

# TEST REPORT

**FCC ID: 2AJTZD61**

**Product: inkBOOK Classic 2**

**Model No.: D61**

**Additional Model: N/A**

**Trade Mark: inkBOOK**

**Report No.: TCT160830E020**

**Issued Date: Sep. 14, 2016**

Issued for:

**Arta Tech Pawel Horbaczewski**

**ul. Rybacka 9, 53-656 Wroclaw, Poland**

Issued By:

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## **TABLE OF CONTENTS**

1. Test Certification .....	3
2. Test Result Summary .....	4
3. EUT Description.....	5
4. Test Methodology .....	6
4.1. Decision of Final Test Mode .....	6
4.2. EUT System Operation .....	6
5. Setup of Equipment under Test .....	7
5.1. Description of Support Units.....	7
5.2. Configuration of System Under Test .....	8
6. Facilities and Accreditations .....	9
6.1. Facilities.....	9
6.2. Location .....	9
6.3. Measurement Uncertainty.....	9
7. Emission Test .....	10
7.1. Conducted Emission at Mains Terminals .....	10
7.2. Radiated Emission.....	14

**Appendix A: Photographs of Test Setup**

**Appendix B: Photographs of EUT**

## 1. Test Certification

<b>Product:</b>	inkBOOK Classic 2
<b>Model No.:</b>	D61
<b>Additional Model No.:</b>	N/A
<b>Applicant:</b>	Arta Tech Pawel Horbaczewski
<b>Address:</b>	ul. Rybacka 9, 53-656 Wroclaw, Poland
<b>Manufacturer:</b>	Arta Tech Pawel Horbaczewski
<b>Address:</b>	ul. Rybacka 9, 53-656 Wroclaw, Poland
<b>Test Voltage:</b>	DC 5 V (Adapter Input AC 120 V/ 60 Hz), DC 5 V (PC Input AC 120 V/ 60 Hz)
<b>Date of Test:</b>	Sep. 09, 2016 ~ Sep. 13, 2016
<b>Applicable Standards:</b>	47 CFR FCC Part 15 Subpart B: 2016 ANSI C63.4: 2014

The above equipment has been tested by Shenzhen Tongce Testing Lab and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By:

*Jerry Xie*

Date:

Sep. 13, 2016

Jerry Xie

Check By:

*Joe Zhou*

Date:

Sep. 14, 2016

Joe Zhou

Approved By:

*Tomsin*

Date:

Sep. 14, 2016

Tomsin



## 2. Test Result Summary

Emission		
Test Method	Item	Result
FCC 47 CFR Part 15 Subpart B	Conducted Emission at Mains Terminals	Pass
	Radiated Emission	Pass

**Note:**

1. Pass: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.
5. The information of measurement uncertainty is available upon the customer's request.

### 3. EUT Description

Product Name:	inkBOOK Classic 2
Model No.:	D61
Additional Model No.:	N/A
Trade Mark:	inkBOOK
Product Parameter:	Input: DC 5 V, 1 A.
Highest Frequency:	1.2 GHz
USB Line:	<input type="checkbox"/> Shielded <input checked="" type="checkbox"/> Unshielded, <input checked="" type="checkbox"/> Detachable <input type="checkbox"/> Un-detachable <input type="checkbox"/> Not applicable <input checked="" type="checkbox"/> Length: 1 m.

## 4. Test Methodology

### 4.1. Decision of Final Test Mode

The EUT was tested together with the thereafter additional components, and a configuration, which produced the worst emission levels, was selected and recorded in this report.

The following test mode(s) were assessed:

Test Mode
Mode 1: Charging and SD Card Playing
Mode 2: Charging and Memory Playing
Mode 3: Charging and Data Transmitting

The following test mode was found to produce the highest emission level.

The Worst Test Mode		
Emission	Conducted Emission	Mode 3: Charging and Data Transmitting
	Radiated Emission	Mode 3: Charging and Data Transmitting

### 4.2. EUT System Operation

1. Set up EUT with the support equipments.
2. Make sure the EUT work normally during the test.

## 5. Setup of Equipment under Test

### 5.1. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
Adapter	JD-050200	2012010907576735	/	JD
PC	BM6620	D1PFCG0008HP	/	ASUS
Keyboard	PK1100U	04G104180039DP	/	ASUS
Mouse	MOBTUO	04G125610170DP	/	ASUS
Monitor	VX239	VX239H	/	ASUS

**Note:**

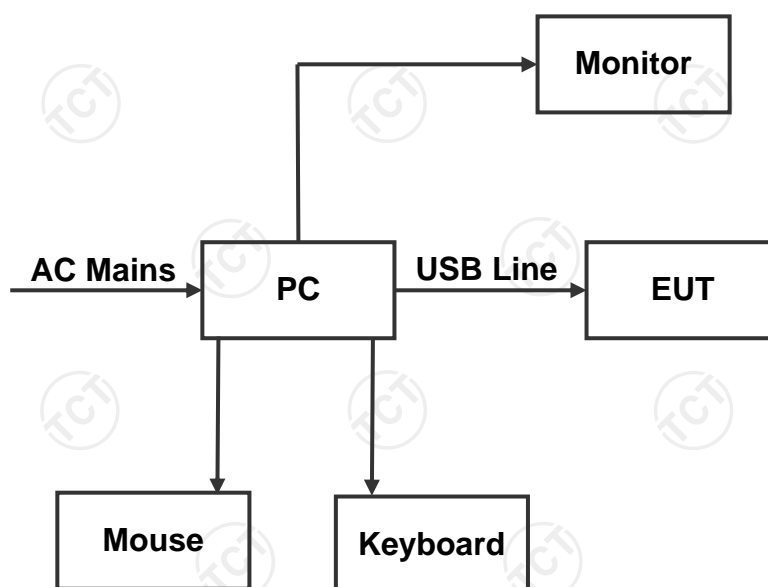
1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

## 5.2. Configuration of System Under Test

Charging and SD Playing / Charging and Memory Playing



Charging and Data Transmitting



(EUT: inkBOOK Classic 2)



## 6. Facilities and Accreditations

### 6.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

- FCC - Registration No.: 572331

Shenzhen Tongce Testing Lab

The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A-1

The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

- CNAS - Registration No.: CNAS L6165

Shenzhen TCT Testing Technology Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6165.

### 6.2. Location

Shenzhen Tongce Testing Lab

Address: 1F, Leinuo Watch Building, Fuyong Town, Baoan Dist, Shenzhen, China

Tel: 86-755-36638142

### 6.3. Measurement Uncertainty

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	$\pm 2.56\text{dB}$
2	RF power, conducted	$\pm 0.12\text{dB}$
3	Spurious emissions, conducted	$\pm 0.11\text{dB}$
4	All emissions, radiated(<1G)	$\pm 3.92\text{dB}$
5	All emissions, radiated(>1G)	$\pm 4.28\text{dB}$
6	Temperature	$\pm 0.1^{\circ}\text{C}$
7	Humidity	$\pm 1.0\%$

## 7. Emission Test

### 7.1. Conducted Emission at Mains Terminals

#### 7.1.1. Test Specification

<b>Test Requirement:</b>	FCC 47 CFR Part 15 Subpart B
<b>Test Method:</b>	ANSI C63.4:2014
<b>Frequency Range:</b>	150 kHz to 30 MHz

#### 7.1.2. Limits

Frequency (MHz)	Class B dB(uV)	
	Quasi-peak	Average
0.15 - 0.5	66 – 56 <sup>a</sup>	56 – 46 <sup>a</sup>
0.50 - 5.0	56	46
5.0 - 30.0	60	50

a. Decreases with the logarithm of the frequency

#### 7.1.3. Test Instruments

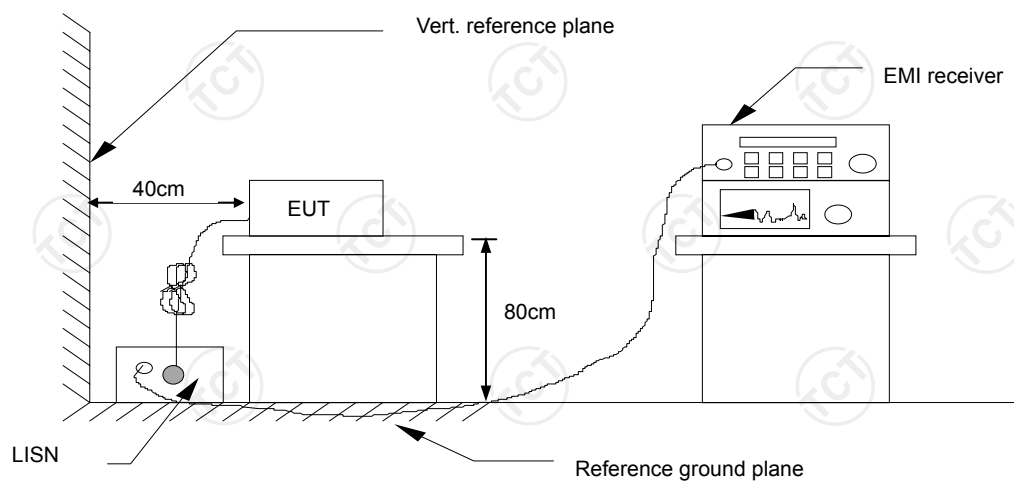
Conducted Emission Shielding Room Test Site (843)				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCS30	100139	Sep. 11, 2016
LISN	Schwarzbeck	NSLK 8126	8126453	Sep. 16, 2016
LISN	AFJ	LS16C	16010947251	Sep. 11, 2016
Coax cable	TCT	CE-05	N/A	Sep. 11, 2016

**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

#### 7.1.4. Test Method

The AMN was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane. This distance was between the closest points of the AMN and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the AMN. All power was connected to the system through Artificial Mains Network (AMN). Conducted voltage measurements on mains lines were made at the output of the AMN

### 7.1.5. Block Diagram of Test Setup



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

### 7.1.6. Test Results

<b>Test Environment:</b>	Temp.: 23 °C	Humid.: 54 %	Press.: 96 kPa
<b>Test Mode:</b>	Mode 3		
<b>Test Voltage:</b>	DC 5 V (Adapter Input AC 120 V/ 60 Hz), DC 5 V (PC Input AC 120 V/ 60 Hz)		
<b>Test Result:</b>	Pass		

**Note:**

L1 = Live Line / N = Neutral Line

“---” denotes the emission level was or more than 2dB below the Average limit, so no re-check anymore.

Freq. = Emission frequency in MHz

Reading level dB(μV) = Receiver reading

Corr. Factor (dB) = Attenuator factor + Cable loss

Level dB(μV) = Reading level dB(μV) + Corr. Factor (dB)

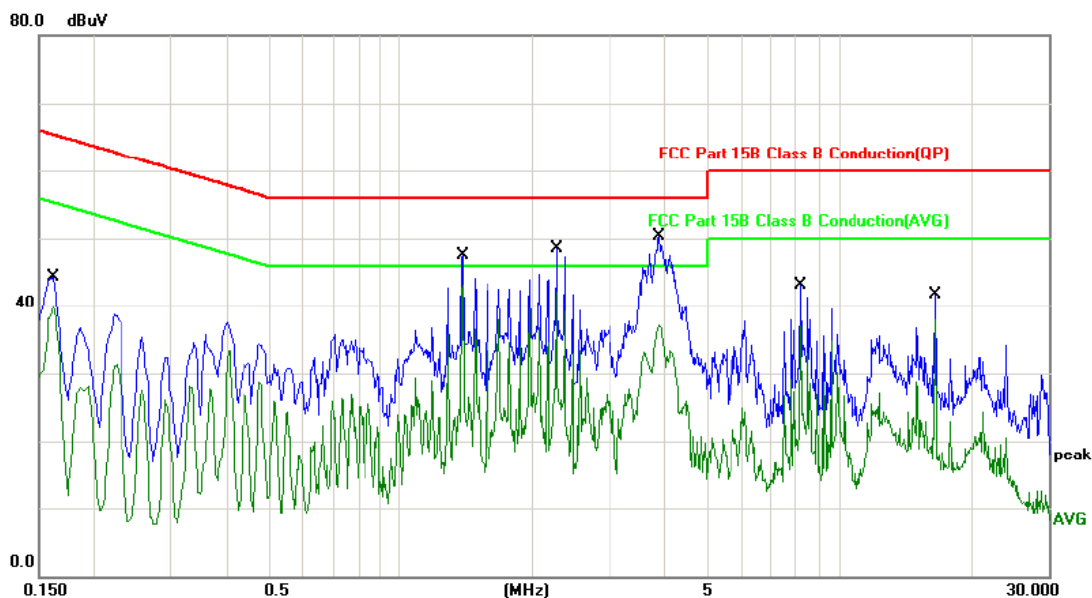
Limit dB(μV) = Limit stated in standard

Margin (dB) = Level dB(μV) – Limits dB(μV)

Q.P. =Quasi-Peak

AVG=Average

Please refer to following diagram for individual



Site: Chamber #2

Phase: L1

Temperature: 23

Limit: FCC Part 15B Class B Conduction(QP)

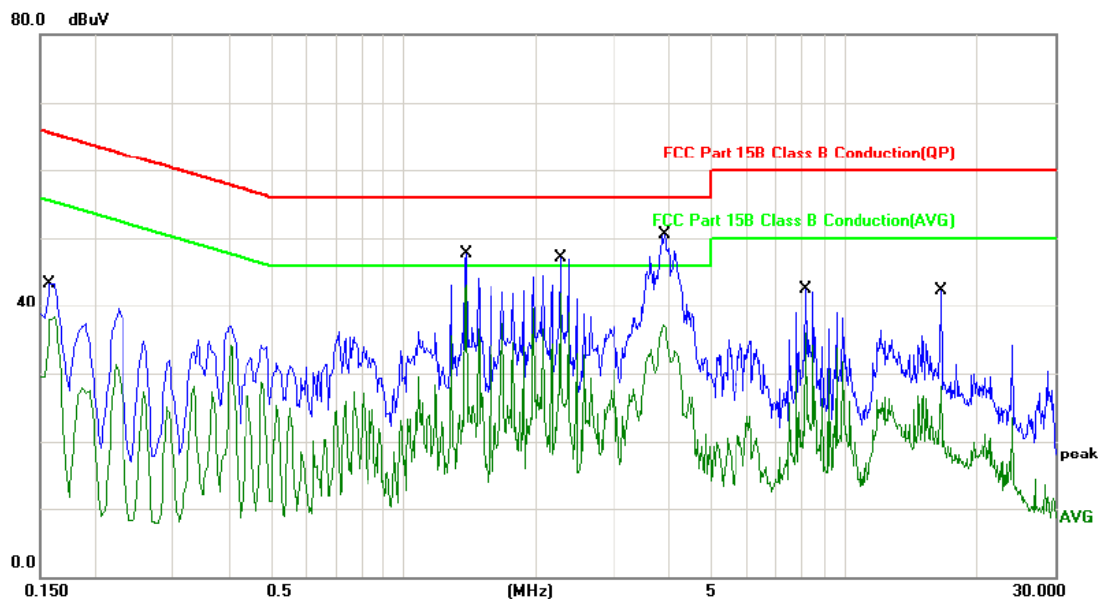
Power:

Humidity: 54 %

Mode: Charging and Data Transmitting

Note: DC 5V(PC Input AC 120V/60Hz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1620	30.47	11.49	41.96	65.36	-23.40	QP	
2		0.1620	27.89	11.49	39.38	55.36	-15.98	AVG	
3		1.3820	34.16	11.39	45.55	56.00	-10.45	QP	
4	*	1.3820	31.15	11.39	42.54	46.00	-3.46	AVG	
5		2.2659	33.41	11.60	45.01	56.00	-10.99	QP	
6		2.2659	30.36	11.60	41.96	46.00	-4.04	AVG	
7		3.8980	32.65	11.01	43.66	56.00	-12.34	QP	
8		3.8980	25.62	11.01	36.63	46.00	-9.37	AVG	
9		8.1820	29.96	11.11	41.07	60.00	-18.93	QP	
10		8.1820	25.10	11.11	36.21	50.00	-13.79	AVG	
11		16.5520	27.65	11.36	39.01	60.00	-20.99	QP	
12		16.5520	21.56	11.36	32.92	50.00	-17.08	AVG	



Site: Chamber #2 Phase: **N** Temperature: 23  
 Limit: FCC Part 15B Class B Conduction(QP) Power: Humidity: 54 %  
 Mode: Charging and Data Transmitting  
 Note: DC 5V(PC Input AC 120V/60Hz)

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1580	30.77	11.49	42.26	65.56	-23.30	QP	
2		0.1580	26.32	11.49	37.81	55.56	-17.75	AVG	
3		1.3820	34.25	11.39	45.64	56.00	-10.36	QP	
4	*	1.3820	31.19	11.39	42.58	46.00	-3.42	AVG	
5		2.2659	33.00	11.60	44.60	56.00	-11.40	QP	
6		2.2659	29.81	11.60	41.41	46.00	-4.59	AVG	
7		3.9100	32.41	11.01	43.42	56.00	-12.58	QP	
8		3.9100	25.44	11.01	36.45	46.00	-9.55	AVG	
9		8.1820	30.11	11.11	41.22	60.00	-18.78	QP	
10		8.1820	25.27	11.11	36.38	50.00	-13.62	AVG	
11		16.5520	29.27	11.36	40.63	60.00	-19.37	QP	
12		16.5520	22.81	11.36	34.17	50.00	-15.83	AVG	

## 7.2. Radiated Emission

### 7.2.1. Test Specification

<b>Test Requirement:</b>	FCC 47 CFR Part 15 Subpart B
<b>Test Method:</b>	ANSI C63.4:2014
<b>Frequency Range:</b>	30 MHz to 6000 MHz
<b>Measurement Distance:</b>	3 m
<b>Antenna Polarization:</b>	Horizontal & Vertical

### 7.2.2. Limits

Frequency (MHz)	Class B (at 3m)
	dBuV/m
30 ~ 88	40.0
88 ~ 216	43.5
216 ~ 960	46.0
960 ~ 1000	54.0
Above 1000	74.0(Peak) 54.0(Average)

**Note:**

1. The lower limit shall apply at the transition frequencies.
2. Emission level  $\text{dB}(\mu\text{V}/\text{m}) = 20 \log \text{Emission level } (\mu\text{V}/\text{m})$ .

### 7.2.3. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESVD	100008	Sep. 11, 2016
Spectrum Analyzer	R&S	FSEM	848597-001	Sep. 11, 2016
Amplifier	HP	8447D	2727A05017	Sep. 11, 2016
Amplifier	EM	EM30265	07032613	Sep. 11, 2016
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 13, 2016
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 13, 2016
Antenna Mater	CCS	CC-A-4M	N/A	Sep. 15, 2016

Coax cable	TCT	RE-low-01	N/A	Sep. 11, 2016
Coax cable	TCT	RE-high-02	N/A	Sep. 11, 2016
Coax cable	TCT	RE-low-03	N/A	Sep. 11, 2016
Coax cable	TCT	RE-high-04	N/A	Sep. 11, 2016

**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

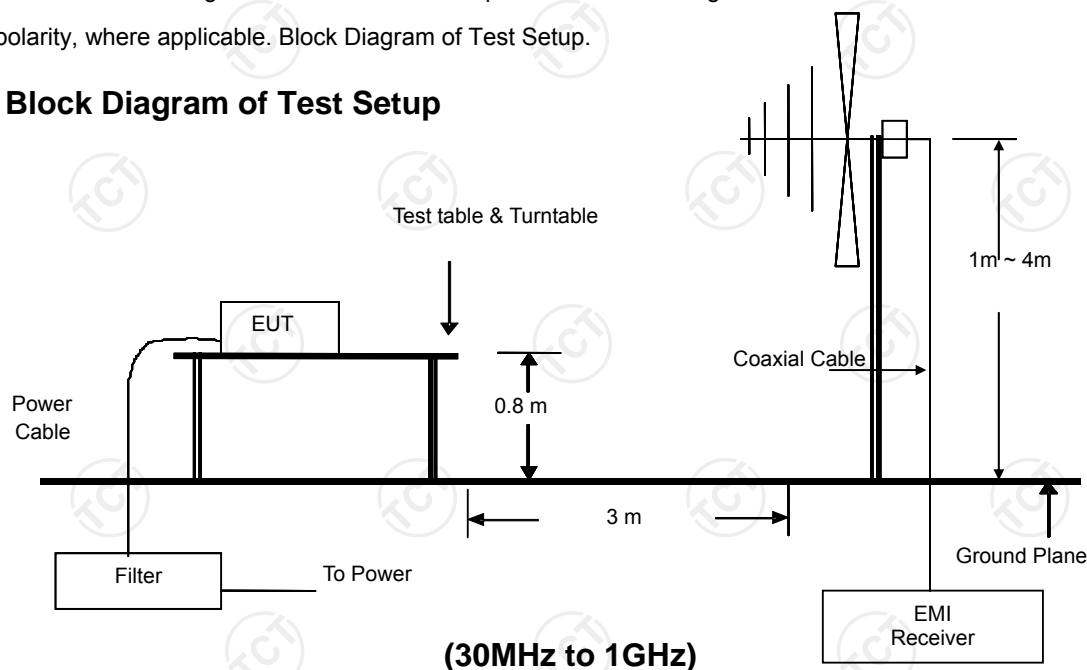
## 7.2.4. Test Method

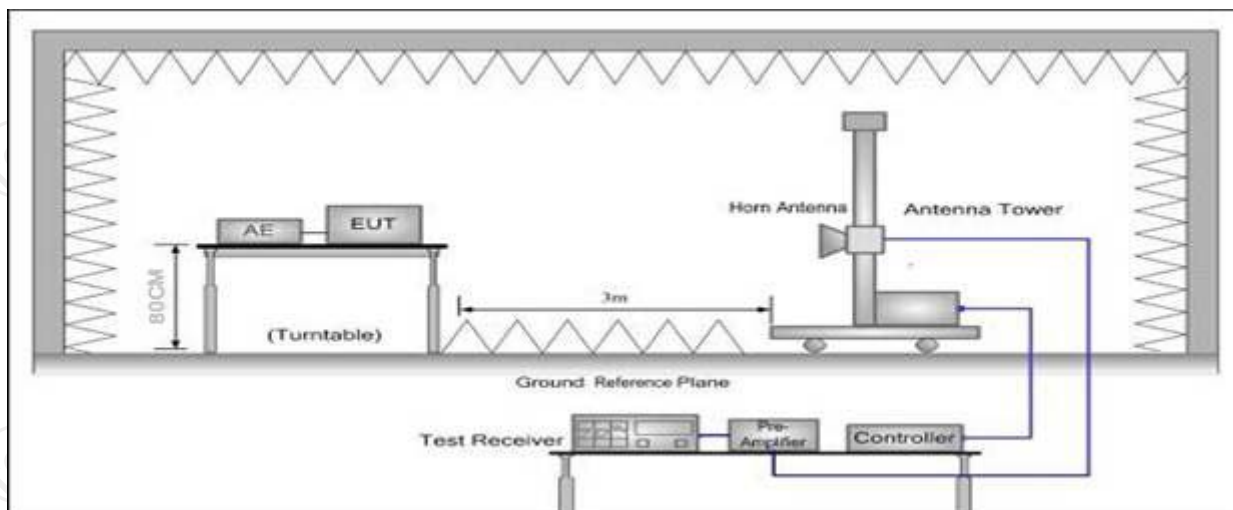
For the radiated emission test above 1GHz:

Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

Measurements were made in a 3-meter semi-anechoic chamber or Open Area Test Site that complies to CISPR 16. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3 meter. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in horizontal and vertical polarities. Final measurements (quasi-peak) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4 m. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable. Block Diagram of Test Setup.

## 7.2.5. Block Diagram of Test Setup





### (Above 1GHz)

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

## 7.2.6. Test Results

<b>Test Environment:</b>	Temp.: 23 °C	Humid.: 54 %	Press.: 96 kPa
<b>Test Mode:</b>	Mode 3		
<b>Test Voltage:</b>	DC 5 V (Adapter Input AC 120 V/ 60 Hz), DC 5 V (PC Input AC 120 V/ 60 Hz)		
<b>Test Result:</b>	Pass		

### Note:

Freq. = Emission frequency in MHz

Reading level dB(μV) = Receiver reading

Corr. Factor (dB) = Antenna factor + Cable loss

Measurement dB(μV/m) = Reading level dB(μV) + Corr. Factor (dB)

Limit dB(μV/m) = Limit stated in standard

Margin (dB) = Measurement dB(μV/m) – Limits dB(μV/m)

Q.P. =Quasi-Peak

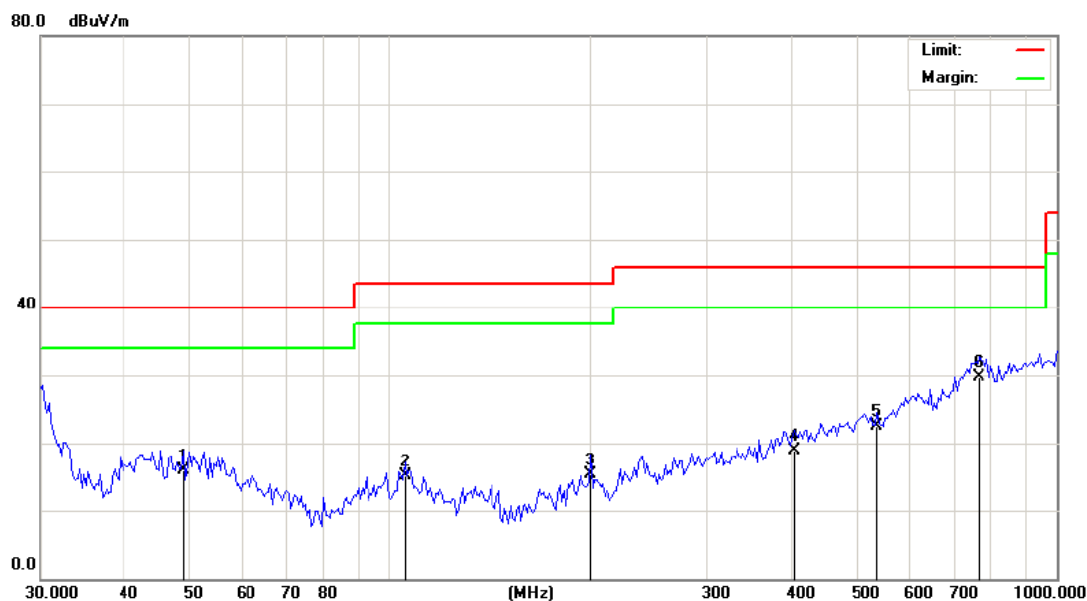


Please refer to following diagram for individual



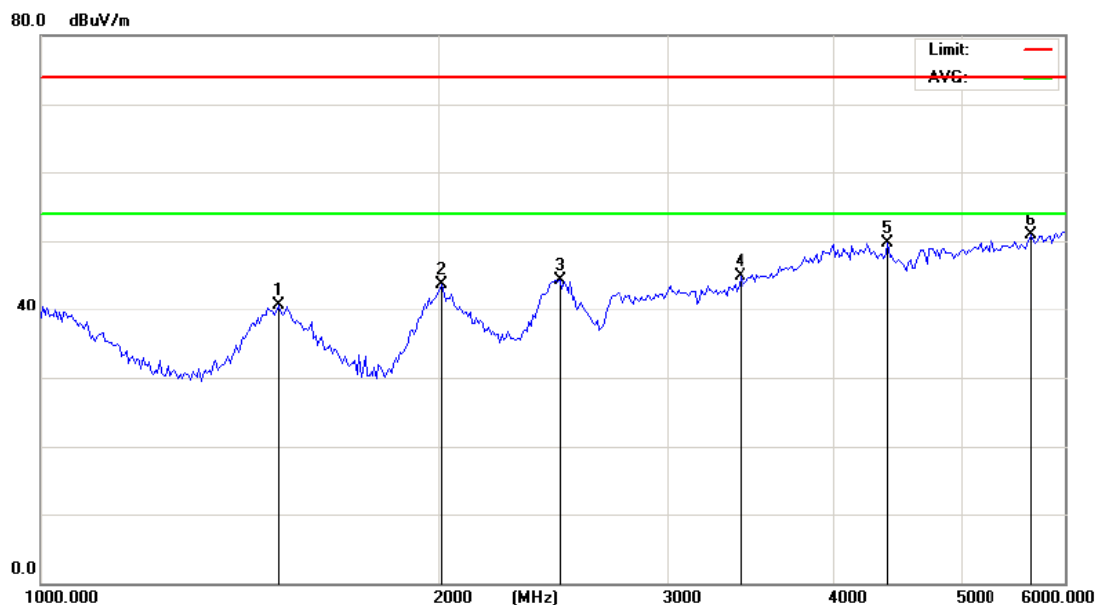
Site: Polarization: **Horizontal** Temperature: 23  
 Limit: FCC Part 15B Class B RE\_3 m Power: Humidity: 54 %  
 Mode: Charging and Data Transmitting  
 Note: DC 5V(PC Input AC 120V/60Hz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		55.2882	25.20	-9.65	15.55	40.00	-24.45	QP		0
2		106.2810	23.30	-9.61	13.69	43.50	-29.81	QP		0
3		197.2512	22.60	-10.18	12.42	43.50	-31.08	QP		0
4		313.6482	23.50	-6.55	16.95	46.00	-29.05	QP		0
5		611.4623	24.60	0.97	25.57	46.00	-20.43	QP		0
6	*	821.3871	25.10	4.68	29.78	46.00	-16.22	QP		0



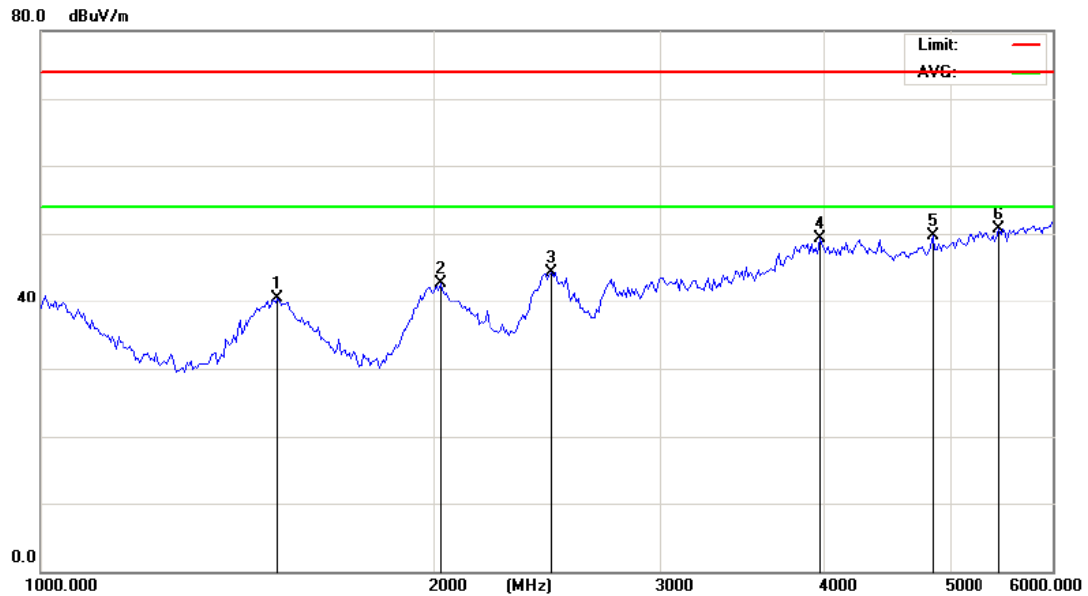
Site: Polarization: **Vertical** Temperature: 23  
 Limit: FCC Part 15B Class B RE\_3 m Power: Humidity: 54 %  
 Mode: Charging and Data Transmitting  
 Note: DC 5V(PC Input AC 120V/60Hz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		49.0626	25.60	-9.71	15.89	40.00	-24.11	QP	0	
2		105.5370	24.50	-9.31	15.19	43.50	-28.31	QP	0	
3		200.0432	25.10	-9.82	15.28	43.50	-28.22	QP	0	
4		403.9334	22.80	-3.89	18.91	46.00	-27.09	QP	0	
5		538.8106	25.20	-2.65	22.55	46.00	-23.45	QP	0	
6	*	765.6480	23.70	6.06	29.76	46.00	-16.24	QP	0	



Site: Polarization: **Horizontal** Temperature: 23  
 Limit: FCC Part 15B Class B Above 1GHz RE(PK) Power: Humidity: 54 %  
 Mode: Charging and Data Transmitting  
 Note: DC 5V(PC Input AC 120V/60Hz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		1516.676	52.51	-11.77	40.74	74.00	-33.26	peak	0	
2		2014.128	53.14	-9.53	43.61	74.00	-30.39	peak	0	
3		2480.468	51.26	-6.98	44.28	74.00	-29.72	peak	0	
4		3402.222	49.53	-4.59	44.94	74.00	-29.06	peak	0	
5		4405.965	46.83	2.95	49.78	74.00	-24.22	peak	0	
6	*	5665.008	42.98	7.90	50.88	74.00	-23.12	peak	0	



Site: Polarization: **Vertical** Temperature: 23  
 Limit: FCC Part 15B Class B Above 1GHz RE(PK) Power: Humidity: 54 %  
 Mode: Charging and Data Transmitting  
 Note: DC 5V(PC Input AC 120V/60Hz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		1522.132	52.33	-11.78	40.55	74.00	-33.45	peak	0	
2		2028.645	52.15	-9.45	42.70	74.00	-31.30	peak	0	
3		2471.577	51.39	-7.03	44.36	74.00	-29.64	peak	0	
4		3970.249	47.37	1.95	49.32	74.00	-24.68	peak	0	
5		4854.510	45.03	4.66	49.69	74.00	-24.31	peak	0	
6	*	5465.203	43.80	6.92	50.72	74.00	-23.28	peak	0	

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

## Appendix A: Photographs of Test Setup

Product: inkBOOK Classic 2

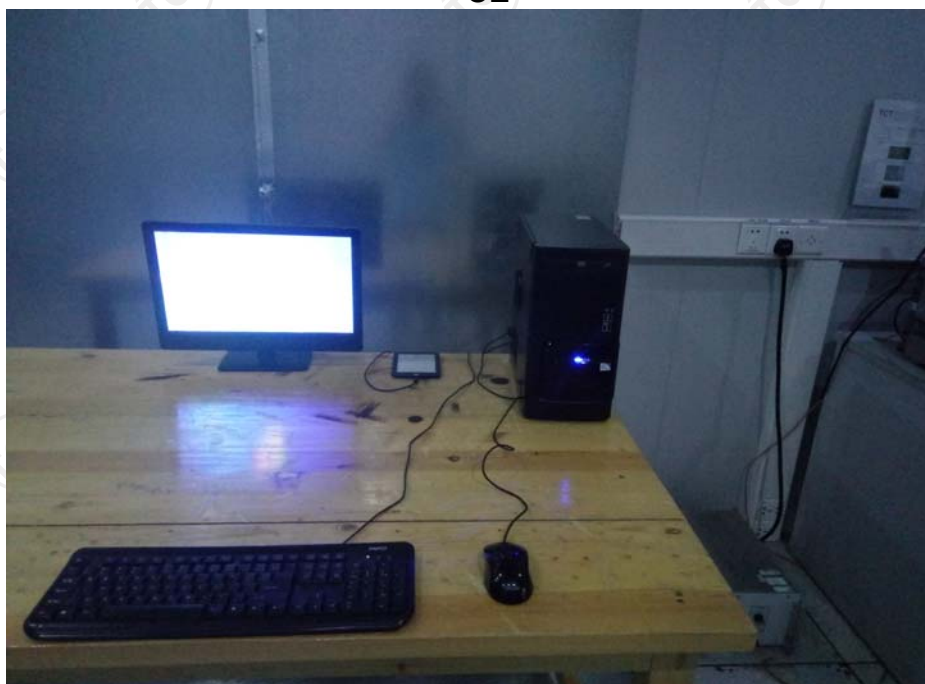
Model: D61

Radiated Emission





CE



## Appendix B: Photographs of EUT

Refer to the test report No. TCT160830E021