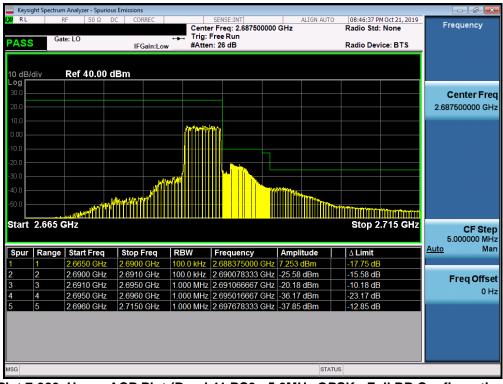


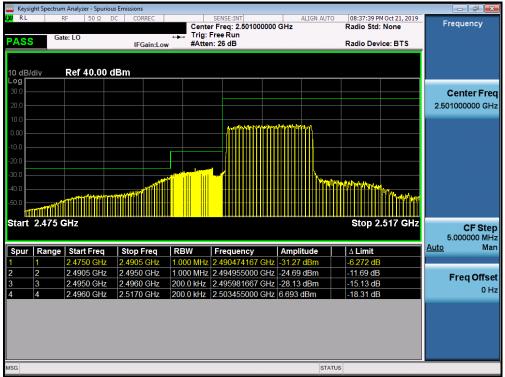
Plot 7-382. Lower ACP Plot at 2496 MHz (Band 41 PC3 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-383. Upper ACP Plot (Band 41 PC3 - 5.0MHz QPSK - Full RB Configuration)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
|---------------------------------|--------------------|---------------------------------------|--|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 210 of 405 |
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Plot 7-384. Lower ACP Plot at 2496 MHz (Band 41 PC3 - 10.0MHz QPSK - Full RB Configuration)



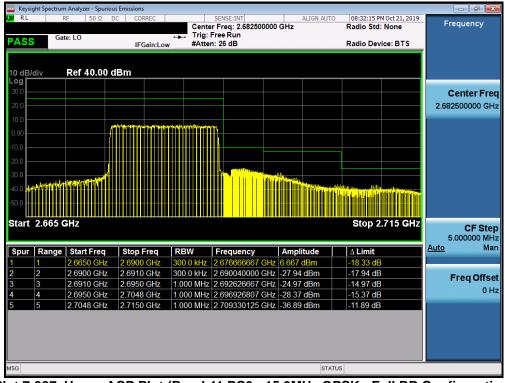
Plot 7-385. Upper ACP Plot (Band 41 PC3 - 10.0MHz QPSK - Full RB Configuration)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|----------------------------------|--------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 210 of 405 |
| 1M1910220166-03.A3L | 10/11 - 01/09/2020 | Portable Handset | | Page 219 of 495 |
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Plot 7-386. Lower ACP Plot at 2496 MHz (Band 41 PC3 - 15.0MHz QPSK - Full RB Configuration)



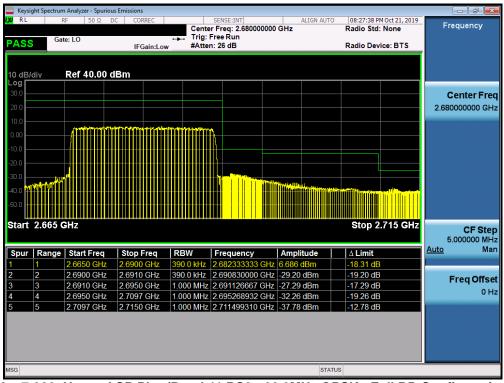
Plot 7-387. Upper ACP Plot (Band 41 PC3 - 15.0MHz QPSK - Full RB Configuration)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager | |
|--------------------------------|--|---------------------------------------|--|---------------------------------|--|
| Test Report S/N: | Test Dates: | EUT Type: | | Dama 000 at 405 | |
| 1M1910220166-03.A3L | 10/11 - 01/09/2020 | Portable Handset | | Page 220 of 495 | |
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Plot 7-388. Lower ACP Plot at 2496 MHz (Band 41 PC3 - 20.0MHz QPSK - Full RB Configuration)

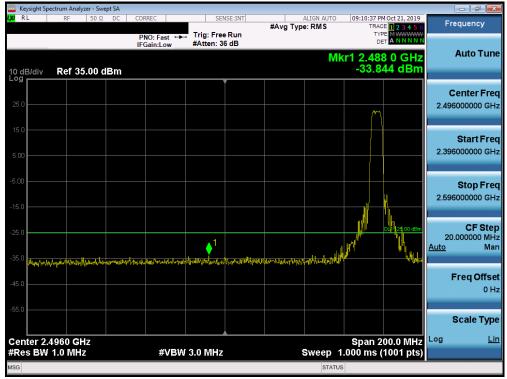


Plot 7-389. Upper ACP Plot (Band 41 PC3 - 20.0MHz QPSK - Full RB Configuration)

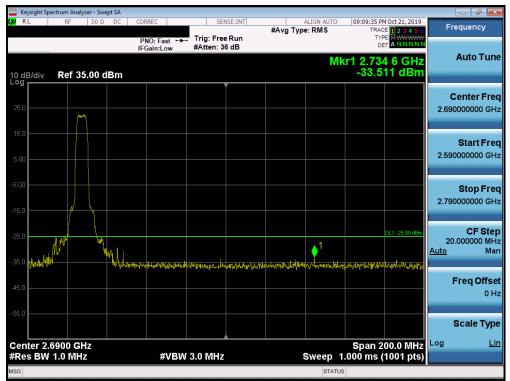
| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
|---------------------------------|--------------------|---------------------------------------|--|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 221 of 405 |
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Band 38







Plot 7-391.Upper Band Edge Plot (Band 38 - 5.0MHz QPSK - Full RB Configuration)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager | | |
|----------------------------------|--|---------------------------------------|---------|---------------------------------|--|--|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 222 of 405 | | |
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| RL | RF | 50 Ω | DC | CORREC | SE | NSE:INT | | ALIGN AUTO | | PM Oct 21, 2019 | Frequency |
|----------------------|----------------------|------------------|--|---|----------------------------------|--|---------------------------------|----------------|-----------------|--|---|
| | | | | PNO: Fast ← IFGain:Low | Trig: Fre #Atten: 3 | | #Avg Typ | e:RMS | TR. T | ACE 1 2 3 4 5 6 YPE MWWWW DET ANNNNN | Trequency |
| 0 dB/div | Ref | 35.00 d | | | | | | Mk | r1 2.48 -35. | 87 4 GHz 041 dBm | Auto Tui |
| og | | | | | | • | | | | | Center Fr 2.496000000 Gi |
| 5.00 | | | | | | | | | | | Start Fr 2.396000000 GI |
| 5.00 | | | | | | | | | | | Stop Fr 2.596000000 Gi |
| 25.0 | | | | | 1 | | | للملاء والمرور | | DL1 2970 gBm | CF Ste 20.000000 Mi <u>Auto</u> M |
| 15.0 15.0 | ulthanhir4a | hillen (lagensed | with the species of t | ₩₩₽₩₩₽₽₩₩₩₽₽₩₩₩₽₽₩₩₩₽₽₽₩₩₩₽₽₽₩₩₩₽₽₽₩₩ ₽₽₽₩₩₽₽₽₽₩₽₽₽₽₽₽ | เ,+*{ เส สมใญาเมื่อ?ใ∧*(| gydrifeigiad a felyddiad yw yn | and a lad and the second second | | | | Freq Offs 0 |
| 55.0 | | | | | | | | | | | Scale Ty |
| | 2.4960 G N 1.0 MI | | | #VB | W 3.0 MHz | · | | Sweep 1 | Span .000 ms | 200.0 MHz (1001 pts) | Log <u>L</u> |

Plot 7-392. Lower Band Edge Plot (Band 38 - 10.0MHz QPSK - Full RB Configuration)



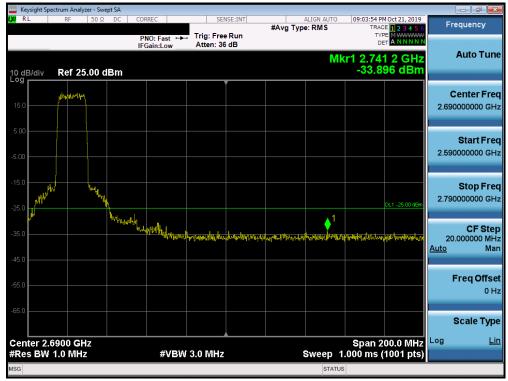
Plot 7-393.Upper Band Edge Plot (Band 38 - 10.0MHz QPSK - Full RB Configuration)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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| Test Report S/N: | Test Dates: | EUT Type: | | Dage 222 of 405 |
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| Reysight Sp | ectrum Analyz RF | | | RREC | SE | NSE:INT | | ALIGN AUTO | 09:05:0 | 3 PM Oct 21, 2019 | _ | |
|-------------|----------------------|-------------|---------------|-----------------------|---|---------------------------|-------------------------|--------------|---------|-------------------|---------------|---------------|
| | 14 | 5032 1 | | NULC | | | #Avg Typ | | | RACE 1 2 3 4 5 | 6 Frequ | lency |
| | | | | NO:Fast ← Gain:Low | Trig: Fre Atten: 3 | | | | | DET A NNNN | Ň | |
| | | | | | | | | M | (r1 2.4 | 92 8 GH | 2 | ito Tun |
| I0 dB/div | Ref 25. | .00 dB | m | | | | | | -33 | .969 dBn | | |
| | | | | | | | | | | and out that | Cer | nter Fre |
| 15.0 | | | | | | | | | | | 2.49600 | |
| | | | | | | | | | | | | |
| 5.00 | | | | | | | | | | | | |
| | | | | | | | | | | | 2.39600 | tart Fre |
| 5.00 | | | | | | | | | | | 2.39000 | 0000 Gr |
| | | | | | | | | | | | | |
| 15.0 | | | | | | | | | | | | top Fre |
| 25.0 | | | | | | | | | . Juli | DL1 -25 00 00 | 2.59600 | 0000 GH |
| 23.0 | | | | | | 1 | | u de sentitu | | . 1 44 | | |
| 35.0 | and the set of the | | Andre et al. | | | 1. ## <u># 1 arm</u> - | Married Married Married | Helen Marine | | | | CF Ste |
| (h-fillfalk | Mr. and Mar. And And | Anonalana a | (A) A BUY (A) | ant administ | ada sena da | all a star of a star of a | NI BORIN AND A | | | | 20.00 Auto | 0000 MI Mi |
| 45.0 | | | | | | | -Hoperon Jar Martin | | | | | |
| | | | | | | | | | | | Erc | q Offs |
| 55.0 | | | | | | | | | | | | erons 10 |
| | | | | | | | | | | | | |
| 65.0 | | | | | | | | | | | 0.0 | |
| | | | | | | | | | | | SC | ale Typ |
| Center 2.4 | 4960 GH | z | | | | | | | Spar | 1 200.0 MH | Log | L |
| ¢Res BW | 1.0 MHz | | | #VB | N 3.0 MHz | 2 | | Sweep 1 | .000 m | s (1001 pts |) | |
| SG | | | | | | | | STATUS | 3 | | | |

Plot 7-394. Lower Band Edge Plot (Band 38 - 15.0MHz QPSK - Full RB Configuration)



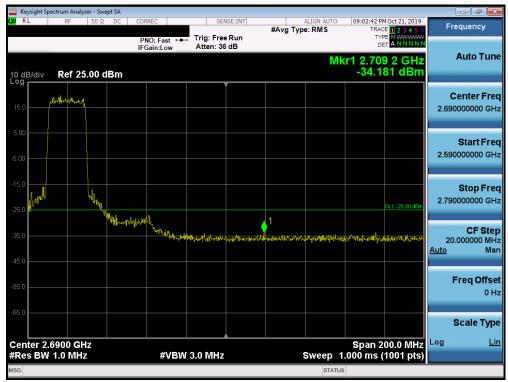
Plot 7-395.Upper Band Edge Plot (Band 38 - 15.0MHz QPSK - Full RB Configuration)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
|---------------------------------|--------------------|---------------------------------------|--|---------------------------------|
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| Keysight Spectrum Analyzer - Swept SA | | | | |
|---------------------------------------|--|-----------------------------|--|--|
| LX/ RL RF 50Ω DC | CORREC SE | A #Avg Type | LIGN AUTO 09:01:31 PM C : RMS TRACE | Oct 21, 2019 1 2 3 4 5 6 Frequency |
| 10 dB/div Ref 25.00 dBm | PNO: Fast → Trig: Fre IFGain:Low Atten: 3 | e Run | TYPE | 2 GHz Auto Tune |
| 15.0 | | | p ^{rilled} ray | Center Freq 2.496000000 GHz |
| -5.00 | | | | Start Freq 2.396000000 GHz |
| -15.0 | .1 | | . A se NAME AND A SECOND | 2.596000000 GHz |
| -25.0 -35.0 | pd-lapthycophymetrycophilipith | frontradition of fauriation | Podich.ed the . | CF Step 20.000000 MHz <u>Auto</u> Man |
| -55.0 | | | | Freq Offset 0 Hz |
| -65.0 | | | | Scale Type |
| Center 2.4960 GHz #Res BW 1.0 MHz | #VBW 3.0 MHz | 2 S | Span 20 weep 1.000 ms (1 | 0.0 MHz ^{Log} Lin 001 pts) |
| MSG | | | STATUS | |

Plot 7-396. Lower Band Edge Plot (Band 38 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-397.Upper Band Edge Plot (Band 38 - 20.0MHz QPSK - Full RB Configuration)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|----------------------------------|--------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 225 of 405 |
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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. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

Test Setup

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



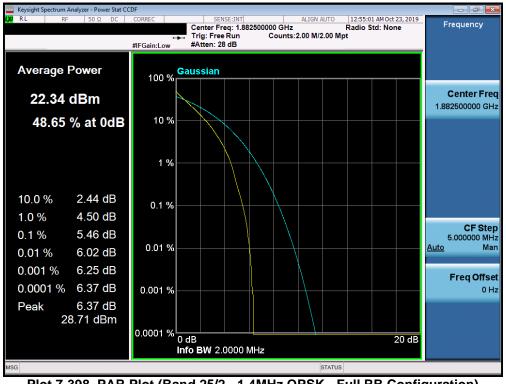
Figure 7-4. Test Instrument & Measurement Setup

Test Notes

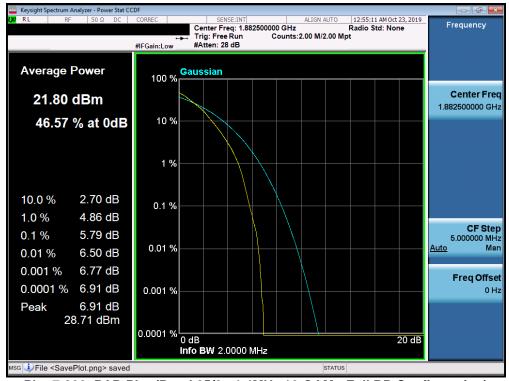
None.

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|----------------------------------|--------------------|---------------------------------------|---------|---------------------------------|
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Plot 7-398. PAR Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)

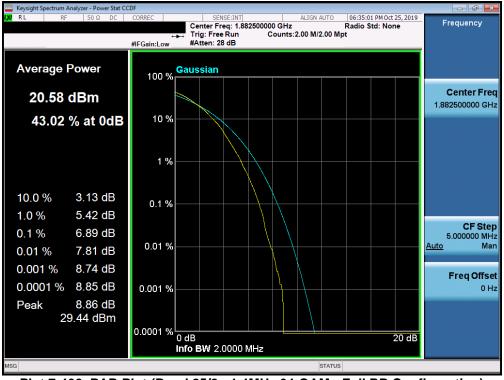


Plot 7-399. PAR Plot (Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)

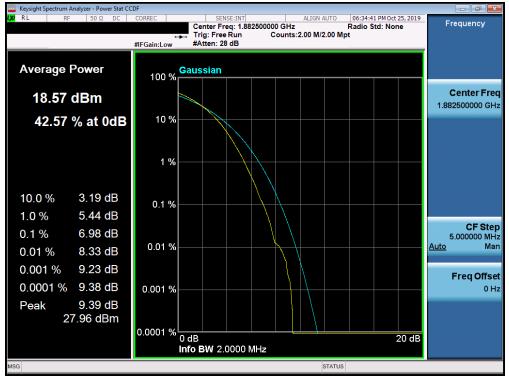
| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|--|--------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 227 of 405 |
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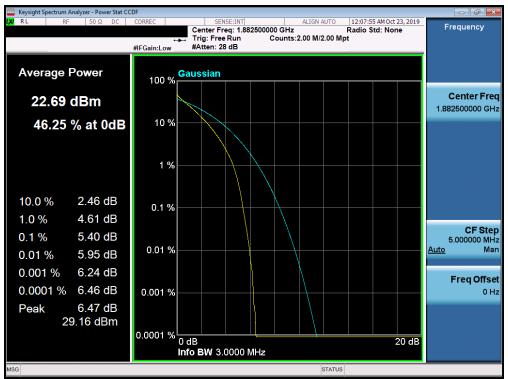




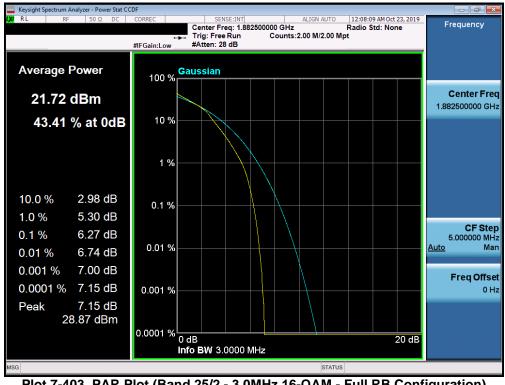
Plot 7-401. PAR Plot (Band 25/2 - 1.4MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|--|--------------------|---------------------------------------|------------------|---------------------------------|
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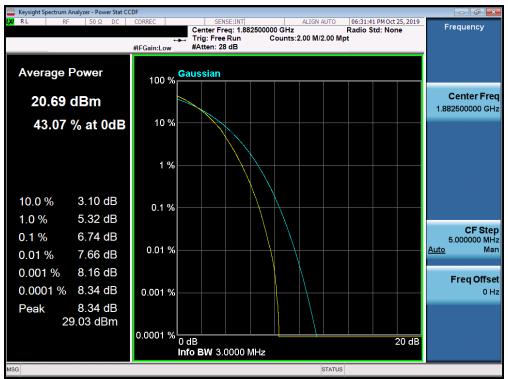




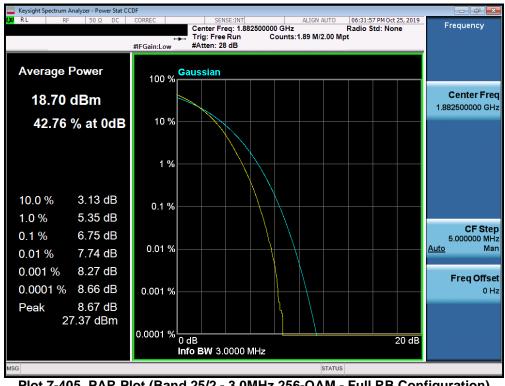
Plot 7-403. PAR Plot (Band 25/2 - 3.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|--|--------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 220 of 405 |
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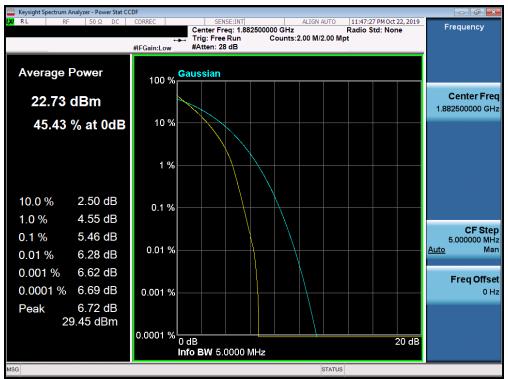
Plot 7-404. PAR Plot (Band 25/2 - 3.0MHz 64-QAM - Full RB Configuration)



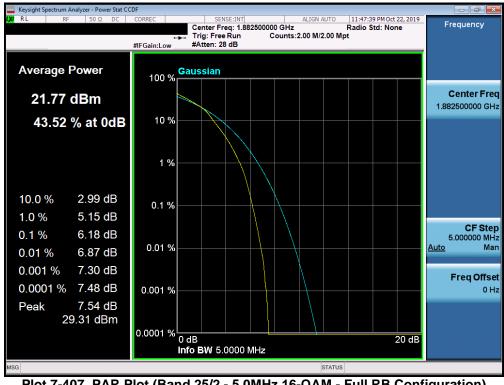
Plot 7-405. PAR Plot (Band 25/2 - 3.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|--|--------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 220 of 405 |
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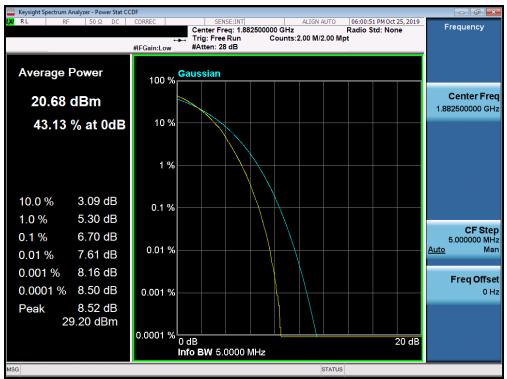




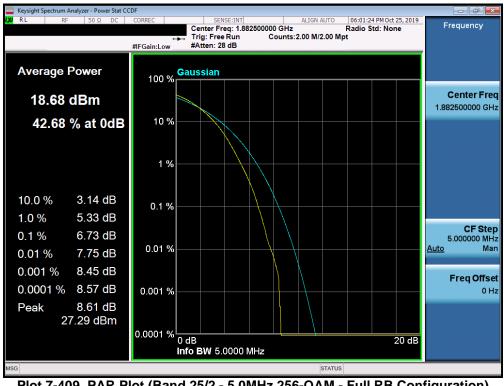
Plot 7-407. PAR Plot (Band 25/2 - 5.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|--|--------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 224 of 405 |
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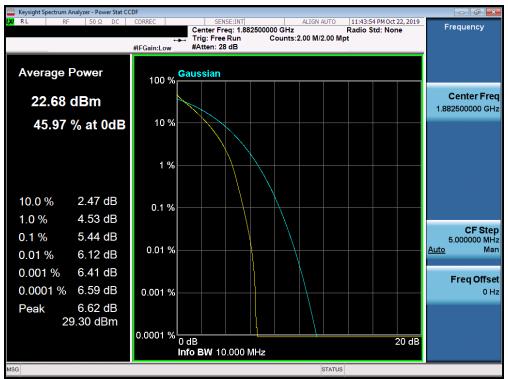
Plot 7-408. PAR Plot (Band 25/2 - 5.0MHz 64-QAM - Full RB Configuration)



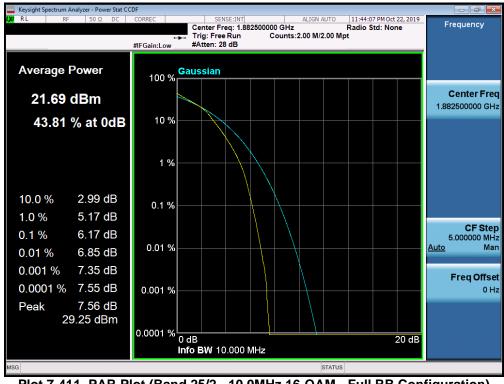
Plot 7-409. PAR Plot (Band 25/2 - 5.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
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| Test Report S/N: | Test Dates: | EUT Type: | Daga 222 of 405 |
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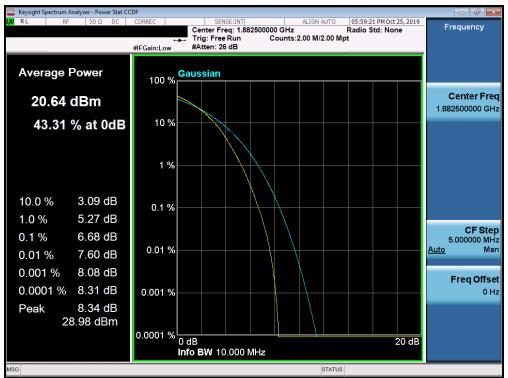




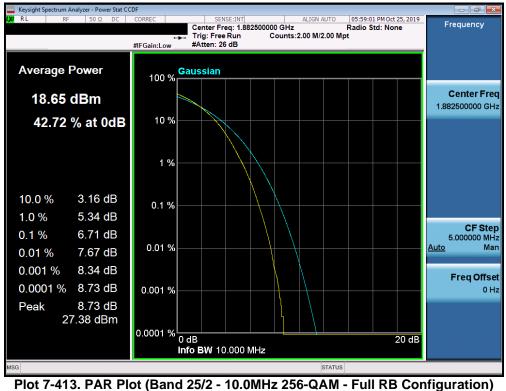
Plot 7-411. PAR Plot (Band 25/2 - 10.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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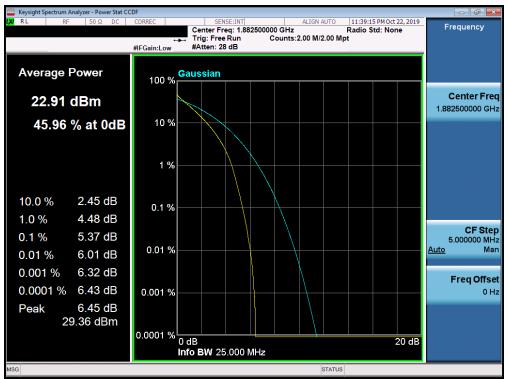


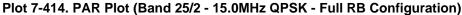


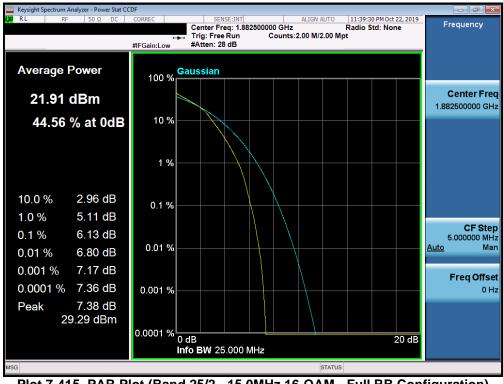


| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|--|--------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Daga 224 of 405 |
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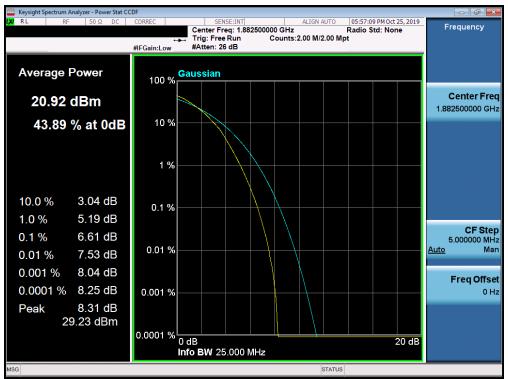




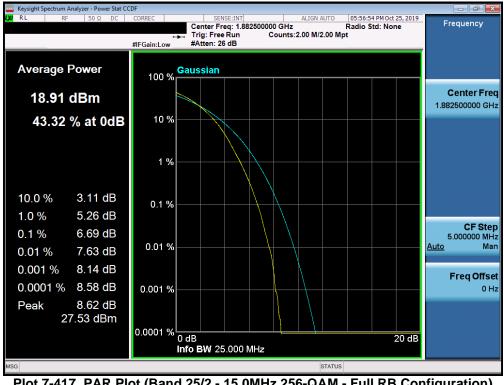
Plot 7-415. PAR Plot (Band 25/2 - 15.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
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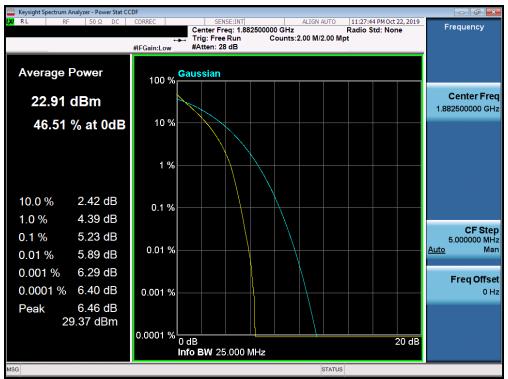


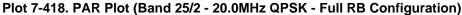


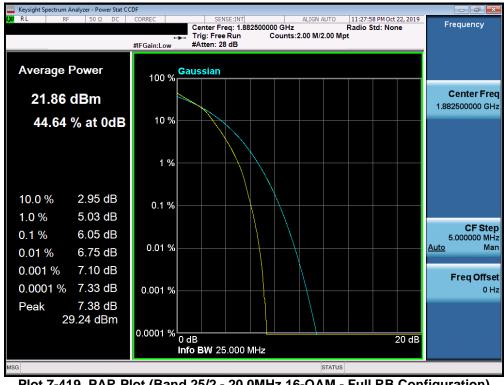
Plot 7-417. PAR Plot (Band 25/2 - 15.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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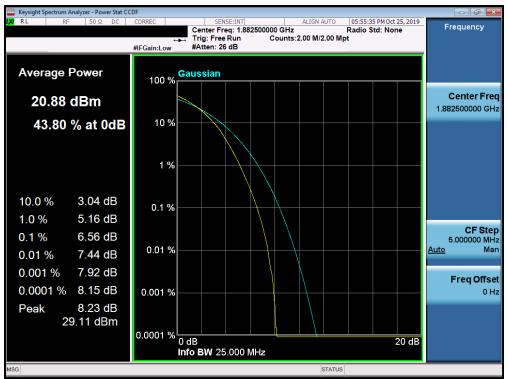




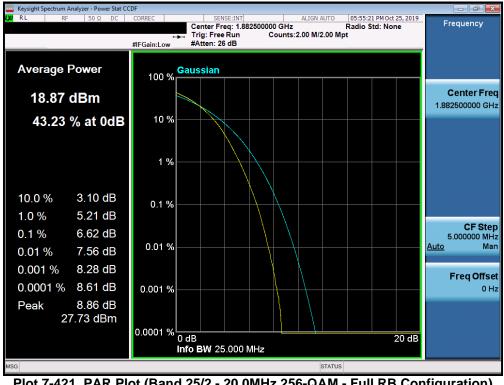
Plot 7-419. PAR Plot (Band 25/2 - 20.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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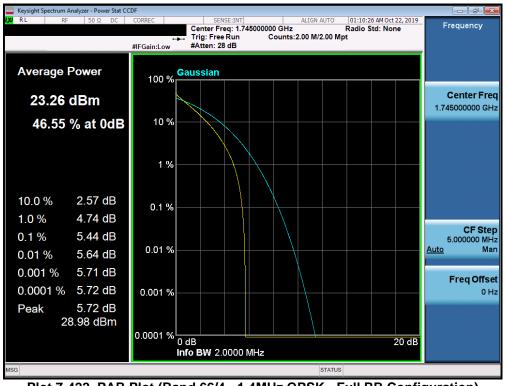


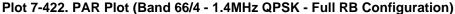


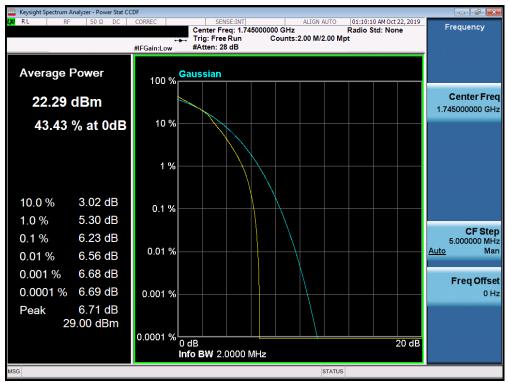
Plot 7-421. PAR Plot (Band 25/2 - 20.0MHz 256-QAM - Full RB Configuration)

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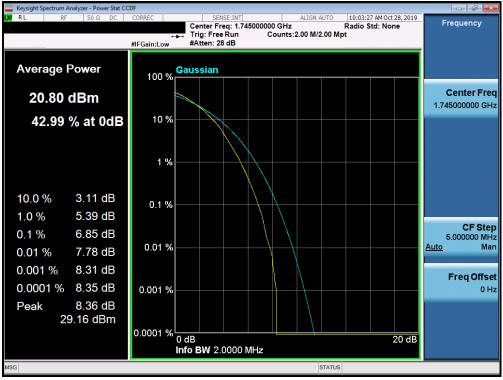


Plot 7-423. PAR Plot (Band 66/4 - 1.4MHz 16-QAM - Full RB Configuration)

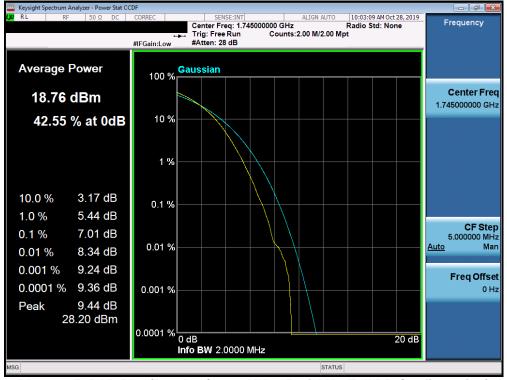
| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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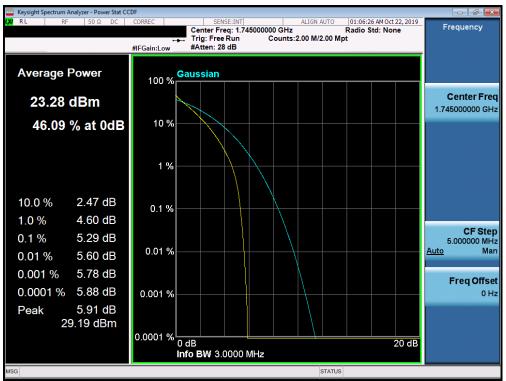
Plot 7-424. PAR Plot (Band 66/4 - 1.4MHz 64-QAM - Full RB Configuration)



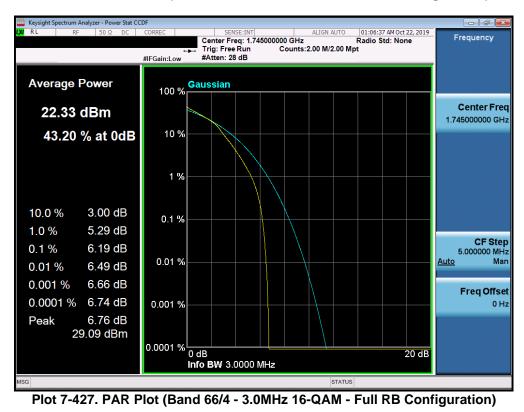
Plot 7-425. PAR Plot (Band 66/4 - 1.4MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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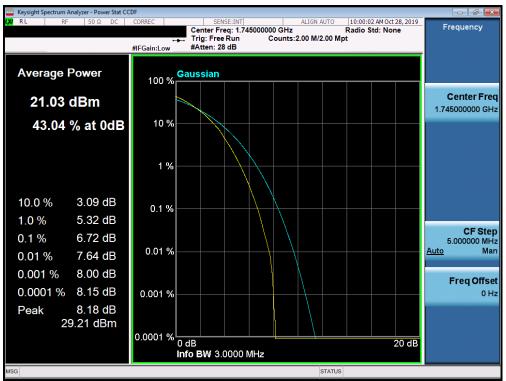




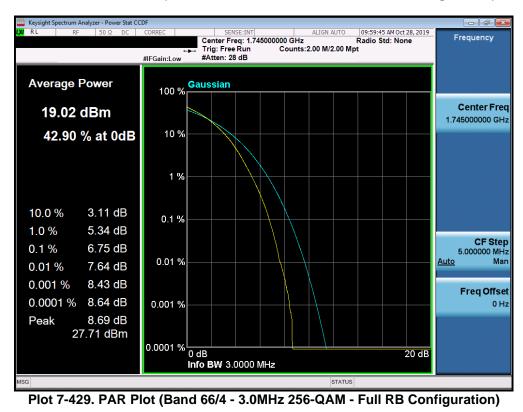


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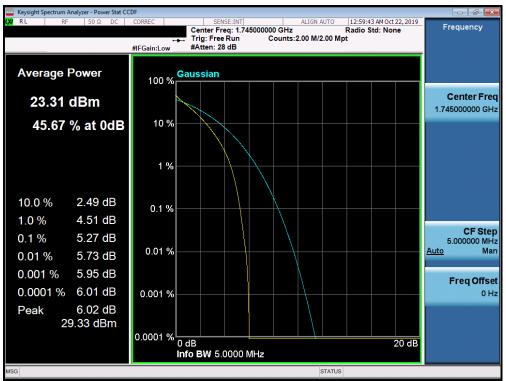




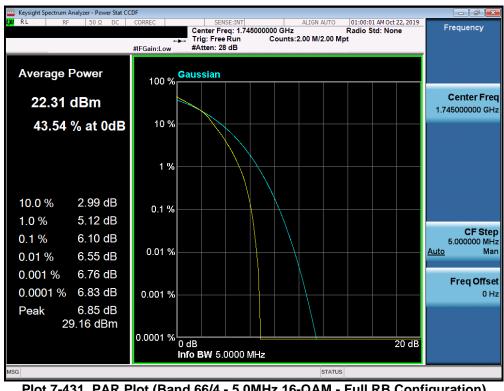


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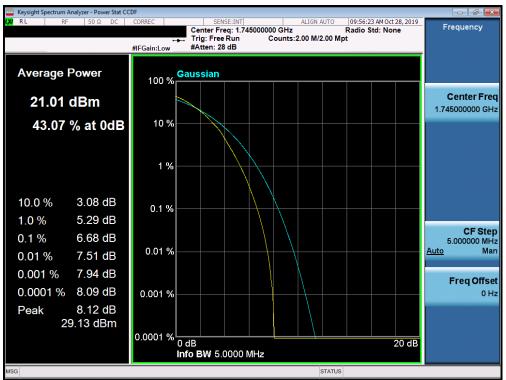




Plot 7-431. PAR Plot (Band 66/4 - 5.0MHz 16-QAM - Full RB Configuration)

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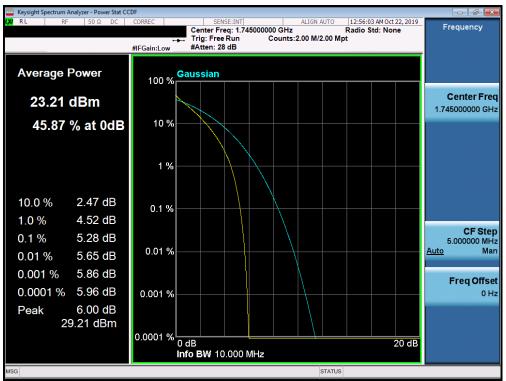




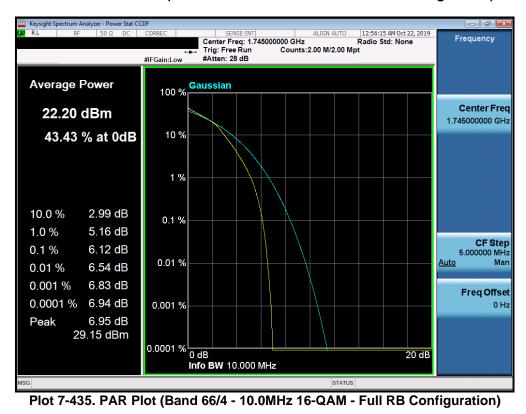


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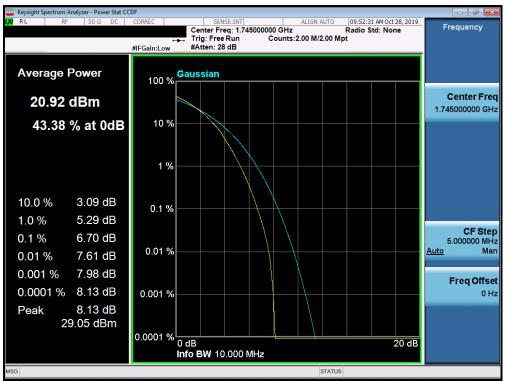




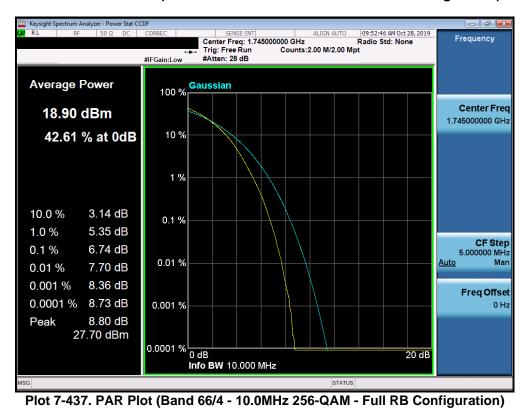


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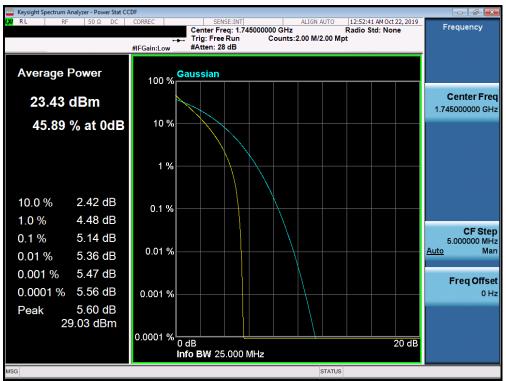


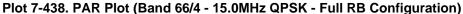


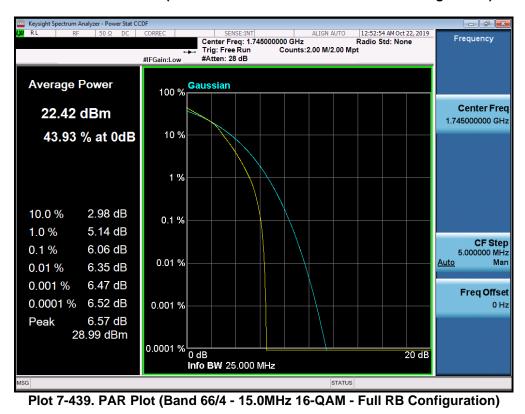


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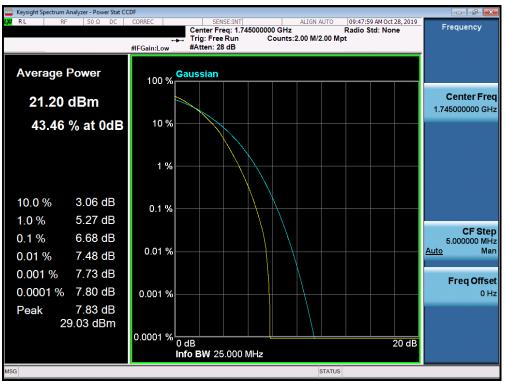




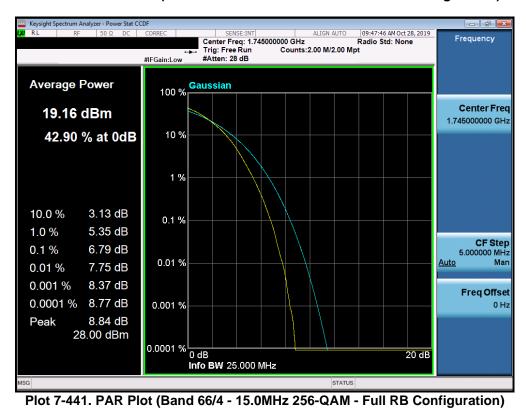


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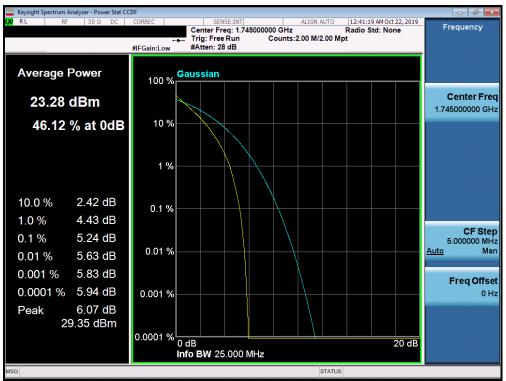




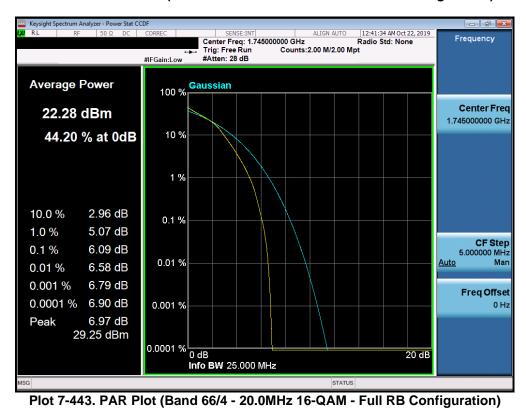


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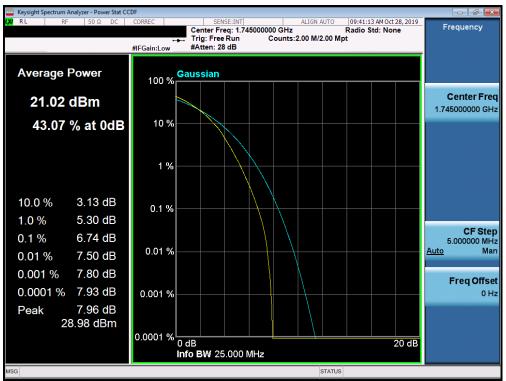




APProved by:

| FCC ID: A3LSMG986U | INGINEERINE LASORATORY, INC. | (CERTIFICATION) | SAMSUNG | Quality Manager |
|--------------------------------|------------------------------|------------------|---------|------------------|
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7.6 Additional Maximum Power Reduction (A-MPR) §2.1046

Test Overview

A-MPR is implemented in this device when operating at Power Class 2 in LTE Band 41 per the A-MPR specification in 3GPP TS 36.101. The conducted powers are shown herein to cover the different A-MPR levels specified in the standard. Measurement equipment was set up with triggering/gating on the spectrum analyzer such that powers were measured only during the on-time of the signal.

Test Procedure Used

KDB 971168 D01 v03r01 - Section 5.2.2

Test Settings

- 1. Span = $2 \times OBW$ to $3 \times OBW$
- 2. RBW = 1% to 5% of the OBW
- 3. Number of measurement points in sweep $\geq 2 \times \text{span} / \text{RBW}$
- 4. Sweep = auto-couple (less than transmission burst duration)
- 5. Detector = RMS (power)
- 6. Trigger was set to enable power measurements only on full power bursts
- 7. Trace was allowed to stabilize
- 8. Spectrum analyzer's "Channel Power" function was used to compute the power by integrating the spectrum across the OBW of the signal

Test Setup

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



Figure 7-5. Test Instrument & Measurement Setup

Test Notes

None.

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| Test Case | NS | MCC | MNC | Channel BW [MHz] | Channel Number | Channel Frequency [MHz] | Modulation | RB Size | RB Offset | MPR [dB] | A-MPR [dB] | Measured Power [dBr | | |
|--------------|-----|-----|-----|------------------------|-------------------|-------------------------------|------------|------------|--------------|-------------|---------------|------------------------|-----|-------|
| | | | | | | | QPSK | 1 | 0 | 0 | | 23.83 | | |
| | | | | - | 00075 | 0.400 5 | 16-QAM | 1 | 0 | ≤ 1 | . 0 | 23.14 | | |
| 1 | | | | 5 | 39675 | 2498.5 | 64-QAM | 1 | 0 | ≤2 | ≤3 | 22.54 | | |
| | | | | | | | 256-QAM | 1 | 0 | ≤4 | | 20.01 | | |
| | | | | | | | QPSK | 1 | 9 | 0 | | 26.70 | | |
| | | | | | | | 16-QAM | 1 | 9 | ≤1 | | 26.07 | | |
| 2 | | | | 5 | 39675 | 2498.5 | 64-QAM | 1 | 9 | ≤2 | 0 | 24.48 | | |
| | | | | | | | 256-QAM | 1 | 9 | <u>≤</u> 2 | | 24.40 | | |
| | - | | | | | | | | - | | | | | |
| | | | | | | | QPSK | 1 | 0 | 0 | | 21.71 | | |
| 3 | | | | 10 | 39700 | 2501 | 16-QAM | 1 | 0 | ≤1 | ≤ 5 | 21.27 | | |
| | | | | | | | 64-QAM | 1 | 0 | ≤2 | | 20.09 | | |
| | | | | | | | 256-QAM | 1 | 0 | ≤4 | | 18.26 | | |
| | | | | | | | QPSK | 20 | 0 | 0 | | 23.92 | | |
| 4 | | | | 10 | 39700 | 2501 | 16-QAM | 20 | 0 | ≤ 1 | ≤ 2 | 22.98 | | |
| - | | | | 10 | 33700 | 2001 | 64-QAM | 20 | 0 | ≤ 2 | - 2 | 21.60 | | |
| | | | | | | | 256-QAM | 20 | 0 | ≤4 | | 19.84 | | |
| | İ I | | | | | | QPSK | 50 | 0 | 0 | | 22.82 | | |
| | | | | | | | 16-QAM | 50 | 0 | ≤1 | | 21.90 | | |
| 5 | | | | 10 | 39700 | 2501 | 64-QAM | 50 | 0 | ≤2 | ≤3 | 20.37 | | |
| | | | | | | | 256-QAM | 50 | 0 | ≤4 | | 18.79 | | |
| | † I | | 1 | | | | QPSK | 25 | 20 | <u> </u> | 1 | 25.88 | | |
| | | | | | | | | | | | 1 | | | |
| 6 | | | 1 | 10 | 39700 | 2501 | 16-QAM | 25 | 20 | ≤1 | ≤ 1 | 24.95 | | |
| | | | 1 | | | | 64-QAM | 25 | 20 | ≤2 | - | 22.84 | | |
| | ļI | | 1 | | | | 256-QAM | 25 | 20 | ≤ 4 | ļ | 20.46 | | |
| | | | 1 | | | | QPSK | 1 | 36 | 0 | 1 | 26.85 | | |
| 7 | | | 1 | 10 | 39700 | 2501 | 16-QAM | 1 | 36 | ≤1 | 0 | 26.12 | | |
| ' | | | 1 | 10 | 39100 | 2001 | 64-QAM | 1 | 36 | ≤2 | U | 24.87 | | |
| | | | | | | | 256-QAM | 1 | 36 | ≤ 4 | 1 | 22.13 | | |
| | t I | | | | | | QPSK | 1 | 0 | 0 | ≤ 5 | 21.96 | | |
| | | | | | | | 16-QAM | 1 | 0 | ≤1 | | 20.54 | | |
| 8 | | | | 15 | 39725 | 2503.5 | 64-QAM | 1 | 0 | ≤2 | | 19.31 | | |
| | | | | | | | 256-QAM | 1 | 0 | ∠ ≤4 | | 18.64 | | |
| | ł | | | | | | QPSK | 20 | 0 | 0 | | | | |
| | | | | | | | | | | - | | 24.08 | | |
| 9 | 01 | 310 | 120 | 15 | 39725 | 2503.5 | 16-QAM | 20 | 0 | ≤ 1 | | 23.11 | | |
| - | | | | | | | 64-QAM | 20 | 0 | ≤2 | | 22.09 | | |
| | | | | | | | 256-QAM | 20 | 0 | ≤ 4 | | 20.17 | | |
| | | | | | | | QPSK | 75 | 0 | 0 | | 21.99 | | |
| 10 | | | | 15 | 15 | 15 | 39725 | 2503.5 | 16-QAM | 75 | 0 | ≤ 1 | ≤ 4 | 21.04 |
| 10 | | | | 15 | 33123 | 2000.0 | 64-QAM | 75 | 0 | ≤ 2 | | 19.76 | | |
| | | | | | | | 256-QAM | 75 | 0 | ≤ 4 | | 18.04 | | |
| | | | | | | | QPSK | 50 | 15 | 0 | | 23.05 | | |
| | | | | 45 | 00705 | 0500.5 | 16-QAM | 50 | 15 | ≤1 | | 22.10 | | |
| 11 | | | | 15 | 39725 | 2503.5 | 64-QAM | 50 | 15 | ≤2 | ≤3 | 21.43 | | |
| | | | | | | | 256-QAM | 50 | 15 | ≤ 4 | | 19.56 | | |
| | † | | | | | | QPSK | 1 | 60 | 0 | | 26.96 | | |
| | | | | | | | 16-QAM | 1 | 60 | ≤1 | | 26.14 | | |
| 12 | | | | 15 | 39725 | 2503.5 | | 1 | 60 | ≤ 2 | 0 | | | |
| | | | | | | | 64-QAM | | | | | 25.36 | | |
| | ł l | | 1 | | | | 256-QAM | 1 | 60 | ≤ 4 | ł | 23.42 | | |
| | | | 1 | | | | QPSK | 1 | 0 | 0 | 1 | 22.25 | | |
| 13 | | | 1 | 20 | 39750 | 2506 | 16-QAM | 1 | 0 | ≤ 1 | ≤ 5 | 21.44 | | |
| | | | 1 | | 20.00 | | 64-QAM | 1 | 0 | ≤2 | | 20.64 | | |
| | ļl | | 1 | | | | 256-QAM | 1 | 0 | ≤ 4 | L | 18.64 | | |
| | | | 1 | | | | QPSK | 20 | 0 | 0 |] | 24.19 | | |
| 14 | | | 1 | 20 | 20750 | 2506 | 16-QAM | 20 | 0 | ≤1 | ≤ 2 | 23.23 | | |
| 14 | | | 1 | 20 | 39750 | 2006 | 64-QAM | 20 | 0 | ≤2 | ≥∠ | 22.04 | | |
| | | | 1 | | | | 256-QAM | 20 | 0 | ≤ 4 | 1 | 20.56 | | |
| | † I | | 1 | | | | QPSK | 100 | 0 | 0 | 1 | 22.01 | | |
| | | | 1 | | | | 16-QAM | 100 | 0 | 0 ≤ 1 | 1 | 22.01 | | |
| 15 | | | 1 | 20 | 39750 | 2506 | 64-QAM | 100 | 0 | ≤2 | ≤ 4 | 19.98 | | |
| | | | | | | | 256-QAM | 100 | 0 | | 1 | 19.98 | | |
| | + I | | 1 | | | | | | | ≤4 | | | | |
| | | | 1 | | | | QPSK | 75 | 24 | 0 | 4 | 22.98 | | |
| 16 | | | | 20 | 39750 | 2506 | 16-QAM | 75 | 24 | ≤1 | ≤3 | 22.01 | | |
| - | | | | | | | 64-QAM | 75 | 24 | ≤2 | - | 20.76 | | |
| | ļI | | | | | | 256-QAM | 75 | 24 | ≤ 4 | L | 18.97 | | |
| | | | | | | | QPSK | 1 | 77 | 0 |] | 27.02 | | |
| 47 | | | 1 | | 20752 | 0500 | 16-QAM | 1 | 77 | ≤ 1 | _ | 26.35 | | |
| 17 | | | | 20 | 39750 | 2506 | 64-QAM | 1 | 77 | ≤ 2 | 0 | 25.43 | | |
| | | | 1 | | | | 256-QAM | 1 | 77 | ≤ 4 | 1 | 22.67 | | |
| | | | 1 | | | | QPSK | | | 0 | 1 | 23.90 | | |
| | | | 1 | | | | | | | | 1 | | | |
| 18 | 01 | 311 | 870 | 5 | 39675 | 2498.5 | 16-QAM | 1 | 0 | ≤1 | ≤ 3 | 23.2 | | |
| | | | 1 | | | | 64-QAM | | | ≤2 | - | 22.07 | | |
| | | | | | | | 256-QAM | | | ≤ 4 | | 20.21 | | |
| | | | 1 | | | | QPSK | | | 0 | 1 | 26.61 | | |
| 19 | 01 | 001 | 01 | 5 | 39675 | 2498.5 | 16-QAM | 1 | 0 | ≤ 1 | 0 | 25.98 | | |
| 10 | | 001 | | 5 | 55015 | 2730.5 | 64-QAM | | | ≤ 2 | | 24.34 | | |
| | | | | | | | 01.00 | | | | | | | |

Table 7-3. A-MPR Conducted Power Measurements

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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7.7 Uplink Carrier Aggregation §27.53(m)

Test Overview

The EUT is set up to transmit two contiguous LTE channels. The power level of both carriers and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. 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.

For Band 38/41, the minimum permissible attenuation level of any spurious emission is 55 + 10 log₁₀(P_[Watts]).

Test Procedure Used

KDB 971168 D01 v03r01 - Section 6.0

Test Settings

- 1. Start frequency was set to 30MHz and stop frequency was set to at least 10 * the fundamental frequency (separated into at least two plots per channel)
- 2. Detector = RMS
- 3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
- 4. Sweep time = auto couple
- 5. The trace was allowed to stabilize
- 6. Please see test notes below for RBW and VBW settings

Test Setup

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



Figure 7-6. Test Instrument & Measurement Setup

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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- 1. Uplink carrier aggregation is only supported in this EUT while operating in Power Class 2 and 3.
- 2. Conducted power and spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device. The worst case (highest) powers were found while operating with QPSK modulation, as shown in Table 7-503 and 7-504 below, with both carriers set to transmit using 1RB.
- 3. Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. However, 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.

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Uplink CA Configuration 5B

| | | | | PCC | | | | SCC | | | | | | | Power |
|-------------|----------|---------------------------|---------------------|--------------------------------|------------|---------------|---------------------|----------|---------------------------|---------------------|--------------------------------|------------|---------------|---------------------|---------------------------|
| Power State | PCC Band | PCC Bandwidth [MHz] | PCC (UL) Channel | PCC (UL) Frequency [MHz] | Modulation | PCC UL# RB | PCC UL RB Offset | SCC Band | SCC Bandwidth [MHz] | SCC (UL) Channel | SCC (UL) Frequency [MHz] | Modulation | PCC UL# RB | PCC UL RB Offset | ULCA Tx.Power (dBm) |
| Max | LTE B5 | 10 | 20450 | 829 | QPSK | 1 | 49 | LTE B5 | 10 | 20549 | 838.9 | QPSK | 1 | 0 | 24.15 |
| Max | LTE B5 | 10 | 20525 | 836.5 | QPSK | 1 | 49 | LTE B5 | 5 | 20597 | 843.7 | QPSK | 1 | 0 | 24.11 |
| Max | LTE B5 | 10 | 20600 | 844 | QPSK | 1 | 0 | LTE B5 | 10 | 20501 | 834.1 | QPSK | 1 | 49 | 25.45 |

Table 7-4. Conducted Powers (B5 – PCC/SCC: RB Size 1)

| | | | | PCC | | | | scc | | | | | | | Power |
|-------------|----------|---------------------------|---------------------|--------------------------------|------------|---------------|---------------------|----------|---------------------------|---------------------|--------------------------------|------------|---------------|---------------------|---------------------------|
| Power State | PCC Band | PCC Bandwidth [MHz] | PCC (UL) Channel | PCC (UL) Frequency [MHz] | Modulation | PCC UL# RB | PCC UL RB Offset | SCC Band | SCC Bandwidth [MHz] | SCC (UL) Channel | SCC (UL) Frequency [MHz] | Modulation | PCC UL# RB | PCC UL RB Offset | ULCA Tx.Power (dBm) |
| Max | LTE B5 | 10 | 20600 | 844 | QPSK | 50 | 0 | LTE B5 | 10 | 20699 | 853.9 | QPSK | 50 | 0 | 22.69 |
| Max | LTE B5 | 10 | 20600 | 844 | 16-QAM | 50 | 0 | LTE B5 | 10 | 20699 | 853.9 | 16-QAM | 50 | 0 | 21.61 |
| Max | LTE B5 | 10 | 20600 | 844 | 64-QAM | 50 | 0 | LTE B5 | 10 | 20699 | 853.9 | 64-QAM | 50 | 0 | 20.78 |
| Max | LTE B5 | 10 | 20600 | 844 | 256-QAM | 50 | 0 | LTE B5 | 10 | 20699 | 853.9 | 256-QAM | 50 | 0 | 19.31 |

 Table 7-5. Conducted Powers (B5 with Various Combinations for 10MHz Channel Bandwidth)

| | ectrum Analy | | | | | | | | | | | | |
|--------------------|----------------|---------|------------------------------|-------------------|--------------|----------------|---|---------|------------|-------------------|---|-------------|--------------------|
| RL | RF | 50 Ω | DC | CORREC | | | | #Avg Ty | ALIGN AUTO | TRAC | M Nov 06, 2019 | Fre | equency |
| | | | | PNO: F IFGain: | ast ↔ Low | Atten: | | | | | | | A |
|) dB/div | Ref 20 |).00 di | Bm | | | | | | M | kr1 822. -49.8 | 60 MHz 37 dBm | | Auto Tur |
| ^{'9} | | | | | | | | | | | | C | enter Fre |
| 0.0 | | | | | | | | | | | | 426. | 500000 MI |
| 00 | | | | | | | | | | | | | Start Fre |
| D.0 | | | | | | | | | | | DL1 -13.00 dBm | 30. | .000000 MI |
| | | | | | | | | | | | | | Stop Fr |
| 0.0 | | | | | | | | | | | | 823. | .000000 MI |
|).0 | | | | | | | | | | | | 79. | CF Ste 300000 M |
|).0 | | | | | | | | | | | 1 | <u>Auto</u> | М |
|).0 | | | | | | | | | | | | F | req Offs |
|).0 | **** | | l di shari di k a | - | | fundint dan in | | | | | | | 0 |
| | | | | | | | | | | | | 5 | Scale Ty |
| art 30.0 Res BW | MHz 100 kHz | | | | #VBW | 300 kH | z | | Sweep 38 | Stop 8 | 23.0 191112 | Log | L |
| G | | | | | | | | | STATUS | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | |

Table 7-446. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------------------|--------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 255 of 405 |
| 1M1910220166-03.A3L | 10/11 - 01/09/2020 | Portable Handset | | Page 255 of 495 |
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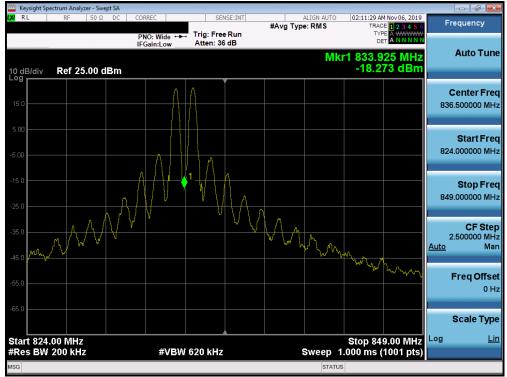


Table 7-447. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - PCC 1/49 SCC 1/0 - Low Channel)

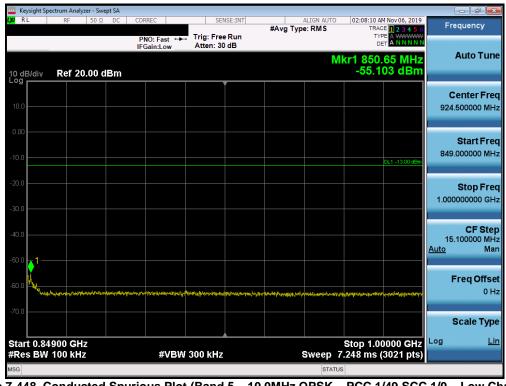


Table 7-448. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------------------|--------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 256 of 405 |
| 1M1910220166-03.A3L | 10/11 - 01/09/2020 | Portable Handset | | Page 256 of 495 |
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Table 7-449. Conducted Spurious Plot (Band 5 - 10.0MHz QPSK - PCC 1/49 SCC 1/0 - Low Channel)



Table 7-450. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/0 SCC 1/49 – High Channel)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|----------------------------------|--------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 257 of 405 |
| 1M1910220166-03.A3L | 10/11 - 01/09/2020 | Portable Handset | | Page 257 of 495 |
| © 2020 PCTEST Engineering Labora | V 9.0 02/01/2019 | | | |



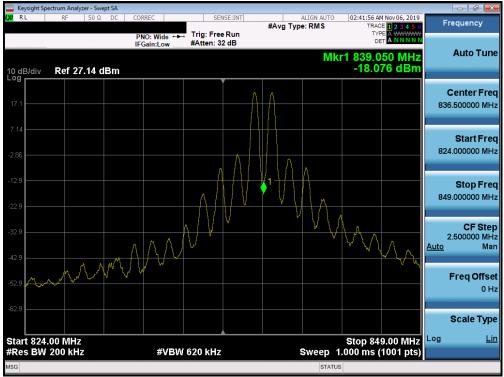


Table 7-451. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/0 SCC 1/49 – High Channel)

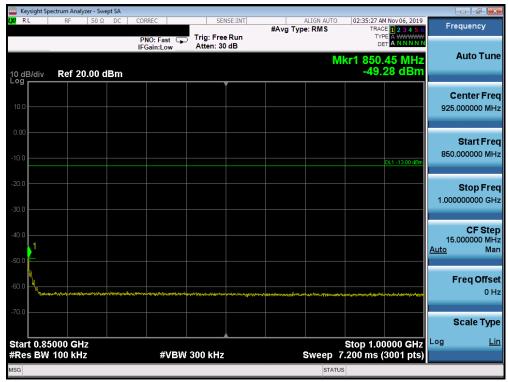


Table 7-452. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/0 SCC 1/49 – High Channel)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|--------------------------------|--------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Daga 259 of 405 |
| 1M1910220166-03.A3L | 10/11 - 01/09/2020 | Portable Handset | | Page 258 of 495 |
| © 2020 PCTEST Engineering Labo | V 9.0 02/01/2019 | | | |



| | ectrum Analyze | | | | | | | | | | | |
|---------------------|----------------|---------|-------|--------------------|--|---------|----------|----------------------|------------|------------------------------------|--------------------------------|---------------------------|
| LX/ RL | RF | 50 Ω DC | CORRE | C | SEI | NSE:INT | #Avg Typ | ALIGN AUTO e: RMS | | AM Nov 06, 2019 ACE 1 2 3 4 5 6 | Frequer | icy |
| | Dof 20 | 00 dBm | IFGai | :Fast ⊂⊾ in:Low | Trig: Free #Atten: 3 | | • 1 | N | kr1 9.7 | 54 0 GHz 713 dBm | Auto | Tune |
| 10 dB/div | Rei 20. | 00 dBm | | | | | | | | | Cente 5.5000000 | e r Freq 00 GHz |
| -10.0 | | | | | | | | | | DL1 -13.00 dBm | Star 1.00000000 | t Freq 00 GHz |
| -20.0 | | | | | | | | | | | Stoj 10.0000000 | p Freq 00 GHz |
| -40.0 | | | ~ | \sim | an a | \sim | | | | | CF 900.00000 <u>Auto</u> | F Step 00 MHz Man |
| -60.0 | | | | | | | | | | | Freq | Offset 0 Hz |
| -70.0 Start 1.00 | 0 GH7 | | | | | | | | Stop 1 | 0.000 GHz | | e Type <u>Lin</u> |
| #Res BW | | | | #VBW | 3.0 MHz | | S | weep ′ | 15.60 ms (| (18001 pts) | | |
| MSG | | | | | | | | STAT | US | | | |

Table 7-453. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/0 SCC 1/49 – High Channel)



Table 7-454. Lower Band Edge Plot (Band 5 QPSK – PCC:10 MHz SCC:10 MHz – Full RB)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|--------------------------------|--------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Daga 250 of 405 |
| 1M1910220166-03.A3L | 10/11 - 01/09/2020 | Portable Handset | | Page 259 of 495 |
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| | ectrum Analyze | | | | | | | | | | | |
|----------------------|----------------|--------------------------------|----------|----------------------|-------------------------|-----------------------|----------|----------------------|----------------------|------------------------|------|------------------------------------|
| LX/RL | RF | 50 Ω DC | CORR | EC | SEI | ISE:INT | #Avg Typ | ALIGN AUTO e: RMS | | M Nov 07, 2019 | F | requency |
| 10 dB/div | Ref 25. | 00 dBm | IFGa | D: Fast ↔ ain:Low | Trig: Free #Atten: 3 | | | | ۳ ۱kr1 849 | | | Auto Tune |
| 15.0 | | | | | | | | | | | | Center Freq 9.000000 MHz |
| -5.00 | | nertunskales ^{in (se} | | | www | | | | | DL1 -13.00 dBm | 82 | Start Freq 4.000000 MHz |
| -15.0 | Agran | | <u> </u> | | | 1 | | | | | 87 | Stop Freq 4.000000 MHz |
| -35.0 | | | | | | and the second second | | | | | Auto | CF Step 5.000000 MHz Man |
| -55.0 | | | | | | | | | | | | Freq Offset 0 Hz |
| -65.0 | | | | | | | | | ml_hallerer | m hour and a second | | Scale Type |
| Center 84 #Res BW | | Z | | #VBW | 620 kHz | | | Sweep | Span 5 1.000 ms (| 0.00 MHz (1001 pts) | Log | Lin |
| MSG | | | | | | | | STAT | | | | |

Table 7-455. Upper Band Edge Plot (Band 5 QPSK – PCC:10 MHz SCC:10 MHz – Full RB)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|--------------------------------|--------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 260 of 405 |
| 1M1910220166-03.A3L | 10/11 - 01/09/2020 | Portable Handset | | Page 260 of 495 |
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Uplink CA Configuration 66B/C

| | PCC | | | | | | | | SCC | | | | | | Power |
|-------------|----------|---------------------------|---------------------|--------------------------------|------------|---------------|---------------------|----------|---------------------------|---------------------|--------------------------------|------------|---------------|---------------------|---------------------------|
| Power State | PCC Band | PCC Bandwidth [MHz] | PCC (UL) Channel | PCC (UL) Frequency [MHz] | Modulation | PCC UL# RB | PCC UL RB Offset | SCC Band | SCC Bandwidth [MHz] | SCC (UL) Channel | SCC (UL) Frequency [MHz] | Modulation | PCC UL# RB | PCC UL RB Offset | ULCA Tx.Power (dBm) |
| Max | LTE B66 | 20 | 132072 | 1720 | QPSK | 1 | 99 | LTE B66 | 20 | 132270 | 1739.8 | QPSK | 1 | 0 | 24.08 |
| Max | LTE B66 | 20 | 132322 | 1745 | QPSK | 1 | 99 | LTE B66 | 20 | 132520 | 1764.8 | QPSK | 1 | 0 | 24.11 |
| Max | LTE B66 | 20 | 132572 | 1770 | QPSK | 1 | 0 | LTE B66 | 20 | 132374 | 1750.2 | QPSK | 1 | 99 | 24.54 |

Table 7-6. Conducted Powers (B66 – PCC/SCC: RB Size 1)

| | | | | PCC | | | | | | | SCC | | | | Power |
|-------------|----------|---------------------------|---------------------|--------------------------------|------------|---------------|---------------------|----------|-----------|---------------------|--------------------------------|------------|---------------|---------------------|---------------------------|
| Power State | PCC Band | PCC Bandwidth [MHz] | PCC (UL) Channel | PCC (UL) Frequency [MHz] | Modulation | PCC UL# RB | PCC UL RB Offset | SCC Band | Bandwidth | SCC (UL) Channel | SCC (UL) Frequency [MHz] | Modulation | PCC UL# RB | PCC UL RB Offset | ULCA Tx.Power (dBm) |
| Max | LTE B66 | 20 | 132572 | 1770 | QPSK | 100 | 0 | LTE B66 | 20 | 132770 | 1789.8 | QPSK | 100 | 0 | 21.98 |
| Max | LTE B66 | 20 | 132572 | 1770 | 16-QAM | 100 | 0 | LTE B66 | 20 | 132770 | 1789.8 | 16-QAM | 100 | 0 | 20.93 |
| Max | LTE B66 | 20 | 132572 | 1770 | 64-QAM | 100 | 0 | LTE B66 | 20 | 132770 | 1789.8 | 64-QAM | 100 | 0 | 19.83 |
| Max | LTE B66 | 20 | 132572 | 1770 | 256-QAM | 100 | 0 | LTE B66 | 20 | 132770 | 1789.8 | 256-QAM | 100 | 0 | 17.56 |

Table 7-7. Conducted Powers (B66 with Various Combinations for 20MHz Channel Bandwidth)

| | pectrum Analy | | | | | | | | | | | | - 6 |
|----------------|---------------------|---------|----|---------|-------|-----------|---------|--------|------------|--|---|--------------|----------------|
| RL | RF | 50 Ω | DC | CORREC | | SE | NSE:INT | | ALIGN AUTO | 01:50:21 A | M Nov 06, 2019 | Fre | equency |
| | | | | | ast 🗔 | Trig: Fre | e Run | #Avg i | ype: RMS | TY | DE 1 2 3 4 5 6 PE A WWWW ET A N N N N N | | , |
| | | | | IFGain: | .ow | Atten: 3 | 0 dB | | | D | ET A N N N N N | | |
| | | | | | | | | | Μ | kr1 1.70 | 9 0 GHz | | Auto Tun |
| 0 dB/div | Ref 20 |).00 dE | 3m | | | | | | | -47. | 42 dBm | | |
| ° ^g | | | | | | | Ĭ | | | | | | |
| | | | | | | | | | | | | | enter Fre |
| 0.0 | | | | | | | | | | | | 869. | 500000 MH |
| | | | | | | | | | | | | | |
|).00 | | | | | | | | | | | | | 04 |
| | | | | | | | | | | | | | Start Fre |
| 0.0 | | | | | | | | | | | DL1 -13.00 dBm | 30. | 000000 MI |
| | | | | | | | | | | | | | |
| 0.0 | | | | | | | | | | | | | Stop Fre |
| | | | | | | | | | | | | 1 700 | 000000 GI |
| 10.0 | | | | | | | | | | | | 1.703 | 000000 GI |
| | | | | | | | | | | | | | |
| 0.0 | | | | | | | | | | | | | CF Ste |
| | | | | | | | | | | | 1 | 167. Auto | 900000 MI M |
| 0.0 | | | | | | | | | | | | Auto | IVI |
| | and a second second | | | | | | | | | and a street of the second | | | |
| 0.0 | | | | | | | | | | | | F | req Offs |
| 0.0 | | | | | | | | | | | | | 0 |
| | | | | | | | | | | | | | |
| 0.0 | | | | | | | | | | | | | Scale Typ |
| | | | | | | | | | | | | | scale i y |
| tart 0.0 | 300 GHz | | | | | | | | | Stop 1. | 7090 GHz | Log | L |
| | 1.0 MH | | | | ¢νΒ₩ | 3.0 MHz | | | Sweep | 2.239 ms | (3359 pts) | | |
| G | | | | | | | | | STATU | | | | |

Table 7-456. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|----------------------------------|--------------------|---------------------------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dage 261 of 405 |
| 1M1910220166-03.A3L | 10/11 - 01/09/2020 | Portable Handset | Page 261 of 495 |
| © 2020 PCTEST Engineering Labora | V 9.0 02/01/2019 | | |



| | oectrum Analyzer - | | | | | | | | | | |
|------------------|---------------------|-------|---------------------------|-----------------------|---------|--|----------------------|-------------------------|---------------------------------------|------|--------------------------------|
| LXI RL | RF 5 | 0Ω DC | CORREC | SE | NSE:INT | #Avg Typ | ALIGN AUTO e: RMS | | H Nov 06, 2019 E 1 2 3 4 5 6 | F | requency |
| | _ | | PNO: Fast ← IFGain:Low | Trig: Fre Atten: 4 | | | | TYP | | | |
| 10 dB/div Log | Ref 30.0 | 0 dBm | | | | | Mk | r1 1.729 13.3 | 88 GHz 61 dBm | | Auto Tune |
| 20.0 | | | | | | | | | | | Center Freq 5000000 GHz |
| 0.00 | | | | | | | | | | 1.71 | Start Freq 0000000 GHz |
| -10.0 | | N | | <u>д</u> | | | | | | 1.78 | Stop Fred |
| -30.0 | NW | / | | M | | | | | | Auto | CF Step 7.000000 MHz Mar |
| -50.0 | | | | | | ur heiter seinen er heiter son er heiter | ************ | | n 400 yr 1999 yw 1999 yw 1999 yw 1999 | | Freq Offset 0 Hz |
| -60.0 | | | | | | | | | | | Scale Type |
| | 1000 GHz 1.0 MHz | | #VB | W 3.0 MHz | | | Sweep | \$top 1.7) 1.000 ms | | Log | Lir |
| MSG | | | | | | | STATU | | | | |

Table 7-457. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

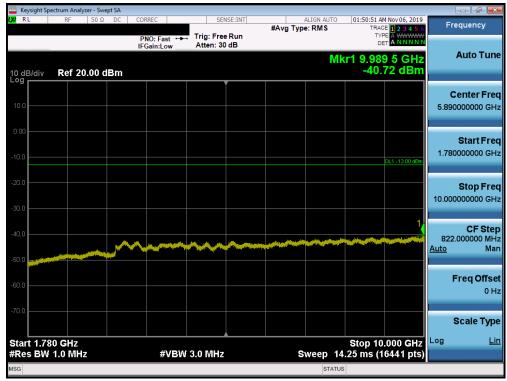


Table 7-458. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------------------|--------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Daga 262 of 405 |
| 1M1910220166-03.A3L | 10/11 - 01/09/2020 | Portable Handset | | Page 262 of 495 |
| © 2020 PCTEST Engineering Labor | V 9.0 02/01/2019 | | | |



| PNO: Fast Trig: Free Run Atten: 20 dB #Avg Type: RMS Trace Precuency 10 dB/div Ref 10.00 dBm -45.14 dBm Auto Tune 000 -45.14 dBm -45.14 dBm -45.14 dBm 000 -45.14 dBm -45.14 dBm -45.14 dBm 000 -45.14 dBm -45.14 dBm -45.14 dBm 000 -40.0 -45.14 dBm -45.14 dBm -45.14 dBm -00 -40.0 | | pectrum Analyze | | | | | | | |
|--|----------------------|-----------------|---------|---------------------------|--|---|-----|---|--|
| PRO: Fast Trig: Free Run Atten: 20 dB Mkr1 19.503 5 GHz -45.14 dBm Auto Tune 000 .45.14 dBm .45.14 dBm .10.0000000 GHz 000 .45.14 dBm .45.14 dBm .15.00000000 GHz 100 .000 .001 < | L <mark>XI</mark> RL | RF | 50 Ω DC | CORREC | SENSE:INT | | | | Frequency |
| Log 0.00 1.00 2.00 3.00 4.00 4.00 4.00 5.00 5.00000000 GHz 4.00 5.00 5.00000000 GHz 5.00000000 GHz 5.0000000 GHz 5.0000000 GHz 5.00000000 GHz 5.00000000 GHz 5.00000000 GHz 5.0000000 GHz 5.00000000 GHz 5.0000000 GHz 5.0000000 GHz 5.00000000 GHz 5.00000000 GHz 5.00000000 GHz 5.00000000 GHz 5.000000000 GHz 5.000000000000 GHz 5.000000000000000000000000000000000000 | | D -6.40 | 00 dBm | PNO: Fast ↔ IFGain:Low | | | Mkr | TYPE A WWWWW DET A NNNNN 1 19.503 5 GHz | Auto Tune |
| 200 Image: Constraint of the second of t | | Ref 10. | .00 dBm | | | | | -40.14 0011 | Center Freq 15.000000000 GHz |
| 40.0 -40.0 -50 | -10.0 | | | | | | | DL1 -13.00 dBm | Start Freq 10.000000000 GHz |
| -300 -300 -300 -400 -400 -400 -400 -400 -400 -400 -400 -700 <td< td=""><td>-30.0</td><td></td><td></td><td></td><td></td><td></td><td></td><td>1-</td><td>Stop Freq 20.000000000 GHz</td></td<> | -30.0 | | | | | | | 1- | Stop Freq 20.000000000 GHz |
| 2700 Image: Constraint of the second sec | | ~^~~ | | | a dara mendera sekan yang salah sala di dara dara dara dara dara dara dara | | | | CF Step 1.00000000 GHz <u>Auto</u> Man |
| Start 10.000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Sweep 17.33 ms (20001 pts) | -70.0 | | | | | | | | Freq Offsel 0 Hz |
| #Res BW 1.0 MHz #VBW 3.0 MHz Sweep 17.33 ms (20001 pts) | Start 10. | | | | | | | Stop 20.000 GHz | Scale Type |
| | #Res BW | 1.0 MHz | | #VBW | 3.0 MHz | S | | 7.33 ms (20001 pts) | |

Table 7-459. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)



Table 7-460. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------------------|--------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 202 of 405 |
| 1M1910220166-03.A3L | 10/11 - 01/09/2020 | Portable Handset | | Page 263 of 495 |
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Table 7-461. Conducted Spurious Plot (Band 66 - 20.0MHz QPSK - PCC 1/99 SCC 1/0 - Mid Channel)



Table 7-462. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|--------------------------------|--------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 201 of 105 |
| 1M1910220166-03.A3L | 10/11 - 01/09/2020 | Portable Handset | | Page 264 of 495 |
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| | ectrum Analyze | | | | | | | | | | |
|-----------------------|----------------|---------|------|-----------------------|--|---------|----------|----------------------|-----------------------|------------------------|--|
| LXI RL | RF | 50 Ω DC | CORR | EC | SEN | ISE:INT | #Avg Typ | ALIGN AUTO e: RMS | | M Nov 06, 2019 | Frequency |
| | | | | D: Fast ↔→ ain:Low | Trig: Free Atten: 20 | | 0 , | | ™ □ r1 19.54 | | Auto Tune |
| 10 dB/div Log | Ref 10. | 00 dBm | า | | | | | | -44. | 92 dBm | |
| 0.00 | | | | | | | | | | | Center Freq 15.000000000 GHz |
| -10.0 | | | | | | | | | | DL1 -13.00 dBm | |
| -20.0 | | | | | | | | | | | Start Freq 10.000000000 GHz |
| -30.0 | | | | | | | | | | | Stop Freq 20.000000000 GHz |
| -50.0 | | | | | e presentado e secular de la secular de La secular de la secular de | | | | | | CF Step 1.00000000 GHz <u>Auto</u> Man |
| -60.0 | | | | | | | | | | | |
| -70.0 | | | | | | | | | | | Freq Offset 0 Hz |
| -80.0 | | | | | | | | | | | Scale Type |
| Start 10.0 #Res BW | | | | #VBW | 3.0 MHz | | s | weep 1 | Stop 20 7.33 ms (2 | .000 GHz 20001 pts) | Log <u>Lin</u> |
| MSG | | | | | | | | STATU | IS | | |

Table 7-463. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)



Table 7-464. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------------------|--------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 265 of 405 |
| 1M1910220166-03.A3L | 10/11 - 01/09/2020 | Portable Handset | | Page 265 of 495 |
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| PNO: Fast PNO: Fast PNO: Fast PNO: Fast PRO: F | 🔤 Keysight Spectrum Analyzer - Swept SA 👘 | | | | |
|--|---|---|-----|--------------|--|
| PNO: Fast - Trig: Free Run Atten: 40 dB Trig: Free Run Atten: 40 dB Auto Tune 00 GB/div Ref 30.00 dBm 12.833 dBm Center Free 1.745000000 GHz 00 G | LXI RE 50Ω DC | CORREC SENSE | | | |
| Center Freq Center Freq Cente | 10 dB/div Ref 30.00 dBm | | | | NNNN |
| Start Fred Start Fred Stop Stop I Stop Stop I Stop Stop I Stop I Stop Stop I Stop Stop I Stop I S | 20.0 | | | \ | Center Freq 1.745000000 GHz |
| Stop Fred Stop Fred 1.780000000 GHz CF Step 7.000000 MHz Aute Mar Freq Offset 0 Hz Stop 1.78000 GHz CS Cale Type Log Lin Stop 1.78000 GHz Stop 1.78000 GHz Cg Lin Stop 1.7800 GHZ Cg Lin Stop 1.78000 GHZ Cg Lin Stop 1.7800 GHZ Cg Lin | 0.00 | | | <u></u> | Start Freq 1.710000000 GHz |
| Auto Auto Auto Mar Freq Offset 0 Hz Scale Type Log Log Log Log Log Log Log | -10.0 | | N | 4 | Stop Freq 1.780000000 GHz |
| 0.0 Freq Offset 0.0 Image: Stop 1.78000 GHz Res BW 1.0 MHz #VBW 3.0 MHz | -30.0 | | | MMM | CF Step 7.000000 MHz <u>Auto</u> Man |
| tart 1.71000 GHz Res BW 1.0 MHz #VBW 3.0 MHz Sweep 1.000 ms (1001 pts) | -50.0 | hindrod for call of the second second for the second second second second second second second second second se | | | |
| Res BW 1.0 MHz #VBW 3.0 MHz Sweep 1.000 ms (1001 pts) | -60.0 | | | | |
| | Start 1.71000 GHz | #\/B\/ 3.0 MHz | Swa | Stop 1.78000 | GIIZ |
| | | | 500 | status | |

Table 7-465. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)

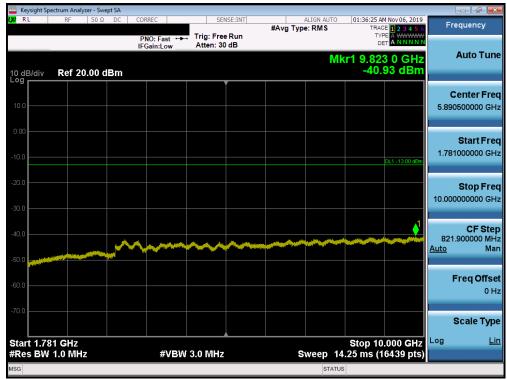


Table 7-466. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)

| FCC ID: A3LSMG986U | | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|--|--------------------|---------------------------------------|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 266 of 495 |
| 1M1910220166-03.A3L | 10/11 - 01/09/2020 | Portable Handset | | |
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