

PCTEST

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MEASUREMENT REPORT LTE

Applicant Name: Samsung Electronics Co., Ltd. 129, Samsung-ro,

Yeongtong-gu, Suwon-si Gyeonggi-do, 16677, Korea **Date of Testing:** 5/5 – 7/15/2020

Test Site/Location:

PCTEST Lab. Columbia, MD, USA

Test Report Serial No.: 1M2005050082-03.A3L

FCC ID: A3LSMN981W

APPLICANT: Samsung Electronics Co., Ltd.

Application Type: Certification Model: SM-N981W

EUT Type: Portable Handset

FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)

FCC Rule Part(s): 22, 24, & 27

Test Procedure(s): ANSI C63.26-2015, ANSI/TIA-603-E-2016, KDB 971168 D01 v03r01,

KDB 648474 D03 v01r04

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Andy Ortanez
President





| FCC ID: A3LSMN981W | | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|---------------------|-----------------|------------------------------------|------------------------------|
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| FCC ID: A3LSMN981W | | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
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MEASUREMENT REPORT



FCC Part 22, 24, & 27

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| LTE Band 71 27 668 - 693 0.050 17.01 8M99W7D 45C LTE Band 71 27 668 - 693 0.040 16.02 8M99W7D 64C LTE Band 71 27 670.5 - 690.5 0.062 17.96 13M5G7D QP LTE Band 71 27 670.5 - 690.5 0.062 17.96 13M5W7D 16C LTE Band 71 27 670.5 - 690.5 0.050 17.01 13M5W7D 16C LTE Band 71 27 670.5 - 690.5 0.050 17.01 13M5W7D 16C LTE Band 71 27 670.5 - 690.5 0.040 16.02 13M5W7D 26C LTE Band 71 27 670.5 - 690.5 0.040 16.02 13M5W7D 26C LTE Band 71 27 673 - 688 0.062 17.96 18M0G7D QP LTE Band 71 27 673 - 688 0.062 17.96 18M0G7D 0.06 LTE Band 71 27 673 - 688 0.050 17.01 18M0W7D 16C LTE Band 71 27 673 - 688 0.050 17.01 18M0W7D 16C LTE Band 71 27 673 - 688 0.040 16.02 17M9W7D 25C LTE Band 71 27 673 - 688 0.040 16.02 17M9W7D 25C LTE Band 12 27 699.7 - 715.3 0.052 17.17 0.086 19.32 1M11G7D QP LTE Band 12 27 699.7 - 715.3 0.052 17.17 0.086 19.32 1M11G7D QP LTE Band 12 27 699.7 - 715.3 0.035 15.46 0.058 17.61 1M11W7D 464C LTE Band 12 27 699.7 - 715.3 0.011 16.13 0.067 18.28 1M10W7D 16C LTE Band 12 27 699.7 - 715.3 0.011 16.13 0.067 18.28 1M10W7D 16C LTE Band 12 27 699.7 - 715.3 0.011 16.13 0.067 18.28 1M10W7D 16C LTE Band 12 27 699.7 - 715.3 0.011 16.13 0.067 18.28 1M10W7D 25C LTE Band 12 27 699.7 - 715.3 0.011 16.13 0.067 18.28 1M10W7D 16C LTE Band 12 27 700.5 - 714.5 0.054 17.29 0.088 14.40 1M09W7D 25C LTE Band 12 27 700.5 - 714.5 0.054 17.29 0.088 14.40 1M09W7D 25C LTE Band 12 27 700.5 - 714.5 0.054 17.29 0.088 18.93 2M71W7D 16C LTE Band 12 27 700.5 - 714.5 0.031 15.12 0.056 17.52 2M70W7D 25C LTE Band 12 27 701.5 - 713.5 0.031 15.12 0.056 17.52 2M70W7D 25C LTE Band 12 27 701.5 - 713.5 0.034 15.37 0.056 17.52 4M52W7D 64C LTE Band 12 27 701.5 - 713.5 0.034 15.37 0.056 17.52 4M52W7D 64C LTE Band 12 27 701.5 - 713.5 0.034 15.37 0.056 17.52 4M52W7D 64C LTE Band 12 27 704 - 711 0.021 13.27 0.056 17.52 4M52W7D 64C LTE Band 12 27 704 - 711 0.021 13.27 0.056 17.52 4M52W7D 64C LTE Band 13 27 79.5 - 784.5 0.050 17.00 0.082 19.15 4M53W7D 16C LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M53W7D 16C LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 | | | | | | | | | 256QAM |
| LTE Band 71 27 668 - 693 0.040 16.02 8M99W7D 640 LTE Band 71 27 668 - 693 0.019 12.71 8M96W7D 2566 LTE Band 71 27 670.5 - 690.5 0.062 17.96 13M5G7D QP LTE Band 71 27 670.5 - 690.5 0.060 17.01 13M5W7D 160 LTE Band 71 27 670.5 - 690.5 0.040 16.02 13M5W7D 640 LTE Band 71 27 670.5 - 690.5 0.040 16.02 13M5W7D 2566 LTE Band 71 27 670.5 - 690.5 0.040 16.02 13M5W7D 640 LTE Band 71 27 673.688 0.050 17.91 13M4W7D 2566 LTE Band 71 27 673.688 0.050 17.91 13M6W7D 160 LTE Band 71 27 673.688 0.050 17.91 18M0W7D 160 LTE Band 71 27 673.688 0.050 17.91 18M0W7D 160 LTE Band 71 27 673.688 0.040 16.02 17M9W7D 2566 LTE Band 71 27 673.688 0.050 17.71 11 18M0W7D 160 LTE Band 12 27 699.7 - 715.3 0.052 17.71 0.086 19.32 1M11G7D QP LTE Band 12 27 699.7 - 715.3 0.052 17.71 0.086 19.32 1M11G7D QP LTE Band 12 27 699.7 - 715.3 0.041 16.13 0.067 18.28 1M10W7D 160 LTE Band 12 27 699.7 - 715.3 0.041 16.13 0.067 18.28 1M10W7D 160 LTE Band 12 27 699.7 - 715.3 0.041 16.13 0.067 18.28 1M10W7D 160 LTE Band 12 27 699.7 - 715.3 0.041 16.73 0.068 19.32 1M11G7D QP LTE Band 12 27 700.5 - 714.5 0.054 17.29 0.088 19.44 2M72G7D QP LTE Band 12 27 700.5 - 714.5 0.054 17.29 0.088 19.44 2M72G7D QP LTE Band 12 27 700.5 - 714.5 0.054 17.29 0.088 19.44 2M72G7D QP LTE Band 12 27 700.5 - 714.5 0.033 15.12 0.053 17.27 2M70W7D 640 LTE Band 12 27 700.5 - 714.5 0.034 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.061 17.06 8M97W7D 640 LTE Band 12 27 701.5 - 713.5 0.054 17.30 0.028 14.45 4M50W7D 2566 LTE Band 12 27 701.5 - 713.5 0.054 17.30 0.028 14.45 4M50W7D 2566 LTE Band 12 27 701.5 - 713.5 0.054 17.30 0.028 14.45 4M50W7D 2566 LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M50W7D 1600 LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M50W7D 1600 LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M50W7D 1600 LTE Band 13 27 779.5 - 784.5 0.050 | LTE Band 71 | | 668 - 693 | 0.062 | 17.96 | | | 9M02G7D | QPSK |
| LTE Band 71 | | 27 | 668 - 693 | 0.050 | 17.01 | | | 9M01W7D | 16QAM |
| LTE Band 71 | LTE Band 71 | 27 | 668 - 693 | 0.040 | 16.02 | | | 8M99W7D | 64QAM |
| LTE Band 71 27 670.5 690.5 0.050 17.01 13M5W7D 16C LTE Band 71 27 670.5 690.5 0.040 16.02 13M5W7D 64C LTE Band 71 27 670.5 690.5 0.049 12.71 13M4W7D 2566 LTE Band 71 27 673 688 0.062 17.96 18M0G7D QP LTE Band 71 27 673 688 0.062 17.96 18M0W7D 64C LTE Band 71 27 673 688 0.050 17.01 18M0W7D 64C LTE Band 71 27 673 688 0.050 17.01 18M0W7D 64C LTE Band 71 27 673 688 0.040 16.02 17M9W7D 64C LTE Band 71 27 673 688 0.040 16.02 17M9W7D 64C LTE Band 12 27 699.7 715.3 0.052 17.17 0.086 19.32 1M11G7D QP LTE Band 12 27 699.7 715.3 0.052 17.17 0.086 19.32 1M11G7D QP LTE Band 12 27 699.7 715.3 0.035 15.46 0.058 17.61 1M11W7D 64C LTE Band 12 27 699.7 715.3 0.035 15.46 0.058 17.61 1M11W7D 64C LTE Band 12 27 699.7 715.3 0.017 12.25 0.028 14.40 1M09W7D 2566 LTE Band 12 27 700.5 714.5 0.054 17.29 0.088 19.44 2M72G7D QP LTE Band 12 27 700.5 714.5 0.054 16.78 0.078 18.93 2M71W7D 16C LTE Band 12 27 700.5 714.5 0.054 16.78 0.078 18.93 2M71W7D 16C LTE Band 12 27 700.5 714.5 0.033 15.12 0.028 14.3 2M70W7D 2566 LTE Band 12 27 700.5 714.5 0.034 15.37 0.068 18.93 2M71W7D 16C LTE Band 12 27 701.5 713.5 0.054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 713.5 0.054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 713.5 0.047 16.68 0.076 18.83 4M53W7D 64C LTE Band 12 27 701.5 713.5 0.034 15.37 0.056 17.52 4M52W7D 64C LTE Band 12 27 701.5 713.5 0.034 15.37 0.056 17.52 4M52W7D 64C LTE Band 12 27 701.5 713.5 0.0071 12.30 0.028 14.45 4M50W7D 2566 LTE Band 12 27 701.5 713.5 0.0071 12.30 0.028 14.45 4M50W7D 2560 LTE Band 12 27 701.5 713.5 0.0071 12.30 0.028 14.45 4M50W7D 2560 LTE Band 12 27 701.5 713.5 0.054 17.00 0.086 18.19 9M03W7D 16C LTE Band 13 27 779.5 784.5 0.079 18.95 0.019 17.00 0.082 19.15 4M54W7D 64C LTE Band 13 27 779.5 784.5 0.050 17.00 0.082 19.15 4M54W7D 64C LTE Band 13 27 779.5 784.5 0.050 17.00 0.082 19.15 4M54W7D 64C LTE Band 13 27 779.5 784.5 0.050 17.00 0.082 19.15 4M54W7D 64C LTE Band 13 27 779.5 784.5 0.050 17.00 0.082 19.15 4M54W7D 64C LTE Band 13 27 779.5 784.5 0.050 17.00 0.082 19.15 4M54W7D 64C LTE Band 13 27 779.5 7 | LTE Band 71 | 27 | 668 - 693 | 0.019 | 12.71 | | | 8M96W7D | 256QAM |
| LTE Band 71 27 670.5 690.5 0.040 16.02 13M5W7D 64C LTE Band 71 27 670.5 690.5 0.019 12.71 13M4W7D 256C LTE Band 71 27 673 688 0.062 17.96 18M0G7D QP LTE Band 71 27 673 688 0.050 17.01 18M0W7D 16C LTE Band 71 27 673 688 0.050 17.01 18M0W7D 16C LTE Band 71 27 673 688 0.040 16.02 17M9W7D 256C LTE Band 71 27 673 688 0.040 16.02 17M9W7D 256C LTE Band 12 27 699.7 -715.3 0.052 17.17 0.086 19.32 1M11G7D QP LTE Band 12 27 699.7 -715.3 0.041 16.13 0.067 18.28 1M10W7D 16C LTE Band 12 27 699.7 -715.3 0.035 15.46 0.058 17.61 1M11W7D 64C LTE Band 12 27 699.7 -715.3 0.035 15.46 0.058 17.61 1M11W7D 64C LTE Band 12 27 699.7 -715.3 0.017 12.25 0.028 14.40 1M09W7D 256C LTE Band 12 27 700.5 -714.5 0.054 17.29 0.088 19.44 2M72G7D QP LTE Band 12 27 700.5 -714.5 0.048 16.78 0.078 18.93 2M71W7D 16C LTE Band 12 27 700.5 -714.5 0.033 15.12 0.058 17.27 2M70W7D 64C LTE Band 12 27 700.5 -714.5 0.033 15.12 0.058 17.27 2M70W7D 64C LTE Band 12 27 701.5 -713.5 0.034 15.37 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 -713.5 0.054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 -713.5 0.034 15.37 0.068 19.31 8M99G7D QP LTE Band 12 27 701.5 -713.5 0.034 15.37 0.058 19.31 8M99G7D QP LTE Band 12 27 701.5 -713.5 0.034 15.37 0.058 19.31 8M99G7D QP LTE Band 12 27 701.5 -713.5 0.034 15.37 0.058 19.31 8M99G7D QP LTE Band 12 27 701.5 -713.5 0.031 14.49 0.085 19.31 8M99G7D QP LTE Band 12 27 701.5 -713.5 0.031 14.93 0.051 17.08 8M97W7D 64C LTE Band 12 27 701.5 -713.5 0.031 15.32 0.028 14.45 4M50W7D 256C LTE Band 12 27 701.5 -713.5 0.031 15.32 0.051 17.08 8M97W7D 64C LTE Band 12 27 701.5 -713.5 0.031 15.32 0.058 19.31 8M99G7D QP LTE Band 13 27 779.5 -784.5 0.050 17.00 0.082 19.15 8M93W7D 16C LTE Band 13 27 779.5 -784.5 0.050 17.00 0.082 19.15 4M54W7D 64C LTE Band 13 27 779.5 -784.5 0.050 17.00 0.082 19.15 4M54W7D 64C LTE Band 13 27 779.5 -784.5 0.050 17.00 0.082 19.15 4M54W7D 64C LTE Band 13 27 779.5 -784.5 0.050 17.00 0.082 19.15 4M54W7D 64C LTE Band 13 27 779.5 -784.5 0.050 17.00 0.082 19.15 4M54W7D 64C LTE Band 13 27 779.5 -784.5 0.050 17.00 0.082 19.15 | | | 670.5 - 690.5 | 0.062 | | | | 13M5G7D | QPSK |
| LTE Band 71 27 670.5 - 690.5 0.019 12.71 13M4W7D 2560 LTE Band 71 27 673 - 688 0.062 17.96 18M0G7D QP LTE Band 71 27 673 - 688 0.050 17.01 18M0W7D 16Q LTE Band 71 27 673 - 688 0.040 16.02 17M9W7D 64Q LTE Band 71 27 673 - 688 0.040 16.02 17M9W7D 2560 LTE Band 12 27 693.7 - 715.3 0.052 17.17 0.086 19.32 1M11G7D QP LTE Band 12 27 699.7 - 715.3 0.052 17.17 0.086 19.32 1M11G7D QP LTE Band 12 27 699.7 - 715.3 0.035 15.46 0.058 17.61 1M11W7D 64Q LTE Band 12 27 699.7 - 715.3 0.035 15.46 0.058 17.61 1M11W7D 64Q LTE Band 12 27 699.7 - 715.3 0.035 15.46 0.058 17.61 1M11W7D 64Q LTE Band 12 27 699.7 - 715.3 0.017 12.25 0.028 14.40 1M09W7D 2560 LTE Band 12 27 700.5 - 714.5 0.064 16.78 0.078 18.93 2M71W7D 16Q LTE Band 12 27 700.5 - 714.5 0.048 16.78 0.078 18.93 2M71W7D 16Q LTE Band 12 27 700.5 - 714.5 0.033 15.12 0.053 17.27 2M70W7D 64Q LTE Band 12 27 700.5 - 714.5 0.017 12.28 0.028 14.43 2M70W7D 2560 LTE Band 12 27 700.5 - 714.5 0.017 12.28 0.028 14.43 2M70W7D 2560 LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M53W7D 16Q LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M53W7D 16Q LTE Band 12 27 701.5 - 713.5 0.031 15.37 0.056 17.52 4M52W7D 2560 LTE Band 12 27 704 - 711 0.052 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.052 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.031 14.93 0.051 17.08 8M97W7D 2560 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.060 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 779.5 - 784.5 0.060 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 779.5 - 784.5 0.060 19.30 0.082 19.15 4M54W7D 2560 LTE Band 13 27 779.5 - 784.5 0.060 19.35 0.141 21.50 9 | LTE Band 71 | | 670.5 - 690.5 | 0.050 | | | | 13M5W7D | 16QAM |
| LTE Band 71 27 673 - 688 0.062 17.96 18MOG7D QP LTE Band 71 27 673 - 688 0.050 17.01 18MOW7D 160 LTE Band 71 27 673 - 688 0.040 16.02 17M9W7D 2560 LTE Band 71 27 673 - 688 0.040 16.02 17M9W7D 2560 LTE Band 71 27 693 - 688 0.019 12.71 17M9W7D 2560 LTE Band 12 27 699.7 - 715.3 0.052 17.17 0.086 19.32 1M11G7D QP LTE Band 12 27 699.7 - 715.3 0.041 16.13 0.067 18.28 1M10W7D 160 LTE Band 12 27 699.7 - 715.3 0.035 15.46 0.058 17.61 1M11W7D 2560 LTE Band 12 27 699.7 - 715.3 0.017 12.25 0.028 14.40 1M09W7D 2560 LTE Band 12 27 699.7 - 715.3 0.017 12.25 0.028 14.40 1M09W7D 2560 LTE Band 12 27 700.5 - 714.5 0.054 17.29 0.088 19.44 2M72G7D QP LTE Band 12 27 700.5 - 714.5 0.048 16.78 0.078 18.93 2M71W7D 160 LTE Band 12 27 700.5 - 714.5 0.033 15.12 0.053 17.27 2M70W7D 640 LTE Band 12 27 700.5 - 714.5 0.017 12.28 0.028 14.43 2M70W7D 2560 LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 - 713.5 0.034 15.37 0.056 17.52 4M52W7D 640 LTE Band 12 27 701.5 - 713.5 0.034 15.37 0.056 17.52 4M52W7D 640 LTE Band 12 27 701.5 - 713.5 0.031 15.37 0.056 17.52 4M52W7D 640 LTE Band 12 27 704 - 711 0.052 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.052 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.052 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.031 14.93 0.051 17.08 8M97W7D 160 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 640 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 160 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 160 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 160 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 160 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 160 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 2560 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 2560 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 2560 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.000 18.46 8M96W7D | LTE Band 71 | 27 | 670.5 - 690.5 | 0.040 | 16.02 | | | 13M5W7D | 64QAM |
| LTE Band 71 27 673 - 688 0.050 17.01 18M0W7D 16Q LTE Band 71 27 673 - 688 0.040 16.02 17M9W7D 64Q LTE Band 71 27 693 - 688 0.040 16.02 17M9W7D 64Q LTE Band 71 27 699.7 - 715.3 0.052 17.17 0.086 19.32 1M11G7D QP LTE Band 12 27 699.7 - 715.3 0.041 16.13 0.067 18.28 1M10W7D 16Q LTE Band 12 27 699.7 - 715.3 0.041 16.13 0.067 18.28 1M10W7D 16Q LTE Band 12 27 699.7 - 715.3 0.041 16.13 0.067 18.28 1M10W7D 16Q LTE Band 12 27 699.7 - 715.3 0.017 12.25 0.028 14.40 1M09W7D 2560 LTE Band 12 27 700.5 - 714.5 0.054 17.29 0.088 19.44 2M72G7D QP LTE Band 12 27 700.5 - 714.5 0.064 16.78 0.078 18.93 2M71W7D 16Q LTE Band 12 27 700.5 - 714.5 0.048 16.78 0.078 18.93 2M71W7D 64Q LTE Band 12 27 700.5 - 714.5 0.017 12.28 0.028 14.43 2M70W7D 2560 LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M56W7D QP LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M56W7D QP LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M56W7D QP LTE Band 12 27 701.5 - 713.5 0.004 15.37 0.056 17.52 4M52W7D 64Q LTE Band 12 27 701.5 - 713.5 0.004 15.37 0.056 17.52 4M52W7D 64Q LTE Band 12 27 701.5 - 713.5 0.004 15.37 0.056 17.52 4M52W7D 64Q LTE Band 12 27 701.5 - 713.5 0.004 15.37 0.056 17.52 4M52W7D 64Q LTE Band 12 27 701.5 - 713.5 0.004 15.37 0.056 17.52 4M52W7D 64Q LTE Band 12 27 701.5 - 713.5 0.004 15.37 0.056 17.52 4M52W7D 64Q LTE Band 12 27 701.5 - 713.5 0.004 15.37 0.056 17.52 4M52W7D 64Q LTE Band 12 27 704 - 711 0.062 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.062 17.16 0.085 19.31 8M99G7D QP LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.069 18.95 0.129 21.10 4M54G7D QP LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 782 0.068 19. | LTE Band 71 | 27 | 670.5 - 690.5 | 0.019 | 12.71 | | | 13M4W7D | 256QAM |
| LTE Band 71 27 673 - 688 0.040 16.02 17M9W7D 64Q LTE Band 71 27 673 - 688 0.019 12.71 LTE Band 12 27 699.7 - 715.3 0.052 17.17 0.086 19.32 1M11G7D QP LTE Band 12 27 699.7 - 715.3 0.041 16.13 0.067 18.28 1M10W7D 16Q LTE Band 12 27 699.7 - 715.3 0.035 15.46 0.058 17.61 1M11W7D 64Q LTE Band 12 27 699.7 - 715.3 0.035 15.46 0.058 17.61 1M11W7D 64Q LTE Band 12 27 699.7 - 715.3 0.0017 12.25 0.028 14.40 1M09W7D 256C LTE Band 12 27 700.5 - 714.5 0.054 17.29 0.088 19.44 2M72G7D QP LTE Band 12 27 700.5 - 714.5 0.054 17.29 0.088 19.44 2M72G7D QP LTE Band 12 27 700.5 - 714.5 0.033 15.12 0.053 17.27 2M70W7D 16Q LTE Band 12 27 700.5 - 714.5 0.033 15.12 0.053 17.27 2M70W7D 64Q LTE Band 12 27 700.5 - 714.5 0.054 17.33 0.099 19.48 4M54G7D QP LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.099 19.48 4M53W7D 16Q LTE Band 12 27 701.5 - 713.5 0.034 15.37 0.056 17.52 4M52W7D 64Q LTE Band 12 27 701.5 - 713.5 0.034 15.37 0.056 17.52 4M52W7D 64Q LTE Band 12 27 701.5 - 713.5 0.0047 16.68 0.076 18.83 4M53W7D 16Q LTE Band 12 27 704 - 711 0.062 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 16Q LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 16Q LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 16Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 64Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 64Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 64Q LTE Band 13 27 779.5 - 784.5 0.066 19.35 0.141 21.50 9M00W7D 16Q LTE Band 13 27 779.5 - 784.5 0.066 19.35 0.141 21.50 9M00W7D 16Q LTE Band 13 27 779.5 - 784.5 0.066 19.35 0.141 21.50 9M00W7D 16Q LTE Band 13 27 779.5 - 784.5 0.066 19.35 0.141 21.50 9M00W7D 64Q LTE Band 13 27 779.5 - 784.5 0.066 19.35 0.141 21.50 9M00W7D 16Q LTE Band 13 27 779.5 - 784.5 0.066 19.35 0.141 21.50 9M00W7D 16Q LTE Band 13 27 779.5 - 784.5 0.066 19.35 0.141 21.50 9M00W7D 16Q LTE Band 13 27 782 0.068 19.35 0.141 21.50 9M00W7D 16Q LTE Band 13 27 782 0.068 19.35 0.141 21.50 9M00W7D 16Q LTE Band 5 22H 824.7 848.3 0.005 17.41 0.090 19. | LTE Band 71 | 27 | 673 - 688 | 0.062 | 17.96 | | | 18M0G7D | QPSK |
| LTE Band 71 27 673 - 688 0.019 12.71 17M9W7D 2560 LTE Band 12 27 699.7 - 715.3 0.052 17.17 0.086 19.32 1M11G7D QP LTE Band 12 27 699.7 - 715.3 0.041 16.13 0.067 18.28 1M10W7D 16Q LTE Band 12 27 699.7 - 715.3 0.035 15.46 0.058 17.61 1M11W7D 64Q LTE Band 12 27 699.7 - 715.3 0.017 12.25 0.028 14.40 1M09W7D 2560 LTE Band 12 27 700.5 - 714.5 0.054 17.29 0.088 19.44 2M72G7D QP LTE Band 12 27 700.5 - 714.5 0.048 16.78 0.078 18.93 2M71W7D 16Q LTE Band 12 27 700.5 - 714.5 0.033 15.12 0.053 17.27 2M70W7D 2560 LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M53 | LTE Band 71 | 27 | 673 - 688 | 0.050 | 17.01 | | | 18M0W7D | 16QAM |
| LTE Band 12 27 699.7 - 715.3 0.052 17.17 0.086 19.32 1M11G7D QP LTE Band 12 27 699.7 - 715.3 0.041 16.13 0.067 18.28 1M10W7D 160 LTE Band 12 27 699.7 - 715.3 0.035 15.46 0.058 17.61 1M11W7D 64Q LTE Band 12 27 699.7 - 715.3 0.035 15.46 0.058 17.61 1M11W7D 64Q LTE Band 12 27 699.7 - 715.3 0.017 12.25 0.028 14.40 1M09W7D 2566 LTE Band 12 27 700.5 - 714.5 0.054 17.29 0.088 19.44 2M72G7D QP LTE Band 12 27 700.5 - 714.5 0.048 16.78 0.078 18.93 2M71W7D 16Q LTE Band 12 27 700.5 - 714.5 0.033 15.12 0.053 17.27 2M70W7D 64Q LTE Band 12 27 700.5 - 714.5 0.031 15.12 0.053 17.27 2M70W7D 64Q LTE Band 12 27 700.5 - 714.5 0.0054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 - 713.5 0.047 16.68 0.076 18.83 4M53W7D 16Q LTE Band 12 27 701.5 - 713.5 0.047 16.68 0.076 18.83 4M53W7D 64Q LTE Band 12 27 701.5 - 713.5 0.047 16.68 0.076 18.83 4M53W7D 64Q LTE Band 12 27 701.5 - 713.5 0.047 16.08 0.028 14.45 4M50W7D 2560 LTE Band 12 27 704 - 711 0.052 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 16Q LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 64Q LTE Band 13 27 779.5 - 784.5 0.069 18.95 0.129 21.10 4M54G7D QP LTE Band 13 27 779.5 - 784.5 0.069 18.95 0.129 21.10 4M54G7D QP LTE Band 13 27 779.5 - 784.5 0.069 18.95 0.129 21.10 4M54G7D QP LTE Band 13 27 779.5 - 784.5 0.069 17.00 0.082 19.15 4M54W7D 2560 LTE Band 13 27 779.5 - 784.5 0.069 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.069 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.069 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.069 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.069 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.069 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.069 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.069 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.069 17.00 0.086 19.15 0.090 19.15 6M54W7D 64Q LTE Band 13 27 782 0.063 17.26 0.08 | LTE Band 71 | 27 | 673 - 688 | 0.040 | 16.02 | | | 17M9W7D | 64QAM |
| LTE Band 12 27 699.7 - 715.3 0.041 16.13 0.067 18.28 1M10W7D 1600 LTE Band 12 27 699.7 - 715.3 0.035 15.46 0.058 17.61 1M11W7D 640 LTE Band 12 27 699.7 - 715.3 0.017 12.25 0.028 14.40 1M09W7D 2560 LTE Band 12 27 700.5 - 714.5 0.054 17.29 0.088 19.44 2M72G7D QP LTE Band 12 27 700.5 - 714.5 0.048 16.78 0.078 18.93 2M71W7D 1600 LTE Band 12 27 700.5 - 714.5 0.033 15.12 0.053 17.27 2M70W7D 640 LTE Band 12 27 700.5 - 714.5 0.0033 15.12 0.053 17.27 2M70W7D 640 LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 - 713.5 0.047 16.68 0.076 18.83 4M53W7D 1600 LTE Band 12 27 701.5 - 713.5 0.034 15.37 0.056 17.52 4M52W7D 640 LTE Band 12 27 701.5 - 713.5 0.0017 12.20 0.028 14.45 4M50W7D 2560 LTE Band 12 27 704 - 711 0.052 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 1600 LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 6400 LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 1600 LTE Band 13 27 779.5 - 784.5 0.079 18.95 0.129 21.10 4M54G7D QP LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 6400 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 2560 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 2560 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 2560 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 2560 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 2560 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 2560 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.007 18.46 8M96W7D 2560 LTE Band 13 27 779.5 - 784.5 0.063 17.26 0.087 19.41 9M00W7D 640 LTE Band 13 27 782 0.068 19.35 0.115 20.60 9M00W7D 640 LTE Band 5 22H 824.7 848.3 0.070 18.45 0.115 20.60 1M10W7D 1600 LTE Band 5 22H 824.7 848.3 0.070 18.45 0.115 20.60 1M10W7D 1600 LTE Band 5 22H 824.7 848.3 0.070 18.45 0.115 20.60 1M10W7D 1600 | LTE Band 71 | | 673 - 688 | 0.019 | 12.71 | | | 17M9W7D | 256QAM |
| LTE Band 12 27 699.7 - 715.3 0.035 15.46 0.058 17.61 1M11W7D 64Q LTE Band 12 27 699.7 - 715.3 0.017 12.25 0.028 14.40 1M09W7D 2566 LTE Band 12 27 700.5 - 714.5 0.054 17.29 0.088 19.44 2M72G7D QP LTE Band 12 27 700.5 - 714.5 0.048 16.78 0.078 18.93 2M71W7D 16Q LTE Band 12 27 700.5 - 714.5 0.033 15.12 0.053 17.27 2M70W7D 64Q LTE Band 12 27 700.5 - 714.5 0.017 12.28 0.028 14.43 2M70W7D 2566 LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 - 713.5 0.047 16.68 0.076 18.83 4M53W7D 16Q LTE Band 12 27 701.5 - 713.5 0.034 15.37 0.056 17.52 4M52W7D 64Q LTE Band 12 27 701.5 - 713.5 0.017 12.30 0.028 14.45 4M50W7D 2566 LTE Band 12 27 704 - 711 0.052 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 16Q LTE Band 12 27 704 - 711 0.031 14.93 0.051 17.08 8M97W7D 64Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54G7D QP LTE Band 13 27 779.5 - 784.5 0.063 18.90 0.129 21.10 4M54G7D QP LTE Band 13 27 779.5 - 784.5 0.063 18.90 0.129 21.10 4M54G7D QP LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.063 18.90 0.129 21.10 4M54G7D QP LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 2566 LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 782 0.086 19.35 0.141 21.50 9M00W7D 16Q LTE Band 13 27 782 0.086 19.35 0.141 21.50 9M00W7D 64Q LTE Band 13 27 782 0.060 19.36 0.060 19.36 0.041 19.40 9M00W7D 64Q LTE Band 13 27 782 0.060 19.36 0.060 19.36 0.060 19.36 0.060 19.36 0.060 19.36 0.060 19.36 0.060 19.36 0.060 19.36 0.060 19.36 0. | LTE Band 12 | 27 | 699.7 - 715.3 | | 17.17 | 0.086 | | 1M11G7D | QPSK |
| LTE Band 12 27 699.7 - 715.3 0.017 12.25 0.028 14.40 1M09W7D 2560 LTE Band 12 27 700.5 - 714.5 0.064 17.29 0.088 19.44 2M72G7D QP LTE Band 12 27 700.5 - 714.5 0.048 16.78 0.078 18.93 2M71W7D 16Q LTE Band 12 27 700.5 - 714.5 0.033 15.12 0.053 17.27 2M70W7D 64Q LTE Band 12 27 700.5 - 714.5 0.017 12.28 0.028 14.43 2M70W7D 2560 LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 - 713.5 0.047 16.68 0.076 18.83 4M53W7D 16Q LTE Band 12 27 701.5 - 713.5 0.047 16.68 0.076 18.83 4M53W7D 16Q LTE Band 12 27 701.5 - 713.5 0.047 12.20 0.028 14.45 4M50W7D 2560 LTE Band 12 27 701.5 - 713.5 0.017 12.30 0.028 14.45 4M50W7D 2560 LTE Band 12 27 704 - 711 0.052 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 16Q LTE Band 12 27 704 - 711 0.031 14.93 0.051 17.08 8M97W7D 64Q LTE Band 12 27 704 - 711 0.021 13.27 0.035 15.42 8M94W7D 2560 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 64Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 2560 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 2560 LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 2560 LTE Band 13 27 779.5 - 784.5 0.066 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 779.5 - 784.5 0.066 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 782 0.066 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 782 0.068 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 782 0.068 19.35 0.141 21.50 9M00W7D 16Q LTE Band 5 22H 824.7 - 848.3 0.000 18.45 0.115 20.60 1M10W7D 16Q LTE Band 5 22H 824.7 - 848.3 0.000 19.56 1M11W7D 64Q LTE Band 5 22H 824.7 - 848.3 0.000 19.56 1M11W7D 64Q | LTE Band 12 | 27 | 699.7 - 715.3 | 0.041 | 16.13 | 0.067 | 18.28 | 1M10W7D | 16QAM |
| LTE Band 12 27 700.5 - 714.5 0.054 17.29 0.088 19.44 2M72G7D QP LTE Band 12 27 700.5 - 714.5 0.048 16.78 0.078 18.93 2M71W7D 16Q LTE Band 12 27 700.5 - 714.5 0.033 15.12 0.053 17.27 2M70W7D 64Q LTE Band 12 27 700.5 - 714.5 0.017 12.28 0.028 14.43 2M70W7D 256Q LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 - 713.5 0.047 16.68 0.076 18.83 4M53W7D 16Q LTE Band 12 27 701.5 - 713.5 0.034 15.37 0.056 17.52 4M52W7D 64Q LTE Band 12 27 701.5 - 713.5 0.017 12.30 0.028 14.45 4M50W7D 256Q LTE Band 12 27 701.5 - 713.5 0.017 12.30 0.028 14.45 4M50W7D 256Q LTE Band 12 27 704 - 711 0.052 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 16Q LTE Band 12 27 704 - 711 0.031 14.93 0.051 17.08 8M97W7D 64Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M54G7D QP LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M54G7D QP LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 64Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 64Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 64Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 64Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 64Q LTE Band 13 27 779.5 - 784.5 0.066 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 779.5 - 784.5 0.035 15.41 0.057 17.56 4M62W7D 64Q LTE Band 13 27 782 0.086 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 782 0.086 19.35 0.141 21.50 9M00W7D 16Q LTE Band 13 27 782 0.063 17.26 0.087 19.41 9M00W7D 64Q LTE Band 5 22H 824.7 - 848.3 0.100 20.02 0.165 22.17 1M09G7D QP LTE Band 5 22H 824.7 - 848.3 0.000 10.055 17.41 0.090 19.56 1M11W7D 64Q LTE Band 5 22H 824.7 - 848.3 0.000 10.055 17.41 0.090 19.56 1M11W7D 64Q | LTE Band 12 | 27 | 699.7 - 715.3 | 0.035 | 15.46 | 0.058 | 17.61 | 1M11W7D | 64QAM |
| LTE Band 12 27 700.5 - 714.5 0.048 16.78 0.078 18.93 2M71W7D 16Q LTE Band 12 27 700.5 - 714.5 0.033 15.12 0.053 17.27 2M70W7D 64Q LTE Band 12 27 700.5 - 714.5 0.017 12.28 0.028 14.43 2M70W7D 256Q LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 - 713.5 0.047 16.68 0.076 18.83 4M53W7D 16Q LTE Band 12 27 701.5 - 713.5 0.034 15.37 0.056 17.52 4M52W7D 64Q LTE Band 12 27 701.5 - 713.5 0.017 12.30 0.028 14.45 4M50W7D 256Q LTE Band 12 27 704 - 711 0.052 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 16Q LTE Band 12 27 704 - 711 0.031 14.93 0.051 17.08 8M97W7D 64Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 256Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 256Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 256Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 256Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 256Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 256Q LTE Band 13 27 782 0.086 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 782 0.060 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 782 0.063 17.26 0.087 19.41 9M00W7D 64Q LTE Band 5 22H 824.7 - 848.3 0.100 20.02 0.165 22.17 1M09G7D QP LTE Band 5 22H 824.7 - 848.3 0.005 17.41 0.090 19.56 1M11W7D 64Q | LTE Band 12 | 27 | 699.7 - 715.3 | 0.017 | 12.25 | 0.028 | 14.40 | 1M09W7D | 256QAM |
| LTE Band 12 27 700.5 - 714.5 0.033 15.12 0.053 17.27 2M70W7D 64Q0 LTE Band 12 27 700.5 - 714.5 0.017 12.28 0.028 14.43 2M70W7D 256Q LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 - 713.5 0.047 16.68 0.076 18.83 4M53W7D 16Q0 LTE Band 12 27 701.5 - 713.5 0.034 15.37 0.056 17.52 4M52W7D 64Q0 LTE Band 12 27 701.5 - 713.5 0.017 12.30 0.028 14.45 4M50W7D 256Q LTE Band 12 27 704 - 711 0.052 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 16Q0 LTE Band 12 27 704 - 711 0.021 13.27 0.035 15.42 8M94W7D 256Q LTE Band 13 27 779.5 - 784.5 0.079 18.95 0.129 21.10 4M54W7D 16Q0 LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M52W7D 16Q0 LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 256Q LTE Band 13 27 779.5 - 784.5 0.035 15.41 0.057 17.56 4M52W7D 16Q0 LTE Band 13 27 779.5 - 784.5 0.035 15.41 0.057 17.56 4M52W7D 256Q LTE Band 13 27 779.5 - 784.5 0.035 15.41 0.057 17.56 4M52W7D 256Q LTE Band 13 27 782 0.086 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 782 0.086 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 782 0.086 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 782 0.086 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 782 0.063 16.31 0.070 18.46 8M96W7D 256Q LTE Band 13 27 782 0.043 16.31 0.070 18.46 8M96W7D 256Q LTE Band 13 27 782 0.043 16.31 0.070 18.46 8M96W7D 256Q LTE Band 5 22H 824.7 - 848.3 0.000 20.02 0.165 22.17 1M09G7D QP LTE Band 5 22H 824.7 - 848.3 0.000 19.56 1M11W7D 64Q LTE Band 5 22H 824.7 - 848.3 0.000 19.56 1M11W7D 64Q | LTE Band 12 | 27 | 700.5 - 714.5 | 0.054 | 17.29 | 0.088 | 19.44 | 2M72G7D | QPSK |
| LTE Band 12 27 700.5 - 714.5 0.017 12.28 0.028 14.43 2M70W7D 2560 LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 - 713.5 0.047 16.68 0.076 18.83 4M53W7D 16Q LTE Band 12 27 701.5 - 713.5 0.034 15.37 0.056 17.52 4M52W7D 64Q LTE Band 12 27 701.5 - 713.5 0.017 12.30 0.028 14.45 4M50W7D 2560 LTE Band 12 27 701.5 - 713.5 0.017 12.30 0.028 14.45 4M50W7D 2560 LTE Band 12 27 704 - 711 0.052 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 16Q LTE Band 12 27 704 - 711 0.031 14.93 0.051 17.08 8M97W7D 64Q LTE Band 12 27 704 - 711 0.021 13.27 0.035 15.42 8M94W7D 2560 LTE Band 13 27 779.5 - 784.5 0.063 18.91 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 64Q LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 64Q LTE Band 13 27 779.5 - 784.5 0.063 15.41 0.057 17.56 4M52W7D 64Q LTE Band 13 27 779.5 - 784.5 0.035 15.41 0.057 17.56 4M52W7D 64Q LTE Band 13 27 779.5 - 784.5 0.063 17.00 0.082 19.15 4M64W7D 64Q LTE Band 13 27 782 0.086 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 782 0.053 17.26 0.087 19.41 9M00W7D 64Q LTE Band 13 27 782 0.053 17.26 0.087 19.41 9M00W7D 64Q LTE Band 13 27 782 0.063 17.26 0.087 19.41 9M00W7D 64Q LTE Band 13 27 782 0.063 17.26 0.087 19.41 9M00W7D 64Q LTE Band 13 27 782 0.063 17.26 0.087 19.41 9M00W7D 64Q LTE Band 13 27 782 0.063 17.26 0.087 19.41 9M00W7D 64Q LTE Band 13 27 782 0.063 17.26 0.087 19.41 9M00W7D 64Q LTE Band 13 27 782 0.063 17.26 0.087 19.41 9M00W7D 64Q LTE Band 13 27 782 0.063 17.26 0.087 19.41 9M00W7D 64Q LTE Band 13 27 782 0.063 17.26 0.087 19.41 9M00W7D 64Q LTE Band 5 22H 824.7 848.3 0.000 18.45 0.115 20.60 1M10W7D 16Q LTE Band 5 22H 824.7 848.3 0.000 18.45 0.115 20.60 1M10W7D 16Q LTE Band 5 22H 824.7 848.3 0.000 18.45 0.115 20.60 1M10W7D 16Q | LTE Band 12 | 27 | 700.5 - 714.5 | 0.048 | 16.78 | 0.078 | 18.93 | 2M71W7D | 16QAM |
| LTE Band 12 27 701.5 - 713.5 0.054 17.33 0.089 19.48 4M54G7D QP LTE Band 12 27 701.5 - 713.5 0.047 16.68 0.076 18.83 4M53W7D 16Q LTE Band 12 27 701.5 - 713.5 0.034 15.37 0.056 17.52 4M52W7D 64Q LTE Band 12 27 701.5 - 713.5 0.017 12.30 0.028 14.45 4M50W7D 256C LTE Band 12 27 704 - 711 0.052 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 16Q LTE Band 12 27 704 - 711 0.031 14.93 0.051 17.08 8M97W7D 64Q LTE Band 13 27 704 - 711 0.021 13.27 0.035 15.42 8M94W7D 256C LTE Band 13 27 779.5 - 784.5 0.079 18.95 0.129 | LTE Band 12 | 27 | 700.5 - 714.5 | 0.033 | 15.12 | 0.053 | 17.27 | 2M70W7D | 64QAM |
| LTE Band 12 27 701.5 - 713.5 0.047 16.68 0.076 18.83 4M53W7D 1600 LTE Band 12 27 701.5 - 713.5 0.034 15.37 0.056 17.52 4M52W7D 64Q LTE Band 12 27 701.5 - 713.5 0.017 12.30 0.028 14.45 4M50W7D 2560 LTE Band 12 27 704 - 711 0.052 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 16Q LTE Band 12 27 704 - 711 0.031 14.93 0.051 17.08 8M97W7D 64Q LTE Band 12 27 704 - 711 0.031 14.93 0.051 17.08 8M97W7D 64Q LTE Band 13 27 779.5 - 784.5 0.079 18.95 0.129 21.10 4M54G7D QP LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 | LTE Band 12 | 27 | 700.5 - 714.5 | 0.017 | 12.28 | 0.028 | 14.43 | 2M70W7D | 256QAM |
| LTE Band 12 27 701.5 - 713.5 0.034 15.37 0.056 17.52 4M52W7D 64Q LTE Band 12 27 701.5 - 713.5 0.017 12.30 0.028 14.45 4M50W7D 256Q LTE Band 12 27 704 - 711 0.052 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 16Q LTE Band 12 27 704 - 711 0.031 14.93 0.051 17.08 8M97W7D 64Q LTE Band 12 27 704 - 711 0.021 14.93 0.051 17.08 8M94W7D 256Q LTE Band 13 27 779.5 - 784.5 0.021 18.95 0.129 21.10 4M54G7D QP LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 | LTE Band 12 | 27 | 701.5 - 713.5 | 0.054 | 17.33 | 0.089 | 19.48 | 4M54G7D | QPSK |
| LTE Band 12 27 701.5 - 713.5 0.017 12.30 0.028 14.45 4M50W7D 2560 LTE Band 12 27 704 - 711 0.052 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 160 LTE Band 12 27 704 - 711 0.031 14.93 0.051 17.08 8M97W7D 64Q LTE Band 13 27 779.5 - 784.5 0.079 18.95 0.129 21.10 4M54G7D QP LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.035 15.41 0.057 17.56 4M52W7D 2560 LTE Band 13 27 782 0.086 19.35 0.141 | LTE Band 12 | 27 | 701.5 - 713.5 | 0.047 | 16.68 | 0.076 | 18.83 | 4M53W7D | 16QAM |
| LTE Band 12 27 704 - 711 0.052 17.16 0.085 19.31 8M99G7D QP LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 16Q LTE Band 12 27 704 - 711 0.031 14.93 0.051 17.08 8M97W7D 64Q LTE Band 12 27 704 - 711 0.021 13.27 0.035 15.42 8M94W7D 256Q LTE Band 13 27 779.5 - 784.5 0.079 18.95 0.129 21.10 4M54G7D QP LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M52W7D 64Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M52W7D 64Q LTE Band 13 27 779.5 - 784.5 0.035 15.41 0.057 17.56 4M52W7D 256Q LTE Band 13 27 782 0.086 19.35 0.141 21.5 | LTE Band 12 | 27 | 701.5 - 713.5 | 0.034 | 15.37 | 0.056 | 17.52 | 4M52W7D | 64QAM |
| LTE Band 12 27 704 - 711 0.040 16.04 0.066 18.19 9M03W7D 16.02 LTE Band 12 27 704 - 711 0.031 14.93 0.051 17.08 8M97W7D 640 LTE Band 12 27 704 - 711 0.021 13.27 0.035 15.42 8M94W7D 2560 LTE Band 13 27 779.5 - 784.5 0.079 18.95 0.129 21.10 4M54G7D QP LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 160 LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 640 LTE Band 13 27 779.5 - 784.5 0.035 15.41 0.057 17.56 4M52W7D 2560 LTE Band 13 27 782 0.086 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 782 0.053 17.26 0.087 19.41 <td>LTE Band 12</td> <td>27</td> <td>701.5 - 713.5</td> <td>0.017</td> <td>12.30</td> <td>0.028</td> <td>14.45</td> <td>4M50W7D</td> <td>256QAM</td> | LTE Band 12 | 27 | 701.5 - 713.5 | 0.017 | 12.30 | 0.028 | 14.45 | 4M50W7D | 256QAM |
| LTE Band 12 27 704 - 711 0.031 14.93 0.051 17.08 8M97W7D 64Q LTE Band 12 27 704 - 711 0.021 13.27 0.035 15.42 8M94W7D 256Q LTE Band 13 27 779.5 - 784.5 0.079 18.95 0.129 21.10 4M54G7D QP LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.035 15.41 0.057 17.56 4M52W7D 256Q LTE Band 13 27 782 0.086 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 782 0.070 18.45 0.115 20.60 9M00W7D 16Q LTE Band 13 27 782 0.043 16.31 0.070 18.46 | LTE Band 12 | 27 | 704 - 711 | 0.052 | 17.16 | 0.085 | 19.31 | 8M99G7D | QPSK |
| LTE Band 12 27 704 - 711 0.021 13.27 0.035 15.42 8M94W7D 2560 LTE Band 13 27 779.5 - 784.5 0.079 18.95 0.129 21.10 4M54G7D QP LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.035 15.41 0.057 17.56 4M52W7D 2560 LTE Band 13 27 782 0.086 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 782 0.070 18.45 0.115 20.60 9M00W7D 16Q LTE Band 13 27 782 0.053 17.26 0.087 19.41 9M00W7D 6Q LTE Band 13 27 782 0.043 16.31 0.070 18.46 | LTE Band 12 | 27 | 704 - 711 | 0.040 | 16.04 | 0.066 | 18.19 | 9M03W7D | 16QAM |
| LTE Band 13 27 779.5 - 784.5 0.079 18.95 0.129 21.10 4M54G7D QP LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.035 15.41 0.057 17.56 4M52W7D 256C LTE Band 13 27 782 0.086 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 782 0.070 18.45 0.115 20.60 9M00W7D 16Q LTE Band 13 27 782 0.053 17.26 0.087 19.41 9M00W7D 64Q LTE Band 13 27 782 0.043 16.31 0.070 18.46 8M96W7D 256C LTE Band 5 22H 824.7 - 848.3 0.100 20.02 0.165 22.17 | LTE Band 12 | 27 | 704 - 711 | 0.031 | 14.93 | 0.051 | 17.08 | 8M97W7D | 64QAM |
| LTE Band 13 27 779.5 - 784.5 0.063 18.01 0.104 20.16 4M52W7D 16Q LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.035 15.41 0.057 17.56 4M52W7D 2560 LTE Band 13 27 782 0.086 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 782 0.070 18.45 0.115 20.60 9M00W7D 16Q LTE Band 13 27 782 0.053 17.26 0.087 19.41 9M00W7D 64Q LTE Band 13 27 782 0.043 16.31 0.070 18.46 8M96W7D 2560 LTE Band 5 22H 824.7 - 848.3 0.100 20.02 0.165 22.17 1M09G7D QP LTE Band 5 22H 824.7 - 848.3 0.070 18.45 0.115 20.60 | LTE Band 12 | 27 | 704 - 711 | 0.021 | 13.27 | 0.035 | 15.42 | 8M94W7D | 256QAM |
| LTE Band 13 27 779.5 - 784.5 0.050 17.00 0.082 19.15 4M54W7D 64Q LTE Band 13 27 779.5 - 784.5 0.035 15.41 0.057 17.56 4M52W7D 256C LTE Band 13 27 782 0.086 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 782 0.070 18.45 0.115 20.60 9M00W7D 16Q LTE Band 13 27 782 0.053 17.26 0.087 19.41 9M00W7D 64Q LTE Band 13 27 782 0.043 16.31 0.070 18.46 8M96W7D 2560 LTE Band 5 22H 824.7 - 848.3 0.100 20.02 0.165 22.17 1M09G7D QP LTE Band 5 22H 824.7 - 848.3 0.070 18.45 0.115 20.60 1M10W7D 16Q LTE Band 5 22H 824.7 - 848.3 0.055 17.41 0.090 19.56 1M11W7D 64Q | LTE Band 13 | 27 | 779.5 - 784.5 | 0.079 | 18.95 | 0.129 | 21.10 | 4M54G7D | QPSK |
| LTE Band 13 27 779.5 - 784.5 0.035 15.41 0.057 17.56 4M52W7D 2560 LTE Band 13 27 782 0.086 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 782 0.070 18.45 0.115 20.60 9M00W7D 16Q LTE Band 13 27 782 0.053 17.26 0.087 19.41 9M00W7D 64Q LTE Band 13 27 782 0.043 16.31 0.070 18.46 8M96W7D 2560 LTE Band 5 22H 824.7 - 848.3 0.100 20.02 0.165 22.17 1M09G7D QP LTE Band 5 22H 824.7 - 848.3 0.070 18.45 0.115 20.60 1M10W7D 16Q LTE Band 5 22H 824.7 - 848.3 0.055 17.41 0.090 19.56 1M11W7D 64Q | LTE Band 13 | 27 | 779.5 - 784.5 | 0.063 | 18.01 | 0.104 | 20.16 | 4M52W7D | 16QAM |
| LTE Band 13 27 782 0.086 19.35 0.141 21.50 9M01G7D QP LTE Band 13 27 782 0.070 18.45 0.115 20.60 9M00W7D 16Q LTE Band 13 27 782 0.053 17.26 0.087 19.41 9M00W7D 64Q LTE Band 13 27 782 0.043 16.31 0.070 18.46 8M96W7D 2560 LTE Band 5 22H 824.7 - 848.3 0.100 20.02 0.165 22.17 1M09G7D QP LTE Band 5 22H 824.7 - 848.3 0.070 18.45 0.115 20.60 1M10W7D 16Q LTE Band 5 22H 824.7 - 848.3 0.055 17.41 0.090 19.56 1M11W7D 64Q | LTE Band 13 | 27 | 779.5 - 784.5 | 0.050 | 17.00 | 0.082 | 19.15 | 4M54W7D | 64QAM |
| LTE Band 13 27 782 0.070 18.45 0.115 20.60 9M00W7D 16Q LTE Band 13 27 782 0.053 17.26 0.087 19.41 9M00W7D 64Q LTE Band 13 27 782 0.043 16.31 0.070 18.46 8M96W7D 256Q LTE Band 5 22H 824.7 - 848.3 0.100 20.02 0.165 22.17 1M09G7D QP LTE Band 5 22H 824.7 - 848.3 0.070 18.45 0.115 20.60 1M10W7D 16Q LTE Band 5 22H 824.7 - 848.3 0.055 17.41 0.090 19.56 1M11W7D 64Q | LTE Band 13 | 27 | 779.5 - 784.5 | 0.035 | 15.41 | 0.057 | 17.56 | 4M52W7D | 256QAM |
| LTE Band 13 27 782 0.053 17.26 0.087 19.41 9M00W7D 64Q LTE Band 13 27 782 0.043 16.31 0.070 18.46 8M96W7D 256C LTE Band 5 22H 824.7 - 848.3 0.100 20.02 0.165 22.17 1M09G7D QP LTE Band 5 22H 824.7 - 848.3 0.070 18.45 0.115 20.60 1M10W7D 16Q LTE Band 5 22H 824.7 - 848.3 0.055 17.41 0.090 19.56 1M11W7D 64Q | LTE Band 13 | 27 | 782 | 0.086 | 19.35 | 0.141 | 21.50 | 9M01G7D | QPSK |
| LTE Band 13 27 782 0.043 16.31 0.070 18.46 8M96W7D 2560 LTE Band 5 22H 824.7 - 848.3 0.100 20.02 0.165 22.17 1M09G7D QP LTE Band 5 22H 824.7 - 848.3 0.070 18.45 0.115 20.60 1M10W7D 16Q LTE Band 5 22H 824.7 - 848.3 0.055 17.41 0.090 19.56 1M11W7D 64Q | LTE Band 13 | | | 0.070 | 18.45 | 0.115 | 20.60 | 9M00W7D | 16QAM |
| LTE Band 5 22H 824.7 - 848.3 0.100 20.02 0.165 22.17 1M09G7D QP LTE Band 5 22H 824.7 - 848.3 0.070 18.45 0.115 20.60 1M10W7D 16Q LTE Band 5 22H 824.7 - 848.3 0.055 17.41 0.090 19.56 1M11W7D 64Q | | | | 0.053 | | | | | 64QAM |
| LTE Band 5 22H 824.7 - 848.3 0.070 18.45 0.115 20.60 1M10W7D 16Q LTE Band 5 22H 824.7 - 848.3 0.055 17.41 0.090 19.56 1M11W7D 64Q | | | 782 | 1 | | | | | 256QAM |
| LTE Band 5 22H 824.7 - 848.3 0.055 17.41 0.090 19.56 1M11W7D 64Q | | | 824.7 - 848.3 | | 20.02 | 0.165 | 22.17 | 1M09G7D | QPSK |
| | | | | | | | | | 16QAM |
| TED. 15 001 0047 0400 0000 1000 0000 1000 1000 | | | | | | | | | 64QAM |
| | LTE Band 5 | 22H | 824.7 - 848.3 | 0.046 | 16.60 | 0.075 | 18.75 | 1M12W7D | 256QAM |
| | LTE Band 5 | | | | | 0.163 | | | QPSK |
| | | | | 0.069 | | | | | 16QAM |
| | | 22H | 825.5 - 847.5 | 0.055 | 17.44 | 0.091 | 19.59 | | 64QAM |
| | | | | | | | | | 256QAM |
| | | 22H | | | 20.04 | 0.166 | 22.19 | | QPSK |
| | LTE Band 5 | 22H | | 0.074 | 18.71 | 0.122 | 20.86 | | 16QAM |
| | | 22H | 826.5 - 846.5 | 0.051 | 17.09 | 0.084 | 19.24 | 4M52G7D | 64QAM |
| LTE Band 5 22H 826.5 - 846.5 0.044 16.39 0.071 18.54 4M50W7D 2560 | LTE Band 5 | 22H | 826.5 - 846.5 | 0.044 | 16.39 | 0.071 | 18.54 | 4M50W7D | 256QAM |
| | | 22H | 829 - 844 | 0.100 | 20.02 | 0.165 | 22.17 | 8M99G7D | QPSK |
| LTE Band 5 22H 829 - 844 0.076 18.82 0.125 20.97 9M00W7D 16Q | LTE Band 5 | 22H | 829 - 844 | 0.076 | 18.82 | 0.125 | 20.97 | 9M00W7D | 16QAM |
| LTE Band 5 22H 829 - 844 0.050 16.99 0.082 19.14 9M02W7D 64Q | LTE Band 5 | 22H | 829 - 844 | 0.050 | 16.99 | 0.082 | 19.14 | 9M02W7D | 64QAM |
| LTE Band 5 22H 829 - 844 0.045 16.56 0.074 18.71 8M99W7D 2560 | LTE Band 5 | 22H | 829 - 844 | 0.045 | 16.56 | 0.074 | 18.71 | 8M99W7D | 256QAM |

EUT Overview (<1 GHz)

| FCC ID: A3LSMN981W | Proid to part of 6 | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|------------------------------|--------------------|------------------------------------|---------------------------------|
| Test Report S/N: Test Dates: | | EUT Type: | Page 3 of 357 |
| 1M2005050082-03.A3L | 5/5 - 7/15/2020 | Portable Handset | rage 3 of 357 |



| | | | EI | RP | | |
|---------------|----------|--------------------|------------|------------|------------|------------|
| Mada | FCC Rule | Ty Fraguency (MHz) | Max. Power | Max. Power | Emission | Modulation |
| Mode | Part | Tx Frequency (MHz) | (W) | (dBm) | Designator | Modulation |
| | | | (**) | (GBIII) | Ğ | |
| LTE Band 66/4 | 27 | 1710.7 - 1779.3 | 0.205 | 23.11 | 1M09G7D | QPSK |
| LTE Band 66/4 | 27 | 1710.7 - 1779.3 | 0.170 | 22.31 | 1M10W7D | 16QAM |
| LTE Band 66/4 | 27 | 1710.7 - 1779.3 | 0.121 | 20.82 | 1M10W7D | 64QAM |
| LTE Band 66/4 | 27 | 1710.7 - 1779.3 | 0.066 | 18.21 | 1M09W7D | 256QAM |
| LTE Band 66/4 | 27 | 1711.5 - 1778.5 | 0.205 | 23.11 | 2M70G7D | QPSK |
| LTE Band 66/4 | 27 | 1711.5 - 1778.5 | 0.169 | 22.27 | 2M71W7D | 16QAM |
| LTE Band 66/4 | 27 | 1711.5 - 1778.5 | 0.125 | 20.96 | 2M71W7D | 64QAM |
| LTE Band 66/4 | 27 | 1711.5 - 1778.5 | 0.066 | 18.21 | 2M70W7D | 256QAM |
| LTE Band 66/4 | 27 | 1712.5 - 1777.5 | 0.204 | 23.09 | 4M49G7D | QPSK |
| LTE Band 66/4 | 27 | 1712.5 - 1777.5 | 0.167 | 22.23 | 4M50W7D | 16QAM |
| LTE Band 66/4 | 27 | 1712.5 - 1777.5 | 0.126 | 21.02 | 4M52W7D | 64QAM |
| LTE Band 66/4 | 27 | 1712.5 - 1777.5 | 0.063 | 18.02 | 4M50W7D | 256QAM |
| LTE Band 66/4 | 27 | 1715 - 1775 | 0.198 | 22.96 | 9M07G7D | QPSK |
| LTE Band 66/4 | 27 | 1715 - 1775 | 0.163 | 22.13 | 8M98W7D | 16QAM |
| LTE Band 66/4 | 27 | 1715 - 1775 | 0.125 | 20.98 | 9M00W7D | 64QAM |
| LTE Band 66/4 | 27 | 1715 - 1775 | 0.064 | 18.03 | 8M99W7D | 256QAM |
| LTE Band 66/4 | 27 | 1717.5 - 1772.5 | 0.204 | 23.10 | 13M5G7D | QPSK |
| LTE Band 66/4 | 27 | 1717.5 - 1772.5 | 0.169 | 22.27 | 13M5W7D | 16QAM |
| LTE Band 66/4 | 27 | 1717.5 - 1772.5 | 0.124 | 20.94 | 13M5W7D | 64QAM |
| LTE Band 66/4 | 27 | 1717.5 - 1772.5 | 0.068 | 18.30 | 13M5W7D | 256QAM |
| LTE Band 66/4 | 27 | 1720 - 1770 | 0.213 | 23.28 | 18M0G7D | QPSK |
| LTE Band 66/4 | 27 | 1720 - 1770 | 0.168 | 22.24 | 18M0W7D | 16QAM |
| LTE Band 66/4 | 27 | 1720 - 1770 | 0.131 | 21.18 | 18M0W7D | 64QAM |
| LTE Band 66/4 | 27 | 1720 - 1770 | 0.090 | 19.52 | 18M0W7D | 256QAM |
| LTE Band 25/2 | 24E | 1850.7 - 1914.3 | 0.213 | 23.28 | 1M09G7D | QPSK |
| LTE Band 25/2 | 24E | 1850.7 - 1914.3 | 0.169 | 22.28 | 1M08W7D | 16QAM |
| LTE Band 25/2 | 24E | 1850.7 - 1914.3 | 0.137 | 21.38 | 1M10W7D | 64QAM |
| LTE Band 25/2 | 24E | 1850.7 - 1914.3 | 0.107 | 20.28 | 1M09W7D | 256QAM |
| LTE Band 25/2 | 24E | 1851.5 - 1913.5 | 0.207 | 23.16 | 2M71G7D | QPSK |
| LTE Band 25/2 | 24E | 1851.5 - 1913.5 | 0.169 | 22.28 | 2M70W7D | 16QAM |
| LTE Band 25/2 | 24E | 1851.5 - 1913.5 | 0.138 | 21.39 | 2M70W7D | 64QAM |
| LTE Band 25/2 | 24E | 1851.5 - 1913.5 | 0.104 | 20.18 | 2M70W7D | 256QAM |
| LTE Band 25/2 | 24E | 1852.5 - 1912.5 | 0.211 | 23.24 | 4M52G7D | QPSK |
| LTE Band 25/2 | 24E | 1852.5 - 1912.5 | 0.169 | 22.28 | 4M51W7D | 16QAM |
| LTE Band 25/2 | 24E | 1852.5 - 1912.5 | 0.112 | 20.48 | 4M52W7D | 64QAM |
| LTE Band 25/2 | 24E | 1852.5 - 1912.5 | 0.085 | 19.28 | 4M50W7D | 256QAM |
| LTE Band 25/2 | 24E | 1855 - 1910 | 0.208 | 23.18 | 8M99G7D | QPSK |
| LTE Band 25/2 | 24E | 1855 - 1910 | 0.164 | 22.15 | 9M02W7D | 16QAM |
| LTE Band 25/2 | 24E | 1855 - 1910 | 0.128 | 21.06 | 9M00W7D | 64QAM |
| LTE Band 25/2 | 24E | 1855 - 1910 | 0.104 | 20.15 | 8M97W7D | 256QAM |
| LTE Band 25/2 | 24E | 1857.5 - 1907.5 | 0.207 | 23.16 | 13M5G7D | QPSK |
| LTE Band 25/2 | 24E | 1857.5 - 1907.5 | 0.164 | 22.15 | 13M5W7D | 16QAM |
| LTE Band 25/2 | 24E | 1857.5 - 1907.5 | 0.138 | 21.39 | 13M5W7D | 64QAM |
| LTE Band 25/2 | 24E | 1857.5 - 1907.5 | 0.100 | 19.99 | 13M5W7D | 256QAM |
| LTE Band 25/2 | 24E | 1860 - 1905 | 0.215 | 23.33 | 18M0G7D | QPSK |
| LTE Band 25/2 | 24E | 1860 - 1905 | 0.172 | 22.36 | 18M0W7D | 16QAM |
| LTE Band 25/2 | 24E | 1860 - 1905 | 0.140 | 21.45 | 18M0W7D | 64QAM |
| LTE Band 25/2 | 24E | 1860 - 1905 | 0.106 | 20.26 | 18M0W7D | 256QAM |
| | | FUT Overview (| | | | |

EUT Overview (Mid Bands)

| FCC ID: A3LSMN981W | | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|------------------------------|-----------------|------------------------------------|---------------------------------|
| Test Report S/N: Test Dates: | | EUT Type: | Dogg 4 of 257 |
| 1M2005050082-03.A3L | 5/5 - 7/15/2020 | Portable Handset | Page 4 of 357 |



| | | | EI | RP | | |
|-------------------|----------|--------------------|------------|------------|------------|------------|
| Mode | FCC Rule | Tx Frequency (MHz) | Max. Power | Max. Power | Emission | Modulation |
| | Part | - 1 7 () | (W) | (dBm) | Designator | |
| LTE Band 30 | 27 | 2307.5 - 2312.5 | 0.211 | 23.23 | 4M51G7D | QPSK |
| LTE Band 30 | 27 | 2307.5 - 2312.5 | 0.168 | 22.25 | 4M51W7D | 16QAM |
| LTE Band 30 | 27 | 2307.5 - 2312.5 | 0.130 | 21.15 | 4M50W7D | 64QAM |
| LTE Band 30 | 27 | 2307.5 - 2312.5 | 0.064 | 18.08 | 4M50W7D | 256QAM |
| LTE Band 30 | 27 | 2310 | 0.214 | 23.31 | 9M00G7D | QPSK |
| LTE Band 30 | 27 | 2310 | 0.170 | 22.30 | 9M00W7D | 16QAM |
| LTE Band 30 | 27 | 2310 | 0.125 | 20.99 | 9M00W7D | 64QAM |
| LTE Band 30 | 27 | 2310 | 0.069 | 18.38 | 8M97W7D | 256QAM |
| LTE Band 7 | 27 | 2502.5 - 2567.5 | 0.134 | 21.28 | 4M51G7D | QPSK |
| LTE Band 7 | 27 | 2502.5 - 2567.5 | 0.107 | 20.31 | 4M51W7D | 16QAM |
| LTE Band 7 | 27 | 2502.5 - 2567.5 | 0.085 | 19.29 | 4M51W7D | 64QAM |
| LTE Band 7 | 27 | 2502.5 - 2567.5 | 0.052 | 17.18 | 4M51W7D | 256QAM |
| LTE Band 7 | 27 | 2505 - 2565 | 0.128 | 21.07 | 9M05G7D | QPSK |
| LTE Band 7 | 27 | 2505 - 2565 | 0.107 | 20.28 | 8M99W7D | 16QAM |
| LTE Band 7 | 27 | 2505 - 2565 | 0.085 | 19.29 | 9M00W7D | 64QAM |
| LTE Band 7 | 27 | 2505 - 2565 | 0.054 | 17.29 | 9M00W7D | 256QAM |
| LTE Band 7 | 27 | 2507.5 - 2562.5 | 0.134 | 21.27 | 13M5G7D | QPSK |
| LTE Band 7 | 27 | 2507.5 - 2562.5 | 0.107 | 20.31 | 13M5W7D | 16QAM |
| LTE Band 7 | 27 | 2507.5 - 2562.5 | 0.085 | 19.29 | 13M5W7D | 64QAM |
| LTE Band 7 | 27 | 2507.5 - 2562.5 | 0.052 | 17.15 | 13M5W7D | 256QAM |
| LTE Band 7 | 27 | 2510 - 2560 | 0.136 | 21.33 | 18M0G7D | QPSK |
| LTE Band 7 | 27 | 2510 - 2560 | 0.108 | 20.32 | 18M0W7D | 16QAM |
| LTE Band 7 | 27 | 2510 - 2560 | 0.086 | 19.34 | 18M0W7D | 64QAM |
| LTE Band 7 | 27 | 2510 - 2560 | 0.066 | 18.17 | 18M0W7D | 256QAM |
| LTE Band 41 (PC3) | 27 | 2498.5 - 2687.5 | 0.203 | 23.07 | 4M51G7D | QPSK |
| LTE Band 41 (PC3) | 27 | 2498.5 - 2687.5 | 0.164 | 22.15 | 4M52W7D | 16QAM |
| LTE Band 41 (PC3) | 27 | 2498.5 - 2687.5 | 0.127 | 21.05 | 4M52W7D | 64QAM |
| LTE Band 41 (PC3) | 27 | 2498.5 - 2687.5 | 0.080 | 19.04 | 4M50W7D | 256QAM |
| LTE Band 41 (PC3) | 27 | 2501 - 2685 | 0.202 | 23.05 | 9M01G7D | QPSK |
| LTE Band 41 (PC3) | 27 | 2501 - 2685 | 0.166 | 22.19 | 9M00W7D | 16QAM |
| LTE Band 41 (PC3) | 27 | 2501 - 2685 | 0.121 | 20.84 | 8M96W7D | 64QAM |
| LTE Band 41 (PC3) | 27 | 2501 - 2685 | 0.082 | 19.16 | 8M77W7D | 256QAM |
| LTE Band 41 (PC3) | 27 | 2503.5 - 2682.5 | 0.164 | 22.15 | 13M5G7D | QPSK |
| LTE Band 41 (PC3) | 27 | 2503.5 - 2682.5 | 0.140 | 21.45 | 13M5W7D | 16QAM |
| LTE Band 41 (PC3) | 27 | 2503.5 - 2682.5 | 0.107 | 20.28 | 13M5W7D | 64QAM |
| LTE Band 41 (PC3) | 27 | 2503.5 - 2682.5 | 0.076 | 18.83 | 13M5W7D | 256QAM |
| LTE Band 41 (PC3) | 27 | 2506 - 2680 | 0.207 | 23.16 | 17M9G7D | QPSK |
| LTE Band 41 (PC3) | 27 | 2506 - 2680 | 0.103 | 20.14 | 17M9W7D | 16QAM |
| LTE Band 41 (PC3) | 27 | 2506 - 2680 | 0.089 | 19.51 | 18M0W7D | 64QAM |
| LTE Band 41 (PC3) | 27 | 2506 - 2680 | 0.079 | 18.95 | 18M0W7D | 256QAM |

EUT Overview (High Bands)

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| | | | Ty Francisco | EF | ₹P | Emissien |
|-----------------|-----------|------------|-----------------------------|-------------------|------------------|------------------------|
| Mode | Bandwidth | Modulation | Tx Frequency Range [MHz] | Max. Power [W] | Max. Power [dBm] | Emission Designator |
| | | π/2 BPSK | 673.0 - 688.0 | 0.054 | 17.33 | 18M1G7D |
| | | QPSK | 673.0 - 688.0 | 0.037 | 15.74 | 19M0G7D |
| | 20 MHz | 16QAM | 673.0 - 688.0 | 0.030 | 14.71 | 19M1W7D |
| | | 64QAM | 673.0 - 688.0 | 0.024 | 13.79 | 19M0W7D |
| | | 256QAM | 673.0 - 688.0 | 0.019 | 12.85 | 19M0W7D |
| | | π/2 BPSK | 670.5 - 690.5 | 0.053 | 17.28 | 13M4G7D |
| | 15 MHz | QPSK | 670.5 - 690.5 | 0.037 | 15.72 | 14M2G7D |
| | | 16QAM | 670.5 - 690.5 | 0.029 | 14.60 | 14M2W7D |
| | | 64QAM | 670.5 - 690.5 | 0.024 | 13.79 | 14M2W7D |
| NR Band n71 | | 256QAM | 670.5 - 690.5 | 0.019 | 12.87 | 14M2W7D |
| NIX Dallu III I | 10 MHz | π/2 BPSK | 668.0 - 693.0 | 0.054 | 17.32 | 9M00G7D |
| | | QPSK | 668.0 - 693.0 | 0.037 | 15.73 | 9M36G7D |
| | | 16QAM | 668.0 - 693.0 | 0.028 | 14.42 | 9M37W7D |
| | | 64QAM | 668.0 - 693.0 | 0.021 | 13.29 | 9M37W7D |
| | | 256QAM | 668.0 - 693.0 | 0.023 | 13.58 | 9M34W7D |
| | | π/2 BPSK | 665.5 - 695.5 | 0.054 | 17.33 | 4M55G7D |
| | | QPSK | 665.5 - 695.5 | 0.039 | 15.89 | 4M51G7D |
| | 5 MHz | 16QAM | 665.5 - 695.5 | 0.030 | 14.73 | 4M52W7D |
| | | 64QAM | 665.5 - 695.5 | 0.025 | 13.92 | 4M51W7D |
| | | 256QAM | 665.5 - 695.5 | 0.027 | 14.37 | 4M53W7D |

EUT Overview (n71)

| FCC ID: A3LSMN981W | PCTEST* | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager | |
|---------------------|-----------------|------------------------------------|------------------------------|--|
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| | | | Ty Francisco | EI | RP | Emission Designator |
|---------------|-----------|------------|-----------------------------|-------------------|------------------|------------------------|
| Mode | Bandwidth | Modulation | Tx Frequency Range [MHz] | Max. Power [W] | Max. Power [dBm] | |
| | | π/2 BPSK | 1720 - 1770 | 0.164 | 22.16 | 18M0G7D |
| | | QPSK | 1720 - 1770 | 0.146 | 21.64 | 19M0G7D |
| | 20 MHz | 16QAM | 1720 - 1770 | 0.111 | 20.44 | 19M0W7D |
| | | 64QAM | 1720 - 1770 | 0.085 | 19.29 | 19M0W7D |
| | | 256QAM | 1720 - 1770 | 0.053 | 17.28 | 18M9W7D |
| | | π/2 BPSK | 1717.5 - 1772.5 | 0.168 | 22.25 | 13M5G7D |
| | 15 MHz | QPSK | 1717.5 - 1772.5 | 0.151 | 21.79 | 14M5G7D |
| | | 16QAM | 1717.5 - 1772.5 | 0.114 | 20.57 | 14M2W7D |
| | | 64QAM | 1717.5 - 1772.5 | 0.118 | 20.71 | 14M2W7D |
| NR Band n66 | | 256QAM | 1717.5 - 1772.5 | 0.086 | 19.34 | 14M2W7D |
| NIX Dana 1100 | 10 MHz | π/2 BPSK | 1715 - 1775 | 0.172 | 22.36 | 9M02G7D |
| | | QPSK | 1715 - 1775 | 0.150 | 21.77 | 9M39G7D |
| | | 16QAM | 1715 - 1775 | 0.111 | 20.46 | 9M33W7D |
| | | 64QAM | 1715 - 1775 | 0.114 | 20.58 | 9M35W7D |
| | | 256QAM | 1715 - 1775 | 0.090 | 19.54 | 9M34W7D |
| | | π/2 BPSK | 1712.5 - 1777.5 | 0.167 | 22.22 | 4M52G7D |
| | | QPSK | 1712.5 - 1777.5 | 0.147 | 21.67 | 4M55G7D |
| | 5 MHz | 16QAM | 1712.5 - 1777.5 | 0.109 | 20.39 | 4M51W7D |
| | | 64QAM | 1712.5 - 1777.5 | 0.109 | 20.36 | 4M51W7D |
| | | 256QAM | 1712.5 - 1777.5 | 0.089 | 19.49 | 4M51W7D |

EUT Overview (n66)

| FCC ID: A3LSMN981W | PCTEST* | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
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| | | | T., F., | EI | RP | |
|-------------|-----------|------------|-----------------------------|-------------------|------------------|------------------------|
| Mode | Bandwidth | Modulation | Tx Frequency Range [MHz] | Max. Power [W] | Max. Power [dBm] | Emission Designator |
| | | π/2 BPSK | 2546.0 - 2640.0 | 0.166 | 22.210 | 96M2G7D |
| | | QPSK | 2546.0 - 2640.0 | 0.135 | 21.290 | 97M9G7D |
| | 100 MHz | 16QAM | 2546.0 - 2640.0 | 0.109 | 20.390 | 97M2W7D |
| | | 64QAM | 2546.0 - 2640.0 | 0.091 | 19.570 | 97M3W7D |
| | | 256QAM | 2546.0 - 2640.0 | 0.060 | 17.770 | 97M5W7D |
| | | π/2 BPSK | 2541.0 - 2645.0 | 0.166 | 22.190 | 88M4G7D |
| | | QPSK | 2541.0 - 2645.0 | 0.133 | 21.240 | 87M4G7D |
| | 90 MHz | 16QAM | 2541.0 - 2645.0 | 0.101 | 20.060 | 87M4W7D |
| | | 64QAM | 2541.0 - 2645.0 | 0.083 | 19.180 | 87M6W7D |
| | | 256QAM | 2541.0 - 2645.0 | 0.055 | 17.400 | 87M3W7D |
| | | π/2 BPSK | 2536.0 - 2650.0 | 0.177 | 22.490 | 77M1G7D |
| | | QPSK | 2536.0 - 2650.0 | 0.133 | 21.240 | 77M2G7D |
| | 80 MHz | 16QAM | 2536.0 - 2650.0 | 0.109 | 20.390 | 77M5W7D |
| | | 64QAM | 2536.0 - 2650.0 | 0.091 | 19.580 | 77M1W7D |
| | | 256QAM | 2536.0 - 2650.0 | 0.058 | 17.660 | 77M4W7D |
| | | π/2 BPSK | 2526.0 - 2660.0 | 0.161 | 22.060 | 58M1G7D |
| | | QPSK | 2526.0 - 2660.0 | 0.132 | 21.220 | 57M8G7D |
| NR Band n41 | 60 MHz | 16QAM | 2526.0 - 2660.0 | 0.106 | 20.270 | 57M9W7D |
| | | 64QAM | 2526.0 - 2660.0 | 0.089 | 19.470 | 57M8W7D |
| | | 256QAM | 2526.0 - 2660.0 | 0.058 | 17.650 | 57M9W7D |
| | | π/2 BPSK | 2521.0 - 2665.0 | 0.160 | 22.050 | 48M8G7D |
| | | QPSK | 2521.0 - 2665.0 | 0.128 | 21.070 | 44M7G7D |
| | 50 MHz | 16QAM | 2521.0 - 2665.0 | 0.109 | 20.370 | 44M8W7D |
| | | 64QAM | 2521.0 - 2665.0 | 0.089 | 19.470 | 44M7W7D |
| | | 256QAM | 2521.0 - 2665.0 | 0.059 | 17.720 | 44M8W7D |
| | | π/2 BPSK | 2516.0 - 2670.0 | 0.175 | 22.420 | 35M8G7D |
| | | QPSK | 2516.0 - 2670.0 | 0.140 | 21.460 | 35M7G7D |
| | 40 MHz | 16QAM | 2516.0 - 2670.0 | 0.119 | 20.760 | 35M6W7D |
| | | 64QAM | 2516.0 - 2670.0 | 0.099 | 19.970 | 35M6W7D |
| | | 256QAM | 2516.0 - 2670.0 | 0.063 | 17.970 | 35M8W7D |
| | | π/2 BPSK | 2506.0 - 2680.0 | 0.157 | 21.970 | 17M9G7D |
| | | QPSK | 2506.0 - 2680.0 | 0.133 | 21.230 | 17M9G7D |
| | 20 MHz | 16QAM | 2506.0 - 2680.0 | 0.096 | 19.840 | 17M9W7D |
| | | 64QAM | 2506.0 - 2680.0 | 0.074 | 18.710 | 17M9W7D |
| | | 256QAM | 2506.0 - 2680.0 | 0.047 | 16.710 | 17M9W7D |

EUT Overview (n41)

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1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

1.2 PCTEST Test Location

These measurement tests were conducted at the PCTEST facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

1.3 Test Facility / Accreditations

assembly of contents thereof, please contact INFO@PCTEST.COM

Measurements were performed at PCTEST located in Columbia, MD 21046, U.S.A.

- PCTEST is an ISO 17025-2005 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).
- PCTEST facility is a registered (2451B) test laboratory with the site description on file with ISED.

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSMN981W**. The test data contained in this report pertains only to the emissions due to the EUT's LTE function.

Test Device Serial No.: 1825M, 1827M, 0514M, 0516M, 0290M, 0497M, 1799M

2.2 Device Capabilities

This device contains the following capabilities:

850 CDMA/EvDO Rev0/A, 1x Advanced (BC0), 850/1900 GSM/GPRS/EDGE, 850/1700/1900, WCDMA/HSPA, Multi-band LTE, 5G NR (n71, n41, n66), 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII, Bluetooth (1x, EDR, LE), NFC. Wireless Power Transfer

LTE Band 66 (1710 - 1780 MHz) overlaps the entire frequency range of LTE Band 4 (1710 - 1755 MHz). Therefore, test data provided in this report covers Band 4 as well as Band 66.

LTE Band 25 (1850 - 1915 MHz) overlaps the entire frequency range of LTE Band 2 (1850 - 1910 MHz). Therefore, test data provided in this report covers Band 2 as well as Band 25.

2.3 Test Configuration

The EUT was tested per the guidance of ANSI/TIA-603-E-2016 and KDB 971168 D01 v03r01. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

This device supports wireless charging capability and, thus, is subject to the test requirements of KDB 648474 D03 v01r04. Additional radiated spurious emission measurements were performed with the EUT lying flat on an authorized wireless charging pad (WCP) Model: EP-N5100 while operating under normal conditions in a simulated call or data transmission configuration. The worst case radiated emissions data is shown in this report.

2.4 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

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3.0 DESCRIPTION OF TESTS

3.1 Measurement Procedure

The measurement procedures described in the document titled "Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards" (ANSI/TIA-603-E-2016) and "Procedures for Compliance Measurement of the Fundamental Emission Power of Licensed Wideband (> 1 MHz) Digital Transmission Systems" (KDB 971168 D01 v03r01) were used in the measurement of the EUT.

3.2 Radiated Power and Radiated Spurious Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. For measurements below 1GHz, the absorbers are removed. A raised turntable is used for radiated measurement. The turn table is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm tall test table made of Styrodur is placed on top of the turn table. A Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable 3 meters from the receive antenna. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer. Radiated power levels are also investigated with the receive antenna horizontally and vertically polarized. The maximized power level is recorded using the spectrum analyzer "Channel Power" function with the integration band set to the emissions' occupied bandwidth, a RMS detector, RBW = 100kHz, VBW = 300kHz, and a 1 second sweep time over a minimum of 10 sweeps, per the guidelines of KDB 971168 D01 v03r01.

Per the guidance of ANSI/TIA-603-E-2016, a half-wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

$$P_{d [dBm]} = P_{g [dBm]} - cable loss [dB] + antenna gain [dBd/dBi]$$

Where, P_d is the dipole equivalent power, P_g is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to $P_{g [dBm]}$ – cable loss [dB].

The calculated P_d levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of 43 + 10 $log_{10}(Power_{[Watts]})$. For Band 7, the calculated P_d levels are compared to the absolute spurious emission limit of -25dBm which is equivalent to the required minimum attenuation of 55 + 10 $log_{10}(Power_{[Watts]})$. For Band 30, the calculated P_d levels are compared to the absolute spurious emission limit of -40dBm which is equivalent to the required minimum attenuation of 70 + 10 $log_{10}(Power_{[Watts]})$.

All radiated measurements are performed in a chamber that meets the site requirements per ANSI C63.4-2014. Additionally, radiated emissions below 30MHz are also validated on an Open Area Test Site to assert correlation with the chamber measurements per the requirements of KDB 474788 D01.

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4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of k=2 to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

| Contribution | Expanded Uncertainty (±dB) |
|-------------------------------------|----------------------------|
| Conducted Bench Top Measurements | 1.13 |
| Radiated Disturbance (<1GHz) | 4.98 |
| Radiated Disturbance (>1GHz) | 5.07 |
| Radiated Disturbance (>18GHz) | 5.09 |

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5.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

| Manufacturer | Model | Description | Cal Date | Cal Interval | Cal Due | Serial Number |
|-----------------|------------|---|------------|--------------|------------|---------------|
| - | LTx2 | Licensed Transmitter Cable Set | 4/9/2020 | Annual | 4/9/2021 | LTx2 |
| - | LTx3 | Licensed Transmitter Cable Set | 10/30/2019 | Annual | 10/30/2020 | LTx3 |
| Agilent | N9038A | MXE EMI Receiver | 7/17/2019 | Annual | 7/17/2020 | MY51210133 |
| Anritsu | MT8821C | Radio Communication Analyzer | 3/10/2020 | Annual | 3/10/2021 | 6200901190 |
| Anritsu | MS46322A | Vector Network Analyzer | 8/19/2019 | Annual | 8/19/2020 | 1521001 |
| Anritsu | 36585K-2F | Precision Autocal 2-Port | 7/16/2019 | Annual | 7/16/2020 | 1628014 |
| Com-Power | AL-130 | 9kHz - 30MHz Loop Antenna | 10/10/2019 | Biennial | 10/10/2021 | 121034 |
| EMCO | 3160-09 | Small Horn (18 - 26.5GHz) | 8/9/2018 | Biennial | 8/9/2020 | 135427 |
| Espec | ESX-2CA | Environmental Chamber | 6/13/2019 | Annual | 6/13/2020 | 17620 |
| ETS Lindgren | 3117 | 1-18 GHz DRG Horn (Medium) | 2/14/2019 | Biennial | 2/14/2021 | 125518 |
| ETS Lindgren | 3164-08 | Quad Ridge Horn Antenna | 3/12/2020 | Biennial | 3/12/2022 | 128337 |
| ETS-Lindgren | 3115 | Double Ridged Guide Horn 750MHz - 18GHz | 3/12/2020 | Biennial | 3/12/2022 | 150693 |
| Mini Circuits | TVA-11-422 | RF Power Amp | N/A | | QA1317001 | |
| Mini-Circuits | SSG-4000HP | Synthesized Signal Generator | | N/A | | 11403100002 |
| Rohde & Schwarz | CMU200 | Base Station Simulator | | N/A | | 107826 |
| Rohde & Schwarz | CMU200 | Base Station Simulator | | N/A | | 836536/0005 |
| Rohde & Schwarz | CMW500 | Radio Communication Tester | 8/26/2019 | Annual | 8/26/2020 | 100976 |
| Rohde & Schwarz | CMW500 | Radio Communication Tester | 6/26/2019 | Annual | 6/26/2020 | 112347 |
| Rohde & Schwarz | TS-PR26 | 18-26.5 GHz Pre-Amplifier | 11/1/2019 | Annual | 11/1/2020 | 100040 |
| Rohde & Schwarz | TC-TA18 | Cross-Pol Antenna 400MHz-18GHz | 12/12/2018 | Biennial | 12/12/2020 | 101058 |
| Rohde & Schwarz | SFUNIT-Rx | Shielded Filter Unit | 7/11/2019 | Annual | 7/11/2020 | 102134 |
| Rohde & Schwarz | SFUNIT-Rx | Shielded Filter Unit | 7/8/2019 | Annual | 7/8/2020 | 102133 |
| Sunol | DRH-118 | Horn Antenna (1-18GHz) | 10/3/2019 | Biennial | 10/3/2021 | A050307 |
| Sunol | DRH-118 | Horn Antenna (1-18 GHz) | 8/27/2019 | Biennial | 8/27/2021 | A042511 |

Table 5-1. Test Equipment

Notes:

- For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.
- 2. Equipment with a calibration date of "N/A" shown in this list was not used to make direct calibrated measurements.

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6.0 SAMPLE CALCULATIONS

Emission Designator

QPSK Modulation

Emission Designator = 8M62G7D

LTE BW = 8.62 MHz G = Phase Modulation 7 = Quantized/Digital Info

D = Data transmission, telemetry, telecommand

QAM Modulation

Emission Designator = 8M45W7D

LTE BW = 8.45 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data transmission, telemetry, telecommand

Spurious Radiated Emission – LTE Band

Example: Middle Channel LTE Mode 2nd Harmonic (1564 MHz)

The average spectrum analyzer reading at 3 meters with the EUT on the turntable was –81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of –81.0 dBm on the spectrum analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 1564 MHz. So 6.1 dB is added to the signal generator reading of –30.9 dBm yielding –24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm – (-24.80).

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| O COCC POTEOT | | | 1100000010110010 | |



TEST RESULTS

7.1 **Summary**

Company Name: Samsung Electronics Co., Ltd.

FCC ID: A3LSMN981W

FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)

Mode(s): **LTE**

| FCC Part Section(s) | Test Description | Test Limit | Test Condition | Test Result | Reference |
|--|---------------------------------------|---|-------------------|----------------|------------------------------|
| 2.1049 | Occupied Bandwidth | N/A | | PASS | Section 7.2 |
| 2.1051 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h) | Out of Band Emissions | > 43 + 10 log ₁₀ (P[Watts]) at Band Edge and for all out-of- band emissions | | | Section 7.3, 7.4 |
| 27.53(m) | Out of Band Emissions | Undesirable emissions must meet the limits detailed in 27.53(m) | | | Section 7.3, 7.4 |
| 27.53(a) | Out of Band Emissions | Undesirable emissions must meet the limits detailed in 27.53(a) | CONDUCTED | | Section 7.3, 7.4 |
| 24.232(d) 27.50 | Peak-Average Ratio | < 13 dB | CONDOCTED | | Section 7.5 |
| 2.1046 | Transmitter Conducted Output Power | N/A | | | See RF Exposure Report |
| 2.1055 22.355 24.235 27.54 | Frequency Stability | < 2.5 ppm (Part 22) and fundamental emissions stay within authorized frequency block (Part 24, 27) | | | Section 7.9 |

Table 7-1. Summary of Conducted Test Results

| FCC ID: A3LSMN981W | PCTEST' | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|---------------------|-----------------|------------------------------------|---------------------------------|
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| FCC Part Section(s) | Test Description | Test Limit | Test Condition | Test Result | Reference |
|--|--|---|-------------------|----------------|-------------|
| 22.913(a)(5) | Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 5) | < 7 Watts max. ERP | | | Section 0 |
| 27.50(b)(10) 27.50(c)(10) | Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 71, 12, 13) | < 3 Watts max. ERP | | | Section 0 |
| 24.232(c) 27.50(h)(2) | Equivalent Isotropic Radiated Power (Band 2/25, 7/38) | < 2 Watts max. EIRP | | | Section 0 |
| 27.50(d)(4) | Equivalent Isotropic Radiated Power (Band 4/66) | < 1 Watts max. EIRP | | PASS | Section 0 |
| 27.50(a)(3) | Equivalent Isotropic Radiated Power (Band 30) | < 0.25 Watts max. EIRP | | | Section 0 |
| 2.1053 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h) | Undesirable Emissions (Band 12, 13, 5, 66/4, 25/2) | > 43 + 10 log ₁₀ (P[Watts]) for all out-of-band emissions | RADIATED | | Section 7.7 |
| 27.53(f) | Undesirable Emissions (Band 13) | < -70 dBW/MHz (for wideband signals) < -80 dBW (for discrete emissions less than 700Hz BW) For all emissions in the band 1559 – 1610 MHz | | | Section 7.7 |
| 27.53(a) | Undesirable Emissions (Band 30) | > 70 + 10 log ₁₀ (P[Watts]) | | | Section 7.7 |
| 27.53(m) | Undesirable Emissions (Band 7/38) | Undesirable emissions must meet the limits detailed in 27.53(m) | | | Section 7.7 |
| 27.53(m) | Uplink Carrier Aggregation | Undesirable emissions must meet the limits detailed in 27.53(m) | | | Section 7.7 |

Table 7-2. Summary of Radiated Test Results

Notes:

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots (Sections 7.2, 7.3, 7.4, 7.5) were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.
- 4) For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST "LTE Automation," Version 5.3.
- 5) For operation <1GHz, the EIRP limits in the table above are referenced to the specifications written in the relevant Radio Standards Specifications for Innovation, Science, and Economic Development Canada.

| FCC ID: A3LSMN981W | PCTEST' | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
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7.2 Occupied Bandwidth

Test Overview

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Procedure Used

KDB 971168 D01 v03r01 - Section 4.2

Test Settings

- 1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
- 2. RBW = 1 5% of the expected OBW
- 3. $VBW \ge 3 \times RBW$
- 4. Detector = Peak
- 5. Trace mode = max hold
- 6. Sweep = auto couple
- 7. The trace was allowed to stabilize
- 8. If necessary, steps 2-7 were repeated after changing the RBW such that it would be within
 - 1 5% of the 99% occupied bandwidth observed in Step 7

Test Setup

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



Figure 7-1. Test Instrument & Measurement Setup

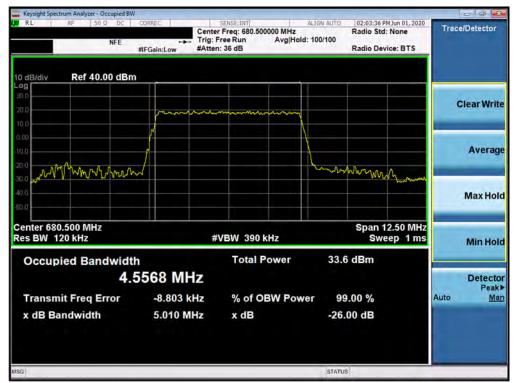
Test Notes

None.

| FCC ID: A3LSMN981W | PCTEST' | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
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Band 71



Plot 7-1. Occupied Bandwidth Plot (Band 71 - 5.0MHz QPSK - Full RB Configuration)



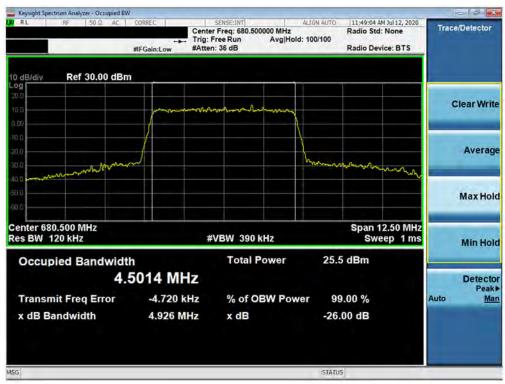
Plot 7-2. Occupied Bandwidth Plot (Band 71 - 5.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be perfet (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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Plot 7-3. Occupied Bandwidth Plot (Band 71 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-4. Occupied Bandwidth Plot (Band 71 - 5.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | Probable part of (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|----------------------|------------------------------------|---------|---------------------------------|
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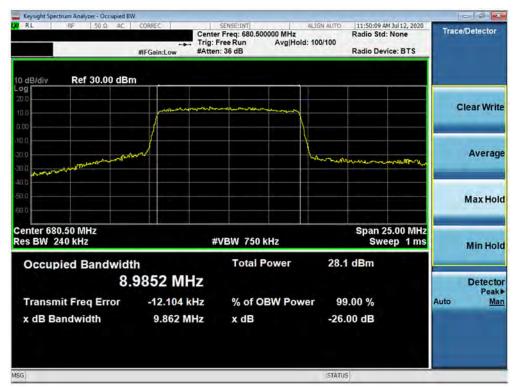
Plot 7-5. Occupied Bandwidth Plot (Band 71 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-6. Occupied Bandwidth Plot (Band 71 - 10.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Proof to be perfet @ | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-----------------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 20 of 257 |
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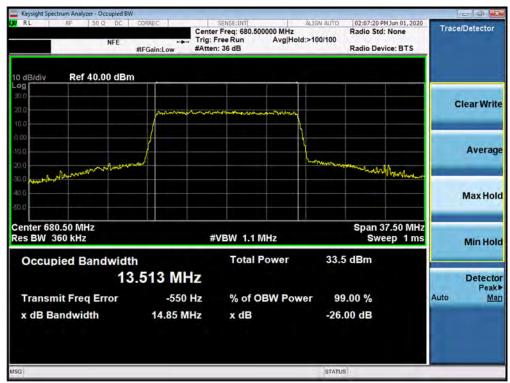
Plot 7-7. Occupied Bandwidth Plot (Band 71 - 10.0MHz 64-QAM - Full RB Configuration)



Plot 7-8. Occupied Bandwidth Plot (Band 71 - 10.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNC | Approved by: Quality Manager |
|---------------------|--------------------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 24 of 257 |
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Plot 7-9. Occupied Bandwidth Plot (Band 71 - 15.0MHz QPSK - Full RB Configuration)



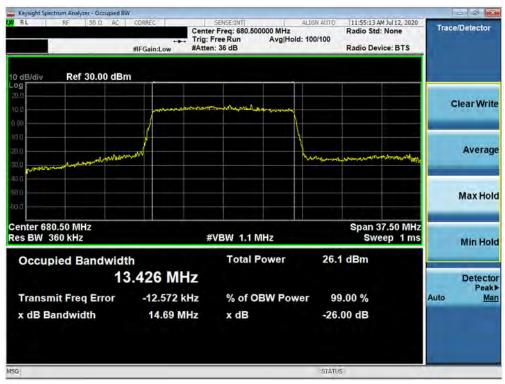
Plot 7-10. Occupied Bandwidth Plot (Band 71 - 15.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--------------------------------|------------------------------------|---------|---------------------------------|
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Plot 7-11. Occupied Bandwidth Plot (Band 71 - 15.0MHz 64-QAM - Full RB Configuration)



Plot 7-12. Occupied Bandwidth Plot (Band 71 - 15.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Proof to be perfet @ | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-----------------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 22 of 257 |
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Plot 7-13. Occupied Bandwidth Plot (Band 71 - 20.0MHz QPSK - Full RB Configuration)



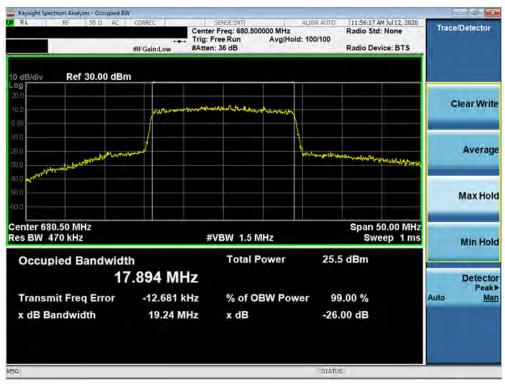
Plot 7-14. Occupied Bandwidth Plot (Band 71 - 20.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--------------------------------|---------------------------------------|---------|---------------------------------|
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Plot 7-15. Occupied Bandwidth Plot (Band 71 - 20.0MHz 64-QAM - Full RB Configuration)



Plot 7-16. Occupied Bandwidth Plot (Band 71 - 20.0MHz 256-QAM - Full RB Configuration)

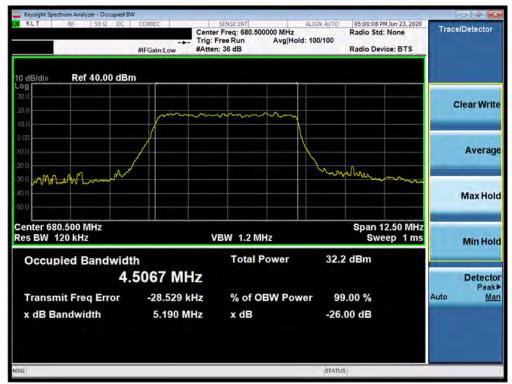
| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--------------------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo OF of OF7 |
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NR Band n71



Plot 7-17. Occupied Bandwidth Plot (n71 5MHz BPSK-DFT-s-OFDM- Full RB Configuration)



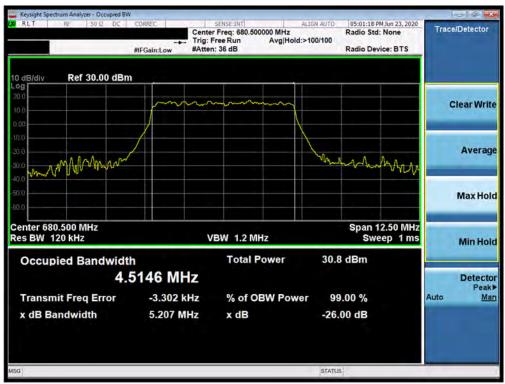
Plot 7-18. Occupied Bandwidth Plot (n71 5MHz QPSK-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMN981W | Produto part of @ | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
|---------------------|-------------------|------------------------------------|------------------------------|
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Plot 7-19. Occupied Bandwidth Plot (n71 5MHz 16QAM-CP-OFDM - Full RB Configuration)



Plot 7-20. Occupied Bandwidth Plot (n71 5MHz 64QAM-CP-OFDM- Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be perfet (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-------------------------------|------------------------------------|---------|------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 27 of 257 |
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Plot 7-21. Occupied Bandwidth Plot (n71 5MHz 256QAM-CP-OFDM- Full RB Configuration)



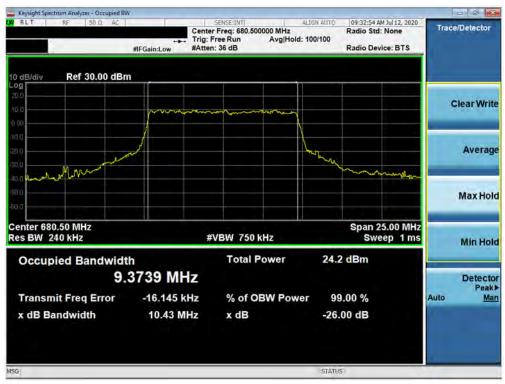
Plot 7-22. Occupied Bandwidth Plot (n71 10MHz BPSK-DFT-s-OFDM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST* | MEASUREMENT REPORT (CERTIFICATION) | SUNE | Approved by: Quality Manager |
|---------------------|-----------------|------------------------------------|------|------------------------------|
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Plot 7-23. Occupied Bandwidth Plot (n71 10MHz QPSK-CP-OFDM - Full RB Configuration)



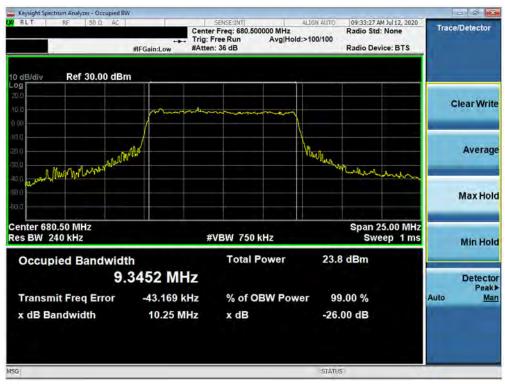
Plot 7-24. Occupied Bandwidth Plot (n71 10MHz 16QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be perfet (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-------------------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 20 of 257 |
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Plot 7-25. Occupied Bandwidth Plot (n71 10MHz 64QAM-CP-OFDM- Full RB Configuration)



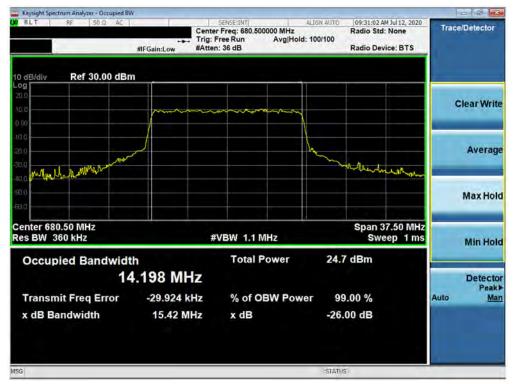
Plot 7-26. Occupied Bandwidth Plot (n71 10MHz 256QAM-CP-OFDM- Full RB Configuration)

| FCC ID: A3LSMN981W | Probable part of (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|----------------------|------------------------------------|---------|---------------------------------|
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Plot 7-27. Occupied Bandwidth Plot (n71 15MHz BPSK-DFT-s-OFDM - Full RB Configuration)



Plot 7-28. Occupied Bandwidth Plot (n71 15MHz QPSK-CP-OFDM - Full RB Configuration)

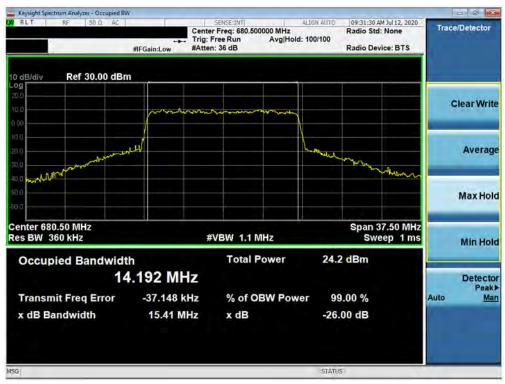
| FCC ID: A3LSMN981W | PCTEST | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-----------------|------------------------------------|---------|------------------------------|
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Plot 7-29. Occupied Bandwidth Plot (n71 15MHz 16QAM-CP-OFDM - Full RB Configuration)



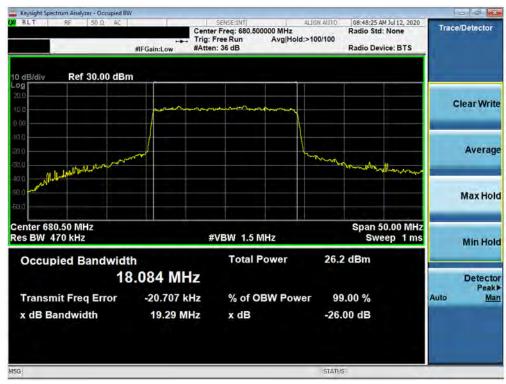
Plot 7-30. Occupied Bandwidth Plot (n71 15MHz 64QAM-CP-OFDM- Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be perfet (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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Plot 7-31. Occupied Bandwidth Plot (n71 15MHz 256QAM-CP-OFDM- Full RB Configuration)



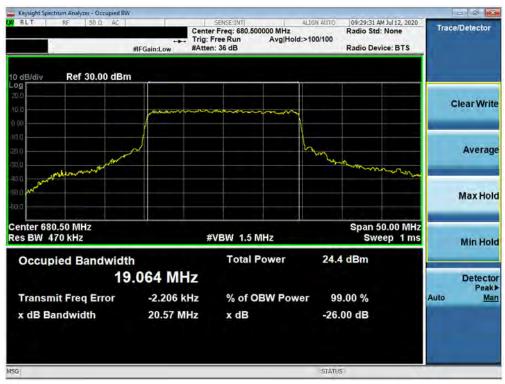
Plot 7-32. Occupied Bandwidth Plot (n71 20MHz BPSK-DFT-s-OFDM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--------------------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 22 of 257 |
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Plot 7-33. Occupied Bandwidth Plot (n71 20MHz QPSK-CP-OFDM - Full RB Configuration)



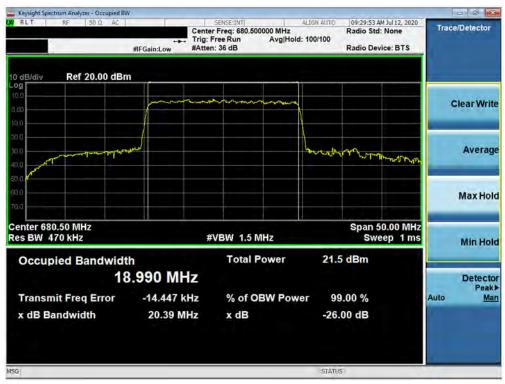
Plot 7-34. Occupied Bandwidth Plot (n71 20MHz 16QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be perfet (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-------------------------------|------------------------------------|---------|------------------------------|
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Plot 7-35. Occupied Bandwidth Plot (n71 20MHz 64QAM-CP-OFDM- Full RB Configuration)



Plot 7-36. Occupied Bandwidth Plot (n71 20MHz 256QAM-CP-OFDM- Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Proof to be perfet @ | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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Band 12



Plot 7-37. Occupied Bandwidth Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)



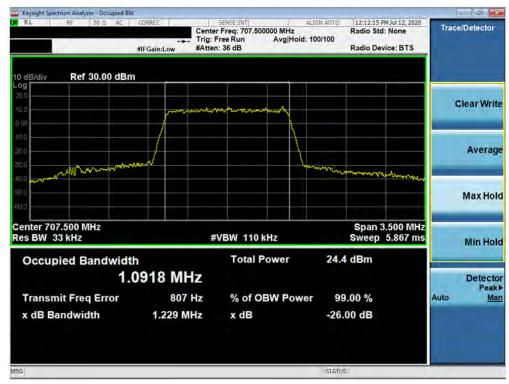
Plot 7-38. Occupied Bandwidth Plot (Band 12 - 1.4MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be perfet (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-------------------------------|------------------------------------|---------|------------------------------|
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Plot 7-39. Occupied Bandwidth Plot (Band 12 - 1.4MHz 64-QAM - Full RB Configuration)



Plot 7-40. Occupied Bandwidth Plot (Band 12 - 1.4MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be perfet (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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Plot 7-41. Occupied Bandwidth Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-42. Occupied Bandwidth Plot (Band 12 - 3.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--------------------------------|---------------------------------------|---------|------------------------------|
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Plot 7-43. Occupied Bandwidth Plot (Band 12 - 3.0MHz 64-QAM - Full RB Configuration)



Plot 7-44. Occupied Bandwidth Plot (Band 12 - 3.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNC | Approved by: Quality Manager |
|---------------------|--------------------------------|------------------------------------|---------|---------------------------------|
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Plot 7-45. Occupied Bandwidth Plot (Band 12 - 5.0MHz QPSK - Full RB Configuration)



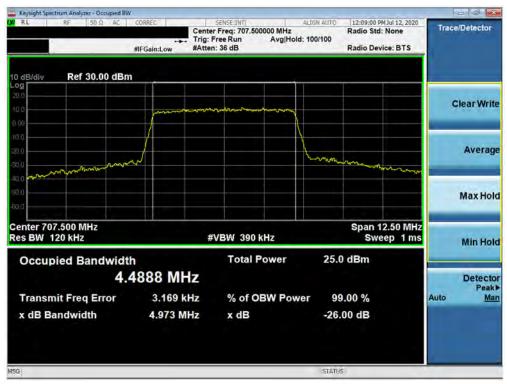
Plot 7-46. Occupied Bandwidth Plot (Band 12 - 5.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be perfet (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-------------------------------|------------------------------------|---------|------------------------------|
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Plot 7-47. Occupied Bandwidth Plot (Band 12 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-48. Occupied Bandwidth Plot (Band 12 - 5.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNC | Approved by: Quality Manager |
|---------------------|--------------------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 44 of 257 |
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Plot 7-49. Occupied Bandwidth Plot (Band 12 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-50. Occupied Bandwidth Plot (Band 12 - 10.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST | MEASUREMENT REPORT (CERTIFICATION) | SAMSONS | Approved by: Quality Manager |
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| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 40 of 257 |
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Plot 7-51. Occupied Bandwidth Plot (Band 12 - 10.0MHz 64-QAM - Full RB Configuration)



Plot 7-52. Occupied Bandwidth Plot (Band 12 - 10.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Proof to be perfet @ | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-----------------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 42 of 257 |
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Band 13



Plot 7-53. Occupied Bandwidth Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)



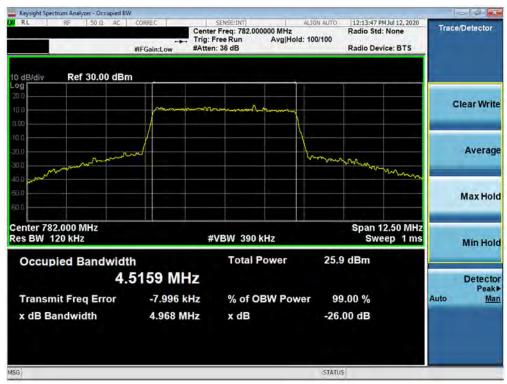
Plot 7-54. Occupied Bandwidth Plot (Band 13 - 5.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | Probat labe part of (8) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-------------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 44 of 257 |
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Plot 7-55. Occupied Bandwidth Plot (Band 13 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-56. Occupied Bandwidth Plot (Band 13 - 5.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be perfet (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-------------------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 4F of 2F7 |
| 1M2005050082-03.A3L | 5/5 - 7/15/2020 | Portable Handset | | Page 45 of 357 |
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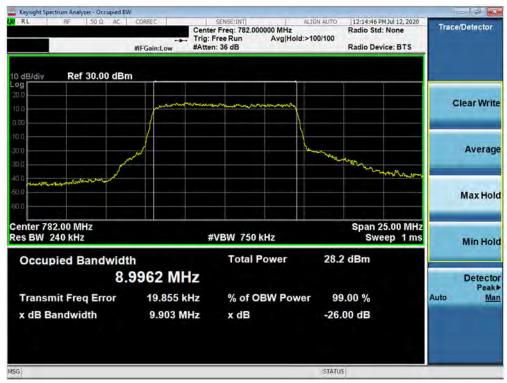
Plot 7-57. Occupied Bandwidth Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)



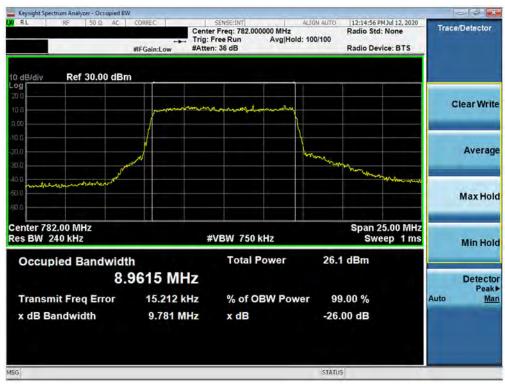
Plot 7-58. Occupied Bandwidth Plot (Band 13 - 10.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--------------------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 46 of 257 |
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Plot 7-59. Occupied Bandwidth Plot (Band 13 - 10.0MHz 64-QAM - Full RB Configuration)



Plot 7-60. Occupied Bandwidth Plot (Band 13 - 10.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-----------------|------------------------------------|---------|------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 47 of 257 |
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Band 5



Plot 7-61. Occupied Bandwidth Plot (Band 5 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-62. Occupied Bandwidth Plot (Band 5 - 1.4MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--------------------------------|---------------------------------------|---------|------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 40 of 257 |
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Plot 7-63. Occupied Bandwidth Plot (Band 5 - 1.4MHz 64-QAM - Full RB Configuration)



Plot 7-64. Occupied Bandwidth Plot (Band 5 - 1.4MHz 256-QAM - Full RB Configuration)

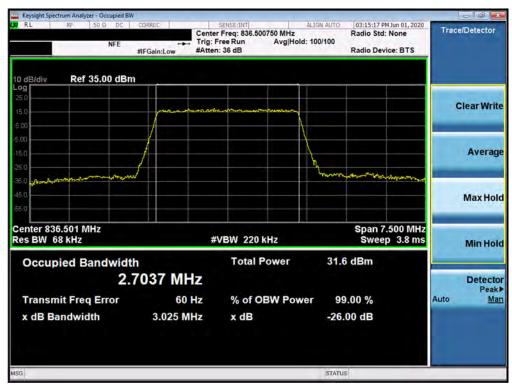
| FCC ID: A3LSMN981W | PCTEST Prood to be perfet (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-------------------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 40 of 257 |
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Plot 7-65. Occupied Bandwidth Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)



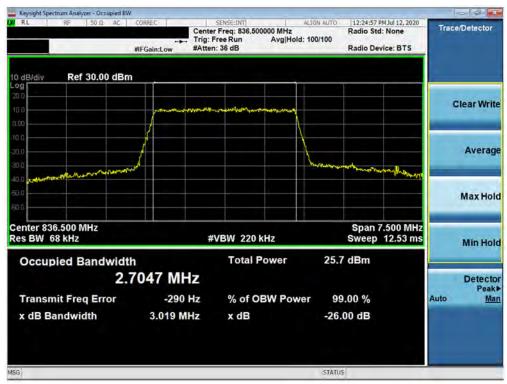
Plot 7-66. Occupied Bandwidth Plot (Band 5 - 3.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Proof to be perf of (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSONS | Approved by: Quality Manager |
|---------------------|--------------------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 50 of 257 |
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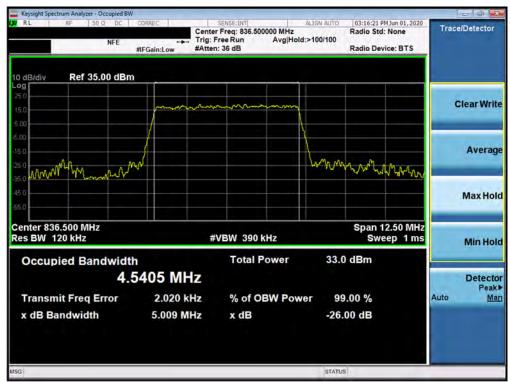
Plot 7-67. Occupied Bandwidth Plot (Band 5 - 3.0MHz 64-QAM - Full RB Configuration)



Plot 7-68. Occupied Bandwidth Plot (Band 5 - 3.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--------------------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg E4 of 257 |
| 1M2005050082-03.A3L | 5/5 - 7/15/2020 | Portable Handset | | Page 51 of 357 |
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Plot 7-69. Occupied Bandwidth Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)



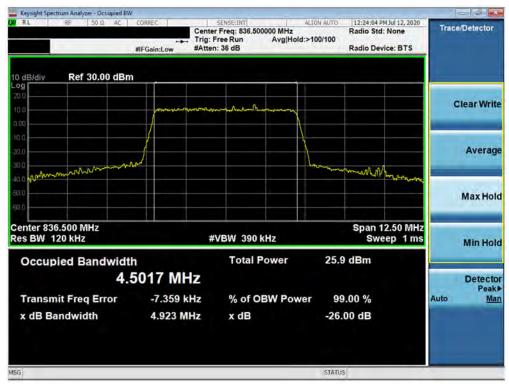
Plot 7-70. Occupied Bandwidth Plot (Band 5 - 5.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Proof to be perfet @ | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-----------------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 52 of 257 |
| 1M2005050082-03.A3L | 5/5 – 7/15/2020 | Portable Handset | | Page 52 of 357 |
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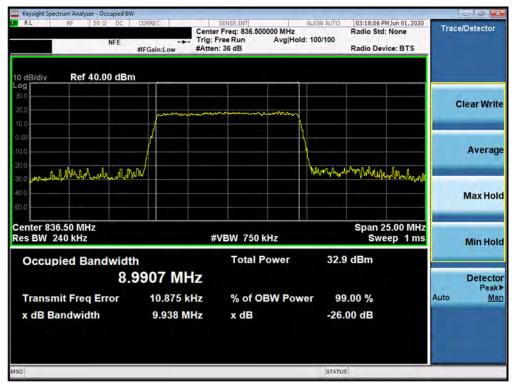
Plot 7-71. Occupied Bandwidth Plot (Band 5 - 5.0MHz 64-QAM - Full RB Configuration)



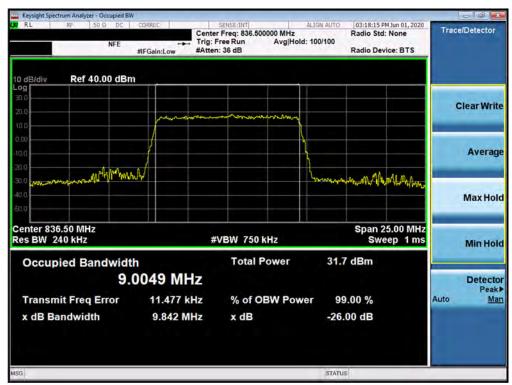
Plot 7-72. Occupied Bandwidth Plot (Band 5 - 5.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be perfet (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-------------------------------|------------------------------------|---------|------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 52 of 257 |
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Plot 7-73. Occupied Bandwidth Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)



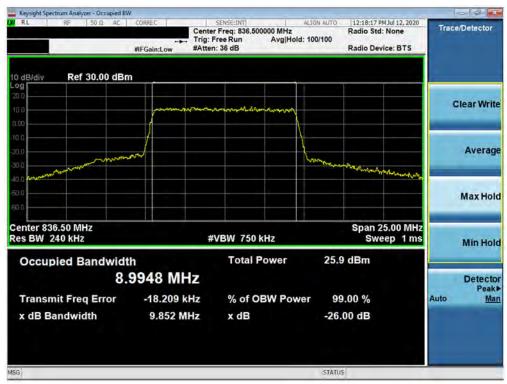
Plot 7-74. Occupied Bandwidth Plot (Band 5 - 10.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | Proof to perf of (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|----------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 54 of 257 |
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Plot 7-75. Occupied Bandwidth Plot (Band 5 - 10.0MHz 64-QAM - Full RB Configuration)



Plot 7-76. Occupied Bandwidth Plot (Band 5 - 10.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--------------------------------|---------------------------------------|---------|------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo FF of 2F7 |
| 1M2005050082-03.A3L | 5/5 - 7/15/2020 | Portable Handset | | Page 55 of 357 |
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Band 66/4



Plot 7-77. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)



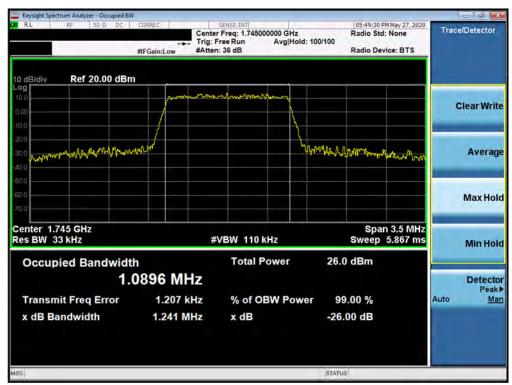
Plot 7-78. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Proof to be perfet @ | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-----------------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 50 of 257 |
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Plot 7-79. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz 64-QAM - Full RB Configuration)



Plot 7-80. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSONS | Approved by: Quality Manager |
|---------------------|--------------------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 57 of 257 |
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Plot 7-81. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)



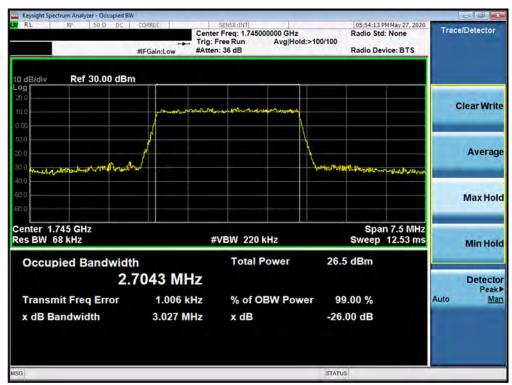
Plot 7-82. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | Proof to perf of (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|----------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 50 of 257 |
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Plot 7-83. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz 64-QAM - Full RB Configuration)



Plot 7-84. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Proof to be perfet @ | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-----------------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 50 of 257 |
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Plot 7-85. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-86. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--------------------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 60 of 257 |
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Plot 7-87. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-88. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Proof to be perfet @ | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-----------------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 64 of 257 |
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Plot 7-89. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-90. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--------------------------------|---------------------------------------|---------|------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 60 of 257 |
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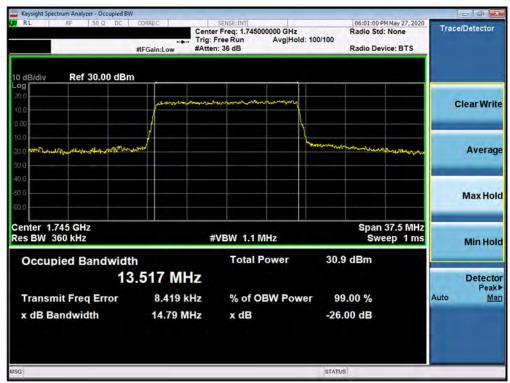
Plot 7-91. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz 64-QAM - Full RB Configuration)



Plot 7-92. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSONS | Approved by: Quality Manager |
|---------------------|--------------------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 62 of 257 |
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Plot 7-93. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)



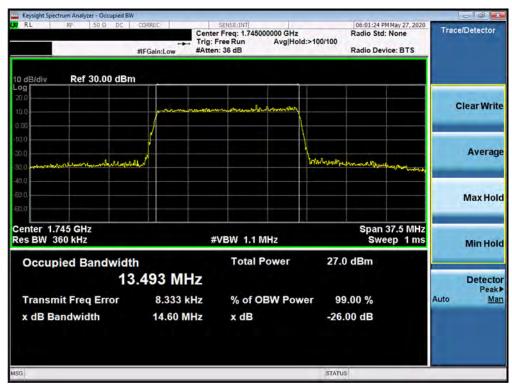
Plot 7-94. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--------------------------------|---------------------------------------|---------|------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 64 of 257 |
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Plot 7-95. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz 64-QAM - Full RB Configuration)



Plot 7-96. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Proof to be part at (8) | MEASUREMENT REPORT (CERTIFICATION) | SAMSONO | Approved by: Quality Manager |
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| Test Report S/N: | Test Dates: | EUT Type: | | Dogo CE of 257 |
| 1M2005050082-03.A3L | 5/5 – 7/15/2020 | Portable Handset | | Page 65 of 357 |
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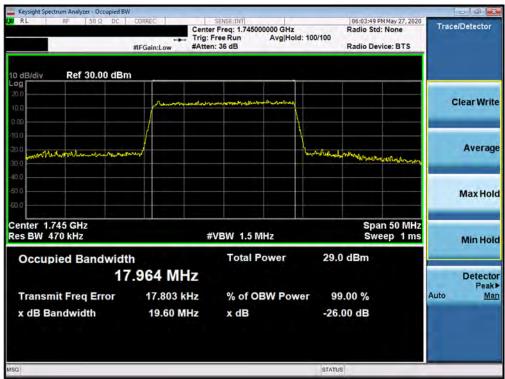
Plot 7-97. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-98. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | Proof to perf of (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|----------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 66 of 257 |
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Plot 7-99. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz 64-QAM - Full RB Configuration)

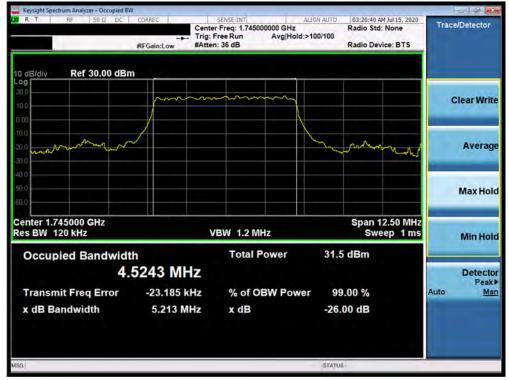


Plot 7-100. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz 256-QAM - Full RB Configuration)

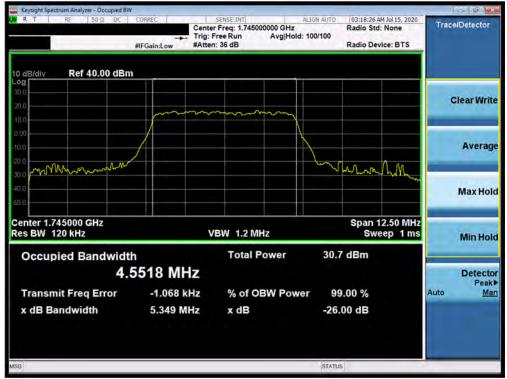
| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNC | Approved by: Quality Manager |
|---------------------|--------------------------------|------------------------------------|---------|---------------------------------|
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NR Band n66



Plot 7-101. Occupied Bandwidth Plot (n66 5MHz BPSK-DFT-s-OFDM - Full RB Configuration)



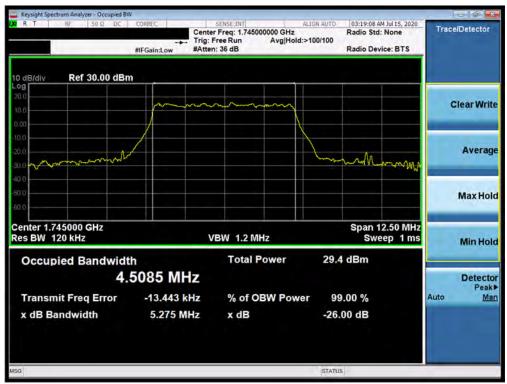
Plot 7-102. Occupied Bandwidth Plot (n66 5MHz QPSK-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMN981W | Proid to part of 6 | MEASUREMENT REPORT (CERTIFICATION) | Approved by: Quality Manager |
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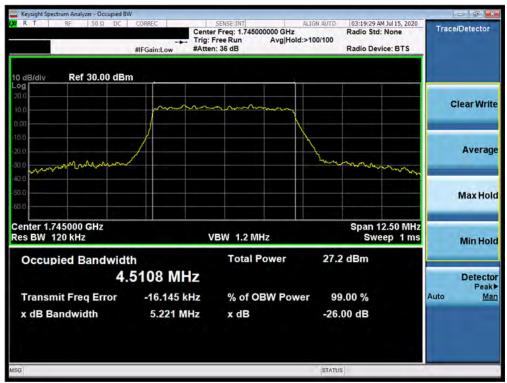
Plot 7-103. Occupied Bandwidth Plot (n66 5MHz 16QAM-CP-OFDM - Full RB Configuration)



Plot 7-104. Occupied Bandwidth Plot (n66 5MHz 64QAM-CP-OFDM- Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--------------------------------|---------------------------------------|---------|------------------------------|
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Plot 7-105. Occupied Bandwidth Plot (n66 5MHz 256QAM-CP-OFDM - Full RB Configuration)



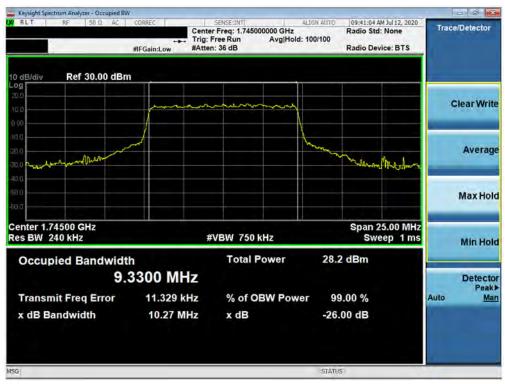
Plot 7-106. Occupied Bandwidth Plot (n66 10MHz BPSK-DFT-s-OFDM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be perfet (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 70 of 257 |
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Plot 7-107. Occupied Bandwidth Plot (n66 10MHz QPSK-CP-OFDM - Full RB Configuration)



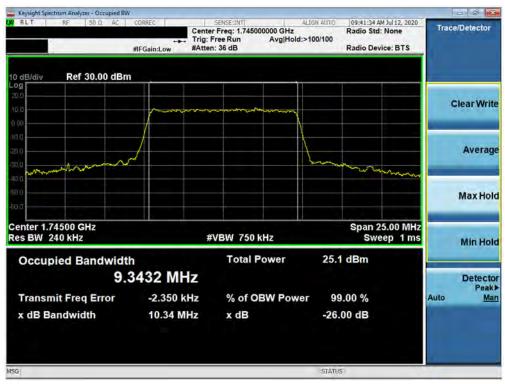
Plot 7-108. Occupied Bandwidth Plot (n66 10MHz 16QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Proof to be perfet @ | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-----------------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 74 of 257 |
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Plot 7-109. Occupied Bandwidth Plot (n66 10MHz 64QAM-CP-OFDM- Full RB Configuration)



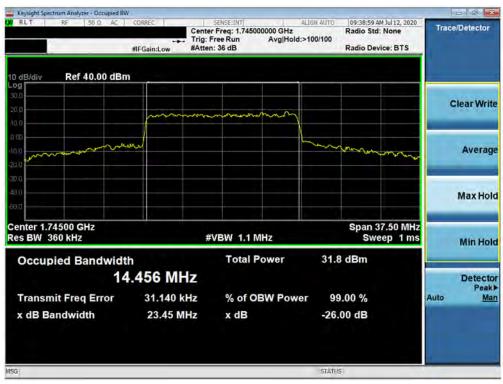
Plot 7-110. Occupied Bandwidth Plot (n66 10MHz 256QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--------------------------------|---------------------------------------|---------|------------------------------|
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Plot 7-111. Occupied Bandwidth Plot (n66 15MHz BPSK-DFT-s-OFDM - Full RB Configuration)



Plot 7-112. Occupied Bandwidth Plot (n66 15MHz QPSK-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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Plot 7-113. Occupied Bandwidth Plot (n66 15MHz 16QAM-CP-OFDM - Full RB Configuration)



Plot 7-114. Occupied Bandwidth Plot (n66 15MHz 64QAM-CP-OFDM- Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Proof to be perfet @ | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-----------------------------|------------------------------------|---------|------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 74 of 257 |
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Plot 7-115. Occupied Bandwidth Plot (n66 15MHz 256QAM-CP-OFDM - Full RB Configuration)



Plot 7-116. Occupied Bandwidth Plot (n66 20MHz BPSK-DFT-s-OFDM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--------------------------------|---------------------------------------|---------|------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 7F of 2F7 |
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Plot 7-117. Occupied Bandwidth Plot (n66 20MHz QPSK-CP-OFDM - Full RB Configuration)



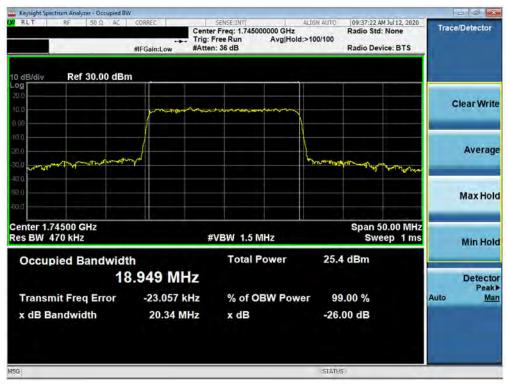
Plot 7-118. Occupied Bandwidth Plot (n66 20MHz 16QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--------------------------------|---------------------------------------|---------|---------------------------------|
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Plot 7-119. Occupied Bandwidth Plot (n66 20MHz 64QAM-CP-OFDM- Full RB Configuration)



Plot 7-120. Occupied Bandwidth Plot (n66 20MHz 256QAM-CP-OFDM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be perfet (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|-------------------------------|------------------------------------|---------|---------------------------------|
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Band 30



Plot 7-121. Occupied Bandwidth Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-122. Occupied Bandwidth Plot (Band 30 - 5.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--------------------------------|---------------------------------------|---------|------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 70 of 257 |
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Plot 7-123. Occupied Bandwidth Plot (Band 30 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-124. Occupied Bandwidth Plot (Band 30 - 5.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | Proof to part of (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|----------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 70 of 257 |
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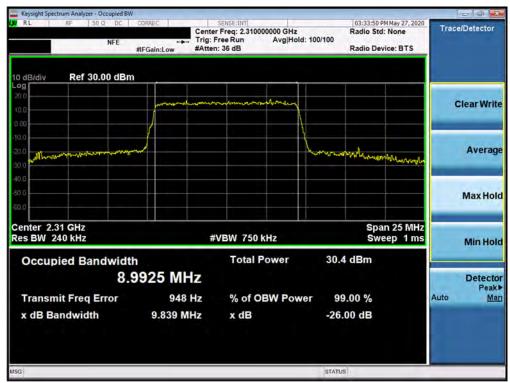
Plot 7-125. Occupied Bandwidth Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-126. Occupied Bandwidth Plot (Band 30 - 10.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | Proof to part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSONS | Approved by: Quality Manager |
|---------------------|----------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogg 00 of 257 |
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Plot 7-127. Occupied Bandwidth Plot (Band 30 - 10.0MHz 64-QAM - Full RB Configuration)



Plot 7-128. Occupied Bandwidth Plot (Band 30 - 10.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST* | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNC | Approved by: Quality Manager |
|---------------------|-----------------|------------------------------------|---------|---------------------------------|
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Band 7



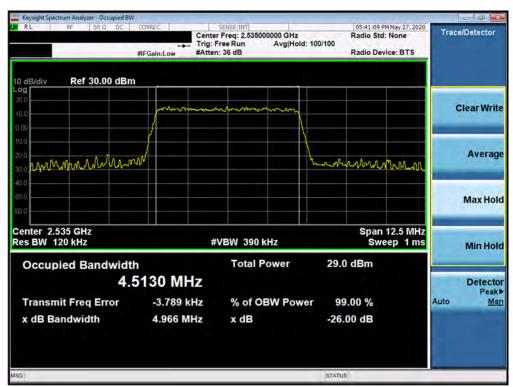
Plot 7-129. Occupied Bandwidth Plot (Band 7 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-130. Occupied Bandwidth Plot (Band 7 - 5.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | Proof for part of (8) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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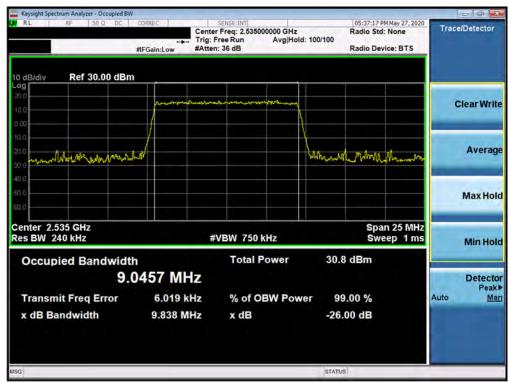
Plot 7-131. Occupied Bandwidth Plot (Band 7 - 5.0MHz 64-QAM - Full RB Configuration)



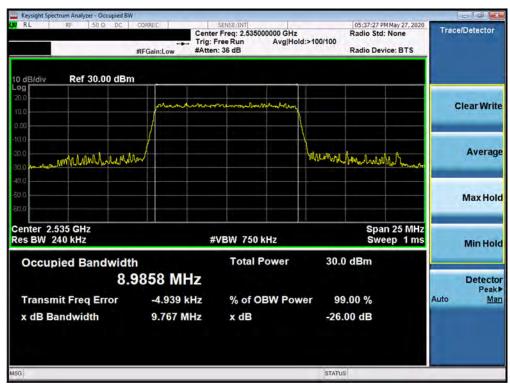
Plot 7-132. Occupied Bandwidth Plot (Band 7 - 5.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | Proof to perf of (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|----------------------|------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 02 of 257 |
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Plot 7-133. Occupied Bandwidth Plot (Band 7 - 10.0MHz QPSK - Full RB Configuration)



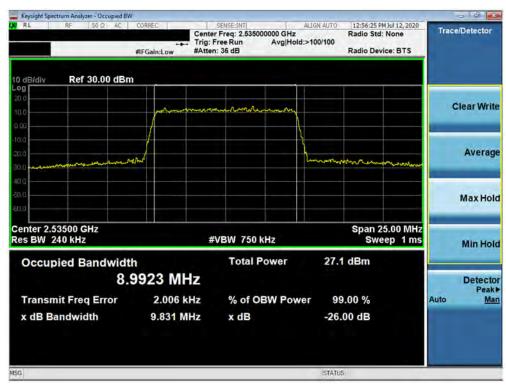
Plot 7-134. Occupied Bandwidth Plot (Band 7 - 10.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
|---------------------|--------------------------------|---------------------------------------|---------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 04 of 257 |
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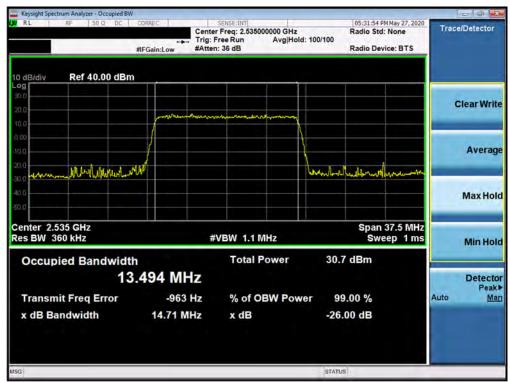
Plot 7-135. Occupied Bandwidth Plot (Band 7 - 10.0MHz 64-QAM - Full RB Configuration)



Plot 7-136. Occupied Bandwidth Plot (Band 7 - 10.0MHz 256-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | Proof to period (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSUNG | Approved by: Quality Manager |
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Plot 7-137. Occupied Bandwidth Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-138. Occupied Bandwidth Plot (Band 7 - 15.0MHz 16-QAM - Full RB Configuration)

| FCC ID: A3LSMN981W | PCTEST Prood to be part at (a) | MEASUREMENT REPORT (CERTIFICATION) | SAMSONS | Approved by: Quality Manager |
|---------------------|--------------------------------|---------------------------------------|---------|---------------------------------|
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