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PART 24 | RSS-133
CLASS II PERMISSIVE CHANGE REPORT

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

Date of Testing:
5/11/2025 - 5/14/2025
Test Report Issue Date:
6/13/2025
Test Site/Location:
Element Lab., Columbia, MD, USA
Element Lab., Yongin-Si, Gyeonggi-do, South Korea
Test Report Serial No.:
1M2504220043-06.A3L

FCC ID:	**A3LSMF966U**
IC:	**649E-SMF966W**
APPLICANT:	**Samsung Electronics Co., Ltd.**

Application Type:	Class II Permissive Change
Model:	SM-F966U
HVIN:	SM-F966W
Additional Model(s):	SM-F966U1
EUT Type:	Portable Device
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part:	24
ISED Specification:	RSS-133 Issue 7
Test Procedure(s):	ANSI C63.26-2015, KDB 648474 D03 v01r04
Class II Permissive Change:	Please see FCC change document
Original Grant Date:	6/05/2025

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.

RJ Ortanez
Executive Vice President

ACCREDITED
CERT #2041.01

TABLE OF CONTENTS

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 Element Test Location

Measurements were conducted at the Element laboratory indicated in Section 1.3 below. All measurement facilities are compliant with the test site requirements specified in ANSI C63.4-2014 and KDB 414788 D01 v01r01.

1.3 Test Facility / Accreditations

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

- Element Washington DC LLC 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.

- Element Washington DC LLC 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).

- Element Washington DC LLC facility is a registered (2451B) test laboratory with the site description on file with ISED.

- Element Washington DC LLC is a Recognized U.S. Certification Assessment Body (CAB # US0110) for ISED Canada as designated by NIST under the U.S. and Canada Mutual Recognition Agreements (MRAs).

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Device FCC ID: A3LSMF966U** and **IC: 649E-SMF966W**. 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 24 and RSS-133.

This report is being issued as a Class II Permissive Change due to a pin-to-pin component change that is made. Full details are provided in the change description. The test data in this report demonstrates the continued compliance to Part 24 and RSS-133.

Test Device Serial No.: 1752M, 1742M, 1737M, 1746M, 1748M, 1747M, 1744M, 1755M

2.2 Device Capabilities

This device contains the following capabilities:

850/1700/1900 WCDMA/HSPA, 850/1900 GSM/GPRS/EDGE Multi-Band LTE, MultiBand 5G NR (FR1 and FR2), 802.11b/g/n/ac/ax/be WLAN, 802.11a/n/ac/ax/be UNII (5GHz and 6GHz), Bluetooth (1x, EDR, LE), Wireless Power Transfer, UWB, NTN, SCS

This device uses a tuner circuit that dynamically updates the antenna impedance parameters to optimize antenna performance for certain bands and modes of operation. The tuner for this device was set to simulate a "free space" condition where the transmit antenna is matched to the medium into which it is transmitting and, thus, the power is at its maximum level.

2.3 Test Configuration

The EUT was tested per the guidance of ANSI C63.26-2015. See Section 6.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

This device supports wireless charging capability and, thus, is subject to the test requirements of KDB 648474 D03 v01r04. Additional radiated spurious emission measurements were performed with the EUT lying flat on an authorized wireless charging pad (WCP) Model: EP-2400 while operating under normal conditions in a simulated call or data transmission configuration. The worst case radiated emissions data is shown in this report.

This device supports three folder configurations: one is with folder fully open, one is where the folder is half open (90 degrees), and one is with folder closed. All configurations are tested, and the worst case radiated emissions data is shown in this report.

Band	Ant1	Ant2
GSM/GPRS	Ant B	Ant G
WCDMA	Ant B	Ant G
LTE Band 25/2	Ant B	Ant G
NR Band n25/2	Ant B	Ant G

Table 2-1. Antenna Naming Convention

2.4 Software and Firmware

Testing was performed on device(s) using software/firmware version FAV0_F966UFAU0AYB3 installed on the EUT.

2.5 EMI Suppression Device(s)/Modifications

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

3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedures described in the "American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services" (ANSI C63.26-2015) were used in the measurement of the EUT.

Deviation from Measurement Procedure……..None

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 C63.26-2015. For emissions below 1GHz, a half-wave 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:

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

For radiated spurious emissions measurements, the field strength conversion method is used per the formulas in Section 5.2.7 of ANSI C63.26-2015. Field Strength (EIRP) is calculated using the following formulas:

$E_{[dB\mu V/m]} = \text{Measured amplitude level}_{[dBm]} + 107 + \text{Cable Loss}_{[dB]} + \text{Antenna Factor}_{[dB/m]}$
And
$EIRP_{[dBm]} = E_{[dB\mu V/m]} + 20\log D - 104.8$; 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 C63.26-2015.

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

Table 4-1. Measurement Uncertainty Budget

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	2/25/2025	Annual	2/25/2026	AP2
-	AP1	EMC Cable and Switch System	2/25/2025	Annual	2/25/2026	AP2
-	ETS	Conducted Cable Set (40GHz)	2/25/2025	Annual	2/25/2026	ETS
-	LTx4	Licensed Transmitter Cable Set	2/25/2025	Annual	2/25/2026	LTx4
-	LTx5	Licensed Transmitter Cable Set	2/25/2025	Annual	2/25/2026	LTx5
EMCO	3116	Horn Antenna (18-40GHz)	7/5/2023	Biennial	7/5/2025	9203-2178
Espec	ESX-2CA	Environmental Chamber	11/20/2024	Biennial	11/20/2026	17620
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	10/16/2024	Annual	10/16/2025	100342
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester / CMW A	12/10/2024	Annual	12/10/2025	167286
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	9/11/2024	Biennial	9/11/2026	A051107
Sunol	DRH-118	Horn Antenna (1-18GHz)	2/21/2024	Biennial	2/21/2026	A050307

Table 5-1. Test Equipment Calibration Table

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.

Component	Serial Number
Keysight Directional Coupler, Model: 87300C	55300518
MCL 6dB Attenuator, Model: BW K62W44+	2013
MegaPhase Cable, Model: TM40-K1K1-36	19026201 002

Table 5-2. LTx4 Conducted Cable Set Components

Component	Serial Number
Keysight Directional Coupler, Model: 87300C	55300519
MCL 6dB Attenuator, Model: BW-K62W44+	1905
MegaPhase Cable, Model: TM40-K1K1-36	19026201 001

Table 5-3. LTx5 Conducted Cable Set Components

6.0 TEST RESULTS

6.1 Summary

Company Name: Samsung Electronics Co., Ltd.

FCC ID: A3LSMF966U

IC: 649E-SMF966W

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

Mode(s): LTE/NR

Test Condition	Test Description	FCC Part Section(s)	RSS Section(s)	Test Limit	Test Result	Reference	Test Lab Location
CONDUCTED	Transmitter Conducted Output Power*	2.1046(a), 2.1046(c)	RSS-Gen(6.12)	N/A	PASS	Section 6.2	MD
	Occupied Bandwidth	2.1049(h)	RSS-Gen(6.7)	N/A	PASS	Section 6.3	MD
	Conducted Band Edge / Spurious Emissions	2.1051, 24.238(a)	RSS-Gen(6.13), RSS-133(6.5)	> 43 + 10log10(P[Watts]) at Band Edge and for all out-of-band emissions	PASS	Section 6.4	MD
RADIATED	Equivalent Isotropic Radiated Power	24.232(c)	RSS-Gen(6.12), RSS-133(6.4)	< 2 Watts max. EIRP	PASS	Section 6.5	MD
	Radiated Spurious Emissions	2.1053, 24.238(a)	RSS-Gen(6.13), RSS-133(6.5)	≥ 43 + 10 log (P[Watts]) dB of attenuation below transmitter power	PASS	Section 6.6	MD

* 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 6-1. Summary of Test Results

Notes:

1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
2) The analyzer plots 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 EMC Software Tool v2.3.0.
5) For the purposes of this report the compliance of antenna 2 [Ant G] was assessed for LTE and NR operation to determine continued compliance in line with a Class II Permissive Change. Please see Table 6-2 and Table 6-3 for a summary of results detailed in this report compared to that of the original grant.

FCC Rules	Test Item	Test Case	Units	Limit	Original Grant	C2PC
24	Conducted Output Power	Low Ch. 26140, 20MHz, QPSK	dBm	N/A	24.97	24.74
	Occupied Bandwidth	Mid Ch. 26365, 20MHz, QPSK	MHz	N/A	18.049	18.048
	Conducted Band Edge	Low Ch. 26090, 10MHz, QPSK	dBm	-13	-25.49	-27.08
		Low Ch. 26090, 10MHz, QPSK, Extended	dBm	-13	-19.53	-20.93
	EIRP	Mid Ch. 26365, 20MHz, QPSK	dBm	33	24.59	24.21
	RSE	Low Ch. 26140, 20MHz, QPSK	dBm	-13	-50.08	-47.57

Table 6-2. Class II Permissive Change - Test Results Summary - LTE Band 25/2 - Ant2

FCC Rules	Test Item	Test Case	Units	Limit	Original Grant	C2PC
24	Conducted Output Power	Low Ch. 374000, 40MHz, BPSK	dBm	N/A	24.97	24.56
	Occupied Bandwidth	Mid Ch. 376500, 40MHz, QPSK	MHz	N/A	38.753	38.752
	Conducted Band Edge	Low Ch. 374000, 10MHz, QPSK	dBm	-13	-26.35	-26.19
		Low Ch. 374000, 10MHz, QPSK, Extended	dBm	-13	-16.54	-16.99
	EIRP	Mid Ch. 376500, 40MHz, QPSK	dBm	33	24.07	23.13
	RSE	Low Ch. 374000, 40MHz, QPSK	dBm	-13	-48.55	-46.72

Table 6-3. Class II Permissive Change - Test Results Summary - NR Band n25/2 – Ant2

6.2 Conducted Output Power Data

Test Overview

All emissions are measured with a callbox 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

ANSI C63.26-2015 – Section 5.2

Test Setup

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

Figure 6-1. Test Instrument & Measurement Setup

Test Notes

1. Conducted power measurements were evaluated 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.

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
20 MHz	QPSK	26140	1860.0	1 / 50	24.74
		26365	1882.5	1 / 0	24.29
		26590	1905.0	1 / 99	24.43
	16-QAM	26140	1860.0	1 / 0	23.62
		26365	1882.5	1 / 0	23.49
		26590	1905.0	1 / 99	24.03

Table 6-4. LTE Conducted Power Results – LTE Band 25/2 – Ant2

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
40 MHz	π/2 BPSK	374000	1870.0	1 / 1	24.56
		376500	1882.5	1 / 1	24.40
		379000	1895.0	1 / 108	24.49
	QPSK	374000	1870.0	1 / 1	24.58
		376500	1882.5	1 / 1	24.35
		379000	1895.0	1 / 1	24.51
	16-QAM	374000	1870.0	1 / 1	23.52
		376500	1882.5	1 / 1	23.50
		379000	1895.0	1 / 1	23.41

Table 6-5. LTE Conducted Power Results – NR Band n25/2 – Ant2

6.3 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

ANSI C63.26-2015 – Section 5.4.4

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 ≥ 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.

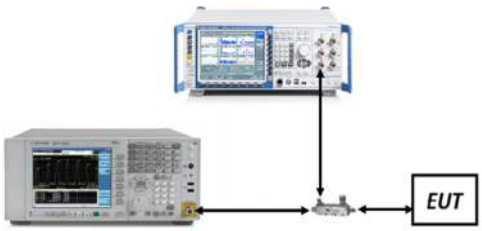


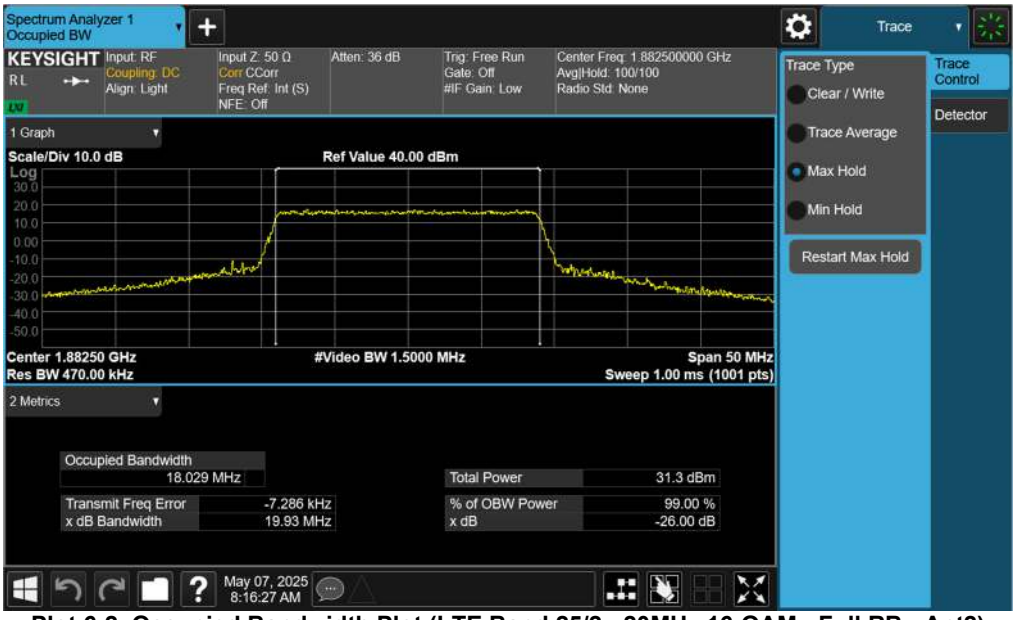
Figure 6-2. Test Instrument & Measurement Setup

Test Notes

None.

LTE Band 25/2 – Ant2

Plot 6-1. Occupied Bandwidth Plot (LTE Band 25/2 - 20MHz QPSK - Full RB - Ant2)



Plot 6-2. Occupied Bandwidth Plot (LTE Band 25/2 - 20MHz 16-QAM - Full RB - Ant2)

NR Band n25/2 – Ant2

Plot 6-3. Occupied Bandwidth Plot (NR Band n25/2 - 40.0MHz DFT-s-OFDM BPSK - Full RB - ANT2)

Plot 6-4. Occupied Bandwidth Plot (NR Band n25/2 - 40.0MHz CP-OFDM QPSK - Full RB - ANT2)

Plot 6-5. Occupied Bandwidth Plot (NR Band n25/2 - 40.0MHz CP-OFDM 16QAM - Full RB - ANT2)

6.4 Band Edge Emissions at Antenna Terminal

Test Overview

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

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

Test Procedure Used

ANSI C63.26-2015 – Section 5.7.3

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 ≥ 2 x 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.

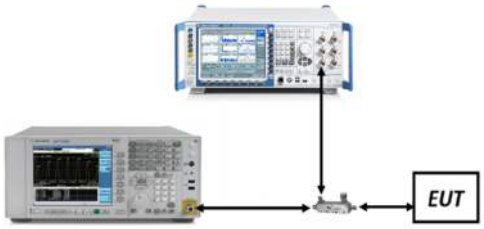


Figure 6-3. Test Instrument & Measurement Setup

Test Notes

1. Per 24.238(b) and RSS-133(6.5), in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to demonstrate compliance with the out-of-band emissions limit. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

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.

LTE Band 25/2 – Ant2

Plot 6-6. Lower Band Edge Plot (LTE Band 25/2 - 10MHz QPSK – Full RB - Ant2)

Plot 6-7. Extended Lower Band Edge Plot (LTE Band 25/2 - 10MHz QPSK – Full RB - Ant2)

Plot 6-8. Upper Band Edge Plot (LTE Band 2 - 10MHz QPSK – Full RB - Ant2)

Plot 6-9. Extended Upper Band Edge Plot (LTE Band 2 - 10MHz QPSK – Full RB - Ant2)

Plot 6-10. Upper Band Edge Plot (LTE Band 25 - 10MHz QPSK – Full RB - Ant2)

Plot 6-11. Extended Upper Band Edge Plot (LTE Band 25 - 10MHz QPSK – Full RB - Ant2)

NR Band n25/2 – Ant2

Plot 6-12. Lower Band Edge Plot (NR Band n25 - 10MHz QPSK – Full RB - Ant2)

Plot 6-13. Extended Lower Band Edge Plot (NR Band n25 - 10MHz QPSK – Full RB - Ant2)

Plot 6-14. Upper Band Edge Plot (NR Band n2 - 10MHz QPSK – Full RB - Ant2)

Plot 6-15. Extended Upper Band Edge Plot (NR Band n2 - 10MHz QPSK – Full RB - Ant2)

Plot 6-16. Upper Band Edge Plot (NR Band n25 - 10MHz QPSK – Full RB - Ant2)

Plot 6-17. Extended Upper Band Edge Plot (NR Band n25 - 10MHz QPSK – Full RB - Ant2)

6.5 Radiated Power (EIRP)

Test Overview

Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements 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

ANSI C63.26-2015 – Section 5.2.4.4

Test Settings

1. 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 ≥ 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.

Test Setup

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

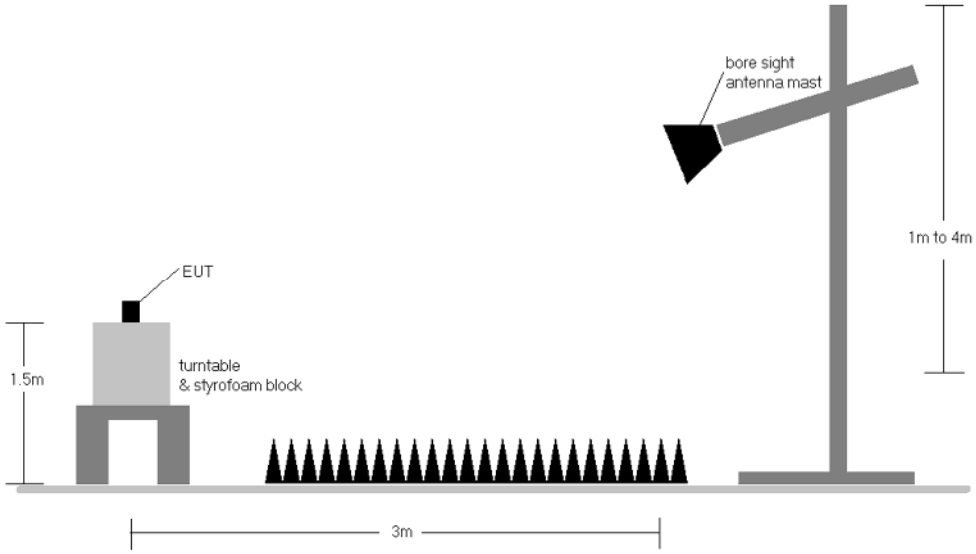


Figure 6-4. Radiated Test Setup >1GHz

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.

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	EUT Pol.	Folder Condition	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
20 MHz	QPSK	1882.50	H	X	Open	108	57	2.65	1 / 0	21.56	**24.21**	0.264	33.01	-8.80

Table 6-6. EIRP Data (LTE Band 25/2 – Ant2)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	EUT Pol.	Folder Condition	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
40 MHz	π/2 BPSK	1882.50	H	X	Open	145	50	2.65	1 / 214	20.42	23.07	0.203	33.01	-9.94
	QPSK	1882.50	H	X	Open	145	50	2.65	1 / 214	20.48	23.13	0.206	33.01	-9.88

Table 6-7. EIRP Data (NR Band n25/2 – Ant2)

6.6 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the field strength conversion method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using hybrid (biconical/log) 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

ANSI C63.26-2015 – Section 5.5.4

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW ≥ 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

Test Setup

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

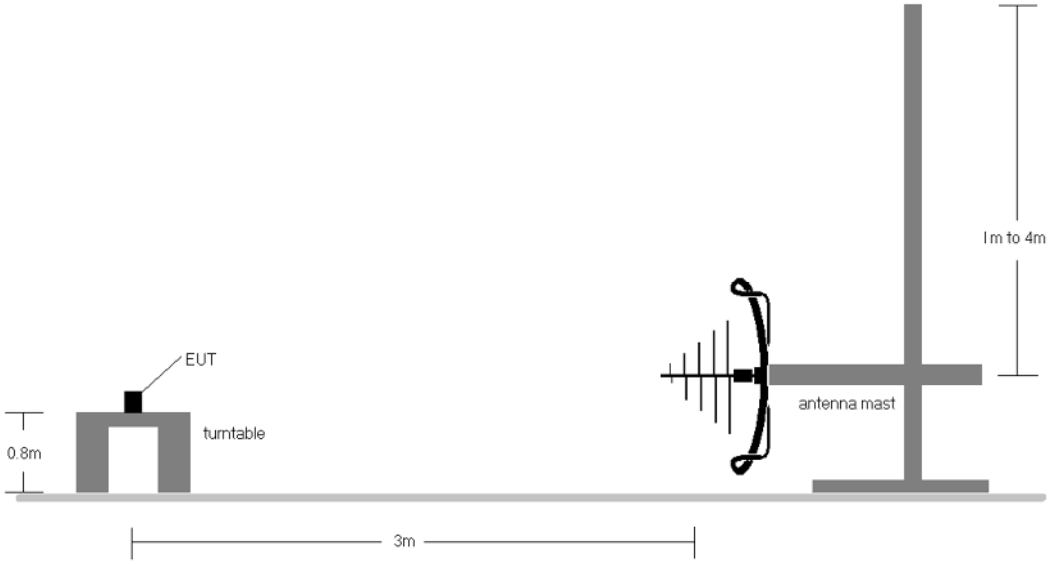


Figure 6-5. Test Instrument & Measurement Setup < 1GHz

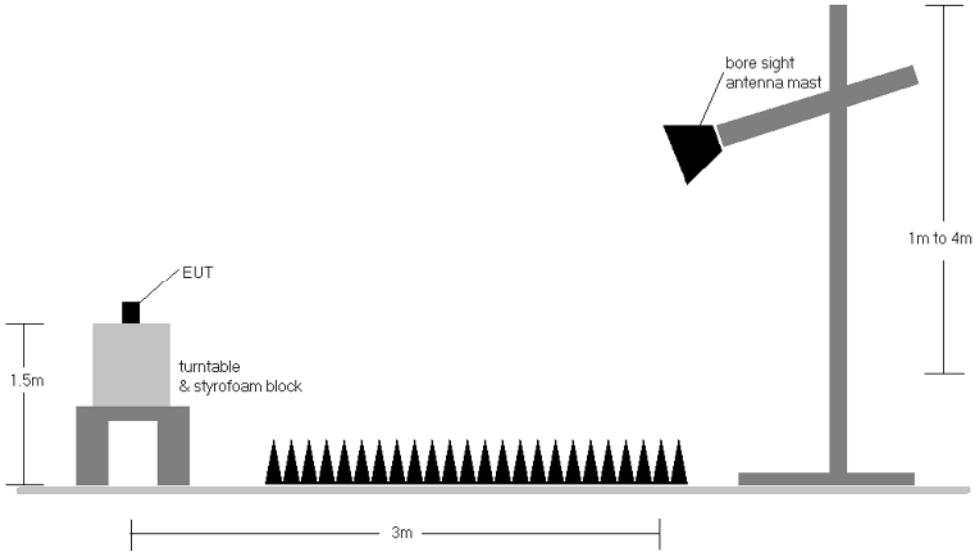


Figure 6-6. Test Instrument & Measurement Setup >1 GHz

Test Notes

1) Field strengths are calculated using the Measurement quantity conversions in ANSI C63.26-2015 Section 5.2.7:
   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) Emissions below 18GHz were measured at a 3-meter test distance.

5) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

LTE Band 25/2 – Ant2

Bandwidth (MHz):	20
Frequency (MHz):	1860
RB / Offset:	1 / 50

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]
3720.00	H	-	-	-66.91	7.60	47.69	-47.57	-13.00	-34.57

Table 6-8. Radiated Spurious Data (LTE Band 25/2 – Mid Channel - Ant2)

NR Band n25/2 – Ant2

Bandwidth (MHz):	40
Frequency (MHz):	1882.5
RB / Offset:	1 / 108

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]
3765.00	H	-	-	-66.40	7.94	48.54	-46.72	-13.00	-33.72

Table 6-9. Radiated Spurious Data (NR Band n25/2 – Mid Channel - Ant2)

7.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Device FCC ID: A3LSMF966U** and **IC: 649E-SMF966W** complies with all the requirements of Part 24 of the FCC rules and RSS-133 of the ISED rules. After additional testing it is concluded that the component change detailed in the FCC Change Document does not meaningfully affect compliance.