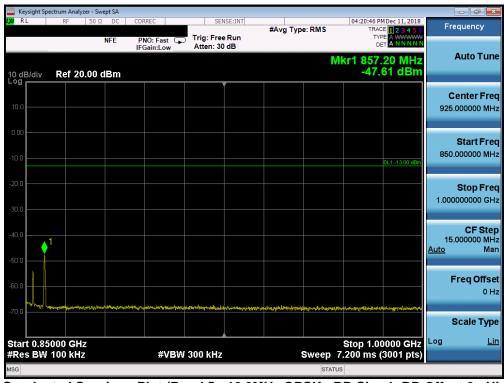


| | ectrum Analyze | | | | | | | | | | |
|--------------------------|----------------|--|-------------|-------------------------|--------|---------------------------|--------|----------------------|--|--------------------|-------------------------------------|
| LXI RL | RF | 50 Ω DC | CORREC | SEN | SE:INT | #Avg Typ | e RMS | | MDec 11, 2018 | Fre | equency |
| | | NFE | PNO: Fast G | Trig: Free Atten: 30 | | | | TYP | | | |
| 10 dB/div Log | Ref 20. | 00 dBm | | | | | Μ | lkr1 822. -50. | 00 MHz 91 dBm | | Auto Tune |
| 10.0 | | | | | | | | | | | enter Freq .000000 MHz |
| -10.0 | | | | | | | | | DL1 -13.00 dBm | 30. | Start Freq .000000 MHz |
| -20.0 | | | | | | | | | | 824. | Stop Freq .000000 MHz |
| -40.0 | | | | | | | | | 1 | 79. <u>Auto</u> | CF Step 400000 MHz Man |
| -60.0 | | | | | | | | | and a strange and a second second second | F | F req Offset 0 Hz |
| -70.0 - 1996 - 19 | | and a second secon | | | | and Antonio Philadel of A | | | | | Scale Type |
| Start 30.0 #Res BW | | | #VBI | N 300 kHz | | s | weep 3 | 8 Stop 8.11 ms (1 | 24.0 MHz 5881 pts) | Log | Lin |
| MSG | | | | | | | STATU | _ | | | |

Plot 7-106. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-107. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | _G | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|----|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dega 70 of 176 |
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| | ectrum Analy | | | | | | | | | | |
|-----------------------|--------------|---------|-------------|-------------------------|---------|----------|----------------|------------------|-----------------------|-----------------------|------------------------------------|
| LX/RL | RF | 50 Ω DC | CORREC | SEI | NSE:INT | #Avg Typ | e: RMS | TRAC | M Dec 11, 2018 | Freq | uency |
| | | NFE | PNO: Fast G | Trig: Free #Atten: 3 | | | | TY D | | | |
| 10 dB/div Log | Ref 0. | 00 dBm | | | | | Mł | (r1 1.67 -44. | 9 0 GHz 43 dBm | A | uto Tune |
| -10.0 | | | | | | | | | DL1 -13.00 dBm | | n ter Freq 00000 GHz |
| -20.0 | | | | | | | | | | | tart Freq 00000 GHz |
| -40.0 | •1 1 | | | - | \sim | | | | | | top Freq 00000 GHz |
| -60.0 | | | | | | | | | | 900.00 <u>Auto</u> | CF Step 00000 MHz Man |
| -80.0 | | | | | | | | | | Fre | e q Offset 0 Hz |
| -90.0 | | | | | | | | | | | ale Type |
| Start 1.00 #Res BW | | 2 | #VBV | V 3.0 MHz | | s | weep <u>15</u> | | .000 GHz 8001 pts) | Log | Lin |
| MSG | | | | | | | STATUS | | | | |

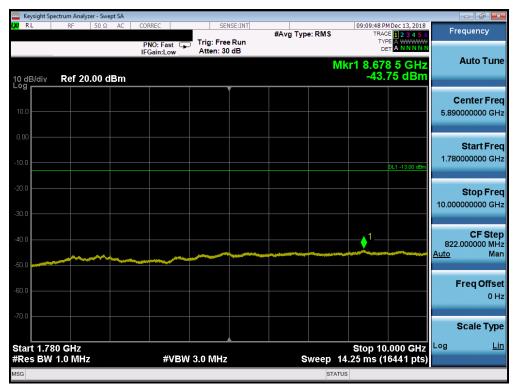
Plot 7-108. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕕 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 72 of 176 |
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| | pectrum Analyz | | | | | | | | | [| - # X |
|--------------|----------------|---------|---------------------|-----------|-----------------|----------|--------|------------------|---|---------------------|-------------------------------|
| XU RL | RF | 50 Ω AC | CORREC PNO: Fast | | | #Avg Typ | e: RMS | TRAC | M Dec 13, 2018 DE 1 2 3 4 5 6 PE A WWWWW ET A N N N N N | Fre | quency |
| 10 dB/div | Ref 20 | .00 dBm | II Gam.Low _ | | | | Μ | kr1 1.70 -32. | 6 5 GHz 09 dBm | | Auto Tun |
| 10.0 | | | | | | | | | | | enter Fre 000000 МН |
| 10.00 | | | | | | | | | DL1 -13.00 dBm | | Start Fre |
| 20.0 30.0 | | | | | | | | | 1 | | Stop Fre 000000 GH |
| 40.0 | | | | | A file and sole | | | | | 167. <u>Auto</u> | CF Ste 800000 MI Ma |
| 60.0 | | | | | | | | | | F | r eq Offs 0 I |
| 70.0 | 300 GHz | | | | | | | Stop 1.7 | 7080 GHz | s Log | Scale Typ |
| ¢Res BW | 1.0 MHz | | #VB | ₩ 3.0 MHz | | | | 2.239 ms (| (3359 pts) | | |
| SG | | | | | | | STATU | s | | | |

Plot 7-109. Conducted Spurious Plot (Band 66/4 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-110. Conducted Spurious Plot (Band 66/4 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager |
|----------------------------------|-----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: EUT Type: | | | Dega 74 of 176 |
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| | ectrum Analyzer - Sw | | | | | | | |
|------------------|----------------------|----|-------------|-------------------------------|------------|---------|---|--|
| LX/RL | RF 50 Ω | AC | CORREC | SENSE: | TI AVA TYP | e: RMS | 09:10:07 PM Dec 13, 2018 TRACE 1 2 3 4 5 6 | Frequency |
| | | | PNO: Fast G | Trig: Free Ru Atten: 10 dB | | | | |
| 10 dB/div Log | Ref 0.00 dl | Bm | | | | Mkr | 1 17.001 0 GHz -56.19 dBm | Auto Tune |
| -10.0 | | | | | | | DL1 -13.00 dBm | Center Freq 15.00000000 GHz |
| -20.0 | | | | | | | | Start Freq 10.000000000 GHz |
| -40.0 | | | | | | 1 | | Stop Freq 20.000000000 GHz |
| -60.0 | | | | | | 1 | | CF Step 1.000000000 GHz <u>Auto</u> Man |
| -80.0 | | | | | | | | Freq Offset 0 Hz |
| -90.0 | | | | | | | | Scale Type |
| Start 10.0 | | | #)/D)/ | 20.044- | | woon 26 | Stop 20.000 GHz | Log <u>Lin</u> |
| #Res BW | 1.0 WIHZ | | #VBV | ∜ 3.0 MHz | 5 | status | 33 ms (20001 pts) | |
| mou | | | | | | STATUS | | |

Plot 7-111. Conducted Spurious Plot (Band 66/4 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



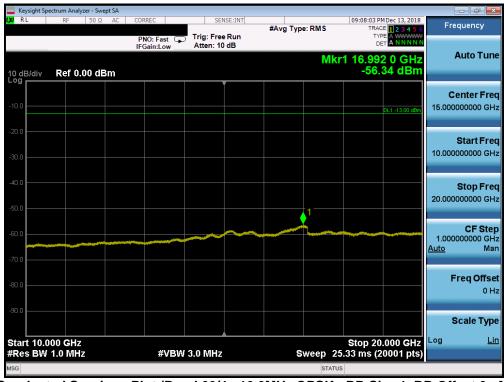
Plot 7-112. Conducted Spurious Plot (Band 66/4 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 75 of 170 |
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| | ectrum Analyzer - Swe | | | | | | | | | | |
|-----------------------|-----------------------|------|--------------------------|-------------------------|--------|----------|---------|-----------------------|-----------------------|-------------|------------------------|
| LXU RL | RF 50 Ω | AC C | ORREC | SEN | SE:INT | #Avg Typ | e: RMS | | MDec 13, 2018 | Fr | equency |
| | | I | PNO: Fast 🕞 FGain:Low | Trig: Free Atten: 30 | | | M | cr1 8.66 | 8 5 GHz 01 dBm | | Auto Tune |
| 10 dB/div | Ref 20.00 d | Bm | | | | | | -44. | | c | enter Freq |
| 10.0 | | | | | | | | | | 5.890 | 0000000 GHz |
| -10.0 | | | | | | | | | | 1.780 | Start Freq |
| -20.0 | | | | | | | | | DL1 -13.00 dBm | | Stop Freq |
| -30.0 | | | | | | | | | | 10.000 | 0000000 GHz |
| -40.0 | | | | | | | | ↓ 1 | | 822 | CF Step .000000 MHz |
| -50.0 | | | | | | | | | | <u>Auto</u> | Man |
| -60.0 | | | | | | | | | | I | Freq Offset 0 Hz |
| -70.0 | | | | | | | | | | | Scale Type |
| Start 1.78 #Res BW | | | #VBW | 3.0 MHz | | S | weep 14 | Stop 10 1.25 ms (1 | .000 GHz 6441 pts) | Log | <u>Lin</u> |
| MSG | | | | | | | STATU | S | | | |

Plot 7-113. Conducted Spurious Plot (Band 66/4 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



Plot 7-114. Conducted Spurious Plot (Band 66/4 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | ì | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|---|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 76 of 176 |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | Portable Handset | | Page 76 of 176 |
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| | ectrum Analyzer - S | | | | | | | | | | |
|-----------------------|---|------|---------------------------|-------------------------|--------|----------|---|---------------------|------------------------|-----------------------|------------------------------------|
| IXI RL | RF 50 | Ω AC | CORREC | SEN | SE:INT | #Avg Typ | e: RMS | | M Dec 13, 2018 | Freq | uency |
| | | | PNO: Fast 🕞 IFGain:Low | Trig: Free Atten: 30 | | | | D | | | |
| 10 dB/div Log | Ref 20.00 | dBm | | | | | M | kr1 1.65 -47. | 5 0 GHz 85 dBm | A | uto Tune |
| 10.0 | | | | | | | | | | | nter Freq 00000 MHz |
| -10.0 | | | | | | | | | DL1 -13.00 dBm | | Start Freq 200000 MHz |
| -20.0 | | | | | | | | | | | Stop Freq 00000 GHz |
| -40.0 | | | | | | | and and the state of the state | | 1 | 168.00 <u>Auto</u> | CF Step 00000 MHz Man |
| -60.0 | ng mga gan din sa | | | | | | | | | Fr | e q Offset 0 Hz |
| -70.0 | | | | | | | | | | | ale Type |
| Start 0.03 #Res BW | | | #VBW | / 3.0 MHz | | | Sweep | Stop 1. 2.240 ms | 7100 GHz (3361 pts) | Log | Lin |
| MSG | | | | | | | STATU | | | | |

Plot 7-115. Conducted Spurious Plot (Band 66/4 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-116. Conducted Spurious Plot (Band 66/4 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕑 LG | Approved by: Quality Manager |
|----------------------------------|-----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: EUT Type: | | | Dogo 77 of 176 |
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| | ctrum Analyzer | - Swept SA | | | | | | | | | |
|-----------------------|----------------|------------|-------------|-------------------------|---------|----------|--------|---------------------|---------------------------------|----------------------|--------------------------------------|
| LXI RL | RF 5 | 50 Ω AC | CORREC | | NSE:INT | #Avg Typ | e: RMS | TRAC | MDec 13, 2018 DE 1 2 3 4 5 6 | Fre | equency |
| | | | PNO: Fast G | Trig: Free Atten: 10 | | | | DI | | | |
| 10 dB/div Log | Ref 0.00 | dBm | | | | | Μ | kr1 17.00 -56. | 7 5 GHz 42 dBm | | Auto Tune |
| -10.0 | | | | | | | | | DL1 -13.00 dBm | | enter Freq 000000 GHz |
| -20.0 | | | | | | | | | | 10.000 | Start Freq |
| -40.0 | | | | | | | 1 | | | 20.000 | Stop Freq |
| -60.0 | | | | | | | | | | 1.000 <u>Auto</u> | CF Step 0000000 GHz Man |
| -80.0 | | | | | | | | | | F | F req Offset 0 Hz |
| -90.0 | | | | | | | | | | | Scale Type Lin |
| Start 10.0 #Res BW | | | #VBW | / 3.0 MHz | | s | weep | 20 Stop 25.33 ms | .000 0112 | Log | |
| MSG | | | | | | | | TUS | | | |

Plot 7-117. Conducted Spurious Plot (Band 66/4 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

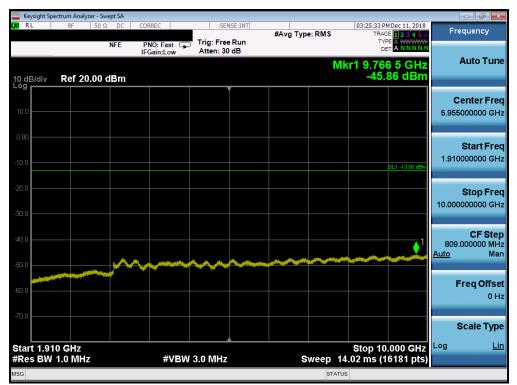
| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 79 of 176 |
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Band 2

| | ectrum Analyzer - S | | | | | | | |
|-----------------------|--|-----------------------|--|--------------------------------|---|-----------------------------|---|--|
| <mark>XI</mark> RL | RF 50 | Ω DC NFE | CORREC PNO: Fast | Trig: Free Run Atten: 30 dB | #Avg Typ | e: RMS | 03:25:12 PMDec 11, 2018 TRACE 1 2 3 4 5 0 TYPE A WWWW DET A NNNN | |
| 10 dB/div Log | Ref 20.00 | dBm | | | | Mk | r1 1.846 0 GHz -24.51 dBm | Auto Tune |
| 10.0 | | | | | | | | Center Fred 939.000000 MH; |
| -10.0 | | | | | | | DL1 -13.00 dBm | Start Free 30.000000 MH |
| -20.0 | | | | | | | | Stop Fred 1.848000000 GH |
| 40.0 | | | | | | | | CF Ste 181.800000 MH <u>Auto</u> Ma |
| 60.0 | na ana ana ao ao | and a second state of | un sena di districti istophysiquel ^{ting} | alangan pengebarkan apasatelan | ىلىيەتىرىمەتچىلەر بولەرچىلەر يىلى مەرىپىدىنەر بەلەتىلىر | Wainter (Allerighter) and d | aria sayanganganganganganganganganganganganganga | Freq Offse 0 H |
| -70.0 | | | | | | | | Scale Typ |
| Start 0.03 #Res BW | | | #VBW | 3.0 MHz | | Sweep 2 | Stop 1.8480 GHz .425 ms (3639 pts) | Log <u>Lii</u> |
| ISG | | | | | | STATUS | ; | |

Plot 7-118. Conducted Spurious Plot (Band 2 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-119. Conducted Spurious Plot (Band 2 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dega 70 of 170 |
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| Keysight Spectrum Anal | | | | | | |
|------------------------------------|------------------|-------------|--------------------------------|----------------|---|--|
| XI RL RF | 50 Ω DC | CORREC | SENSE:INT | #Avg Type: RMS | 03:26:20 PM Dec 11, 2018 TRACE 1 2 3 4 5 6 | Frequency |
| | NFE | PNO: Fast 😱 | Trig: Free Run Atten: 10 dB | • ,1 | DET A NNNN | |
| 10 dB/div Ref 0 | .00 dBm | | | N | lkr1 19.569 0 GHz -61.10 dBm | Auto Tune |
| -10.0 | | | | | DL1 -13.00 dBm | Center Free 15.000000000 GH |
| 30.0 | | | | | | Start Fre 10.000000000 GH |
| 40.0 | | | | | | Stop Fre 20.000000000 GH |
| 60.0 70.0 | ~~~~ | | | | 1 | CF Ste 1.000000000 GH <u>Auto</u> Ma |
| 30.0 | | | | | | Freq Offs 0 F |
| 90.0 | | | | | | Scale Typ |
| Start 10.000 GHz #Res BW 1.0 MH | | #VBW | 3.0 MHz | Sweep | Stop 20.000 GHz 17.33 ms (20001 pts) | Log <u>Li</u> |
| isg 🕕 Points chang | ed; all traces c | leared | | | ATUS | |

Plot 7-120. Conducted Spurious Plot (Band 2 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



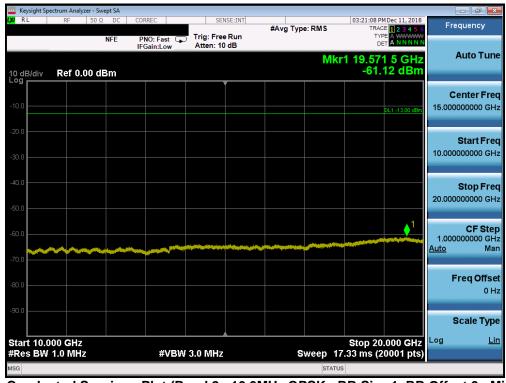
Plot 7-121. Conducted Spurious Plot (Band 2 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 90 of 176 |
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| | ectrum Analyzer - S | wept SA | | | | | | | | - | |
|-----------------------|---------------------|---------|-------------------------|-------------------------|--------|----------|--------|-----------------------|-----------------------|----------------------|-------------------------------------|
| LXI RL | RF 50 | Ω DC | CORREC | SEI | SE:INT | #Avg Typ | e: RMS | | M Dec 11, 2018 | Fre | quency |
| | | NFE | PNO: Fast IFGain:Low | Trig: Free Atten: 30 | | | | ۲۲ ס kr1 9.74 | | , | Auto Tune |
| 10 dB/div Log | Ref 20.00 | dBm | | , , | | | | -40. | оо авш | | |
| 10.0 | | | | | | | | | | | enter Freq 000000 GHz |
| -10.0 | | | | | | | | | DL1 -13.00 dBm | | Start Freq 000000 GHz |
| -20.0 | | | | | | | | | | | Stop Freq 000000 GHz |
| -40.0 | | | | | | | | | | 809.0 <u>Auto</u> | CF Step 000000 MHz Man |
| -50.0 | | | | | | | | | | F | r eq Offset 0 Hz |
| -70.0 | | | | | | | | | | | cale Type |
| Start 1.91 #Res BW | | | #VBW | / 3.0 MHz | | s | weep 1 | Stop 10 4.02 ms (1 | .000 GHz 6181 pts) | Log | Lin |
| MSG | | | | | | | STATL | | | | |
| | | | | | | | | | | | |

Plot 7-122. Conducted Spurious Plot (Band 2 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



Plot 7-123. Conducted Spurious Plot (Band 2 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 91 of 176 |
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| | | | yzer - Swep | | | | | | | | | | | |
|----------------|--|------------|-------------|-----|-------------------|-----------------------|-------------------------|-----------------------------------|------------------------------------|--|---|----------------------------------|------|-------------------------|
| LXI RL | | RF | 50 Ω | DC | CORREC | | SEN | ISE:INT | #Avg Typ | e: RMS | | M Dec 11, 2018 DE 1 2 3 4 5 6 | Fr | requency |
| | | | N | IFE | PNO: F IFGain: | ast 🖵 Low | Trig: Free Atten: 30 | | | | TYI Di | | | |
| 10 dB Log r | /div | Ref 2 | 0.00 di | Bm | | | | | | M | kr1 1.84 -55. | 1 0 GHz 02 dBm | | Auto Tune |
| | | | | | | | , | | | | | | | Center Freq |
| 10.0 | | | | | | | | | | | | | 940 | 0.000000 MHz |
| 0.00 - | | | | | | | | | | | | | | Start Freq |
| -10.0 | | | | | | | | | | | | DL1 -13.00 dBm | 30 | 0.000000 MHz |
| -20.0 | | | | | | | | | | | | | | Stop Freq |
| -30.0 | | | | | | | | | | | | | 1.85 | 0000000 GHz |
| -40.0 | | | | | | | | | | | | | 400 | CF Step 2.000000 MHz |
| -50.0 | | | | | | | | | | | | 1 | Auto | Man |
| | | | | | | and the second second | مور الالاستين الم | ماريند ، روان رومارد و | ung water for a second design form | an the state of the | يون مىرىنى رون المار يى رون مى رون مەر يې رون مىرى رون مى | | | Freq Offset |
| -60.0 | an a | www.unview | ******** | | | | | | | | | | | 0 Hz |
| -70.0 | | | | | | | | | | | | | | Scale Type |
| Start | 0.030 | 00 GHz | z | | | | | | | | Stop 1. | B500 GHz | Log | Lin |
| #Res | 8W 1 | 1.0 MH | z | | | #VBW | 3.0 MHz | | | Sweep 2 | 2.427 ms (| (3641 pts) | | |
| MSG | | | | | | | | | | STATU | s | | | |

Plot 7-124. Conducted Spurious Plot (Band 2 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-125. Conducted Spurious Plot (Band 2 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dage 82 of 176 |
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| | | zer - Swept SA | | | | | | | | | × |
|-----------------------|--------|----------------|-------------------------|-------------------------|---------|----------|---------|-----------------|----------------------------------|--------------|---------------------|
| (XI RL | RF | 50 Ω DC | CORREC | | ISE:INT | #Avg Typ | e: RMS | TRAC | M Dec 11, 2018 CE 1 2 3 4 5 6 | Frequency | |
| | | NFE | PNO: Fast IFGain:Low | Trig: Free Atten: 10 | | | | | | A | |
| 10 dB/div Log | Ref 0. | 00 dBm | | | | | Mkı | 1 19.62 -61. | 6 0 GHz 07 dBm | Auto Ti | une |
| | | | | | | | | | | Center F | |
| -10.0 | | | | | | | | | DL1 -13.00 dBm | 15.00000000 | GHz |
| -20.0 | | | | | | | | | | Start F | req |
| -30.0 | | | | | | | | | | 10.000000000 | GHz |
| -40.0 | | | | | | | | | | Stop F | rea |
| -50.0 | | | | | | | | | | 20.000000000 | |
| | | | | | | | | | ▲1 | CF S | sten |
| -60.0 | ~~~ | | | - | | | | | | 1.000000000 | |
| -70.0 | | | | | | | | | | | |
| -80.0 | | | | | | | | | | Freq Off | fset 0 Hz |
| -90.0 | | | | | | | | | | | |
| | | | | | | | | | | Scale T | уре |
| Start 10.0 #Res BW | | | #\/B\A | v 3.0 MHz | | | weep 17 | Stop 20 | .000 GHz 20001 pts) | Log | Lin |
| #Res DW | | | #VDV | 7 J.U MINZ | | 3 | statu: | | | | _ |

Plot 7-126. Conducted Spurious Plot (Band 2 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
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7.4 Band Edge Emissions at Antenna Terminal

Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates 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 $43 + 10\log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

Test Procedure Used

KDB 971168 D01 v03r01 - Section 6.0

Test Settings

- 1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
- 2. Span was set large enough so as to capture all out of band emissions near the band edge
- 3. RBW \geq 1% of the emission bandwidth
- 4. VBW ≥ 3 x RBW
- 5. Detector = RMS
- 6. Number of sweep points $\geq 2 \times \text{Span/RBW}$
- 7. Trace mode = trace average
- 8. Sweep time = auto couple
- 9. The trace was allowed to stabilize

Test Setup

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



Figure 7-3. Test Instrument & Measurement Setup

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager | |
|----------------------------------|----------------------|---------------------------------------|--|---------------------------------|--|
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Test Notes

Per 22.917(b) 24.238(a) 27.53(h) in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to demonstrate compliance with the out-of-band emissions limit. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

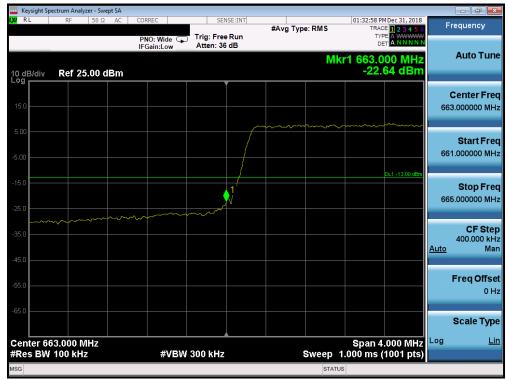
Per 27.53(g) for operations in the 698-746 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

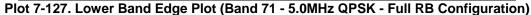
Per 27.53(c)(5) for operations in the 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

For all plots showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC limit per 27.53(c)(4) is 65 + $10\log_{10}(P) = -35dBm$ in a 6.25kHz bandwidth.

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager | |
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Plot 7-128. Upper Band Edge Plot (Band 71 - 5.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕑 LG | Approved by: Quality Manager | |
|----------------------------------|--|---------------------------------------|------|---------------------------------|--|
| Test Report S/N: | Test Dates: | EUT Type: | | | |
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| Keysight Spectrum Analyzer - Swept S | | | | | |
|--|---|---|----------------|--|---------------------------------------|
| x RL RF 50Ω A Center Freq 663.00000 | 0 MHz PNO: Wide 💭 | SENSE:INT Trig: Free Run Atten: 36 dB | #Avg Type: RMS | 02:05:51 PM Dec 31, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A NNNNN | Frequency |
| 10 dB/div Ref 25.00 dBr | IFGain:Low | Atten: 36 db | Mk | r1 663.000 MHz -27.21 dBm | Auto Tun |
| 15.0 | | | | | Center Fre 663.000000 MH |
| 5.00 | | | | | Start Fre 659.000000 Mi |
| 25.0 | | 1 | | DL1 -13.00 dBm | Stop Fre 667.000000 Mi |
| 15.0 | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | | CF Ste 800.000 ki <u>Auto</u> M |
| 55.0 | | | | | Freq Offs 0 |
| | | | | Chon & COO Mila | Scale Typ |
| Center 663.000 MHz #Res BW 100 kHz | #VBW 3 | 300 kHz | Sweep | Span 8.000 MHz 1.000 ms (1001 pts) | |
| ISG | | | STATU | s | |

Plot 7-129. Lower Band Edge Plot (Band 71 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-130. Upper Band Edge Plot (Band 71 - 10.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager | |
|----------------------------------|---|---------------------------------------|------|---------------------------------|--|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 87 of 176 | |
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| | ectrum Anal | | | | | | | | | | | |
|------------------|--|--|-----------------------|---|------------------------|----------------|--|--|--------------|-----------------------------------|-------------|--------------------------|
| X/RL | RF | 50 Ω | AC | CORREC | | NSE:INT | #Avg Typ | e: RMS | TRA | PM Dec 18, 2018 CE 1 2 3 4 5 6 | Fre | quency |
| | | | | PNO: Wide C | Trig: Fre Atten: 30 | | | | T) [| | | |
| | | | | | | | | M | (r1 662.) | 952 MHz | | Auto Tune |
| 10 dB/div Log | Ref 2 | 5.00 di | Bm | | | - | | | -29 | .39 dBm | | |
| | | | | | | | | | | | С | enter Fre |
| 15.0 | | | | | | | | | | | 663. | 000000 МН |
| 5.00 | | | | | | | | | | | | |
| 5.00 | | | | | | ~ | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | - marine and | | | Start Fre |
| -5.00 | | | | | | | | | | | 657. | 000000 MH |
| | | | | | | | | | | DL1 -13.00 dBm | | |
| -15.0 | | | | | | | | | | | | Stop Fre |
| -25.0 | | | | | | 1 | | | | | 669. | 000000 MH |
| | | | | | annor | and the second | | | | | | |
| 35.0 | | | m. | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | | | | | 1. | CF Ste 200000 MH |
| 15.0 | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | and the second second | | | | | | | | <u>Auto</u> | Ma |
| 45.0 | and the second s | | | | | | | | | | | |
| -55.0 | | | | | | | | | | | F | r eq Offs o ۱۰ |
| | | | | | | | | | | | | ŰF |
| -65.0 | | | | | | | | | | | | Scale Typ |
| | | | | | | | | | | | | |
| Center 60 | | | | #\ (B) | M 470 KH- | | | Curoon | Span | 12.00 MHz (1001 pts) | Log | <u>L</u> |
| Res BW | TOU KH | 2 | | #VB | W 470 kHz | | | Sweep | | (TOUT pts) | | |
| | | | | | | | | JIAIC | | | | |

Plot 7-131. Lower Band Edge Plot (Band 71 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-132. Upper Band Edge Plot (Band 71 - 15.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dogo 99 of 176 |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | Portable Handset | Page 88 of 176 |
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| | ectrum Analyze | | | | | | | |
|------------------|----------------|------------|--|------------------------------|----------|---------------------|---|---------------------------|
| X/RL | RF | 50 Ω AC | CORREC | SENSE: | #A\ | g Type: RMS | 10:09:55 PM Dec 18, 2018 TRACE 1 2 3 4 5 6 | Frequency |
| | | | PNO: Fast 🕞 | Trig: Free Ro Atten: 36 d | | | DET A WWWWW | |
| | | | | | | M | kr1 662.824 MHz | Auto Tune |
| 10 dB/div Log | Ref 25. | 00 dBm | | | | | -30.09 dBm | |
| | | | | | | | | Center Fre |
| 15.0 | | | | | | | | 663.000000 MH |
| 5.00 | | | | | | | the total and the strategy of | |
| | | | | | | mar when the second | | Start Fre |
| -5.00 | | | | | | | | 655.000000 MH |
| -15.0 | | | | | | | DL1 -13.00 dBm | |
| -15.0 | | | | | | | | Stop Fre 671.000000 MH |
| -25.0 | | | | 1- | ۲. ۸۰ | | | 87 1.000000 MIP |
| | | | 0 | mannen | | | | CF Ste |
| -35.0 | | | - A North and a north a no | | | | | 1.600000 MH |
| -45.0 | | اسمر | | | | | | <u>Auto</u> Ma |
| | | Jan Martin | | | | | | Freq Offse |
| -55.0 | | | | | | | | 0 H |
| -65.0 | | | | | | | | |
| | | | | | | | | Scale Typ |
| Center 6 | 63.000 MI | | | | | | Span 16.00 MHz | Log <u>Li</u> |
| | 200 kHz | | #VBW | í 620 kHz | | Sweep | 1.000 ms (1001 pts) | |
| ISG | | | | | | STAT | US | |

Plot 7-133. Lower Band Edge Plot (Band 71 - 20.0MHz QPSK - Full RB Configuration)



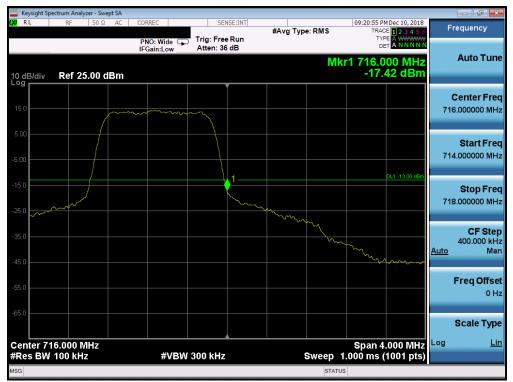
Plot 7-134. Upper Band Edge Plot (Band 71 - 20.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager | |
|----------------------------------|----------------------|---------------------------------------|--|---------------------------------|--|
| Test Report S/N: | Test Dates: | 2/2019 Portable Handset | | Page 89 of 176 | |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | | | | |
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Plot 7-135. Lower Band Edge Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-136. Upper Band Edge Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager | |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|--|
| Test Report S/N: | Test Dates: | EUT Type: Portable Handset | | Page 90 of 176 | |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | | | | |
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| RL | RF | 50 Ω | AC C | ORREC | | SENSE:INT | | | | M Dec 10, 2018 | F | requency |
|----------------|---|--------|------|------------------------|-------|---------------------|----------|-----------|----------------|--|-------------|-----------------------------------|
| | | | | PNO: Wide FGain:Low | | Free Run : 36 dB | #Avg Typ | De: RIVIS | T | CE 1 2 3 4 5 6 (PE A WWWWW A N N N N N | | o que incy |
| 0 dB/div og | Ref 25 | .00 dE | 3m | | | | | Mk | r1 697. -27 | 956 MHz .06 dBm | | Auto Tun |
| 15.0 | | | | | | | | | | | | Center Fre 8.000000 MH |
| 5.00 | | | | | | | | | | | 69 | Start Fre 6.000000 M⊦ |
| 25.0 | | | | | | ↓1 | | | | DL1 -13.00 dBm | 70 | Stop Fre 0.000000 M⊦ |
| 85.0 | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | ~~~~ | | | | | | | | <u>Auto</u> | CF Ste 400.000 kH Ma |
| 55.0 | | | | | | | | | | | | Freq Offs 0 H |
| | 598.000 M | | | | | | | | Span 4 | 1.000 MHz (1001 pts) | Log | Scale Typ |
| Res Bl | V 100 kHz | | | #VE | 300 k | Hz | | Sweep 1 | 1 | (1001 pts) | | |

Plot 7-137. Lower Band Edge Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-138. Upper Band Edge Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager | |
|----------------------------------|--|---------------------------------------|--|---------------------------------|--|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 01 of 176 | |
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| Keysight Spectrum Analyzer - Swept SA | | | | |
|---------------------------------------|---|--|---|-----------------------------------|
| LXI RE 50Ω AC | CORREC SENSE:INT | #Avg Type: RMS | 09:16:25 PM Dec 10, 2018 TRACE 1 2 3 4 5 6 | Frequency |
| 10 dB/div Ref 25.00 dBm | PNO: Wide Trig: Free Run IFGain:Low Atten: 36 dB | Mk | r1 697.836 MHz -28.37 dBm | Auto Tune |
| 15.0 | | | | Center Freq 698.000000 MHz |
| -5.00 | | | DL1 -13.00 dBm | Start Freq 696.000000 MHz |
| -15.0 | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | Stop Freq 700.000000 MHz |
| -35.0 | | | | CF Step 400.000 kH Auto Mar |
| -55.0 | | | | Freq Offse 이 H |
| -65.0 | | | | Scale Type |
| Center 698.000 MHz #Res BW 100 kHz | #VBW 300 kHz | Sweep 1 | Span 4.000 MHz .000 ms (1001 pts) | Log <u>Lin</u> |
| MSG | | STATU | 3 | |

Plot 7-139. Lower Band Edge Plot (Band 12 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-140. Upper Band Edge Plot (Band 12 - 5.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕕 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 02 of 176 |
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| | ectrum Analyz | | | | | | | | | | | |
|-----------|---------------|---------|-----------|---|-----------------------|----------|----------|--|------------------|------------------|------|--------------------------|
| X/RL | RF | 50 Ω A | C COF | RREC | | NSE:INT | #Avg Typ | e: RMS | TRAC | M Dec 10, 2018 | F | requency |
| | | | PI IF(| NO:Wide C Gain:Low | Trig: Fre Atten: 3 | | | | TYI Di | | | |
| 10 dB/div | Dof 25 | .00 dBr | n | | | | | Mk | r1 716.0 -27. | 56 MHz 57 dBm | | Auto Tune |
| | Kei 23 | .00 001 | | | | Ť | | | | | | |
| 15.0 | | | | | | | | | | | | Center Free |
| 15.0 | | | | | | | | | | | 710 | 5.000000 MH |
| 5.00 | ····· | ~~~~~ | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | hang - | | | | | | | |
| | | | | | | | | | | | 71 | Start Fre 2.000000 MH |
| -5.00 | | | | | | | | | | | / 1. | 2.000000 1414 |
| 15.0 | | | | | | | | | | DL1 -13.00 dBm | | Oton Eng |
| | | | | | L L | 4 | | | | | 720 | Stop Fre 0.000000 МН |
| 25.0 | | | | | | <u> </u> | | | | | | |
| 35.0 | | | | | | m | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | | CF Ste |
| 35.0 | | | | | | | | | | | Auto | 800.000 k⊢ Ma |
| 45.0 | | | | | | | | | | | | |
| | | | | | | | | | | | | Freq Offse |
| 55.0 | | | | | | | | | | | | он |
| 65.0 | | | | | | | | | | | | |
| | | | | | | | | | | | | Scale Typ |
| Center 71 | 6.000 M | Hz | | | | | | | Span 8 | .000 MHz | Log | Li |
| ≉Res BW | | | | #VB | W 300 kHz | | | Sweep 1 | 1.000 ms (| (1001 pts) | | |
| ISG | | | | | | | | STATU | S | | | |

Plot 7-141. Upper Band Edge Plot (Band 12 - 10.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dago 02 of 176 |
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Plot 7-142. Lower Band Edge Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-143. Lower Emssion Mask Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 04 of 170 |
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| Keysight S RL | pectrum Analyze RF | r - Swept SA 50 Ω DC | CORREC | CEN | SE:INT | | | 07-21-49 DI | 1Dec 12, 2018 | _ | |
|------------------|------------------------------|--|-------------|-----------|--------|-----------------------|---|-----------------------|---------------------------------------|-------------|----------------------------------|
| | N | NFE | PNO: Wide G | | Run | #Avg Typ | e:RMS | TRAC | E 1 2 3 4 5 6 E A WWWW T A NNNN | F | requency |
| 0 dB/div | Ref 25.0 | 00 dBm | II Guilleow | | | | Mk | r1 787.0 -23.9 | 08 MHz 91 dBm | | Auto Tur |
| 15.0 | ماروم ¹ دور مراجع | and the second s | mananananan | | | | | | | | Center Fre 7.000000 MH |
| 5.00 | | | | | | | | | | 78 | Start Fre 5.000000 Mi |
| 25.0 | | | | Multin, | 1 | | | | DL1 -13.00 dBm | 789 | Stop Fre 9.000000 Mi |
| 35.0 | | | | | | Marka barran da fanga | ana fan ter an ter a | Kinanistan ang king k | openingsst, order pro- | <u>Auto</u> | CF Ste 400.000 kl M |
| i5.0 | | | | | | | | | | | Freq Offs 0 |
| 65.0 | | | | | | | | | | | Scale Ty |
| | 87.000 MH V 100 kHz | lz | #VB\ | V 300 kHz | | | Sweep 6 | Span 4. 6.667 ms (| 000 10112 | Log | L |
| G | | | | | | | STATU | 5 | | | |

Plot 7-144. Upper Band Edge Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

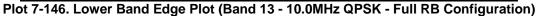


Plot 7-145. Upper Emssion Mask Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|----|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage OF of 176 |
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| X/RL RF | 50 Ω AC | CORREC | SENSE:INT | | 02:43:35 PM Dec 31, 2018 | Frequency |
|---------------------------------|--|-------------|--------------------------------|----------------|---|--|
| | | PNO: Wide 😱 | Trig: Free Run Atten: 36 dB | #Avg Type: RMS | TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNN | |
| 10 dB/div Ref | 25.00 dBm | | | MI | kr1 777.000 MHz -29.38 dBm | Auto Tun |
| 15.0 | | | | | | Center Fre 777.000000 M⊦ |
| -5.00 | | | | | DL1 -13.00 dBm | Start Fre 773.000000 MF |
| -15.0 | | | 1 | | | Stop Fre 781.000000 MH |
| -35.0 | | | | | | CF Ste 800.000 kH <u>Auto</u> Ma |
| -55.0 | , and an and the second s | | | | | Freq Offs 0 F |
| -65.0 | | | | | | Scale Typ |
| Center 777.000 #Res BW 100 k | MHz Hz | #VBW | 300 kHz | Sweep | Span 8.000 MHz 1.000 ms (1001 pts) | Log <u>L</u> |



| | Spectrum Analy | | | | | | | | | | | | |
|--------------|----------------|------------------|---------------|---------|--------------|---------------------|--|---|----------------------------------|----------|---|-------------------|------------------------------|
| RL | RF | 50 Ω | AC | PNO: V | Wide ↔ | | SENSE:INT | #Avg Typ | be:RMS | TRAC | M Dec 31, 2018 DE 1 2 3 4 5 6 PE A WWWWW ET A N N N N N | Fr | requency |
| 0 dB/div | Ref 25 | i.00 dl | Bm | IFGalli | LOW | Autori | | | Mk | | 88 MHz 08 dBm | | Auto Tur |
| 15.0 | | | | | | | | | | | | | Center Fre |
| i.00 i.00 | | | | | | | | | | | | 763 | Start Fr 3.000000 M |
| 5.0 | | | | | | | | | | | | 775 | Stop Fr 5.000000 M |
| 5.0 | | | | | | | | | | | DL1 -35.00 dBm | Auto ¹ | CF Sto .200000 M M |
| 5.0 | | | | | | | | | | | 1 | | Freq Offs 0 |
| itart 76 | 3.000 MH | urgenturpur Z | Landerson and | | ՠֈՠՠֈֈ֎ՠ֎՟ՠՠ | A CONTRACT POINT OF | and a start of the | erented (************************************ | an an Antibio and a subscription | Stop 775 | .000 MHz | Log | Scale Ty |
| | N 6.2 kHz | | | | #VBW | / 30 kH | z | | #Sweep | 1.000 s | (1001 pts) | | |
| SG | | | | | | | | | STATU | | | | |

Plot 7-147. Lower Emssion Mask Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | Portable Handset | | Page 96 of 176 |
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| KI RL | RF 50 |)Ω AC | CORREC | SEI | NSE:INT | | | | M Dec 31, 2018 | En | equency |
|----------------------|----------------------|-------|---|-------------------------|---------|----------|----------|--------------------|--------------------------------------|-------------|----------------------------|
| | | | PNO: Wide G | Trig: Free Atten: 36 | | #Avg Typ | e:RMS | TRAI TY D | CE 123456 PE A WWWW ET A NNNNN | FI | rquency |
| 10 dB/div | Ref 25.00 | 0 dBm | | | | | Mk | r1 787.0 -28. | 024 MHz 46 dBm | | Auto Tun |
| 15.0 | | | | | | | | | | | enter Fre .000000 M⊦ |
| 5.00 | | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | | | | | 783 | Start Fre .000000 M⊦ |
| -15.0 | | | | | 1 | | | | DL1 -13.00 dBm | 791 | Stop Fre .000000 M⊦ |
| .45.0 | | | | | | | <u>-</u> | | and the second | <u>Auto</u> | CF Ste 800.000 kH Ma |
| -55.0 | | | | | | | | | | F | F req Offs 0 H |
| -65.0 | | | | | | | | | | ; | Scale Typ |
| Center 78 #Res BW | 7.000 MHz 100 kHz | 2 | #VB\ | N 300 kHz | | | Sweep | Span 8 1.000 ms | 3.000 MHz (1001 pts) | Log | Li |

Plot 7-148. Upper Band Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

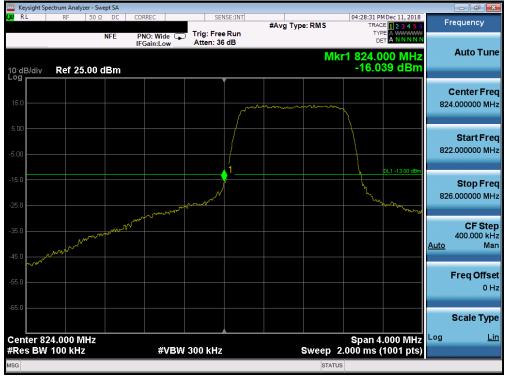
| RL | pectrum Ana RF | 50 Ω | AC | CORREC | 1 | CEI | NSE:INT | | | 01-19-45 DA | 4 Dec 31, 2018 | _ | |
|--------------------|-------------------|--|------------|--------------|--|--|---------|---------------------------------|------------------------------|-------------------------------------|--|-------------------|---------------------------------|
| KL. | N | 20.35 | AC | | ast 🔸 | Trig: Free Atten: 36 | Run | #Avg Typ | e:RMS | TRAC TYP | E 1 2 3 4 5 6 E A WWWWW T A NNNN | Fr | requency |
| 0 dB/div | Ref 2 | 25.00 d | Bm | II Gain. | | | | | Mk | r1 793.1 -63.9 | 04 MHz 96 dBm | | Auto Tur |
| 15.0 | | | | | | | | | | | | | Center Fre |
| 5.00 | | | | | | | | | | | | 793 | Start Fre 3.000000 MH |
| 25.0 | | | | | | | | | | | | 806 | Stop Fr 5.000000 M |
| 15.0 | | | | | | | | | | | DL1 -35.00 dBm | Auto ¹ | CF Ste 1.300000 M M |
| 55.0 | | | | | | | | | | | | | Freq Offs 0 |
| 65.0 Marina | however | Asyan to provide the state of t | Mar Marker | h-sylven der | all an | and the second | | กลังสูงของสามาร์แกร์แกร์และเป็น | J.v.B.M.Staterine,my.Paperty | - San Jawah, mang Jarang mengang sa | gemerkyligeligeligeningere | Log | Scale Ty |
| tart 793 | | | | | 41/D14 | 30 kHz | | | #Curoen | Stop 806. | 000 MHz | LUg | L |
| Res BW | 0.2 KH | Z | | - | FVEW- | JU KHZ | | | #Sweep | 1.000 s (| roor pis) | | |

Plot 7-149. Upper Emssion Mask Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 💽 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dega 07 of 176 |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | Portable Handset | | Page 97 of 176 |
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Band 5



Plot 7-150. Lower Band Edge Plot (Band 5 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-151. Upper Band Edge Plot (Band 5 - 1.4MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 💽 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 09 of 176 |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | Portable Handset | | Page 98 of 176 |
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| Keysight Spectrum Analyzer | | | | | | 1 | | |
|------------------------------------|-------------|--|--------------------------------|-----------|----------|---|------------|------------------------------------|
| RL RF | 50 Ω DC NFE | CORREC PNO: Wide | Trig: Free Rur Atten: 36 dB | #Avg Type | e: RMS | 04:26:13 PM Dec 1 TRACE 1 2 TYPE A W DET A N | 3456 | Frequency |
| OdB/div Ref 25.0 | 00 dBm | | | | Mkr | 1 824.000 I -17.006 c | MHz IBm | Auto Tun |
| 5.0 | | | | munn | v.~ | mmm | w~~~~ | Center Fre 324.000000 MF |
| 5.00 | | | | | | | | Start Fre 322.000000 Mł |
| 5.0 | | | 1- | | | DL1 -13 | | Stop Fre 326.000000 Mi |
| 5.0 mm//mm//um/ | pro lon man | n de la de l | | | | | Auto | CF Ste 400.000 ki |
| 5.0 | | | | | | | | Freq Offs 0 |
| enter 824.000 MH | Z | | | | | Span 4.000 | MHz Log | Scale Typ |
| enter 824.000 MH Res BW 100 kHz | z | #VBW | 300 kHz | | Sweep 2. | Span 4.000 000 ms (1001 | 14112 | |

Plot 7-152. Lower Band Edge Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-153. Upper Band Edge Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🔁 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Degs 00 of 176 |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | Portable Handset | | Page 99 of 176 |
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| | pectrum Analyze | | | | | | | | | | - d × |
|----------------------|------------------------|--|---|--|--------|---------------------|---------|---------------------|-----------------------|-------------|-----------------------------------|
| L <mark>XI</mark> RL | RF | 50 Ω DC | CORREC | SEN | SE:INT | #Avg Typ | e: RMS | | Dec 11, 2018 | F | requency |
| | _ | NFE | PNO: Wide 😱 IFGain:Low | Trig: Free Atten: 36 | | | | TYP | | | |
| 10 dB/div Log | Ref 25. | 00 dBm | | | | | Mk | r1 823.9 -22. | 96 MHz 61 dBm | | Auto Tune |
| 15.0 | | | | | | | | | | | Center Fred 4.000000 MH: |
| -5.00 | | | | | | and a second second | | | | 82 | Start Free 2.000000 MH |
| -15.0 | | | | | 1 | | | | DL1 -13.00 dBm | 82 | Stop Fre 6.000000 MH |
| 35.0 | mm | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | Martine and | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | | | | <u>Auto</u> | CF Ste 400.000 kH Ma |
| -55.0 | | | | | | | | | | | Freq Offse 0 H |
| -65.0 | | | | | | | | | | | Scale Typ |
| | 24.000 Mi / 100 kHz | Hz | #VBW | 300 kHz | | | Sweep 2 | Span 4 .000 ms (| .000 MHz 1001 pts) | Log | <u>Lii</u> |
| MSG | | | | | | | STATUS | ; | | | |

Plot 7-154. Lower Band Edge Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-155. Upper Band Edge Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dogo 100 of 176 |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | Portable Handset | Page 100 of 176 |
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| | pectrum Analyz | | | | | | | | | | d X |
|------------------|-----------------------|--------------|---------------------------------------|--|------------|------------|-------------------------------|--|------------------------|----------------|-----------------------|
| LX/ RL | RF | 50 Ω DC | CORREC | SENS | | #Avg Typ | e: RMS | 04:20:00 PM D TRACE | 1 2 3 4 5 6 | Frequer | ncy |
| | _ | NFE | PNO: Wide 🖵 IFGain:Low | Trig: Free F Atten: 36 d | | | | DET | A WWWWW A N N N N N | Auto | Tune |
| 10 dB/div Log | Ref 25 | .00 dBm | | | | | Mk | r1 823.96 -29.6 | 0 MHz 4 dBm | Auto | rune |
| | | | | | | | | | | Cente | r Frec |
| 15.0 | | | | | | | | | | 824.0000 | 00 MHz |
| 5.00 | | | | | , m | Wash-Why-M | al and a second second second | where a surface of the surface of th | well-why where | Sta | tFred |
| -5.00 | | | | | | | | | | 820.0000 | |
| -15.0 | | | | | _ | | | DL | .1 -13.00 dBm | O t - 1 | |
| | | | | | N. | | | | | 828.0000 | p Fred D0 MHz |
| -25.0 | | | | - And | <i>,</i> # | | | | | | - 04 |
| -35.0 | wowgought | ant when the | ₩₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽ | and and a state of the state of | | | | | | | Step 00 kHz Mar |
| -45.0 | | | | | | | | | | | war |
| -55.0 | | | | | | | | | | Freq | Offsel 0 Hz |
| -65.0 | | | | | | | | | | | 0 H2 |
| | | | | | | | | | | Scale | е Туре |
| | 24.000 M / 100 kHz | | #\/B\M | 300 kHz | | | Sween A | Span 8.0 .000 ms (10 | | Log | Lin |
| #RES DW | | | #0000 | 500 KH2 | | | Sweep 4 | | or proj | | |

Plot 7-156. Lower Band Edge Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-157. Upper Band Edge Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dage 101 of 176 |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | Portable Handset | Page 101 of 176 |
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Plot 7-158. Lower Band Edge Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)



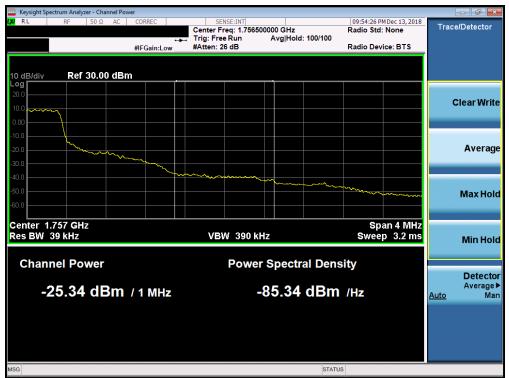
Plot 7-159. Lower Extended Band Edge Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dega 102 of 176 |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | Portable Handset | | Page 102 of 176 |
| © 2019 PCTEST Engineering Labora | tory, Inc. | | | V 8.8 11/19/2018 |



| | ectrum Analyzer - | | 000050 | | 05 115 | | | 00.54.55.5 | | | |
|--------------------|---------------------|------|-------------------------------------|----------|---------------|----------|-------------|---------------------|---|-------------|--------------------------------|
| RL | RF 50 | Ω AC | CORREC PNO: Wide C IFGain:Low | | | #Avg Typ | e: RMS | TRAC | M Dec 13, 2018 DE 1 2 3 4 5 6 PE A WWWW T A N N N N N | F | requency |
| 0 dB/div | Ref 25.00 | dBm | I Guilleow | | | | Mkr1 | 1.755 (-22. | 000 GHz 73 dBm | | Auto Tun |
| 15.0 | | | | | | | | | | | Center Fre |
| 5.00 | | | good and made | | | | | | | 1.75 | Start Fre 3000000 GF |
| 25.0 | mmmmm | | | | 1 motorety | | | | DL1 -13.00 dBm | 1.75 | Stop Fre 7000000 GF |
| 35.0 | | | | | | menny | Mar June we | Man | and the second second | <u>Auto</u> | CF Ste 400.000 kH Ma |
| 5.0 | | | | | | | | | Çe | | Freq Offs 0 I |
| 65.0 | | | | | | | | | | | Scale Typ |
| enter 1. Res BW | 755000 GH 15 kHz | Z | #VB | W 51 kHz | | | Sweep 2 | Span 4 1.80 ms (| .000 MHz 1001 pts) | Log | L |
| SG | | | | | | | STATUS | 5 | | | |

Plot 7-160. Upper Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)



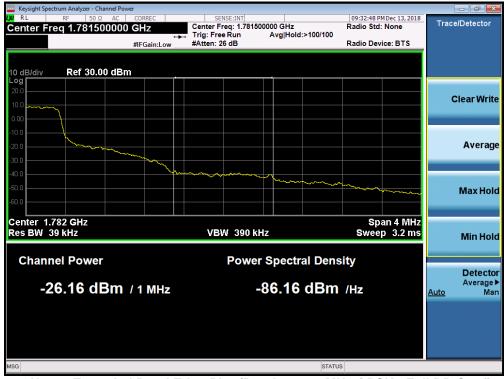
Plot 7-161. Upper Extended Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕑 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 102 of 176 |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | Portable Handset | | Page 103 of 176 |
| © 2019 PCTEST Engineering Labora | atory, Inc. | | | V 8.8 11/19/2018 |



| | pectrum Analyze | | | | | | | | | | |
|---------------------|---------------------|------------|--------------------------------|-----------|------------|------------------|---------|----------------------|---|-------------|------------------|
| XI RL | RF | 50 Ω AC | CORREC | | | #Avg Typ | e: RMS | TRAC | MDec 13, 2018 E 1 2 3 4 5 6 E A WWWWW | Fr | equency |
| | | | PNO: Wide G | Atten: 36 | | | | DE | | | Auto Tune |
| 10 dB/div Log | Ref 25. | 00 dBm | | | | | MKM | 1.780 0 -21. | 56 dBm | | |
| | | | | | | | | | | (| Center Free |
| 15.0 | | | | | | | | | | 1.78 | 0000000 GH |
| 5.00 | | astanto la | amer of apressing and a second | former | | | | | | | Start Fre |
| -5.00 | | | | | | | | | | 1.77 | 8000000 GH |
| 15.0 | | | | | <u>_1</u> | | | | DL1 -13.00 dBm | | Stop Fre |
| -25.0 | A more port | Z | | | - Margaran | | | | | 1.78 | 2000000 GH |
| on | 1.4 | | | | 1~ | M. worthan Value | | | | | CF Ste |
| 35.0 | | | | | | | Mary | man | Martin A | <u>Auto</u> | 400.000 kH Ma |
| 45.0 | | | | | | | | (10 · 54% 54/ 54/ • | · · · · · · · · · · · · · · · · · · · | | Freq Offs |
| 55.0 | | | | | | | | | | | rreq Onse 0 ⊦ |
| 65.0 | | | | | | | | | | | Scale Typ |
| | | | | | | | | | | | Scale Typ Li |
| Center 1. Res BW | .780000 G 16 kHz | Hz | #VBW | / 56 kHz | | | Sweep 1 | Span 4 9.13 ms (| .000 MHz 1001 pts) | _ | |
| ISG | | | | | | | STATU | S | | | |

Plot 7-162. Upper Band Edge Plot (Band 66 - 1.4MHz QPSK - Full RB Configuration)



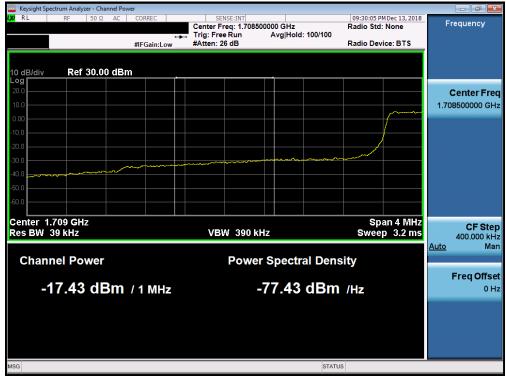
Plot 7-163. Upper Extended Band Edge Plot (Band 66 - 1.4MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|--|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 104 of 176 |
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| | ectrum Analyze | | | | | | | | | |
|----------------------|----------------|---------|--|-------------------------|----------|----------|---------|--|------------------|--------------------------|
| LXI RL | RF | 50 Ω AC | CORREC | SEN | SE:INT | #Avg Typ | e: RMS | 09:30:00 PM Dec 13, 2018 TRACE 1 2 3 4 5 | Free | quency |
| | | | PNO: Wide 🖵 IFGain:Low | Trig: Free Atten: 36 | | | | DET A NNNN | | uto Tune |
| 10 dB/div Log | Ref 25. | 00 dBm | | | | | Mkr1 | 1.710 000 GHz -23.11 dBm | | |
| | | | | , | | | | | | enter Freq |
| 15.0 | | | | | | | | | 1.7100 | 00000 GHz |
| 5.00 | | | | | Jum | www.ww | ······ | how have the second sec | 5 | Start Free |
| -5.00 | | | | | | | | | 1.7080 | 00000 GHz |
| -15.0 | | | | | 1 | | | DL1 -13.00 dBm | | Stop Fred |
| -25.0 | | | | | <i>/</i> | | | | | 00000 GHz |
| | | mm | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | | | | | CF Step |
| -35.0 | | | | | | | | | 4 <u>Auto</u> | 00.000 kHz Mar |
| -45.0 | | | | | | | | | | |
| -55.0 | | | | | | | | | F | e q Offse 0 Ha |
| -65.0 | | | | | | | | | | |
| | | | | | | | | | | cale Type |
| Center 1. #Res BW | | iHz | #VBW | / 130 kHz | | | Sweep 🤇 | Span 4.000 MHz 3.800 ms (1001 pts | | |
| MSG | | | | | | | STATU | s | | |

Plot 7-164. Lower Band Edge Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)



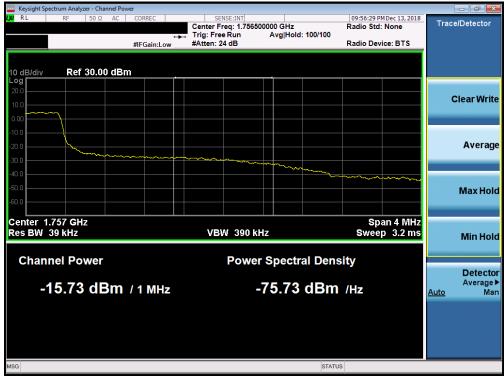
Plot 7-165. Lower Extended Band Edge Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|--|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Degs 105 of 176 |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | Portable Handset | | Page 105 of 176 |
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| Keysight Spectrum Analyzer - Swept | | | | | × |
|---------------------------------------|--|--------------------|----------------------------|--------------------------------------|-------------|
| <mark>X/</mark> RL RF 50 Ω | AC CORREC | SENSE:INT #Avg Typ | | MDec 13, 2018 Frequency | у |
| | PNO: Wide Trig: F IFGain:Low Atten: | ree Run : 36 dB | TYF DE | | |
| 10 dB/div Ref 25.00 dB | m | | Mkr1 1.755 0 -22.4 | Auto T 48 dBm | lune |
| 15.0 | | | | Center 1.755000000 | |
| 5.00 | | | | Start I 1.753000000 | |
| -15.0 | | 1 | | Stop I 1.757000000 | |
| -45.0 | | | | CF \$ 400.000 Auto | |
| 55.0 | | | | Freq O | ffse 0 H |
| 65.0 | | | | Scale | |
| Center 1.755000 GHz #Res BW 36 kHz | #VBW 130 kH | Hz | Span 4 Sweep 3.800 ms (| .000 MHz ^{Log} 1001 pts) | Li |
| ISG | | | STATUS | | |

Plot 7-166. Upper Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)



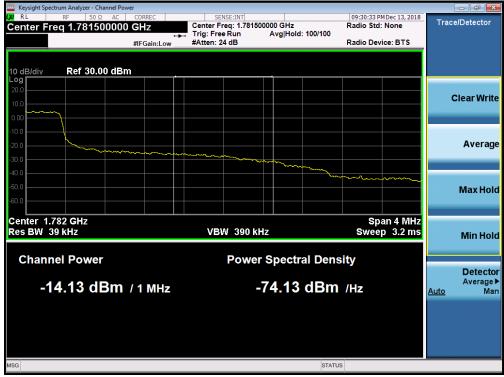
Plot 7-167. Upper Extended Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | | | | Approved by: Quality Manager |
|----------------------------------|---------------------------------------|---------------------------------------|--|-----------------|--|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 106 of 176 | | |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 Portable Handset | | | Page 106 of 176 | | |
| © 2019 PCTEST Engineering Labora | V 8.8 11/19/2018 | | | | | |



| | ectrum Analy | zer - Swept | t SA | | | | | | | | | | |
|-----------|--------------|-------------|-------|------------------|-------------|-------------------------|----|----------------|---|----------|---|-------------|-------------------------------|
| XV RL | RF | 50 Ω | AC | CORREC PNO: W | ide 🖵 | Trig: Free Atten: 36 | | #Avg Ty | pe: RMS | TR/ | PM Dec 13, 2018 CE 1 2 3 4 5 6 (PE A WWWWW DET A NNNNN | F | requency |
| 10 dB/div | Ref 25 | 5.00 dE | 3m | IFGain:L | _OW | Atten: 36 | dB | | Mkı | 1 1.780 | 012 GHz .98 dBm | | Auto Tune |
| 15.0 | | | | | | | | | | | | | Center Fred 0000000 GH: |
| -5.00 | | | ~~~~~ | wy | ~~~~ | | | | | | | 1.77 | Start Fre 8000000 GH |
| -15.0 | | | | | | - tr | ·1 | and the second | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | mm at | DL1 -13.00 dBm | 1.78 | Stop Fre 2000000 GH |
| 45.0 | | | | | | | | | | | ~~~~~ | <u>Auto</u> | CF Ste 400.000 kH Ma |
| 55.0 | | | | | | | | | | | | | FreqOffse 0⊦ |
| -65.0 | 780000 | GHz | | | | , | | | | Span | 4.000 MHz | Log | Scale Typ Li |
| #Res BW | 36 kHz | | | 7 | ¢VB₩ | 130 kHz | | | Sweep | 3.800 ms | (1001 pts) | | |
| ISG | | | | | | | | | STAT | US | | | |

Plot 7-168. Upper Band Edge Plot (Band 66 - 3.0MHz QPSK - Full RB Configuration)



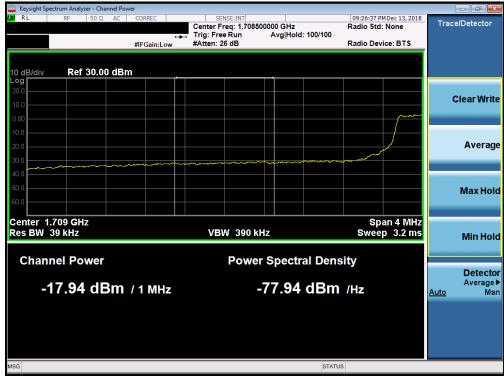
Plot 7-169. Upper Extended Band Edge Plot (Band 66 - 3.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|--|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 107 of 176 |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | Portable Handset | | Page 107 of 176 |
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| Keysight Spectrum Analyzer - Swept SA | | | | | |
|---------------------------------------|---|--------------------------|----------------|---|------------------------------|
| XV RL RF 50Ω AC | CORREC | SENSE:INT | #Avg Type: RMS | 09:26:23 PM Dec 13, 2018 TRACE 1 2 3 4 5 6 | Frequency |
| | | j: Free Run en: 36 dB | | | . |
| 10 dB/div Ref 25.00 dBm | | | Mkr | 1 1.709 992 GHz -24.40 dBm | Auto Tune |
| | | Ť | | | Center Free |
| 15.0 | | | | | 1.710000000 GH: |
| 5.00 | | | | | Start Free |
| -5.00 | | | | | 1.708000000 GH |
| -15.0 | | | | DL1 -13.00 dBm | Stop Free |
| -25.0 | | 1,1 | | | 1.712000000 GH |
| 35.0 | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | | CF Step |
| | | | | | 400.000 kH <u>Auto</u> Ma |
| 45.0 | | | | | |
| -55.0 | | | | | Freq Offse 0 H |
| -65.0 | | | | | |
| | | | | | Scale Type |
| Center 1.710000 GHz #Res BW 62 kHz | #VBW 220 | kHz | Sweep | Span 4.000 MHz 1.333 ms (1001 pts) | Log <u>Lir</u> |
| MSG | | | STAT | US | |

Plot 7-170. Lower Band Edge Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)



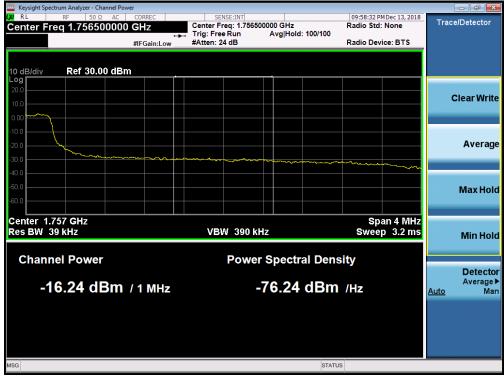
Plot 7-171. Lower Extended Band Edge Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 💽 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|-----------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dage 100 of 170 | |
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| © 2019 PCTEST Engineering Labora | V 8.8 11/19/2018 | | | |



| | ectrum Analyze | | | | | | | | | | |
|-----------|----------------|---------|------------|------------|----|----------|--------|------------|---|-------------|-----------------------------------|
| XI RL | RF | 50 Ω AC | PNO: Wide | Trig: Free | | #Avg Typ | e: RMS | TRAC | M Dec 13, 2018 DE 1 2 3 4 5 6 DE A WWWWW T A N N N N N | Fr | equency |
| 10 dB/div | Ref 25. | 00 dBm | IFGain:Low | Atten: 36 | dB | | Mkr | 1.755 0 | | | Auto Tun |
| 15.0 | | | | | | | | | | | Center Fre 5000000 GH |
| 5.00 | | | | | | | | | | 1.75 | Start Fre 3000000 GH |
| 25.0 | | | | | 1 | | | | DL1 -13.00 dBm | 1.75 | Stop Fre 7000000 GF |
| 45.0 | | | | | | | | | | <u>Auto</u> | CF Ste 400.000 kł Ma |
| 55.0 | | | | | | | | | | | Freq Offs 0 I |
| 65.0 | 755000 0 | Hz | | | | | | Snan 4 | .000 MHz | Log | Scale Typ |
| Res BW | | 11/2 | #VBV | V 220 kHz | | | Sweep | 1.333 ms (| (1001 pts) | | |
| ISG | | | | | | | STATU | IS | | | |

Plot 7-172. Upper Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)



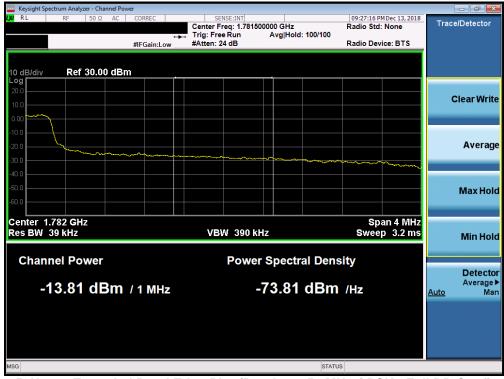
Plot 7-173. Upper Extended Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|-----------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dega 100 of 176 | |
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| Keysight Spectrum Analyze | | | | | | | | | | |
|---------------------------|----|------------|-----------|-----|-----------|--|--|--|------|-------------------------------|
| K RL RF | | ORREC | SEN | Run | #Avg Type | e: RMS | TRAC | MDec 13, 2018 E 1 2 3 4 5 6 PE A M N N N N | Fr | equency |
| 0 dB/div Ref 25. | | IFGain:Low | Atten: 36 | dB | | Mkr1 | 1.780 0 | 28 GHz 55 dBm | | Auto Tun |
| 15.0 | | | | | | | | | | Center Fre |
| 5.00 | | | | | | | | | 1.77 | Start Fre |
| 25.0 | | | | 1 | | ······································ | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | DL1 -13.00 dBm | 1.78 | Stop Fre 2000000 Gł |
| 15.0 | | | | | | | | | Auto | CF Ste 400.000 kl M |
| 55.0 | | | | | | | | | | F req Offs 0 F |
| enter 1.780000 G | Hz | | | | | | Span 4 | .000 MHz | Log | Scale Typ |
| Res BW 62 kHz | | #VBW | 220 kHz | | | Sweep 1 | | 1001 pts) | | |

Plot 7-174. Upper Band Edge Plot (Band 66 - 5.0MHz QPSK - Full RB Configuration)



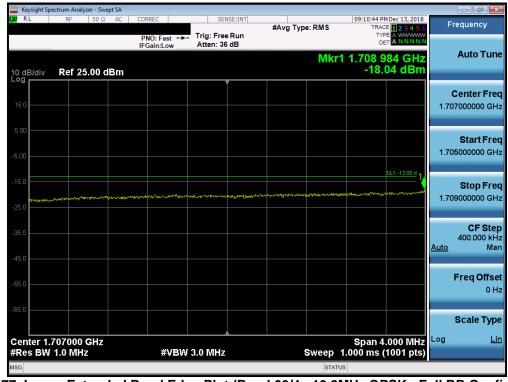
Plot 7-175. Upper Extended Band Edge Plot (Band 66 - 5.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|-----------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dogo 110 of 176 | |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | Portable Handset | | Page 110 of 176 |
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| 🪾 Keysight Spectrum | | | | | | |
|------------------------------|-------------|------------------------------|----------------------------------|----------------|--|--|
| lxi rl Rf | <u>50 Ω</u> | AC CORREC | SENSE:INT | #Avg Type: RMS | 09:10:35 PM Dec 13, 2018 TRACE 1 2 3 4 5 6 | Frequency |
| 10 dB/div Re | f 25.00 dB | PNO: Wide IFGain:Low ™ | ⊃ Trig: Free Run Atten: 36 dB | Mk | TYPE A WWWW DET A NNNNN 11 1.709 952 GHz -26.13 dBm | Auto Tune |
| 15.0 | | | | | | Center Fred 1.710000000 GHz |
| -5.00 | | | | | DL1 -13.00 dBm | Start Fred 1.706000000 GH: |
| -15.0 | | | 1 | | | Stop Fred 1.714000000 GH; |
| -35.0 | | | | | | CF Step 800.000 kH <u>Auto</u> Mar |
| -55.0 | | | | | | Freq Offse 0 H |
| -65.0 | | | | | | Scale Type |
| Center 1.7100 #Res BW 120 | | #VBV | / 430 kHz | Sweep | Span 8.000 MHz 1.000 ms (1001 pts) | |
| MSG | | | | STA | TUS | |

Plot 7-176. Lower Band Edge Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)



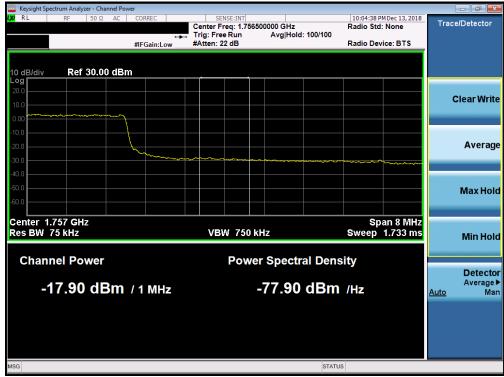
Plot 7-177. Lower Extended Band Edge Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager | |
|----------------------------------|----------------------|---------------------------------------|-----------------|---------------------------------|--|
| Test Report S/N: | Test Dates: | EUT Type: | Dega 111 of 176 | | |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | Portable Handset | | Page 111 of 176 | |
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| | ectrum Analyzer | | | | | | | | | | - 6 - × |
|----------------------|----------------------|--------|--|------------|----|--|---|------------------------|--|------------------|--------------------------------|
| X/RL | RF 5 | 50Ω AC | CORREC | Trig: Free | | #Avg Typ | e: RMS | TRAC | Dec 13, 2018 1 2 3 4 5 6 A WWWWW A N N N N N | Fre | quency |
| 10 dB/div | Ref 25.0 | 0 dBm | IFGain:Low | Atten: 36 | dB | | Mkr | 1 1.755 0 | | 1 | Auto Tun |
| 15.0 | | | | | | | | | | | e nter Fre 000000 GH |
| 5.00 | | ~~~~ | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | | | | | | Start Fre |
| 25.0 | | | | hy | 1 | J. J | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | DL1 -13.00 dBm | | Stop Fre 000000 GH |
| 45.0 | | | | | | | | | | ٤ <u>Auto</u> | CF Ste 300.000 kH Ma |
| 55.0 | | | | | | | | | | F | r eq Offs 0 I |
| 65.0 | | | | | | | | | | | cale Typ |
| Center 1.7 Res BW | 755000 GI 120 kHz | Hz | #VBW | 430 kHz | | | Sweep | Span 8. 1.000 ms (' | 000 10112 | Log | L |
| ISG | | | | | | | STATU | IS | | | |

Plot 7-178. Upper Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)



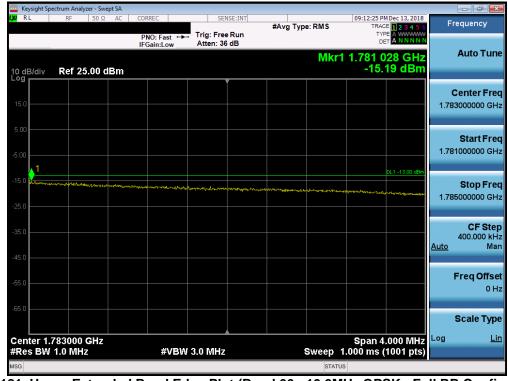
Plot 7-179. Upper Extended Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|-----------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dage 110 of 176 | |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | Portable Handset | | Page 112 of 176 |
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| | trum Analyzer - Swept | | | | | | | - F x |
|----------------------|-----------------------|-----------|----------|---------------------------|----------|--------|---|---|
| LXI RL | RF 50 Ω | AC CORREC | | SENSE:INT | #Avg Typ | e: RMS | 09:12:17 PM Dec 13, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWWW | Frequency |
| 10 dB/div | Ref 25.00 dB | IFGain: | | g: Free Run ien: 36 dB | | Mkr1 | 1.780 000 GHz -23.32 dBm | Auto Tune |
| 15.0 | | | | | | | | Center Freq 1.78000000 GHz |
| -5.00 | | | | | | | DL1 -13.00 dBm | Start Freq 1.776000000 GHz |
| -15.0 | | | | 1 | | | | Stop Freq 1.784000000 GHz |
| -35.0 | | | | | | | | CF Step 800.000 kHz <u>Auto</u> Mar |
| -55.0 | | | | | | | | Freq Offse 0 H: |
| -65.0 Center 1.73 | 80000 GHz | | | | | | Span 8.000 MHz | Scale Type |
| #Res BW 1 | 20 kHz | | #VBW 430 | kHz | | | .000 ms (1001 pts) | |
| MSG | | | | | | STATU | 2 | |

Plot 7-180. Upper Band Edge Plot (Band 66 - 10.0MHz QPSK - Full RB Configuration)



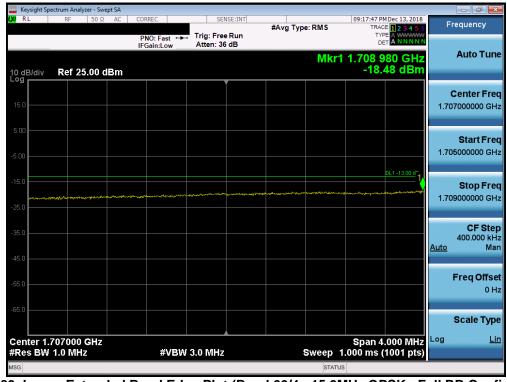
Plot 7-181. Upper Extended Band Edge Plot (Band 66 - 10.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|-----------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 112 of 176 |
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| © 2019 PCTEST Engineering Labora | V 8.8 11/19/2018 | | | |



| | pectrum Anal | | | | | | | | | | | | |
|---------------------|--------------|---|-------|-----------------------|-----------|--|---------|-------|-----------|---------------|---|-------------|--------------------------|
| X/RL | RF | 50 Ω | AC | CORREC | | | NSE:INT | #Avg | Type: RMS | 09:1 | 7:40 PM Dec 13, 2018 TRACE 1 2 3 4 5 6 | Fr | equency |
| | | | | PNO: Wid IFGain:Lo | le 🖵 w | Trig: Fre Atten: 36 | | | | | DET A WWWWW | | |
| | | | | | | | | | M | (r1 1.7 | 10 000 GHz | | Auto Tune |
| 10 dB/div Log | Ref 2 | 5.00 dE | 3m | | | | | | | | 24.92 dBm | | |
| | | | | | | | Ĭ | | | | | c | enter Fre |
| 15.0 | | | | | | | | | | | | 1.710 | 0000000 GH |
| 5.00 | | | | | | | | | | | | | |
| 5.00 | | | | | | | | man m | | ~~~~~ | | | Start Free |
| -5.00 | | | | | | | | | | | | 1.704 | 1000000 GH |
| | | | | | | | | | | | DL1 -13.00 dBm | | |
| -15.0 | | | | | | | 1 | | | | | | Stop Free |
| -25.0 | | | | | | for the second second | , when | | | | | 1.716 | 5000000 GH |
| ~~~~ | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | ~~~~~ | ~~~~ | ~~~~ | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | | | | | | 05.04 |
| -35.0 | | | | | | | | | | | | 1 | CF Stej 200000 MH |
| -45.0 | | | | | | | | | | | | <u>Auto</u> | Mai |
| 40.0 | | | | | | | | | | | | | |
| -55.0 | | | | | | | | | | | | I | F reqOffse 0 H |
| | | | | | | | | | | | | | 511 |
| -65.0 | | | | | | | | | | | | | Scale Type |
| | | | | | | | | | | | | | |
| Center 1 #Res BV | | | | #\ | VBW | 620 kHz | | | Sweer | Sp 5 1.000 | an 12.00 MHz ms (1001 pts) | | <u>Lii</u> |
| ISG | | | | | | | | | | ATUS | in the second prov | | |

Plot 7-182. Lower Band Edge Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)



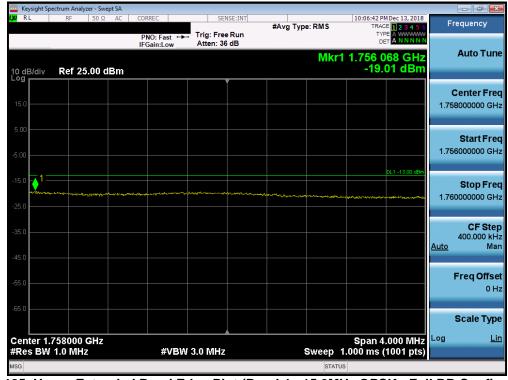
Plot 7-183. Lower Extended Band Edge Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 114 of 176 |
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| | rum Analyzer - Swe | | | | | | | | | | |
|------------------------|---------------------|----------|-------------------------|-----------|-----|----------|---------|---------------------|---|---------------------|------------------------------|
| XI RL | RF 50 Ω | | RREC | | Run | #Avg Typ | e: RMS | TRAC | MDec 13, 2018 E 1 2 3 4 5 6 E A WWWWW | Freq | uency |
| 10 dB/div Log | Ref 25.00 d | IF | Gain:Low | Atten: 36 | | | Mkr1 | 1.755 0 | [™] A NNNNN 000 GHz 85 dBm | A | uto Tune |
| 15.0 | | | | | | | | | | | nter Fred 00000 GH |
| 5.00 | W | - marine | alter and the second of | | | | | | | | Start Fre 00000 GH |
| 25.0 | | | | here | 1 | | | | DL1 -13.00 dBm | | Stop Fre |
| 45.0 | | | | | | | | | | 1.20 <u>Auto</u> | CF Ste 00000 M⊢ Ma |
| 55.0 | | | | | | | | | | Fr | eq Offso 0 ⊦ |
| .65.0 | | | | | | | | | | | ale Typ |
| Center 1.7 Res BW 1 | 55000 GHz 80 kHz | | #VBW | 620 kHz | | | Sweep 1 | Span 1 .000 ms (| 2.00 MHz 1001 pts) | Log | Li |
| ISG | | | | | | | STATUS | 3 | | | |

Plot 7-184. Upper Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)



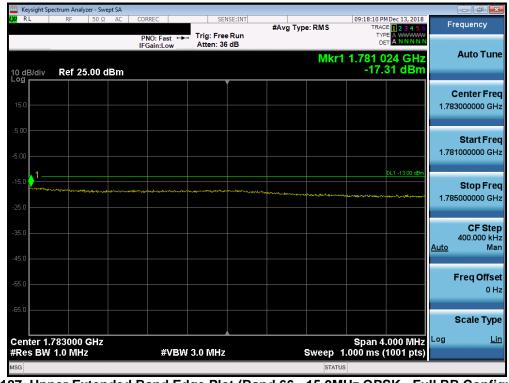
Plot 7-185. Upper Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 115 of 170 |
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| | ectrum Analyzer - Swept | | | | | |
|------------------|-------------------------|--|--------------------------------|----------------|--|------------------------|
| LXI RL | RF 50 Ω | AC CORREC | SENSE:INT | #Avg Type: RMS | 09:18:01 PM Dec 13, 2018 TRACE 1 2 3 4 5 6 | Frequency |
| | | PNO: Wide 🖵 IFGain:Low | Trig: Free Run Atten: 36 dB | | DET A NNNN | |
| | | | | Mkr | 1 1.780 000 GHz | Auto Tune |
| 10 dB/div Log | Ref 25.00 dE | 3m | • | | -23.26 dBm | |
| | | | | | | Center Free |
| 15.0 | | | | | | 1.780000000 GH: |
| 5.00 | | | | | | |
| 0.00 | | and the second sec | \sim | | | Start Fred |
| -5.00 | | | | | | 1.774000000 GHz |
| | | | | | DL1 -13.00 dBm | |
| -15.0 | | | 1 | | | Stop Fred |
| -25.0 | | | har | | | 1.786000000 GHz |
| | | | | | men manual and a second | 05.04 |
| -35.0 | | | | | | CF Step 1.200000 MH |
| -45.0 | | | | | | <u>Auto</u> Mar |
| -43.0 | | | | | | |
| -55.0 | | | | | | Freq Offse |
| | | | | | | UH |
| -65.0 | | | | | | Scale Type |
| | | | | | | |
| | 780000 GHz 180 kHz | #\/D\M | 620 kHz | Sucon | Span 12.00 MHz 1.000 ms (1001 pts) | Log <u>Lir</u> |
| | 160 KHZ | #VDVV | 020 KH2 | Sweep | | |
| | | | | o a d | - | |

Plot 7-186. Upper Band Edge Plot (Band 66 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-187. Upper Extended Band Edge Plot (Band 66 - 15.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 116 of 176 |
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| | ctrum Analyze | | | | | | | | | | a x |
|------------|---------------|---------|-------------|---|----------|----------|---------|---|--|------------------------|------------|
| LXI RL | RF | 50 Ω AC | CORREC | SEN | ISE:INT | #Avg Typ | e: RMS | | Dec 13, 2018 | Frequen | су |
| | | | PNO: Fast G | Trig: Free Atten: 36 | | | | TYPE | | | |
| | | | II Guilleow | | | | Mkr1 | 1.709 9 | 52 GHz | Auto | Tune |
| 10 dB/div | Ref 25. | 00 dBm | | | | | | -26.4 | 11 dBm | | |
| | | | | | | | | | | Center | Free |
| 15.0 | | | | | | | | | | 1.71000000 | |
| | | | | | | | | | | | |
| 5.00 | | | | | (m | mm | ······ | the state and the state of the | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | Star | Free |
| -5.00 | | | | | | | | | | 1.70200000 | |
| 0.00 | | | | | | | | | DL1 -13.00 dBm | | |
| -15.0 | | | | | | | | | DET -13.00 UBII | Stop | Free |
| | | | | | 1 📈 | | | | | 1.71800000 | |
| -25.0 | | | manna | - and | when the | | | | | | |
| -35.0 | mon | | | | | | | | | CF | Ste |
| | | | | | | | | | | 1.60000 <u>Auto</u> | 0 MH Ma |
| -45.0 | | | | | | | | | | | |
| | | | | | | | | | | Freq | Offse |
| -55.0 | | | | | | | | | | | 0 H |
| -65.0 | | | | | | | | | | | |
| | | | | | | | | | | Scale | Тур |
| Center 1.7 | 710000 G | iHz | | | | | | Span 1f | 6.00 MHz | Log | Lir |
| #Res BW | | | #VBW | í 820 kHz | | | Sweep ′ | 1.000 ms (1 | 1001 pts) | | |
| MSG | | | | | | | STATU | IS | | | |

Plot 7-188. Lower Band Edge Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-189. Lower Extended Band Edge Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🔁 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 117 of 176 |
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| 🧧 Keysight Spectrum Analy | | | | | | | | | | |
|-----------------------------------|---|--|---|---------|----------|---------|------------------------|--------------------|----------|-----------------------|
| X RL RF | 50 Ω AC | CORREC | | ISE:INT | #Avg Typ | e: RMS | TRACE | Dec 13, 2018 | Frequ | lency |
| | | PNO: Fast 😱 IFGain:Low | Trig: Free Atten: 36 | | | | TYPI DE | A WWWWW A NNNNN | | |
| 10 dB/div Ref 2 | 5.00 dBm | | | | | Mkr1 | 1.755 0 | 48 GHz 30 dBm | Au | uto Tune |
| | 5.00 dbm | | | / | | | | | | |
| 15.0 | | | | | | | | | | nter Fred |
| 13.0 | | | | | | | | | 1.75500 | 0000 GHz |
| 5.00 | man group and | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | | | | | |
| | | | | | | | | | | tart Fred 0000 GHz |
| -5.00 | | | | | | | | | 1.1.4700 | |
| -15.0 | | | | | | | | 0L1 -13.00 dBm | s | top Fred |
| | | | 14 | 1 | | | | | | 0000 GH |
| -25.0 | | | - town | mm | mm | mann | mm | 1 | | |
| -35.0 | | | | | | | | | 1.60 | CF Step 0000 MH |
| | | | | | | | | | Auto | Mar |
| -45.0 | | | | | | | | | | |
| -55.0 | | | | | | | | | Fre | eq Offse |
| | | | | | | | | | | 0 H: |
| -65.0 | | | | | | | | | Sc | ale Type |
| | | | | | | | | | | |
| Center 1.755000 #Res BW 240 kH | | #VBM | 820 kHz | | | Sween_1 | Span 16 1.000 ms (1 | 6.00 MHz | Log | Lin |
| MSG | | ~ • E) • • | 020 MHZ | | | STATUS | | loo i proj | | |

Plot 7-190. Upper Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)



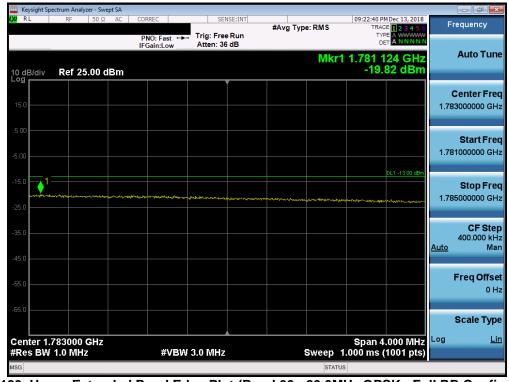
Plot 7-191. Upper Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|----|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dega 119 of 176 |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | Portable Handset | | Page 118 of 176 |
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| | pectrum Analy | | | | | | | | | | × |
|-----------|----------------------|---------|---|-------------------------|---------|---------------|---------------------|------------------------|--|----------------------------------|-------------------|
| X/RL | RF | 50 Ω AC | CORREC | | NSE:INT | #Avg Typ | e: RMS | 09:22:32 PM TRACE | 123456 | Frequency | У |
| | | | PNO: Fast (IFGain:Low | Trig: Free Atten: 36 | | | | TYPE DET | A WWWWW A N N N N N | | |
| 10 dB/div | Ref 25 | .00 dBn | 1 | | | | Mkr | 1 1.780 24 -25.0 | 40 GHz)5 dBm | Auto T | Tun |
| 15.0 | | | | | | | | | | Center I 1.78000000 | |
| 5.00 | *************** | | menter for and the second s | | | | | | | Start I 1.772000000 | |
| -15.0 | | | | h | 1 | | | | 0L1 -13.00 dBm | Stop I 1.788000000 | |
| -45.0 | | | | | | on the second | general constraints | mar and a second | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | CF \$ 1.600000 <u>Auto</u> | Ste) M⊢ Ma |
| 55.0 | | | | | | | | | | Freq Of | ffso 0⊦ |
| -65.0 | | | | | | | | | | Scale 1 | Гур |
| | .780000 / 240 kHz | | #VB | W 820 kHz | | | Sweep | Span 16 1.000 ms (1 | 6.00 MHz 1001 pts) | Log | Li |
| ISG | | | | | | | STATU | | | | |

Plot 7-192. Upper Band Edge Plot (Band 66 - 20.0MHz QPSK - Full RB Configuration)

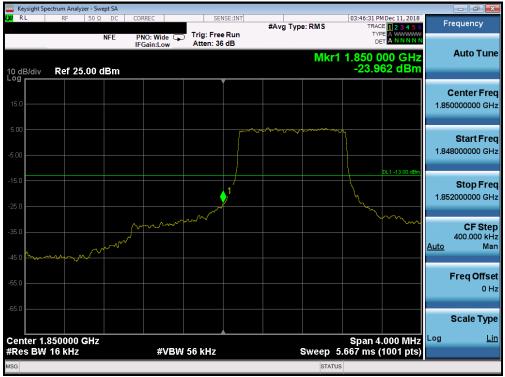


Plot 7-193. Upper Extended Band Edge Plot (Band 66 - 20.0MHz QPSK - Full RB Configuration)

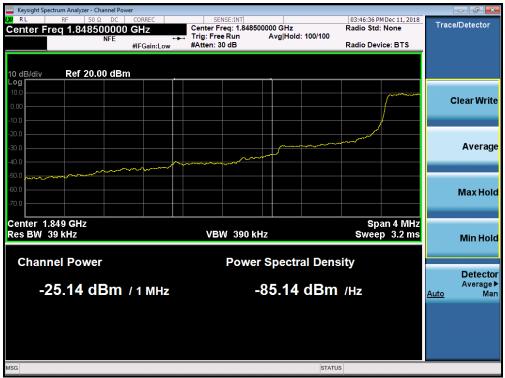
| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|----|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Daga 110 of 176 |
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Band 2



Plot 7-194. Lower Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)



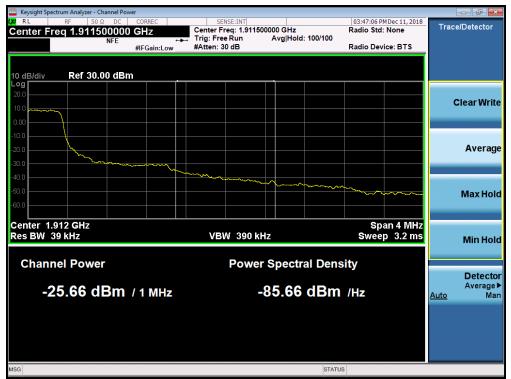
Plot 7-195. Lower Extended Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager | |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|--|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 100 of 170 | |
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Plot 7-196. Upper Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)



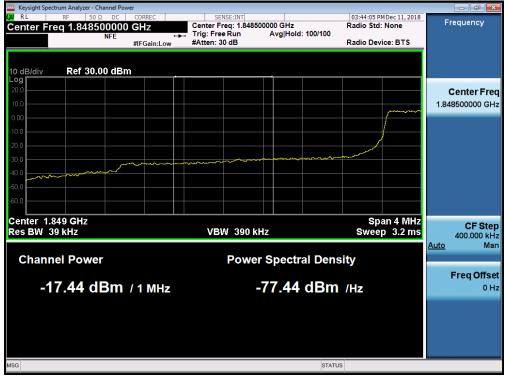
Plot 7-197. Upper Extended Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dage 101 of 176 |
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| 🔤 Keysight Spectrum Analyz | er - Swept SA | | | | | | | - 6 🗾 |
|----------------------------|--------------------|------------------|------------|----|-----------|---------|---|--|
| LXV RL RF | 50 Ω DC NFE | CORREC PNO: Wide | Trig: Free | | #Avg Type | e: RMS | 03:43:58 PM Dec 11, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N | Frequency |
| 10 dB/div Ref 25 | .00 dBm | IFGain:Low | Atten: 36 | ав | | Mkr | 1.849 996 GHz -22.01 dBm | Auto Tun |
| 15.0 | | | | | | | | Center Fre 1.850000000 GH |
| 5.00 | | | | | | | | Start Fre 1.848000000 G⊦ |
| -15.0 | | | - ~ | 1 | | | DL1 -13.00 dBm | Stop Fre 1.852000000 GH |
| 45.0 | | | | | | | | CF Ste 400.000 kH <u>Auto</u> Ma |
| 55.0 | | | | | | | | Freq Offs 0 H |
| Center 1.850000 | GHz | | | | | | Span 4.000 MHz | Scale Typ |
| #Res BW 36 kHz | | #VBW | 130 kHz | | | Sweep 2 | 2.000 ms (1001 pts) | |
| ISG | | | | | | STATU | S | |

Plot 7-198. Lower Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)



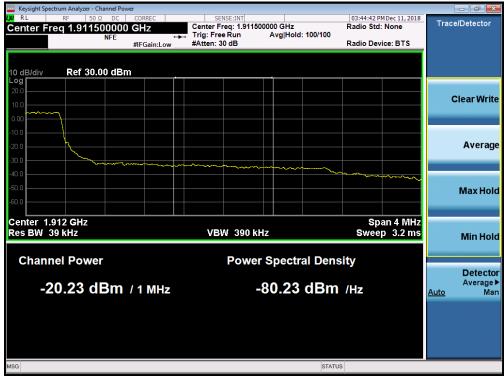
Plot 7-199. Lower Extended Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dega 100 of 176 |
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| | | zer - Swept SA | | | | | | | | |
|----------------------|-------|----------------|---------------------------|-------------------------|---------|----------|---------|-----------------------|--|--|
| LXI RL | RF | 50 Ω DC | CORREC | SEI | NSE:INT | #Avg Typ | e: RMS | | Dec 11, 2018 | Frequency |
| | _ | NFE | PNO: Wide 😱 IFGain:Low | Trig: Free Atten: 36 | | | | TYP DE | | A |
| 10 dB/div Log | Ref 2 | 5.00 dBm | | | | | Mkr1 | 1.910 0 -24.1 | 00 GHz 61 dBm | Auto Tui |
| 15.0 | | | | | | | | | | Center Fr 1.910000000 Gi |
| -5.00 | | ~~~~ | | | | | | | | Start Fr 1.908000000 GI |
| -15.0 | | | | | 1 | | | | DL1 -13.00 dBm | Stop Fr 1.912000000 G |
| -35.0 | | | | | | ····· | | <u> </u> | <u>~~~~</u> ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | CF Ste 400.000 kl <u>Auto</u> M |
| -45.0 | | | | | | | | | | Freq Offs |
| -65.0 | | | | | | | | | | Scale Ty |
| Center 1. #Res BW | | GHz | #VBW | 130 kHz | | | Sweep 2 | Span 4. 2.000 ms (| 000 10112 | Log <u>L</u> |
| MSG | | | | | | | STATUS | 5 | | |

Plot 7-200. Upper Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)



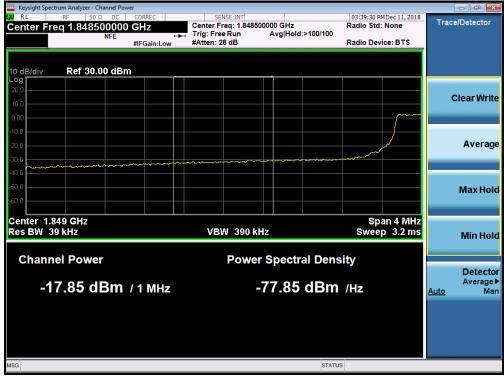
Plot 7-201. Upper Extended Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|-----------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dega 102 of 176 | |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | Portable Handset | | Page 123 of 176 |
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| | ectrum Analyze | | | | | | | |
|----------------------|---|---------|---------------------------|--------------------------------|------------|---------------------------|----------------|--|
| LXI RL | RF | 50 Ω DC | CORREC | SENSE:INT | #Avg Type: | | MDec 11, 2018 | Frequency |
| | | NFE | PNO: Wide 😱 IFGain:Low | Trig: Free Run Atten: 36 dB | | TYP | | |
| 10 dB/div Log | Ref 25. | .00 dBm | | | | Mkr1 1.849 9 -22. | 97 dBm | Auto Tune |
| 15.0 | | | | | | | | Center Freq 1.85000000 GHz |
| -5.00 | | | | | | ant-when he have | DL1 -13.00 dBm | Start Freq 1.848000000 GHz |
| -15.0 | | | | 1 | | | | Stop Fred 1.852000000 GHz |
| -35.0 | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | | | | Ē | CF Step 400.000 kHz <u>Auto</u> Man |
| -55.0 | | | | | | | | Freq Offset 0 Hz |
| -65.0 | | | | | | | | Scale Type |
| Center 1. #Res BW | | GHz | #VBW | 220 kHz | S | Span 4 weep 2.000 ms (| .000 191112 | .og <u>Lin</u> |
| MSG | | | | | | STATUS | | |

Plot 7-202. Lower Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)



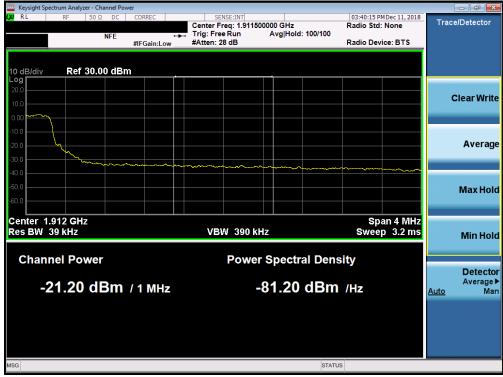
Plot 7-203. Lower Extended Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|-----------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Page 124 of 176 | |
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| | | zer - Swept S | SA | | | | | | | | | | |
|-----------------------|-------|----------------|---|----------|-------|---|-----------------------|---------|---------|------------------|---|-------------|--------------------------------|
| XI RL | RF | 50 Ω [| E | PNO: W | ide 😱 | Trig: Fr | | #Avg Ty | pe: RMS | TRA | PM Dec 11, 2018 ACE 1 2 3 4 5 6 YPE A WWWWWW DET A NNNNN | F | requency |
| 10 dB/div | Ref 2 | 5.00 dB | | IFGain:L | .ow | Atten: | 36 dB | | Mk | 1 1.910 | 004 GHz .38 dBm | | Auto Tune |
| 15.0 | | | | | | | ľ | | | | | | Center Fre 0000000 GH |
| 5.00 | ~~~~ | <u>///-/</u> - | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | ~~~~ | ~~~ | han a start a | | | | | | 1.90 | Start Fre 8000000 GH |
| 25.0 | | | | | | 4 | √ ¹ | | | | DL1 -13.00 dBm | 1.91 | Stop Fre 2000000 G⊦ |
| 45.0 | | | | | | | ~~~~~ | www.~~~ | ~~~~~ | human | | <u>Auto</u> | CF Ste 400.000 k⊢ Ma |
| 55.0 | | | | | | | | | | | | | Freq Offs 0 F |
| 65.0 | | | | | | | | | | | | | Scale Typ |
| Center 1.9 #Res BW | | | | # | ¢VBW | 220 kH | z | | Sweep | Span 2.000 ms | 4.000 MHz (1001 pts) | LUg | |
| ISG | | | | | | | | | STA | TUS | | | |

Plot 7-204. Upper Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)



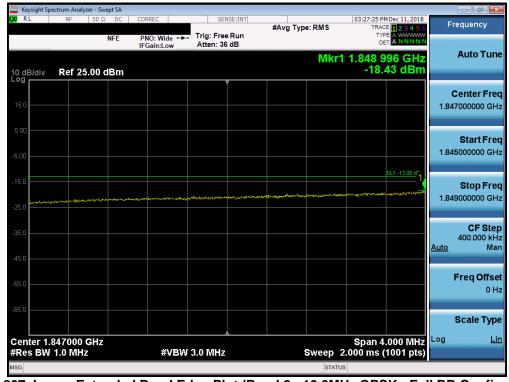
Plot 7-205. Upper Extended Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | 🕒 LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|-----------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dega 125 of 176 | |
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| © 2019 PCTEST Engineering Labora | V 8.8 11/19/2018 | | | |



| | pectrum Analyzer | | | | | | |
|----------------------|-------------------------|--|-------------|--------------------------------|---------------|---|--|
| L <mark>X/</mark> RL | RF | 50Ω DC | CORREC | SENSE:INT | #Avg Type: RM | 03:27:04 PM Dec 11, 2018 TRACE 1 2 3 4 5 6 | Frequency |
| | - | NFE | PNO: Wide 😱 | Trig: Free Run Atten: 36 dB | • // | TYPE A WWWW DET A NNNNN | |
| 10 dB/div Log | Ref 25.0 | 00 dBm | | | N | lkr1 1.849 960 GHz -25.16 dBm | Auto Tune |
| 15.0 | | | | | | | Center Fred 1.850000000 GH; |
| -5.00 | | | | | | یوی میلاد میلاد DL1 -13 00 dBm | Start Fred 1.846000000 GH: |
| -15.0 | | | | 1 M | | | Stop Fred 1.854000000 GH: |
| -35.0 | m.h.r.e | and the second | | | | | CF Stej 800.000 kH <u>Auto</u> Mar |
| -55.0 | | | | | | | Freq Offse 0 H |
| -65.0 | | | | | | | Scale Type |
| | .850000 Gi / 120 kHz | Hz | #VBW | 430 kHz | Swee | Span 8.000 MHz ep 4.000 ms (1001 pts) | Log <u>Lir</u> |
| MSG | | | | | | STATUS | |

Plot 7-206. Lower Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-207. Lower Extended Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager | |
|----------------------------------|----------------------|---------------------------------------|-----------------|---------------------------------|--|
| Test Report S/N: | Test Dates: | EUT Type: | Dega 100 of 170 | | |
| 1M1811280213-03-R1.ZNF | 12/4/2018 - 1/2/2019 | Portable Handset | | Page 126 of 176 | |
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| | Spectrum Analy: | | | | | | | | | | |
|----------------------|----------------------|-----------------|---------------------------|-------------------------|------------------------------|---------------------|---------|-----------------------|-----------------------|------------------|------------------------------|
| L <mark>XI</mark> RL | RF | 50 Ω DC | CORREC | SEI | ISE:INT | #Avg Typ | e: RMS | | Dec 11, 2018 | Free | quency |
| | | NFE | PNO: Wide 🕞 IFGain:Low | Trig: Free Atten: 36 | | | | TYP DE | | | |
| 10 dB/div Log | Ref 25 | .00 dBm | | | | | Mkr | 1.910 0 -28.: | 40 GHz 26 dBm | 4 | luto Tune |
| 15.0 | | | | | | | | | | | enter Fred 1000000 GH: |
| 5.00 | | ur-rutha yakana | NANA MARANA TANA | | | | | | | | Start Free |
| -15.0 | | | | | 1 | | | | DL1 -13.00 dBm | | Stop Fre 000000 GH |
| -35.0 | | | | | and the second second second | frather hat a start | www. | hantiytrankanyalaad | normerlightensen | 8 <u>Auto</u> | CF Ste 00.000 kH Ma |
| -55.0 | | | | | | | | | | Fi | r eq Offse 0 H |
| -65.0 | | | | | | | | | | S | cale Typ |
| | .910000 V 120 kHz | | #VBW | / 430 kHz | | | Sweep 4 | Span 8. 4.000 ms (| .000 MHz 1001 pts) | Log | <u>Lii</u> |
| MSG | | | | | | | STATU | S | | | |

Plot 7-208. Upper Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)



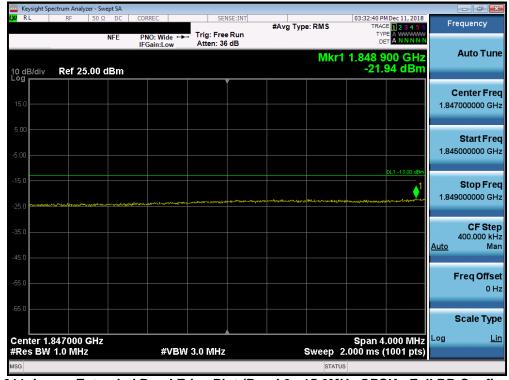
Plot 7-209. Upper Extended Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager | | |
|--|----------------------|---------------------------------------|--|---------------------------------|--|--|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 107 of 170 | | |
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| Keysight Spectrum Analyzer - Swep | | | | | |
|--|----------------------------|--------------------------------|--|---|--|
| <mark>ΙΧ΄ RL</mark> RF 50 Ω | DC CORREC | SENSE:INT | #Avg Type: RMS | 03:32:31 PM Dec 11, 2018 TRACE 1 2 3 4 5 6 | Frequency |
| N 10 dB/div Ref 25.00 dB | FE PNO: Wide IFGain:Low | Trig: Free Run Atten: 36 dB | Mkr1 | 1.849 988 GHz -26.92 dBm | Auto Tune |
| 15.0 | | | | | Center Freq 1.85000000 GHz |
| -5.00 | | | and a second and a second and a second | DL1 -13.00 dBm | Start Freq 1.844000000 GHz |
| -15.0 | | 11 | | | Stop Freq 1.856000000 GHz |
| -35.0 | | ~~~~~~ | | | CF Step 1.200000 MHz <u>Auto</u> Man |
| -55.0 | | | | | Freq Offset 0 Hz |
| -65.0 | | | | | Scale Type |
| Center 1.850000 GHz #Res BW 180 kHz | #VBW | 620 kHz | Sweep 1 | Span 12.00 MHz .000 ms (1001 pts) | Log <u>Lin</u> |
| MSG | | | STATUS | | |

Plot 7-210. Lower Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)



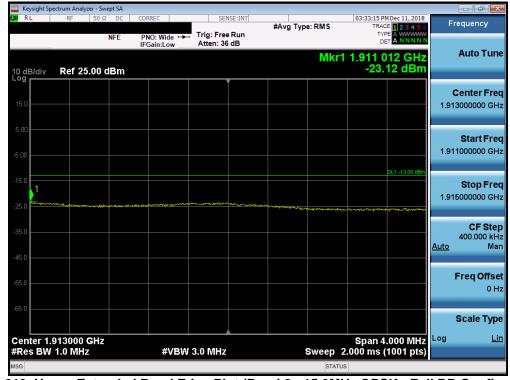
Plot 7-211. Lower Extended Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager | | |
|--|----------------------|---------------------------------------|--|---------------------------------|--|--|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 129 of 170 | | |
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| | pectrum Analy | | | | | | | | |
|----------------------|---|---------|---|-------------------------|---------|----------|--------|--|-------------------------------|
| LXI RL | RF | 50 Ω DC | CORREC | SEN | ISE:INT | #Avg Typ | e: RMS | 03:33:01 PM Dec 11, 201 TRACE 1 2 3 4 5 | |
| | | NFE | PNO: Wide 🖵 IFGain:Low | Trig: Free Atten: 36 | | | | | W IN |
| 10 dB/div Log | Ref 25 | .00 dBm | | | | | Mkr | 1.910 000 GH -28.49 dBr | z Auto Tune n |
| 15.0 | | | | | | | | | Center Fred |
| | | | | | | | | | 1.91000000 GH2 |
| | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | - mar | \sim | | | | | Start Fred 1.904000000 GHz |
| -5.00 | | | | | | | | DL1 -13.00 dB | |
| -15.0 | | | | ł | 1 | | | | Stop Fred 1.916000000 GHz |
| -25.0 | | | | have | m | ····· | | | CF Step |
| -35.0 | | | | | | | | | 1.200000 MH Auto Mar |
| -45.0 | | | | | | | | | Freq Offse |
| -55.0 | | | | | | | | | 0 H |
| -65.0 | | | | | | | | | Scale Type |
| Center 1. #Res BW | | | #VBW | 620 kHz | | | Sween | Span 12.00 MH 1.000 ms (1001 pts | z Log <u>Lir</u> |
| MSG | | | | • 2 • 1112 | | | STATU | | <u> </u> |

Plot 7-212. Upper Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-213. Upper Extended Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager | | |
|--|----------------------|---------------------------------------|-----------------|---------------------------------|--|--|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 120 of 176 | | |
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| Keysight Spectrum Analyzer | | | | | | | | |
|----------------------------|----------------|--------------------------|-----------------------------|------------|---|----------------|---|--------------------------|
| LXIRL RF | 50Ω DC O | ORREC | SENS | E:INT | #Avg Type | e: RMS | 03:35:34 PM Dec 11, 2018 TRACE 1 2 3 4 5 0 | Frequency |
| | NFE I | PNO: Wide 😱 FGain:Low | Trig: Free F Atten: 36 d | | | | DET A WWWW | |
| 10 dB/div Ref 25.0 | 00 dBm | | | | | Mkr1 | 1.849 936 GHz -27.93 dBm | Auto Tune |
| | | | Ĭ | | | | | Center Freq |
| 15.0 | | | | | | | | 1.850000000 GHz |
| 5.00 | | | | 1 | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | and the second | har an | Start Freq |
| -5.00 | | | | | | | | 1.842000000 GHz |
| -15.0 | | | | _ | | | DL1 -13.00 dBm | Stop Fred |
| -25.0 | | | 1 | | | | | 1.858000000 GHz |
| | And the second | warman market | - Annow and the | <i>[</i>] | | | | CF Step |
| -35.0 | | | | | | | | 1.600000 MHz Auto Man |
| <i>7</i> .0 | | | | | | | | Freq Offset |
| -55.0 | | | | | | | | 0 Hz |
| -65.0 | | | | | | | | Scale Type |
| Center 1.850000 G | Hz | | | | | | Span 16.00 MHz | Log <u>Lin</u> |
| #Res BW 240 kHz | | #VBW | 820 kHz | | | Sweep 1 | .000 ms (1001 pts) | |

Plot 7-214. Lower Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)



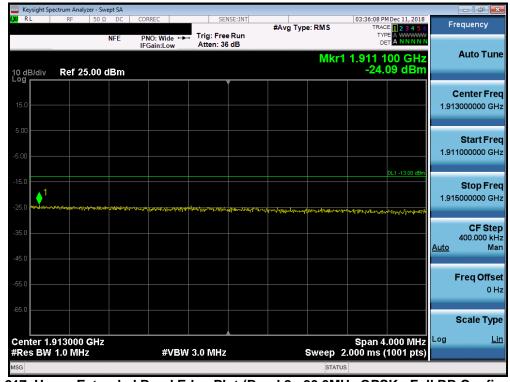
Plot 7-215. Lower Extended Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager | | |
|--|----------------------|---------------------------------------|-----------------|---------------------------------|--|--|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 120 of 176 | | |
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| | | zer - Swept SA | | | | | | | | - | |
|---------------------|--------|----------------|-----------------------|-----------|----|----------|---------|----------------------|---|---------------------|-----------------------------|
| X/ RL | RF | 50 Ω DC NFE | PNO: Wide | | | #Avg Typ | e: RMS | TRAC | MDec 11, 2018 E 1 2 3 4 5 6 E A MNNNN | Freq | uency |
| I0 dB/div | Ref 25 | .00 dBm | IFGain:Low | Atten: 36 | | | Mkr1 | 1.910 0 | | A | uto Tun |
| 15.0 | | | | | | | | | | | nter Fre |
| 5.00 | | | and the second second | ~~~ | | | | | | | Start Fre 00000 G⊢ |
| 25.0 | | | | | ,1 | | | | DL1 -13.00 dBm | | Stop Fre 00000 G⊢ |
| 45.0 | | | | - ~~~ | | | | Land Marker Contract | and and a second | 1.60 <u>Auto</u> | CF Ste 00000 MH Ma |
| 55.0 | | | | | | | | | | Fr | e q Offs 0 H |
| 65.0 | | | | | | | | | | | ale Typ |
| Center 1. Res BW | | | #VBW | / 820 kHz | | | Sweep ′ | Span 1 1.000 ms (| 6.00 MHz 1001 pts) | Log | Li |
| ISG | | | | | | | STATU | s | | | |

Plot 7-216. Upper Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-217. Upper Extended Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
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7.5 Peak-Average Ratio

Test Overview

A peak to average ratio measurement is performed at the conducted port of the EUT. The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

Test Procedure Used

KDB 971168 D01 v03r01 - Section 5.7.1

Test Settings

- 1. The signal analyzer's CCDF measurement profile is enabled
- 2. Frequency = carrier center frequency
- 3. Measurement BW ≥ OBW or specified reference bandwidth
- 4. The signal analyzer was set to collect one million samples to generate the CCDF curve
- 5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms.

Test Setup

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



Figure 7-4. Test Instrument & Measurement Setup

Test Notes

None.

| FCC ID: ZNFL423DL | | MEASUREMENT REPORT (CERTIFICATION) | LG | Approved by: Quality Manager |
|----------------------------------|----------------------|---------------------------------------|----|---------------------------------|
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