

APPLICATION FOR VERIFICATION
On Behalf of
InnoVISION Multimedia Limited

3D Printer
Model No.: Inno3D Printer M1/D1
FCC ID: 2AD8V-I3DP-M1D1

Prepared for : InnoVISION Multimedia Limited
Address : Unit A&B, 21/F., Mai Wah Ind. Bldg., 1-7 Wah Sing Street,
Kwai Chung, Hong Kong

Prepared by : Accurate Technology Co., Ltd.
Address : F1, Bldg. A&D, Changyuan New Material Port, Keyuan
Rd., Science & Industry Park, Nanshan District, Shenzhen
518057, P.R. China

Tel: +86-755-26503290
Fax: +86-755-26503396

Report No. : ATE20150358
Date of Test : July 5-8, 2015
Date of Report : July 17, 2015

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Test Report Declaration

Applicant : InnoVISION Multimedia Limited
Manufacturer : InnoVISION Multimedia Limited
Product : 3D Printer
(A) Model No.: Inno3D Printer M1/D1
(B) Rating: Input: DC 24V (Power by Adapter)

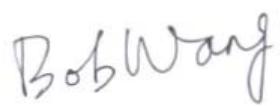
Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart B Class B & ANSI C63.4: 2014

The device described above is tested by Accurate Technology Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and Accurate Technology Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Accurate Technology Co., Ltd.

Date of Test : _____ July 5-8, 2015
Date of Report : _____ July 17, 2015

Prepared by : _____ 

Approved & Authorized Signer : _____
(Manager) 

1. TEST RESULTS SUMMARY

Test Items	Test Standard	Test Results
Power Line Conducted Emission	FCC Part 15 Subpart B	Pass
Radiated Emission	FCC Part 15 Subpart B	Pass

2. GENERAL INFORMATION

2.1. Product of Device (EUT)

Product : 3D Printer

Model No. : Inno3D Printer M1/D1

Trade Mark : N/A

Remark(s) : The EUT highest operating frequency provided by Manufacturer is 75MHz, the radiated emission measurement shall be made up to 1 GHz.

Rating : DC 24V (Power by Adapter)

Adapter : Model: FSP180-AAAN2
Input: AC 100-240V; 50/60Hz
Output: DC 24V; 7.5A

Applicant : InnoVISION Multimedia Limited

Address : Unit A&B, 21/F., Mai Wah Ind. Bldg., 1-7 Wah Sing Street, Kwai Chung, Hong Kong

Manufacturer : InnoVISION Multimedia Limited

Address : Unit A&B, 21/F., Mai Wah Ind. Bldg., 1-7 Wah Sing Street, Kwai Chung, Hong Kong

Date of sample received : July 2, 2015

Date of Test : July 5-8, 2015

2.2. Accessory and Auxiliary Equipment

Notebook PC : Manufacturer: LENOVO
M/N: 4290-RT8
S/N: R9-FW93G 11/08

2.3. Description of Test Facility

EMC Lab : Accredited by TUV Rheinland Shenzhen, May 10, 2004

Listed by FCC

The Registration Number is 253065

Listed by FCC

The Registration Number is 752051

Listed by Industry Canada

The Registration Number is 5077A-1

Listed by Industry Canada

The Registration Number is 5077A-2

Accredited by China National Accreditation Committee for Laboratories

The Certificate Registration Number is L3193

Name of Firm : Accurate Technology Co., Ltd.

Site Location : F1, Bldg. A&D, Changyuan New Material Port, Keyuan Rd., Science & Industry Park, Nanshan District, Shenzhen 518057, P.R. China

2.4. Measurement Uncertainty

Conducted emission expanded uncertainty : $U=2.23\text{dB}$, $k=2$

Power disturbance expanded uncertainty : $U=2.92\text{dB}$, $k=2$

Radiated emission expanded uncertainty : $U=3.08\text{dB}$, $k=2$
(9kHz-30MHz)

Radiated emission expanded uncertainty : $U=4.42\text{dB}$, $k=2$
(30MHz-1000MHz)

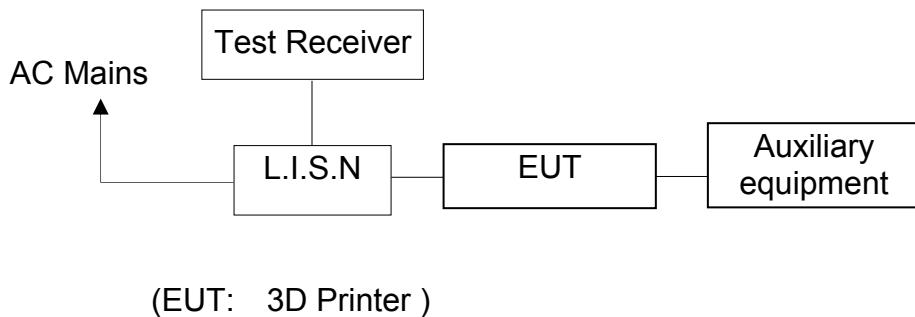
Radiated emission expanded uncertainty : $U=4.06\text{dB}$, $k=2$
(Above 1GHz)

3. POWER LINE CONDUCTED MEASUREMENT

3.1. For Power Line Conducted Emission

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCS30	100307	Jan.10, 2015	1 Year
2.	Test Receiver	Rohde & Schwarz	ESPI	100396/003	Jan.10, 2015	1 Year
3.	Test Receiver	Rohde & Schwarz	ESPI	101526/003	Jan.10, 2015	1 Year
4.	Test Receiver	Rohde & Schwarz	ESR	101817	Jan.10, 2015	1 Year
5.	L.I.S.N.	Schwarzbeck	NLSK8126	8126431	Jan.10, 2015	1 Year
6.	L.I.S.N.	Rohde & Schwarz	ESH3-Z5	100305	Jan.10, 2015	1 Year
7.	L.I.S.N.	Rohde & Schwarz	ESH3-Z5	100310	Jan.10, 2015	1 Year
8.	L.I.S.N.	Rohde & Schwarz	ESH3-Z6	100132	Jan.10, 2015	1 Year
9.	L.I.S.N.	Rohde & Schwarz	ESH3-Z6	100979	Jan.10, 2015	1 Year
10.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100305	Jan.10, 2015	1 Year
11.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100312	Jan.10, 2015	1 Year
12.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100815	Jan.10, 2015	1 Year
13.	50Ω Coaxial Switch	Anritsu Corp	MP59B	620028393 6	Jan.10, 2015	1 Year
14.	50Ω Coaxial Switch	Anritsu Corp	MP59B	620028393 3	Jan.10, 2015	1 Year
15.	50Ω Coaxial Switch	Anritsu Corp	MP59B	620050647 4	Jan.10, 2015	1 Year
16.	VOLTAGE PROBE	Schwarzbeck	TK9416	N/A	Jan.10, 2015	1 Year
17.	RF CURRENT PROBE	Rohde & Schwarz	EZ-17	100048	Jan.10, 2015	1 Year
18.	8-Wire Impedance Stabilisation Network	Schwarzbeck	CAT5 8158	8158-0035	Jan.10, 2015	1 Year
19.	RF Coaxial Cable	SUHNER	N-2m	No.2	Jan.10, 2015	1 Year
20.	RF Coaxial Cable	SUHNER	N-2m	No.3	Jan.10, 2015	1 Year
21.	RF Coaxial Cable	SUHNER	N-2m	No.14	Jan.10, 2015	1 Year

3.2. Block Diagram of Test Setup



3.3. Power Line Conducted Emission Measurement Limits (Class B)

Frequency MHz	Limits dB(μ V)	
	Quasi-peak Level	Average Level
0.15—0.50	66—56*	56—46*
0.50—5.00	56	46
5.00—30.0	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

3.4. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

3.4.1. 3D Printer (EUT)

Model Number: Inno3D Printer M1/D1

Serial Number: N/A

Manufacturer: InnoVISION Multimedia Limited

3.5. Operating Condition of EUT

3.5.1. Setup the EUT and simulator as shown as Section 3.2.

3.5.2. Turn on the power of all equipment.

3.5.3. Let the EUT work in test mode (USB Printing, SD Card Printing) and measure it.

3.6. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of DC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2014 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

3.7. Power Line Conducted Emission Measurement Results

PASS.

Test mode: USB Printing Test Port: AC Mains (AC 120V/ 60Hz)																																								
MEASUREMENT RESULT: "REC007_fin"																																								
2015-7-5 15:08																																								
<table><thead><tr><th>Frequency MHz</th><th>Level dBμV</th><th>Transd dB</th><th>Limit dBμV</th><th>Margin dB</th><th>Detector</th><th>Line</th><th>PE</th></tr></thead><tbody><tr><td>0.664000</td><td>49.00</td><td>11.5</td><td>56</td><td>7.0</td><td>QP</td><td>N</td><td>GND</td></tr><tr><td>0.896000</td><td>46.50</td><td>11.6</td><td>56</td><td>9.5</td><td>QP</td><td>N</td><td>GND</td></tr><tr><td>14.802500</td><td>48.60</td><td>11.9</td><td>60</td><td>11.4</td><td>QP</td><td>N</td><td>GND</td></tr></tbody></table>									Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE	0.664000	49.00	11.5	56	7.0	QP	N	GND	0.896000	46.50	11.6	56	9.5	QP	N	GND	14.802500	48.60	11.9	60	11.4	QP	N	GND
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14.802500	48.60	11.9	60	11.4	QP	N	GND																																	
MEASUREMENT RESULT: "REC007_fin2"																																								
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Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE																																	
0.166000	49.20	10.4	55	6.0	AV	N	GND																																	
0.326000	42.40	11.1	50	7.2	AV	N	GND																																	
0.406000	43.00	11.3	48	4.7	AV	N	GND																																	
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2015-7-5 15:10																																								
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Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE																																	
0.502000	48.50	11.5	56	7.5	QP	L1	GND																																	
0.888000	44.60	11.6	56	11.4	QP	L1	GND																																	
14.568500	48.50	11.9	60	11.5	QP	L1	GND																																	
MEASUREMENT RESULT: "REC008_fin2"																																								
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Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE																																	
0.164000	46.60	10.4	55	8.7	AV	L1	GND																																	
0.404000	40.60	11.3	48	7.2	AV	L1	GND																																	
14.568500	39.50	11.9	50	10.5	AV	L1	GND																																	

Test mode: SD Card Printing

Test Port: AC Mains (AC 120V/ 60Hz)

MEASUREMENT RESULT: "REC009_fin"

2015-7-5 15:13

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.396000	49.90	11.3	58	8.0	QP	L1	GND
0.710000	48.60	11.5	56	7.4	QP	L1	GND
14.564000	48.60	11.9	60	11.4	QP	L1	GND

MEASUREMENT RESULT: "REC009_fin2"

2015-7-5 15:13

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.158000	49.40	10.4	56	6.2	AV	L1	GND
0.240000	44.30	10.8	52	7.8	AV	L1	GND
14.870000	39.10	11.9	50	10.9	AV	L1	GND

MEASUREMENT RESULT: "REC010_fin"

2015-7-5 15:15

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.398000	50.60	11.3	58	7.3	QP	N	GND
0.706000	49.50	11.5	56	6.5	QP	N	GND
15.392000	47.80	11.9	60	12.2	QP	N	GND

MEASUREMENT RESULT: "REC010_fin2"

2015-7-5 15:15

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.158000	49.80	10.4	56	5.8	AV	N	GND
0.400000	41.30	11.3	48	6.6	AV	N	GND
14.415500	39.20	11.9	50	10.8	AV	N	GND

Test mode: USB Printing

Test Port: AC Mains (AC 240V/ 60Hz)

MEASUREMENT RESULT: "REC001_fin"

2015-7-5 14:52

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.160000	54.80	10.4	66	10.7	QP	L1	GND
0.402000	50.10	11.3	58	7.7	QP	L1	GND
13.929500	47.90	11.9	60	12.1	QP	L1	GND

MEASUREMENT RESULT: "REC001_fin2"

2015-7-5 14:52

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.162000	49.50	10.4	55	5.9	AV	L1	GND
0.400000	42.30	11.3	48	5.6	AV	L1	GND
14.591000	39.10	11.9	50	10.9	AV	L1	GND

MEASUREMENT RESULT: "REC002_fin"

2015-7-5 14:55

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.164000	54.80	10.4	65	10.5	QP	N	GND
0.406000	50.80	11.3	58	6.9	QP	N	GND
14.811500	48.20	11.9	60	11.8	QP	N	GND

MEASUREMENT RESULT: "REC002_fin2"

2015-7-5 14:55

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.162000	49.90	10.4	55	5.5	AV	N	GND
0.402000	42.90	11.3	48	4.9	AV	N	GND
14.348000	39.20	11.9	50	10.8	AV	N	GND

Test mode: SD Card Printing

Test Port: AC Mains (AC 240V/ 60Hz)

MEASUREMENT RESULT: "REC003_fin"

2015-7-5 15:00

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.404000	51.30	11.3	58	6.5	QP	N	GND
0.566000	50.60	11.5	56	5.4	QP	N	GND
14.487500	48.30	11.9	60	11.7	QP	N	GND

MEASUREMENT RESULT: "REC003_fin2"

2015-7-5 15:00

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.166000	49.50	10.4	55	5.7	AV	N	GND
0.404000	42.90	11.3	48	4.9	AV	N	GND
14.073500	39.00	11.9	50	11.0	AV	N	GND

MEASUREMENT RESULT: "REC004_fin"

2015-7-5 15:02

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.408000	50.00	11.3	58	7.7	QP	L1	GND
0.666000	48.00	11.5	56	8.0	QP	L1	GND
14.046500	48.10	11.9	60	11.9	QP	L1	GND

MEASUREMENT RESULT: "REC004_fin2"

2015-7-5 15:02

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.166000	48.90	10.4	55	6.3	AV	L1	GND
0.404000	42.10	11.3	48	5.7	AV	L1	GND
14.406500	39.10	11.9	50	10.9	AV	L1	GND

Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectral diagrams are shown in the following pages.

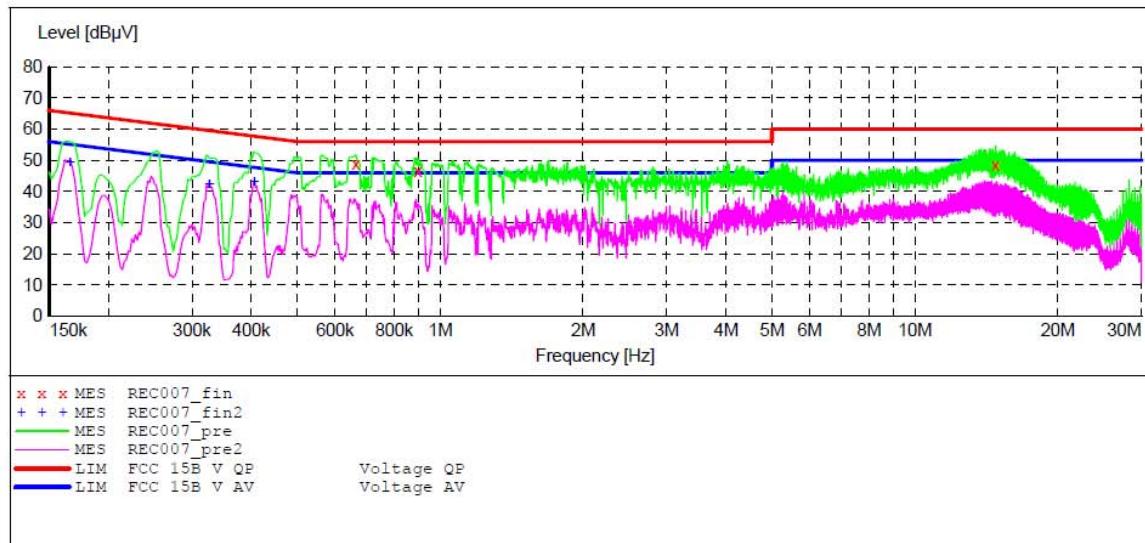
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: 3D Printer M/N:Inno3D Printer M1/D1
 Manufacturer: InnoVISION
 Operating Condition: USB Printing
 Test Site: 2#Shielding Room
 Operator: star
 Test Specification: N 120V/60Hz
 Comment: Report No.:ATE20150358
 Start of Test: 2015-7-5 / 15:07:18

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz LISN(ESH3-Z5)
 Average



MEASUREMENT RESULT: "REC007_fin"

2015-7-5 15:08

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.664000	49.00	11.5	56	7.0	QP	N	GND
0.896000	46.50	11.6	56	9.5	QP	N	GND
14.802500	48.60	11.9	60	11.4	QP	N	GND

MEASUREMENT RESULT: "REC007_fin2"

2015-7-5 15:08

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.166000	49.20	10.4	55	6.0	AV	N	GND
0.326000	42.40	11.1	50	7.2	AV	N	GND
0.406000	43.00	11.3	48	4.7	AV	N	GND

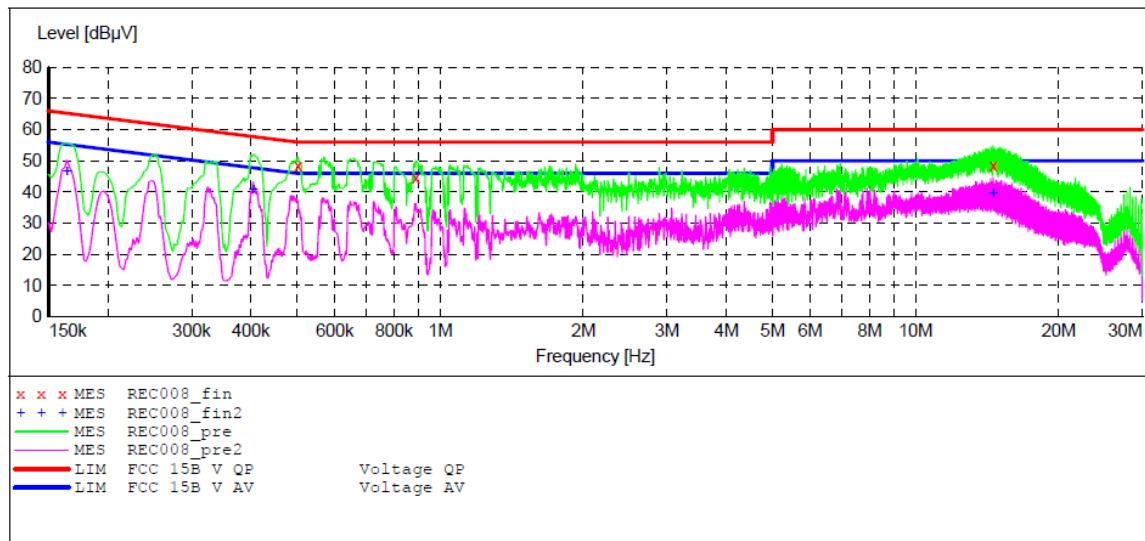
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: 3D Printer M/N:Inno3D Printer M1/D1
Manufacturer: InnoVISION
Operating Condition: USB Printing
Test Site: 2#Shielding Room
Operator: star
Test Specification: L 120V/60Hz
Comment: Report No.:ATE20150358
Start of Test: 2015-7-5 / 15:09:18

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
Start Stop Step Detector Meas. IF Transducer
Frequency Frequency Width Time Bandw.
150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz LISN(ESH3-Z5)
Average

**MEASUREMENT RESULT: "REC008_fin"**

2015-7-5 15:10

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.502000	48.50	11.5	56	7.5	QP	L1	GND
0.888000	44.60	11.6	56	11.4	QP	L1	GND
14.568500	48.50	11.9	60	11.5	QP	L1	GND

MEASUREMENT RESULT: "REC008_fin2"

2015-7-5 15:10

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.164000	46.60	10.4	55	8.7	AV	L1	GND
0.404000	40.60	11.3	48	7.2	AV	L1	GND
14.568500	39.50	11.9	50	10.5	AV	L1	GND

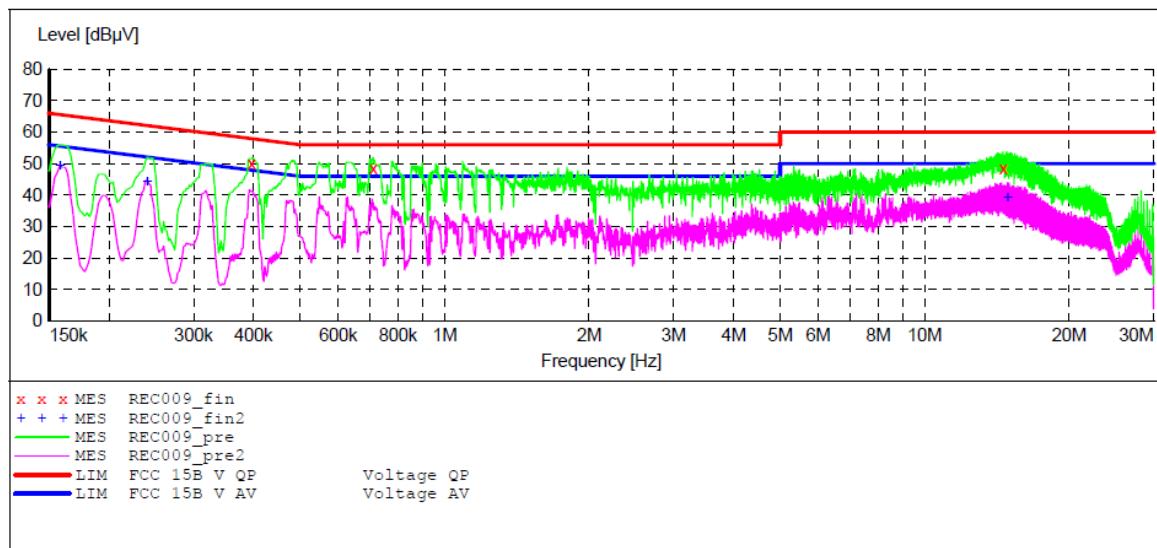
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: 3D Printer M/N:Inno3D Printer M1/D1
Manufacturer: InnoVISION
Operating Condition: SD Card Printing
Test Site: 2#Shielding Room
Operator: star
Test Specification: L 120V/60Hz
Comment: Report No.:ATE20150358
Start of Test: 2015-7-5 / 15:11:14

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
Start Stop Step Detector Meas. IF Transducer
Frequency Frequency Width Time Bandw.
150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz LISN (ESH3-Z5)
Average

**MEASUREMENT RESULT: "REC009_fin"**

2015-7-5 15:13

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.396000	49.90	11.3	58	8.0	QP	L1	GND
0.710000	48.60	11.5	56	7.4	QP	L1	GND
14.564000	48.60	11.9	60	11.4	QP	L1	GND

MEASUREMENT RESULT: "REC009_fin2"

2015-7-5 15:13

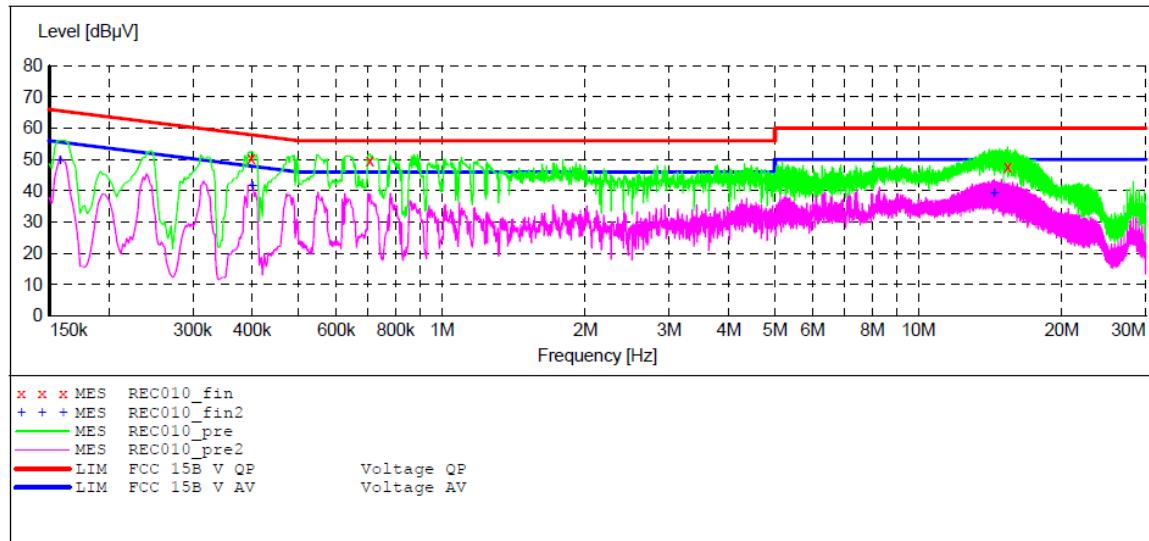
Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.158000	49.40	10.4	56	6.2	AV	L1	GND
0.240000	44.30	10.8	52	7.8	AV	L1	GND
14.870000	39.10	11.9	50	10.9	AV	L1	GND

ACCURATE TECHNOLOGY CO., LTD**CONDUCTED EMISSION STANDARD FCC PART 15B**

EUT: 3D Printer M/N:Inno3D Printer M1/D1
Manufacturer: InnoVISION
Operating Condition: SD Card Printing
Test Site: 2#Shielding Room
Operator: star
Test Specification: N 120V/60Hz
Comment: Report No.:ATE20150358
Start of Test: 2015-7-5 / 15:13:28

SCAN TABLE: "V 150K-30MHz fin"

Short Description:		_SUB_STD_VTERM2 1.70		Detector	Meas.	IF	Transducer				
Start	Stop	Step	Width								
150.0	30.0	4.5	kHz	kHz	QuasiPeak	1.0	s	9	kHz	LISN(ESH3-Z5)	
										Average	

**MEASUREMENT RESULT: "REC010_fin"**

2015-7-5 15:15

Frequency	Level	Transd	Limit	Margin	Detector	Line	PE
MHz	dB μ V	dB	dB μ V	dB			
0.398000	50.60	11.3	58	7.3	QP	N	GND
0.706000	49.50	11.5	56	6.5	QP	N	GND
15.392000	47.80	11.9	60	12.2	QP	N	GND

MEASUREMENT RESULT: "REC010_fin2"

2015-7-5 15:15

Frequency	Level	Transd	Limit	Margin	Detector	Line	PE
MHz	dB μ V	dB	dB μ V	dB			
0.158000	49.80	10.4	56	5.8	AV	N	GND
0.400000	41.30	11.3	48	6.6	AV	N	GND
14.415500	39.20	11.9	50	10.8	AV	N	GND

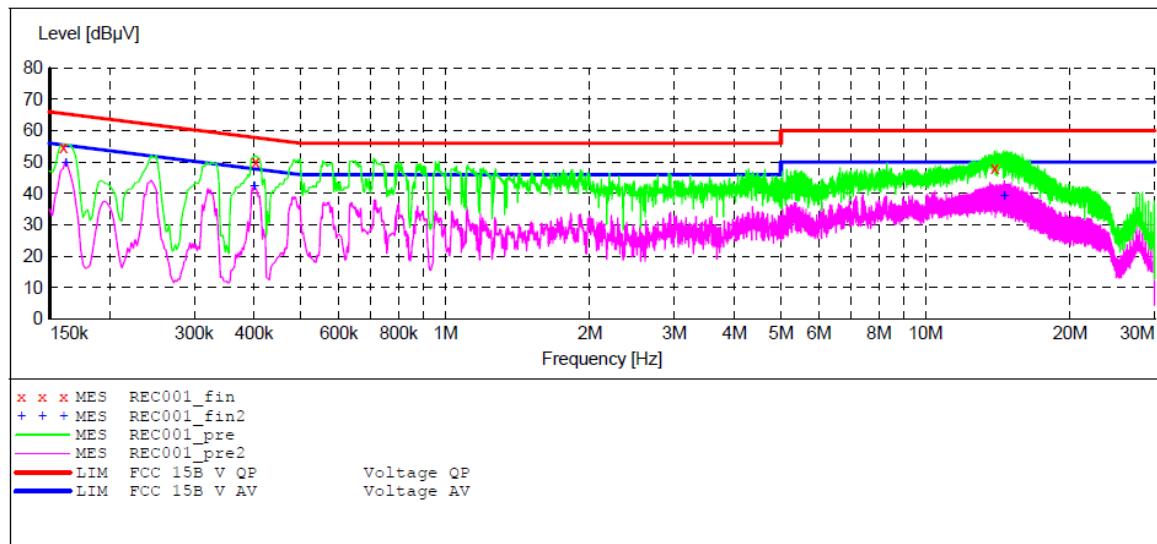
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: 3D Printer M/N:Inno3D Printer M1/D1
Manufacturer: InnoVISION
Operating Condition: USB Printing
Test Site: 2#Shielding Room
Operator: star
Test Specification: L 240V/60Hz
Comment: Report No.:ATE20150358
Start of Test: 2015-7-5 / 14:50:56

SCAN TABLE: "V 150K-30MHz fin"

Short Description: SUB_STD_VTERM2 1.70
Start Stop Step Detector Meas. IF Transducer
Frequency Frequency Width Time Bandw.
150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz LISN(ESH3-Z5)
Average

**MEASUREMENT RESULT: "REC001_fin"**

2015-7-5 14:52

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.160000	54.80	10.4	66	10.7	QP	L1	GND
0.402000	50.10	11.3	58	7.7	QP	L1	GND
13.929500	47.90	11.9	60	12.1	QP	L1	GND

MEASUREMENT RESULT: "REC001_fin2"

2015-7-5 14:52

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.162000	49.50	10.4	55	5.9	AV	L1	GND
0.400000	42.30	11.3	48	5.6	AV	L1	GND
14.591000	39.10	11.9	50	10.9	AV	L1	GND

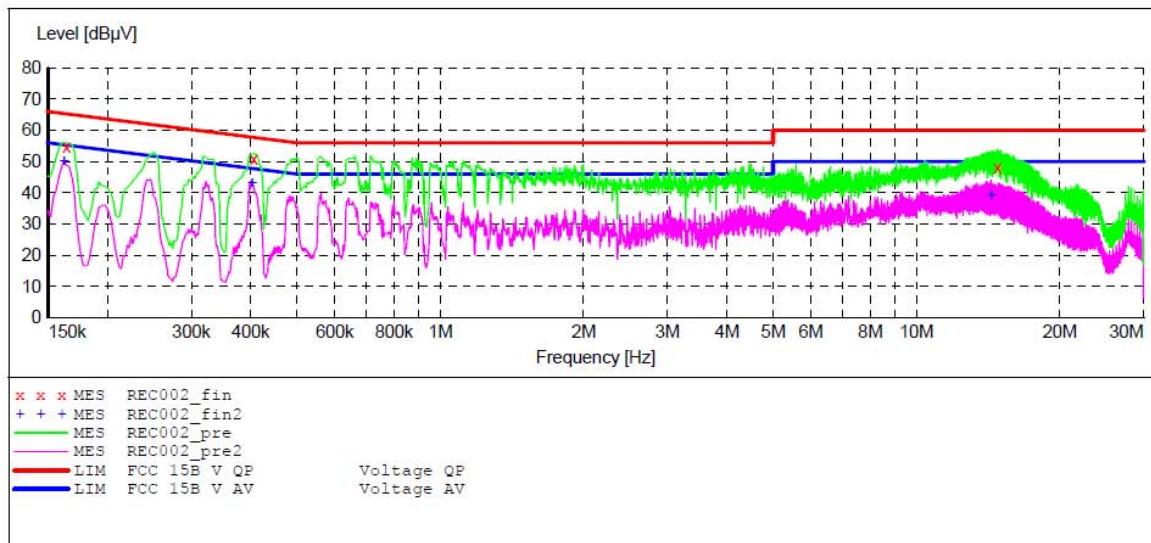
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: 3D Printer M/N:Inno3D Printer M1/D1
 Manufacturer: InnoVISION
 Operating Condition: USB Printing
 Test Site: 2#Shielding Room
 Operator: star
 Test Specification: N 240V/60Hz
 Comment: Report No.:ATE20150358
 Start of Test: 2015-7-5 / 14:53:39

SCAN TABLE: "V 150K-30MHz fin"

Short Description: - SUB STD VTERM2 1.70
 Start Stop Step - Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz LISN(ESH3-Z5)
 Average



MEASUREMENT RESULT: "REC002_fin"

2015-7-5 14:55

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.164000	54.80	10.4	65	10.5	QP	N	GND
0.406000	50.80	11.3	58	6.9	QP	N	GND
14.811500	48.20	11.9	60	11.8	QP	N	GND

MEASUREMENT RESULT: "REC002_fin2"

2015-7-5 14:55

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.162000	49.90	10.4	55	5.5	AV	N	GND
0.402000	42.90	11.3	48	4.9	AV	N	GND
14.348000	39.20	11.9	50	10.8	AV	N	GND

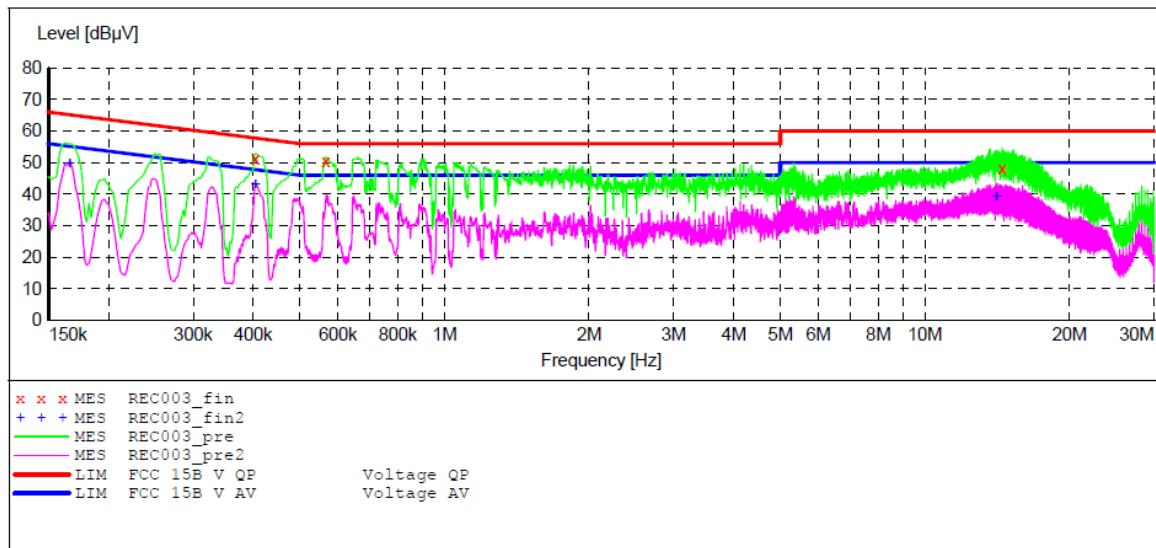
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: 3D Printer M/N:Inno3D Printer M1/D1
Manufacturer: InnoVISION
Operating Condition: SD Card Printing
Test Site: 2#Shielding Room
Operator: star
Test Specification: N 240V/60Hz
Comment: Report No.:ATE20150358
Start of Test: 2015-7-5 / 14:58:22

SCAN TABLE: "V 150K-30MHz fin"

Short Description: SUB_STD_VTERM2 1.70
Start Stop Step Detector Meas. IF Transducer
Frequency Frequency Width Time Bandw.
150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz LISN(ESH3-Z5)
Average

**MEASUREMENT RESULT: "REC003_fin"**

2015-7-5 15:00

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.404000	51.30	11.3	58	6.5	QP	N	GND
0.566000	50.60	11.5	56	5.4	QP	N	GND
14.487500	48.30	11.9	60	11.7	QP	N	GND

MEASUREMENT RESULT: "REC003_fin2"

2015-7-5 15:00

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.166000	49.50	10.4	55	5.7	AV	N	GND
0.404000	42.90	11.3	48	4.9	AV	N	GND
14.073500	39.00	11.9	50	11.0	AV	N	GND

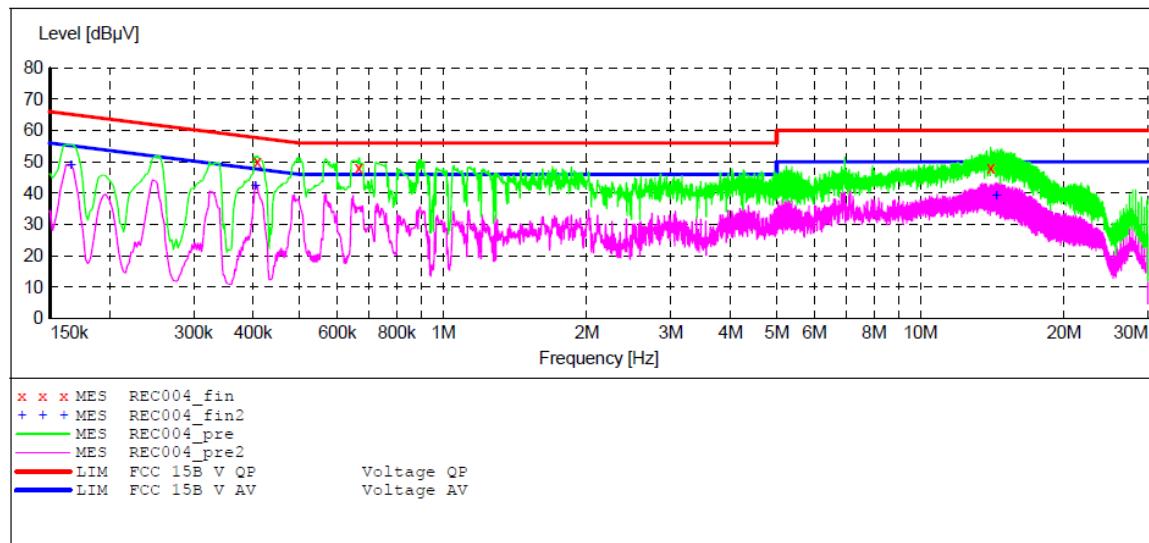
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: 3D Printer M/N:Inno3D Printer M1/D1
 Manufacturer: InnoVISION
 Operating Condition: SD Card Printing
 Test Site: 2#Shielding Room
 Operator: star
 Test Specification: L 240V/60Hz
 Comment: Report No.:ATE20150358
 Start of Test: 2015-7-5 / 15:00:38

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz LISN(ESH3-Z5)
 Average



MEASUREMENT RESULT: "REC004_fin"

2015-7-5 15:02

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.408000	50.00	11.3	58	7.7	QP	L1	GND
0.666000	48.00	11.5	56	8.0	QP	L1	GND
14.046500	48.10	11.9	60	11.9	QP	L1	GND

MEASUREMENT RESULT: "REC004_fin2"

2015-7-5 15:02

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.166000	48.90	10.4	55	6.3	AV	L1	GND
0.404000	42.10	11.3	48	5.7	AV	L1	GND
14.406500	39.10	11.9	50	10.9	AV	L1	GND

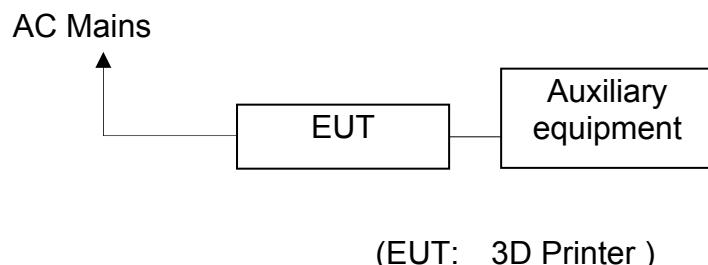
4. RADIATED EMISSION MEASUREMENT

4.1. For Radiated Emission Measurement

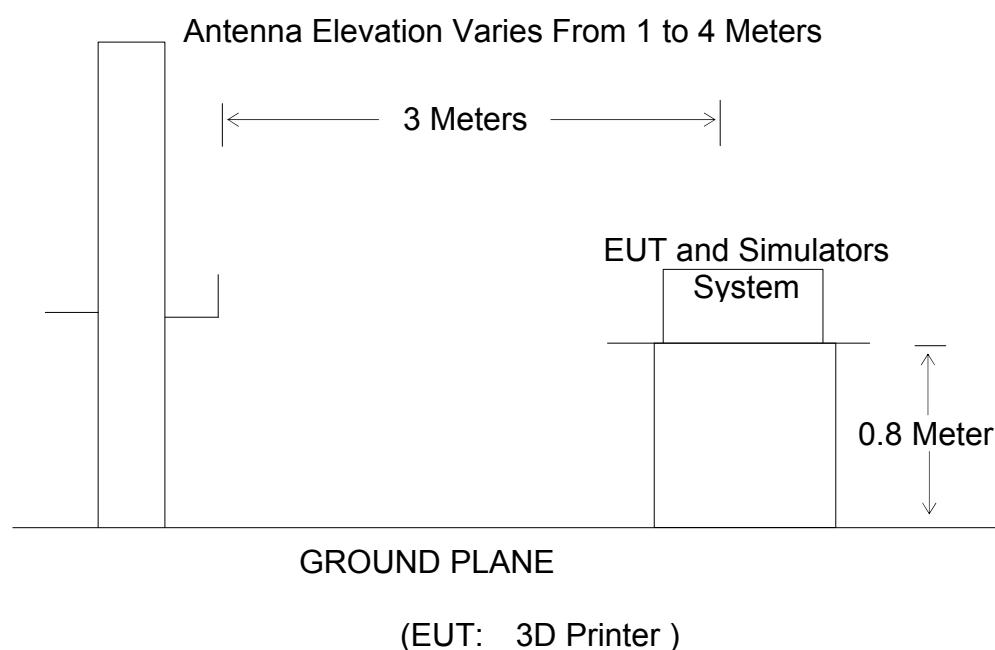
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan.10, 2015	1 Year
2.	Spectrum Analyzer	Rohde&Schwarz	FSV40	101495	Jan.10, 2015	1 Year
3.	Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan.10, 2015	1 Year
4.	Test Receiver	Rohde & Schwarz	ESPI	100396/003	Jan.10, 2015	1 Year
5.	Test Receiver	Rohde & Schwarz	ESPI	101526/003	Jan.10, 2015	1 Year
6.	Test Receiver	Rohde & Schwarz	ESR	101817	Jan.10, 2015	1 Year
7.	Bilog Antenna	Schwarzbeck	VULB9163	9163-194	Jan.15, 2015	1 Year
8.	Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan.15, 2015	1 Year
9.	Log.-Per.Antenna	Schwarzbeck	VUSLP 9111B	9111B-074 9111B	Jan.15, 2015	1 Year
10.	Biconical Broad Band Antenna	Schwarzbeck	VHBB 9124+BBA 9106	9124-617	Jan.15, 2015	1 Year
11.	Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan.15, 2015	1 Year
12.	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan.15, 2015	1 Year
13.	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1067	Jan.15, 2015	1 Year
14.	Vertical Active Monopole Antenna	Schwarzbeck	VAMP 9243	9243-370	Jan.15, 2015	1 Year
15.	RF Switching Unit+PreAMP	Compliance Direction	RSU-M2	38322	Jan.10, 2015	1 Year
16.	Pre-Amplifier	Agilent	8447D	294A10619	Jan.10, 2015	1 Year
17.	Pre-Amplifier	Rohde&Schwarz	CBLU11835 40-01	3791	Jan.10, 2015	1 Year
18.	50 Coaxial Switch	Anritsu Corp	MP59B	6200237248	Jan.10, 2015	1 Year
19.	50 Coaxial Switch	Anritsu Corp	MP59B	6200506474	Jan.10, 2015	1 Year
20.	RF Coaxial Cable	Schwarzbeck	N-5m	No.1	Jan.10, 2015	1 Year
21.	RF Coaxial Cable	Schwarzbeck	N-1m	No.6	Jan.10, 2015	1 Year
22.	RF Coaxial Cable	Schwarzbeck	N-1m	No.7	Jan.10, 2015	1 Year
23.	RF Coaxial Cable	SUHNER	N-3m	No.8	Jan.10, 2015	1 Year
24.	RF Coaxial Cable	RESENBERGER	N-3.5m	No.9	Jan.10, 2015	1 Year
25.	RF Coaxial Cable	SUHNER	N-6m	No.10	Jan.10, 2015	1 Year
26.	RF Coaxial Cable	RESENBERGER	N-12m	No.11	Jan.10, 2015	1 Year
27.	RF Coaxial Cable	RESENBERGER	N-0.5m	No.12	Jan.10, 2015	1 Year
28.	RF Coaxial Cable	SUHNER	N-2m	No.13	Jan.10, 2015	1 Year
29.	RF Coaxial Cable	SUHNER	N-0.5m	No.15	Jan.10, 2015	1 Year
30.	RF Coaxial Cable	SUHNER	N-2m	No.16	Jan.10, 2015	1 Year
31.	RF Coaxial Cable	RESENBERGER	N-6m	No.17	Jan.10, 2015	1 Year

4.2. Block Diagram of Test Setup

4.2.1. Block diagram of connection between the EUT and simulators



4.2.2. Anechoic Chamber Test Setup Diagram



4.3. Radiated Emission Limit (Class B)

Frequency MHz	Distance Meters	Field Strengths Limit	
		μ V/m	dB(μ V/m)
30-88	3	100	40.0
88-216	3	150	43.5
216-960	3	200	46.0
960-1000	3	500	54.0

Remark: (1) Emission level dB (μ V) = 20 log Emission level μ V/m.
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) Distance is the distance in meters between the measuring instrument antenna and the closest point of any part of the device or system.

4.4.EUT Configuration on Measurement

The following equipment is installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.4.1. 3D Printer (EUT)

Model Number: Inno3D Printer M1/D1

Serial Number: N/A

Manufacturer: InnovISION Multimedia Limited

4.5.Operating Condition of EUT

4.5.1. Setup the EUT and simulator as shown as Section 4.2.

4.5.2. Turn on the power of all equipment.

4.5.3. Let the EUT work in test mode (USB Printing, SD Card Printing) and measure it.

4.6.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2014 on radiated emission measurement.

The bandwidth of the EMI test receiver (R&S ESCS30) is set at 120kHz from 30MHz to 1000MHz.

The frequency range from 30MHz to 1000MHz is checked.

4.7.Radiated Emission Noise Measurement Result

PASS.

Model Number: Inno3D Printer M1/D1
Test mode: USB Printing

	No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Horizontal	1	59.8588	51.60	-13.91	37.69	40.00	-2.31	QP
	2	71.8319	53.84	-16.34	37.50	40.00	-2.50	QP
	3	143.8293	52.46	-15.23	37.23	43.50	-6.27	QP
Vertical	No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
	1	59.6492	51.50	-13.87	37.63	40.00	-2.37	QP
	2	96.0986	49.99	-14.44	35.55	43.50	-7.95	QP
	3	881.4067	41.29	1.16	42.45	46.00	-3.55	QP

1

Model Number: Inno3D Printer M1/D1
Test mode: SD Card Printing

	No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Horizontal	1	96.0986	52.39	-14.44	37.95	43.50	-5.55	QP
	2	143.8295	49.10	-15.23	33.87	43.50	-9.63	QP
	3	180.0165	45.97	-13.48	32.49	43.50	-11.01	QP
Vertical	No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
	1	96.0986	51.89	-14.44	37.45	43.50	-6.05	QP
	2	143.8295	51.38	-15.23	36.15	43.50	-7.35	QP
	3	287.9904	40.40	-9.61	30.79	46.00	-15.21	QP

Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectral diagrams are shown in the following pages.

Job No.: STAR2015 #363

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 15/07/08/

Temp.(C)/Hum.(%) 23 C / 48 %

Time: 11/24/33

EUT: 3D Printer

Engineer Signature:

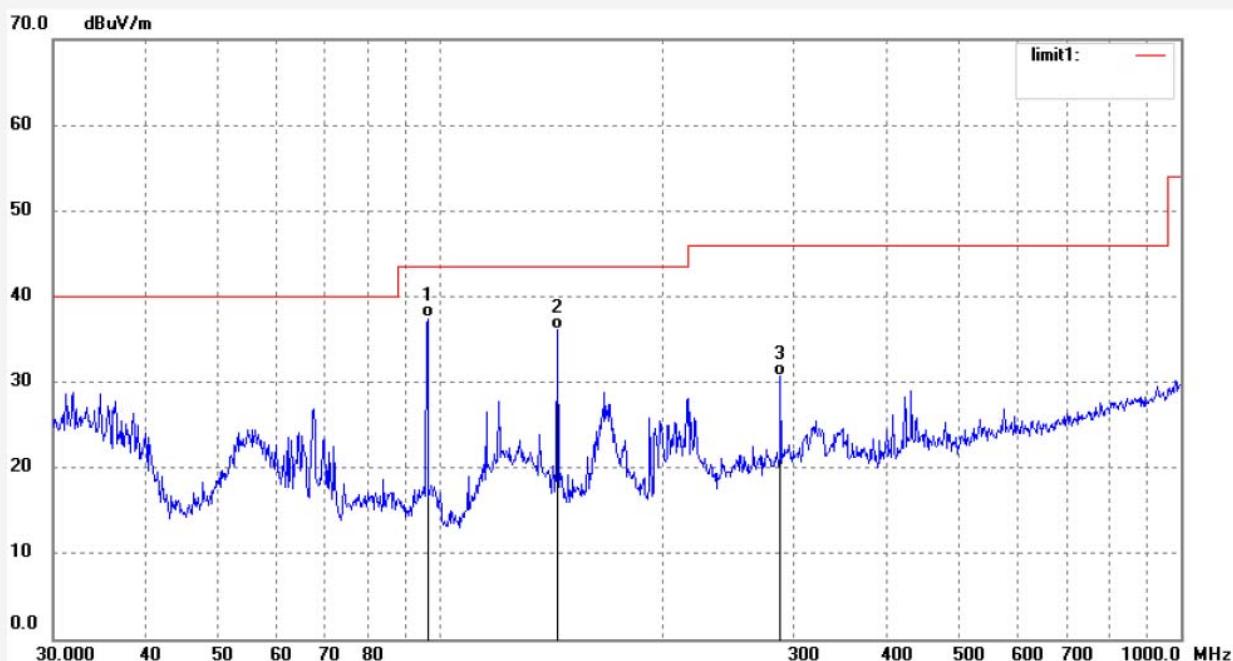
Mode: SD Card Printing

Distance: 3m

Model: Inno3D Printer M1/D1

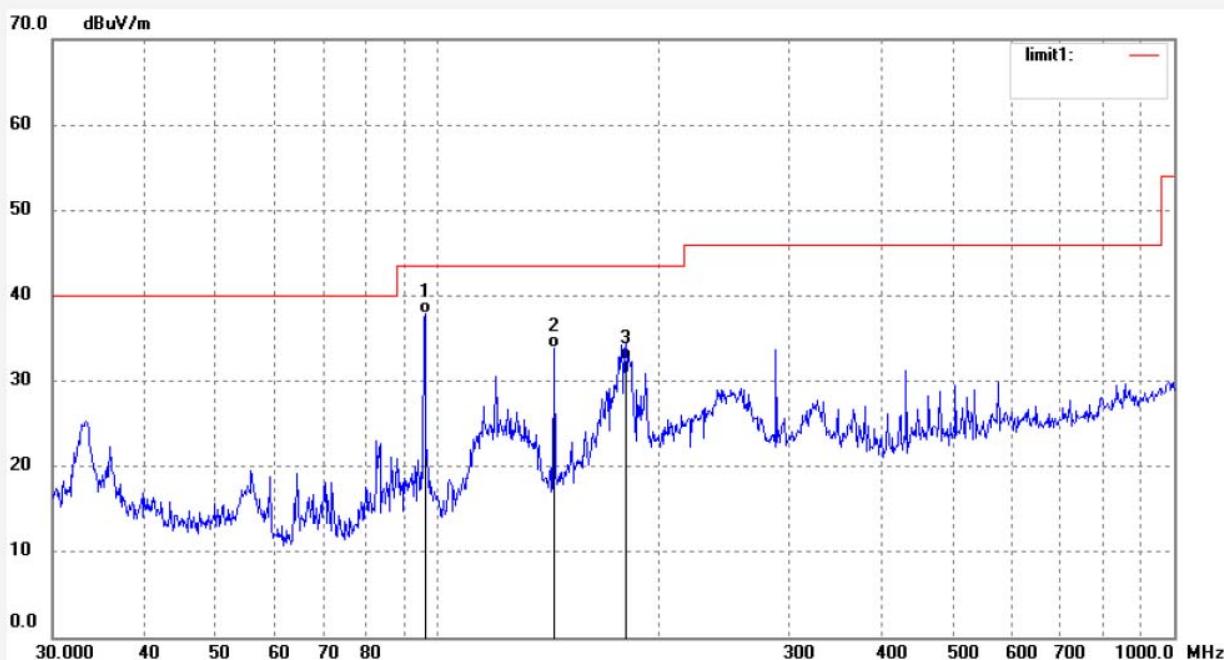
Manufacturer: InnoVISION

Note: Report No.:ATE20150358



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	96.0986	51.89	-14.44	37.45	43.50	-6.05	QP			
2	143.8295	51.38	-15.23	36.15	43.50	-7.35	QP			
3	287.9904	40.40	-9.61	30.79	46.00	-15.21	QP			

Job No.:	STAR2015 #364	Polarization:	Horizontal
Standard:	FCC Class B 3M Radiated	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	15/07/08/
Temp.(C)/Hum.(%)	23 C / 48 %	Time:	11/29/30
EUT:	3D Printer	Engineer Signature:	
Mode:	SD Card Printing	Distance:	3m
Model:	Inno3D Printer M1/D1		
Manufacturer:	InnoVISION		
Note:	Report No.:ATE20150358		



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	96.0986	52.39	-14.44	37.95	43.50	-5.55	QP			
2	143.8295	49.10	-15.23	33.87	43.50	-9.63	QP			
3	180.0165	45.97	-13.48	32.49	43.50	-11.01	QP			



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Report No.: ATE20150358

Page 28 of 29

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR2015 #365

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 15/07/08/

Temp.(C)/Hum.(%) 23 C / 48 %

Time: 11/41/05

EUT: 3D Printer

Engineer Signature:

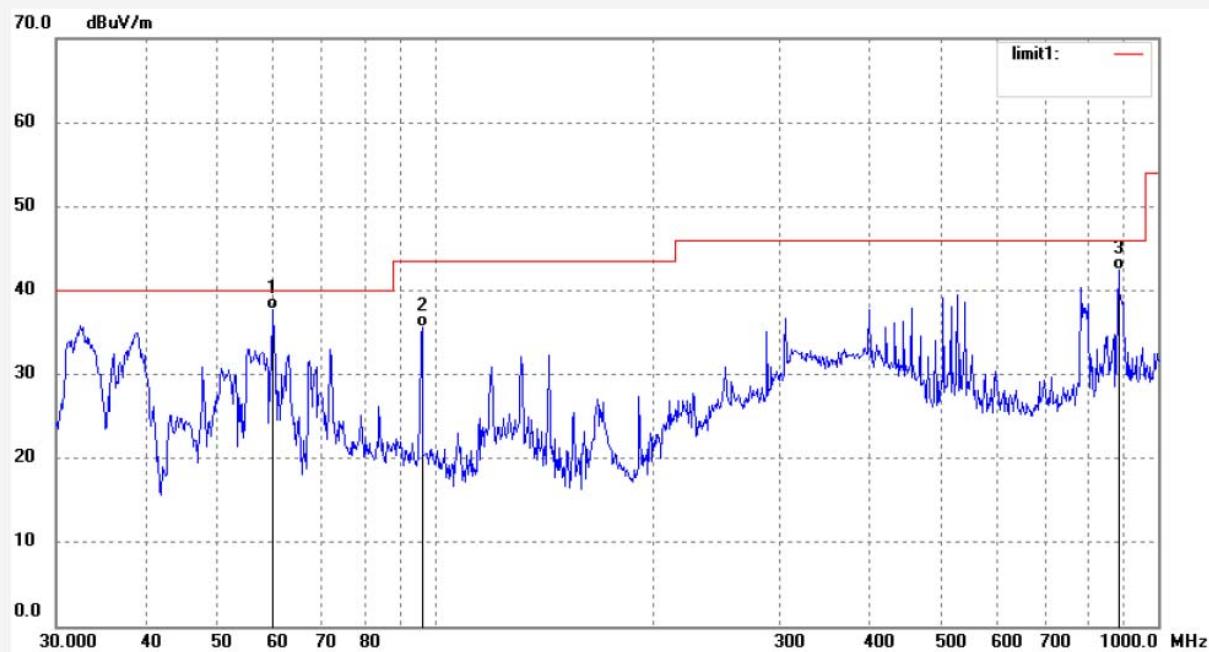
Mode: USB Printing

Distance: 3m

Model: Inno3D Printer M1/D1

Manufacturer: InnoVISION

Note: Report No.:ATE20150358



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	59.6492	51.50	-13.87	37.63	40.00	-2.37	QP			
2	96.0986	49.99	-14.44	35.55	43.50	-7.95	QP			
3	881.4067	41.29	1.16	42.45	46.00	-3.55	QP			

Job No.: STAR2015 #366

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 15/07/08/

Temp.(C)/Hum.(%) 23 C / 48 %

Time: 11/45/01

EUT: 3D Printer

Engineer Signature:

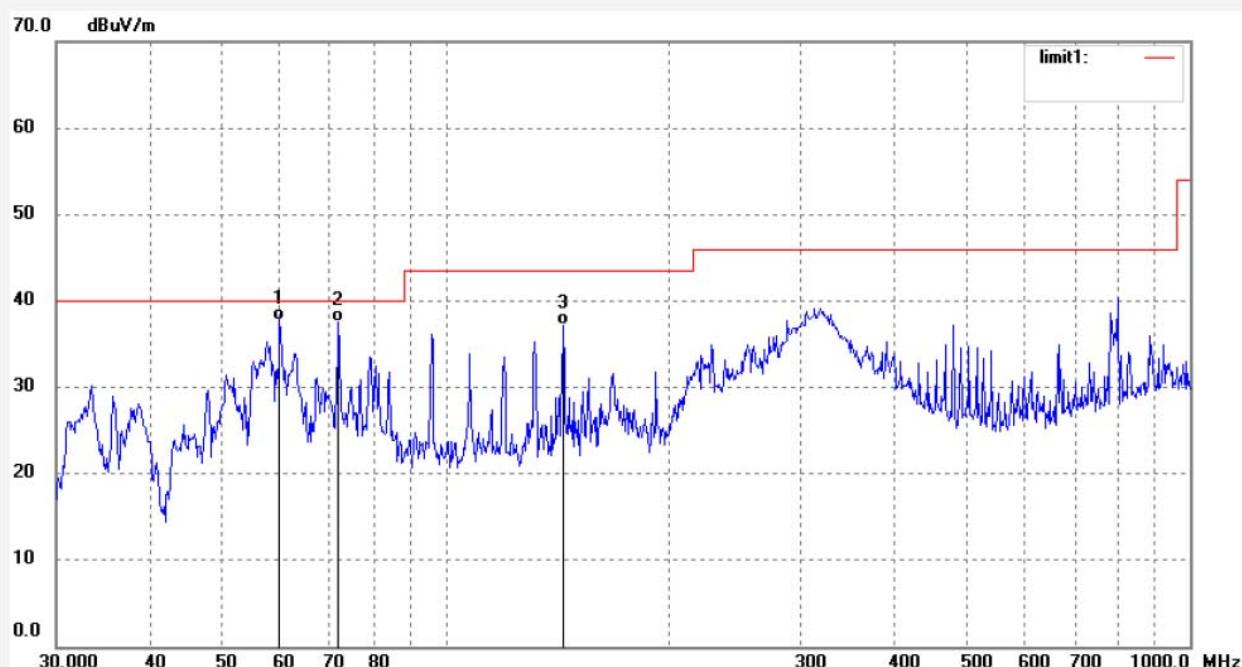
Mode: USB Printing

Distance: 3m

Model: Inno3D Printer M1/D1

Manufacturer: InnoVISION

Note: Report No.:ATE20150358



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	59.8588	51.60	-13.91	37.69	40.00	-2.31	QP			
2	71.8319	53.84	-16.34	37.50	40.00	-2.50	QP			
3	143.8293	52.46	-15.23	37.23	43.50	-6.27	QP			