



TEST REPORT

KCTL Inc. 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea TEL: 82-31-285-0894 FAX: 82-505-299-8311 www.kctl.co.kr	Report No.: KR19-SRF0018-A Page (1) of (8)	
---	---	---

1. Client

- Name : Samsung Electronics Co., Ltd.
- Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
- Date of Receipt : 2019-01-25

2. Use of Report : -

3. Name of Product and Model : Mobile Phone / SM-A105M/DS

4. Manufacturer and Country of Origin : Samsung Electronics Co., Ltd. / Korea

5. FCC ID : A3LSMA105M

6. Date of Test : 2019-02-17 to 2019-03-04

7. Test Standards : FCC Part 2 , 15.247, 15.249 FCC Part 22 subpart H FCC Part 24 subpart E FCC Part 27 subpart C

8. Test Results : Refer to the test result in the test report

Affirmation	Tested by Name : Kwonse Kim (Signature)	Technical Manager Name : Bongok Ko (Signature)
-------------	--	---

2019-03-06

KCTL Inc.

As a test result of the sample which was submitted from the client, this report does not guarantee the whole product quality. This test report should not be used and copied without a written agreement by KCTL Inc.

KCTL Inc.

65, Sinwon-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16677, Korea
TEL: 82-31-285-0894 FAX: 82-505-299-8311
www.kctl.co.kr

Report No.:
KR19-SRF0018-A

Page (2) of (8)

**Report revision history**

Date	Revision	Page No
2019-03-05	Initial report	-
2019-03-06	Revised deviation data	6

This report shall not be reproduced except in full, without the written approval of KCTL Inc. This document may be altered or revised by KCTL Inc. personnel only, and shall be noted in the revision section of the document. Any alteration of this document not carried out by KCTL Inc. will constitute fraud and shall nullify the document.

This test report is a general report that does not use the KOLAS accreditation mark and is not related to KOLAS accreditation.



CONTENTS

1.	General information.....	4
2.	Spot-check information	4
3.	Spot-check verification data.....	5
3.1.	Radiated power (ERP/EIRP) & spurious emissions.....	5
3.2.	Radiated spurious emissions & band edge	6
4.	Measurement equipment	7



KCTL Inc.

65, Sinwon-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16677, Korea
TEL: 82-31-285-0894 FAX: 82-505-299-8311
www.kctl.co.kr

Report No.:
KR19-SRF0018-A

Page (4) of (8)



1. General information

Client : Samsung Electronics Co., Ltd.
Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677,
Rep. of Korea
Manufacturer : Samsung Electronics Co., Ltd.
Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677,
Rep. of Korea
Laboratory : KCTL Inc.
Address : 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea
Accreditations : FCC Site Designation No: KR0040, FCC Site Registration No: 687132
VCCI Registration No. : R-3327, G-198, C-3706, T-1849
Industry Canada Registration No. : 8035A-2
KOLAS No.: KT231

2. Spot-check information

The FCC ID: A3LSMA105M shares the same enclosure and circuit board as FCC ID: A3LSMA105F. The antennas and surrounding circuitry and layout regarding test data re-used bands are identical between these two units. The FCC ID: A3LSMA105M, some components for additional band newly mounted and additional bands enabled by SW.

After confirming through preliminary radiated emissions that the performance of the FCC ID: A3LSMA105F remains representative of FCC ID: A3LSMA105M.

Reference FCC ID	Equipment class	Spot check bands	Report title
ASLSMA105F	PCE	GSM850	2G3G(Part22,24) report
		WCDMA850	
		WCDMA1900	
		LTE Band5	LTE(Part22,24,27) report
		LTE Band2	
	DTS	WIFI	WIFI(P15.247) report
		BLE	BLE(P15.247) report
	DSS	Bluetooth	BT(P15.247) report
	DXX	ANT+	ANT+(P15.249) report

Notes:

- For FCC ID: ASLSMA105M has been verified the performance as the LTE Band2/5, GSM850 and WCDMA 850/1900 identical with the FCC ID: A3LSMA105F but GSM 1900 band was set full test again because the output power is lower than in preparation with the target power.
- The test procedure(s) in this report were performed in accordance as following.
 - ◆ KDB 484596 D01 v01

3. Spot-check verification data

3.1. Radiated power (ERP/EIRP) & spurious emissions

Test results

5.1.1. Radiated power (ERP/EIRP) for licensed bands

Test band	Test item	Worst mode	Channel	Frequency (MHz)	SMA105F/DS (dBm)	SMA105M/DS (dBm)	Deviation (dB)
GSM 850	ERP	GPRS	251	848.8	28.02	27.40	0.62
WCDMA 850	ERP	RMC	4233	846.6	22.99	20.19	2.80
WCDMA 1900	EIRP	HSDPA	9262	1 852.4	21.84	20.70	1.14
LTE Band 5	ERP	QPSK 1.4 MHz	20643	848.3	22.67	19.50	3.17
LTE Band 2	EIRP	QPSK 15 MHz	19125	1 902.5	22.10	21.69	0.41

5.1.2. Spurious emissions for licensed bands

Test band	Test item	Worst mode	Channel	Frequency (MHz)	SM-A105F/DS (dBm)	SMA105M/DS (dBm)	Deviation (dB)
GSM 850	RSE	GPRS	251	2 546.17	-40.70	-50.00	9.30
WCDMA 850	RSE	RMC	4233	2 536.17	-49.20	-58.20	9.00
WCDMA 1900	RSE	HSDPA	9538	7 626.31	-42.90	-54.10	11.20
LTE Band 5	RSE	QPSK 1.4 MHz	20407	1 648.07	-49.82	-48.52	-1.30
LTE Band 2	RSE	QPSK 1.4 MHz	19193	9 544.44	-34.50	-44.50	10.00

3.2. Radiated spurious emissions & band edge**Test results****Unlicensed bands**

Test band	Test item	Test mode	Channel	Measured frequency	SM-A105F/DS (dBm)		SM-A105M/DS (dBm)		Deviation (dB)	
					Avg.	Peak	Avg.	Peak	Avg.	Peak
WIFI	Band edge	802.11b	13	2 483.5 MHz ~ 2 500 MHz	48.43	56.79	49.90	58.26	-1.47	-1.47
	RSE		6	12 185 MHz	-	51.27	-	46.02	-	5.25
	Band edge	802.11g	1	2 310 MHz ~ 2 390 MHz	47.88	61.59	46.87	59.82	1.01	1.77
	RSE		1	7 236 MHz	-	42.93	-	44.40	-	-1.47
	Band edge	802.11n	1	2 310 MHz ~ 2 390 MHz	48.03	58.41	49.45	60.21	-1.42	-1.80
	RSE		11	7 386 MHz	-	42.53	-	42.65	-	-0.12
BT	Band edge	DH5	0	2 310 MHz ~ 2 390 MHz	-	50.92	-	40.74	-	10.18
	RSE		78	12 400 MHz	-	51.60	-	53.29	-	-1.69
	Band edge	3DH5	78	2 483.5 MHz ~ 2 500 MHz	35.99	58.65	38.00	49.94	-2.01	8.71
	RSE		78	12 400 MHz	-	49.80	-	49.03	-	0.77
BLE	Band edge	1Mbps	39	2 483.5 MHz ~ 2 500 MHz	48.15	61.33	49.88	45.00	-1.73	16.33
	RSE		0	4 960 MHz	-	43.22	-	42.91	-	0.31
	Band edge	2Mbps	39	2 483.5 MHz ~ 2 500 MHz	49.17	51.75	45.72	52.22	3.45	-0.47
	RSE		19	7 320 MHz	-	42.94	-	41.85	-	1.09
ANT+	Band edge	GFSK	0	2 310 MHz ~ 2 390 MHz	-	51.39	-	42.45	-	8.94
	RSE	GFSK	39	7 323 MHz	-	42.90	-	42.40	-	0.50

KCTL Inc.

65, Sinwon-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16677, Korea
TEL: 82-31-285-0894 FAX: 82-505-299-8311
www.kctl.co.kr

Report No.:
KR19-SRF0018-A

Page (7) of (8)



4. Measurement equipment

Equipment Name	Manufacturer	Model No.	Serial No.	Next Cal. Date
Spectrum Analyzer	AGILENT	N9040B	MY57010132	19.10.12
Spectrum Analyzer	R & S	FSV30	101437	19.08.01
Vector Signal Generator	R & S	SMBV100A	257566	20.01.04
Signal Generator	R & S	SMR40	100007	19.05.15
Wideband Power Sensor	R & S	NRP-Z81	102398	20.01.25
Bluetooth Tester	TESCOM	TC-3000C	3000C000270	19.08.02
EMI TEST RECEIVER	R & S	ESCI	100732	19.08.23
Wideband Radio Communication Tester	R & S	CMW500	102159	19.08.08
Wideband Radio Communication Tester	R & S	CMW500	106840	20.01.25
Radio Communication Analyzer	Anritsu	MT8820C	6201010005	19.08.02
High pass Filter	Wainwright Instruments GmbH	WHKX3.0/18G-12SS	44	20.01.25
High pass Filter	Wainwright Instruments GmbH	WHKX1.0/1.5S-10SS	14	20.01.25
Highpass Filter	WT	WT-A1698-HS	WT160411001	19.05.14
Attenuator	Weinschel ENGINEERING	10	AJ1239	19.05.14
COAXIAL FIXED ATTENUATOR	Agilent	8491B-003	2708A18758	20.05.04
Biconical VHF-UHF Broadband Antenna	SCHWARZBECK	VUBA9117	275	20.04.13
Horn Antenna	ETS.lindgren	3115	62589	19.08.24
Horn Antenna	ETS.lindgren	3116	00086635	19.05.10
Bilog Antenna	Teseq GmbH	CBL 6143A	35039	19.05.19
Bi-Log Antenna	SCHWARZBECK	VULB 9168	583	20.05.04
Horn Antenna	ETS.lindgren	3117	161225	19.05.18
Horn Antenna	Steatite Antenna	QMS-00225	17790	19.08.24
LOOP Antenna	R & S	HFH2-Z2	100355	20.08.24
Amplifier	SONOMA INSTRUMENT	317	321041	20.01.04
Amplifier	L-3 Narda-MITEQ	AFS5-00101800-25-S-5	2054570	19.10.18
Amplifier	L-3 Narda-MITEQ	JS44-18004000-33-8P	2000997	19.08.02
Amplifier	SONOMA INSTRUMENT	310N	284608	19.08.23
AMPLIFIER	L-3 Narda-MITEQ	AMF-7D-01001800-22-10P	2003683	19.05.15
AMPLIFIER	L-3 Narda-MITEQ	JS44-18004000-33-8P	2000997	19.08.02
RF Selector	TOYO Corporation	NS5800	1003-010	N/A
Band Selector	TOYO Corporation	NS5800	1003-135	N/A

This test report shall not be reproduced, except in full, without the written approval

KCTL-TIR001-003/2

KCTL Inc.

65, Sinwon-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16677, Korea
TEL: 82-31-285-0894 FAX: 82-505-299-8311
www.kctl.co.kr

Report No.:
KR19-SRF0018-A

Page (8) of (8)



Band Selector	TOYO Corporation	NS5800	1003-320	N/A
Antenna Mast	MATURO	EAS 1.5	042/8941211	N/A
Antenna Mast	MATURO	EAS 1.5	043/8941211	N/A
Antenna Mast	Innco Systems	MA4640-XP-ET	-	-
Antenna Mast	Innco Systems	MA4000-EP	303	-
Turn Table	MATURO	TT 0.8 PF	041/8941211	N/A
Turn Table	Innco Systems	DT2000	79	-
Turn Table	Innco Systems	DT2000	79	-
Cable Assembly	Radiall	R286303620	1649.241	N/A
Cable Assembly	Radiall	TESTPRO 3	-	N/A
Cable Assembly	RadiAll	2301761768000PJ	1724.659	-
Cable Assembly	gigalane	RG-400	-	-
Cable Assembly	HUER+SUHNER	SUCOFLEX 104	MY4342/4	-

End of test report

