



CERTIFICATION TEST REPORT

Report Number. : 4789841431-E2V2

Applicant : SAMSUNG ELECTRONICS CO., LTD.
129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI,
GYEONGGI-DO, 16677, KOREA

Model : SM-G780G/DSM, SM-G780G/DS, SM-G780G

FCC ID : A3LSMG780G

EUT Description : GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax,
WPT and NFC

Test Standard(s) : FCC CFR47 PART 22 SUBPART H
FCC CFR47 PART 24 SUBPART E
FCC CFR47 PART 27 SUBPART F,H,L,M
FCC CFR47 PART 90 SUBPART S

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ACCREDITED

Testing Laboratory

TL-637

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	03/12/21	Initial issue	Sungeun Lee
V2	03/18/21	Updated to address TCB's question	Sungeun Lee

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	4
1.1. INTRODUCTION OF TEST DATA REUSE	5
1.2. DIFFERENCE	5
1.3. SPOT CHECK VERIFICATION DATA.....	5
1.4. REFERENCE DETAIL.....	6
2. TEST METHODOLOGY	7
3. FACILITIES AND ACCREDITATION	7
4. CALIBRATION AND UNCERTAINTY	8
4.1. MEASURING INSTRUMENT CALIBRATION.....	8
4.2. SAMPLE CALCULATION.....	8
4.3. MEASUREMENT UNCERTAINTY	8
4.4. DECISION RULE	8
5. EQUIPMENT UNDER TEST	9
5.1. DESCRIPTION OF EUT.....	9
5.2. MAXIMUM OUTPUT POWER.....	9
5.3. DESCRIPTION OF AVAILABLE ANTENNAS	15
5.4. WORST-CASE ORIENTATION.....	16
5.5. DESCRIPTION OF TEST SETUP.....	18
6. TEST AND MEASUREMENT EQUIPMENT (SPOT CHECK).....	20

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.

EUT DESCRIPTION: GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, WPT and NFC

MODEL NUMBER: SM-G780G/DSM, SM-G780G/DS, SM-G780G

SERIAL NUMBER: R3CN704KAMF, R3CN704L6QK (CONDUCTED, Original)
R3CN704KA3M, R3CN704L6MN (RADIATED, Original);
4b5859b4a4207ece, 4b5859b54c207ece (RADIATED, Original);

DATE TESTED: July 22, 2020 – August 13, 2020 (Original);
MAR 02, 2021 – MAR 12, 2021 (Spot-check);

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 22H, 24E, 27H, 27L, 27F, 27M and 90S	Complies

UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. 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 IAS, any agency of the Federal Government, or any agency of any government.

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1.1. INTRODUCTION OF TEST DATA REUSE

This report referenced from the FCC ID: A3LSMG781B WWAN(FCC CFR 47 Part 22/24/27). And the applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID.

1.2. DIFFERENCE

The FCC ID: A3LSMG780G shares the same enclosure and circuit board as FCC ID: A3LSMG781B. The WWAN antennas and surrounding circuitry and layout are identical between these two units for re-used bands.

After confirming through preliminary radiated emissions that the performance of the FCC ID: A3LSMG781B remains representative of FCC ID: A3LSMG780G. The test data of FCC ID: A3LSMG781B being submitted for this application to cover WWAN features.

1.3. SPOT CHECK VERIFICATION DATA

Band	Test Item	Worst Mode	Frequency	Test Limit	Original model	Spot check model	Deviation	Remark
					SM-G781B/DS	SM-G780G/DS		
					FCC ID : A3LSMG781B	FCC ID : A3LSMG780G		
GSM 850	ERP	GPRS	824.2 MHz	38.50 dBm	28.54 dBm	27.75 dBm	-0.79 dB	
	RSE	GPRS	1697.6 MHz	-13.00 dBm	-48.20 dBm	-46.60 dBm	1.60 dB	
GSM 1900	EIRP	GPRS	1909.8 MHz	33.00 dBm	27.97 dBm	28.56 dBm	0.59 dB	
	RSE	GPRS	5640.0 MHz	-13.00 dBm	-30.50 dBm	-34.60 dBm	-4.10 dB	
WCDMA Band 2	EIRP	REL99	1907.6 MHz	33.00 dBm	21.24 dBm	22.34 dBm	1.10 dB	
	RSE	HSDPA	7630.4 MHz	-13.00 dBm	-47.90 dBm	-48.90 dBm	-1.00 dB	
WCDMA Band 4	EIRP	REL99	1732.6 MHz	30.00 dBm	25.22 dBm	25.90 dBm	0.68 dB	
	RSE	REL99	7010.4 MHz	-13.00 dBm	-48.30 dBm	-49.30 dBm	-1.00 dB	
WCDMA Band 5	ERP	REL99	836.6 MHz	38.50 dBm	19.66 dBm	20.47 dBm	0.81 dB	
	RSE	REL99	3386.4 MHz	-13.00 dBm	-44.50 dBm	-50.90 dBm	-6.40 dB	
LTE Band 2	ERP	QPSK 20M	1900.0 MHz	38.50 dBm	21.24 dBm	22.73 dBm	1.49 dB	
	RSE	QPSK 5M	7630.0 MHz	-13.00 dBm	-48.00 dBm	-46.60 dBm	1.40 dB	
LTE Band 5	ERP	QPSK 3M	847.5 MHz	38.50 dBm	21.05 dBm	22.34 dBm	1.29 dB	
	RSE	QPSK 10M	3316.0 MHz	-13.00 dBm	-52.90 dBm	-50.70 dBm	2.20 dB	
LTE Band 12	ERP	QPSK 3M	700.5 MHz	34.80 dBm	16.95 dBm	16.05 dBm	-0.90 dB	
	RSE	QPSK 5M	2854.0 MHz	-13.00 dBm	-53.70 dBm	-54.60 dBm	-0.90 dB	
LTE Band 13	ERP	QPSK 5M	784.5 MHz	34.80 dBm	17.89 dBm	17.95 dBm	0.06 dB	
	RSE	QPSK 5M	1559.0 MHz	-40.00 dBm	-67.70 dBm	-66.50 dBm	1.20 dB	
LTE Band 26(Part22)	ERP	QPSK 1.4M	848.3 MHz	38.50 dBm	19.26 dBm	19.94 dBm	0.68 dB	
	RSE	QPSK 5M	3386.0 MHz	-13.00 dBm	-53.00 dBm	-50.30 dBm	2.70 dB	
LTE Band 26(Part90)	ERP	QPSK 1.4M	814.7 MHz	50.00 dBm	17.46 dBm	18.05 dBm	0.59 dB	
	RSE	QPSK 3M	3262.0 MHz	-13.00 dBm	-53.40 dBm	-51.10 dBm	2.30 dB	
LTE Band 41(PC3)	EIRP	QPSK 10M	2593.0 MHz	33.00 dBm	24.86 dBm	24.20 dBm	-0.66 dB	
	RSE	QPSK 10M	7779.0 MHz	-25.00 dBm	-48.40 dBm	-54.00 dBm	-5.60 dB	
LTE Band 66	EIRP	QPSK 5M	1745.0 MHz	30.00 dBm	21.87 dBm	22.92 dBm	1.05 dB	
	RSE	QPSK 3M	7114.0 MHz	-13.00 dBm	-47.80 dBm	-46.80 dBm	1.00 dB	

Comparison of two models, upper deviation is within 3dB range and all test results are under FCC technical limits.

1.4. REFERENCE DETAIL

Reference application that contains the re-used reference data.

Equipment Class	Reference FCC ID	Type Grant/Permissive Change	Reference Application	Folder Test/RF Exposure	Report Title / Section
PCE	A3LSMG781B	Grant	4789555428-E2	Test	FCC Report WWAN/ All sections
DTS	A3LSMG781B	Grant	4789555428-E3	Test	Report DTS[b,g,n,ax] WLAN/ All sections
			4789555428-E4	Test	FCC Report BLE/ All sections
DSS	A3LSMG781B	Grant	4789555428-E5	Test	FCC Report BT/ All sections
NII	A3LSMG781B	Grant	4789555428-E6	Test	FCC Report UNII[a,n,ac,ax] WLAN/ All sections (Include DFS)

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with following methods.

1. FCC CFR 47 Part 2.
2. FCC CFR 47 Part 22.
3. FCC CFR 47 Part 24.
4. FCC CFR 47 Part 27.
5. FCC CFR 47 Part 90.
6. ANSI TIA-603-E, 2016
7. ANSI C63.26, 2015
8. KDB 971168 D01 Power Meas License Digital Systems v03r01
9. KDB 484596 D01 Referencing Test Data v01

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea. Line conducted emissions are measured only at the 218 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

218 Maeyeong-ro	
☒	Chamber 1
☒	Chamber 2
☐	Chamber 3

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at <https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.pdf>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\text{EIRP} = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss (between the SG and substitution antenna)} + \text{Substitution Antenna Factor (dBi)}$$

$$\text{ERP} = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss (between the SG and substitution antenna)}$$

(Path loss = Signal generator output – PSA reading with substitution antenna)

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	2.35 dB
Radiated Disturbance, 30 MHz to 1 GHz	3.96 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.82 dB
Radiated Disturbance, 18 GHz to 40 GHz	5.49 dB

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

4.4. DECISION RULE

Decision rule for statement(s) of conformity is based on Procedure 1, Clause 4.4.2 in IEC Guide 115:2007.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, WPT and NFC. This test report addresses the WWAN operational mode.

This report covers the Samsung models SM-G780G/DSM, SM-G780G/DS and SM-G780G. These models are identical in hardware except SM-G780G/DSM is supported MST and SM-G780G/DS has dual SIM tray and SM-G780G has single SIM tray. All serise model was same hardware thus, SM-G780G/DS(Dual SIM tray) was set for final test

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum average radiated ERP / EIRP output powers as follows:

Note : Conducted output power results were excerpted from RF exposure test report.(4789555428-S1 FCC Report SAR)

GSM

FCC Part 22/24						
Band	Frequency Range [MHz]	Modulation	Conducted		Radiated	
			Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
GSM850	824~849	GPRS	33.09	2037.56	28.54	714.50
		EGPRS	27.39	547.95	23.03	200.91
GSM1900	1850~1910	GPRS	30.16	1037.40	27.97	626.61
		EGPRS	25.60	362.79	24.10	257.04

WCDMA

FCC Part 22/24						
Band	Frequency Range [MHz]	Modulation	Conducted		Radiated	
			Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 5	824~849	Rel. 99	24.62	289.73	19.66	92.47
		HSDPA	23.62	229.92	19.19	82.99
Band 4	1710~1755	Rel. 99	23.36	216.71	25.22	332.66
		HSDPA	22.35	171.71	24.51	282.49
Band 2	1850~1910	Rel. 99	23.46	221.82	21.24	133.05
		HSDPA	22.47	176.68	20.02	100.46

LTE Band 2

FCC Part 24							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 2	1850 ~ 1910	20	QPSK	22.88	194.07	21.24	133.05
			16QAM	22.43	175.14	20.35	108.39
			64QAM	21.48	140.67		
		15	QPSK	22.89	194.65	20.97	125.03
			16QAM	22.29	169.43	19.89	97.50
			64QAM	21.56	143.24		
		10	QPSK	22.85	192.65	20.94	124.17
			16QAM	22.25	167.91	19.94	98.63
			64QAM	21.44	139.31		
		5	QPSK	22.96	197.69	21.19	131.52
			16QAM	22.38	173.02	20.08	101.86
			64QAM	21.31	135.14		
		3	QPSK	22.82	191.27	20.99	125.60
			16QAM	22.23	167.12	20.09	102.09
			64QAM	21.30	134.93		
		1.4	QPSK	22.85	192.73	20.94	124.17
			16QAM	22.13	163.47	19.83	96.16
			64QAM	21.38	137.36		

LTE Band 5

FCC Part 22							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 5	824 ~ 849	10	QPSK	24.61	289.36	20.90	123.03
			16QAM	23.99	250.71	20.23	105.44
			64QAM	22.95	197.12		
		5	QPSK	24.61	289.11	20.86	121.90
			16QAM	24.03	253.17	20.07	101.62
			64QAM	22.98	198.53		
		3	QPSK	24.58	287.06	21.05	127.35
			16QAM	24.03	253.21	20.09	102.09
			64QAM	22.92	195.76		
		1.4	QPSK	24.57	286.32	20.57	114.02
			16QAM	23.95	248.37	19.32	85.51
			64QAM	23.03	200.87		

LTE Band 12

FCC Part 27							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 12	699 ~ 716	10	QPSK	22.91	195.24	16.82	48.08
			16QAM	22.24	167.34	15.67	36.90
			64QAM	21.32	135.53		
		5	QPSK	23.04	201.38	16.87	48.64
			16QAM	22.39	173.28	15.96	39.45
			64QAM	21.43	138.84		
		3	QPSK	22.87	193.44	16.95	49.55
			16QAM	22.24	167.36	16.07	40.46
			64QAM	21.27	133.94		
		1.4	QPSK	22.82	191.62	16.93	49.32
			16QAM	22.26	168.42	15.98	39.63
			64QAM	21.34	136.02		

LTE Band 13

FCC Part 27							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 13	777 ~ 787	10	QPSK	22.71	186.76	17.77	59.84
			16QAM	22.10	162.01	16.89	48.87
			64QAM	20.89	122.78		
		5	QPSK	22.80	190.62	17.89	61.52
			16QAM	22.23	167.08	17.03	50.47
			64QAM	21.09	128.39		

LTE Band 26 (Part90)

FCC Part 90							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 26	814 ~ 824	15	QPSK	22.69	185.97	17.28	53.46
			16QAM	22.17	164.63	16.16	41.30
			64QAM	21.21	131.99		
		10	QPSK	22.68	185.54	17.17	52.12
			16QAM	21.83	152.35	16.42	43.85
			64QAM	20.84	121.43		
		5	QPSK	22.74	188.06	17.32	53.95
			16QAM	21.88	154.29	16.44	44.06
			64QAM	21.04	127.01		
		3	QPSK	22.68	185.22	17.39	54.83
			16QAM	21.83	152.44	16.33	42.95
			64QAM	20.99	125.63		
		1.4	QPSK	22.66	184.36	17.46	55.72
			16QAM	21.83	152.25	16.56	45.29
			64QAM	21.21	131.99		

LTE Band 26 (Part22)

FCC Part 22							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 26	824 ~ 849	15	QPSK	22.64	183.58	18.57	71.94
			16QAM	22.10	162.00	17.81	60.39
			64QAM	20.98	125.22		
		10	QPSK	22.81	191.15	18.54	71.45
			16QAM	22.19	165.48	17.46	55.72
			64QAM	21.14	129.93		
		5	QPSK	22.85	192.81	19.01	79.62
			16QAM	22.39	173.26	17.82	60.53
			64QAM	21.12	129.36		
		3	QPSK	22.74	187.86	19.15	82.22
			16QAM	22.17	164.83	18.49	70.63
			64QAM	21.14	129.99		
		1.4	QPSK	22.75	188.47	19.26	84.33
			16QAM	22.13	163.36	17.82	60.53
			64QAM	20.98	125.24		

LTE Band 41(PC3)

FCC Part 27							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 41	2496 ~ 2690	20	QPSK	24.68	293.76	23.87	243.78
			16QAM	23.64	231.45	24.32	270.40
			64QAM	22.91	195.55		
		15	QPSK	24.39	275.08	23.84	242.10
			16QAM	23.54	225.79	23.78	238.78
			64QAM	22.07	161.10		
		10	QPSK	24.50	281.52	24.86	306.20
			16QAM	23.76	237.45	24.36	272.90
			64QAM	22.07	161.10		
		5	QPSK	24.61	288.76	24.39	274.79
			16QAM	23.72	235.34	24.70	295.12
			64QAM	22.55	179.89		

LTE Band 66

FCC Part 27							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 66	1710 ~ 1780	20	QPSK	22.54	179.33	21.19	131.52
			16QAM	22.23	167.04	20.56	113.76
			64QAM	21.19	131.40		
		15	QPSK	22.57	180.72	21.38	137.40
			16QAM	21.79	151.10	20.51	112.46
			64QAM	21.04	127.16		
		10	QPSK	22.64	183.54	21.64	145.88
			16QAM	22.06	160.52	20.54	113.24
			64QAM	21.02	126.56		
		5	QPSK	22.68	185.40	21.87	153.82
			16QAM	22.21	166.18	20.47	111.43
			64QAM	20.99	125.49		
		3	QPSK	22.81	190.89	21.61	144.88
			16QAM	21.91	155.23	20.72	118.03
			64QAM	21.16	130.66		
		1.4	QPSK	22.66	184.59	21.44	139.32
			16QAM	21.94	156.18	20.54	113.24
			64QAM	20.93	123.82		

LTE Band 4

LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 17

LTE Band 17 (Frequency range: 704-716 MHz) is covered by LTE Band 12 (Frequency range: 699-716 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a internal antenna for the [List the bands supported] with a maximum peak gain as follow:

Frequency (MHz)	Peak Gain (dBi)
GSM1900 / WCDMA Band 2 / LTE Band 2 1850 ~ 1915 MHz	-4.61
WCDMA Band 4 / LTE Band 4 / LTE Band 66 1710 ~ 1780 MHz	-5.30
GSM850 / WCDMA Band 5 / LTE Band 5 / LTE Band 26 814 ~ 849 MHz	-6.40
LTE Band 12 / LTE Band 17 699 ~ 716 MHz	-6.13
LTE Band 41 2496 ~ 2690 MHz	-5.78
LTE Band 13 777 ~ 787 MHz	-6.13

5.4. WORST-CASE ORIENTATION

Following modes should be considered as worst-case scenario for all other measurements.

- GSM GPRS/EGPRS
- UMTS REL 99/HSDPA

For all LTE Bands, the worst-case scenario for all measurements is based on the average conducted output power measurement investigation results. Output power measurements were measured on QPSK, 16QAM, 64QAM modulations. It was found that QPSK and 16QAM results were worst case. All testing was performed using QPSK and 16QAM modulations to represent the worst case. However, the out of band emissions and spurious radiation were only performed on bandwidth and RB offset(with RB size 1) with the highest power in QPSK.

Highest power setting for each bands				
LTE Band	Frequency (MHz)	Bandwidth (MHz)	RB size	RB offset
2	1852.5	5	1	12
	1880		1	12
	1907.5		1	0
5	829	10	1	0
	836.5		1	49
	844		1	0
12	701.5	5	1	0
	707.5		1	24
	713.5		1	0
13	779.5	5	1	0
	782		1	12
	784.5		1	0
26 (Part 90)	815.5	3	1	0
	822.5		1	8
26 (Part 22)	826.5	5	1	24
	831.5		1	24
	846.5		1	0
41(PC3)	2501	10	1	25
	2593		1	25
	2685		1	25
66	1711.5	3	1	0
	1745		1	0
	1778.5		1	0

The fundamental and radiated spurious emission were investigated in three orthogonal orientations X, Y and Z, it was determined that below orientation was worst-case orientation for each band.

Band	ERP/EIRP			RSE		
	X	Y	Z	X	Y	Z
GSM850	-	-	O	-	O	-
GSM1900	-	-	O	-	O	-
WCDMA B5	-	-	O	-	-	O
WCDMA B4	O	-	-	O	-	-
WCDMA B2	O	-	-	O	-	-
LTE B2	-	-	O	O	-	-
LTE B5	-	-	O	-	-	O
LTE B12	O	-	-	O	-	-
LTE B13	O	-	-	O	-	-
LTE B26	-	-	O	-	-	O
LTE B41(PC3)	-	-	O	O	-	-
LTE B66	O	-	-	O	-	-

Note : For ERP/EIRP testing, the EUT didn't attached with travel adapter. But radiated spurious testing, the EUT attached with travel adapter for the worst case condition. The EUT is continuously communicated with the call box during the tests.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Charger	SAMSUNG	EP-TA200	R37M15D6V31SE3	N/A
Data Cable	SAMSUNG	N/A	N/A	N/A

I/O CABLE

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	C Type	Shielded	1.0m	N/A

TEST SETUP

The EUT is continuously communicated with the call box during the tests.

The diagram illustrates a communication system setup for EMI testing. It consists of the following components and connections:

- EUT (Equipment Under Test):** Represented by a box on the left.
- Combiner:** A box connected to the EUT, which splits the signal to both the Communication Test Set and the Spectrum Analyzer.
- Communication Test Set:** A Rohde & Schwarz FSW 50B, shown as a large rack-mountable unit with a color display and various control knobs and buttons.
- Spectrum Analyzer:** A FLSA 100, shown as a smaller rack-mountable unit with a color display and control buttons.

The connections are as follows:

- The EUT is connected to the Combiner.
- The Combiner is connected to the input of the Communication Test Set.
- The Combiner is connected to the input of the Spectrum Analyzer.

6. TEST AND MEASUREMENT EQUIPMENT (SPOT CHECK)

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

Test Equipment List				
Description	Manufacturer	Model	S/N	Cal Due
Antenna, Tuned Dipole 400 ~ 1000 MHz	ETS	3121DDB4	00164753	02-08-23
Antenna, Loop, 9kHz ~ 30MHz	R&S	HFH2-Z2	100418	10-02-21
Directional Antenna	Cobham	FPA3-0.8.6.0R/1329	110367-0003	N/A
Directional Antenna	Cobham	FPA3-0.8.6.0R/1329	80108-0004	N/A
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	750	08-19-22
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	08-13-22
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	08-13-22
Antenna, Horn, 18 GHz	ETS	3115	00167211	07-27-22
Antenna, Horn, 18 GHz	ETS	3115	00161451	08-15-22
Antenna, Horn, 18 GHz	ETS	3117	00168724	07-27-22
Antenna, Horn, 18 GHz	ETS	3117	00168717	08-15-22
Antenna, Horn, 40 GHz	ETS	3116C	00166155	08-04-22
Antenna, Horn, 40 GHz	ETS	3116C	00168645	10-02-21
Preamplifier	ETS	3116C-PA	00168841	08-06-21
Communocations Test set	R&S	CMW500	150314	08-04-21
DC Power Supply	Agilent / HP	E3640A	MY54226395	08-05-21
Preamplifier, 1000 MHz	Sonoma	310N	341282	08-03-21
Preamplifier, 1000 MHz	Sonoma	310N	351741	08-03-21
Preamplifier, 1000 MHz	Sonoma	310N	370599	08-06-21
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	08-03-21
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	08-03-21
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029169	08-04-21
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	08-05-21
EMI Test Receive, 40 GHz	R&S	ESU40	100439	08-03-21
EMI Test Receive, 40 GHz	R&S	ESU40	100457	08-03-21
High Pass Filter 1.2 GHz	Micro-Tronics	HPM50108-02	G005	08-05-21
High Pass Filter 1.2 GHz	Micro-Tronics	HPM50108-02	G006	08-05-21
High Pass Filter 2.8 GHz	Micro-Tronics	HPM50111-02	010	08-05-21
High Pass Filter 2.8 GHz	Micro-Tronics	HPM50111-02	011	08-05-21
High Pass Filter 4.0 GHz	Micro-Tronics	HPM50118-02	G001	08-05-21
High Pass Filter 4.0 GHz	Micro-Tronics	HPM50118-02	G006	08-05-21
Attenuator	PASTERNAK	PE7087-10	A001	08-03-21
Attenuator	PASTERNAK	PE7087-10	A008	08-03-21
Attenuator	PASTERNAK	PE7087-10	A009	08-03-21
Attenuator	PASTERNAK	PE7004-10	2	08-04-21
Attenuator	PASTERNAK	PE395-10	A011	08-05-21
Power Splitter	MINI-CIRCUITS	WA1534	UL001	01-27-22
Temperature Chamber	ESPEC	SH-642	93001109	08-04-21
Power Splitter	MINI-CIRCUITS	WA1534	UL001	01-27-22
Power Splitter	MINI-CIRCUITS	WA1534	UL002	01-27-22
UL Software				
Description	Manufacturer	Model	Version	
Antenna port test software	UL	CLT	Ver 2.5	
Radiated software	UL	UL EMC	Ver 9.5	

END OF REPORT