

PCTEST

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PART 27 C2PC TEST REPORT

Applicant Name:

Samsung Electronics Co., Ltd. 129, Samsung-ro, Yeongtong-gu, Suwon-si Gyeonggi-do, 16677, Korea

Date of Testing:

02/02/2022 – 02/28/2022 **Test Report Issue Date:** 02/28/2022 **Test Site/Location:** PCTEST Lab. Columbia, MD, USA **Test Report Serial No.:** 1M2202030011-03.A3L

FCC ID:

Applicant Name:

A3LSMS908E

Samsung Electronics Co., Ltd.

Application Type: Model: Additional Model(s): EUT Type: FCC Classification: FCC Rule Part: Test Procedure(s):

Class II Permissive Change: Original Grant Date: Class II Permissive Change SM-S908E/DS SM-S908E Portable Handset PCS Licensed Transmitter Held to Ear (PCE) 27 ANSI C63.26-2015, ANSI/TIA-603-E-2016, KDB 971168 D01 v03r01, KDB 648474 D03 v01r04 Please see FCC Documentation 01/07/2022

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.

Randy Ortanez President



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| | | | | EIRP | | |
|---------------|----------------------|----------|-----------------------------|-------------------|---------------------|------------------------|
| Mode Ba | Bandwidth Modulation | | Tx Frequency Range [MHz] | Max. Power [W] | Max. Power [dBm] | Emission Designator |
| | | π/2 BPSK | 2546.0 - 2640.0 | 0.163 | 22.13 | 96M9G7D |
| | 100 MHz | QPSK | 2546.0 - 2640.0 | 0.145 | 21.60 | 97M8G7D |
| | | 16QAM | 2546.0 - 2640.0 | 0.126 | 21.01 | 97M8W7D |
| | | π/2 BPSK | 2541.0 - 2645.0 | 0.172 | 22.36 | 86M9G7D |
| | 90 MHz | QPSK | 2541.0 - 2645.0 | 0.149 | 21.72 | 87M7G7D |
| | | 16QAM | 2541.0 - 2645.0 | 0.131 | 21.16 | 87M6W7D |
| | 80 MHz | π/2 BPSK | 2536.0 - 2650.0 | 0.167 | 22.23 | 77M2G7D |
| | | QPSK | 2536.0 - 2650.0 | 0.135 | 21.30 | 77M5G7D |
| | | 16QAM | 2536.0 - 2650.0 | 0.111 | 20.44 | 77M4W7D |
| | 60 MHz | π/2 BPSK | 2526.0 - 2660.0 | 0.145 | 21.61 | 58M0G7D |
| | | QPSK | 2526.0 - 2660.0 | 0.144 | 21.60 | 58M1G7D |
| NR Band n41 | | 16QAM | 2526.0 - 2660.0 | 0.124 | 20.92 | 58M1W7D |
| INR Danu 14 I | 50 MHz | π/2 BPSK | 2521.0 - 2665.0 | 0.164 | 22.15 | 45M9G7D |
| | | QPSK | 2521.0 - 2665.0 | 0.139 | 21.42 | 47M8G7D |
| | | 16QAM | 2521.0 - 2665.0 | 0.113 | 20.52 | 47M8W7D |
| | | π/2 BPSK | 2516.0 - 2670.0 | 0.175 | 22.44 | 36M1G7D |
| | 40 MHz | QPSK | 2516.0 - 2670.0 | 0.140 | 21.47 | 38M0G7D |
| | | 16QAM | 2516.0 - 2670.0 | 0.116 | 20.65 | 38M0W7D |
| | | π/2 BPSK | 2511.0 - 2675.0 | 0.155 | 21.91 | 27M0G7D |
| | 30 MHz | QPSK | 2511.0 - 2675.0 | 0.143 | 21.54 | 28M0G7D |
| | | 16QAM | 2511.0 - 2675.0 | 0.125 | 20.97 | 28M0W7D |
| | | π/2 BPSK | 2506.0 - 2680.0 | 0.167 | 22.22 | 18M0G7D |
| | 20 MHz | QPSK | 2506.0 - 2680.0 | 0.148 | 21.70 | 18M4G7D |
| | | 16QAM | 2506.0 - 2680.0 | 0.113 | 20.52 | 18M4W7D |

EUT Overview

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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 Engineering Laboratory, Inc. 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

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

- PCTEST is an ISO 17025-2017 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** : **A3LSMS908E**. The test data contained in this report pertains only to the emissions due to the EUT's licensed transmitters that operate under the provisions of Part 27.

Test Device Serial No.: 6044M, 0090V, 0105V, 6048M

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, 5G NR (FR1), 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII (5GHz), Bluetooth (1x, EDR, LE), NFC, Wireless Power Transfer, Ultra Wideband

The device has 1 Tx antenna for n41 data (Ant J) and 3 Rx antennas (Ant B, D, E). With SRS operations, all 4 antennas can transmit the SRS signal to check for the channel quality of n41. The antennas cannot simultaneously transmit. Only the single TX/RX antenna is used for Data transmission.

2.3 Test Configuration

The EUT was tested per the guidance of ANSI/TIA-603-E-2016 and KDB 971168 D01 v03r01. See Section 3.4 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 Evaluation Procedure

The measurement procedures described in the "Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards" (ANSI/TIA-603-E-2016) and "Measurement Guidance for Certification of Licensed Digital Transmitters" (KDB 971168 D01 v03r01) were used in the measurement of the EUT.

Deviation from Measurement Procedure.....None

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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.

For radiated power measurements, substitution method is used per the guidance of ANSI/TIA-603-E-2016. A halfwave dipole is 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].

For radiated spurious emissions measurements and calculations, conversion method is used per the formulas in KDB 971168 Section 5.8.4. Field Strength (EIRP) is calculated using the following formulas:

 $E_{[dB\muV/m]}$ = Measured amplitude level_[dBm] + 107 + Cable Loss_[dB] + Antenna Factor_[dB/m] And EIRP_[dBm] = $E_{[dB\muV/m]}$ + 20logD – 104.8; where D is the measurement distance in meters.

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 414788 D01 v01r01.

Radiated power and radiated spurious emission levels are investigated with the receive antenna horizontally and vertically polarized per ANSI/TIA-603-E-2016.

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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 |
|-----------------------|------------|--------------------------------|------------|--------------|------------|---------------|
| - | AP2 | EMC Cable and Switch System | 3/4/2021 | Annual | 3/4/2022 | AP2 |
| - | AP1 | EMC Cable and Switch System | 3/9/2021 | Annual | 3/9/2022 | AP1 |
| - | ETS | EMC Cable and Switch System | 3/4/2021 | Annual | 3/4/2022 | ETS |
| - | LTx3 | LIcensed Transmitter Cable Set | 2/26/2021 | Annual | 2/26/2022 | LTx3 |
| - | LTx4 | Licensed Transmitter Cable Set | 3/12/2021 | Annual | 3/12/2022 | LTx4 |
| Emco | 3115 | Horn Antenna (1-18GHz) | 6/18/2020 | Biennial | 6/18/2022 | 9704-5182 |
| Espec | ESX-2CA | Environmental Chamber | 8/27/2020 | Annual | 8/27/2022 | 17620 |
| ETS Lindgren | 3117 | 1-18 GHz DRG Horn (Medium) | 4/20/2021 | Biennial | 4/20/2023 | 00125518 |
| ETS Lindgren | 3164-08 | Quad Ridge Horn Antenna | 3/12/2020 | Biennial | 3/12/2022 | 128337 |
| ETS Lindgren | 3816/2NM | LISN | 7/9/2020 | Biennial | 7/9/2022 | 00114451 |
| Mini-Circuits | SSG-4000HP | Synthesized Signal Generator | | N/A | | 11208010032 |
| Mini-Circuits | SSG-4000HP | Synthesized Signal Generator | | N/A | | 11403100002 |
| Sunol | JB5 | Bi-Log Antenna (30M - 5GHz) | 7/27/2020 | Biennial | 7/27/2022 | A051107 |
| Sunol | JB6 | LB6 Antenna | 11/13/2020 | Biennial | 11/13/2022 | A082816 |
| Keysight Technologies | N9038A | MXE EMI Receiver | 1/21/2022 | Annual | 1/21/2023 | MY51210133 |
| Rohde & Schwarz | ESU26 | EMI Test Receiver (26.5GHz) | 8/3/2021 | Annual | 8/3/2022 | 100342 |

Table 5-1. Test Equipment

Notes:

- 1. 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

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

Example: Spurious emission at 3700.40 MHz

The receive 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 3700.40 MHz. So 6.1 dB is added to the signal generator reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.50 dBm so this harmonic was 25.50 dBm -(-24.80) = 50.3 dBc.

| FCC ID: A3LSMS908E | Potest* | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
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7.0 TEST RESULTS

7.1 Summary

| Company Name: | Samsung Electronics Co., Ltd. |
|---------------------|--|
| FCC ID: | A3LSMS908E |
| FCC Classification: | PCS Licensed Transmitter Held to Ear (PCE) |
| Mode(s): | LTE/NR |

| Test Condition | Test Description | FCC Part Section(s) | Test Limit | Test Result | Reference |
|-------------------|--|----------------------|--|-------------|----------------------|
| | Transmitter Conducted Output Power* | 2.1046(a), 2.1046(c) | N/A | PASS | Section 7.2 |
| CONDUCTED | Occupied Bandwidth | 2.1049(h) | N/A | PASS | Section 7.3 |
| CONDI | Conducted Band Edge / Spurious Emissions | 2.1051, 27.53(m)(4) | Undesirable emissions must meet the limits detailed in 27.53(m)(4) | PASS | Sections 7.4, 7.5 |
| | Frequency Stability | 2.1055, 27.54 | Fundamental emissions stay within authorized frequency block | PASS | Section 7.8 |
| RADIATED | Equivalent Isotropic Radiated Power | 27.50(h)(2) | ≤ 2 Watts max. EIRP | PASS | Section 7.6 |
| RADI | Radiated Spurious Emissions | 2.1053, 27.53(m) | Undesirable emissions must meet the limits detailed in 27.53(m) | PASS | Section 7.7 |

* The only transmitter output conducted powers included in this report are those where the Pmax value, per the tune-up document, is higher than any of the DSI power levels. For the remaining conducted power measurements, see the **RF Exposure Report**.

Table 7-1. Summary of Test Results (FCC)

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 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) All conducted emissions measurements are performed with automated test software to capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST EMC Software Tool v1.1.

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7.2 Conducted Power Output Data §2.1046

Test Overview

The EUT is set up to transmit at maximum power. All power levels are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Procedure Used

KDB 971168 D01 v03r01 - Section 6.0

Test Settings

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

Test Setup

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



Figure 7-1. Test Instrument & Measurement Setup

Test Notes:

- 1. Conducted power measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device.
- 2. All other conducted power measurements are contained in the RF exposure report for this filing.

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| Bandwidth | Modulation | Channel | Frequency [MHz] | RB Size/Offset | Conducted Power [dBm] |
|-----------|------------|------------------|--------------------|--------------------|--------------------------|
| | | 509202 | 2546.0 | 1 / 204 | 23.61 |
| 100 MHz | π/2 BPSK | 518598 | 2593.0 | 1 / 204 | 23.86 |
| | | 528000 | 2640.0 | 1 / 204 | 24.10 |
| | QPSK | 509202 | 2546.0 | 1 / 204 | 23.73 |
| 10 | | 518598 | 2593.0 | 1 / 204 | 23.98 |
| | | 528000 | 2640.0 | 1 / 204 | 24.17 |
| | 16-QAM | 518598 | 2593.0 | 1 / 204 | 23.41 |
| | | 508200 | 2541.0 | 1 / 183 | 24.01 |
| N | π/2 BPSK | 518592 | 2593.0 | 1 / 183 | 24.09 |
| Ĥ | - | 529002 | 2645.0 | 1 / 122 | 23.92 |
| 90 MHz | 0001/ | 508200 | 2541.0 | 1 / 183 | 23.72 |
| | QPSK | 518592 | 2593.0 | 1 / 183 | 24.10 |
| | 40.0414 | 529002 | 2645.0 | 1 / 122 | 24.35 |
| | 16-QAM | 518592 | 2593.0 | 1 / 183 | 23.56 |
| | | 507204 | 2536.0 | 1 / 162 | 23.81 |
| N | π/2 BPSK | 518598 | 2593.0 | 1 / 162 | 23.96 |
| Ë | | 529998 | 2650.0 | 1 / 162 | 24.29 |
| 80 MHz | 0001/ | 507204 | 2536.0 | 1 / 162 | 23.56 |
| 80 | QPSK | 518598 | 2593.0 | 1 / 162 | 23.68 |
| | 10 0014 | 529998 | 2650.0 | 1 / 162 1 / 162 | 24.09 |
| | 16-QAM | 518598 505200 | 2593.0 | | 22.84 |
| 60 MHz | π/2 BPSK | 518598 | 2526.0 2593.0 | 1 / 121 1 / 121 | 23.10 |
| | T/2 BPSK | 531996 | 2660.0 | | 23.34 23.77 |
| | QPSK | 505200 | 2526.0 | 1 / 121 1 / 121 | 23.62 |
| | | - | 2526.0 | | |
| | | 518598 531996 | 2660.0 | 1 / 121 | 23.98 |
| | 16-QAM | 518598 | 2593.0 | 1 / 121 1 / 121 | 24.42 23.32 |
| | 10-02-101 | 504204 | 2521.0 | 1/99 | 23.73 |
| | π/2 BPSK | 518598 | 2593.0 | 1/99 | 23.87 |
| N | | 532998 | 2665.0 | 1 / 99 | 24.20 |
| 50 MHz | QPSK | 504204 | 2521.0 | 1 / 99 | 23.67 |
| 20 | | 518598 | 2593.0 | 1 / 99 | 23.80 |
| | | 532998 | 2665.0 | 1 / 99 | 24.01 |
| | 16-QAM | 518598 | 2593.0 | 1 / 99 | 22.92 |
| | | 503202 | 2516.0 | 1 / 26 | 23.98 |
| | π/2 BPSK | 518598 | 2593.0 | 1 / 26 | 24.17 |
| 우 | | 534000 | 2670.0 | 1 / 26 | 24.37 |
| ž | | 503202 | 2516.0 | 1 / 26 | 23.80 |
| 40 | QPSK | 518598 | 2593.0 | 1 / 26 | 23.85 |
| | | 534000 | 2670.0 | 1 / 26 | 24.29 |
| | 16-QAM | 518598 | 2593.0 | 1 / 26 | 23.05 |
| | | 502203 | 2511.0 | 1 / 39 | 23.35 |
| | π/2 BPSK | 518598 | 2593.0 | 1 / 39 | 23.64 |
| Ŧ | | 534999 | 2675.0 | 1 / 39 | 24.39 |
| 30 MHz | | 502203 | 2511.0 | 1 / 39 | 23.79 |
| 30 | QPSK | 518598 | 2593.0 | 1 / 39 | 23.92 |
| | | 534999 | 2675.0 | 1 / 39 | 24.40 |
| | 16-QAM | 518598 | 2593.0 | 1 / 39 | 23.37 |
| | | 501204 | 2506.0 | 1 / 25 | 23.30 |
| | π/2 BPSK | 518598 | 2593.0 | 1 / 13 | 23.95 |
| Hz | | 535998 | 2680.0 | 1 / 13 | 24.45 |
| 20 MHz | | 501204 | 2506.0 | 1 / 25 | 23.69 |
| 20 | QPSK | 518598 | 2593.0 | 1 / 13 | 24.08 |
| | | 535998 | 2680.0 | 1 / 13 | 24.32 |
| | 16-QAM | 518598 | 2593.0 | 1 / 13 | 22.92 |

Table 7-1. Conducted Power Output Data (n41 – ANT J)

| FCC ID: A3LSMS908E | | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|-------------------------|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Page 13 of 85 |
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| Bandwidth | Modulation | Channel | Frequency [MHz] | RB Size/Offset | Conducted Power [dBm] |
|-----------|------------|---------|--------------------|-------------------|--------------------------|
| | | 509202 | 2546.0 | 1 / 136 | 22.23 |
| | π/2 BPSK | 518598 | 2593.0 | 1 / 204 | 22.33 |
| MHz | | 528000 | 2640.0 | 1 / 204 | 22.36 |
| 0 | | 509202 | 2546.0 | 1 / 136 | 22.27 |
| | QPSK | 518598 | 2593.0 | 1 / 204 | 22.37 |
| | | 528000 | 2640.0 | 1 / 204 | 22.36 |
| | 16-QAM | 518598 | 2593.0 | 1 / 204 | 21.50 |

Table 7-2. Conducted Power Output Data (n41 SRS2 – ANT B)

| | Bandwidth | Modulation | Channel | Frequency [MHz] | RB Size/Offset | Conducted Power [dBm] |
|--|-----------|------------|---------|--------------------|-------------------|--------------------------|
| | | | 510000 | 2550.0 | 1 / 68 | 18.97 |
| | 100 MHz | π/2 BPSK | 518598 | 2593.0 | 1 / 68 | 18.40 |
| | | | 528000 | 2640.0 | 1 / 68 | 17.82 |
| | | | 510000 | 2550.0 | 1 / 68 | 18.99 |
| | | QPSK | 518598 | 2593.0 | 1 / 68 | 18.68 |
| | | | 528000 | 2640.0 | 1 / 68 | 18.13 |
| | | 16-QAM | 510000 | 2550.0 | 1 / 68 | 18.04 |

Table 7-3. Conducted Power Output Data (n41 SRS3 – ANT E)

| Bandwidth | Modulation | Channel | Frequency [MHz] | RB Size/Offset | Conducted Power [dBm] |
|-----------|------------|---------|--------------------|-------------------|--------------------------|
| | | 510000 | 2550.0 | 1 / 204 | 20.97 |
| 100 MHz | π/2 BPSK | 518598 | 2593.0 | 1 / 204 | 21.00 |
| | | 528000 | 2640.0 | 1 / 204 | Power [dBm] 20.97 |
| | QPSK | 510000 | 2550.0 | 1 / 204 | 21.32 |
| | | 518598 | 2593.0 | 1 / 204 | 21.34 |
| | | 528000 | 2640.0 | 1 / 204 | 21.44 |
| | 16-QAM | 518598 | 2593.0 | 1 / 204 | 20.19 |

Table 7-4. Conducted Power Output Data (n41 SRS4 – ANT D)

| FCC ID: A3LSMS908E | PCTEST. Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|--|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dage 14 of 95 |
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7.3 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 x 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 7-2. Test Instrument & Measurement Setup

Test Notes

None.

| FCC ID: A3LSMS908E | PCTEST. Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager | |
|---------------------|--|--|-----------------------------------|--|
| Test Report S/N: | Test Dates: | EUT Type: | Page 15 of 85 | |
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Plot 7-5. Occupied Bandwidth Plot (NR Band n41 - 100MHz π/2 BPSK - Full RB - AntJ)



Plot 7-6. Occupied Bandwidth Plot (NR Band n41 - 100MHz QPSK - Full RB - AntJ)

| FCC ID: A3LSMS908E | | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|-------------------------|--|---------|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 16 of 95 |
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| Eysight Spectrum Analyzer - Occupied BW | | | | |
|---|--|------------------------------------|-------------------|-----------------|
| XX RL RF 50 Ω DC CORREC | SENSE:INT Center Freg: 2.593000000 GH | | M Feb 17, 2022 | Trace/Detector |
| | Trig: Free Run Avg H | old: 100/100 | | |
| #IFGain:Low | #Atten: 20 dB | Radio Dev | vice: BTS | |
| | | | | |
| 10 dB/div Ref 40.00 dBm | | _ | | |
| Log 30.0 | | | | |
| 20.0 | | | | Clear Write |
| 10.0 mm.e | and the second and th | ~ | | |
| | | | | |
| 0.00 | | | | Average |
| -10.0 | | | | Average |
| -20.0 | | " Wood the way all the approved by | mar A. | |
| -30.0 | | | and second second | |
| -40.0 | | | | Max Hold |
| -50.0 | | | | |
| Center 2.5930 GHz | | Span 3 | 250.0 MHz | |
| Res BW 2.4 MHz | #VBW 8 MHz | Swe | eep 1 ms | Min Hold |
| | | | <u> </u> | MILLHOID |
| Occupied Bandwidth | Total Power | 29.8 dBm | | |
| 97.758 M | H7 | | | Detector |
| | | | | Peak▶ |
| Transmit Freq Error -124.48 | kHz % of OBW Po | wer 99.00 % | | Auto <u>Man</u> |
| x dB Bandwidth 103.3 I | MHz xdB | -26.00 dB | | |
| | | | | |
| | | | | |
| | | | | |
| MSG | | STATUS | | |

Plot 7-7. Occupied Bandwidth Plot (NR Band n41 - 100MHz 16-QAM - Full RB - AntJ)



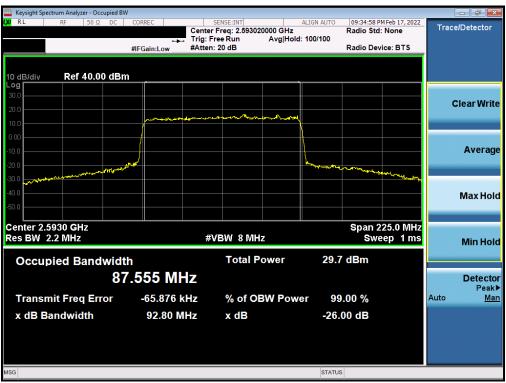
Plot 7-8. Occupied Bandwidth Plot (NR Band n41 - 90MHz π/2 BPSK - Full RB - AntJ)

| FCC ID: A3LSMS908E | PCTEST Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|---|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Page 17 of 85 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | Fage 17 01 05 |
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| 🔤 Keysight Spectrum Analyzer - Occupied | BW | | | | | |
|---|----------------|----------------------------|--|-----------------------------------|-------|-------------------|
| <mark>(XI</mark> RL RF 50Ω DC | CORREC | SENSE:INT | ALIGN AUTO | 09:35:09 PM Feb Radio Std: Nor | | Trace/Detector |
| | Laper Tr | ig: Free Run | Avg Hold: 100/100 | | | |
| | #IFGain:Low #A | tten: 20 dB | | Radio Device: I | BTS | |
| | | | | | | |
| 10 dB/div Ref 40.00 dE | 3m | | | | | |
| Log 30.0 | | | | | | |
| 20.0 | | | | | | Clear Write |
| 10.0 | monsola | ware and the second second | ~~~~~ | | | |
| 0.00 | | | | | | |
| -10.0 | | | ł | | | Average |
| -20.0 | | | | | | Average |
| an automation in | | | a state of the sta | man the other | ~m | |
| -30.0 | | | | | | |
| -40.0 | | | | | | Max Hold |
| -50.0 | | | | | | |
| Center 2.5930 GHz | | I | | Span 225.0 | 0 MHz | |
| Res BW 2.2 MHz | | #VBW 8 MHz | 2 | Sweep | | Min Hold |
| | | | | | | inititiona |
| Occupied Bandwic | | Total Po | ower 30.1 | l dBm | | |
| 8 | 7.661 MHz | | | | | Detector |
| Tranomit Frag Error | -111.15 kHz | % of OB | W Power 99 | 9.00 % | | Peak► Auto Man |
| Transmit Freq Error | | | | | í l | |
| x dB Bandwidth | 92.98 MHz | x dB | -26. | 00 dB | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| MSG | | | STATUS | S | | |

Plot 7-9. Occupied Bandwidth Plot (NR Band n41 - 90MHz QPSK - Full RB - AntJ)



Plot 7-10. Occupied Bandwidth Plot (NR Band n41 - 90MHz 16-QAM - Full RB - AntJ)

| FCC ID: A3LSMS908E | PCTEST. Proud to be part of @element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|---|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Page 18 of 85 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | Fage to 01 00 |
| © 2022 PCTEST | | | V3.0 1/6/2022 |



| Keysight Spectrum Analyzer - Occupied B | W | | | | | |
|---|-------------|-----------------------------------|-------------------|-----------------------------|--------------------|------------------|
| <mark>(X</mark> RL RF 50Ω DC | CORREC | SENSE:INT Center Freg: 2.59302 | ALIGN AUTO | 09:36:11 PM Radio Std: 1 | | Trace/Detector |
| | - - | Trig: Free Run | Avg Hold: 100/100 | | | |
| | #IFGain:Low | #Atten: 20 dB | | Radio Devid | e: BTS | |
| | | | | | | |
| 10 dB/div Ref 40.00 dBr | n | | | | | |
| Log 30.0 | | | | | | |
| 20.0 | | | | | | Clear Write |
| | how | mannen | homen | | | |
| 10.0 | | | | | | |
| 0.00 | | | | | | • |
| -10.0 | | | | | | Average |
| -20.0 | hand | | | | | |
| -30.0 | | | | - marine | - Maria | |
| -40.0 | | | | | | Max Hold |
| -50.0 | | | | | | |
| | | | | 0 | 0-0 B4U | |
| Center 2.5930 GHz Res BW 1.8 MHz | | #VBW 6 MH: | 7 | | 0.0 MHz ep 1 ms | |
| | | #VDVV 014111 | 2 | James | sp Tins | Min Hold |
| Occupied Bandwid | th | Total P | ower 31. | 9 dBm | | |
| | 7.170 MH | _ | | | | Detecto |
| | | 2 | | | | Detector Peak |
| Transmit Freq Error | -68.796 kH | z % of OE | SW Power 99 | 9.00 % | | Auto <u>Mar</u> |
| x dB Bandwidth | 81.52 MF | lz xdB | -26 | .00 dB | | |
| | 0 113/2-101 | | | .00 08 | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| MSG | | | STATU | IS | | |

Plot 7-11. Occupied Bandwidth Plot (NR Band n41 - 80MHz π/2 BPSK - Full RB - AntJ)



Plot 7-12. Occupied Bandwidth Plot (NR Band n41 - 80MHz QPSK - Full RB - AntJ)

| FCC ID: A3LSMS908E | | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|-------------------------|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Page 19 of 85 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | Page 19 01 05 |
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| Keysight Spectrum Analyzer - Occupied BV | V | | | | | | |
|--|------------------|-----------------------------------|---------------------|-------------------------|------------------|-------|------------|
| LXI RL RF 50Ω DC | CORREC | SENSE:INT Center Freg: 2.59302 | ALIGN AUT | 09:36:41 P Radio Std | M Feb 17, 2022 | Trace | /Detector |
| | - - | Trig: Free Run | Avg Hold:>100/100 | | | | |
| | #IFGain:Low | #Atten: 20 dB | | Radio Dev | ice: BTS | | |
| | | | | | | | |
| 10 dB/div Ref 40.00 dBn | n | | | | | | |
| Log 30.0 | | | | | | | |
| 20.0 | | | | | | С | lear Write |
| 10.0 | manner | when and the second second | man with the second | | | _ | |
| 0.00 | | | | | | | |
| | | | | | | | Average |
| -10.0 | | | | | | | Average |
| -20.0 | w ^{rev} | | | www. www. | The transfer the | | |
| -30.0 Vincentrantinger 40.00 | | | | | - 19 M | | |
| -40.0 | | | | | | | Max Hold |
| -50.0 | | | | | | | |
| Center 2.5930 GHz | | | | Span 2 | 00.0 MHz | | |
| Res BW 1.8 MHz | | #VBW 6 MH | Z | | ep 1 ms | | Min Hold |
| | | | | | | | Millinoid |
| Occupied Bandwidt | h | Total P | ower 29 | .9 dBm | | | |
| 77 | 7.410 MH | Z | | | | | Detector |
| | | | | | | | Peak► |
| Transmit Freq Error | -94.952 kl | HZ % of OI | BW Power | 99.00 % | | Auto | Man |
| x dB Bandwidth | 82.16 MI | Hz xdB | -2 | 6.00 dB | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| MSG | | | STA | TUS | | | |

Plot 7-13. Occupied Bandwidth Plot (NR Band n41 - 80MHz 16-QAM - Full RB - AntJ)



Plot 7-14. Occupied Bandwidth Plot (NR Band n41 - 60MHz π/2 BPSK - Full RB - AntJ)

| FCC ID: A3LSMS908E | Poul to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager | |
|---------------------|------------------------------|--|-----------------------------------|--|
| Test Report S/N: | Test Dates: | EUT Type: | Dage 20 of 95 | |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | Page 20 of 85 | |
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| Keysight Spectrum Analyzer - Occupied BW | | | | |
|--|---|----------------------------------|-----------------|-----------------|
| IXI RL RF 50 Ω DC CORREC | SENSE:INT Center Freg: 2.593020000 GHz | ALIGN AUTO 09:37:26 Radio Sto | PM Feb 17, 2022 | Trace/Detector |
| | Trig: Free Run Avg Hold | : 100/100 | | |
| #IFGain:Low | #Atten: 20 dB | Radio De | vice: BTS | |
| | | | | |
| 10 dB/div Ref 40.00 dBm | | | | |
| Log 30.0 | | | | |
| 20.0 | | | | Clear Write |
| | and the south and the second | | | |
| 10.0 | | | | |
| | | | | A.v.o.v.o.v.o. |
| -10.0 | | 1 | | Average |
| -20.0 -30.0 ministration | | hand have the work | Walsh war | |
| -30.0 | | | | |
| -40.0 | | | | Max Hold |
| -50.0 | | | | |
| Center 2.59302 GHz | | | 150.0 MHz | |
| Res BW 1.5 MHz | #VBW 5 MHz | | eep 1 ms | Min Hala |
| | | | cob | Min Hold |
| Occupied Bandwidth | Total Power | 30.0 dBm | | |
| 58.074 MI | 7 | | | Detector |
| | 12- | | | Peak► |
| Transmit Freq Error -41.554 | (Hz % of OBW Pow | er 99.00 % | | Auto <u>Man</u> |
| x dB Bandwidth 61.87 N | IHz x dB | -26.00 dB | | |
| | | | | |
| | | | | |
| | | | | |
| MSG | | STATUS | | |

Plot 7-15. Occupied Bandwidth Plot (NR Band n41 - 60MHz QPSK - Full RB - AntJ)



Plot 7-16. Occupied Bandwidth Plot (NR Band n41 - 60MHz 16-QAM - Full RB - AntJ)

| FCC ID: A3LSMS908E | Poud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager | |
|---------------------|------------------------------|--|-----------------------------------|--|
| Test Report S/N: | Test Dates: | EUT Type: | Dage 21 of 95 | |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | Page 21 of 85 | |
| © 2022 PCTEST | • | • | V3.0 1/6/2022 | |



| Keysight Spectrum Analyzer - | Occupied BW | V | | | | |
|--|-------------|--------------------|--|---|--|-----------------|
| RL RF 5 | DΩ DC | CORREC ↔ | SENSE:INT Center Freq: 2.59302 Trig: Free Run #Atten: 30 dB | ALIGN AUTO 0000 GHz Avg Hold: 100/100 | 09:39:40 PM Feb 17, 2022 Radio Std: None Radio Device: BTS | Trace/Detector |
| . og 30.0 | 0.00 dBn | | | | | Clear Writ |
| 20.0 | | | | | | Averag |
| 0.0 | | | | | | Max Ho |
| enter 2.59302 GHz es BW 1.2 MHz Occupied Bar | | h | #VBW 4 MH: Total P | | Span 125.0 MHz Sweep 1 ms 2 dBm | Min Ho |
| | 45 | 5.850 M | Hz | | | Detect Peal |
| Transmit Freq B x dB Bandwidth | | -883.86 49.06 M | | | 0.00 % 00 dB | Auto <u>M</u> i |
| G | | | | STATU | 3 | |

Plot 7-17. Occupied Bandwidth Plot (NR Band n41 - 50MHz π/2 BPSK - Full RB - AntJ)



Plot 7-18. Occupied Bandwidth Plot (NR Band n41 - 50MHz QPSK - Full RB - AntJ)

| FCC ID: A3LSMS908E | PCTEST Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager | |
|---------------------|---|--|-----------------------------------|--|
| Test Report S/N: | Test Dates: | EUT Type: | Dage 22 of 95 | |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | Page 22 of 85 | |
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| 🔤 Keysight Spectrum Analyzer - Occup | • | | | | | | × |
|--------------------------------------|--------------|---------------------------------------|-------------------|----------------------------------|-----------------|---------------|--------------|
| LXI R L RF 50 Ω | DC CORREC | SENSE:INT Center Freg: 2.59302 | ALIGN AUTO | 09:40:13 PM Feb Radio Std: No | | Trace/Detecto | or |
| | #IEGain:Low | | Avg Hold: 100/100 | Radio Device: | | | |
| | #IFGain:Low | #Atten: 30 ab | | Raulo Device. | | | |
| 10 dB/div Ref 40.00 | dBm | | | | | | |
| Log 30.0 | | | | | | | |
| 20.0 | | | | | | Clear W | rite |
| 10.0 | monte | ₩₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽ | landary | | | | |
| 0.00 | | | | | | | |
| -10.0 | | | | | | Avera | age |
| -20.0 | ~ market | | - Marine | when the second | | | |
| -30.0 - Marine Marine | | | | | - and and and a | | |
| -40.0 | | | | | | MaxH | lold |
| -50.0 | | | | | | | |
| Center 2.59302 GHz | | | | Span 125. | 0.MHz | | |
| Res BW 1.2 MHz | | #VBW 4 MH: | 2 | Sweep | 1 ms | Min H | blo |
| | | Total P | 20.0 | dBm | | | |
| Occupied Bandw | | | ower 29.9 | abm | | | |
| | 47.762 MH | Z | | | | Detec | ctor ak ▶ |
| Transmit Freq Erro | or 36.789 kl | Hz % of OE | 3W Power 99 | .00 % | | | Man |
| x dB Bandwidth | 50.81 MI | Hz xdB | -26. | 00 dB | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| MSG | | | STATUS | 3 | | | |

Plot 7-19. Occupied Bandwidth Plot (NR Band n41 - 50MHz 16-QAM - Full RB - AntJ)



Plot 7-20. Occupied Bandwidth Plot (NR Band n41 - 40MHz π/2 BPSK - Full RB - AntJ)

| FCC ID: A3LSMS908E | PCTEST Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager | |
|---------------------|---|--|-----------------------------------|--|
| Test Report S/N: | Test Dates: | EUT Type: | Dage 22 of 95 | |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | Page 23 of 85 | |
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| 🔤 Keysight Spectrum Analyzer - Occupied B | | | | | | | |
|---|-------------|-----------------------------------|-------------------|-----------------------------------|-------|---------|-----------|
| LXI RL RF 50Ω DC | CORREC | SENSE:INT Center Freq: 2.59302 | ALIGN AUTO | 09:41:13 PM Feb Radio Std: Nor | | Trace/D | etector |
| | ••• | Trig: Free Run | Avg Hold: 100/100 | | | | |
| | #IFGain:Low | #Atten: 30 dB | | Radio Device: | BTS | | |
| | | | | | | | |
| 10 dB/div Ref 40.00 dBi | m | | | | | | |
| 30.0 | | | | | | | |
| 20.0 | | | | | | Cle | ar Write |
| 10.0 | mennen | man marine and a man | money | | | | |
| 0.00 | ļ i | | | | | | |
| -10.0 | | | | | | | Average |
| | | | | | | | Average |
| -20.0 | - 47 | | | mash and water | when | | |
| -30.0 | | | | | | | |
| -40.0 | | | | | | N | lax Hold |
| -50.0 | | | | | | | |
| Center 2.59302 GHz | | | | Span 100. | 0 MHz | | |
| Res BW 910 kHz | | #VBW 3 MH: | Z | Sweep | 1 ms | Ν | /lin Hold |
| | | | | | | | intriord |
| Occupied Bandwid | th | Total P | ower 30.3 | dBm | | | |
| 3 | 7.997 MH | Z | | | | [| Detector |
| | | | | | | | Peak▶ |
| Transmit Freq Error | -64.138 kH | Iz % of OE | 3W Power 99 | .00 % | | Auto | Man |
| x dB Bandwidth | 40.92 MF | lz xdB | -26. | 00 dB | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| MSG | | | STATUS | 3 | | | |

Plot 7-21. Occupied Bandwidth Plot (NR Band n41 - 40MHz QPSK - Full RB - AntJ)



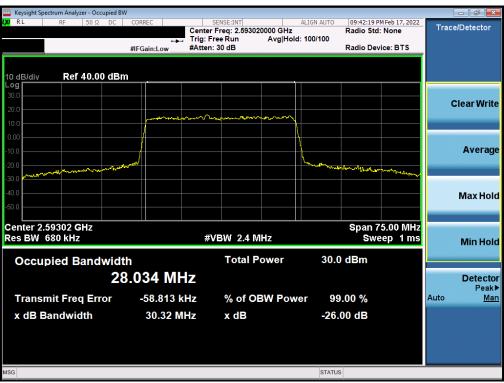
Plot 7-22. Occupied Bandwidth Plot (NR Band n41 - 40MHz 16-QAM - Full RB - AntJ)

| FCC ID: A3LSMS908E | Poud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager | |
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| Test Report S/N: | Test Dates: | EUT Type: | Dage 24 of 95 | |
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| Keysight Spectrum Analyzer - Oc | | | | | | |
|--------------------------------------|-------|----------------------|---|---|--|-----------------|
| α RL RF 50 Ω | | RREC | SENSE:INT Center Freq: 2.593020 Trig: Free Run #Atten: 30 dB | ALIGN AUTO 0000 GHz Avg Hold: 100/100 | 09:42:00 PM Feb 17, 2022 Radio Std: None Radio Device: BTS | Trace/Detector |
| 10 dB/div Ref 40.0 | 0 dBm | | | | | Clear Writ |
| 20.0 | | | ······ | | | Averag |
| 20.0 30.0 40.0 50.0 | | | | | | Max Hol |
| Center 2.59302 GHz Les BW 680 kHz | width | | #VBW 2.4 M | | Span 75.00 MHz Sweep 1 ms 3 dBm | Min Hol |
| | 27.0 | 04 MI | łz | | | Detecto Peak |
| Transmit Freq Er x dB Bandwidth | ror | -518.80 k 29.32 M | | | 0.00 % 00 dB | Auto <u>Ma</u> |
| G | | | | STATU | 5 | |

Plot 7-23. Occupied Bandwidth Plot (NR Band n41 - 30MHz π/2 BPSK - Full RB - AntJ)



Plot 7-24. Occupied Bandwidth Plot (NR Band n41 - 30MHz QPSK - Full RB - AntJ)

| FCC ID: A3LSMS908E | Poud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|------------------------------|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Page 25 of 85 |
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| 🔤 Keysight Spectrum Analyzer - Occupi | | | | | - 6 - |
|---------------------------------------|--|---|---------------------------------|------------------------|-----------------|
| <mark>(X)</mark> RL RF 50Ω [| | SENSE:INT ter Freg: 2.593020000 GHz | ALIGN AUTO 09:42:27 Radio St | PM Feb 17, 2022 | Trace/Detector |
| | +++ Trig | j: Free Run Avg Holo | d: 100/100 | | |
| | #IFGain:Low #Att | ten: 30 dB | Radio De | evice: BTS | |
| | | | | | |
| 10 dB/div Ref 40.00 c | dBm | | | | |
| Log 30.0 | | | | | |
| 20.0 | | | | | Clear Write |
| | mon | Marina Marina and and and and and and and and and a | | | |
| 10.0 | | | | | |
| 0.00 | | | } | | • |
| -10.0 | | | tu, | | Average |
| -20.0 | Agricognical and a second and a | | "Much on the set of the | 1 marter allow | |
| -30.0 -30.0 | | | | Weiter Levin | |
| -40.0 | | | | | Max Hold |
| -50.0 | | | | | |
| Center 2.59302 GHz | | | Enon | 75 00 MILI- | |
| Res BW 680 kHz | | #VBW 2.4 MHz | | 75.00 MHz reep 1 ms | |
| | | | | aob 1 mo | Min Hold |
| Occupied Bandw | idth | Total Power | 29.8 dBm | | |
| | 27.955 MHz | | | | Detector |
| | | | | | Peak► |
| Transmit Freq Error | -43.510 kHz | % of OBW Pow | ver 99.00 % | | Auto <u>Man</u> |
| x dB Bandwidth | 30.21 MHz | x dB | -26.00 dB | | |
| | | | Lotoo al | | |
| | | | | | |
| | | | | | |
| | | | | | |
| MSG | | | STATUS | | |

Plot 7-25. Occupied Bandwidth Plot (NR Band n41 - 30MHz 16-QAM - Full RB - AntJ)



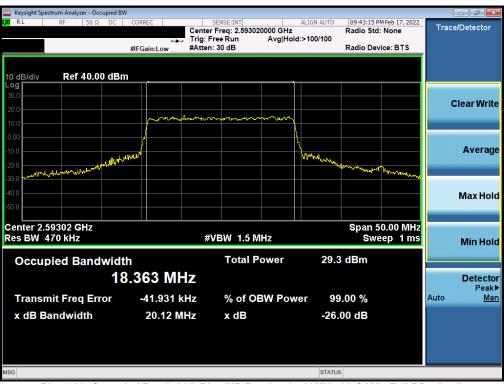
Plot 7-26. Occupied Bandwidth Plot (NR Band n41 - 20MHz π/2 BPSK - Full RB - AntJ)

| FCC ID: A3LSMS908E | PCTEST Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager | |
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| Test Report S/N: | Test Dates: | EUT Type: | Dage 26 of 95 | |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | Page 26 of 85 | |
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| 🔤 Keysight Spectrum Analyzer - Occupied B | W | | | | | | |
|---|--|---|---|-----------------|---------|------------|---------------------|
| KI RE 50Ω DC | CORREC | SENSE:INT er Freg: 2.5930200 | ALIGN AUTO | 09:43:29 PM | | Trace/Dete | ctor |
| | Trig: | Free Run / | Avg Hold: 100/100 | Radio Stu. I | vone | | |
| | #IFGain:Low #Atte | en: 30 dB | | Radio Devic | e: BTS | | |
| | | | | | | | |
| 10 dB/div Ref 40.00 dBr | m | | | | | | |
| Log 30.0 | | | | | | | |
| | | | | | | Clear | Write |
| 20.0 | and a start and a start and a start a st | er and a state of the state of | man | | | | |
| 10.0 | | | | | | | |
| 0.00 | | | <u>\</u> | | | | |
| -10.0 | السليم | | - mun | | | Ave | erage |
| -20.0 | | | mar and a second state of the second state of | war and a start | o | | |
| -30.0 | | | | | Colone | | |
| -40.0 | | | | | | Max | Hold |
| -50.0 | | | | | | IVIAX | |
| | | | | | | | |
| Center 2.59302 GHz | | | | Span 50 | | | |
| Res BW 470 kHz | | #VBW 1.5 MH: | Z | Swee | ep 1 ms | Min | Hold |
| Occurried Denducid | | Total Pov | vor 20.7 | dBm | | | |
| Occupied Bandwid | | Total Tot | 25.1 | ubm | | | |
| 1 | 8.358 MHz | | | | | | ector |
| Transmit Freq Error | -41.207 kHz | % of OBV | V Power 99 | .00 % | | Auto | Peak▶ <u>Man</u> |
| x dB Bandwidth | 20.97 MHz | x dB | 26.0 | 00 dB | | | |
| | 20.97 11112 | хuв | -20.0 | JU UB | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| MSG | | | STATUS | | | | |

Plot 7-27. Occupied Bandwidth Plot (NR Band n41 - 20MHz QPSK - Full RB - AntJ)



Plot 7-28. Occupied Bandwidth Plot (NR Band n41 - 20MHz 16-QAM - Full RB - AntJ)

| FCC ID: A3LSMS908E | Poud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
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7.4 Spurious and Harmonic Emissions at Antenna Terminal

Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible attenuation level of any spurious emission is $43 + 10 \log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

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

Test Procedure Used

KDB 971168 D01 v03r01 - Section 6.0

Test Settings

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

Test Setup

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



Figure 7-3. Test Instrument & Measurement Setup

Test Notes

- 1. Per Part 27, RSS-195 and RSS-199, compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth 100 kHz or greater for measurements below 1GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.
- 2. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

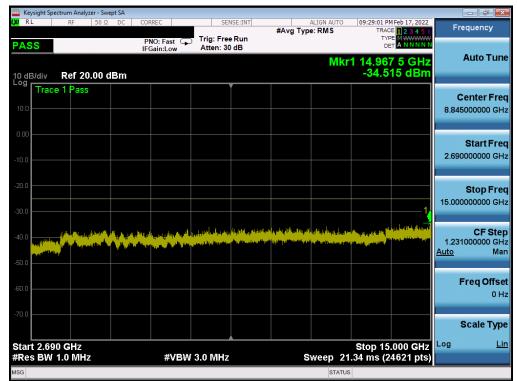
| FCC ID: A3LSMS908E | | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
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| Test Report S/N: | Test Dates: | EUT Type: | | Dago 29 of 95 |
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NR Band n41 – AntJ

| | Spectrum Analy | | | | | | | | | | | _ | |
|---------------------|----------------|---------|----|---|----------------|-------------------------|------------------------|---------------------|--------------------------|------------------|---|-------------|------------|
| <mark>0</mark> RL | RF | 50 Ω | DC | CORREC | | SEN | ISE:INT | #Avg Typ | ALIGN AUTO | | M Feb 17, 2022 | F | requency |
| PASS | | | | PNO: Fast IFGain:Lov | | Trig: Free Atten: 30 | | #Avg iyp | e: RIVIS | TY | CE 1 2 3 4 5 6 PE MWWWW A N N N N N | | |
| 10 dB/div | Ref 20 |).00 dE | 3m | | | | | | Mk | r1 2.40 -38.8 | 4 6 GHz 66 dBm | | Auto Tu |
| - ^{og} Tra | ice 1 Pass | | | | | , | | | | | | | |
| 40.0 | | | | | | | | | | | | | Center Fi |
| 10.0 | | | | | | | | | | | | 1.25 | 6000000 G |
| 0.00 | | | | | | | | | | | | | |
| 0.00 | | | | | | | | | | | | | Start Fr |
| 10.0 | | | | | | | | | | | | 30 | 0.000000 N |
| 10.0 | | | | | | | | | | | | | |
| 20.0 —— | | | | | | | | | | | | | _ |
| -20.0 | | | | | | | | | | | | | Stop F |
| 30.0 | | | | | | | | | | | | 2.47 | 0000000 0 |
| -30.0 | | | | | | | | | | | .1 | | |
| 40.0 | | | | | | | | | | | | | CF St |
| 40.0 | | | | and the state of the | hann Jur. | فانقانا والعريب | أفيلغيك ومتلاقها | | of the state of the | and an aider the | | | 4.000000 N |
| 50.0 1111 | | | | A second s | Milling of the | الأوساعين ويعالمه | and the set of the set | na palatijatijatije | date limites e. f. f. r. | | | <u>Auto</u> | N |
| 0.0 | | | | | | | | | | | | | |
| 60.0 | | | | | | | | | | | | | Freq Off |
| 00.0 | | | | | | | | | | | | | 0 |
| 70.0 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | Scale Ty |
| | | | | | | | | | | | | | |
| |)30 GHz | | | | | | | | | Stop 2 | .470 GHz | Log | |
| ¢Res BV | N 1.0 MHz | Z | | #\ | /BW : | 3.0 MHz | | | Sweep 3 | .260 ms | 4891 pts) | | |
| ISG | | | | | | | | | STATUS | 3 | | | |

Plot 7-29. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel AntJ)



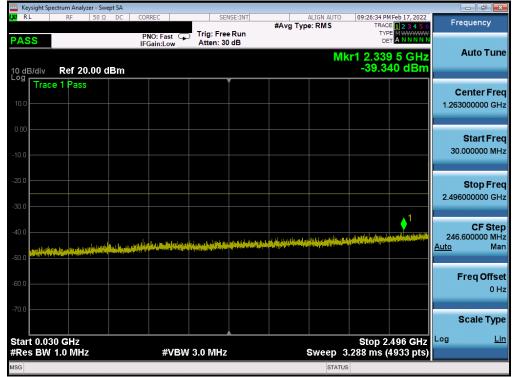
Plot 7-30. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel AntJ)

| FCC ID: A3LSMS908E | PCTEST Proad to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
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| | ht Spectrum Anal | | | | | | | | | | | - 6 |
|------------------------------|------------------------|----------|-------------------|--------------------------|--|--------------------|--|---------------------|--------------------------|-----------------------------------|-------------|-----------------|
| 🗶 RL | RF | 50 Ω | DC C | DRREC | | ISE:INT | #Avg Ty | ALIGN AUT | TRA | PM Feb 17, 2022 CE 1 2 3 4 5 6 | Fre | quency |
| PASS | | | | PNO: Fast 🖵 FGain:Low | Trig: Free Atten: 10 | | | | C | | | |
| | | | | | | | | М | kr1 26.05 | 1 5 GHz 27 dBm | | Auto Tun |
| 10 dB/di ^{Log} 🖵 | iv Ref 0 race 1 Pas | .00 dBr | n | | | | | | -49.7 | | | |
| | race i Pas | s | | | | | | | | | | enter Fre |
| -10.0 | | | | | | | | | | | 21.000 | 000000 GH |
| -20.0 | | | | | | | | | | | | |
| _ | | | | | | | | | | | | Start Fre |
| -30.0 | | | | | | | | | | | 15.000 | 000000 GH |
| -40.0 | | | | | | | | | | | | |
| -40.0 | | | | | | | | | | <u>^1</u> | 07.000 | Stop Fre |
| -50.0 | | | | | | | | 1 1 | المعربة والمراجع المراجع | | 27.000 | 000000 GF |
| | | ويعلمونه | րյեւպետես | | an ang ang ang ang ang ang ang ang ang a | Allen and a second | n an | All Provide Streets | | and the stationard states have | | CF Ste |
| -60.0 | | | گەللەر ھېچە لەر ب | | | | | | | | | 000000 GI |
| -70.0 | | | | | | | | | | | <u>Auto</u> | Ma |
| | | | | | | | | | | | _ | |
| -80.0 | | | | | | | | | | | F | req Offs) ۱۰ |
| | | | | | | | | | | | | |
| -90.0 | | | | | | | | | | | 5 | Scale Typ |
| | | | | | | | | | | | | L |
| | 5.000 GHz 3W 1.0 MH | | | #VBW | 3.0 MHz | | \$ | Sweep | 20.80 ms (2 | .000 0112 | LUg | 5 |
| ISG | | | | | | | | | TUS | | | |

Plot 7-31. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel AntJ)



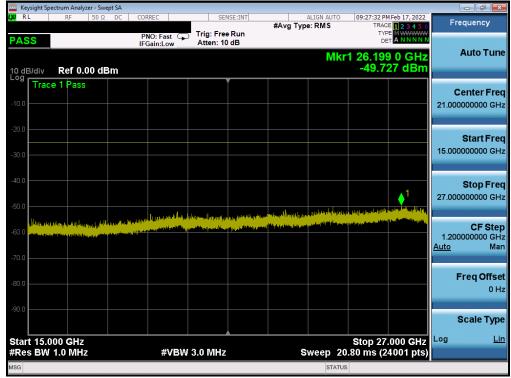
Plot 7-32. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel AntJ)

| FCC ID: A3LSMS908E | PCTEST Proud to be point of Solement | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
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| Keysight S RL | Spectrum Analy: RF | | | CORREC | 0.00 | ICT.INT | | | 00.27.00 0 | M Feb 17 2022 | l | |
|------------------|-----------------------|------|----|------------------|--------------------------------|-------------------------------------|--|--|----------------------------|----------------------------------|-------------|----------------------------|
| V KL | KF | 50 Ω | DC | CORREC | SEI | ISE:INT | #Avg Typ | ALIGN AUTO e: RMS | TRA | M Feb 17, 2022 CE 1 2 3 4 5 6 | Fre | quency |
| PASS | | | | PNO: Fast 🖵 | Trig: Free Atten: 30 | | | | TY D | PE MWWWWW ET A N N N N N | | |
| | | | | | | | | Mk | r1 14.21 | 0 0 GHz | | Auto Tur |
| 0 dB/div | | | Вm | | | | | | -34.9 | 54 dBm | | |
| Tra | ice 1 Pass | | | | | | | | | | с | enter Fr |
| 10.0 | | | | | | | | | | | | 000000 G |
| | | | | | | | | | | | | |
| 0.00 | | | | | | | | | | | | Start Fr |
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| | | | | | | | | | | | | Stop Fr 000000 G |
| 30.0 | | | | | | | | | | 1 | 10.000 | |
| | | 1 | | 1 | | ويتلاز وأخره وبتله التأو | ورياس المتلقان ووروا والا | | ala peter ta constratività | in the state of the state | | CF St |
| 40.0 | | | | | A Reflect of a local sector of | رد در چې د د د الطور محدومات الل | a na anna anna anna anna anna anna ann | na na na series Print de la composition | a the set of the second | and a state of the second | 1.231 | 000000 G |
| 50.0 | | | | - 1 41. 4 | " | | | | | | <u>Auto</u> | M |
| 50.0 | | | | | | | | | | | | |
| 60.0 | | | | | | | | | | | F | req Offs |
| | | | | | | | | | | | | 0 |
| 70.0 | | | | | | | | | | | | |
| | | | | | | | | | | | S | cale Ty |
| Start 2.6 | 90 GHz | | | | | | | | Stop 15 | 5.000 GHz | Log | <u>l</u> |
| | V 1.0 MHz | Z | | #VBW | 3.0 MHz | | s | weep 2 | 1.34 ms (2 | 24621 pts) | | |
| ISG | | | | | | | | STAT | us | | | |

Plot 7-33. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel AntJ)



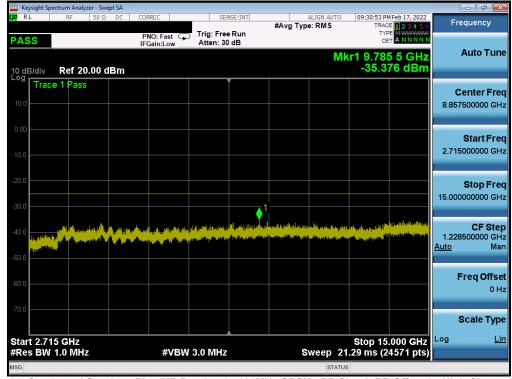
Plot 7-34. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel AntJ)

| FCC ID: A3LSMS908E | | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
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| RL | ectrum Analy RF | 2er - 3we | | CORREC | 0.00 | ISE:INT | | ALIGN AUTO | 00.20.24 0 | 4 Feb 17, 2022 | | |
|----------------------|--------------------|----------------------|---------|-----------------------------|--|--|---------------------|------------|-------------------|-----------------------|---------------------|---------------|
| RL | KF | 50 Ω | DC | CORREC | SEI | ISE:INT | #Avg Typ | | | E 1 2 3 4 5 6 | Fre | equency |
| PASS | | | | PNO: Fast 🖵 IFGain:Low | Trig: Free Atten: 30 | | • // | | TYP | | | |
| 0 dB/div | Ref 20 |).00 d | Bm | | | | | M | (r1 2.41 -39.4 | 15 GHz 10 dBm | | Auto Tui |
| .od | e 1 Pass | | | | | í | | | | | | |
| | | | | | | | | | | | | enter Fr |
| 10.0 | | | | | | | | | | | 1.263 | 000000 G |
| | | | | | | | | | | | | |
|).00 | | | | | | | | | | | | Start Fr |
| 10.0 | | | | | | | | | | | 30. | 000000 N |
| 10.0 | | | | | | | | | | | | |
| 20.0 | | | | | | | | | | | | |
| .0.0 | | | | | | | | | | | | Stop Fr |
| 30.0 | | | | | | | | | | | 2.496 | 000000 G |
| .0.0 | | | | | | | | | | .1 | | |
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| .0.0 | | and the second | . Letak | | and the state of the state | of the section of the | and a little of all | | | | 246. <u>Auto</u> | 600000 M N |
| | | in the second second | | A REAL PROPERTY AND INCOME. | and the second | فنقد ويقافه | | | | | Auto | IN IN |
| | | | | | | | | | | | | |
| 50.0 | | | | | | | | | | | F | req Offs |
| | | | | | | | | | | | | 0 |
| 70.0 | | | | | | | | | | | | |
| | | | | | | | | | | | \$ | Scale Ty |
| | | | | | | | | | 01 | | Log | |
| itart 0.03 Res BW | | 7 | | #\/B\/ | 3.0 MHz | | | Sween 3 | Stop 2 | .496 GHz 4933 pts) | 209 | - |
| 1111 | THU INITIA | - | | # V D VV | 3 .0 WH12 | | | oweeh - | 1200 1115 | rada pis) | | |

Plot 7-35. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel AntJ)



Plot 7-36. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel AntJ)

| FCC ID: A3LSMS908E | Poud to be part of @element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
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| | pectrum Analy | | | | | | | | | | | _ | |
|----------------------|-------------------------|---------------|-------------|--------------------|--|--|---|--|------------|---|-------------------|---------------------|-------------------|
| L <mark>XI</mark> RL | RF | 50 Ω | DC | CORREC | | SEI | ISE:INT | #Avg Ty | ALIGN AUTO | | M Feb 17, 2022 | Fr | equency |
| PASS | | | | PNO: F IFGain:l | ast 🖵 Low | Trig: Free Atten: 10 | | | | TYI DI | | | |
| 10 dB/div | Ref 0. | 00 dBi | m | | | | | | Mk | r1 26.28 -49.4 | 5 5 GHz 82 dBm | | Auto Tune |
| Tra | ce 1 Pass | | | | | · · · · · · · · · · · · · · · · · · · | | | | | | | enter Fred |
| -10.0 | | | | | | | | | | | | 21.00 | 0000000 GH: |
| -20.0 | | | | | | | | | | | | | Start Free |
| -30.0 | | | | | | | | | | | | 15.00 | 0000000 GH2 |
| -40.0 | | | | | | | | | | | | | Stop Free |
| -50.0 | | | | | | | | | | ang a san ang ang ang ang ang ang ang ang ang a | | 27.00 | 0000000 GH: |
| | an tili anna dir ay faa | and pressions | njiliorite | Legender Hare der | and the second s | ngali ^{an} Anggangan Mala Mananaka di Sanaharaka | a J _{al} Piter Alaph Nacional de Cara | agian <mark>i ana kabuna dina kab</mark> u | | | and the second | | CF Ster |
| -60.0 | llee Ritche open when | Lang Sile | فالاختلادية | | | | | | | | | 1.20 <u>Auto</u> | 0000000 GH Mai |
| | | | | | | | | | | | | | Freq Offse |
| -80.0 | | | | | | | | | | | | | 0 H |
| -90.0 | | | | | | | | | | | | | Scale Type |
| | 000 GHz / 1.0 MHz | | | | #\/B\\(| 3.0 MHz | | | Sween 2 | Stop 27 0.80 ms (2 | .000 GHZ | Log | Lir |
| MSG | | | | | | 5.0 WH12 | | | STAT | | actor proj | | |

Plot 7-37. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel AntJ)

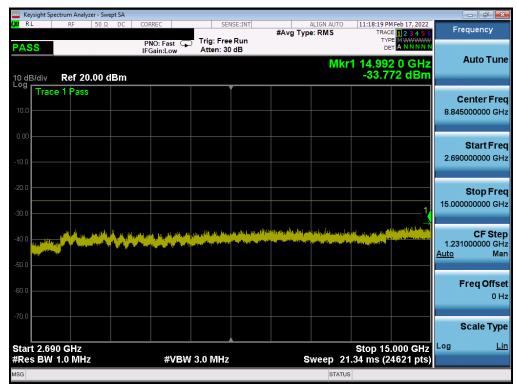
| FCC ID: A3LSMS908E | Proud to be post of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|-------------------------------|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dogo 22 of 95 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | Page 33 of 85 |
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NR Band n41 SRS2 – AntB

| | Spectrum Analy | | | | | | | | |
|------------------|----------------------|----------------------|-------------|--------------------------------|----------|-----------------|---|----------|----------|
| XI RL | RF | 50 Ω D0 | CORREC | SENSE:IN | #Avg Typ | ALIGN AUTO | 11:17:30 PM Feb 17, 20 TRACE 1 2 3 4 | Fre | quency |
| PASS | | | PNO: Fast G | Trig: Free Run Atten: 30 dB | 1 | | DET A N N N | I N | |
| | | | | | | M | (r1 2.470 0 GF | Z | Auto Tui |
| 10 dB/div Log | | .00 dBn | 1 | | | | -39.637 dB | n | |
| Tra | ice 1 Pass | | | | | | | Ce | enter Fr |
| 10.0 | | | | | | | | 1.2500 | 000000 |
| 0.00 | | | | | | | | | |
| 0.00 | | | | | | | | | Start F |
| 10.0 | | | | | | | | 30.0 | 00000 |
| | | | | | | | | | |
| 20.0 | | | | | | | | | Stop F |
| 30.0 | | | | | | | | 2.4700 | 000000 |
| | | | | | | | | 1 | |
| 40.0 | | | | | | about the state | والمراجع والمحمد والمراجع والمراجع والمحمد والمراجع والمحمد والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع | 244.0 | CF S |
| al de | | an halisting des bid | | | | | an an a' har an bhann air an | Auto | I |
| 50.0 | | | | | | | | | |
| 60.0 | | | | | | | | F | req Off |
| | | | | | | | | | C |
| 70.0 | | | | | | | | | cale Ty |
| | | | | | | | | | |
| |)30 GHz V 1.0 MHz | | #\/D\ | V 3.0 MHz | | Swoon-9 | Stop 2.470 GH 3.260 ms (4891 pt | | |
| SG SG | V T.U MIHZ | | #VBI | V 5.0 WIHZ | | Sweep 3 | | 57 | |

Plot 7-38. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel AntB)



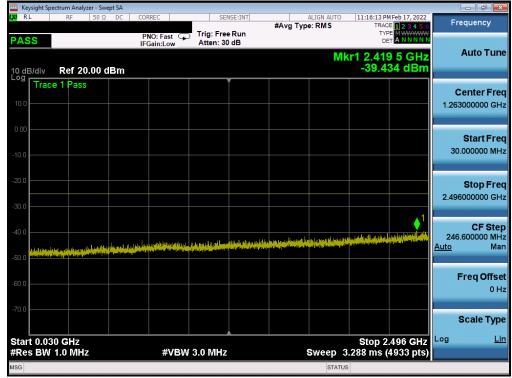
Plot 7-39. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel AntB)

| FCC ID: A3LSMS908E | PCTEST Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|---|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Page 34 of 85 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | Fage 34 01 05 |
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| | t Spectrum Ana | | | | | | | | | | | |
|--------------------|-------------------------|---|-------------------|-------------------------------|---------------------------------------|-------------------------------------|---|--------------------|---|----------------------------------|-------------|----------------------|
| <mark>()</mark> RL | RF | 50 Ω | DC | CORREC | SEI | ISE:INT | #Avg Typ | ALIGN AUTO | TRA | M Feb 17, 2022 CE 1 2 3 4 5 6 | Fre | equency |
| PASS | | | | PNO: Fast G | Trig: Free Atten: 10 | | | | TY D | PE MWWWWW ET ANNNNN | | |
| 0 dB/di | v Ref (|).00 dE | m | | | | | MI | kr1 26.25 -49.1 | 5 5 GHz 62 dBm | | Auto Tur |
| -og Tr | ace 1 Pas | S | | | | | | | | | | enter Fr |
| 10.0 | | | | | | | | | | | | enter Fr |
| | | | | | | | | | | | 21.000 | |
| 20.0 | | | | | | | | | | | | |
| | | | | | | | | | | | 15 000 | Start Fr 000000 G |
| 30.0 | | | | | | | | | | | 15.000 | 000000 G |
| 40.0 | | | | | | | | | | | | |
| 40.0 | | | | | | | | | | ▲1 | 27.000 | Stop Fr |
| 50.0 | | | | | | | | | | all loss William dis Like | 27.000 | 000000 G |
| | a dikata kaoma or | المراجبين المراجب | n ta Juanat a chi | re real thready and the first | ([glasses]] Beerlee | an <mark>likest generality</mark> i | an tha sealer that the second s | Contraction of the | r - r - r - r - r - r - r - r - r - r - | n al faiblicht de lan | | CF St |
| 50.0 | وبالعادر مخد تطالطها وا | e de engles de la | للأرسائل مالل | In the party of the second | در ماند را بد با بند الانتخار ان ا | CASE AND DESCRIPTION OF | And Internet in the state | | | | 1.200 | 000000 G |
| | | | | | | | | | | | <u>Auto</u> | N |
| 70.0 | | | | | | | | | | | | |
| 30.0 | | | | | | | | | | | F | req Offs |
| | | | | | | | | | | | | 0 |
| 0.0 | | | | | | | | | | | | |
| | | | | | | | | | | | 5 | Scale Ty |
| | 5.000 GH | | | | | | | | | .000 0112 | Log | <u>I</u> |
| Res B | W 1.0 M | lz | | #VBV | / 3.0 MHz | | \$ | sweep : | 20.80 ms (2 | 24001 pts) | | |
| SG | | | | | | | | STAT | TUS | | | |

Plot 7-40. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel AntB)



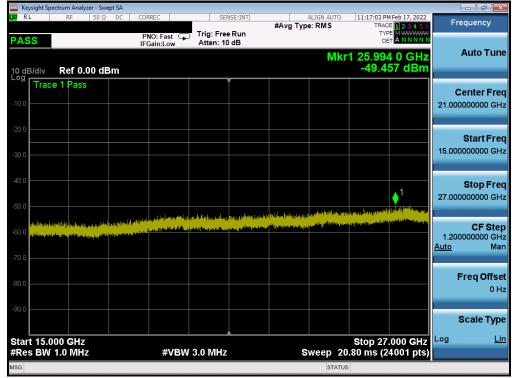
Plot 7-41. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel AntB)

| FCC ID: A3LSMS908E | PCTEST Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|---|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Page 35 of 85 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | Fage 55 01 65 |
| © 2022 PCTEST | • | | V3.0 1/6/2022 |



| | it Spectrum A | | | | | | | | | | | 5 X |
|----------------------|---------------|---------------------------------------|-----|-------------------------|-------------------------|---------|--|---|--|---|---------------------------------|-------------------|
| K <mark>I</mark> RL | RF | <u>50 Ω</u> | DC | CORREC | | ISE:INT | #Avg Typ | ALIGN AUTO | TRA | M Feb 17, 2022 CE 1 2 3 4 5 6 | Frequen | су |
| PASS | | | | PNO: Fast IFGain:Low | Trig: Free Atten: 30 | | | M | kr1 9.49 | | Auto | Tu |
| 0 dB/di | | 20.00 d | IBm | | | | | | -35.4 | 58 dBm | | |
| 10.0 | race 1 Pa | ass | | | | | | | | | Cente 8.84500000 | |
| 1.00 | | | | | | | | | | | Star 2.69000000 | |
| 20.0 | | | | | | | | | | | Stop 15.00000000 | |
| 10.0 10.0 10.0 | | n på "landstaft. Henst "Janne Mary | | | | | en gesting Korper (Korpe Minger Korper (Korper) | a da da se da se da se se da se Se da se da se Se da se | la trefa la _{trenov} a com 19 desentes de la comunicación 19 desentes de la comunicación de | de ^l assandhot sonan filosofa Vyskas general sonan olas k | CF 1.23100000 <u>Auto</u> | = St 00 G N |
| 0.0 | | | | | | | | | | | Freq | Offs 0 |
| 70.0 | | | | | | | | | | | Scale | - |
| | .690 GH | | | #VBW | / 3.0 MHz | | 6 | weep 2 | Stop 15 | 5.000 GHz 24621 pts) | Log | <u>!</u> |
| SG | | | | | | | | STATU | | nozi proj | | |

Plot 7-42. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel AntB)



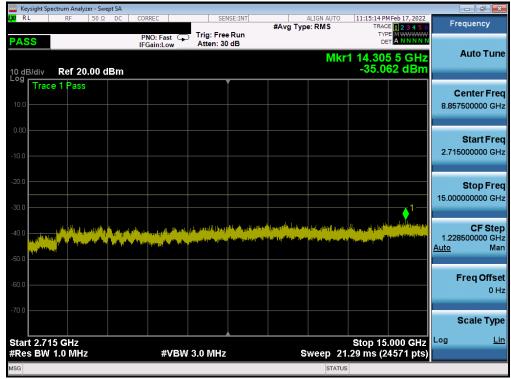
Plot 7-43. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel AntB)

| FCC ID: A3LSMS908E | Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|-------------------------------|--|---------|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 26 of 95 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | | Page 36 of 85 |
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| | Spectrum Analy | | | | | | | | | | | |
|------------------|----------------------|--------|------------|----------------------------------|------------------------|------------|----------------------------------|--------------------------|--------------------|-------------------------|--------------------|--------------------------------|
| X/RL | RF | 50 Ω | DC | CORREC | | NSE:INT | #Avg Typ | ALIGN AUTO | TRA | CE 12 3 4 5 6 | Fn | equency |
| PASS | | | | PNO: Fast C IFGain:Low | Trig: Fre Atten: 3 | | | Μ | kr1 2.33 | | | Auto Tun |
| 10 dB/div Log | Ref 20 | 0.00 d | Bm | | | | | | -38.5 | 56 dBm | | |
| 10.0 | ace 1 Pass | | | | | | | | | | | Center Fre |
| 10.00 | | | | | | | | | | | 30 | Start Fr .000000 M |
| 20.0 | | | | | | | | | | | 2.496 | Stop Fr 5000000 G |
| 40.0 | المتأمل ومقربة | الطويع | ومازلزوامي | an the alternation of the states | n de la su di ili sato | والتوميالي | al des alle sal des sister de la | الألفانية إيراعية والمعر | | 1 Hardish matalana | 246 <u>Auto</u> | CF St .600000 M M |
| 50.0 50.0 | | | | | | | | | | | | F req Off s 0 |
| '0.0 <u> </u> | | | | | | | | | | | | Scale Ty |
| | 030 GHz W 1.0 MH: | z | | #VB | W 3.0 MHz | | | Sweep | Stop 2 3.288 ms | 2.496 GHz (4933 pts) | Log | ļ |
| SG | | | | | | | | STAT | | | | |

Plot 7-44. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel AntB)



Plot 7-45. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel AntB)

| FCC ID: A3LSMS908E | | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|-------------------------|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dage 27 of 95 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | Page 37 of 85 |
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| | Spectrum Analy | zer - Swe | pt SA | | | | | | | | | | J X |
|---------------------|----------------------------------|--------------------|---------------|---|---|-------------------------|---|--|-----------------------|----------------------------------|--|-------------|---------|
| 🗶 RL | RF | 50 Ω | DC | CORREC | | SEN | ISE:INT | #Ava Ty | ALIGN AU (pe: RMS) | TF | B PM Feb 17, 2022 | Frequen | су |
| PASS | | | | PNO: Fas IFGain:Lo | | Trig: Free Atten: 10 | | | | | DET ANNNN | | |
| | | | | IFGain:Lo | w | Atten. To | чв | | R. | | 00 5 GHz | Auto | Tune |
| 10 dB/div | Ref 0. | 00 dB | m | | | | | | IV | -48. | 782 dBm | | |
| Log Tra | ice 1 Pass | ; | | | | | | | | | | | |
| 10.0 | | | | | | | | | | | | Center | |
| -10.0 | | | | | | | | | | | | 21.0000000 | 00 GH: |
| -20.0 | | | | | | | | | | | | | |
| -20.0 | | | | | | | | | | | | Star | tFree |
| -30.0 | | | | | | | | | | | | 15.0000000 | 00 GH |
| | | | | | | | | | | | | | |
| -40.0 | | | | | | | | | | | | Stor | Free |
| | | | | | | | | | | | 1 | 27.00000000 | |
| -50.0 | | | | | | | | | | hanging the participation of the | and the same of the second | | |
| dante. | وجادير الاستأما والمواسيلين بليه | المغلومين وبرا | | he al the transmitter | inter and the first state of the second state | arristan aktuar | all a sur a su Sur a sur | an a | | | | CE | Ster |
| -60.0 -60. 0 | فيعاقفهم واراحطا الما | ر. الأسلى ويويا | لأد الأقمرية) | a na ann an Anna an An Anna an Anna an | ىلى <u>ت مىلالىكە بە</u> | and the second second | | | | | | 1.20000000 | |
| | | | | | | | | | | | | <u>Auto</u> | Mai |
| -70.0 | | | | | | | | | | | | | |
| -80.0 | | | | | | | | | | | | Freq | Offse |
| -00.0 | | | | | | | | | | | | | οн |
| -90.0 | | | | | | | | | | | | | |
| | | | | | | | | | | | | Scale | Туре |
| | 000 011- | | | | | | | | | | | Log | Lir |
| | .000 GHz V 1.0 MH: | | | # | VBW 3 | .0 MHz | | | Sween | 20 80 ms | 27.000 GHz (24001 pts) | 209 | <u></u> |
| MSG | | | | | | ac 1011/2 | | | | ATUS | (E-roor pts) | | |
| | | _ | | | | | | | 51 | | | | |

Plot 7-46. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel AntB)

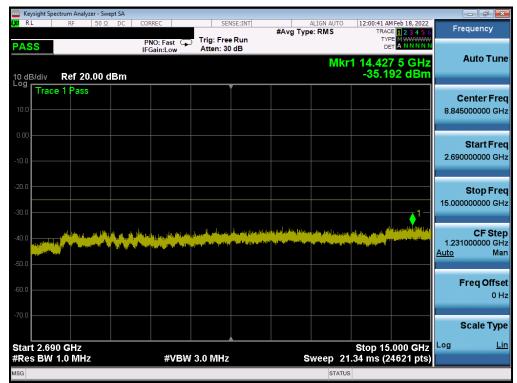
| FCC ID: A3LSMS908E | | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | N G | Approved by: Technical Manager |
|---------------------|-------------------------|--|-----|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 29 of 95 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | | Page 38 of 85 |
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NR Band n41 SRS3- AntE

| | pectrum Analyz | | | | | | | | |
|----------------------|------------------------------|-----------------------|-------------|---|--|----------------------|----------------------------|------------|--------------------------|
| XI RL | RF | 50Ω DC | CORREC | SENSE:INT | #Avg Typ | ALIGN AUTO e: RMS | 12:00:16 AM Feb TRACE | | Frequency |
| PASS | | | PNO: Fast G | Trig: Free Run Atten: 30 dB | | | | | |
| 10 dB/div | Ref 20 | .00 dBm | | | | M | r1 2.466 5 -39.151 | GHz dBm | Auto Tur |
| Tra | ce 1 Pass | | | Ĭ | | | | | Center Fr |
| 10.0 | | | | | | | | | 1.250000000 G |
| 0.00 | | | | | | | | | |
| 0.00 | | | | | | | | | Start Fr |
| -10.0 | | | | | | | | | 30.000000 M |
| 20.0 | | | | | | | | | |
| 20.0 | | | | | | | | | Stop Fr 2.470000000 G |
| 30.0 | | | | | | | | | |
| 40.0 | | | | | | | | | CF St |
| أر وينظر رام ال | ولمحرز وجانيم وبالمزاورين | A State of the second | | in an | and the line of the second s | | | | 244.000000 M Auto N |
| 50.0 (11-11-1 | interin an air a nair mainte | | | | | | | | |
| -60.0 | | | | | | | | | Freq Offs |
| | | | | | | | | | 0 |
| 70.0 | | | | | | | | | Scale Ty |
| | 00.011 | | | | | | 0 4 0 - 1 -7 | | Log |
| Start 0.0 #Res BV | 30 GHz / 1.0 MHz | | #VBV | V 3.0 MHz | | Sweep 3 | Stop 2.470 260 ms (489 | | |
| ISG | | | | | | STATUS | | | |

Plot 7-47. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel AntE)



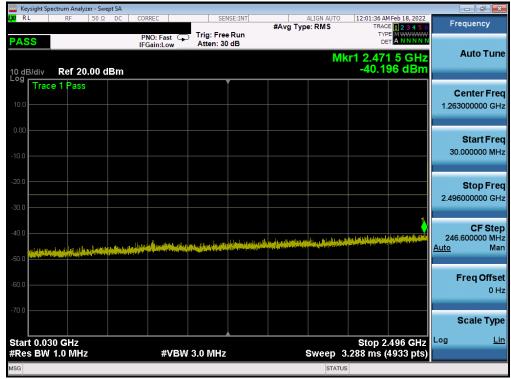
Plot 7-48. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel AntE)

| FCC ID: A3LSMS908E | PCTEST [*] Prod to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|--|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Page 39 of 85 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | Fage 39 01 65 |
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| | Spectrum Anal | | | | | | | | | | | |
|------------|-------------------------|---------------------|---------------|----------------------------|---|---|------------------------------|-----------------------|---|--|-------------|-----------|
| RL | RF | 50 Ω | DC | CORREC | SE | NSE:INT | #Ava Tv | ALIGN AUT | | M Feb 18, 2022 | Fr | equency |
| PASS | | | | PNO: Fast | Trig: Fre | | | period | TY | PE M WWWWWW ET A N N N N N | | |
| A33 | | | | IFGain:Low | Atten: 10 |) dB | | | | | | Auto Tur |
| | | | | | | | | M | kr1 26.37 | 3 5 GHZ | | Auto Tu |
| 0 dB/div | | | m | | | | | | -50.1 | 30 dBm | | |
| Tra | ace 1 Pass | S | | | | Ĭ | | | | | | Center Fr |
| 10.0 | | | | | | | | | | | | 0000000 G |
| | | | | | | | | | | | 21.00 | 000000 G |
| 20.0 | | | | | | | | | | | | |
| | | | | | | | | | | | | Start Fr |
| 30.0 | | | | | | | | | | | 15.00 | 0000000 G |
| | | | | | | | | | | | | |
| 40.0 | | | | | | | | | | | | |
| 40.0 | | | | | | | | | | . 1 | | Stop Fr |
| 50.0 | | | | | | | | | | │ ♦' | 27.00 | 0000000 G |
| 30.0 | | | | | L. 14400 | al., | a shalada da ka | فيعقد اللاريل وال | alling program in the | in the second | | |
| 50.0 | وراما والخريات أعاوس | Manda | and the start | And the Association of the | and the second secon | and the second secon | and Mitchild antibale person | and the second second | فأرفز بالاربية فالتعريد النعرية إلامياه | And the second s | | CF St |
| a hite ter | م قد الم حض الأقاد الله | Bernen an state and | idia attiite | | | | | | | | | 0000000 G |
| 70.0 | | | | | | | | | | | <u>Auto</u> | M |
| · U.U | | | | | | | | | | | | |
| 30.0 | | | | | | | | | | | | Freq Offs |
| 50.0 | | | | | | | | | | | | 0 |
| 30.0 | | | | | | | | | | | | |
| 90.0 | | | | | | | | | | | | Scale Ty |
| | | | | | | | | | | | | could by |
| tart 15 | .000 GHz | | | | | | | | Stop 27 | .000 GHz | Log | <u> </u> |
| Res B | W 1.0 MH | z | | #VB\ | N 3.0 MHz | | | Sweep | 20.80 ms (2 | 24001 pts) | | |
| SG | | | | | | | | STA | TUS | | | |

Plot 7-49. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel AntE)



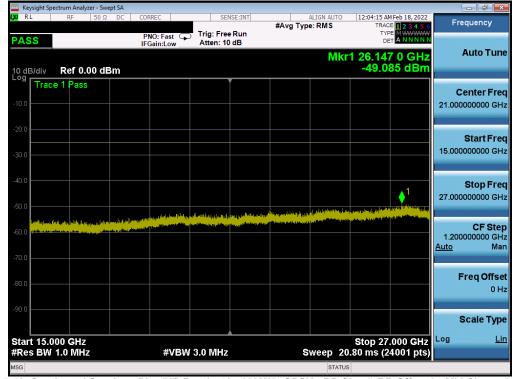
Plot 7-50. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel AntE)

| FCC ID: A3LSMS908E | PCTEST. Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|--|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Page 40 of 85 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | Fage 40 01 05 |
| © 2022 PCTEST | • | | V3.0 1/6/2022 |



| | t Spectrum Analy | | | | | | | | | | | |
|--------------------|------------------|---------|--|--|------------------------|---------|---------------------------------|---|-------------------|--|--------|-------------------|
| XI RL | RF | 50 Ω | DC | CORREC | SE | NSE:INT | #Avg Typ | ALIGN AUTO | | M Feb 18, 2022 | Fre | equency |
| PASS | | | | PNO: Fast IFGain:Low | Trig: Fre Atten: 30 | | • • | | TY | | | |
| 10 dB/div | Ref 20 |).00 di | Bm | | | | | M | r1 14.31 -34.8 | 0 5 GHz 66 dBm | | Auto Tur |
| - ^{og} Tr | ace 1 Pass | ; | | | | Ĭ | | | | | - | enter Fre |
| 10.0 | | | | | | | | | | | | 6000000 GI |
| | | | | | | | | | | | | |
| 0.00 | | | | | | | | | | | | Start Fr |
| 10.0 | | | | | | | | | | | 2.690 | 000000 G |
| | | | | | | | | | | | | |
| 20.0 | | | | | | | | | | | | Stop Fr |
| 30.0 | | | | | | | | | | 4 | 15.000 | 000000 G |
| 30.0 | | | | | | | | | | | | |
| 40.0 | | and a | all all a | territe approximation for the | | | na og vingen skyrden. Status | de la propertie de la composition Notation de la composition de la composi | | an an Marian an Anna Marian. An a Marian an Anna Marian | 1 231 | CF St 000000 G |
| a second | | | The second s | and the second | | | | | | | Auto | M |
| 50.0 | | | | | | | | | | | | |
| 50.0 | | | | | | | | | | | F | req Offs |
| | | | | | | | | | | | | 0 |
| 70.0 | | | | | | | | | | | | Deele Tre |
| | | | | | | | | | | | | Scale Ty |
| | 690 GHz | | | | | | | | Stop 15 | 5.000 GHz | Log | ļ |
| | W 1.0 MH | Z | | #VBW | / 3.0 MHz | | 8 | | 21.34 ms (2 | 24621 pts) | | |
| SG | | | | | | | | STAT | US | | | |

Plot 7-51. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel AntE)



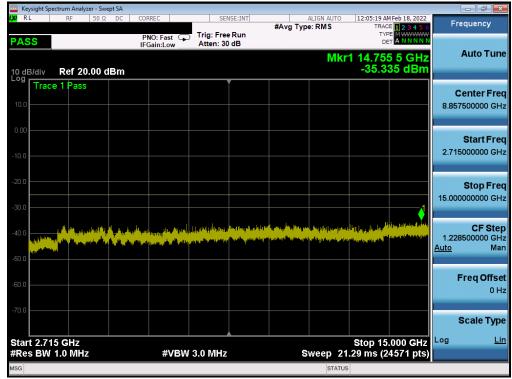
Plot 7-52. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel AntE)

| FCC ID: A3LSMS908E | | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|-------------------------|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Page 41 of 85 |
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| | Spectrum Analy | | | | | | | | | | | |
|--------------------|--------------------|-----------------|----|-----------------------------|-------------------------|------------------------|----------|------------|-----------|-----------------------------------|--------------------|--------------------------------|
| XU <mark>RL</mark> | RF | 50 Ω | DC | CORREC | | NSE:INT | #Avg Typ | ALIGN AUTO | TRA | AM Feb 18, 2022 CE 1 2 3 4 5 6 | Fr | equency |
| PASS | Ref 20 |).00 dl | Bm | PNO: Fast (IFGain:Low | Trig: Fre Atten: 3 | | | M | lkr1 2.41 | 10 GHz 53 dBm | | Auto Tur |
| -og Tra | ace 1 Pass | | | | | | | | | | | Center Fre |
| 0.00 | | | | | | | | | | | 30 | Start Fre .000000 Mi |
| 20.0 | | | | | | | | | | | 2.490 | Stop Fr 5000000 G |
| 40.0 | kaded over and com | , Ni de sin due | | ورجد أمسا فعنامين المقلومين | fel is his state of the | land the factor of the | | | | | 246 <u>Auto</u> | CF Sto .600000 M M |
| 60.0 | | | | | | | | | | | 1 | F req Off s 0 |
| | 030 GHz | | | | | | | | Stop 2 | 2.496 GHz | Log | Scale Ty |
| Res Bl | N 1.0 MH | Z | | #VB | W 3.0 MHz | | | Sweep | | (4933 pts) | | |

Plot 7-53. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel AntE)



Plot 7-54. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel AntE)

| FCC ID: A3LSMS908E | PCTEST Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|---|--|---------|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 42 of 95 |
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| | pectrum Analyz | zer - Swep | ot SA | | | | | | | | | | |
|------------|-------------------|-------------|---|-------------------|---------------------------|------------------------------|---|---|--|---------------------------------|----------------------------|---------------|-----------------|
| X/RL | RF | 50 Ω | DC | CORREC | | SEI | ISE:INT | #Avg Ty | ALIGN AUT | TR | AM Feb 18, 2022 | Fn | equency |
| PASS | | | | PNO: Fain:L | ast 🖵 | Trig: Free Atten: 10 | | | | т | YPE MWWWWW DET ANNNNN | | |
| | | | | IFGami | JOW | Atten: Te | uD | | М | kr1 26.33 | 34 5 GHz | | Auto Tune |
| 10 dB/div | Ref 0.0 | 00 dB | m | | | | | | | -49. | 798 dBm | | |
| Log Trac | e 1 Pass | | | | | , | | | | | | - | enter Fred |
| -10.0 | | | | | | | | | | | | | 0000000 GH |
| | | | | | | | | | | | | | |
| -20.0 | | | | | | | | | | | | | Start Free |
| -30.0 | | | | | | | | | | | | 15.000 | 0000000 GH |
| -30.0 | | | | | | | | | | | | | |
| -40.0 | | | | | | | | | | | | | Stop Free |
| | | | | | | | | | | | 1 | 27.000 | 0000000 GH |
| -50.0 | | | | | ا الله ال | | L Internet of | | a day and provides | Dengel kalenstan milagi seritar | ald mental a production of | | |
| -60.0 | all shall some as | and a state | daharik | n (na se institut | annan anns Anns anns a | i an in ditensi fi ang si sa | and the second secon | a il literature de la companya de la | and sold all the second se | أدفار ورفاعين ببادر منعرية | بالاحطائة الأخاذ بار | | CF Step |
| | | and a state | a in the second seco | | | | | | | | | 1.200 Auto | 000000 GH Ma |
| -70.0 | | | | | | | | | | | | <u>rture</u> | |
| | | | | | | | | | | | | F | Freq Offse |
| -80.0 | | | | | | | | | | | | | он |
| -90.0 | | | | | | | | | | | | | |
| | | | | | | | | | | | | : | Scale Type |
| Start 15.0 | 000 GHz | | | | | | | | | Stop 2 | 7.000 GHz | Log | Lir |
| #Res BW | | | | \$ | #VBW | 3.0 MHz | | | Sweep | 20.80 ms (| 24001 pts) | - | |
| MSG | | | | | | | | | STA | ATUS | | | |

Plot 7-55. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel AntE)

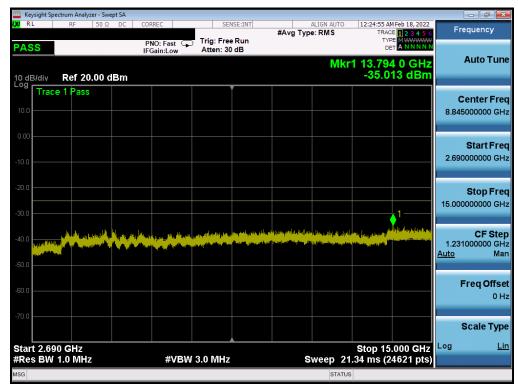
| FCC ID: A3LSMS908E | Poud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|------------------------------|--|---------|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 42 of 95 |
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NR Band n41 SRS4– AntD

| Keysight Spectrum Analyzer - Si | | | | | |
|---|---|---|--|--|---|
| 🗶 RL RF 50 ! | | SENSE:INT | #Avg Type: RMS | 12:24:22 AM Feb 18, 2022 TRACE 1 2 3 4 5 6 TYPE MWWWWW | Frequency |
| PASS 10 dB/div Ref 20.00 | PNO: Fast IFGain:Low | Atten: 30 dB | Mk | r1 2.407 6 GHz -39.531 dBm | Auto Tun |
| 10.0 | | | | | Center Fre 1.250000000 GH |
| -10.0 | | | | | Start Fre 30.000000 M⊦ |
| -20.0 | | | | | Stop Fre 2.470000000 GF |
| -40.0 | and to a law of the first provide the state of the state | hynnystaal allystaan statebilla sed ladyd | la pi, il in alla a instrum la danta Parta la instrumenta | | CF Ste 244.000000 MI <u>Auto</u> M |
| 60.0 | | | | | Freq Offs 0 |
| -70.0 Start 0.030 GHz #Res BW 1.0 MHz | #VBW | 3.0 MHz | Sweep_3 | Stop 2.470 GHz .260 ms (4891 pts) | Scale Tyj Log <u>L</u> |
| MSG | | | STATUS | | |

Plot 7-56. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel AntD)



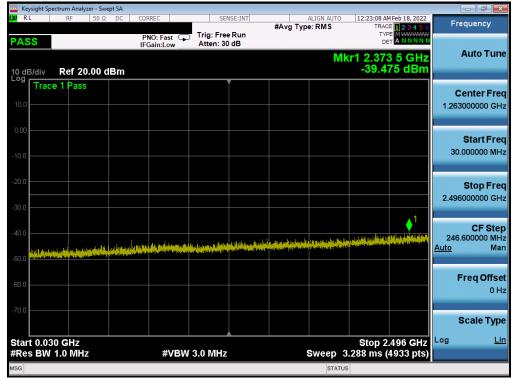
Plot 7-57. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel AntD)

| FCC ID: A3LSMS908E | PCTEST Proad to be port of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|---|--|---------|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 44 of 95 |
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| | Spectrum Analy | | | | | | | | | | | |
|----------------------------|--|--------------|--------------|-----------------------------|---|------------------|----------------------|---------------------------|-------------------------------|--|-------------|------------|
| <mark>u</mark> RL | RF | 50 Ω | DC | CORREC | SE | NSE:INT | #Ava Tv | ALIGN AUT | | M Feb 18, 2022 CE 1 2 3 4 5 6 | Fr | equency |
| PASS | | | | PNO: Fast | Trig: Fre | | | pe. remo | TY | | | |
| A33 | | | | IFGain:Low | Atten: 1 |) dB | | | | | | Auto Tur |
| | | | | | | | | M | kr1 26.29 | 8 0 GHZ | | Auto Tui |
| 0 dB/div | | | m | | | | | | -48.9 | 63 dBm | | |
| Tra | ace 1 Pass | S | | | | Ĭ | | | | | | enter Fr |
| 10.0 | | | | | | | | | | | | 0000000 GI |
| | | | | | | | | | | | 21.00 | 000000 G |
| 20.0 | | | | | | | | | | | | |
| 20.0 | | | | | | | | | | | | Start Fr |
| 30.0 | | | | | | | | | | | 15.00 | 000000 G |
| 00.0 | | | | | | | | | | | | |
| 40.0 | | | | | | | | | | | | |
| 40.0 | | | | | | | | | | <u>1</u> | | Stop Fr |
| 50.0 | | | | | | | | | | | 27.00 | 0000000 G |
| | | | | والانتقاد والمردية والمراجع | a se de la companya d | بهر محتد عليها و | In Part Universions, | a property filled and the | example (publication) process | and the state of t | | |
| <mark>Кађуа</mark> 60.0 | al and the second states of th | op del passo | al a Hadler | Constitution and the second | and the second second | | | | Contractor Andrewson | a mentikit ili kula, sis | | CF St |
| SOLO VELEN | a second and the second se | Walk of the | and a second | | | | | | | | | 0000000 G |
| 70.0 | | | | | | | | | | | <u>Auto</u> | N |
| /0.0 | | | | | | | | | | | | |
| | | | | | | | | | | | | Freq Offs |
| 30.0 | | | | | | | | | | | | 0 |
| 90.0 | | | | | | | | | | | | |
| 90.0 | | | | | | | | | | | | Scale Ty |
| | | | | | | | | | | | | o cure i y |
| Start 15 | 5.000 GHz | | | | | | | | Stop 27 | .000 GHz | Log | <u> </u> |
| | W 1.0 MH | | | #VB | W 3.0 MHz | | | Sweep | 20.80 ms (2 | 24001 pts) | | |
| SG | | | | | | | | STA | TUS | | | |

Plot 7-58. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel AntD)



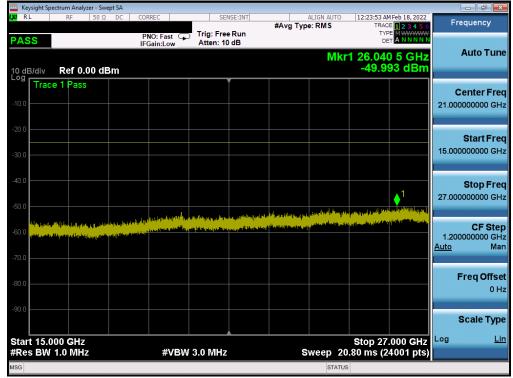
Plot 7-59. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel AntD)

| FCC ID: A3LSMS908E | Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
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| | Spectrum Analy | | • | | | | | | | | | |
|-------------------|--|--------|----------------|-----------------------------|-------------------------|---------------------|---------------------------|-------------------|---------------------|---|-------------|-----------|
| <mark>(</mark> RL | RF | 50 Ω | DC | CORREC | SE | NSE:INT | #Avg Typ | ALIGN AUTO | | M Feb 18, 2022 CE 1 2 3 4 5 6 | Fr | equency |
| | | | | PNO: Fast | Trig: Fre | Run | #Avg iy | Je. RIVIS | TY | | | |
| PASS | | | | IFGain:Low | Atten: 30 | | | | C | ET A N N N N N | | |
| | | | | | | | | ML | r1 10 34 | 2 5 GHz | | Auto Tur |
| | | | | | | | | | -34 0 | 13 dBm | | |
| 0 dB/div | Ref 20 | υ.υυ α | вm | | | | | | -04.0 | | | |
| 🍈 🛛 Tra | ace 1 Pass | s | | | | Ĩ | | | | | | |
| | | | | | | | | | | | | Center Fr |
| 10.0 | | | | | | | | | | + | 8.84 | 5000000 G |
| | | | | | | | | | | | | |
| 0.00 | | | | | | | | | | | | |
| | | | | | | | | | | | | Start Fr |
| 10.0 | | | | | | | | | | | 2.69 | 0000000 G |
| 10.0 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 20.0 | | | | | | | | | | | | Stop Fr |
| | | | | | | | | | _ | | 15.00 | 0000000 G |
| 30.0 | | | | | | | + <u> </u> | | | <u> </u> | 10.00 | |
| | | | | | | | 🔶 " | | | | | |
| | a da da con | | ورباند ساريكار | يلير فقريهان براريه والأربي | وأطرار خنام وطنور يرارز | distantia (| period by all printing to | 1 and a stimution | In the state of the | a dharada a san san san san san san san san san | | CF St |
| 40.0 | Here and | | | Sector of the Sector | ى. ئەمەلىرەر ھىيىس | All Manager and All | a humphilipping the | ويتقر بالتقدر أ | المعدية بسوريط علم | المتأثبين ألاأتهما | 1.23 | 1000000 G |
| de setting | and the second | | 1.6.1 | 1. W M | | | | | | | <u>Auto</u> | N |
| 50.0 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 50.0 | | | | | | | | | | | | Freq Offs |
| | | | | | | | | | | | | 0 |
| | | | | | | | | | | | | |
| 70.0 | | | | | | | | | | | | |
| | | | | | | | | | | | | Scale Ty |
| | | | | | | | | | | | Log | |
| | 690 GHz | | | | | | | | Stop 1: | | | |
| Res B | N 1.0 MH | Z | | #VBW | / 3.0 MHz | | \$ | sweep 2 | 21.34 ms (2 | 24621 pts) | | |
| SG | | | | | | | | STAT | us | | | |

Plot 7-60. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel AntD)



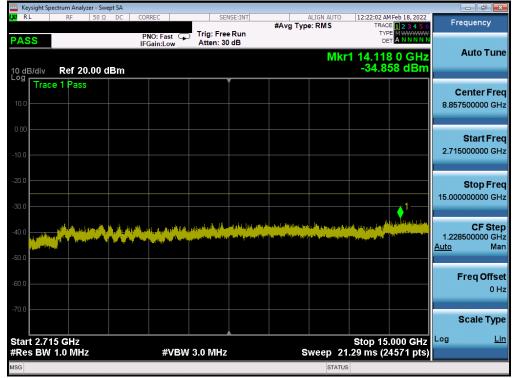
Plot 7-61. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel AntD)

| FCC ID: A3LSMS908E | Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|-------------------------------|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Page 46 of 85 |
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| | ght Spectrum | | | | | | | | | | | | |
|-------------------|-----------------|---------|-------|----|-------------------------|---------------------------|---------------------------------|--|---------------------------------|-------------------|-------------------|-------------|-----------------------------|
| <mark>0</mark> RL | R | F I | 50 Ω | DC | CORREC | | SENSE:INT | #Avg Ty | ALIGN AUTO De: RMS | | M Feb 18, 2022 | Fr | equency |
| PASS | S | | | | PNO: Fast IFGain:Low | Trig: Fi Atten: | ree Run 30 dB | | | TYI DI | | | Auto Tur |
| 0 dB/ | div Re | ef 20.0 |)0 dl | Bm | | | | | М | kr1 2.42 -39.0 | 2 0 GHz 77 dBm | | Auto Tur |
| ^{- og} [| Trace 1 I | Pass | | | | | Ĭ | | | | | 0 | Center Fre |
| 10.0 | | | | | | | | | | | | | 3000000 GI |
| | | | | | | | | | | | | | |
| 0.00 | | | | | | | | | | | | | Start Fr |
| | | | | | | | | | | | | 30 | .000000 M |
| 10.0 | | | | | | | | | | | | | |
| 20.0 | | | | | | | | | | | | | Oton En |
| | | | | | | | | | | | | 2 /0 | Stop Fr 5000000 G |
| 30.0 | | | | | | | | | | | | 2.43 | |
| | | | | | | | | | | | ↓ 1 | | CF St |
| \$0.0 | | | | | | | هرين التراجيكي | والمراجع والمراجع والمراجع | وأربق الترقان والقانور ومالك | kan din watika | | 246 | .600000 M |
| 50.0 | liste weiterste | | | | | handlig ship light if the | and a state of the state of the | and a second | a ter Bendar solari bili bili b | | | <u>Auto</u> | M |
| .0.0 | | | | | | | | | | | | | |
| 50.0 | | | | | | | | | | | | | Freq Offs |
| | | | | | | | | | | | | | 0 |
| 70.0 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | Scale Ty |
| | 0.030 G | | | | | | | | | Stop 2 | .496 GHz | Log | l |
| Res | BW 1.0 | MHz | | | #VI | 3W 3.0 MH | Z | | Sweep | 3.288 ms (| 4933 pts) | | |
| SG | | | | | | | | | STAT | US | | | |

Plot 7-62. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel AntD)



Plot 7-63. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel AntD)

| FCC ID: A3LSMS908E | PCTEST Proud to be port of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|---|--|---------|-----------------------------------|
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| | pectrum Analy | zer - Swep | t SA | | | | | | | | | | |
|-----------|-----------------------------|------------------------|--------------------------------|--|-----------------------|------------------------------|-----------------------|---|--------------------------|-----------------------------|---|---------------|--------------------|
| X/RL | RF | 50 Ω | DC | CORREC | | SEI | SE:INT | #Avg Ty | ALIGN AUT | | AM Feb 18, 2022 | Fr | equency |
| PASS | | | | PNO: Fa | | Trig: Free Atten: 10 | | | | T | | | |
| | | | | IFGain:L | ow | Atten. It | | | M | kr1 26.14 | | | Auto Tune |
| 10 dB/div | Ref 0. | 00 dBi | m | | | | | | | -49.7 | 62 dBm | | |
| Log Tra | ce 1 Pass | | | | | | | | | | | - | enter Fred |
| -10.0 | | | | | | | | | | | | | 0000000 GHz |
| | | | | | | | | | | | | 21.000 | |
| -20.0 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | Start Fred |
| -30.0 | | | | | | | | | | | | 15.000 | 000000 GHz |
| | | | | | | | | | | | | | |
| -40.0 | | | | | | | | | | | | | Stop Free |
| 50.0 | | | | | | | | | | | ♦ ¹ | 27.000 | 0000000 GHz |
| -50.0 | | | | المالير بريان | | na katana daga k | ut, and then it to be | | and the property of | Higgs age Coord Supples And | and the second se | | |
| -60.0 | all See physical Action and | that the states of the | o Alterativeli Alterativeli | an a | and the second second | and the second states of the | المعادية فأشتر وعال | and a state of the second s | and an other designed as | أتحقد فالغنا | | | CF Step |
| | | Highes Minister | | | | | | | | | | 1.200 Auto | 0000000 GH: Mar |
| -70.0 | | | | | | | | | | | | <u>/(uto</u> | ma |
| | | | | | | | | | | | | | |
| -80.0 | | | | | | | | | | | | ľ | Freq Offset |
| | | | | | | | | | | | | | 0112 |
| -90.0 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | Scale Type |
| | 000 GHz | | | | | | | | | Stop 2 | 7.000 GHz | Log | Lin |
| #Res BV | 1.0 MH | Z | | # | VBW | 3.0 MHz | | | Sweep | 20.80 ms (| 24001 pts) | | |
| MSG | | | | | | | | | STA | TUS | | | |

Plot 7-64. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel AntD)

| FCC ID: A3LSMS908E | PCTEST. Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
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7.5 Band Edge Emissions at Antenna Terminal

Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible attenuation level for Band 41 is as noted in the Test Notes on the following page.

Test Procedure Used

KDB 971168 D01 v03r01 - Section 6.0

Test Settings

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

Test Setup

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



Figure 7-4. Test Instrument & Measurement Setup

| FCC ID: A3LSMS908E | Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|-------------------------------|--|---------|-----------------------------------|
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- Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz.
- 2. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

| FCC ID: A3LSMS908E | PCTEST Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|---|--|---------|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dago 50 of 95 |
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| PASS | | RF 50Ω I | DC CORREC | Trig: | SENSE:INT r Freq: 2.546000000 Free Run n: 32 dB | ALIGN AUTO | 09:49:09 Pl Radio Std: Radio Dev | | Frequency |
|---------------------------------|-------------|--|--|-------------------------------------|--|--|--|---------------------|-------------------------------------|
| 10 dB/ | /div | Ref 30.00 (| dBm | | | | | | |
| _ og 20.0 10.0 | | | | | | | | | Center Fre 2.546000000 GH |
| 0.00 - | | | | | | | | | |
| -20.0 - | | | | | | | | and a second second | |
| -50.0 | | ngmmmmmmmmmm | | | | | | | |
| Start | 2.371 (| GHz | | | | | Stop 2 | .621 GHz | CF Ste 525.200000 Mi |
| | | | | | 1 | | | | Auto Ma |
| Spur | Range | Start Freq | Stop Freq | RBW | Frequency | Amplitude | ∆ Limit | | <u>Auto</u> |
| Spur 1 | Range | 2.3710 GHz | 2.4905 GHz | 1.000 MHz | 2.489495798 GHz | -38.13 dBm | △ Limit -13.13 dB | ; | |
| 1 2 | 1 2 | 2.3710 GHz 2.4905 GHz | 2.4905 GHz 2.4950 GHz | 1.000 MHz 1.000 MHz | 2.489495798 GHz 2.494910000 GHz | -38.13 dBm -36.19 dBm | -13.13 dB -23.19 dB | 3 | |
| 3 | 1 2 3 | 2.3710 GHz 2.4905 GHz 2.4950 GHz | 2.4905 GHz 2.4950 GHz 2.4960 GHz | 1.000 MHz 1.000 MHz 1.000 MHz | 2.489495798 GHz 2.494910000 GHz 2.496000000 GHz | -38.13 dBm -36.19 dBm -29.22 dBm | -13.13 dB -23.19 dB -16.22 dB | 3 | Freq Offs |
| Spur 1 2 3 4 | 1 2 | 2.3710 GHz 2.4905 GHz | 2.4905 GHz 2.4950 GHz | 1.000 MHz 1.000 MHz 1.000 MHz | 2.489495798 GHz 2.494910000 GHz | -38.13 dBm -36.19 dBm -29.22 dBm | -13.13 dB -23.19 dB | 3 | |
| 1 2 3 | 1 2 3 | 2.3710 GHz 2.4905 GHz 2.4950 GHz | 2.4905 GHz 2.4950 GHz 2.4960 GHz | 1.000 MHz 1.000 MHz 1.000 MHz | 2.489495798 GHz 2.494910000 GHz 2.496000000 GHz | -38.13 dBm -36.19 dBm -29.22 dBm | -13.13 dB -23.19 dB -16.22 dB | 3 | Freq Offs |

Plot 7-65. Lower ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK - Full RB - AntJ)

| Keysig | | m Analyzer - Spur RF 50 Ω | | ons CORREC | | SENSE:INT | | ALIGN AUT |) 09:52:05 F | PM Feb 17, 2022 | | |
|---------------------|--|------------------------------|------|---------------|-----------|--|--------|---|--------------|-----------------|----------------|---------------------------|
| PASS | Ga | ite: LO | | IFGain:Low | +++ Trig: | er Freq: 2.64000 Free Run n: 32 dB | 0000 G | θHz | Radio Std | | Frequ | ency |
| 10 dB/d | div | Ref 30.00 | dBm | | | | | | | | | |
| - og 20.0 | | | | | | | | | | | Cen 2.64000 | ter Fre 0000 GH |
| 0.00 | | | | <u> </u> | n | | | | | | | |
| 20.0 | |] | | | | | | | | | | |
| 40.0 | and the second | | | | | | ~~~~~ | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | | |
| 60.0 | 2.565 | GHz | | | | | | | Stop 2 | 2.815 GHz | | CF Ste |
| | | | | | | | | | | | | 0000 MF Ma |
| Spur | | Start Freq | | p Freq | RBW | Frequency | | Amplitude | ∆ Limit | | Auto | inic |
| | 1 | 2.5650 GHz | | 00 GHz | | 2.607670683 | | | -22.69 dl | | | |
| 2 | 2 | 2.6900 GHz | | 10 GHz | | 2.690000000 | | | -19.11 dE | | Fre | q Offs |
| 3 | 3 | 2.6910 GHz | | 50 GHz | | 2.691000000 | | | -23.22 dE | | | 0H |
| 1 5 | 4 | 2.6950 GHz | | 00 GHz | | 2.695000000 | | | -21.61 dE | | | |
| | 0 | 2.7900 GHz | 2.31 | 50 GHz | 1.000 MHz | 2.793000000 | GHZ - | 50.93 dBm | -25.93 df | | | |
| SG | | | | | | | | STA | TUS | | | |

Plot 7-66. Upper ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK - Full RB - AntJ)

| FCC ID: A3LSMS908E | | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|-------------------------|--|---------|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 51 of 95 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | | Page 51 of 85 |
| © 2022 PCTEST | • | · | | V3.0 1/6/2022 |



| | | | ous Emissio | | | | | | | | | |
|-----------------------------------|----------------------|---|-------------------------|----------------------------|--|--|---|----------------------------------|--|--------------------------|-----------------------------|-----------------------|
| K <mark>I</mark> RL | 6-1 | kF 50 Ω | DC C | ORREC | | SENSE:INT ter Freq: 2.5410 : Free Run | 00000 GH | ALIGN AUTO | 09:59:37 P Radio Std | M Feb 17, 2022 : None | Frequ | ency |
| PASS | Gat | le: LO | | FGain:L | - | en: 32 dB | | | Radio Dev | vice: BTS | | |
| | | | | | | | | | | | | |
| 10 d <u>B/d</u> | liv | Ref 30.00 | dBm | | | | | | | | | |
| -og 20.0 | | | | | | | | | | | 0 | ion Eng |
| 10.0 | | | | | | | | | | | | ter Fre |
| | | | | | | | | | | | 2.541000 | 000 GF |
| 0.00 | | | | | | | | | | | | |
| 10.0 | | | | | | | | | | | | |
| 20.0 | | | | | | | | | | | | |
| -30.0 | | | | | | | | | | | | |
| 40.0 | | | | | ~~~ | name of the second | | | | | | |
| -50.0 | | | | | and a start of the | | | | | | | |
| -60.0 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | 2.396 Q | GHz | | | | | | | Stop 2 | .596 GHz | | |
| Start 2 | | | Stor | Freq | RBW | Frequency | | mplitude | | .596 GHz | (525.200 <u>Auto</u> | 000 MH |
| Start 2 | Range | | | o Freq 05 GHz | RBW | Frequency | | mplitude | Stop 2 | | 525.200 | 000 MH |
| Start 2 | Range 1 | Start Freq | 2.49 | | 1.000 MH | | GHz -3 | 9.15 dBm | ∆ Limit | 3 | 525.200 <u>Auto</u> | Ма |
| Start 2 Spur 1 2 2 3 3 | Range 1 2 3 | Start Freq 2.3960 GHz 2.4905 GHz 2.4950 GHz | 2.490 2.495 2.496 | 05 GHz 50 GHz 60 GHz | 1.000 MHz 1.000 MHz 910.0 kHz | z 2.49050000 z 2.494550000 2.496000000 | GHz -39 GHz -36 GHz -36 GHz -36 | 9.15 dBm 5.94 dBm 1.00 dBm | ∆ Limit -14.15 dE -23.94 dE -18.00 dE | 3 3 3 | 525.200 <u>Auto</u> | 0000 M⊢ Ma |
| Start 2 Spur 1 2 3 3 | Range 1 2 | Start Freq 2.3960 GHz 2.4905 GHz | 2.490 2.495 2.496 | 05 GHz 50 GHz | 1.000 MHz 1.000 MHz 910.0 kHz | z 2.49050000 z 2.494550000 | GHz -39 GHz -36 GHz -36 GHz -36 | 9.15 dBm 5.94 dBm 1.00 dBm | ∆ Limit -14.15 dE -23.94 dE | 3 3 3 | 525.200 <u>Auto</u> | 000 Mi M q Offs |
| Start 2 | Range 1 2 3 | Start Freq 2.3960 GHz 2.4905 GHz 2.4950 GHz | 2.490 2.495 2.496 | 05 GHz 50 GHz 60 GHz | 1.000 MHz 1.000 MHz 910.0 kHz | z 2.49050000 z 2.494550000 2.496000000 | GHz -39 GHz -36 GHz -36 GHz -36 | 9.15 dBm 5.94 dBm 1.00 dBm | ∆ Limit -14.15 dE -23.94 dE -18.00 dE | 3 3 3 | 525.200 <u>Auto</u> | 000 MH Ma |
| Start 2 Spur 1 2 3 3 | Range 1 2 3 | Start Freq 2.3960 GHz 2.4905 GHz 2.4950 GHz | 2.490 2.495 2.496 | 05 GHz 50 GHz 60 GHz | 1.000 MHz 1.000 MHz 910.0 kHz | z 2.49050000 z 2.494550000 2.496000000 | GHz -39 GHz -36 GHz -36 GHz -36 | 9.15 dBm 5.94 dBm 1.00 dBm | ∆ Limit -14.15 dE -23.94 dE -18.00 dE | 3 3 3 | 525.200 <u>Auto</u> | 000 MH Ma |
| Start 2 Spur 1 2 2 3 3 | Range 1 2 3 | Start Freq 2.3960 GHz 2.4905 GHz 2.4950 GHz | 2.490 2.495 2.496 | 05 GHz 50 GHz 60 GHz | 1.000 MHz 1.000 MHz 910.0 kHz | z 2.49050000 z 2.494550000 2.496000000 | GHz -39 GHz -36 GHz -36 GHz -36 | 9.15 dBm 5.94 dBm 1.00 dBm | ∆ Limit -14.15 dE -23.94 dE -18.00 dE | 3 3 3 | 525.200 <u>Auto</u> | 0000 MH Ma |
| Start 2 | Range 1 2 3 | Start Freq 2.3960 GHz 2.4905 GHz 2.4950 GHz | 2.490 2.495 2.496 | 05 GHz 50 GHz 60 GHz | 1.000 MHz 1.000 MHz 910.0 kHz | z 2.49050000 z 2.494550000 2.496000000 | GHz -39 GHz -36 GHz -36 GHz -36 | 9.15 dBm 5.94 dBm 1.00 dBm | ∆ Limit -14.15 dE -23.94 dE -18.00 dE | 3 3 3 | 525.200 <u>Auto</u> | 0000 MH Ma |

Plot 7-67. Lower ACP Plot (NR Band n41 - 90MHz CP-OFDM-QPSK - Full RB - AntJ)



Plot 7-68. Upper ACP Plot (NR Band n41 - 90MHz CP-OFDM-QPSK - Full RB - AntJ)

| FCC ID: A3LSMS908E | Proud to be port of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|-------------------------------|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dage 52 of 95 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | Page 52 of 85 |
| © 2022 PCTEST | - | | V3.0 1/6/2022 |



| Keys | ight Spectrur | n Analyz RF | er - Spur 50 Ω | | issions CORI | 250 | | | 051 | or mut | | _ | | | | DU 5 1 4 3 | | | |
|---------------------------------|---------------|----------------|-------------------|-----|-----------------|---------|------|--------|-------|------------|------|--------|------------|------|---------|-----------------------|----|-------------|------------------------|
| AS | | κ⊧ te: LO | 50 Ω | DC | | | ••• | Trig: | r Fre | | 0000 | | ALIGN AUTO | R | adio St | PM Feb 17, d: None | | Fre | quency |
| - 43 | <u> </u> | | | | IFG | ain:Lov | N | #Atte | n: 32 | dB | | | | Ra | adio De | evice: BT | s | | |
| 0 dB ₋og [| /div | Ref | 30.00 | dBn | n | | | | | | | | | | | | | | |
| 20.0 10.0 | | | | | | | | | | | | | | | | | | | enter Fre 990000 G⊦ |
| 0.00 10.0 - | | | | | | | | | | ſ | | | | ~~~~ | ~~ | } | | | |
| 20.0 30.0 - | | | | | | | | | | | | | | | | | | | |
| 40.0 - | | | | | | | | | | | | | | | | | | | |
| -50.0 <mark>-</mark> -60.0 - | T | | | | | ~ | | | | | | | | | | | | | |
| Start | 2.396 (| GHz | | | | | | | | | | | | | Stop | 2.596 Q | Hz | 525. | CF Ste 200000 MH |
| Spur | Range | Star | t Freq | S | top F | req | RB | W | Fre | equency | | Ampli | itude | 4 | Limit | | | <u>Auto</u> | Ma |
| 1 | 1 | 2.396 | 60 GHz | 2. | 4905 | GHz | 1.00 | 00 MHz | 2.4 | 90500000 (| GHz | -38.29 | dBm | -1 | 13.29 d | В | | | |
| 2 | 2 | |)5 GHz | | 4950 | GHz | | | | 95000000 (| | | | | 23.01 d | | | F | reg Offs |
| 3 | 3 | | 50 GHz | | 4960 | | | | | 96000000 (| | | | | 23.11 d | | | | 01 |
| 1 | 4 | 2.496 | 60 GHz | 2. | 5960 | GHz | 1.00 | 00 MHz | 2.5 | 60321608 (| GHz | 3.440 | dBm | -2 | 21.56 d | В | | | 0 1 |
| | | | | | | | | | | | | | | | | | | | |
| G | | _ | | _ | _ | | _ | _ | | | | | STAT | US | _ | | | | |

Plot 7-69. Lower ACP Plot (NR Band n41 - 80MHz CP-OFDM-QPSK - Full RB - AntJ)



Plot 7-70. Upper ACP Plot (NR Band n41 - 80MHz CP-OFDM-QPSK - Full RB - AntJ)

| FCC ID: A3LSMS908E | PCTEST Proud to be port of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | AMSUNG | Approved by: Technical Manager |
|---------------------|---|--|--------|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 52 of 95 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | | Page 53 of 85 |
| © 2022 PCTEST | • | • | | V3.0 1/6/2022 |



| | Freque | | Radio Std: I Radio Devic | | | NSE:INT reg: 2.5260000 | Canta | | ORREC | | zer - Spuriou 50 Ω [| RF | F | RL |
|----------|-------------------------|-----------------------------|--|------------|----------------------------------|--|--|-------------|--|-------------------------|--|---------------------------------|----------------------|----------------------|
| | | | | | 000 GH2 | e Run | | w _ | Gain:Lo | I | | te: LO | S Gat | AS |
| | | | | | | | | | | dBm | 30.00 | Ref | /div | 0 dB .og F |
| nter Fre | Cente 2.5260000 | | | | | | | | | | | | | 20.0 10.0 |
| | | | | | | | | | | | | | |).00 10.0 |
| | | Construction and the second | | | | | | | | | | | | 20.0 30.0 |
| | | | | | | | a di sa di | Marken and | | | | | ur left for the ball | 10.0 50.0 |
| CF Ste | 6 | 571 GHz | Stop 2. | | | | | | | | | GHz | 2.421 (| io.o - itart |
| | 525.2000 | | 1 4 1 1 | 4 | 1.0 | | | Inc | F | 0.0 | at Passa | 0.0 | Denne | 0 |
| | | | | | | | | | | | | | | spur |
| | | | | | | | | | | | | | | , |
| eq Offs | Freq | | | | | | | | | _ | | | | |
| 01 | | | -19.83 dB | | | | | | | _ | | | 4 | |
| 0 | 525.2000 <u>Auto</u> | | Δ Limit -10.66 dB -20.72 dB -20.65 dB | dBm dBm | Hz -35.6 Hz -33.7 Hz -33.6 | requency 490500000 G 495000000 G 495976667 G 543500000 G | 10 MHz 10 MHz 10 kHz | 1.00 620 | Freq 5 GHz 0 GHz 0 GHz 0 GHz | 2.490 2.495 2.496 | rt Freq 10 GHz 105 GHz 150 GHz 160 GHz | Star 2.421 2.490 2.495 | Range Range 2 3 | Spur |

Plot 7-71. Lower ACP Plot (NR Band n41 - 60MHz CP-OFDM-QPSK - Full RB - AntJ)



Plot 7-72. Upper ACP Plot (NR Band n41 - 60MHz CP-OFDM-QPSK - Full RB - AntJ)

| FCC ID: A3LSMS908E | PCTEST Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|---|--|---------|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dago 54 of 95 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | | Page 54 of 85 |
| © 2022 PCTEST | • | • | | V3.0 1/6/2022 |



| X/RL | | n Analyzer - Spurio RF 50 Ω | | s RREC | | SENSE:INT | | ALIGN AUTO | 10:20:33 | PM Feb 17, 2022 | | |
|----------------------------|-------------|--------------------------------|------------------|----------------|------------------------|---|----------------------|------------------|-----------------------|-----------------------------|------------------|----------------------------|
| PAS | S Gat | te: LO | IF | Gain:Lov | +++ Trig: | r Freq: 2.52100 Free Run n: 32 dB | 0000 GHz | | Radio Ste Radio De | d: None vice: BTS | Frequ | ency |
| 10 dB Log F | 3/div | Ref 30.00 | dBm | 1 | | | | | | | | · |
| 20.0 10.0 | | | | | | | | | | | Cent 2.521000 | t er Fre 1000 GH |
| 0.00 10.0 - | | | | | | | | | | | | |
| 20.0 - 30.0 - 40.0 - | | | | | | ~~ | | | | Warman Multiger Contraction | | |
| 50.0 - 60.0 - | | | <u> </u> | | | | | | | | | |
| L Start | 2.434 (| GHz | | | | | | | Stop : | 2.559 GHz | (525.200 | CF Ste 000 M⊦ |
| | Range | Start Freq | Stop | Frea | RBW | Frequency | Am | plitude | ∆ Limit | | <u>Auto</u> | Ma |
| Spur | | | | | | 2.490500000 | | | -10.55 d | B | | |
| Spur | 1 | 2.4335 GHz | 2.4905 | o GHZ | | | | | -10.55 u | | | |
| Spur 1 2 | | 2.4335 GHz 2.4905 GHz | 2.4905 | | | 2.494550000 | | | -20.74 d | | Ero | |
| 1 | 1 | | |) GHz | 1.000 MHz | | GHz -33. | 74 dBm | | В | Free | q Offs |
| | 1 2 | 2.4905 GHz | 2.4950 |) GHz) GHz | 1.000 MHz 560.0 kHz | 2.494550000 | GHz -33. GHz -35. | 74 dBm 55 dBm | -20.74 d | B B | Free | |
| 2 | 1 2 3 | 2.4905 GHz 2.4950 GHz | 2.4950 2.4960 |) GHz) GHz | 1.000 MHz 560.0 kHz | 2.494550000 2.495960000 | GHz -33. GHz -35. | 74 dBm 55 dBm | -20.74 d -22.55 d | B B | Free | q Offs 0 I |

Plot 7-73. Lower ACP Plot (NR Band n41 - 50MHz CP-OFDM-QPSK - Full RB - AntJ)



Plot 7-74. Upper ACP Plot (NR Band n41 - 50MHz CP-OFDM-QPSK - Full RB - AntJ)

| FCC ID: A3LSMS908E | Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|-------------------------------|--|---------|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 55 of 95 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | | Page 55 of 85 |
| © 2022 PCTEST | | · | | V3.0 1/6/2022 |



| 📕 Keysi 🗶 R L | ight Spectrun | n <mark>Analyz</mark> RF | er - Spur 50 Ω | ious Em | | RREC | | | CEN | ISE:INT | | | ALIGN AUT | 0 | 10.20- | 40 DM | 1Feb 17, 2022 | _ | |
|---------------------|---|-----------------------------|-------------------|---------|--------|---------|---------|---------|---------------|--------------------|------|----------|-----------|-----|---------|-------|---------------|-------------|-----------------------|
| | | te: LO | 50.32 | DC | COI | | - -→ | , Trig: | er Fr Free | eq: 2.51598 Run | 0000 | GHz | ALIGN ADT | | Radio | | | F | requency |
| PASS | | | | | IFG | Gain:Lo | w | #Atte | n: 32 | 2 dB | | | | | Radio I | Devi | ce: BTS | | |
| | | | | | | | | | | | | | | | | | | | |
| 10 d <u>B</u> / | div | Ref | 30.00 | dBr | n | | | | | | | | | | | | | | |
| - °g 20.0 | | | | | | | | | | | | | | | | | | | . |
| | | | | | | | | | | | | | | | | | | | Center Fre |
| 10.0 | | | | | | | | | | | | | | | | | | 2.51 | 5980000 GH |
| 0.00 | | | | | | | | | | | | <u> </u> | | | | | | | |
| 10.0 | | | | | | | | | | | | | | | | | | | |
| 20.0 | | | | | | | | | | | | | | | | | | | |
| 30.0 | | | | | | | | | | | | | | | | | | | |
| 40.0 | | | | | | | | | ~~. | ſ | | | | | | ~~ | | | |
| 50.0 | | | | | مسمحى | | | | | | | | | | | | | | |
| | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | | | | | | | | | | | | | | | | |
| 60.0 | | | | | | | | | | | | | | | | | | | |
| Start | 2.446 0 | SHz | | | | | | | | | | | | | Sto | p 2. | 546 GHz | | 05.04 |
| | | | | | | | | | | | | | | | | | | 525 | CF Ste 5.200000 MH |
| Spur | Range | Star | t Freg | 8 | Stop F | Freq | R | BW | Fr | equency | | Ampl | itude | | ΔLim | it | | <u>Auto</u> | Ma |
| 1 | 1 | 2.446 | 60 GHz | 2. | 4905 | GHz | 1.0 | 000 MHz | 2.4 | 89610000 | GHz | -35.14 | dBm | | -10.14 | dB | | | |
| 2 | 2 | |)5 GHz | | 4950 | | | | | 93425000 | | | | | -20.54 | | | | Freq Offs |
| 3 | 3 | | 50 GHz | | 4960 | | | | | 96000000 | | | | | -23.10 | | | | 0 H |
| 4 | 4 | 2.496 | 60 GHz | 2. | 5460 | GHz | 43 | 0.0 kHz | 2.5 | 30199134 | GHz | 3.172 | dBm | | -21.83 | dB | | | 01 |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | _ | _ | _ | _ | _ | _ | _ | | | | | | | - | | | | |
| G | | | | | | | | | | | | | STA | TUS | | | | | |

Plot 7-75. Lower ACP Plot (NR Band n41 - 40MHz CP-OFDM-QPSK - Full RB - AntJ)



Plot 7-76. Upper ACP Plot (NR Band n41 - 40MHz CP-OFDM-QPSK - Full RB - AntJ)

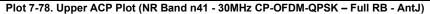
| FCC ID: A3LSMS908E | PCTEST. Proud to be part of @element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|---|--|---------|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 56 of 95 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | | Page 56 of 85 |
| © 2022 PCTEST | | • | | V3.0 1/6/2022 |



| | 10-21-22 DM | ALIGN AUTO | art. | | | DRREC | | lyzer - Spuriou 50 Ω [| nt Spectrum RF | Keys R L |
|--|-------------------------------------|--|---|----------------------|-------------------------------------|-------------------------|----------------|---------------------------|-------------------|---------------------|
| SENSE:INT ALIGN AUTO 10:31:23 PM Feb 17, 2022 Frequency Center Freq: 2.51100000 GHz Radio Std: None Frequency → Trig: Free Run Frequency Frequency | | ALIGN AUTO | 2.511000000 G | nter | | JRREC | | | Gate | |
| Low #Atten: 32 dB Radio Device: BTS | Radio Devi | | | tten: | w #Atte | Gain:Low | IF | <u> </u> | Gate | AS |
| | | | | | | | | | | |
| | | | | | | | dBm | f 30.00 d | iv | 0 dB og [|
| Center F | | | | | | | | | | 20.0 |
| 2.511000000 | | | | | | | | | | 10.0 |
| | q | | | | | | | | | 1.00 |
| | | | | | | | | | | 0.0 |
| | | | | | | | | | | 0.0 |
| | | | | | | | | | | 0.0 |
| | • | | | | | | | | | 10.0 |
| | | | | | | | | ممسمه | | 0.0 L |
| | | | | | | | | | | |
| | | | | | | | | | | 0.0 |
| Stop 2.534 GHz CF St | Stop 2. | | | | | | | 2 | 2.459 G | tart |
| 525.20000 M | | | | | | | | | | |
| | | 114 1 | ency | | RBW | Fred | Stop | art Freq | Range | Spur |
| | | | | | | 1 log | | | | |
| z 1.000 MHz 2.490500000 GHz -31.76 dBm -6.761 dB | -6.761 dB | 6 dBm | 00000 GHz - | Hz 2 | 1.000 MHz | 5 GHz | 2.490 | 585 GHz | | |
| RBW Prequency Amplitude A Linit z 1.000 MHz 2.490500000 GHz -31.76 dBm -6.761 dB z 1.000 MHz 2.494820000 GHz -30.73 dBm -17.73 dB Freq Off | -6.761 dB -17.73 dB | ' <mark>6 dBm</mark> '3 dBm | 00000 GHz - 20000 GHz - | Hz 2 Hz 2 | 1.000 MHz | 5 GHz 0 GHz | 2.490 2.495 | 905 GHz | 2 | |
| RBW Prequency Amplitude A Limit z 1.000 MHz 2.49050000 GHz 31.76 dBm -6.761 dB z 1.000 MHz 2.49482000 GHz -30.73 dBm -17.73 dB z 330.0 kHz 2.495720000 GHz -35.19 dBm -22.19 dB Freq Off | -6.761 dB -17.73 dB -22.19 dB | <mark>'6 dBm</mark> '3 dBm 9 dBm | 00000 GHz - 20000 GHz - 20000 GHz - | Hz 2 Hz 2 Iz 2 | 1.000 MHz 1.000 MHz 330.0 kHz | 5 GHz 0 GHz 0 GHz | 2.490 | | 2 : 3 : | |

Plot 7-77. Lower ACP Plot (NR Band n41 - 30MHz CP-OFDM-QPSK - Full RB - AntJ)





| FCC ID: A3LSMS908E | Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|-------------------------------|--|-----------------------------------|
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| 🚾 Keysi 🗶 R L | ight Spectrun | | r - Spuri 50 Ω | ous Emi | issions CORF | DEC | | | CEN | SE:INT | | | ALIGN AUT | 0 | 10.25.5 | 50 DM | 1Feb 17, 2022 | _ | |
|------------------------|---------------|-------|-------------------|---------|-----------------|---------|-----|--------|---------------|------------------|--|-----------------|--------------|--|---------|-------|---------------|-------------|--------------------------|
| PASS | | te:LO | 20.22 | DC | | | | Trig: | r Fre Free | q: 2.5059 Run | 90000 | GHz | ALIGN AUT | Radio Std: None Frequ Radio Device: BTS | | | equency | | |
| -433 | | | | | | ain:Lov | N | #Atte | n: 32 | dB | | | | | Radio I | Devi | ce: BTS | | |
| i0 dB/ ₋og Г | div | Ref 3 | 30.00 | dBn | n | | | | | | | | | | | | | | |
| 20.0 | | | | | | | | | | | | | | | | | | | Center Fre 5990000 G⊢ |
| 0.00 | | | | | | | | | | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | ~~~ <u>~</u> ~~ | and a second | ~~~ | ~ | ł | | 2.000 | 5550000 011 |
| 10.0 | | | | | | | | | = | | | | | | | Ļ | | | |
| 20.0 - 30.0 - | | | | | | | | | | ļ | | | | | | | | | |
| 40.0 - | | | | **** | | ~ | | ~ | تمد | | | | | | | | m vvr | | |
| -50.0 💻 | | ~~~~~ | | | | | | | | | | | | | | | | | |
| -60.0 | | | | | | | | | | | | | | | | | | | |
| Start | 2.471 (| SHZ | | | | | | | | | | | | | Stop | o 2. | 521 GHz | | CF Ste .200000 MH |
| Spur | Range | Start | Freq | S | top F | req | RB | W | Fre | quency | | Ampl | itude | | ∆ Lim | it | | <u>Auto</u> | Ma |
| | 1 | 2.471 | | | 4905 | | | | | 38355000 | | | | | -7.266 | | | | |
| 2 | 2 | 2.490 | | | 4950 | | | | | 9500000 | | | | | -16.77 | | | | Freq Offs |
| 3 | 3 | 2.495 | | | 4960 | | | | | 9600000 | | | | | -19.66 | | | | 0 - |
| 4 | 4 | 2.496 | 0 GHz | 2. | 5210 | GHz | 240 | .0 kHz | 2.50 | 9768116 | 6 GHz | 3.734 | dBm | | -21.27 | dB | | | 01 |
| | | | | | | | | | | | | | | | | | | | |
| SG | | | | | | | | | | | | | STA | TUS | | | | | |

Plot 7-79. Lower ACP Plot (NR Band n41 - 20MHz CP-OFDM-QPSK - Full RB - AntJ)



Plot 7-80. Upper ACP Plot (NR Band n41 - 20MHz CP-OFDM-QPSK - Full RB - AntJ)

| FCC ID: A3LSMS908E | PCTEST Proud to be post of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|---|--|---------|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Daga 59 of 95 |
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NR Band n41 SRS2 – AntB

| Keysight S | | | | | | | | | | | | | | | | | . |
|------------|------|-------|-------|----|--------|--------|-----|---------|-----------|--------------------------|-----|--------|------------|---------|-------------------------------|-------------|----------|
| KU RL | R | F | 50 Ω | DC | CO | RREC | | Cent | | NSE:INT reg: 2.546000 | 000 | | ALIGN AUTO | | 5 PM Feb 17, 2022 td: None | Freque | ncy |
| | Gat | e: LO | | | | | • | | | e Run | | 5112 | | Raulo 3 | tu. None | | |
| PASS | out | | | | IF | Gain:L | wo | #Att | en: 3 | 2 dB | | | | Radio D | evice: BTS | | |
| | | | | | | | | | | | | | | | | | |
| 10 dB/div | | Ref 3 | 10 OO | dB | m | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 20.0 | | | | | | | | | | | | | | | | Cent | er Fre |
| 10.0 | | | | | | | | | | | | | | | | 2.546000 | 000 GH |
| 0.00 | | | | | | | | | | | | | | | _ | | |
| 10.0 | | | | | | | | | | | | | | | ļ | | |
| | | | | | | | | | | | | | | | | | |
| 20.0 | | | | | | | | | | | | | | | | | |
| 30.0 | | | | | | | | | | | | | | | | | |
| 40.0 | | | | | | | | _ | ليهيدوهما | | | | | | | | |
| 50.0 | | | | | | | | - And - | | | | | | | | | |
| 60.0 | | | -7 | | ****** | | | | | | | | | | | | |
| ·6U.U | | | | | | | | | | | | | | | | | |
| Start 2.3 | 71 G | Hz | | | | | | | | | | | | Stop | 2.621 GHz | | |
| | | | | | | | | | | | | | | | | 244.000 | F Ste |
| Spur Ra | ange | Start | Freq | | Stop | Freq | | RBW | Fi | requency | | Ampli | tude | ∆ Limi | t | <u>Auto</u> | Ma |
| 1 1 | | 2.371 | 0 GHz | 2 | .490 | 5 GHz | : 1 | .000 MH | z 2.4 | 486985294 (| GHz | -38.37 | dBm | -13.37 | dB | | |
| 2 2 | | 2.490 | 5 GHz | 2 | .495(| 0 GHz | : 1 | .000 MH | z 2.4 | 195000000 0 | GHz | -38.52 | dBm | -25.52 | dB | Free | Offs |
| 3 3 | | 2.495 | | | | 0 GHz | | | _ | 496000000 | | | | -17.36 | | 1100 | 013 |
| 4 4 | | 2.496 | 0 GHz | 2 | .621(| 0 GHz | . 1 | .000 MH | z 2.5 | 592887550 (| GHz | 1.275 | dBm | -23.72 | dB | | 0 1 |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| SG | _ | | _ | _ | | _ | | | | | _ | | STATU | s | | | |
| | | | | | | | | | | | | | | | | | |

Plot 7-81. Lower ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK - Full RB - AntB)

| Keysigl | F | n Analyzer - Spurio F 50 Ω re: LO | DC CORREC | Trig: | SENSE:INT r Freq: 2.6400000 Free Run n: 32 dB | ALIGN AUTO | Radio Std: None | Frequency |
|---------------|----------------------|---|------------|-----------|--|---------------|--|------------------------------|
| 10 dB/d | | Ref 30.00 | IFGain:L | ow_#Atte | n: 32 aB | | Radio Device: BTS | |
| -og | | | | | | | | |
| 10.0 | | | | | | | | Center Fre 2.640000000 GH |
| 0.00 | | /- ··· | | | ~ | | | |
| 20.0 | | | | | | | | |
| 30.0 | | | | | | | | |
| 40.0 | لىمىيەتىم مەمامىي | | | | | ~~ | | |
| 50.0 <u> </u> | | | | | | ** | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | |
| Start : | 2.565 C | Hz | | | | | Stop 2.815 GHz | CF Ste 244.000000 MH |
| Spur | Range | Start Freq | Stop Freq | RBW | Frequency | Amplitude | ∆ Limit | <u>Auto</u> Ma |
| | 1 | 2.5650 GHz | 2.6900 GHz | 1.000 MHz | 2.604658635 GH | lz 0.678 dBm | -24.32 dB | |
| | 2 | 2.6900 GHz | 2.6910 GHz | | 2.690000000 GH | | -21.16 dB | Freq Offse |
| | 3 | 2.6910 GHz | 2.6950 GHz | | 2.695000000 GH | | -25.03 dB | 0 H |
| | 4 | 2.6950 GHz | 2.7900 GHz | | 2.695000000 GH | | -22.19 dB | 011 |
| 5 | 5 | 2.7900 GHz | 2.8150 GHz | 1.000 MHz | 2.804750000 GH | iz -50.86 dBm | -25.86 dB | |
| 5G | _ | | | | | STAT | TUS | |

Plot 7-82. Upper ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK - Full RB - AntB)

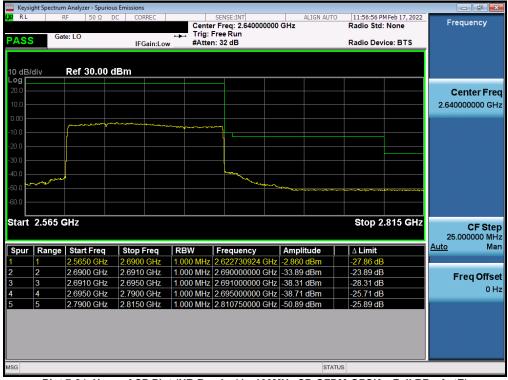
| FCC ID: A3LSMS908E | PCTEST Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|---|--|---------|-----------------------------------|
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NR Band n41 SRS3 – AntE

| RL | im Analyzer - Spurio RF 50 Ω | DC CORREC | | SENSE:INT | ALIGN AUTO | | 4 Feb 17, 2022 | Frequen | 5 × |
|--------------------|--|--|---|---|--|--|--|----------------------|----------------|
| ASS | ate: LO | IFGain: | Trig: | er Freq: 2.546000 Free Run m: 32 dB | 0000 GHz | Radio Std: Radio Devi | | Frequen | cy |
| 0 dB/div | Ref 30.00 | dBm | | | | | | | |
| 0.0 | | | | | | | | Center 2.54600000 | |
| 0.00 0.0 0.0 | | | | | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | |
| 0.0 | | | | | | | and the second | | |
| 0.0 | | ~~_L~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | | | | | |
| tart 2.371 | GHz | | | | | Stop 2. | .621 GHz | CF 25.00000 | F Ste 00 M⊦ |
| Spur Range | Start Freq | Stop Freq | RBW | Frequency | Amplitude | ∆ Limit | | Auto | Ma |
| 1 | 2.3710 GHz | 2.4905 GH | z 1.000 MHz | 2.489997899 | GHz -43.20 dBm | -18.20 dB | | | |
| 2 | 2.4905 GHz | 2.4950 GH | z 1.000 MHz | 2.490500000 | GHz -43.17 dBm | -30.17 dB | | Ereat | Offe |
| 3 | 2.4950 GHz | 2.4960 GH | z 1.000 MHz | 2.496000000 | GHz -34.50 dBm | -21.50 dB | | rieqv | 015 |
| 4 | 2.4960 GHz | 2.6210 GH | z 1.000 MHz | 2.546702811 | GHz -2.990 dBm | -27.99 dB | | | UF |
| 1 2 3 | 2.3710 GHz 2.4905 GHz 2.4950 GHz | 2.4905 GH 2.4950 GH 2.4960 GH | z 1.000 MHz z 1.000 MHz z 1.000 MHz | 2.489997899 (2.490500000 (2.496000000 (| GHz -43.20 dBm GHz -43.17 dBm GHz -34.50 dBm | Δ Limit -18.20 dB -30.17 dB -21.50 dB | | | 0 |

Plot 7-83. Lower ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK - Full RB - AntE)



Plot 7-84. Upper ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK - Full RB - AntE)

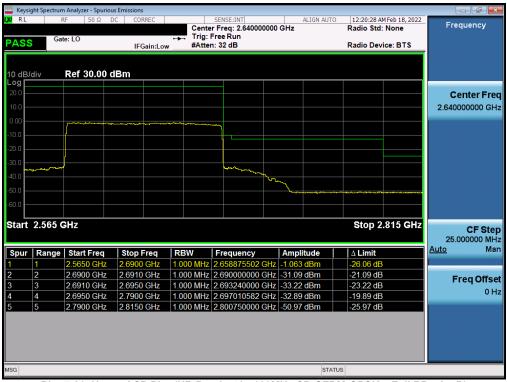
| FCC ID: A3LSMS908E | PCTEST Proud to be port of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|---|--|---------|-----------------------------------|
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NR Band n41 SRS4 – AntD

| | Spectrum | | | | | | | | | | | | | | | | |
|----------------------|----------|-------------|-------|--|---------|--------|--------|----------|-------|--------------------------|-------|-------|------------|---------|-----------------|--------|------------------------|
| I <mark>XI</mark> RL | R | F | 50 Ω | DC | CO | RREC | | Cent | | NSE:INT req: 2.546000 | 000 G | | ALIGN AUTO | | AM Feb 18, 2022 | F | requency |
| _ | Gat | e: LO | | | | | | Trig: | Fre | e Run | 000 0 | 5112 | | Radio 3 | u. None | | |
| PASS | | | | | IF | Gain:L | .ow | #Atte | n: 3 | 2 dB | | | | Radio D | evice: BTS | | |
| | | | | | | | | | | | | | | | | | |
| 10 dB/div | v | Ref : | 30.00 | dB | m | | | | | | | | | | | | |
| Log | | | | | | | | | | | | | | | | | |
| 20.0 | | | | | | | | | | | | | | | | | Center Free |
| 10.0 | | | | | | | | | | | | | | | | 2.54 | 6000000 GH |
| 0.00 | | | | | | | | | | | ~~~~ | | | | - | | |
| -10.0 | | | | | | | | | | | | | | | | | |
| -20.0 | | | | | | | | | | | | | | | | | |
| -30.0 | | | | | | | | | | | | | | | | | |
| -40.0 | | | | | | | | منعم | نيم.^ | | | | | | man and | | |
| | | | | | | | | 1 | | | | | | | | | |
| -50.0 | , | · | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | daahood | t | Janago | ~~^ | | | | | | | | | |
| -60.0 | | | | | | | | | | | | | | | | | |
| Start 2 | 371 6 | <u>د ال</u> | | | | | | | _ | | | | | Ston | 2.621 GHz | | |
| Start Z | .3710 | 2112 | | | | | | | | | | | | Stop | 2.021 962 | | CF Step 5.000000 MH |
| Spur F | Range | Ohard | Freq | | 04 | Freg | | RBW | | requency | | Ampli | | ∆ Limit | | Auto | Mar Mar |
| 3pur r | | | 0 GHz | | | 5 GHz | | | | 188993697 G | | | | -9.352 | | | |
| 2 2 | | | 5 GHz | | | 0 GHz | | | | 494055000 G | | | | -21.96 | | | |
| 3 3 | | | 0 GHz | | | 0 GHz | | | | 496000000 G | | | | -18.72 | | | Freq Offse |
| 4 4 | | 2.496 | 0 GHz | : 2 | .6210 |) GHz | . 1 | .000 MHz | 2.5 | 591381526 G | Hz - | 0.155 | dBm | -25.16 | dΒ | | 0 H: |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| MSG | | | | | | | | | | | | | STATU | 3 | | | |
| | - | | - | | | - | | | - | | | | | | | 2 1 10 | |

Plot 7-85. Lower ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK - Full RB - AntD)



Plot 7-86. Upper ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK - Full RB - AntD)

| FCC ID: A3LSMS908E | PCTEST Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|---|--|---------|-----------------------------------|
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7.6 Radiated Power (EIRP)

Test Overview

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

Test Procedures Used

KDB 971168 D01 v03r01 - Section 5.2.1

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

Test Settings

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

| FCC ID: A3LSMS908E | Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
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The EUT and measurement equipment were set up as shown in the diagram below.

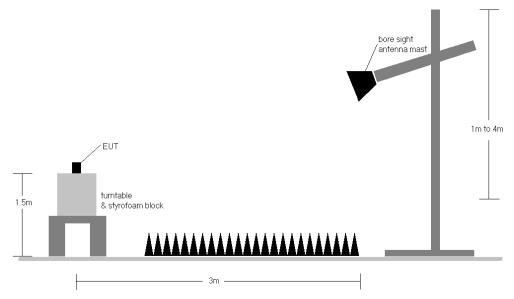


Figure 7-5. Radiated Test Setup >1GHz

Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

| FCC ID: A3LSMS908E | Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
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| Bandwidth | Mod. | Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Ant. Gain [dBi] | RB Size/Offset | Substitute Level [dBm] | EIRP [dBm] | EIRP [Watts] | EIRP Limit [dBm] | Margin [dB] |
|-----------|----------------------|--------------------|--------------------|---------------------------|----------------------------------|--------------------|-------------------|---------------------------|---------------|-----------------|---------------------|----------------|
| | π/2 BPSK | 2546.0 | V | 108 | 25 | 9.40 | 1 / 136 | 11.56 | 20.96 | 0.125 | 33.01 | -12.05 |
| ~ | π/2 BPSK | 2593.0 | V | 118 | 26 | 9.46 | 1 / 136 | 12.67 | 22.13 | 0.163 | 33.01 | -10.88 |
| 100 MHz | π/2 BPSK | 2640.0 | V | 114 | 26 | 9.50 | 1 / 68 | 11.59 | 21.09 | 0.129 | 33.01 | -11.92 |
| N O | QPSK | 2546.0 | V | 108 | 25 | 9.40 | 1 / 136 | 10.84 | 20.24 | 0.106 | 33.01 | -12.77 |
| 10(| QPSK | 2593.0 | V | 118 | 26 | 9.46 | 1 / 136 | 12.14 | 21.60 | 0.145 | 33.01 | -11.41 |
| | QPSK | 2640.0 | V | 114 | 26 | 9.50 | 1 / 68 | 10.89 | 20.39 | 0.109 | 33.01 | -12.62 |
| | 16-QAM | 2593.0 | V | 118 | 26 | 9.46 | 1 / 136 | 11.55 | 21.01 | 0.126 | 33.01 | -12.00 |
| | π/2 BPSK | 2541.0 | V | 108 | 25 | 9.46 | 1 / 183 | 11.90 | 21.36 | 0.137 | 33.01 | -11.65 |
| | π/2 BPSK | 2593.0 | V | 118 | 26 | 9.46 | 1 / 183 | 12.90 | 22.36 | 0.172 | 33.01 | -10.65 |
| Hz | π/2 BPSK | 2645.0 | V | 114 | 26 | 9.51 | 1 / 122 | 11.40 | 20.91 | 0.123 | 33.01 | -12.10 |
| 90 MHz | QPSK | 2541.0 | V | 108 | 25 | 9.46 | 1 / 183 | 10.77 | 20.23 | 0.105 | 33.01 | -12.78 |
| 6 | QPSK | 2593.0 | V | 118 | 26 | 9.46 | 1 / 183 | 12.26 | 21.72 | 0.149 | 33.01 | -11.29 |
| | QPSK | 2645.0 | V | 114 | 26 | 9.51 | 1 / 122 | 11.06 | 20.57 | 0.114 | 33.01 | -12.44 |
| | 16-QAM | 2593.0 | V | 118 | 26 | 9.46 | 1 / 183 | 11.69 | 21.16 | 0.131 | 33.01 | -11.85 |
| | π/2 BPSK | 2536.0 | V | 108 | 25 | 9.49 | 1 / 162 | 11.67 | 21.16 | 0.131 | 33.01 | -11.85 |
| | π/2 BPSK | 2593.0 | V | 118 | 26 | 9.46 | 1 / 162 | 12.77 | 22.23 | 0.167 | 33.01 | -10.78 |
| 80 MHz | π/2 BPSK | 2650.0 | V | 114 | 26 | 9.52 | 1 / 162 | 11.76 | 21.27 | 0.134 | 33.01 | -11.74 |
| × | QPSK | 2536.0 | V | 108 | 25 | 9.49 | 1 / 162 | 10.57 | 20.06 | 0.101 | 33.01 | -12.95 |
| 80 | QPSK | 2593.0 | V | 118 | 26 | 9.46 | 1 / 162 | 11.84 | 21.30 | 0.135 | 33.01 | -11.71 |
| | QPSK | 2650.0 | V | 114 | 26 | 9.52 | 1 / 162 | 10.79 | 20.31 | 0.107 | 33.01 | -12.70 |
| | 16-QAM | 2593.0 | V | 118 | 26 | 9.46 | 1 / 162 | 10.97 | 20.44 | 0.111 | 33.01 | -12.57 |
| | π/2 BPSK | 2526.0 | V | 108 | 25 | 9.52 | 1 / 121 | 10.93 | 20.45 | 0.111 | 33.01 | -12.56 |
| | π/2 BPSK | 2593.0 | V | 118 | 26 | 9.46 | 1 / 121 | 12.15 | 21.61 | 0.145 | 33.01 | -11.40 |
| 60 MHz | π/2 BPSK | 2660.0 | V | 114 | 26 | 9.50 | 1 / 121 | 11.26 | 20.76 | 0.119 | 33.01 | -12.25 |
| N N N | QPSK | 2526.0 | V | 108 | 25 | 9.52 | 1 / 121 | 10.61 | 20.12 | 0.103 | 33.01 | -12.89 |
| 60 | QPSK | 2593.0 | V | 118 | 26 | 9.46 | 1 / 121 | 12.14 | 21.60 | 0.144 | 33.01 | -11.41 |
| | QPSK | 2660.0 | V | 114 | 26 | 9.50 | 1 / 121 | 11.14 | 20.64 | 0.116 | 33.01 | -12.37 |
| | 16-QAM | 2593.0 | V | 118 | 26 | 9.46 | 1 / 121 | 11.46 | 20.92 | 0.124 | 33.01 | -12.09 |
| | π/2 BPSK | 2521.0 | V | 108 | 25 | 9.51 | 1 / 99 | 11.57 | 21.08 | 0.128 | 33.01 | -11.93 |
| | π/2 BPSK | 2593.0 | V | 118 | 26 | 9.46 | 1 / 99 | 12.68 | 22.15 | 0.164 | 33.01 | -10.86 |
| Hz | π/2 BPSK | 2665.0 | V | 114 | 26 | 9.51 | 1 / 99 | 11.68 | 21.19 | 0.131 | 33.01 | -11.82 |
| 50 MHz | QPSK | 2521.0 | V | 108 | 25 | 9.51 | 1 / 99 | 10.66 | 20.17 | 0.104 | 33.01 | -12.84 |
| 50 | QPSK | 2593.0 | V | 118 | 26 | 9.46 | 1 / 99 | 11.96 | 21.42 | 0.139 | 33.01 | -11.59 |
| | QPSK | 2665.0 | V | 114 | 26 | 9.51 | 1 / 99 | 10.72 | 20.23 | 0.105 | 33.01 | -12.78 |
| | 16-QAM | 2593.0 | V | 118 | 26 | 9.46 | 1 / 99 | 11.06 | 20.52 | 0.113 | 33.01 | -12.49 |
| | Π/2 BPSK | 2516.0 | V | 108 | 25 | 9.52 | 1 / 26 | 11.81 | 21.33 | 0.136 | 33.01 | -11.68 |
| | π/2 BPSK | 2593.0 | V | 118 | 26 | 9.46 | 1 / 26 | 12.98 | 22.44 | 0.175 | 33.01 | -10.57 |
| 40 MHz | π/2 BPSK | 2670.0 | V | 114 | 26 | 9.52 | 1 / 26 | 11.84 | 21.36 | 0.137 | 33.01 | -11.65 |
| × | QPSK | 2516.0 | V | 108 | 25 | 9.52 | 1 / 26 | 10.78 | 20.30 | 0.107 | 33.01 | -12.71 |
| 40 | QPSK | 2593.0 | V | 118 | 26 | 9.46 | 1 / 26 | 12.01 | 21.47 | 0.140 | 33.01 | -11.54 |
| | QPSK | 2670.0 | V | 114 | 26 | 9.52 | 1 / 26 | 10.99 | 20.51 | 0.113 | 33.01 | -12.50 |
| | 16-QAM | 2593.0 | V | 118 | 26 | 9.46 | 1 / 26 | 11.18 | 20.65 | 0.116 | 33.01 | -12.36 |
| | π/2 BPSK | 2511.0 | V | 108 | 25 | 9.54 | 1 / 39 | 11.16 | 20.70 | 0.118 | 33.01 | -12.31 |
| | π/2 BPSK | 2593.0 | V | 118 | 26 | 9.46 | 1 / 39 | 12.45 | 21.91 | 0.155 | 33.01 | -11.10 |
| 30 MHz | π/2 BPSK | 2675.0 | V | 114 | 26 | 9.52 | 1 / 39 | 11.87 | 21.38 | 0.137 | 33.01 | -11.63 |
| Ē | QPSK | 2511.0 | V | 108 | 25 | 9.54 | 1 / 39 | 10.76 | 20.30 | 0.107 | 33.01 | -12.71 |
| 30 | QPSK | 2593.0 | V | 118 | 26 | 9.46 | 1 / 39 | 12.08 | 21.54 | 0.143 | 33.01 | -11.47 |
| | QPSK | 2675.0 | V | 114 | 26 | 9.52 | 1 / 39 | 11.11 | 20.62 | 0.115 | 33.01 | -12.39 |
| | 16-QAM | 2593.0 | V | 118 | 26 | 9.46 | 1 / 39 | 11.50 | 20.97 | 0.125 | 33.01 | -12.04 |
| | π/2 BPSK | 2506.0 | V | 108 | 25 | 9.54 | 1 / 25 | 11.10 | 20.65 | 0.116 | 33.01 | -12.36 |
| | π/2 BPSK | 2593.0 | V | 118 | 26 | 9.46 | 1 / 13 | 12.76 | 22.22 | 0.167 | 33.01 | -10.79 |
| 20 MHz | π/2 BPSK | 2680.0 | V | 114 | 26 | 9.51 | 1 / 13 | 11.93 | 21.44 | 0.139 | 33.01 | -11.57 |
| Ξ | QPSK | 2506.0 | V | 108 | 25 | 9.54 | 1 / 25 | 10.65 | 20.19 | 0.105 | 33.01 | -12.82 |
| 20 | QPSK | 2593.0 | V | 118 | 26 | 9.46 | 1 / 13 | 12.24 | 21.70 | 0.148 | 33.01 | -11.31 |
| | QPSK | 2680.0 | V | 114 | 26 | 9.51 | 1 / 13 | 11.03 | 20.54 | 0.113 | 33.01 | -12.47 |
| | 16-QAM | 2593.0 | V | 118 | 26 | 9.46 | 1 / 13 | 11.06 | 20.52 | 0.113 | 33.01 | -12.49 |
| | QPSK (CP-OFDM) | 2593.0 | V | 118 | 25 | 9.46 | 1 / 136 | 11.00 | 20.46 | 0.111 | 33.01 | -12.55 |
| 100 MHz | QPSK (Opposite Pol.) | 2593.0 | Н | 143 | 43 | 9.46 | 1 / 136 | 11.62 | 21.08 | 0.128 | 33.01 | -11.93 |
| | QPSK (WCP) | 2593.0 | V | 148 | 332 | 9.46 | 1 / 136 | 8.82 | 18.28 | 0.067 | 33.01 | -14.73 |

Table 7-2. EIRP Data (NR Band n41 – AntJ)

| FCC ID: A3LSMS908E | | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|-------------------------|--|---------|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Daga 64 of 95 |
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| Bandwidth | Mod. | Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Ant. Gain [dBi] | RB Size/Offset | Substitute Level [dBm] | EIRP [dBm] | EIRP [Watts] | EIRP Limit [dBm] | Margin [dB] |
|-----------|----------------------|--------------------|--------------------|---------------------------|----------------------------------|--------------------|-------------------|---------------------------|---------------|-----------------|---------------------|----------------|
| | π/2 BPSK | 2546.0 | Н | 136 | 139 | 9.38 | 1 / 204 | 9.40 | 18.78 | 0.075 | 33.01 | -14.23 |
| | π/2 BPSK | 2593.0 | Н | 139 | 140 | 9.49 | 1 / 204 | 11.54 | 21.03 | 0.127 | 33.01 | -11.98 |
| MHz | π/2 BPSK | 2640.0 | Н | 143 | 135 | 9.89 | 1 / 136 | 9.81 | 19.70 | 0.093 | 33.01 | -13.31 |
| | QPSK | 2546.0 | Н | 136 | 139 | 9.38 | 1 / 204 | 8.81 | 18.19 | 0.066 | 33.01 | -14.82 |
| 100 | QPSK | 2593.0 | Н | 139 | 140 | 9.49 | 1 / 204 | 10.94 | 20.43 | 0.110 | 33.01 | -12.58 |
| | QPSK | 2640.0 | Н | 143 | 135 | 9.89 | 1 / 136 | 9.14 | 19.03 | 0.080 | 33.01 | -13.98 |
| | 16-QAM | 2593.0 | Н | 139 | 140 | 9.49 | 1 / 204 | 10.07 | 19.56 | 0.090 | 33.01 | -13.45 |
| | QPSK (CP-OFDM) | 2593.0 | Н | 138 | 146 | 9.38 | 1 / 136 | 9.43 | 18.81 | 0.076 | 33.01 | -14.20 |
| 100 MHz | QPSK (Opposite Pol.) | 2593.0 | V | 142 | 279 | 9.38 | 1 / 136 | 8.45 | 17.83 | 0.061 | 33.01 | -15.18 |
| | QPSK (WCP) | 2593.0 | Н | 140 | 156 | 9.38 | 1 / 136 | 10.08 | 19.46 | 0.088 | 33.01 | -13.55 |

Table 7-3. EIRP Data (NR Band n41 SRS2 - AntB)

| Bandwidth | Mod. | Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Ant. Gain [dBi] | RB Size/Offset | Substitute Level [dBm] | EIRP [dBm] | EIRP [Watts] | EIRP Limit [dBm] | Margin [dB] |
|-----------|----------------------|--------------------|--------------------|---------------------------|----------------------------------|--------------------|-------------------|---------------------------|---------------|-----------------|---------------------|----------------|
| | π/2 BPSK | 2550.0 | Н | 148 | 226 | 9.38 | 1 / 136 | 5.20 | 14.58 | 0.029 | 33.01 | -18.43 |
| | π/2 BPSK | 2593.0 | Н | 150 | 227 | 9.49 | 1 / 204 | 3.99 | 13.48 | 0.022 | 33.01 | -19.53 |
| MHz | π/2 BPSK | 2640.0 | Н | 143 | 227 | 9.89 | 1 / 68 | 4.42 | 14.31 | 0.027 | 33.01 | -18.70 |
| | QPSK | 2550.0 | Н | 148 | 226 | 9.38 | 1 / 136 | 5.22 | 14.60 | 0.029 | 33.01 | -18.41 |
| 100 | QPSK | 2593.0 | Н | 150 | 227 | 9.49 | 1 / 204 | 4.09 | 13.58 | 0.023 | 33.01 | -19.43 |
| | QPSK | 2640.0 | Н | 143 | 227 | <mark>9.8</mark> 9 | 1 / 68 | 4.45 | 14.34 | 0.027 | 33.01 | -18.67 |
| | 16-QAM | 2550.0 | Н | 148 | 226 | 9.38 | 1 / 136 | 4.47 | 13.85 | 0.024 | 33.01 | -19.16 |
| | QPSK (CP-OFDM) | 2546.0 | Н | 147 | 225 | 9.38 | 1 / 68 | 4.48 | 13.86 | 0.024 | 33.01 | -19.15 |
| 100 MHz | QPSK (Opposite Pol.) | 2546.0 | V | 103 | 276 | 9.38 | 1 / 136 | 5.14 | 14.52 | 0.028 | 33.01 | -18.49 |
| | QPSK (WCP) | 2546.0 | Н | 108 | 172 | 9.38 | 1 / 136 | 3.60 | 12.98 | 0.020 | 33.01 | -20.03 |

Table 7-4. EIRP Data (NR Band n41 SRS3 - AntE)

| Bandwidth | Mod. | Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Ant. Gain [dBi] | RB Size/Offset | Substitute Level [dBm] | EIRP [dBm] | EIRP [Watts] | EIRP Limit [dBm] | Margin [dB] |
|-----------|----------------------|--------------------|--------------------|---------------------------|----------------------------------|--------------------|-------------------|---------------------------|---------------|-----------------|---------------------|----------------|
| | π/2 BPSK | 2550.0 | V | 121 | 308 | 9.40 | 1 / 136 | 3.81 | 13.21 | 0.021 | 33.01 | -19.80 |
| | π/2 BPSK | 2593.0 | V | 121 | 352 | 9.46 | 1 / 136 | 5.73 | 15.19 | 0.033 | 33.01 | -17.82 |
| MHz | π/2 BPSK | 2640.0 | V | 150 | 352 | 9.50 | 1 / 68 | 4.58 | 14.08 | 0.026 | 33.01 | -18.93 |
| | QPSK | 2550.0 | V | 121 | 308 | 9.40 | 1 / 136 | 3.21 | 12.61 | 0.018 | 33.01 | -20.40 |
| 100 | QPSK | 2593.0 | V | 121 | 352 | 9.46 | 1 / 136 | 5.05 | 14.51 | 0.028 | 33.01 | -18.50 |
| - | QPSK | 2640.0 | V | 150 | 352 | 9.50 | 1 / 68 | 3.96 | 13.46 | 0.022 | 33.01 | -19.55 |
| | 16-QAM | 2593.0 | V | 121 | 352 | 9.46 | 1 / 136 | 4.43 | 13.89 | 0.025 | 33.01 | -19.12 |
| | QPSK (CP-OFDM) | 2593.0 | V | 119 | 353 | 9.40 | 1 / 136 | 3.81 | 13.21 | 0.021 | 33.01 | -19.80 |
| 100 MHz | QPSK (Opposite Pol.) | 2593.0 | Н | 172 | 190 | 9.40 | 1 / 136 | 4.16 | 13.56 | 0.023 | 33.01 | -19.45 |
| | QPSK (WCP) | 2593.0 | V | 175 | 324 | 9.40 | 1 / 136 | 1.11 | 10.51 | 0.011 | 33.01 | -22.50 |

Table 7-5. EIRP Data (NR Band n41 SRS4 - AntD)

| FCC ID: A3LSMS908E | PCTEST Proud to be port of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|---|--|---------|-----------------------------------|
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7.7 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the field strength conversion method described in KDB 971168 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using horizontally and vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03r01 - Section 5.8

Test Settings

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

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

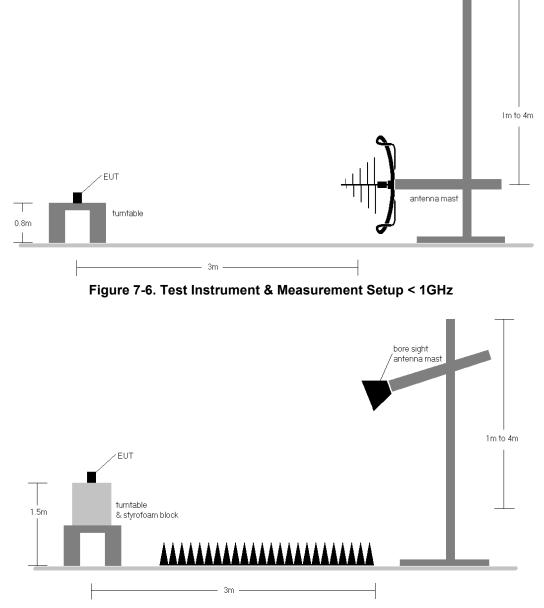


Figure 7-7. Test Instrument & Measurement Setup >1 GHz

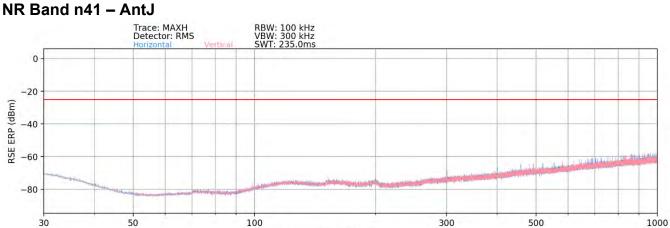
| FCC ID: A3LSMS908E | | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | NG | Approved by: Technical Manager |
|---------------------|-------------------------|--|----|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 67 of 85 |
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- Field strengths are calculated using the Measurement quantity conversions in KDB 971168 Section 5.8.4.
 a) E(dBµV/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m)
 b) EIRP (dBm) = E(dBµV/m) + 20logD 104.8; where D is the measurement distance in meters.
- 2) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 3) This unit was tested with its standard battery.
- 4) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 5) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 6) The "-" shown in the following RSE tables are used to denote a noise floor measurement.
- 7) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.
- 8) Spurious emissions shown in this section are measured while operating in EN-DC mode with Sub 6GHz NR carrier as well as an LTE carrier (anchor). Spurious emissions from the NR carrier device, is subject to the rules under which the NR carrier operates. Spurious emission caused by the LTE carrier must meet the requirements of the rules under which the LTE carrier operates.

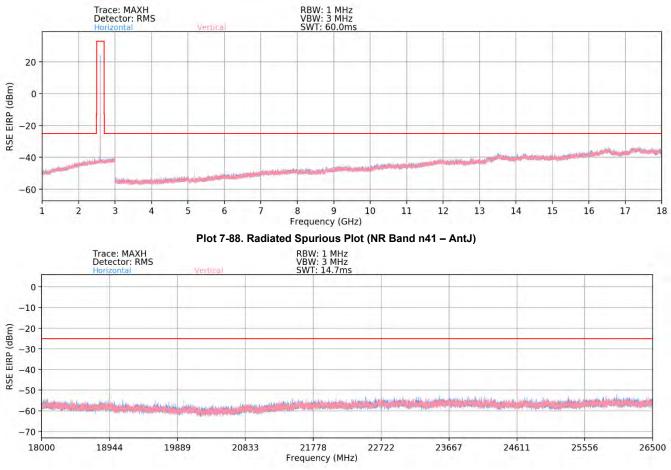
| FCC ID: A3LSMS908E | Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|-------------------------------|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Page 68 of 85 |
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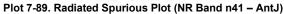












| FCC ID: A3LSMS908E | | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
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| 100 |
|-------------|
| 2546.0 |
| 1 / 136 |
| Stand Alone |
| |

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Field Strength [dBµV/m] | EIRP Spurious Emission Level [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|--------------------|------------------------|----------------------------------|----------------------------|----------------|-------------------------------|--|----------------|----------------|
| 5092.00 | Н | 128 | 59 | -71.42 | 9.98 | 45.56 | -49.70 | -25.00 | -24.70 |
| 7638.00 | Н | - | - | -74.80 | 16.41 | 48.61 | -46.65 | -25.00 | -21.65 |
| 10184.00 | Н | - | - | -76.18 | 21.26 | 52.08 | -43.18 | -25.00 | -18.18 |
| 12730.00 | н | - | - | -77.36 | 23.85 | 53.49 | -41.77 | -25.00 | -16.77 |

Table 7-6. Radiated Spurious Data (NR Band n41 – Low Channel – AntJ)

| Bandwidth (MHz): | 100 |
|------------------|-------------|
| Frequency (MHz): | 2593.0 |
| RB / Offset: | 1 / 136 |
| Mode: | Stand Alone |
| | |

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Field Strength [dBµV/m] | EIRP Spurious Emission Level [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|--------------------|------------------------|----------------------------------|----------------------------|----------------|-------------------------------|--|----------------|----------------|
| 5186.00 | Н | 113 | 59 | -63.87 | 10.21 | 53.34 | -41.91 | -25.00 | -16.91 |
| 7779.00 | Н | - | - | -74.56 | 16.37 | 48.81 | -46.44 | -25.00 | -21.44 |
| 10372.00 | Н | - | - | -75.73 | 20.21 | 51.48 | -43.78 | -25.00 | -18.78 |
| 12965.00 | Н | - | - | -76.91 | 24.68 | 54.77 | -40.49 | -25.00 | -15.49 |

Table 7-7. Radiated Spurious Data (NR Band n41 – Mid Channel – AntJ)

| Bandwidth (MHz): | 100 |
|------------------|-------------|
| Frequency (MHz): | 2640.0 |
| RB / Offset: | 1 / 136 |
| Mode: | Stand Alone |

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Field Strength [dBµV/m] | EIRP Spurious Emission Level [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|--------------------|------------------------|----------------------------------|----------------------------|----------------|-------------------------------|--|----------------|----------------|
| 5280.00 | Н | 126 | 52 | -58.55 | 10.54 | 58.99 | -36.27 | -25.00 | -11.27 |
| 7920.00 | н | 135 | 293 | -66.84 | 16.37 | 56.53 | -38.73 | -25.00 | -13.73 |
| 10560.00 | н | 104 | 343 | -73.67 | 20.37 | 53.70 | -41.56 | -25.00 | -16.56 |
| 13200.00 | Н | - | - | -76.37 | 25.41 | 56.04 | -39.22 | -25.00 | -14.22 |
| 15840.00 | Н | - | - | -77.10 | 28.63 | 58.53 | -36.72 | -25.00 | -11.72 |

Table 7-8. Radiated Spurious Data (NR Band n41 – High Channel – AntJ)

| FCC ID: A3LSMS908E | | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|-------------------------|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Page 70 of 85 |
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| Case: | w/ Wireless Charging Pad |
|------------------|--------------------------|
| Bandwidth (MHz): | 100 |
| Frequency (MHz): | 2640.0 |
| RB / Offset: | 1 / 136 |
| Mode: | WCP |

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Field Strength [dBµV/m] | EIRP Spurious Emission Level [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|--------------------|------------------------|----------------------------------|----------------------------|----------------|-------------------------------|--|----------------|----------------|
| 5280.00 | Н | 163 | 344 | -60.75 | 10.54 | 56.79 | -38.47 | -25.00 | -13.47 |
| 7920.00 | Н | 113 | 297 | -67.10 | 16.37 | 56.27 | -38.99 | -25.00 | -13.99 |
| 10560.00 | Н | - | - | -75.33 | 20.37 | 52.04 | -43.22 | -25.00 | -18.22 |
| 13200.00 | Н | - | - | -76.40 | 25.41 | 56.01 | -39.25 | -25.00 | -14.25 |
| 15840.00 | Н | - | - | -77.65 | 28.63 | 57.98 | -37.27 | -25.00 | -12.27 |

Table 7-9. Radiated Spurious Data with WCP (NR Band n41 - AntJ)

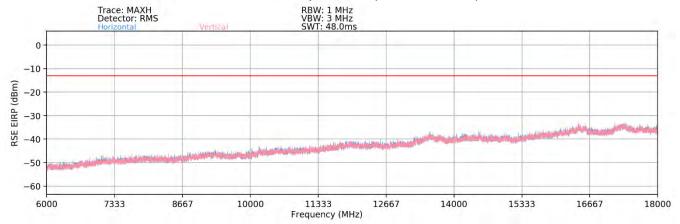
| FCC ID: A3LSMS908E | | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|-------------------------|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Dage 71 of 95 |
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Plot 7-90. Radiated Spurious Plot (NR Band n41 – B12)

Frequency (MHz)





| Case: | n41 + LTE Band 12 |
|------------------|-------------------|
| Bandwidth (MHz): | 100 & 10 |
| Frequency (MHz): | 2593 & 707.5 |
| RB / Offset: | 1 / 136 & 1 / 25 |
| Mode: | EN-DC |
| Anchor Band: | LTE Band 12 |

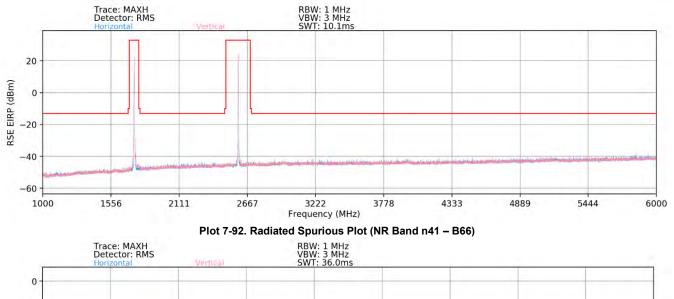
| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Field Strength [dBµV/m] | EIRP Spurious Emission Level [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|--------------------|------------------------|----------------------------------|----------------------------|----------------|-------------------------------|--|----------------|----------------|
| 1178.00 | V | - | - | -77.61 | 6.79 | 36.18 | -59.07 | -25.00 | -34.07 |
| 3063.50 | V | - | - | -79.82 | 15.79 | 42.97 | -52.29 | -25.00 | -27.29 |
| 4478.50 | V | - | - | -80.63 | 10.57 | 36.94 | -58.32 | -25.00 | -33.32 |
| 6364.00 | V | - | - | -81.88 | 13.13 | 38.25 | -57.01 | -25.00 | -32.01 |
| 8249.50 | V | - | - | -83.08 | 17.68 | 41.60 | -53.66 | -25.00 | -28.66 |

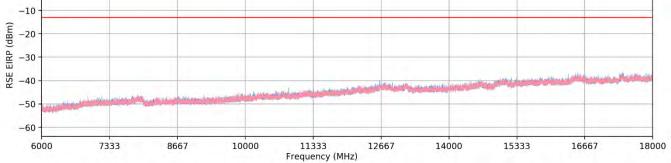
Table 7-10. Radiated Spurious Data (NR Band n41 – B12)

| FCC ID: A3LSMS908E | Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager | | |
|---------------------|-------------------------------|--|-----------------------------------|--|--|
| Test Report S/N: | Test Dates: | EUT Type: | Page 72 of 85 | | |
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NR Band n41 – B66







| Case: | n41 + LTE Band 66 |
|------------------|-------------------|
| Bandwidth (MHz): | 100 & 20 |
| Frequency (MHz): | 2593 & 1745 |
| RB / Offset: | 1 / 136 & 1 / 50 |
| Mode: | EN-DC |
| Anchor Band: | 66 |

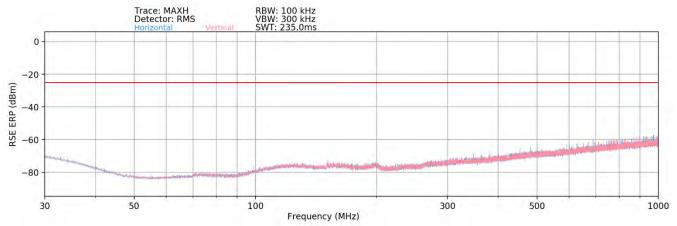
| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Field Strength [dBµV/m] | EIRP Spurious Emission Level [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|--------------------|------------------------|----------------------------------|----------------------------|----------------|-------------------------------|--|----------------|----------------|
| 2980.90 | V | - | - | -77.80 | 13.79 | 42.99 | -52.27 | -25.00 | -27.27 |
| 3129.70 | Н | - | - | -77.65 | 14.11 | 43.46 | -51.79 | -25.00 | -26.79 |
| 3441.00 | Н | - | - | -78.30 | 14.58 | 43.28 | -51.97 | -25.00 | -26.97 |
| 3982.40 | Н | - | - | -78.42 | 15.54 | 44.12 | -51.13 | -25.00 | -26.13 |
| 4289.00 | Н | - | - | -78.41 | 15.70 | 44.29 | -50.97 | -25.00 | -25.97 |
| 5137.00 | Н | - | - | -79.33 | 17.28 | 44.95 | -50.31 | -25.00 | -25.31 |

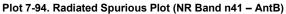
Table 7-11. Radiated Spurious Data (NR Band n41 – B66)

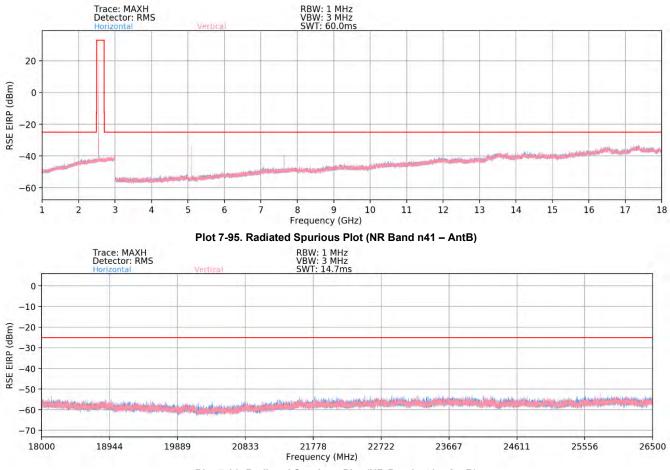
| FCC ID: A3LSMS908E | Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|-------------------------------|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Page 73 of 85 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | Fage 75 01 65 |
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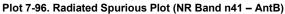


NR Band n41 SRS2 – AntB









| FCC ID: A3LSMS908E | Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|-------------------------------|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Page 74 of 85 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | Page 74 01 65 |
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| Bandwidth (MHz): | 100 |
|------------------|------------|
| Frequency (MHz): | 2546.0 |
| RB / Offset: | 1 / 136 |
| Mode: | Standalone |

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Field Strength [dBµV/m] | EIRP Spurious Emission Level [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|--------------------|------------------------|----------------------------------|----------------------------|----------------|-------------------------------|--|----------------|----------------|
| 5092.0 | V | 120 | 9 | -52.86 | 9.98 | 64.12 | -31.14 | -25.00 | -6.14 |
| 7638.0 | V | 101 | 26 | -61.67 | 16.41 | 61.74 | -33.52 | -25.00 | -8.52 |
| 10184.0 | V | 117 | 7 | -76.09 | 21.26 | 52.17 | -43.09 | -25.00 | -18.09 |
| 12730.0 | V | - | - | -77.31 | 23.85 | 53.54 | -41.72 | -25.00 | -16.72 |
| 15276.0 | V | - | - | -77.91 | 28.07 | 57.16 | -38.09 | -25.00 | -13.09 |

Table 7-12. Radiated Spurious Data (NR Band n41 – Low Channel – AntB)

| Bandwidth (MHz): | 100 |
|------------------|------------|
| Frequency (MHz): | 2593.0 |
| RB / Offset: | 1 / 136 |
| Mode: | Standalone |

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Field Strength [dBµV/m] | EIRP Spurious Emission Level [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|--------------------|------------------------|----------------------------------|----------------------------|----------------|-------------------------------|--|----------------|----------------|
| 5186.0 | V | 101 | 345 | -61.49 | 10.21 | 55.72 | -39.53 | -25.00 | -14.53 |
| 7779.0 | V | 298 | 28 | -74.43 | 16.37 | 48.94 | -46.31 | -25.00 | -21.31 |
| 10372.0 | V | - | - | -76.01 | 20.21 | 51.20 | -44.06 | -25.00 | -19.06 |
| 12965.0 | V | - | - | -76.39 | 24.68 | 55.29 | -39.97 | -25.00 | -14.97 |
| 15558.0 | V | - | - | -76.92 | 28.60 | 58.68 | -36.58 | -25.00 | -11.58 |

Table 7-13. Radiated Spurious Data (NR Band n41 – Mid Channel – AntB)

| Bandwidth (MHz): | 100 |
|------------------|------------|
| Frequency (MHz): | 2640.0 |
| RB / Offset: | 1 / 136 |
| Mode: | Standalone |

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Field Strength [dBµV/m] | EIRP Spurious Emission Level [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|--------------------|------------------------|----------------------------------|----------------------------|----------------|-------------------------------|--|----------------|----------------|
| 5280.0 | V | 112 | 3 | -58.72 | 10.54 | 58.82 | -36.44 | -25.00 | -11.44 |
| 7920.0 | V | 116 | 41 | -69.02 | 16.37 | 54.35 | -40.91 | -25.00 | -15.91 |
| 10560.0 | V | 131 | 25 | -75.52 | 20.37 | 51.85 | -43.41 | -25.00 | -18.41 |
| 13200.0 | V | - | - | -76.42 | 25.41 | 55.99 | -39.27 | -25.00 | -14.27 |
| 15840.0 | V | - | - | -76.80 | 28.63 | 58.83 | -36.42 | -25.00 | -11.42 |

Table 7-14. Radiated Spurious Data (NR Band n41 – High Channel – AntB)

| FCC ID: A3LSMS908E | PCTEST Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | | Approved by: Technical Manager |
|---------------------|---|--|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dego 75 of 95 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | | Page 75 of 85 |
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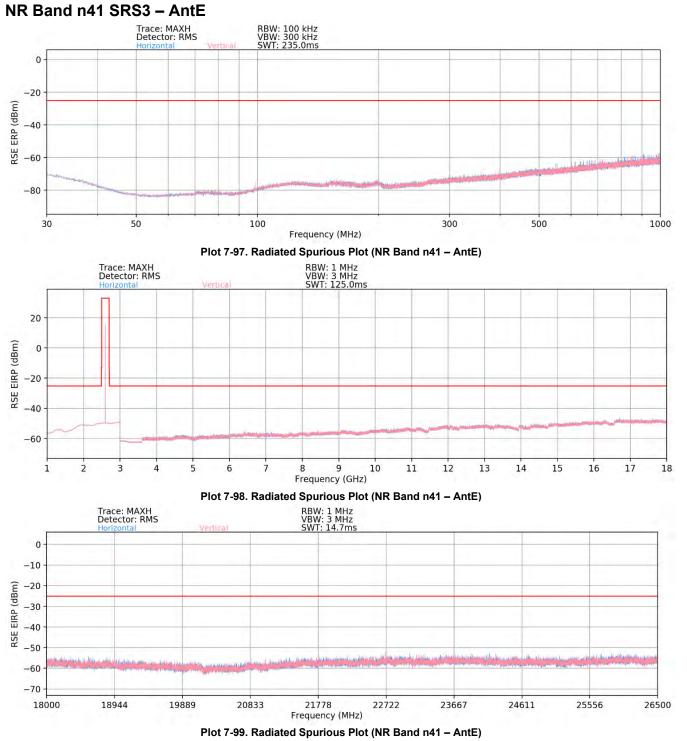
| Case: | w/ Wireless Charging Pad |
|------------------|--------------------------|
| Bandwidth (MHz): | 100 |
| Frequency (MHz): | 2546.0 |
| RB / Offset: | 1 / 136 |
| Mode: | WCP |

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Field Strength [dBµV/m] | EIRP Spurious Emission Level [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|--------------------|------------------------|----------------------------------|----------------------------|----------------|-------------------------------|--|----------------|----------------|
| 5092.0 | V | 101 | 359 | -57.32 | 9.98 | 59.66 | -35.60 | -25.00 | -10.60 |
| 7638.0 | V | 254 | 21 | -62.29 | 16.41 | 61.12 | -34.14 | -25.00 | -9.14 |
| 10184.0 | V | - | - | -76.56 | 21.26 | 51.70 | -43.56 | -25.00 | -18.56 |
| 12730.0 | V | - | - | -76.93 | 23.85 | 53.92 | -41.34 | -25.00 | -16.34 |
| 15276.0 | V | - | - | -77.50 | 28.07 | 57.57 | -37.68 | -25.00 | -12.68 |

Table 7-15. Radiated Spurious Data with WCP (NR Band n41 - AntB)

| FCC ID: A3LSMS908E | Proud to be part of @element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager | |
|---------------------|------------------------------|--|---------|-----------------------------------|--|
| Test Report S/N: | Test Dates: | EUT Type: | | Dago 76 of 95 | |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | | Page 76 of 85 | |
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| FCC ID: A3LSMS908E | | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|--|--|---------|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 77 of 85 |
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| © 2022 PCTEST | | | | V3.0 1/6/2022 |



| Bandwidth (MHz): | 100 |
|------------------|-------------|
| Frequency (MHz): | 2546.0 |
| RB / Offset: | 1 / 136 |
| Mode: | Stand-Alone |

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Field Strength [dBµV/m] | EIRP Spurious Emission Level [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|--------------------|------------------------|----------------------------------|----------------------------|----------------|-------------------------------|--|----------------|----------------|
| 5092.00 | V | 278 | 355 | -69.03 | 4.45 | 42.42 | -52.83 | -25.00 | -27.83 |
| 7638.00 | V | - | - | -76.25 | 7.84 | 38.59 | -56.66 | -25.00 | -31.66 |
| 10184.00 | V | - | - | -77.35 | 11.03 | 40.68 | -54.58 | -25.00 | -29.58 |
| 12730.00 | V | - | - | -77.66 | 14.48 | 43.82 | -51.44 | -25.00 | -26.44 |

Table 7-16. Radiated Spurious Data (NR Band n41 – Low Channel – AntE)

| Bandwidth (MHz): | 100 | |
|------------------|-------------|--|
| Frequency (MHz): | 2593.0 | |
| RB / Offset: | 1 / 136 | |
| Mode: | Stand-Alone | |
| | | |

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Field Strength [dBµV/m] | EIRP Spurious Emission Level [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|--------------------|------------------------|----------------------------------|----------------------------|----------------|-------------------------------|--|----------------|----------------|
| 5186.00 | V | 127 | 340 | -68.70 | 4.91 | 43.21 | -52.05 | -25.00 | -27.05 |
| 7779.00 | V | - | - | -75.75 | 7.30 | 38.55 | -56.71 | -25.00 | -31.71 |
| 10372.00 | V | - | - | -76.46 | 11.04 | 41.58 | -53.68 | -25.00 | -28.68 |
| 12965.00 | V | - | - | -77.44 | 14.49 | 44.05 | -51.21 | -25.00 | -26.21 |

Table 7-17. Radiated Spurious Data (NR Band n41 – Mid Channel – AntE)

| Bandwidth (MHz): | 100 |
|------------------|-------------|
| Frequency (MHz): | 2640.0 |
| RB / Offset: | 1 / 136 |
| Mode: | Stand-Alone |

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Field Strength [dBµV/m] | EIRP Spurious Emission Level [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|--------------------|------------------------|----------------------------------|----------------------------|----------------|-------------------------------|--|----------------|----------------|
| 5280.00 | V | 313 | 16 | -66.35 | 4.66 | 45.31 | -49.95 | -25.00 | -24.95 |
| 7920.00 | V | - | - | -76.60 | 8.30 | 38.70 | -56.56 | -25.00 | -31.56 |
| 10560.00 | V | - | - | -78.02 | 11.56 | 40.54 | -54.72 | -25.00 | -29.72 |
| 13200.00 | V | - | - | -77.55 | 14.06 | 43.51 | -51.74 | -25.00 | -26.74 |

Table 7-18. Radiated Spurious Data (NR Band n41 – High Channel – AntE)

| FCC ID: A3LSMS908E | | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|-------------------------|--|--|
| Test Report S/N: | Test Dates: | EUT Type: | Page 78 of 85 |
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| Case: | w/ Wireless Charging Pad |
|------------------|--------------------------|
| Bandwidth (MHz): | 100 |
| Frequency (MHz): | 2640.0 |
| RB / Offset: | 1 / 136 |
| Mode: | SA |

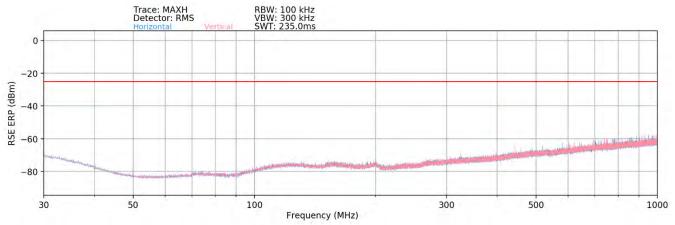
| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Field Strength [dBµV/m] | EIRP Spurious Emission Level [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|--------------------|------------------------|----------------------------------|----------------------------|----------------|-------------------------------|--|----------------|----------------|
| 5280.00 | V | 117 | 352 | -67.22 | 4.66 | 44.44 | -50.82 | -25.00 | -25.82 |
| 7920.00 | V | 141 | 9 | -75.22 | 8.30 | 40.08 | -55.18 | -25.00 | -30.18 |
| 10560.00 | V | - | - | -77.94 | 11.56 | 40.62 | -54.64 | -25.00 | -29.64 |
| 13200.00 | V | - | - | -77.39 | 14.06 | 43.67 | -51.58 | -25.00 | -26.58 |
| 15840.00 | V | - | - | -78.25 | 17.07 | 45.82 | -49.44 | -25.00 | -24.44 |

Table 7-19. Radiated Spurious Data with WCP (NR Band n41 - AntE)

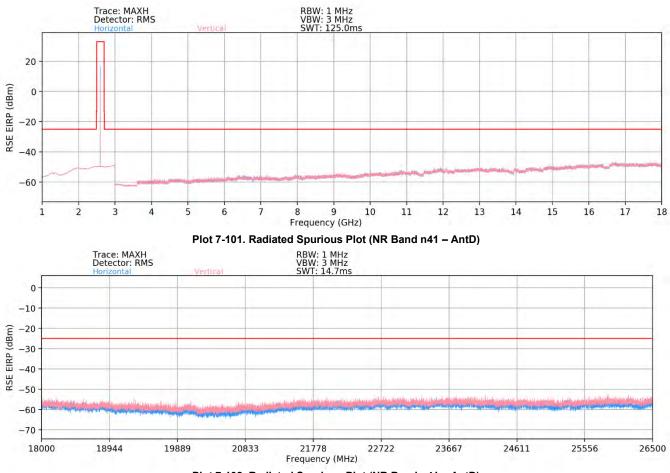
| FCC ID: A3LSMS908E | PCTEST Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|---|--|---------|-----------------------------------|
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NR Band n41 SRS4 – AntD









| FCC ID: A3LSMS908E | | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|-------------------------|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Page 80 of 85 |
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| Bandwidth (MHz): | 100 |
|------------------|-------------|
| Frequency (MHz): | 2546.0 |
| RB / Offset: | 1 / 136 |
| Mode: | Stand-Alone |

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Field Strength [dBµV/m] | EIRP Spurious Emission Level [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|--------------------|------------------------|----------------------------------|----------------------------|----------------|-------------------------------|--|----------------|----------------|
| 5092.00 | Н | 191 | 26 | -70.92 | 4.48 | 40.56 | -54.70 | -25.00 | -29.70 |
| 7638.00 | Н | 144 | 296 | -70.37 | 7.81 | 44.44 | -50.81 | -25.00 | -25.81 |
| 10184.00 | Н | 136 | 309 | -74.21 | 11.10 | 43.89 | -51.36 | -25.00 | -26.36 |
| 12730.00 | Н | 152 | 332 | -74.39 | 14.20 | 46.81 | -48.45 | -25.00 | -23.45 |
| 15276.00 | Н | - | - | -77.88 | 15.92 | 45.04 | -50.22 | -25.00 | -25.22 |
| 17822.00 | Н | - | - | -78.38 | 18.75 | 47.37 | -47.89 | -25.00 | -22.89 |
| 20368.00 | Н | - | - | -58.67 | 2.10 | 50.43 | -54.37 | -25.00 | -29.37 |
| 22914.00 | Н | - | - | -59.53 | 2.96 | 50.43 | -54.37 | -25.00 | -29.37 |

Table 7-20. Radiated Spurious Data (NR Band n41 – Low Channel – AntD)

| Bandwidth (MHz): | 100 |
|------------------|-------------|
| Frequency (MHz): | 2593.0 |
| RB / Offset: | 1 / 136 |
| Mode: | Stand-Alone |

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Field Strength [dBµV/m] | EIRP Spurious Emission Level [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|--------------------|------------------------|----------------------------------|----------------------------|----------------|-------------------------------|--|----------------|----------------|
| 5186.00 | Н | 164 | 33 | -70.59 | 4.91 | 41.32 | -53.94 | -25.00 | -28.94 |
| 7779.00 | Н | 286 | 298 | -71.75 | 7.30 | 42.55 | -52.71 | -25.00 | -27.71 |
| 10372.00 | Н | - | - | -77.25 | 11.04 | 40.79 | -54.47 | -25.00 | -29.47 |
| 12965.00 | Н | 196 | 334 | -73.96 | 14.49 | 47.53 | -47.73 | -25.00 | -22.73 |
| 15558.00 | Н | - | - | -77.05 | 15.73 | 45.68 | -49.58 | -25.00 | -24.58 |
| 18151.00 | Н | - | - | -57.88 | 1.18 | 50.30 | -54.50 | -25.00 | -29.50 |
| 20744.00 | Н | 150 | 364 | -54.39 | 2.73 | 55.33 | -49.47 | -25.00 | -24.47 |
| 23337.00 | Н | - | - | -59.81 | 2.88 | 50.08 | -54.72 | -25.00 | -29.72 |

Table 7-21. Radiated Spurious Data (NR Band n41 – Mid Channel – AntD)

| Bandwidth (MHz): | 100 |
|------------------|-------------|
| Frequency (MHz): | 2640.0 |
| RB / Offset: | 1 / 136 |
| Mode: | Stand-Alone |

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Field Strength [dBµV/m] | EIRP Spurious Emission Level [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|--------------------|------------------------|----------------------------------|----------------------------|----------------|-------------------------------|--|----------------|----------------|
| 5280.00 | Н | 156 | 40 | -68.59 | 4.66 | 43.07 | -52.19 | -25.00 | -27.19 |
| 7920.00 | Н | 139 | 301 | -75.36 | 8.30 | 39.94 | -55.32 | -25.00 | -30.32 |
| 10560.00 | Н | 212 | 359 | -74.63 | 11.56 | 43.93 | -51.33 | -25.00 | -26.33 |
| 13200.00 | Н | 119 | 327 | -71.40 | 14.06 | 49.66 | -45.59 | -25.00 | -20.59 |
| 15840.00 | Н | - | - | -78.10 | 17.07 | 45.97 | -49.29 | -25.00 | -24.29 |
| 18480.00 | Н | - | - | -58.22 | 1.13 | 49.91 | -54.89 | -25.00 | -29.89 |
| 21120.00 | Н | - | - | -58.47 | 2.78 | 51.31 | -53.49 | -25.00 | -28.49 |
| 23760.00 | Н | - | - | -59.59 | 3.03 | 50.44 | -54.36 | -25.00 | -29.36 |

Table 7-22. Radiated Spurious Data (NR Band n41 – High Channel – AntD)

| FCC ID: A3LSMS908E | PCTEST Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|---|--|-----------------------------------|
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| Case: | w/ Wireless Charging Pad |
|------------------|--------------------------|
| Bandwidth (MHz): | 100 |
| Frequency (MHz): | 2640.0 |
| RB / Offset: | 1 / 136 |
| Mode: | SA |

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Field Strength [dBµV/m] | EIRP Spurious Emission Level [dBm] | Limit [dBm] | Margin [dB] |
|-----------------|--------------------|------------------------|----------------------------------|----------------------------|----------------|-------------------------------|--|----------------|----------------|
| 5280.00 | Н | 124 | 68 | -71.31 | 4.66 | 40.35 | -54.91 | -25.00 | -29.91 |
| 7920.00 | н | - | - | -76.44 | 8.30 | 38.86 | -56.40 | -25.00 | -31.40 |
| 10560.00 | н | - | - | -77.50 | 11.56 | 41.06 | -54.20 | -25.00 | -29.20 |
| 13200.00 | Н | 125 | 38 | -74.98 | 14.06 | 46.08 | -49.17 | -25.00 | -24.17 |
| 15840.00 | Н | - | - | -78.16 | 17.07 | 45.91 | -49.35 | -25.00 | -24.35 |

Table 7-23. Radiated Spurious Data with WCP (NR Band n41 - AntD)

| FCC ID: A3LSMS908E | PCTEST Proud to be part of @ element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | | Approved by: Technical Manager |
|---------------------|---|--|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dage 92 of 95 |
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7.8 Frequency Stability / Temperature Variation

Test Overview and Limit

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

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

Test Procedure Used

ANSI/TIA-603-E-2016

Test Settings

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

Test Setup

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

Test Notes

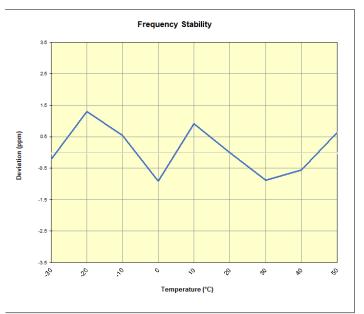
None

| FCC ID: A3LSMS908E | | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | SAMSUNG | Approved by: Technical Manager |
|---------------------|-------------------------|--|---------|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 83 of 85 |
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| NR Band n41 | | | | | | | |
|------------------|---------------------|----------------|----------------|--------------------|------------------|--|--|
| | Operating F | requency (Hz): | 2,593,000,000 | | | | |
| | Ref. Voltage (VDC): | | 4.38 | | _ | | |
| | | | | | - | | |
| Voltage (%) | Power (VDC) | Temp (°C) | Frequency (Hz) | Freq. Dev. (Hz) | Deviation (%) | | |
| | | - 30 | 2,592,969,242 | -578 | -0.0000223 | | |
| | | - 20 | 2,592,973,210 | 3,390 | 0.0001307 | | |
| | | - 10 | 2,592,971,243 | 1,423 | 0.0000549 | | |
| | | 0 | 2,592,967,452 | -2,368 | -0.0000913 | | |
| 100 % | 4.38 | + 10 | 2,592,972,170 | 2,350 | 0.0000906 | | |
| | | + 20 (Ref) | 2,592,969,820 | 0 | 0.0000000 | | |
| | | + 30 | 2,592,967,544 | -2,276 | -0.0000878 | | |
| | | + 40 | 2,592,968,373 | -1,447 | -0.0000558 | | |
| | | + 50 | 2,592,971,470 | 1,650 | 0.0000636 | | |
| Battery Endpoint | 3.80 | + 20 | 2,592,970,331 | 511 | 0.0000197 | | |

Table 7-24. NR Band n41 Frequency Stability Data



Plot 7-103. NR Band n41 Frequency Stability Chart

| FCC ID: A3LSMS908E | | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | Approved by: Technical Manager |
|---------------------|-------------------------|--|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | Page 84 of 85 |
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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the Samsung **Portable Handset FCC ID : A3LSMS908E** complies with all the requirements of Part 27 of the FCC rules.

| FCC ID: A3LSMS908E | Proud to be part of @element | PART 27 MEASUREMENT REPORT CLASS II PERMISSIVE CHANGE | NG | Approved by: Technical Manager |
|---------------------|------------------------------|--|----|-----------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 85 of 85 |
| 1M2202030011-03.A3L | 02/02/2022 - 02/28/2022 | Portable Handset | | Fage 05 01 05 |
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