FCC Part 15B
Measurement and Test Report

For

Esselte Leitz GmbH & Co. KG

c/o Esselte Holdings, Inc., 5 High Ridge Park, Suite 101, Stamford,

CT 06905

FCC ID: 2ABUI70010000

Test Rule(s):	FCC Part 15 Subpart B
Product Description:	The Leitz Icon Printer
Tested Model:	70010000
Report No.:	STR13108141I-2
Tested Date:	2013-10-17 to 2013-11-01
Issued Date:	2013-11-07
Tested By:	Susan Su / Engineer
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Prepared By:

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Esselte Leitz GmbH & Co. KG
Address of applicant:	c/o Esselte Holdings, Inc., 5 High Ridge Park, Suite 101, Stamford, CT 06905
Manufacturer:	Shenzhen Guowei Electronics Co., Ltd.
Address of manufacturer:	Qiaoan Industrial Park, Zhangkengjin Community, Guanlan Town, Shenzhen

General Description of EUT	
Product Name:	The Leitz Icon Printer
Trade Name:	LEITZ
Model No.:	70010000
Adding Model(s):	70011000, 70013000
Note: The test data is gathered from a production sample, provided by the manufacturer. The appearance of others models listed in the report is different from main-test model 70010000, but the circuit and the electronic construction do not change, declared by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	DC 24V Adapter
Rated Current:	/
Rated Power:	/
Power Adapter Model:	ZF120A-2404000
Lowest Internal Frequency:	12MHz
Highest Internal Frequency:	40MHz
Classification of ITE:	Class B

1.2 Test Standards

The following report is prepared on behalf of the Esselte Leitz GmbH & Co. KG 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.: 934118

Shenzhen SEM.Test Technology 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 934118.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Shenzhen SEM.Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

CNAS Registration No.: L4062

Shenzhen SEM.Test Technology 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 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd 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	Printing	Connected to PC
TM2	/	/
TM3	/	/
TM4	/	/

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
DC power Cable	1.6	Unshielded	With Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	E23	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/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.

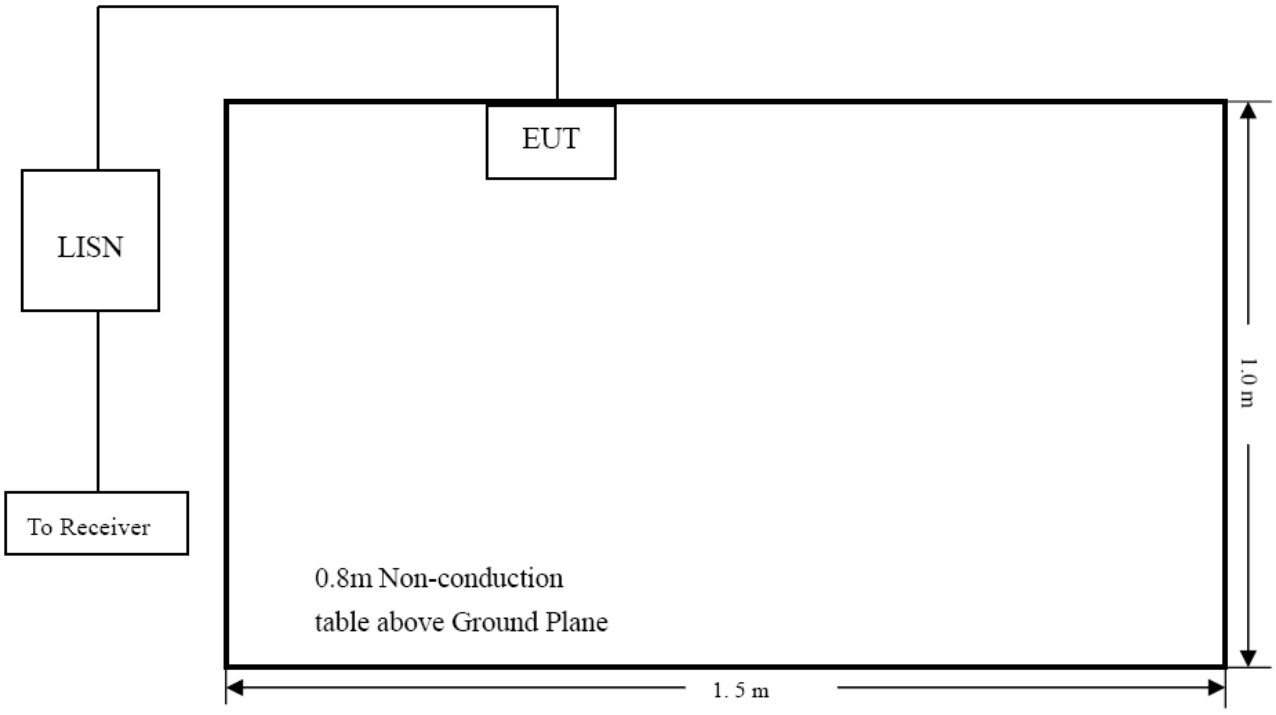
3.2 Test Equipment List and Details

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

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:

-10.47 dB at 0.614 MHz in the **Line** mode**, Peak** detector, **0.15-30MHz**

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

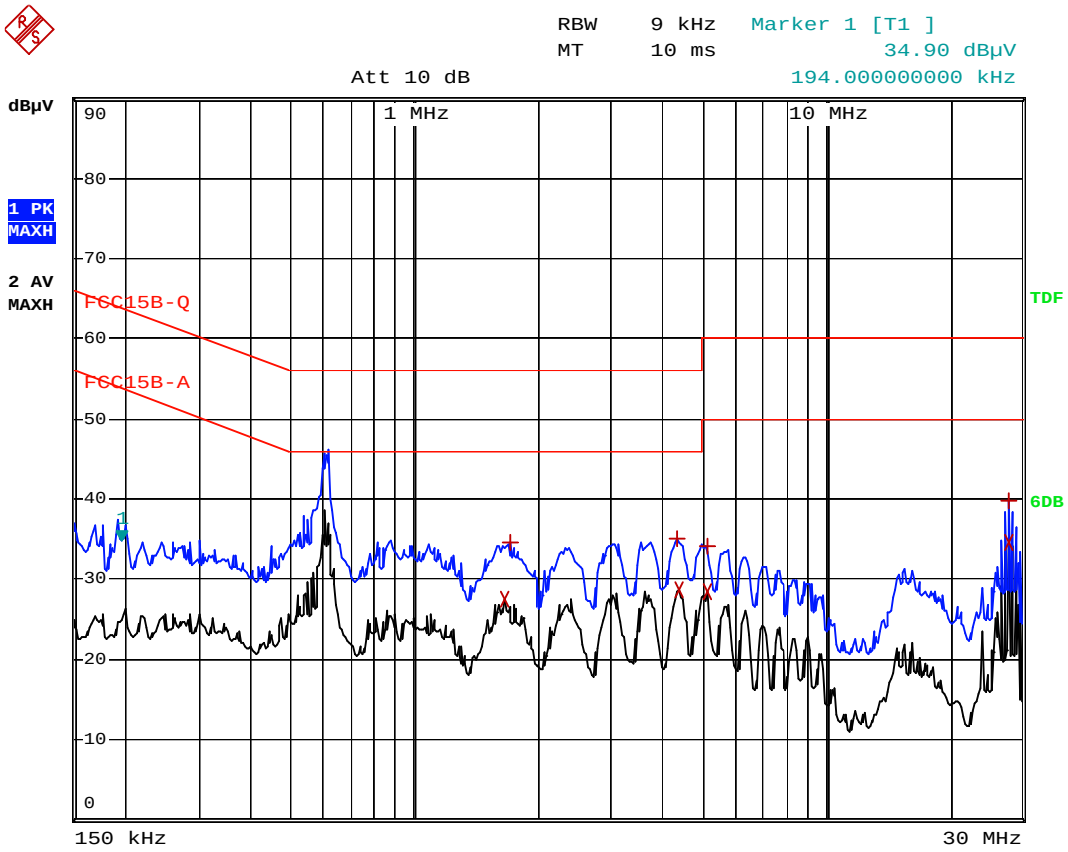
EUT: *The Leitz Icon Printer*

Tested Model: *70010000*

Operating Condition: *TM1*

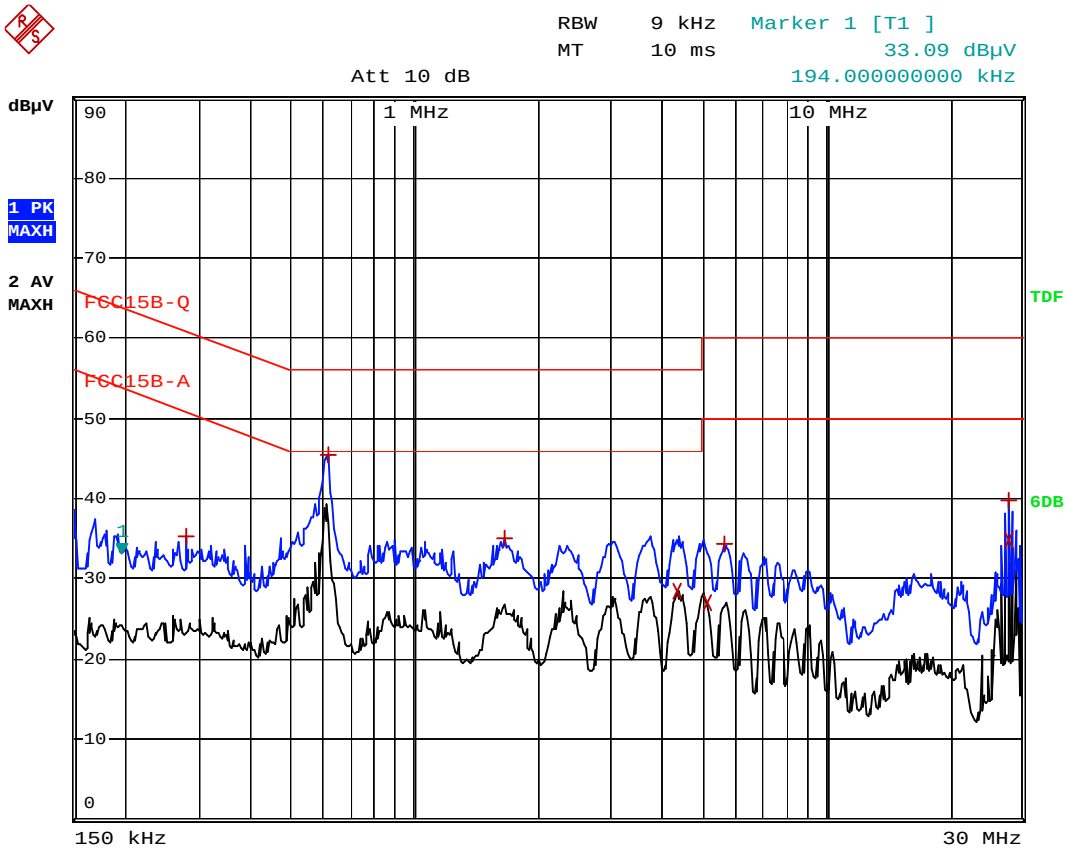
Comment: *AC 120V/60Hz; adapter DC 24V*

Test Specification: *Neutral*



EDIT PEAK LIST (Prescan Results)			
Trace1:	FCC15B-Q		
Trace2:	FCC15B-A		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
2 Average	1.666 MHz	27.56	-18.43
1 Max Peak	1.714 MHz	34.63	-21.36
1 Max Peak	4.342 MHz	35.13	-20.86
2 Average	4.418 MHz	28.61	-17.38
1 Max Peak	5.134 MHz	34.08	-25.91
2 Average	5.142 MHz	28.51	-21.48
1 Max Peak	27.766 MHz	39.70	-20.29
2 Average	27.766 MHz	34.67	-15.32

Test Specification: *Line*



EDIT PEAK LIST (Prescan Results)			
Trace1:	FCC15B-Q		
Trace2:	FCC15B-A		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	278 kHz	35.35	-25.52
1 Max Peak	614 kHz	45.52	-10.47
1 Max Peak	1.654 MHz	35.11	-20.88
2 Average	4.35 MHz	28.52	-17.48
2 Average	5.138 MHz	27.16	-22.83
1 Max Peak	5.666 MHz	34.35	-25.64
2 Average	27.762 MHz	34.93	-15.06
1 Max Peak	27.774 MHz	39.76	-20.24

4. Radiated Emissions

4.1 Measurement Uncertainty

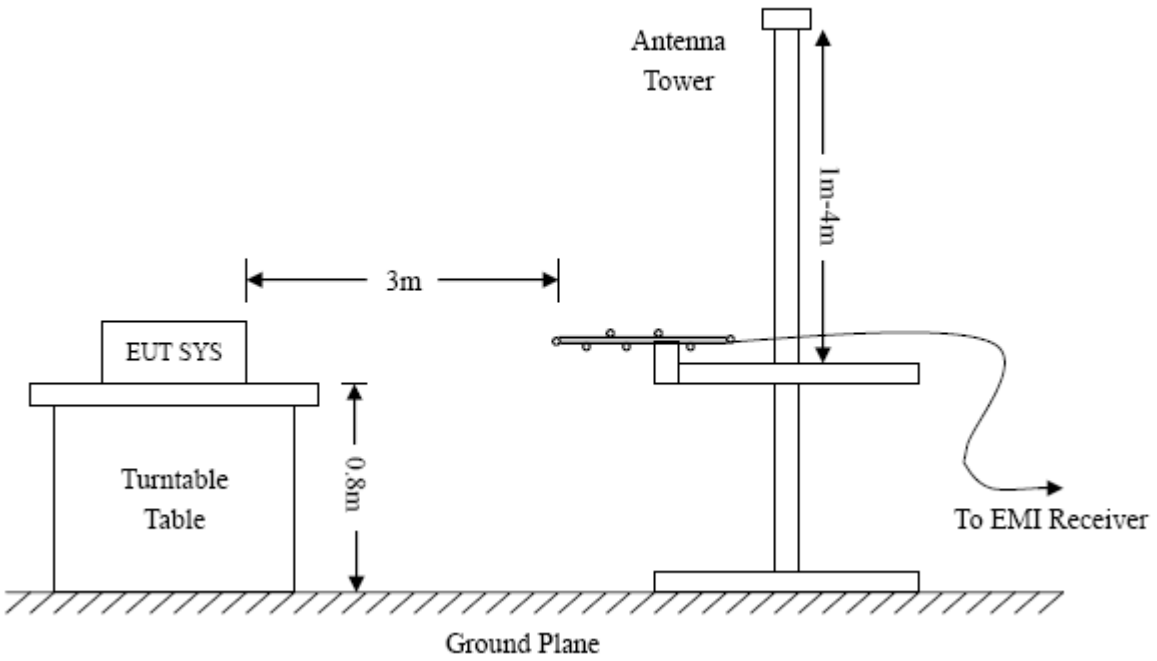
Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 5.10 dB.

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

Frequency :9kHz-30MHz	Frequency :30MHz-1GHz	Frequency :Above 1GHz
RBW=10KHz,	RBW=120KHz,	RBW=1MHz,
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak), 10Hz(AV)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP	Detector function = peak, AV

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:

Corr. Ampl. = Indicated Reading – Corr. Factor

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

Margin = Corr. Ampl. – 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

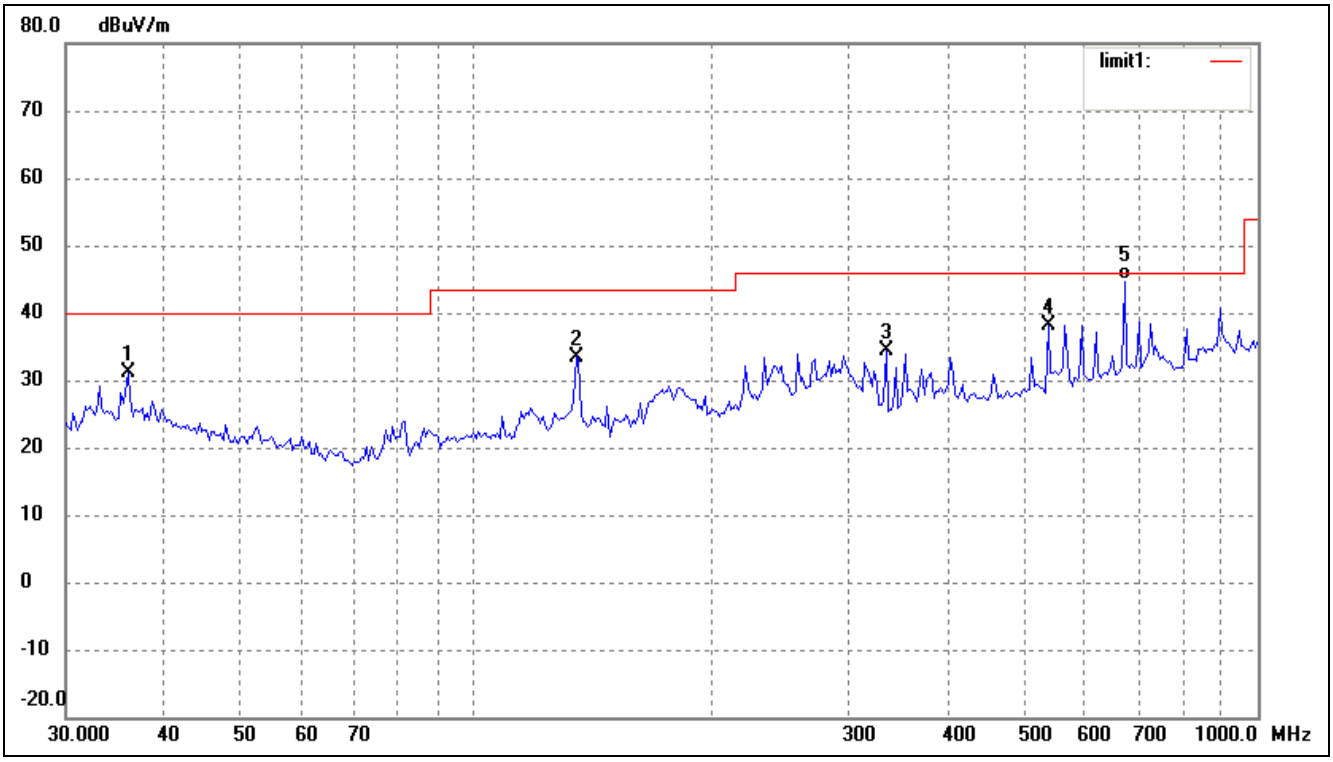
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-1.04 dB at **675.2080 MHz** in the **Horizontal** polarization, **9 kHz** to **1 GHz**, **3Meters**

Plot of Radiated Emissions Test Data

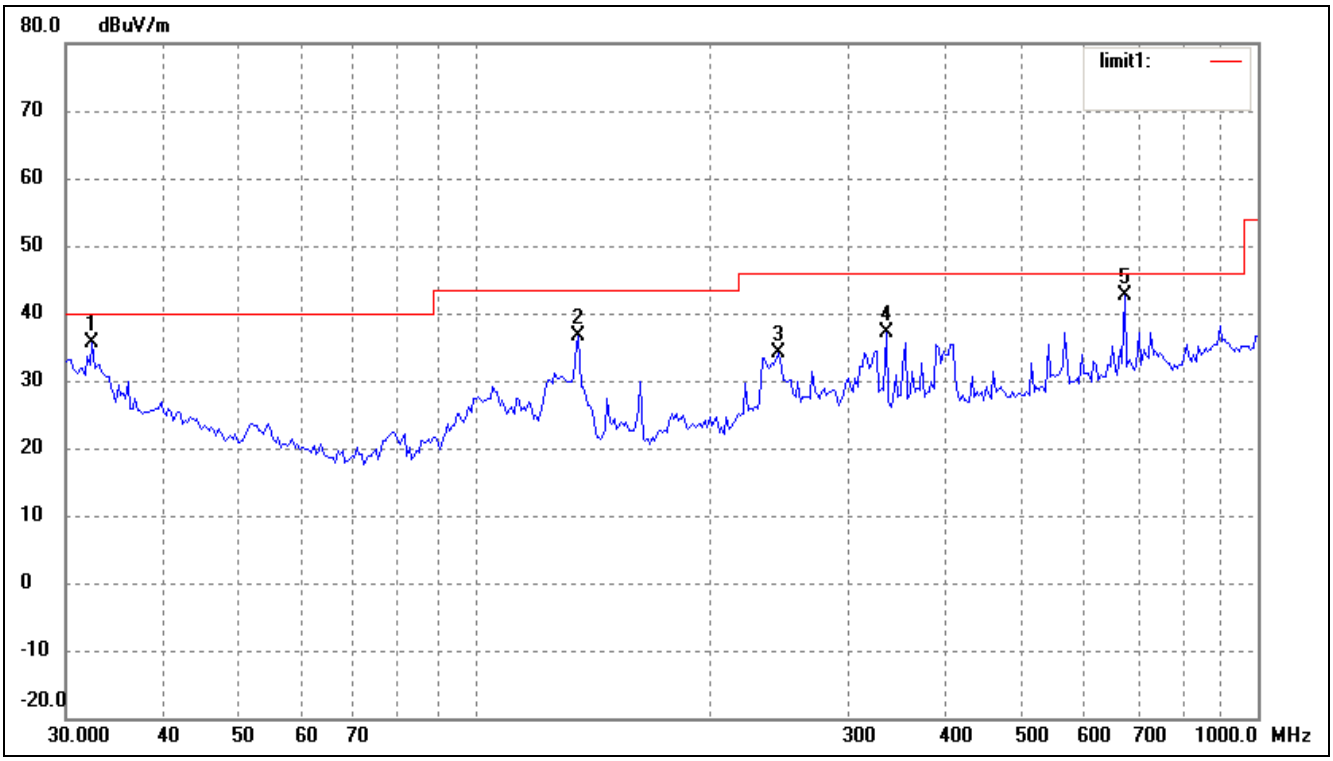
EUT: *The Leitz Icon Printer*
Tested Model: *70010000*
Operating Condition: *TM1*
Comment: *AC 120V/60Hz; adapter DC 24V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	36.0007	21.98	9.04	31.02	40.00	-8.98	360	100	peak
2	134.5592	29.72	3.78	33.50	43.50	-10.00	360	100	peak
3	334.8589	24.27	10.19	34.46	46.00	-11.54	360	100	peak
4	539.4775	25.11	13.04	38.15	46.00	-7.85	360	100	peak
5	675.2080	29.60	15.36	44.96	46.00	-1.04	317	100	QP

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	32.4059	27.15	8.44	35.59	40.00	-4.41	360	100	peak
2	135.5062	32.85	3.72	36.57	43.50	-6.93	360	100	peak
3	244.2321	27.01	7.12	34.13	46.00	-11.87	360	100	peak
4	334.8589	26.84	10.19	37.03	46.00	-8.97	360	100	peak
5	675.2080	27.20	15.36	42.56	46.00	-3.44	360	100	peak

Note: Testing is carried out with frequency rang 9kHz to the 1GHz.
The measurements greater than 20dB below the limit from 9kHz to 30MHz and test data are not provided.

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