Spurious Plot 90-100 GHz (1CC QPSK High Channel H Beam – n261)

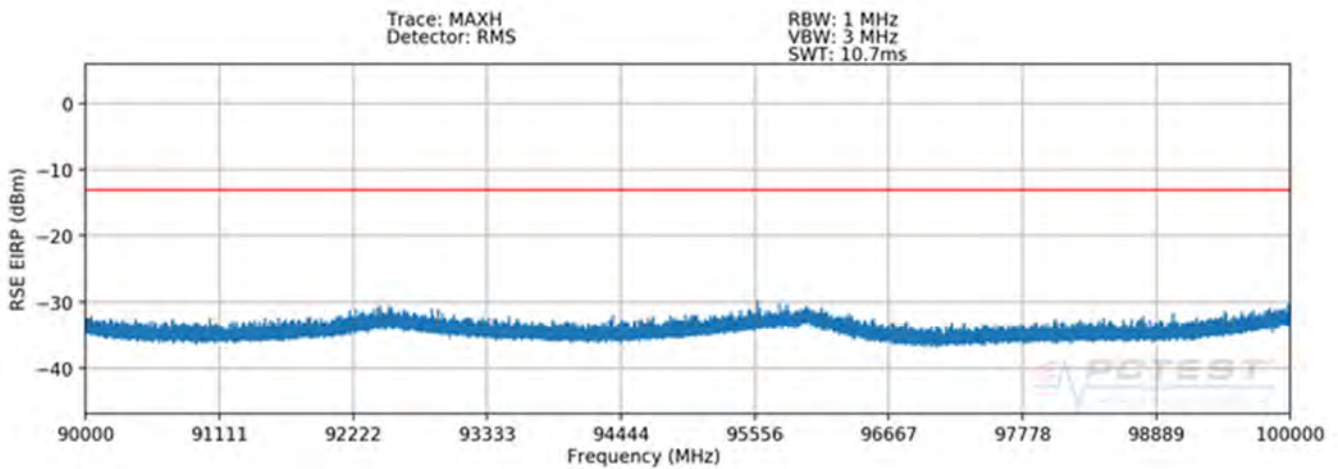
| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 149 of 371 |



Plot 7-230. L Patch Radiated Spurious Plot 90-100 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-231. L Patch Radiated Spurious Plot 90-100 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-232. L Patch Radiated Spurious Plot 90-100 GHz (1CC QPSK High Channel V Beam – n261)

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| FCC ID: A3LSMN976V |  MEASUREMENT REPORT (CERTIFICATION)  | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | Page 150 of 371 |

Spurious Emissions EIRP Sample Calculation(n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL[dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | Beam Polarization | Ant. Pos [H/V] | Turntable Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-------------------|----------------|----------------------------|-----------------------------|----------------|-------------|-------------|
| 95986.00 | RMS/Avg | Low | 50 | QPSK | H | H | - | - | -39.90 | -13.00 | -26.90 |
| 95882.50 | RMS/Avg | Mid | 50 | QPSK | H | H | - | - | -39.85 | -13.00 | -26.85 |
| 95976.00 | RMS/Avg | High | 50 | QPSK | H | H | - | - | -39.99 | -13.00 | -26.99 |
| 95908.00 | RMS/Avg | Low | 50 | QPSK | V | V | - | - | -39.62 | -13.00 | -26.62 |
| 99906.50 | RMS/Avg | Mid | 50 | QPSK | V | V | - | - | -39.90 | -13.00 | -26.90 |
| 99994.50 | RMS/Avg | High | 50 | QPSK | V | V | - | - | -39.93 | -13.00 | -26.93 |

Table 7-46. L Patch Spurious Emissions Table (90-100GHz – n261)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

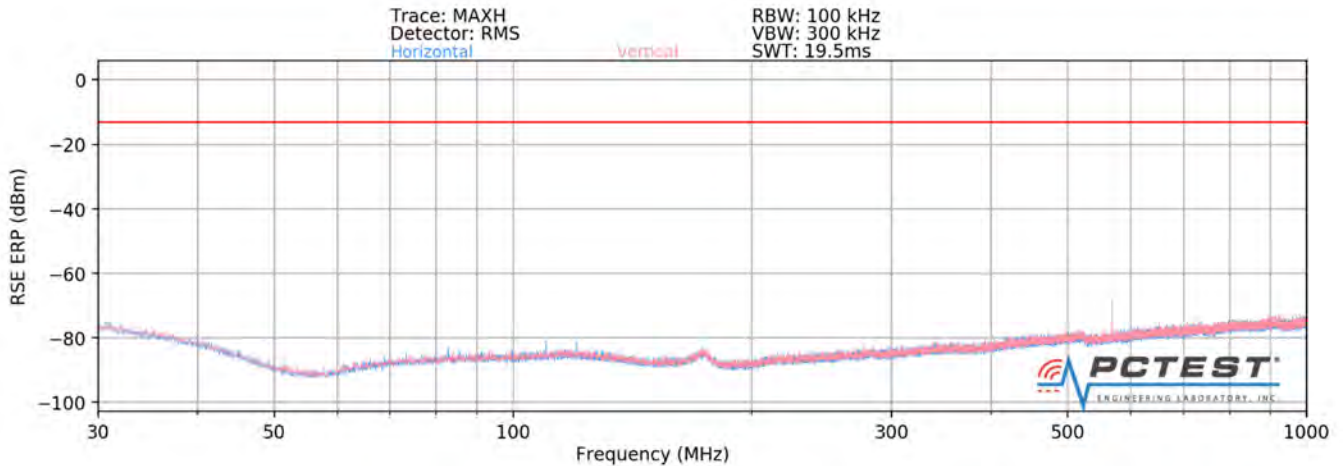
$$(-39.90 \text{ dBm} + -39.62 \text{ dBm}) = (102.33 \text{ nW} + 109.09 \text{ nW}) = (211.42 \text{ nW}) = -36.75 \text{ dBm}$$

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|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 151 of 371 |

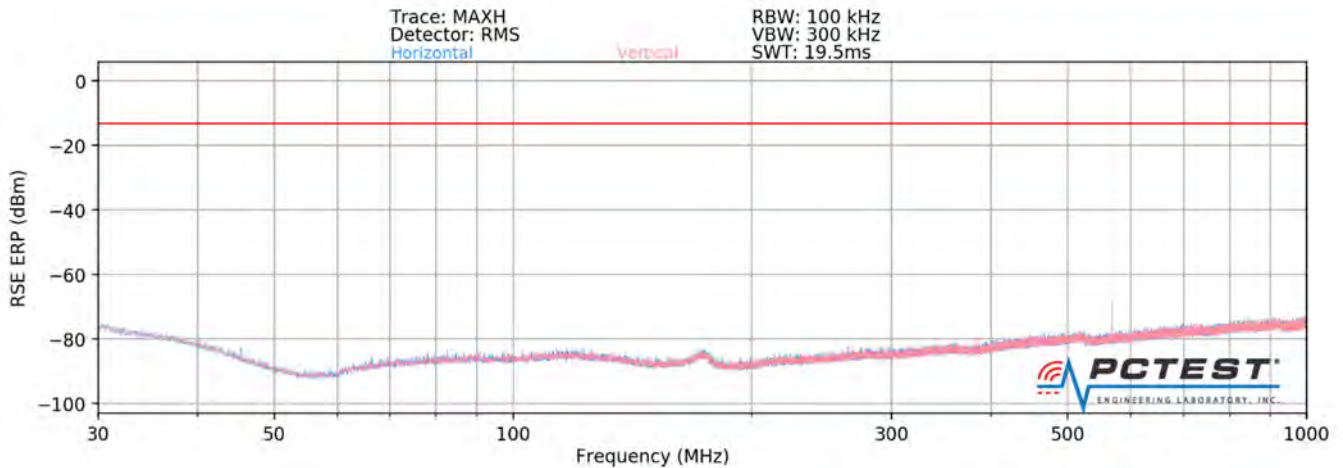
7.4.2 n260 Radiated Spurious Emissions

J Dipole Radiated Spurious Emissions(n260)

30MHz – 1GHz(n260)



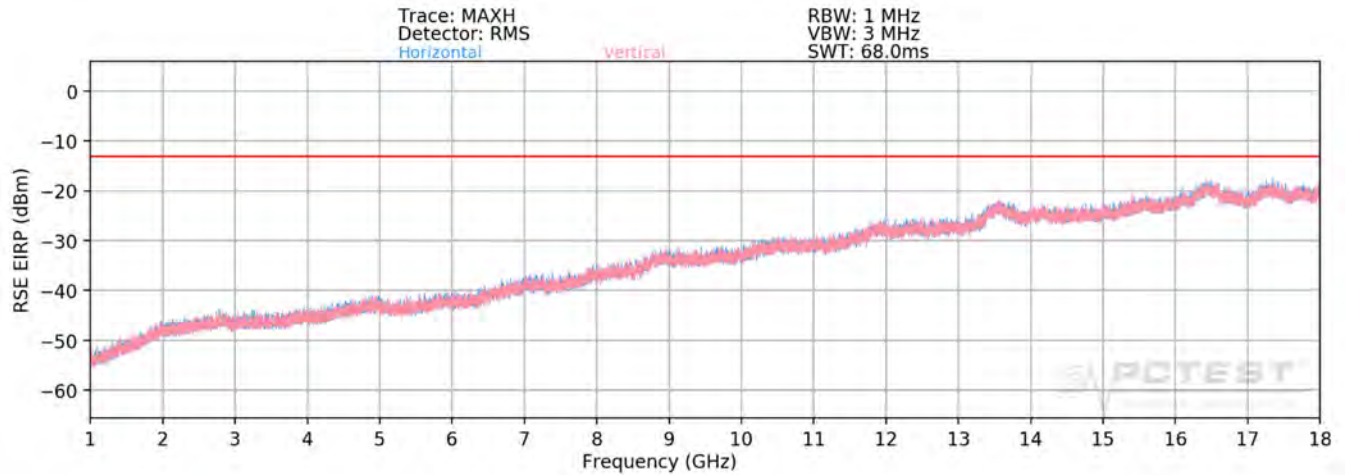
Plot 7-233. J Dipole Radiated Spurious Plot 30 MHz - 1 GHz (1CC QPSK Mid Channel H Beam – n260)



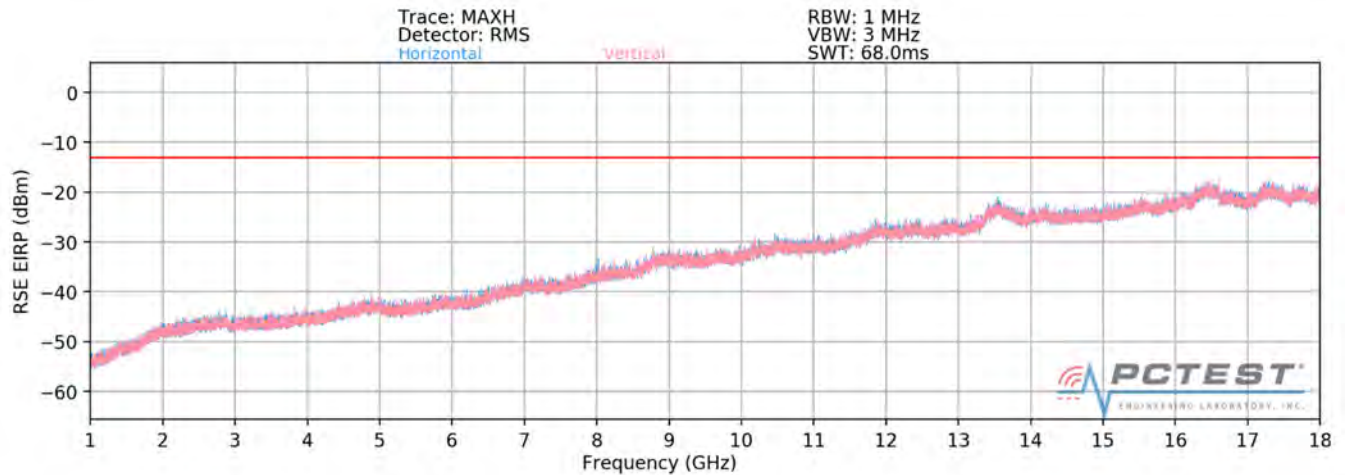
Plot 7-234. J Dipole Radiated Spurious Plot 30 MHz - 1 GHz (1CC QPSK Mid Channel V Beam – n260)

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| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | Page 152 of 371 |

1 – 18GHz(n260)



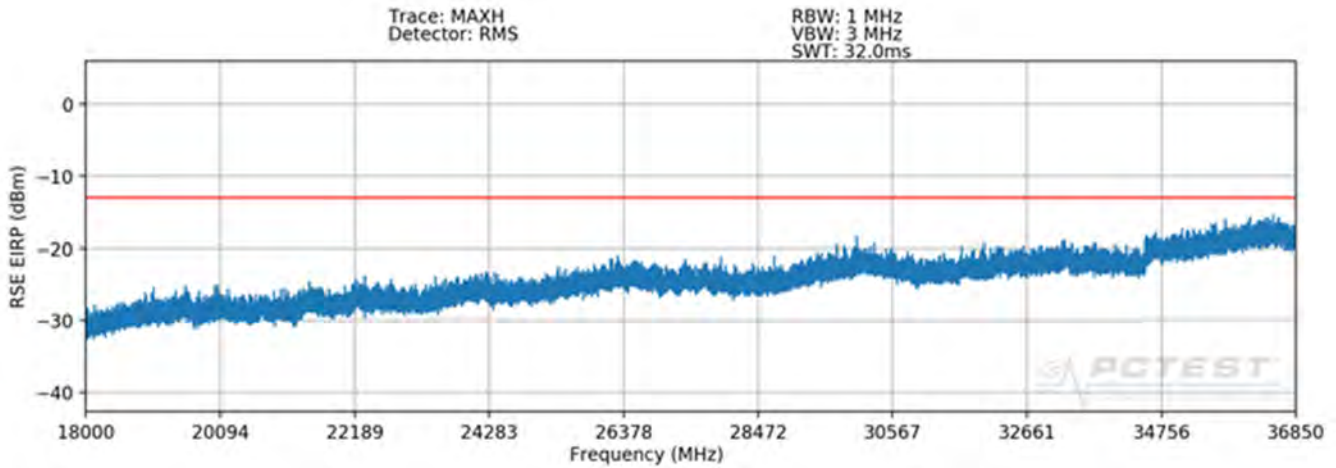
Plot 7-235. J Dipole Radiated Spurious Plot 1-18 GHz (1CC QPSK Mid Channel H Beam – n260)



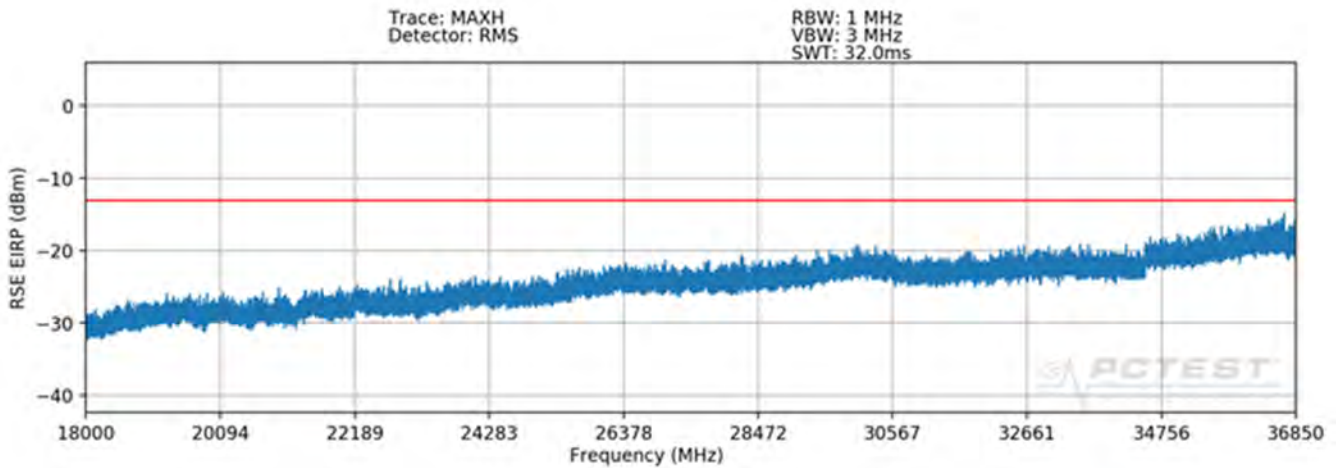
Plot 7-236. J Dipole Radiated Spurious Plot 1-18 GHz (1CC QPSK Mid Channel V Beam – n260)

| | | | | |
|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 153 of 371 |

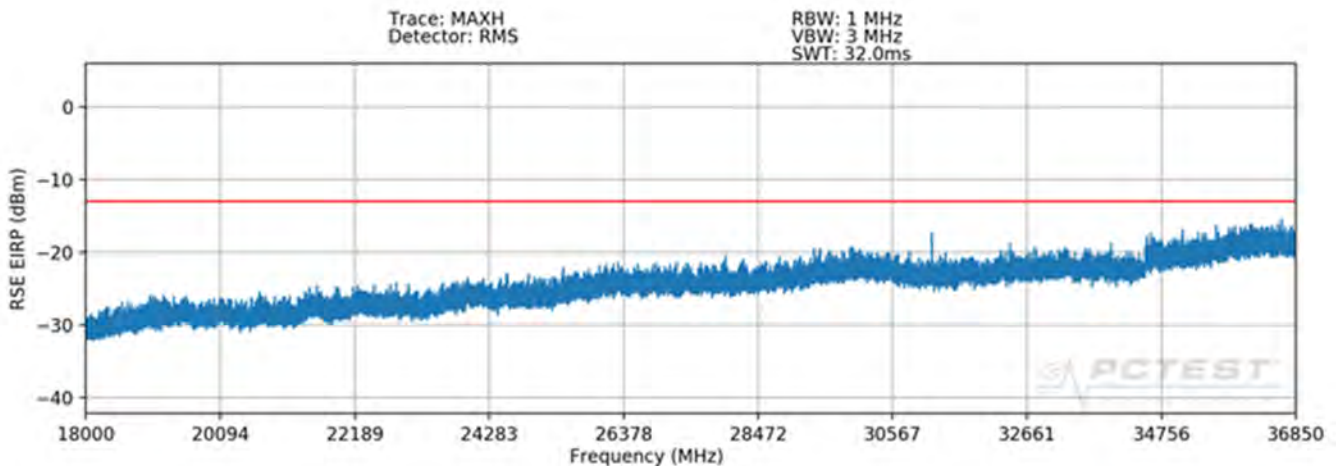
18 – 36.85GHz(n260)



Plot 7-237. J Dipole Radiated Spurious Plot 18-36.85 GHz (1CC QPSK Low Channel H Beam – n260)

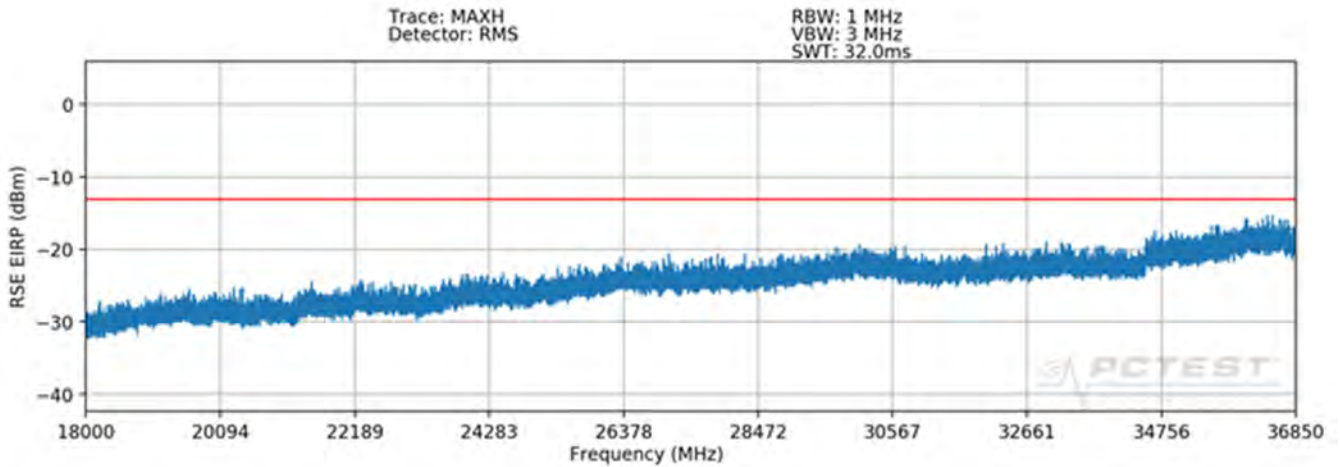


Plot 7-238. J Dipole Radiated Spurious Plot 18-36.85 GHz (1CC QPSK Mid Channel H Beam – n260)

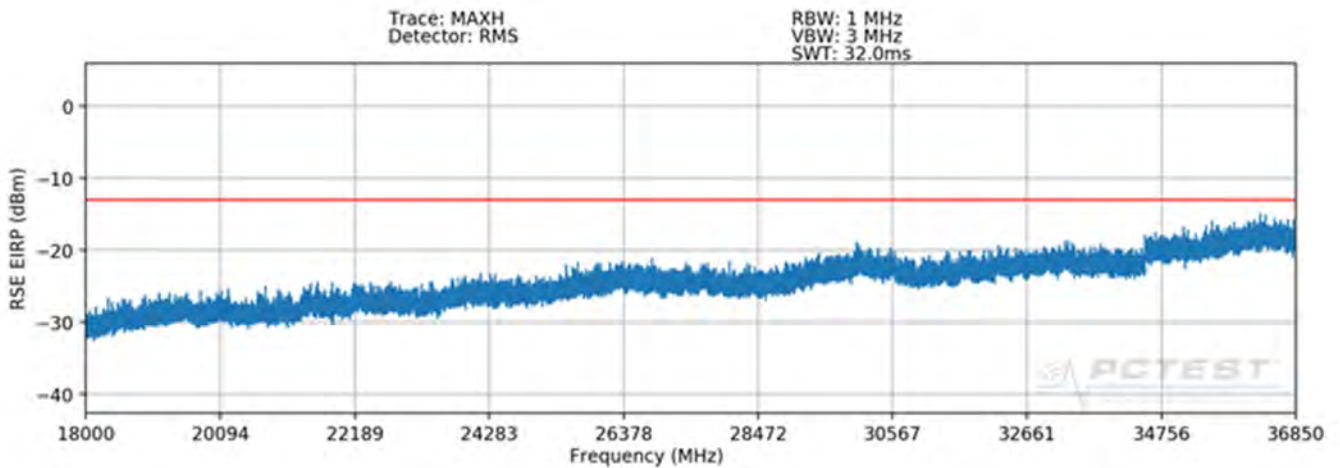


Plot 7-239. J Dipole Radiated Spurious Plot 18-36.85 GHz (1CC QPSK High Channel H Beam – n260)

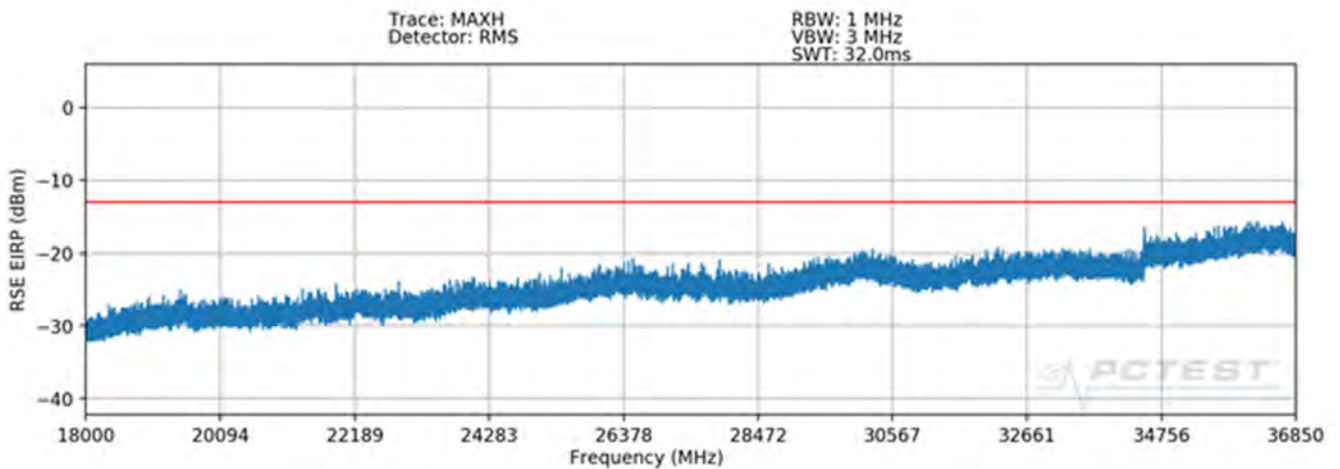
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| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
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Plot 7-240. J Dipole Radiated Spurious Plot 18-36.85 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-241. J Dipole Radiated Spurious Plot 18-36.85 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-242. J Dipole Radiated Spurious Plot 18-36.85 GHz (1CC QPSK High Channel V Beam – n260)

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|--|---|-------------------------------|---------------------------------|
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| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | Page 155 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 28454.00 | RMS/Avg | Low | 50 | QPSK | H | H | 258 | 278 | -33.16 | -13.00 | -20.16 |
| 29577.50 | RMS/Avg | Mid | 50 | QPSK | H | H | 265 | 280 | -29.50 | -13.00 | -16.50 |
| 31180.50 | RMS/Avg | High | 50 | QPSK | H | H | 285 | 278 | -17.54 | -13.00 | -4.54 |
| 36661.00 | RMS/Avg | Low | 50 | QPSK | V | H | 312 | 98 | -32.27 | -13.00 | -19.27 |
| 29577.50 | RMS/Avg | Mid | 50 | QPSK | V | H | 312 | 107 | -34.75 | -13.00 | -21.75 |
| 31180.50 | RMS/Avg | High | 50 | QPSK | V | H | 270 | 97 | -22.89 | -13.00 | -9.89 |

Table 7-47. J Dipole Spurious Emissions Table (18-36.85GHz – n260)

Notes

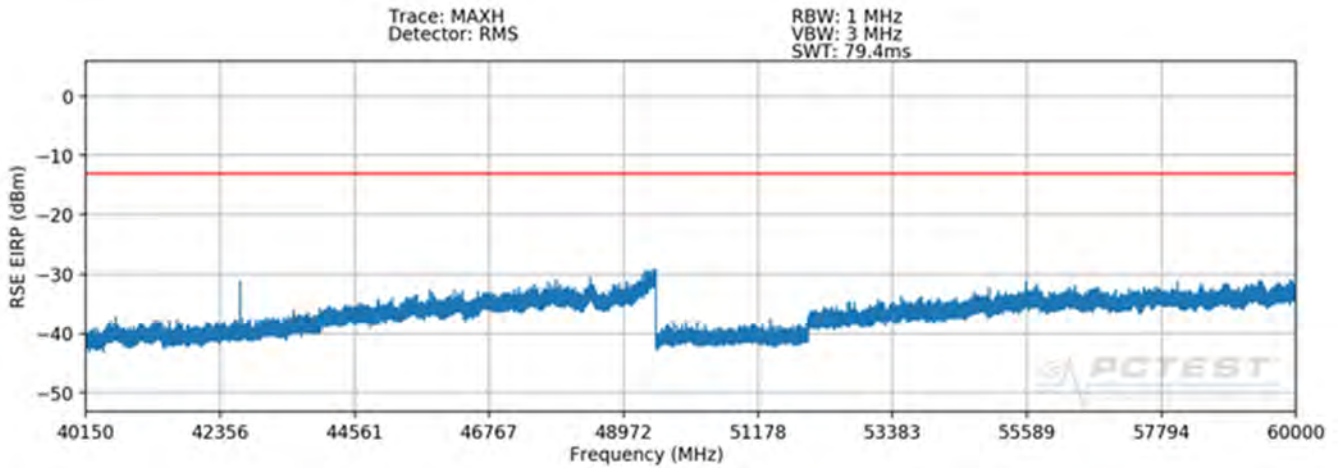
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

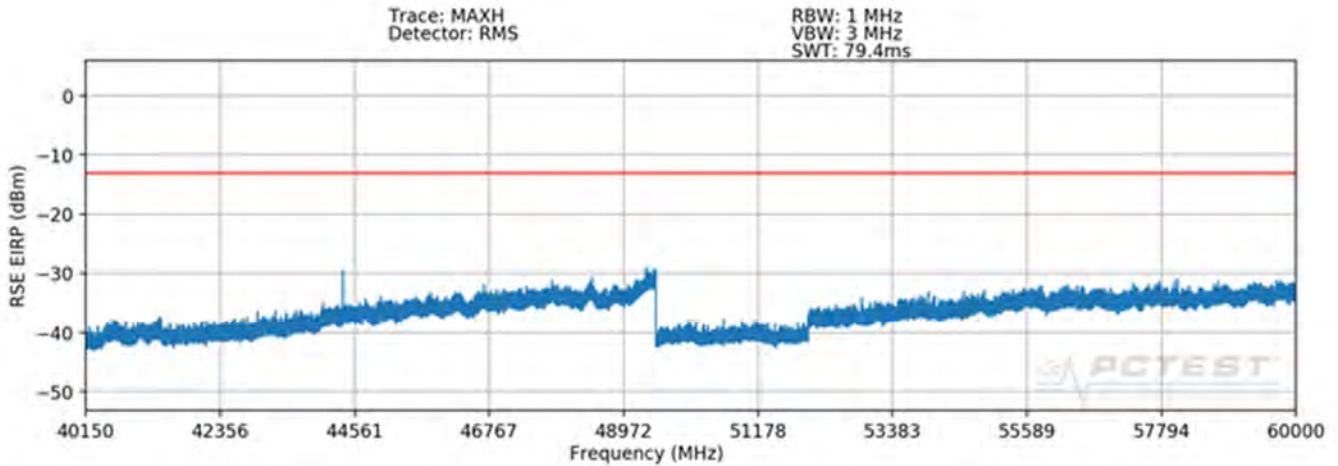
$$(-17.54 \text{ dBm} + -22.89 \text{ dBm}) = (17.62 \text{ μW} + 5.14 \text{ μW}) = (22.78 \text{ μW}) = -16.43 \text{ dBm}$$

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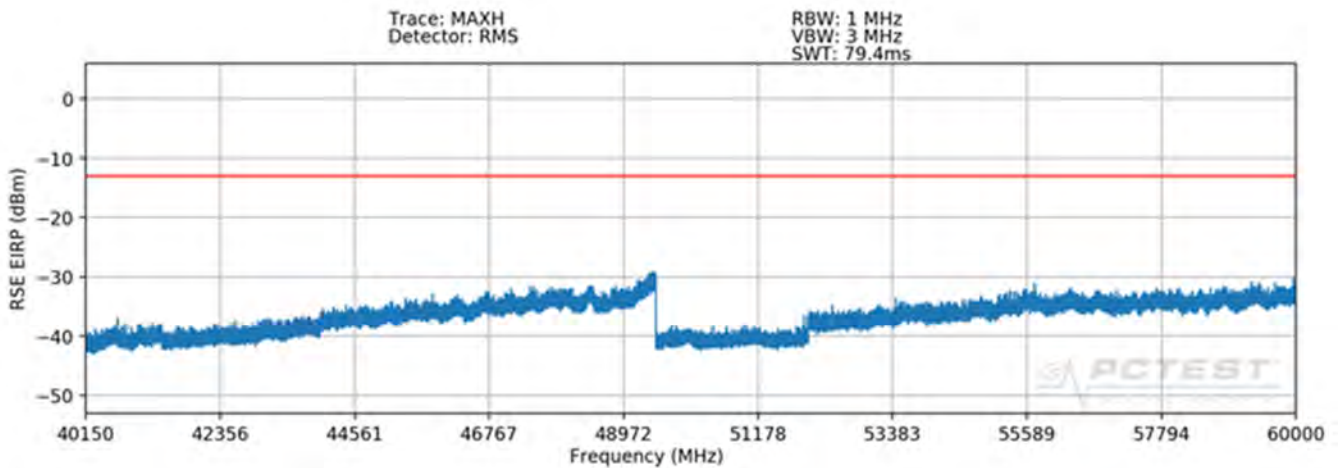
40.15 – 60GHz(n260)



Plot 7-243. J Dipole Radiated Spurious Plot 40.15-60 GHz (1CC QPSK Low Channel H Beam – n260)

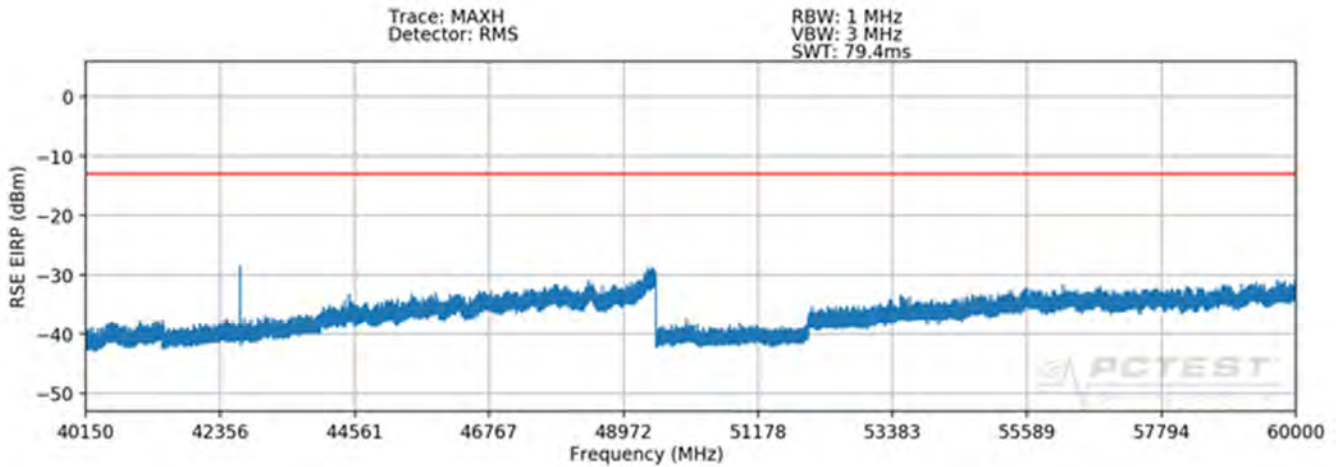


Plot 7-244. J Dipole Radiated Spurious Plot 40.15-60 GHz (1CC QPSK Mid Channel H Beam – n260)

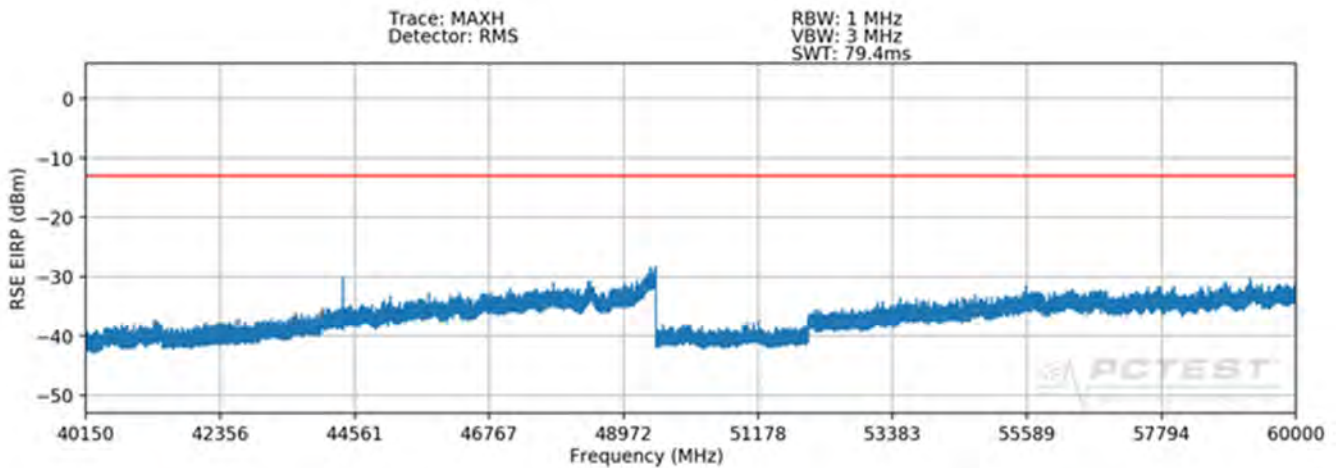


Plot 7-245. J Dipole Radiated Spurious Plot 40.15-60 GHz (1CC QPSK High Channel H Beam – n260)

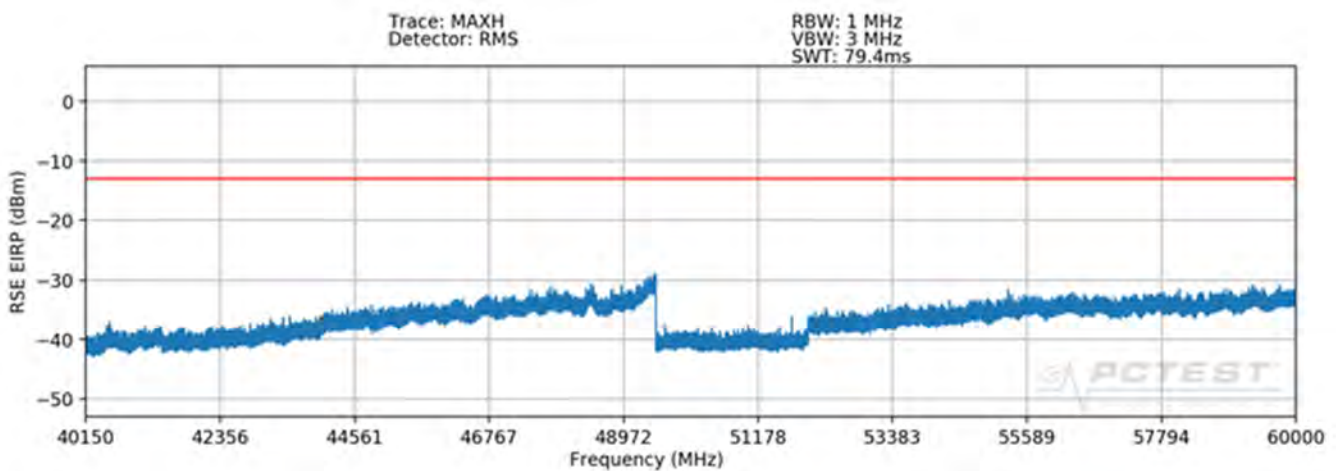
| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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Plot 7-246. J Dipole Radiated Spurious Plot 40.15-60 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-247. J Dipole Radiated Spurious Plot 40.15-60 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-248. J Dipole Radiated Spurious Plot 40.15-60 GHz (1CC QPSK High Channel V Beam – n260)

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|--|---|---|----------------|---------------------------------|
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Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 42681.45 | RMS/Avg | Low | 50 | QPSK | H | H | 280 | 312 | -30.94 | -13.00 | -17.94 |
| 44366.34 | RMS/Avg | Mid | 50 | QPSK | H | H | 235 | 305 | -30.06 | -13.00 | -17.06 |
| 46771.05 | RMS/Avg | High | 50 | QPSK | H | H | 242 | 303 | -37.76 | -13.00 | -24.76 |
| 42681.47 | RMS/Avg | Low | 50 | QPSK | V | H | 307 | 110 | -26.05 | -13.00 | -13.05 |
| 44366.26 | RMS/Avg | Mid | 50 | QPSK | V | H | 306 | 109 | -28.17 | -13.00 | -15.17 |
| 46771.24 | RMS/Avg | High | 50 | QPSK | V | H | 310 | 112 | -36.19 | -13.00 | -23.19 |

Table 7-48. J Dipole Spurious Emissions Table (40.15-60 GHz – n260)

Notes

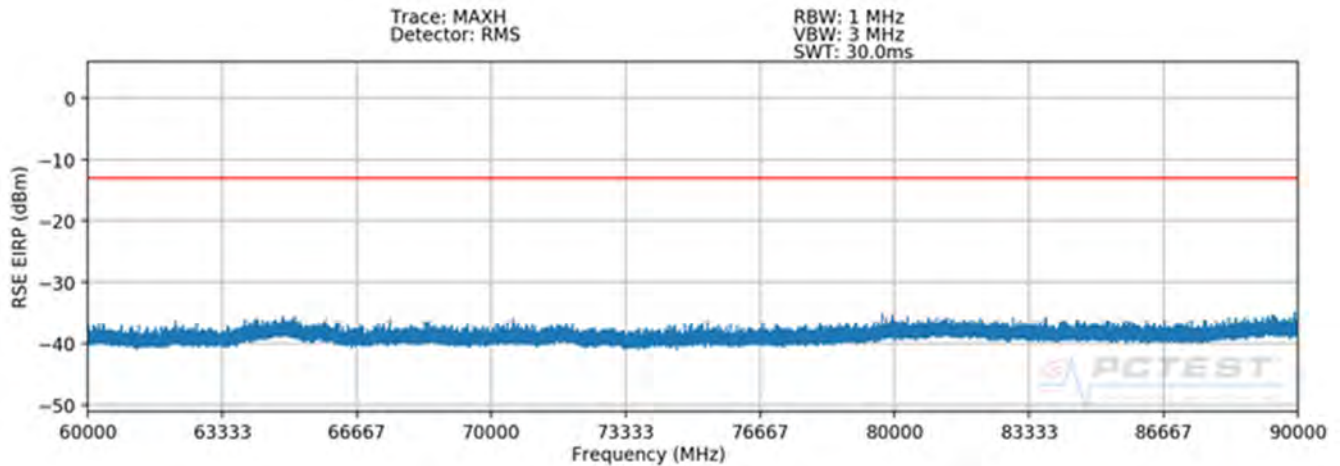
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1.5 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

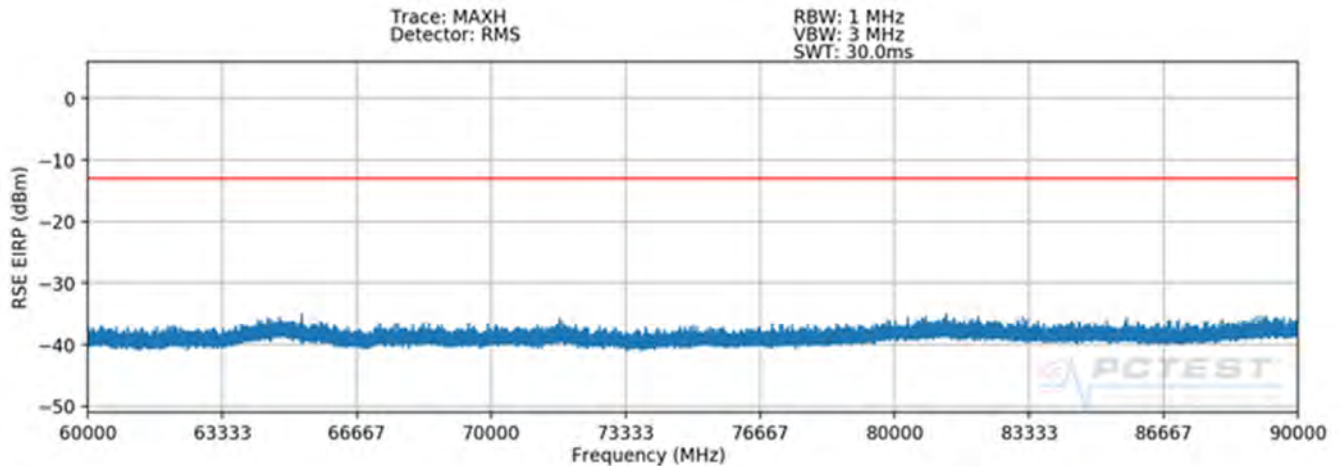
$$(-30.94 \text{ dBm} + -26.05 \text{ dBm}) = (805.38 \text{ nW} + 2483.13 \text{ nW}) = (3288.51 \text{ nW}) = -24.83 \text{ dBm}$$

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|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 159 of 371 |

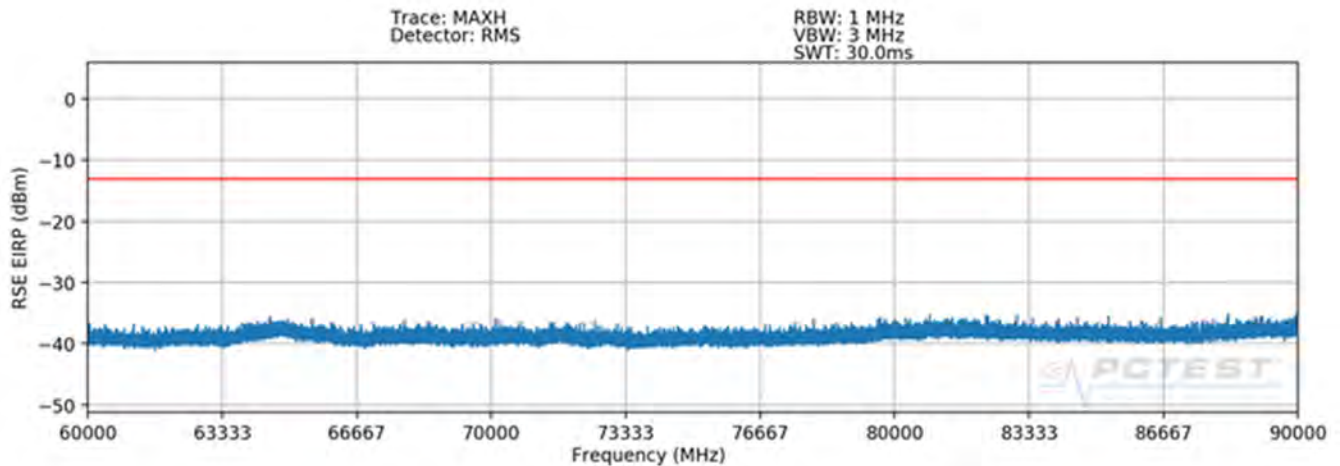
60 – 90GHz(n260)



Plot 7-249. J Dipole Radiated Spurious Plot 60-90 GHz (1CC QPSK Low Channel H Beam – n260)

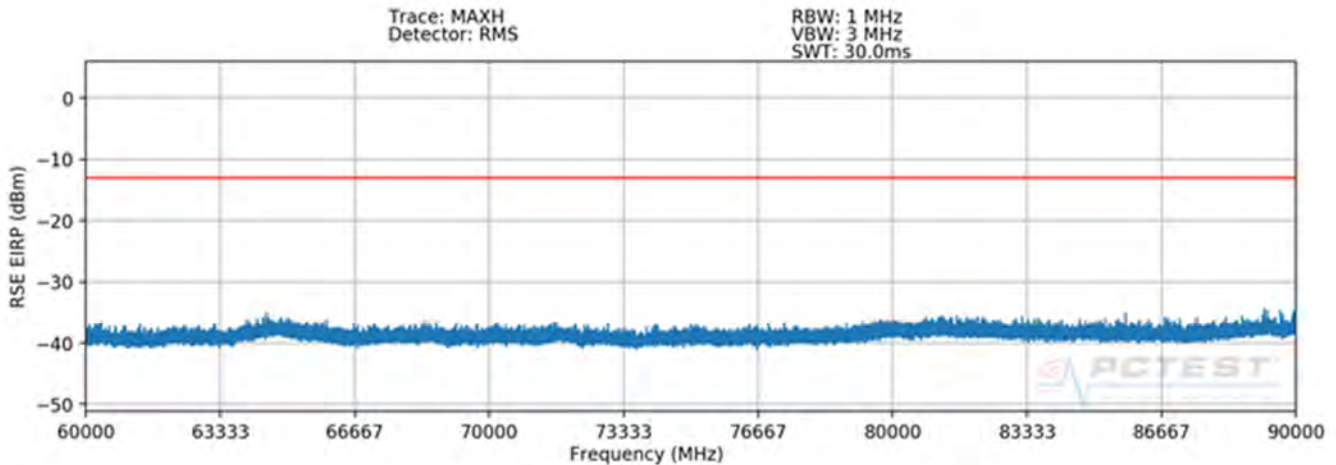


Plot 7-250. J Dipole Radiated Spurious Plot 60-90 GHz (1CC QPSK Mid Channel H Beam – n260)

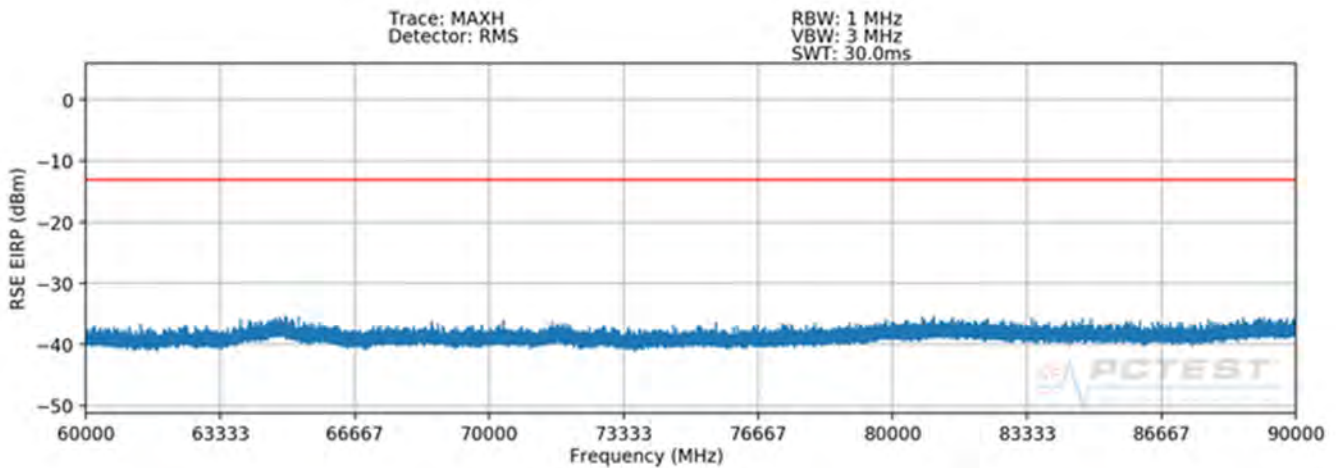


Plot 7-251. J Dipole Radiated Spurious Plot 60-90 GHz (1CC QPSK High Channel H Beam – n260)

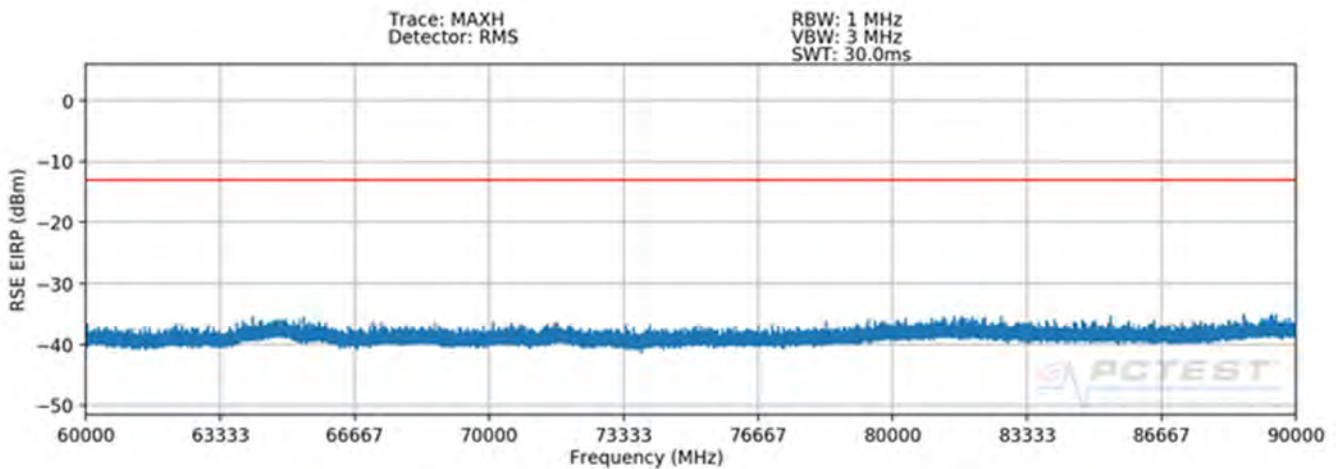
| | | | | |
|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 160 of 371 |



Plot 7-252. J Dipole Radiated Spurious Plot 60-90 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-253. J Dipole Radiated Spurious Plot 60-90 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-254. J Dipole Radiated Spurious Plot 60-90 GHz (1CC QPSK High Channel V Beam – n260)

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|--|---|---|--|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 161 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 74006.00 | RMS/Avg | Low | 50 | QPSK | H | H | 256 | 314 | -43.87 | -13.00 | -30.87 |
| 77591.50 | RMS/Avg | Mid | 50 | QPSK | H | H | 291 | 314 | -43.68 | -13.00 | -30.68 |
| 79884.00 | RMS/Avg | High | 50 | QPSK | H | H | 254 | 314 | -41.56 | -13.00 | -28.56 |
| 74006.50 | RMS/Avg | Low | 50 | QPSK | V | H | 294 | 100 | -43.21 | -13.00 | -30.21 |
| 77591.50 | RMS/Avg | Mid | 50 | QPSK | V | H | 296 | 114 | -41.06 | -13.00 | -28.06 |
| 79883.50 | RMS/Avg | High | 50 | QPSK | V | H | 296 | 109 | -41.88 | -13.00 | -28.88 |

Table 7-49. J Dipole Spurious Emissions Table (60-90GHz – n260)

Notes

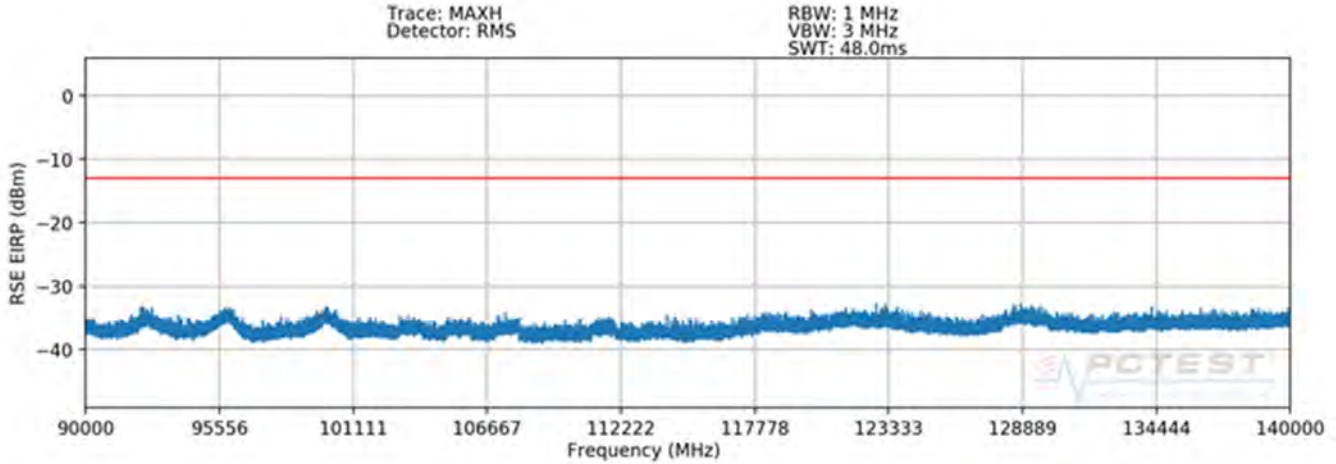
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

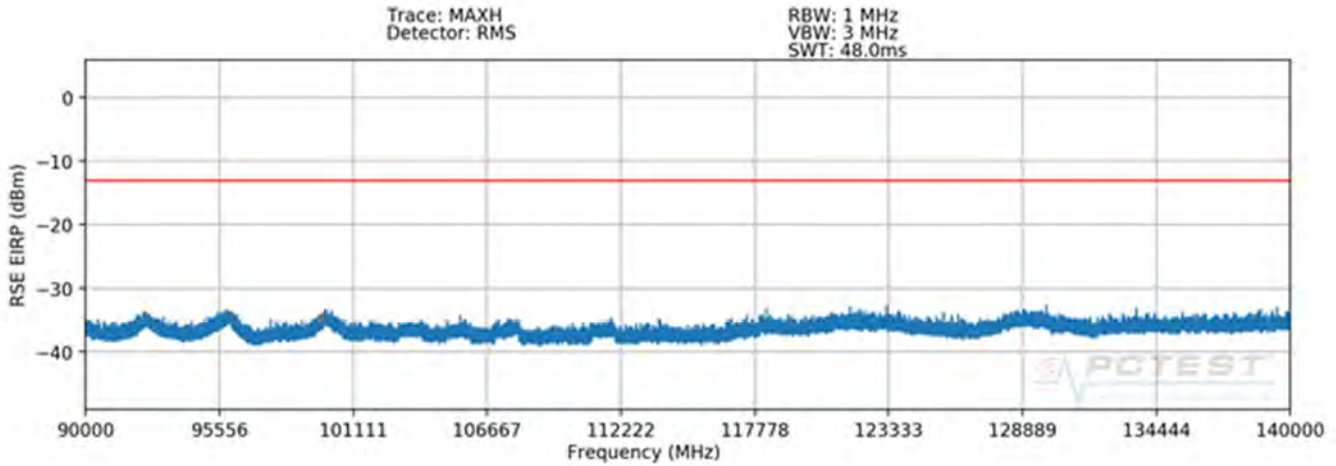
$$(-41.56 \text{ dBm} + -41.88 \text{ dBm}) = (69.79 \text{ nW} + 64.88 \text{ nW}) = (134.67 \text{ nW}) = -38.71 \text{ dBm}$$

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|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 162 of 371 |

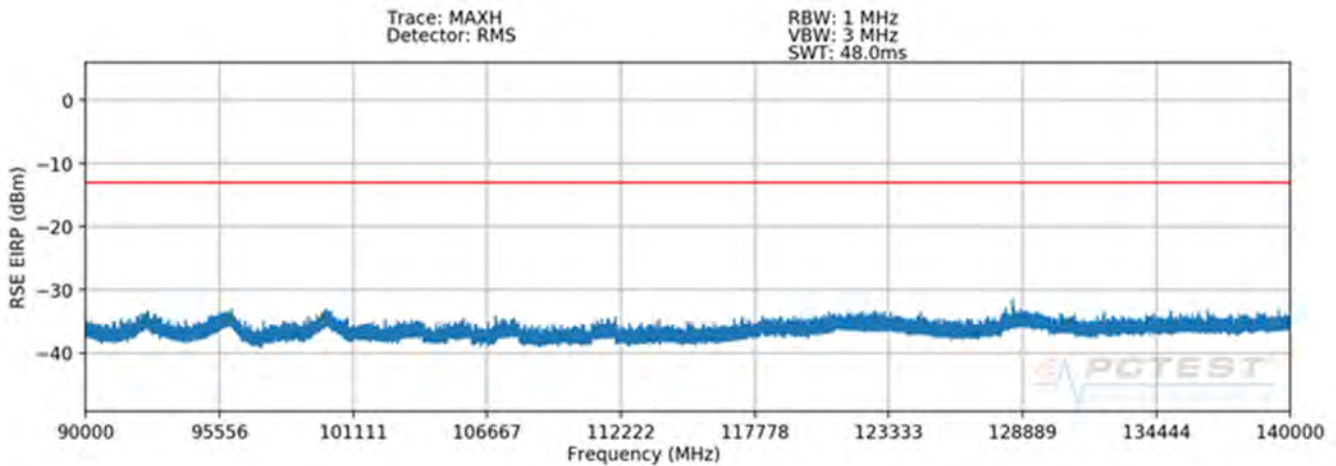
90 – 140GHz(n260)



Plot 7-255. J Dipole Radiated Spurious Plot 90-140 GHz (1CC QPSK Low Channel H Beam – n260)

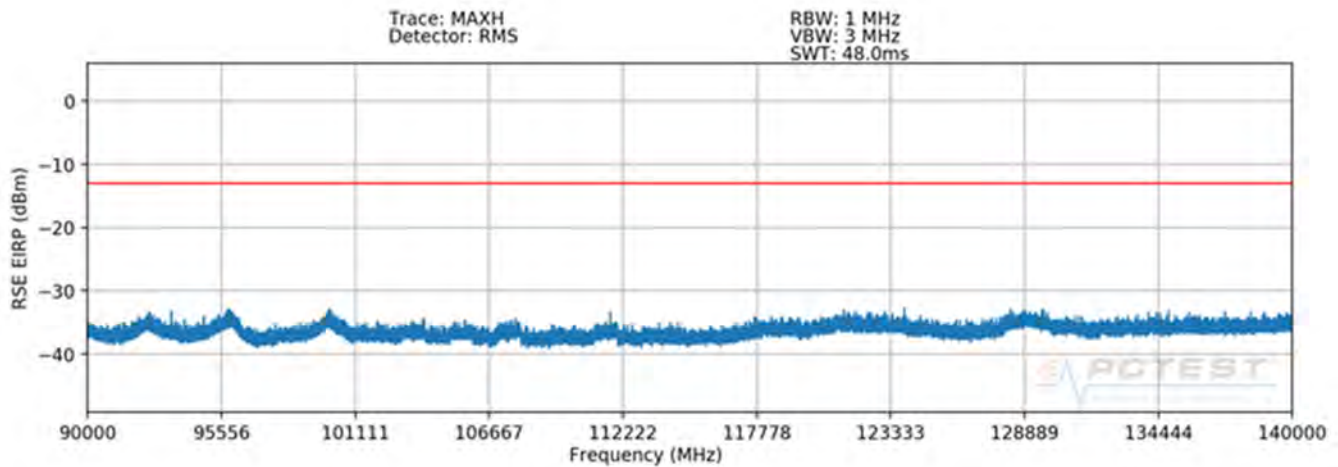


Plot 7-256. J Dipole Radiated Spurious Plot 90-140 GHz (1CC QPSK Mid Channel H Beam – n260)

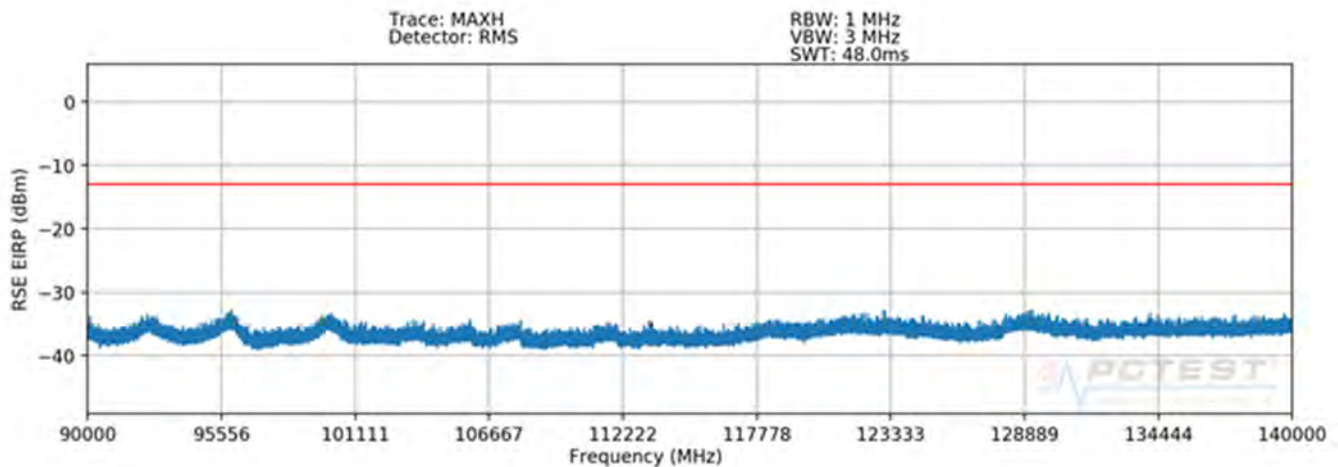


Plot 7-257. J Dipole Radiated Spurious Plot 90-140 GHz (1CC QPSK High Channel H Beam – n260)

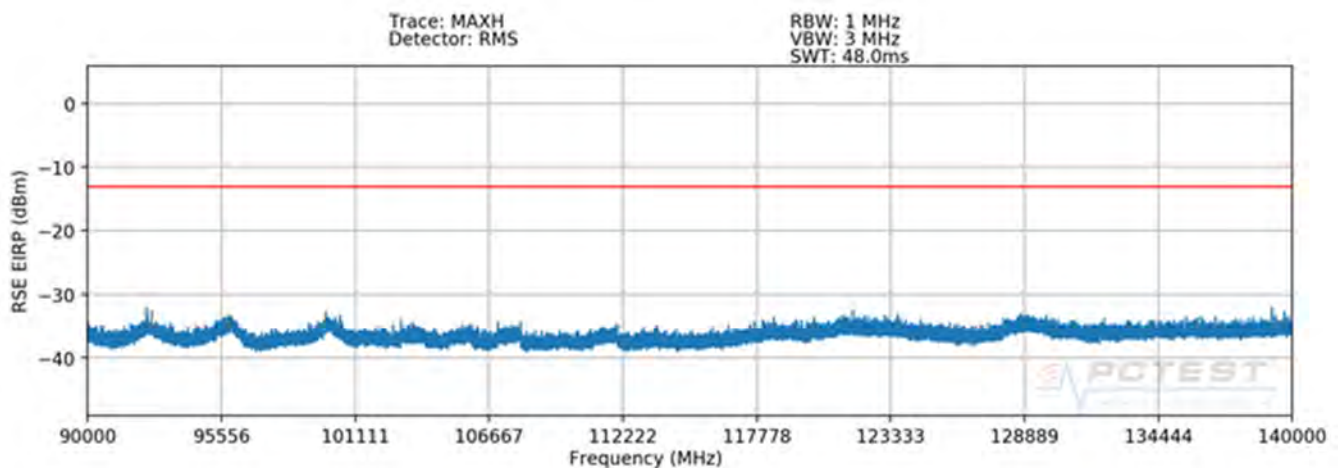
| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 163 of 371 |



Plot 7-258. J Dipole Radiated Spurious Plot 90-140 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-259. J Dipole Radiated Spurious Plot 90-140 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-260. J Dipole Radiated Spurious Plot 90-140 GHz (1CC QPSK High Channel V Beam – n260)

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|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 164 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL[dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 100001.00 | RMS/Avg | Low | 50 | QPSK | H | H | - | - | -41.11 | -13.00 | -28.11 |
| 95999.00 | RMS/Avg | Mid | 50 | QPSK | H | H | - | - | -39.73 | -13.00 | -26.73 |
| 128533.50 | RMS/Avg | High | 50 | QPSK | H | H | - | - | -39.58 | -13.00 | -26.58 |
| 100026.50 | RMS/Avg | Low | 50 | QPSK | V | H | - | - | -40.09 | -13.00 | -27.09 |
| 128536.50 | RMS/Avg | Mid | 50 | QPSK | V | H | - | - | -39.94 | -13.00 | -26.94 |
| 96089.50 | RMS/Avg | High | 50 | QPSK | V | H | - | - | -40.06 | -13.00 | -27.06 |

Table 7-50. J Dipole Spurious Emissions Table (90-140GHz – n260)

Notes

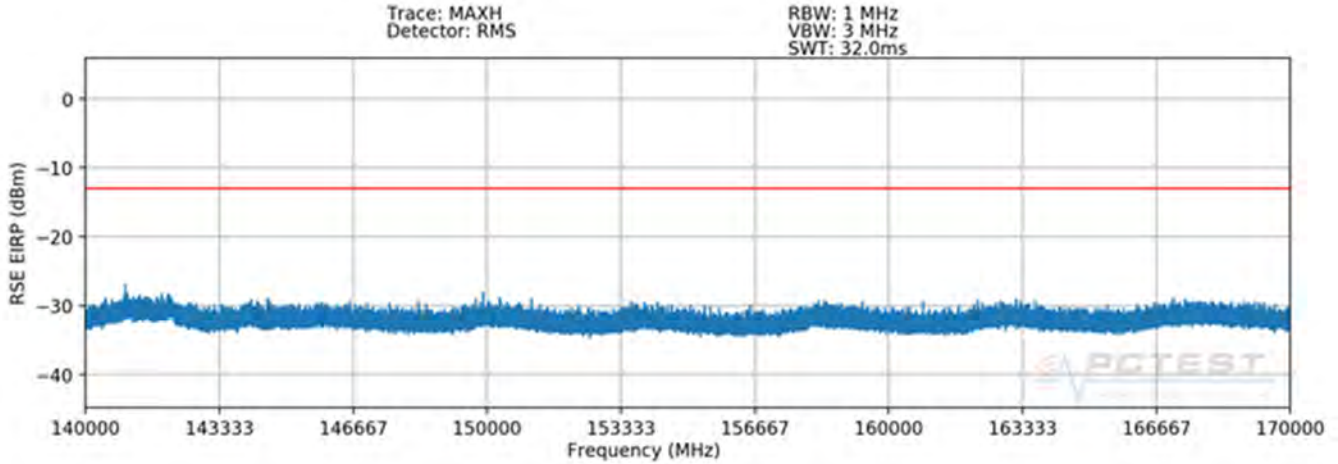
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

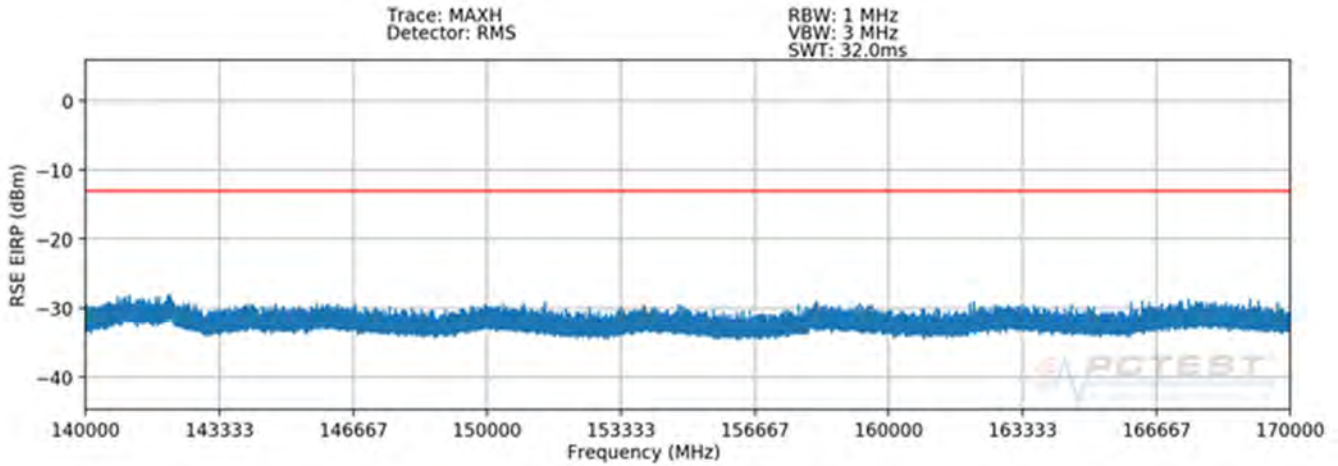
$$(-39.58 \text{ dBm} + -40.06 \text{ dBm}) = (110.20 \text{ nW} + 98.74 \text{ nW}) = (208.95 \text{ nW}) = -36.80 \text{ dBm}$$

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|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 165 of 371 |

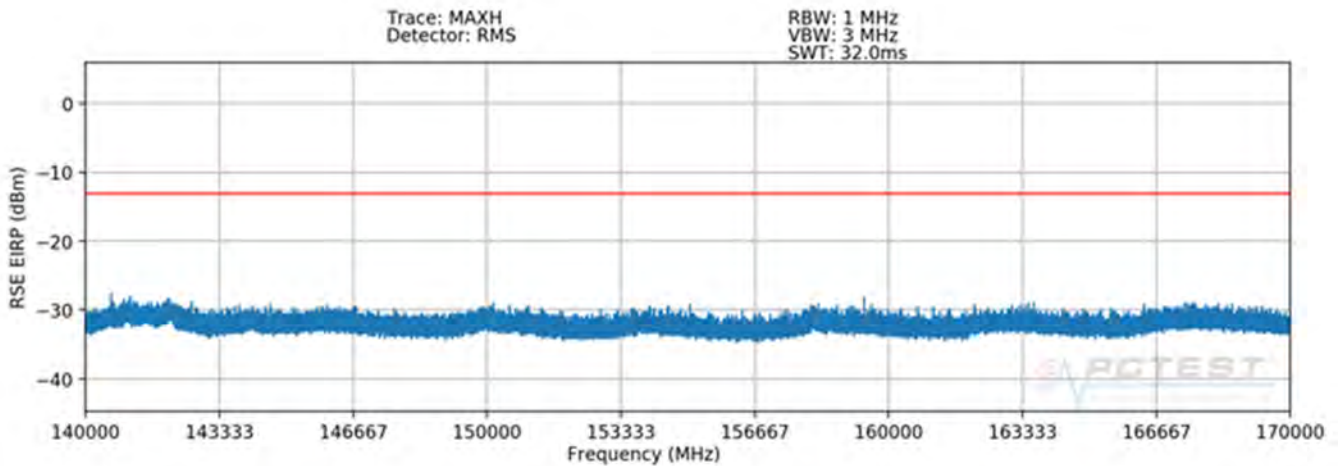
140 – 170GHz(n260)



Plot 7-261. J Dipole Radiated Spurious Plot 140-170 GHz (1CC QPSK Low Channel H Beam – n260)

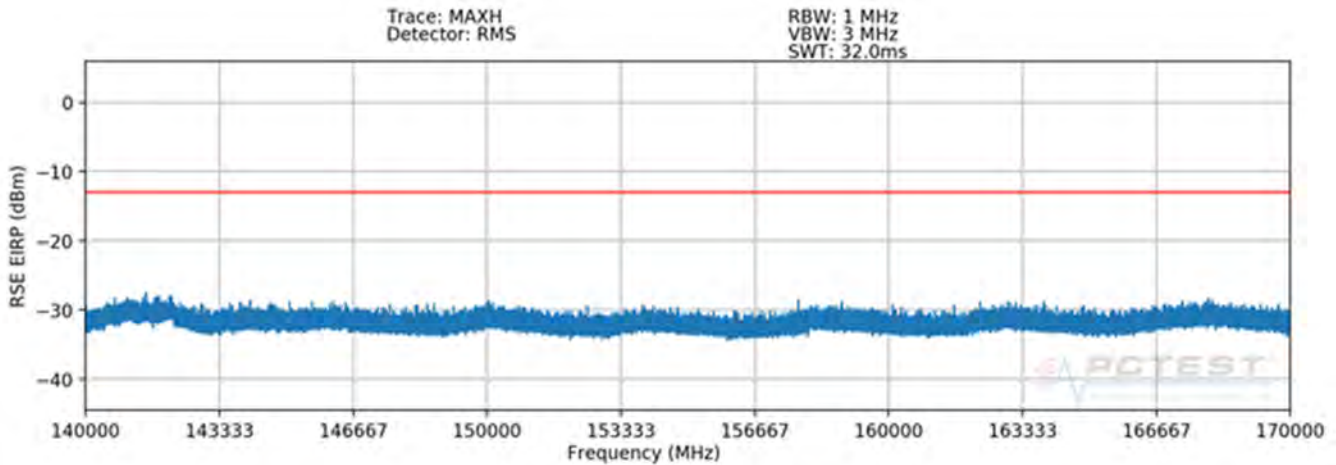


Plot 7-262. J Dipole Radiated Spurious Plot 140-170 GHz (1CC QPSK Mid Channel H Beam – n260)

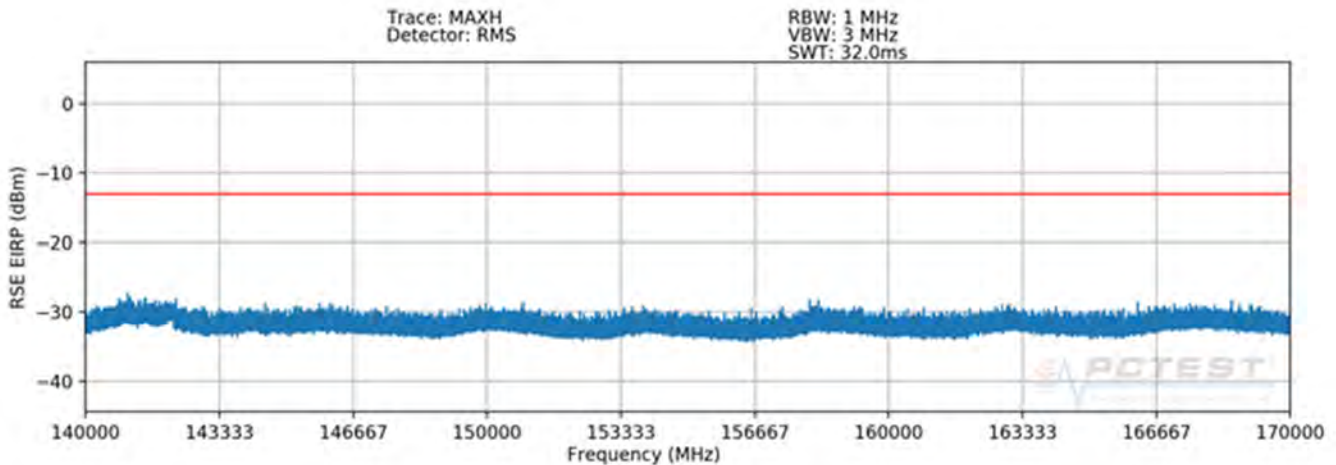


Plot 7-263. J Dipole Radiated Spurious Plot 140-170 GHz (1CC QPSK High Channel H Beam – n260)

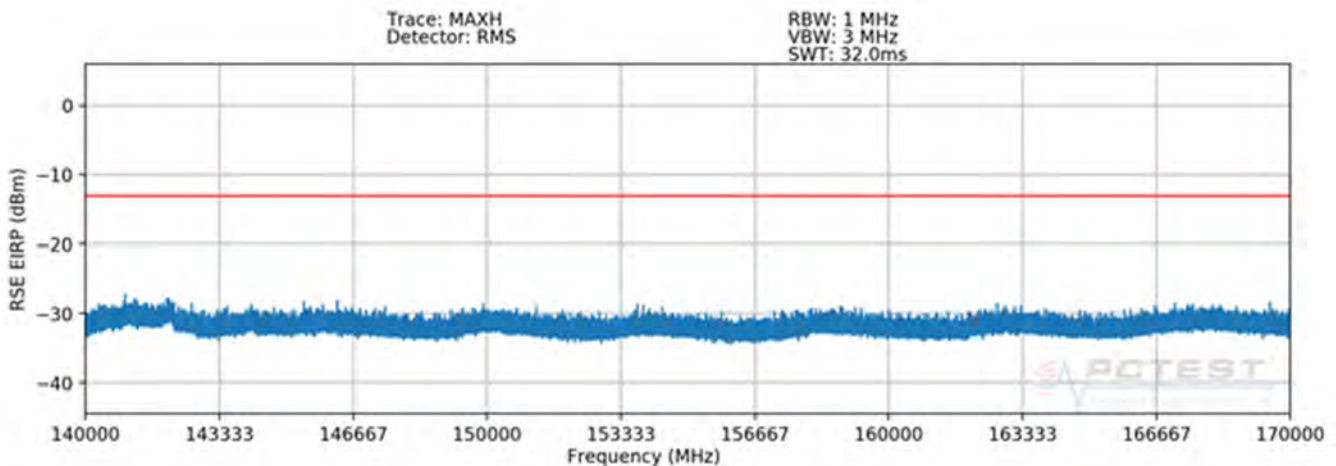
| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 166 of 371 |



Plot 7-264. J Dipole Radiated Spurious Plot 140-170 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-265. J Dipole Radiated Spurious Plot 140-170 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-266. J Dipole Radiated Spurious Plot 140-170 GHz (1CC QPSK High Channel V Beam – n260)

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|--|---|---|--|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 167 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL[dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 142116.00 | RMS/Avg | Low | 50 | QPSK | H | H | - | - | -35.53 | -13.00 | -22.53 |
| 142103.00 | RMS/Avg | Mid | 50 | QPSK | H | H | - | - | -34.73 | -13.00 | -21.73 |
| 142122.00 | RMS/Avg | High | 50 | QPSK | H | H | - | - | -34.78 | -13.00 | -21.78 |
| 142085.00 | RMS/Avg | Low | 50 | QPSK | V | H | - | - | -34.97 | -13.00 | -21.97 |
| 142149.00 | RMS/Avg | Mid | 50 | QPSK | V | H | - | - | -34.72 | -13.00 | -21.72 |
| 142071.00 | RMS/Avg | High | 50 | QPSK | V | H | - | - | -34.69 | -13.00 | -21.69 |

Table 7-51. J Dipole Spurious Emissions Table (140-170GHz – n260)

Notes

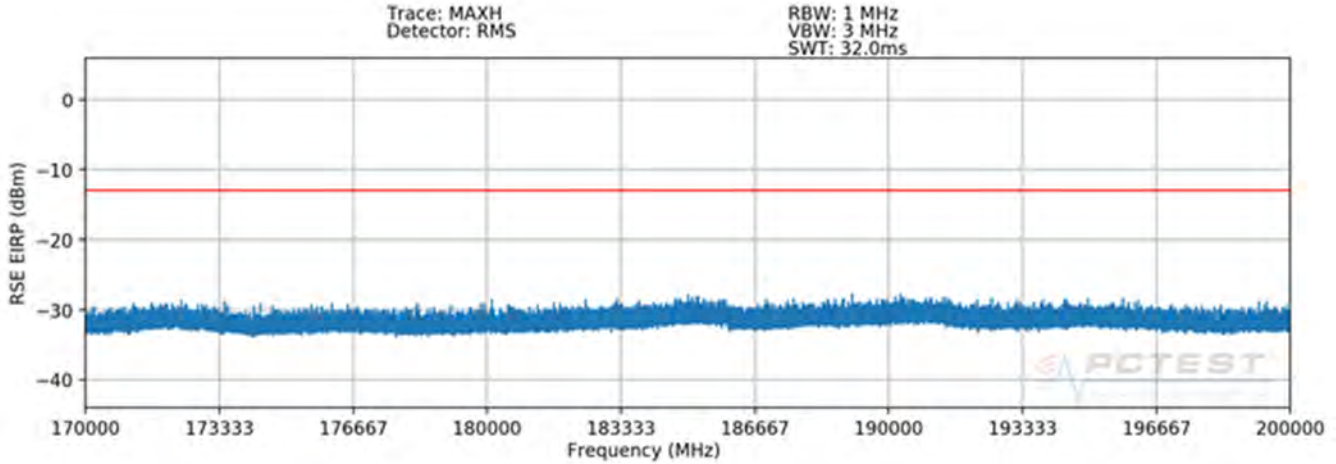
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

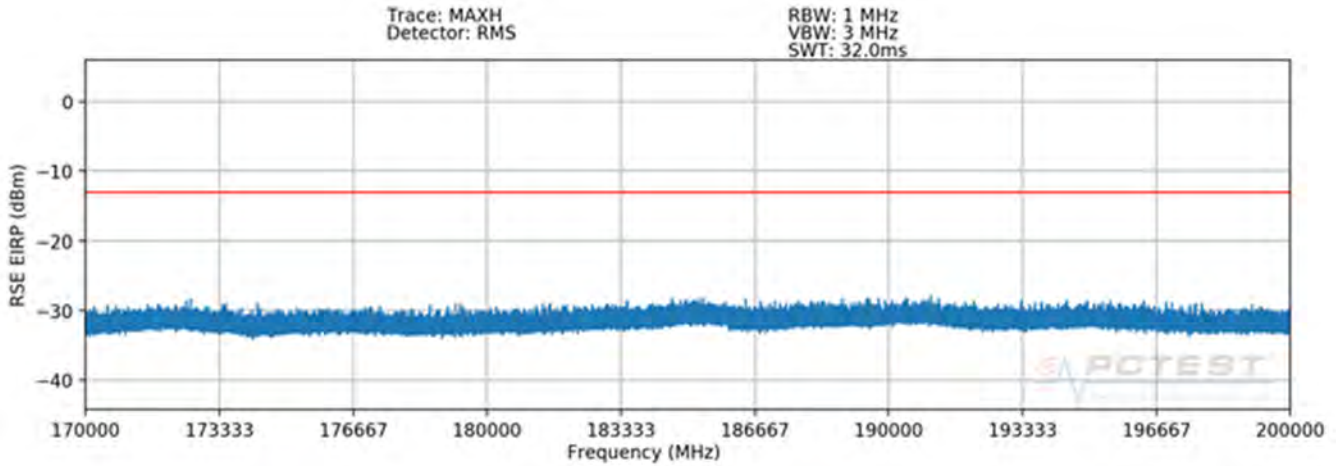
$$(-34.73 \text{ dBm} + -34.72 \text{ dBm}) = (336.90 \text{ nW} + 337.21 \text{ nW}) = (674.11 \text{ nW}) = -31.71 \text{ dBm}$$

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|--|---|---------------------------------------|---|---------------------------------|
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| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 168 of 371 |

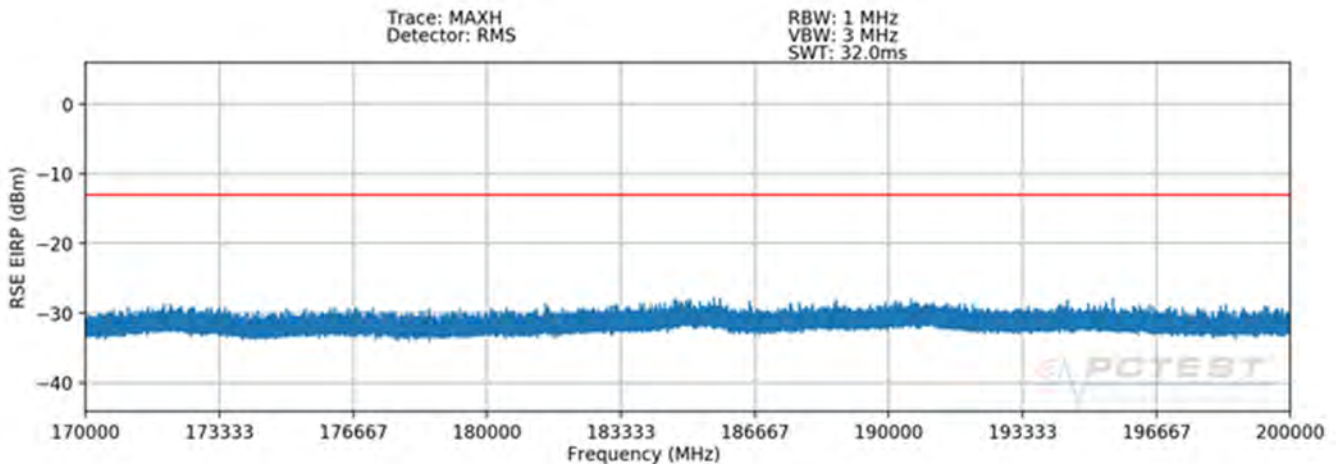
170 – 200GHz(n260)



Plot 7-267. J Dipole Radiated Spurious Plot 170-200 GHz (1CC QPSK Low Channel H Beam – n260)

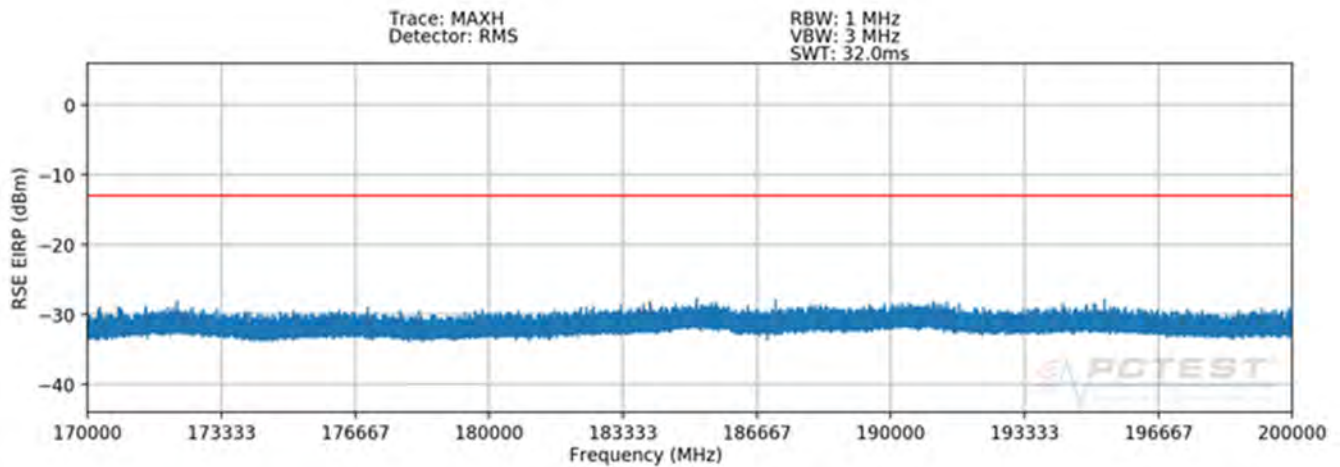


Plot 7-268. J Dipole Radiated Spurious Plot 170-200 GHz (1CC QPSK Mid Channel H Beam – n260)

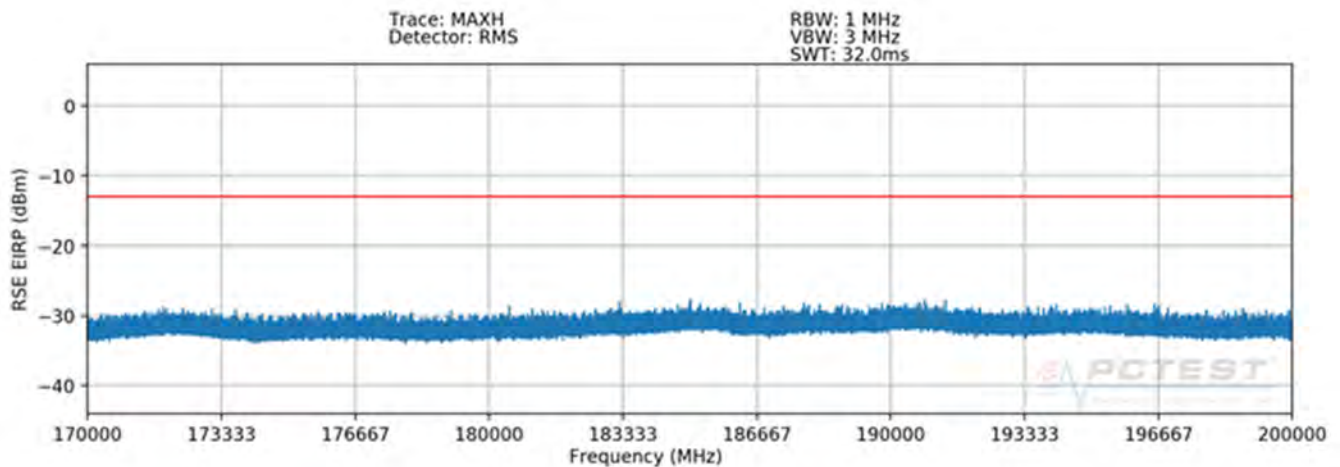


Plot 7-269. J Dipole Radiated Spurious Plot 170-200 GHz (1CC QPSK High Channel H Beam – n260)

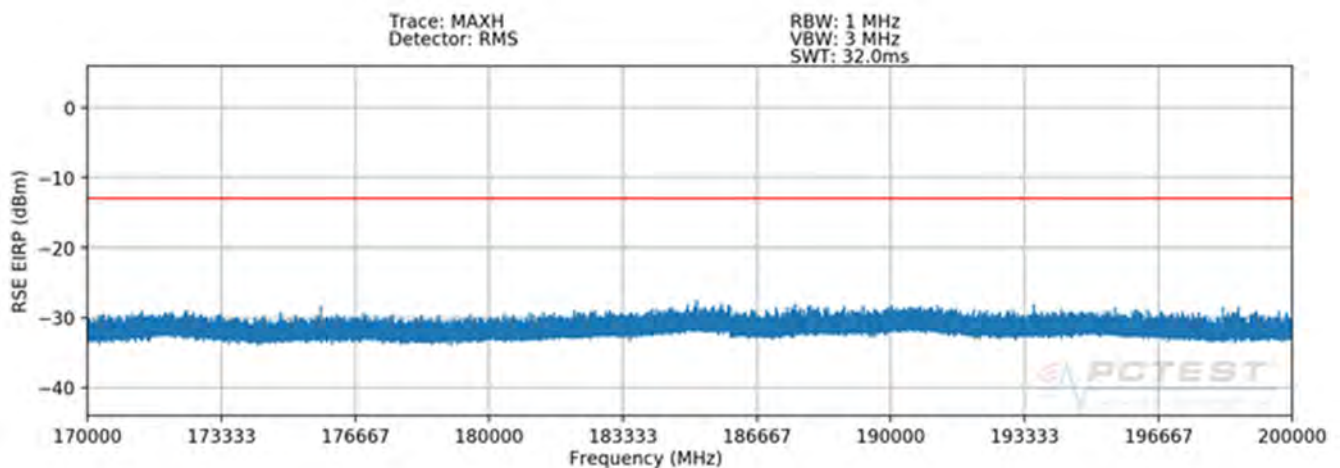
| | | | | |
|--|---|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 169 of 371 |



Plot 7-270. J Dipole Radiated Spurious Plot 170-200 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-271. J Dipole Radiated Spurious Plot 170-200 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-272. J Dipole Radiated Spurious Plot 170-200 GHz (1CC QPSK High Channel V Beam – n260)

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|--|---|---|----------------|---------------------------------|
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| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 170 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL[dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 191052.00 | RMS/Avg | Low | 50 | QPSK | H | H | - | - | -36.00 | -13.00 | -23.00 |
| 190293.50 | RMS/Avg | Mid | 50 | QPSK | H | H | - | - | -35.31 | -13.00 | -22.31 |
| 191121.00 | RMS/Avg | High | 50 | QPSK | H | H | - | - | -35.20 | -13.00 | -22.20 |
| 190357.50 | RMS/Avg | Low | 50 | QPSK | V | H | - | - | -35.46 | -13.00 | -22.46 |
| 191213.00 | RMS/Avg | Mid | 50 | QPSK | V | H | - | - | -35.11 | -13.00 | -22.11 |
| 190822.00 | RMS/Avg | High | 50 | QPSK | V | H | - | - | -35.34 | -13.00 | -22.34 |

Table 7-52. J Dipole Spurious Emissions Table (170-200GHz – n260)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

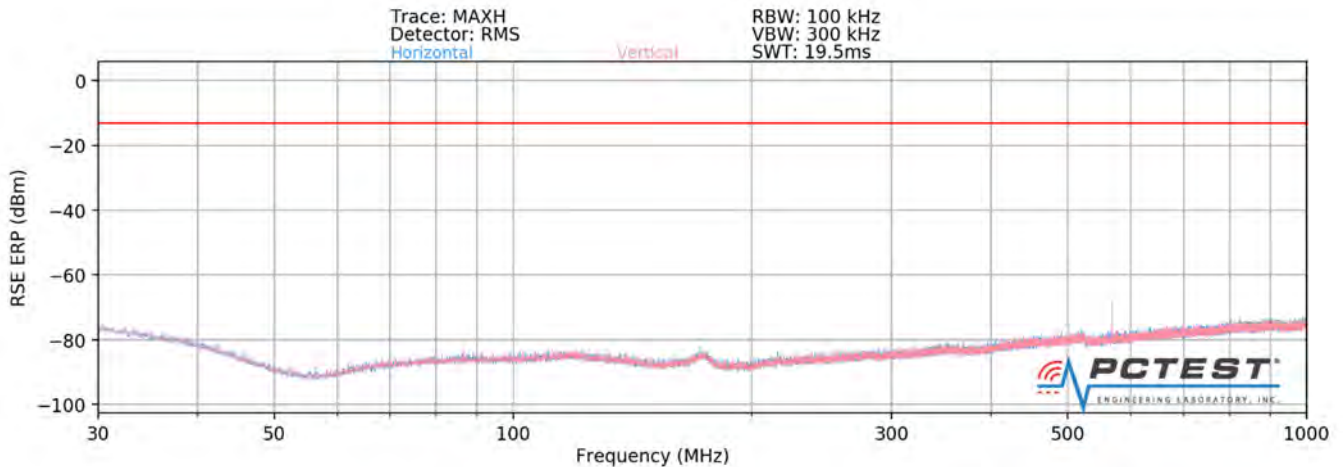
$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

$$(-35.31 \text{ dBm} + -35.11 \text{ dBm}) = (294.17 \text{ nW} + 308.60 \text{ nW}) = (602.77 \text{ nW}) = -32.20 \text{ dBm}$$

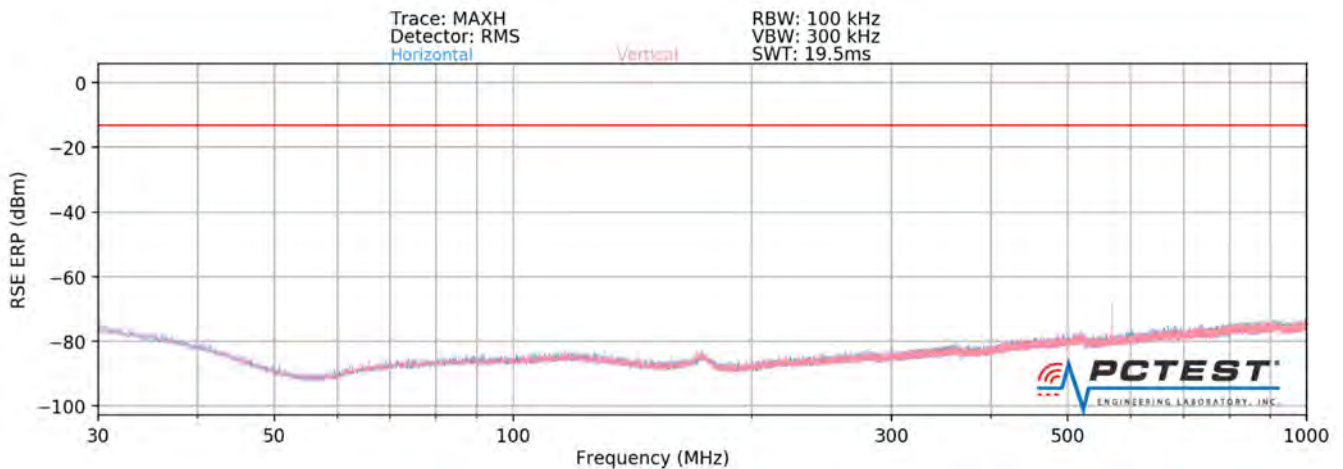
| | | | | |
|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 171 of 371 |

J Patch Radiated Spurious Emissions(n260)

30MHz – 1GHz(n260)



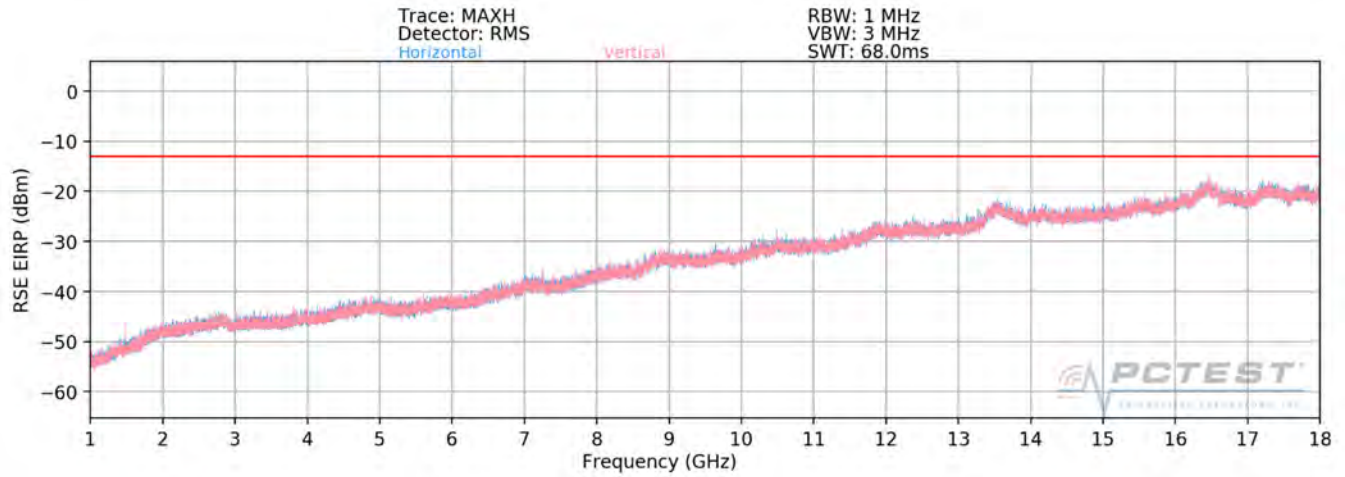
Plot 7-273. J Patch Radiated Spurious Plot 30 MHz - 1 GHz (1CC QPSK Mid Channel H Beam – n260)



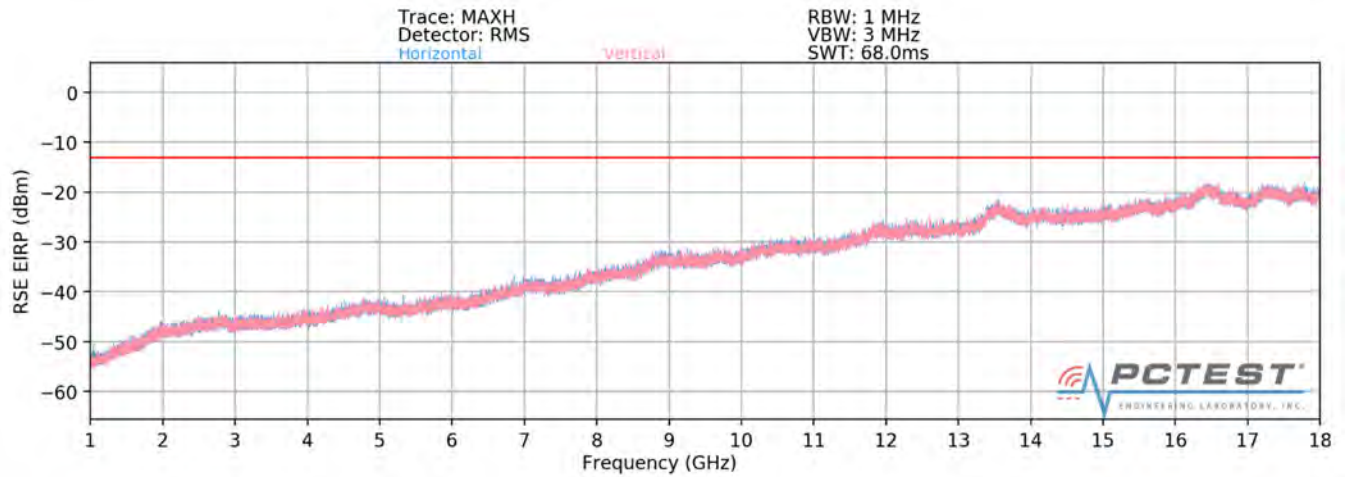
Plot 7-274. J Patch Radiated Spurious Plot 30 MHz - 1 GHz (1CC QPSK Mid Channel V Beam – n260)

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|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 172 of 371 |

1 – 18GHz(n260)



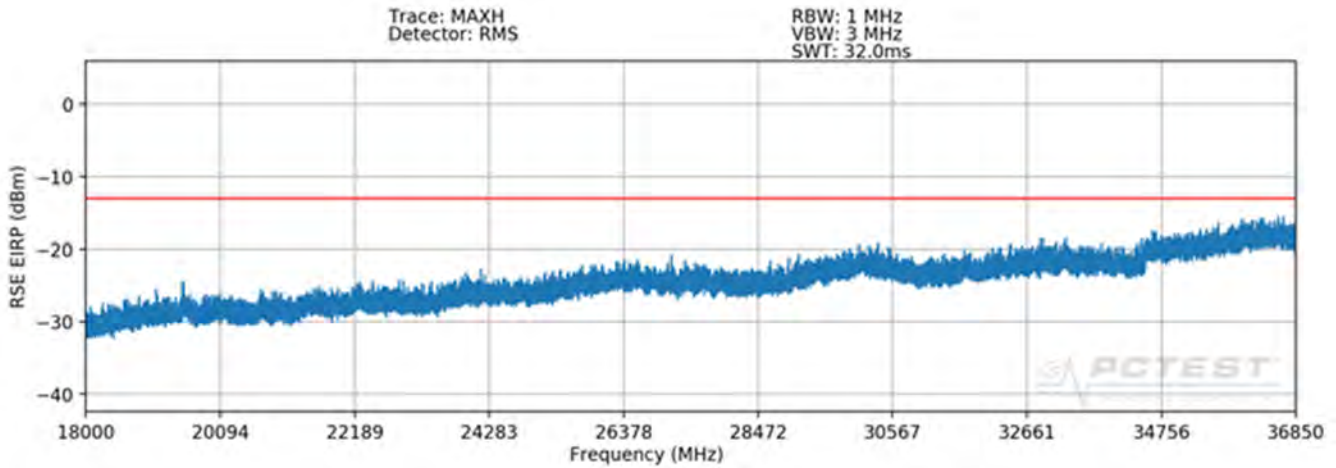
Plot 7-275. J Patch Radiated Spurious Plot 1-18 GHz (1CC QPSK Mid Channel H Beam – n260)



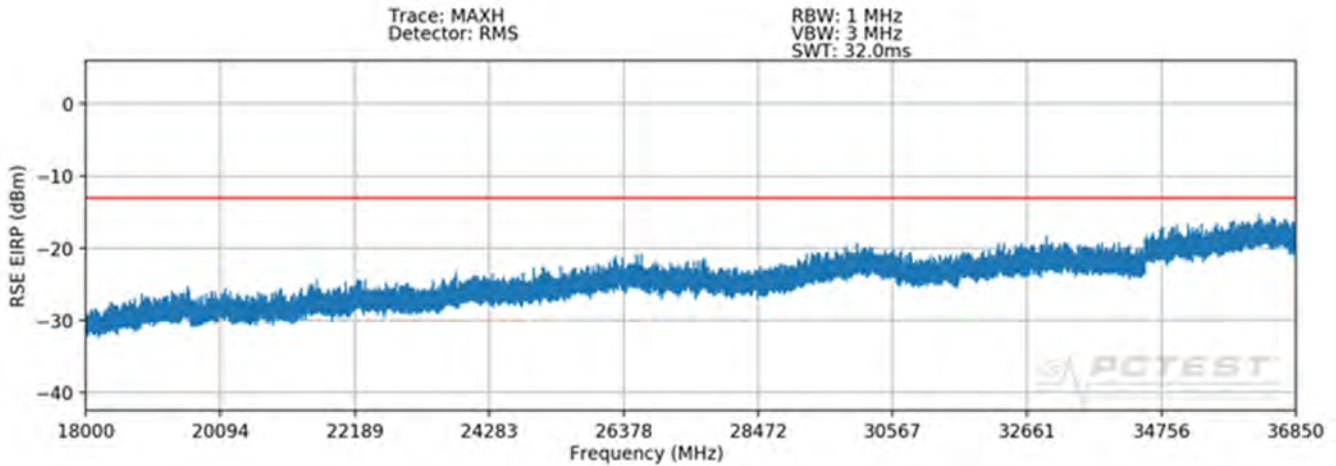
Plot 7-276. J Patch Radiated Spurious Plot 1-18 GHz (1CC QPSK Mid Channel V Beam – n260)

| | | | | |
|--|---|--|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 173 of 371 |

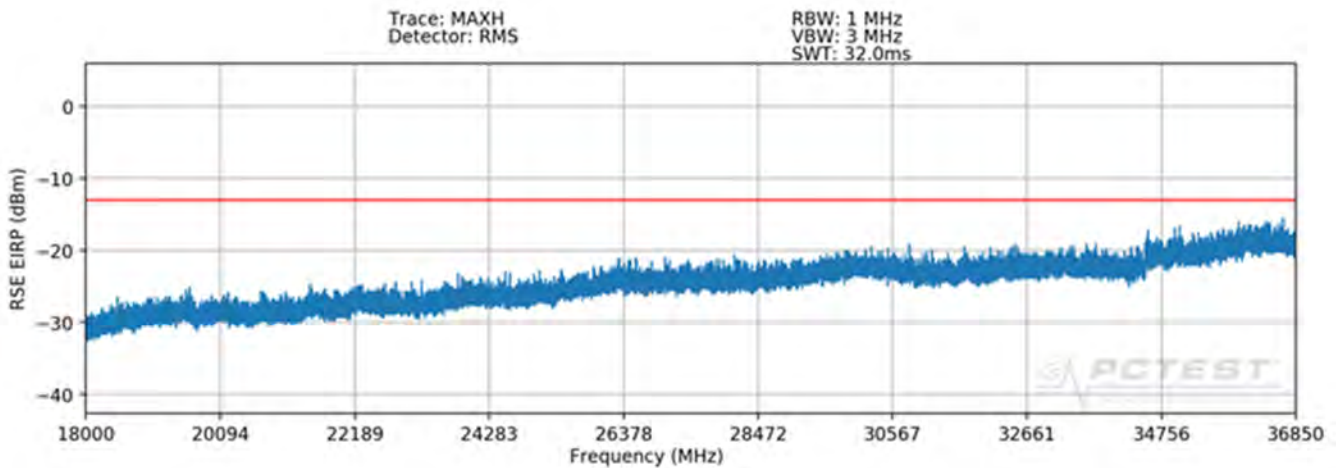
18 – 36.85GHz(n260)



Plot 7-277. J Patch Radiated Spurious Plot 18-36.85 GHz (1CC QPSK Low Channel H Beam – n260)

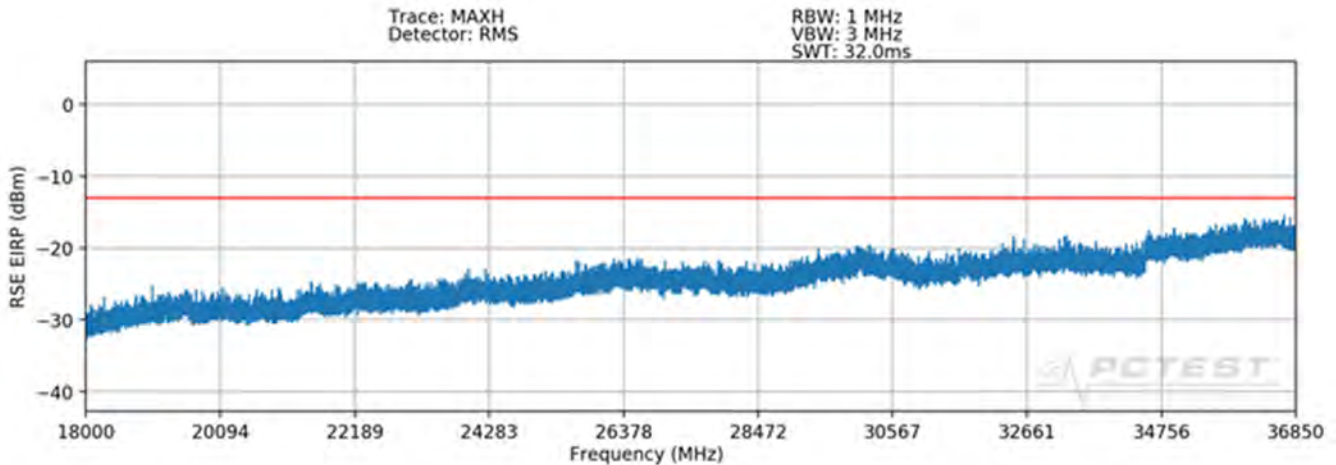


Plot 7-278. J Patch Radiated Spurious Plot 18-36.85 GHz (1CC QPSK Mid Channel H Beam – n260)

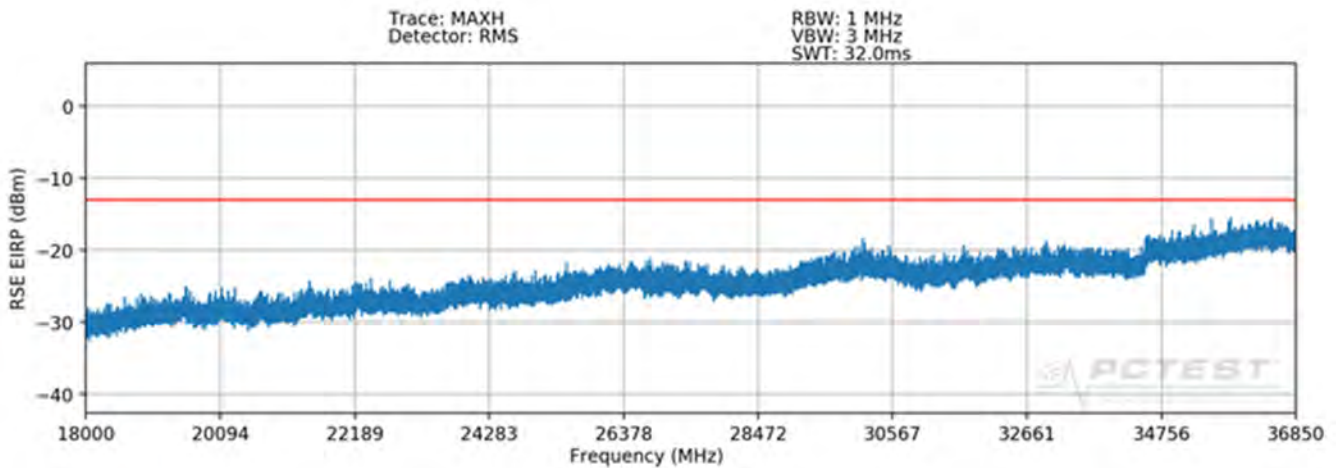


Plot 7-279. J Patch Radiated Spurious Plot 18-36.85 GHz (1CC QPSK High Channel H Beam – n260)

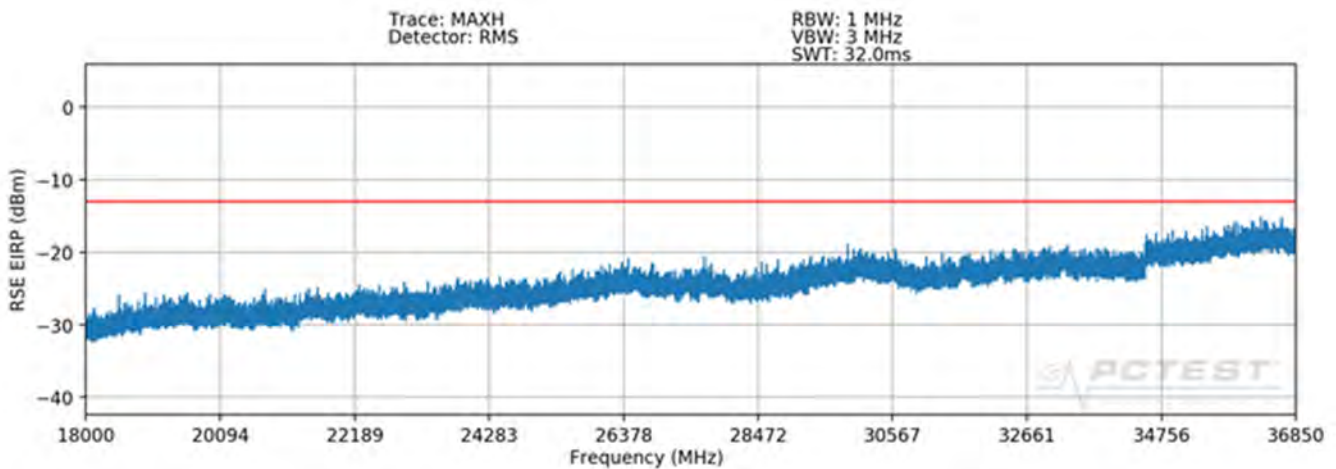
| | | | | |
|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 174 of 371 |



Plot 7-280. J Patch Radiated Spurious Plot 18-36.85 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-281. J Patch Radiated Spurious Plot 18-36.85 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-282. J Patch Radiated Spurious Plot 18-36.85 GHz (1CC QPSK High Channel V Beam – n260)

| | | | | |
|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 175 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 28454.00 | RMS/Avg | Low | 50 | QPSK | H | H | 133 | 96 | -33.92 | -13.00 | -20.92 |
| 29577.50 | RMS/Avg | Mid | 50 | QPSK | H | H | 94 | 94 | -30.56 | -13.00 | -17.56 |
| 31180.50 | RMS/Avg | High | 50 | QPSK | H | H | 87 | 94 | -22.68 | -13.00 | -9.68 |
| 28454.00 | RMS/Avg | Low | 50 | QPSK | V | V | 78 | 251 | -31.38 | -13.00 | -18.38 |
| 29577.50 | RMS/Avg | Mid | 50 | QPSK | V | V | 79 | 279 | -25.46 | -13.00 | -12.46 |
| 31180.50 | RMS/Avg | High | 50 | QPSK | V | V | 80 | 277 | -18.76 | -13.00 | -5.76 |

Table 7-53. J Patch Spurious Emissions Table (18-36.85GHz – n260)

Notes

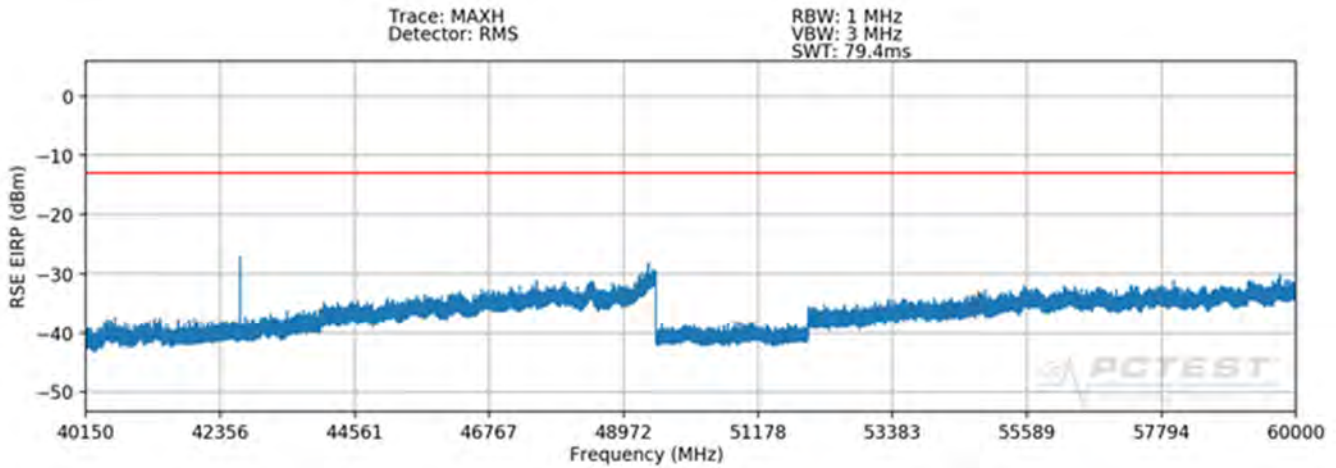
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

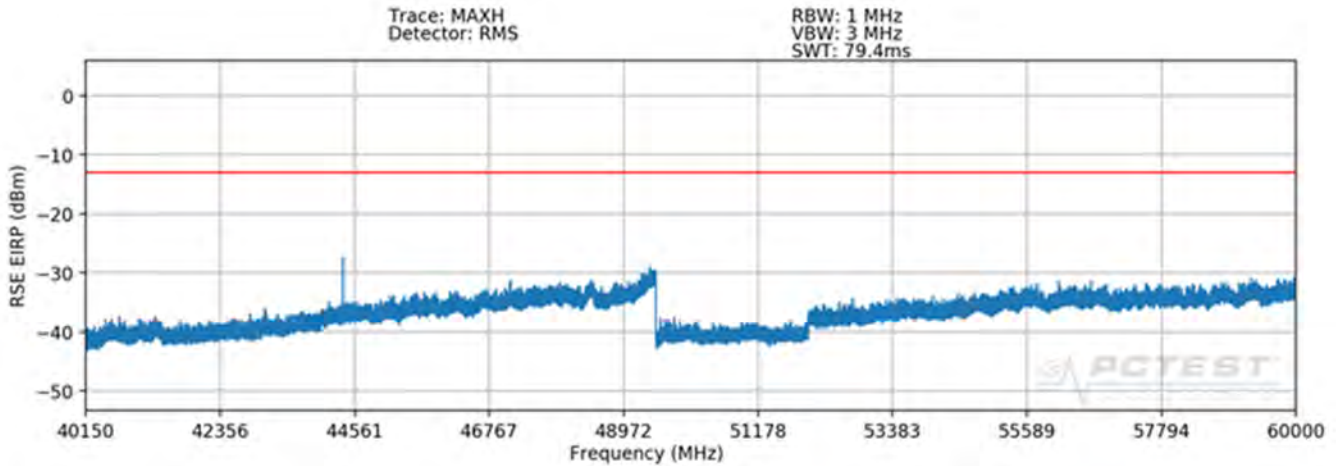
$$(-22.68 \text{ dBm} + -18.76 \text{ dBm}) = (5.40 \text{ } \mu\text{W} + 13.31 \text{ } \mu\text{W}) = (18.71 \text{ } \mu\text{W}) = -17.28 \text{ dBm}$$

| | | | | |
|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 176 of 371 |

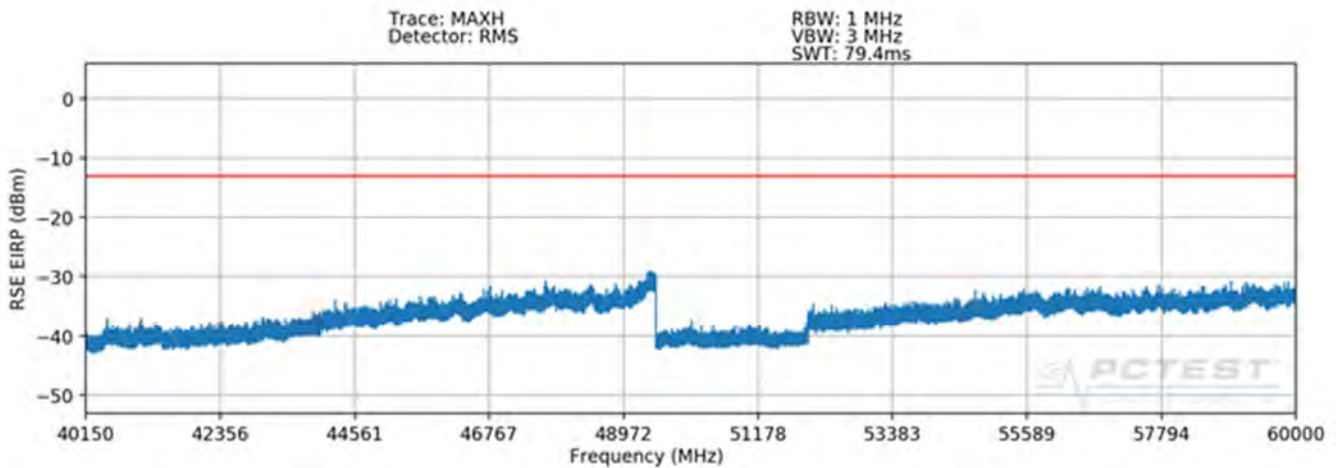
40.15 – 60GHz(n260)



Plot 7-283. J Patch Radiated Spurious Plot 40.15-60 GHz (1CC QPSK Low Channel H Beam – n260)

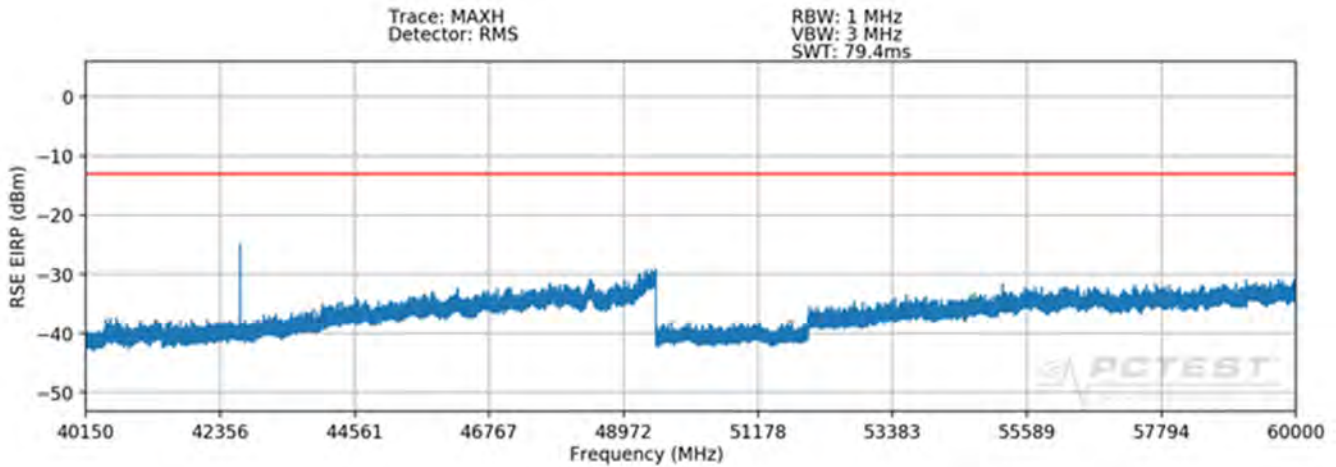


Plot 7-284. J Patch Radiated Spurious Plot 40.15-60 GHz (1CC QPSK Mid Channel H Beam – n260)

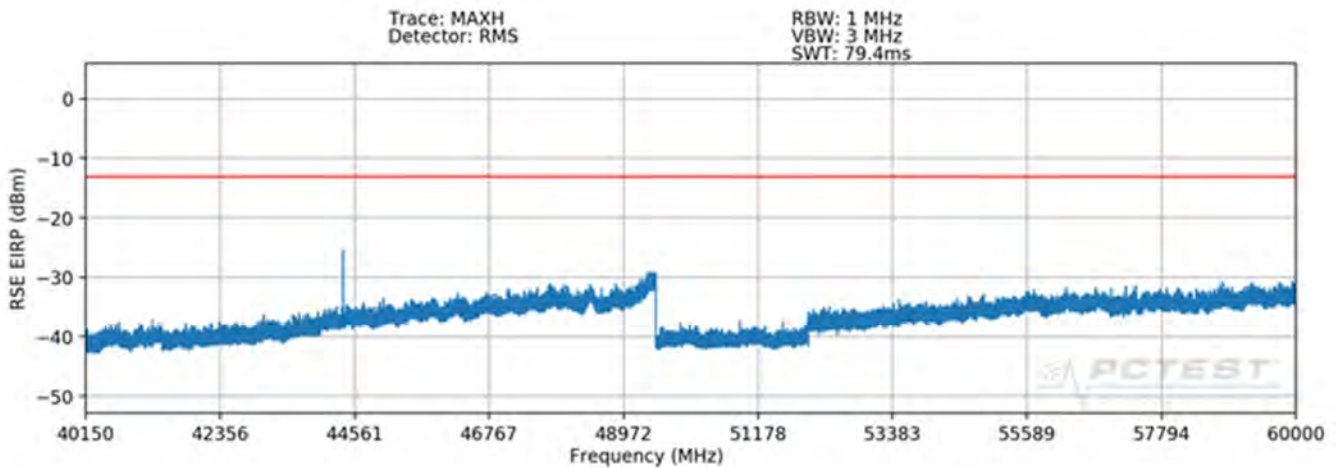


Plot 7-285. J Patch Radiated Spurious Plot 40.15-60 GHz (1CC QPSK High Channel H Beam – n260)

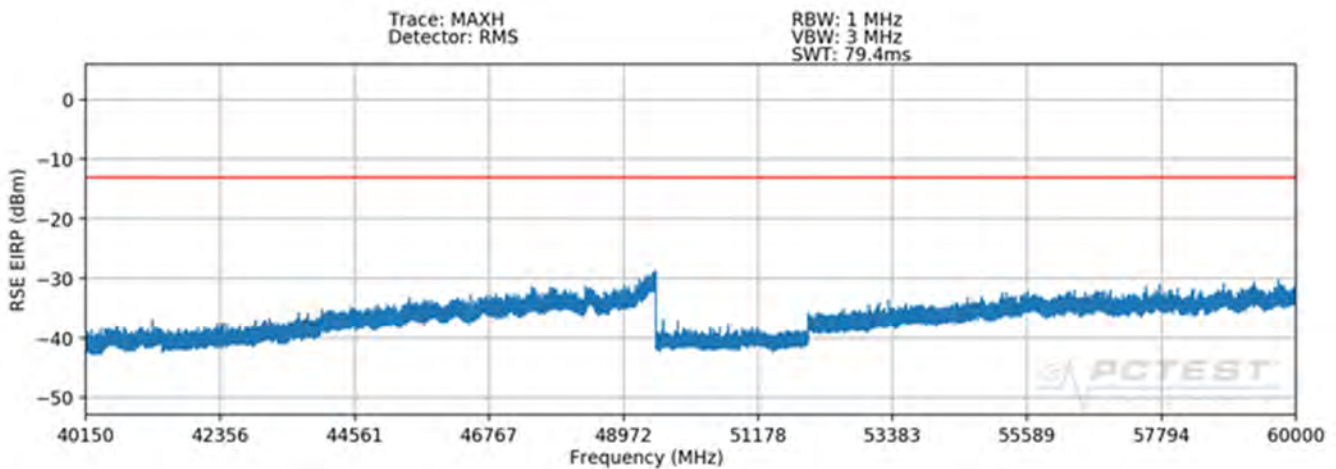
| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 177 of 371 |



Plot 7-286. J Patch Radiated Spurious Plot 40.15-60 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-287. J Patch Radiated Spurious Plot 40.15-60 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-288. J Patch Radiated Spurious Plot 40.15-60 GHz (1CC QPSK High Channel V Beam – n260)

| | | | |
|--|---|---|--|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | Page 178 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 42681.15 | RMS/Avg | Low | 50 | QPSK | H | H | 228 | 290 | -31.54 | -13.00 | -18.54 |
| 44366.28 | RMS/Avg | Mid | 50 | QPSK | H | H | 301 | 300 | -32.35 | -13.00 | -19.35 |
| 46771.12 | RMS/Avg | High | 50 | QPSK | H | H | 300 | 274 | -39.53 | -13.00 | -26.53 |
| 42681.47 | RMS/Avg | Low | 50 | QPSK | V | V | 82 | 279 | -24.75 | -13.00 | -11.75 |
| 44366.28 | RMS/Avg | Mid | 50 | QPSK | V | V | 57 | 281 | -30.79 | -13.00 | -17.79 |
| 46771.12 | RMS/Avg | High | 50 | QPSK | V | V | 54 | 283 | -38.22 | -13.00 | -25.22 |

Table 7-54. J Patch Spurious Emissions Table (40.15-60 GHz – n260)

Notes

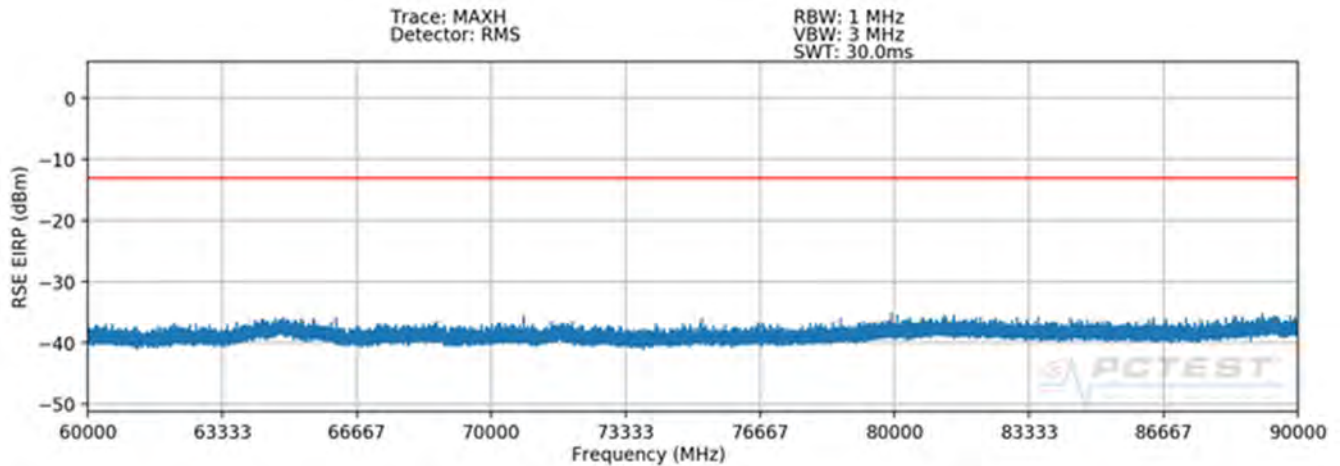
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1.5 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

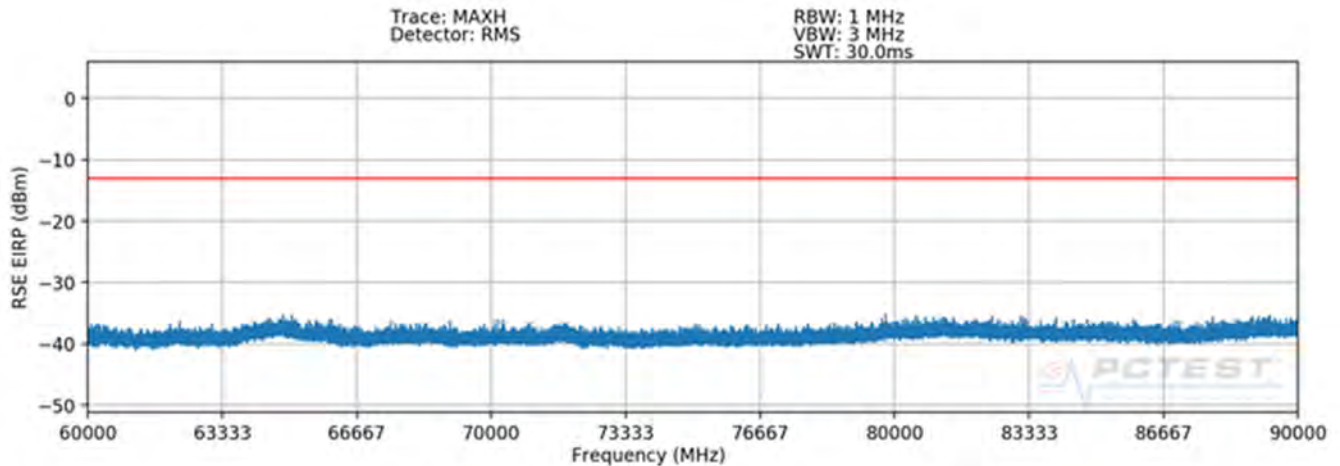
$$(-31.54 \text{ dBm} + -24.75 \text{ dBm}) = (701.46 \text{ nW} + 3349.65 \text{ nW}) = (4051.11 \text{ nW}) = -23.92 \text{ dBm}$$

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|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 179 of 371 |

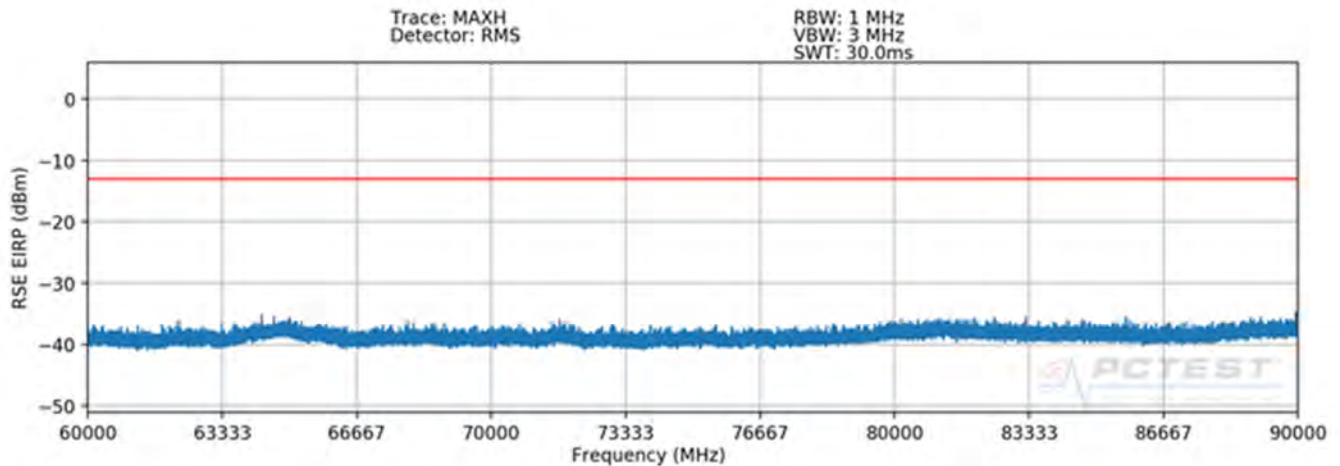
60 – 90GHz(n260)



Plot 7-289. J Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Low Channel H Beam – n260)

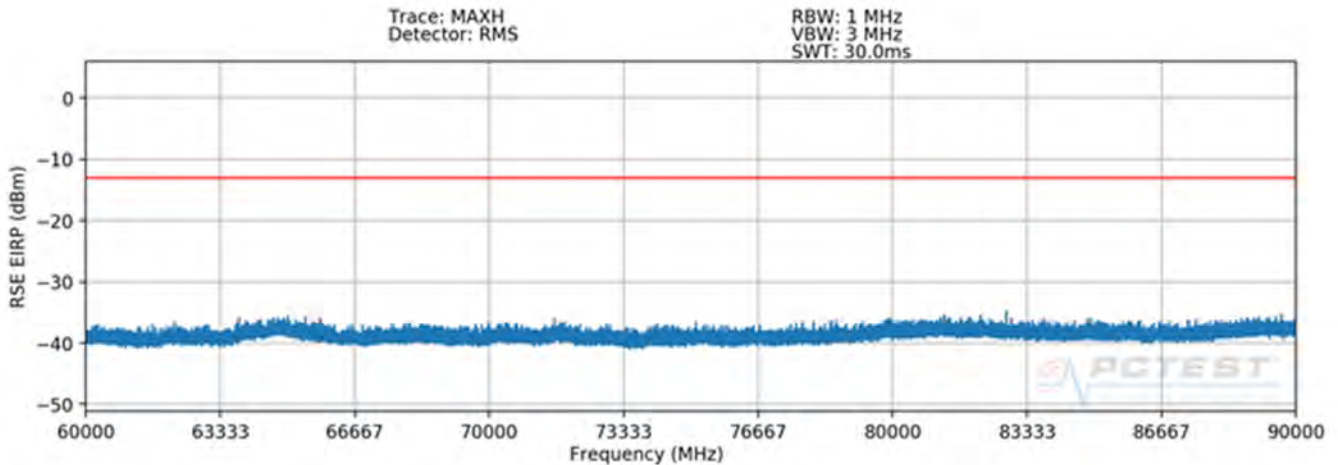


Plot 7-290. J Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Mid Channel H Beam – n260)

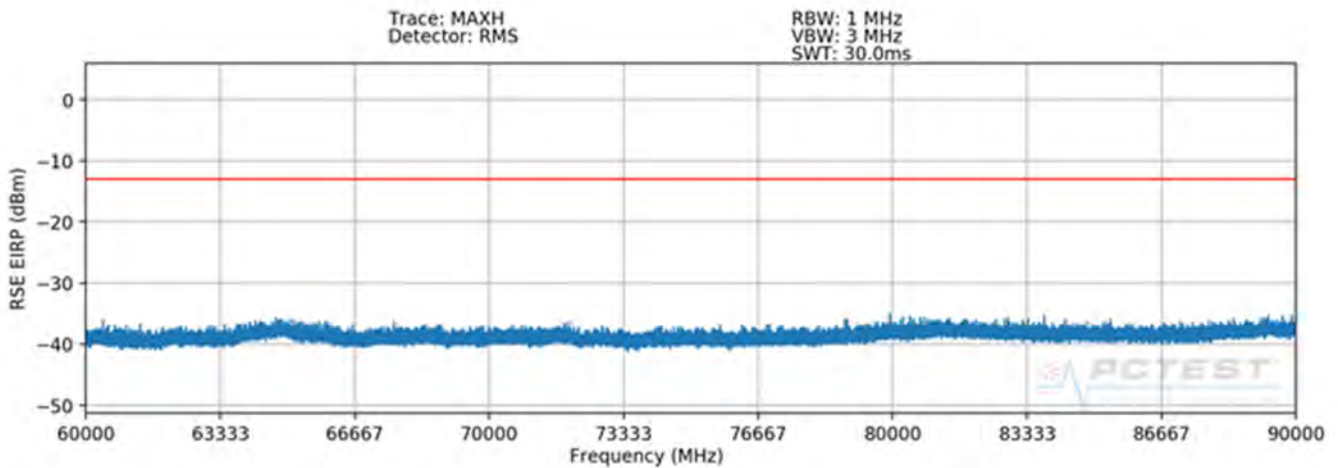


Plot 7-291. J Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK High Channel H Beam – n260)

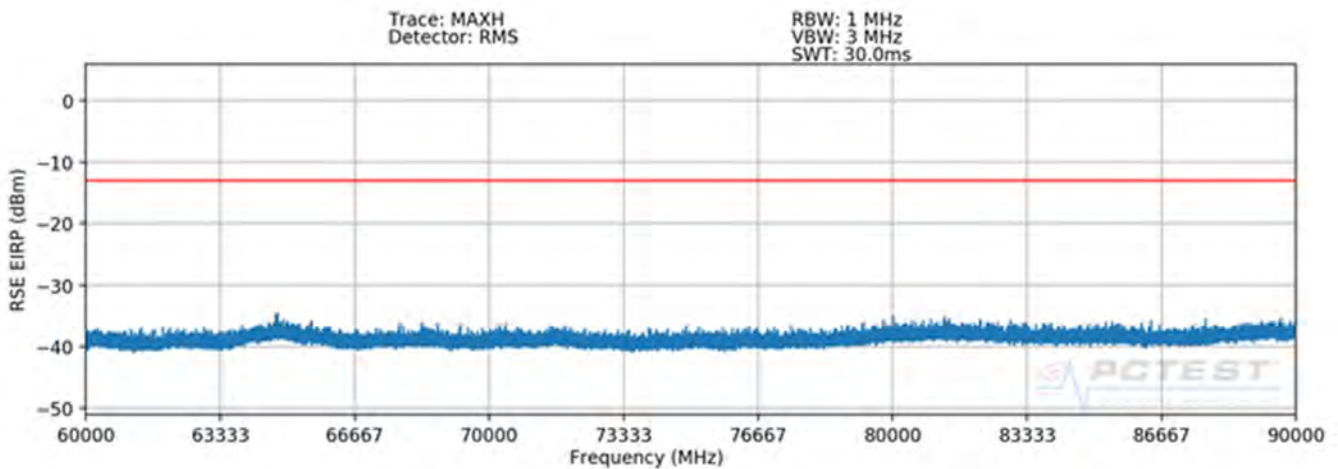
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|--|--|-------------------------------|---------------------------------|
| FCC ID: A3LSMN976V |  MEASUREMENT REPORT (CERTIFICATION)  | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | Page 180 of 371 |



Plot 7-292. J Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-293. J Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-294. J Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK High Channel V Beam – n260)

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|--|--|-------------------------------|---------------------------------|
| FCC ID: A3LSMN976V |  MEASUREMENT REPORT (CERTIFICATION)  | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | Page 181 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 89170.50 | RMS/Avg | Low | 50 | QPSK | H | H | - | - | -44.82 | -13.00 | -31.82 |
| 81378.50 | RMS/Avg | Mid | 50 | QPSK | H | H | - | - | -44.62 | -13.00 | -31.62 |
| 89419.00 | RMS/Avg | High | 50 | QPSK | H | H | - | - | -44.52 | -13.00 | -31.52 |
| 89465.50 | RMS/Avg | Low | 50 | QPSK | V | V | - | - | -44.80 | -13.00 | -31.80 |
| 64743.00 | RMS/Avg | Mid | 50 | QPSK | V | V | - | - | -44.74 | -13.00 | -31.74 |
| 81158.50 | RMS/Avg | High | 50 | QPSK | V | V | - | - | -44.98 | -13.00 | -31.98 |

Table 7-55. J Patch Spurious Emissions Table (60-90GHz – n260)

Notes

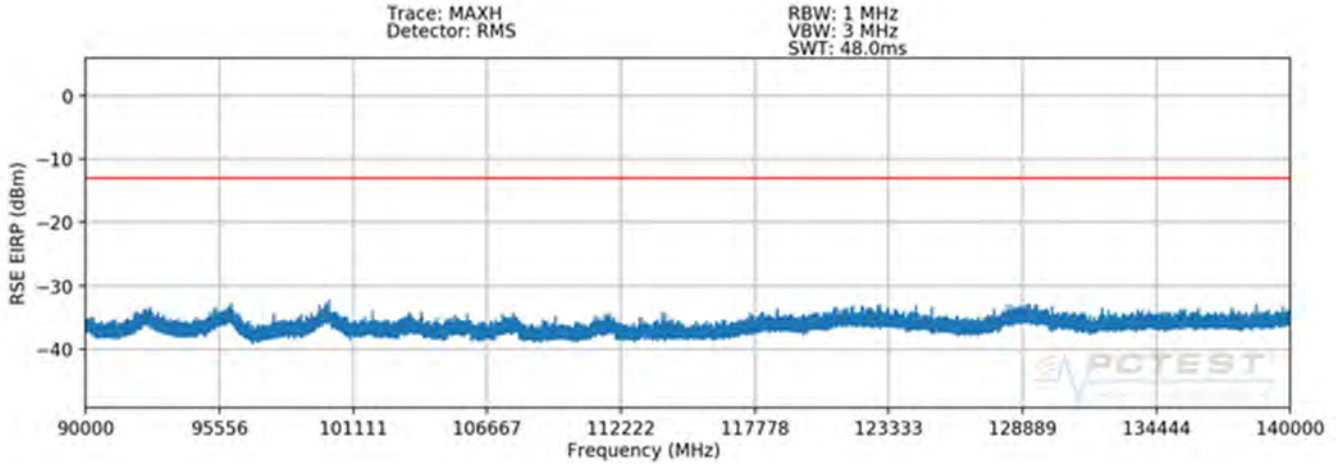
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

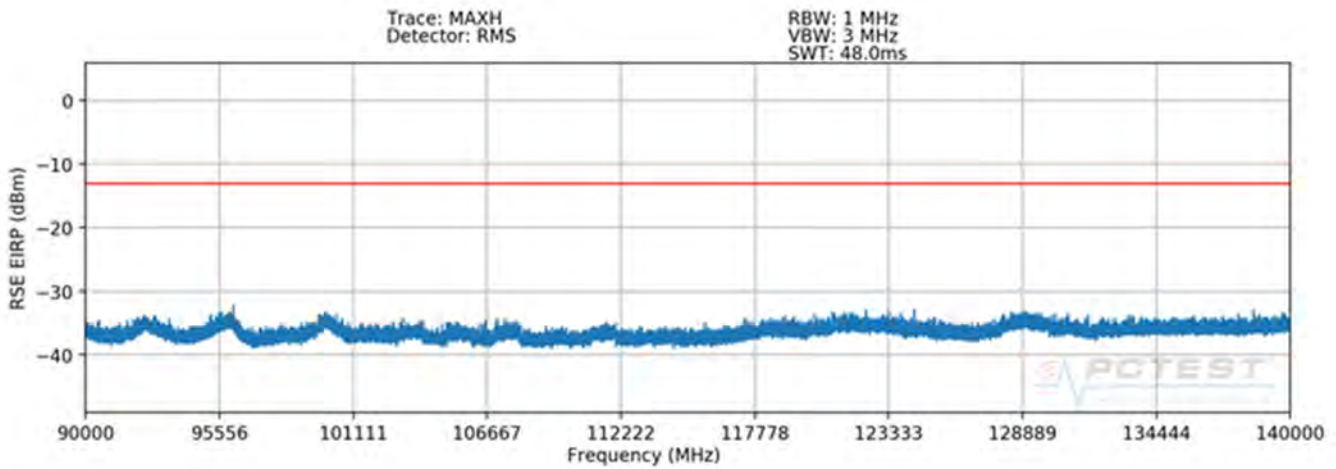
$$(-44.62 \text{ dBm} + -44.74 \text{ dBm}) = (34.53 \text{ nW} + 33.60 \text{ nW}) = (68.13 \text{ nW}) = -41.67 \text{ dBm}$$

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| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 182 of 371 |

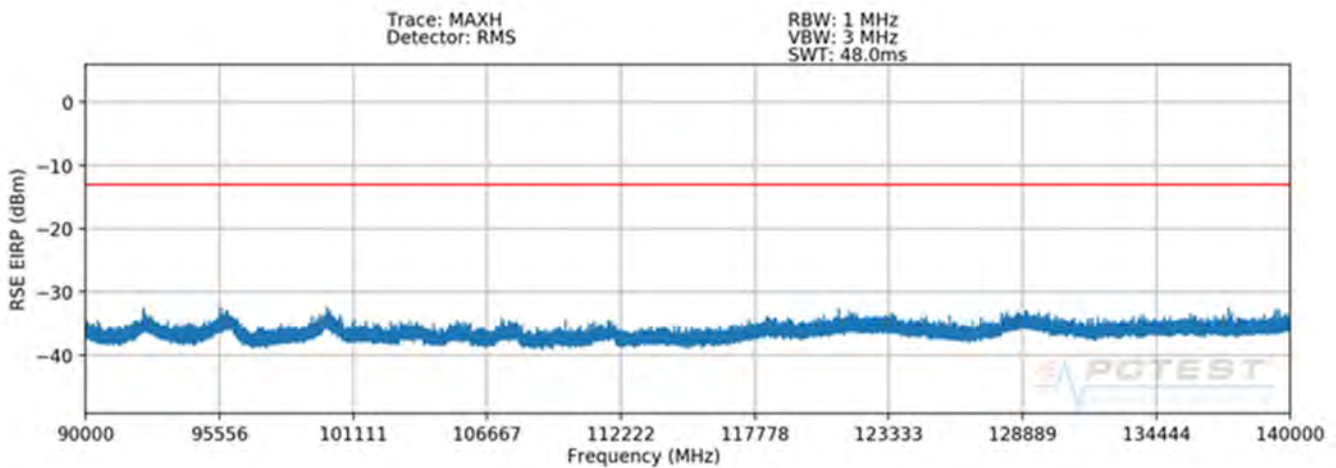
90 – 140GHz(n260)



Plot 7-295. J Patch Radiated Spurious Plot 90-140 GHz (1CC QPSK Low Channel H Beam – n260)

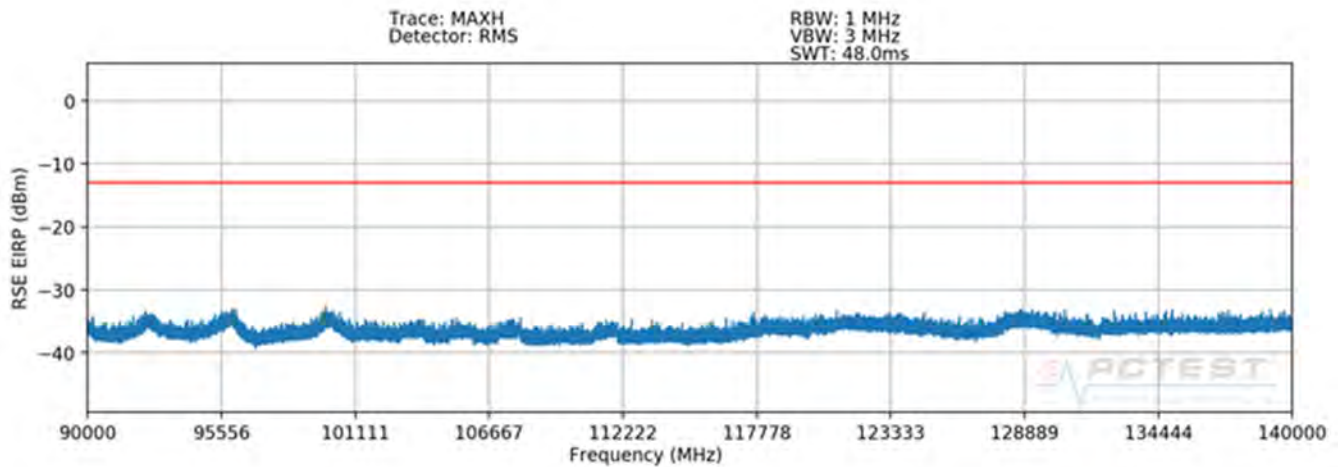


Plot 7-296. J Patch Radiated Spurious Plot 90-140 GHz (1CC QPSK Mid Channel H Beam – n260)

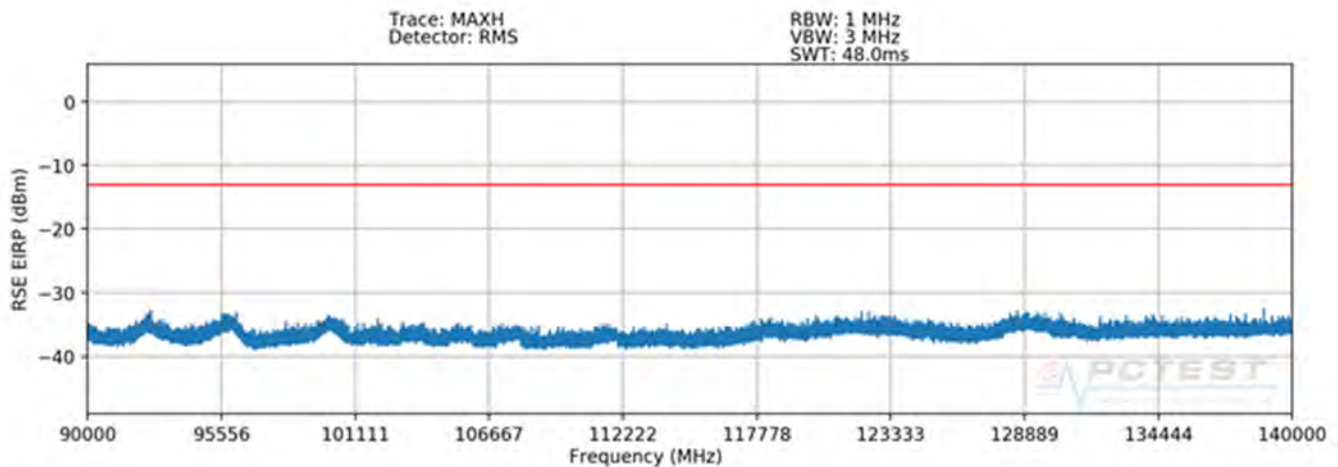


Plot 7-297. J Patch Radiated Spurious Plot 90-140 GHz (1CC QPSK High Channel H Beam – n260)

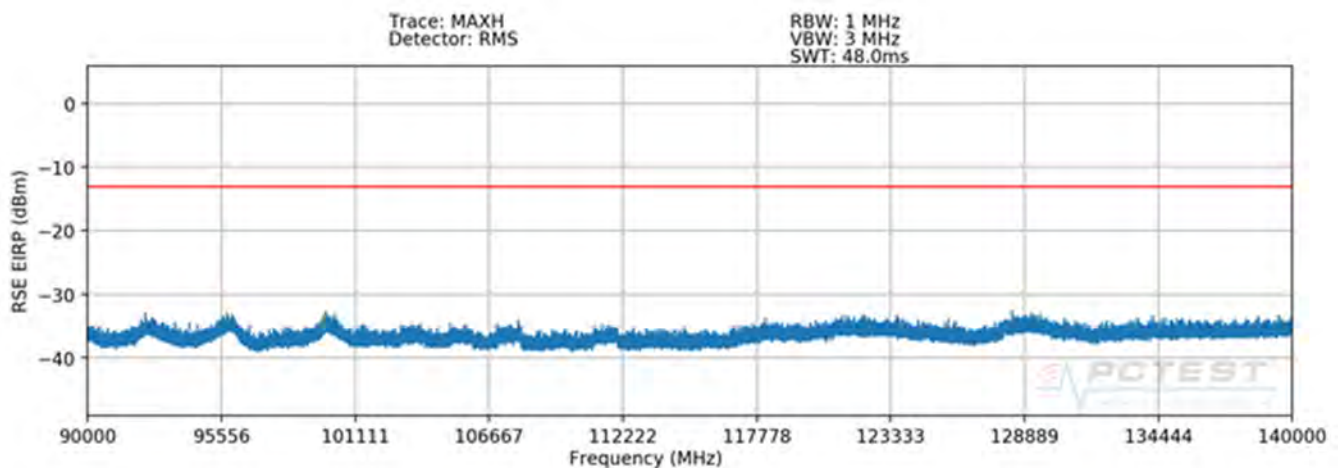
| | | | | |
|--|---|---|----------------|---------------------------------|
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| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 183 of 371 |



Plot 7-298. J Patch Radiated Spurious Plot 90-140 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-299. J Patch Radiated Spurious Plot 90-140 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-300. J Patch Radiated Spurious Plot 90-140 GHz (1CC QPSK High Channel V Beam – n260)

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|--|---|---|----------------|---------------------------------|
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| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 184 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL[dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 95868.50 | RMS/Avg | Low | 50 | QPSK | H | H | - | - | -40.02 | -13.00 | -27.02 |
| 128495.50 | RMS/Avg | Mid | 50 | QPSK | H | H | - | - | -39.64 | -13.00 | -26.64 |
| 128823.50 | RMS/Avg | High | 50 | QPSK | H | H | - | - | -39.72 | -13.00 | -26.72 |
| 95981.50 | RMS/Avg | Low | 50 | QPSK | V | V | - | - | -39.92 | -13.00 | -26.92 |
| 128655.50 | RMS/Avg | Mid | 50 | QPSK | V | V | - | - | -39.69 | -13.00 | -26.69 |
| 95897.00 | RMS/Avg | High | 50 | QPSK | V | V | - | - | -39.68 | -13.00 | -26.68 |

Table 7-56. J Patch Spurious Emissions Table (90-140GHz – n260)

Notes

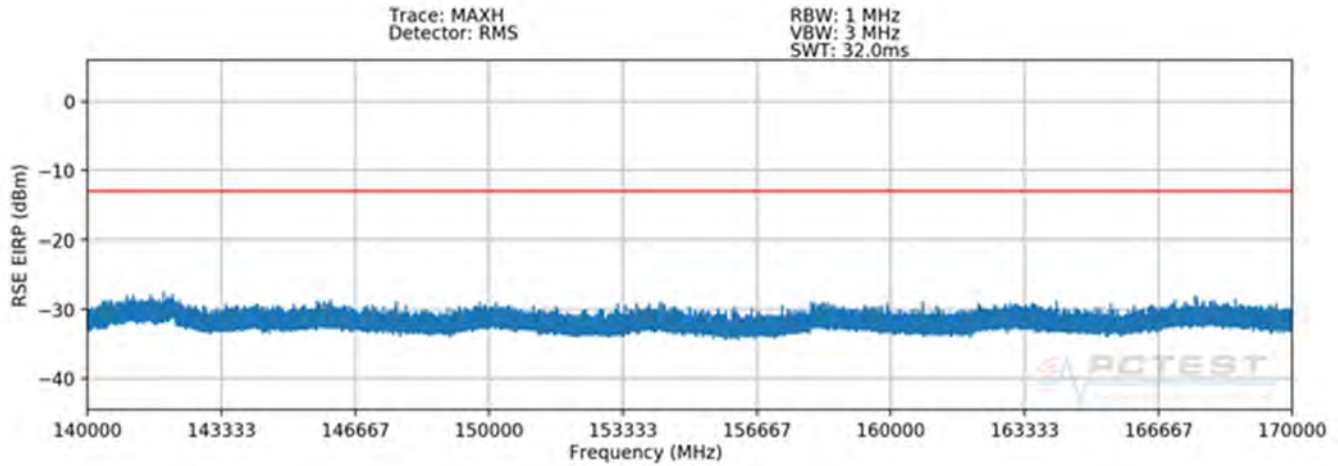
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

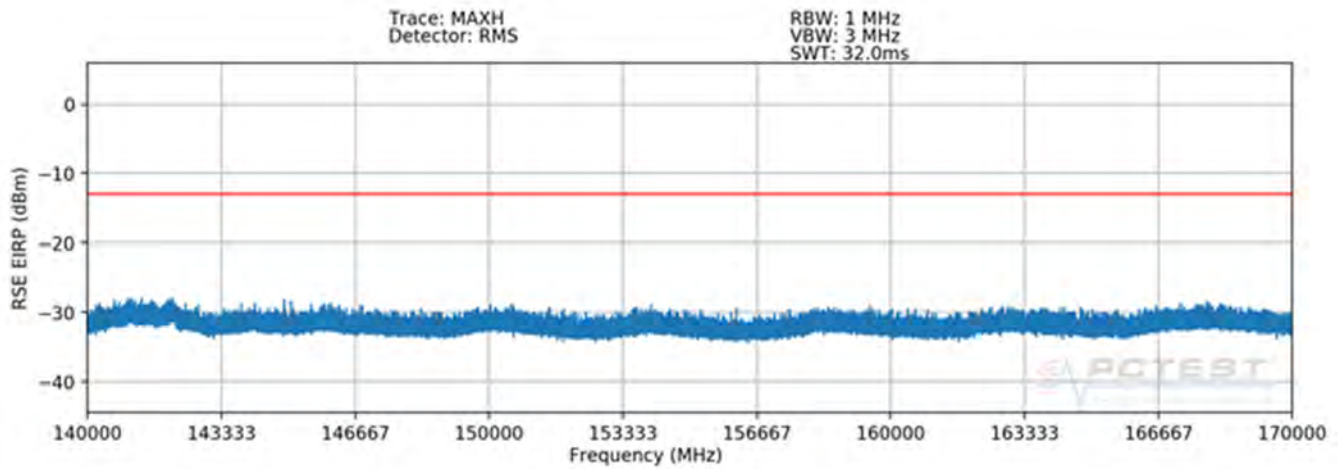
$$(-39.64 \text{ dBm} + -39.69 \text{ dBm}) = (108.64 \text{ nW} + 107.37 \text{ nW}) = (216.02 \text{ nW}) = -36.66 \text{ dBm}$$

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|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 185 of 371 |

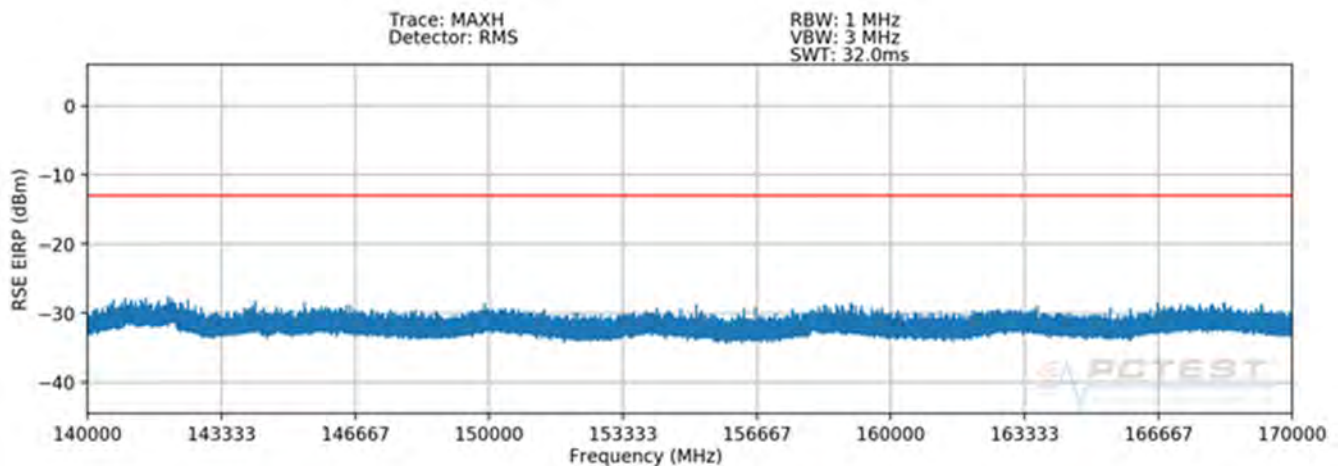
140 – 170GHz(n260)



Plot 7-301. J Patch Radiated Spurious Plot 140-170 GHz (1CC QPSK Low Channel H Beam – n260)

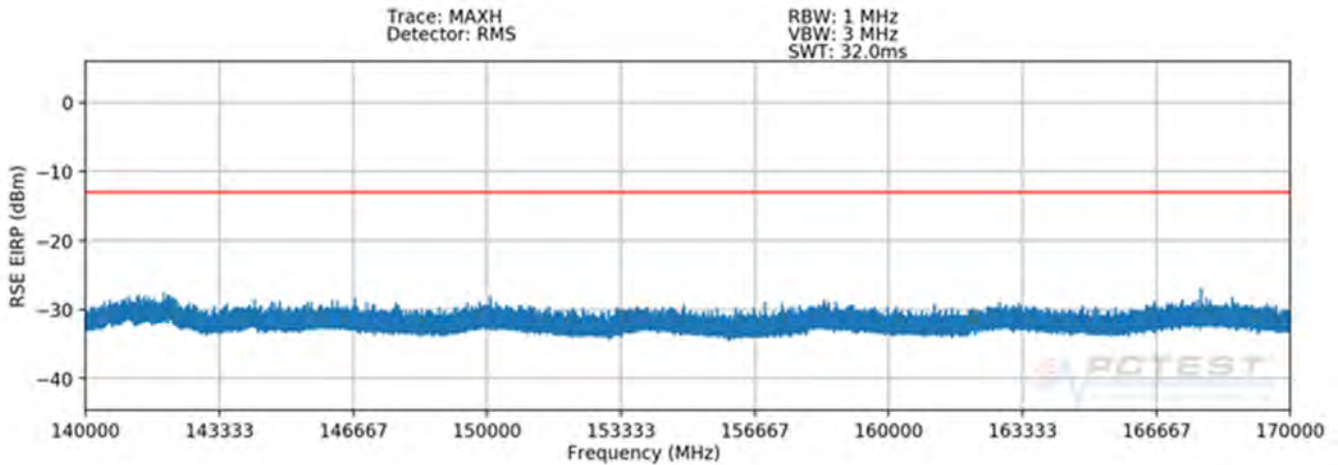


Plot 7-302. J Patch Radiated Spurious Plot 140-170 GHz (1CC QPSK Mid Channel H Beam – n260)

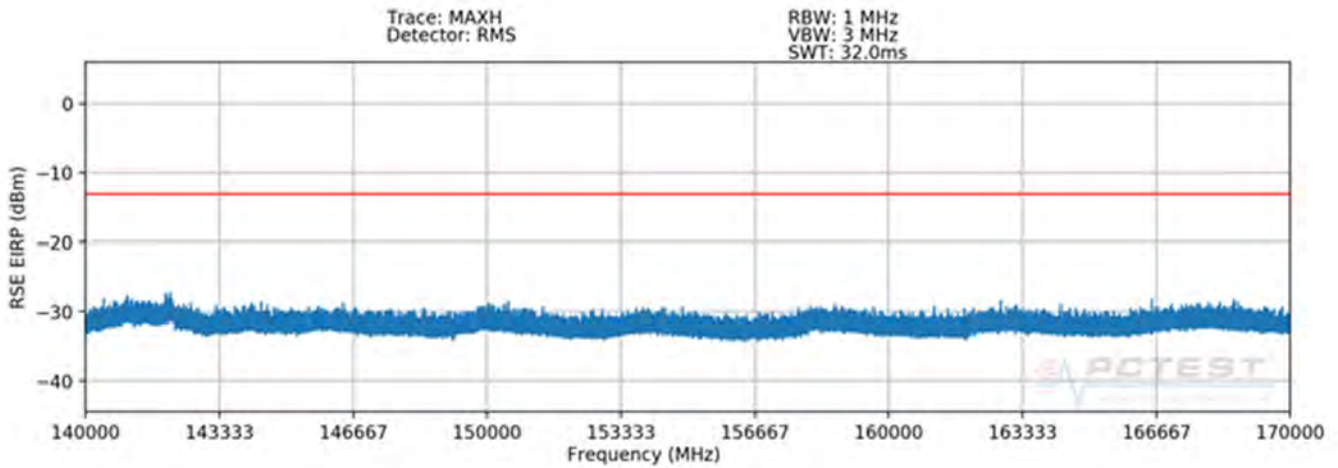


Plot 7-303. J Patch Radiated Spurious Plot 140-170 GHz (1CC QPSK High Channel H Beam – n260)

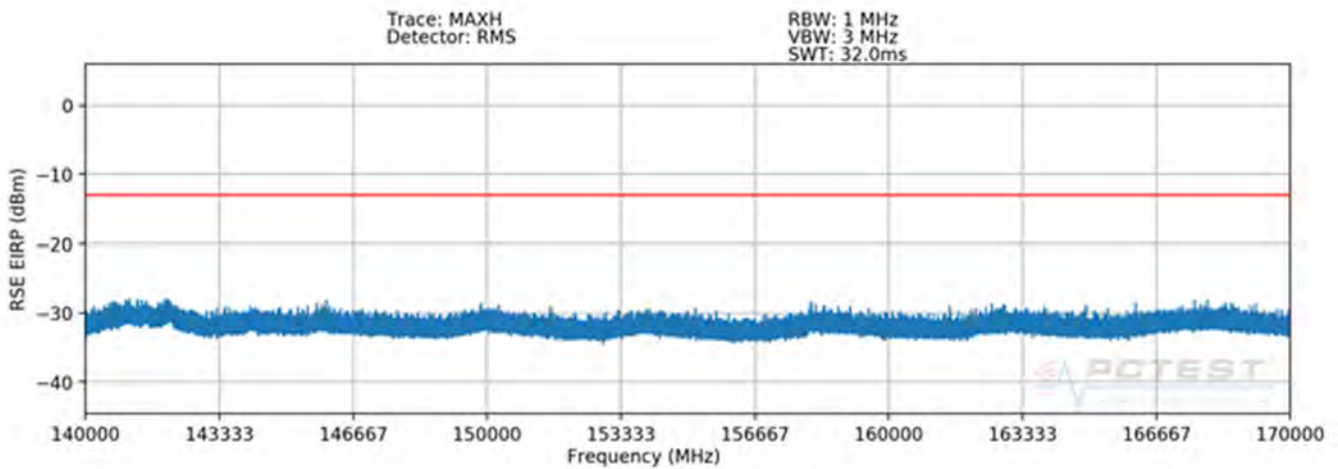
| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 186 of 371 |



Plot 7-304. J Patch Radiated Spurious Plot 140-170 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-305. J Patch Radiated Spurious Plot 140-170 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-306. J Patch Radiated Spurious Plot 140-170 GHz (1CC QPSK High Channel V Beam – n260)

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|--|---|---|--|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 187 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL[dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 142093.50 | RMS/Avg | Low | 50 | QPSK | H | H | - | - | -34.83 | -13.00 | -21.83 |
| 142146.00 | RMS/Avg | Mid | 50 | QPSK | H | H | - | - | -35.00 | -13.00 | -22.00 |
| 142107.00 | RMS/Avg | High | 50 | QPSK | H | H | - | - | -34.81 | -13.00 | -21.81 |
| 142152.50 | RMS/Avg | Low | 50 | QPSK | V | V | - | - | -34.62 | -13.00 | -21.62 |
| 142098.50 | RMS/Avg | Mid | 50 | QPSK | V | V | - | - | -34.87 | -13.00 | -21.87 |
| 142130.50 | RMS/Avg | High | 50 | QPSK | V | V | - | - | -34.84 | -13.00 | -21.84 |

Table 7-57. J Patch Spurious Emissions Table (140-170GHz – n260)

Notes

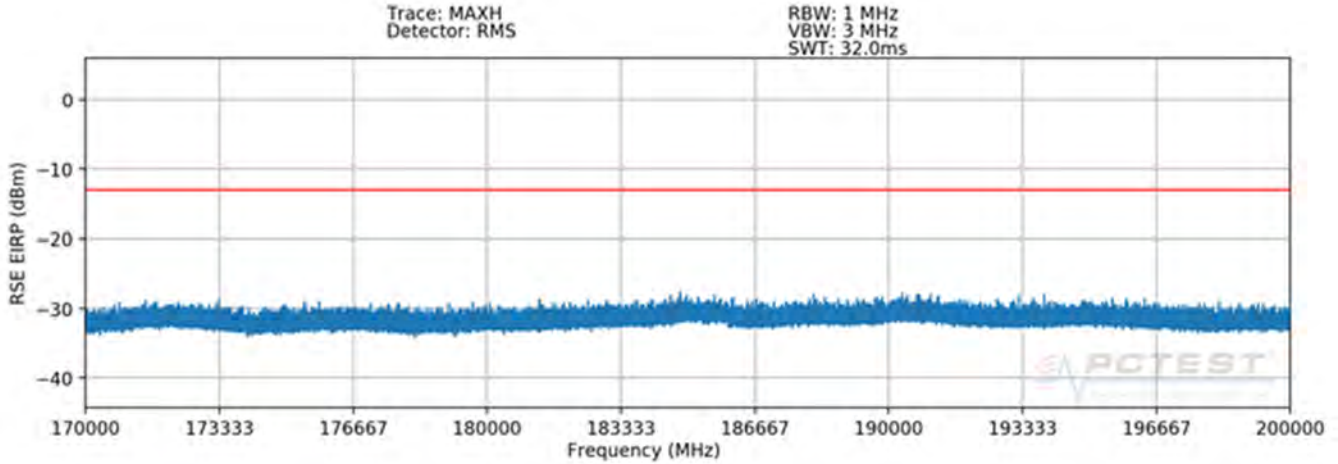
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

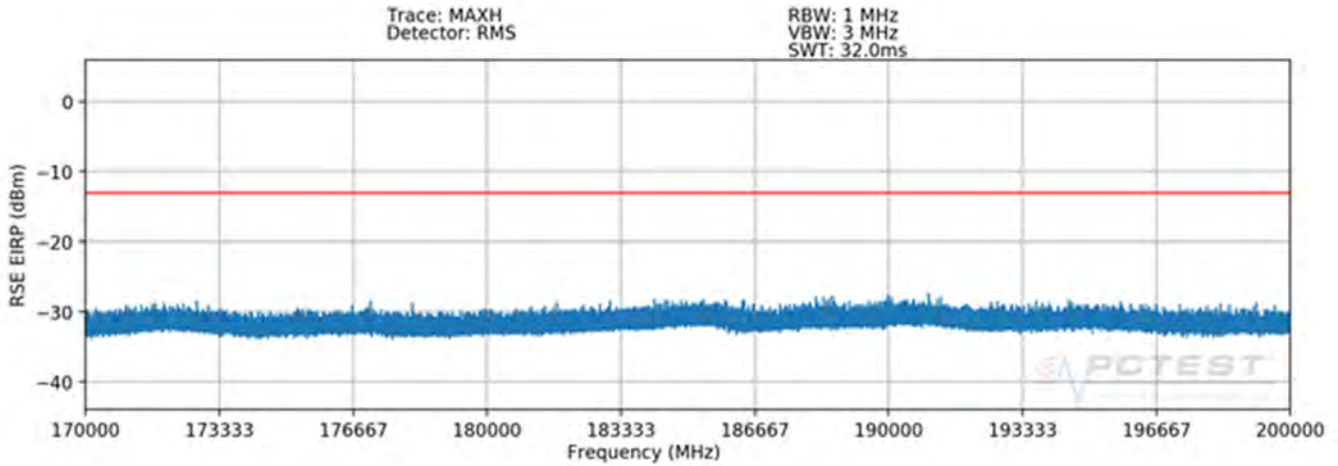
$$(-34.83 \text{ dBm} + -34.62 \text{ dBm}) = (328.93 \text{ nW} + 345.38 \text{ nW}) = (674.31 \text{ nW}) = -31.71 \text{ dBm}$$

| | | | | |
|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 188 of 371 |

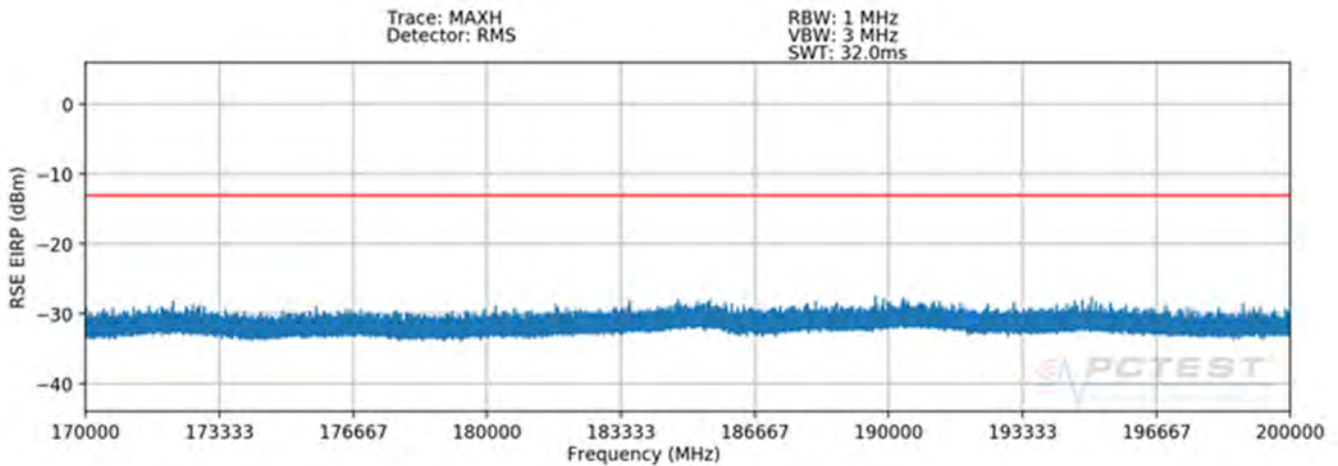
170 – 200GHz(n260)



Plot 7-307. J Patch Radiated Spurious Plot 170-200 GHz (1CC QPSK Low Channel H Beam – n260)

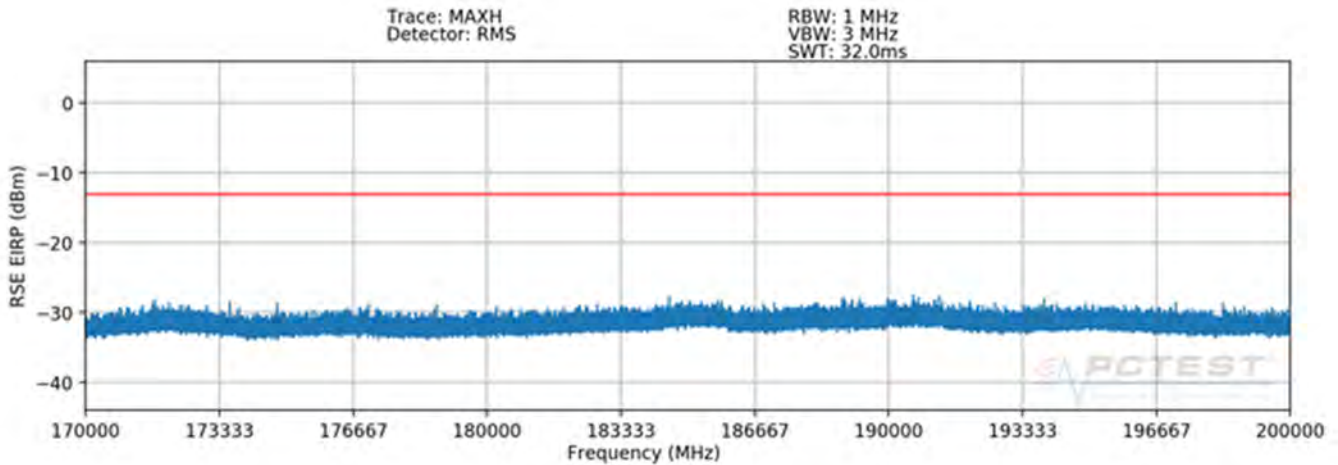


Plot 7-308. J Patch Radiated Spurious Plot 170-200 GHz (1CC QPSK Mid Channel H Beam – n260)

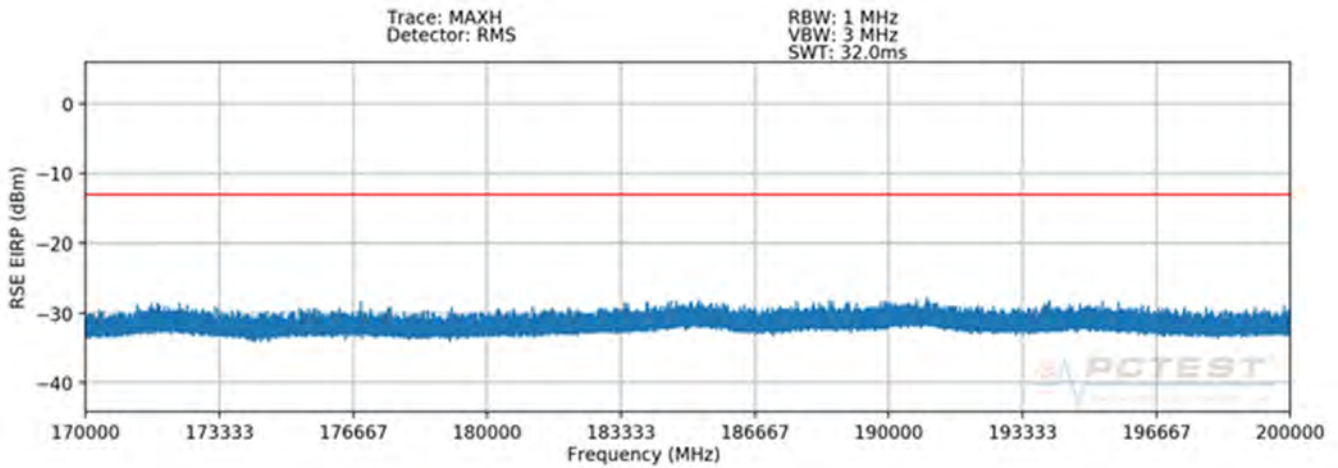


Plot 7-309. J Patch Radiated Spurious Plot 170-200 GHz (1CC QPSK High Channel H Beam – n260)

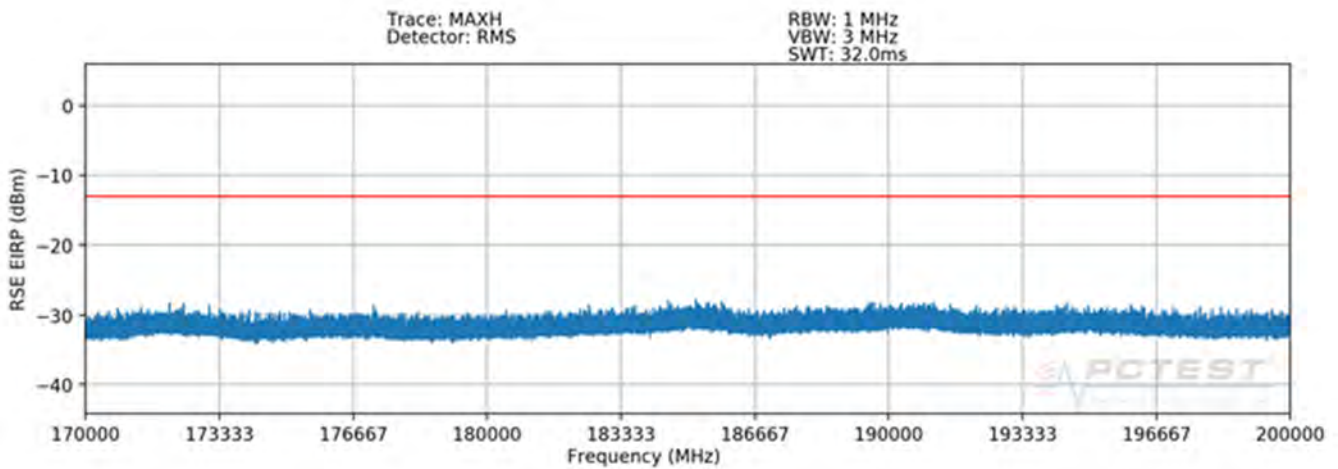
| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 189 of 371 |



Plot 7-310. J Patch Radiated Spurious Plot 170-200 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-311. J Patch Radiated Spurious Plot 170-200 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-312. J Patch Radiated Spurious Plot 170-200 GHz (1CC QPSK High Channel V Beam – n260)

| | | | |
|--|--|-------------------------------|---------------------------------|
| FCC ID: A3LSMN976V |  MEASUREMENT REPORT (CERTIFICATION)  | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | Page 190 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL[dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 190813.00 | RMS/Avg | Low | 50 | QPSK | H | H | - | - | -35.18 | -13.00 | -22.18 |
| 190922.50 | RMS/Avg | Mid | 50 | QPSK | H | H | - | - | -35.05 | -13.00 | -22.05 |
| 190464.50 | RMS/Avg | High | 50 | QPSK | H | H | - | - | -35.27 | -13.00 | -22.27 |
| 184950.50 | RMS/Avg | Low | 50 | QPSK | V | V | - | - | -35.16 | -13.00 | -22.16 |
| 191083.50 | RMS/Avg | Mid | 50 | QPSK | V | V | - | - | -35.24 | -13.00 | -22.24 |
| 190901.00 | RMS/Avg | High | 50 | QPSK | V | V | - | - | -35.55 | -13.00 | -22.55 |

Table 7-58. J Patch Spurious Emissions Table (170-200GHz – n260)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

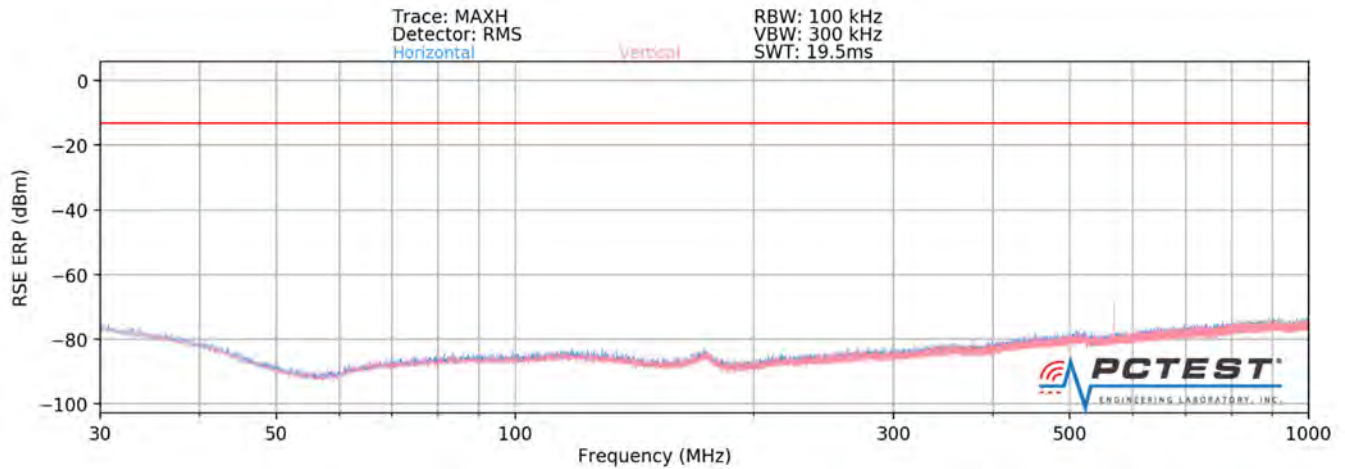
$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

$$(-35.05 \text{ dBm} + -35.24 \text{ dBm}) = (312.68 \text{ nW} + 299.43 \text{ nW}) = (612.11 \text{ nW}) = -32.13 \text{ dBm}$$

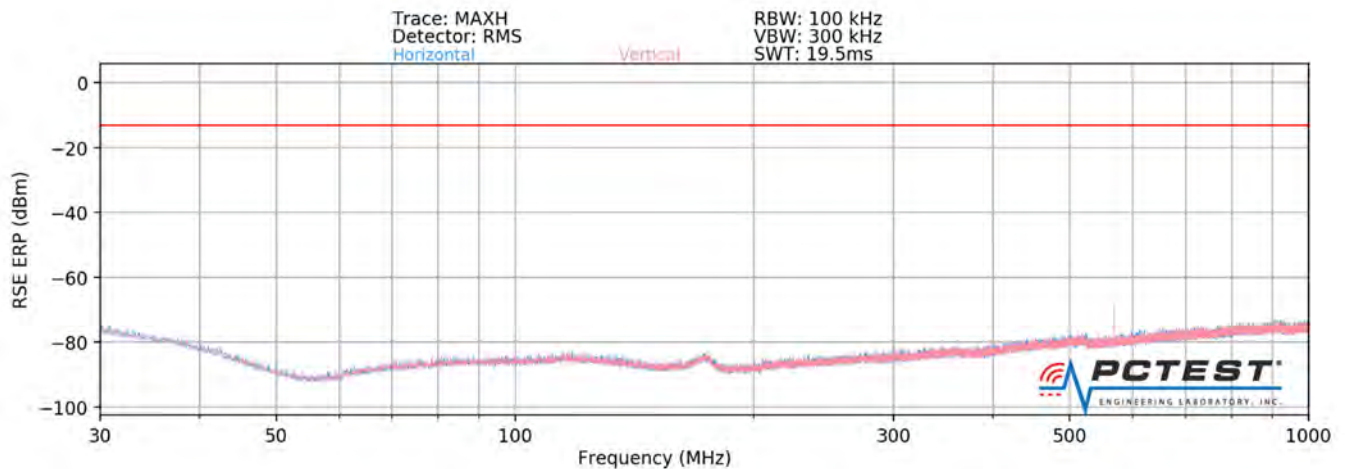
| | | | | |
|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 191 of 371 |

K Patch Radiated Spurious Emissions(n260)

30MHz – 1GHz(n260)



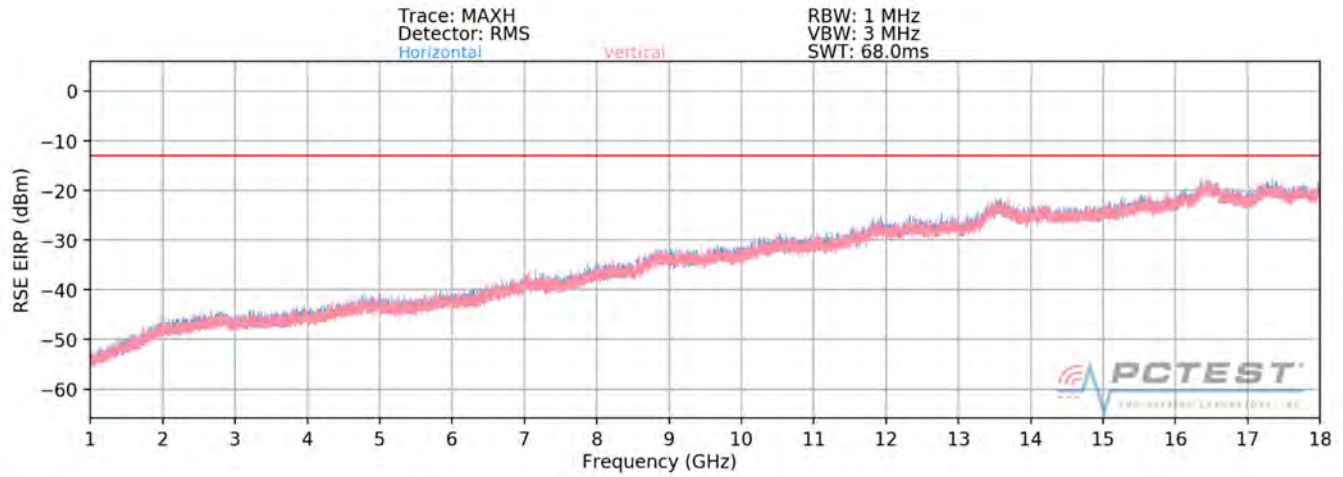
Plot 7-313. K Patch Radiated Spurious Plot 30 MHz - 1 GHz (1CC QPSK Mid Channel H Beam – n260)



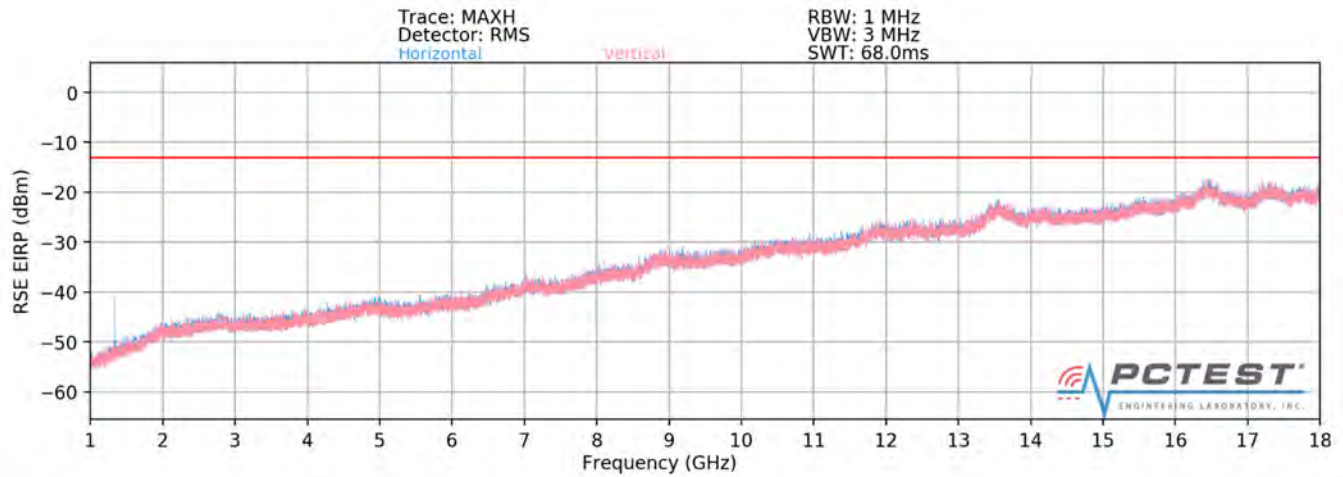
Plot 7-314. K Patch Radiated Spurious Plot 30 MHz - 1 GHz (1CC QPSK Mid Channel V Beam – n260)

| | | | | |
|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 192 of 371 |

1 – 18GHz(n260)



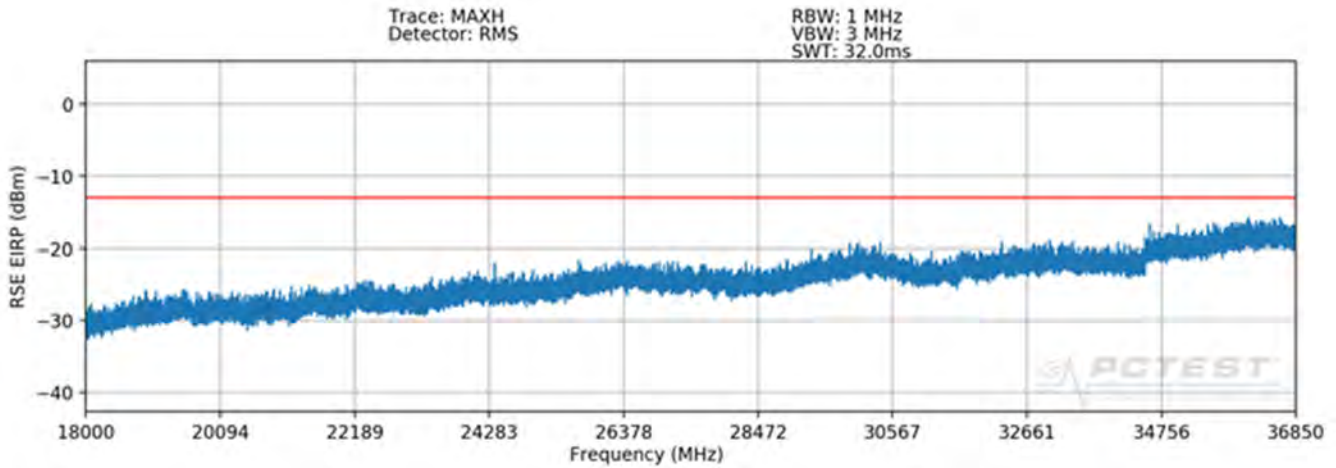
Plot 7-315. K Patch Radiated Spurious Plot 1-18 GHz (1CC QPSK Mid Channel H Beam – n260)



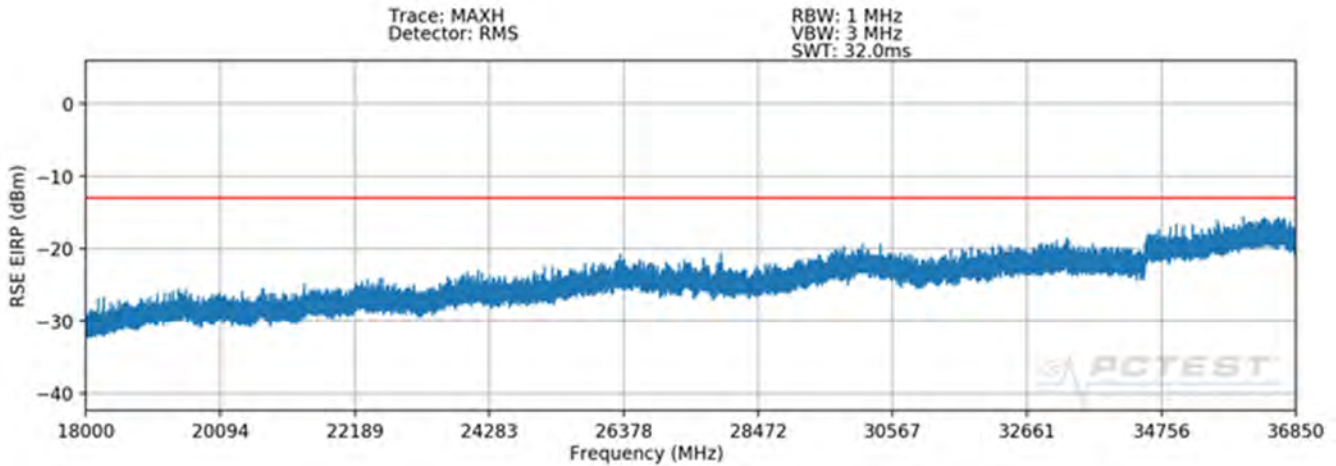
Plot 7-316. K Patch Radiated Spurious Plot 1-18 GHz (1CC QPSK Mid Channel V Beam – n260)

| | | | | |
|--|---|---|--|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 193 of 371 |

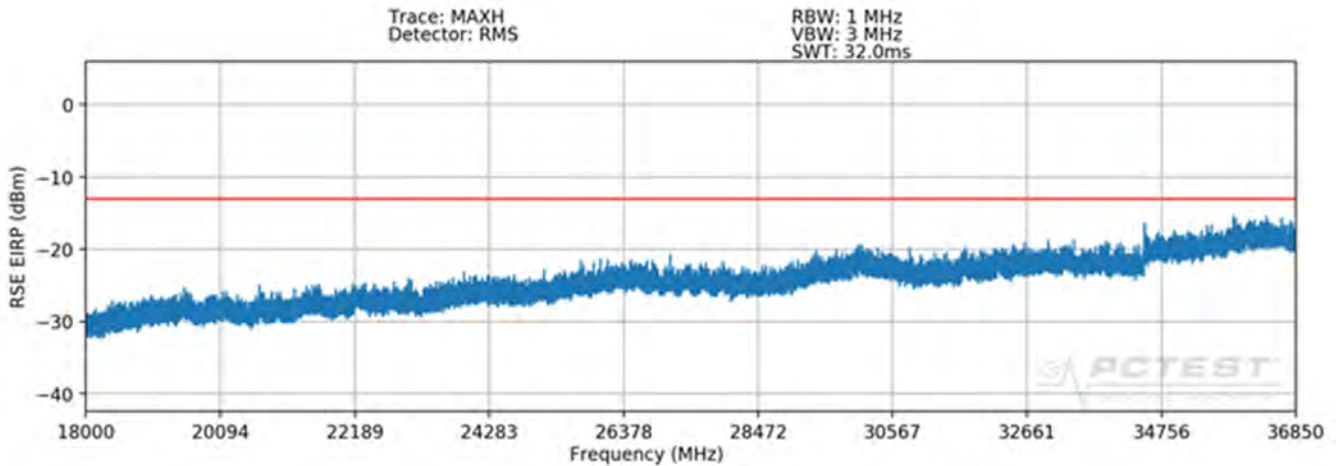
18 – 36.85GHz(n260)



Plot 7-317. K Patch Radiated Spurious Plot 18-36.85 GHz (1CC QPSK Low Channel H Beam – n260)

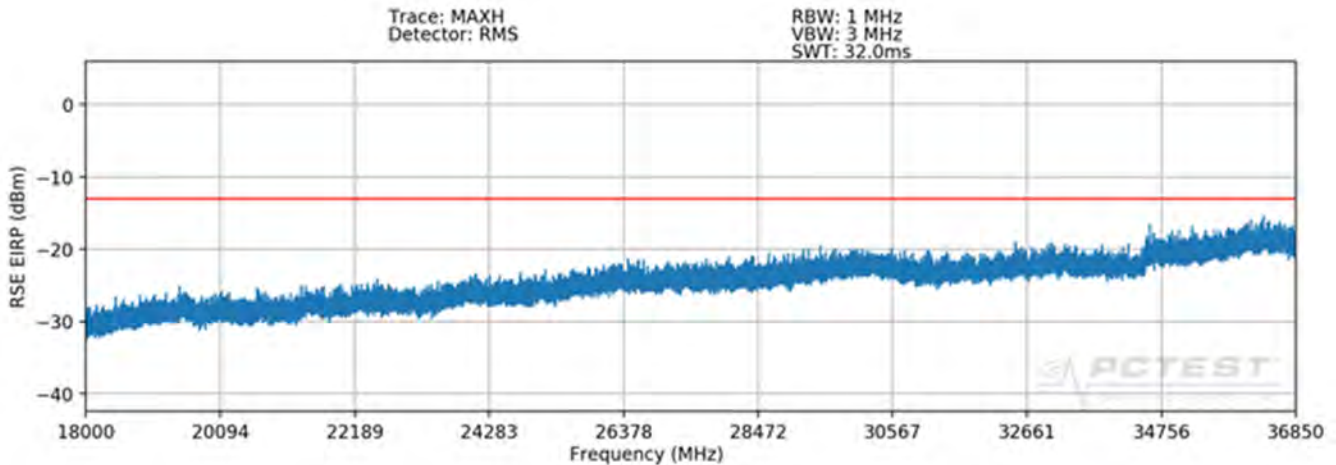


Plot 7-318. K Patch Radiated Spurious Plot 18-36.85 GHz (1CC QPSK Mid Channel H Beam – n260)

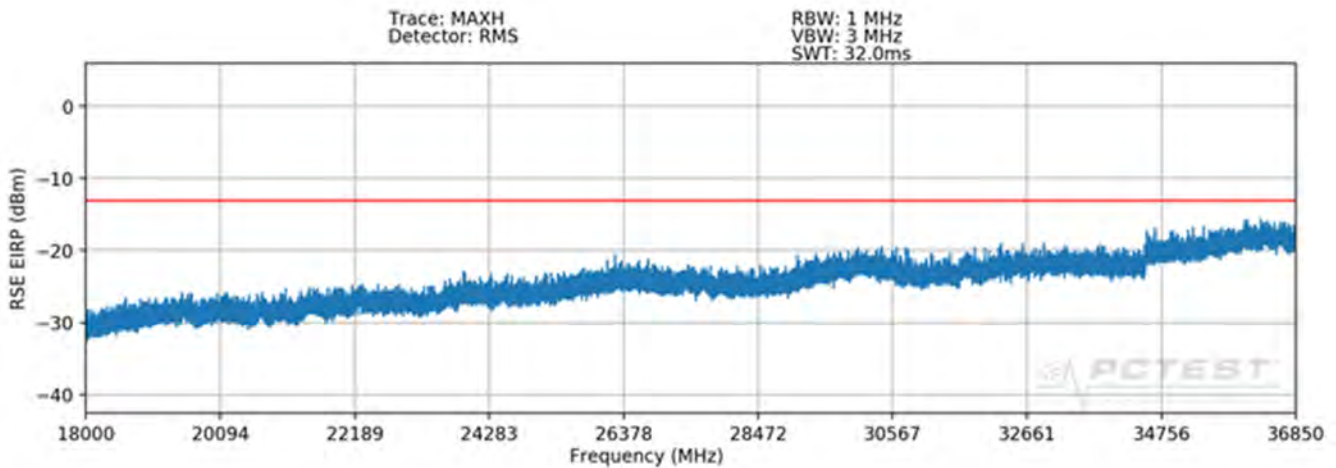


Plot 7-319. K Patch Radiated Spurious Plot 18-36.85 GHz (1CC QPSK High Channel H Beam – n260)

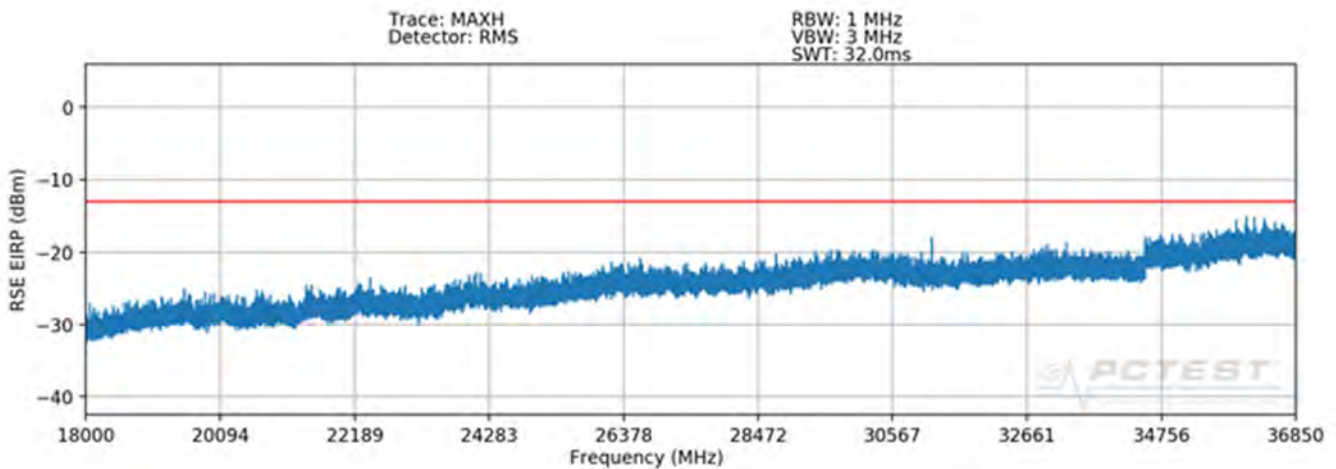
| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 194 of 371 |



Plot 7-320. K Patch Radiated Spurious Plot 18-36.85 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-321. K Patch Radiated Spurious Plot 18-36.85 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-322. K Patch Radiated Spurious Plot 18-36.85 GHz (1CC QPSK High Channel V Beam – n260)

| | | | | |
|--|---|---|--|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 195 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 34517.50 | RMS/Avg | Low | 50 | QPSK | H | H | 138 | 326 | -32.53 | -13.00 | -19.53 |
| 34762.00 | RMS/Avg | Mid | 50 | QPSK | H | H | 129 | 338 | -32.28 | -13.00 | -19.28 |
| 31180.50 | RMS/Avg | High | 50 | QPSK | H | H | 89 | 350 | -30.56 | -13.00 | -17.56 |
| 36763.00 | RMS/Avg | Low | 50 | QPSK | V | V | 349 | 3 | -32.85 | -13.00 | -19.85 |
| 29577.50 | RMS/Avg | Mid | 50 | QPSK | V | V | 351 | 355 | -30.60 | -13.00 | -17.60 |
| 31180.50 | RMS/Avg | High | 50 | QPSK | V | V | 350 | 1 | -20.04 | -13.00 | -7.04 |

Table 7-59. K Patch Spurious Emissions Table (18-36.85GHz – n260)

Notes

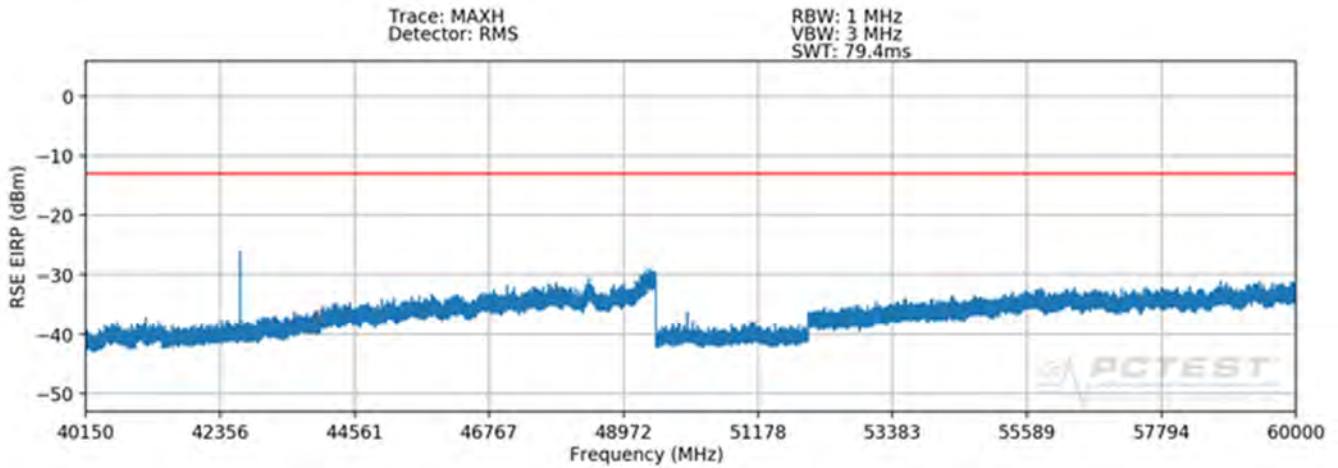
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

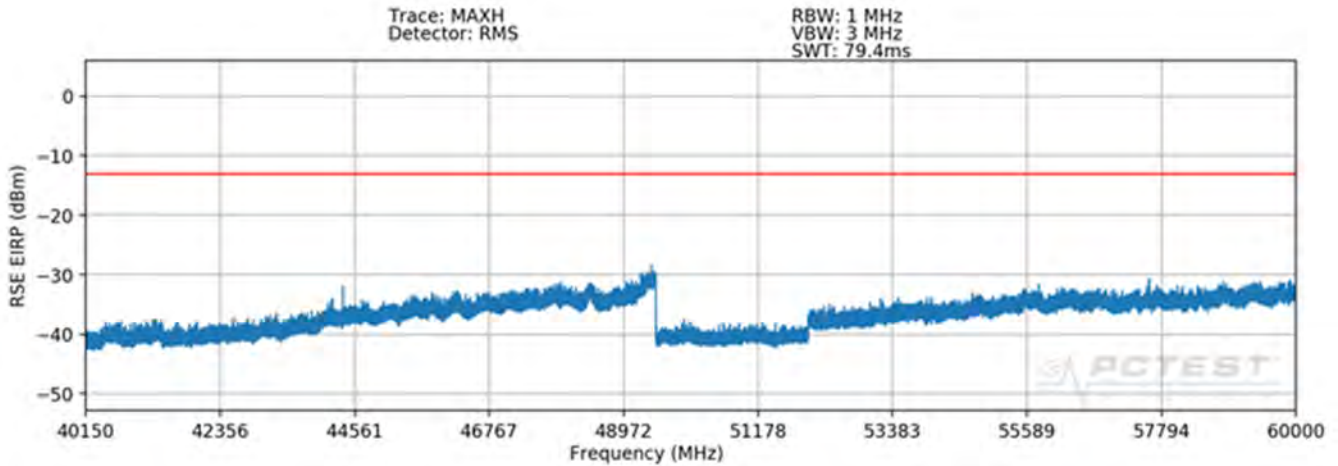
$$(-30.56 \text{ dBm} + -20.04 \text{ dBm}) = (0.88 \text{ } \mu\text{W} + 9.92 \text{ } \mu\text{W}) = (10.80 \text{ } \mu\text{W}) = -19.67 \text{ dBm}$$

| | | | | |
|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 196 of 371 |

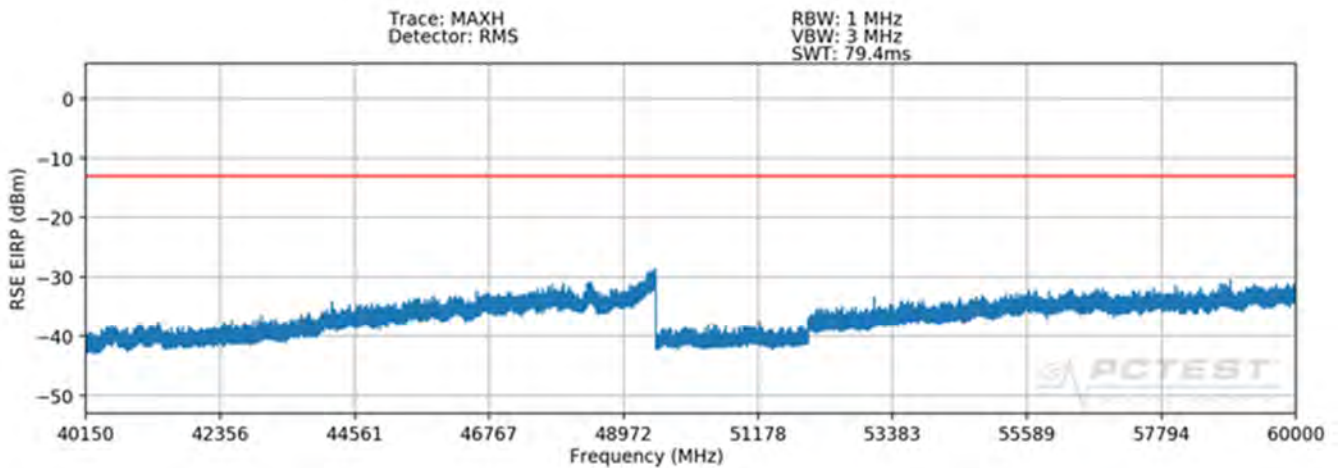
40.15 – 60GHz(n260)



Plot 7-323. K Patch Radiated Spurious Plot 40.15-60 GHz (1CC QPSK Low Channel H Beam – n260)

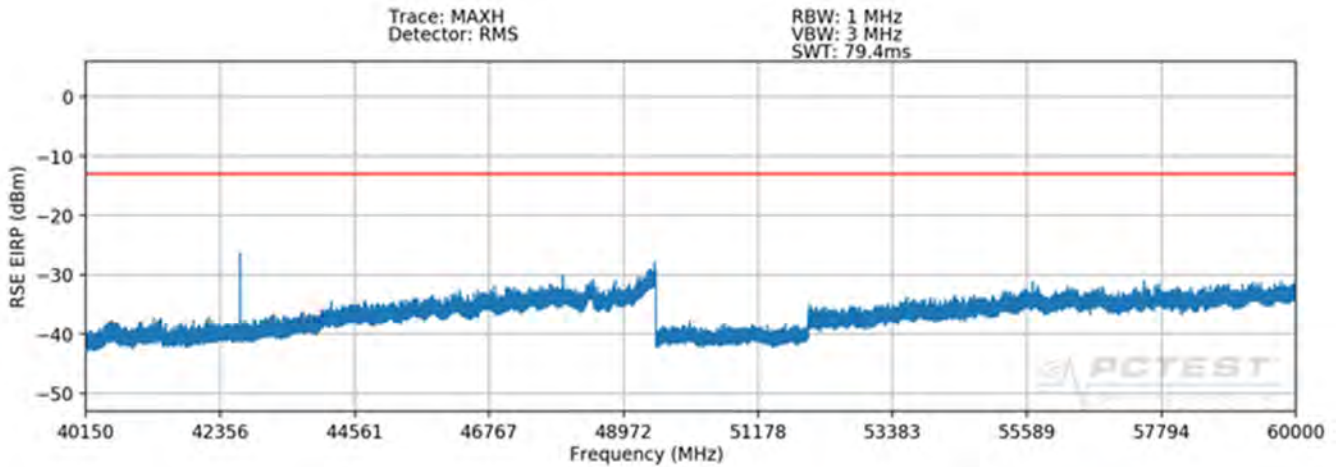


Plot 7-324. K Patch Radiated Spurious Plot 40.15-60 GHz (1CC QPSK Mid Channel H Beam – n260)

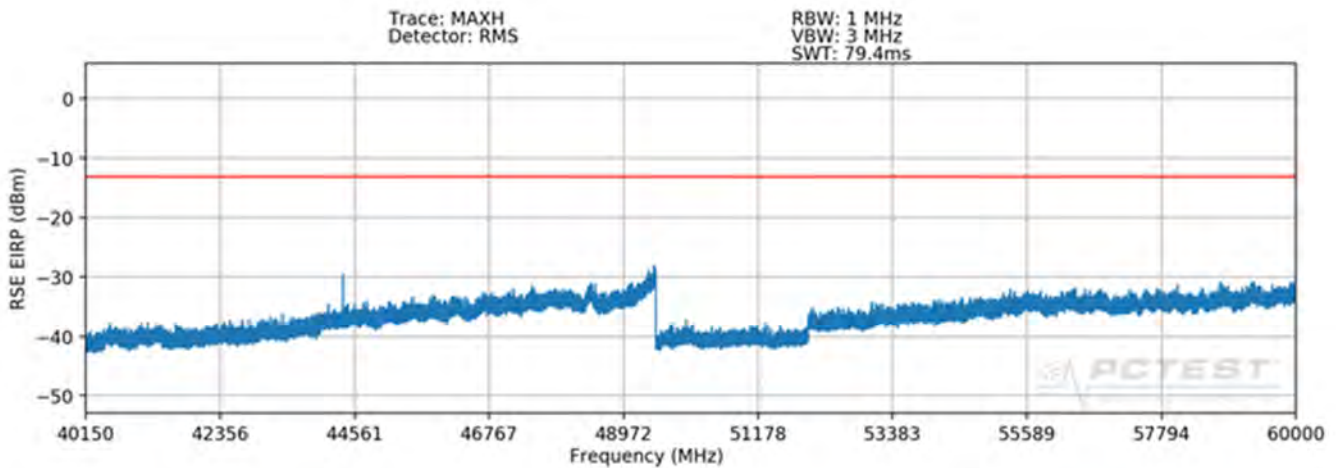


Plot 7-325. K Patch Radiated Spurious Plot 40.15-60 GHz (1CC QPSK High Channel H Beam – n260)

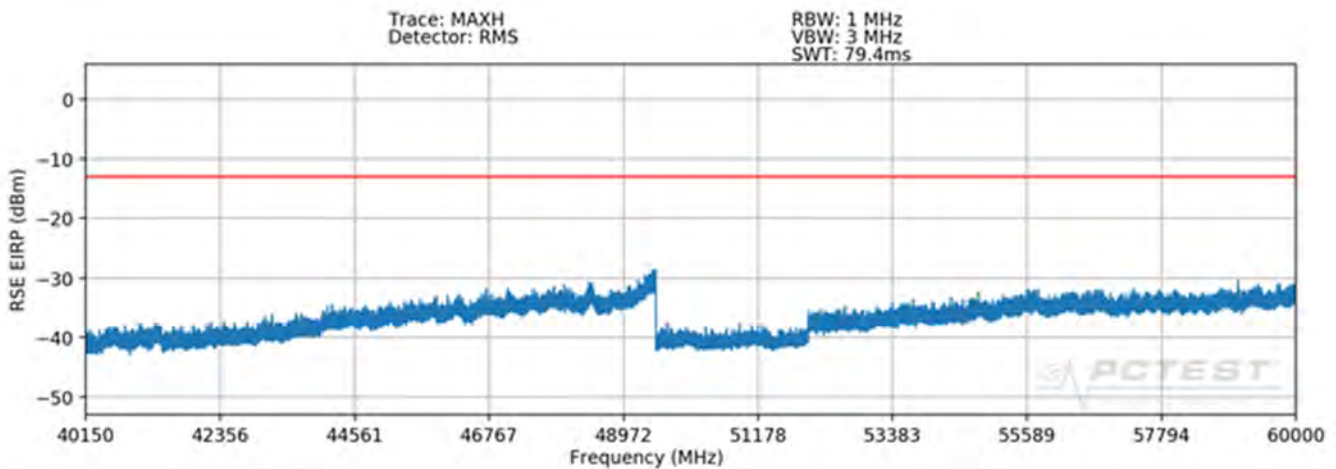
| | | | | |
|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 197 of 371 |



Plot 7-326. K Patch Radiated Spurious Plot 40.15-60 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-327. K Patch Radiated Spurious Plot 40.15-60 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-328. K Patch Radiated Spurious Plot 40.15-60 GHz (1CC QPSK High Channel V Beam – n260)

| | | | | |
|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 198 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 42681.45 | RMS/Avg | Low | 50 | QPSK | H | H | 86 | 346 | -26.73 | -13.00 | -13.73 |
| 44366.32 | RMS/Avg | Mid | 50 | QPSK | H | H | 80 | 327 | -33.01 | -13.00 | -20.01 |
| 46771.12 | RMS/Avg | High | 50 | QPSK | H | H | 134 | 312 | -40.05 | -13.00 | -27.05 |
| 42681.47 | RMS/Avg | Low | 50 | QPSK | V | V | 20 | 15 | -26.96 | -13.00 | -13.96 |
| 44366.46 | RMS/Avg | Mid | 50 | QPSK | V | V | 14 | 338 | -33.83 | -13.00 | -20.83 |
| 46771.08 | RMS/Avg | High | 50 | QPSK | V | V | 24 | 355 | -37.40 | -13.00 | -24.40 |

Table 7-60. K Patch Spurious Emissions Table (40.15-60 GHz – n260)

Notes

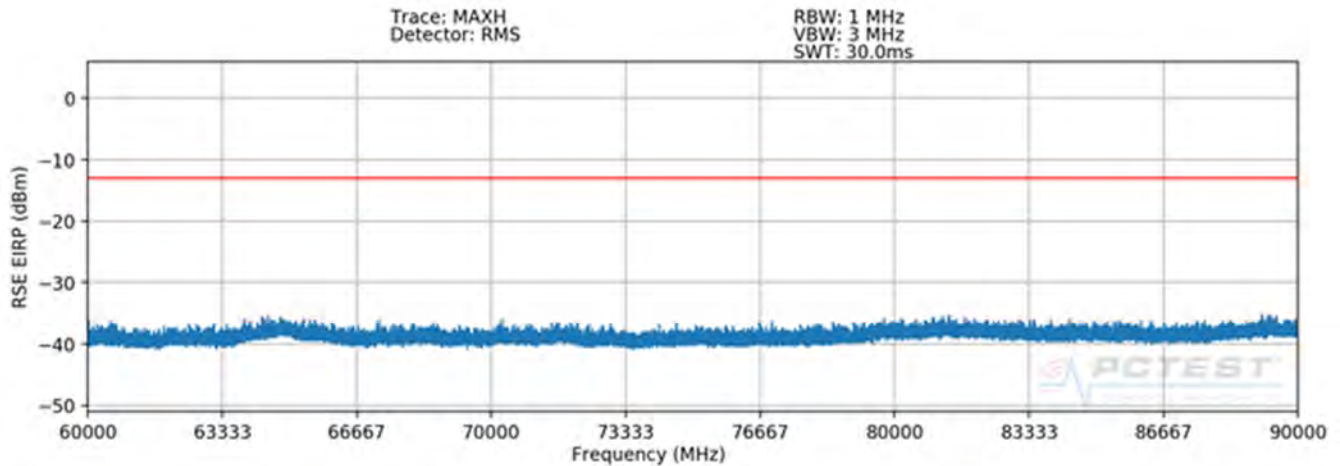
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1.5 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

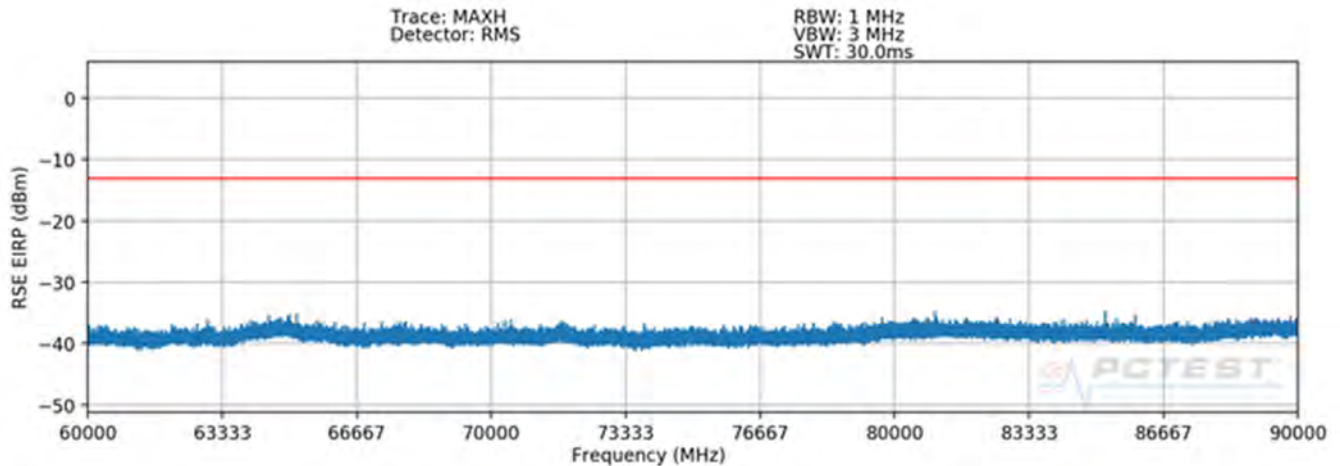
$$(-26.73 \text{ dBm} + -26.96 \text{ dBm}) = (2.12 \text{ } \mu\text{W} + 2.01 \text{ } \mu\text{W}) = (4.13 \text{ } \mu\text{W}) = -23.83 \text{ dBm}$$

| | | | | |
|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 199 of 371 |

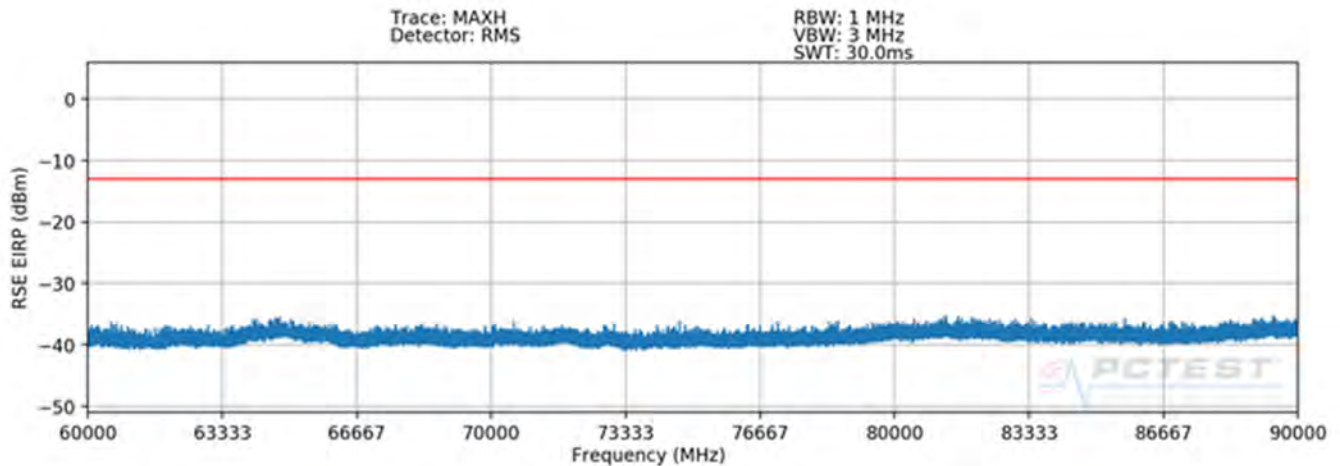
60 – 90GHz(n260)



Plot 7-329. K Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Low Channel H Beam – n260)

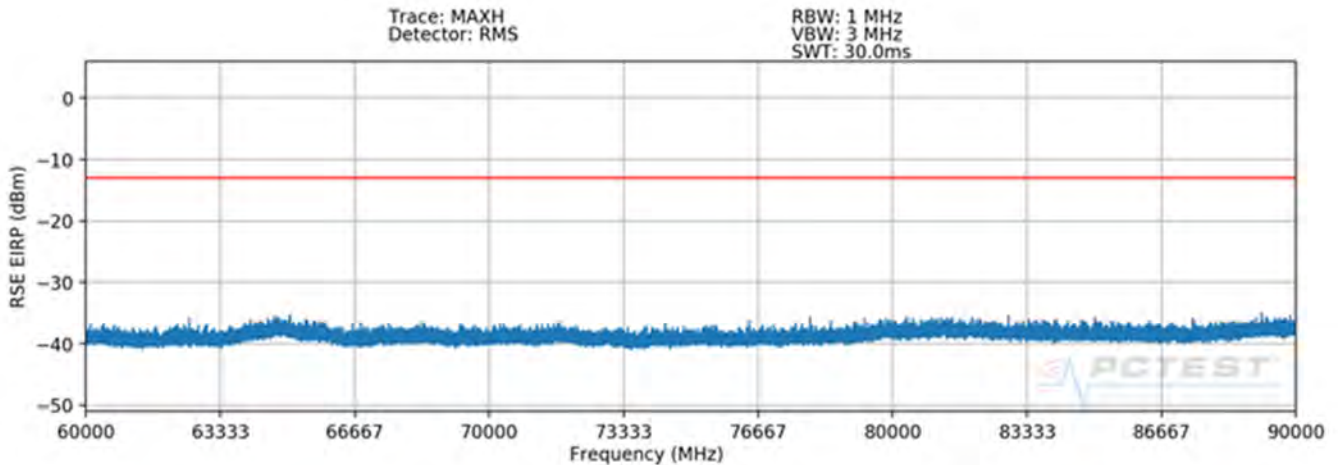


Plot 7-330. K Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Mid Channel H Beam – n260)

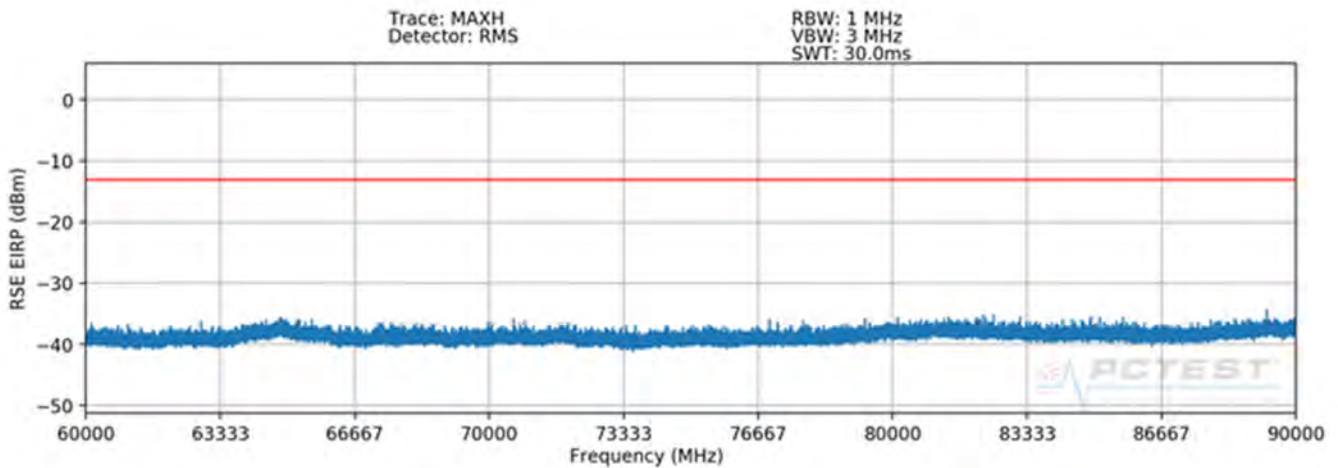


Plot 7-331. K Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK High Channel H Beam – n260)

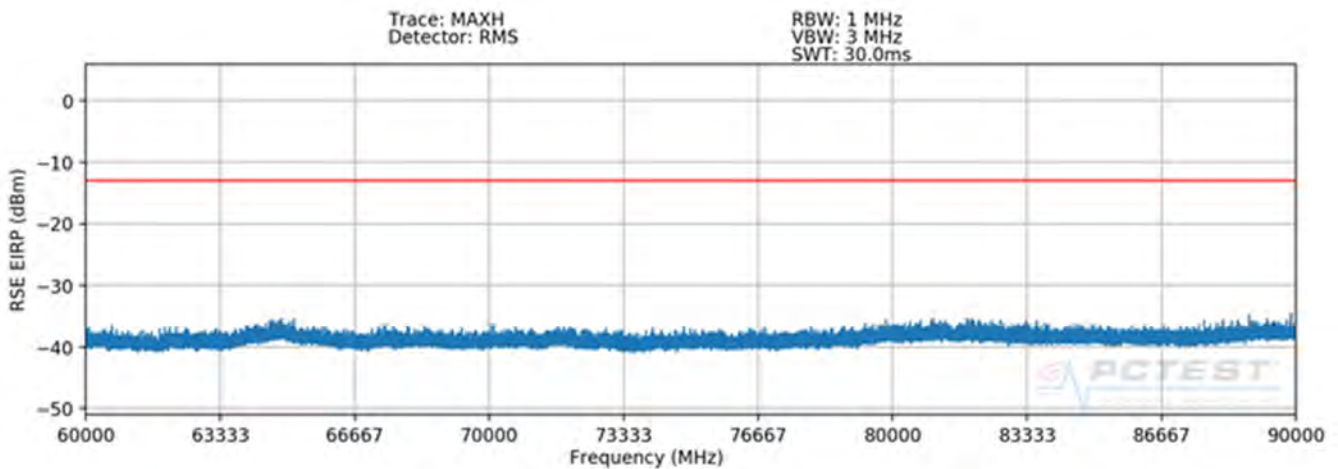
| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 200 of 371 |



Plot 7-332. K Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-333. K Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-334. K Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK High Channel V Beam – n260)

| | | | | |
|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 201 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 74006.50 | RMS/Avg | Low | 50 | QPSK | H | H | 118 | 318 | -43.54 | -13.00 | -30.54 |
| 77591.50 | RMS/Avg | Mid | 50 | QPSK | H | H | 110 | 311 | -42.09 | -13.00 | -29.09 |
| 79884.00 | RMS/Avg | High | 50 | QPSK | H | H | 128 | 326 | -43.22 | -13.00 | -30.22 |
| 74006.00 | RMS/Avg | Low | 50 | QPSK | V | V | 32 | 350 | -41.22 | -13.00 | -28.22 |
| 77591.50 | RMS/Avg | Mid | 50 | QPSK | V | V | 33 | 342 | -40.93 | -13.00 | -27.93 |
| 79884.00 | RMS/Avg | High | 50 | QPSK | V | V | 37 | 355 | -41.50 | -13.00 | -28.50 |

Table 7-61. K Patch Spurious Emissions Table (60-90GHz – n260)

Notes

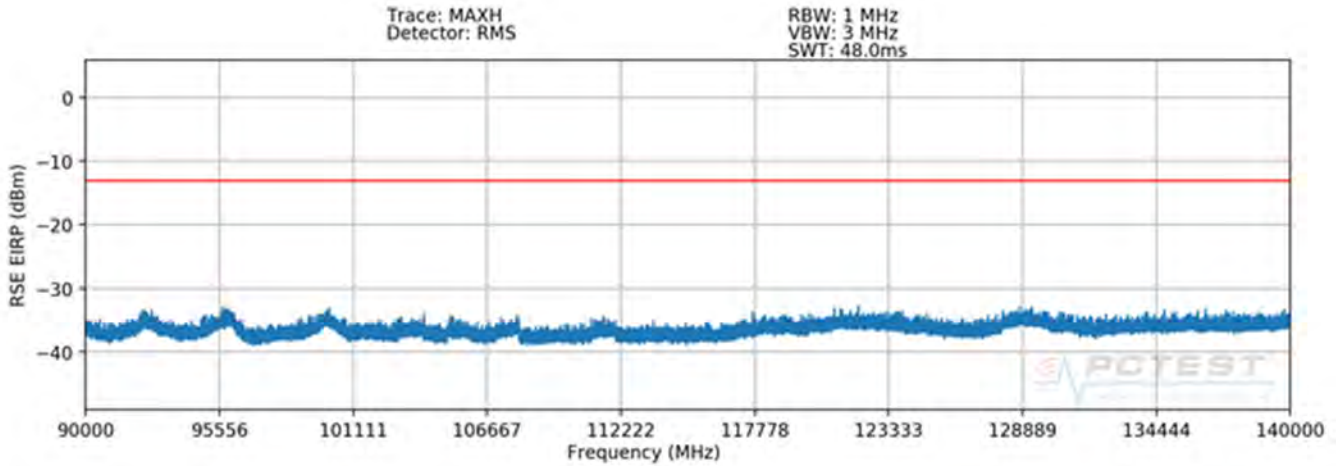
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

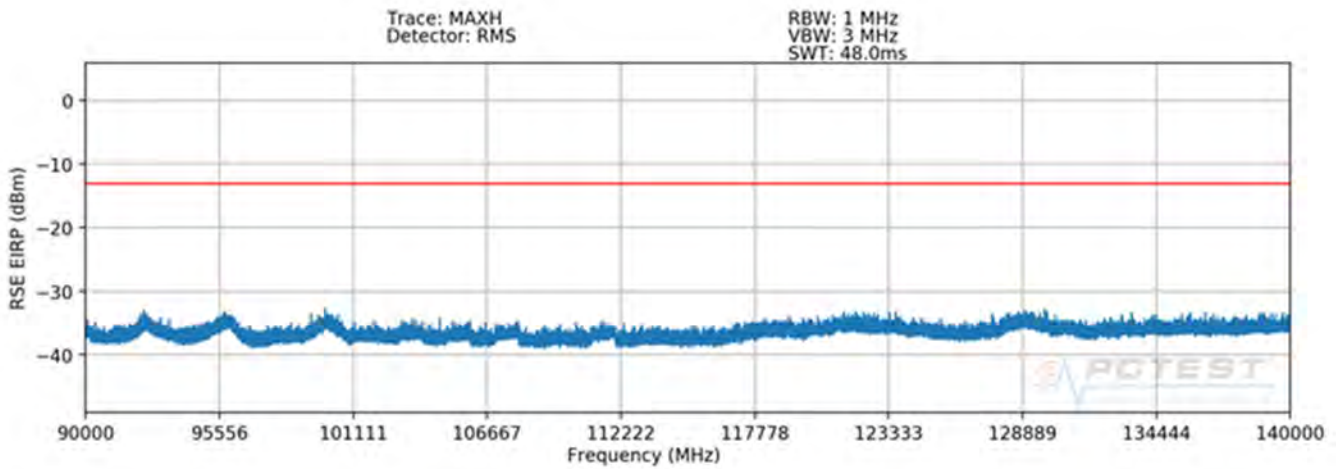
$$(-42.09 \text{ dBm} + -40.93 \text{ dBm}) = (61.83 \text{ nW} + 80.74 \text{ nW}) = (142.57 \text{ nW}) = -38.46 \text{ dBm}$$

| | | | | |
|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 202 of 371 |

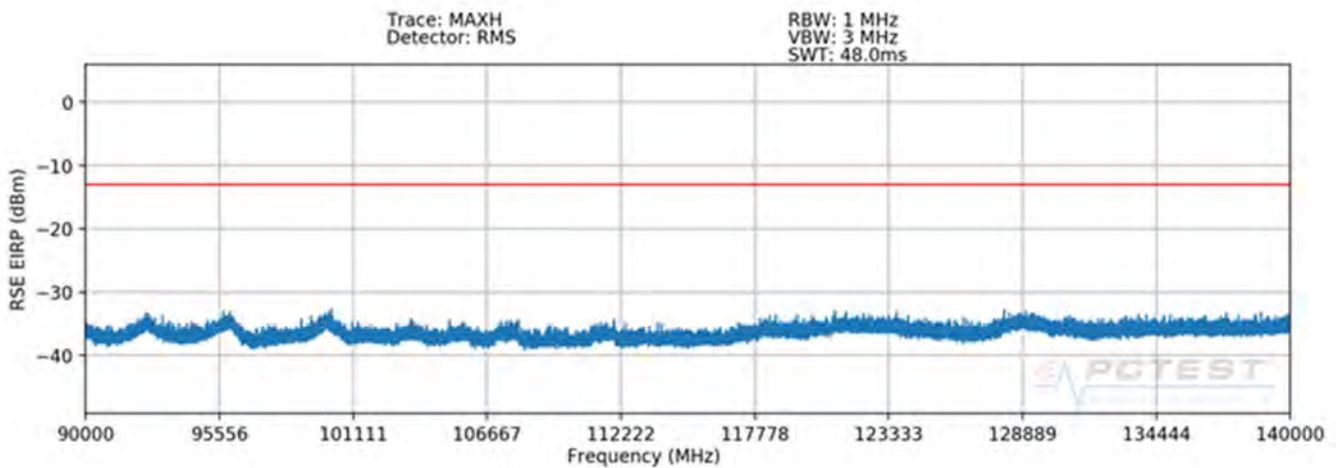
90 – 140GHz(n260)



Plot 7-335. K Patch Radiated Spurious Plot 90-140 GHz (1CC QPSK Low Channel H Beam – n260)

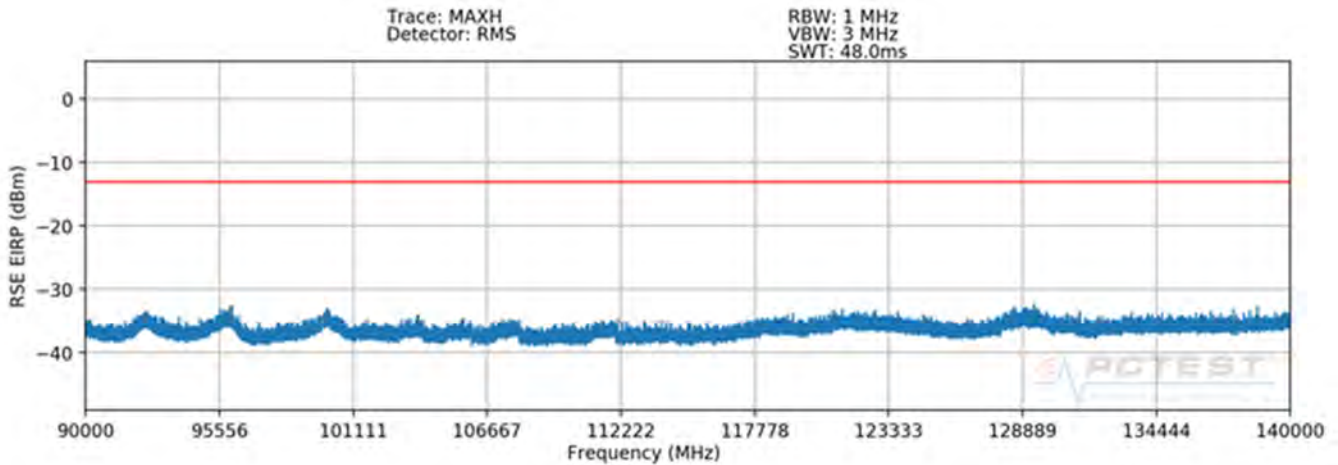


Plot 7-336. K Patch Radiated Spurious Plot 90-140 GHz (1CC QPSK Mid Channel H Beam – n260)

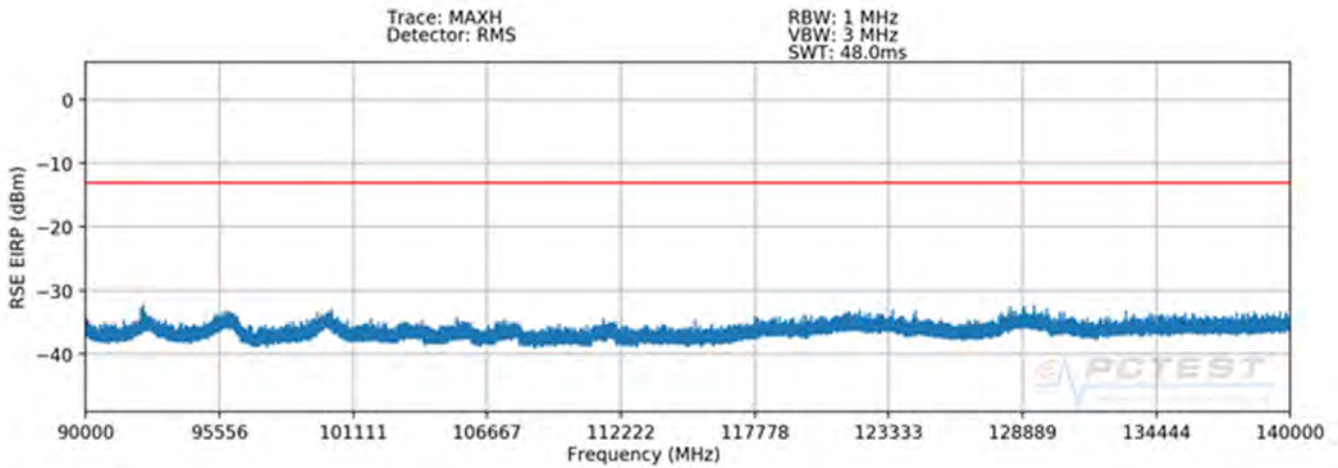


Plot 7-337. K Patch Radiated Spurious Plot 90-140 GHz (1CC QPSK High Channel H Beam – n260)

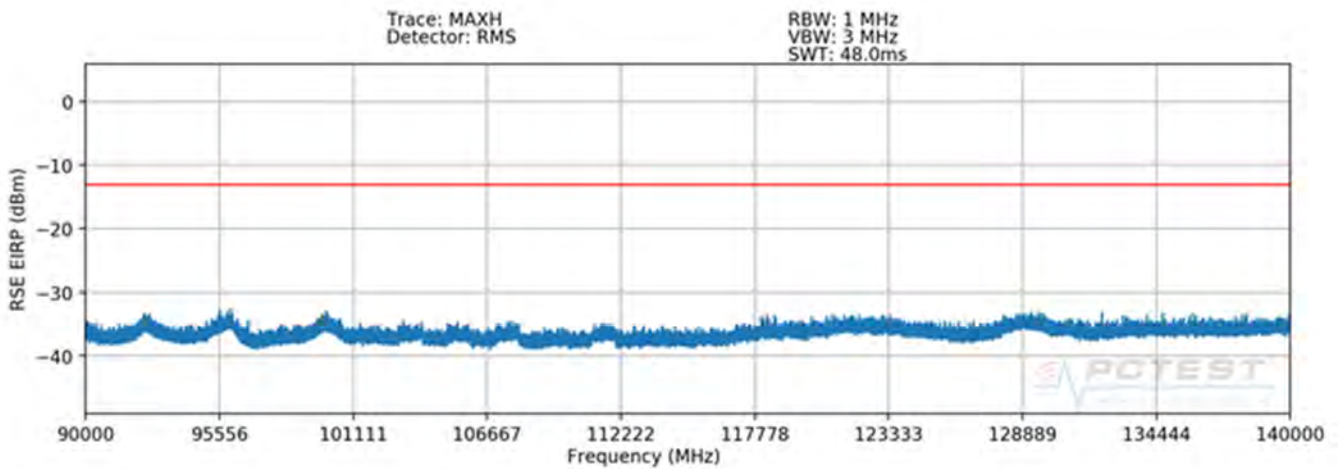
| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 203 of 371 |



Plot 7-338. K Patch Radiated Spurious Plot 90-140 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-339. K Patch Radiated Spurious Plot 90-140 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-340. K Patch Radiated Spurious Plot 90-140 GHz (1CC QPSK High Channel V Beam – n260)

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|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 204 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL[dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 128618.50 | RMS/Avg | Low | 50 | QPSK | H | H | - | - | -39.61 | -13.00 | -26.61 |
| 95994.50 | RMS/Avg | Mid | 50 | QPSK | H | H | - | - | -39.67 | -13.00 | -26.67 |
| 128583.00 | RMS/Avg | High | 50 | QPSK | H | H | - | - | -39.93 | -13.00 | -26.93 |
| 96004.00 | RMS/Avg | Low | 50 | QPSK | V | V | - | - | -39.83 | -13.00 | -26.83 |
| 128743.00 | RMS/Avg | Mid | 50 | QPSK | V | V | - | - | -39.83 | -13.00 | -26.83 |
| 95995.50 | RMS/Avg | High | 50 | QPSK | V | V | - | - | -39.67 | -13.00 | -26.67 |

Table 7-62. K Patch Spurious Emissions Table (90-140GHz – n260)

Notes

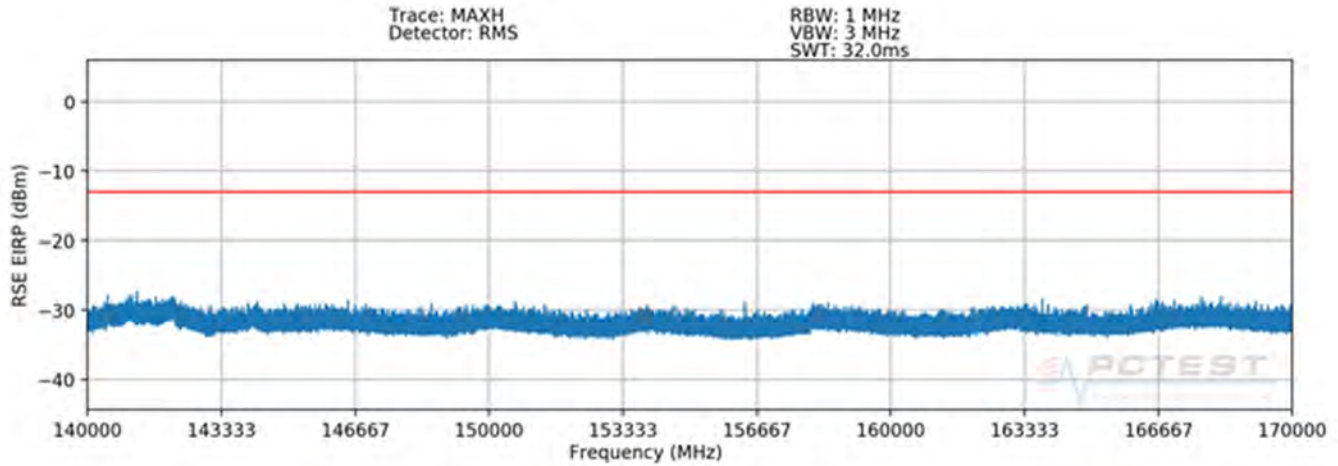
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

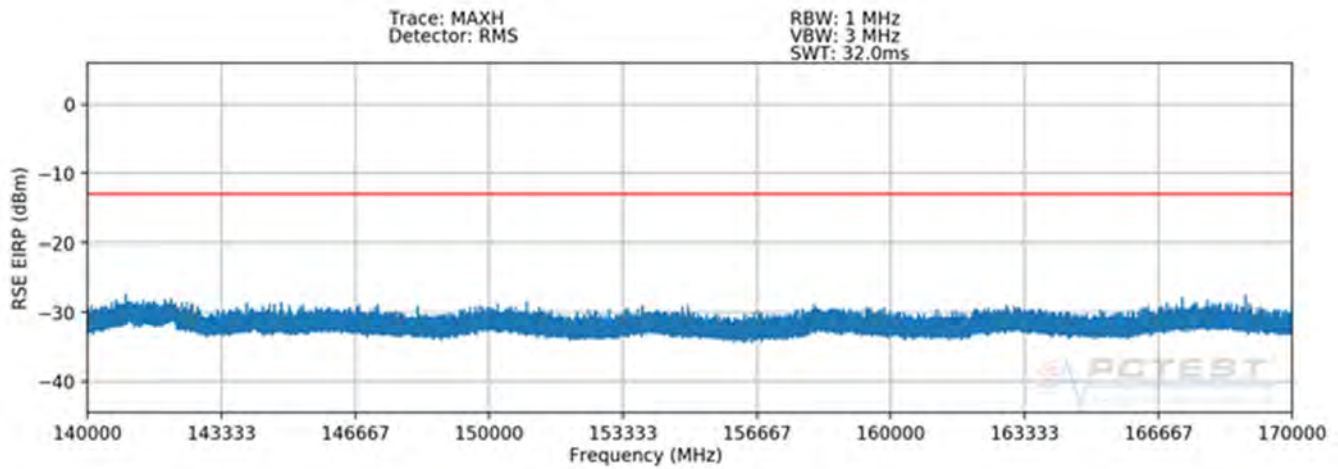
$$(-39.61 \text{ dBm} + -39.83 \text{ dBm}) = (109.40 \text{ nW} + 104.06 \text{ nW}) = (213.46 \text{ nW}) = -36.71 \text{ dBm}$$

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|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 205 of 371 |

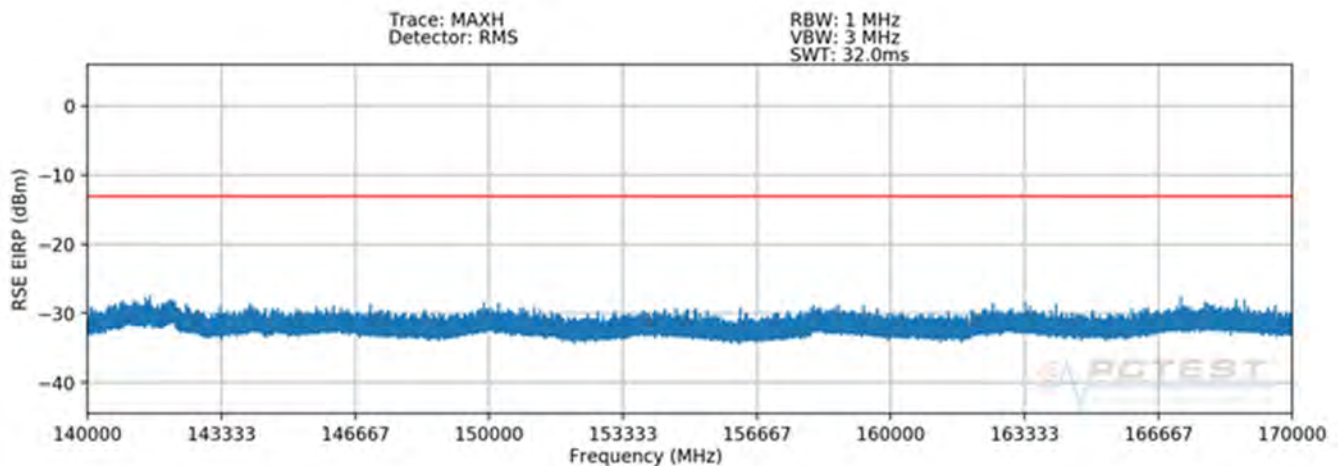
140 – 170GHz(n260)



Plot 7-341. K Patch Radiated Spurious Plot 140-170 GHz (1CC QPSK Low Channel H Beam – n260)

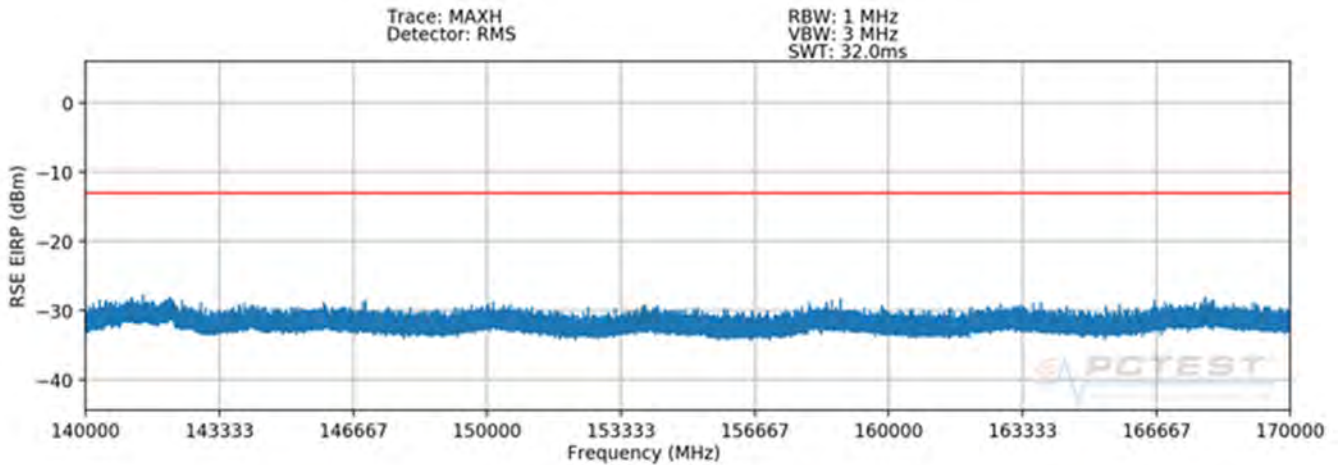


Plot 7-342. K Patch Radiated Spurious Plot 140-170 GHz (1CC QPSK Mid Channel H Beam – n260)

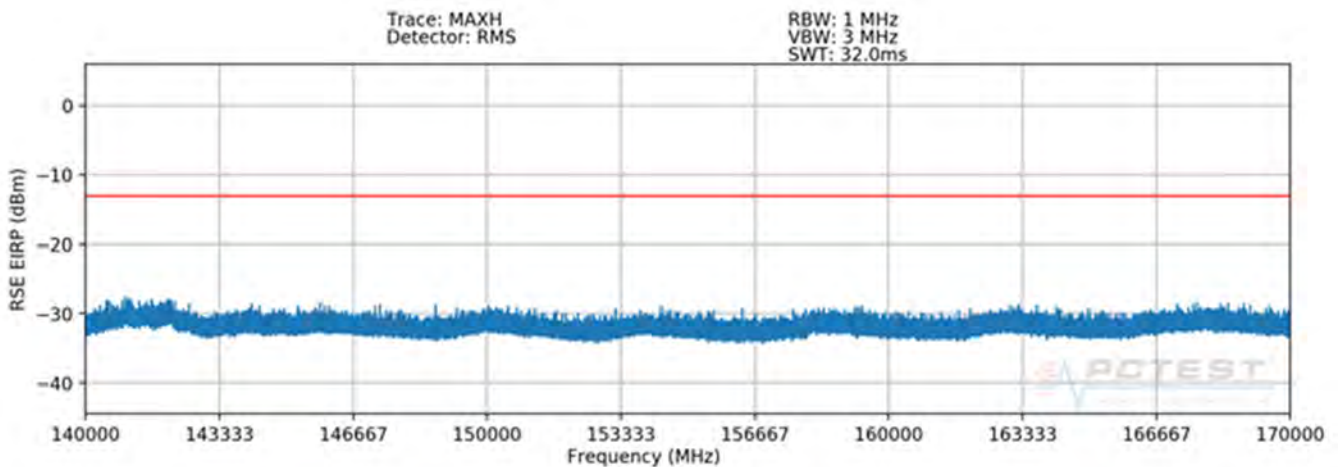


Plot 7-343. K Patch Radiated Spurious Plot 140-170 GHz (1CC QPSK High Channel H Beam – n260)

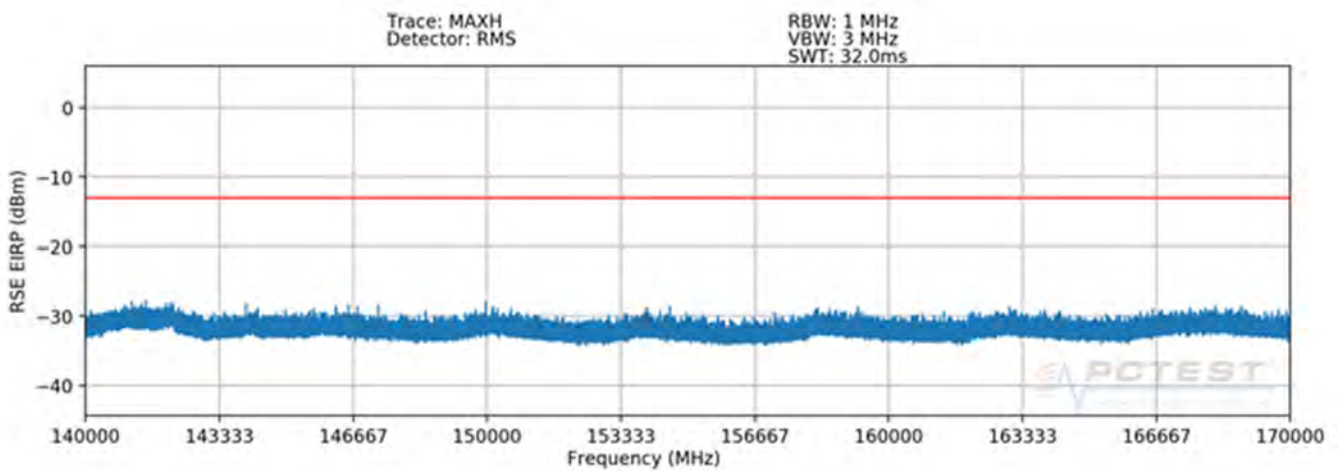
| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 206 of 371 |



Plot 7-344. K Patch Radiated Spurious Plot 140-170 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-345. K Patch Radiated Spurious Plot 140-170 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-346. K Patch Radiated Spurious Plot 140-170 GHz (1CC QPSK High Channel V Beam – n260)

| | | | |
|--|--|-------------------------------|---------------------------------|
| FCC ID: A3LSMN976V |  MEASUREMENT REPORT (CERTIFICATION)  | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | Page 207 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL[dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 142095.50 | RMS/Avg | Low | 50 | QPSK | H | H | - | - | -34.73 | -13.00 | -21.73 |
| 142113.50 | RMS/Avg | Mid | 50 | QPSK | H | H | - | - | -34.86 | -13.00 | -21.86 |
| 142091.00 | RMS/Avg | High | 50 | QPSK | H | H | - | - | -34.95 | -13.00 | -21.95 |
| 142104.50 | RMS/Avg | Low | 50 | QPSK | V | V | - | - | -34.33 | -13.00 | -21.33 |
| 142114.00 | RMS/Avg | Mid | 50 | QPSK | V | V | - | - | -34.81 | -13.00 | -21.81 |
| 142142.50 | RMS/Avg | High | 50 | QPSK | V | V | - | - | -34.68 | -13.00 | -21.68 |

Table 7-63. K Patch Spurious Emissions Table (140-170GHz – n260)

Notes

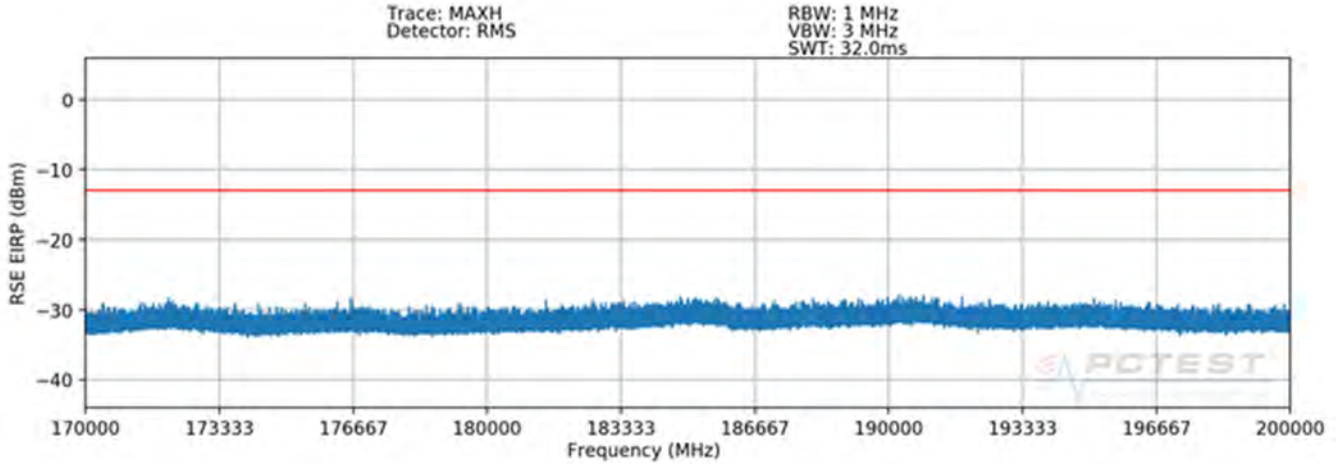
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

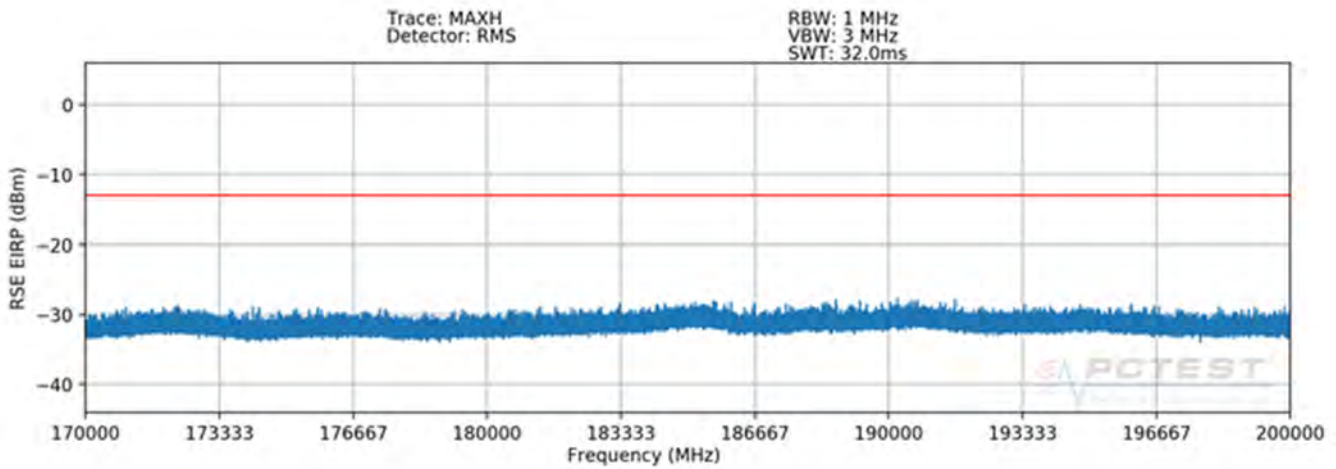
$$(-34.73 \text{ dBm} + -34.33 \text{ dBm}) = (336.90 \text{ nW} + 369.06 \text{ nW}) = (705.96 \text{ nW}) = -31.51 \text{ dBm}$$

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|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 208 of 371 |

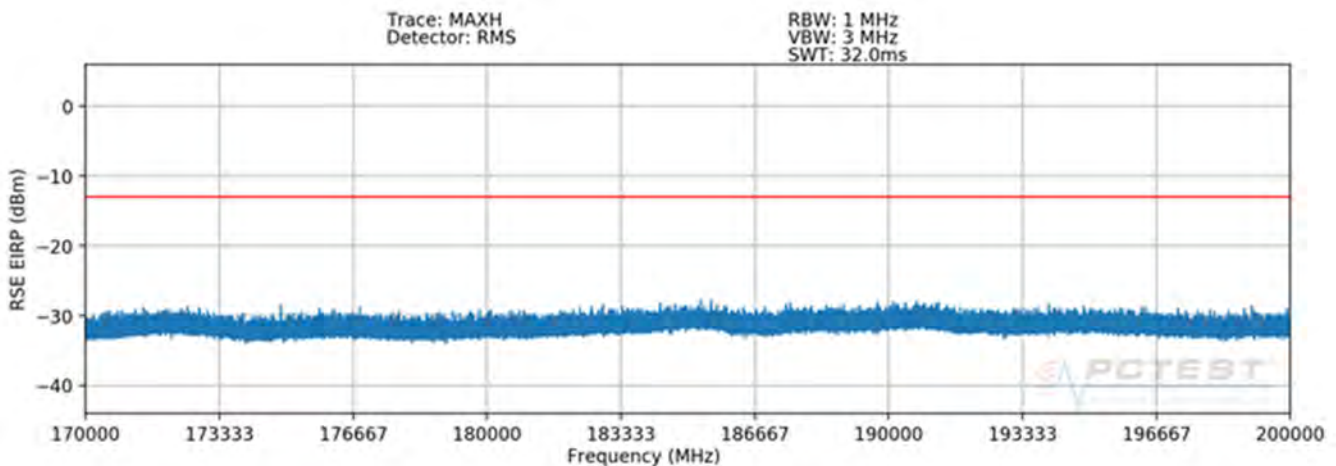
170 – 200GHz(n260)



Plot 7-347. K Patch Radiated Spurious Plot 170-200 GHz (1CC QPSK Low Channel H Beam – n260)

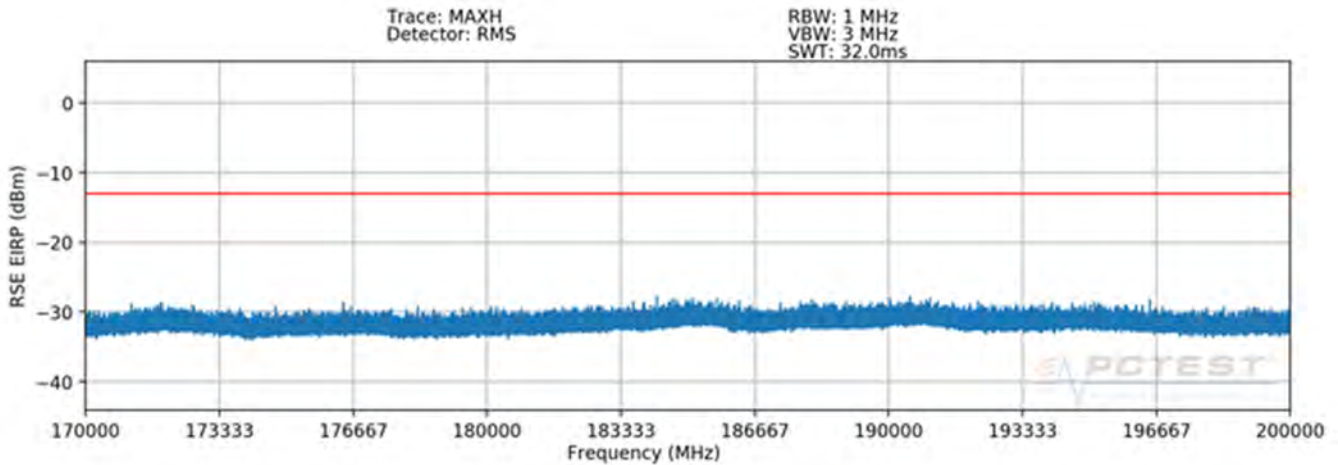


Plot 7-348. K Patch Radiated Spurious Plot 170-200 GHz (1CC QPSK Mid Channel H Beam – n260)

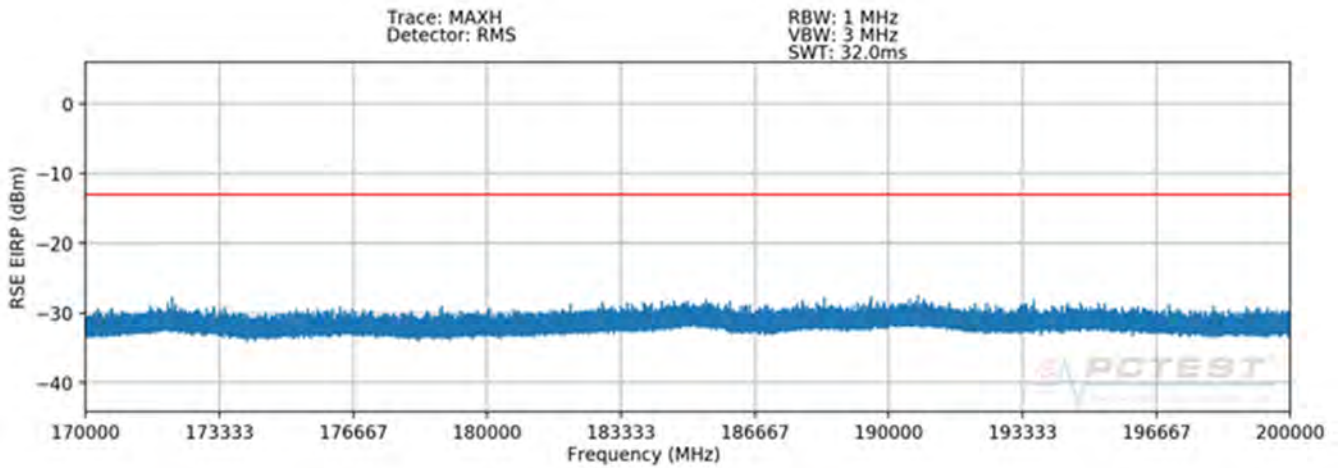


Plot 7-349. K Patch Radiated Spurious Plot 170-200 GHz (1CC QPSK High Channel H Beam – n260)

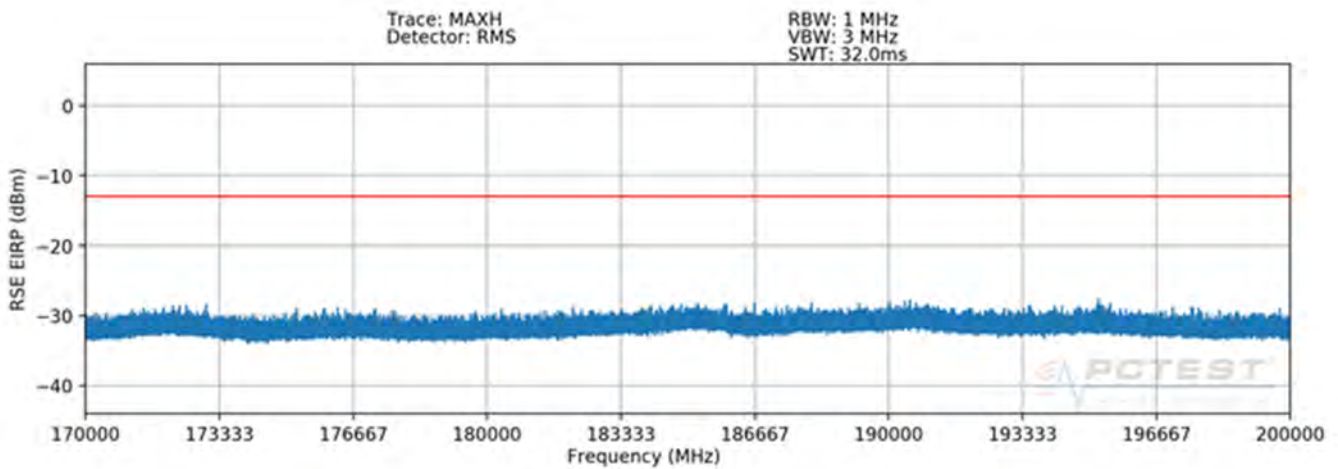
| | | | | |
|--|---|--|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 209 of 371 |



Plot 7-350. K Patch Radiated Spurious Plot 170-200 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-351. K Patch Radiated Spurious Plot 170-200 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-352. K Patch Radiated Spurious Plot 170-200 GHz (1CC QPSK High Channel V Beam – n260)

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|--|---|---|--|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 210 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL[dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 190400.50 | RMS/Avg | Low | 50 | QPSK | H | H | - | - | -35.35 | -13.00 | -22.35 |
| 190090.00 | RMS/Avg | Mid | 50 | QPSK | H | H | - | - | -35.47 | -13.00 | -22.47 |
| 190572.50 | RMS/Avg | High | 50 | QPSK | H | H | - | - | -35.20 | -13.00 | -22.20 |
| 190431.00 | RMS/Avg | Low | 50 | QPSK | V | V | - | - | -35.09 | -13.00 | -22.09 |
| 190363.50 | RMS/Avg | Mid | 50 | QPSK | V | V | - | - | -35.27 | -13.00 | -22.27 |
| 185025.50 | RMS/Avg | High | 50 | QPSK | V | V | - | - | -35.17 | -13.00 | -22.17 |

Table 7-64. K Patch Spurious Emissions Table (170-200GHz – n260)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

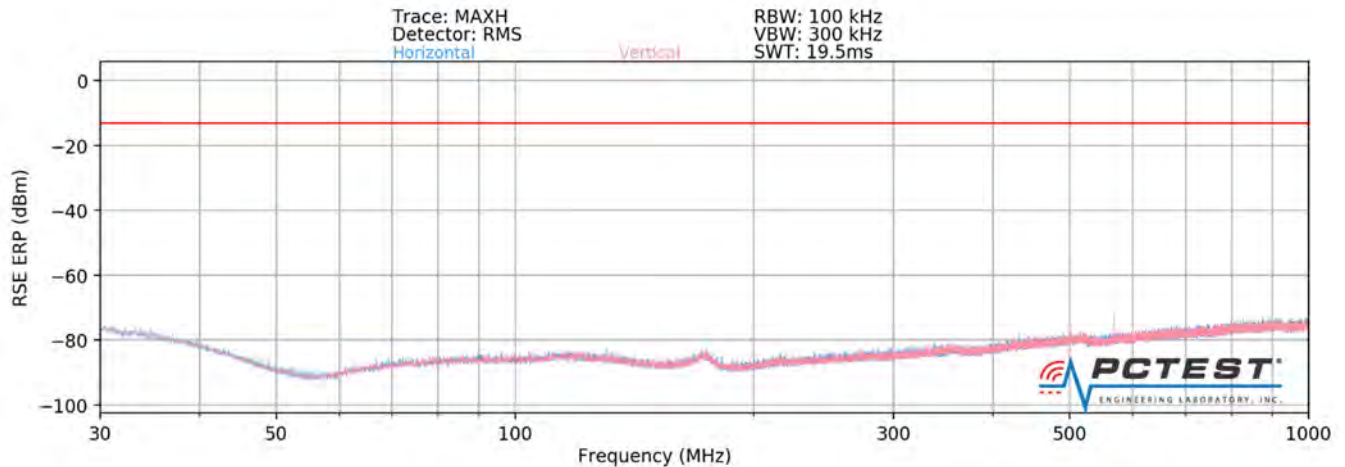
$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

$$(-35.20 \text{ dBm} + -35.17 \text{ dBm}) = (302.13 \text{ nW} + 303.81 \text{ nW}) = (605.94 \text{ nW}) = -32.18 \text{ dBm}$$

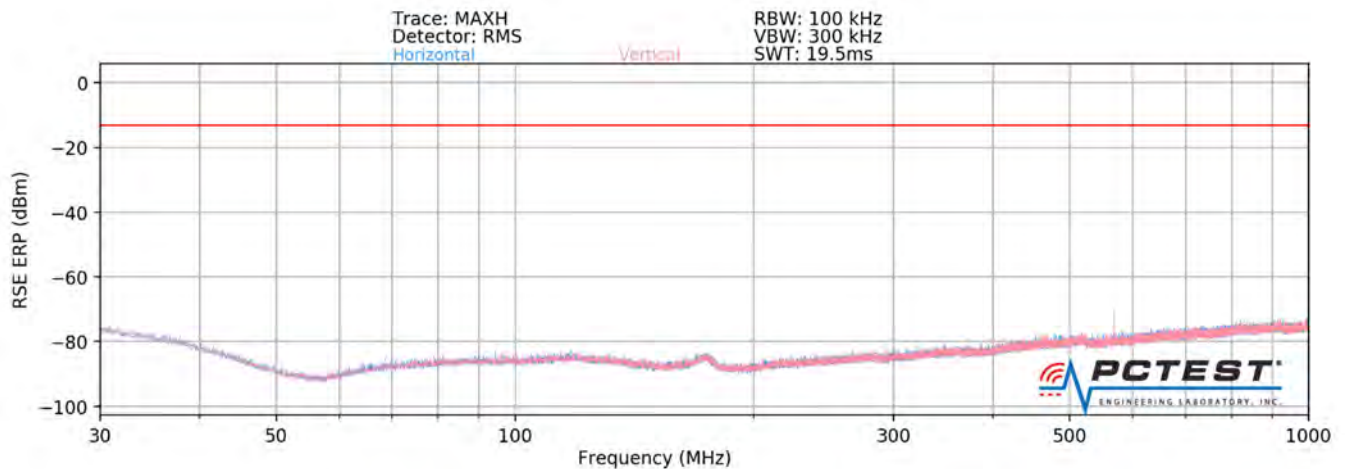
| | | | | |
|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 211 of 371 |

L Patch Radiated Spurious Emissions(n260)

30MHz – 1GHz(n260)



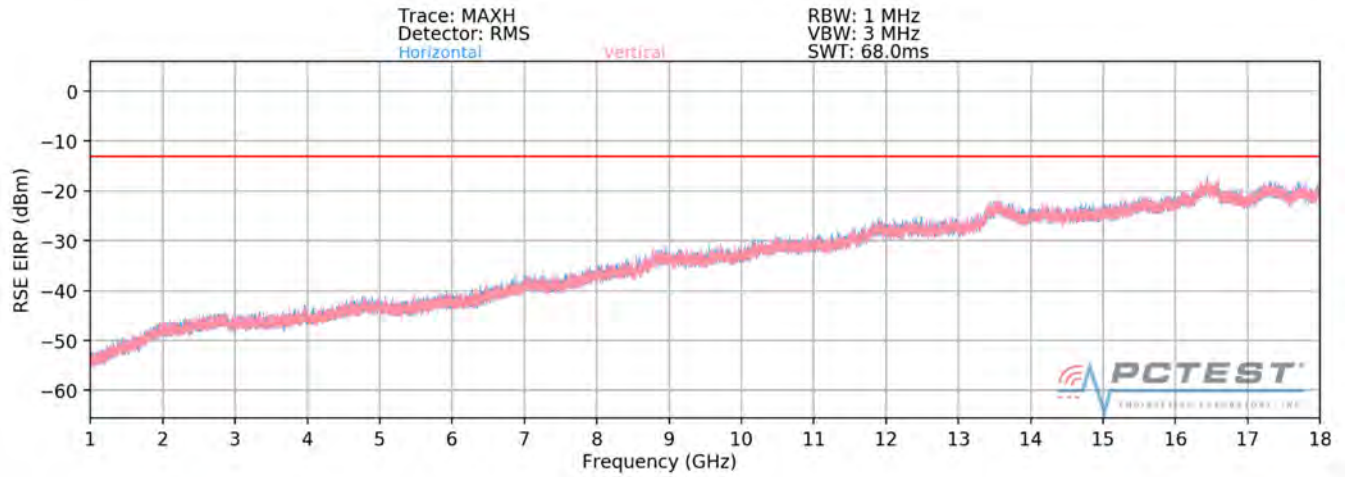
Plot 7-353. L Patch Radiated Spurious Plot 30 MHz - 1 GHz (1CC QPSK Mid Channel H Beam – n260)



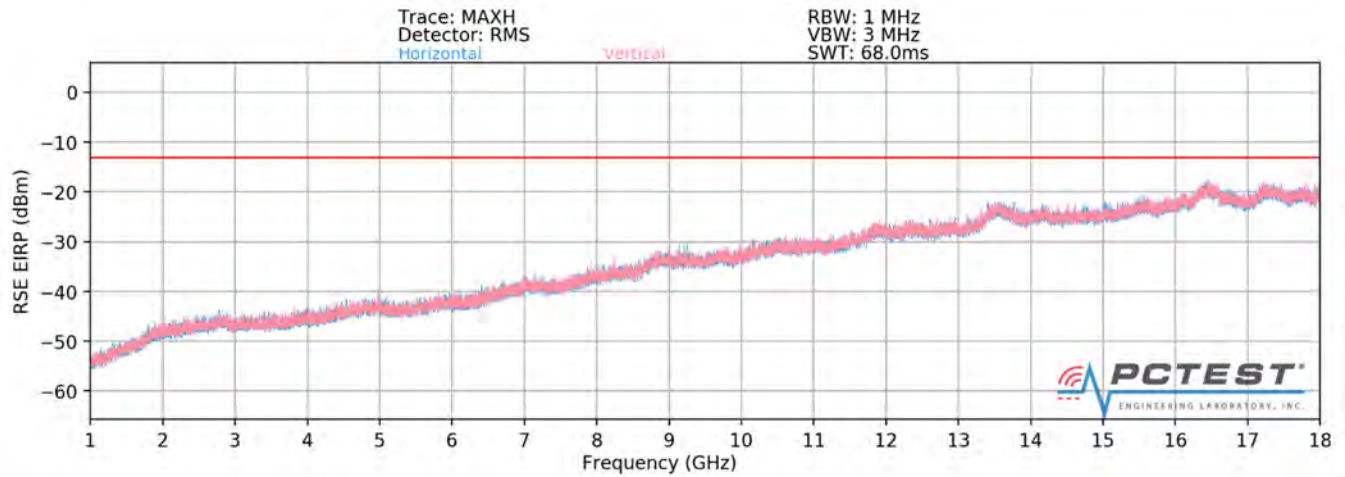
Plot 7-354. L Patch Radiated Spurious Plot 30 MHz - 1 GHz (1CC QPSK Mid Channel V Beam – n260)

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|--|---|---|--|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | Page 212 of 371 |

1 – 18GHz(n260)



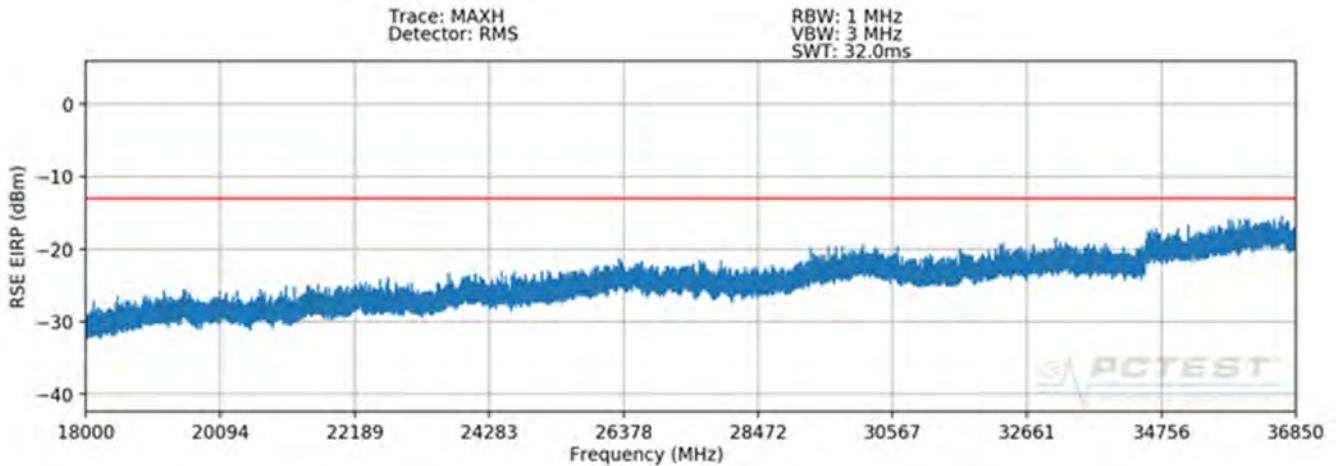
Plot 7-355. L Patch Radiated Spurious Plot 1-18 GHz (1CC QPSK Mid Channel H Beam – n260)



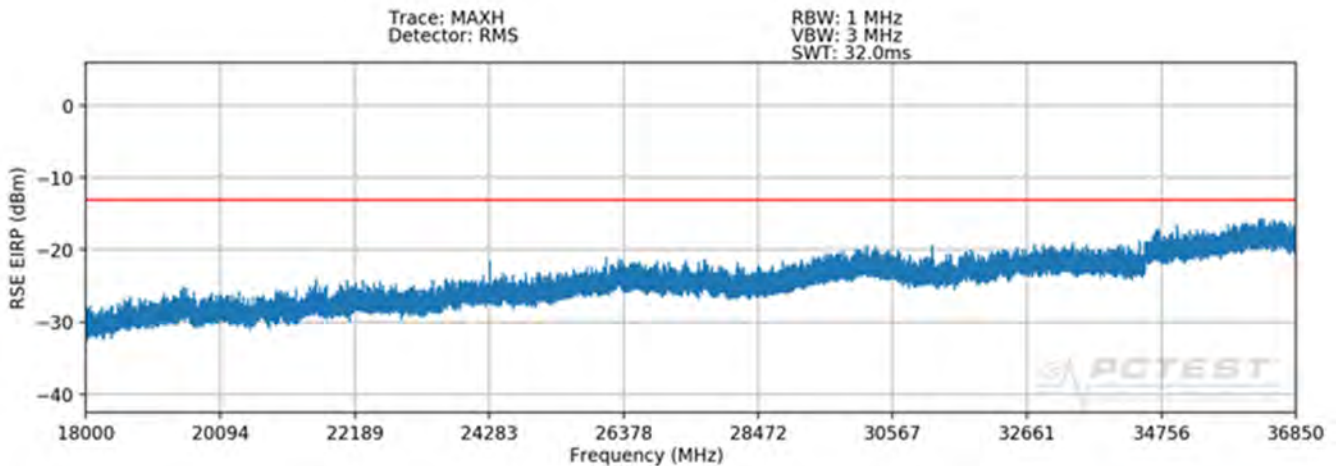
Plot 7-356. L Patch Radiated Spurious Plot 1-18 GHz (1CC QPSK Mid Channel V Beam – n260)

| | | | | |
|--|---|--|--|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 213 of 371 |

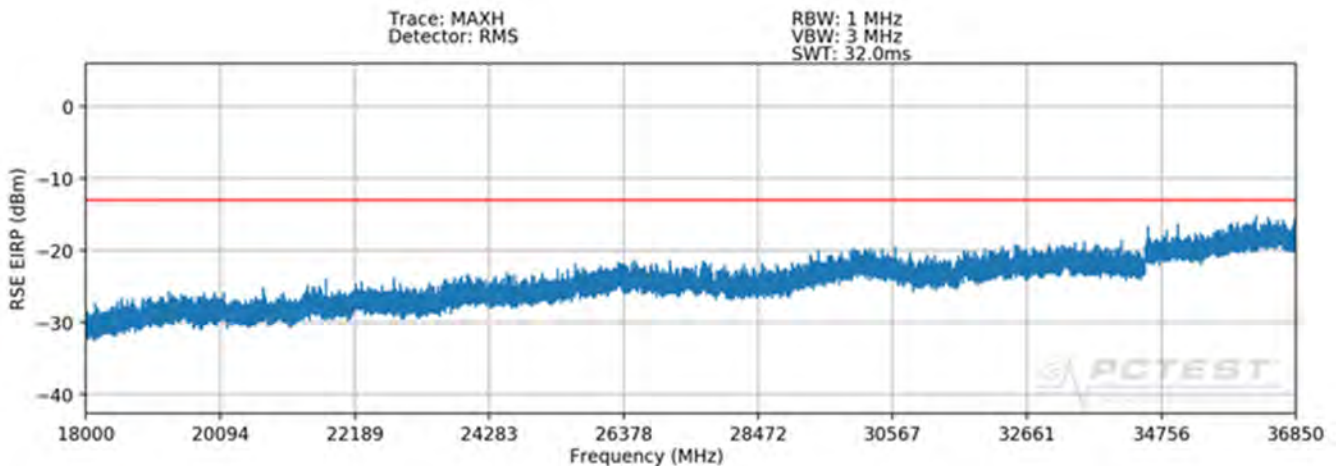
18 – 36.85GHz(n260)



Plot 7-357. L Patch Radiated Spurious Plot 18-36.85 GHz (1CC QPSK Low Channel H Beam – n260)

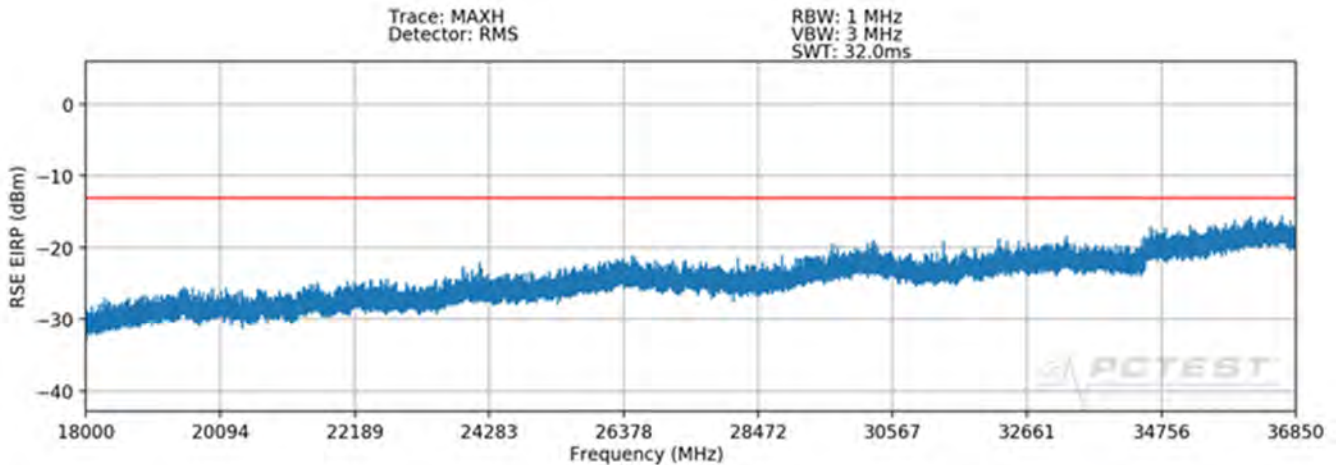


Plot 7-358. L Patch Radiated Spurious Plot 18-36.85 GHz (1CC QPSK Mid Channel H Beam – n260)

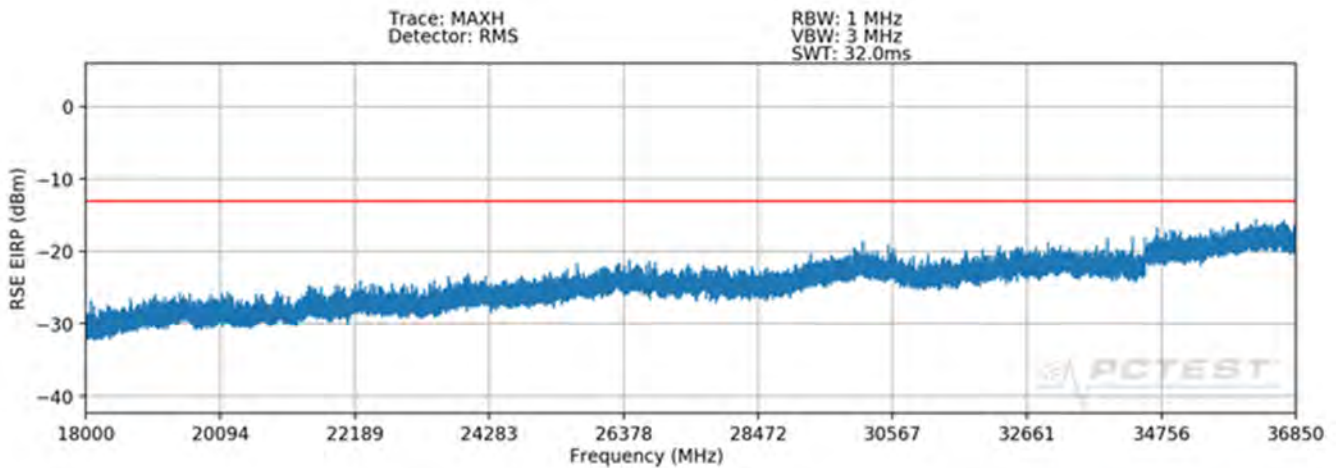


Plot 7-359. L Patch Radiated Spurious Plot 18-36.85 GHz (1CC QPSK High Channel H Beam – n260)

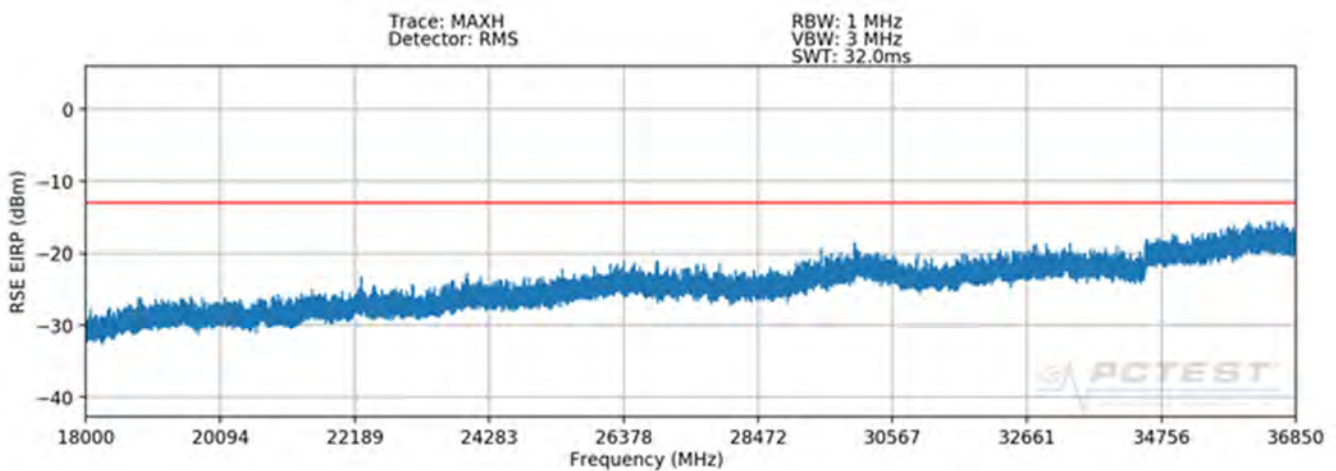
| | | | | |
|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 214 of 371 |



Plot 7-360. L Patch Radiated Spurious Plot 18-36.85 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-361. L Patch Radiated Spurious Plot 18-36.85 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-362. L Patch Radiated Spurious Plot 18-36.85 GHz (1CC QPSK High Channel V Beam – n260)

| | | | | |
|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 215 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 34618.00 | RMS/Avg | Low | 50 | QPSK | H | H | 263 | 22 | -32.02 | -13.00 | -19.02 |
| 34671.50 | RMS/Avg | Mid | 50 | QPSK | H | H | 221 | 24 | -32.16 | -13.00 | -19.16 |
| 31181.00 | RMS/Avg | High | 50 | QPSK | H | H | 258 | 44 | -27.67 | -13.00 | -14.67 |
| 36623.00 | RMS/Avg | Low | 50 | QPSK | V | V | 297 | 7 | -32.07 | -13.00 | -19.07 |
| 34926.00 | RMS/Avg | Mid | 50 | QPSK | V | V | 253 | 10 | -32.68 | -13.00 | -19.68 |
| 31180.50 | RMS/Avg | High | 50 | QPSK | V | V | 258 | 353 | -25.60 | -13.00 | -12.60 |

Table 7-65. L Patch Spurious Emissions Table (18-36.85GHz – n260)

Notes

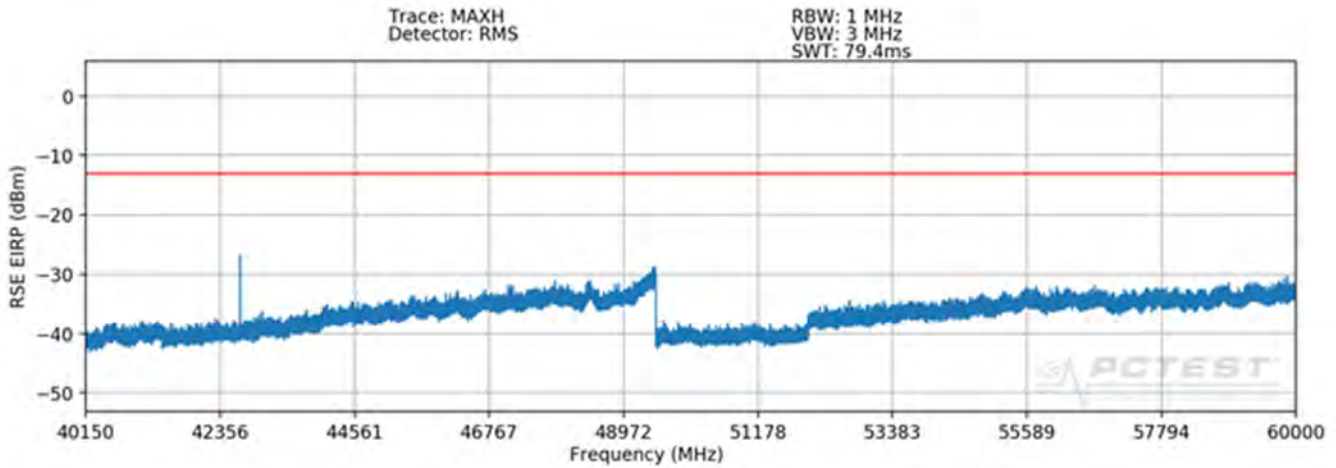
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

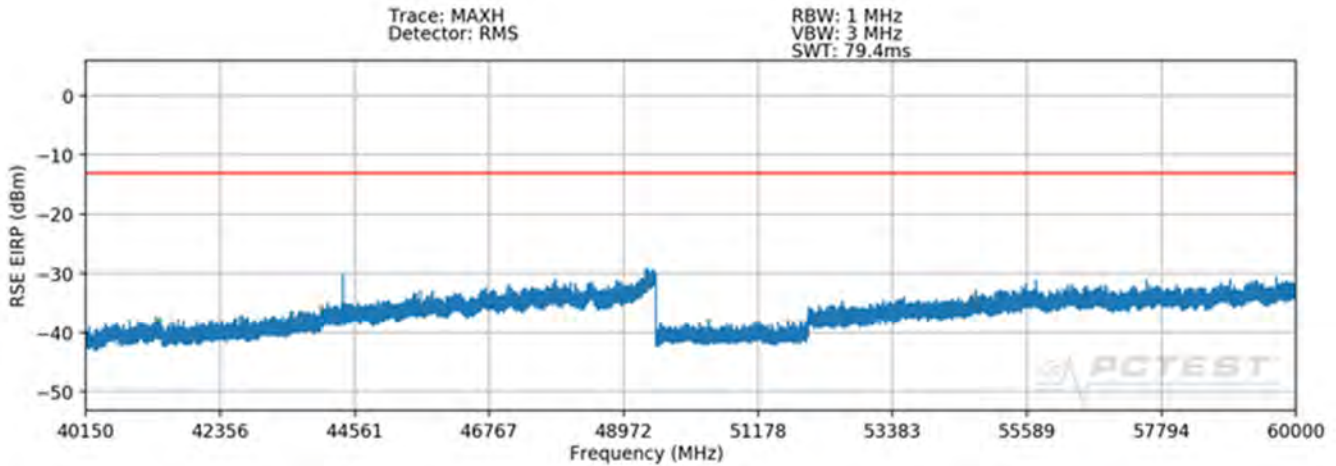
$$(-27.67 \text{ dBm} + -25.60 \text{ dBm}) = (1.71 \text{ } \mu\text{W} + 2.75 \text{ } \mu\text{W}) = (4.46 \text{ } \mu\text{W}) = -23.50 \text{ dBm}$$

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|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 216 of 371 |

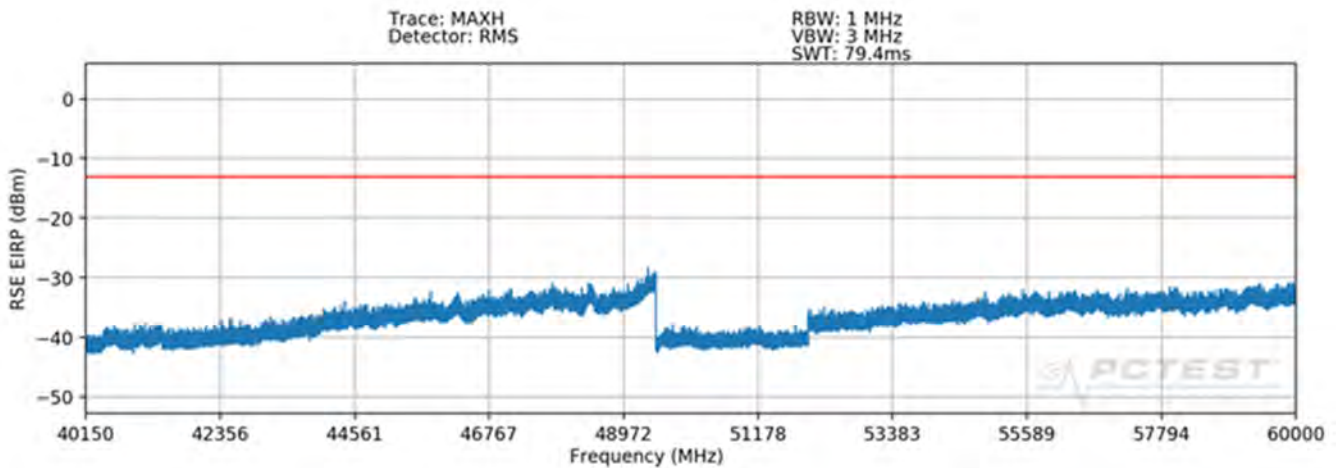
40.15 – 60GHz(n260)



Plot 7-363. L Patch Radiated Spurious Plot 40.15-60 GHz (1CC QPSK Low Channel H Beam – n260)

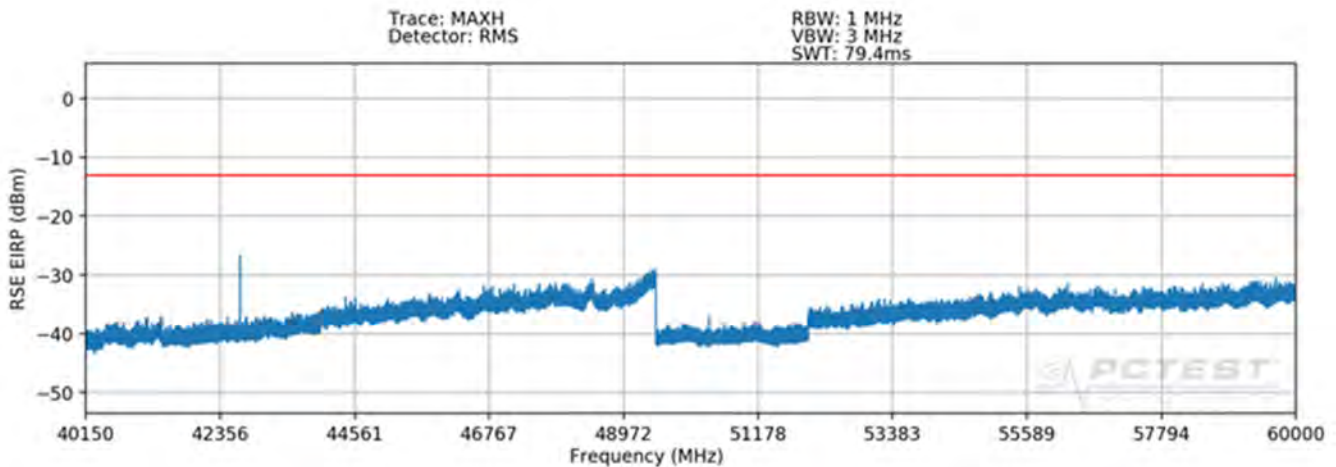


Plot 7-364. L Patch Radiated Spurious Plot 40.15-60 GHz (1CC QPSK Mid Channel H Beam – n260)

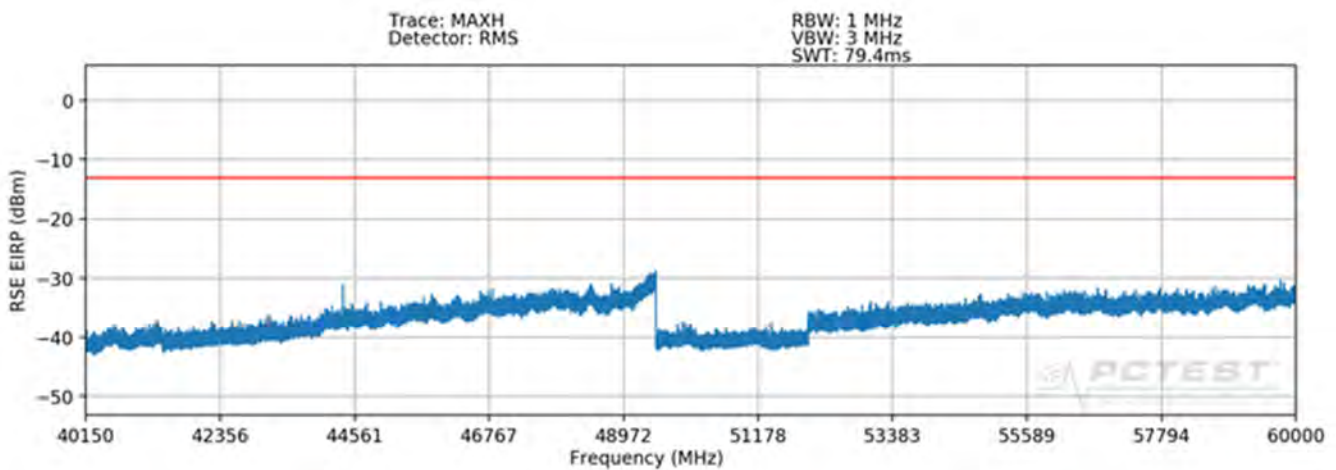


Plot 7-365. L Patch Radiated Spurious Plot 40.15-60 GHz (1CC QPSK High Channel H Beam – n260)

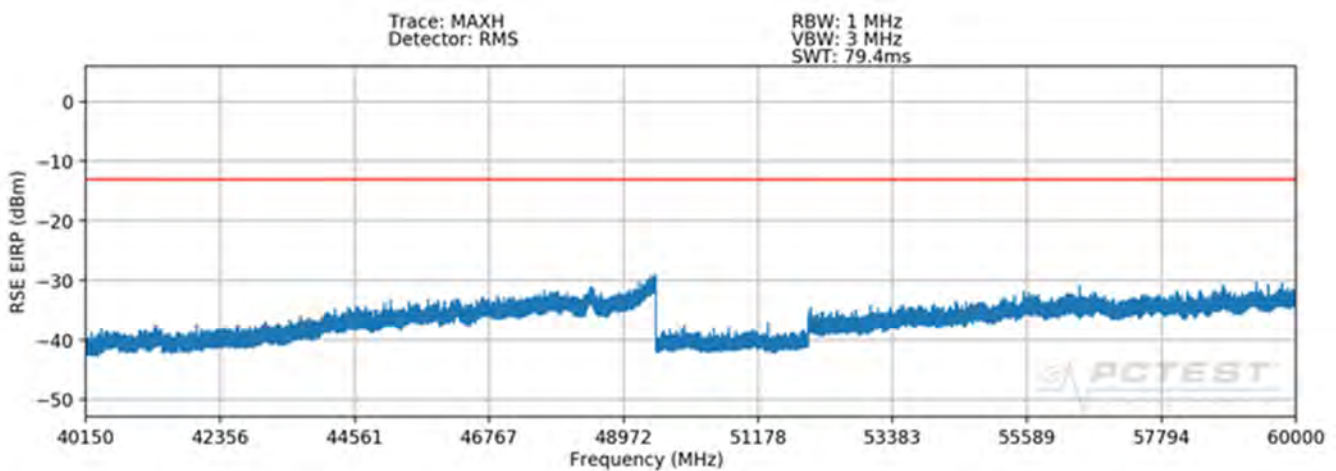
| | | | | |
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| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 217 of 371 |



Plot 7-366. L Patch Radiated Spurious Plot 40.15-60 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-367. L Patch Radiated Spurious Plot 40.15-60 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-368. L Patch Radiated Spurious Plot 40.15-60 GHz (1CC QPSK High Channel V Beam – n260)

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|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 218 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 42681.47 | RMS/Avg | Low | 50 | QPSK | H | H | 274 | 14 | -27.40 | -13.00 | -14.40 |
| 44366.40 | RMS/Avg | Mid | 50 | QPSK | H | H | 338 | 66 | -30.57 | -13.00 | -17.57 |
| 46771.00 | RMS/Avg | High | 50 | QPSK | H | H | 329 | 35 | -38.45 | -13.00 | -25.45 |
| 42681.45 | RMS/Avg | Low | 50 | QPSK | V | V | 286 | 255 | -28.48 | -13.00 | -15.48 |
| 44366.32 | RMS/Avg | Mid | 50 | QPSK | V | V | 319 | 246 | -31.02 | -13.00 | -18.02 |
| 46771.06 | RMS/Avg | High | 50 | QPSK | V | V | 283 | 346 | -37.06 | -13.00 | -24.06 |

Table 7-66. L Patch Spurious Emissions Table (40.15-60 GHz – n260)

Notes

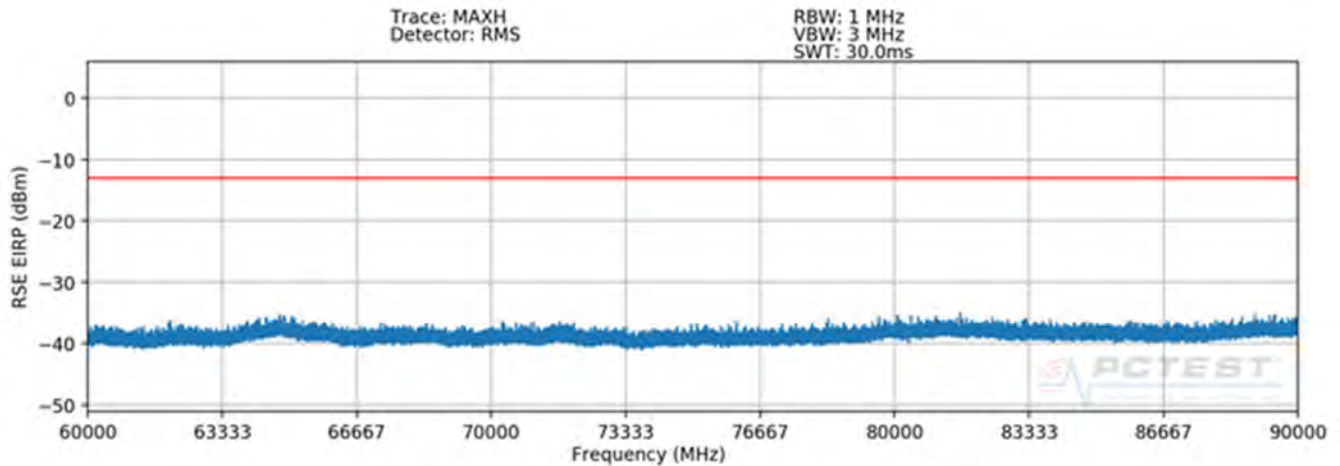
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1.5 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

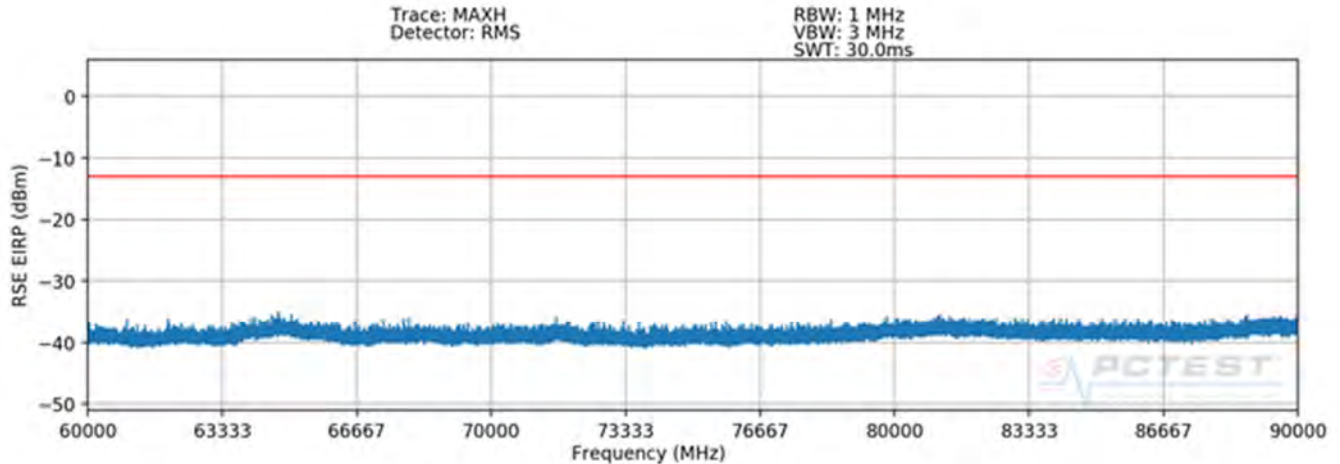
$$(-27.40 \text{ dBm} + -28.48 \text{ dBm}) = (1.82 \text{ } \mu\text{W} + 1.42 \text{ } \mu\text{W}) = (3.24 \text{ } \mu\text{W}) = -24.90 \text{ dBm}$$

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| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 219 of 371 |

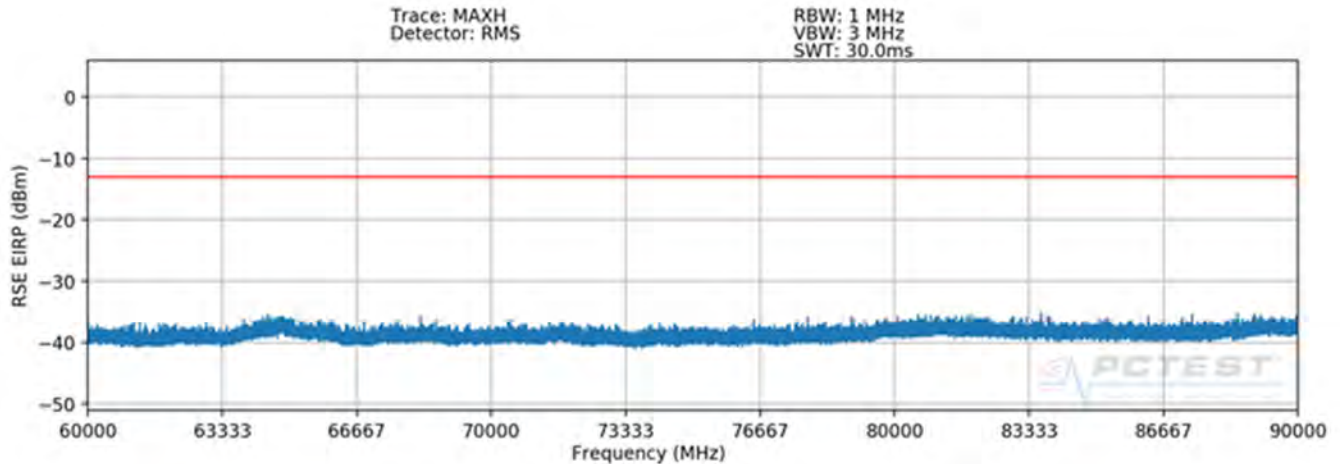
60 – 90GHz(n260)



Plot 7-369. L Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Low Channel H Beam – n260)

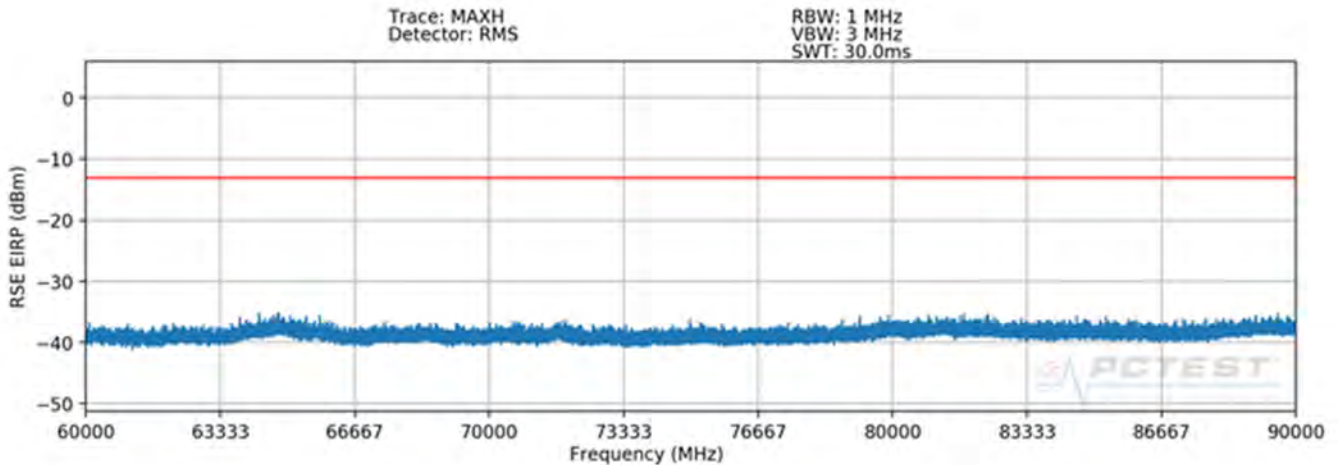


Plot 7-370. L Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Mid Channel H Beam – n260)

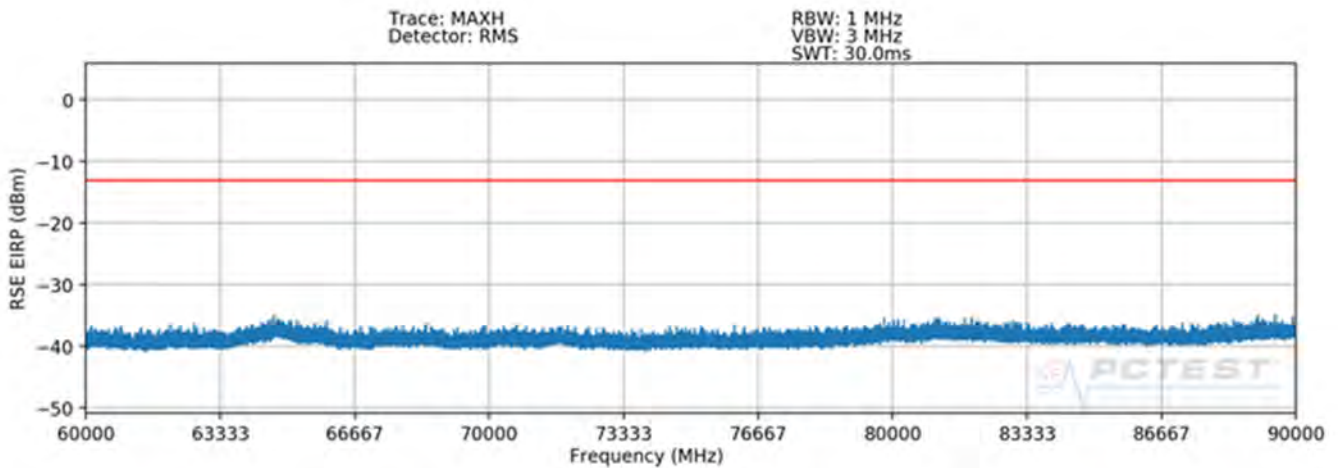


Plot 7-371. L Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK High Channel H Beam – n260)

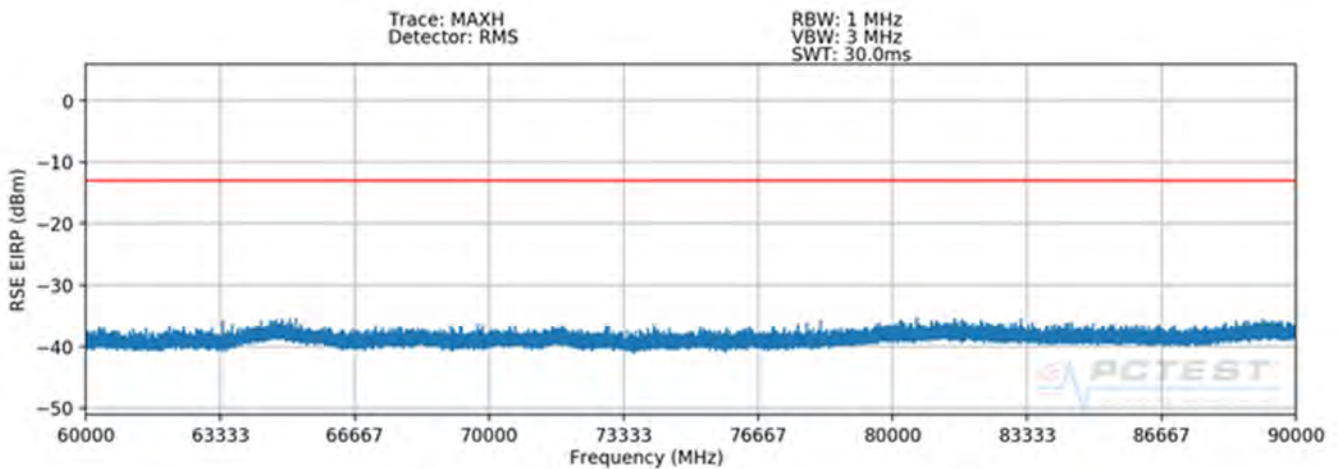
| | | | |
|--|---|-------------------------------|---------------------------------|
| FCC ID: A3LSMN976V |  MEASUREMENT REPORT (CERTIFICATION)  | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | |
| | | | Page 220 of 371 |



Plot 7-372. L Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-373. L Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-374. L Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK High Channel V Beam – n260)

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| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 221 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 74006.00 | RMS/Avg | Low | 50 | QPSK | H | H | 288 | 23 | -43.52 | -13.00 | -30.52 |
| 77591.50 | RMS/Avg | Mid | 50 | QPSK | H | H | 320 | 53 | -42.65 | -13.00 | -29.65 |
| 79884.00 | RMS/Avg | High | 50 | QPSK | H | H | 269 | 22 | -43.21 | -13.00 | -30.21 |
| 74006.00 | RMS/Avg | Low | 50 | QPSK | V | V | 242 | 31 | -43.11 | -13.00 | -30.11 |
| 77591.50 | RMS/Avg | Mid | 50 | QPSK | V | V | 244 | 33 | -39.82 | -13.00 | -26.82 |
| 79884.00 | RMS/Avg | High | 50 | QPSK | V | V | 278 | 7 | -43.48 | -13.00 | -30.48 |

Table 7-67. L Patch Spurious Emissions Table (60-90GHz – n260)

Notes

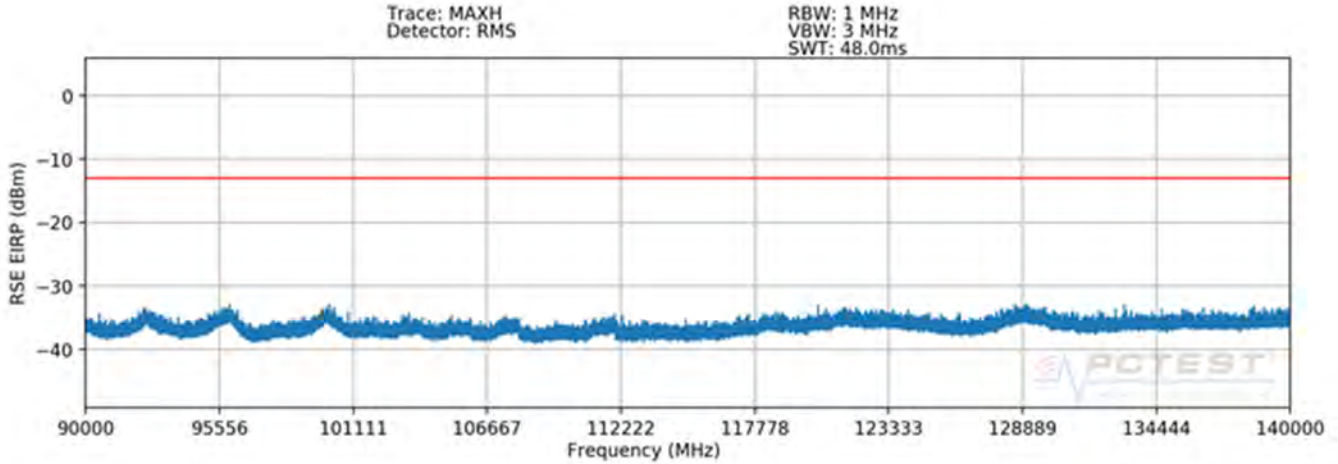
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

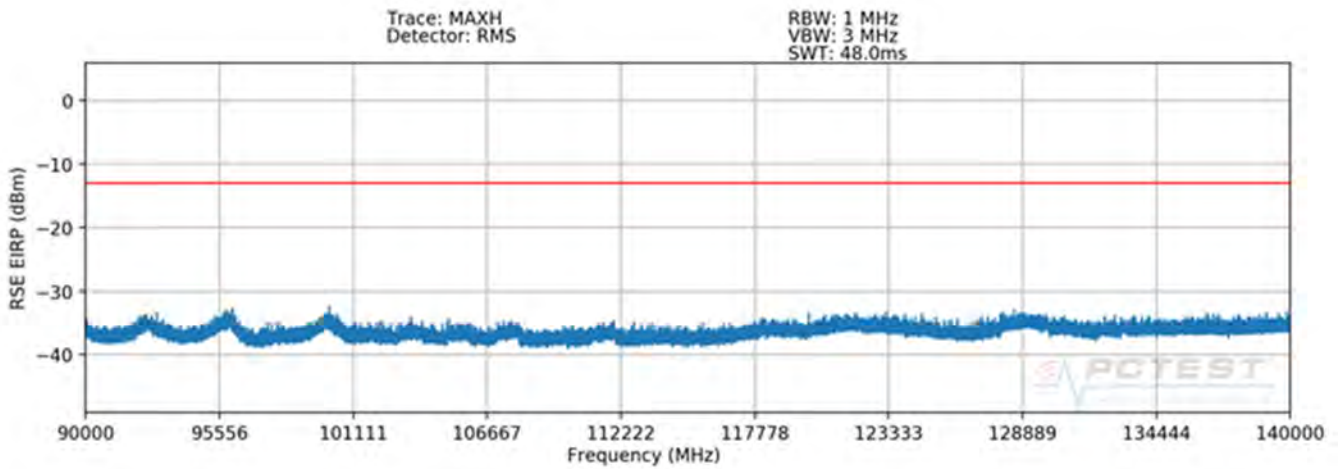
$$(-42.65 \text{ dBm} + -39.82 \text{ dBm}) = (54.33 \text{ nW} + 104.30 \text{ nW}) = (158.63 \text{ nW}) = -38.00 \text{ dBm}$$

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| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 222 of 371 |

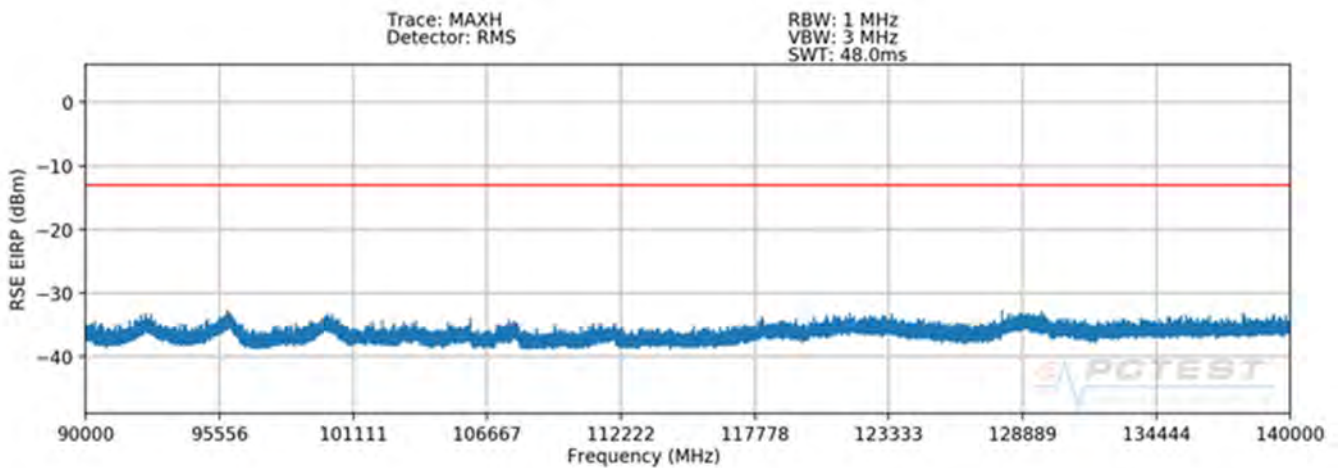
90 – 140GHz(n260)



Plot 7-375. L Patch Radiated Spurious Plot 90-140 GHz (1CC QPSK Low Channel H Beam – n260)

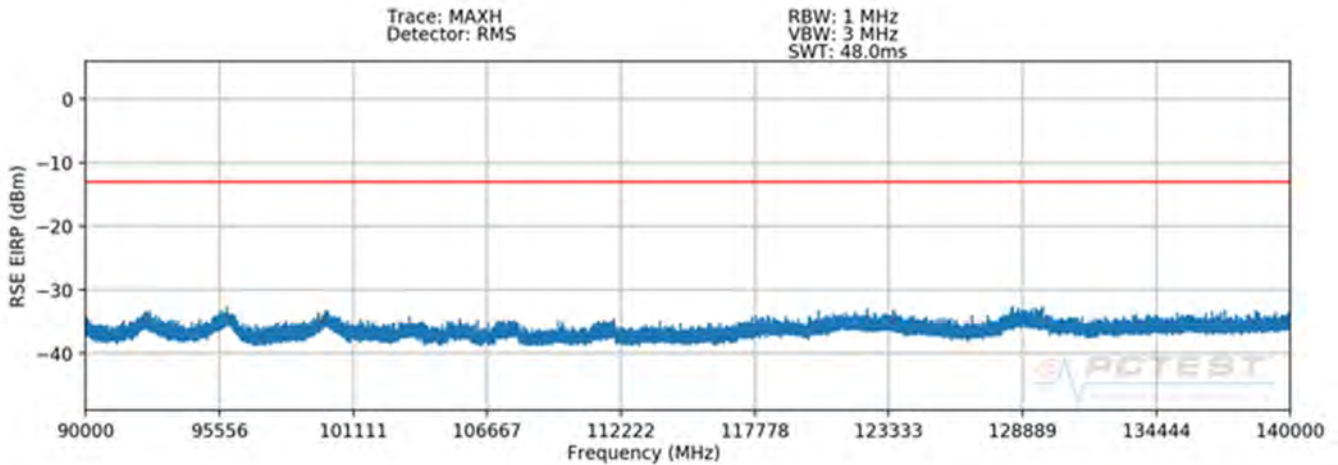


Plot 7-376. L Patch Radiated Spurious Plot 90-140 GHz (1CC QPSK Mid Channel H Beam – n260)

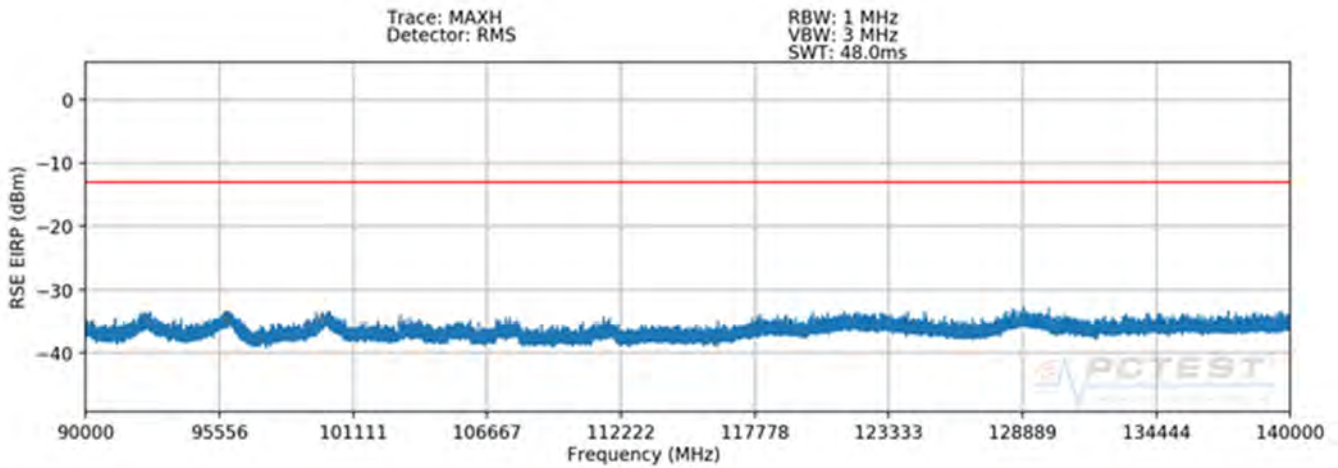


Plot 7-377. L Patch Radiated Spurious Plot 90-140 GHz (1CC QPSK High Channel H Beam – n260)

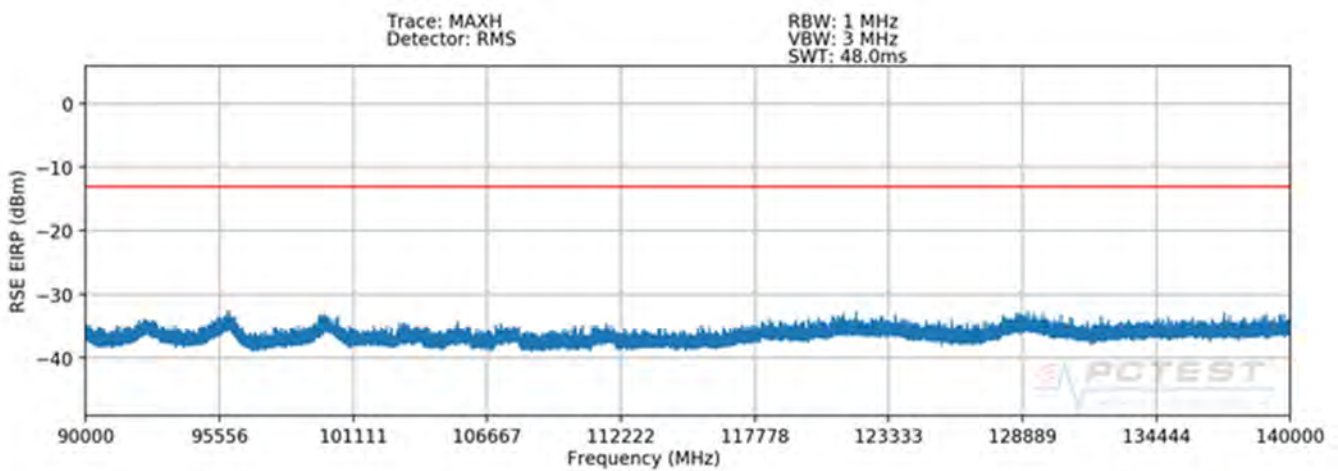
| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 223 of 371 |



Plot 7-378. L Patch Radiated Spurious Plot 90-140 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-379. L Patch Radiated Spurious Plot 90-140 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-380. L Patch Radiated Spurious Plot 90-140 GHz (1CC QPSK High Channel V Beam – n260)

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|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 224 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL[dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 99919.50 | RMS/Avg | Low | 50 | QPSK | H | H | - | - | -39.63 | -13.00 | -26.63 |
| 99992.00 | RMS/Avg | Mid | 50 | QPSK | H | H | - | - | -39.59 | -13.00 | -26.59 |
| 128890.50 | RMS/Avg | High | 50 | QPSK | H | H | - | - | -39.63 | -13.00 | -26.63 |
| 99965.00 | RMS/Avg | Low | 50 | QPSK | V | V | - | - | -39.64 | -13.00 | -26.64 |
| 99871.00 | RMS/Avg | Mid | 50 | QPSK | V | V | - | - | -39.82 | -13.00 | -26.82 |
| 95947.00 | RMS/Avg | High | 50 | QPSK | V | V | - | - | -39.69 | -13.00 | -26.69 |

Table 7-68. L Patch Spurious Emissions Table (90-140GHz – n260)

Notes

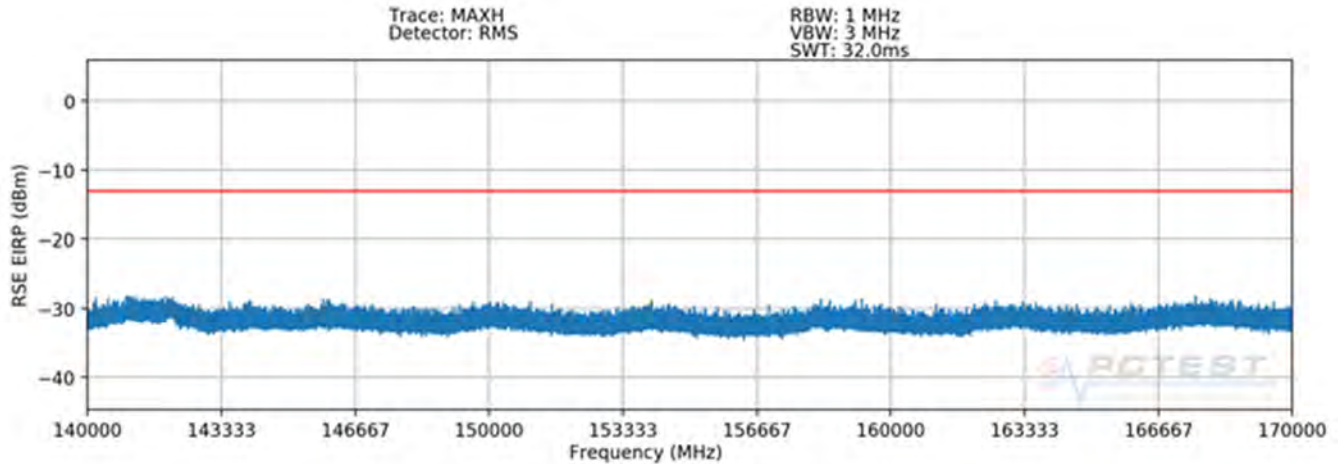
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

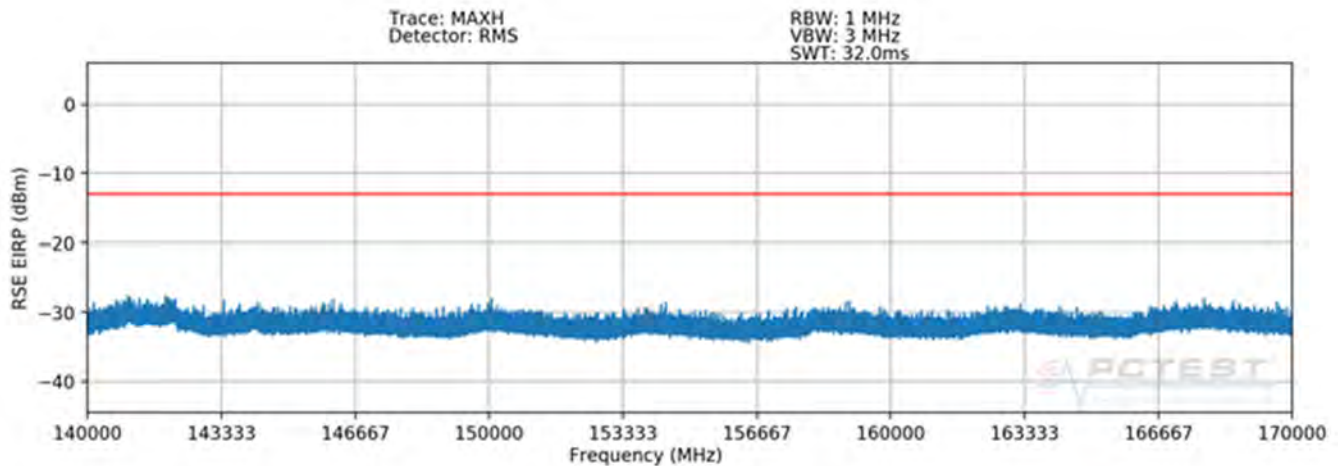
$$(-39.63 \text{ dBm} + -39.64 \text{ dBm}) = (108.94 \text{ nW} + 108.64 \text{ nW}) = (215.59 \text{ nW}) = -36.62 \text{ dBm}$$

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|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 225 of 371 |

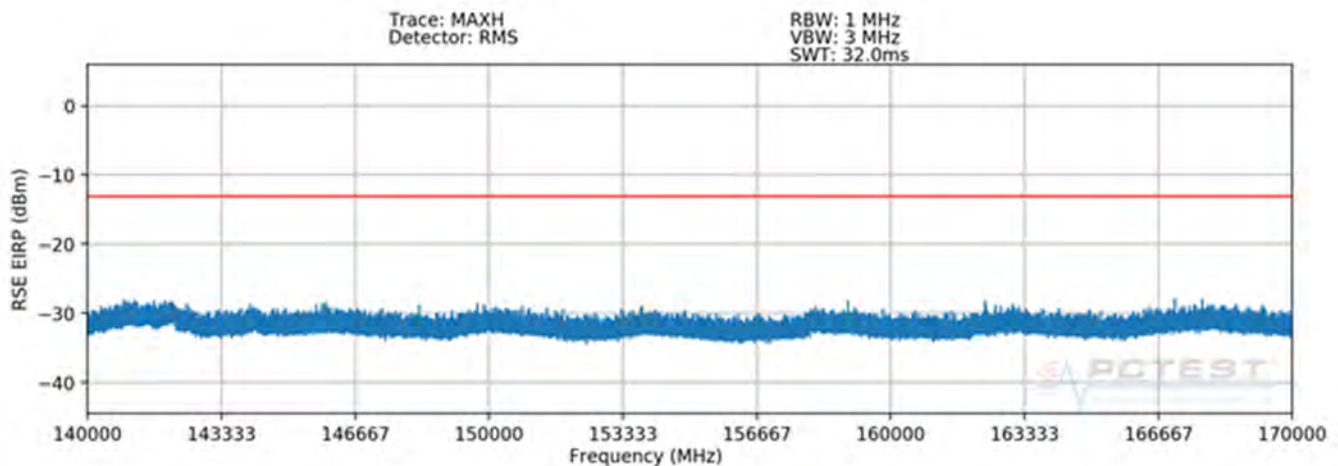
140 – 170GHz(n260)



Plot 7-381. L Patch Radiated Spurious Plot 140-170 GHz (1CC QPSK Low Channel H Beam – n260)

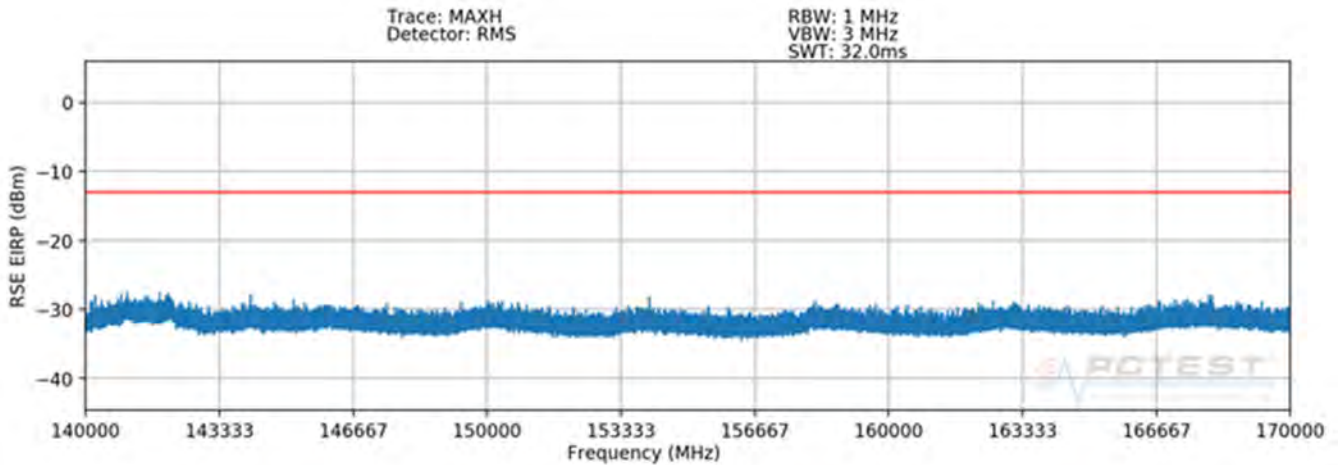


Plot 7-382. L Patch Radiated Spurious Plot 140-170 GHz (1CC QPSK Mid Channel H Beam – n260)

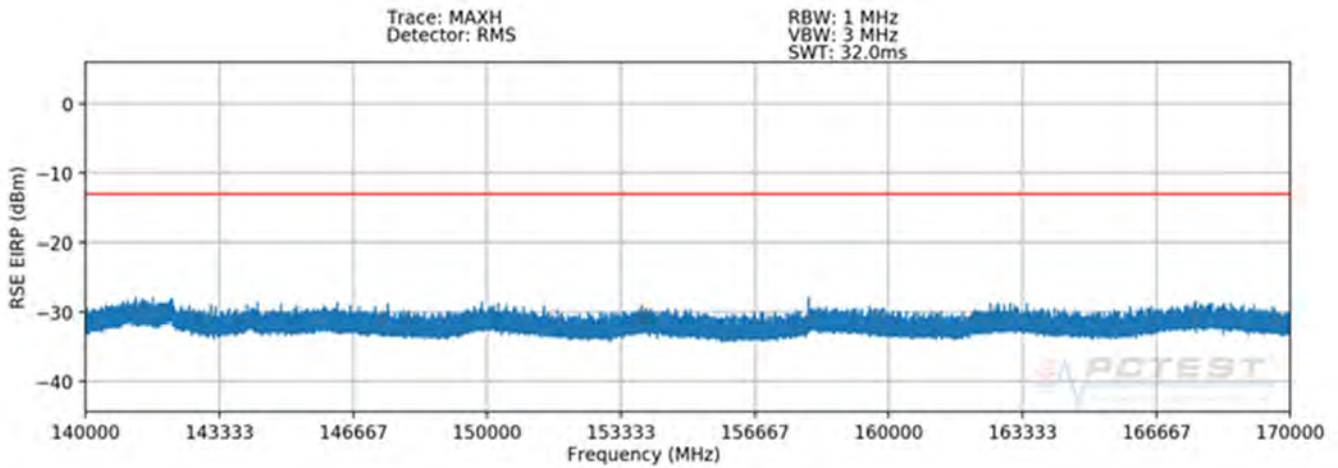


Plot 7-383. L Patch Radiated Spurious Plot 140-170 GHz (1CC QPSK High Channel H Beam – n260)

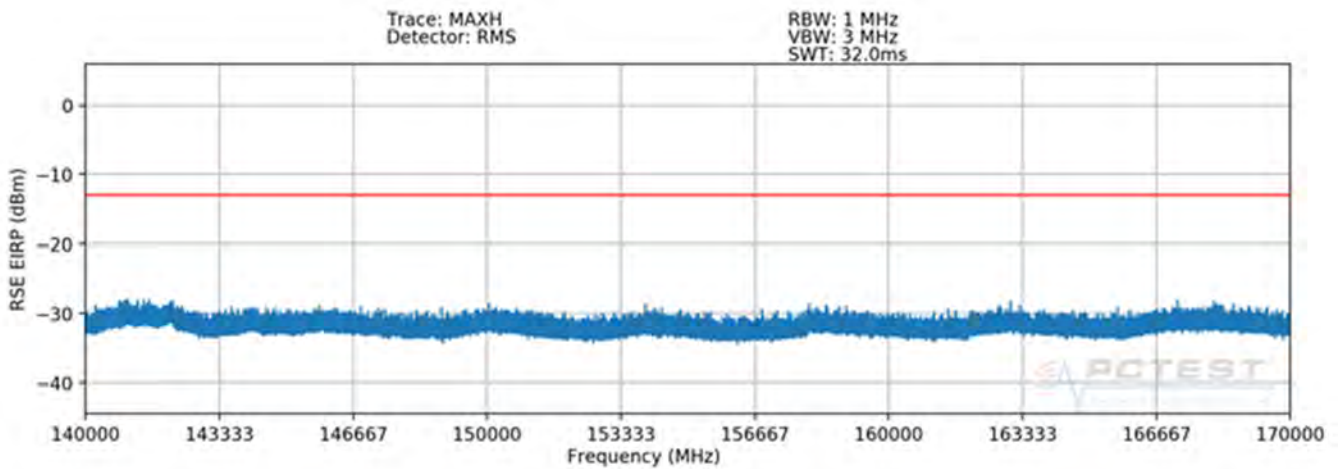
| | | | | |
|--|---|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 226 of 371 |



Plot 7-384. L Patch Radiated Spurious Plot 140-170 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-385. L Patch Radiated Spurious Plot 140-170 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-386. L Patch Radiated Spurious Plot 140-170 GHz (1CC QPSK High Channel V Beam – n260)

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| FCC ID: A3LSMN976V |  MEASUREMENT REPORT (CERTIFICATION)  | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | Page 227 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL[dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 142145.00 | RMS/Avg | Low | 50 | QPSK | H | H | - | - | -34.79 | -13.00 | -21.79 |
| 142108.00 | RMS/Avg | Mid | 50 | QPSK | H | H | - | - | -34.66 | -13.00 | -21.66 |
| 142111.00 | RMS/Avg | High | 50 | QPSK | H | H | - | - | -34.77 | -13.00 | -21.77 |
| 142079.00 | RMS/Avg | Low | 50 | QPSK | V | V | - | - | -34.68 | -13.00 | -21.68 |
| 142133.50 | RMS/Avg | Mid | 50 | QPSK | V | V | - | - | -34.79 | -13.00 | -21.79 |
| 142097.50 | RMS/Avg | High | 50 | QPSK | V | V | - | - | -34.88 | -13.00 | -21.88 |

Table 7-69. L Patch Spurious Emissions Table (140-170GHz – n260)

Notes

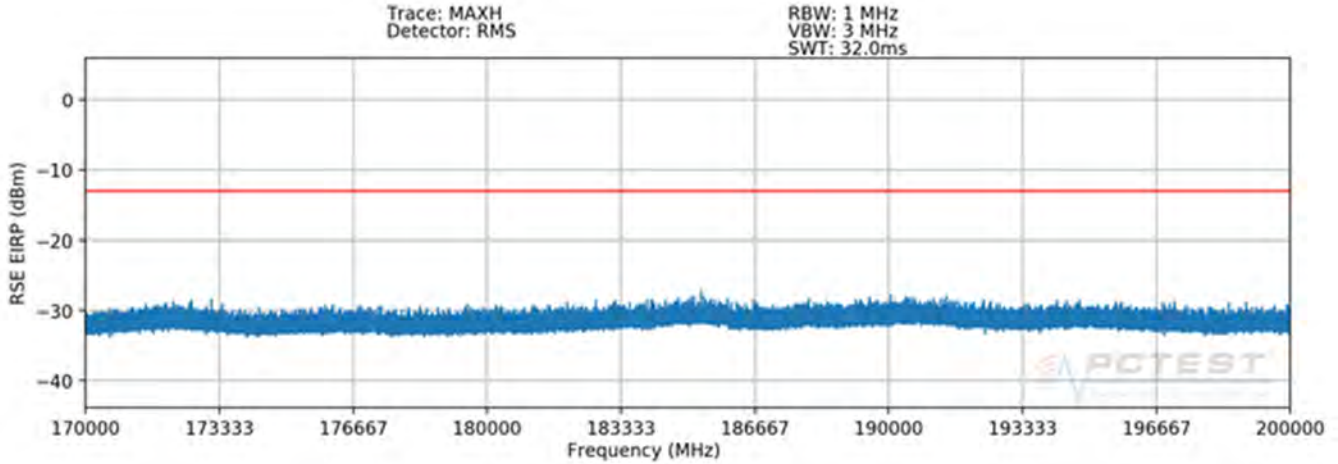
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

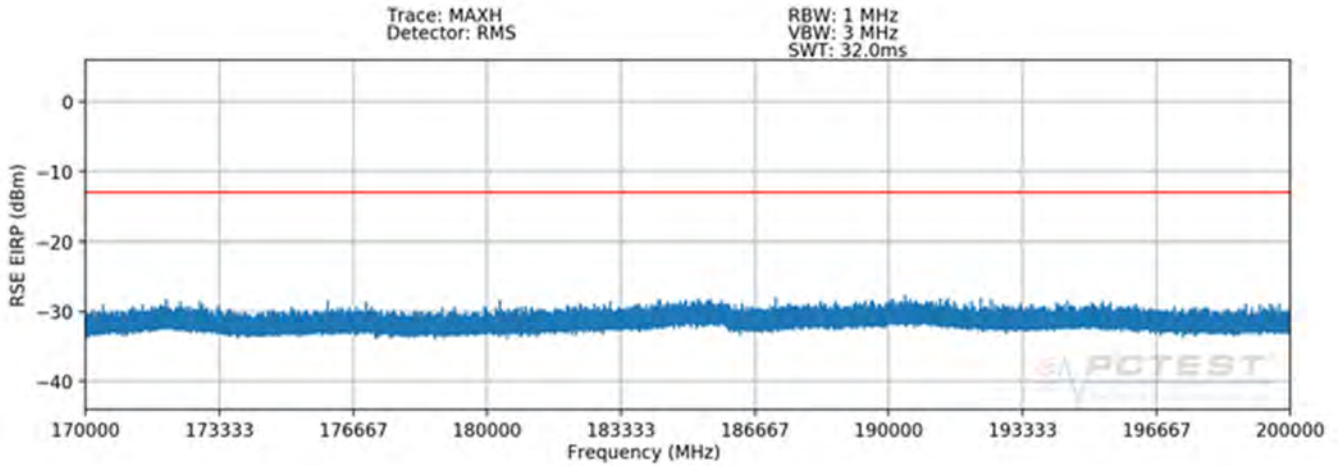
$$(-34.66 \text{ dBm} + -34.79 \text{ dBm}) = (341.98 \text{ nW} + 331.67 \text{ nW}) = (673.64 \text{ nW}) = -31.72 \text{ dBm}$$

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|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 228 of 371 |

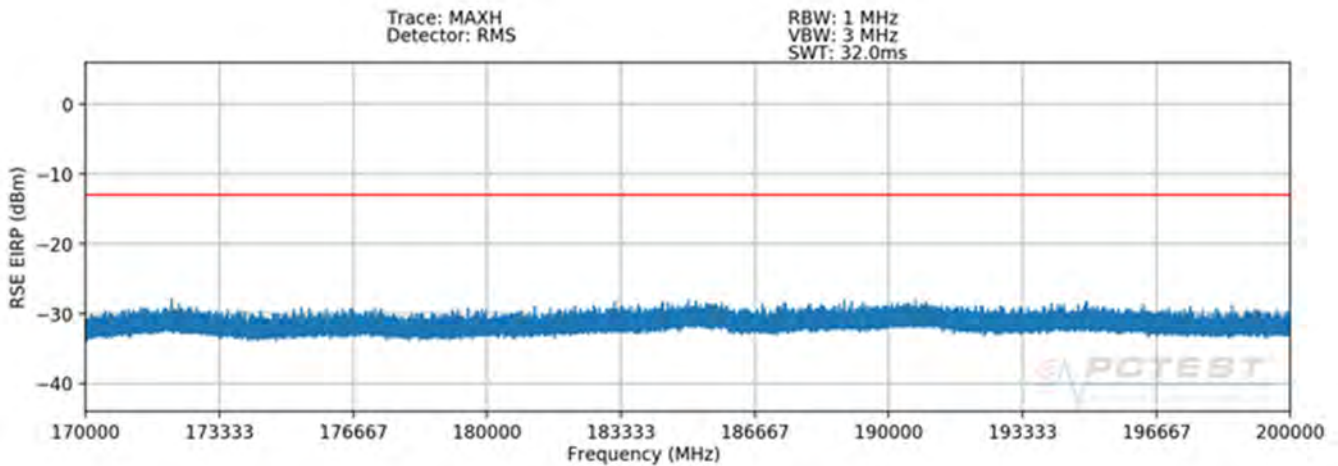
170 – 200GHz(n260)



Plot 7-387. L Patch Radiated Spurious Plot 170-200 GHz (1CC QPSK Low Channel H Beam – n260)

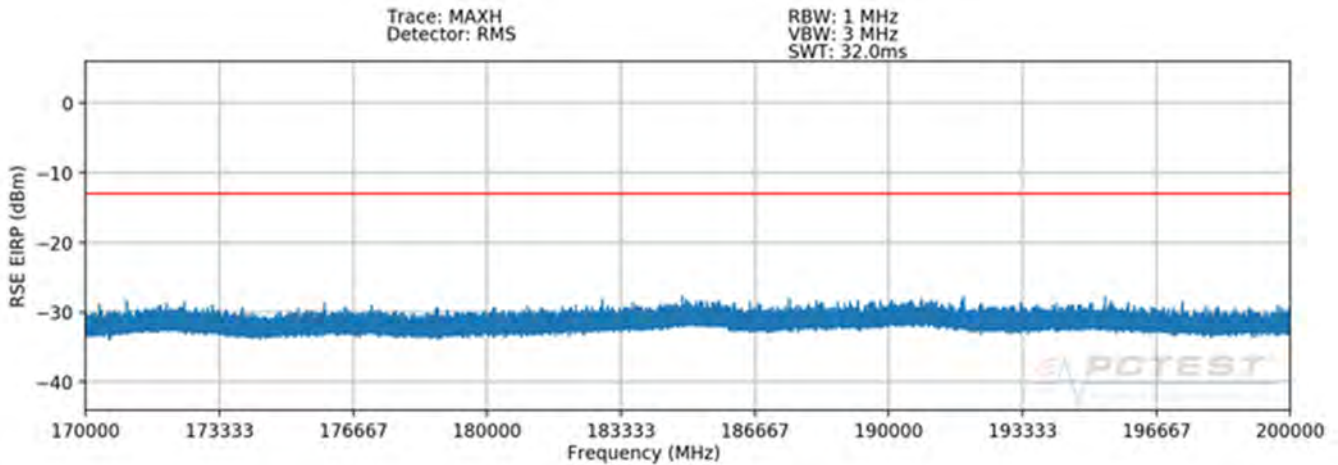


Plot 7-388. L Patch Radiated Spurious Plot 170-200 GHz (1CC QPSK Mid Channel H Beam – n260)

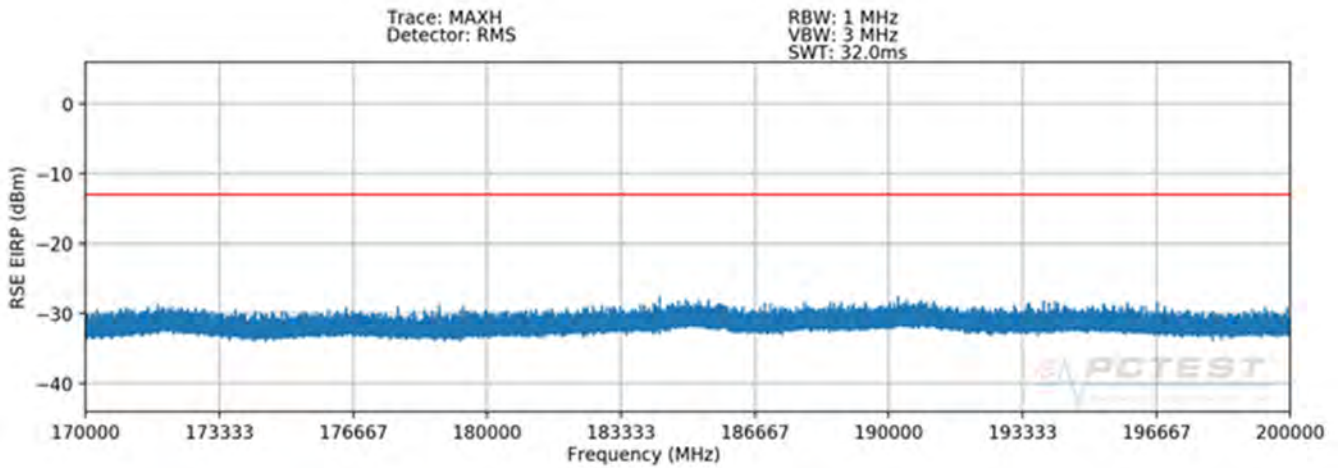


Plot 7-389. L Patch Radiated Spurious Plot 170-200 GHz (1CC QPSK High Channel H Beam – n260)

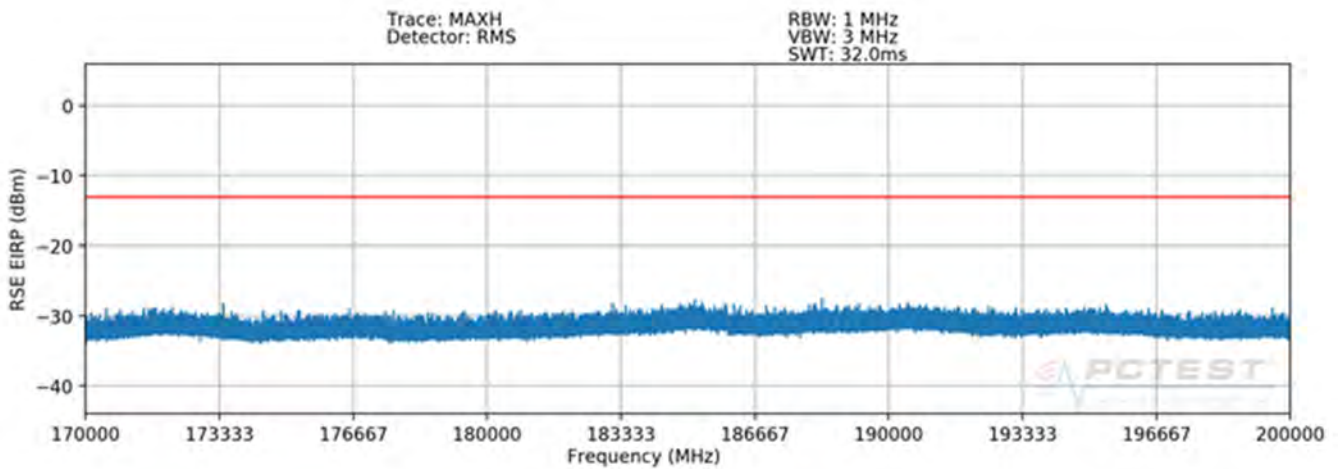
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|--|---|---------------------------------------|----------------|---------------------------------|
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| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 229 of 371 |



Plot 7-390. L Patch Radiated Spurious Plot 170-200 GHz (1CC QPSK Low Channel V Beam – n260)



Plot 7-391. L Patch Radiated Spurious Plot 170-200 GHz (1CC QPSK Mid Channel V Beam – n260)



Plot 7-392. L Patch Radiated Spurious Plot 170-200 GHz (1CC QPSK High Channel V Beam – n260)

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| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 230 of 371 |

Spurious Emissions EIRP Sample Calculation(n260)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL[dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

| Frequency [MHz] | Detector/Trace | Chan. | Bandwidth (MHz) | Mod. | EUT Beam Polarization | Ant. Pos [H/V] | Turn Table Azimuth [degree] | Positioner Azimuth [degree] | RSE EIRP [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|----------------|-------|-----------------|------|-----------------------|----------------|-----------------------------|-----------------------------|----------------|-------------|-------------|
| 190527.00 | RMS/Avg | Low | 50 | QPSK | H | H | - | - | -35.20 | -13.00 | -22.20 |
| 191112.50 | RMS/Avg | Mid | 50 | QPSK | H | H | - | - | -35.24 | -13.00 | -22.24 |
| 190984.50 | RMS/Avg | High | 50 | QPSK | H | H | - | - | -35.28 | -13.00 | -22.28 |
| 190706.50 | RMS/Avg | Low | 50 | QPSK | V | V | - | - | -34.91 | -13.00 | -21.91 |
| 191218.00 | RMS/Avg | Mid | 50 | QPSK | V | V | - | - | -35.09 | -13.00 | -22.09 |
| 190528.50 | RMS/Avg | High | 50 | QPSK | V | V | - | - | -35.52 | -13.00 | -22.52 |

Table 7-70. L Patch Spurious Emissions Table (170-200GHz – n260)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

$$(-35.20 \text{ dBm} + -34.91 \text{ dBm}) = (301.79 \text{ nW} + 322.78 \text{ nW}) = (624.56 \text{ nW}) = -32.04 \text{ dBm}$$

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|--|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 231 of 371 |

7.5 Band Edge Emissions

\$2.1051, \$30.203

Test Overview

All out of band emissions are measured in a radiated setup while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All modulations were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible attenuation level of any spurious emission is -13dBm/1MHz. However, in the bands immediately outside and adjacent to the licensee's frequency block, having a bandwidth equal to 10 percent of the channel bandwidth, the conductive power or the total radiated power of any emission shall be -5 dBm/MHz or lower.

Test Procedure Used

ANSI C63.26-2015 Section 5 and ANSI C63.26-2015 Section 6.4
KDB 842590 D01 v01 Section 4.4.2.5

Test Settings

1. Start and stop frequency were set such that both upper and lower band edges are measured.
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW = 1MHz
4. VBW $\geq 3 \times$ RBW
5. Detector = RMS
6. Number of sweep points $\geq 2 \times$ Span/RBW
7. Trace mode = trace average
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning.
- 2) Band Edge measurements in this section are shown as equivalent conductive powers for direct comparison to the 30.203 limit. The conductive power at the band edge is calculated by subtracting the gain of the EUT's antenna from the measured EIRP level. Antenna Gain information is shown on the following page.
- 3) Band Edge emissions were measured at a 1 meter distance.
- 4) The spectrum analyzer for each measurement shows an offset value that was determined using the measurement antenna factor, cable loss, far field measurement distance, and EUT antenna gain. A sample calculation is shown on the following page.
- 5) MIMO Band Edge plots shown below are mathematically summed conductive powers between spectrum analyzer measurements on H Beam and V Beam. This MIMO bandedge plot was produced by summing the following two spectrum analyzer traces: (1) the first trace is maximized while the EUT is transmitting in H-beam and (2) the second trace is maximized while the EUT is transmitting in V-beam.
- 6) The MIMO Band Edges were calculated by using the "measure and sum the spectra across the outputs" technique specified in Section 6.4.3.2.2 of ANSI C63.26-2015. The spectra were summed linearly and converted to dBm for comparison with the limit.

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| FCC ID: A3LSMN976V |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 232 of 371 |

7.5.1 Antenna Gain Information at the Band Edge

The following antenna gain information is provided to demonstrate the antenna performance of the 27.5 – 28.35GHz and 37 – 40GHz band. These antenna gains were subtracted from the measured EIRP levels at the lower and upper band edge frequencies to determine an equivalent conductive power that was compared directly with the §30.203 limits.

| Antenna | Channel | Beam Polarization | Beam ID | Gain (dBi) |
|----------|---------|-------------------|---------|------------|
| J Dipole | Low | H | 5 | 6.60 |
| | | V | 133 | 6.88 |
| | High | H | 16 | 6.16 |
| | | V | 133 | 6.93 |
| J Patch | Low | H | 25 | 10.94 |
| | | V | 154 | 10.31 |
| | High | H | 25 | 10.34 |
| | | V | 168 | 10.72 |
| K Patch | Low | H | 44 | 8.64 |
| | | V | 173 | 10.15 |
| | High | H | 30 | 9.40 |
| | | V | 160 | 9.04 |
| L Patch | Low | H | 48 | 8.86 |
| | | V | 163 | 10.53 |
| | High | H | 48 | 9.79 |
| | | V | 176 | 9.38 |

Table 7-71. Antenna Gains at the Band Edges(n261)

| Antenna | Channel | Beam Polarization | Beam ID | Gain (dBi) |
|----------|---------|-------------------|---------|------------|
| J Dipole | Low | H | 5 | 7.95 |
| | | V | 145 | 8.07 |
| | High | H | 5 | 7.99 |
| | | V | 145 | 8.94 |
| J Patch | Low | H | 26 | 10.62 |
| | | V | 168 | 11.87 |
| | High | H | 26 | 10.06 |
| | | V | 168 | 11.20 |
| K Patch | Low | H | 30 | 11.60 |
| | | V | 172 | 9.57 |
| | High | H | 31 | 10.49 |
| | | V | 172 | 9.40 |
| L Patch | Low | H | 35 | 11.26 |
| | | V | 176 | 10.01 |
| | High | H | 35 | 10.89 |
| | | V | 176 | 10.84 |

Table 7-72. Antenna Gains at the Band Edges(n260)

| | | | |
|--|--|-------------------------------|---------------------------------|
| FCC ID: A3LSMN976V |  MEASUREMENT REPORT (CERTIFICATION)  | | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | Page 233 of 371 |

Sample Analyzer Offset Calculation (at 27.5GHz)

Measurement Antenna Factor = 40.70dB/m

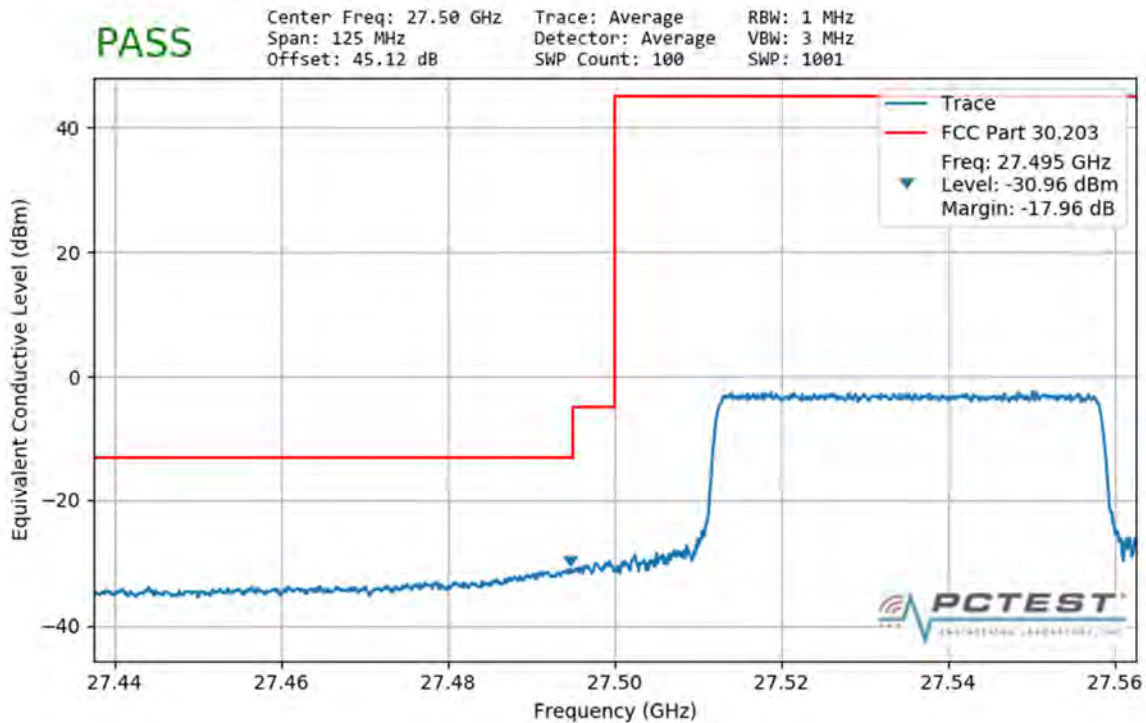
Cable Loss = 8.82dB

EUT Antenna Gain = 6.60dBi

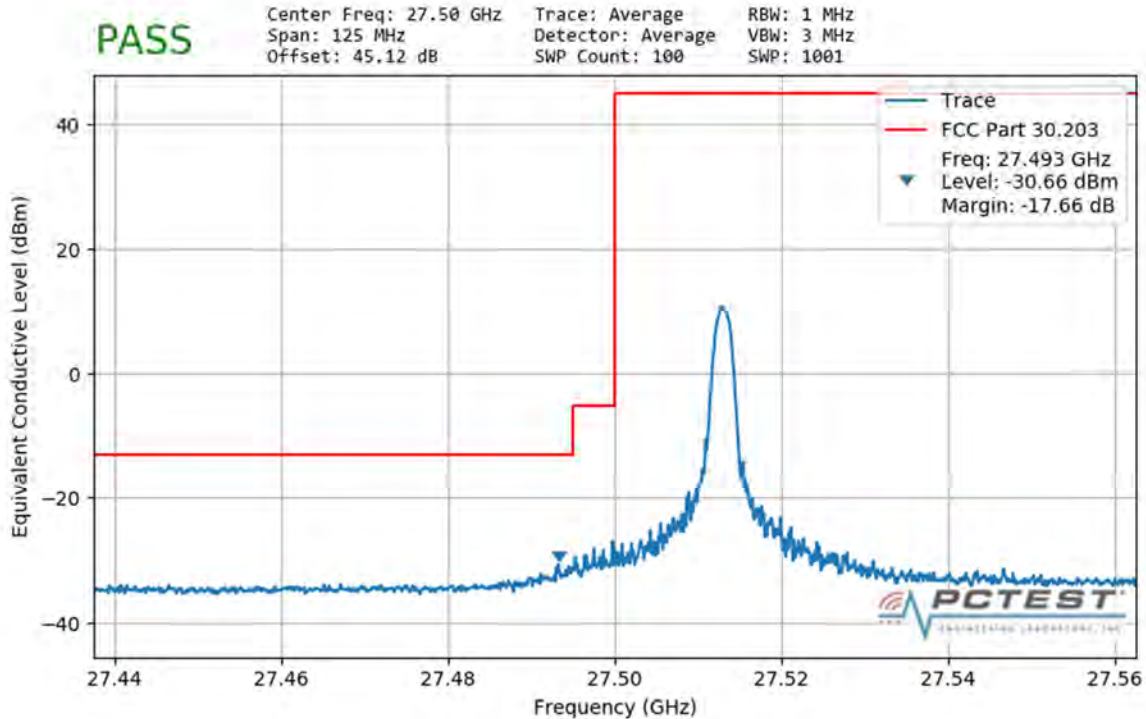
$$\begin{aligned}
 \text{Analyzer Offset (dB)} &= \text{AF (dB/m)} + \text{CL (dB)} + 107 + 20\log_{10}(D) - 104.8\text{dB} - \text{Gain (dBi)}, \text{ where } D = 1\text{m} \\
 &= 40.70\text{dB/m} + 8.82\text{dB} + 107 + 20\log_{10}(1\text{m}) - 104.8\text{dB} - 6.60\text{dBi} \\
 &= 45.12\text{dB}
 \end{aligned}$$

| | | | | |
|--|---|---------------------------------------|---|---------------------------------|
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| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 234 of 371 |

7.5.2 n261 Band Edge J Dipole MIMO(n261)

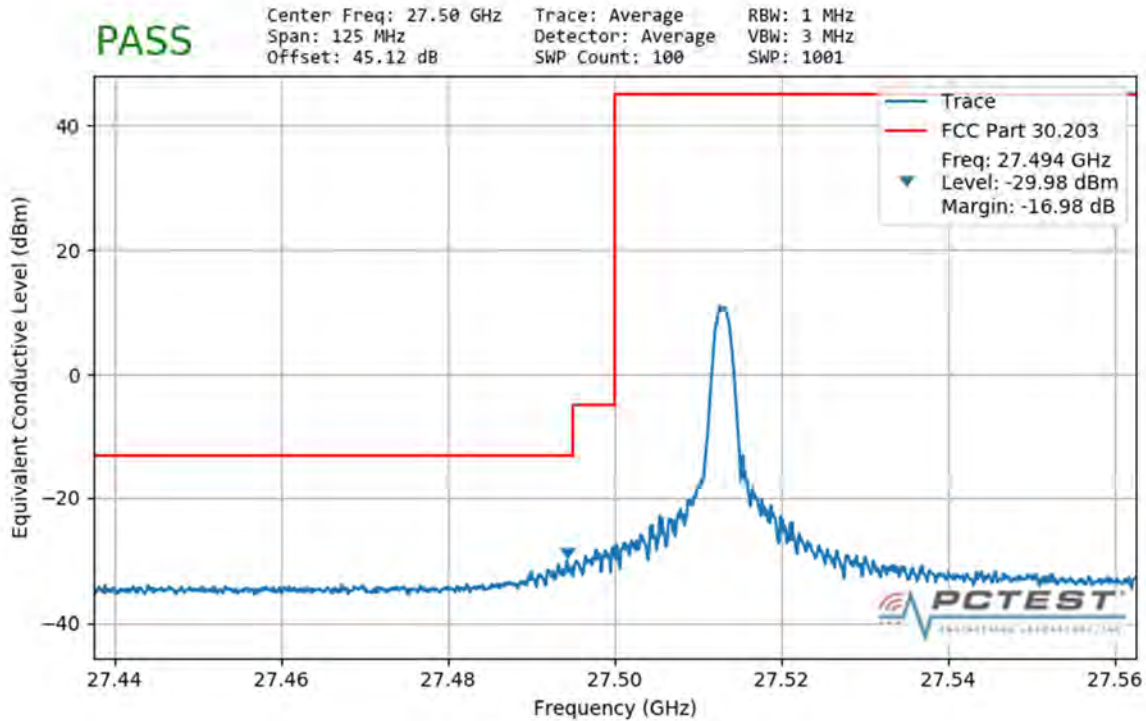


Plot 7-393. Lower Band Edge Plot (1CC 50MHz QPSK Full RB)

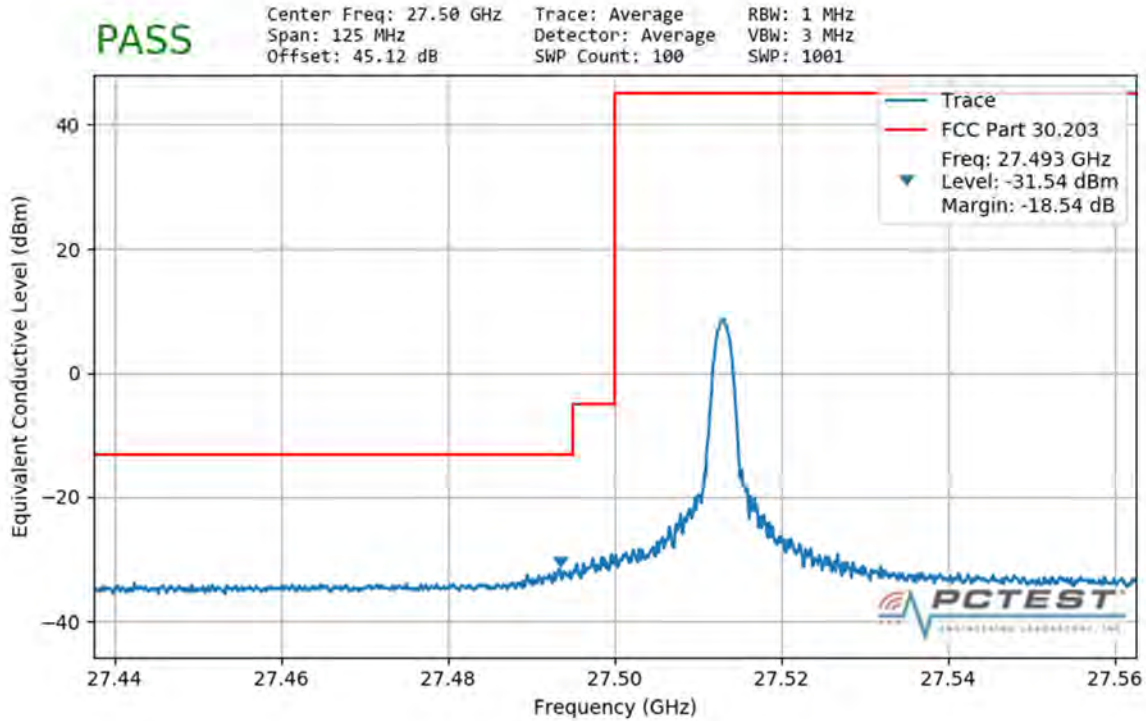


Plot 7-394. Lower Band Edge Plot (1CC 50MHz QPSK 1 RB)

| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
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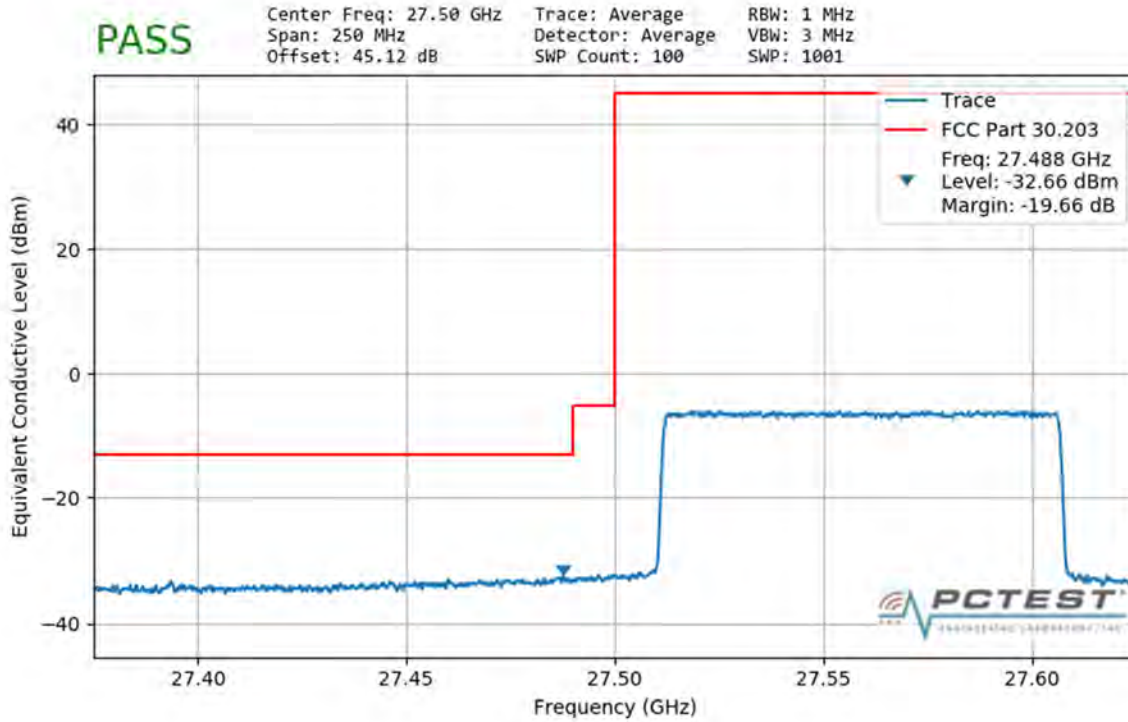


Plot 7-395. Lower Band Edge Plot (1CC 50MHz 16QAM 1 RB)

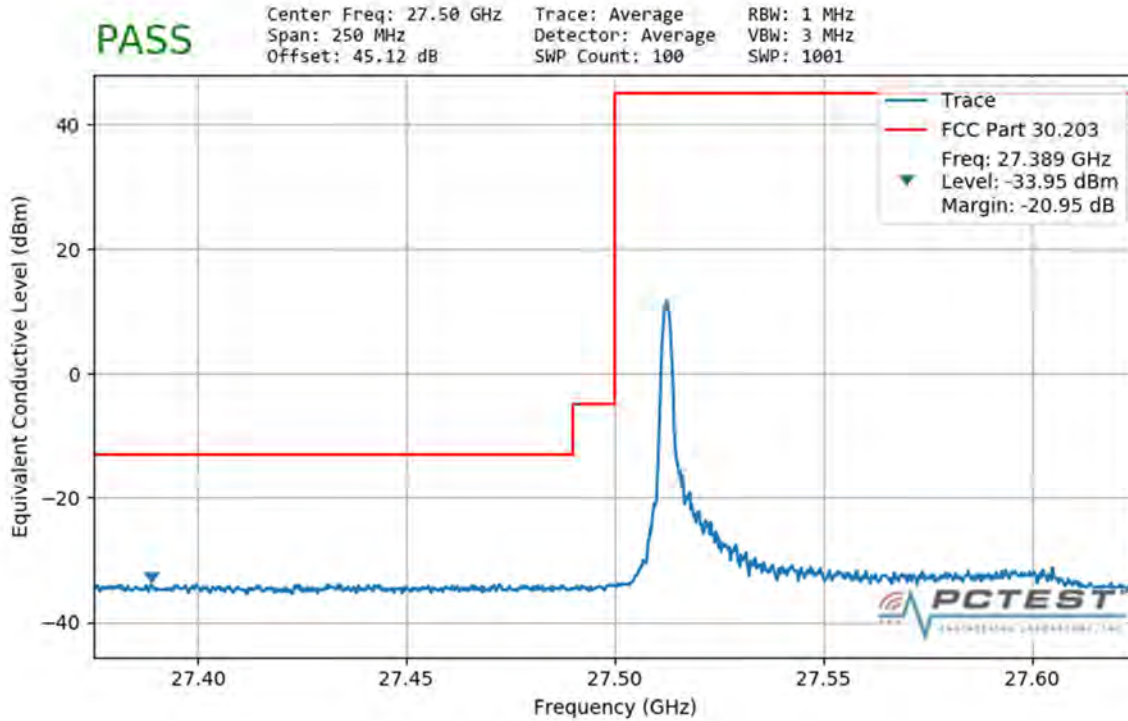


Plot 7-396. Lower Band Edge Plot (1CC 50MHz 64QAM 1 RB)

| | | | | |
|--|---|---|----------------|---------------------------------|
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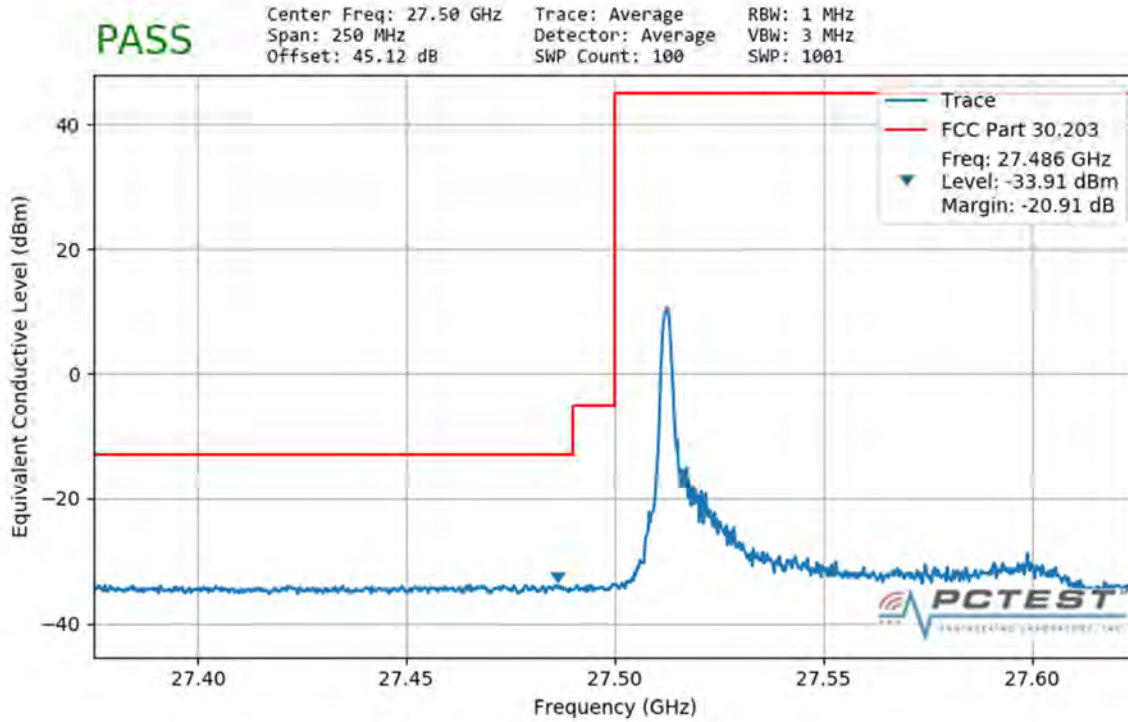


Plot 7-397. Lower Band Edge Plot (1CC 100MHz QPSK Full RB)

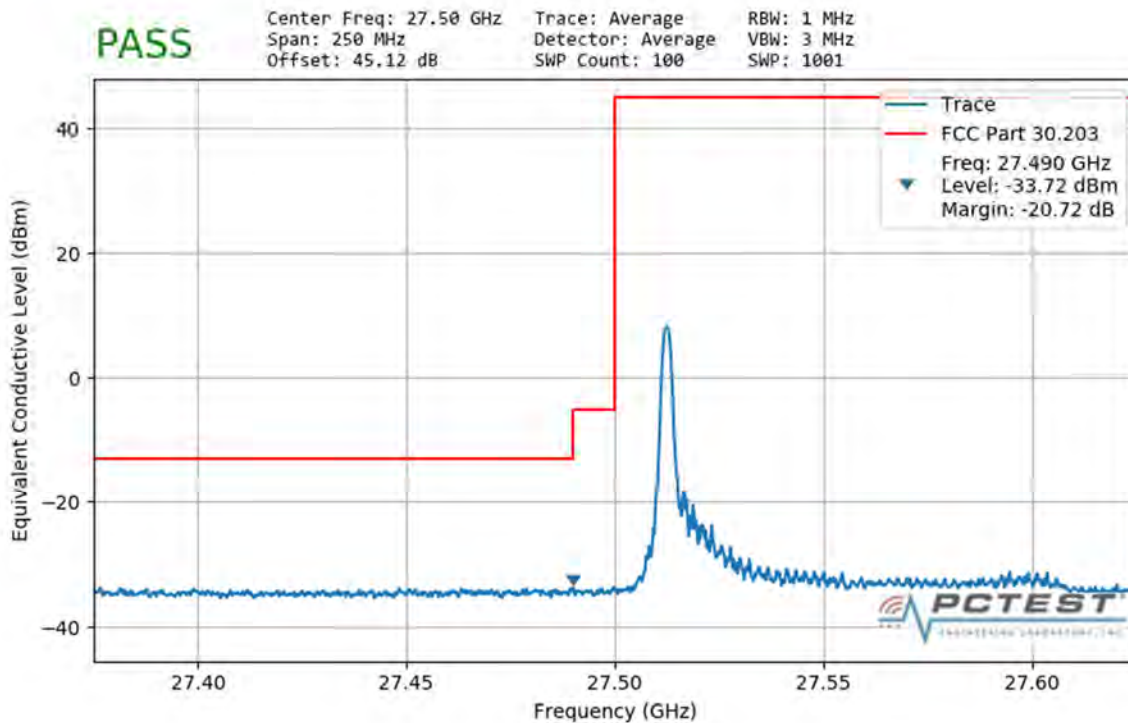


Plot 7-398. Lower Band Edge Plot (1CC 100MHz QPSK 1 RB)

| | | | | |
|--|---|---|----------------|---------------------------------|
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| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 237 of 371 |

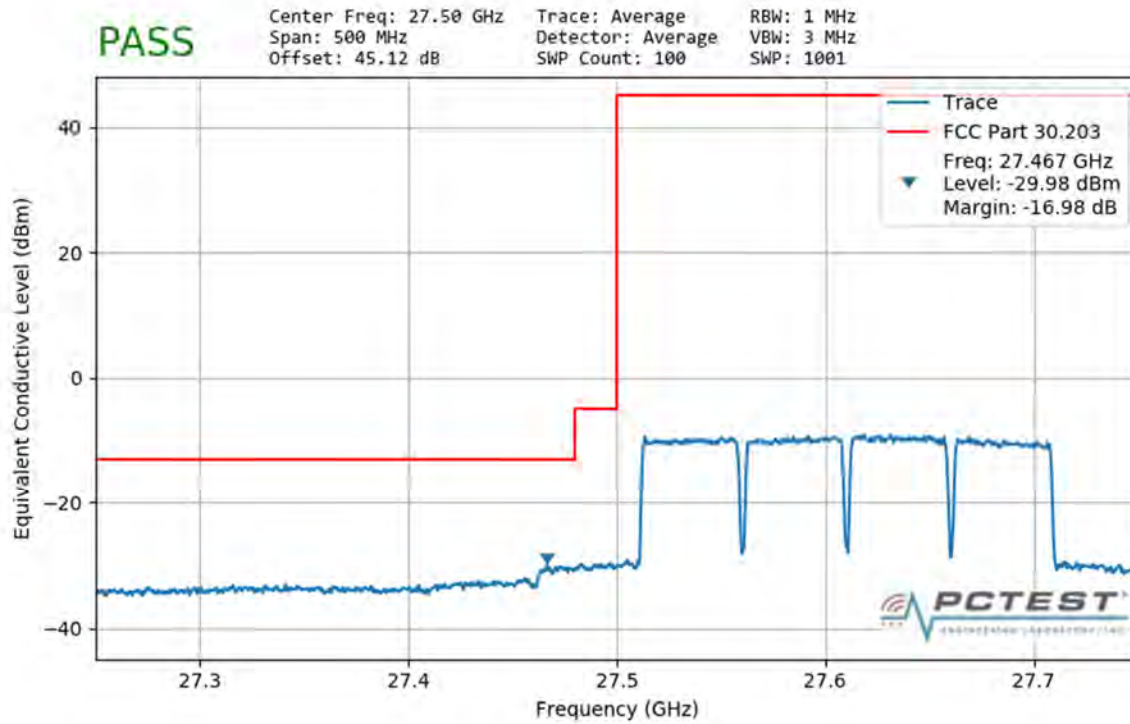


Plot 7-399. Lower Band Edge Plot (1CC 100MHz 16QAM 1 RB)

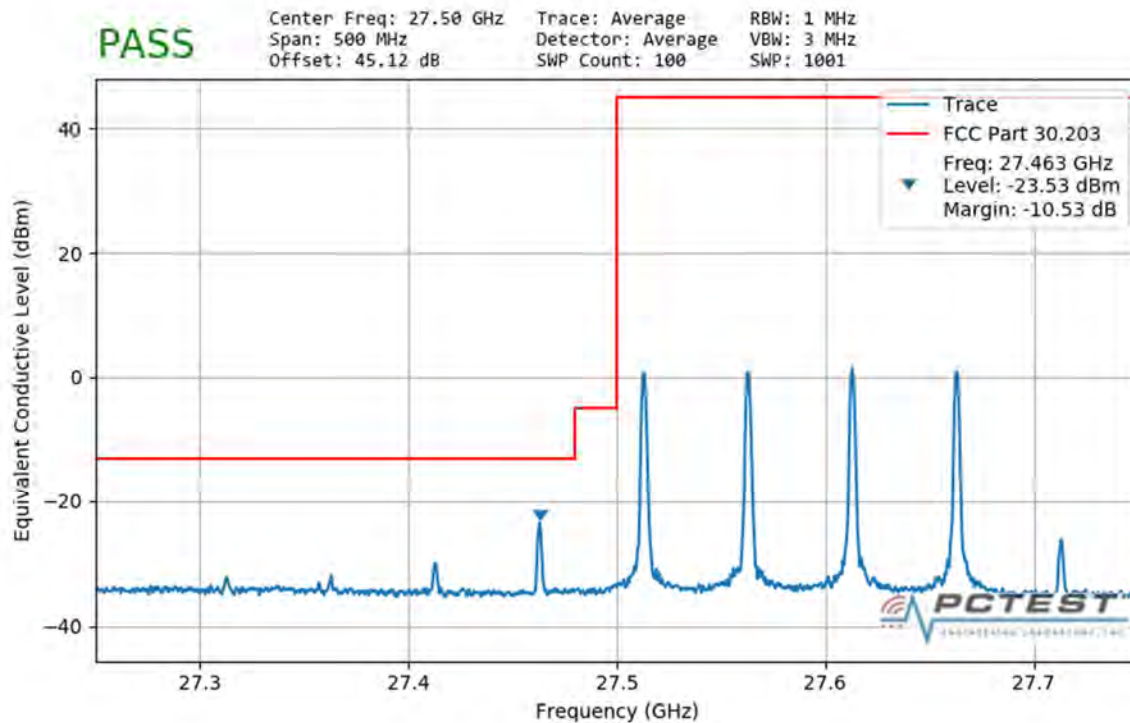


Plot 7-400. Lower Band Edge Plot (1CC 100MHz 64QAM 1 RB)

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|--|---|---|----------------|---------------------------------|
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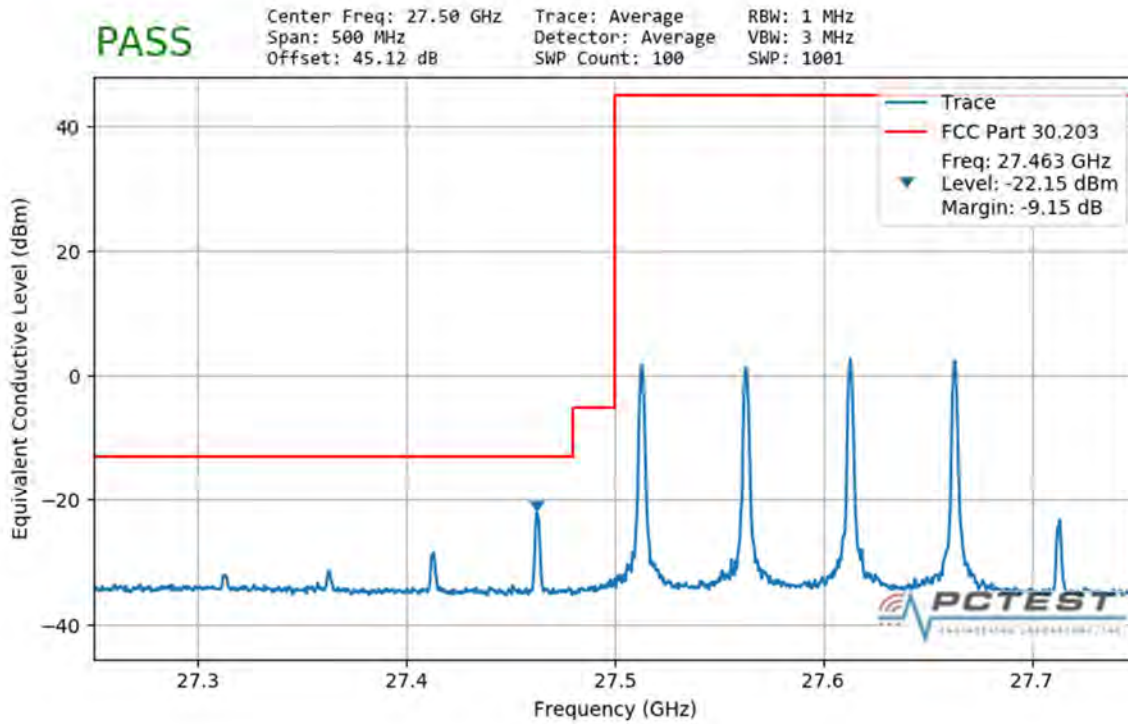


Plot 7-401. Lower Band Edge Plot (4CC 200MHz QPSK Full RB)

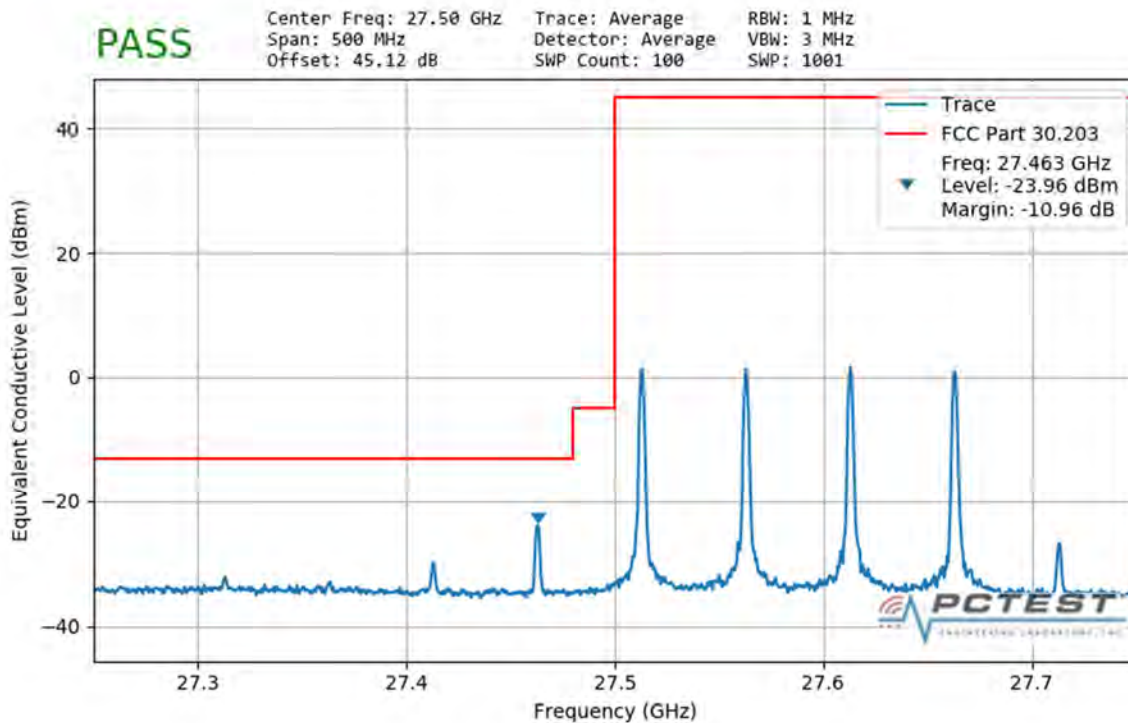


Plot 7-402. Lower Band Edge Plot (4CC 200MHz QPSK 1 RB)

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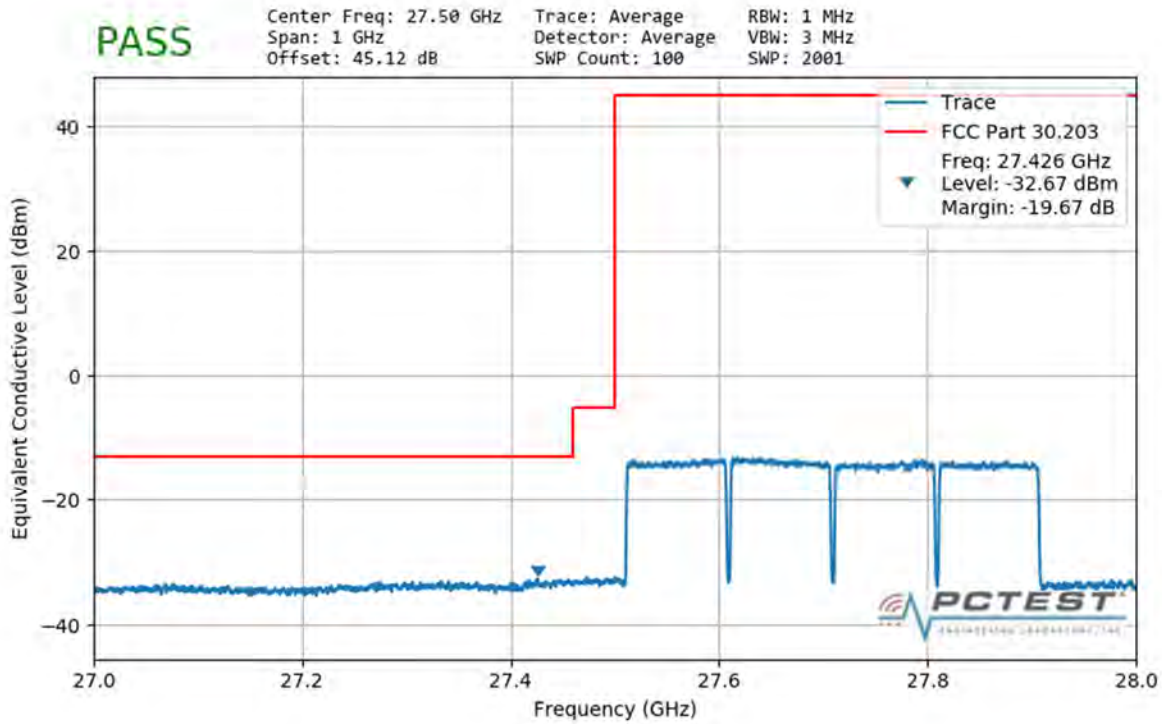


Plot 7-403. Lower Band Edge Plot (4CC 200MHz 16QAM 1 RB)

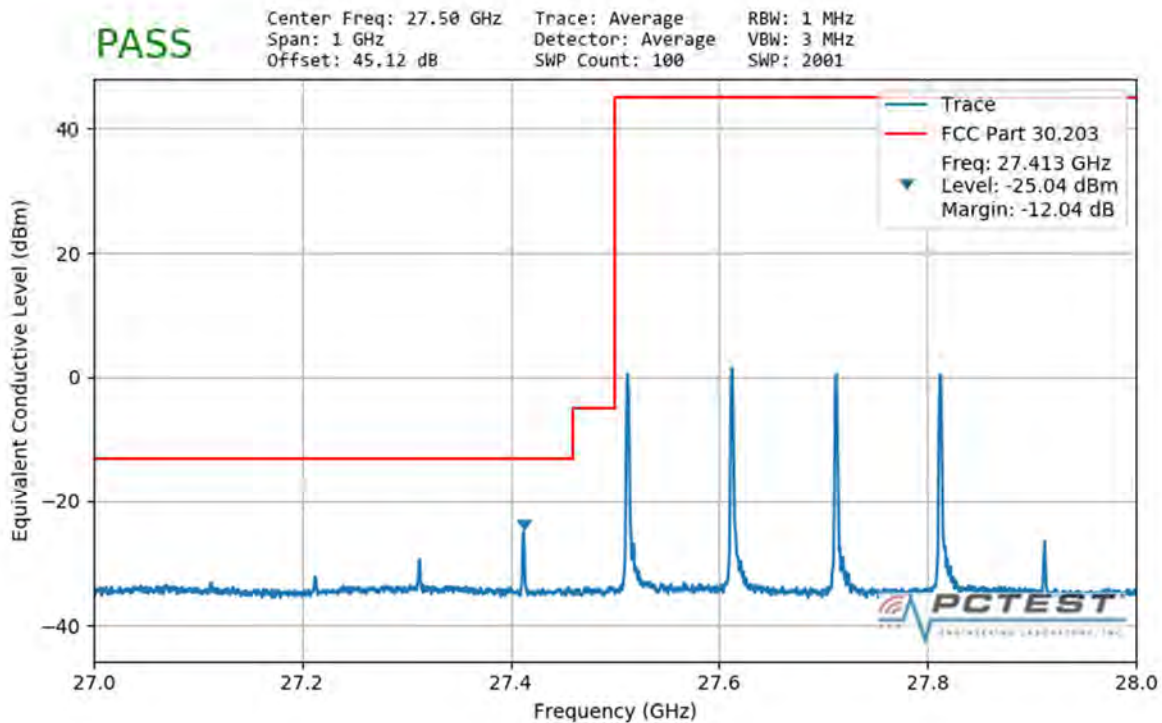


Plot 7-404. Lower Band Edge Plot (4CC 200MHz 64QAM 1 RB)

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|--|---|---|----------------|---------------------------------|
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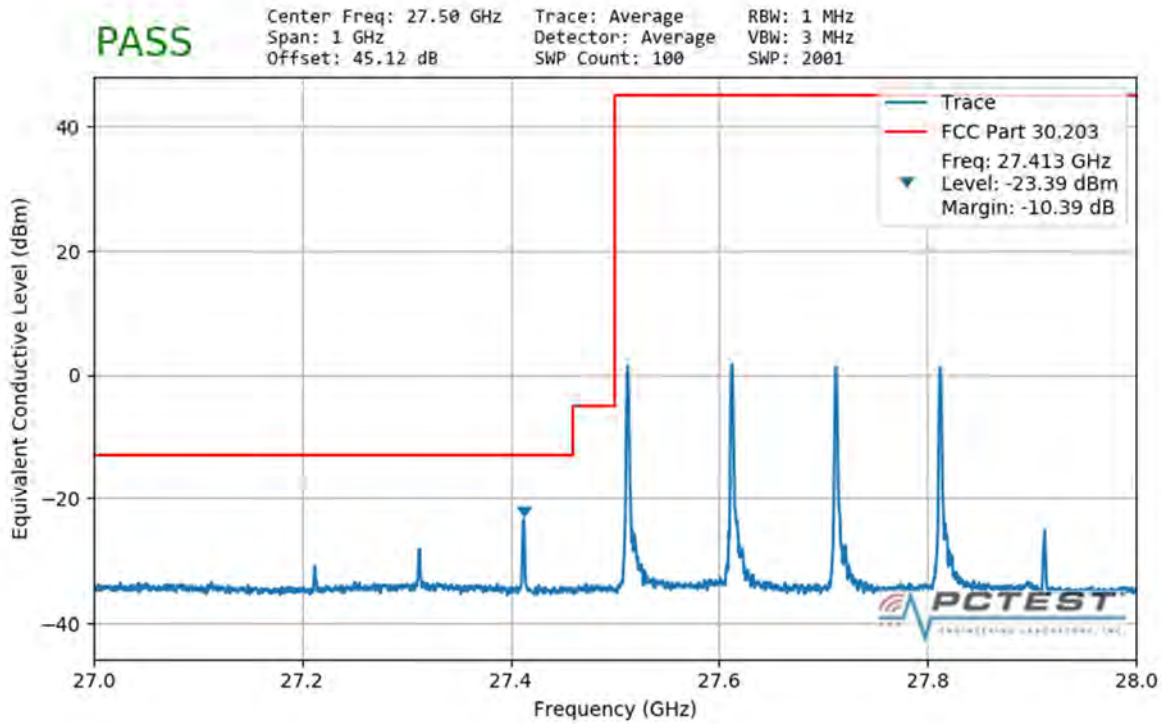


Plot 7-405. Lower Band Edge Plot (4CC 400MHz QPSK Full RB)

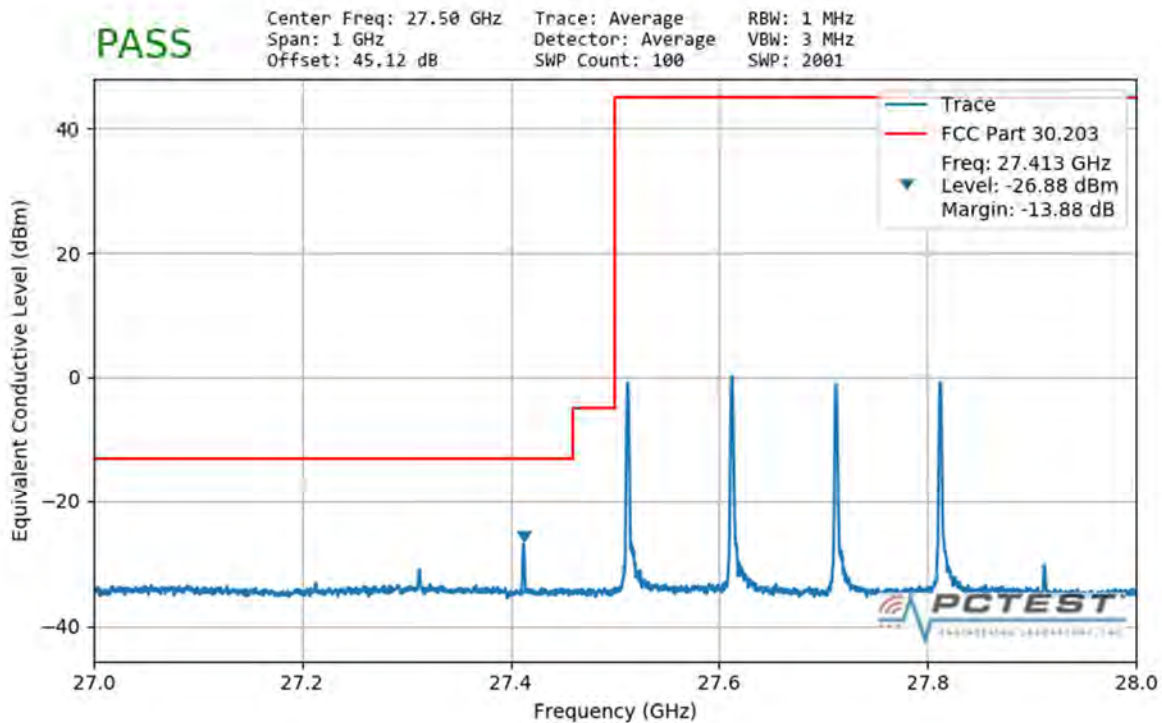


Plot 7-406. Lower Band Edge Plot (4CC 400MHz QPSK 1 RB)

| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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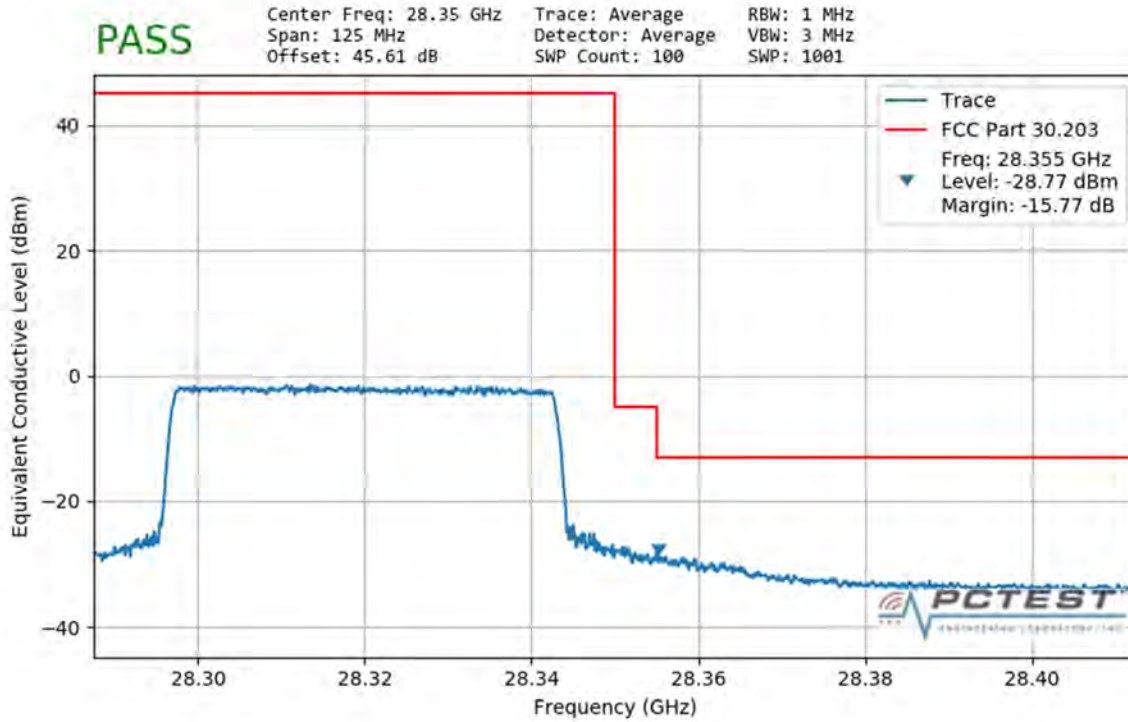


Plot 7-407. Lower Band Edge Plot (4CC 400MHz 16QAM 1 RB)

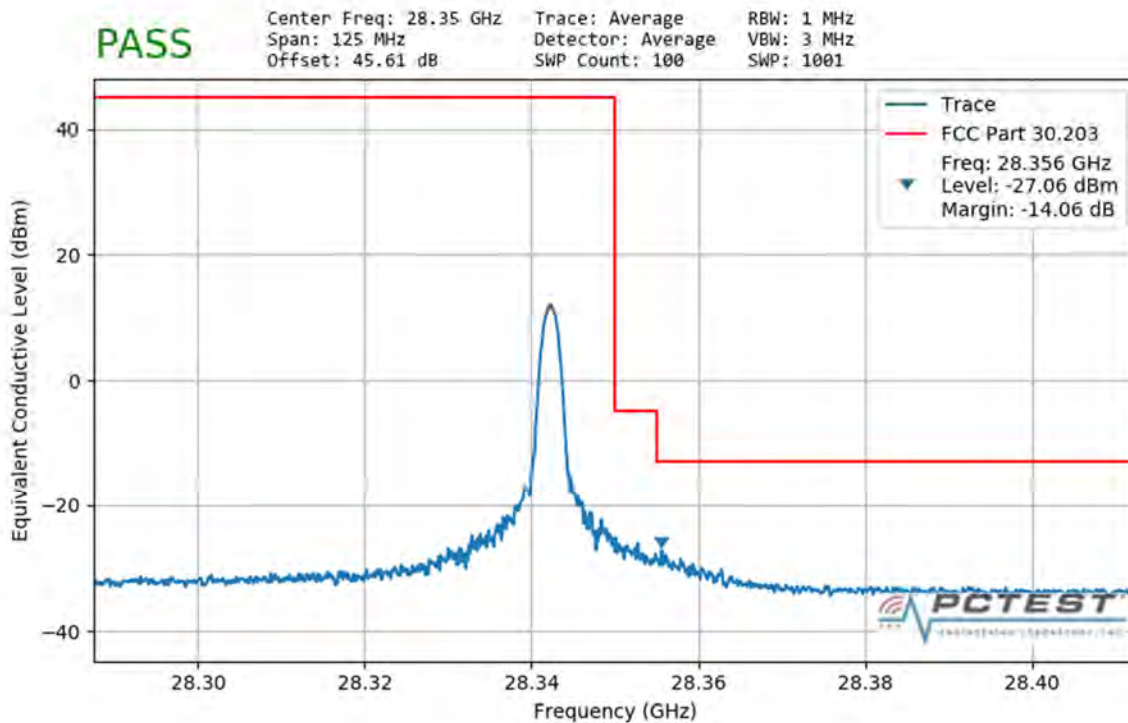


Plot 7-408. Lower Band Edge Plot (4CC 400MHz 64QAM 1 RB)

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|--|---|---|----------------|---------------------------------|
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| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 242 of 371 |

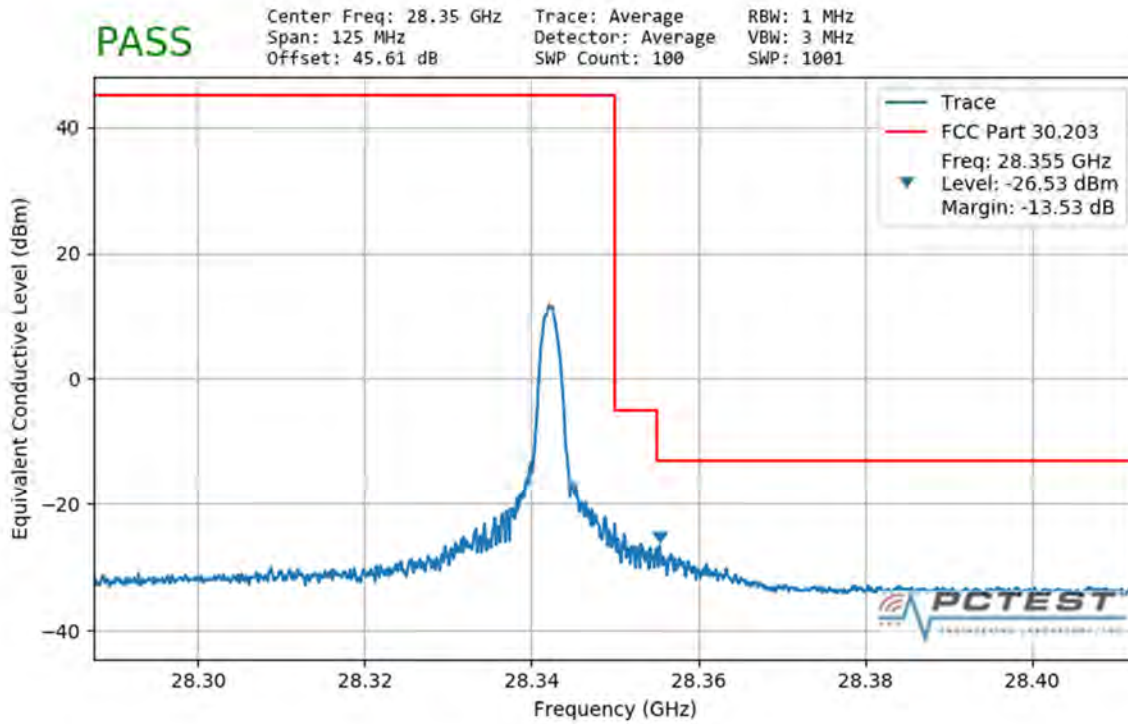


Plot 7-409. Upper Band Edge Plot (1CC 50MHz QPSK Full RB)

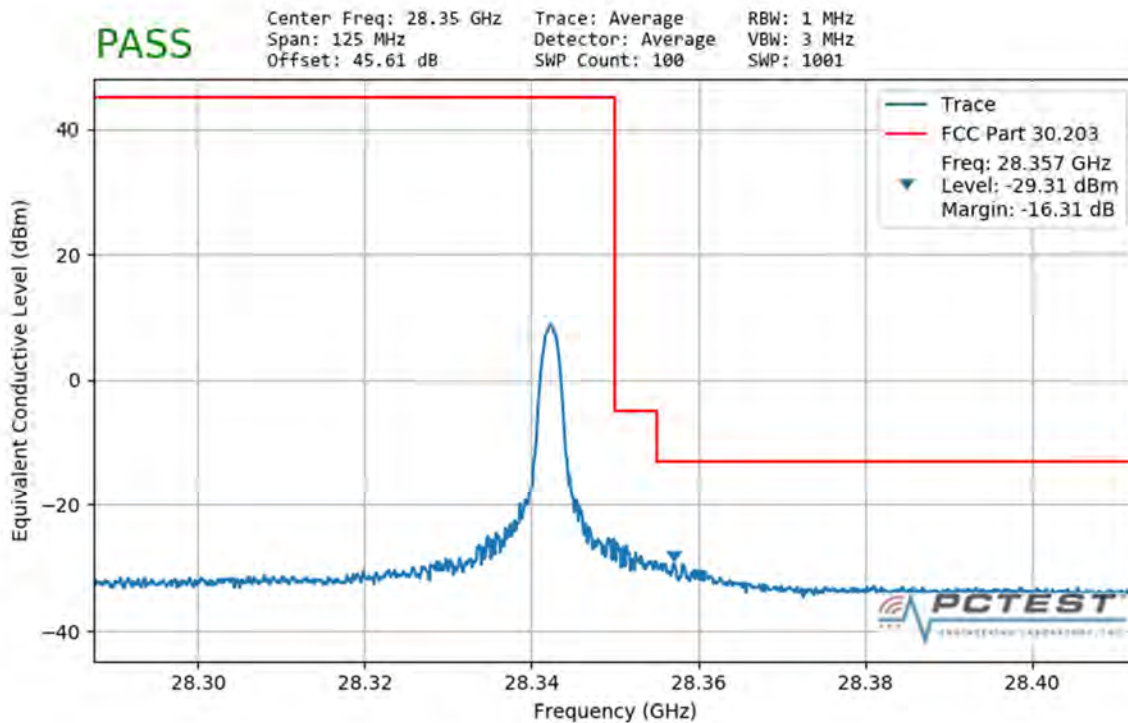


Plot 7-410. Upper Band Edge Plot (1CC 50MHz QPSK 1 RB)

| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 243 of 371 |

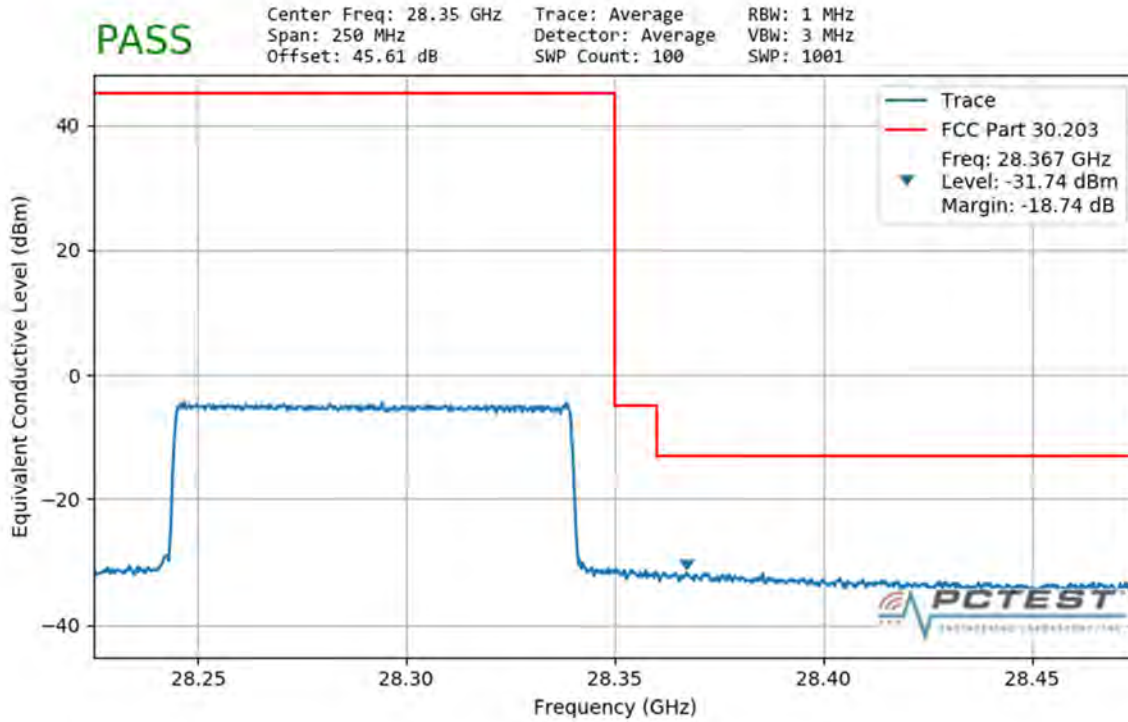


Plot 7-411. Upper Band Edge Plot (1CC 50MHz 16QAM 1 RB)

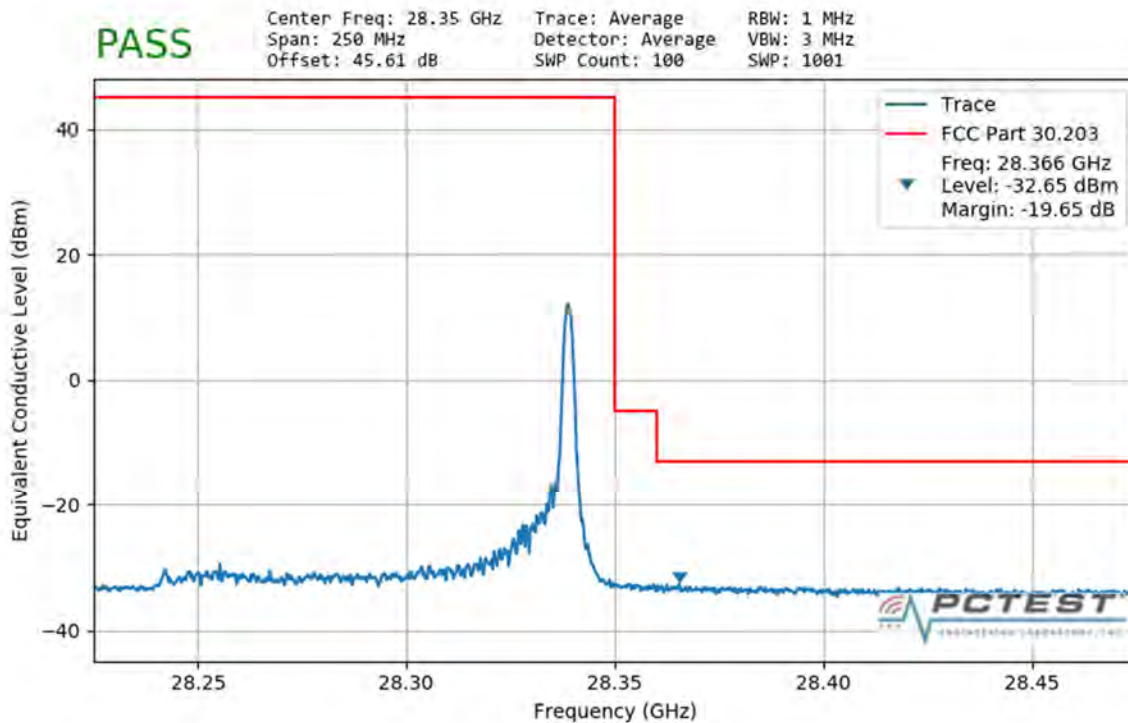


Plot 7-412. Upper Band Edge Plot (1CC 50MHz 64QAM 1 RB)

| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 244 of 371 |

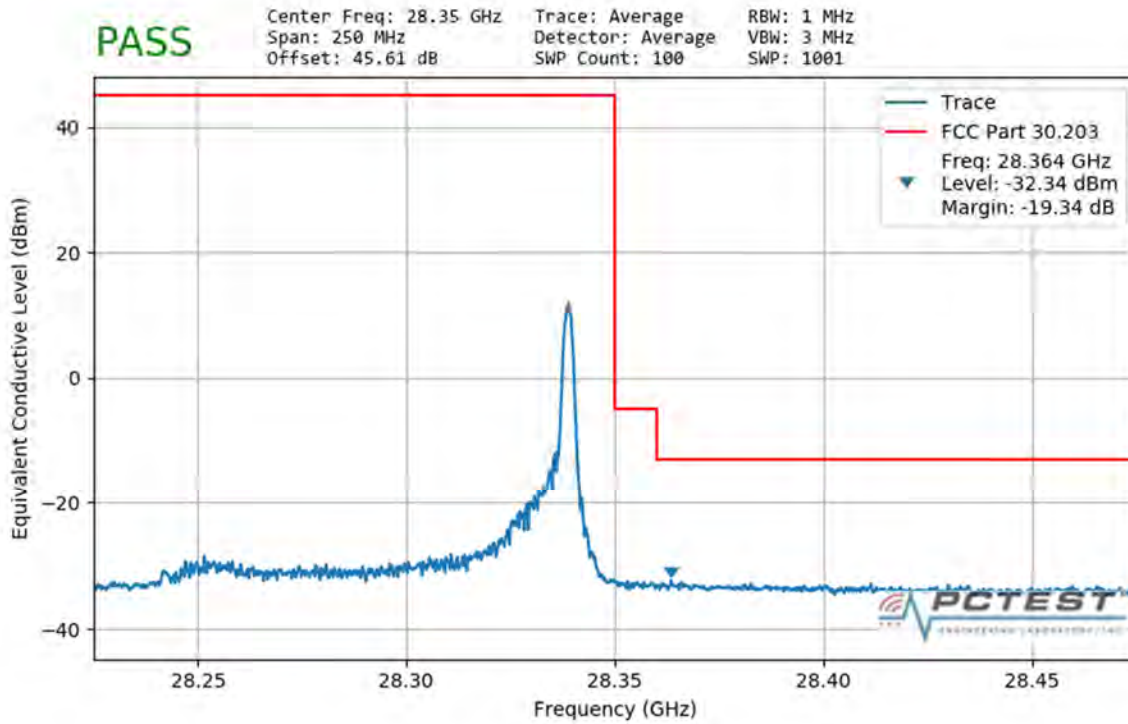


Plot 7-413. Upper Band Edge Plot (1CC 100MHz QPSK Full RB)

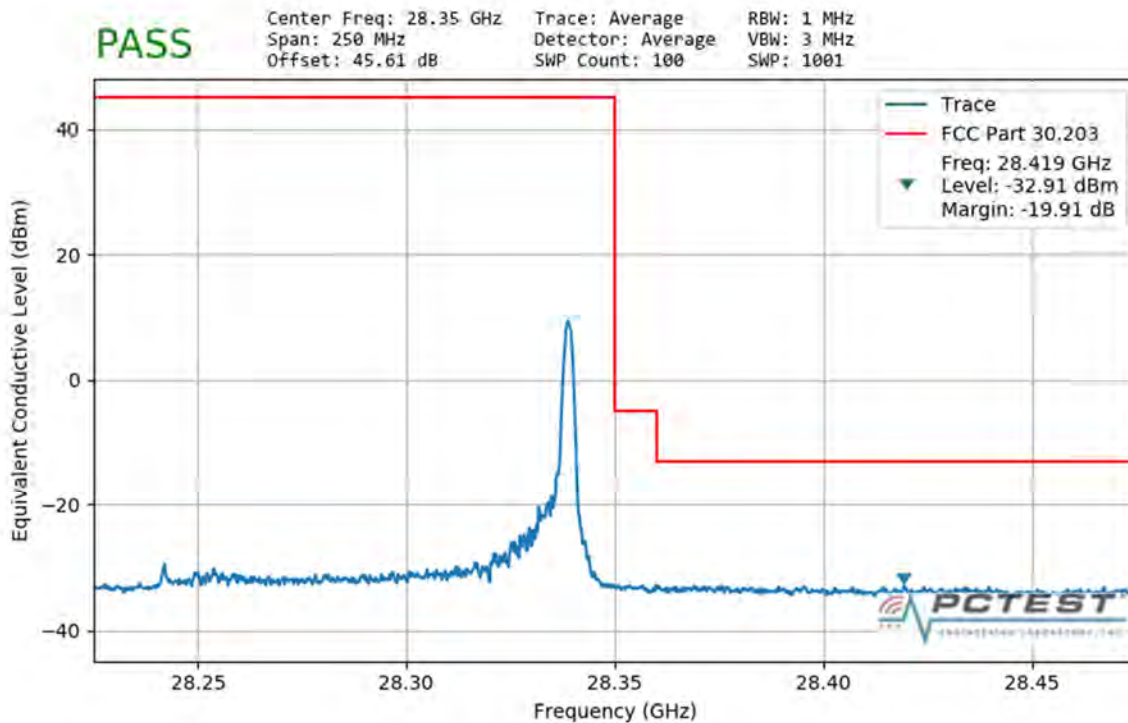


Plot 7-414. Upper Band Edge Plot (1CC 100MHz QPSK 1 RB)

| | | | | |
|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 245 of 371 |

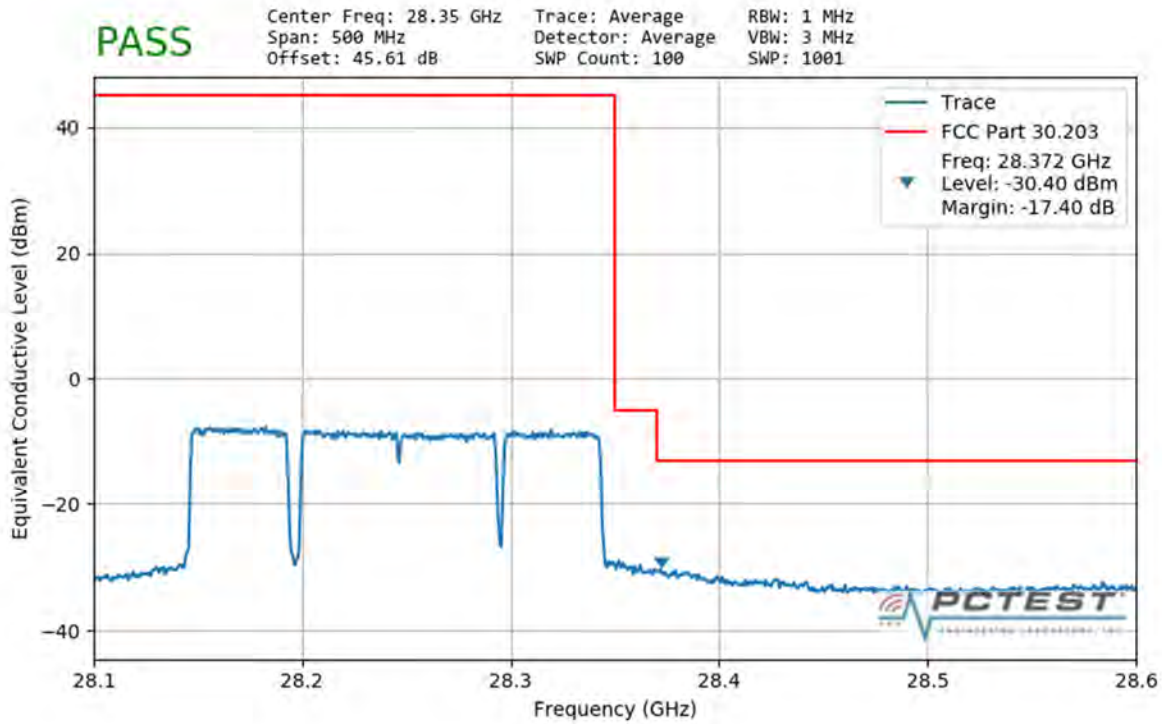


Plot 7-415. Upper Band Edge Plot (1CC 100MHz 16QAM 1 RB)

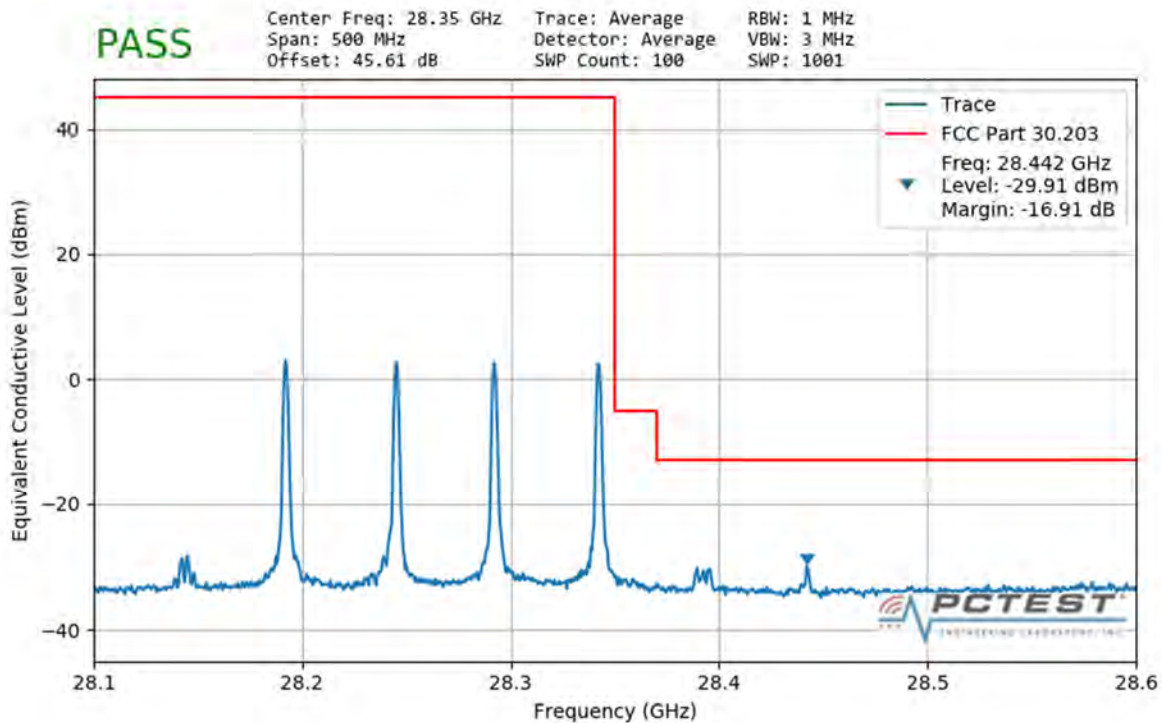


Plot 7-416. Upper Band Edge Plot (1CC 100MHz 64QAM 1 RB)

| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 246 of 371 |

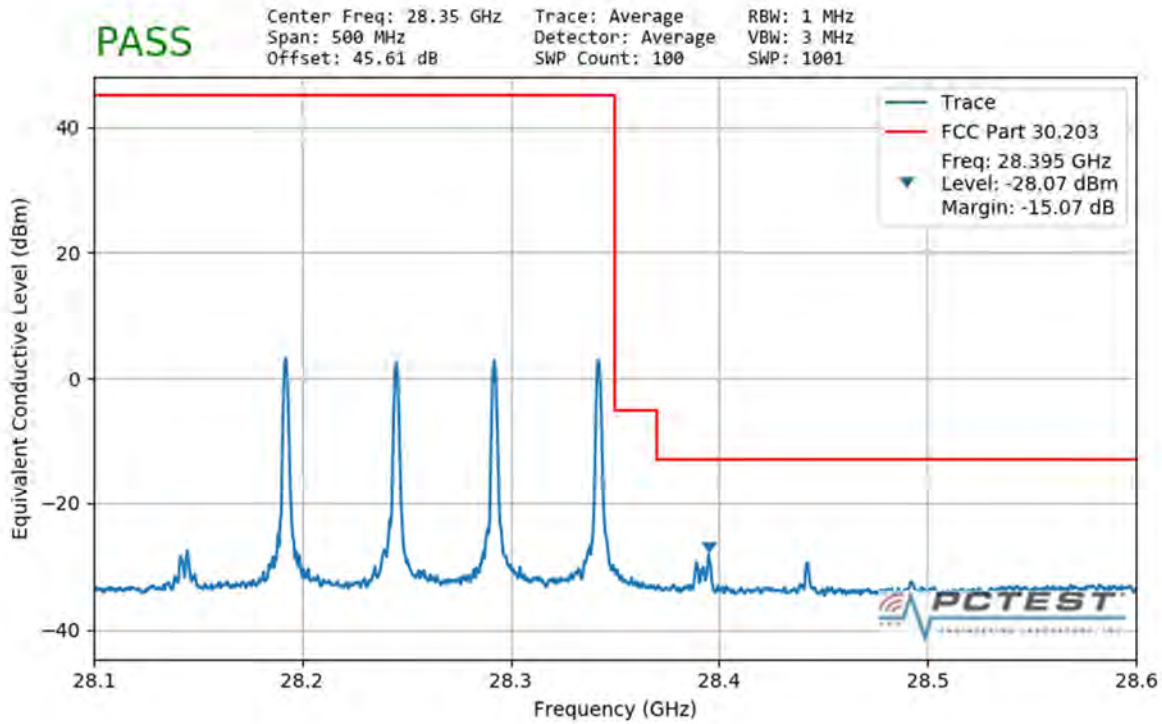


Plot 7-417. Upper Band Edge Plot (4CC 200MHz QPSK Full RB)

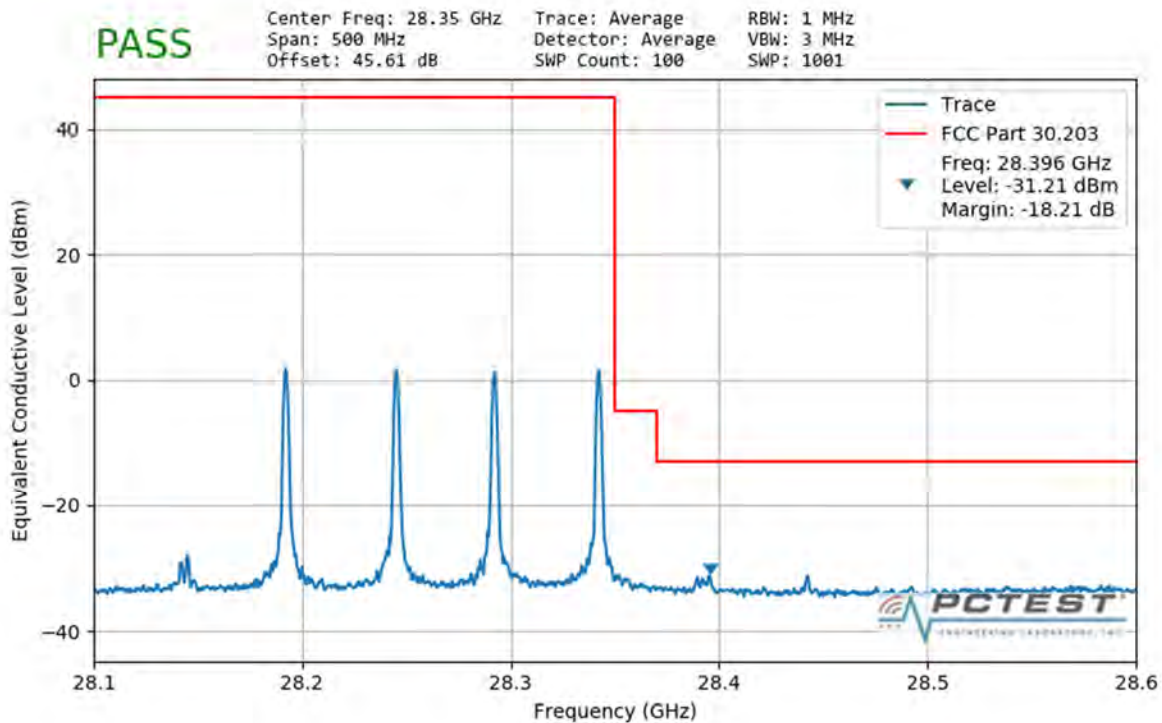


Plot 7-418. Upper Band Edge Plot (4CC 200MHz QPSK 1 RB)

| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 247 of 371 |

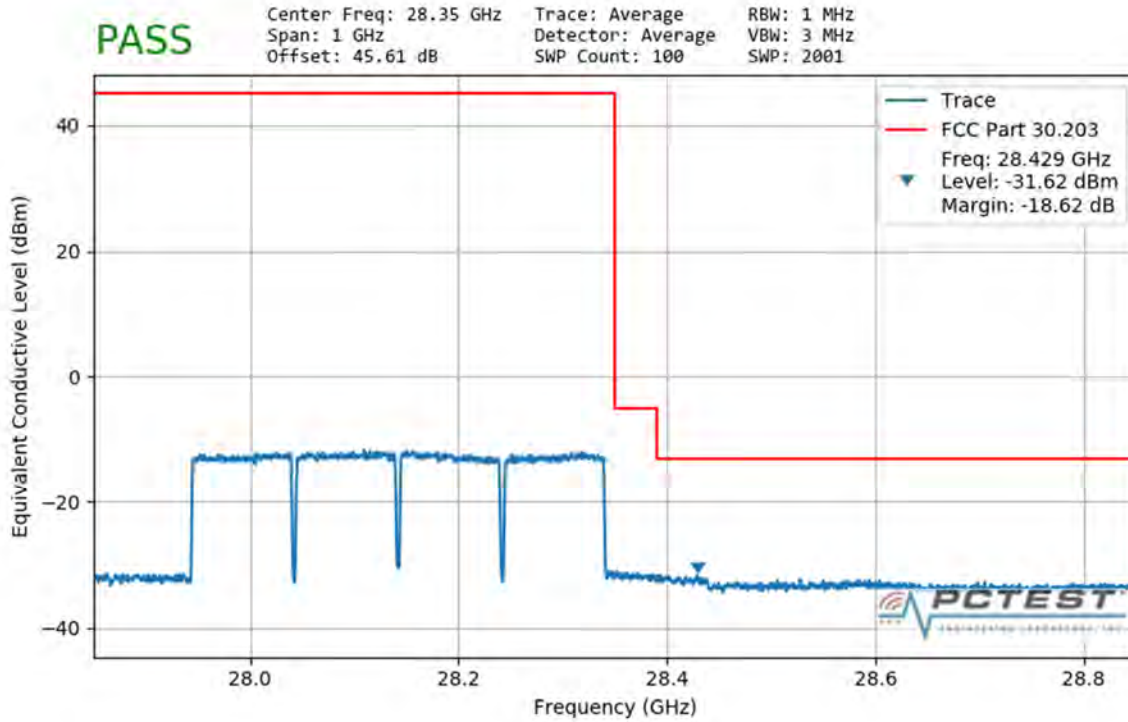


Plot 7-419. Upper Band Edge Plot (4CC 200MHz 16QAM 1 RB)

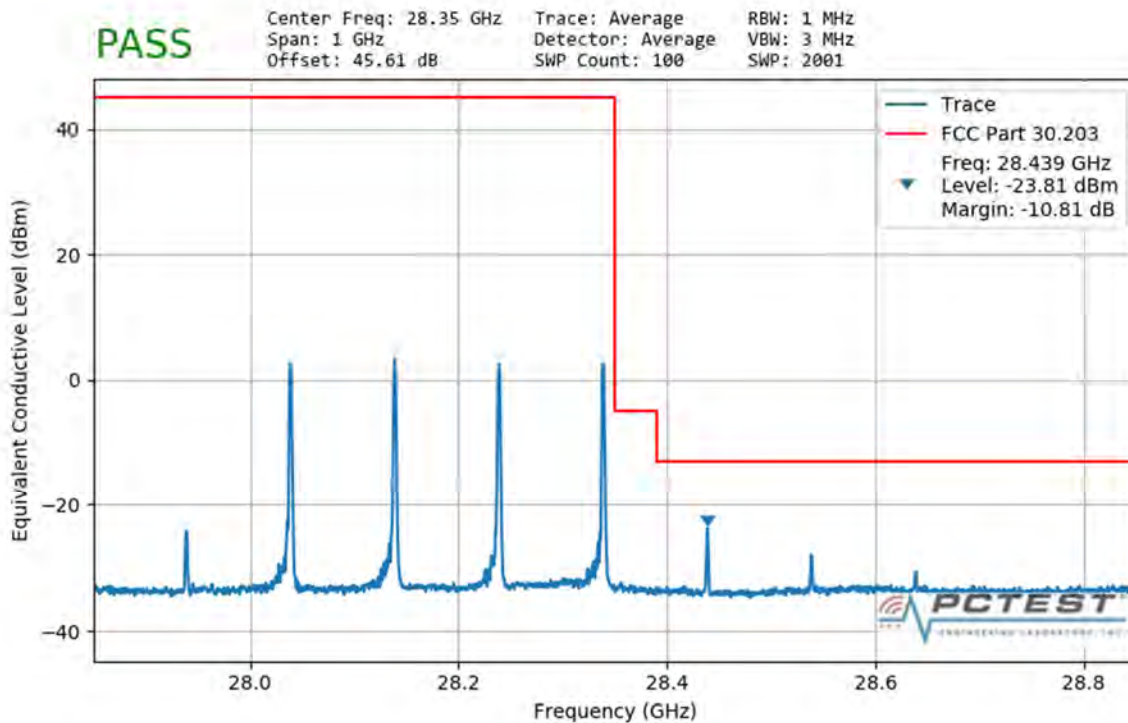


Plot 7-420. Upper Band Edge Plot (4CC 200MHz 64QAM 1 RB)

| | | | | |
|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 248 of 371 |

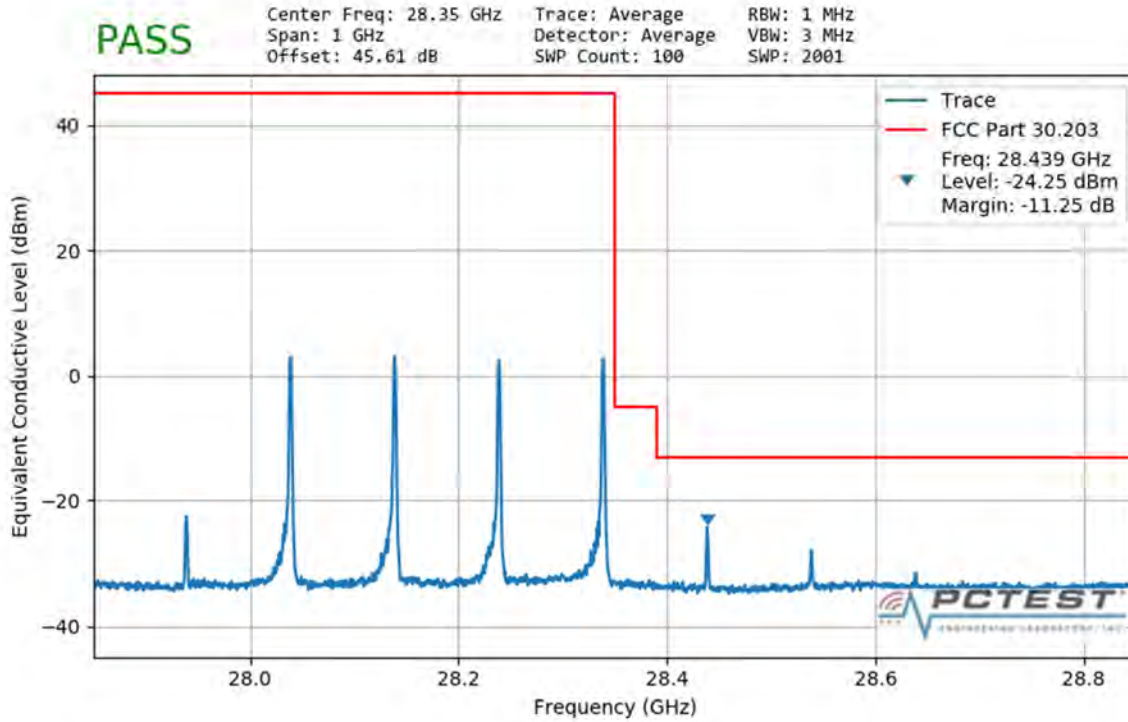


Plot 7-421. Upper Band Edge Plot (4CC 400MHz QPSK Full RB)

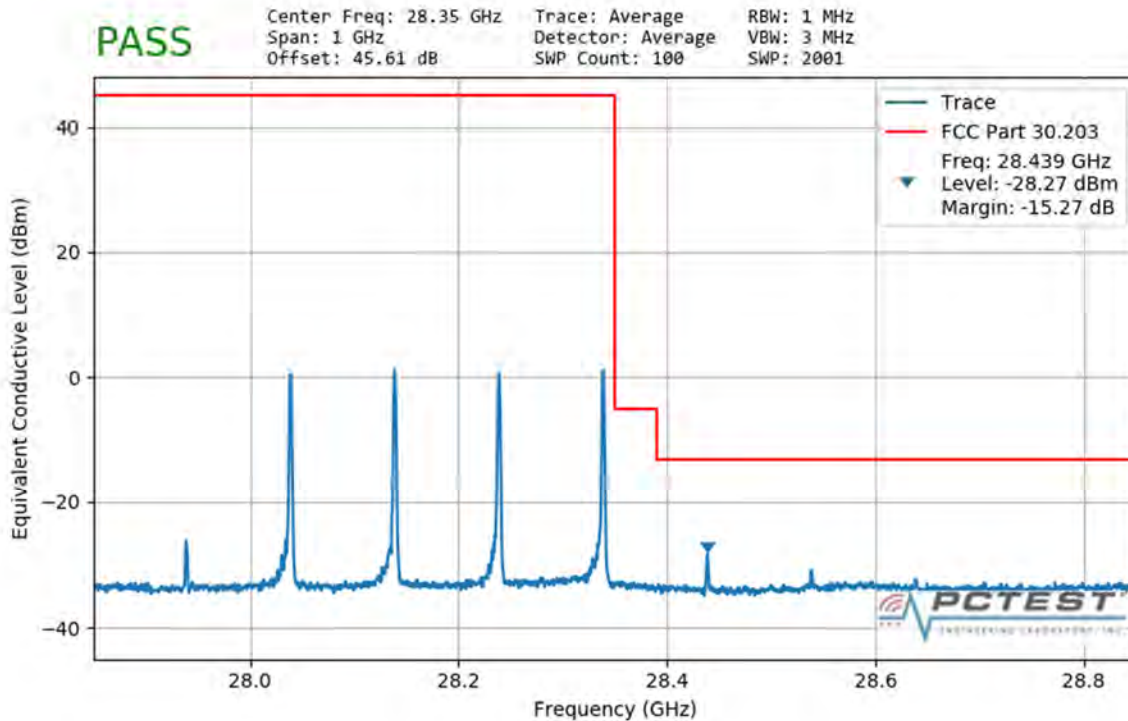


Plot 7-422. Upper Band Edge Plot (4CC 400MHz QPSK 1 RB)

| | | | | |
|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 249 of 371 |



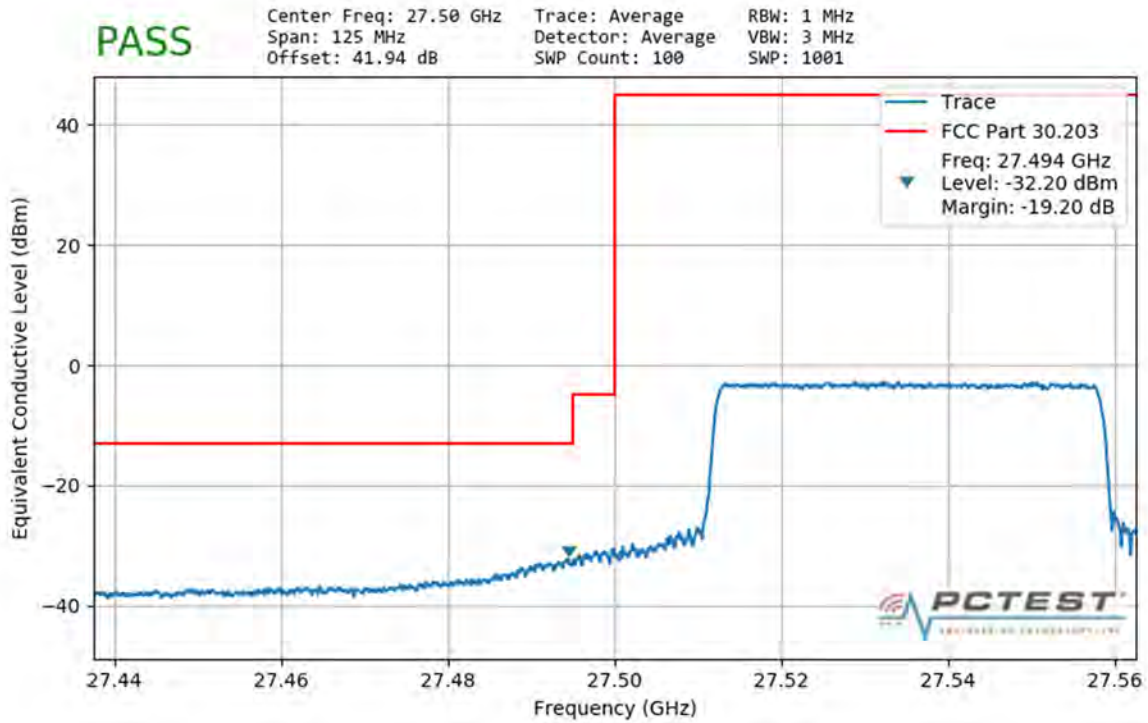
Plot 7-423. Upper Band Edge Plot (4CC 400MHz 16QAM 1 RB)



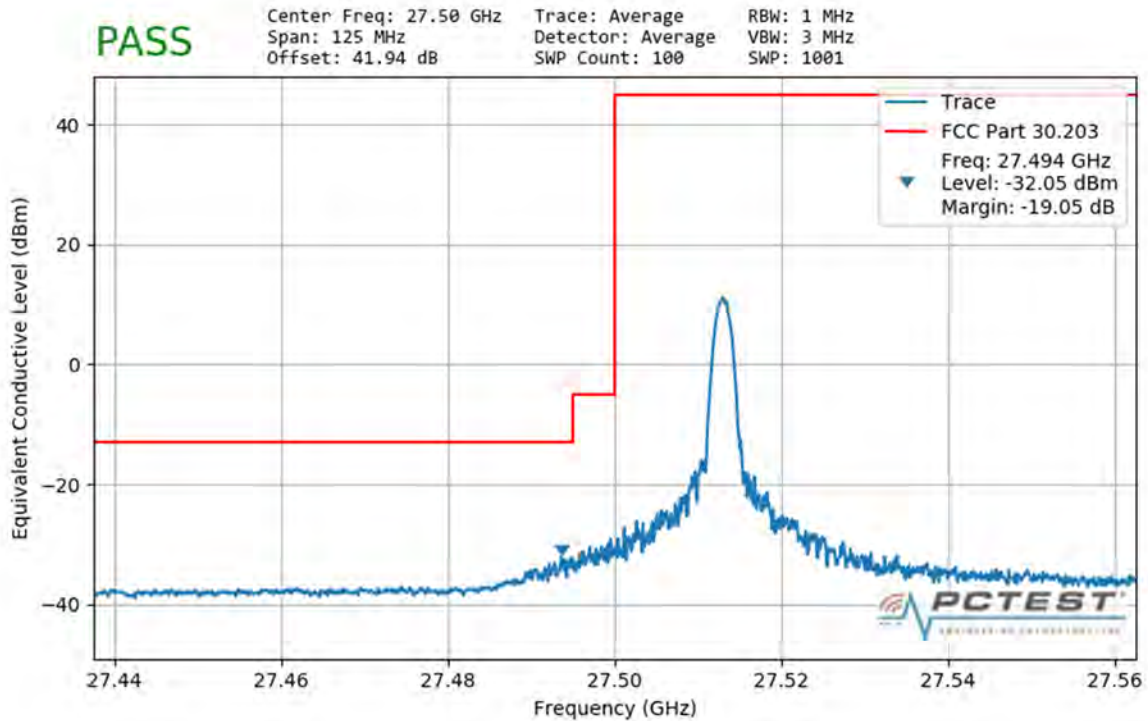
Plot 7-424. Upper Band Edge Plot (4CC 400MHz 64QAM 1 RB)

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|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 250 of 371 |

J Patch MIMO(n261)

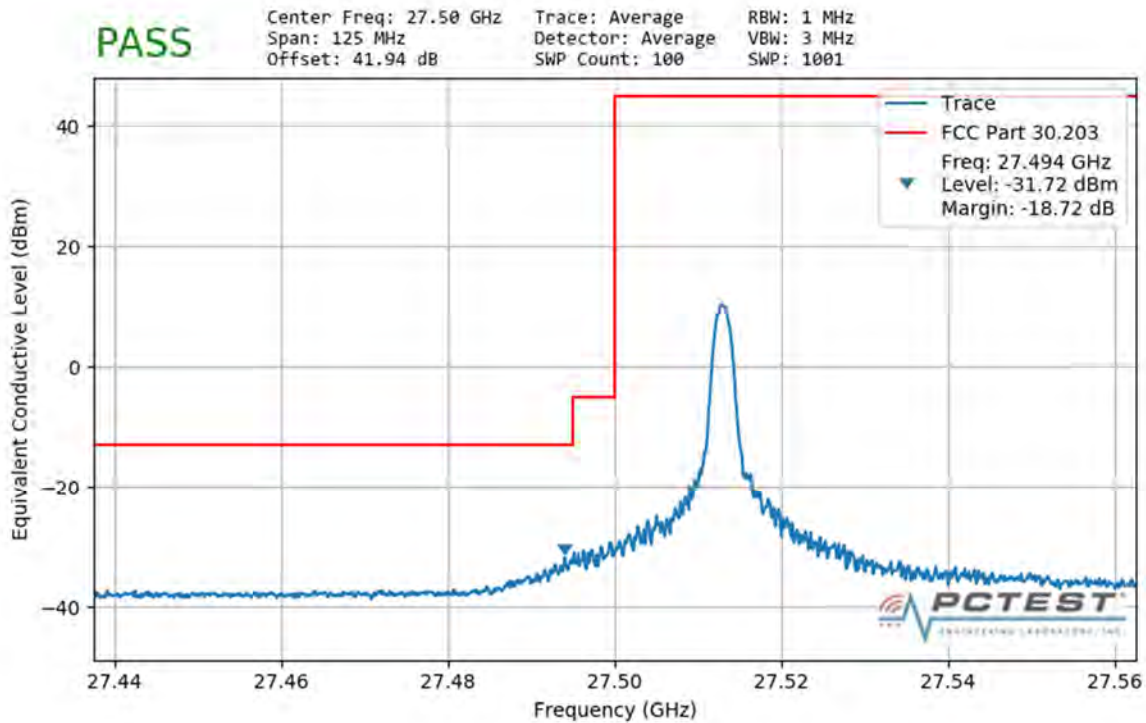


Plot 7-425. Lower Band Edge Plot (1CC 50MHz QPSK Full RB)

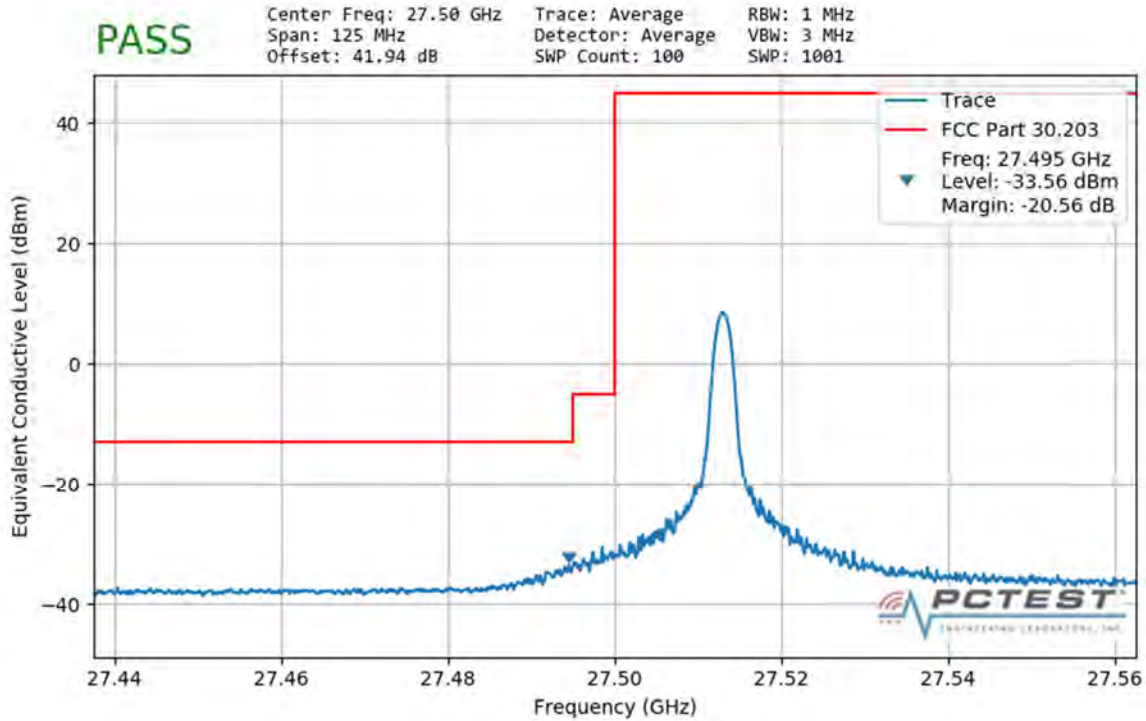


Plot 7-426. Lower Band Edge Plot (1CC 50MHz QPSK 1 RB)

| | | | | |
|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 251 of 371 |

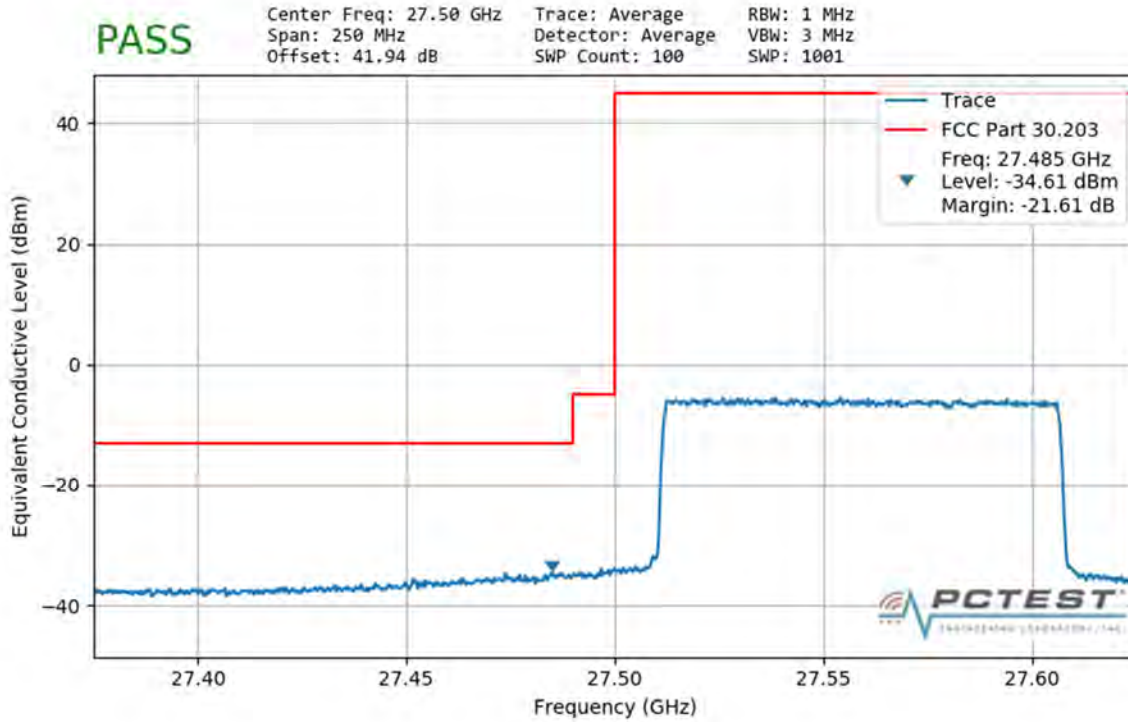


Plot 7-427. Lower Band Edge Plot (1CC 50MHz 16QAM 1 RB)

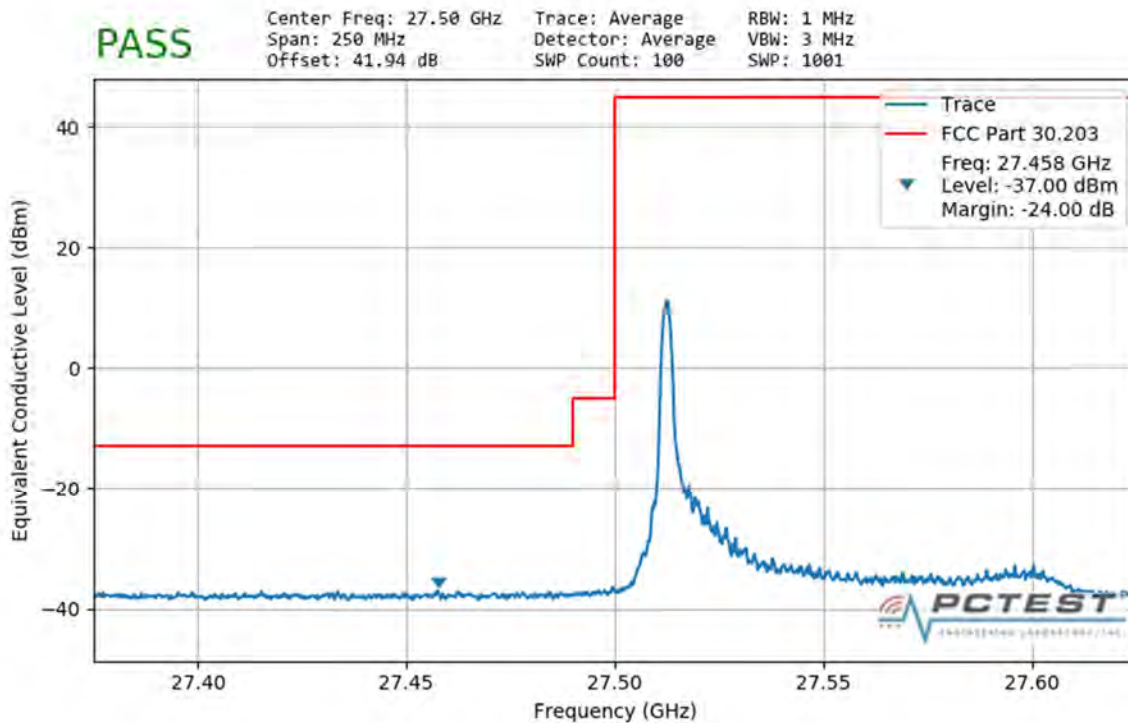


Plot 7-428. Lower Band Edge Plot (1CC 50MHz 64QAM 1 RB)

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|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 252 of 371 |

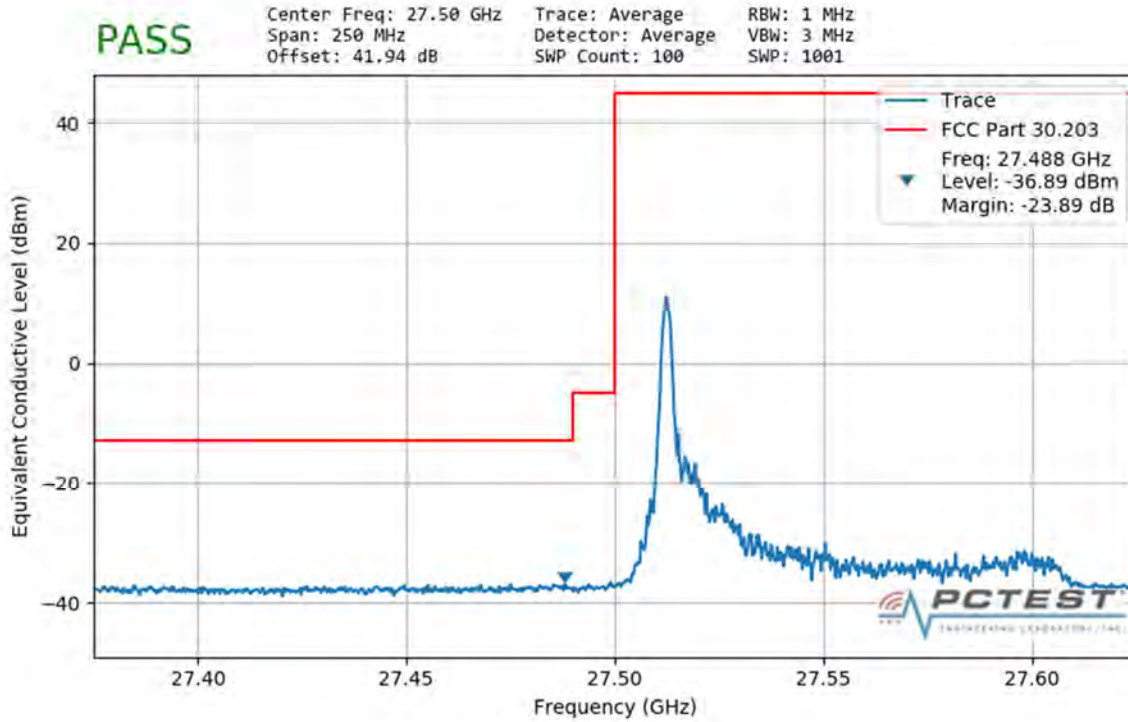


Plot 7-429. Lower Band Edge Plot (1CC 100MHz QPSK Full RB)

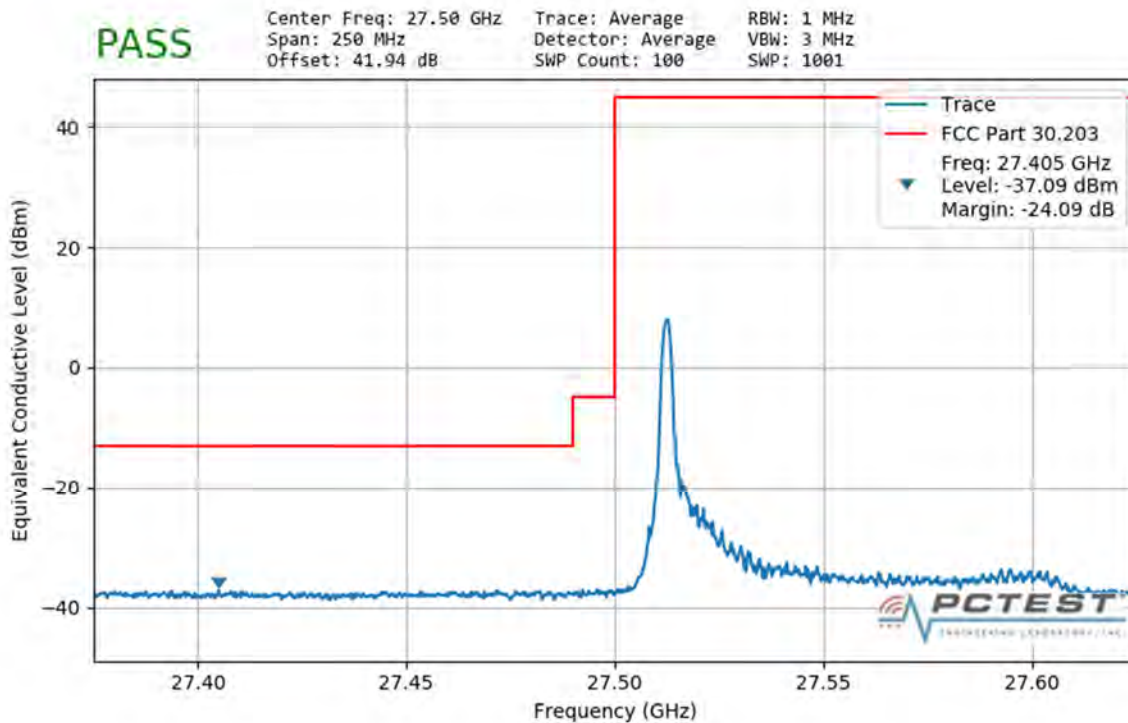


Plot 7-430. Lower Band Edge Plot (1CC 100MHz QPSK 1 RB)

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|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 253 of 371 |

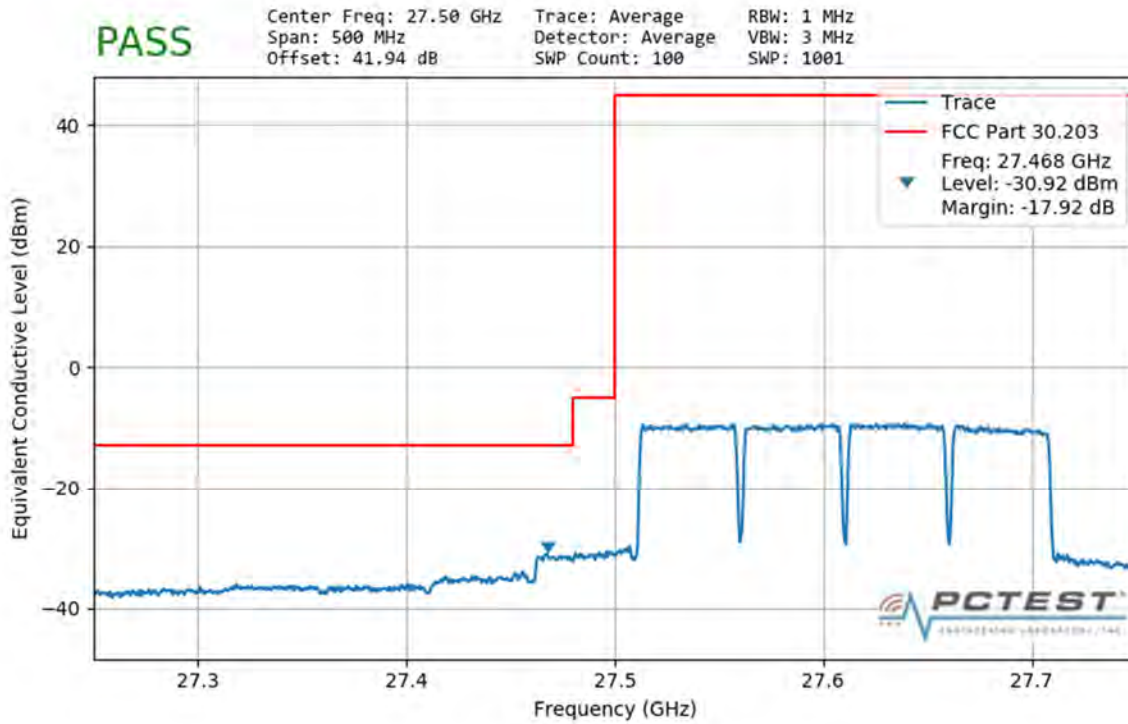


Plot 7-431. Lower Band Edge Plot (1CC 100MHz 16QAM 1 RB)

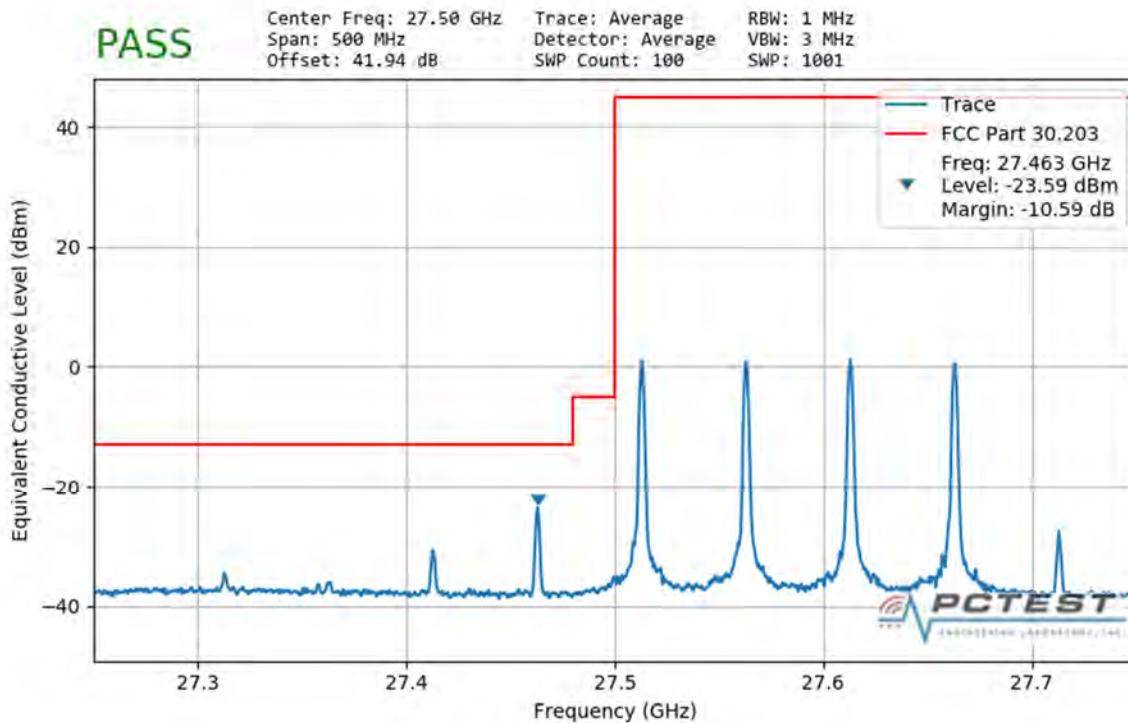


Plot 7-432. Lower Band Edge Plot (1CC 100MHz 64QAM 1 RB)

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|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 254 of 371 |

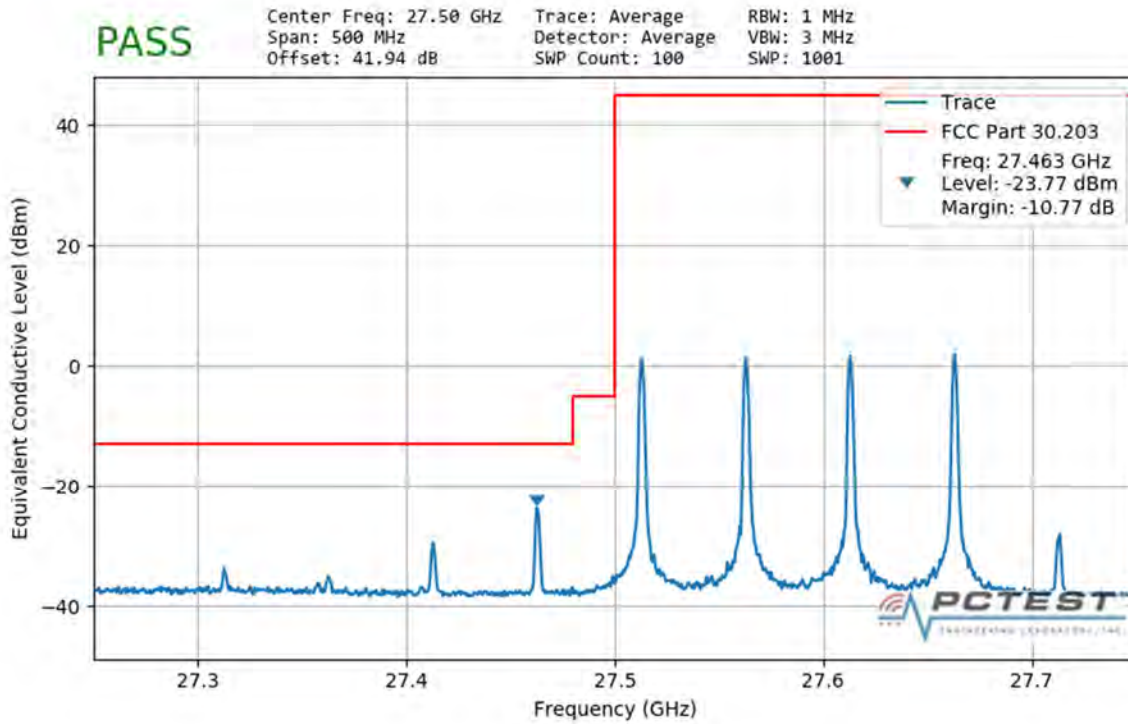


Plot 7-433. Lower Band Edge Plot (4CC 200MHz QPSK Full RB)

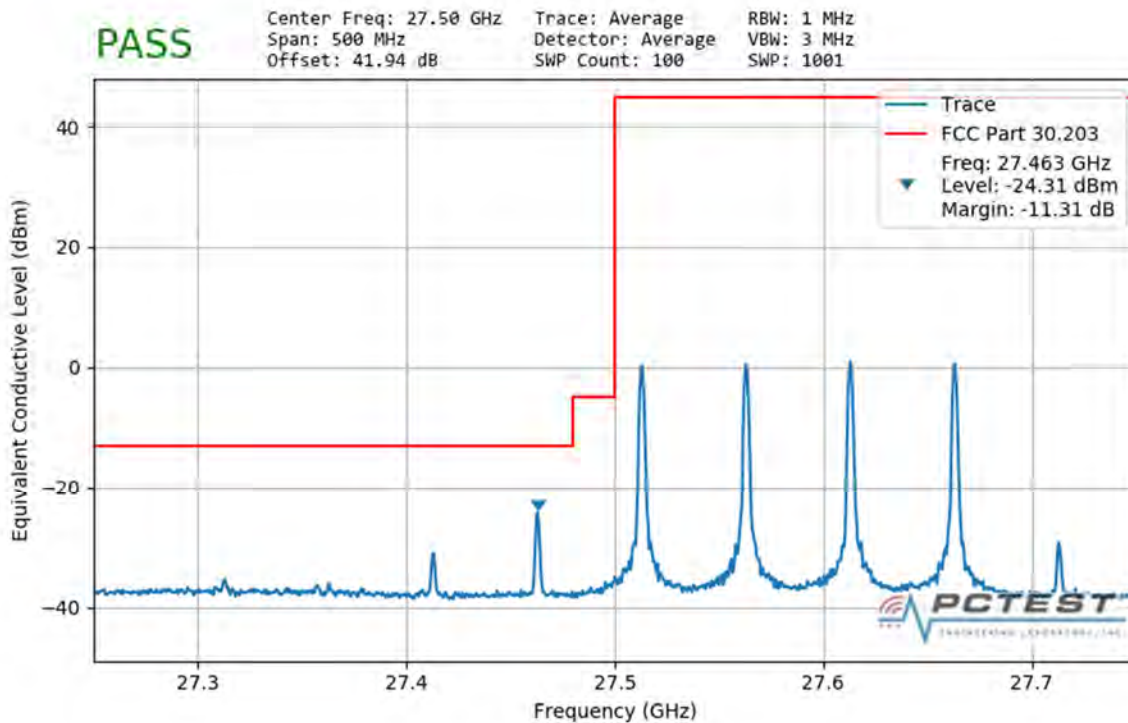


Plot 7-434. Lower Band Edge Plot (4CC 200MHz QPSK 1 RB)

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|--|---|--|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 255 of 371 |

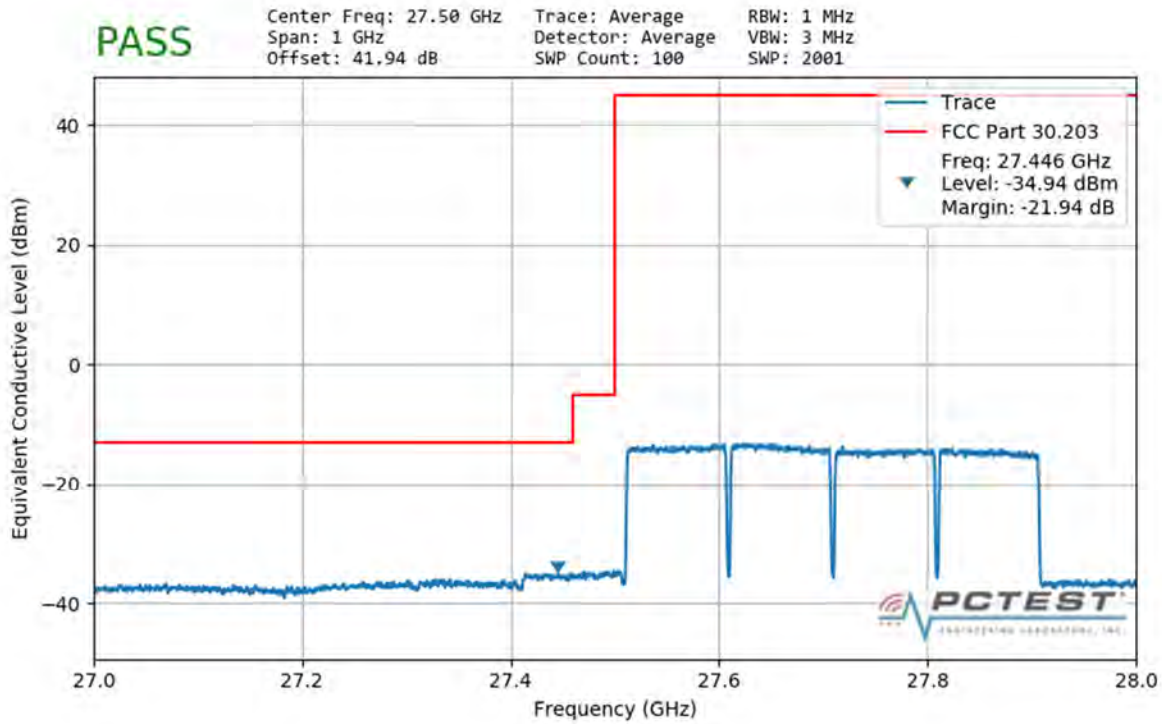


Plot 7-435. Lower Band Edge Plot (4CC 200MHz 16QAM 1 RB)

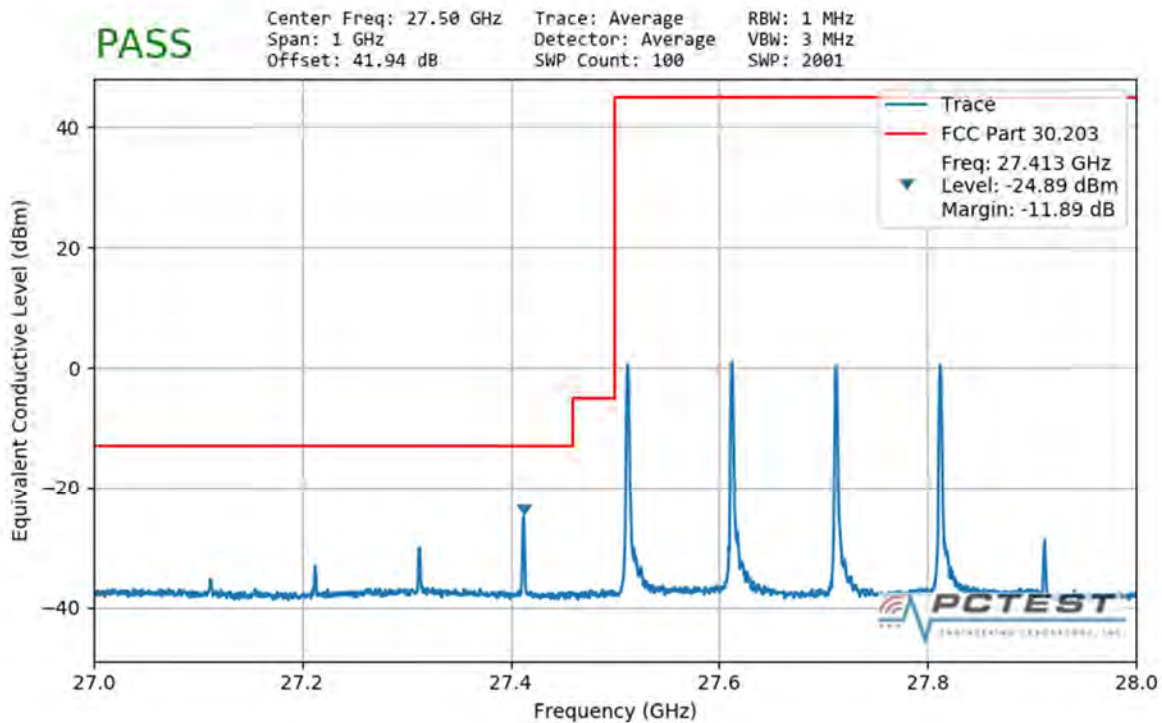


Plot 7-436. Lower Band Edge Plot (4CC 200MHz 64QAM 1 RB)

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|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 256 of 371 |

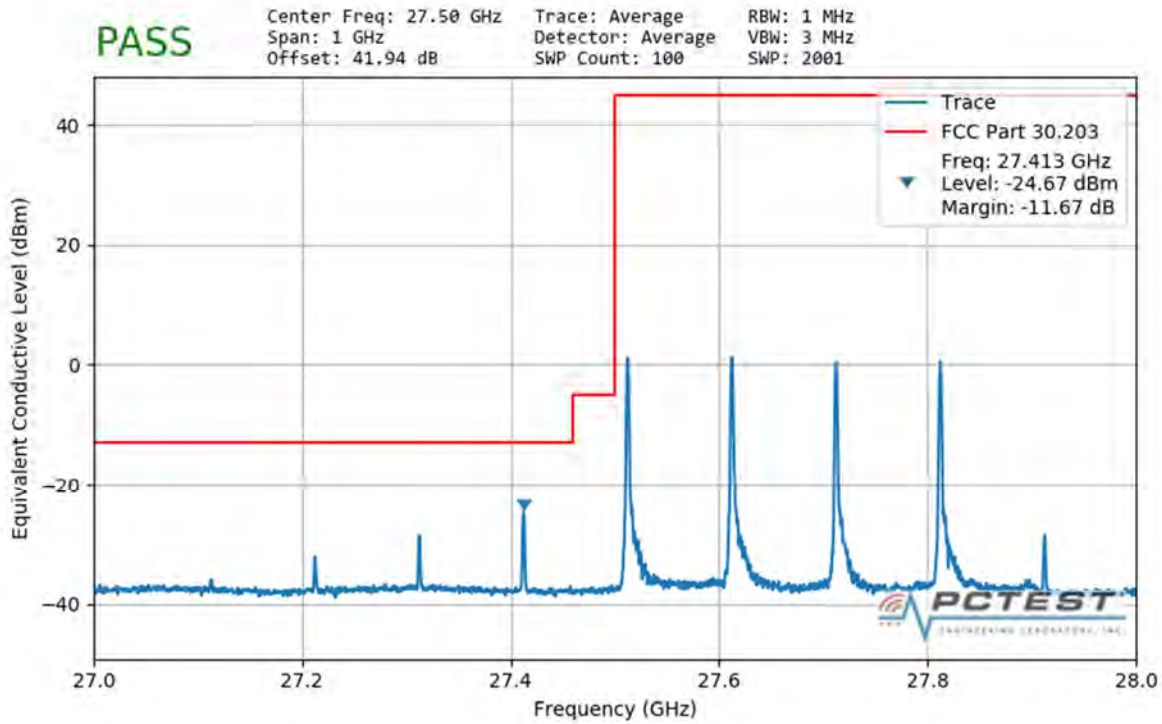


Plot 7-437. Lower Band Edge Plot (4CC 400MHz QPSK Full RB)

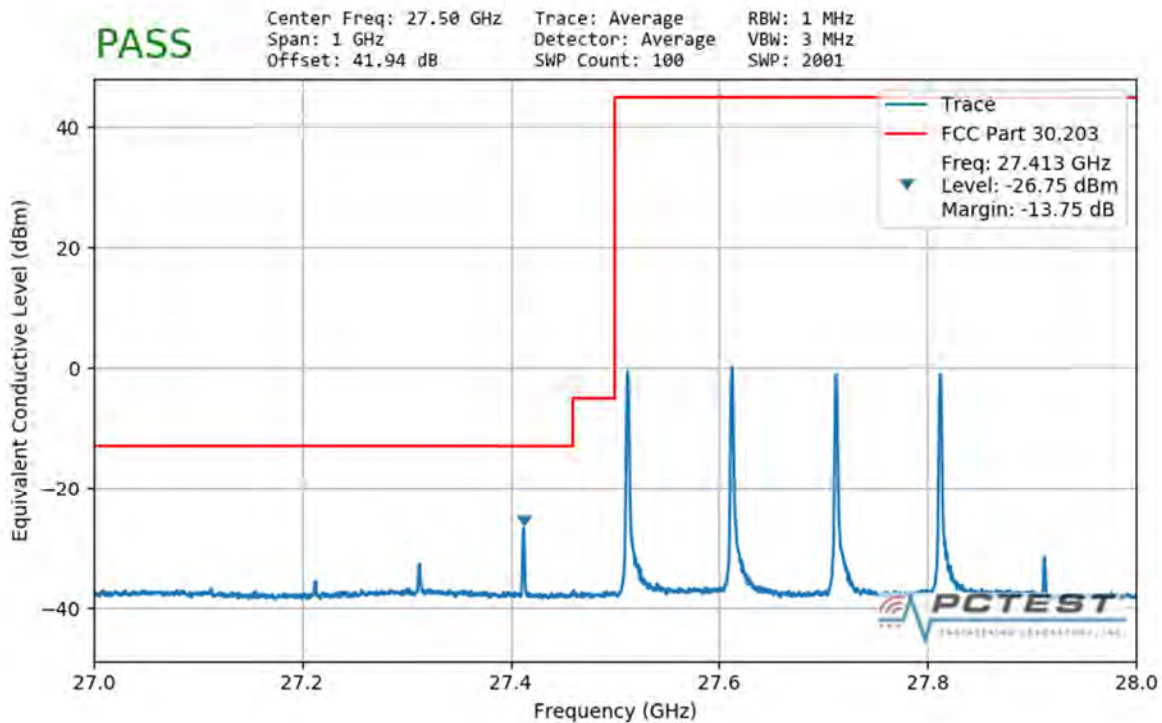


Plot 7-438. Lower Band Edge Plot (4CC 400MHz QPSK 1 RB)

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|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 257 of 371 |

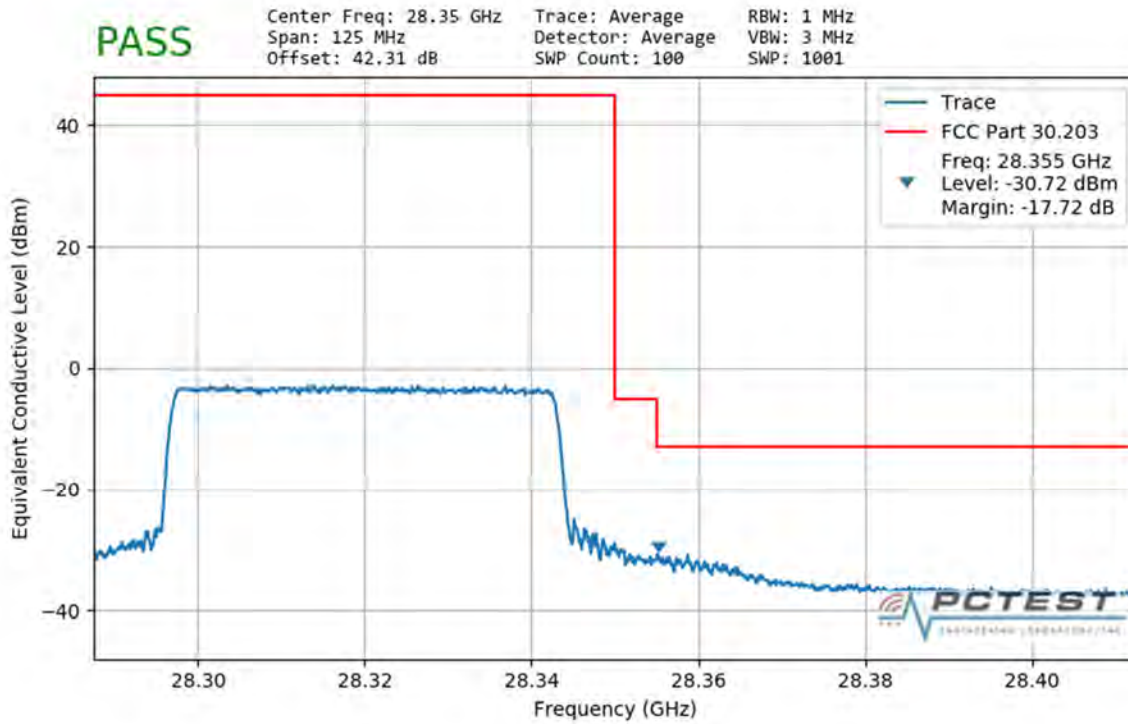


Plot 7-439. Lower Band Edge Plot (4CC 400MHz 16QAM 1 RB)

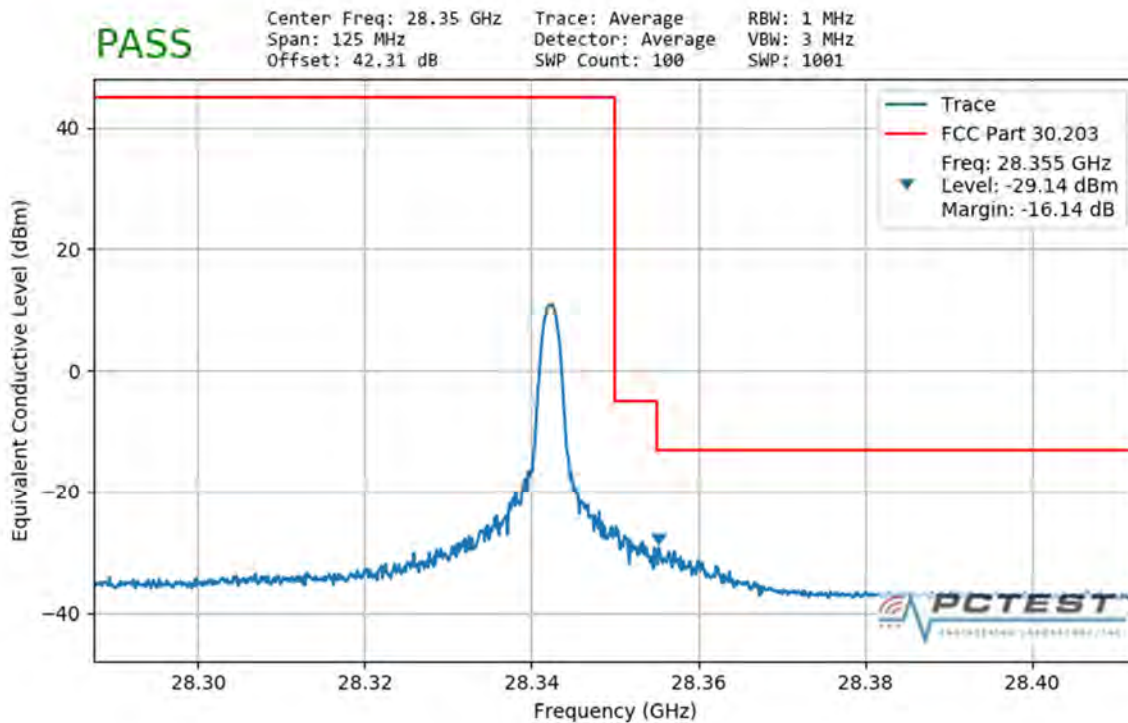


Plot 7-440. Lower Band Edge Plot (4CC 400MHz 64QAM 1 RB)

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|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 258 of 371 |

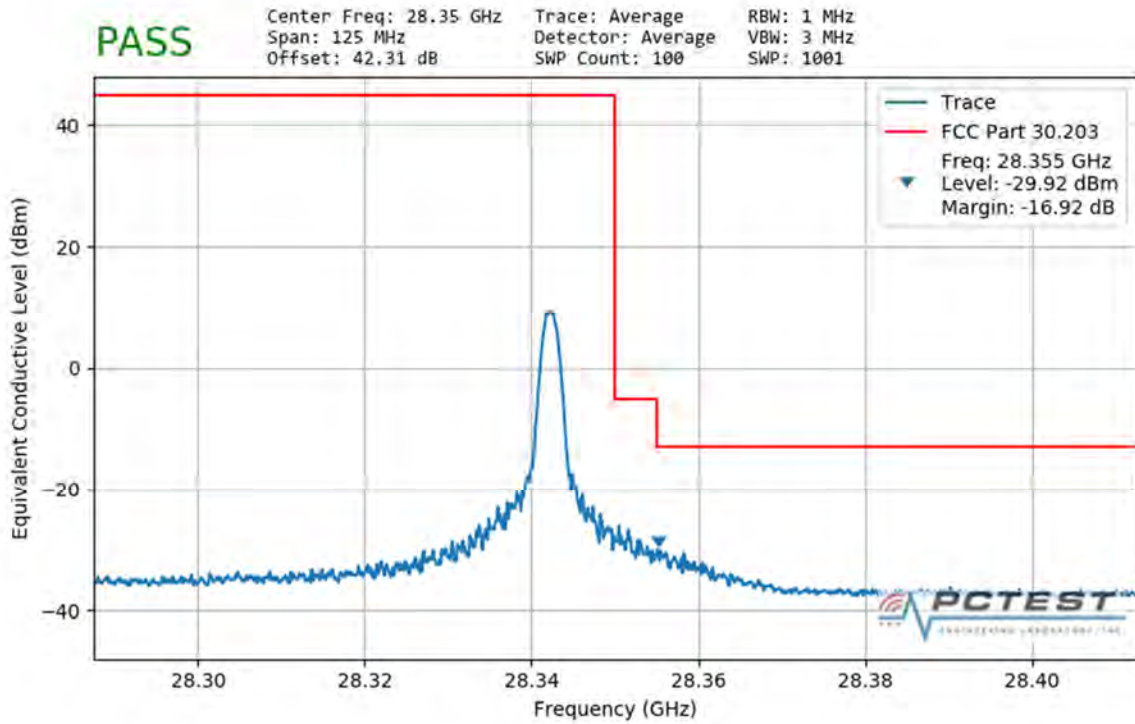


Plot 7-441. Upper Band Edge Plot (1CC 50MHz QPSK Full RB)

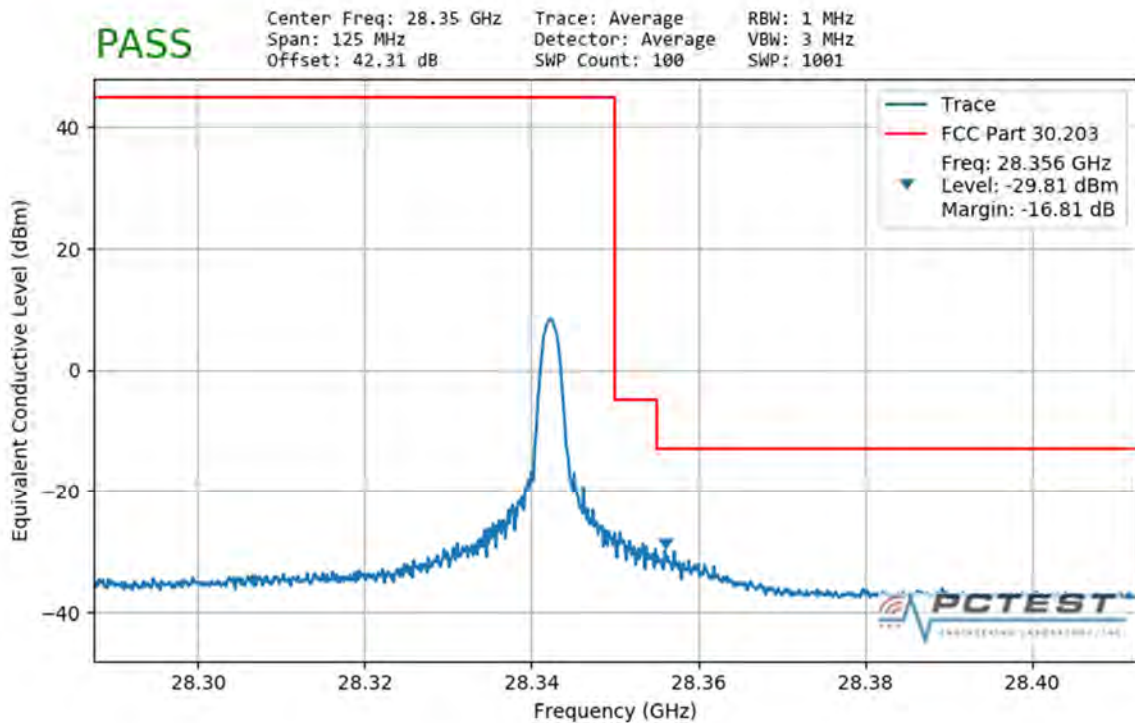


Plot 7-442. Upper Band Edge Plot (1CC 50MHz QPSK 1 RB)

| | | | | |
|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 259 of 371 |

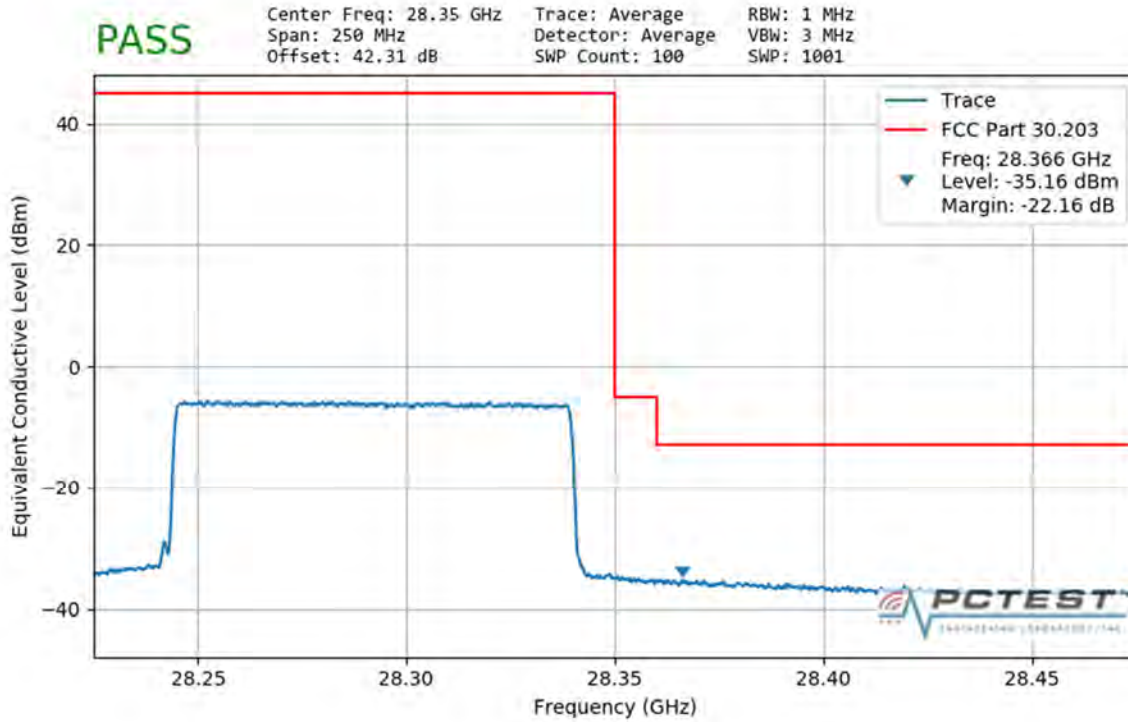


Plot 7-443. Upper Band Edge Plot (1CC 50MHz 16QAM 1 RB)

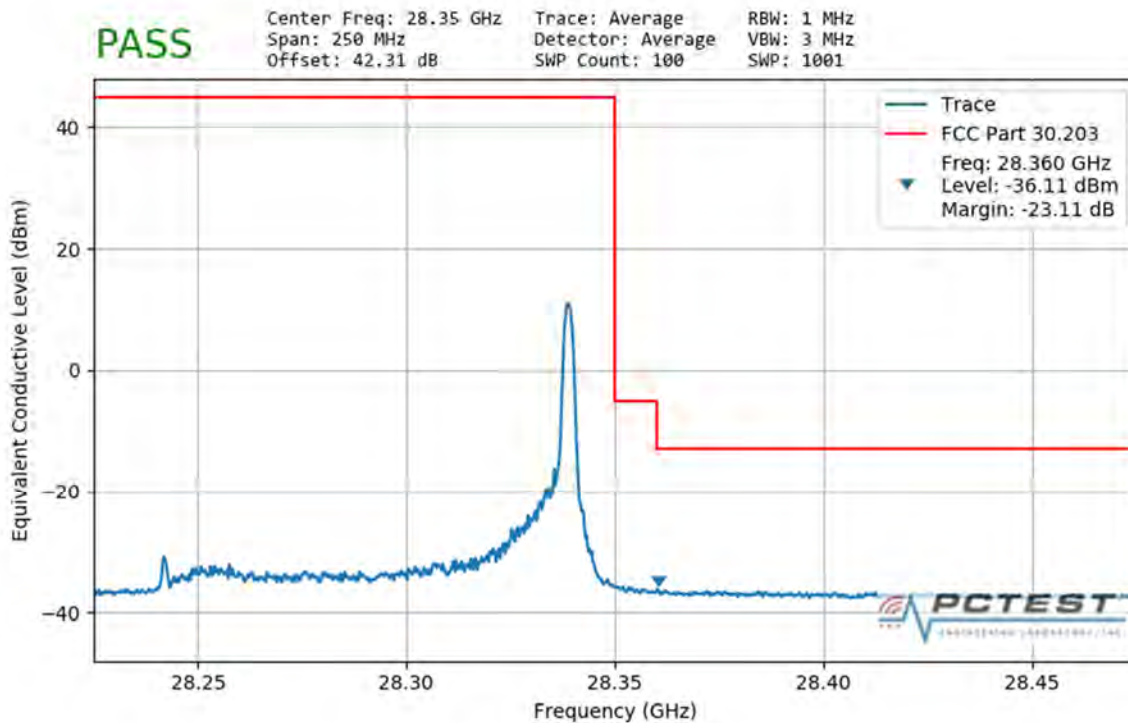


Plot 7-444. Upper Band Edge Plot (1CC 50MHz 64QAM 1 RB)

| | | | | |
|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 260 of 371 |

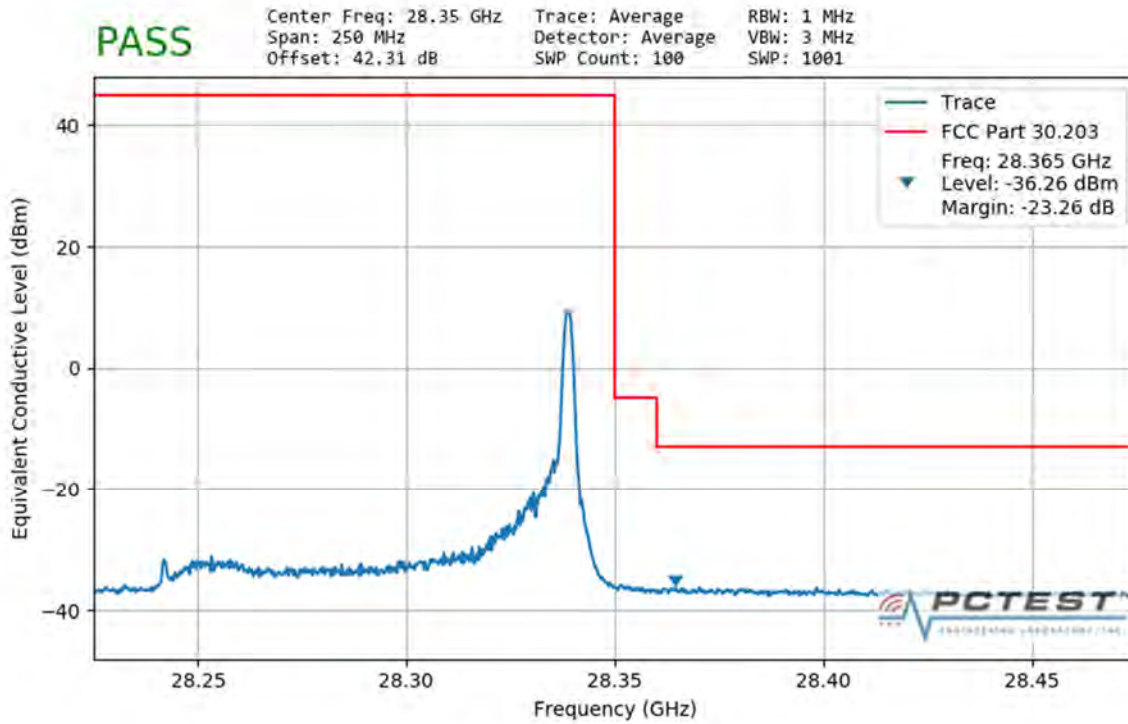


Plot 7-445. Upper Band Edge Plot (1CC 100MHz QPSK Full RB)

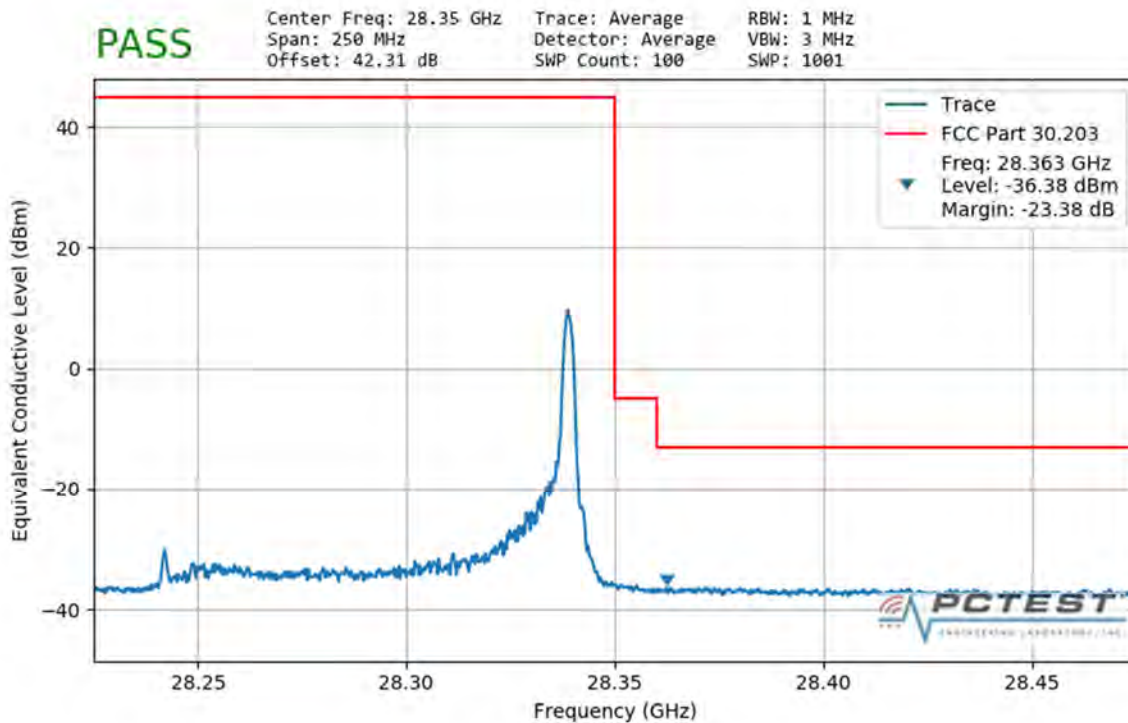


Plot 7-446. Upper Band Edge Plot (1CC 100MHz QPSK 1 RB)

| | | | | |
|--|---|---|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 261 of 371 |



Plot 7-447. Upper Band Edge Plot (1CC 100MHz 16QAM 1 RB)



Plot 7-448. Upper Band Edge Plot (1CC 100MHz 64QAM 1 RB)

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|--|---|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMN976V | PCTEST ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
| Test Report S/N: 1M1905130071-06-R1.A3L | Test Dates: 05/14 - 07/12/2019 | EUT Type: Portable Handset | | Page 262 of 371 |