



CERTIFICATION TEST REPORT

Report Number. : 4789841431-E6V2

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 47 CFR PART 15 SUBPART E

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ACCREDITED

Testing Laboratory

TL-637

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	03/12/21	Initial issue	Hyunsik Yun
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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: R3CN7038XSF, 437d2d4d431e7ece (CONDUCTED);
R3CN7038YAF, R3CN7038Y7L (RADIATED);
4b5859b4a4207ece, 4b5859b54c207ece (RADIATED, Spot-check);

DATE TESTED: JUL 23, 2020 – AUG 14, 2020(Original);
MAR 02, 2021 – MAR 12, 2021(Spot-check);

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart E	Pass

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 NII(FCC CFR 47 Part 15E).
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 WLAN 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 WLAN features.

1.3. SPOT CHECK VERIFICATION DATA

Band	Test Item	Mode	Frequency	Test Limit	Original model	Spot check model	Deviation	Remark
					SM-G781B/DS	SM-G780G/DS		
					FCC ID : A3LSMG781B	FCC ID : A3LSMG780G		
UNII WLAN (5 GHz)	Band Edge	11n HT40 ANT ALL	5190 MHz	54 dBuV/m	48.77 dBuV/m	47.40 dBuV/m	-1.37 dB	
	RSE	11n HT40 ANT ALL	5230_2nd NF	68.2 dBuV/m	51.42 dBuV/m	51.56 dBuV/m	0.14 dB	Noise Floor level
	Band Edge	11n HT40 ANT ALL	5310 MHz	54 dBuV/m	50.85 dBuV/m	50.61 dBuV/m	-0.24 dB	
	RSE	11n HT40 ANT ALL	5270_2nd NF	68.2 dBuV/m	50.84 dBuV/m	51.53 dBuV/m	0.69 dB	Noise Floor level
	Band Edge	11n HT40 ANT ALL	5510 MHz	68.2 dBuV/m	61.82 dBuV/m	60.21 dBuV/m	-1.61 dB	
	RSE	11a ANT ALL	5580_3rd NF	68.2 dBuV/m	57.97 dBuV/m	56.73 dBuV/m	-1.24 dB	Noise Floor level
	Band Edge	11n HT40 ANT ALL	5795 MHz	-27 dBm	-33.09 dBuV/m	-33.91 dBuV/m	-0.82 dB	
	RSE	11n HT40 ANT ALL	5795_3rd NF	68.2 dBuV/m	57.33 dBuV/m	57.05 dBuV/m	-0.28 dB	Noise Floor level
	Band Edge	11ax RU9 HE40 ANT ALL	5190_2nd NF	74 dBuV/m	50.78 dBuV/m	54.16 dBuV/m	3.38 dB	Noise Floor level
	RSE	11ax RU4 HE20 ANT ALL	5320_3rd NF	74 dBuV/m	56.42 dBuV/m	55.35 dBuV/m	-1.07 dB	Noise Floor level
RSDB	Band Edge	11ax RU9 HE40 ANT ALL	5590_3rd NF	68.2 dBuV/m	58.14 dBuV/m	57.17 dBuV/m	-0.97 dB	Noise Floor level
	RSE	11ax RU4 HE20 ANT ALL	5785_3rd NF	68.2 dBuV/m	57.94 dBuV/m	56.77 dBuV/m	-1.17 dB	Noise Floor level
RSDB	11b 2412 A+	11b ANT ALL	2412 MHz	54 dBuV/m	48.44 dBm	37.36 dBm	-11.08 dB	
	11a 5825 A	11a ANT ALL	5825 MHz					

Note1. Comparison of two models, upper deviation is within 3dB range and all test results are under FCC technical limits(Excluding the noise floor).

Note2. UNII DFS detection mechanism/software of variant model is the same as parent model, thus the original DFS report is being reused and no spot check is done on the variant model.

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 15.
3. KDB 789033 D02 General UNII Test Procedures New Rules v02r01
4. KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02
5. KDB 905462 D03 UNII Clients Without Radar Detection New Rules v01r02
6. ANSI C63.10-2013.
7. KDB 662911 D01 v02r01
8. 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

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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:

$$\begin{aligned}\text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m}\end{aligned}$$

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	3.01 dB
Radiated Disturbance, 30 MHz to 1 GHz	4.26 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.90 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 NII (UNII 802.11a/n/ac/ax) 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 series model was same hardware thus, SM-G780G/DS(Dual SIM tray) was set for final test.

Note. This EUT does not support channel puncturing.

WiFi operating mode

Frequency range	Mode	ANT1	ANT2
5GHz (5180 MHz ~ 5825 MHz)	802.11a SISO	TX/RX	TX/RX
	802.11a MIMO	TX/RX	TX/RX
	802.11n SISO	TX/RX	TX/RX
	802.11n MIMO	TX/RX	TX/RX
	802.11ac SISO	TX/RX	TX/RX
	802.11ac MIMO	TX/RX	TX/RX
	802.11ax SISO	TX/RX	TX/RX
	802.11ax MIMO	TX/RX	TX/RX

Simultaneous TX Condition

Simultaneous Tx Condition - RSDB

Mode	# of TX	5GHz WLAN		2.4GHz WLAN		Test Case
		ANT1	ANT2	ANT1	ANT2	
2.4GHz + 5GHz RSDB MIMO	4	O	O	O	O	O

Simultaneous Tx Condition - RSDB + Bluetooth

Mode	# of TX	5GHz WLAN		2.4GHz Bluetooth	2.4GHz WLAN	Test Case
		ANT1	ANT2	ANT1	ANT2	
5GHz MIMO RSDB & Bluetooth	3	O	O	O	-	-
2.4GHz + 5GHz MIMO RSDB & Bluetooth	4	O	O	O	O	O

6 Edge 1 26 26 1 26 26 1 3⁷_{DC} 1 3 26 26 1 26 26 1 5 Edge

RU offset : 0 1 2 3 4 5 6 7 8

6 Edge 1 52 1 52 1 3⁷_{DC} 1 3 52 1 52 1 5 Edge

RU offset : 37 38 39 40

6 Edge 102+4 pilots 1 3⁷_{DC} 1 3 102+4 pilots 5 Edge

RU offset : 53 54

6 Edge 242 + 3 DC 5 Edge

RU offset : 61

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Test RU offset for tones in each modes

Mode	Tones	RU offset
HE20	26T	0
		4
		8
	52T	37
		38
		40
	106T	53
	54	
242T / SU ^{Note 1}	61 / -	
HE40	26T	0
		9
		17
	52T	37
		41
		44
	106T	53
		54
		56
	242T	61
62		
484T / SU ^{Note 1}	63 / -	
HE80	26T	0
		18
		36
	52T	37
		45
		52
	106T	53
		57
		60
	242T	61
		62
		64
	484T	65
66		
996T / SU ^{Note 1}	67 / -	

Note: Full RU(Resource Unit) 242T mode and SU(Single Unit) mode have no difference in physical waveform. This report has been reported the SU mode with highest output power in SISO and the SU mode with highest output power in MIMO.

Band portion of RU allocation about straddle channels

Mode	Channel	Tones	RU offset	Portion
HE20	Straddle 5720 MHz	26T	6	UNII 2C & UNII 3
		242T / SU	61 / -	
HE40	Straddle 5710 MHz	26T	15	UNII 2C & UNII 3
		484T / SU	65 / -	
HE80	Straddle 5690 MHz	26T	34	UNII 2C & UNII 3
		996T / SU	67 / -	

Note: In case of RU straddle channel, test was performed overlapping RU position.

MAXIMUM OUTPUT POWER

The transmitter has a maximum total conducted average output power as follows:

UNII-1

Frequency Range [MHz]	Mode	Output Power [dBm]		Output Power [mW]	
		ANT1	ANT2	ANT1	ANT2
5180 - 5240	802.11a SISO	16.47	16.89	44.36	48.87
	802.11a MIMO	19.65		92.26	
	802.11n(HT20) SISO	16.66	16.92	46.34	49.20
	802.11n(HT20) MIMO	19.35		86.10	
	802.11ax(HE20) SISO	15.48	15.07	35.32	32.14
	802.11ax(HE20) MIMO	18.19		65.92	
5190 – 5230	802.11n(HT40) SISO	16.66	16.97	46.34	49.77
	802.11n(HT40) MIMO	19.69		93.11	
	802.11ax(HE40) SISO	14.44	14.25	27.80	26.61
	802.11ax(HE40) MIMO	17.24		52.97	
5210	802.11ac(VHT80) SISO	13.47	13.71	22.23	23.50
	802.11ac(VHT80) MIMO	16.71		46.88	
	802.11ax(HE80) SISO	13.32	13.01	21.48	20.00
	802.11ax(HE80) MIMO	16.01		39.90	

UNII-2A

Frequency Range [MHz]	Mode	Output Power [dBm]		Output Power [mW]	
		ANT1	ANT2	ANT1	ANT2
5260 - 5320	802.11a SISO	16.87	16.97	48.64	49.77
	802.11a MIMO	19.60		91.20	
	802.11n(HT20) SISO	16.57	16.92	45.39	49.20
	802.11n(HT20) MIMO	19.58		90.78	
	802.11ax(HE20) SISO	15.16	15.23	32.81	33.34
	802.11ax(HE20) MIMO	18.20		66.07	
5270 - 5310	802.11n(HT40) SISO	16.72	16.96	46.99	49.66
	802.11n(HT40) MIMO	19.64		92.04	
	802.11ax(HE40) SISO	13.99	14.32	25.06	27.04
	802.11ax(HE40) MIMO	17.19		52.36	
5290	802.11ac(VHT80) SISO	13.34	13.78	21.58	23.88
	802.11ac(VHT80) MIMO	16.25		42.17	
	802.11ax(HE80) SISO	13.40	13.31	21.88	21.43
	802.11ax(HE80) MIMO	16.21		41.78	

UNII-2C

Frequency Range [MHz]	Mode	Output Power [dBm]		Output Power [mW]	
		ANT1	ANT2	ANT1	ANT2
5500 - 5720	802.11a SISO	16.49	16.92	44.57	49.20
	802.11a MIMO	19.59		90.99	
	802.11n(HT20) SISO	16.65	16.81	46.24	47.97
	802.11n(HT20) MIMO	19.26		84.33	
	802.11ax(HE20) SISO	15.56	15.73	35.97	37.41
	802.11ax(HE20) MIMO	18.29		67.45	
5510 - 5710	802.11n(HT40) SISO	16.63	16.59	46.03	45.60
	802.11n(HT40) MIMO	19.58		90.78	
	802.11ax(HE40) SISO	14.48	14.30	28.05	26.92
	802.11ax(HE40) MIMO	17.09		51.17	
5530 - 5690	802.11ac(VHT80) SISO	13.27	14.13	21.23	25.88
	802.11ac(VHT80) MIMO	16.25		42.17	
	802.11ax(HE80) SISO	13.39	13.43	21.83	22.03
	802.11ax(HE80) MIMO	16.25		42.17	

UNII-3

Frequency Range [MHz]	Mode	Output Power [dBm]		Output Power [mW]	
		ANT1	ANT2	ANT1	ANT2
5745 - 5825	802.11a SISO	16.71	16.98	46.88	49.89
	802.11a MIMO	19.74		94.19	
	802.11n(HT20) SISO	16.79	16.78	47.75	47.64
	802.11n(HT20) MIMO	19.56		90.36	
	802.11ax(HE20) SISO	15.72	15.43	37.33	34.91
	802.11ax(HE20) MIMO	18.42		69.50	
5755 - 5795	802.11n(HT40) SISO	16.81	16.71	47.97	46.88
	802.11n(HT40) MIMO	19.81		95.72	
	802.11ax(HE40) SISO	14.37	14.25	27.35	26.61
	802.11ax(HE40) MIMO	17.33		54.08	
5775	802.11ac(VHT80) SISO	13.46	13.99	22.18	25.06
	802.11ac(VHT80) MIMO	16.70		46.77	
	802.11ax(HE80) SISO	13.80	13.41	23.99	21.93
	802.11ax(HE80) MIMO	16.50		44.67	

5.2. DESCRIPTION OF AVAILABLE ANTENNAS

An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

**The internal antenna was Permanently attached.
Therefore this E.U.T Complies with the requirement of §15.203.**

The radio utilizes a internal antenna, with a maximum gain of:

Frequency Band [MHz]	ANT1 Gain [dBi]	ANT2 Gain [dBi]	Correlated Chains Directional Gain [dBi]
UNII 1 5150 - 5250	-6.72	-6.31	-3.50
UNII 2A 5250 - 5350	-6.72	-6.31	-3.50
UNII 2C 5470 - 5725	-6.47	-6.27	-3.36
UNII 3 5725 - 5850	-8.36	-6.01	-4.10

“WIFI0” and “WIFI1” as indicated in antenna specification are written as ANT 1 and ANT 2 in this report.

5.3. List of test reduction and modes covering other modes:

The output power on covered modes is equal to or less than one referenced.

Authorized Frequency Band			
Mode	Antenna Stream	Mode	Covered by
802.11a	SISO	802.11a 1TX	
	MIMO	802.11a 2TX	
802.11n HT20	SISO	802.11n HT20 1TX	
	MIMO	802.11n HT20 2TX	
802.11ac VHT20	SISO	802.11ac VHT20 1TX	802.11n HT20 1TX
	MIMO	802.11ac VHT20 2TX	802.11n HT20 2TX
802.11ax HE20(SU)	SISO	802.11ax HE20 RU(242T) 1TX	802.11ax HE20 SU 1TX
	MIMO	802.11ax HE20 RU(242T) 2TX	802.11ax HE20 SU 2TX
802.11n HT40	SISO	802.11n HT40 1TX	
	MIMO	802.11n HT40 2TX	
802.11ac VHT40	SISO	802.11ac VHT40 1TX	802.11n HT40 1TX
	MIMO	802.11ac VHT40 2TX	802.11n HT40 2TX
802.11ax HE40(SU)	SISO	802.11ax HE40 RU(484T) 1TX	802.11ax HE40 SU 1TX
	MIMO	802.11ax HE40 RU(484T) 2TX	802.11ax HE40 SU 2TX
802.11ac VHT80	SISO	802.11ac VHT80 1TX	
	MIMO	802.11ac VHT80 2TX	
802.11ax HE80(SU)	SISO	802.11ax HE80 RU(996T) 1TX	802.11ax HE80 SU 1TX
	MIMO	802.11ax HE80 RU(996T) 2TX	802.11ax HE80 SU 2TX

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emission below 1GHz and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Radiated emission above 1GHz was performed with the EUT set to transmit low/mid/high channels.

- Worst case condition

ANT1	ANT2	ANT ALL
Axis	Axis	Axis
Y	Y	Y

Based on the baseline scan, the worst-case data rates were:

802.11a mode: 6 Mbps 2Tx
802.11n HT20 mode: MCS0 2Tx
802.11n HT40 mode: MCS0 2Tx
802.11ac VHT80 mode: MCS0 2Tx

802.11ax HE20 mode: MCS0 2Tx
802.11ax HE40 mode: MCS0 2Tx
802.11ax HE80 mode: MCS0 2Tx

Depending on spot-check results for 802.11a / n HT20 & HT40 / ac VHT80 / ax HE20 & HE40 & HE80, MIMO mode is worst case than SISO (ANT1) and SISO (ANT2).

So radiation test for 802.11a / n HT20 & HT40 / ac VHT80 / ax HE20 & HE40 & HE80 were evaluated at MIMO mode.

Worst-case selection criteria for 802.11ax test items :

- For the 6dB Bandwidth, it was tested at the RU allocation with lowest tones number for each bandwidth.

Note : All radiated and power line conducted tests were performed connected with charger for evaluation of worst case mode.

Test case configuration for 802.11a, 802.11n HT20 & 40, 802.11ac VHT20 & 40 & 80, 802.11ax HE20 & 40 & 80 (SU) modes :

Mode	Band	SISO Target[dBm]				MIMO Target[dBm]			
		802.11a	802.11n	802.11ac	802.11ax (SU)	802.11a	802.11n	802.11ac	802.11ax (SU)
5GHZ (20 MHz)	UNII-1	16	16	16	15	19	19	19	18
	UNII-2A	16	16	16	15	19	19	19	18
	UNII-2C	16	16	16	15	19	19	19	18
	UNII-3	16	16	16	15	19	19	19	18
5GHZ (40 MHz)	UNII-1		16	14	14		19	17	17
	UNII-2A		16	14	14		19	17	17
	UNII-2C		16	14	14		19	17	17
	UNII-3		16	14	14		19	17	17
5GHZ (80 MHz)	UNII-1			13	13			16	16
	UNII-2A			13	13			16	16
	UNII-2C			13	13			16	16
	UNII-3			13	13			16	16

 Band-Edge & Spurious Emission

Note1. 802.11ac VHT20 & 802.11ac VHT40 mode are covered by 802.11n HT20 & 802.11n HT40.

Note2. 802.11ax HE20 & HE40 SU mode's target power(both of SISO, MIMO) is lower than or equal to 802.11n mode. Therefore, 802.11ax HE20 & HE40 SU mode is covered by 802.11n HT20 & HT40 mode.

Note3. 802.11ax HE80 SU mode's target power(both of SISO, MIMO) is equal to 802.11ac VHT80 mode. Therefore, 802.11ax HE80 SU mode is covered by 802.11ac VHT80 mode.

Test case configuration for 802.11ax HE20 & 40 & 80 (RU) modes :

802.11ax HE20 RU mode						
Band	Freq.	Tone	RU offset	Test Case		
				ANT1	ANT2	MIMO
UNII-1	5180	26T	0	-	-	
			4	-	-	O
			8	-	-	
	5200		0	-	-	
			4	-	-	O
			8	-	-	
	5240		0	-	-	
			4	-	-	O
			8	-	-	
UNII-2A	5260		0	-	-	
			4	-	-	O
			8	-	-	
	5300		0	-	-	
			4	-	-	O
			8	-	-	
	5320		0	-	-	
			4	-	-	O
			8	-	-	
UNII-2C	5500		0	-	-	
			4	-	-	O
			8	-	-	
	5580		0	-	-	
			4	-	-	O
			8	-	-	
	5700		0	-	-	
			4	-	-	O
			8	-	-	
UNII-3	5745		0	-	-	
			4	-	-	O
			8	-	-	
	5785		0	-	-	
			4	-	-	O
			8	-	-	
	5825		0	-	-	
			4	-	-	O
			8	-	-	

802.11ax HE40 RU mode							
Band	Freq.	Tone	RU offset	Test Case			
				ANT1	ANT2	MIMO	
UNII-1	5190	26T	0	-	-		
			9	-	-	O	
			17	-	-		
	5230		0	-	-		
			9	-	-	O	
			17	-	-		
	UNII-2A		5270	0	-	-	
				9	-	-	O
				17	-	-	
5310			0	-	-		
			9	-	-	O	
			17	-	-		
UNII-2C			5510	0	-	-	
				9	-	-	O
				17	-	-	
	5590		0	-	-		
			9	-	-	O	
			17	-	-		
	5670		0	-	-		
			9	-	-	O	
			17	-	-		
UNII-3	5755		0	-	-		
			9	-	-	O	
			17	-	-		
	5795		0	-	-		
			9	-	-	O	
			17	-	-		

802.11ax HE80 RU mode						
Band	Freq.	Tone	RU offset	Test Case		
				ANT1	ANT2	MIMO
UNII-1	5210	26 T	0	-	-	
			18	-	-	
			36	-	-	O
UNII-2A	5290		0	-	-	
			18	-	-	O
			36	-	-	
UNII-2C	5530		0	-	-	
			18	-	-	O
			36	-	-	
	5610		0	-	-	
			18	-	-	O
			36	-	-	
UNII-3	5775		0	-	-	
			18	-	-	O
		36	-	-		

Note4. Radiated spurious test was performed on the lower tone(26T) with worst average power.

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

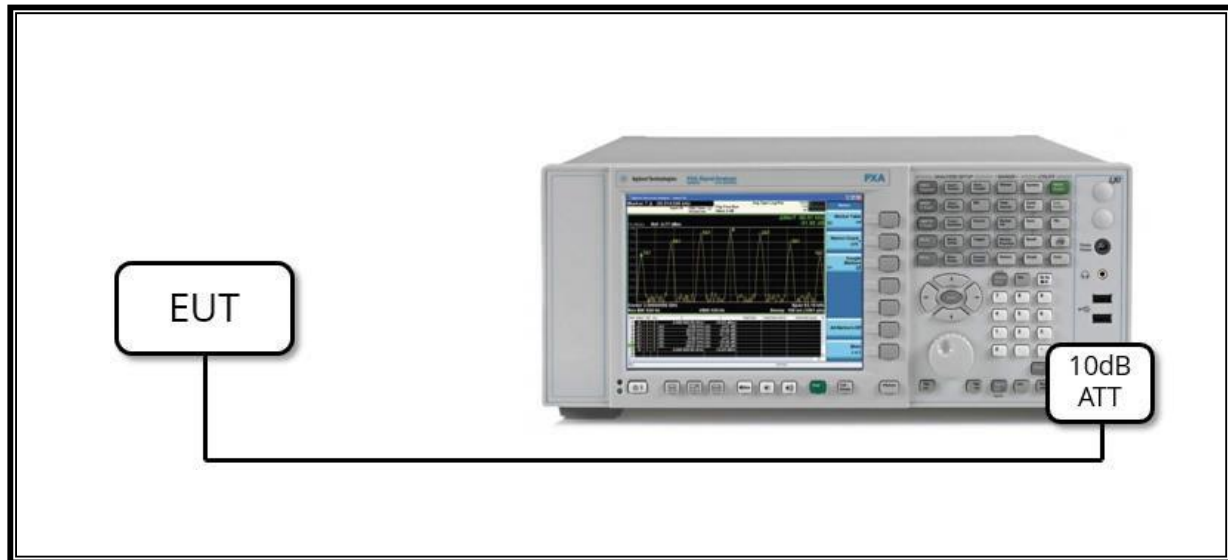
I/O CABLE

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	1.0 m	N/A

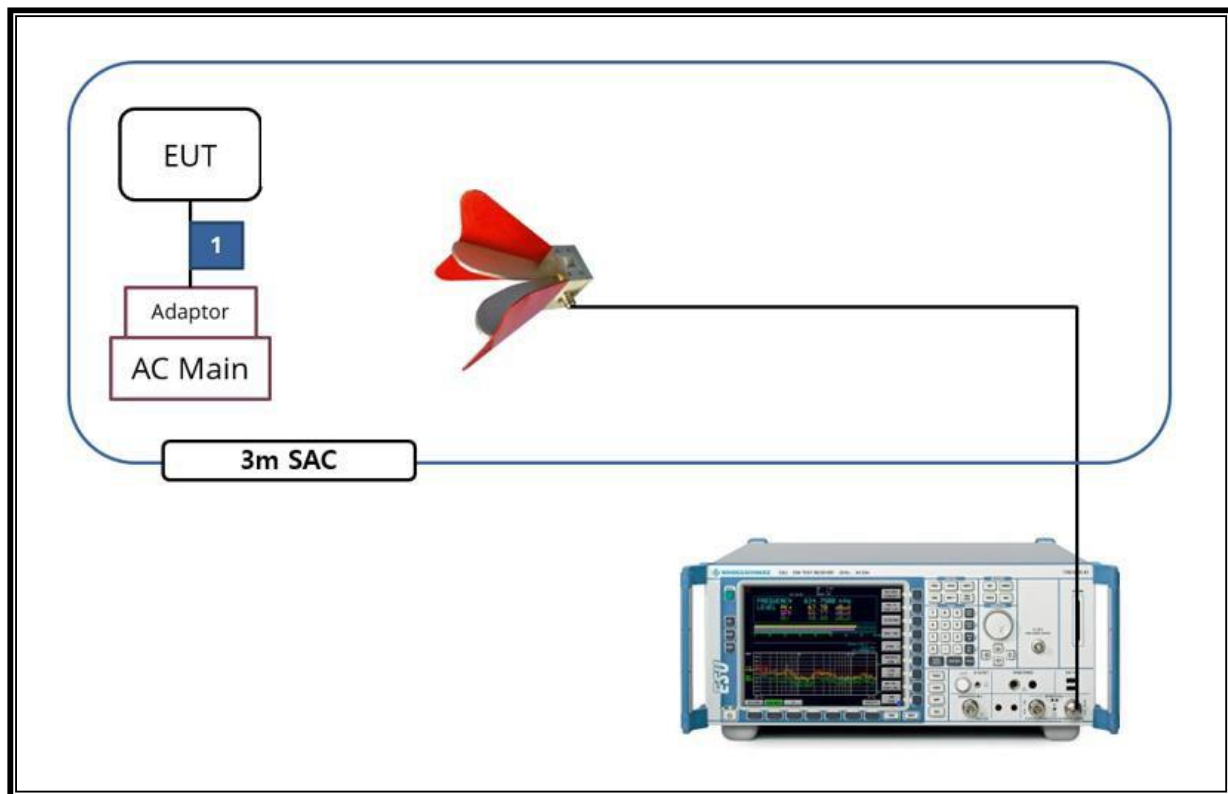
TEST SETUP

The EUT is a stand-alone unit during the tests.
Test software exercised the EUT to enable NII mode.

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST 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	S/N	Cal Due
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, 18 GHz	ETS	3117	00218957	01-15-23
Antenna, Horn, 40 GHz	ETS	3116C	00166155	01-15-23
Antenna, Horn, 40 GHz	ETS	3116C	00168645	10-02-21
Preamplifier	ETS	3116C-PA	00168841	08-06-21
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
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	08-05-21
Spectrum Analyzer, 43.5 GHz	R&S	FSW43	104089	08-06-21
EMI Test Receiver, 44 GHz	R&S	ESW44	101590	08-04-21
Average Power Sensor	Agilent / HP	U2000	MY54270007	08-05-21
Attenuator	PASTERNAK	PE7087-10	A001	08-03-21
Attenuator	PASTERNAK	PE7087-10	A008	08-03-21
Attenuator	PASTERNAK	PE7004-10	2	08-04-21
Attenuator	PASTERNAK	PE7087-10	A009	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
EMI Test Receive, 3 GHz	R&S	ESR3	101832	08-03-21
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	08-03-21
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	015	08-03-21
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	020	08-04-21
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	08-03-21
High Pass Filter 3GHz	Micro-Tronics	HPM17543	015	08-03-21
High Pass Filter 3GHz	Micro-Tronics	HPM17543	020	08-04-21
High Pass Filter 6GHz	Micro-Tronics	HPS17542	009	08-03-21
High Pass Filter 6GHz	Micro-Tronics	HPS17542	016	08-03-21
High Pass Filter 6GHz	Micro-Tronics	HPS17542	021	08-04-21
LISN	R&S	ENV-216	101837	08-06-21
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	10-02-21
Termination	WEINSCHEL	M1406A	T01	08-05-21
Attenuator	WEINSCHEL	WA76-30-21	A015	08-05-21
UL Software				
Description	Manufacturer	Model	Version	
Radiated software	UL	UL EMC	Ver 9.5	
AC Line Conducted software	UL	UL EMC	Ver 9.5	

END OF TEST REPORT