

FCC Part 15B

Measurement and Test Report

For

SHENZHEN ALLDOCUBE TECHNOLOGY AND SCIENCE CO.,LTD

2F/17Building, Pingshan Industrial Park, Middle of Liuxian Road, Xili Town,

Nanshan District, Shenzhen, China.

FCC ID: 2AAGQ-U25GT

Test Standards: FCC Part 15 Subpart B

Product Description: Tablet PC

Tested Model: U25GT

Report No.: STR13058363I-2

Tested Date: 2013-05-30 to 2013-06-08

Issued Date: 2013-06-09

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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by SEM.Test Compliance Service Co., Ltd

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: SHENZHEN ALLDOUBE TECHNOLOGY AND SCIENCE CO.,LTD
Address of applicant: 2F/17Building,Pingshan Industrial Park,Middle of Liuxian Road,Xili Town, Nanshan District, Shenzhen, China.
Manufacturer: SHENZHEN ALLDOUBE TECHNOLOGY AND SCIENCE CO.,LTD
Address of manufacturer: 2F/17Building,Pingshan Industrial Park,Middle of Liuxian Road,Xili Town, Nanshan District, Shenzhen, China.

General Description of EUT

Product Name:	Tablet PC
Trade Name:	Smartbook
Model No.:	U25GT
Adding Model(s):	S701

Note: The test data is gathered from a production sample, provided by the manufacturer. The other model listed in the report has different appearance only of U25GT without circuit and electronic construction changed, declared by the manufacturer

Technical Characteristics of EUT

Rated Voltage:	Battery: 3.7V
Rated Current:	2A
Power Adaptor Model:	P1-5.2, Input: 100-240 50/60Hz,0.5A Output: DC 5V,2A
Highest Internal Frequency:	1 GHz
Classification of ITE:	Class B
Support Interface:	Earphone Port, Micro USB Port,HDMI Port

1.2 Test Standards

The following report is prepared on behalf of the SHENZHEN ALLDOCUBE TECHNOLOGY AND SCIENCE CO.,LTD in accordance with Part 2, Subpart J, and Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart B, and section 15.205, 15.107, and 15.109 rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

1.4 Test Facility

- **FCC – Registration No.: 994117**

SEM.Test Compliance Services Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Registration is 994117.

- **Industry Canada (IC) Registration No.: 7673A**

The 3m Semi-anechoic chamber of SEM.Test Compliance Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 7673A.

- **CNAS Registration No.: L4062**

Shenzhen SEM.Test Electronics Service Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C (518101)

1.5 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Mode List:

Test Mode	Description	Remark
TM1	Charging & Playing	Charging & Color Bar with 1kHz Video
TM2	Downloading	Reading & writing
TM3	HDMI	HDMI Connect to Display

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
Ear Phone Cable	1.0	Unshielded	Without Core
HDMI Cable	2.5	Shielded	Without Core

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	SAMSUNG	NP-R20	124V93FP30082V

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	1.0	Shielded	Without Core

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 15.107 (a)	Conducted Emissions	Compliant
§ 15.109 (a)	Radiated Emissions	Compliant

N/A: not applicable

3. CONDUCTED EMISSIONS

3.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 2.88 dB.

3.2 Test Equipment List and Details

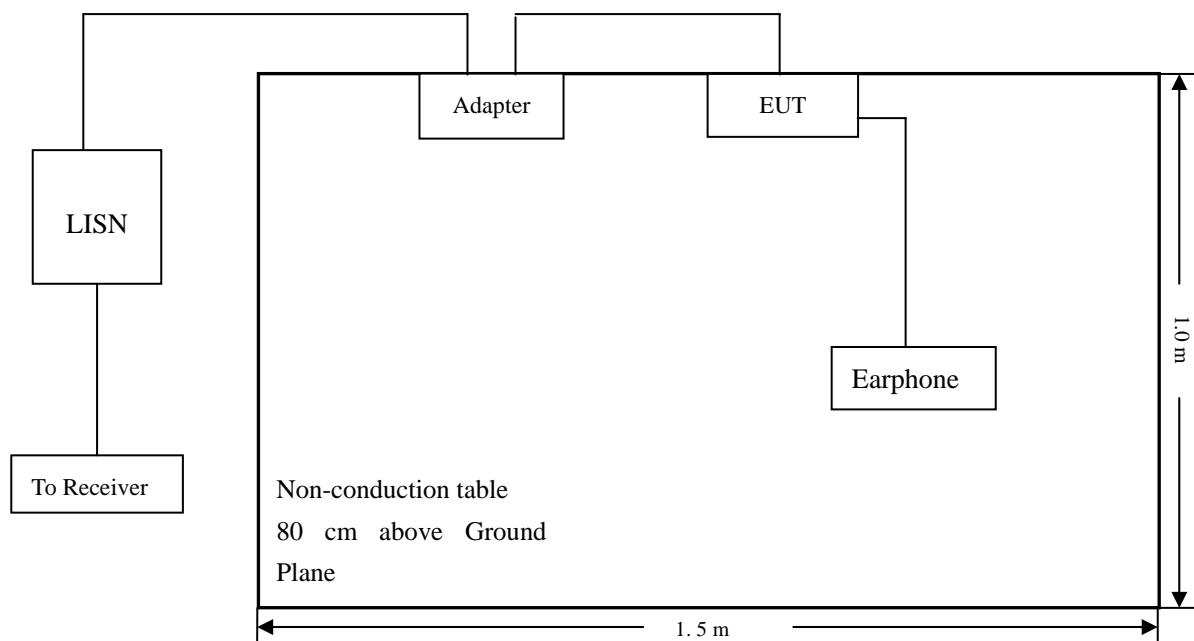
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2013-05-07	2014-05-06
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2013-05-07	2014-05-06
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2013-05-07	2014-05-06

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

3.3 Test Procedure

Test is conducting under the description of ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

3.4 Basic Test Setup Block Diagram



3.5 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	52%
ATM Pressure:	1011 mbar

3.6 Summary of Test Results/Plots

According to the data in section 3.7, the EUT complied with the FCC Part 15.107(a) Conducted margin for a Class B device, with the *worst* margin reading of:

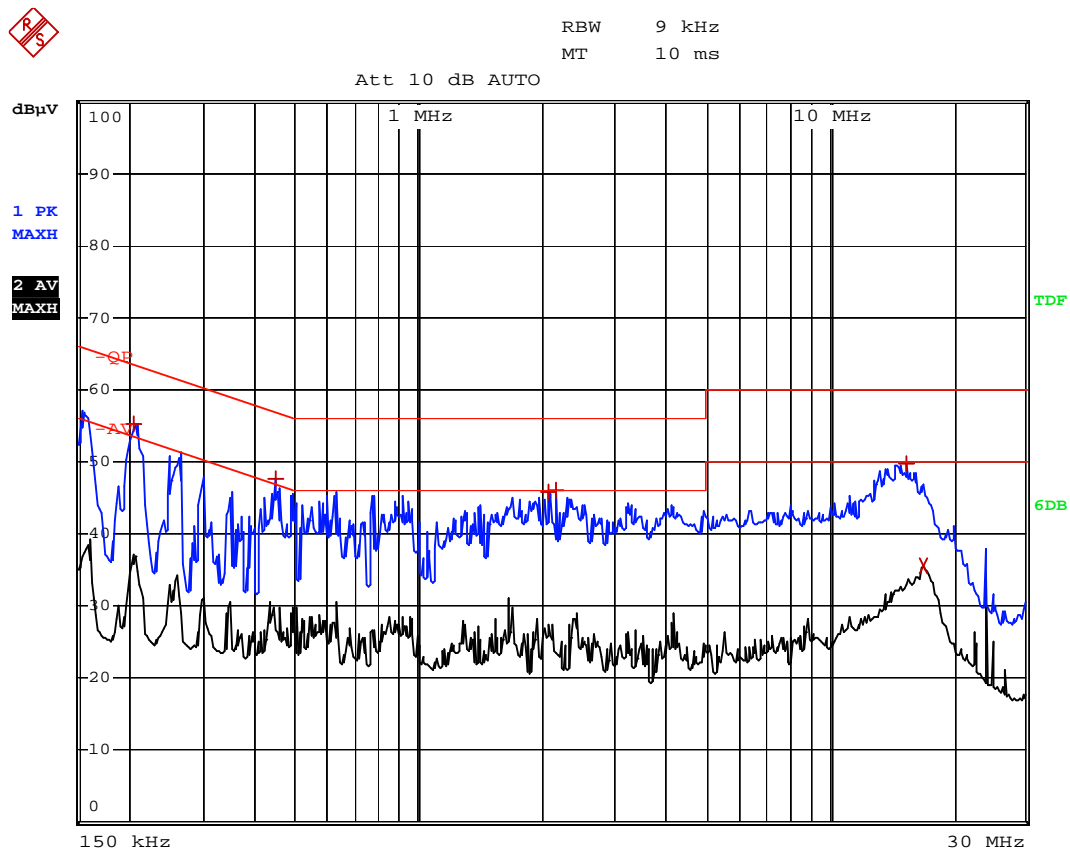
-7.37 dB at 0.202MHz in the **Live** mode, **Max peak** detector, **0.15-30MHz**

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

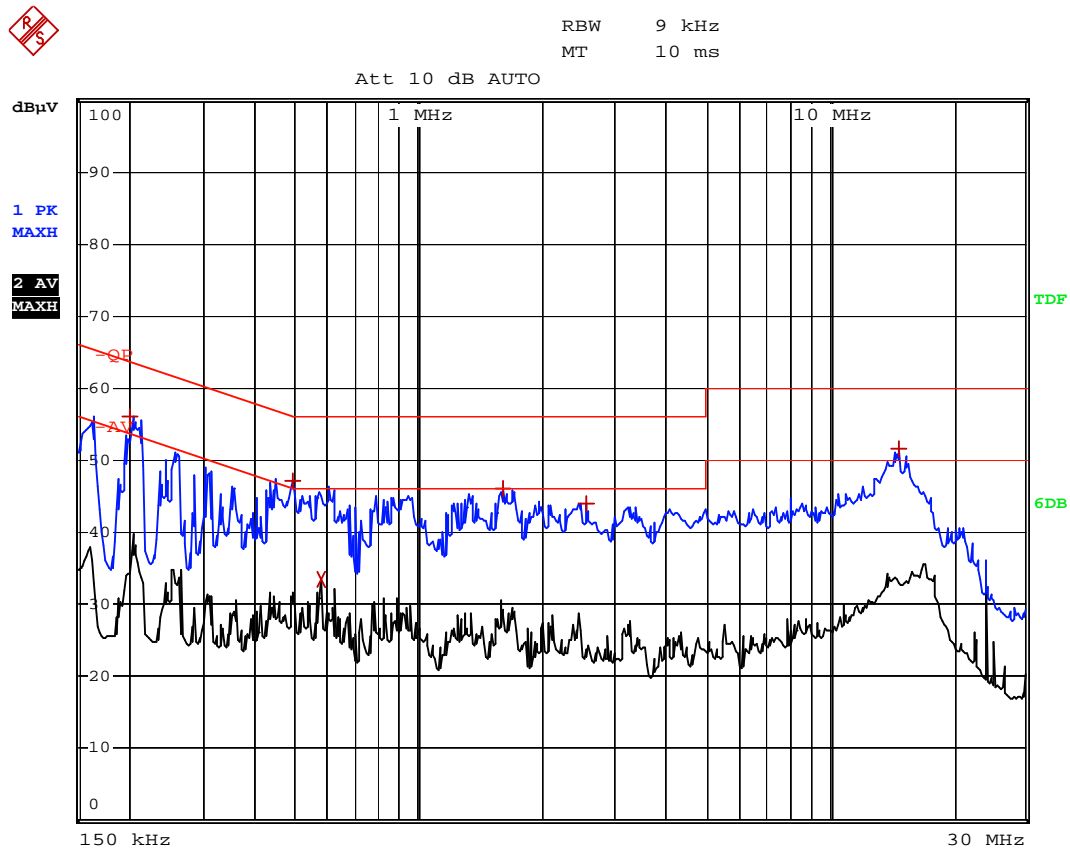
EUT: Tablet PC
Tested Model: U25GT
Operating Condition: Charging & Color Bar with 1kHz Video
Comment: AC 120V/60Hz

Test Specification: Neutral



EDIT PEAK LIST (Prescan Results)			
Trace1:	-QP		
Trace2:	-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	206 kHz	55.37	-7.98
1 Max Peak	446 kHz	47.72	-9.22
1 Max Peak	2.07 MHz	45.89	-10.10
1 Max Peak	2.162 MHz	46.15	-9.84
1 Max Peak	15.442 MHz	49.61	-10.39
2 Average	16.866 MHz	35.68	-14.31

Test Specification: Line



EDIT PEAK LIST (Prescan Results)				
Trace1:		-QP		
Trace2:		-AV		
Trace3:		---		
TRACE		FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
1	Max Peak	202 kHz	56.14	-7.37
1	Max Peak	494 kHz	47.20	-8.89
2	Average	578 kHz	33.51	-12.48
1	Max Peak	1.598 MHz	45.95	-10.04
1	Max Peak	2.55 MHz	43.96	-12.03
1	Max Peak	14.742 MHz	51.68	-8.31

4. RADIATED EMISSION

4.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 5.10 dB.

4.2 Test Equipment List and Details

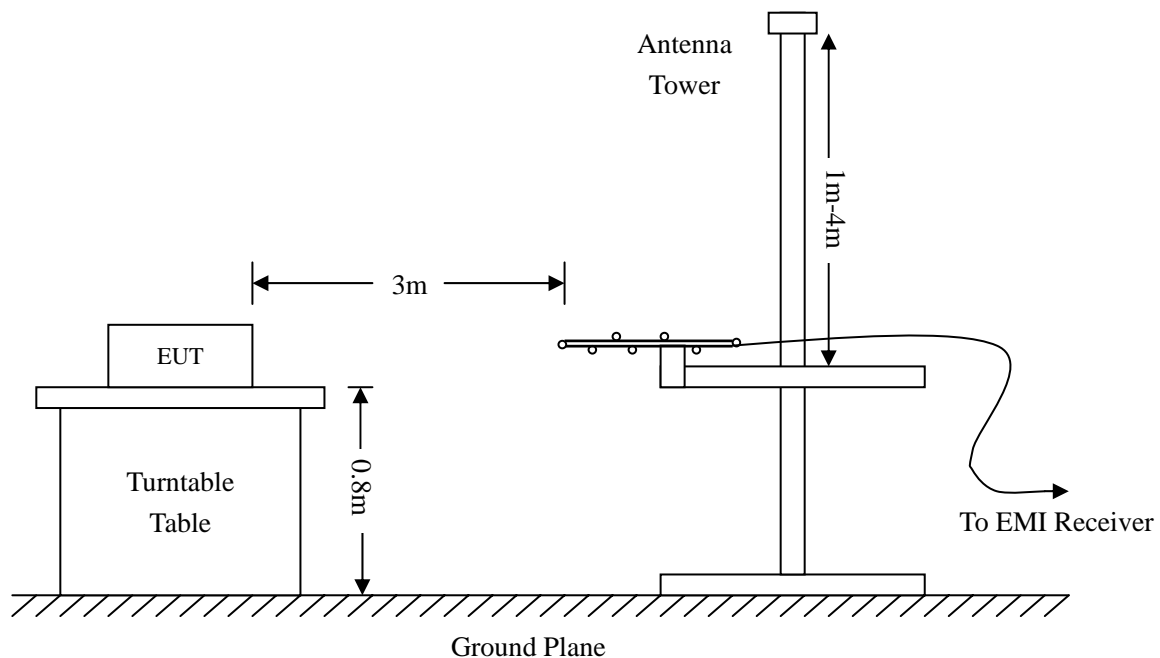
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2013-05-07	2014-05-06
EMI Test Receiver	R&S	ESVB	825471/005	2013-05-07	2014-05-06
Pre-amplifier	Agilent	8447F	3113A06717	2013-05-07	2014-05-06
Pre-amplifier	Compliance Direction	PAP-0118	24002	2013-05-07	2014-05-06
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2013-04-20	2014-04-19
Horn Antenna	ETS	3117	00086197	2013-04-20	2014-04-19
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2013-04-20	2014-04-19

4.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.109 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.



4.4 Test Receiver Setup

During the radiated emission test for above 1GHz, the test receiver was set with the following configurations:

For peak detector:

RBW = 1000kHz, VBW = 3000kHz, Sweep Time = Auto

For average detector:

RBW = 1000kHz, VBW = 10Hz, Sweep Time = Auto

4.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} - \text{Corr. Factor}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dB μ V means the emission is 6dB μ V below the maximum limit for a Class B device. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15.109(a) Limit}$$

4.6 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	1011 mbar

4.7 Summary of Test Results/Plots

According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-2.23 dB at 68.1513MHz in the Horizontal polarization, Charging &Playing Mode, 9 kHz to 6 GHz, 3Meters

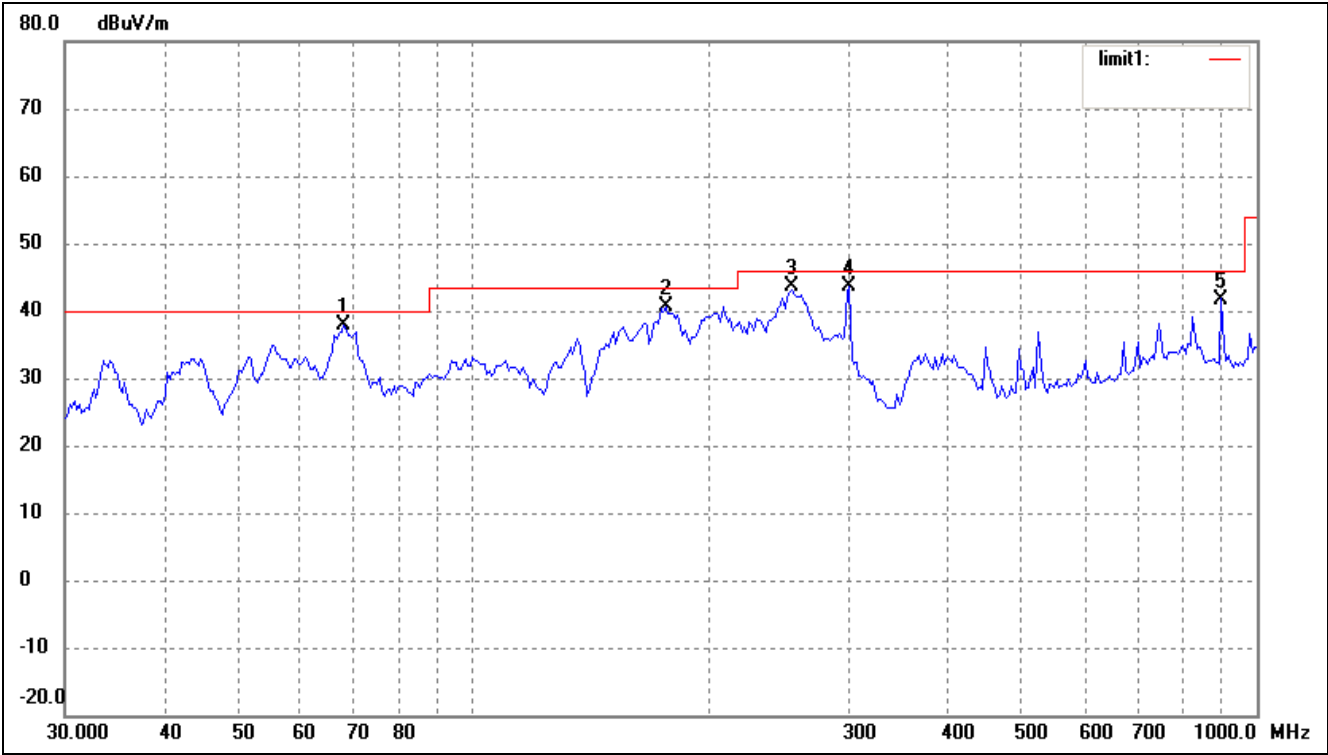
-1.70 dB at 273.2341 MHz in the Verticalpolarization, Downloading Mode, 9 kHz to 6 GHz, 3Meters

-3.15 dB at 528.2458 MHz in the Verticalpolarization, HDMI Mode, 9 kHz to 6 GHz, 3Meters

Plot of Radiated Emissions Test Data

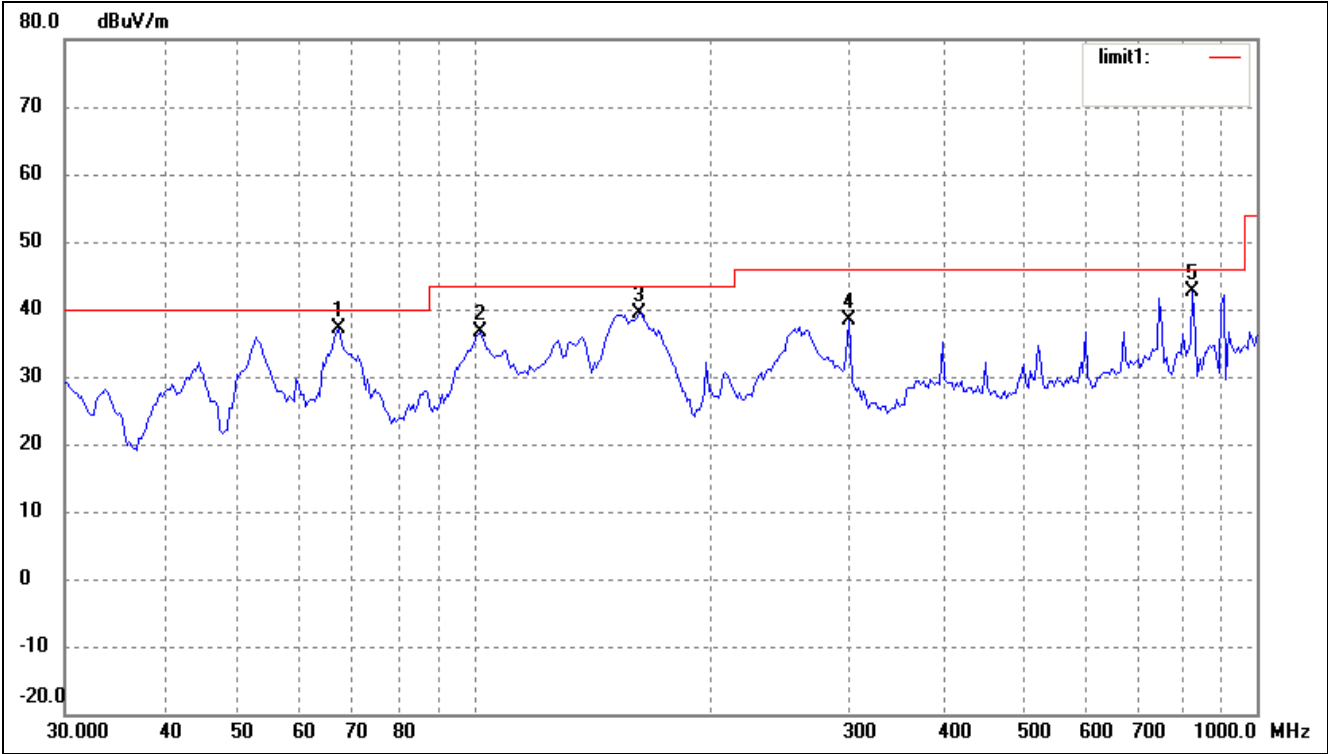
EUT: Tablet PC
Tested Model: U25GT
Operating Condition: Charging & playing
Comment: Playing Color Bar with 1kHz Video from TF card and U DISK

Test Specification: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	68.1513	34.66	3.11	37.77	40.00	-2.23	264	100	peak
2	175.6516	36.89	3.73	40.62	43.50	-2.88	113	200	peak
3	254.7283	36.07	7.48	43.55	46.00	-2.45	287	100	peak
4	301.4223	33.50	10.20	43.70	46.00	-2.30	185	200	peak
5	900.1473	22.37	19.38	41.75	46.00	-4.25	164	100	peak

Test Specification: Vertical

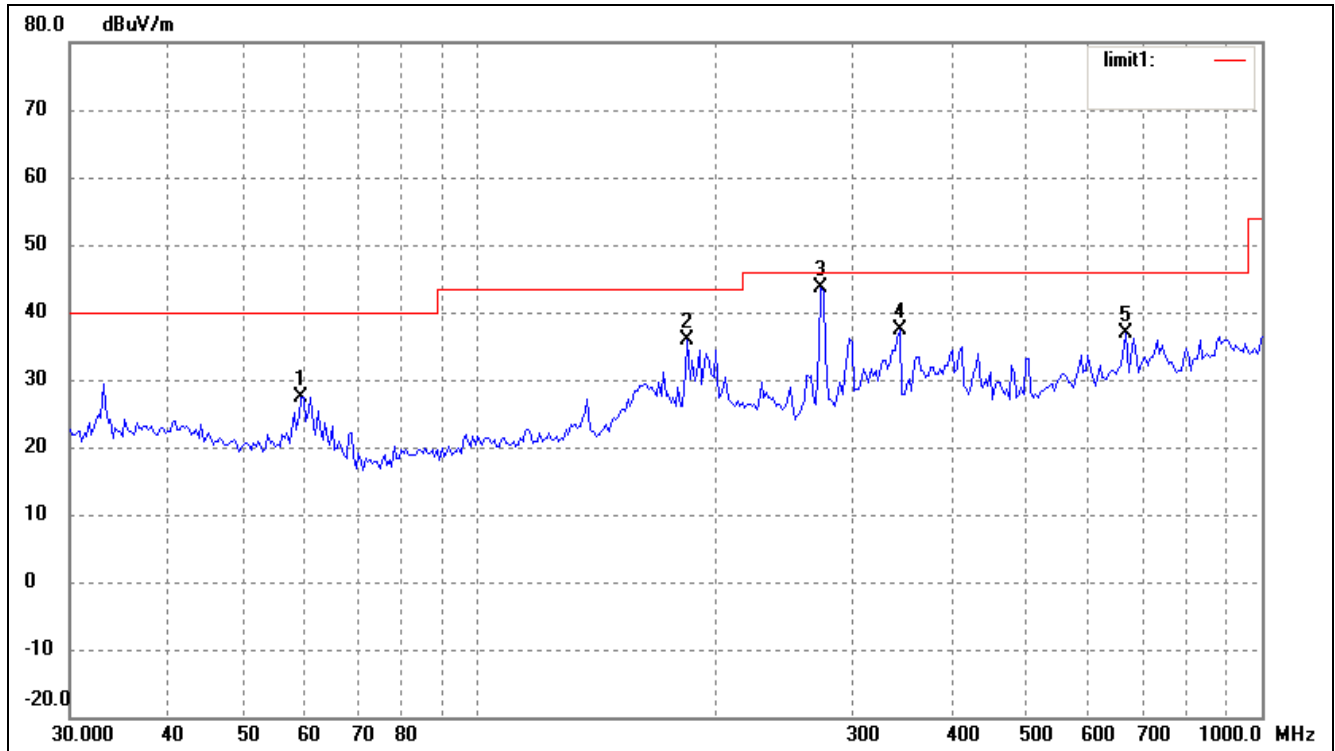


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Db/m	(dBuV/m)	(dBuV/m)	(Db)	(°)	(cm)	
1	67.2022	33.71	3.42	37.13	40.00	-2.87	240	100	peak
2	101.6443	29.87	6.67	36.54	43.50	-6.96	187	100	peak
3	162.6106	35.68	3.66	39.34	43.50	-4.16	220	100	peak
4	301.4223	28.29	10.20	38.49	46.00	-7.51	359	100	peak
5	827.4933	25.73	16.98	42.71	46.00	-3.29	321	100	peak

Plot of Radiated Emissions Test Data

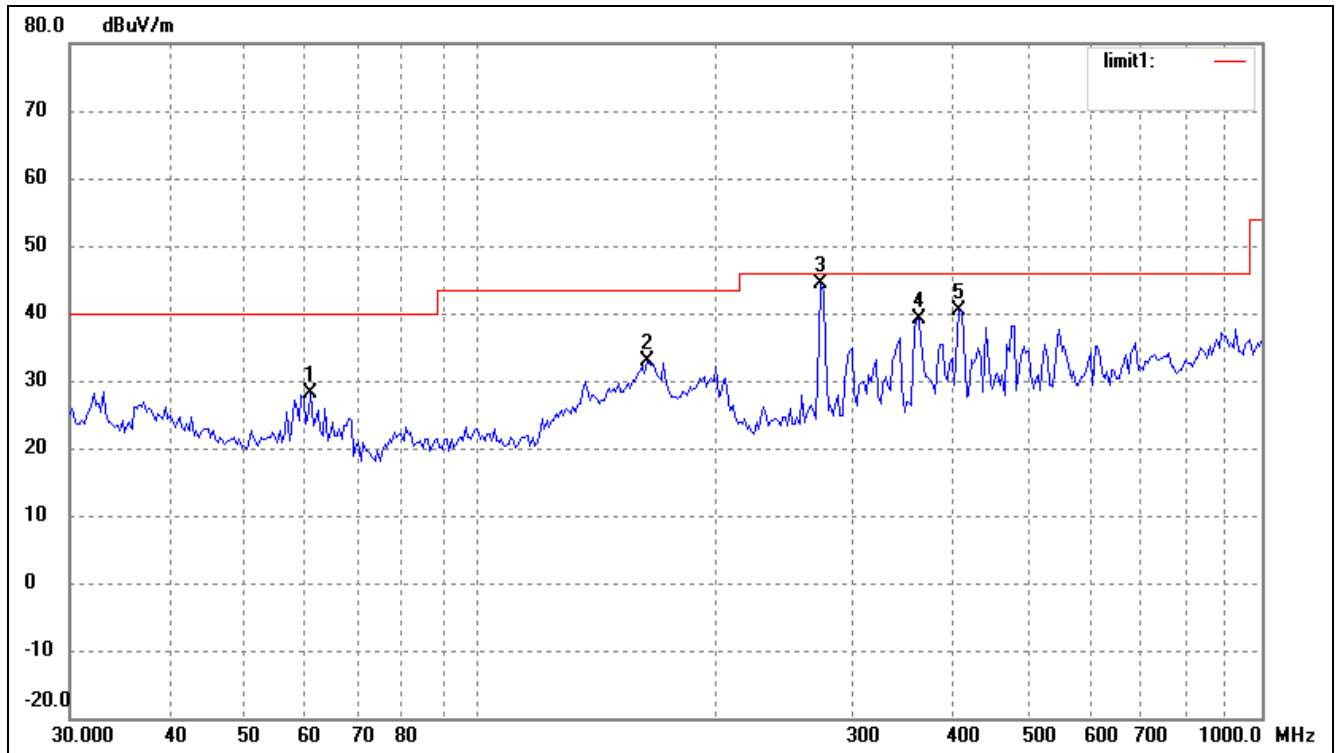
EUT: Tablet PC
 Tested Model: U25GT
 Operating Condition: Downloading
 Comment: Connect to PC

Test Specification: Horizontal

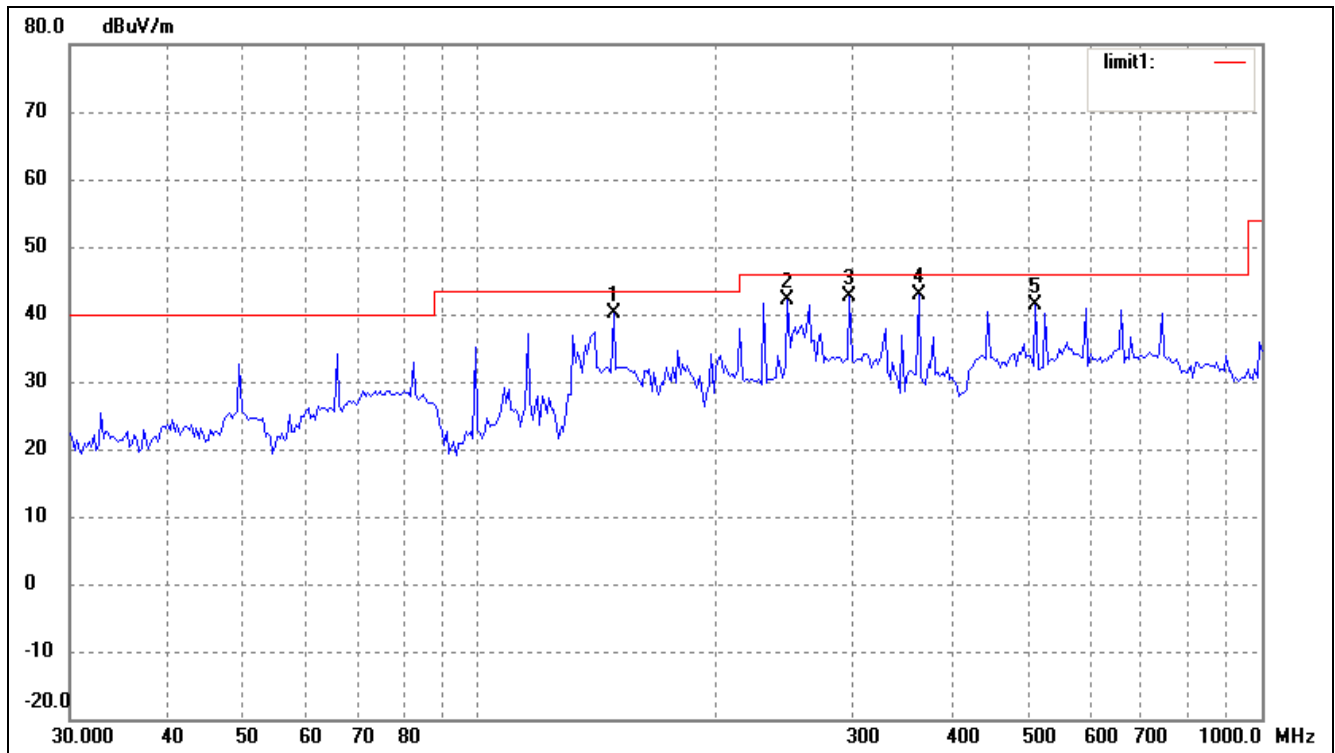


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	59.2325	21.68	5.76	27.44	40.00	-12.56	272	100	peak
2	184.4898	31.81	3.95	35.76	43.50	-7.74	179	100	peak
3	273.2341	34.83	8.72	43.55	46.00	-2.45	275	200	peak
4	344.3855	27.08	10.23	37.31	46.00	-8.69	113	200	peak
5	670.4893	21.79	15.17	36.96	46.00	-9.04	288	100	peak

Test Specification: Vertical

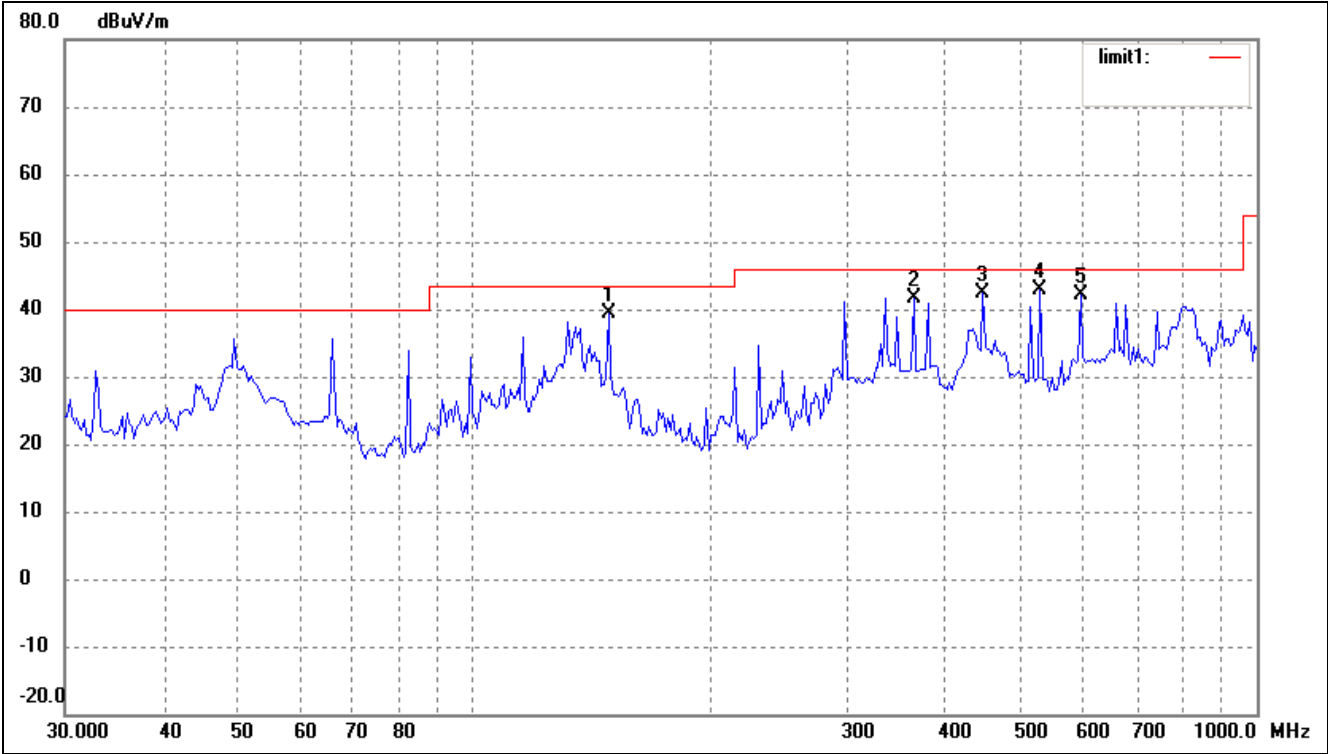


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	60.9176	22.63	5.40	28.03	40.00	-11.97	134	100	peak
2	163.7550	29.12	3.67	32.79	43.50	-10.71	228	100	peak
3	273.2341	35.58	8.72	44.30	46.00	-1.70	162	100	peak
4	364.2595	28.55	10.68	39.23	46.00	-6.77	247	200	peak
5	410.3825	29.32	11.11	40.43	46.00	-5.57	319	200	peak

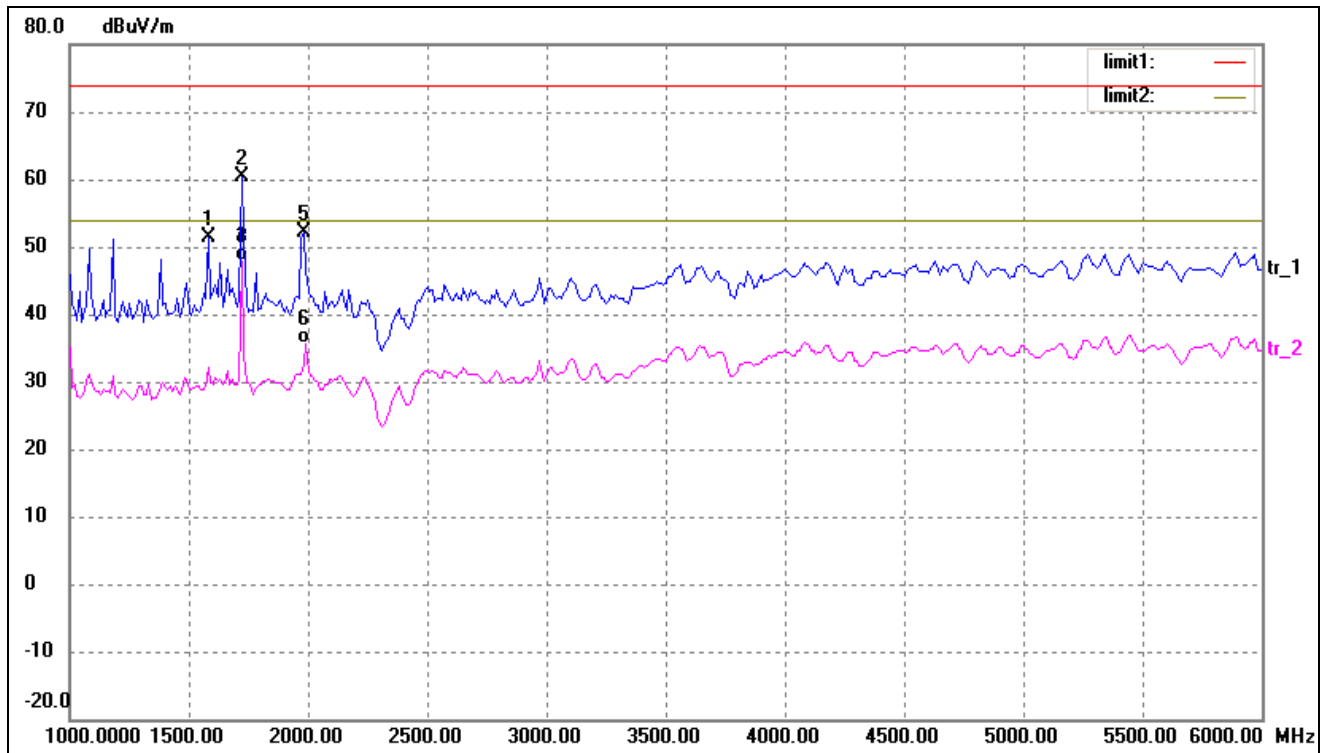
Plot of Radiated Emissions Test Data*EUT:* Tablet PC*Tested Model:* U25GT*Operating Condition:* HDMI*Comment:* HDMI Connect to Display*Test Specification:* Horizontal

No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	148.4410	36.55	3.53	40.08	43.50	-3.42	254	100	peak
2	247.6819	35.02	7.22	42.24	46.00	-3.76	112	200	peak
3	297.2241	32.56	10.04	42.60	46.00	-3.40	297	100	peak
4	364.2595	32.12	10.68	42.80	46.00	-3.20	185	200	peak
5	513.6331	28.65	12.69	41.34	46.00	-4.66	163	100	peak

Test Specification: Vertical

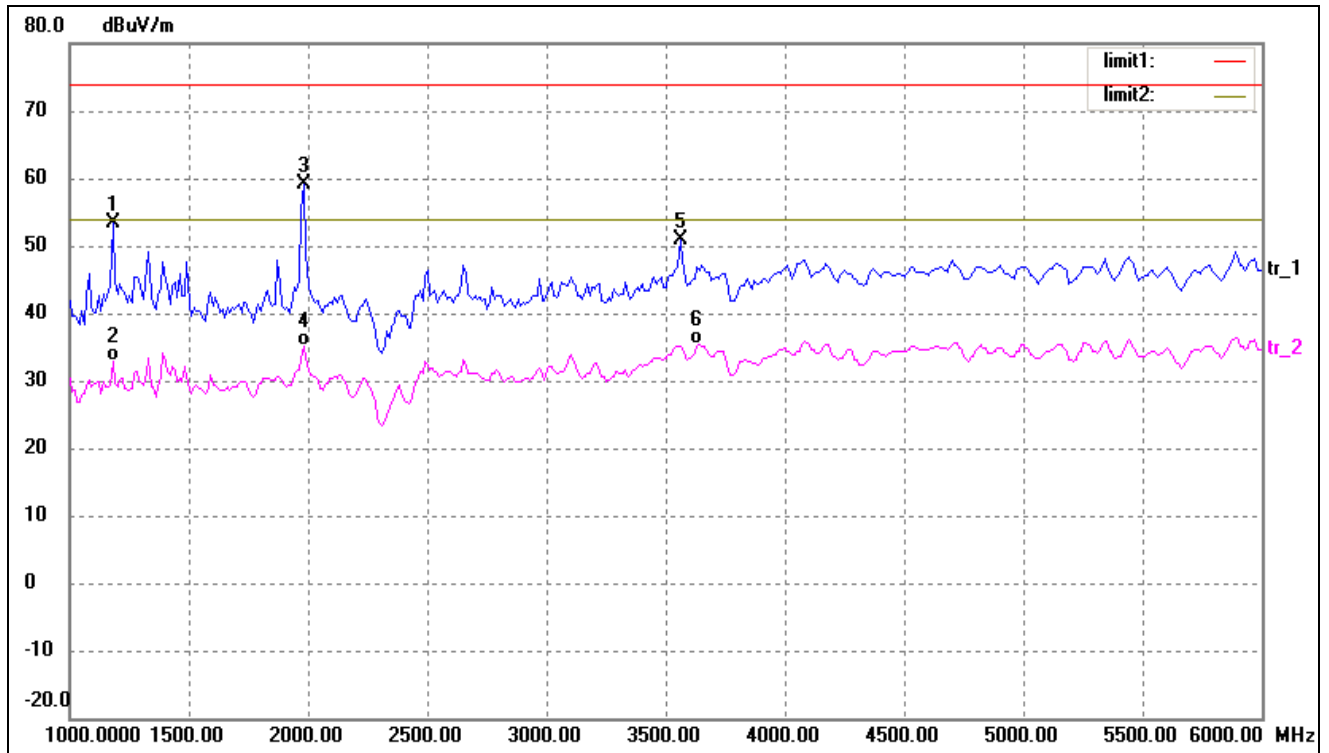


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Db/m	(dBuV/m)	(dBuV/m)	(Db)	(°)	(cm)	
1	148.4410	35.83	3.53	39.36	43.50	-4.14	241	100	peak
2	364.2595	31.06	10.68	41.74	46.00	-4.26	167	100	peak
3	446.4141	31.06	11.41	42.47	46.00	-3.53	210	100	peak
4	528.2458	29.88	12.97	42.85	46.00	-3.15	359	100	peak
5	595.1329	27.49	14.63	42.12	46.00	-3.88	322	100	peak

Plot of Radiated Emissions Test Data*EUT:* Tablet PC*Tested Model:* U25GT*Operating Condition:* Charging & playing*Comment:* Playing Color Bar with 1kHz Video from TF card and U DISK*Test Specification:* Horizontal

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	1582.001	58.82	-7.33	51.49	74.00	-22.51	58	150	peak
2	1724.082	66.78	-6.34	60.44	74.00	-13.56	326	100	peak
3	1724.082	54.21	-6.34	47.87	54.00	-6.13	29	120	AVG
4	1724.082	54.21	-6.34	47.87	54.00	-6.13	209	100	AVG
5	1982.685	56.77	-4.55	52.22	74.00	-21.78	359	200	peak
6	1996.946	40.15	-4.45	35.70	54.00	-18.30	359	100	AVG

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	1187.688	61.92	-8.58	53.34	74.00	-20.66	51	100	peak
2	1187.688	41.41	-8.58	32.83	54.00	-21.17	308	100	AVG
3	1982.685	63.63	-4.55	59.08	74.00	-14.92	120	100	peak
4	1982.685	39.71	-4.55	35.16	54.00	-18.84	359	100	AVG
5	3568.514	52.42	-1.48	50.94	74.00	-23.06	359	100	AVG
6	3646.072	36.83	-1.35	35.48	54.00	-18.52	359	100	peak

Plot of Radiated Emissions Test Data

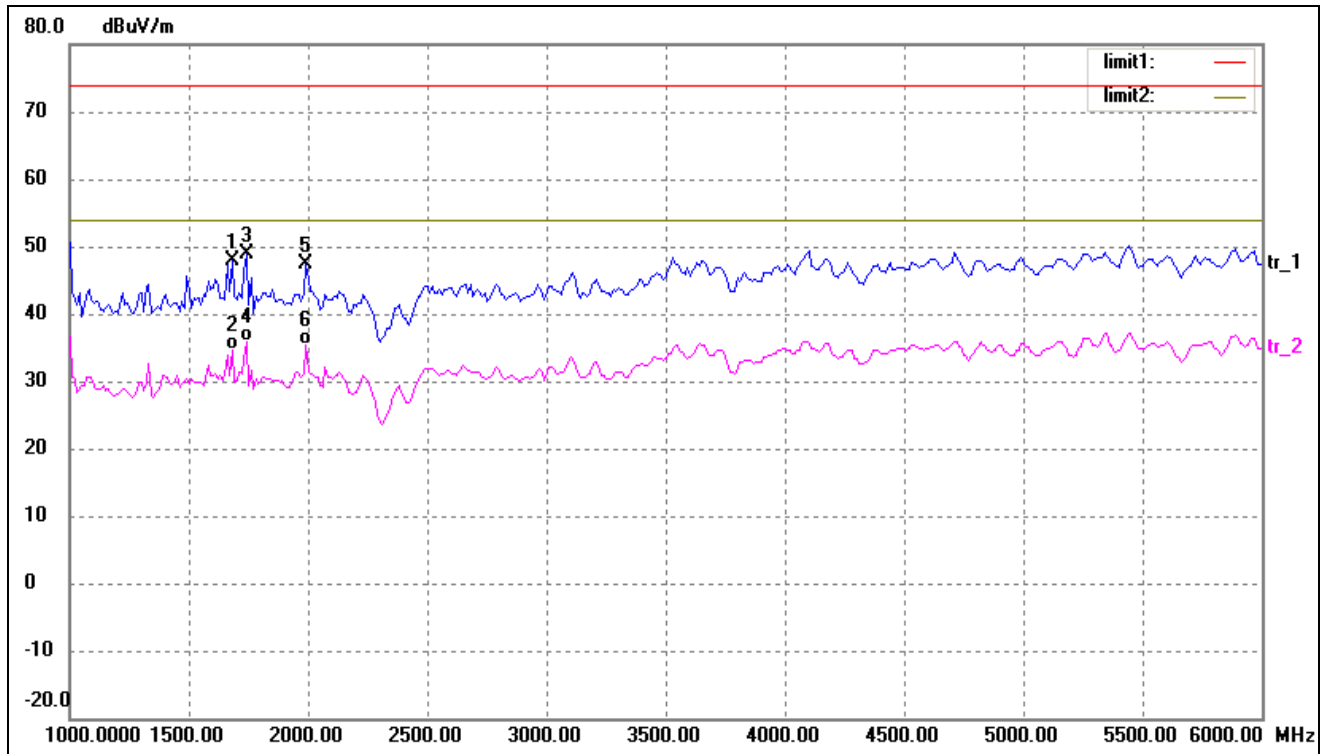
EUT: Tablet PC

Tested Model: U25GT

Operating Condition: Downloading

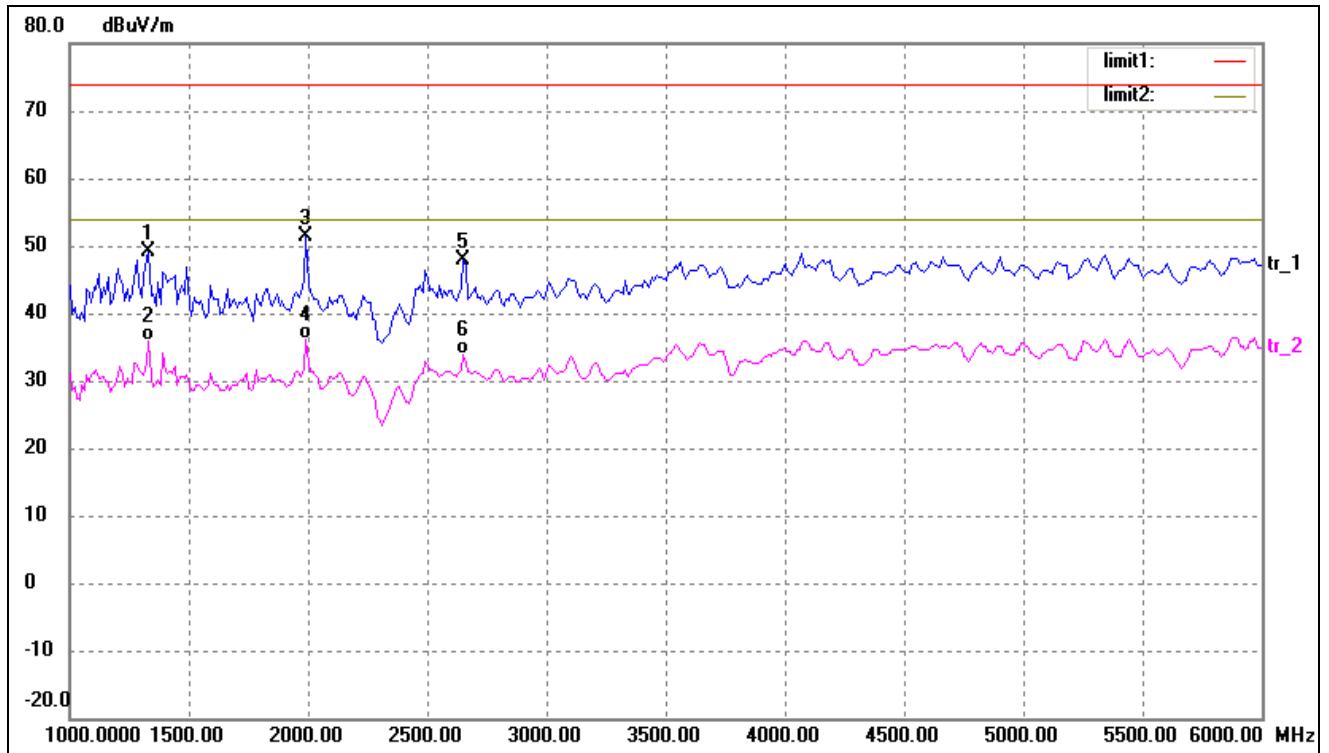
Comment:

Test Specification: Horizontal

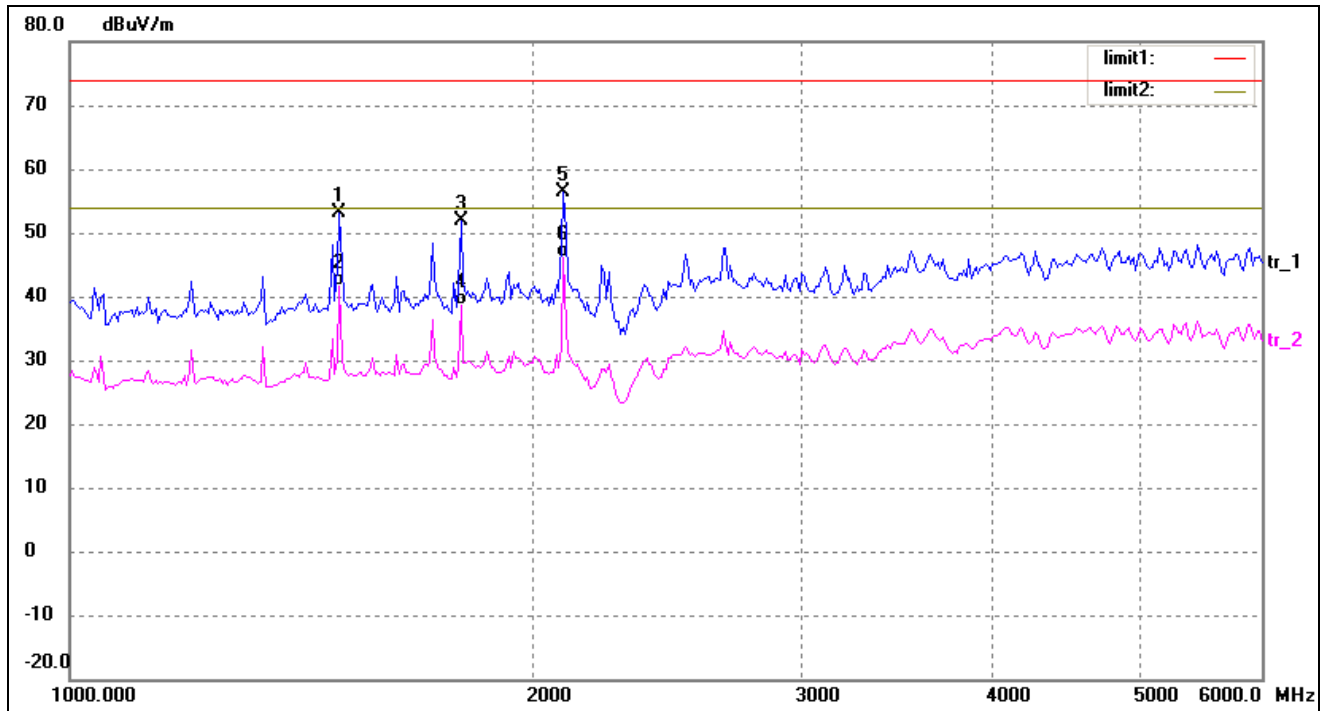


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	1681.372	54.45	-6.63	47.82	74.00	-26.18	58	150	peak
2	1681.372	41.14	-6.63	34.51	54.00	-19.49	326	100	AVG
3	1742.717	54.99	-6.20	48.79	74.00	-25.21	29	120	peak
4	1742.717	42.08	-6.20	35.88	54.00	-18.12	209	100	AVG
5	1996.946	51.91	-4.45	47.46	74.00	-26.54	359	200	peak
6	1996.946	39.81	-4.45	35.36	54.00	-18.64	359	100	AVG

Test Specification: Vertical

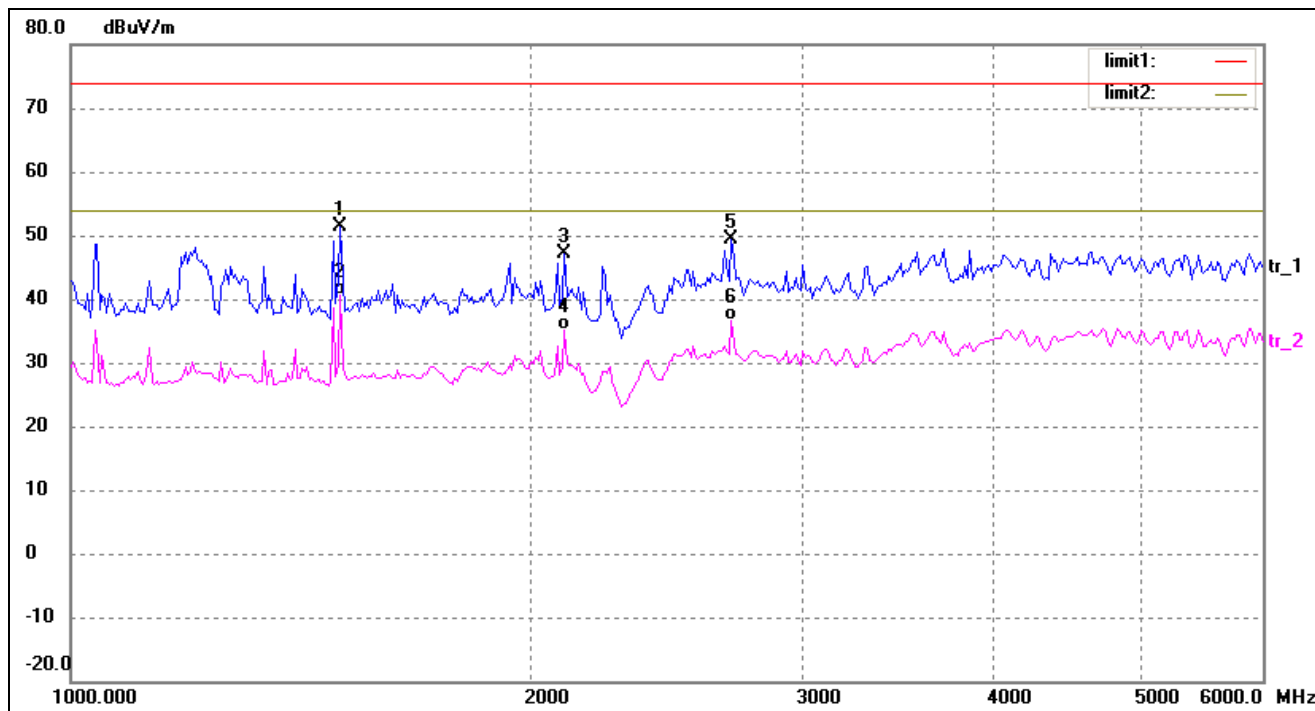


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	1332.000	57.31	-8.27	49.04	74.00	-24.96	51	100	peak
2	1332.000	44.17	-8.27	35.90	54.00	-18.10	308	100	AVG
3	1996.946	55.88	-4.45	51.43	74.00	-22.57	120	100	peak
4	1996.946	40.62	-4.45	36.17	54.00	-17.83	359	100	AVG
5	2659.932	51.03	-3.04	47.99	74.00	-26.01	359	100	peak
6	2659.932	36.86	-3.04	33.82	54.00	-20.18	359	100	AVG

Plot of Radiated Emissions Test Data*EUT:* Tablet PC*Tested Model:* U25GT*Operating Condition:* HDMI*Comment:* HDMI Connect to Display*Test Specification:* Horizontal

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	1499.209	60.97	-7.90	53.07	74.00	-20.93	66	150	peak
2	1499.209	49.64	-7.90	41.74	54.00	-12.26	316	100	AVG
3	1799.839	57.56	-5.80	51.76	74.00	-22.24	37	120	peak
4	1799.839	44.52	-5.80	38.72	54.00	-15.28	218	100	AVG
5	2099.687	60.53	-4.20	56.33	74.00	-17.67	360	200	peak
6	2099.687	50.27	-4.20	46.07	54.00	-7.93	349	100	AVG

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	1499.209	59.18	-7.90	51.28	74.00	-22.72	63	100	peak
2	1499.209	48.59	-7.90	40.69	54.00	-13.31	318	100	AVG
3	2099.687	51.35	-4.20	47.15	74.00	-26.85	110	100	peak
4	2099.687	39.40	-4.20	35.20	54.00	-18.80	360	100	AVG
5	2698.334	52.32	-2.99	49.33	74.00	-24.67	329	100	peak
6	2698.334	39.65	-2.99	36.66	54.00	-17.34	359	100	AVG

Note: Testing is carried out with frequency rang 9kHz to 6GHz, The measurements greater than 20dB below the limit from 9kHz to 30MHz.

***** END OF REPORT *****