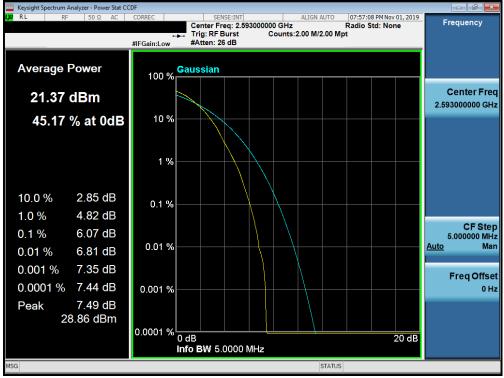
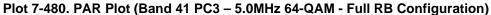


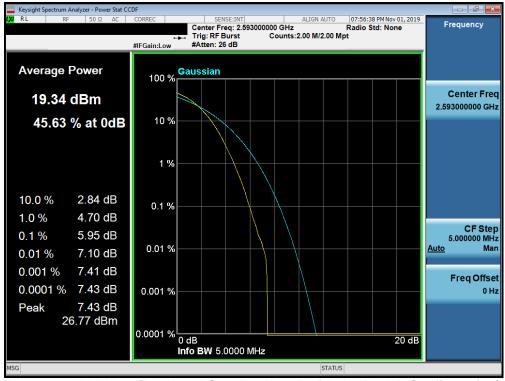
|   | FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
|---|---------------------|---------------------|---------------------------------------|---------------------------------|
|   | Test Report S/N:    | Test Dates:         | EUT Type:                             | Dogo 205 of 424                 |
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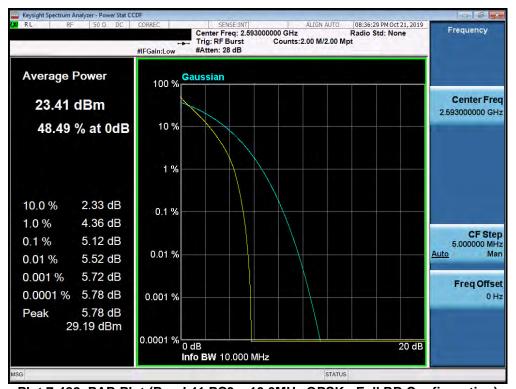




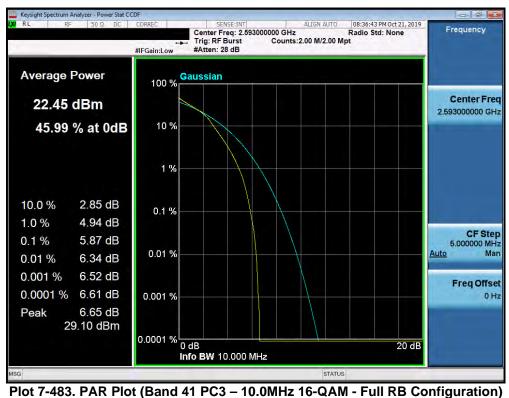
Plot 7-481. PAR Plot (Band 41 PC3 – 5.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dage 200 of 424                 |
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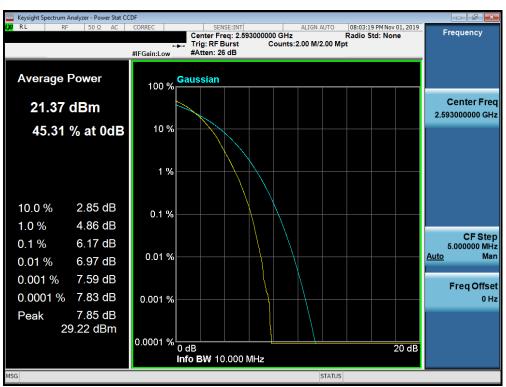




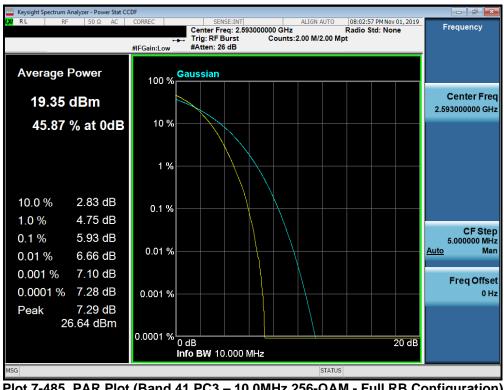


PCTEST MEASUREMENT REPORT Approved by: 6A SAMSUNG FCC ID: A3LSMG986W (CERTIFICATION) **Quality Manager** Test Report S/N: Test Dates: EUT Type: Page 267 of 434 1M1911010179-03.A3L 10/11/19 - 01/09/20 Portable Handset © 2020 PCTEST V 9.0 02/01/2019







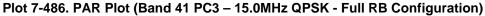


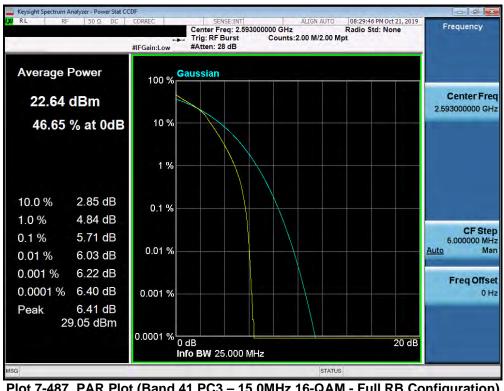
Plot 7-485. PAR Plot (Band 41 PC3 – 10.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
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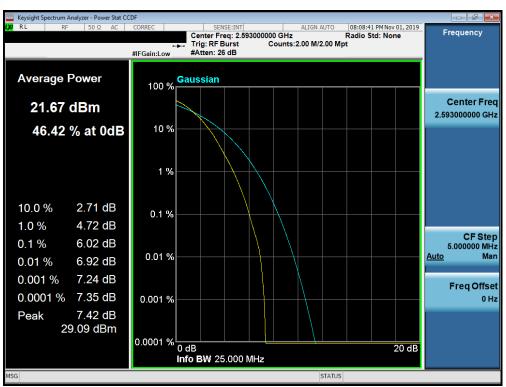


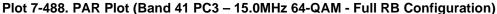


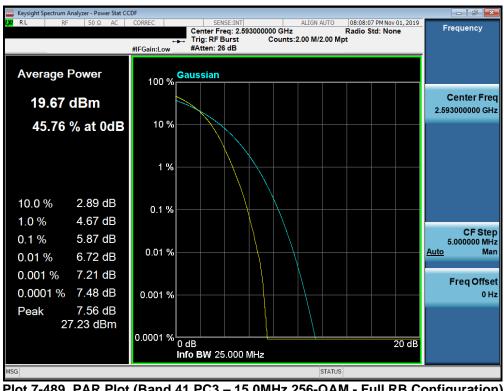
Plot 7-487. PAR Plot (Band 41 PC3 – 15.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
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| Test Report S/N:    | Test Dates:         | EUT Type:                             | Dogo 200 of 424                 |
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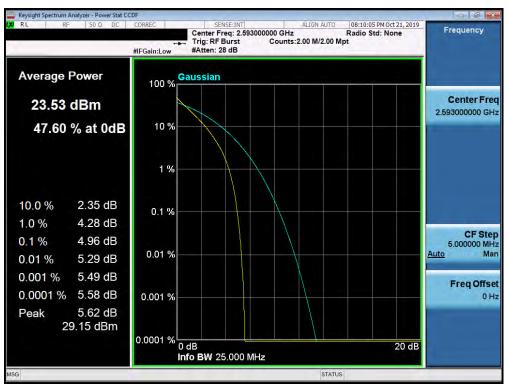


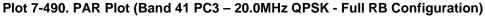


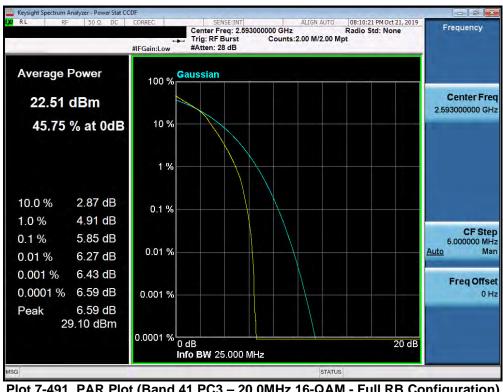
Plot 7-489. PAR Plot (Band 41 PC3 – 15.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dage 270 of 424                 |
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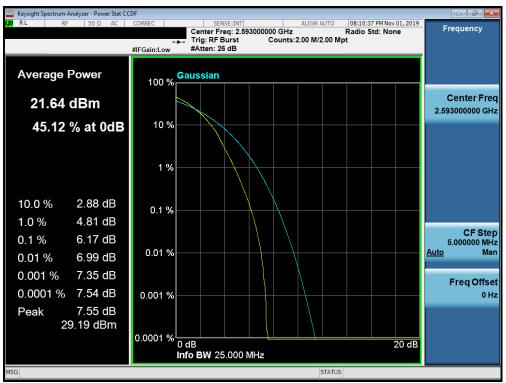




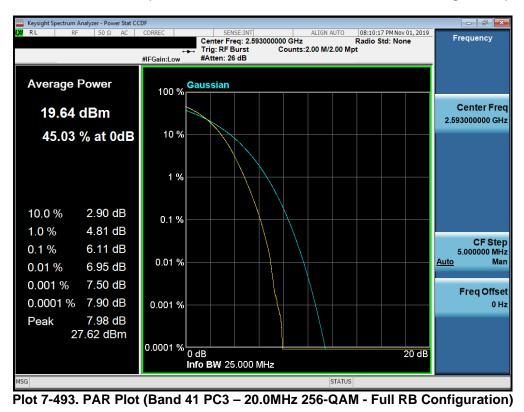
Plot 7-491. PAR Plot (Band 41 PC3 – 20.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | Dogo 271 of 424                 |
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| FCC ID: A3LSMG986W  |                     | (CERTIFICATION)  | SUNG | Quality Manager  |
|---------------------|---------------------|------------------|------|------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:        |      | Page 272 of 434  |
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# 7.6 Radiated Power (ERP/EIRP)

## Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized tuned broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

### Test Procedures Used

KDB 971168 D01 v03r01 - Section 5.2.1

ANSI/TIA-603-E-2016 - Section 2.2.17

## Test Settings

- Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation. For signals with burst transmission, the signal analyzer's "time domain power" measurement capability is used
- 2. RBW = 1 5% of the expected OBW, not to exceed 1MHz
- 3. VBW  $\geq$  3 x RBW
- 4. Span = 1.5 times the OBW
- 5. No. of sweep points > 2 x span / RBW
- 6. Detector = RMS
- 7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto". Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration
- 8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the "gating" function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power
- 9. Trace mode = trace averaging (RMS) over 100 sweeps
- 10. The trace was allowed to stabilize

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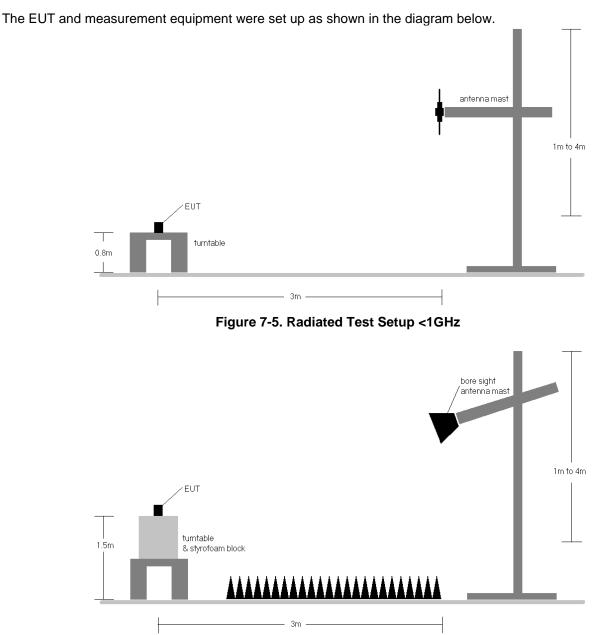


Figure 7-6. Radiated Test Setup >1GHz

## Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.

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|---------------------|-------------------------------------|---|---------------------------------|
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| 1M1911010179-03.A3L | 10/11/19 - 01/09/20                 | Portable Handset  | Page 274 of 434                 |
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| Frequency<br>[MHz] | Channel<br>Bandwidth<br>[MHz] | Mod.    | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | RB<br>Size/Offset | Substitute<br>Level<br>[dBm] | Ant.<br>Gain<br>[dBi] | ERP<br>[dBm] | ERP<br>[Watts] | ERP<br>Limit<br>[dBm] | Margin<br>[dB] |
|--------------------|-------------------------------|---------|-----------------------|---------------------------|----------------------------------|-------------------|------------------------------|-----------------------|--------------|----------------|-----------------------|----------------|
| 665.50             | 5                             | QPSK    | Н                     | 175                       | 283                              | 1 / 24            | 15.02                        | 2.90                  | 15.77        | 0.038          | 34.77                 | -19.00         |
| 680.50             | 5                             | QPSK    | Н                     | 175                       | 280                              | 1 / 24            | 16.11                        | 3.20                  | 17.16        | 0.052          | 34.77                 | -17.61         |
| 695.50             | 5                             | QPSK    | Н                     | 173                       | 282                              | 1 / 24            | 15.36                        | 3.30                  | 16.51        | 0.045          | 34.77                 | -18.26         |
| 680.50             | 5                             | 16-QAM  | Н                     | 175                       | 280                              | 1 / 24            | 15.29                        | 3.20                  | 16.34        | 0.043          | 34.77                 | -18.43         |
| 680.50             | 5                             | 64-QAM  | Н                     | 175                       | 280                              | 1 / 24            | 13.74                        | 3.20                  | 14.79        | 0.030          | 34.77                 | -19.98         |
| 680.50             | 5                             | 256-QAM | Н                     | 175                       | 280                              | 1 / 24            | 12.87                        | 3.20                  | 13.92        | 0.025          | 34.77                 | -20.85         |
| 668.00             | 10                            | QPSK    | Н                     | 171                       | 282                              | 1 / 49            | 15.34                        | 2.90                  | 16.09        | 0.041          | 34.77                 | -18.68         |
| 680.50             | 10                            | QPSK    | Н                     | 175                       | 280                              | 1 / 49            | 15.94                        | 3.20                  | 16.99        | 0.050          | 34.77                 | -17.78         |
| 693.00             | 10                            | QPSK    | Н                     | 173                       | 281                              | 1 / 49            | 15.91                        | 3.30                  | 17.06        | 0.051          | 34.77                 | -17.71         |
| 680.50             | 10                            | 16-QAM  | Н                     | 175                       | 280                              | 1 / 49            | 15.60                        | 3.20                  | 16.65        | 0.046          | 34.77                 | -18.12         |
| 680.50             | 10                            | 64-QAM  | Н                     | 175                       | 280                              | 1 / 49            | 14.34                        | 3.20                  | 15.39        | 0.035          | 34.77                 | -19.38         |
| 680.50             | 10                            | 256-QAM | Н                     | 175                       | 280                              | 1 / 49            | 11.72                        | 3.20                  | 12.77        | 0.019          | 34.77                 | -22.00         |
| 670.50             | 15                            | QPSK    | Н                     | 172                       | 277                              | 1 / 74            | 15.44                        | 3.00                  | 16.29        | 0.043          | 34.77                 | -18.48         |
| 680.50             | 15                            | QPSK    | н                     | 172                       | 275                              | 1 / 74            | 16.16                        | 3.20                  | 17.21        | 0.053          | 34.77                 | -17.56         |
| 690.50             | 15                            | QPSK    | Н                     | 172                       | 278                              | 1 / 74            | 15.79                        | 3.30                  | 16.94        | 0.049          | 34.77                 | -17.83         |
| 680.50             | 15                            | 16-QAM  | Н                     | 172                       | 275                              | 1 / 74            | 15.43                        | 3.20                  | 16.48        | 0.044          | 34.77                 | -18.29         |
| 680.50             | 15                            | 64-QAM  | Н                     | 172                       | 275                              | 1 / 74            | 14.20                        | 3.20                  | 15.25        | 0.033          | 34.77                 | -19.52         |
| 680.50             | 15                            | 256-QAM | Н                     | 172                       | 275                              | 1 / 74            | 11.33                        | 3.20                  | 12.38        | 0.017          | 34.77                 | -22.39         |
| 673.00             | 20                            | QPSK    | Н                     | 177                       | 277                              | 1 / 99            | 15.53                        | 3.10                  | 16.48        | 0.044          | 34.77                 | -18.29         |
| 680.50             | 20                            | QPSK    | н                     | 172                       | 279                              | 1 / 99            | 14.89                        | 3.20                  | 15.94        | 0.039          | 34.77                 | -18.83         |
| 688.00             | 20                            | QPSK    | Н                     | 174                       | 279                              | 1 / 99            | 15.62                        | 3.30                  | 16.77        | 0.048          | 34.77                 | -18.00         |
| 688.00             | 20                            | 16-QAM  | Н                     | 174                       | 279                              | 1 / 99            | 14.84                        | 3.30                  | 15.99        | 0.040          | 34.77                 | -18.78         |
| 673.00             | 20                            | 64-QAM  | Н                     | 177                       | 277                              | 1 / 99            | 13.76                        | 3.10                  | 14.71        | 0.030          | 34.77                 | -20.06         |
| 688.00             | 20                            | 256-QAM | Н                     | 174                       | 279                              | 1 / 99            | 10.74                        | 3.30                  | 11.89        | 0.015          | 34.77                 | -22.88         |
| 680.50             | 15                            | QPSK    | V                     | 155                       | 155                              | 1 / 74            | 12.55                        | 3.20                  | 13.60        | 0.023          | 34.77                 | -21.17         |
| 680.50             | 15 (WCP)                      | QPSK    | Н                     | 172                       | 281                              | 1 / 74            | 12.12                        | 3.20                  | 13.17        | 0.021          | 34.77                 | -21.60         |

Table 7-3. ERP Data (Band 71)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dogo 075 of 404                 |
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| Frequency<br>[MHz] | Channel<br>Bandwidth<br>[MHz] | Mod.    | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | RB<br>Size/Offset | Substitute<br>Level<br>[dBm] | Ant.<br>Gain<br>[dBi] | ERP<br>[dBm] | ERP<br>[Watts] | ERP<br>Limit<br>[dBm] | Margin<br>[dB] | EIRP<br>[dBm] | EIRP<br>[Watts] | EIRP<br>Limit<br>[dBm] | Margin<br>[dB] |
|--------------------|-------------------------------|---------|-----------------------|---------------------------|----------------------------------|-------------------|------------------------------|-----------------------|--------------|----------------|-----------------------|----------------|---------------|-----------------|------------------------|----------------|
| 699.70             | 1.4                           | QPSK    | V                     | 166                       | 329                              | 1/5               | 15.19                        | 4.50                  | 17.54        | 0.057          | 34.77                 | -17.23         | 19.69         | 0.093           | 36.99                  | -17.30         |
| 707.50             | 1.4                           | QPSK    | V                     | 172                       | 303                              | 1 / 5             | 15.51                        | 4.60                  | 17.96        | 0.063          | 34.77                 | -16.81         | 20.11         | 0.103           | 36.99                  | -16.88         |
| 715.30             | 1.4                           | QPSK    | V                     | 101                       | 211                              | 1/0               | 14.45                        | 4.63                  | 16.93        | 0.049          | 34.77                 | -17.84         | 19.08         | 0.081           | 36.99                  | -17.91         |
| 707.50             | 1.4                           | 16-QAM  | V                     | 172                       | 303                              | 1/5               | 14.72                        | 4.60                  | 17.17        | 0.052          | 34.77                 | -17.60         | 19.32         | 0.086           | 36.99                  | -17.67         |
| 707.50             | 1.4                           | 64-QAM  | V                     | 172                       | 303                              | 1/0               | 13.56                        | 4.60                  | 16.01        | 0.040          | 34.77                 | -18.76         | 18.16         | 0.065           | 36.99                  | -18.83         |
| 707.50             | 1.4                           | 256-QAM | V                     | 172                       | 303                              | 1/0               | 10.59                        | 4.60                  | 13.04        | 0.020          | 34.77                 | -21.73         | 15.19         | 0.033           | 36.99                  | -21.80         |
| 700.50             | 3                             | QPSK    | V                     | 185                       | 235                              | 1/0               | 15.55                        | 4.55                  | 17.95        | 0.062          | 34.77                 | -16.82         | 20.10         | 0.102           | 36.99                  | -16.89         |
| 707.50             | 3                             | QPSK    | V                     | 195                       | 248                              | 1 / 14            | 15.49                        | 4.60                  | 17.94        | 0.062          | 34.77                 | -16.83         | 20.09         | 0.102           | 36.99                  | -16.90         |
| 714.50             | 3                             | QPSK    | V                     | 100                       | 246                              | 1/0               | 14.44                        | 4.60                  | 16.89        | 0.049          | 34.77                 | -17.88         | 19.04         | 0.080           | 36.99                  | -17.95         |
| 707.50             | 3                             | 16-QAM  | V                     | 195                       | 248                              | 1/0               | 15.07                        | 4.60                  | 17.52        | 0.056          | 34.77                 | -17.25         | 19.67         | 0.093           | 36.99                  | -17.32         |
| 707.50             | 3                             | 64-QAM  | V                     | 195                       | 248                              | 1/0               | 13.91                        | 4.60                  | 16.36        | 0.043          | 34.77                 | -18.41         | 18.51         | 0.071           | 36.99                  | -18.48         |
| 707.50             | 3                             | 256-QAM | V                     | 195                       | 248                              | 1/0               | 11.09                        | 4.60                  | 13.54        | 0.023          | 34.77                 | -21.23         | 15.69         | 0.037           | 36.99                  | -21.30         |
| 701.50             | 5                             | QPSK    | V                     | 179                       | 254                              | 1 / 24            | 15.53                        | 4.60                  | 17.98        | 0.063          | 34.77                 | -16.79         | 20.13         | 0.103           | 36.99                  | -16.86         |
| 707.50             | 5                             | QPSK    | V                     | 187                       | 296                              | 1/0               | 15.83                        | 4.60                  | 18.28        | 0.067          | 34.77                 | -16.49         | 20.43         | 0.110           | 36.99                  | -16.56         |
| 713.50             | 5                             | QPSK    | V                     | 183                       | 249                              | 1/0               | 14.78                        | 4.60                  | 17.23        | 0.053          | 34.77                 | -17.54         | 19.38         | 0.087           | 36.99                  | -17.61         |
| 707.50             | 5                             | 16-QAM  | V                     | 187                       | 296                              | 1/0               | 15.15                        | 4.60                  | 17.60        | 0.058          | 34.77                 | -17.17         | 19.75         | 0.094           | 36.99                  | -17.24         |
| 707.50             | 5                             | 64-QAM  | V                     | 187                       | 296                              | 1/0               | 14.26                        | 4.60                  | 16.71        | 0.047          | 34.77                 | -18.06         | 18.86         | 0.077           | 36.99                  | -18.13         |
| 707.50             | 5                             | 256-QAM | V                     | 187                       | 296                              | 1/0               | 11.20                        | 4.60                  | 13.65        | 0.023          | 34.77                 | -21.12         | 15.80         | 0.038           | 36.99                  | -21.19         |
| 704.00             | 10                            | QPSK    | V                     | 101                       | 285                              | 1 / 49            | 13.19                        | 4.50                  | 15.54        | 0.036          | 34.77                 | -19.23         | 17.69         | 0.059           | 36.99                  | -19.30         |
| 707.50             | 10                            | QPSK    | V                     | 100                       | 286                              | 1 / 49            | 14.39                        | 4.60                  | 16.84        | 0.048          | 34.77                 | -17.93         | 18.99         | 0.079           | 36.99                  | -18.00         |
| 711.00             | 10                            | QPSK    | V                     | 101                       | 271                              | 1 / 49            | 14.32                        | 4.60                  | 16.77        | 0.048          | 34.77                 | -18.00         | 18.92         | 0.078           | 36.99                  | -18.07         |
| 711.00             | 10                            | 16-QAM  | V                     | 101                       | 271                              | 1 / 49            | 13.69                        | 4.60                  | 16.14        | 0.041          | 34.77                 | -18.63         | 18.29         | 0.067           | 36.99                  | -18.70         |
| 707.50             | 10                            | 64-QAM  | V                     | 100                       | 286                              | 1 / 49            | 12.64                        | 4.60                  | 15.09        | 0.032          | 34.77                 | -19.68         | 17.24         | 0.053           | 36.99                  | -19.75         |
| 711.00             | 10                            | 256-QAM | V                     | 101                       | 271                              | 1 / 49            | 10.14                        | 4.60                  | 12.59        | 0.018          | 34.77                 | -22.18         | 14.74         | 0.030           | 36.99                  | -22.25         |
| 707.50             | 5                             | QPSK    | н                     | 137                       | 331                              | 1/0               | 14.36                        | 3.65                  | 15.86        | 0.039          | 34.77                 | -18.91         | 18.01         | 0.063           | 36.99                  | -18.98         |
| 707.50             | 5 (WCP)                       | QPSK    | V                     | 176                       | 298                              | 1/0               | 12.73                        | 4.60                  | 15.18        | 0.033          | 34.77                 | -19.59         | 17.33         | 0.054           | 36.99                  | -19.66         |

Table 7-4. ERP Data (Band 12)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dogo 076 of 404                 |
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| Frequency<br>[MHz] | Channel<br>Bandwidth<br>[MHz] | Mod.    | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | RB<br>Size/Offset | Substitute<br>Level<br>[dBm] | Ant.<br>Gain<br>[dBi] | ERP<br>[dBm] | ERP<br>[Watts] | ERP<br>Limit<br>[dBm] | Margin<br>[dB] | EIRP<br>[dBm] | EIRP<br>[Watts] | EIRP<br>Limit<br>[dBm] | Margin<br>[dB] |
|--------------------|-------------------------------|---------|-----------------------|---------------------------|----------------------------------|-------------------|------------------------------|-----------------------|--------------|----------------|-----------------------|----------------|---------------|-----------------|------------------------|----------------|
| 779.50             | 5                             | QPSK    | Н                     | 102                       | 290                              | 1 / 24            | 14.34                        | 5.80                  | 17.99        | 0.063          | 34.77                 | -16.78         | 20.14         | 0.103           | 36.99                  | -16.85         |
| 782.00             | 5                             | QPSK    | н                     | 101                       | 290                              | 1 / 24            | 14.40                        | 5.80                  | 18.05        | 0.064          | 34.77                 | -16.72         | 20.20         | 0.105           | 36.99                  | -16.79         |
| 784.50             | 5                             | QPSK    | н                     | 101                       | 290                              | 1/0               | 14.20                        | 5.90                  | 17.95        | 0.062          | 34.77                 | -16.82         | 20.10         | 0.102           | 36.99                  | -16.89         |
| 782.00             | 5                             | 16-QAM  | Н                     | 101                       | 290                              | 1 / 24            | 14.04                        | 5.80                  | 17.69        | 0.059          | 34.77                 | -17.08         | 19.84         | 0.096           | 36.99                  | -17.15         |
| 782.00             | 5                             | 64-QAM  | н                     | 101                       | 290                              | 1 / 24            | 11.74                        | 5.80                  | 15.39        | 0.035          | 34.77                 | -19.38         | 17.54         | 0.057           | 36.99                  | -19.45         |
| 782.00             | 5                             | 256-QAM | н                     | 101                       | 290                              | 1 / 24            | 11.03                        | 5.80                  | 14.68        | 0.029          | 34.77                 | -20.09         | 16.83         | 0.048           | 36.99                  | -20.16         |
| 782.00             | 10                            | QPSK    | н                     | 100                       | 290                              | 1 / 49            | 15.11                        | 5.80                  | 18.76        | 0.075          | 34.77                 | -16.01         | 20.91         | 0.123           | 36.99                  | -16.08         |
| 782.00             | 10                            | 16-QAM  | н                     | 100                       | 290                              | 1 / 49            | 14.24                        | 5.80                  | 17.89        | 0.062          | 34.77                 | -16.88         | 20.04         | 0.101           | 36.99                  | -16.95         |
| 782.00             | 10                            | 64-QAM  | н                     | 100                       | 290                              | 1 / 49            | 13.51                        | 5.80                  | 17.16        | 0.052          | 34.77                 | -17.61         | 19.31         | 0.085           | 36.99                  | -17.68         |
| 782.00             | 10                            | 256-QAM | н                     | 100                       | 290                              | 1 / 49            | 11.37                        | 5.80                  | 15.02        | 0.032          | 34.77                 | -19.75         | 17.17         | 0.052           | 36.99                  | -19.82         |
| 782.00             | 10                            | QPSK    | V                     | 161                       | 245                              | 1 / 49            | 14.61                        | 5.80                  | 18.26        | 0.067          | 34.77                 | -16.51         | 20.41         | 0.110           | 36.99                  | -16.58         |
| 782.00             | 10 (WCP)                      | QPSK    | Н                     | 227                       | 264                              | 1 / 49            | 14.21                        | 5.80                  | 17.86        | 0.061          | 34.77                 | -16.91         | 20.01         | 0.100           | 36.99                  | -16.98         |

Table 7-5. ERP Data (Band 13)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dega 277 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 277 of 434                 |
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| Frequency<br>[MHz] | Channel<br>Bandwidth<br>[MHz] | Mod.    | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | RB<br>Size/Offset | Substitute<br>Level<br>[dBm] | Ant.<br>Gain<br>[dBi] | ERP<br>[dBm] | ERP<br>[Watts] | ERP<br>Limit<br>[dBm] | Margin<br>[dB] | EIRP<br>[dBm] | EIRP<br>[Watts] | EIRP<br>Limit<br>[dBm] | Margin<br>[dB] |
|--------------------|-------------------------------|---------|-----------------------|---------------------------|----------------------------------|-------------------|------------------------------|-----------------------|--------------|----------------|-----------------------|----------------|---------------|-----------------|------------------------|----------------|
| 824.70             | 1.4                           | QPSK    | н                     | 145                       | 291                              | 1/0               | 12.81                        | 6.70                  | 17.36        | 0.054          | 38.45                 | -21.09         | 19.51         | 0.089           | 40.61                  | -21.10         |
| 836.50             | 1.4                           | QPSK    | н                     | 145                       | 291                              | 1/0               | 13.57                        | 6.70                  | 18.12        | 0.065          | 38.45                 | -20.33         | 20.27         | 0.106           | 40.61                  | -20.34         |
| 848.30             | 1.4                           | QPSK    | Н                     | 141                       | 290                              | 1/5               | 13.38                        | 6.70                  | 17.93        | 0.062          | 38.45                 | -20.52         | 20.08         | 0.102           | 40.61                  | -20.53         |
| 848.30             | 1.4                           | 16-QAM  | н                     | 141                       | 290                              | 1 / 5             | 13.06                        | 6.70                  | 17.61        | 0.058          | 38.45                 | -20.84         | 19.76         | 0.095           | 40.61                  | -20.85         |
| 848.30             | 1.4                           | 64-QAM  | н                     | 141                       | 290                              | 1 / 5             | 12.29                        | 6.70                  | 16.84        | 0.048          | 38.45                 | -21.61         | 18.99         | 0.079           | 40.61                  | -21.62         |
| 848.30             | 1.4                           | 256-QAM | Н                     | 141                       | 290                              | 1/5               | 9.16                         | 6.70                  | 13.71        | 0.023          | 38.45                 | -24.74         | 15.86         | 0.039           | 40.61                  | -24.75         |
| 825.50             | 3                             | QPSK    | Н                     | 143                       | 295                              | 1/0               | 12.94                        | 6.70                  | 17.49        | 0.056          | 38.45                 | -20.96         | 19.64         | 0.092           | 40.61                  | -20.97         |
| 836.50             | 3                             | QPSK    | Н                     | 143                       | 291                              | 1/0               | 13.66                        | 6.70                  | 18.21        | 0.066          | 38.45                 | -20.24         | 20.36         | 0.109           | 40.61                  | -20.25         |
| 847.50             | 3                             | QPSK    | Н                     | 140                       | 295                              | 1 / 14            | 13.33                        | 6.65                  | 17.83        | 0.061          | 38.45                 | -20.62         | 19.98         | 0.100           | 40.61                  | -20.63         |
| 847.50             | 3                             | 16-QAM  | Н                     | 140                       | 295                              | 1 / 14            | 12.92                        | 6.65                  | 17.42        | 0.055          | 38.45                 | -21.03         | 19.57         | 0.091           | 40.61                  | -21.04         |
| 847.50             | 3                             | 64-QAM  | н                     | 140                       | 295                              | 1 / 14            | 11.97                        | 6.65                  | 16.47        | 0.044          | 38.45                 | -21.98         | 18.62         | 0.073           | 40.61                  | -21.99         |
| 825.50             | 3                             | 256-QAM | н                     | 143                       | 295                              | 1/0               | 9.71                         | 6.70                  | 14.26        | 0.027          | 38.45                 | -24.19         | 16.41         | 0.044           | 40.61                  | -24.20         |
| 826.50             | 5                             | QPSK    | Н                     | 140                       | 292                              | 1/0               | 13.05                        | 6.70                  | 17.60        | 0.058          | 38.45                 | -20.85         | 19.75         | 0.094           | 40.61                  | -20.86         |
| 836.50             | 5                             | QPSK    | Н                     | 141                       | 291                              | 1/0               | 13.78                        | 6.70                  | 18.33        | 0.068          | 38.45                 | -20.12         | 20.48         | 0.112           | 40.61                  | -20.13         |
| 846.50             | 5                             | QPSK    | Н                     | 136                       | 291                              | 1 / 24            | 13.37                        | 6.60                  | 17.82        | 0.061          | 38.45                 | -20.63         | 19.97         | 0.099           | 40.61                  | -20.64         |
| 836.50             | 5                             | 16-QAM  | н                     | 141                       | 291                              | 1 / 24            | 12.78                        | 6.70                  | 17.33        | 0.054          | 38.45                 | -21.12         | 19.48         | 0.089           | 40.61                  | -21.13         |
| 846.50             | 5                             | 64-QAM  | н                     | 136                       | 291                              | 1 / 24            | 11.84                        | 6.60                  | 16.29        | 0.043          | 38.45                 | -22.16         | 18.44         | 0.070           | 40.61                  | -22.17         |
| 826.50             | 5                             | 256-QAM | н                     | 140                       | 292                              | 1/0               | 10.31                        | 6.70                  | 14.86        | 0.031          | 38.45                 | -23.59         | 17.01         | 0.050           | 40.61                  | -23.60         |
| 829.00             | 10                            | QPSK    | н                     | 137                       | 291                              | 1/0               | 13.16                        | 6.70                  | 17.71        | 0.059          | 38.45                 | -20.74         | 19.86         | 0.097           | 40.61                  | -20.75         |
| 836.50             | 10                            | QPSK    | н                     | 142                       | 286                              | 1/0               | 13.83                        | 6.70                  | 18.38        | 0.069          | 38.45                 | -20.07         | 20.53         | 0.113           | 40.61                  | -20.08         |
| 844.00             | 10                            | QPSK    | н                     | 135                       | 285                              | 1 / 49            | 13.42                        | 6.60                  | 17.87        | 0.061          | 38.45                 | -20.58         | 20.02         | 0.100           | 40.61                  | -20.59         |
| 836.50             | 10                            | 16-QAM  | н                     | 142                       | 286                              | 1/0               | 12.93                        | 6.70                  | 17.48        | 0.056          | 38.45                 | -20.97         | 19.63         | 0.092           | 40.61                  | -20.98         |
| 836.50             | 10                            | 64-QAM  | н                     | 142                       | 286                              | 1/0               | 12.05                        | 6.70                  | 16.60        | 0.046          | 38.45                 | -21.85         | 18.75         | 0.075           | 40.61                  | -21.86         |
| 829.00             | 10                            | 256-QAM | н                     | 137                       | 291                              | 1/0               | 10.63                        | 6.70                  | 15.18        | 0.033          | 38.45                 | -23.27         | 17.33         | 0.054           | 40.61                  | -23.28         |
| 836.50             | 10                            | QPSK    | V                     | 326                       | 185                              | 1/0               | 11.65                        | 6.70                  | 16.20        | 0.042          | 38.45                 | -22.25         | 18.35         | 0.068           | 40.61                  | -22.26         |
| 836.50             | 10 (WCP)                      | QPSK    | н                     | 201                       | 259                              | 1/0               | 12.48                        | 6.70                  | 17.03        | 0.050          | 38.45                 | -21.42         | 19.18         | 0.083           | 40.61                  | -21.43         |

Table 7-6. ERP Data (Band 5)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dage 270 of 424                 |
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| Frequency<br>[MHz] | Channel<br>Bandwidth<br>[MHz] | Mod.    | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | RB<br>Size/Offset | Substitute<br>Level<br>[dBm] | Ant.<br>Gain<br>[dBi] | EIRP<br>[dBm] | EIRP<br>[Watts] | EIRP<br>Limit<br>[dBm] | Margin<br>[dB] |
|--------------------|-------------------------------|---------|-----------------------|---------------------------|----------------------------------|-------------------|------------------------------|-----------------------|---------------|-----------------|------------------------|----------------|
| 1710.70            | 1.4                           | QPSK    | Н                     | 154                       | 210                              | 1 / 0             | 9.41                         | 9.44                  | 18.85         | 0.077           | 30.00                  | -11.15         |
| 1745.00            | 1.4                           | QPSK    | н                     | 140                       | 215                              | 1 / 0             | 14.01                        | 9.23                  | 23.24         | 0.211           | 30.00                  | -6.76          |
| 1779.30            | 1.4                           | QPSK    | Н                     | 133                       | 211                              | 1/0               | 9.04                         | 9.26                  | 18.30         | 0.068           | 30.00                  | -11.70         |
| 1779.30            | 1.4                           | 16-QAM  | Н                     | 133                       | 211                              | 1/0               | 12.69                        | 9.26                  | 21.95         | 0.157           | 30.00                  | -8.05          |
| 1779.30            | 1.4                           | 64-QAM  | Н                     | 133                       | 211                              | 1 / 5             | 11.09                        | 9.26                  | 20.35         | 0.108           | 30.00                  | -9.65          |
| 1710.70            | 1.4                           | 256-QAM | Н                     | 154                       | 210                              | 1/0               | 9.13                         | 9.44                  | 18.57         | 0.072           | 30.00                  | -11.43         |
| 1711.50            | 3                             | QPSK    | Н                     | 155                       | 208                              | 1/0               | 11.71                        | 9.44                  | 21.15         | 0.130           | 30.00                  | -8.85          |
| 1745.00            | 3                             | QPSK    | Н                     | 140                       | 215                              | 1/0               | 13.93                        | 9.23                  | 23.16         | 0.207           | 30.00                  | -6.84          |
| 1778.50            | 3                             | QPSK    | Н                     | 133                       | 208                              | 1 / 0             | 11.12                        | 9.26                  | 20.37         | 0.109           | 30.00                  | -9.63          |
| 1745.00            | 3                             | 16-QAM  | Н                     | 140                       | 215                              | 1 / 14            | 13.75                        | 9.23                  | 22.98         | 0.199           | 30.00                  | -7.02          |
| 1711.50            | 3                             | 64-QAM  | Н                     | 155                       | 208                              | 1 / 0             | 8.55                         | 9.44                  | 17.99         | 0.063           | 30.00                  | -12.01         |
| 1711.50            | 3                             | 256-QAM | Н                     | 155                       | 208                              | 1 / 0             | 6.98                         | 9.44                  | 16.42         | 0.044           | 30.00                  | -13.58         |
| 1712.50            | 5                             | QPSK    | н                     | 155                       | 210                              | 1/0               | 12.86                        | 9.43                  | 22.29         | 0.170           | 30.00                  | -7.71          |
| 1745.00            | 5                             | QPSK    | н                     | 155                       | 210                              | 1 / 0             | 13.90                        | 9.23                  | 23.13         | 0.206           | 30.00                  | -6.87          |
| 1777.50            | 5                             | QPSK    | Н                     | 124                       | 211                              | 1/0               | 12.30                        | 9.26                  | 21.56         | 0.143           | 30.00                  | -8.44          |
| 1745.00            | 5                             | 16-QAM  | Н                     | 155                       | 210                              | 1 / 24            | 13.29                        | 9.23                  | 22.52         | 0.179           | 30.00                  | -7.48          |
| 1712.50            | 5                             | 64-QAM  | н                     | 155                       | 210                              | 1 / 0             | 10.16                        | 9.43                  | 19.59         | 0.091           | 30.00                  | -10.41         |
| 1712.50            | 5                             | 256-QAM | н                     | 155                       | 210                              | 1 / 0             | 8.48                         | 9.43                  | 17.91         | 0.062           | 30.00                  | -12.09         |
| 1715.00            | 10                            | QPSK    | н                     | 155                       | 210                              | 1/0               | 13.58                        | 9.42                  | 22.99         | 0.199           | 30.00                  | -7.01          |
| 1745.00            | 10                            | QPSK    | Н                     | 140                       | 215                              | 1 / 0             | 13.72                        | 9.23                  | 22.95         | 0.197           | 30.00                  | -7.05          |
| 1775.00            | 10                            | QPSK    | н                     | 124                       | 211                              | 1 / 0             | 12.87                        | 9.25                  | 22.12         | 0.163           | 30.00                  | -7.88          |
| 1745.00            | 10                            | 16-QAM  | н                     | 140                       | 215                              | 1 / 49            | 12.70                        | 9.23                  | 21.93         | 0.156           | 30.00                  | -8.07          |
| 1715.00            | 10                            | 64-QAM  | н                     | 155                       | 210                              | 1 / 0             | 11.00                        | 9.42                  | 20.41         | 0.110           | 30.00                  | -9.59          |
| 1715.00            | 10                            | 256-QAM | н                     | 155                       | 210                              | 1 / 0             | 8.85                         | 9.42                  | 18.26         | 0.067           | 30.00                  | -11.74         |
| 1717.50            | 15                            | QPSK    | н                     | 155                       | 210                              | 1/0               | 13.78                        | 9.40                  | 23.18         | 0.208           | 30.00                  | -6.82          |
| 1745.00            | 15                            | QPSK    | н                     | 138                       | 208                              | 1 / 0             | 13.65                        | 9.23                  | 22.88         | 0.194           | 30.00                  | -7.12          |
| 1772.50            | 15                            | QPSK    | н                     | 124                       | 207                              | 1 / 0             | 13.06                        | 9.25                  | 22.31         | 0.170           | 30.00                  | -7.69          |
| 1745.00            | 15                            | 16-QAM  | н                     | 138                       | 208                              | 1 / 0             | 13.42                        | 9.23                  | 22.65         | 0.184           | 30.00                  | -7.35          |
| 1717.50            | 15                            | 64-QAM  | н                     | 155                       | 210                              | 1 / 0             | 11.41                        | 9.40                  | 20.81         | 0.121           | 30.00                  | -9.19          |
| 1717.50            | 15                            | 256-QAM | н                     | 155                       | 210                              | 1 / 0             | 9.28                         | 9.40                  | 18.68         | 0.074           | 30.00                  | -11.32         |
| 1720.00            | 20                            | QPSK    | н                     | 150                       | 208                              | 1 / 0             | 14.09                        | 9.38                  | 23.47         | 0.223           | 30.00                  | -6.53          |
| 1745.00            | 20                            | QPSK    | Н                     | 138                       | 208                              | 1/0               | 13.82                        | 9.23                  | 23.05         | 0.202           | 30.00                  | -6.95          |
| 1770.00            | 20                            | QPSK    | Н                     | 124                       | 206                              | 1/0               | 13.42                        | 9.24                  | 22.66         | 0.185           | 30.00                  | -7.34          |
| 1745.00            | 20                            | 16-QAM  | Н                     | 138                       | 208                              | 1/0               | 13.32                        | 9.23                  | 22.55         | 0.180           | 30.00                  | -7.45          |
| 1720.00            | 20                            | 64-QAM  | н                     | 150                       | 208                              | 1/0               | 11.79                        | 9.38                  | 21.17         | 0.131           | 30.00                  | -8.83          |
| 1720.00            | 20                            | 256-QAM | Н                     | 150                       | 208                              | 1/0               | 9.58                         | 9.38                  | 18.96         | 0.079           | 30.00                  | -11.04         |
| 1720.00            | 20                            | QPSK    | V                     | 155                       | 333                              | 1/0               | 12.99                        | 9.38                  | 22.37         | 0.173           | 30.00                  | -7.63          |
| 1720.00            | 20 (WCP)                      | QPSK    | н                     | 176                       | 308                              | 1/0               | 13.53                        | 9.38                  | 22.91         | 0.196           | 30.00                  | -7.09          |

# Table 7-7. EIRP Data (Band 66/4)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dega 270 of 424                 |
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| Frequency<br>[MHz] | Channel<br>Bandwidth<br>[MHz] | Mod.    | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | RB<br>Size/Offset | Substitute<br>Level<br>[dBm] | Ant.<br>Gain<br>[dBi] | EIRP<br>[dBm] | EIRP<br>[Watts] | EIRP<br>Limit<br>[dBm] | Margin<br>[dB] |
|--------------------|-------------------------------|---------|-----------------------|---------------------------|----------------------------------|-------------------|------------------------------|-----------------------|---------------|-----------------|------------------------|----------------|
| 1850.70            | 1.4                           | QPSK    | Н                     | 123                       | 351                              | 1 / 5             | 14.08                        | 9.48                  | 23.56         | 0.227           | 33.01                  | -9.45          |
| 1882.50            | 1.4                           | QPSK    | Н                     | 153                       | 356                              | 1 / 0             | 13.72                        | 9.94                  | 23.66         | 0.232           | 33.01                  | -9.36          |
| 1914.30            | 1.4                           | QPSK    | Н                     | 115                       | 355                              | 1 / 0             | 13.33                        | 10.29                 | 23.62         | 0.230           | 33.01                  | -9.39          |
| 1882.50            | 1.4                           | 16-QAM  | н                     | 153                       | 356                              | 1 / 5             | 13.50                        | 9.94                  | 23.44         | 0.221           | 33.01                  | -9.58          |
| 1882.50            | 1.4                           | 64-QAM  | Н                     | 153                       | 356                              | 1 / 5             | 12.53                        | 9.94                  | 22.47         | 0.176           | 33.01                  | -10.55         |
| 1914.30            | 1.4                           | 256-QAM | Н                     | 115                       | 355                              | 6/0               | 9.02                         | 10.29                 | 19.31         | 0.085           | 33.01                  | -13.70         |
| 1851.50            | 3                             | QPSK    | Н                     | 126                       | 358                              | 1 / 14            | 14.19                        | 9.50                  | 23.69         | 0.234           | 33.01                  | -9.32          |
| 1882.50            | 3                             | QPSK    | Н                     | 155                       | 359                              | 1 / 0             | 13.77                        | 9.94                  | 23.71         | 0.235           | 33.01                  | -9.31          |
| 1913.50            | 3                             | QPSK    | Н                     | 117                       | 350                              | 1 / 0             | 13.41                        | 10.29                 | 23.70         | 0.234           | 33.01                  | -9.32          |
| 1882.50            | 3                             | 16-QAM  | Н                     | 155                       | 359                              | 1 / 14            | 13.46                        | 9.94                  | 23.40         | 0.219           | 33.01                  | -9.62          |
| 1882.50            | 3                             | 64-QAM  | н                     | 155                       | 359                              | 1 / 0             | 12.06                        | 9.94                  | 22.00         | 0.158           | 33.01                  | -11.02         |
| 1882.50            | 3                             | 256-QAM | Н                     | 155                       | 359                              | 15 / 0            | 9.28                         | 9.94                  | 19.22         | 0.083           | 33.01                  | -13.80         |
| 1852.50            | 5                             | QPSK    | н                     | 127                       | 358                              | 1 / 0             | 13.57                        | 9.51                  | 23.08         | 0.203           | 33.01                  | -9.93          |
| 1882.50            | 5                             | QPSK    | н                     | 153                       | 336                              | 1 / 24            | 13.44                        | 9.94                  | 23.38         | 0.218           | 33.01                  | -9.64          |
| 1912.50            | 5                             | QPSK    | н                     | 115                       | 172                              | 1 / 0             | 12.37                        | 10.28                 | 22.65         | 0.184           | 33.01                  | -10.36         |
| 1882.50            | 5                             | 16-QAM  | Н                     | 153                       | 336                              | 1 / 24            | 12.97                        | 9.94                  | 22.91         | 0.195           | 33.01                  | -10.11         |
| 1882.50            | 5                             | 64-QAM  | Н                     | 153                       | 336                              | 1 / 24            | 11.92                        | 9.94                  | 21.86         | 0.153           | 33.01                  | -11.16         |
| 1882.50            | 5                             | 256-QAM | Н                     | 153                       | 336                              | 1 / 24            | 8.72                         | 9.94                  | 18.66         | 0.073           | 33.01                  | -14.36         |
| 1855.00            | 10                            | QPSK    | н                     | 216                       | 354                              | 1 / 0             | 13.75                        | 9.55                  | 23.30         | 0.214           | 33.01                  | -9.71          |
| 1882.50            | 10                            | QPSK    | н                     | 158                       | 356                              | 1/0               | 13.21                        | 9.94                  | 23.15         | 0.206           | 33.01                  | -9.87          |
| 1910.00            | 10                            | QPSK    | н                     | 189                       | 354                              | 1 / 49            | 12.59                        | 10.26                 | 22.85         | 0.193           | 33.01                  | -10.16         |
| 1882.50            | 10                            | 16-QAM  | Н                     | 158                       | 356                              | 1/0               | 12.70                        | 9.94                  | 22.64         | 0.183           | 33.01                  | -10.38         |
| 1882.50            | 10                            | 64-QAM  | н                     | 158                       | 356                              | 1/0               | 11.28                        | 9.94                  | 21.22         | 0.132           | 33.01                  | -11.80         |
| 1855.00            | 10                            | 256-QAM | Н                     | 216                       | 354                              | 1/0               | 9.19                         | 9.55                  | 18.74         | 0.075           | 33.01                  | -14.27         |
| 1857.50            | 15                            | QPSK    | Н                     | 124                       | 356                              | 1/0               | 14.19                        | 9.58                  | 23.77         | 0.238           | 33.01                  | -9.24          |
| 1882.50            | 15                            | QPSK    | Н                     | 150                       | 356                              | 1 / 74            | 13.78                        | 9.94                  | 23.72         | 0.235           | 33.01                  | -9.30          |
| 1907.50            | 15                            | QPSK    | Н                     | 293                       | 353                              | 1 / 74            | 12.64                        | 10.24                 | 22.88         | 0.194           | 33.01                  | -10.13         |
| 1857.50            | 15                            | 16-QAM  | Н                     | 124                       | 356                              | 1/0               | 13.68                        | 9.58                  | 23.26         | 0.212           | 33.01                  | -9.75          |
| 1857.50            | 15                            | 64-QAM  | Н                     | 124                       | 356                              | 1 / 74            | 12.40                        | 9.58                  | 21.98         | 0.158           | 33.01                  | -11.03         |
| 1857.50            | 15                            | 256-QAM | Н                     | 124                       | 356                              | 1 / 74            | 9.52                         | 9.58                  | 19.10         | 0.081           | 33.01                  | -13.91         |
| 1860.00            | 20                            | QPSK    | Н                     | 110                       | 349                              | 1 / 99            | 13.52                        | 9.62                  | 23.14         | 0.206           | 33.01                  | -9.87          |
| 1882.50            | 20                            | QPSK    | Н                     | 100                       | 353                              | 1/0               | 12.94                        | 9.94                  | 22.88         | 0.194           | 33.01                  | -10.14         |
| 1905.00            | 20                            | QPSK    | Н                     | 102                       | 349                              | 1/0               | 12.05                        | 10.22                 | 22.27         | 0.169           | 33.01                  | -10.74         |
| 1860.00            | 20                            | 16-QAM  | Н                     | 110                       | 349                              | 1 / 99            | 13.36                        | 9.62                  | 22.98         | 0.198           | 33.01                  | -10.03         |
| 1860.00            | 20                            | 64-QAM  | Н                     | 110                       | 349                              | 1 / 99            | 11.81                        | 9.62                  | 21.43         | 0.139           | 33.01                  | -11.58         |
| 1860.00            | 20                            | 256-QAM | Н                     | 110                       | 349                              | 1 / 99            | 9.69                         | 9.62                  | 19.31         | 0.085           | 33.01                  | -13.70         |
| 1857.50            | 15                            | QPSK    | V                     | 106                       | 312                              | 1/0               | 13.33                        | 9.58                  | 22.91         | 0.195           | 33.01                  | -10.10         |
| 1857.50            | 15 (WCP)                      | QPSK    | Н                     | 151                       | 222                              | 1 / 0             | 11.92                        | 9.58                  | 21.50         | 0.141           | 33.01                  | -11.51         |

# Table 7-8. EIRP Data (Band 25/2)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dage 200 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 280 of 434                 |
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| Frequency<br>[MHz] | Channel<br>Bandwidth<br>[MHz] | Mod.    | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | RB<br>Size/Offset | Substitute<br>Level<br>[dBm] | Ant.<br>Gain<br>[dBi] | EIRP<br>[dBm] | EIRP<br>[Watts] | EIRP<br>Limit<br>[dBm] | Margin<br>[dB] |
|--------------------|-------------------------------|---------|-----------------------|---------------------------|----------------------------------|-------------------|------------------------------|-----------------------|---------------|-----------------|------------------------|----------------|
| 2307.50            | 5                             | QPSK    | Н                     | 152                       | 194                              | 1 / 24            | 12.70                        | 10.31                 | 23.01         | 0.200           | 23.98                  | -0.97          |
| 2312.50            | 5                             | QPSK    | Н                     | 147                       | 191                              | 1 / 24            | 12.81                        | 10.31                 | 23.12         | 0.205           | 23.98                  | -0.86          |
| 2312.50            | 5                             | 16-QAM  | Н                     | 147                       | 191                              | 1 / 24            | 11.72                        | 10.31                 | 22.03         | 0.160           | 23.98                  | -1.95          |
| 2312.50            | 5                             | 64-QAM  | Н                     | 147                       | 191                              | 1 / 24            | 10.63                        | 10.31                 | 20.94         | 0.124           | 23.98                  | -3.04          |
| 2312.50            | 5                             | 256-QAM | Н                     | 147                       | 191                              | 1 / 24            | 7.44                         | 10.31                 | 17.75         | 0.060           | 23.98                  | -6.23          |
| 2310.00            | 10                            | QPSK    | Н                     | 153                       | 188                              | 1 / 49            | 12.87                        | 10.31                 | 23.18         | 0.208           | 23.98                  | -0.80          |
| 2310.00            | 10                            | 16-QAM  | Н                     | 153                       | 188                              | 1 / 49            | 11.70                        | 10.31                 | 22.01         | 0.159           | 23.98                  | -1.97          |
| 2310.00            | 10                            | 64-QAM  | Н                     | 153                       | 188                              | 1 / 49            | 10.44                        | 10.31                 | 20.75         | 0.119           | 23.98                  | -3.23          |
| 2310.00            | 10                            | 256-QAM | Н                     | 153                       | 188                              | 1 / 49            | 7.16                         | 10.31                 | 17.47         | 0.056           | 23.98                  | -6.51          |
| 2310.00            | 10                            | QPSK    | V                     | 188                       | 307                              | 1 / 49            | 12.67                        | 10.23                 | 22.90         | 0.195           | 23.98                  | -1.08          |
| 2310.00            | 10 (WCP)                      | QPSK    | Н                     | 107                       | 173                              | 1 / 49            | 12.40                        | 10.31                 | 22.71         | 0.187           | 23.98                  | -1.27          |

Table 7-9. EIRP Data (Band 30)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dega 201 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 281 of 434                 |
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| Frequency<br>[MHz] | Channel<br>Bandwidth<br>[MHz] | Mod.    | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | RB<br>Size/Offset | Substitute<br>Level<br>[dBm] | Ant.<br>Gain<br>[dBi] | EIRP<br>[dBm] | EIRP<br>[Watts] | EIRP<br>Limit<br>[dBm] | Margin<br>[dB] |
|--------------------|-------------------------------|---------|-----------------------|---------------------------|----------------------------------|-------------------|------------------------------|-----------------------|---------------|-----------------|------------------------|----------------|
| 2502.50            | 5                             | QPSK    | Н                     | 112                       | 215                              | 1 / 0             | 12.36                        | 9.43                  | 21.79         | 0.151           | 33.01                  | -11.22         |
| 2535.00            | 5                             | QPSK    | Н                     | 151                       | 211                              | 1 / 24            | 12.46                        | 9.39                  | 21.85         | 0.153           | 33.01                  | -11.16         |
| 2567.50            | 5                             | QPSK    | Н                     | 120                       | 215                              | 1 / 24            | 11.99                        | 9.45                  | 21.44         | 0.139           | 33.01                  | -11.57         |
| 2535.00            | 5                             | 16-QAM  | Н                     | 151                       | 211                              | 1 / 0             | 12.22                        | 9.39                  | 21.61         | 0.145           | 33.01                  | -11.40         |
| 2502.50            | 5                             | 64-QAM  | Н                     | 112                       | 215                              | 1 / 24            | 10.44                        | 9.43                  | 19.87         | 0.097           | 33.01                  | -13.14         |
| 2567.50            | 5                             | 256-QAM | Н                     | 120                       | 215                              | 1 / 24            | 7.00                         | 9.45                  | 16.45         | 0.044           | 33.01                  | -16.56         |
| 2505.00            | 10                            | QPSK    | Н                     | 112                       | 211                              | 1 / 0             | 12.53                        | 9.43                  | 21.95         | 0.157           | 33.01                  | -11.06         |
| 2535.00            | 10                            | QPSK    | Н                     | 151                       | 210                              | 1 / 49            | 12.58                        | 9.39                  | 21.97         | 0.158           | 33.01                  | -11.04         |
| 2565.00            | 10                            | QPSK    | Н                     | 115                       | 220                              | 1 / 0             | 12.61                        | 9.44                  | 22.05         | 0.160           | 33.01                  | -10.96         |
| 2565.00            | 10                            | 16-QAM  | Н                     | 115                       | 220                              | 1 / 0             | 12.10                        | 9.44                  | 21.54         | 0.143           | 33.01                  | -11.47         |
| 2535.00            | 10                            | 64-QAM  | Н                     | 151                       | 210                              | 1 / 49            | 10.68                        | 9.39                  | 20.07         | 0.102           | 33.01                  | -12.94         |
| 2565.00            | 10                            | 256-QAM | Н                     | 115                       | 220                              | 1 / 49            | 7.79                         | 9.44                  | 17.23         | 0.053           | 33.01                  | -15.78         |
| 2507.50            | 15                            | QPSK    | Н                     | 119                       | 211                              | 1 / 0             | 12.47                        | 9.42                  | 21.89         | 0.155           | 33.01                  | -11.12         |
| 2535.00            | 15                            | QPSK    | Н                     | 151                       | 202                              | 1 / 74            | 12.59                        | 9.39                  | 21.98         | 0.158           | 33.01                  | -11.03         |
| 2562.50            | 15                            | QPSK    | Н                     | 120                       | 220                              | 1 / 0             | 12.63                        | 9.43                  | 22.06         | 0.161           | 33.01                  | -10.95         |
| 2535.00            | 15                            | 16-QAM  | Н                     | 151                       | 202                              | 1 / 74            | 12.44                        | 9.39                  | 21.83         | 0.153           | 33.01                  | -11.18         |
| 2535.00            | 15                            | 64-QAM  | Н                     | 151                       | 202                              | 1 / 74            | 10.92                        | 9.39                  | 20.31         | 0.108           | 33.01                  | -12.70         |
| 2535.00            | 15                            | 256-QAM | Н                     | 151                       | 202                              | 1 / 74            | 8.18                         | 9.39                  | 17.57         | 0.057           | 33.01                  | -15.44         |
| 2510.00            | 20                            | QPSK    | Н                     | 118                       | 210                              | 1 / 0             | 12.52                        | 9.42                  | 21.94         | 0.156           | 33.01                  | -11.07         |
| 2535.00            | 20                            | QPSK    | Н                     | 151                       | 200                              | 1 / 99            | 12.76                        | 9.39                  | 22.15         | 0.164           | 33.01                  | -10.86         |
| 2560.00            | 20                            | QPSK    | Н                     | 116                       | 224                              | 1 / 0             | 12.59                        | 9.42                  | 22.01         | 0.159           | 33.01                  | -11.00         |
| 2535.00            | 20                            | 16-QAM  | Н                     | 151                       | 200                              | 1 / 99            | 12.23                        | 9.39                  | 21.62         | 0.145           | 33.01                  | -11.39         |
| 2535.00            | 20                            | 64-QAM  | Н                     | 151                       | 200                              | 1 / 99            | 11.21                        | 9.39                  | 20.60         | 0.115           | 33.01                  | -12.41         |
| 2535.00            | 20                            | 256-QAM | Н                     | 151                       | 200                              | 1 / 99            | 8.62                         | 9.39                  | 18.01         | 0.063           | 33.01                  | -15.00         |
| 2535.00            | 20                            | QPSK    | V                     | 130                       | 349                              | 1 / 99            | 12.13                        | 9.39                  | 21.52         | 0.142           | 33.01                  | -11.49         |
| 2535.00            | 20 (WCP)                      | QPSK    | Н                     | 155                       | 245                              | 1 / 99            | 11.71                        | 9.39                  | 21.10         | 0.129           | 33.01                  | -11.91         |

Table 7-10. EIRP Data (Band 7)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Daga 282 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 282 of 434                 |
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| Frequency<br>[MHz] | Channel<br>Bandwidth<br>[MHz] | Mod.    | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | RB<br>Size/Offset | Substitute<br>Level<br>[dBm] | Ant.<br>Gain<br>[dBi] | EIRP<br>[dBm] | EIRP<br>[Watts] | EIRP<br>Limit<br>[dBm] | Margin<br>[dB] |
|--------------------|-------------------------------|---------|-----------------------|---------------------------|----------------------------------|-------------------|------------------------------|-----------------------|---------------|-----------------|------------------------|----------------|
| 2498.50            | 5                             | QPSK    | Н                     | 158                       | 200                              | 1 / 0             | 11.61                        | 9.43                  | 21.04         | 0.127           | 33.01                  | -11.97         |
| 2593.00            | 5                             | QPSK    | Н                     | 155                       | 230                              | 1 / 0             | 13.46                        | 9.55                  | 23.01         | 0.200           | 33.01                  | -10.00         |
| 2687.50            | 5                             | QPSK    | Н                     | 112                       | 230                              | 1 / 0             | 8.21                         | 9.82                  | 18.03         | 0.063           | 33.01                  | -14.98         |
| 2498.50            | 5                             | 16-QAM  | Н                     | 158                       | 200                              | 1 / 0             | 12.94                        | 9.43                  | 22.37         | 0.173           | 33.01                  | -10.64         |
| 2498.50            | 5                             | 64-QAM  | Н                     | 158                       | 200                              | 1 / 0             | 9.93                         | 9.43                  | 19.36         | 0.086           | 33.01                  | -13.65         |
| 2498.50            | 5                             | 256-QAM | Н                     | 158                       | 200                              | 1 / 0             | 6.96                         | 9.43                  | 16.39         | 0.044           | 33.01                  | -16.62         |
| 2501.00            | 10                            | QPSK    | Н                     | 158                       | 199                              | 1 / 0             | 12.27                        | 9.43                  | 21.70         | 0.148           | 33.01                  | -11.31         |
| 2593.00            | 10                            | QPSK    | Н                     | 155                       | 246                              | 1 / 0             | 13.25                        | 9.55                  | 22.80         | 0.191           | 33.01                  | -10.21         |
| 2685.00            | 10                            | QPSK    | Н                     | 110                       | 225                              | 1 / 0             | 11.32                        | 9.82                  | 21.15         | 0.130           | 33.01                  | -11.86         |
| 2501.00            | 10                            | 16-QAM  | Н                     | 158                       | 199                              | 1 / 0             | 12.34                        | 9.43                  | 21.77         | 0.150           | 33.01                  | -11.24         |
| 2501.00            | 10                            | 64-QAM  | Н                     | 158                       | 199                              | 1 / 0             | 10.13                        | 9.43                  | 19.56         | 0.090           | 33.01                  | -13.45         |
| 2501.00            | 10                            | 256-QAM | Н                     | 158                       | 199                              | 1 / 0             | 8.05                         | 9.43                  | 17.48         | 0.056           | 33.01                  | -15.53         |
| 2503.50            | 15                            | QPSK    | Н                     | 158                       | 198                              | 1 / 0             | 12.63                        | 9.43                  | 22.06         | 0.161           | 33.01                  | -10.95         |
| 2593.00            | 15                            | QPSK    | Н                     | 152                       | 246                              | 1 / 0             | 12.63                        | 9.55                  | 22.18         | 0.165           | 33.01                  | -10.83         |
| 2682.50            | 15                            | QPSK    | Н                     | 108                       | 222                              | 1 / 0             | 13.22                        | 9.83                  | 23.05         | 0.202           | 33.01                  | -9.96          |
| 2503.50            | 15                            | 16-QAM  | Н                     | 158                       | 198                              | 1 / 0             | 12.12                        | 9.43                  | 21.55         | 0.143           | 33.01                  | -11.46         |
| 2682.50            | 15                            | 64-QAM  | Н                     | 108                       | 222                              | 1 / 0             | 10.69                        | 9.83                  | 20.52         | 0.113           | 33.01                  | -12.49         |
| 2503.50            | 15                            | 256-QAM | Н                     | 158                       | 198                              | 1 / 0             | 8.59                         | 9.43                  | 18.02         | 0.063           | 33.01                  | -14.99         |
| 2506.00            | 20                            | QPSK    | Н                     | 158                       | 198                              | 1 / 0             | 12.81                        | 9.42                  | 22.23         | 0.167           | 33.01                  | -10.78         |
| 2593.00            | 20                            | QPSK    | Н                     | 152                       | 246                              | 1 / 0             | 12.81                        | 9.55                  | 22.36         | 0.172           | 33.01                  | -10.65         |
| 2680.00            | 20                            | QPSK    | Н                     | 108                       | 222                              | 1 / 0             | 13.89                        | 9.83                  | 23.72         | 0.236           | 33.01                  | -9.29          |
| 2680.00            | 20                            | 16-QAM  | Н                     | 108                       | 222                              | 1 / 0             | 13.09                        | 9.83                  | 22.92         | 0.196           | 33.01                  | -10.09         |
| 2680.00            | 20                            | 64-QAM  | Н                     | 108                       | 222                              | 1 / 0             | 11.62                        | 9.83                  | 21.45         | 0.140           | 33.01                  | -11.56         |
| 2680.00            | 20                            | 256-QAM | Н                     | 108                       | 222                              | 100 / 0           | 8.96                         | 9.83                  | 18.79         | 0.076           | 33.01                  | -14.22         |
| 2680.00            | 20                            | QPSK    | V                     | 184                       | 205                              | 1 / 0             | 12.04                        | 9.83                  | 21.87         | 0.154           | 33.01                  | -11.14         |
| 2680.00            | 20 (WCP)                      | QPSK    | Н                     | 252                       | 45                               | 1 / 0             | 12.13                        | 9.83                  | 21.96         | 0.157           | 33.01                  | -11.05         |

Table 7-11. EIRP Data (Band 41 – PC3)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | MSUNG           | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|-----------------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |                 | Dogo 202 of 424                 |
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# 7.7 Radiated Spurious Emissions Measurements

### **Test Overview**

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas.

### **Test Procedures Used**

KDB 971168 D01 v03r01 - Section 5.8

ANSI/TIA-603-E-2016 - Section 2.2.12

#### Test Settings

- 1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
- 2. VBW  $\ge$  3 x RBW
- 3. Span = 1.5 times the OBW
- 4. No. of sweep points > 2 x span / RBW
- 5. Detector = RMS
- 6. Trace mode = Average (Max Hold for pulsed emissions)
- 7. The trace was allowed to stabilize

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | Daga 204 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      | Page 284 of 434                 |
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The EUT and measurement equipment were set up as shown in the diagram below.

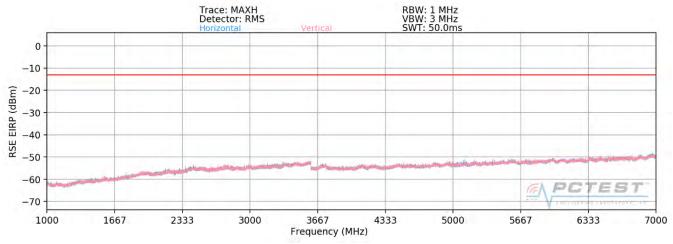
Figure 7-7. Test Instrument & Measurement Setup

#### Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 4) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 5) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dage 205 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 285 of 434                 |
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Plot 7-494. Radiated Spurious Plot above 1GHz (Band 71)

| OPERATING FREQUENCY: | 670.50 | MHz    |
|----------------------|--------|--------|
| MODULATION SIGNAL:   | QPSK   | _      |
| BANDWIDTH:           | 15.0   | MHz    |
| DISTANCE:            | 3      | meters |
| LIMIT:               | -13    | _dBm   |
|                      |        |        |

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 1341.00            | V                     | 169                       | 351                              | -72.38                              | 8.77                                | -63.62                              | -50.6          |
| 2011.50            | V                     | 177                       | 179                              | -70.96                              | 10.28                               | -60.68                              | -47.7          |
| 2682.00            | V                     | 385                       | 310                              | -68.55                              | 9.83                                | -58.72                              | -45.7          |
| 3352.50            | V                     | -                         | -                                | -65.63                              | 7.30                                | -58.33                              | -45.3          |
| 4023.00            | V                     | -                         | -                                | -66.70                              | 7.35                                | -59.35                              | -46.4          |

Table 7-12. Radiated Spurious Data (Band 71 – Low Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | Dama 200 of 424                 |
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OPERATING FREQUENCY:680.50MHzMODULATION SIGNAL:QPSKBANDWIDTH:15.0MHzDISTANCE:3metersLIMIT:-13dBm

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 1361.00            | V                     | 168                       | 233                              | -70.83                              | 8.61                                | -62.22                              | -49.2          |
| 2041.50            | V                     | 385                       | 243                              | -67.18                              | 10.04                               | -57.15                              | -44.1          |
| 2722.00            | V                     | -                         | -                                | -69.61                              | 9.58                                | -60.04                              | -47.0          |
| 3402.50            | V                     | -                         | -                                | -66.24                              | 7.33                                | -58.91                              | -45.9          |

Table 7-13. Radiated Spurious Data (Band 71 – Mid Channel)

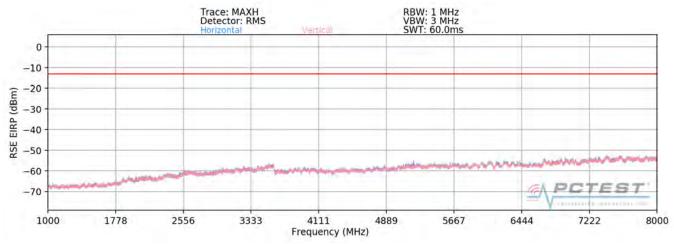
| OPERATING FREQUENCY: | 690  | MHz    |  |
|----------------------|------|--------|--|
| MODULATION SIGNAL:   | QPSK | _      |  |
| BANDWIDTH:           | 15.0 | MHz    |  |
| DISTANCE:            | 3    | meters |  |
| LIMIT:               | -13  | dBm    |  |
|                      |      |        |  |

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 1381.00            | V                     | 207                       | 123                              | -72.43                              | 8.35                                | -64.08                              | -51.1          |
| 2071.50            | V                     | 280                       | 187                              | -66.65                              | 9.82                                | -56.83                              | -43.8          |
| 2762.00            | V                     | -                         | -                                | -69.12                              | 9.25                                | -59.87                              | -46.9          |
| 3452.50            | V                     | -                         | -                                | -66.17                              | 7.55                                | -58.62                              | -45.6          |

Table 7-14. Radiated Spurious Data (Band 71 – High Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | Dage 287 of 424                 |
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Plot 7-495. Radiated Spurious Plot above 1GHz (Band 12)

| OPERATING FREQUENCY: | 70   | 1.50 MH | z |
|----------------------|------|---------|---|
| MODULATION SIGNAL:   | QPSK | _       |   |
| BANDWIDTH:           | 5.0  | MHz     |   |
| DISTANCE:            | 3    | meters  |   |
| LIMIT:               | -13  | dBm     |   |
|                      |      |         |   |

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 1403.00            | V                     | 161                       | 282                              | -37.90                              | 8.12                                | -29.77                              | -16.8          |
| 2104.50            | V                     | 133                       | 249                              | -37.02                              | 9.62                                | -27.40                              | -14.4          |
| 2806.00            | V                     | -                         | -                                | -39.48                              | 9.09                                | -30.39                              | -17.4          |
| 3507.50            | V                     | -                         | -                                | -37.34                              | 7.44                                | -29.90                              | -16.9          |

Table 7-15. Radiated Spurious Data (Band 12 – Low Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dega 200 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 288 of 434                 |
| © 2020 PCTEST       |                     | •                                     |         | V 9.0 02/01/2019                |



OPERATING FREQUENCY:707.50MHzMODULATION SIGNAL:QPSKBANDWIDTH:5.0MHzDISTANCE:3metersLIMIT:-13dBm

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 1415.00            | V                     | 150                       | 293                              | -38.89                              | 8.22                                | -30.67                              | -17.7          |
| 2122.50            | V                     | 125                       | 278                              | -37.38                              | 9.59                                | -27.80                              | -14.8          |
| 2830.00            | V                     | -                         | -                                | -39.42                              | 9.10                                | -30.32                              | -17.3          |
| 3537.50            | V                     | -                         | -                                | -37.24                              | 7.26                                | -29.98                              | -17.0          |

Table 7-16. Radiated Spurious Data (Band 12 – Mid Channel)

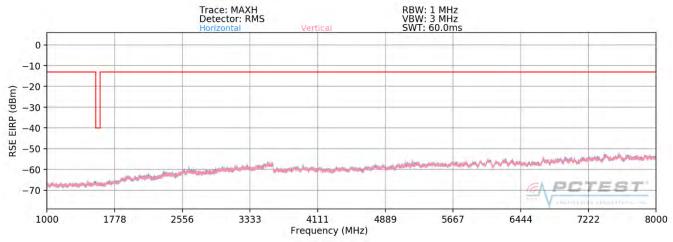
| OPERATING FREQUENCY: | 71:  | 3.50 MHz |
|----------------------|------|----------|
| MODULATION SIGNAL:   | QPSK | _        |
| BANDWIDTH:           | 5.0  | MHz      |
| DISTANCE:            | 3    | meters   |
| LIMIT:               | -13  | dBm      |
|                      |      |          |

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 1427.00            | V                     | 398                       | 282                              | -41.96                              | 8.31                                | -33.65                              | -20.7          |
| 2140.50            | V                     | 183                       | 279                              | -36.80                              | 9.56                                | -27.25                              | -14.2          |
| 2854.00            | V                     | -                         | -                                | -39.47                              | 9.12                                | -30.35                              | -17.4          |
| 3567.50            | V                     | -                         | -                                | -37.14                              | 7.10                                | -30.04                              | -17.0          |

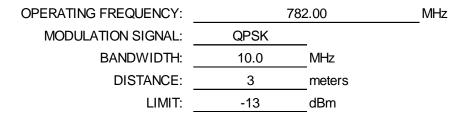
Table 7-17. Radiated Spurious Data (Band 12 – High Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |      | Dogo 200 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |      | Page 289 of 434                 |
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Plot 7-496. Radiated Spurious Plot above 1GHz (Band 13)



| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 2346.00            | V                     | 137                       | 113                              | -69.09                              | 9.43                                | -59.66                              | -46.7          |
| 3128.00            | V                     | -                         | -                                | -74.60                              | 9.34                                | -65.26                              | -52.3          |
| 3910.00            | V                     | -                         | -                                | -73.62                              | 9.37                                | -64.25                              | -51.2          |

Table 7-18. Radiated Spurious Data (Band 13 – Mid Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | Dogo 200 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      | Page 290 of 434                 |
| © 2020 PCTEST       | -                   |                                       | V 9.0 02/01/2019                |



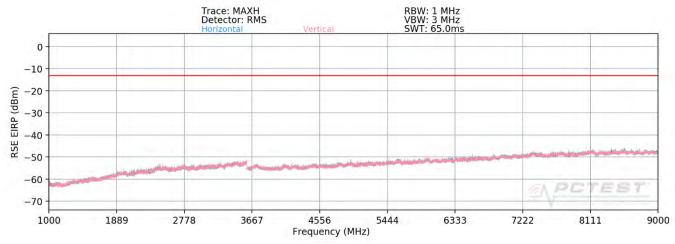
| MODULATION SIGNAL:          | QPSK  | _       |
|-----------------------------|-------|---------|
| BANDWIDTH:                  | 10.00 | MHz     |
| DISTANCE:                   | 3     | meters  |
| NARROW BAND EMISSION LIMIT: | -50   | dBm     |
| WIDEBAND EMISSION LIMIT:    | -40   | dBm/MHz |

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 1564.00            | V                     | 136                       | 310                              | -78.29                              | 8.53                                | -69.76                              | -29.8          |

Table 7-19. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | Dage 201 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      | Page 291 of 434                 |
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MHz

**OPERATING FREQUENCY:** 

| PERATING FREQUENCY: | 829.00 |        |  |
|---------------------|--------|--------|--|
| MODULATION SIGNAL:  | QPSK   | _      |  |
| BANDWIDTH:          | 10.0   | MHz    |  |
| DISTANCE:           | 3      | meters |  |
| LIMIT:              | -13    | dBm    |  |

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 1658.00            | V                     | 368                       | 176                              | -75.10                              | 9.55                                | -65.54                              | -52.5          |
| 2487.00            | V                     | 114                       | 92                               | -69.91                              | 9.45                                | -60.46                              | -47.5          |
| 3316.00            | V                     | -                         | -                                | -69.19                              | 7.44                                | -61.75                              | -48.7          |
| 4145.00            | V                     | -                         | -                                | -70.06                              | 8.05                                | -62.01                              | -49.0          |

Table 7-20. Radiated Spurious Data (Band 5 – Low Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | Dage 202 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      | Page 292 of 434                 |
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OPERATING FREQUENCY:836.50MHzMODULATION SIGNAL:QPSKBANDWIDTH:10.0MHzDISTANCE:3metersLIMIT:-13dBm

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 1673.00            | V                     | 241                       | 8                                | -74.39                              | 9.54                                | -64.85                              | -51.9          |
| 2509.50            | V                     | 108                       | 80                               | -69.85                              | 9.42                                | -60.43                              | -47.4          |
| 3346.00            | V                     | -                         | -                                | -68.08                              | 7.32                                | -60.77                              | -47.8          |
| 4182.50            | V                     | -                         | -                                | -69.30                              | 8.16                                | -61.14                              | -48.1          |

Table 7-21. Radiated Spurious Data (Band 5 – Mid Channel)

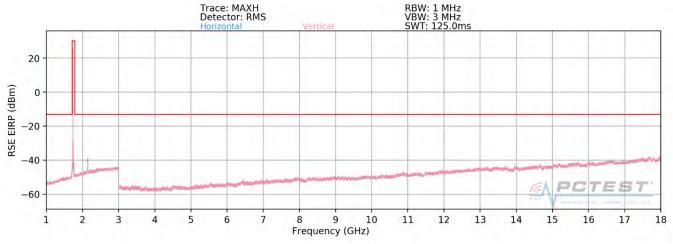
| OPERATING FREQUENCY: | 844  | MHz    |  |
|----------------------|------|--------|--|
| MODULATION SIGNAL:   | QPSK | _      |  |
| BANDWIDTH:           | 10.0 | MHz    |  |
| DISTANCE:            | 3    | meters |  |
| LIMIT:               | -13  | dBm    |  |
|                      |      |        |  |

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 1688.00            | V                     | 185                       | 155                              | -73.16                              | 9.52                                | -63.64                              | -50.6          |
| 2532.00            | V                     | 138                       | 113                              | -67.82                              | 9.40                                | -58.42                              | -45.4          |
| 3376.00            | V                     | -                         | -                                | -68.50                              | 7.31                                | -61.19                              | -48.2          |
| 4220.00            | V                     | -                         | -                                | -68.89                              | 8.34                                | -60.56                              | -47.6          |

Table 7-22. Radiated Spurious Data (Band 5 – High Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | Dage 202 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      | Page 293 of 434                 |
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## Plot 7-498. Radiated Spurious Plot above 1GHz (Band 66/4)

| OPERATING FREQUENCY: | 1720.00 |        |  |
|----------------------|---------|--------|--|
| MODULATION SIGNAL:   | QPSK    |        |  |
| BANDWIDTH:           | 20.0    | MHz    |  |
| DISTANCE:            | 3       | meters |  |
| LIMIT:               | -13     | dBm    |  |
|                      |         |        |  |

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 3440.00            | н                     | -                         | -                                | -66.60                              | 7.51                                | -59.09                              | -46.1          |
| 5160.00            | Н                     | -                         | -                                | -68.87                              | 11.10                               | -57.77                              | -44.8          |

Table 7-23. Radiated Spurious Data (Band 66/4 – Low Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dage 204 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 294 of 434                 |
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OPERATING FREQUENCY:1745.00MHzMODULATION SIGNAL:QPSKBANDWIDTH:20.0MHzDISTANCE:3metersLIMIT:-13dBm

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 3490.00            | Н                     | -                         | -                                | -66.49                              | 7.50                                | -58.99                              | -46.0          |
| 5235.00            | Н                     | -                         | -                                | -69.57                              | 11.26                               | -58.31                              | -45.3          |

Table 7-24. Radiated Spurious Data (Band 66/4 - Mid Channel)

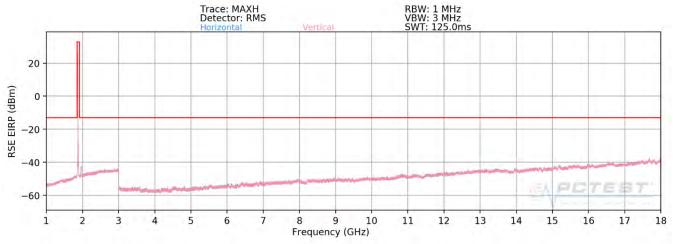
| OPERATING FREQUENCY: | 177  | 0.00 N | /Hz |
|----------------------|------|--------|-----|
| MODULATION SIGNAL:   | QPSK | _      |     |
| BANDWIDTH:           | 20.0 | MHz    |     |
| DISTANCE:            | 3    | meters |     |
| LIMIT:               | -13  | dBm    |     |

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 3540.00            | Н                     | -                         | -                                | -66.32                              | 7.24                                | -59.07                              | -46.1          |
| 5310.00            | Н                     | -                         | -                                | -69.83                              | 11.51                               | -58.32                              | -45.3          |

Table 7-25. Radiated Spurious Data (Band 66/4 – High Channel)

| FCC ID: A3LSMG986W                      | PCTEST      | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |  |
|---|-------------|---------------------------------------|---------------------------------|--|
| Test Report S/N:                        | Test Dates: | EUT Type:                             | Dage 205 of 424                 |  |
| 1M1911010179-03.A3L 10/11/19 - 01/09/20 |             | Portable Handset                      | Page 295 of 434                 |  |
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Plot 7-499. Radiated Spurious Plot above 1GHz (Band 25/2)

| OPERATING FREQUENCY: |      | MHz    |  |
|----------------------|------|--------|--|
| MODULATION SIGNAL:   | QPSK |        |  |
| BANDWIDTH:           | 20.0 | MHz    |  |
| DISTANCE:            | 3    | meters |  |
| LIMIT:               | -13  | dBm    |  |
|                      |      |        |  |

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 3720.00            | H                     | -                         | -                                | -72.67                              | 9.51                                | -63.17                              | -50.2          |
| 5580.00            | Н                     | -                         | -                                | -72.48                              | 10.99                               | -61.50                              | -48.5          |

Table 7-26. Radiated Spurious Data (Band 25/2 – Low Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dage 206 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 296 of 434                 |
| © 2020 PCTEST       | •                   |                                       |         | V 9.0 02/01/2019                |



OPERATING FREQUENCY:1882.50MHzMODULATION SIGNAL:QPSKBANDWIDTH:20.0MHzDISTANCE:3metersLIMIT:-13dBm

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 3765.00            | Н                     | -                         | -                                | -73.14                              | 9.36                                | -63.78                              | -50.8          |
| 5647.50            | Н                     | -                         | -                                | -71.91                              | 11.19                               | -60.71                              | -47.7          |

Table 7-27. Radiated Spurious Data (Band 25/2 - Mid Channel)

| OPERATING FREQUENCY: | 190  | 05.00  | MHz |
|----------------------|------|--------|-----|
| MODULATION SIGNAL:   | QPSK | _      |     |
| BANDWIDTH:           | 20.0 | MHz    |     |
| DISTANCE:            | 3    | meters |     |
| LIMIT:               | -13  | dBm    |     |

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 3810.00            | Н                     | -                         | -                                | -72.74                              | 9.29                                | -63.44                              | -50.4          |
| 5715.00            | Н                     | -                         | -                                | -72.50                              | 11.35                               | -61.15                              | -48.1          |

Table 7-28. Radiated Spurious Data (Band 25/2 – High Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | Dage 207 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      | Page 297 of 434                 |
| © 2020 PCTEST       |                     |                                       | V 9.0 02/01/2019                |



-40-50

-60

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Frequency (MHz) Plot 7-501. Radiated Spurious Plot 18GHz – 26.5GHz (Band 30)

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23600

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25467

26400

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | Dama 000 of 404                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      | Page 298 of 434                 |
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| OPERATING FREQUENCY: | 231  | 0.00   | MHz |
|----------------------|------|--------|-----|
| MODULATION SIGNAL:   | QPSK | _      |     |
| BANDWIDTH:           | 10.0 | MHz    |     |
| DISTANCE:            | 3    | meters |     |
| LIMIT:               | -40  | dBm    |     |

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 4620.00            | Н                     | 119                       | 114                              | -73.46                              | 10.92                               | -62.54                              | -22.5          |
| 6930.00            | Н                     | -                         | -                                | -71.93                              | 11.74                               | -60.19                              | -20.2          |
| 9240.00            | Н                     | 118                       | 107                              | -68.24                              | 11.62                               | -56.62                              | -16.6          |
| 11550.00           | Н                     | 250                       | 281                              | -66.25                              | 12.72                               | -53.53                              | -13.5          |
| 13860.00           | Н                     | -                         | -                                | -62.78                              | 11.99                               | -50.78                              | -10.8          |
| 16170.00           | Н                     | -                         | -                                | -70.23                              | 16.59                               | -53.63                              | -13.6          |

Table 7-29. Radiated Spurious Data (Band 30 – Mid Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Page 299 of 434                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         |                                 |
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RSE EIRP (dBm)

-20 -30 -40 -50

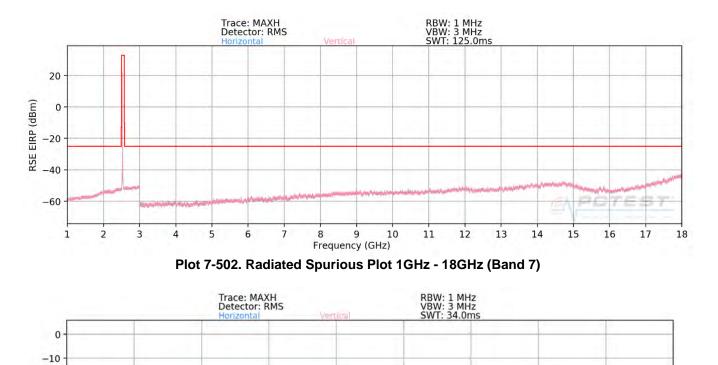
-60

18000

18933

19867

20800





22667

23600

24533

21733

Frequency (MHz)

PCTEST

26400

25467

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | Dage 200 of 424                 |
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| OPERATING FREQUENCY: | 251  | MHz    |  |
|----------------------|------|--------|--|
| MODULATION SIGNAL:   | QPSK | _      |  |
| BANDWIDTH:           | 20.0 | MHz    |  |
| DISTANCE:            | 3    | meters |  |
| LIMIT:               | -25  | dBm    |  |

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 5020.00            | Н                     | 108                       | 188                              | -66.12                              | 10.80                               | -55.32                              | -30.3          |
| 7530.00            | Н                     | -                         | -                                | -65.87                              | 12.56                               | -53.32                              | -28.3          |
| 10040.00           | Н                     | -                         | -                                | -61.08                              | 9.75                                | -51.33                              | -26.3          |

Table 7-30. Radiated Spurious Data (Band 7 – Low Channel)

2535.00

OPERATING FREQUENCY:

REQUENCY:

MHz

MODULATION SIGNAL: QPSK

| BANDWIDTH: | 20.0 | MHz    |
|------------|------|--------|
| DISTANCE:  | 3    | meters |

LIMIT: -25 dBm

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 5070.00            | Н                     | 124                       | 194                              | -67.09                              | 10.92                               | -56.17                              | -31.2          |
| 7605.00            | H                     | -                         | -                                | -65.42                              | 12.40                               | -53.02                              | -28.0          |
| 10140.00           | H                     | -                         | -                                | -60.89                              | 9.84                                | -51.05                              | -26.0          |

Table 7-31. Radiated Spurious Data (Band 7 – Mid Channel)

| FCC ID: A3LSMG986W  | PCTEST                               | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
|---------------------|--------------------------------------|---------------------------------------|---------------------------------|
| Test Report S/N:    | Test Dates:                          | EUT Type:                             | Dage 201 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 – 01/09/20 Portable Handset |                                       | Page 301 of 434                 |
| © 2020 PCTEST       |                                      |                                       | V 9.0 02/01/2019                |



| OPERATING FREQUENCY: | 256  | MHz    |  |
|----------------------|------|--------|--|
| MODULATION SIGNAL:   | QPSK | _      |  |
| BANDWIDTH:           | 20.0 | MHz    |  |
| DISTANCE:            | 3    | meters |  |
| LIMIT:               | -25  | dBm    |  |

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 5120.00            | Н                     | 128                       | 185                              | -66.82                              | 10.99                               | -55.83                              | -30.8          |
| 7680.00            | Н                     | -                         | -                                | -65.85                              | 12.35                               | -53.51                              | -28.5          |
| 10240.00           | Н                     | -                         | -                                | -60.50                              | 9.65                                | -50.84                              | -25.8          |

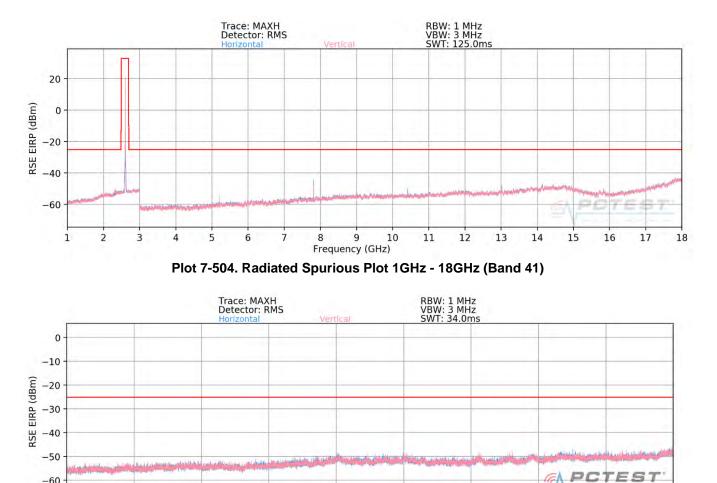
Table 7-32. Radiated Spurious Data (Band 7 – High Channel)

| FCC ID: A3LSMG986W  | PCTEST                               | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
|---------------------|--------------------------------------|---------------------------------------|---------------------------------|
| Test Report S/N:    | Test Dates:                          | EUT Type:                             | Daga 202 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 – 01/09/20 Portable Handset |                                       | Page 302 of 434                 |
| © 2020 PCTEST       | -                                    | ·                                     | V 9.0 02/01/2019                |



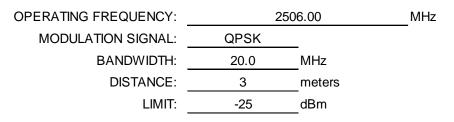
-60

Frequency (MHz) Plot 7-505. Radiated Spurious Plot 18GHz – 26.5GHz (Band 41)



| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dega 202 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | /11/19 – 01/09/20 Portable Handset    |         | Page 303 of 434                 |
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| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at<br>Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|--|-------------------------------------|-------------------------------------|----------------|
| 5012.00            | V                     | 395                       | 280                              | -62.31                                 | 8.56                                | -53.75                              | -28.8          |
| 7518.00            | V                     | 286                       | 194                              | -51.67                                 | 8.49                                | -43.18                              | -18.2          |
| 10024.00           | V                     | 264                       | 39                               | -59.76                                 | 9.85                                | -49.91                              | -24.9          |
| 12530.00           | V                     | 105                       | 81                               | -55.97                                 | 9.07                                | -46.90                              | -21.9          |
| 15036.00           | V                     | -                         | -                                | -54.57                                 | 8.77                                | -45.80                              | -20.8          |
| 17542.00           | V                     | -                         | -                                | -49.66                                 | 7.64                                | -42.02                              | -17.0          |

Table 7-33. Radiated Spurious Data (Band 41 – Low Channel)

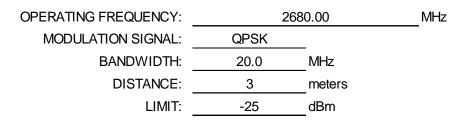
| OPERATING FREQUENCY: | 2593.00 |        |  |  |
|----------------------|---------|--------|--|--|
| MODULATION SIGNAL:   | QPSK    | _      |  |  |
| BANDWIDTH:           | 20.0    | MHz    |  |  |
| DISTANCE:            | 3       | meters |  |  |
| LIMIT:               | -25     | _dBm   |  |  |
|                      |         |        |  |  |

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 5186.00            | V                     | 114                       | 290                              | -61.00                              | 11.14                               | -49.87                              | -24.9          |
| 7779.00            | V                     | 110                       | 197                              | -48.17                              | 12.33                               | -35.84                              | -10.8          |
| 10372.00           | V                     | 108                       | 15                               | -52.33                              | 9.62                                | -42.70                              | -17.7          |
| 12965.00           | V                     | 100                       | 1                                | -48.36                              | 8.99                                | -39.37                              | -14.4          |
| 15558.00           | V                     | -                         | -                                | -53.42                              | 8.32                                | -45.11                              | -20.1          |

Table 7-34. Radiated Spurious Data (Band 41 – Mid Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dage 204 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 304 of 434                 |
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| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 5360.00            | V                     | 261                       | 284                              | -67.99                              | 11.49                               | -56.50                              | -31.5          |
| 8040.00            | V                     | 130                       | 209                              | -51.64                              | 12.03                               | -39.61                              | -14.6          |
| 10720.00           | V                     | 108                       | 12                               | -49.70                              | 9.32                                | -40.38                              | -15.4          |
| 13400.00           | V                     | 166                       | 284                              | -53.73                              | 8.77                                | -44.96                              | -20.0          |
| 16080.00           | V                     | -                         | -                                | -52.82                              | 8.00                                | -44.82                              | -19.8          |

Table 7-35. Radiated Spurious Data (Band 41 – High Channel)

OPERATING FREQUENCY: 2680.00 MHz MODULATION SIGNAL: QPSK BANDWIDTH: 20.0 MHz DISTANCE: 3 meters LIMIT: -25 dBm

| Frequency<br>[MHz] | Ant.<br>Pol.<br>[H/V] | Antenna<br>Height<br>[cm] | Turntable<br>Azimuth<br>[degree] | Level at Antenna<br>Terminals [dBm] | Substitute<br>Antenna Gain<br>[dBi] | Spurious<br>Emission Level<br>[dBm] | Margin<br>[dB] |
|--------------------|-----------------------|---------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 5360.00            | V                     | 152                       | 63                               | -59.48                              | 8.99                                | -50.48                              | -25.5          |
| 8040.00            | V                     | -                         | -                                | -57.13                              | 9.35                                | -47.77                              | -22.8          |
| 10720.00           | V                     | -                         | -                                | -54.25                              | 9.39                                | -44.85                              | -19.9          |

Table 7-36. Radiated Spurious Data with WCP (Band 41 – PC2 High Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dega 205 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 305 of 434                 |
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### 7.8 Frequency Stability / Temperature Variation

### **Test Overview and Limit**

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

For Part 22, the frequency stability of the transmitter shall be maintained within  $\pm 0.00025\%$  ( $\pm 2.5$  ppm) of the center frequency. For Part 24, Part 27, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

#### Test Procedure Used

ANSI/TIA-603-E-2016

#### Test Settings

- 1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
- 2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
- 3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

#### Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

#### Test Notes

None

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dage 206 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 306 of 434                 |
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# **Band 71 Frequency Stability Measurements**

| OPERATING FREQUENCY: | 680,500,000 | Hz  |
|----------------------|-------------|-----|
| REFERENCE VOLTAGE:   | 4.19        | VDC |

| VOLTAGE<br>(%) | POWER<br>(VDC) | TEMP<br>(°C) | FREQUENCY<br>(Hz) | Freq. Dev.<br>(Hz) | Deviation<br>(%) |
|----------------|----------------|--------------|-------------------|--------------------|------------------|
| 100 %          | 4.19           | - 30         | 680,499,802       | -198               | -0.0000291       |
| 100 %          |                | - 20         | 680,500,061       | 61                 | 0.0000090        |
| 100 %          |                | - 10         | 680,500,205       | 205                | 0.0000301        |
| 100 %          |                | 0            | 680,499,976       | -24                | -0.0000035       |
| 100 %          |                | + 10         | 680,500,098       | 98                 | 0.0000144        |
| 100 %          |                | + 20         | 680,499,751       | -249               | -0.0000366       |
| 100 %          |                | + 30         | 680,500,383       | 383                | 0.0000563        |
| 100 %          |                | + 40         | 680,500,327       | 327                | 0.0000481        |
| 100 %          |                | + 50         | 680,499,881       | -119               | -0.0000175       |
| BATT. ENDPOINT | 3.79           | + 20         | 680,499,803       | -197               | -0.0000289       |

Table 7-37. Frequency Stability Data (Band 71)

### Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Page 307 of 434                 |
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| © 2020 PCTEST       |                     |                                       |         | V 9.0 02/01/2019                |





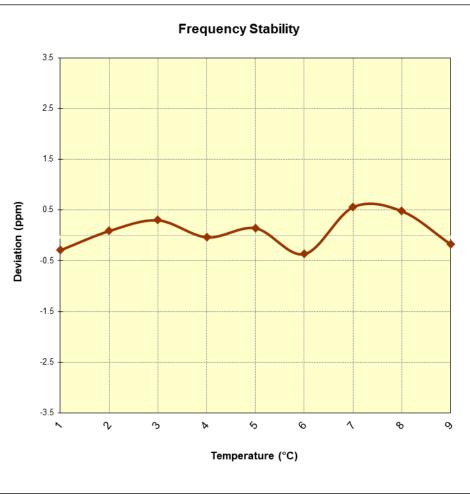


Figure 7-8. Frequency Stability Graph (Band 71)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dama 200 of 404                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 308 of 434                 |
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# **Band 12 Frequency Stability Measurements**

| OPERATING FREQUENCY: | 707,500,000 | Hz  |
|----------------------|-------------|-----|
| REFERENCE VOLTAGE:   | 4.19        | VDC |

| VOLTAGE<br>(%) | POWER<br>(VDC) | <b>ТЕМР</b><br>(°С) | FREQUENCY<br>(Hz) | Freq. Dev.<br>(Hz) | Deviation<br>(%) |
|----------------|----------------|---------------------|-------------------|--------------------|------------------|
| 100 %          | 4.19           | - 30                | 707,499,838       | -162               | -0.0000229       |
| 100 %          |                | - 20                | 707,500,253       | 253                | 0.0000358        |
| 100 %          |                | - 10                | 707,499,929       | -71                | -0.0000100       |
| 100 %          |                | 0                   | 707,499,756       | -244               | -0.0000345       |
| 100 %          |                | + 10                | 707,499,988       | -12                | -0.0000017       |
| 100 %          |                | + 20                | 707,499,886       | -114               | -0.0000161       |
| 100 %          |                | + 30                | 707,500,237       | 237                | 0.0000335        |
| 100 %          |                | + 40                | 707,500,029       | 29                 | 0.0000041        |
| 100 %          |                | + 50                | 707,500,079       | 79                 | 0.0000112        |
| BATT. ENDPOINT | 3.79           | + 20                | 707,500,076       | 76                 | 0.0000107        |

Table 7-38. Frequency Stability Data (Band 12)

### Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dage 200 of 424                 |
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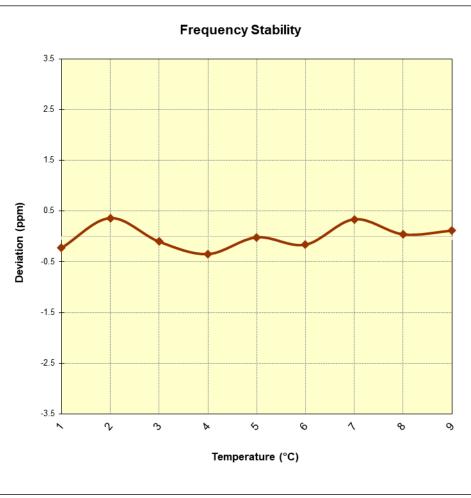


Figure 7-9. Frequency Stability Graph (Band 12)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dogo 210 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 310 of 434                 |
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# **Band 13 Frequency Stability Measurements**

| OPERATING FREQUENCY: | 782,000,000 | _Hz |
|----------------------|-------------|-----|
| REFERENCE VOLTAGE:   | 4.19        | VDC |

| VOLTAGE<br>(%) | POWER<br>(VDC) | TEMP<br>(°C) | FREQUENCY<br>(Hz) | Freq. Dev.<br>(Hz) | Deviation<br>(%) |
|----------------|----------------|--------------|-------------------|--------------------|------------------|
| 100 %          | 4.19           | - 30         | 782,000,117       | 117                | 0.0000150        |
| 100 %          |                | - 20         | 781,999,879       | -121               | -0.0000155       |
| 100 %          |                | - 10         | 782,000,260       | 260                | 0.0000332        |
| 100 %          |                | 0            | 782,000,066       | 66                 | 0.0000084        |
| 100 %          |                | + 10         | 781,999,933       | -67                | -0.000086        |
| 100 %          |                | + 20         | 781,999,891       | -109               | -0.0000139       |
| 100 %          |                | + 30         | 782,000,186       | 186                | 0.0000238        |
| 100 %          |                | + 40         | 782,000,194       | 194                | 0.0000248        |
| 100 %          |                | + 50         | 782,000,221       | 221                | 0.0000283        |
| BATT. ENDPOINT | 3.79           | + 20         | 781,999,844       | -156               | -0.0000199       |

Table 7-39. Frequency Stability Data (Band 13)

### Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dage 211 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 311 of 434                 |
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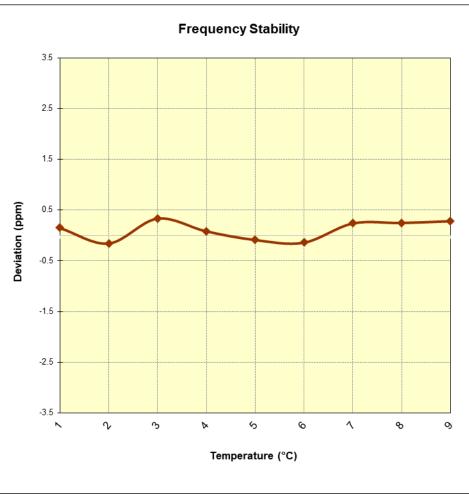


Figure 7-10. Frequency Stability Graph (Band 13)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dage 212 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 312 of 434                 |
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# **Band 5 Frequency Stability Measurements**

| OPERATING FREQUENCY: | 831,500,000 | _Hz |
|----------------------|-------------|-----|
| REFERENCE VOLTAGE:   | 4.19        | VDC |

| VOLTAGE<br>(%) | POWER<br>(VDC) | TEMP<br>(°C) | FREQUENCY<br>(Hz) | Freq. Dev.<br>(Hz) | Deviation<br>(%) |
|----------------|----------------|--------------|-------------------|--------------------|------------------|
| 100 %          | 4.19           | - 30         | 831,499,835       | -165               | -0.0000198       |
| 100 %          |                | - 20         | 831,499,589       | -411               | -0.0000494       |
| 100 %          |                | - 10         | 831,499,919       | -81                | -0.0000097       |
| 100 %          |                | 0            | 831,499,997       | -3                 | -0.0000004       |
| 100 %          |                | + 10         | 831,500,237       | 237                | 0.0000285        |
| 100 %          |                | + 20         | 831,500,168       | 168                | 0.0000202        |
| 100 %          |                | + 30         | 831,500,013       | 13                 | 0.0000016        |
| 100 %          |                | + 40         | 831,499,727       | -273               | -0.0000328       |
| 100 %          |                | + 50         | 831,500,012       | 12                 | 0.0000014        |
| BATT. ENDPOINT | 3.79           | + 20         | 831,499,915       | -85                | -0.0000102       |

Table 7-40. Frequency Stability Data (Band 5)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dage 212 of 424                 |
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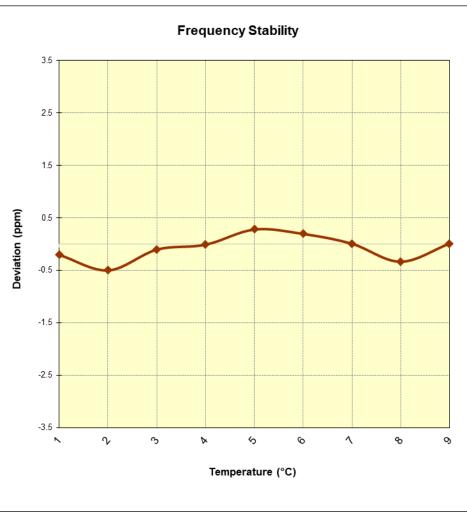


Figure 7-11. Frequency Stability Graph (Band 5)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | UNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|-----|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |     | Dege 214 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |     | Page 314 of 434                 |
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# **Band 66/4 Frequency Stability Measurements**

| OPERATING FRE  | QUENCY:            | 1,7          | 45,000,000        | Hz                 |                  |
|----------------|--------------------|--------------|-------------------|--------------------|------------------|
| REFERENCE V    | REFERENCE VOLTAGE: |              | 4.19              |                    |                  |
|                |                    |              |                   |                    |                  |
| VOLTAGE<br>(%) | POWER<br>(VDC)     | TEMP<br>(°C) | FREQUENCY<br>(Hz) | Freq. Dev.<br>(Hz) | Deviation<br>(%) |
| 100 %          | 4.19               | - 30         | 1,745,000,285     | 285                | 0.0000163        |
| 100 %          |                    | - 20         | 1,745,000,085     | 85                 | 0.0000049        |
| 100 %          |                    | - 10         | 1,744,999,829     | -171               | -0.0000098       |
| 100 %          |                    | 0            | 1,745,000,156     | 156                | 0.000089         |
| 100 %          |                    | + 10         | 1,745,000,121     | 121                | 0.0000069        |
| 100 %          |                    | + 20         | 1,744,999,903     | -97                | -0.0000056       |
| 100 %          |                    | + 30         | 1,745,000,023     | 23                 | 0.0000013        |
| 100 %          |                    | + 40         | 1,744,999,855     | -145               | -0.0000083       |
| 100 %          |                    | + 50         | 1,744,999,934     | -66                | -0.000038        |
| BATT. ENDPOINT | 3.79               | + 20         | 1,745,000,001     | 1                  | 0.0000001        |

Table 7-41. Frequency Stability Data (Band 66/4)

### Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | Dogo 215 of 424                 |
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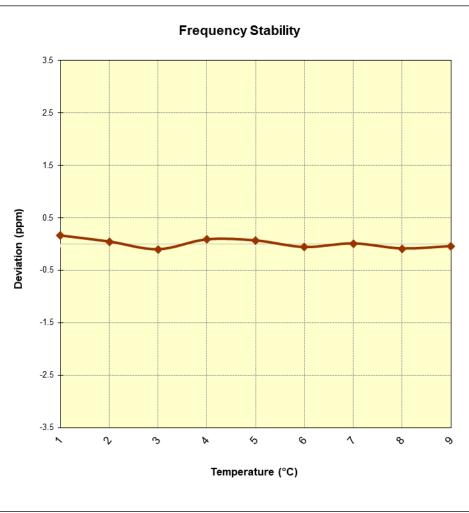


Figure 7-12. Frequency Stability Graph (Band 66/4)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Daga 216 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 316 of 434                 |
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# **Band 25/2 Frequency Stability Measurements**

| OPERATING FREQUENCY: | 1,882,500,000 | Hz  |
|----------------------|---------------|-----|
| REFERENCE VOLTAGE:   | 4.19          | VDC |

| VOLTAGE<br>(%) | POWER<br>(VDC) | <b>ТЕМР</b><br>( <sup>°</sup> С) | FREQUENCY<br>(Hz) | Freq. Dev.<br>(Hz) | Deviation<br>(%) |
|----------------|----------------|----------------------------------|-------------------|--------------------|------------------|
| 100 %          | 4.19           | - 30                             | 1,882,500,224     | 224                | 0.0000119        |
| 100 %          |                | - 20                             | 1,882,499,985     | -15                | -0.0000008       |
| 100 %          |                | - 10                             | 1,882,500,121     | 121                | 0.0000064        |
| 100 %          |                | 0                                | 1,882,500,214     | 214                | 0.0000114        |
| 100 %          |                | + 10                             | 1,882,499,914     | -86                | -0.0000046       |
| 100 %          |                | + 20                             | 1,882,500,029     | 29                 | 0.0000015        |
| 100 %          |                | + 30                             | 1,882,500,011     | 11                 | 0.000006         |
| 100 %          |                | + 40                             | 1,882,500,299     | 299                | 0.0000159        |
| 100 %          |                | + 50                             | 1,882,499,827     | -173               | -0.0000092       |
| BATT. ENDPOINT | 3.79           | + 20                             | 1,882,500,183     | 183                | 0.0000097        |

Table 7-42. Frequency Stability Data (Band 25/2)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dage 217 of 424                 |
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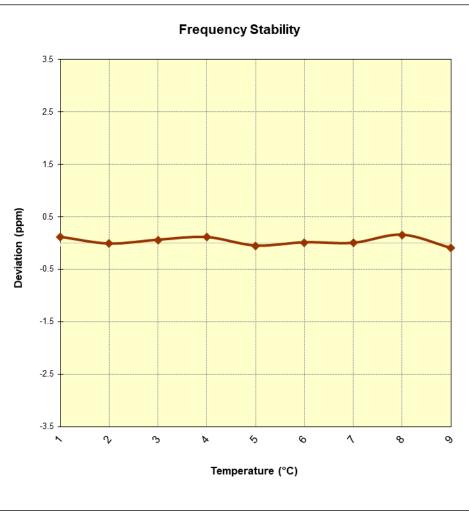


Figure 7-13. Frequency Stability Graph (Band 25/2)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |      | Dege 219 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |      | Page 318 of 434                 |
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# **Band 30 Frequency Stability Measurements**

| OPERATING FREQUENCY: |                | 2,310,000,000 |                   | Hz                 |                  |
|----------------------|----------------|---------------|-------------------|--------------------|------------------|
| REFERENCE VOLTAGE:   |                | 4.19          |                   | VDC                |                  |
|                      |                |               |                   |                    |                  |
| VOLTAGE<br>(%)       | POWER<br>(VDC) | TEMP<br>(°C)  | FREQUENCY<br>(Hz) | Freq. Dev.<br>(Hz) | Deviation<br>(%) |
| 100 %                | 4.19           | - 30          | 2,310,000,028     | 28                 | 0.0000012        |
| 100 %                |                | - 20          | 2,310,000,005     | 5                  | 0.0000002        |
| 100 %                |                | - 10          | 2,310,000,011     | 11                 | 0.0000005        |
| 100 %                |                | 0             | 2,309,999,894     | -106               | -0.0000046       |
| 100 %                |                | + 10          | 2,309,999,603     | -397               | -0.0000172       |
| 100 %                |                | + 20          | 2,309,999,942     | -58                | -0.0000025       |
| 100 %                |                | + 30          | 2,309,999,930     | -70                | -0.000030        |
| 100 %                |                | + 40          | 2,309,999,800     | -200               | -0.0000087       |
| 100 %                |                | + 50          | 2,309,999,685     | -315               | -0.0000136       |
| BATT. ENDPOINT       | 3.79           | + 20          | 2,309,999,669     | -331               | -0.0000143       |

Table 7-43. Frequency Stability Data (Band 30)

### Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | Dage 210 of 424                 |
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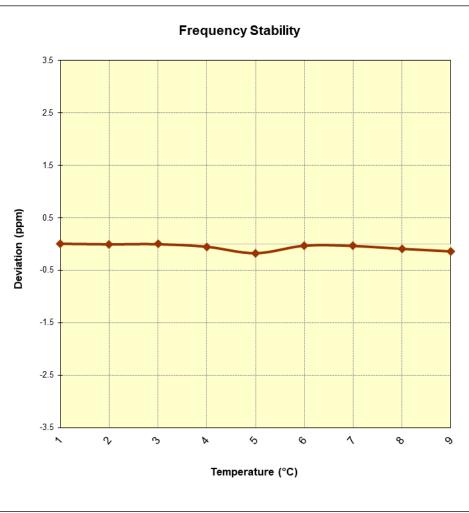


Figure 7-14. Frequency Stability Graph (Band 30)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | MSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|-------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |       | Dage 220 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |       | Page 320 of 434                 |
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### **Band 7 Frequency Stability Measurements**

| OPERATING FREQUENCY: | 2,535,000,000 | Hz  |
|----------------------|---------------|-----|
| REFERENCE VOLTAGE:   | 4.19          | VDC |

| VOLTAGE<br>(%) | POWER<br>(VDC) | TEMP<br>(°C) | FREQUENCY<br>(Hz) | Freq. Dev.<br>(Hz) | Deviation<br>(%) |
|----------------|----------------|--------------|-------------------|--------------------|------------------|
| 100 %          | 4.19           | - 30         | 2,535,000,305     | 305                | 0.0000120        |
| 100 %          |                | - 20         | 2,535,000,032     | 32                 | 0.0000013        |
| 100 %          |                | - 10         | 2,534,999,691     | -309               | -0.0000122       |
| 100 %          |                | 0            | 2,535,000,315     | 315                | 0.0000124        |
| 100 %          |                | + 10         | 2,535,000,008     | 8                  | 0.0000003        |
| 100 %          |                | + 20         | 2,534,999,846     | -154               | -0.0000061       |
| 100 %          |                | + 30         | 2,534,999,923     | -77                | -0.0000030       |
| 100 %          |                | + 40         | 2,535,000,042     | 42                 | 0.0000017        |
| 100 %          |                | + 50         | 2,534,999,896     | -104               | -0.0000041       |
| BATT. ENDPOINT | 3.79           | + 20         | 2,534,999,957     | -43                | -0.0000017       |

Table 7-44. Frequency Stability Data (Band 7)

### Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dage 221 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 321 of 434                 |
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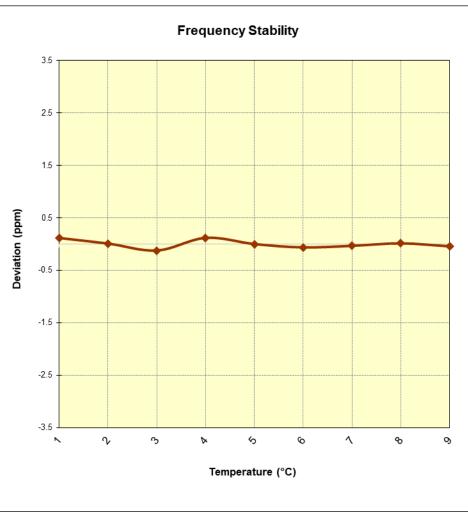


Figure 7-15. Frequency Stability Graph (Band 7)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | ASUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|-------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |       | Dage 200 of 404                 |
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# **Band 41 Frequency Stability Measurements**

| OPERATING FREQUENCY: |                | 2,593,000,000 |                   | Hz                 |                  |
|----------------------|----------------|---------------|-------------------|--------------------|------------------|
| REFERENCE VOLTAGE:   |                | 4.19          |                   | VDC                |                  |
|                      |                |               |                   |                    |                  |
| VOLTAGE<br>(%)       | POWER<br>(VDC) | TEMP<br>(°C)  | FREQUENCY<br>(Hz) | Freq. Dev.<br>(Hz) | Deviation<br>(%) |
| 100 %                | 4.19           | - 30          | 2,593,000,112     | 112                | 0.0000043        |
| 100 %                |                | - 20          | 2,592,999,885     | -115               | -0.0000044       |
| 100 %                |                | - 10          | 2,592,999,832     | -168               | -0.0000065       |
| 100 %                |                | 0             | 2,593,000,031     | 31                 | 0.0000012        |
| 100 %                |                | + 10          | 2,592,999,792     | -208               | -0.0000080       |
| 100 %                |                | + 20          | 2,592,999,944     | -56                | -0.0000022       |
| 100 %                |                | + 30          | 2,592,999,872     | -128               | -0.0000049       |
| 100 %                |                | + 40          | 2,592,999,830     | -170               | -0.0000066       |
| 100 %                |                | + 50          | 2,592,999,882     | -118               | -0.0000046       |
| BATT. ENDPOINT       | 3.79           | + 20          | 2,593,000,236     | 236                | 0.0000091        |

Table 7-45. Frequency Stability Data (Band 41)

### Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | Dogo 222 of 424                 |
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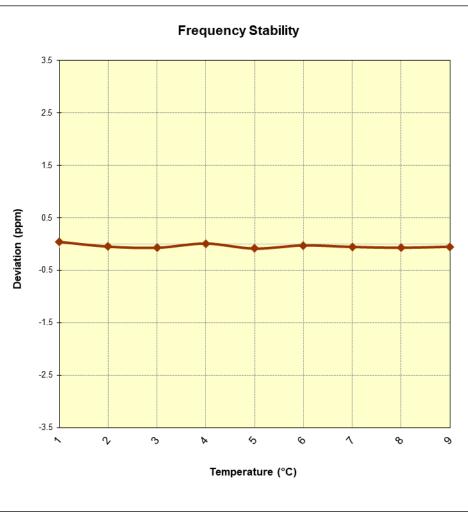


Figure 7-16. Frequency Stability Graph (Band 41)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | ASUNG | Approved by:<br>Quality Manager |  |
|---------------------|---------------------|---------------------------------------|-------|---------------------------------|--|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |       | Dega 224 of 424                 |  |
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# 7.9 Sub 6GHz NR / EN-DC Test Results

### **Occupied Bandwidth**

All SCS's and Waveforms (CP-OFDM vs DFT-s OFDM) 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.

### NR Band n71

| 🦲 Keysight Spectrum A                     | nalyzer - Occ                          | cupied BW |         |         |            |                        |        |              |              |                        |               |      |              |
|---|--|-----------|---------|---------|------------|------------------------|--------|--------------|--------------|------------------------|---------------|------|--------------|
| L <mark>XI</mark> RL RF                   | 50 Ω                                   | AC        | CORREC  |         |            | NSE:INT<br>reg: 680.50 |        |              |              | 11:53:35 P             | MNov 19, 2019 | Trac | e/Detector   |
|   |  |           |         |         | Trig: Free | e Run                  | Avg Ho | ld:>1        | 100/100      | Raulo Stu.             | None          |      |              |
|   |  |           | #IFGain | :Low    | #Atten: 3  | 6 dB                   |        |              |              | Radio Dev              | ice: BTS      |      |              |
|   |  |           |         |         |            |                        |        |              |              |                        |               |      |              |
|   | ef 40.0                                | 0 dBm     |         |         |            |                        |        |              |              |                        |               |      |              |
| Log<br>30.0                               |  |           |         |         |            |                        |        |              |              |                        |               |      |              |
| 20.0                                      |  |           |         |         |            |                        |        |              |              |                        |               |      | Clear Write  |
| 10.0                                      |  |           |         |         |            |                        |        |              |              |                        |               |      |              |
| 0.00                                      |  |           | 1       |         |            |                        |        | $\mathbf{N}$ |              |                        |               |      |              |
| -10.0                                     |  |           | 7       |         |            |                        |        | X            |              |                        |               |      | Average      |
|   |  | A         |         |         |            |                        |        |              | 10mm         |                        |               |      | Average      |
| -20.0 ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | ~ W~~~~~~ |         |         |            |                        |        |              | - 0.1 pq - 0 | Jun Marine Contraction | mon           |      |              |
| -30.0                                     |  |           |         |         |            |                        |        |              |              |                        |               |      |              |
| -40.0                                     |  |           |         |         |            |                        |        |              |              |                        |               |      | Max Hold     |
| -50.0                                     |  |           |         |         |            |                        |        |              |              |                        |               | _    |              |
| Center 680.5 M                            | ٧Hz                                    |           |         |         |            |                        |        |              |              | Span                   | 12.5 MHz      |      |              |
| Res BW 120 k                              | Hz                                     |           |         |         | #VE        | 3W 390                 | kHz    |              |              |                        | ep 1 ms       |      | Min Hold     |
|   | _                                      |           |         |         |            | <b>T</b> - 4 - 1 F     |        |              | 24.2         | -ID                    |               |      |              |
| Occupied                                  | Band                                   |           |         |         |            | Total F                | ower   |              | 34.3         | dBm                    |               |      |              |
|   |  | 4.4       | 1992    | 2 MH    | Ζ          |                        |        |              |              |                        |               |      | Detector     |
| Transmit F                                | rea Err                                | or        | 4       | .549 kł | 7          | % of O                 | BW Pov | Vor          | 00           | .00 %                  |               | Auto | Peak▶<br>Man |
|   |  | UI        |         |         |            |                        | BWFOV  | VCI          |              |                        |               | Auto | man          |
| x dB Bandy                                | vidth                                  |           | 5.      | 137 MH  | IZ         | x dB                   |        |              | -26.0        | 00 dB                  |               |      |              |
|   |  |           |         |         |            |                        |        |              |              |                        |               |      |              |
|   |  |           |         |         |            |                        |        |              |              |                        |               |      |              |
|   |  |           |         |         |            |                        |        |              |              |                        |               |      |              |
| MSG                                       |  |           |         |         |            |                        |        |              | STATUS       |                        |               |      |              |

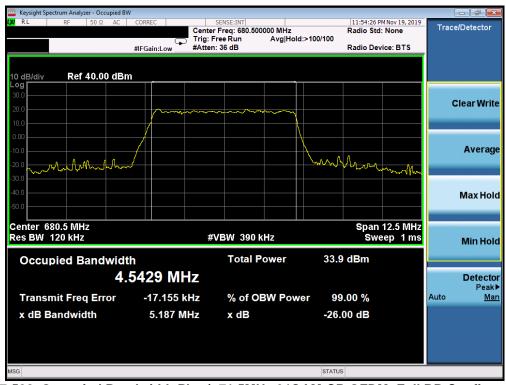
Plot 7-506. Occupied Bandwidth Plot (n71 5MHz QPSK-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |  |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|--|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Page 325 of 434                 |  |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         |                                 |  |
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| Keysight Spectrum Analyzer - Occupied BW |            |                               |            |                           |                                    |       | - 🗗 🗙      |
|--|------------|-------------------------------|------------|---------------------------|------------------------------------|-------|------------|
| <b>LX/</b> RL RF 50Ω AC                  |            | SENSE:INT                     |            | 11:54:11 PM<br>Radio Std: | Nov 19, 2019<br>None               | Trace | /Detector  |
|  |            | Free Run Avg Hold<br>n: 36 dB | d:>100/100 | Radio Devi                | ce: BTS                            |       |            |
|  |            |                               |            |                           |                                    |       |            |
| 10 dB/div Ref 40.00 dBm                  |            |                               |            |                           |                                    |       |            |
| Log<br>30.0                              |            |                               |            |                           |                                    |       |            |
| 20.0                                     |            |                               |            |                           |                                    | c     | lear Write |
| 10.0                                     | harren     |                               |            |                           |                                    |       |            |
| 0.00                                     |            |                               | ι          |                           |                                    |       |            |
|  |            |                               | 1          |                           |                                    |       | Average    |
| -10.0                                    | /          |                               |            |                           |                                    |       | Average    |
| -20.0 alverton m                         |            |                               | mound      | www.                      | Alm                                |       |            |
| -30.0                                    |            |                               |            |                           | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ |       |            |
| -40.0                                    |            |                               |            |                           |                                    |       | Max Hold   |
| -50.0                                    |            |                               |            |                           |                                    |       |            |
| Center 680.5 MHz                         |            |                               |            | Span                      | 12.5 MHz                           |       |            |
| Res BW 120 kHz                           | #          | VBW 390 kHz                   |            |                           | ep 1ms                             |       | Min Hold   |
|  |            |                               |            |                           |                                    |       | Millinoid  |
| Occupied Bandwidth                       | )          | Total Power                   | 34.5       | dBm                       |                                    |       |            |
| 4.4                                      | 903 MHz    |                               |            |                           |                                    |       | Detector   |
|  |            |                               |            | 0.04                      |                                    | Auto  | Peak►      |
| Transmit Freq Error                      | -7.331 kHz | % of OBW Pow                  |            | 00 %                      |                                    | Auto  | <u>Man</u> |
| x dB Bandwidth                           | 5.091 MHz  | x dB                          | -26.0      | 0 dB                      |                                    |       |            |
|  |            |                               |            |                           |                                    |       |            |
|  |            |                               |            |                           |                                    |       |            |
|  |            |                               |            |                           |                                    |       |            |
| MSG                                      |            |                               | STATUS     |                           |                                    |       |            |

Plot 7-507. Occupied Bandwidth Plot (n71 5MHz 16QAM-CP-OFDM - Full RB Configuration)



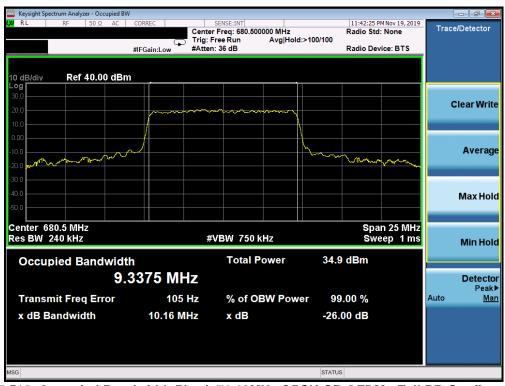
Plot 7-508. Occupied Bandwidth Plot (n71 5MHz 64QAM-CP-OFDM- Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |  |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|--|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Page 326 of 434                 |  |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         |                                 |  |
| © 2020 PCTEST       | *                   | •                                     |         | V 9.0 02/01/2019                |  |



| Keysight Spectrum Analyzer - Occupied BW |                    |                                   |  |               |         |              |
|--|--------------------|-----------------------------------|--|---------------|---------|--------------|
| LXX RL RF 50Ω AC                         |                    | SENSE:INT<br>Freq: 680.500000 MHz | 11:54:45 F<br>Radio Std  | MNov 19, 2019 | Trace/I | Detector     |
|  | Trig: F            | ree Run Avg Hold:                 | >100/100   |               |         |              |
|  | #IFGain:Low #Atten | :: 36 dB                          | Radio Dev  | vice: BTS     |         |              |
|  |                    |                                   |  |               |         |              |
| 10 dB/div Ref 40.00 dBm                  | 1                  |                                   |  |               |         |              |
| Log<br>30.0                              |                    |                                   |  |               |         |              |
|  |                    |                                   |  |               | CI      | ear Write    |
| 20.0                                     | mm                 | man                               |  |               |         |              |
| 10.0                                     |                    |                                   |  |               |         |              |
| 0.00                                     |                    |                                   |  |               |         |              |
| -10.0                                    | -/                 |                                   | <b></b>  |               |         | Average      |
| -20.0                                    |                    |                                   | \  |               |         |              |
| -30.0                                    | 4                  |                                   | Martin Ma | marine        |         |              |
| -40.0                                    |                    |                                   |  |               |         | Aax Hold     |
| -50.0                                    |                    |                                   |  |               | ľ       | νιαχ ποια    |
| -30.0                                    |                    |                                   |  |               |         |              |
| Center 680.5 MHz                         |                    |                                   |  | 12.5 MHz      |         |              |
| Res BW 120 kHz                           | #                  | VBW 390 kHz                       | Sw   | eep 1 ms      |         | Min Hold     |
|  | -                  | Total Power                       | 31.0 dBm   |               |         |              |
| Occupied Bandwidt                        |                    | Total Power                       | 31.0 dBm   |               |         |              |
| 4.                                       | 5164 MHz           |                                   |  |               |         | Detector     |
| Transmit Frag Frag                       |                    | % of OBW Bowe                     | ~ 00 00 W  |               | Auto    | Peak▶<br>Man |
| Transmit Freq Error                      | -5.089 kHz         | % of OBW Powe                     |  |               | Auto    | ivian        |
| x dB Bandwidth                           | 5.153 MHz          | x dB                              | -26.00 dB  |               |         |              |
|  |                    |                                   |  |               |         |              |
|  |                    |                                   |  |               |         |              |
|  |                    |                                   |  |               |         |              |
| MSG                                      |                    |                                   | STATUS   |               |         |              |
|  |                    |                                   | 514100   |               |         |              |

Plot 7-509. Occupied Bandwidth Plot (n71 5MHz 256QAM-CP-OFDM - Full RB Configuration)



Plot 7-510. Occupied Bandwidth Plot (n71 10MHz QPSK-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |  |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|--|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Page 327 of 434                 |  |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         |                                 |  |
| © 2020 PCTEST       | ·                   | ·                                     |         | V 9.0 02/01/2019                |  |



| Keysight Spectrum Analyzer - Occupied BW | CORREC     | SENSE:INT                    | 11:42:41 P   | 4 Nov 19, 2019 |                |
|--|------------|------------------------------|--|----------------|----------------|
| 10 0012 110                              | Cente      | r Freq: 680.500000 MHz       | Radio Std:   |                | Trace/Detector |
|  |            | FreeRun Avg Hold:<br>n:36 dB | >100/100<br>Radio Dev  | ice: BTS       |                |
|  | an ouncou  |                              |  |                |                |
| I0 dB/div Ref 40.00 dBm                  |            |                              |  |                |                |
| og                                       |            |                              |  |                |                |
| 30.0                                     |            |                              |  |                | Clear Writ     |
| 20.0                                     |            | mar and a second             |  |                | Cical Min      |
| 10.0                                     |            |                              |  |                |                |
| 0.00                                     |            |                              |  |                |                |
| 10.0                                     |            |                              | have what have a start of the s |                | Averag         |
| 20.0 monoral the wood allow of the       |            |                              |  | - my           |                |
| 30.0                                     |            |                              |  |                |                |
| 40.0                                     |            |                              |  |                | Max Ho         |
| 50.0                                     |            |                              |  |                |                |
| Center 680.5 MHz                         |            |                              | Spa  | n 25 MHz       |                |
| Res BW 240 kHz                           | #          | VBW 750 kHz                  |  | ep 1 ms        | Min Ho         |
| Occupied Bandwidth                       | n          | Total Power                  | 34.7 dBm   |                |                |
|  | 3543 MHz   |                              |  |                | Detect         |
| 0.0                                      |            |                              |  |                | Peal           |
| Transmit Freq Error                      | -7.866 kHz | % of OBW Powe                | r 99.00 %  | A              | uto <u>M</u>   |
| x dB Bandwidth                           | 10.20 MHz  | x dB                         | -26.00 dB  |                |                |
|  |            |                              |  |                |                |
|  |            |                              |  |                |                |
|  |            |                              |  |                |                |
| SG                                       |            |                              | STATUS   |                |                |

Plot 7-511. Occupied Bandwidth Plot (n71 10MHz 16QAM-CP-OFDM - Full RB Configuration)



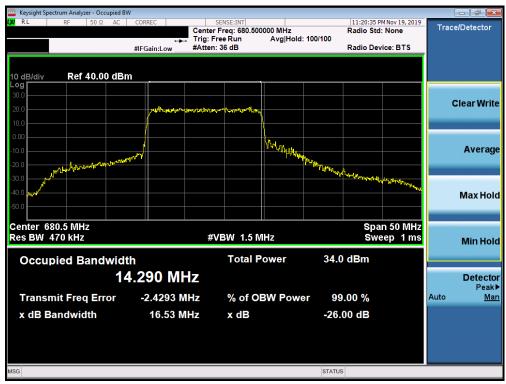
Plot 7-512. Occupied Bandwidth Plot (n71 10MHz 64QAM-CP-OFDM- Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |  |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|--|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Page 328 of 434                 |  |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         |                                 |  |
| © 2020 PCTEST       | •                   | ·                                     |         | V 9.0 02/01/2019                |  |



| Keysight Spectrum Analyzer - Occupied |             | SENSE:INT                     | 11:43:04 PM  | Nov 19, 2019 |                |
|---------------------------------------|-------------|-------------------------------|--|--------------|----------------|
|                                       | Cente       | r Freq: 680.500000 MHz        | Radio Std:   |              | ace/Detector   |
|                                       |             | FreeRun Avg Hold:><br>n:36 dB | 100/100<br>Radio Devid   | e: BTS       |                |
|                                       | an ounicon  |                               |  |              |                |
| I0 dB/div Ref 40.00 dB                | 3m          |                               |  |              |                |
| -og                                   |             |                               |  |              |                |
| 30.0                                  |             |                               |  |              | Clear Writ     |
| 20.0                                  |             | mont                          |  |              |                |
| 10.0                                  |             | (                             |  |              |                |
| 0.00                                  |             |                               |  |              |                |
| 10.0                                  |             |                               | man and a second |              | Avera          |
| 20.0                                  |             |                               |  | mon          |                |
| 30.0                                  |             |                               |  |              |                |
| 40.0                                  |             |                               |  |              | Max Ho         |
| 50.0                                  |             |                               |  |              |                |
| enter 680.5 MHz                       |             |                               | Span   | 25 MHz       |                |
| Res BW 240 kHz                        | #           | VBW 750 kHz                   | Swee   | ep 1 ms      | Min Ho         |
| Occupied Bandwig                      | lth         | Total Power                   | 34.3 dBm   |              |                |
|                                       |             |                               |  |              |                |
|                                       | .3104 MHz   |                               |  |              | Detect<br>Peal |
| Transmit Freq Error                   | -10.527 kHz | % of OBW Powe                 | r 99.00 %  | Auto         |                |
| x dB Bandwidth                        | 10.08 MHz   | x dB                          | -26.00 dB  |              |                |
|                                       |             |                               |  |              |                |
|                                       |             |                               |  |              |                |
|                                       |             |                               |  |              |                |
| G                                     |             |                               | STATUS   |              |                |

Plot 7-513. Occupied Bandwidth Plot (n71 10MHz 256QAM-CP-OFDM - Full RB Configuration)



Plot 7-514. Occupied Bandwidth Plot (n71 15MHz QPSK-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |  |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|--|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | B 000 ( 404                     |  |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 329 of 434                 |  |
| © 2020 PCTEST       | •                   | -                                     |         | V 9.0 02/01/2019                |  |





Plot 7-515. Occupied Bandwidth Plot (n71 15MHz 16QAM-CP-OFDM - Full RB Configuration)



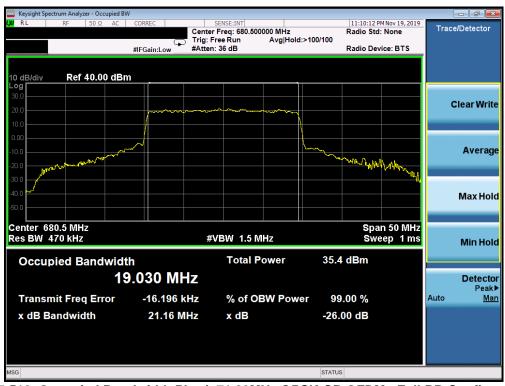
Plot 7-516. Occupied Bandwidth Plot (n71 15MHz 64QAM-CP-OFDM- Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |  |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|--|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dawa 000 cf 404                 |  |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 330 of 434                 |  |
| © 2020 PCTEST       | •                   | ·                                     |         | V 9.0 02/01/2019                |  |



| 🔤 Keysight Spectrum Analyzer - Occupied B | w           |                                   |                   |                                   |                     |       |                   |
|---|-------------|-----------------------------------|-------------------|-----------------------------------|---------------------|-------|-------------------|
| LX/RL RF 50Ω AC                           | CORREC      | SENSE:INT<br>Center Freg: 680.500 | 000 MHz           | 11:21:13 P<br>Radio Std           | MNov 19, 2019       | Trace | /Detector         |
|   | •••         | Trig: Free Run                    | Avg Hold: 1       | 00/100                            |                     |       |                   |
|   | #IFGain:Low | #Atten: 36 dB                     |                   | Radio Dev                         | ice: BTS            |       |                   |
|   |             |                                   |                   |                                   |                     |       |                   |
| 10 dB/div Ref 40.00 dB                    | m           |                                   |                   |                                   |                     |       |                   |
| 30.0                                      | بصطالكم     |                                   |                   |                                   |                     |       |                   |
| 20.0                                      | ر جب الم    |                                   |                   |                                   |                     | C     | lear Write        |
| 10.0                                      | monor       | www.www.www.                      |                   |                                   |                     |       |                   |
| 0.00                                      |             |                                   |                   |                                   |                     |       |                   |
| -10.0                                     | يحصوا إكم   |                                   |                   |                                   |                     |       | Average           |
|   |             |                                   | Sheeth at h       |                                   |                     |       |                   |
| -20.0                                     |             |                                   | "Munday Ay handay | h had a particular and the second |                     |       |                   |
| -40.0                                     | الكالك      |                                   |                   | A CONTRACT OF A CONTRACT          | Merthall While when |       |                   |
| -40.0                                     | ر حص الک    |                                   |                   |                                   |                     |       | Max Hold          |
| -50.0                                     | رحصارک      |                                   |                   |                                   |                     |       |                   |
| Center 680.5 MHz                          |             |                                   |                   |                                   | n 50 MHz            |       |                   |
| Res BW 470 kHz                            |             | #VBW 1.5 M                        | Hz                | Swe                               | ep 1 ms             |       | Min Hold          |
| Occupied Bandwid                          | th          | Total P                           | ower              | 30.5 dBm                          |                     |       |                   |
|   |             |                                   |                   |                                   |                     |       |                   |
| 14  | 4.268 MH    | Z                                 |                   |                                   |                     |       | Detector<br>Peak▶ |
| Transmit Freq Error                       | -2.4295 MI  | Hz % of O                         | 3W Power          | 99.00 %                           |                     | Auto  | Man               |
| x dB Bandwidth                            | 15.31 MI    | Hz x dB                           |                   | -26.00 dB                         |                     |       |                   |
|   | 13.31-1     |                                   |                   | -20.00 (18                        |                     |       |                   |
|   |             |                                   |                   |                                   |                     |       |                   |
|   |             |                                   |                   |                                   |                     |       |                   |
|   |             |                                   |                   |                                   |                     |       |                   |
| MSG                                       |             |                                   |                   | STATUS                            |                     |       |                   |

Plot 7-517. Occupied Bandwidth Plot (n71 15MHz 256QAM-CP-OFDM - Full RB Configuration)



Plot 7-518. Occupied Bandwidth Plot (n71 20MHz QPSK-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |  |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|--|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dama 004 of 404                 |  |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 331 of 434                 |  |
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| 🚾 Keysight Spectrum Analyzer - Occupied BV<br>🗶 RL RF 50 Ω AC | CORREC        | SENSE:INT                                   | 11:10:     | 35 PM Nov 19, 2019 |                |
|---|---------------|---|------------|--------------------|----------------|
|   |               | r Freq: 680.500000 MHz<br>Free Run Avg Hold |            | Std: None          | Trace/Detector |
|   |               | n: 36 dB                                    |            | Device: BTS        |                |
|   |               |   |            |                    |                |
| 0 dB/div Ref 40.00 dBn  | n             |   |            |                    |                |
| .og<br>30.0   |               |   |            |                    |                |
| 20.0  | - month       | man and the second                          |            |                    | Clear Wri      |
| 0.0   | <b>/</b>      |   |            |                    |                |
|   |               |   |            |                    |                |
| 0.0   | ~~            |   | homphy la  |                    | Avera          |
| 20.0  |               |   | Mar Marine | malilla            |                |
| 30.0  |               |   |            |                    |                |
| 40.0 m  |               |   |            |                    | Max Ho         |
| 50.0  |               |   |            |                    |                |
| enter 680.5 MHz   |               |   |            | pan 50 MHz         |                |
| es BW 470 kHz   | #             | VBW 1.5 MHz                                 | 9          | weep 1 ms          | Min Ho         |
| Occupied Bandwidt   | h             | Total Power                                 | 35.2 dBm   |                    |                |
|   | <br>0.015 MHz |   |            |                    | Detect         |
|   |               |   |            |                    | Peal           |
| Transmit Freq Error   | -22.728 kHz   | % of OBW Powe                               | er 99.00 % |                    | Auto <u>M</u>  |
| x dB Bandwidth  | 20.88 MHz     | x dB  | -26.00 dB  |                    |                |
|   |               |   |            |                    |                |
|   |               |   |            |                    |                |
|   |               |   |            |                    |                |
| G   |               |   | STATUS     |                    |                |

Plot 7-519. Occupied Bandwidth Plot (n71 20MHz 16QAM-CP-OFDM - Full RB Configuration)



Plot 7-520. Occupied Bandwidth Plot (n71 20MHz 64QAM-CP-OFDM- Full RB Configuration)

| FCC ID: A3LSMG986W             | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |  |
|--------------------------------|---------------------|---------------------------------------|---------|---------------------------------|--|
| Test Report S/N:               | Test Dates:         | EUT Type:                             |         | Dama 000 at 404                 |  |
| 1M1911010179-03.A3L            | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 332 of 434                 |  |
| 0 2020 PCTEST V 9.0 02/01/2019 |                     |                                       |         |                                 |  |



| 🚾 Keysight Spectrum Analyzer - Occupied BV | 1          |  |                       |                               |                 |
|--|------------|--|-----------------------|-------------------------------|-----------------|
| LXI RE 50Ω AC                              | CORREC     | SENSE:INT<br>r Freg: 680.500000 MHz    |                       | 3 PM Nov 19, 2019<br>td: None | Trace/Detector  |
|  | Trig:      |  | l:>100/100<br>Radio D | evice: BTS                    |                 |
|  |            |  |                       |                               |                 |
| 10 dB/div Ref 40.00 dBn                    | <u> </u>   |  |                       |                               |                 |
| Log<br>30.0                                |            |  |                       |                               |                 |
| 20.0                                       |            |  |                       |                               | Clear Write     |
| 10.0                                       |            | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ |                       |                               |                 |
| 0.00                                       |            |  | l                     |                               |                 |
| -10.0                                      | and        |  |                       |                               | Averag          |
| -20.0                                      |            |  | hall about and        |                               |                 |
| -30.0                                      |            |  |                       | - Charleson -                 |                 |
| -40.0                                      |            |  |                       |                               | Max Hol         |
| -50.0                                      |            |  |                       |                               |                 |
| Center 680.5 MHz<br>Res BW 470 kHz         | #          | VBW 1.5 MHz                            | Sp                    | an 50 MHz<br>veep 1 ms        |                 |
|  |            |  |                       |                               | Min Hol         |
| Occupied Bandwidt                          |            | Total Power                            | 31.9 dBm              |                               |                 |
| 19   | .005 MHz   |  |                       |                               | Detecto<br>Peak |
| Transmit Freq Error                        | 16.749 kHz | % of OBW Pow                           | er 99.00 %            | ,                             | Auto <u>Ma</u>  |
| x dB Bandwidth                             | 20.26 MHz  | x dB                                   | -26.00 dB             |                               |                 |
|  |            |  |                       |                               |                 |
|  |            |  |                       |                               |                 |
|  |            |  |                       |                               |                 |
| ISG  |            |  | STATUS                |                               |                 |

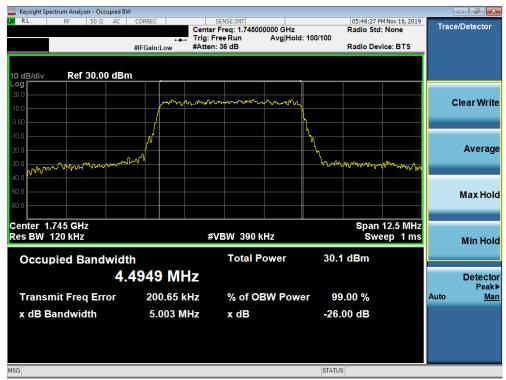
Plot 7-521. Occupied Bandwidth Plot (n71 20MHz 256QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dogo 222 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 333 of 434                 |
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Plot 7-522. Occupied Bandwidth Plot (n66 5MHz QPSK-CP-OFDM - Full RB Configuration)



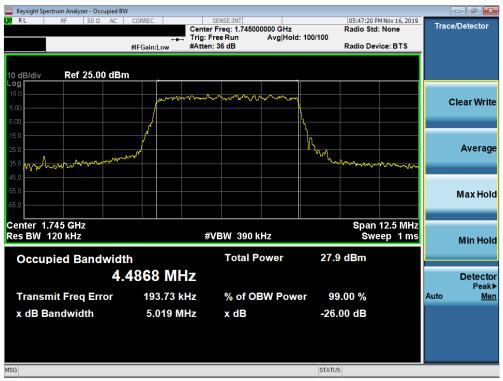
Plot 7-523. Occupied Bandwidth Plot (n66 5MHz 16QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dama 204 of 404                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 334 of 434                 |
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Plot 7-524. Occupied Bandwidth Plot (n66 5MHz 64QAM-CP-OFDM- Full RB Configuration)



Plot 7-525. Occupied Bandwidth Plot (n66 5MHz 256QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W             | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |  |  |
|--------------------------------|---------------------|---------------------------------------|---------------------------------|--|--|
| Test Report S/N:               | Test Dates:         | EUT Type:                             | Dage 225 of 424                 |  |  |
| 1M1911010179-03.A3L            | 10/11/19 - 01/09/20 | Portable Handset                      | Page 335 of 434                 |  |  |
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| Keysight Spectrum Analyzer - Occupied BW                   |                      |                                    |  |                               |       | - • •             |
|--|----------------------|------------------------------------|--|-------------------------------|-------|-------------------|
| LXI RF 50Ω AC  |                      | SENSE:INT<br>Freg: 1.745000000 GHz |  | 0 PM Nov 16, 2019<br>td: None | Trace | /Detector         |
|  |                      |                                    | d: 100/100   | ta: None                      |       |                   |
|  |                      | : 36 dB                            |  | evice: BTS                    |       |                   |
|  |                      |                                    |  |                               |       |                   |
| 10 dB/div Ref 30.00 dBm                                    |                      |                                    |  |                               |       |                   |
| Log  |                      |                                    |  |                               |       |                   |
| 20.0   |                      |                                    |  |                               |       | lear Write        |
| 10.0   | Man Man North Martin | worket all the Arman weller        | · · · · · · · · · · · · · · · · · · ·  |                               | , c   | lear write        |
| 0.00   |                      |                                    |  | _                             |       |                   |
| -10.0  |                      |                                    |  |                               |       |                   |
| -20.0<br>-30.0 www.mm/mm/mm/mm/mm/mm/mm/mm/mm/mm/mm/mm/mm/ | N/IN                 |                                    | hour and a gal a g |                               |       | Average           |
| -30.0 Wardowly Wetwert Wetwert                             |                      |                                    | A the Alward   | Know Myby                     |       |                   |
|  |                      |                                    |  |                               |       |                   |
| -40.0  |                      |                                    |  |                               |       |                   |
| -50.0  |                      |                                    |  |                               |       | Max Hold          |
| -60.0  |                      |                                    |  |                               |       |                   |
| Center 1.745 GHz   |                      |                                    |  | OF MUL                        |       |                   |
| Res BW 240 kHz   | #                    | VBW 750 kHz                        |  | oan 25 MHz<br>weep 1 ms       |       |                   |
| Res BW 240 KH2   | #                    |                                    |  | weep rms                      |       | Min Hold          |
| Occupied Bandwidt  | h                    | Total Power                        | 29.1 dBm   |                               |       |                   |
|  |                      |                                    |  |                               |       |                   |
| 9.,  | 3297 MHz             |                                    |  |                               |       | Detector<br>Peak▶ |
| Transmit Freq Error  | 128.24 kHz           | % of OBW Pow                       | ver 99.00 %  |                               | Auto  | Man               |
| x dB Bandwidth   | 10.09 MHz            | x dB                               | -26.00 dB  |                               |       |                   |
|  |                      |                                    | 20100 41   |                               |       |                   |
|  |                      |                                    |  |                               |       |                   |
|  |                      |                                    |  |                               |       |                   |
|  |                      |                                    | · · ·  |                               |       |                   |
| MSG  |                      |                                    | STATUS   |                               |       |                   |

Plot 7-526. Occupied Bandwidth Plot (n66 10MHz QPSK-CP-OFDM - Full RB Configuration)



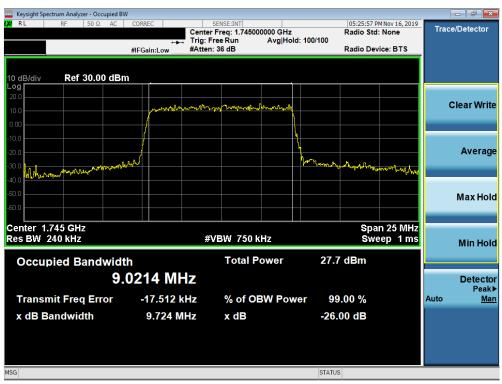
Plot 7-527. Occupied Bandwidth Plot (n66 10MHz 16QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W             | MEASUREMENT REPORT<br>(CERTIFICATION) |                  | SAMSUNG | Approved by:<br>Quality Manager |  |
|--------------------------------|---------------------------------------|------------------|---------|---------------------------------|--|
| Test Report S/N:               | Test Dates:                           | EUT Type:        |         | D 000 -f 404                    |  |
| 1M1911010179-03.A3L            | 10/11/19 - 01/09/20                   | Portable Handset |         | Page 336 of 434                 |  |
| 0 2020 PCTEST V 9.0 02/01/2019 |                                       |                  |         |                                 |  |



| 🚾 Keysight Spectrum Analyzer - Occupied E | W  |                                      |                             |                            | - đ          | ×     |
|---|--|--------------------------------------|-----------------------------|----------------------------|--------------|-------|
| XV RL RF 50Ω AC                           | CORREC   | SENSE:INT<br>r Freq: 1.745000000 GHz | 05:25:42 F<br>Radio Sto     | PM Nov 16, 2019<br>1: None | Trace/Detect | tor   |
|   |  | Free Run Avg Holo<br>1:36 dB         | d: 100/100<br>Radio Dev     | vice: BTS                  |              |       |
|   | #IFGain:Low #Atter   | 1. 36 dB                             | Radio De                    | VICE. BTS                  |              |       |
| 10 dB/div Ref 30.00 dB                    | <b>m</b>   |                                      |                             |                            |              |       |
| Log                                       |  |                                      |                             |                            |              |       |
| 20.0                                      | a the property of the second o | Entraction and May and my            |                             |                            | ClearV       | Vrite |
| 10.0                                      |  |                                      |                             |                            | olcul I      |       |
| 0.00                                      |  |                                      | \<br>\                      |                            |              |       |
| -10.0                                     |  |                                      |                             |                            | Ave          | r.200 |
| -20.0                                     | mr   |                                      | War war and the second wind | M                          | AVE          | raye  |
| -30.0                                     |  |                                      |                             |                            |              |       |
| -50.0                                     |  |                                      |                             |                            |              |       |
| -60.0                                     |  |                                      |                             |                            | Maxi         | Hold  |
|   |  |                                      |                             |                            |              |       |
| Center 1.745 GHz<br>Res BW 240 kHz        |  | VBW 750 kHz                          |                             | an 25 MHz<br>eep 1 ms      |              |       |
|   | <i>"</i>   |                                      | 500                         | eep mis                    | Min I        | Hold  |
| Occupied Bandwid                          | th   | Total Power                          | 29.4 dBm                    |                            |              |       |
| 8   | .9617 MHz  |                                      |                             |                            | Dete         | ector |
|   |  |                                      | 00.00.00                    |                            |              | eak   |
| Transmit Freq Error                       | -37.210 kHz  | % of OBW Pow                         |                             |                            | Auto         | Mar   |
| x dB Bandwidth                            | 9.607 MHz  | x dB                                 | -26.00 dB                   |                            |              |       |
|   |  |                                      |                             |                            |              |       |
|   |  |                                      |                             |                            |              |       |
|   |  |                                      |                             |                            |              |       |
| MSG                                       |  |                                      | STATUS                      |                            |              |       |

Plot 7-528. Occupied Bandwidth Plot (n66 10MHz 64QAM-CP-OFDM- Full RB Configuration)



Plot 7-529. Occupied Bandwidth Plot (n66 10MHz 256QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dama 007 of 404                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 337 of 434                 |
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| Keysight Spectrum Analyzer - Occupied BV | V                   |                                   |                               |                            |            | ð 💌        |
|--|---------------------|-----------------------------------|-------------------------------|----------------------------|------------|------------|
| <b>LX RL RF 50 Ω AC</b>                  |                     | ENSE:INT<br>Freg: 1.745000000 GHz | 04:51:52                      | PM Nov 16, 2019<br>1: None | Trace/Dete | ector      |
|  | HFGain:Low #Atten:  |                                   | d: 100/100<br>Radio De        | vice: BTS                  |            |            |
|  | #IFGain:Low #Atten. | 60 GB                             | Radio De                      | vice. D13                  |            |            |
| 10 dB/div Ref 30.00 dBn                  | n                   |                                   |                               |                            |            |            |
| Log                                      |                     |                                   |                               |                            |            |            |
| 20.0                                     | www.marin           | warrander darmar was              |                               |                            | Clear      | Write      |
| 10.0                                     |                     |                                   |                               |                            |            |            |
| 0.00                                     |                     |                                   |                               |                            |            |            |
| -10.0                                    | Lalin               |                                   | White Ale                     |                            | ٨٧         | erage      |
| -20.0<br>-30.0                           |                     |                                   | - washing the provortation of | Mr. Long .                 | AV         | eraye      |
| -30.0                                    |                     |                                   |                               |                            |            |            |
| -50.0                                    |                     |                                   |                               |                            |            |            |
| -60.0                                    |                     |                                   |                               |                            | Маз        | x Hold     |
|  |                     |                                   |                               |                            |            |            |
| Center 1.745 GHz<br>Res BW 360 kHz       | #)(                 | BW 1.1 MHz                        |                               | 37.5 MHz<br>eep 1 ms       |            |            |
| Res DW JOO KIIZ                          | <i></i>             |                                   |                               | eep mis                    | Mir        | n Hold     |
| Occupied Bandwidt                        | h                   | Total Power                       | 29.4 dBm                      |                            |            |            |
| 14                                       | .160 MHz            |                                   |                               |                            | De         | tector     |
|  |                     |                                   | 00.00.%                       |                            | Auto       | Peak►      |
| Transmit Freq Error                      | 67.527 kHz          | % of OBW Pow                      |                               |                            | Auto       | <u>Man</u> |
| x dB Bandwidth                           | 15.03 MHz           | x dB                              | -26.00 dB                     |                            |            |            |
|  |                     |                                   |                               |                            |            |            |
|  |                     |                                   |                               |                            |            |            |
| 100                                      |                     |                                   | OTATIO                        |                            |            |            |
| MSG                                      |                     |                                   | STATUS                        |                            |            |            |

Plot 7-530. Occupied Bandwidth Plot (n66 15MHz QPSK-CP-OFDM - Full RB Configuration)



Plot 7-531. Occupied Bandwidth Plot (n66 15MHz 16QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dage 220 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 338 of 434                 |
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| Keysight Spectrum Analyzer - Occupied B |                    |                                      |                         |                         |           | d ×            |
|---|--------------------|--------------------------------------|-------------------------|-------------------------|-----------|----------------|
| X/RL RF 50Ω AC                          | CORREC             | SENSE:INT<br>r Freg: 1.745000000 GHz | 04:53:22 P<br>Radio Std | MNov 16, 2019<br>: None | Trace/Det | tector         |
|   |                    | Free Run Avg Hold:<br>n: 36 dB       | 100/100<br>Radio Dev    | ice: BTS                |           |                |
|   | #IFGain:Low #Atter | 1. 30 dB                             | Radio Dev               | ICE. BT3                |           |                |
| 10 dB/div Ref 30.00 dB                  | n                  |                                      |                         |                         |           |                |
|   |                    |                                      |                         |                         |           |                |
| 20.0                                    | ristanting         | m. Warmer Mary Mary Change           |                         |                         | Clea      | r Write        |
| 10.0                                    |                    |                                      |                         |                         | Cicu      |                |
| 0.00                                    |                    |                                      |                         |                         |           |                |
| -10.0                                   |                    |                                      |                         |                         |           |                |
| -20.0                                   | ylw .              | h <sub>Λ</sub>                       | MAN Martin manufacture  | Menalle                 | A         | verage         |
| CON NUMBER OF AN                        |                    |                                      |                         | a contraction of the    |           |                |
| -40.0                                   |                    |                                      |                         |                         |           |                |
| -50.0                                   |                    |                                      |                         |                         | Ма        | x Hole         |
| -60.0                                   |                    |                                      |                         |                         | _         | _              |
| Center 1.745 GHz                        |                    |                                      |                         | 37.5 MHz                |           |                |
| Res BW 360 kHz                          | #                  | VBW 1.1 MHz                          | Swe                     | ep 1 ms                 | Mi        | in Hole        |
| Occupied Bandwid                        | th                 | Total Power                          | 29.7 dBm                |                         |           |                |
|   | 3.452 MHz          |                                      |                         |                         | -         |                |
| L.                                      | 5.452 IVINZ        |                                      |                         |                         | D         | etecto<br>Peak |
| Transmit Freq Error                     | -303.25 kHz        | % of OBW Powe                        | r 99.00 %               |                         | Auto      | Mai            |
| x dB Bandwidth                          | 14.38 MHz          | x dB                                 | -26.00 dB               |                         |           |                |
|   |                    |                                      |                         |                         |           |                |
|   |                    |                                      |                         |                         |           |                |
|   |                    |                                      |                         |                         |           |                |
| ASG                                     |                    |                                      | STATUS                  |                         |           |                |

Plot 7-532. Occupied Bandwidth Plot (n66 15MHz 64QAM-CP-OFDM- Full RB Configuration)



Plot 7-533. Occupied Bandwidth Plot (n66 15MHz 256QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dama 000 af 404                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 339 of 434                 |
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| Keysight Spectrum Analyzer - Occupied BW |                    |  |                           |                      |                   |
|--|--------------------|--|---------------------------|----------------------|-------------------|
| IX RL RF 50Ω AC                          | 🛶 Trig: I          |  | Radio Sto<br>d: 100/100   |                      | Trace/Detector    |
|  | #IFGain:Low #Atter | n: 36 dB   | Radio De                  | vice: BTS            |                   |
| 10 dB/div Ref 40.00 dBm                  |                    |  |                           |                      |                   |
| Log<br>30.0<br>20.0                      |                    | Norman Constant Strate State and Sta |                           |                      | Clear Write       |
| 10.0<br>0.00<br>-10.0<br>-20.0           | ~~~                |  | Winger with some my dagen | getrad for an and    | Average           |
| -30.0                                    |                    |  |                           |                      | Max Hold          |
| Center 1.745 GHz<br>Res BW 470 kHz       | #                  | VBW 1.5 MHz  |                           | n 50 MHz<br>eep 1 ms | Min Hold          |
| Occupied Bandwidt                        | h                  | Total Power  | 34.6 dBm                  |                      |                   |
|  | .034 MHz           |  |                           |                      | Detector<br>Peak▶ |
| Transmit Freq Error                      | 18.618 kHz         | % of OBW Pow   | ver 99.00 %               |                      | Auto <u>Man</u>   |
| x dB Bandwidth                           | 20.46 MHz          | x dB   | -26.00 dB                 |                      |                   |
| MSG                                      |                    |  | STATUS                    |                      |                   |

Plot 7-534. Occupied Bandwidth Plot (n66 20MHz QPSK-CP-OFDM - Full RB Configuration)



Plot 7-535. Occupied Bandwidth Plot (n66 20MHz 16QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |  |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|--|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dama 040 at 404                 |  |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 340 of 434                 |  |
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| 🔤 Keysight Spectrum Analyzer - Occup        | ied BW             |                                    |                                       |                |                   |
|---|--------------------|------------------------------------|---------------------------------------|----------------|-------------------|
| <b>LX/</b> RL RF 50Ω                        |                    | SENSE:INT<br>Freg: 1.745000000 GHz | 10:01:40 P<br>Radio Std               | M Nov 19, 2019 | Trace/Detector    |
|   | Trig:              | Free Run Avg Hol                   | d: 100/100                            |                |                   |
|   | #IFGain:Low #Atte  | n: 36 dB                           | Radio Dev                             | rice: BTS      |                   |
|   |                    |                                    |                                       |                |                   |
| 10 dB/div Ref 40.00                         | dBm                |                                    |                                       |                |                   |
| Log<br>30.0                                 |                    |                                    |                                       |                |                   |
|   |                    |                                    |                                       |                | Clear Write       |
| 20.0  | Maparatrananalyuna | house a constrained and the        |                                       |                |                   |
| 10.0  |                    |                                    |                                       |                |                   |
| 0.00  |                    |                                    |                                       |                |                   |
| -10.0                                       | , Apple Apple      |                                    | Maletar Martine                       |                | Average           |
| -20.0 Anthony Manager And Marger And Marger |                    |                                    | · · · · · · · · · · · · · · · · · · · | -All Marshall  |                   |
| -30.0                                       |                    |                                    |                                       |                |                   |
| -40.0                                       |                    |                                    |                                       |                | Max Hold          |
| -50.0                                       |                    |                                    |                                       |                | Max Hold          |
| 55.5  |                    |                                    |                                       |                |                   |
| Center 1.745 GHz                            |                    |                                    |                                       | n 50 MHz       |                   |
| Res BW 470 kHz                              | #                  | VBW 1.5 MHz                        | Swe                                   | eep 1 ms       | Min Hold          |
|   |                    | Total Power                        | 33.5 dBm                              |                |                   |
| Occupied Bandw                              |                    | Total Fower                        | 33.5 dBm                              |                |                   |
|   | 18.994 MHz         |                                    |                                       |                | Detector          |
| Tana and it Farmer France                   |                    | 0/ - f ODW D                       | 00.00.0/                              |                | Peak▶<br>Auto Man |
| Transmit Freq Error                         | r 8.607 kHz        | % of OBW Pow                       | ver 99.00 %                           |                | Auto <u>Man</u>   |
| x dB Bandwidth                              | 23.77 MHz          | x dB                               | -26.00 dB                             |                |                   |
|   |                    |                                    |                                       |                |                   |
|   |                    |                                    |                                       |                |                   |
|   |                    |                                    |                                       |                |                   |
| MSG   |                    |                                    | STATUS                                |                |                   |
| mod   |                    |                                    | 014100                                |                |                   |

Plot 7-536. Occupied Bandwidth Plot (n66 20MHz 64QAM-CP-OFDM- Full RB Configuration)



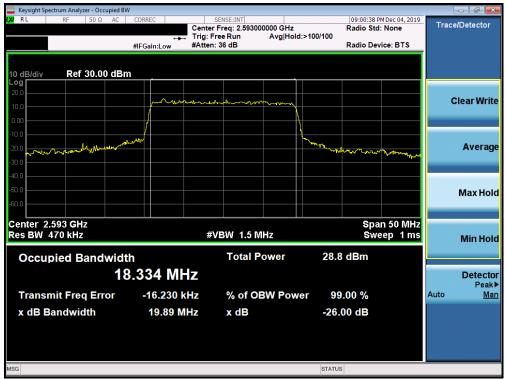
Plot 7-537. Occupied Bandwidth Plot (n66 20MHz 256QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | D 044 404                       |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 341 of 434                 |
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| Keysight Spectrum Analyzer - Occupied BV | V                 |  |            |   | - • • <b>•</b>           |
|--|-------------------|--|------------|---|--------------------------|
| <b>ΙΧΙ R</b> E RF 50 Ω AC                |                   | SENSE:INT<br>er Freq: 2.593000000 GHz<br>Free Run Avg Hold | Radio St   | PM Dec 04, 2019<br>d: None                | Trace/Detector           |
|  | #IFGain:Low #Atte | en: 36 dB  |            | evice: BTS                                |                          |
|  |                   |  |            | le la |                          |
| 10 dB/div Ref 30.00 dBn                  | n                 |  |            |   |                          |
| 20.0                                     |                   |  |            |   |                          |
| 10.0                                     | m                 | an monte and   |            |   | Clear Write              |
| 0.00                                     |                   |  |            |   |                          |
| -10.0                                    |                   |  |            |   |                          |
| -20.0 pmmlmmlmmlmm                       | . New             |  | ha.        |   | Average                  |
| -20.0 your Man Martin and Martin         |                   |  | - hourser  | mon                                       | Average                  |
| -30.0                                    |                   |  |            |   |                          |
| -40.0                                    |                   |  |            |   |                          |
| -50.0                                    |                   |  |            |   | Max Hold                 |
| -60.0                                    |                   |  |            |   |                          |
| Center 2.593 GHz                         |                   |  | Sp         | an 50 MHz                                 |                          |
| Res BW 470 kHz                           |                   | #VBW 1.5 MHz   |            | /eep 1ms                                  | Min Hold                 |
|  |                   | T-4-1 D  | 20.0 .10   |   |                          |
| Occupied Bandwidt                        |                   | Total Power  | 29.2 dBm   |   |                          |
| 18                                       | 3.292 MHz         |  |            |   | Detector                 |
| Transmit Freq Error                      | -35.058 kHz       | % of OBW Pow   | er 99.00 % |   | Peak▶<br>Auto <u>Man</u> |
| x dB Bandwidth                           | 19.88 MHz         | x dB   | -26.00 dB  |   |                          |
|  | 19.00 MHZ         | хuв  | -20.00 aB  |   |                          |
|  |                   |  |            |   |                          |
|  |                   |  |            |   |                          |
|  |                   |  |            |   |                          |
| MSG                                      |                   |  | STATUS     |   |                          |

Plot 7-538. Occupied Bandwidth Plot (n41 20MHz QPSK-CP-OFDM - Full RB Configuration)



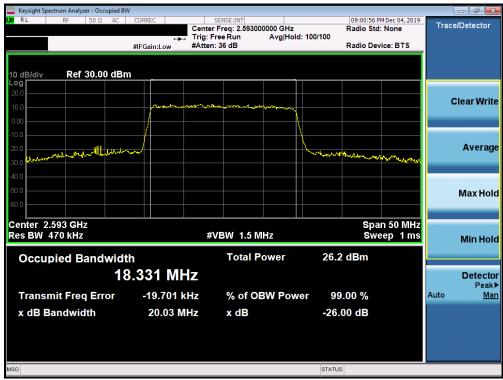
Plot 7-539. Occupied Bandwidth Plot (n41 20MHz 16QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG   | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|-----------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |           | Page 342 of 434                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      | e Handset |                                 |
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| Keysight Spectrum Analyzer - Occupied B\   | N                  |                                    |   |               |                   |
|--|--------------------|------------------------------------|---|---------------|-------------------|
| LXI RL RF 50Ω AC   |                    | SENSE:INT<br>Freq: 2.593000000 GHz | 09:00:47 Pt<br>Radio Std:                 | MDec 04, 2019 | Trace/Detector    |
|  |                    | ree Run Avg Hold:                  |   | None          |                   |
|  | #IFGain:Low #Atten | : 36 dB                            | Radio Dev                                 | ice: BTS      |                   |
|  |                    |                                    |   |               |                   |
| 10 dB/div Ref 30.00 dBr  | n                  |                                    |   |               |                   |
| Log  |                    |                                    |   |               |                   |
| 20.0   |                    |                                    |   |               | Clear Write       |
| 10.0   |                    | manne                              |   |               | Clear write       |
| 0.00   |                    |                                    |   |               |                   |
| -10.0  |                    | \                                  |   |               |                   |
| -20.0  |                    |                                    | man .                                     |               | Average           |
| and the second and the second se |                    |                                    | man and and and and and and and and and a | Monorger      | Average           |
| -30.0  |                    |                                    |   |               |                   |
| -40.0  |                    |                                    |   |               |                   |
| -50.0  |                    |                                    |   |               | Max Hold          |
| -60.0  |                    |                                    |   |               |                   |
|  |                    |                                    |   |               |                   |
| Center 2.593 GHz   |                    |                                    |   | n 50 MHz      |                   |
| Res BW 470 kHz   | #                  | VBW 1.5 MHz                        | Swe                                       | ep 1 ms       | Min Hold          |
| Occupied Bandwid   | h                  | Total Power                        | 28.6 dBm                                  |               |                   |
|  |                    |                                    | 20.0 0.0                                  |               |                   |
| 18   | 3.301 MHz          |                                    |   |               | Detector          |
| Transmit Erag Emer   | 25 544 kH-         | % of OBW Powe                      | r 99.00 %                                 |               | Peak▶<br>Auto Man |
| Transmit Freq Error  | -35.541 kHz        | % of OBW Powe                      | 99.00 %                                   |               | Auto <u>Man</u>   |
| x dB Bandwidth   | 20.40 MHz          | x dB                               | -26.00 dB                                 |               |                   |
|  |                    |                                    |   |               |                   |
|  |                    |                                    |   |               |                   |
|  |                    |                                    |   |               |                   |
|  |                    |                                    |   |               |                   |
| MSG  |                    |                                    | STATUS                                    |               |                   |

Plot 7-540. Occupied Bandwidth Plot (n41 20MHz 64QAM-CP-OFDM- Full RB Configuration)



Plot 7-541. Occupied Bandwidth Plot (n41 20MHz 256QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dega 242 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 343 of 434                 |
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| Keysight Spectrum Analyzer - Occupied BV | V             |                                |          |                       |                                 |            | d X             |
|--|---------------|--------------------------------|----------|-----------------------|---------------------------------|------------|-----------------|
| <b>LX/</b> RL RF 50Ω DC                  | CORREC        | SENSE:INT<br>Center Freq: 2.59 |          |                       | 25 PM Dec 04, 2019<br>Std: None | Trace/Dete | ector           |
|  | •••           | Trig: Free Run                 | Avg Hold | : 100/100             |                                 |            |                 |
|  | #IFGain:Low   | #Atten: 36 dB                  |          | Radio I               | Device: BTS                     |            |                 |
|  |               |                                |          |                       |                                 |            |                 |
| 10 dB/div Ref 30.00 dBn                  | ņ             |                                |          | <u> </u>              |                                 |            |                 |
| 20.0                                     |               |                                |          |                       |                                 |            |                 |
| 10.0                                     | Martellaladar | man man and some many some so  | www.www. | here                  |                                 | Clear      | Write           |
| 0.00                                     |               |                                |          |                       |                                 |            |                 |
| -10.0                                    |               |                                |          |                       |                                 |            |                 |
|  |               |                                |          |                       |                                 | Av         | erage           |
| -20.0                                    |               |                                |          | Contract of the state | and the source of the second    |            |                 |
| -40.0                                    |               |                                |          |                       |                                 |            |                 |
| -50.0                                    |               |                                |          |                       |                                 |            |                 |
| -60.0                                    |               |                                |          |                       |                                 | Max        | k Hold          |
| -60.0                                    |               |                                |          |                       |                                 |            |                 |
| Center 2.59300 GHz                       |               |                                |          |                       | ר 80.00 MHz                     |            |                 |
| Res BW 750 kHz                           |               | #VBW 31                        | VIHz     | S                     | weep 1 ms                       | Mir        | 1 Hold          |
| Occupied Bondwidt                        | i h           | Tota                           | l Power  | 27.6 dBm              |                                 |            |                 |
| Occupied Bandwidt                        |               |                                | ITOWEI   | 21.0 0.011            |                                 |            |                 |
| 37                                       | 7.931 M⊦      | IZ                             |          |                       |                                 |            | tector<br>Peak▶ |
| Transmit Freq Error                      | -113.62 k     | Hz % of                        | OBW Powe | er 99.00 %            |                                 | Auto       | Man             |
| x dB Bandwidth                           | 39.92 M       | Hz x dB                        |          | -26.00 dB             |                                 |            |                 |
|  |               |                                |          |                       |                                 |            |                 |
|  |               |                                |          |                       |                                 |            |                 |
|  |               |                                |          |                       |                                 |            |                 |
| MSG                                      |               |                                |          | STATUS                |                                 |            |                 |

Plot 7-542. Occupied Bandwidth Plot (n41 40MHz QPSK-CP-OFDM - Full RB Configuration)



Plot 7-543. Occupied Bandwidth Plot (n41 40MHz 16QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Daga 244 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 344 of 434                 |
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| Keysight Spectrum Analy<br>RL RF | 50 Ω        |       | CORREC       | 1                        |   | SENSE:INT           |  | ALIG     | N AUTO   | 06:55:53             | M Dec 04, 2019                | _    |            |
|----------------------------------|-------------|-------|--------------|--------------------------|---|---------------------|--|----------|----------|----------------------|-------------------------------|------|------------|
| 10                               | 50 32       |       | CONTRACT     |                          | Cente                                   | r Freq: 2.593       | 000000 GHz   | ALIO     | AUTO     | Radio Sto            |                               | Trac | e/Detector |
|                                  |             |       |              | •                        |   | Free Run            | Avg Ho   | ld: 100  | /100     |                      |                               |      |            |
|                                  |             |       | #IFGain:     | Low                      | #Atte                                   | n: 36 dB            |  |          |          | Radio De             | VICE: BIS                     |      |            |
|                                  |             |       |              |                          |   |                     |  |          |          |                      |                               |      |            |
|                                  | 30.00       | dBm   |              |                          |   |                     |  |          |          |                      |                               |      |            |
| og                               |             |       |              |                          |   |                     |  |          |          |                      |                               |      |            |
| 20.0                             |             |       | _            |                          |   |                     |  |          |          |                      |                               |      | Clear Writ |
| 0.0                              |             | ſ     | and tableses | -r-y-k-y-l <sub>ik</sub> | ₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽ | -wheeperson wheeper | Martin and the first state of the second state | Ter Vine |          |                      |                               |      |            |
| ).00                             |             |       |              |                          |   |                     |  |          | \        |                      |                               |      |            |
| 0.0                              |             | {[+]} |              |                          |   |                     |  |          | <u> </u> |                      |                               |      |            |
| 20.0                             | we here and | ny r  |              |                          |   |                     |  |          | - Manul  | "I'm whowall for the | 10 min and and and and a      |      | Averag     |
| 80.0                             |             |       |              |                          |   |                     |  |          |          |                      | a national for even the first |      |            |
| 0.0                              |             |       |              |                          |   |                     |  |          |          |                      |                               |      |            |
|                                  |             |       |              |                          |   |                     |  |          |          |                      |                               |      |            |
| 50.0                             |             |       |              |                          |   |                     |  |          |          |                      |                               |      | Max Ho     |
| 60.0                             |             |       |              |                          |   |                     |  |          |          |                      |                               |      |            |
| enter 2.59300 (                  | 2H7         |       |              |                          |   |                     |  |          |          | Snan S               | 30.00 MHz                     |      |            |
| les BW 750 kHz                   |             |       |              |                          | #                                       | чв₩ зм              | Hz   |          |          |                      | eep 1 ms                      |      | Min Ho     |
|                                  |             |       |              |                          |   |                     |  |          |          |                      | _                             |      | WIITHO     |
| Occupied E                       | andw        | /idth |              |                          |   | Total               | Power  |          | 27.2     | 2 dBm                |                               |      |            |
|                                  |             | 37    | .853         | M                        | 7                                       |                     |  |          |          |                      |                               |      | Detect     |
|                                  |             | 57    | .000         |                          |   |                     |  |          |          |                      |                               |      | Peal       |
| Transmit Fre                     | q Erro      | r     | -132         | 2.32                     | Hz                                      | % of C              | BW Pov   | ver      | 99       | 0.00 %               |                               | Auto | M          |
| x dB Bandwi                      | dth         |       | 20           | .87 M                    | <b>U</b> -                              | x dB                |  |          | 26       | 00 dB                |                               |      |            |
|                                  | uun         |       | 39           | .07 10                   | IN2                                     | хub                 |  |          | -20.     | UU UB                |                               |      |            |
|                                  |             |       |              |                          |   |                     |  |          |          |                      |                               |      |            |
|                                  |             |       |              |                          |   |                     |  |          |          |                      |                               |      |            |
|                                  |             |       |              |                          |   |                     |  |          |          |                      |                               |      |            |
| G                                |             |       |              |                          |   |                     |  |          | STATU    | 5                    |                               |      |            |

Plot 7-544. Occupied Bandwidth Plot (n41 40MHz 64QAM-CP-OFDM- Full RB Configuration)



Plot 7-545. Occupied Bandwidth Plot (n41 40MHz 256QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |  |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|--|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dama 045 at 404                 |  |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 345 of 434                 |  |
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| Keysight Spectrum Analyzer - Occupied BV<br>RL RF 50 Ω DC | CORREC                    |   | ALIGN AUTO 07:0 | L:54 PM Dec 04, 2019 |                |
|---|---------------------------|---|-----------------|----------------------|----------------|
|   |                           | er Freq: 2.593000000 GHz<br>Free Run Avg Hold |                 | Std: None            | Trace/Detector |
|   |                           | n: 36 dB                                      |                 | Device: BTS          |                |
|   |                           |   |                 |                      |                |
| 0 dB/div Ref 30.00 dBn                                    | ņ                         |   |                 |                      |                |
| . <b>0</b> g<br>20.0                                      |                           |   |                 |                      |                |
| 10.0  | Low Man mary with any are | Hall Month hard to the same                   |                 |                      | Clear Wri      |
| ).00  |                           |   |                 |                      |                |
| 0.0   |                           |   |                 |                      |                |
| 20.0 Langer and Mr.                                       |                           |   |                 |                      | Avera          |
| 30.0  |                           |   |                 | +wyberthe antrastrat |                |
| 10.0  |                           |   |                 |                      |                |
| 50.0  |                           |   |                 |                      |                |
| 50.0  |                           |   |                 |                      | Max Ho         |
|   |                           |   |                 |                      |                |
| enter 2.59300 GHz   |                           |   |                 | an 100.0 MHz         |                |
| tes BW 910 kHz  | #                         | ¢VBW 3 MHz                                    |                 | Sweep 1 ms           | Min Ho         |
| Occupied Bandwidt   | h                         | Total Power                                   | 28.3 dBn        | n .                  |                |
|   | .580 MHz                  |   |                 |                      | Detect         |
|   |                           |   |                 |                      | Pea            |
| Transmit Freq Error                                       | -192.39 kHz               | % of OBW Powe                                 | er 99.00 %      | 6                    | Auto <u>M</u>  |
| x dB Bandwidth  | 50.01 MHz                 | x dB  | -26.00 di       | 3                    |                |
|   |                           |   |                 |                      |                |
|   |                           |   |                 |                      |                |
|   |                           |   |                 |                      |                |
| SG  |                           |   | STATUS          |                      |                |

Plot 7-546. Occupied Bandwidth Plot (n41 50MHz QPSK-CP-OFDM - Full RB Configuration)



Plot 7-547. Occupied Bandwidth Plot (n41 50MHz 16QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dega 246 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 346 of 434                 |
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| Keysight Spectrum Analyze | 50 Ω DC  | CORREC                       |                         | SENSE:INT          | Δ  | LIGN AUTO  | 07:01:31                                 | PM Dec 04, 2019          |       |            |
|---------------------------|----------|------------------------------|-------------------------|--------------------|--|------------|--|--------------------------|-------|------------|
| 14                        | 0012 00  | 001020                       | Center                  | Freq: 2.5930       | 00000 GHz  |            | Radio Sto                                |                          | Trace | e/Detector |
|                           |          |                              |                         | ree Run<br>: 36 dB | Avg Hold:  | 100/100    | D  | vice: BTS                |       |            |
|                           |          | #IFGain:Low                  | #Atten                  | : 36 GB            |  |            | Radio De                                 | VICE: BIS                |       |            |
|                           |          |                              |                         |                    |  |            |  |                          |       |            |
|                           | 30.00 dE | m                            |                         |                    |  |            |  |                          |       |            |
| og<br>20.0                |          |                              |                         |                    |  |            |  |                          |       |            |
|                           |          |                              |                         |                    |  |            |  |                          |       | lear Wri   |
| 0.0                       |          | A starting all and and a fig | and the fragment of the | HIY WHAT WARD      | And the second | hand       |  |                          |       |            |
| ).00                      |          | ┦───                         |                         |                    |  | - <u>h</u> |  |                          |       |            |
| 0.0                       |          | ∦                            |                         |                    |  |            |  |                          |       |            |
| 20.0 Heavy Martin Martin  | www.mah  | V                            |                         |                    |  | - United   | 194411-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1 | the still firms of       |       | Avera      |
| 30.0                      |          |                              |                         |                    |  |            | 1  | - The date of the second |       |            |
| 0.0                       |          |                              |                         |                    |  |            |  |                          |       |            |
| 50.0                      |          |                              |                         |                    |  |            |  |                          |       |            |
|                           |          |                              |                         |                    |  |            |  |                          |       | Max Ho     |
| 60.0                      |          |                              |                         |                    |  |            |  |                          | _     |            |
| enter 2.59300 GI          | 17       |                              |                         |                    |  |            | Span                                     | 100.0 MHz                |       |            |
| les BW 910 kHz            |          |                              | #                       | <b>VBW</b> ЗМН     | lz   |            | Sweep 1 ms                               |                          |       | Min Ho     |
|                           |          |                              |                         |                    |  |            |  |                          |       | WIITHO     |
| Occupied Ba               | andwid   | lth                          |                         | Total F            | ower   | 27.        | 3 dBm                                    |                          |       |            |
|                           | Δ        | 7.522 N                      | IH7                     |                    |  |            |  |                          |       | Detect     |
|                           |          | 1.022 N                      | 11 12                   |                    |  |            |  |                          |       | Peal       |
| Transmit Freq             | Error    | -169.42                      | 2 kHz                   | % of O             | BW Powe  | r 9        | 9.00 %                                   |                          | Auto  | M          |
| x dB Bandwid              | th       | 49.91                        | MHz                     | x dB               |  | -26        | .00 dB                                   |                          |       |            |
|                           | ui       | 43.31                        | 111112                  | A ub               |  | -20        | .00 ub                                   |                          |       |            |
|                           |          |                              |                         |                    |  |            |  |                          |       |            |
|                           |          |                              |                         |                    |  |            |  |                          |       |            |
|                           |          |                              |                         |                    |  |            |  |                          |       |            |
| G                         |          |                              |                         |                    |  | STATU      | JS                                       |                          |       |            |

Plot 7-548. Occupied Bandwidth Plot (n41 50MHz 64QAM-CP-OFDM- Full RB Configuration)



Plot 7-549. Occupied Bandwidth Plot (n41 50MHz 256QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | Dage 247 of 424                 |
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| Keysight Spectrum Ana<br>KIRL RF  | 50 Ω          |      | CORREC          |          | SENSE:INT            |          | ALIGN   | AUTO C               | )7:04:16 PI       | M Dec 04, 2019       | -    |            |
|-----------------------------------|---------------|------|-----------------|----------|----------------------|----------|---------|----------------------|-------------------|----------------------|------|------------|
|                                   |               |      |                 |          | r Freq: 2.5930       |          |         |                      | adio Std:         | None                 | Trac | e/Detector |
|                                   |               |      | #IFGain:Lov     |          | Free Run<br>1:36 dB  | Avg Hold | 1: 100/ |                      | adio Dev          | ice: BTS             |      |            |
|                                   |               |      | #IFGaIII.LOV    | #/ 11101 | 1. 00 dB             |          |         | T.                   | adio Bet          | 100. 010             |      |            |
| _                                 |               |      |                 |          |                      |          |         |                      |                   |                      |      |            |
| 0 dB/div Re                       | f 30.00       | dBn  | i –             |          |                      |          |         |                      |                   |                      |      |            |
| 20.0                              |               |      |                 |          |                      |          |         |                      |                   |                      |      |            |
| 10.0                              |               |      | A work work the | ~^}**    | en loron bill had an |          |         |                      |                   |                      |      | Clear Wri  |
| 3.00                              |               | /    |                 |          |                      |          |         | ۱ ۱                  |                   |                      |      |            |
| 10.0                              |               | - {  |                 |          |                      |          |         |                      |                   |                      |      |            |
|                                   | when the star | ma   |                 |          |                      |          |         |                      |                   |                      |      | Avera      |
| 20.0                              |               |      |                 |          |                      |          |         | Stall Search Station | And a staff water | man fill many report |      | Avera      |
| 30.0                              |               |      |                 |          |                      |          |         |                      |                   |                      |      |            |
| 40.0                              |               |      |                 |          |                      |          |         |                      |                   |                      |      |            |
| 50.0                              |               |      |                 |          |                      |          |         |                      |                   |                      |      | Max Ho     |
| 60.0                              |               |      |                 |          |                      |          |         |                      |                   |                      |      |            |
|                                   | <u></u>       |      |                 |          |                      |          |         |                      |                   |                      |      |            |
| Center 2.59300 ·<br>Res BW 1.1 MH |               |      |                 | #        | <b>∨в</b> жизм       | 47       |         |                      |                   | 20.0 MHz<br>ep 1 ms  |      |            |
|                                   | 2             |      |                 | "        |                      | 12       |         |                      | OWC               | сртпэ                |      | Min Ho     |
| Occupied I                        | Band          | widt | h               |          | Total                | Power    |         | 28.2 d               | Bm                |                      |      |            |
|                                   |               |      | 7.981           | ᄱᆸᆂ      |                      |          |         |                      |                   |                      |      | Detect     |
|                                   |               | 51   | .0011           |          |                      |          |         |                      |                   |                      |      | Peal       |
| Transmit Fre                      | q Erro        | or   | -166.′          | 8 kHz    | % of C               | BW Pow   | er      | 99.00                | 0 %               |                      | Auto | M          |
| x dB Bandwi                       | idth          |      | 60 5            | 6 MHz    | x dB                 |          |         | -26.00               | dB                |                      |      |            |
|                                   | aun           |      | 00.0            |          |                      |          |         | -20.00               | u D               |                      |      |            |
|                                   |               |      |                 |          |                      |          |         |                      |                   |                      |      |            |
|                                   |               |      |                 |          |                      |          |         |                      |                   |                      |      |            |
|                                   |               |      |                 |          |                      |          |         |                      |                   |                      |      |            |
| SG                                |               |      |                 |          |                      |          |         | STATUS               |                   |                      |      |            |

Plot 7-550. Occupied Bandwidth Plot (n41 60MHz QPSK-CP-OFDM - Full RB Configuration)



Plot 7-551. Occupied Bandwidth Plot (n41 60MHz 16QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |  |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|--|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Page 348 of 434                 |  |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         |                                 |  |
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| 🤤 Keysight Spectrum Analyzer - Occupied E    | W                         |  |                              |                    |                       | _      |           |
|--|---------------------------|--|------------------------------|--------------------|-----------------------|--------|-----------|
| <b>LXI</b> RL RF 50Ω DC                      | CORREC                    | SENSE:INT<br>Center Freq: 2.59300                    |                              | Radio Std:         | MDec 04, 2019<br>None | Tracel | Detector  |
|  | #IFGain:Low               | <ul> <li>Trig: Free Run<br/>#Atten: 36 dB</li> </ul> | Avg Hold: 100/1              | 00<br>Radio Dev    | ice: BTS              |        |           |
|  |                           |  |                              |                    |                       |        |           |
| 10 dB/div Ref 30.00 dB                       | m                         |  |                              |                    |                       |        |           |
| 20.0   |                           |  |                              |                    |                       |        |           |
| 10.0   | And you replay the second | ~~~  | er where the property second |                    |                       | C      | ear Write |
| 0.00   | <b>[</b> ]                |  |                              |                    |                       |        |           |
| -10.0  |                           |  |                              |                    |                       |        |           |
| -20.0 pagety the talk when the provident the |                           |  |                              | howerhourpelleuror | Channa Antonia        |        | Average   |
| -30.0  |                           |  |                              |                    |                       |        |           |
| -40.0  |                           |  |                              |                    |                       |        |           |
| -50.0  |                           |  |                              |                    |                       |        | Max Hold  |
| -60.0  |                           |  |                              |                    |                       |        |           |
| Center 2.59300 GHz                           |                           |  | · · · ·                      |                    | 20.0 MHz              |        |           |
| Res BW 1.1 MHz                               |                           | #VBW_3 MH  | 2                            | Swe                | ep 1 ms               |        | Min Hold  |
| Occupied Bandwid                             | th                        | Total P  | ower                         | 27.5 dBm           |                       |        |           |
|  | 7.921 MH                  | 7  |                              |                    |                       |        | Detector  |
|  |                           |  |                              |                    |                       | A      | Peak▶     |
| Transmit Freq Error                          | -239.27 k                 |  | BW Power                     | 99.00 %            |                       | Auto   | Man       |
| x dB Bandwidth                               | 60.82 M                   | Hz x dB  |                              | -26.00 dB          |                       |        |           |
|  |                           |  |                              |                    |                       |        |           |
|  |                           |  |                              |                    |                       |        |           |
| MSG  |                           |  |                              | STATUS             |                       |        |           |
| mod  |                           |  | •                            | 016100             |                       |        |           |

Plot 7-552. Occupied Bandwidth Plot (n41 60MHz 64QAM-CP-OFDM- Full RB Configuration)



Plot 7-553. Occupied Bandwidth Plot (n41 60MHz 256QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG         | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|-----------------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | Dama 040 af 404 |                                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | 19 – 01/09/20 Portable Handset        |                 | Page 349 of 434                 |
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| Keysight Spectrum Analyzer - Occupied B<br>RL RF 50 Ω DC | CORREC              | SENSE:INT  | ALIGN AUTO 07:13   | 14 PM Dec 04, 2019           |                |
|--|---------------------|--|--|------------------------------|----------------|
|  |                     | r Freq: 2.593000000 GHz  |  | Std: None                    | Trace/Detector |
|  |                     | FreeRun Avg Hold:<br>n:36 dB   |  | Device: BTS                  |                |
|  | #IT Galli.EOW (Itel |  |  |                              |                |
|  |                     |  |  |                              |                |
| 0 dB/div Ref 30.00 dB                                    | <u>m</u>            |  |  |                              |                |
| 20.0   |                     |  |  |                              |                |
| 10.0   | mound               | What and the second of the sec | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~   |                              | Clear Wri      |
| 0.00   |                     |  | <u> </u>   |                              |                |
| 10.0 Mary man  |                     |  |  | where the set of the set     |                |
| 20.0   |                     |  | And a state of the | althe A. Ca. on the Juncture | Avera          |
| 30.0   |                     |  |  |                              |                |
| 40.0   |                     |  |  |                              |                |
| 50.0   |                     |  |  |                              |                |
| 60.0   |                     |  |  |                              | Max Ho         |
| 30.0   |                     |  |  |                              |                |
| Center 2.59300 GHz                                       |                     |  |  | n 160.0 MHz                  |                |
| Res BW 1.5 MHz   | #                   | VBW 8 MHz  | 4  | Sweep 1ms                    | Min Ho         |
| Occupied Bandwid   | th                  | Total Power  | 28.6 dBm   |                              |                |
|  |                     |  | 20.0 4811  |                              |                |
|  | 8.389 MHz           |  |  |                              | Detect<br>Peal |
| Transmit Freq Error                                      | -514.96 kHz         | % of OBW Powe  | er 99.00 %   |                              | Auto <u>M</u>  |
| x dB Bandwidth   | 157.6 MHz           | x dB   | -26.00 dB  |                              |                |
|  | 137.0 MHZ           | XUD  | -20.00 UB  |                              |                |
|  |                     |  |  |                              |                |
|  |                     |  |  |                              |                |
|  |                     |  | 1  |                              |                |
| SG   |                     |  | STATUS   |                              |                |

Plot 7-554. Occupied Bandwidth Plot (n41 80MHz QPSK-CP-OFDM - Full RB Configuration)



Plot 7-555. Occupied Bandwidth Plot (n41 80MHz 16QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG  | Approved by:<br>Quality Manager |  |  |
|---------------------|---------------------|---------------------------------------|----------|---------------------------------|--|--|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | JT Type: |                                 |  |  |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |          | Page 350 of 434                 |  |  |
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| Keysight Spectrum Analyze                         | 50 Ω DC   | CORREC      |                    | SENSE:INT   |                  | ALIGN AUT | 07:12:52 P                             | M Dec 04, 2019 | _    |            |
|---|---|-------------|--------------------|---|------------------|-----------|--|----------------|------|------------|
|   |   |             |                    | r Freq: 2.5930  |                  |           | Radio Std                              | : None         | Trac | e/Detector |
|   |   |             |                    | Free Run  | Avg Hold:        | : 100/100 | Dealle Dea                             | des DTC        |      |            |
|   |   | #IFGain:Low | #Atter             | n: 36 dB  |                  |           | Radio Dev                              | VICE: BIS      |      |            |
|   |   |             |                    |   |                  |           |  |                |      |            |
|   | 30.00 dE  | 3m          |                    |   |                  |           |  |                |      |            |
| .og   |   |             |                    |   |                  |           |  |                |      |            |
| 20.0  |   |             |                    |   |                  |           |  |                |      | Clear Wri  |
| 0.0   |   |             | lolongoleonoutgens | han mar and the second s | haderley and ble | wan       |  |                |      |            |
| ).00  |   | <u> </u>    |                    |   |                  | <u> </u>  |  |                |      |            |
| 0.0 mileserentetetetetetetetetetetetetetetetetete | and the state of the | /           |                    |   |                  |           | and the second second second           |                |      |            |
| 20.0  |   |             |                    |   |                  |           | ************************************** |                |      | Avera      |
|   |   |             |                    |   |                  |           |  |                |      |            |
| 30.0  |   |             |                    |   |                  |           |  |                |      |            |
| 0.0   |   |             |                    |   |                  |           |  |                |      |            |
| 50.0  |   |             |                    |   |                  |           |  |                |      | Max Ho     |
| 50.0  |   |             |                    |   |                  |           |  |                |      |            |
|   |   |             |                    |   |                  |           |  |                |      |            |
| enter 2.59300 GI                                  | Hz  |             |                    |   |                  |           |  | 60.0 MHz       |      |            |
| tes BW 1.5 MHz                                    |   |             | #                  | VBW 8 MI  | HZ               |           | SW                                     | eep 1 ms       |      | Min Ho     |
| Occupied Ba                                       |   |             |                    | Total   | Power            | 29        | .2 dBm                                 |                |      |            |
| Occupied Ba                                       |   |             |                    | Total   | OWCI             | 20        |  |                |      |            |
|   | 7   | 8.475       | ЛНz                |   |                  |           |  |                |      | Detect     |
| Terrer and it France                              |   | 5747        | 5 J.J.             | 0/ -50  | DW D             |           | 00.00.0/                               |                | Auto | Peal<br>M  |
| Transmit Freq                                     | Error   | -574.7      | O KHZ              | % of C  | BW Powe          | er s      | 99.00 %                                |                | Auto | <u>IVI</u> |
| x dB Bandwid                                      | th  | 160.0       | ) MHz              | x dB  |                  | -2        | 6.00 dB                                |                |      |            |
|   |   |             |                    |   |                  |           |  |                |      |            |
|   |   |             |                    |   |                  |           |  |                |      |            |
|   |   |             |                    |   |                  |           |  |                |      |            |
|   |   |             |                    |   |                  |           |  |                |      |            |
| G   |   |             |                    |   |                  | STA       | TUS                                    |                |      |            |

Plot 7-556. Occupied Bandwidth Plot (n41 80MHz 64QAM-CP-OFDM- Full RB Configuration)



Plot 7-557. Occupied Bandwidth Plot (n41 80MHz 256QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG         | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|-----------------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | Dama 054 af 404 |                                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | - 01/09/20 Portable Handset           |                 | Page 351 of 434                 |
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| Keysight Spectrum A<br>RL RF | 50 Ω     |       | CORRE | C        |        | SENSE:INT             |   | ALIGN       | AUTO   | 07:14:35 P                              | M Dec 04, 2019  |      |            |
|------------------------------|----------|-------|-------|----------|--------|-----------------------|---|-------------|--------|---|-----------------|------|------------|
|                              |          |       |       |          |        | er Freq: 2.5930       |   |             |        | Radio Std                               |                 | Trac | e/Detector |
|                              |          |       |       |          |        | Free Run<br>en: 36 dB | Avg Hold  | d: 100/     |        | Radio Dev                               | ine: BTS        |      |            |
|                              |          |       | #IFGa | in:Low   | #Atte  | en: 36 dB             |   |             |        | Radio Dev                               | ice: DIS        |      |            |
|                              |          |       |       |          |        |                       |   |             |        |   |                 |      |            |
|                              | ef 30.00 | ) dBr | n     |          |        |                       |   |             |        |   |                 |      |            |
| og<br>20.0                   |          |       |       |          |        |                       |   |             |        |   |                 |      |            |
|                              |          |       | Maria | moundary | montom | mar una horas         |   |             |        |   |                 |      | Clear Wri  |
| 0.0                          |          |       |       |          |        |                       | and a second state of the | a halo da a | 1      |   |                 |      |            |
|                              |          | /     |       |          |        |                       |   |             |        |   |                 |      |            |
| 0.0                          | Innormal | hal   |       |          |        |                       |   |             | Lun,   | Manul                                   | mall marshipson |      |            |
| 0.0                          |          |       |       |          |        |                       |   |             |        | - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 | . W. Carley     |      | Avera      |
| 30.0                         |          |       |       |          |        |                       |   |             |        |   |                 |      |            |
| 0.0                          |          |       |       |          |        |                       |   |             |        |   |                 |      |            |
| io.o                         |          |       |       |          |        |                       |   |             |        |   |                 |      |            |
| an n                         |          |       |       |          |        |                       |   |             |        |   |                 |      | Max Ho     |
| 50.0                         |          |       |       |          |        |                       |   |             |        |   |                 |      |            |
| enter 2.59300                | ) GHz    |       |       |          |        |                       |   |             |        | Span 1                                  | 80.0 MHz        |      |            |
| les BW 1.8 M                 | Hz       |       |       |          |        | #VBW 8 M              | Hz  |             |        |   | eep 1 ms        |      | Min Ho     |
|                              |          |       |       |          |        |                       |   |             |        |   |                 |      |            |
| Occupied                     | Band     | widt  | th    |          |        | Total                 | Power   |             | 28.8   | dBm                                     |                 |      |            |
|                              |          | 87    | 7.86  | 7 M      | Hz_    |                       |   |             |        |   |                 |      | Detect     |
|                              |          |       |       |          |        |                       |   |             |        |   |                 |      | Pea        |
| Transmit F                   | req Erro | or    | -1    | 35.19    | kHz    | % of C                | BW Pow  | er          | 99.0   | 00 %                                    |                 | Auto | <u>M</u>   |
| x dB Bandy                   | vidth    |       | 9     | 98.35    | ИНz    | x dB                  |   |             | -26.0  | 0 dB                                    |                 |      |            |
|                              |          |       |       |          |        |                       |   |             |        |   |                 |      |            |
|                              |          |       |       |          |        |                       |   |             |        |   |                 |      |            |
|                              |          |       |       |          |        |                       |   |             |        |   |                 |      |            |
|                              |          |       |       |          |        |                       |   |             |        |   |                 |      |            |
| G                            |          |       |       |          |        |                       |   |             | STATUS |   |                 |      |            |

Plot 7-558. Occupied Bandwidth Plot (n41 90MHz QPSK-CP-OFDM - Full RB Configuration)



Plot 7-559. Occupied Bandwidth Plot (n41 90MHz 16QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG  | Approved by:<br>Quality Manager |  |  |
|---------------------|---------------------|---------------------------------------|----------|---------------------------------|--|--|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | UT Type: |                                 |  |  |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |          | Page 352 of 434                 |  |  |
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| Keysight Spectrum Analyze | 50 Ω DC   | CORREC             | SEN                      | SE:INT           |           | ALIGN | AUTO 07:14   | 4:58 PM Dec 04, 20          | 9    |             |
|---------------------------|-----------|--------------------|--------------------------|------------------|-----------|-------|--------------|-----------------------------|------|-------------|
|                           |           |                    |                          | eq: 2.593000     |           | 4000  |              | Std: None                   | Ira  | ce/Detector |
|                           |           | ⊶<br>#IFGain:Low   | Trig: Free<br>#Atten: 36 |                  | Avg Hold: | 100/1 |              | Device: BTS                 |      |             |
|                           |           | an dumeon _        |                          |                  |           |       |              |                             | T    |             |
| a IDI II DALI             | 0.00 -10- |                    |                          |                  |           |       |              |                             |      |             |
| 0 dB/div Ref 3            | 30.00 dBr | <u>n</u>           |                          |                  |           |       |              |                             |      |             |
| 20.0                      |           |                    |                          |                  |           |       |              |                             |      |             |
| 0.0                       |           | and man and manual | and the second           | واساله معالمه مر | -         |       |              |                             |      | Clear Wri   |
|                           |           |                    |                          |                  |           |       |              |                             |      |             |
| 0.0                       |           |                    |                          |                  |           |       |              |                             |      |             |
| 0.0 may water and the     | www.www.  |                    |                          |                  |           |       | handergannes | a ware a have been a served | ь.   | Avera       |
|                           |           |                    |                          |                  |           |       |              |                             |      | Avera       |
| 30.0                      |           |                    |                          |                  |           |       |              |                             |      |             |
| 10.0                      |           |                    |                          |                  |           |       |              |                             |      |             |
| 50.0                      |           |                    |                          |                  |           |       |              |                             |      | Max Ho      |
| 60.0                      |           |                    |                          |                  |           |       |              |                             |      |             |
| enter 2,59300 GI          |           |                    |                          |                  |           |       | Dr.(         |                             |      |             |
| es BW 1.8 MHz             | 12        |                    | #VB                      | W 8 MHz          |           |       |              | an 180.0 MH<br>Sweep 1 m    |      |             |
|                           |           |                    | <i>"</i> • =             |                  |           |       |              | oncep in                    |      | Min Ho      |
| Occupied Ba               | Indwidt   | th                 |                          | Total Po         | wer       |       | 27.9 dBn     | n                           |      |             |
|                           |           | 7.811 M            | 47                       |                  |           |       |              |                             |      | Detect      |
|                           | 0         |                    | 112                      |                  |           |       |              |                             |      | Peal        |
| Transmit Freq             | Error     | -81.655            | kHz                      | % of OB          | W Powe    | er    | 99.00 %      | 6                           | Auto | M           |
| x dB Bandwid              | th        | 92.28              |                          | x dB             |           |       | -26.00 di    | •                           |      |             |
|                           |           | 52.20              | VINZ                     | X UB             |           |       | -20.00 ui    | 5                           |      |             |
|                           |           |                    |                          |                  |           |       |              |                             |      |             |
|                           |           |                    |                          |                  |           |       |              |                             |      |             |
|                           |           |                    |                          |                  |           |       |              |                             |      |             |
| G                         |           |                    |                          |                  |           |       | STATUS       |                             |      |             |

Plot 7-560. Occupied Bandwidth Plot (n41 90MHz 64QAM-CP-OFDM- Full RB Configuration)



Plot 7-561. Occupied Bandwidth Plot (n41 90MHz 256QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG  | Approved by:<br>Quality Manager |  |  |
|---------------------|---------------------|---------------------------------------|----------|---------------------------------|--|--|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | ЈТ Туре: |                                 |  |  |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | 09/20 Portable Handset                |          | Page 353 of 434                 |  |  |
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| Keysight Spectrum Analyzer - Occupied           RL         RF         50 Ω         DC | BW CORREC  | SENSE:INT  | ALIGN AUTO  | 07:19:05 PM Dec 04,                    | 2019           |
|---|--|--|---|--|----------------|
|   |  | Center Freq: 2.593000  | 000 GHz   | Radio Std: None                        | Trace/Detector |
|   | +→<br>#IFGain:Low  | Trig: Free Run<br>#Atten: 36 dB  | Avg Hold: 100/100                                 | Radio Device: BT                       | s              |
|   | #IT Gallit.EOW   |  |   |  |                |
|   |  |  |   |  |                |
| 0 dB/div Ref 30.00 dE   | sm   |  |   |  |                |
| 20.0  |  |  |   |  |                |
| 0.0   | And all a stand and a stand and a stand of the stand of t | material and a second | - martine and |  | Clear Wri      |
| 1.00  | <i>\</i>   |  | N   |  |                |
| 0.0   |  |  |   |  |                |
| 0.0 What make a start way   |  |  | here  | monupation brick and the second states | Avera          |
| 80.0  |  |  |   |  |                |
| 10.0  |  |  |   |  |                |
| 0.0   |  |  |   |  |                |
| 60.0  |  |  |   |  | Max Ho         |
| DU.U  |  |  |   |  |                |
| enter 2.5930 GHz  |  |  |   | Span 200.0 N                           | ЛНZ            |
| es BW 1.8 MHz   |  | #VBW 8 MHz   |   | Sweep 1                                | ms Min Ho      |
|   |  | Total Po   |   | 6 dBm                                  |                |
| Occupied Bandwid  |  |  | wer zo.   | o abm                                  |                |
| 9   | 7.651 MH   | Z  |   |  | Detect         |
| Transmit Freq Error   | -309.30 kl   | Hz % of OR   | W Power 9   | 9.00 %                                 | Peal<br>Auto M |
|   |  |  |   |  |                |
| x dB Bandwidth  | 102.4 MI   | Hz xdB   | -26   | .00 dB                                 |                |
|   |  |  |   |  |                |
|   |  |  |   |  |                |
|   |  |  |   |  |                |
|   |  |  | STATU   |  |                |

Plot 7-562. Occupied Bandwidth Plot (n41 100MHz QPSK-CP-OFDM - Full RB Configuration)



Plot 7-563. Occupied Bandwidth Plot (n41 100MHz 16QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG  | Approved by:<br>Quality Manager |  |  |
|---------------------|---------------------|---------------------------------------|----------|---------------------------------|--|--|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | ИТ Туре: |                                 |  |  |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | 9/20 Portable Handset                 |          | Page 354 of 434                 |  |  |
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| Keysight Spectrum Analyzer - Occupied B  |                                       |                                       |            |                     |                       |           | d Z      |
|--|---------------------------------------|---------------------------------------|------------|---------------------|-----------------------|-----------|----------|
| X RL RF 50Ω DC   | CORREC Center                         | SENSE:INT<br>er Freq: 2.593000000 GHz | ALIGN AUTO | Radio Std:          | 1Dec 04, 2019<br>None | Trace/Det | tector   |
|  |                                       | Free Run Avg Hol<br>n: 36 dB          | d: 100/100 | Radio Dev           | Inc. BTS              |           |          |
|  | #IFGain:Low #Atte                     | 1. 30 00                              |            | Radio Dev           | CE. DT3               |           |          |
|  |                                       |                                       |            |                     |                       |           |          |
| 10 dB/div Ref 30.00 dBr  | <u>p</u>                              |                                       |            |                     |                       |           |          |
| 20.0   |                                       |                                       |            |                     |                       | Clas      | r Writ   |
| 10.0   | and apply for the stand of the second | males for the property when the open  | Part and a |                     |                       | Clea      | rvvri    |
| 0.00   |                                       |                                       |            |                     |                       |           |          |
|  |                                       |                                       |            | a                   |                       |           |          |
| 20.0 unvhannentellentellentellentellentellentellentellentellentellentellentellentellentellentellentellentellente |                                       |                                       | YL-mkr.    | - Constant Index No | Wwwwwwwww             | A         | vera     |
| 80.0   |                                       |                                       |            |                     |                       |           |          |
| 40.0   |                                       |                                       |            |                     |                       |           |          |
| 50.0   |                                       |                                       |            |                     |                       | Ма        | ax Ho    |
| 60.0   |                                       |                                       |            |                     |                       |           |          |
| enter 2.5930 GHz   |                                       |                                       |            | Snan 2              | 00.0 MHz              |           |          |
| Res BW 1.8 MHz   | #                                     | ≠VBW 8 MHz                            |            |                     | ep 1 ms               | M         | in Ho    |
|  |                                       |                                       |            |                     | <u> </u>              |           | inno     |
| Occupied Bandwid   |                                       | Total Power                           | 28.2       | 2 dBm               |                       |           |          |
| 9  | 7.672 MHz                             |                                       |            |                     |                       | D         | etect    |
| Transmit Freq Error  | -193.82 kHz                           | % of OBW Pow                          | or 00      | 0.00 %              |                       | Auto      | Peal     |
|  |                                       |                                       |            |                     |                       | , lato    | <u> </u> |
| x dB Bandwidth   | 102.6 MHz                             | x dB                                  | -26.       | 00 dB               |                       |           |          |
|  |                                       |                                       |            |                     |                       |           |          |
|  |                                       |                                       |            |                     |                       |           |          |
|  |                                       |                                       |            |                     |                       |           |          |
| SG   |                                       |                                       | STATU      | 5                   |                       |           |          |

Plot 7-564. Occupied Bandwidth Plot (n41 100MHz 64QAM-CP-OFDM- Full RB Configuration)



Plot 7-565. Occupied Bandwidth Plot (n41 100MHz 256QAM-CP-OFDM - Full RB Configuration)

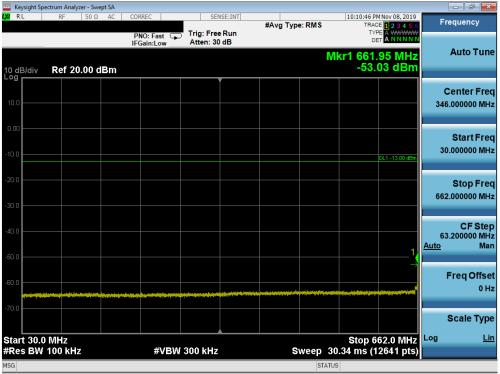
| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dage 255 of 424                 |
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## Spurious and Harmonic Emissions at the Antenna Terminal

All SCS's and Waveforms (CP-OFDM vs DFT-s OFDM) 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.

## NR Band n71



Plot 7-566. Conducted Spurious Plot (n71 - 20MHz DFT-s-OFDM-QPSK - RB Size 1, RB Offset 1 - Low Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dama 050 af 404                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 356 of 434                 |
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|            | ectrum Analyzer - Swep  |                     |                                |   |         |          |                             |                                   |  |                   |                            |
|------------|---|---------------------|--------------------------------|---|---------|----------|-----------------------------|-----------------------------------|--|-------------------|----------------------------|
| LX/ RL     | RF 50 Ω   | AC (                | CORREC                         |   | ISE:INT | #Avg Typ | e: RMS                      | TRAC                              | E 1 2 3 4 5 6                            | Fr                | equency                    |
|            |   |                     | PNO: Fast ↔<br>IFGain:Low      | . Trig: Free<br>Atten: 30                               |         |          |                             | TYF                               |  |                   |                            |
| 10 dB/div  | Ref 20.00 di  | Bm                  |                                |   |         |          | N                           | lkr1 888.<br>-61.8                | 85 MHz<br>99 dBm                         |                   | Auto Tune                  |
| 10.0       |   |                     |                                |   |         |          |                             |                                   |  |                   | Center Freq                |
| 0.00       |   |                     |                                |   |         |          |                             |                                   |  | 040               |                            |
| -10.0      |   |                     |                                |   |         |          |                             |                                   |  | 698               | Start Freq<br>8.000000 MHz |
| -20.0      |   |                     |                                |   |         |          |                             |                                   | DL1 -13.00 dBm                           |                   |                            |
| -30.0      |   |                     |                                |   |         |          |                             |                                   |  | 1.00              | Stop Freq<br>0000000 GHz   |
| -40.0      |   |                     |                                |   |         |          |                             |                                   |  |                   | CF Step                    |
|            |   |                     |                                |   |         |          |                             |                                   |  | 30<br><u>Auto</u> | 0.200000 MHz<br>Man        |
| -50.0      |   |                     |                                |   |         | <b>1</b> |                             |                                   |  |                   | Freq Offset                |
| -60.0      | 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - | Vicelal Annual Cont | datarlasitende tringet saterne | <b>a-ji-a-</b> jadynd, <b>3-</b> ./ <del>jidy/d</del> a |         |          | a) Margantas (C. Vicense es | upper al generation of the second | an a |                   | 0 Hz                       |
| -70.0      |   |                     |                                |   |         |          |                             |                                   |  |                   | Scale Type                 |
| Start 0.69 |   |                     |                                |   |         |          |                             | Stop 1.0                          |  | Log               | <u>Lin</u>                 |
| #Res BW    | 100 kHz   |                     | #VBW                           | 300 kHz   |         |          | Sweep                       | 14.50 ms (                        | 6041 pts)                                |                   |                            |
| MSG        |   |                     |                                |   |         |          | STATU                       | JS                                |  |                   |                            |

Plot 7-567. Conducted Spurious Plot (n71 - 20MHz DFT-s-OFDM-QPSK - RB Size 1, RB Offset 1 - Low Channel)



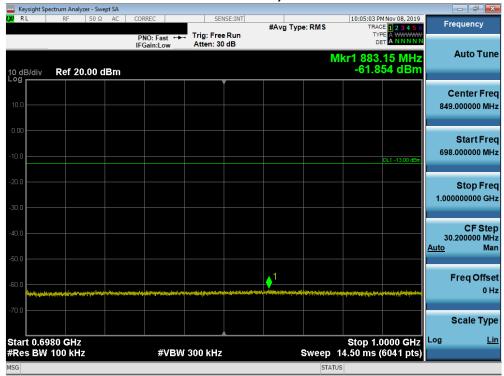
Plot 7-568. Conducted Spurious Plot (n71 - 20MHz DFT-s-OFDM-QPSK - RB Size 1, RB Offset 1 - Low Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dege 257 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 357 of 434                 |
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|            | ectrum Analyzer -         |                    |                       |           |                      |  |        |                               |                                  |      |                    |
|------------|---------------------------|--------------------|-----------------------|-----------|----------------------|--|--------|-------------------------------|----------------------------------|------|--------------------|
| LXI RL     | RF 5                      | OΩ AC              | CORREC                |           | SENSE:INT            | #Avg Typ   | e: RMS | TRA                           | M Nov 08, 2019<br>CE 1 2 3 4 5 6 | Fr   | equency            |
|            |                           |                    | PNO: Fas<br>IFGain:Lo |           | Free Run<br>1: 30 dB |  |        |                               |                                  |      |                    |
| 10 dB/div  | Ref 20.0                  | 0 dBm              |                       |           |                      |  |        | Mkr1 661<br>-35.              | .60 MHz<br>96 dBm                |      | Auto Tune          |
|            |                           |                    |                       |           | Ĭ                    |  |        |                               |                                  |      | Center Freq        |
| 10.0       |                           |                    |                       |           |                      |  |        |                               |                                  | 346  | .500000 MHz        |
| 0.00       |                           |                    |                       |           |                      |  |        |                               |                                  |      | Start Freq         |
| -10.0      |                           |                    |                       |           |                      |  |        |                               | DL1 -13.00 dBm                   | 30   | .000000 MHz        |
| -20.0      |                           |                    |                       |           |                      |  |        |                               |                                  |      | Stop Freq          |
| -30.0      |                           |                    |                       |           |                      |  |        |                               | 1                                | 663  | .000000 MHz        |
| -40.0      |                           |                    |                       |           |                      |  |        |                               | <u> </u>                         |      | CF Step            |
| -50.0      |                           |                    |                       |           |                      |  |        |                               |                                  | Auto | .300000 MHz<br>Man |
|            |                           |                    |                       |           |                      |  |        |                               |                                  |      | Freq Offset        |
| -60.0      | والمراجع المحمول والمراجع | Ali in a prime and |                       |           |                      | ing and the product of the second |        | 14110 - a 17212 (pro 1400-14) |                                  |      | 0 Hz               |
| -70.0      |                           |                    |                       |           |                      |  |        |                               |                                  |      | Scale Type         |
| Start 30.0 | MHz                       |                    |                       |           |                      |  |        | Stop                          | 63.0 MHz                         |      | Lin                |
| #Res BW    |                           |                    | #\                    | /BW 300 k | Hz                   | s  | Sweep  | 30.38 ms (1                   | 12661 pts)                       |      |                    |
| MSG        |                           |                    |                       |           |                      |  | STA    | TUS                           |                                  |      |                    |

Plot 7-569. Conducted Spurious Plot (n71 - 20MHz DFT-s-OFDM-QPSK - RB Size 1, RB Offset 1 - Mid Channel)



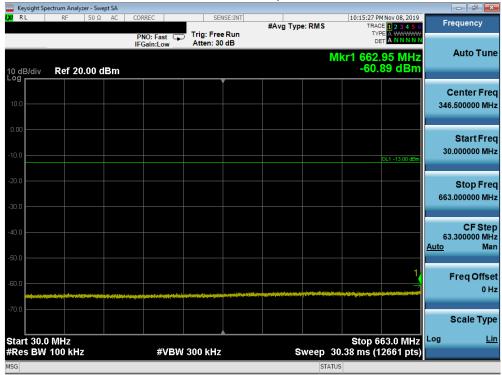
Plot 7-570. Conducted Spurious Plot (n71 - 20MHz DFT-s-OFDM-QPSK - RB Size 1, RB Offset 1 - Mid Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dogo 259 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 358 of 434                 |
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|                       | ctrum Analyzer - Sw |       |                          |                         |         |          |        |                             |                       |                    |                                |
|-----------------------|---------------------|-------|--------------------------|-------------------------|---------|----------|--------|-----------------------------|-----------------------|--------------------|--------------------------------|
| LXU RL                | RF 50 Ω             | AC CO | DRREC                    | SEN                     | ISE:INT | #Avg Typ | e: RMS |                             | M Nov 08, 2019        | Fr                 | equency                        |
| 10 dB/div             | Ref 20.00           | l     | PNO: Fast ↔<br>FGain:Low | Trig: Free<br>#Atten: 3 |         |          | N      | ۳۲<br>۵<br><b>/kr1 9.99</b> |                       |                    | Auto Tune                      |
| 10.0                  |                     |       |                          |                         |         |          |        |                             |                       |                    | Center Freq<br>0000000 GHz     |
| -10.0                 |                     |       |                          |                         |         |          |        |                             | DL1 -13.00 dBm        | 1.00               | Start Freq<br>0000000 GHz      |
| -20.0                 |                     |       |                          |                         |         |          |        |                             |                       | 10.00              | Stop Freq<br>0000000 GHz       |
| -40.0                 |                     |       | <b>~~~</b> ~~            |                         |         |          |        |                             | 1                     | 900<br><u>Auto</u> | CF Step<br>0.000000 MHz<br>Man |
| -60.0                 |                     |       |                          |                         |         |          |        |                             |                       |                    | Freq Offset<br>0 Hz            |
| -70.0                 |                     |       |                          |                         |         |          |        | Ston-44                     |                       |                    | Scale Type<br>Lin              |
| Start 1.00<br>#Res BW |                     |       | #VBW                     | 3.0 MHz                 |         | s        | weep   | 500 10 Stop 10              | .000 GHz<br>8001 pts) | L~9                | <u></u>                        |
| MSG                   |                     |       |                          |                         |         |          | STA    |                             | <u> </u>              |                    |                                |

Plot 7-571. Conducted Spurious Plot (n71 - 20MHz DFT-s-OFDM-QPSK - RB Size 1, RB Offset 1 - Mid Channel)



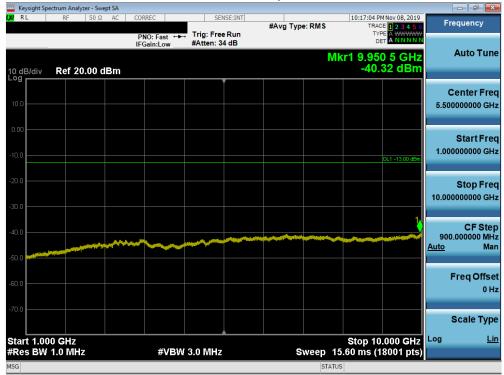
Plot 7-572. Conducted Spurious Plot (n71 - 20MHz DFT-s-OFDM-QPSK - RB Size 1, RB Offset 1 - High Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dogo 250 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 359 of 434                 |
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|                       | ectrum Ana |             |                     |                    |                |                                 |         |          |                       |                   |                                  |             |                          |
|-----------------------|------------|-------------|---------------------|--------------------|----------------|---------------------------------|---------|----------|-----------------------|-------------------|----------------------------------|-------------|--------------------------|
| X/RL                  | RF         | 50 <u>Ω</u> | AC                  | CORREC             |                |                                 | NSE:INT | #Avg Typ | e:RMS                 | TRA               | M Nov 08, 2019<br>CE 1 2 3 4 5 6 | Fi          | equency                  |
|                       |            |             |                     | PNO: F<br>IFGain:l | ast ↔<br>.ow   | , Trig: Free<br>#Atten: 3       |         |          |                       | D                 |                                  |             |                          |
| 10 dB/div<br>Log      | Ref 2      | 0.00 dl     | Bm                  |                    |                |                                 |         |          | Ν                     | /kr1 704<br>-39.5 | .75 MHz<br>33 dBm                |             | Auto Tune                |
|                       |            |             |                     |                    |                |                                 |         |          |                       |                   |                                  | (           | Center Freq              |
| 10.0                  |            |             |                     |                    |                |                                 |         |          |                       |                   |                                  | 849         | ).500000 MHz             |
| 0.00                  |            |             |                     |                    |                |                                 |         |          |                       |                   |                                  |             | Start Fred               |
| -10.0                 |            |             |                     |                    |                |                                 |         |          |                       |                   | DL1 -13.00 dBm                   | 699         | 0.000000 MHz             |
| -20.0                 |            |             |                     |                    |                |                                 |         |          |                       |                   |                                  |             | _                        |
| -20.0                 |            |             |                     |                    |                |                                 |         |          |                       |                   |                                  | 1.00        | Stop Freq<br>0000000 GHz |
| -30.0                 |            |             |                     |                    |                |                                 |         |          |                       |                   |                                  |             |                          |
| -40.0                 |            |             |                     |                    |                |                                 |         |          |                       |                   |                                  | 30          | CF Step<br>0.100000 MHz  |
| -50.0                 |            |             |                     |                    |                |                                 |         |          |                       |                   |                                  | <u>Auto</u> | Man                      |
|                       |            |             | Sec. March and some |                    | a dia kata ara | ala ya ku wa na asala ini ini a |         |          | and the second second | Advantue III      | a da firmu jerda ar              |             | Freq Offset              |
| -60.0                 |            |             |                     |                    | _              |                                 |         |          |                       |                   |                                  |             | 0 Hz                     |
| -70.0                 |            |             |                     |                    |                |                                 |         |          |                       |                   |                                  |             | Scale Type               |
| Start 0.69            |            |             |                     |                    |                |                                 |         |          |                       | Stop 4            |                                  |             | Lin                      |
| start 0.69<br>#Res BW |            |             |                     | 3                  | ¢VB₩           | 300 kHz                         |         |          | Sweep                 | 14.45 ms          | 0000 GHz<br>(6021 pts)           | 209         | <u></u>                  |
| MSG                   |            |             |                     |                    |                |                                 |         |          | STAT                  | US                |                                  |             |                          |

Plot 7-573. Conducted Spurious Plot (n71 - 20MHz DFT-s-OFDM-QPSK - RB Size 1, RB Offset 1 - High Channel)



Plot 7-574. Conducted Spurious Plot (n71 - 20MHz DFT-s-OFDM-QPSK - RB Size 1, RB Offset 1 - High Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dogo 200 of 424                 |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 360 of 434                 |
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## NR Band n66

|                              | Spectrum Anal   |         |    |       |                     |             |      |      |           |                   |                |  |                   |                           |
|------------------------------|---|---------|----|-------|---------------------|-------------|------|------|-----------|-------------------|----------------|--|-------------------|---------------------------|
| RL                           | RF  | 50 Ω    | AC | CORRE | C ∣<br>Fast ↔       | , Trig: Fre |      | #Avç | Type: RMS | S                 | TRA            | PM Nov 09, 2019<br>CE 1 2 3 4 5 6<br>PE A WWWWWW<br>ET A NNNNN |                   | requency                  |
| 0 dB/div                     | Ref 2   | 0.00 di | Bm |       | n:Low               | Atten: 3    | 0 dB |      |           | Mkr               | 1 1.70         | 9 0 GHz<br>21 dBm  |                   | Auto Tun                  |
| .og                          |   |         |    |       |                     |             |      |      |           |                   |                |  |                   | Center Fre<br>9.500000 MH |
| 0.00                         |   |         |    |       |                     |             |      |      |           |                   |                | DL1 -13.00 dBm   | 3                 | Start Fre<br>0.000000 MH  |
| 20.0 <b></b><br>30.0 <b></b> |   |         |    |       |                     |             |      |      |           |                   |                |  | 1.70              | Stop Fre                  |
| 40.0                         |   |         |    |       |                     |             |      |      |           | ten sent y el lui | مى بىلى ئۇرىيى |  | 16<br><u>Auto</u> | CF Ste<br>7.900000 M<br>M |
| 60.0                         | ander der Allen an ander an |         |    |       | a) cércénet rinsiph |             |      |      |           |                   |                |  |                   | Freq Offs<br>0            |
| 70.0                         | )300 GHz  |         |    |       |                     |             |      |      |           |                   | Stop 1         | 7090 GHz   | Log               | Scale Tyj<br>L            |
|                              | V 1.0 MH  |         |    |       | #VBW                | / 3.0 MHz   | z    |      | Swee      | ep 2.2            | 239 ms         | (3359 pts)   |                   |                           |
| SG                           |   |         |    |       |                     |             |      |      |           | STATUS            |                |  |                   |                           |

Plot 7-575. Conducted Spurious Plot (n66 - 20MHz DFT-s-OFDM-QPSK - RB Size 1, RB Offset 1 - Low Channel)



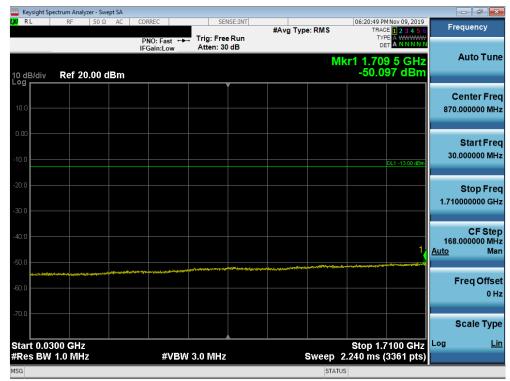
Plot 7-576. Conducted Spurious Plot (n66 - 20MHz DFT-s-OFDM-QPSK - RB Size 1, RB Offset 1 - Low Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | Approved by:<br>Quality Manager |
|---------------------|---------------------|---------------------------------------|---------------------------------|
| Test Report S/N:    | Test Dates:         | EUT Type:                             | Dage 201 of 424                 |
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Plot 7-577. Conducted Spurious Plot (n66 - 20MHz DFT-s-OFDM-QPSK - RB Size 1, RB Offset 1 - Low Channel)



Plot 7-578. Conducted Spurious Plot (n66 - 20MHz DFT-s-OFDM-QPSK - RB Size 1, RB Offset 1 - Mid Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |  |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|--|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dage 202 of 424                 |  |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 362 of 434                 |  |
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|                       | ectrum Analyzer |       |           |                       |                           |         |          |         |                       |                       |                    | ×                              |
|-----------------------|-----------------|-------|-----------|-----------------------|---------------------------|---------|----------|---------|-----------------------|-----------------------|--------------------|--------------------------------|
| LXI RL                | RF 5            | 0Ω AC | COR       | REC                   | SEI                       | ISE:INT | #Avg Typ | e: RMS  |                       | M Nov 09, 2019        | F                  | requency                       |
|                       |                 |       | PN<br>IFG | IO: Fast ↔<br>ain:Low | . Trig: Free<br>Atten: 30 |         |          |         | TY                    |                       |                    |                                |
| 10 dB/div<br>Log      | Ref 20.0        | 0 dBm | 1         |                       |                           |         |          | MI      | kr1 9.98<br>-44.      | 1 5 GHz<br>58 dBm     |                    | Auto Tune                      |
| 10.0                  |                 |       |           |                       |                           |         |          |         |                       |                       |                    | Center Freq<br>0000000 GHz     |
| -10.0                 |                 |       |           |                       |                           |         |          |         |                       | DL1 -13.00 dBm        | 1.78               | Start Freq                     |
| -20.0                 |                 |       |           |                       |                           |         |          |         |                       |                       | 10.00              | Stop Freq<br>0000000 GHz       |
| -40.0                 |                 |       |           |                       |                           |         |          |         |                       | 1                     | 82:<br><u>Auto</u> | CF Step<br>2.000000 MHz<br>Man |
| -50.0                 |                 |       |           |                       |                           |         |          |         |                       |                       |                    | Freq Offset                    |
| -70.0                 |                 |       |           |                       |                           |         |          |         |                       |                       |                    | 0 Hz                           |
|                       |                 |       |           |                       |                           |         |          |         |                       |                       |                    | Scale Type                     |
| Start 1.78<br>#Res BW |                 |       |           | #VBW                  | 3.0 MHz                   |         | s        | weep 14 | Stop 10<br>1.25 ms (1 | .000 GHz<br>6441 pts) | Log                | <u>Lin</u>                     |
| MSG                   |                 |       |           |                       |                           |         |          | STATU   | S                     |                       |                    |                                |

Plot 7-579. Conducted Spurious Plot (n66 - 20MHz DFT-s-OFDM-QPSK - RB Size 1, RB Offset 1 - Mid Channel)



Plot 7-580. Conducted Spurious Plot (n66 - 20MHz DFT-s-OFDM-QPSK - RB Size 1, RB Offset 1 - Mid Channel)

| FCC ID: A3LSMG986W  | PCTEST              | MEASUREMENT REPORT<br>(CERTIFICATION) | SAMSUNG | Approved by:<br>Quality Manager |  |
|---------------------|---------------------|---------------------------------------|---------|---------------------------------|--|
| Test Report S/N:    | Test Dates:         | EUT Type:                             |         | Dage 202 of 424                 |  |
| 1M1911010179-03.A3L | 10/11/19 - 01/09/20 | Portable Handset                      |         | Page 363 of 434                 |  |
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