TEST REPORT

Report Number. : 13708019-E1V2

Applicant	:	Samsung Electronics Co., Ltd. 129 Samsung-Ro, Yeongtong-Gu Suwon-Si, Gyeonggi-Do, 16677, Korea
Model	:	SM-M127G/DS
FCC ID	:	A3LSMM127G
EUT Description	:	GSM/WCDMA/LTE Phablet with BT/BLE and DTS b/g/n
Test Standard(s)	:	FCC 47 CFR PART 22H, 24E AND 27

Date Of Issue:
March 15, 2021

Prepared by:
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NVLAP Lab code: 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	3/8/2021	Initial Issue	
V2	3/15/2021	Updated Section 6	Kiya Kedida

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1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	SAMSUNG ELECTRONICS CO., LTD. 129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI, GYEONGGI-DO, 16677, KOREA
Model	SM-M127G
FCC ID	A3LSMM127G**Error! Reference source not found.**
EUT Description	GSM/WCDMA/LTE PHABLET WITH BT/BLE AND DTS B/G/N
Serial Number	R38NB0188LV
Date Tested	FEBRUARY 17, 2021
Applicable Standards	FCC PART 22H, 24E, 27
Test Results	COMPLIES

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of the U.S. government.

Approved & Released By:	Reviewed By:	Prepared By:
		
Dan Coronia Operations Leader UL Verification Services Inc.	Kiya Kedida Senior Project Engineer UL Verification Services Inc.	Brian Shen Laboratory Engineer UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with the following:

- ANSI C63.26:2015
- FCC CFR 47 Part 2, Part 22, Part 24, and Part 27
- FCC KDB 971168 D01 v03r01: Power Meas License Digital Systems
- FCC KDB 971168 D02 v02r01: Misc Rev Approv License Devices
- FCC KDB 412172 D01 v01r01. Determining ERP and EIRP

3. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
☐	Building 1: 47173 Benicia Street Fremont, CA 94538, U.S.A	US0104	2324A	208313
☐	Building 2: 47266 Benicia Street Fremont, CA 94538, U.S.A	US0104	22541	208313
☒	Building 4: 47658 Kato Rd Fremont, CA 94538, U.S.A	US0104	2324B	208313

4. DECISION RULES AND MEASUREMENT UNCERTAINTY

4.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

4.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U_{Lab}
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.78 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.84 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	4.84 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.29 dB

Uncertainty figures are valid to a confidence level of 95%.

4.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:
Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:
Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.
36.5 dBuV + 0 dB +10.1 dB+ 0 dB = 46.6 dBuV

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

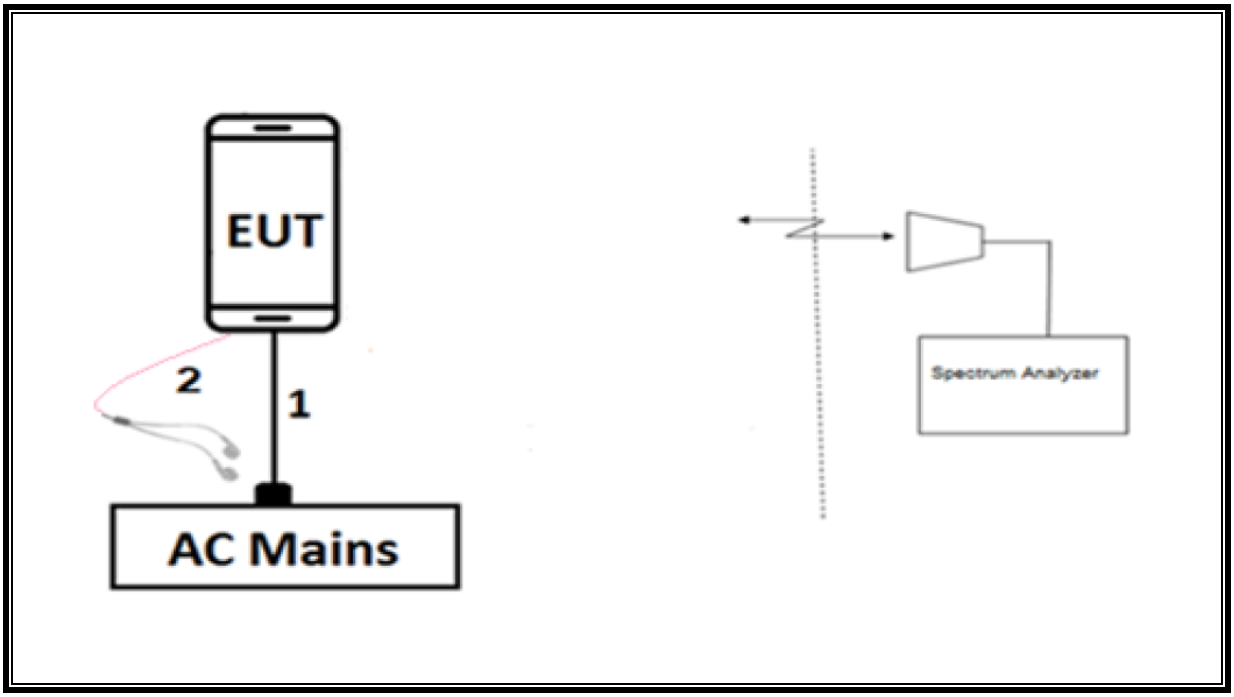
The EUT is a GSM/WCDMA/LTE Phablet with BT/BLE and DTS b/g/n.

5.2. DESCRIPTION OF TEST SETUP

SUPPORT TEST EQUIPMENT				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID/ DoC**
AC Adapter	Samsung	EP-TA200	R37M3FL1XN1DK3	N/A
Earphone	Samsung	N/A	N/A	N/A

I/O CABLES (RF RADIATED TEST)						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	USB	1	AC Adapter	Shielded	1	N/A
2	Earphone	1	3.5mm	Un-Shielded	1	N/A

RADIATED SETUP



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST					
Description	**Manufacturer**	**Model**	**ID Num**	**Cal Due**	**Last Cal**
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	PRE0179522	2/19/2022	2/19/2021
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	PRE0100034	9/15/2021	9/15/2020
Amplifier, 1 to 18GHz, 35dB	AMPLICAL	AMP1G18-35	T1571	8/20/2021	8/20/2020
Antenna, BroadBand Hybrid, 30MHz to 3GHz	Sunol Sciences Corp.	JB3	PRE0184052	11/19/2021	11/19/2020
Amplifier, 10KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	170647	12/29/2021	12/29/2020
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T863	8/31/2021	8/31/2020
Antenna, BroadBand Hybrid, 30MHz to 3GHz	Sunol Sciences Corp.	JB3	T477	9/24/2021	9/24/2020
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T345	5/19/2021	5/19/2020
ANTENNA, DIPOLE	ETS-Lindgren	3121C DB4	T416	11/11/2021	11/11/2020
Filter, Highpass 1.5GHz	MICRO-TRONICS	HPM50114	T1852	7/20/2021	7/20/2020
Filter, 2.7 to 18GHz High Pass	MICROWAVE CIRCUITS	H2G518G6	T772	1/22/2022	1/22/2021
Filter, Highpass 4.0GHz	MICRO-TRONICS	HPM13351	T1241	6/25/2021	6/25/2020
Test Software List					
Description	**Manufacturer**	**Model**	**Version**		
Radiated Software	UL	UL EMC	Rev 9.5, April 30, 2020		

7. REUSE OF TEST DATA

7.1. INTRODUCTION

According to the manufacturer, FCC ID: A3LSMM127F and FCC ID: A3LSMM127G licensed radios GSM850/1900, WCDMA B5, LTE Band 5 and 41 are electrically identical. They share the same chipset, same power and same antenna performance including antenna gain. The FCC ID: A3LSMM127F test data shall remain representative of FCC ID: A3LSMM127G so, FCC ID: A3LSMM127G leverages test data from A3LSMM127F.

7.2. DEVICE DIFFERENCES

1. H/W
   - WCDMA band W2/4 are deleted.
   - LTE band W2/412/17/20/26/28/66 are deleted.

2. S/W
   - SW was updated to reflect the HW changes.

7.3. SPOT CHECK VERIFICATION RESULTS SUMMARY

Full verification for GSM850/1900, WCDMA B5, LTE Band 5 and 41 has been done on device A3LSMM127G for RSE (Radiated Spurious Emissions). The data from the application has been verified through appropriate RSE testing to demonstrate compliance for this device as shown in Section 8.

7.4. REFERENCE DETAIL

Equipment Class	Reference FCC ID	Report Title/Section
PCB	A3LSMM127F	**R13548896-E4 v2 WWAN 2G3G FCC REPORT**
PCB	A3LSMM127F	**R13548896-E5 v5 WWAN LTE FCC REPORT Part1**
PCB	A3LSMM127F	**R13548896-E5 v5 WWAN LTE FCC REPORT Part2**
PCB	A3LSMM127F	**R13548896-E5 v5 WWAN LTE FCC REPORT Part3**
PCB	A3LSMM127F	**R13548896-E5 v5 WWAN LTE FCC REPORT Part4**
PCB	A3LSMM127F	**R13548896-E5 v5 WWAN LTE FCC REPORT Part5**

8. SPOT CHECK DATA

8.1. FIELD STRENGTH OF SPURIOUS RADIATION

8.1.1. GSM 850

GPRS MODE

Company:	Samsung
Project #:	13708019
Date:	2/17/2021
Test Engineer:	43575
Configuration;	EUT + Support Equipment
Mode:	GPRS 850
Chamber #:	Chamber J

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0100034 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Tx WWAN Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
836.6 MHz												
1	1.67309	65.14	Pk	28.7	-35.6	-95.2	-36.96	-13	-23.96	0-360	150	H
3	2.50955	52.78	Pk	32.6	-35.2	-95.2	-45.02	-13	-32.02	0-360	150	H
5	3.36831	41.16	Pk	33.1	-34.1	-95.2	-55.04	-13	-42.04	0-360	150	H
2	1.67309	59.36	Pk	28.7	-35.6	-95.2	-42.74	-13	-29.74	0-360	150	V
4	2.50955	51.69	Pk	32.6	-35.2	-95.2	-46.11	-13	-33.11	0-360	150	V
6	3.363	41.26	Pk	33	-34.1	-95.2	-55.04	-13	-42.04	0-360	150	V

8.1.1. GSM 1900

GPRS MODE

Company:	Samsung
Project #:	13708019
Date:	2/17/2021
Test Engineer:	43575
Configuration;	EUT + Support Equipment
Mode:	GPRS 1900
Chamber #:	Chamber J

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0100034 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Tx WWAN Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1880 MHz												
1	3.75984	41.58	Pk	33.7	-32.9	-95.2	-52.82	-13	-39.82	0-360	149	H
2	5.63622	38.13	Pk	34.9	-30.2	-95.2	-52.37	-13	-39.37	0-360	149	H
3	7.41591	35.75	Pk	35.9	-27.3	-95.2	-50.85	-13	-37.85	0-360	149	H
4	3.75984	42.33	Pk	33.7	-32.9	-95.2	-52.07	-13	-39.07	0-360	149	V
5	5.7005	37.33	Pk	35.2	-30	-95.2	-52.67	-13	-39.67	0-360	149	V
6	7.52428	35.51	Pk	35.9	-27.3	-95.2	-51.09	-13	-38.09	0-360	149	V

8.1.1. WCDMA BAND 5

REL 99 MODE

Company:	Samsung
Project #:	13708019
Date:	2/17/2021
Test Engineer:	43575
Configuration;	EUT + Support Equipment
Mode:	REL 99 Band 5
Chamber #:	Chamber J

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0100034 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Tx WWAN Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
836.6 MHz												
1	1.67522	45.48	Pk	28.8	-35.6	-95.2	-56.52	-13	-43.52	0-360	150	H
3	2.53425	41.7	Pk	32.7	-35.1	-95.2	-55.9	-13	-42.9	0-360	150	H
5	3.33538	41.27	Pk	33	-34.2	-95.2	-55.13	-13	-42.13	0-360	150	H
2	1.69275	41.68	Pk	29	-35.6	-95.2	-60.12	-13	-47.12	0-360	150	V
4	2.52841	40.96	Pk	32.8	-35.1	-95.2	-56.54	-13	-43.54	0-360	150	V
6	3.34016	41	Pk	33	-34.2	-95.2	-55.4	-13	-42.4	0-360	150	V

8.1.2. LTE BAND 5

QPSK LTE BAND 5 (10.0MHZ BANDWIDTH)

Company:	Samsung
Project #:	13708019
Date:	2/17/2021
Test Engineer:	43575
Configuration:	EUT + Support Equipment
Mode	LTE 5 QPSK 10MHz
Chamber #:	Chamber J

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0100034 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Tx WWAN Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
836.5 MHz												
1	1.66353	52.65	Pk	28.7	-35.6	-95.2	-49.45	-13	-36.45	0-360	150	H
3	2.496	43.69	Pk	32.5	-35.2	-95.2	-54.21	-13	-41.21	0-360	150	H
5	3.34653	40.39	Pk	33	-34.1	-95.2	-55.91	-13	-42.91	0-360	150	H
2	1.66353	48.43	Pk	28.7	-35.6	-95.2	-53.67	-13	-40.67	0-360	150	V
4	2.496	41.52	Pk	32.5	-35.2	-95.2	-56.38	-13	-43.38	0-360	150	V
6	3.34706	40.93	Pk	33	-34.1	-95.2	-55.37	-13	-42.37	0-360	150	V

8.1.1. LTE BAND 41

QPSK LTE BAND 41 (20.0MHZ BANDWIDTH)

Company:	Samsung
Project #:	13708019
Date:	2/17/2021
Test Engineer:	43575
Configuration:	EUT + Support Equipment
Mode	LTE 41 QPSK 20MHz
Chamber #:	Chamber J

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0100034 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Tx WWAN Limit	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2593 MHz												
1	5.16819	49.16	Pk	34.4	-30.6	-95.2	-42.24	-25	-17.24	0-360	150	H
2	7.80372	35.15	Pk	36	-27	-95.2	-51.05	-25	-26.05	0-360	150	H
3	10.43978	34.21	Pk	37.8	-24.7	-95.2	-47.89	-25	-22.89	0-360	150	H
4	5.16766	46.09	Pk	34.4	-30.6	-95.2	-45.31	-25	-20.31	0-360	150	V
5	7.75192	35.39	Pk	36.1	-27.1	-95.2	-50.81	-25	-25.81	0-360	150	V
6	10.33672	34.96	Pk	37.7	-24.8	-95.2	-47.34	-25	-22.34	0-360	150	V