

EVALUATION REPORT

Applicant Name:

SAMSUNG Electronics Co., Ltd.

Address:129, Samsung-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16677, Rep. of Korea**Date of Issue:**

June 20, 2019

Location:HCT CO., LTD.,
74, Seoicheon-ro 578beon-gil, Majang-myeon,
Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA

FCC ID:	A3LSMT725U
APPLICANT:	SAMSUNG Electronics Co., Ltd.

Equipment Class(es) : PCB

Rule Part(s) : 22, 24, 27, 2

Application's Statement : The applicant takes full responsibility that the test data referenced below represents compliance for this FCC ID.

Differences
Brief Description : Hardware and software of this device are identical to the implementation in A3LSMT725.
The operational description includes detailed information about the changes between the devices. The data from that application has been verified through appropriate spot checks to demonstrate compliance for this device as shown in the summary table below.

Test Reference : KDB 484596 D01 Reference Test Data v01

The detail test data can be found in this documents, Appendix A.

Category	Spot Check	Verdict
Licensed EMC	ERP / EIRP	Share
	RSE	Share

Reference Detail Section

Reference FCC ID	Equipment Class	Report Title	Section
A3LSMT725	PCB	2G, 3G Report	All sections
		LTE B2 Report	All sections
		LTE B5 Report	All sections
		LTE B12(17) Report	All sections
		LTE B13 Report	All sections



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Appendix A. The Spot check test data

Tune-up power of LTE Band 41 and Unlicensed parts have been changed.

So LTE B41 and Unlicensed parts were retested.

Though the change does not related to existed cellular bands, yet LTE Band 4 and LTE Band 66 were set for full test again because the deviation of RSE found through the spot check is more than expected.

As for 2G, 3G and LTE Band 2, 5, 12, 13, 17, they have been verified and the parent model test results under FCC ID: A3LSMT725 shall remain representative of FCC ID: A3LSMT725U.

1. Summary of the spot check for Licensed EMC

1.1 EFFECTIVE RADIATED POWER

Spot check of A3LSMT725U

Mode	Ch./ Freq.		Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol.	Limit	ERP	
	channel	Freq.(MHz)						W	W	dBm
GSM850	190	836.6	-23.93	38.37	-10.21	0.87	V	< 7.00	0.536	27.29
WCDMA850	4183	836.6	-32.20	30.10	-10.21	0.87	V		0.080	19.02
LTE B5	20643	836.5	-32.63	29.64	-10.21	0.86	V		0.072	18.57

Deviation

Mode	Frequency (MHz)		Mode	A3LSMT725 (dBm)	A3LSMT725U (dBm)	Deviation (dB)
	MHz	Ch.				
GSM850	836.6	190	VOICE	28.15	27.29	0.86
WCDMA850	836.6	4183	RMC	19.08	19.02	0.06
LTE B5	836.5	20525	QPSK(10MHz)	18.96	18.57	0.39

1.2 EQUIVALENT ISOTROPIC RADIATED POWER

Spot check of A3LSMT725U

Mode	Ch./ Freq.		Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol.	Limit	ERP	
	channel	Freq.(MHz)						W	W	dBm
GSM1900	810	1909.8	-13.47	19.06	10.31	1.37	H	< 2.00	0.631	28.00
WCDMA1900	9538	1907.6	-18.90	13.63	10.31	1.37	H		0.181	22.57
WCDMA1700	1513	1752.6	-18.45	13.37	10.10	1.29	H	< 1.00	0.165	22.18

Deviation

Mode	Frequency		Mode	A3LSMT725 (dBm)	A3LSMT725U (dBm)	Deviation (dB)
	MHz	Ch.				
GSM1900	1909.8	810	VOICE	27.52	28.00	-0.48
WCDMA1900	1907.6	9538	RMC	22.09	22.57	-0.48
WCDMA1700	1752.6	1513	RMC	21.81	22.18	0.37

Spot check of A3LSMT725U

Mode	Ch./ Freq.		Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol.	Limit	ERP	
	channel	Freq.(MHz)						W	W	dBm
LTE B12(17)	23165	714.5	-30.29	26.90	-10.18	0.78	V	< 3.00	0.039	15.94
LTE B2	18900	1880.0	-19.13	13.00	10.29	1.36	H	< 2.00	0.156	21.93
LTE B13	23230	782.0	-32.68	26.22	-10.33	0.83	H	< 3.00	0.032	15.06

Deviation

Mode	Frequency		Mod/ Bandwidth	A3LSMT725 (dBm)	A3LSMT725U (dBm)	Deviation (dB)
	MHz	Ch.				
LTE B12(17)	714.5	23165	QPSK(3MHz)	15.78	15.94	0.65
LTE B2	1880.0	18900	QPSK(3MHz)	22.03	21.93	0.10
LTE B13	782.0	23230	QPSK(10MHz)	14.79	15.06	-0.27

1.3 RADIATED SPURIOUS EMISSIONS

Spot check of A3LSMT725U

Mode, Channel, (Frequency)	Freq. (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm]	C.L	Pol.	Result (dBm)
GSM850 CH 251 (848.8MHz)	3,395.20	-52.61	10.57	-58.75	1.95	V	-52.28
WCDMA850 CH 4132 (826.4MHz)	2,479.20	-58.19	8.71	-64.56	1.60	V	-59.60
LTE B5 CH 20635 (847.5MHz)	2,542.50	-56.23	8.86	-62.26	1.62	H	-57.17

Deviation

Modulation	Frequency		Mode	A3LSMT725 (dBm)	A3LSMT725U (dBm)	Deviation (dB)
	MHz	Ch.				
GSM850	848.8	251	VOICE	-52.36	-52.28	0.08
WCDMA850	2479.2	4132	RMC	-53.60	-59.60	6.00
LTE B5	847.5	20635	QPSK(3MHz)	-55.04	-57.17	2.13

Spot check of A3LSMT725U

Mode, Channel (Frequency)	Freq. (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm]	C.L	Pol.	Result (dBm)
GSM1900 CH 512 (1850.2MHz)	7,400.80	-56.79	11.50	-51.78	2.92	V	-43.20
WCDMA1900 CH 9538 (1907.6MHz)	7,630.40	-57.95	11.95	-53.14	2.98	H	-44.17
WCDMA1700 CH 1312 (1712.4MHz)	6,849.60	-57.57	12.52	-54.81	2.81	H	-45.10

Deviation

Modulation	Frequency		Mode	A3LSMT725 (dBm)	A3LSMT725U (dBm)	Deviation (dB)
	MHz	Ch.				
GSM1900	7400.8	512	VOICE	-43.45	-43.20	-0.25
WCDMA1900	7630.4	9538	RMC	-42.94	-44.17	1.23
WCDMA1700	6849.6	1312	RMC	-42.30	-45.10	2.80

Spot check of A3LSMT725U

Mode, Channel, (Frequency)	Freq. (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm]	C.L	Pol.	Result (dBm)
LTE B12(17) CH 23155 (713.5MHz)	2,854.00	-56.27	9.16	-61.34	1.73	H	-56.06
LTE B2 CH 18607 (1850.7MHz)	7,402.80	-56.17	11.50	-51.16	2.92	V	-42.58
LTE B13 CH 23205 (779.5MHz)	2,338.5	-57.81	7.87	-63.11	1.56	H	-58.95

Deviation

Modulation	Frequency		Mode	A3LSMT725 (dBm)	A3LSMT725U (dBm)	Deviation (dB)
	MHz	Ch.				
LTE B12(17)	2854.0	23155	QPSK(5MHz)	-53.49	-56.06	2.57
LTE B2	7402.8	18607	QPSK(1.4MHz)	-39.72	-42.58	2.86
LTE B13	2338.5	23205	QPSK(5MHz)	-54.88	-58.95	4.07

4. List of test equipment

Manufacture	Model/ Equipment	Serial Number	Calibration Date	Calibration Interval	Calibration Due
REOHDE & SCHWARZ	SCU 18 / AMPLIFIER	10094	04/16/2019	Annual	04/16/2020
Wainwright	WHK1.2/15G-10EF/H.P.F	4	04/02/2019	Annual	04/02/2020
Wainwright	WHK3.3/18G-10EF/H.P.F	2	04/02/2019	Annual	04/02/2020
Schwarzbeck	UHAP/ Dipole Antenna	557	03/29/2019	Biennial	03/29/2021
Schwarzbeck	UHAP/ Dipole Antenna	558	03/29/2019	Biennial	03/29/2021
Schwarzbeck	BBHA 9120D/ Horn Antenna(1~18GHz)	147	09/14/2018	Annual	09/14/2019
Schwarzbeck	BBHA 9120D/ Horn Antenna(1~18GHz)	9120D-1298	10/04/2018	Annual	10/04/2019
Schwarzbeck	BBHA 9170/ Horn Antenna(15~40GHz)	BBHA9170342	04/29/2019	Biennial	04/29/2021
Schwarzbeck	BBHA 9170/ Horn Antenna(15~40GHz)	BBHA9170124	01/28/2019	Biennial	01/28/2021
Agilent	N9020A/Signal Analyzer(10Hz~26.5GHz)	MY51110063	05/08/2019	Annual	05/08/2020
Hewlett Packard	8493C/ATTENUATOR(20dB)	17280	06/21/2018	Annual	06/21/2019
REOHDE & SCHWARZ	FSV40/Spectrum Analyzer(10Hz~40GHz)	100931	10/22/2018	Annual	10/22/2019
Agilent	8960 (E5515C)/ Base Station	MY48360800	09/27/2018	Annual	09/27/2019
Schwarzbeck	VULB9160/ Bilog Antenna	9160-3368	08/09/2018	Biennial	08/09/2020
Schwarzbeck	VULB9160/ Hybrid Antenna	760	03/22/2019	Biennial	03/22/2021
Anritsu Corp.	MT8821C/Wideband Radio Communication Tester	6201502997	08/13/2018	Annual	08/13/2019
Anritsu Corp.	MT8820C/Wideband Radio Communication Tester	6201026545	01/30/2019	Annual	01/30/2020
REOHDE & SCHWARZ	SMB100A/ SIGNAL GENERATOR (100kHz~40GHz)	177633	07/19/2018	Annual	07/19/2019
REOHDE & SCHWARZ	ESU40 / EMI TEST RECEIVER	100524	07/27/2018	Annual	07/27/2019