



TEST REPORT

KCTL 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.: KR20-SRF0232-A Page (1) of (13)	
1. Client		
<ul style="list-style-type: none"> ◦ Name : Samsung Electronics Co., Ltd. ◦ Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea ◦ Date of Receipt : 2020-07-08 		
2. Use of Report : Certification		
3. Name of Product / Model : Tablet PC / SM-T570		
4. Manufacturer / Country of Origin : Samsung Electronics Co., Ltd. / Vietnam		
5. FCC ID : A3LSMT570		
6. Date of Test : 2020-08-25 to 2020-09-01		
7. Location of Test : <input checked="" type="checkbox"/> Permanent Testing Lab <input type="checkbox"/> On Site Testing (Address: Address of testing location)		
8. Test method used : FCC Part 15 Subpart C, 15.225		
9. Test Result : Refer to the test result in the test report		
Affirmation	Tested by Name : Taeyoung Kim 	Technical Manager Name : Seungyong Kim 
2020-09-10		
<h2>KCTL Inc.</h2>		
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REPORT REVISION HISTORY

Date	Revision	Page No
2020-09-02	Originally issued	-
2020-09-10	Updated	7

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Note. The report No. KR20-SRF0232 is superseded by the report No. KR20-SRF0232-A.

General remarks for test reports

Nothing significant to report.



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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
Factory : Samsung Electronics Vietnam Thai Nguyen Co., Ltd (SEVT)
Address : Yen binh Industrial Park, Dong Tien Ward, Pho Yen Town Thai Nguyen
Province, Vietnam
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-20080, G-20078, C-20059, T-20056
Industry Canada Registration No. : 8035A
KOLAS No.: KT231

2. Device information

Equipment under test : Tablet PC
Model : SM-T570
Modulation technique : Bluetooth(BDR/EDR)_GFSK, π /4DQPSK, 8DPSK
Bluetooth(BLE)_GFSK
WIFI(802.11a/b/g/n/ac/ax)_DSSS, OFDM, OFDMA
NFC_ASK
Number of channels : Bluetooth(BDR/EDR)_79 ch / Bluetooth(BLE)_40 ch
802.11b/g/n/ac/ax_HT20/VHT20/HE20 : 13 ch
UNII-1: 4 ch (20 MHz), 2 ch (40 MHz), 1 ch (80 MHz)
UNII-2A: 4 ch (20 MHz), 2 ch (40 MHz), 1 ch (80 MHz)
UNII-2C: 12 ch (20 MHz), 6 ch (40 MHz), 3 ch (80 MHz)
UNII-3: 5 ch (20 MHz), 2 ch (40 MHz), 1 ch (80 MHz)
NFC: 1 ch
Power source : DC 3.85 V
Antenna specification : WIFI/Bluetooth(BDR/EDR/BLE)_LDS carrier Antenna
NFC_FPCB Antenna

Antenna gain	: WIFI/Bluetooth(BDR/EDR/BLE): ANT 1: -2.50 dBi, ANT 2: -2.50 dBi UNII-1 ANT 1: -3.20 dBi, ANT 2: -3.70 dBi UNII-2A ANT 1: -3.20 dBi, ANT 2: -3.80 dBi UNII-2C ANT 1: -6.20 dBi, ANT 2: -6.70 dBi UNII-3 ANT 1: -6.50 dBi, ANT 2: -6.40 dBi
Frequency range	: Bluetooth(BDR/EDR/BLE)_2 402 MHz ~ 2 480 MHz 2 412 MHz ~ 2 472 MHz (802.11b/g/n/ac/ax_HT20/VHT20/HE20) UNII-1: 5 180 MHz ~ 5 240 MHz (802.11a/n/ac/ax_HT20/VHT20/HE20) UNII-1: 5 190 MHz ~ 5 230 MHz (802.11n/ac/ax_HT40/VHT40/HE40) UNII-1: 5 210 MHz (802.11ac/ax_VHT80/HE80) UNII-2A: 5 260 MHz ~ 5 320 MHz (802.11a/n/ac/ax_HT20/VHT20/HE20) UNII-2A: 5 270 MHz ~ 5 310 MHz (802.11n/ac/ax_HT40/VHT40/HE40) UNII-2A: 5 290 MHz (802.11ac/ax_VHT80/HE80) UNII-2C: 5 500 MHz ~ 5 720 MHz (802.11a/n/ac/ax_HT20/VHT20/HE20) UNII-2C: 5 510 MHz ~ 5 710 MHz (802.11n/ac/ax_HT40/VHT40/HE40) UNII-2C: 5 530 MHz ~ 5 690 MHz (802.11ac/ax_VHT80/HE80) UNII-3: 5 745 MHz ~ 5 825 MHz (802.11a/n/ac/ax_HT20/VHT20/HE20) UNII-3: 5 755 MHz ~ 5 795 MHz (802.11n/ac/ax_HT40/VHT40/HE40) UNII-3: 5 775 MHz (802.11ac/ax_VHT80/HE80) NFC_13.56 MHz
Software version	: T570.001
Hardware version	: REV1.0
Test device serial No.	: Radiated(R32N60101GJ)
Operation temperature	: -30 °C ~ 50 °C

3. Introduction

This report referenced from the FCC ID : A3LSMT575

Based on their similarity, the FCC Part 15C (equipment class: DXX) reuses the original model's result and do spot-check, following the FCC KDB 484596 D01 v01.

And the applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID.

3.1 Difference

The FCC ID: A3LSMT570 shares the same enclosure and circuit board as FCC ID: A3LSMT575. The WIFI/BT/BLE/NFC antenna and surrounding circuitry and layout are identical between these two units. The only difference between the FCC ID: A3LSMT575 and FCC ID: A3LSMT570 is to remove the GSM/WCDMA/LTE related parts (receiver, LFEMID, MMBB PAM, HB PAMID and filters from FCC ID:A3LSMT575.

As for all bands, they have been verified and the parent model test results under FCC ID : A3LSMT575 shall remain representative of FCC ID : A3LSMT570.

Note. The Product equality letter includes detailed information about the differences between FCC ID: A3LSMT575 and FCC ID: A3LSMT570.

3.2 Spot check verification data (Band-edge & Spurious emission)

Test mode	Test item	Measured frequency (MHz)	SM-T575 (dB(μ V/m))	SM-T570 (dB(μ V/m))	Deviation (dB)
			QP	QP	
NFC	Fundamental	13.56	16.75	14.74	2.01
	Emission	67.71	24.57	9.15	15.42

Notes:

1. For FCC ID: A3LSMT570 has been verified the performance as for NFC identical with the FCC ID: A3LSMT575.
2. Comparison of two models, upper deviation is within 3 dB range and all test results are under FCC technical limits.
3. The test procedure(s) in this report were performed in accordance as following.
 - ◆ KDB 484596 D01 v01

3.3 Reference Detail

Reference application that contains the reused reference data in the individual test reports.

Equipment Class	Reference FCC ID	Application Type	Reference Test report Number	Exhibit Type	Variant Test Report Number	Date Reused
DTS	A3LSMT575	Original	KP20-SRF0209 (802.11b/g/n/ac)	Test report	KR20-SRF0231	All
			KP20-SRF0214 (802.11ax)	Test report	KR20-SRF0234	All
			KP20-SRF0208 (Bluetooth LE)	Test report	KR20-SRF0230	All
DSS	A3LSMT575	Original	KP20-SRF0207 (Bluetooth)	Test report	KR20-SRF0229	All
NII	A3LSMT575	Original	KP20-SRF0210 (802.11a/n/ac)	Test report	KR20-SRF0233	All
			KP20-SRF0215 (802.11ax)	Test report	KR20-SRF0235	All
			KR20-SRF0216 (DFS)	Test report	-	All
DXX	A3LSMT575	Original	KP20-SRF0211 (NFC)	Test report	KR20-SRF0232	All



4. Summary of tests

FCC Part section(s)	Parameter	Test Condition	Test results
15.225(a)	In-band Fundamental Emission	Radiated	Pass
15.225(b)	In-band Spurious Emission		Pass
15.225(c)	In-band Spurious Emission		Pass
15.225(a) 15.209	Out-of-band Spurious Emission		Pass

Notes:

- These tests were performed other than open field site, adequate comparison measurements were confirmed against 30 m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.
- The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z. It was determined that Y orientation was worst-case orientation. Therefore, all final radiated testing was performed with the EUT in Y orientation
- The test procedure(s) in this report were performed in accordance as following.
 - ANSI C63.10-2013

5. Measurement uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013.

All measurement uncertainty values are shown with a coverage factor of $k=2$ to indicated a 95 % level of confidence. The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and thus, can be compared directly to specified limits to determine compliance.

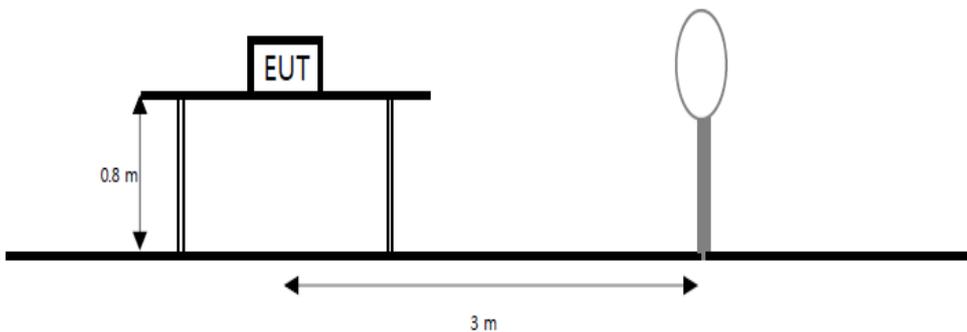
Parameter	Expanded uncertainty (\pm)	
Radiated spurious emissions	9 kHz ~ 30 MHz:	2.3 dB
	30 MHz ~ 300 MHz	5.4 dB
	300 MHz ~ 1 000 MHz	5.5 dB

6. Test results

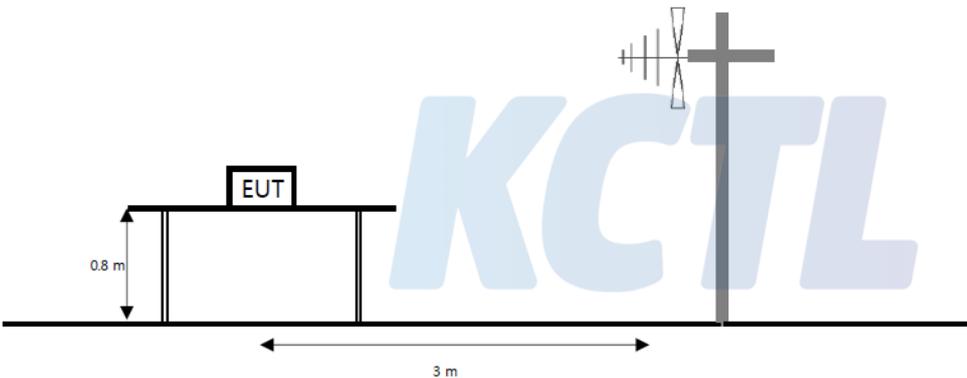
6.1. Radiated spurious emissions

Test setup

The diagram below shows the test setup that is utilized to make the measurements for emission from 9 kHz to 30 MHz Emissions



The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz emissions.



Limit

15.225 (a) The field strength of any emission within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.

15.225 (b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

15.225 (c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz, the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

15.225 (d) The Field Strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in 15.209.

Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30(29.54 dB $\mu\text{V/m}$)	30
30.0-88.0	100(40 dB $\mu\text{V/m}$)	3
88-216	150(43.5 dB $\mu\text{V/m}$)	3
216-960	200 (46 dB $\mu\text{V/m}$)	3
Above 960	500 (53.98 dB $\mu\text{V/m}$)	3

Test procedure

ANSI C63.10-2013 - Section 6.4, 6.5

Test settings

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in table
3. VBW $\geq 3 \times$ RBW
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Table. RBW as a function of frequency

Frequency	RBW
9 kHz to 150 kHz	200 Hz to 300 Hz
0.15 MHz to 30 MHz	9 kHz to 10 kHz
30 MHz to 1 000 MHz	100 kHz to 120 kHz
> 1 000 MHz	1 MHz

Notes:

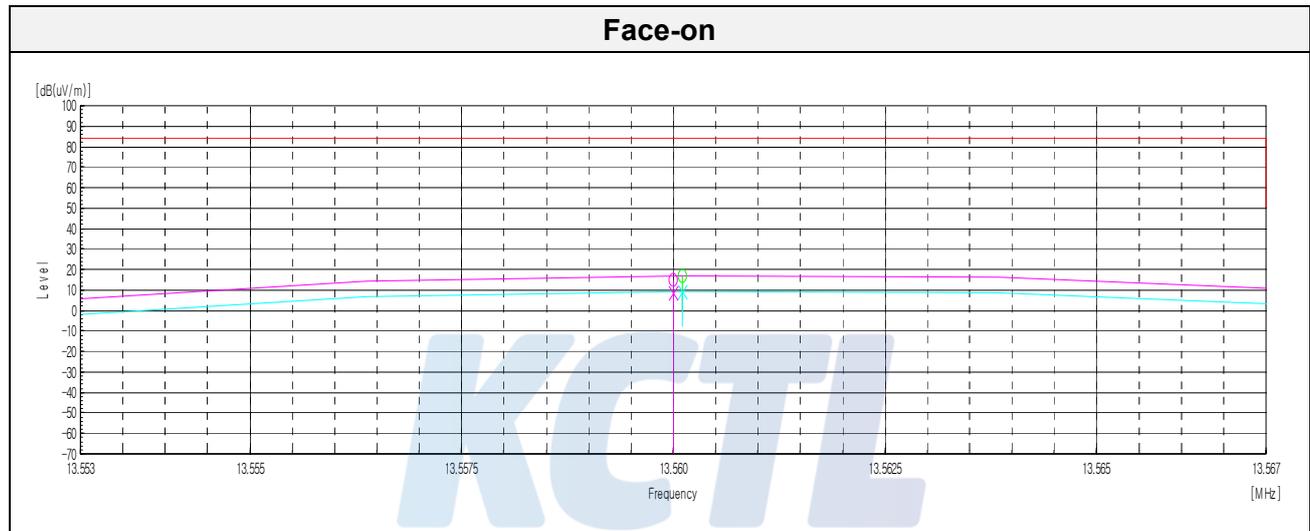
1. $f < 30$ MHz, extrapolation factor of 40 dB/decade of distance. $F_d = 40 \log(D_m/D_s)$
 $f \geq 30$ MHz, extrapolation factor of 20 dB/decade of distance. $F_d = 20 \log(D_m/D_s)$
 Where:
 F_d = Distance factor in dB
 D_m = Measurement distance in meters
 D_s = Specification distance in meters
2. Measurements were performed at 3m and the data was extrapolated to the specified measurement distance of 30m using the square of an inverse linear distance extrapolation factor (40 dB/decade) as specified in § 15.31(f)(2). Extrapolation Factor = $40 \log_{10}(30/3) = 40$ dB.
3. Factors(dB) = Antenna factor(dB/m) + Cable loss(dB) + or Amp. gain(dB) + or F_d (dB)
4. Result = Reading + Cable loss + Amp gain + Ant. factor - Distance factor
5. The worst-case emissions are reported however emissions whose levels were not within 20 dB of respective limits were not reported.
6. All measurements were recorded using a spectrum analyzer employing a quasi-peak detector.
7. Below 30 MHz frequency range, all orientations about parallel, perpendicular, and ground-parallel were investigated then reported and the worse orientations of Face-on and Face-off were set for final test.
8. Face-on = Parallel, Face-off = Perpendicular

6.2. Test results

15.225 (a) 13.553-13.567 MHz

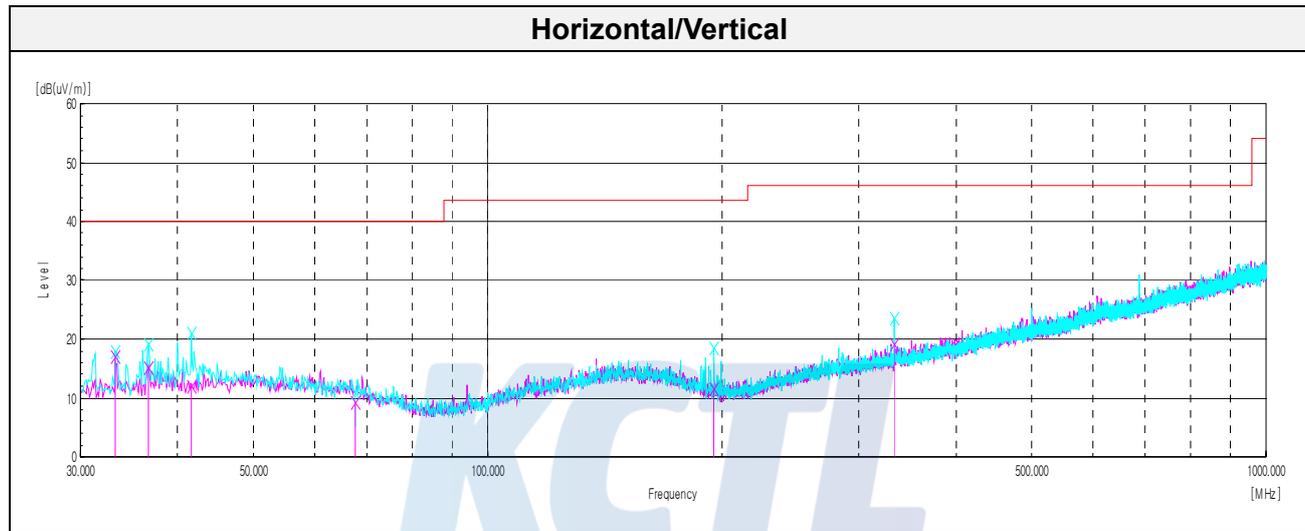
[Face-on]

Frequency (MHz)	Reading (dB(μ V))	Antenna Factor (dB)	Amp. + Cable (dB)	Distance Factor (dB)	Result (dB(μ V/m))	Limit (dB(μ V/m))	Margin (dB)
Quasi peak data							
13.56	65.8	20.27	-31.33	40.00	14.74	84.00	69.26



Test results (Below 1 000 MHz)**15.225 (d) 30-1000 MHz**

Frequency (MHz)	Pol. (V/H)	Reading (dB(μV))	Antenna Factor (dB)	Amp. + Cable (dB)	Distance Factor (dB)	Result (dB($\mu\text{V}/\text{m}$))	Limit (dB($\mu\text{V}/\text{m}$))	Margin (dB)
Quasi peak data								
67.71	V	22.50	16.62	-29.97	-	9.15	40.00	30.85



7. Measurement equipment

Equipment Name	Manufacturer	Model No.	Serial No.	Next Cal. Date
EMI TEST RECEIVER	R&S	ESC17	100732	21.03.04
Bi-Log Antenna	SCHWARZBECK	VULB9168	583	22.04.23
Amplifier	SONOMA INSTRUMENT	310N	284608	21.08.20
COAXIAL FIXED ATTENUATOR	Agilent	8491B-003	2708A18758	21.04.23
LOOP Antenna	R&S	HFH2-Z2	100355	22.08.21
Antenna Mast	Innco Systems	MA4640-XP-ET	-	-
Turn Table	Innco Systems	DT2000	79	-
Signal Generator	R&S	SMB100A	176206	21.01.21
Vector Signal Generator	R&S	SMBV100A	257566	21.07.13

End of test report**KCTL**