

Produkte
Products

Prüfbericht - Nr.: 16044382 001		Seite 1 von 20 <i>Page 1 of 20</i>			
Test Report no.:					
Auftraggeber: <i>Client:</i>	B&B Exporting LIMITED Bldg.#D, Xinhe Industrial Park Huashan Sandong Avenue Huadu, Guangzhou, Guangdong 510880 P. R. China				
Gegenstand der Prüfung: <i>Test item:</i>	Direct Thermal Wristband Printer				
Bezeichnung: <i>Identification:</i>	BB777	FCC ID: <i>FCC ID:</i>	OR9BB777		
Wareneingangs-Nr.: <i>Receipt no.:</i>	173066322	Eingangsdatum: <i>Date of receipt:</i>	2012.06.06		
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of test item at delivery:</i>		The samples are ok for testing.			
Prüfört: <i>Testing location:</i>	TÜV Rheinland (Guangdong) Ltd. EMC Laboratory Guangzhou Auto Market, Yuan Gang Section of Guangshan Road, Guangzhou 510650 P. R. China		Listed test laboratory according to FCC rules section 2.948 for measuring devices under Parts 15		
Prüfgrundlage: <i>Test specification:</i>	Conducted Emissions limits describes at FCC 47 CFR Part 15 (October 1, 2011) Subpart B section 15.107 (a) Radiated Emissions limits describes at FCC 47 CFR Part 15 (October 1, 2011) Subpart B section 15.109 (a) Test method was quoted from ANSI C63.4:2009.				
Prüfergebnis: <i>Test result:</i>	Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n). <i>The test item passed the test specification(s).</i>				
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Guangdong) Ltd.				
geprüft / tested by:		kontrolliert/ reviewed by:			
2013. 4. 9	Jeffery Xie Project Manager	10. Apr. 2013	Yvonne Zheng Project Manager		
Datum Date	Name/ Stellung Name/Position	Unterschrift Signature	Unterschrift Signature		
Sonstiges/ Other aspects:					
<table style="width: 100%;"> <tr> <td style="width: 50%;"> Abkürzungen: P(ass) = entspricht Prüfgrundlage F(ail) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet </td> <td style="width: 50%;"> Abbreviations: P(ass) = passed F(ail) = failed N/A = not applicable N/T = not tested </td> </tr> </table>				Abkürzungen: P(ass) = entspricht Prüfgrundlage F(ail) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet	Abbreviations: P(ass) = passed F(ail) = failed N/A = not applicable N/T = not tested
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Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i>					

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TEST SUMMARY

5.1 CONDUCTED EMISSION FOR FCC PART 15 PER SECTION 15.107 (A)

RESULT: Pass

5.2 RADIATED EMISSION FOR FCC PART 15 PER SECTION 15.109 (A)

RESULT: Pass

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1 General Remarks

When applying FCC Part 15 in this test report, the version is October 1, 2011.

1.1 Complementary Materials

None.

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Guangdong) Ltd. EMC Laboratory

Guangzhou Auto Market, Yuan Gang Section of Guangshan Road
Guangzhou 510650
P. R. China

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2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Kind of Equipment	Type	Manufacturer	S/N	Last Calibration	Calibration Interval
EMI Test Receiver	ESCS30	Rohde & Schwarz	100316	16.Mar.2013	1 Year
Artificial Mains Network	ESH2-Z5	Rohde & Schwarz	100114	16.Mar.2013	1 Year
Two-Line V-Network	ESH3-Z5	Rohde & Schwarz	100308	16.Mar.2013	1 Year
Pulse Limiter	ESH3-Z2	Rohde & Schwarz	100701	16.Mar.2013	1 Year
EMI Test Receiver	ESCI	Rohde & Schwarz	100216	16.Mar.2013	1 Year
Spectrum Analyzer	FSP30	Rohde & Schwarz	100286	16.Mar.2013	1 Year
Double-Ridged Waveguide Horn Antenna	HF906	Rohde & Schwarz	100385	16.Mar.2013	1 Year
Trilog-Broadband Antenna	VULB9168	Schwarzbeckmess-elektronik	210	08.May.2012	2 Year

2.3 Trace ability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for conducted emissions measurements is ± 2.68 dB.

The estimated combined standard uncertainty for radiated emissions measurements is ± 4.94 dB.

The reported expanded uncertainty is based on a standard uncertainty multiply by a coverage factor $k=2$, providing a level of confidence of approximately 95%.

2.6 Location of original data

The original copies of all test data taken during actual testing were attached on Page 13-14, 16-17 of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Guangzhou) file for certification follow-up purposes.

2.7 Status of facility used for testing

TÜV Rheinland (Guangdong) Ltd. EMC Laboratory; Guangzhou Auto Market, Yuan Gang Section of Guangshan Road, Guangzhou 510650, P. R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements, the register no. 833845.

3 General Product Information

Brief description of the test samples:

The new submitted sample BB777 is direct thermal wristband printer which can be connected to PC by USB cable.

According to above information, EMI tests were performed on BB777.

3.1 Product Function and Intended Use

For details, refer to Technical Documentation and the User Manual.

3.2 Ratings and System Details

Type Designation:	BB777
Max Power:	70W
System Input Voltage:	DC24V
AC/DC adaptor:	
Type Designation:	FSP070-RAA
Max Power:	70W
System Input Voltage:	100-240V ~
Frequency:	50-60Hz
DC output	DC24V, 2.92A
Protection Class	I

Refer to Technical Documentation for further information.

3.3 Independent Operation Modes

The basic operation modes are:

On

Off

For details, refer to the User Manual.

3.4 Submitted Documents

Block Diagram

Circuit Diagram

PCB Layout

External Photo

Internal Photo

Label and Location

User Manual

4 Test Set-up and Operation Mode

4.1 Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Refer to Test set-up in chapter 5.

4.3 Special Accessories and Auxiliary Equipment

Adaptor: FSP Group Inc. FSP070-RAA

I/P: 100-240VAC, 2.8A 50-60Hz; O/P: 24VDC, 2.92A (70W Max)

PC: IBM 9213 L3BY942

Software: B&B BBWristbandDesigner V2.1.4.0

4.4 Countermeasures to achieve EMC Compliance

Additional countermeasures to the submitted test sample(s) for DV and RE were employed to achieve compliance.

4.5 Test set-up

Diagram 1 of Measurement Equipment Configuration for Testing Conducted Emission

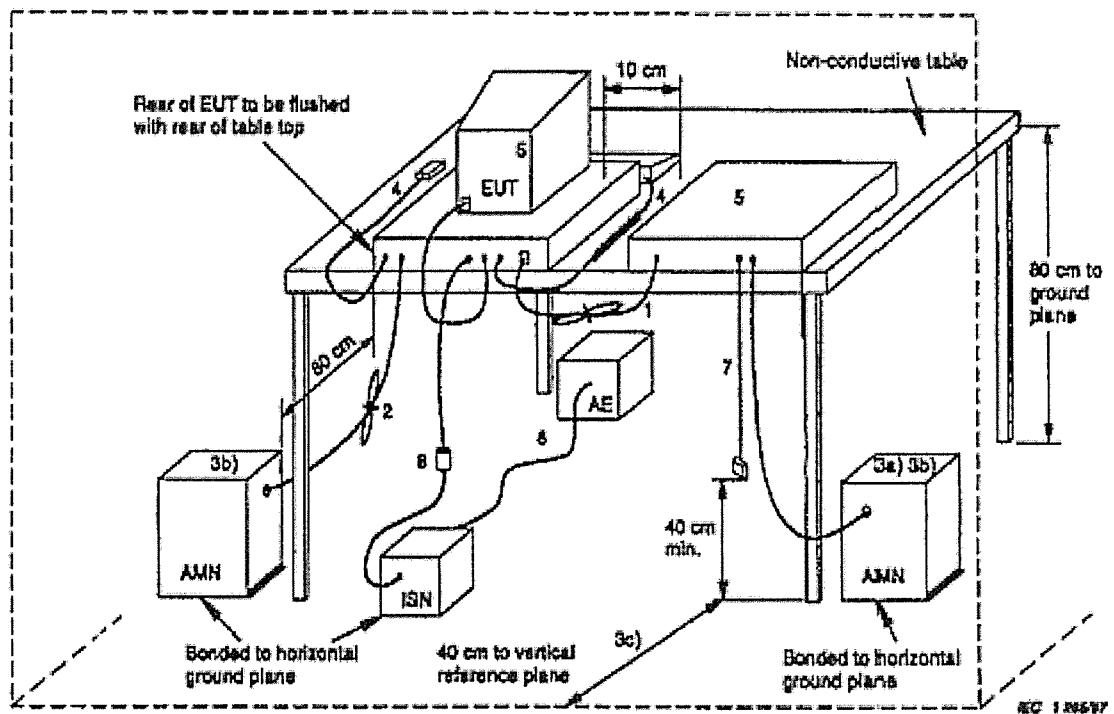
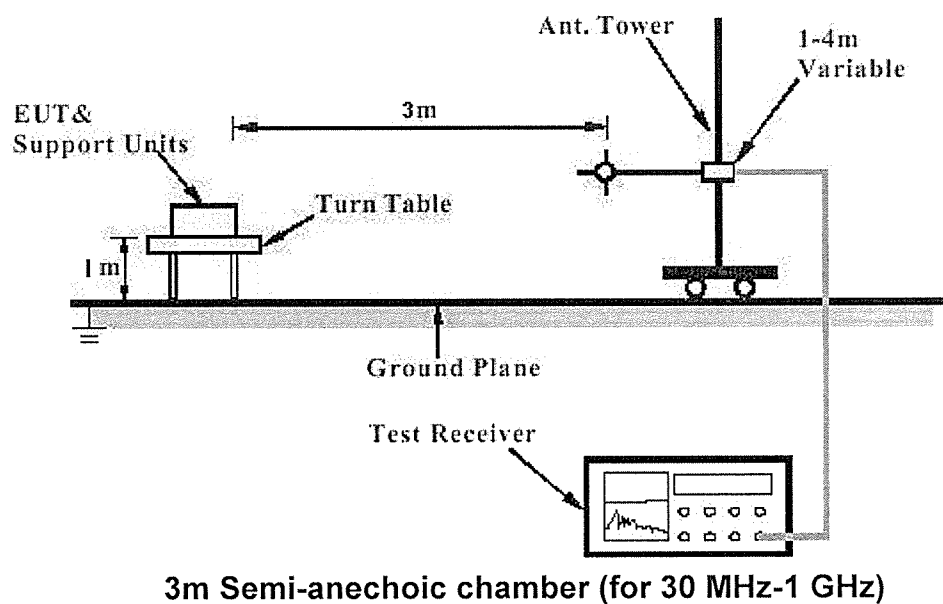


Diagram 2 of Measurement Equipment Configuration for Testing Radiated Emission



5 Test Results EMISSION

5.1 Conducted Emission for FCC Part 15 per Section 15.107(a)

RESULT:

Pass

Date of testing	:	25.03.2013
Test specification	:	FCC 47 CFR Part 15 Subpart B Section
Limits	:	15.107 (a), limit for Class B equipment.
Deviations from Standard Test procedures	:	None
Test procedure	:	ANSI C63.4:2009, Clause 7.2
Kind of test site	:	Shielded room
Operation mode	:	A: Printing (connected with PC)
Temperature	:	20°C
Humidity	:	50%

Test procedure:

For tabletop device, the EUT and its peripherals were placed on a wooden table, 0.8cm above the horizontal reference plane and 40cm away from vertical reference plane in a shielded room. For floor-standing device, the EUT shall be placed either directly on the reference ground plane or on insulating material as described in ANSI C63.4 Clause 6.3.2.1.

The EUT was connected to input power source through a line impedance stabilization network (LISN). The excess length of the power cord between the EUT and the LISN shall be folded back and forth at the center of the lead to form a bundle not exceeding 40cm in length.

The EUT was tested in a typical model of operation in accordance with ANSI C63.4:2009, Pre-test was performed in peak and average detection mode. Final measurement was performed using quasi-peak and average detection on the live and neutral lines with the worst case.

The test software Rohde & Schwarz EMC32 was used during the test.

If the result of the measurement with the Quasi Peak detector is below the Average limit, the measurement with Average Detector may be omitted.

Refer to the following graphs for test result.

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TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

EMC Test Record (EMISSION)

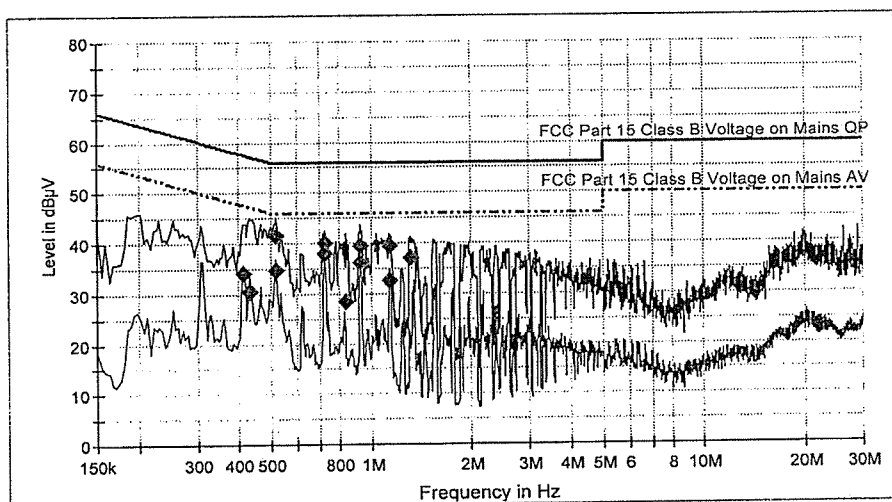
Test Information

Manufacturer: B&B
Test Item: Direct thermal printer
Identification: BB777
Test Standard: FCC Part 15
Test Detail: Conducted Emission
Operation Mode: A
Climate Condition: 20 °C; 50 %RH; 101 kPa.
Test Voltage/ Freq.: AC 120 V/ 60 Hz
Port / Line: AC Mains(L1+N)
Receipt No.: 173066322
Report No.: 16044382 001
Result: Pass
Comment: /

Hardware Setup: 1phase LISN ESH3-Z5 to ESCS 30
Level Unit: dBμV

Subrange	Detectors	IF Bandwidth	Step Size	Meas. Time	Receiver
150kHz - 30MHz	Peak; Average	9kHz	4.5kHz	10ms	ESCS 30

FCC Part 15 DV ESH3-Z5 150k to 30M ESCS30



Sign-off Test Data

3/25/2013Time

Tested by:



Reviewed by:



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Final Result 1

Frequency (MHz)	QuasiPeak (dBV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBV)	Comment
0.519000	41.6	1000.0	9.000	GN	L1	10.0	14.4	56.0	
0.726000	39.9	1000.0	9.000	GN	N	9.9	16.1	56.0	
0.838500	28.6	1000.0	9.000	GN	L1	10.0	27.5	56.0	
0.933000	39.5	1000.0	9.000	GN	L1	10.0	16.5	56.0	
1.135500	39.4	1000.0	9.000	GN	N	10.0	16.6	56.0	
1.315500	37.1	1000.0	9.000	GN	N	10.0	18.9	56.0	

Final Result 2

Frequency (MHz)	Average (dBV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBV)	Comment
0.411000	33.9	1000.0	9.000	GN	L1	10.0	13.7	47.6	
0.433500	30.7	1000.0	9.000	GN	L1	9.9	16.5	47.2	
0.514500	34.8	1000.0	9.000	GN	L1	10.0	11.2	46.0	
0.726000	37.8	1000.0	9.000	GN	N	9.9	8.2	46.0	
0.933000	36.3	1000.0	9.000	GN	N	10.0	9.7	46.0	
1.140000	32.6	1000.0	9.000	GN	N	10.0	13.4	46.0	

Sign-off Test Data

3/25/2013Time

Tested by:



Reviewed by:



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5.2 Radiated Emission for FCC Part 15 per Section 15.109(a)

RESULT:

Pass

Date of testing	:	25.03.2013
Test specification	:	FCC 47 CFR Part 15 Subpart B Section
Limits	:	15.109 (a), limit for Class B equipment.
Deviations from Standard Test procedures	:	None
Test procedure	:	ANSI C63.4:2009, Clause 8.3
Kind of test site	:	3m Semi-anechoic chamber (for 30MHz-1GHz *)
Operation mode	:	A: Printing (connected with PC)
Temperature	:	23°C
Humidity	:	50%

*) According to FCC 47 CFR Part 15 Subpart B Section 15.33 (b), the highest frequency generated by the EUT is less than 108MHz, The measurement shall only be made up to 1000MHz.

Test procedure:

30MHz-1GHz

For tabletop device, the EUT and its peripherals were placed on a wooden table, 80cm above ground plane in semi-anechoic chamber. For floor-standing equipment, the EUT and all cables shall be insulated, if required, from the ground plane by up to 12mm of insulating material in semi-anechoic chamber.

The EUT was set 3 meters away from the receiving antenna, which was mounted on a variable-height antenna tower. Test shall be made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna height shall be varied from 1m to 4m. The table was rotated 360 degrees to detect the suspected emission frequency points. The position of the worst radiation case with both horizontal and vertical receiving antenna polarization was recorded together with the suspected emission frequency points above-mentioned.

The EUT was tested in a typical model of operation in accordance with ANSI C63.4:2009, Pre-test was performed in peak detection mode. Final measurement was performed using quasi-peak detection with the worst case.

The test software Rohde & Schwarz EMC32 was used during the test.

Refer to the following graphs for test result.

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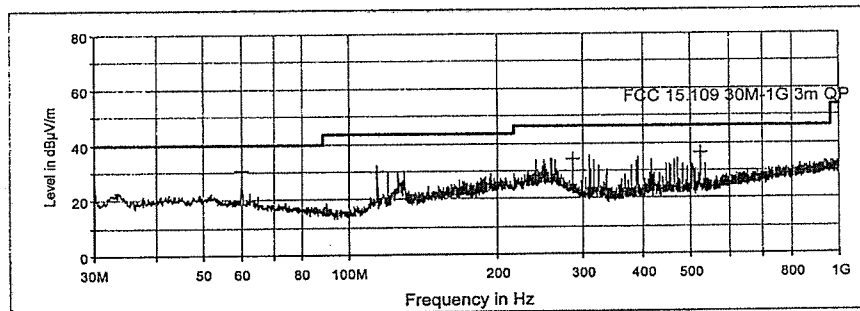
EMC Test Record (Emission)

Common Information

Manufacturer: B&B
Test Item: Direct thermal printer
Identification: BB777
Test Standard: FCC Part 15
Test Detail: RE
Operation Mode: A
Climate Condition: 23 °C; 50 %RH; 101 kPa.
Test Voltage/ Freq: AC120V / 60Hz
Receipt No: 173066322
Report No: 16044382 001
Result: Pass
Comment: Test distance is 3m, Horizontal

Subrange 1
Frequency Range: 30M-1GHz
Receiver: TUV ESCI 3
Transducer: TUV SAC UVLB 9168/ TUV ESCI 3-TUV SAC UVLB 9168

Pre TUV 30M to 1G UVLB9168



Limit and Margin QP

Frequency (MHz)	QuasiPeak (dBµV/m)	Corr (dB)	Margin QPK (dB)	Limit QPK (dBµV/m)	Polarization
60.200000	30.7	14.5	9.3	40.0	H
113.900000	30.1	12.6	13.4	43.5	H
240.000000	28.1	13.7	17.9	46.0	H
259.900000	27.3	14.6	18.7	46.0	H
287.550000	34.1	15.7	11.9	46.0	H
522.050000	36.4	21.2	9.6	46.0	H

Sign-off Test Data

Date: 3/25/2013 - Time: 3:45:36

Tested by: _____ Reviewed by: _____



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EMC Test Service Hotline: +86-20-28391188

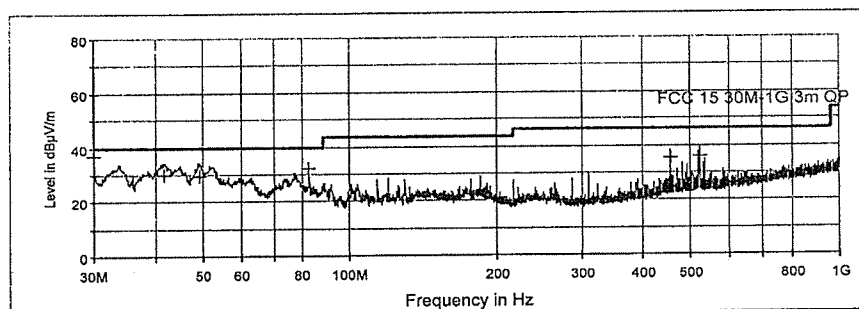
EMC Test Record (Emission)

Common Information

Manufacturer: B&B
Test Item: Direct thermal printer
Identification: BB777
Test Standard: FCC Part 15
Test Detail: RE
Operation Mode: A
Climate Condition: 23 °C; 50 %RH; 101 kPa.
Test Voltage/ Freq: AC120V / 60Hz
Receipt No: 173066322
Report No: 16044382 001
Result: Pass
Comment: Test distance is 3m, Vertical

Subrange 1
Frequency Range: 30M-1GHz
Receiver: TUV ESCI 3
Transducer: TUV SAC UVLB 9168/ TUV ESCI 3-TUV SAC UVLB 9168

Pre TUV 30M to 1G UVLB9168



Limit and Margin QP

Frequency (MHz)	QuasiPeak (dBµV/m)	Corr (dB)	Margin QPK (dB)	Limit QPK (dBµV/m)	Polarization
30.000000	36.8	13.5	3.2	40.0	V
41.750000	30.2	14.8	9.8	40.0	V
49.400000	29.2	15.0	10.8	40.0	V
82.500000	32.1	11.2	7.9	40.0	V
454.750000	35.2	19.9	10.8	46.0	V
519.750000	35.9	21.2	10.1	46.0	V

Sign-off Test Data

Date: 3/25/2013 - Time: 3:42:05

Tested by:



Reviewed by:

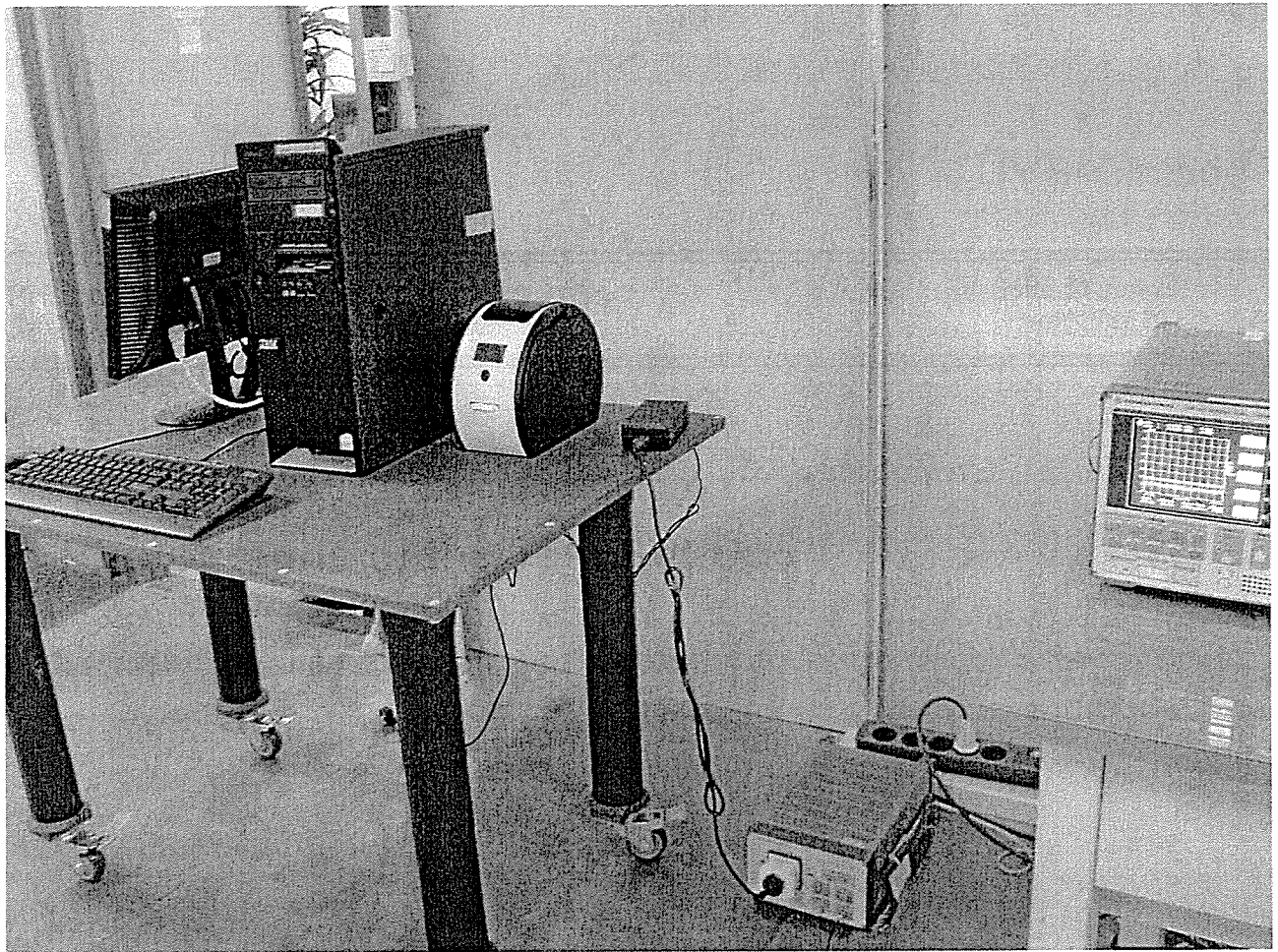


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6 Photographs of the Test Set-Up

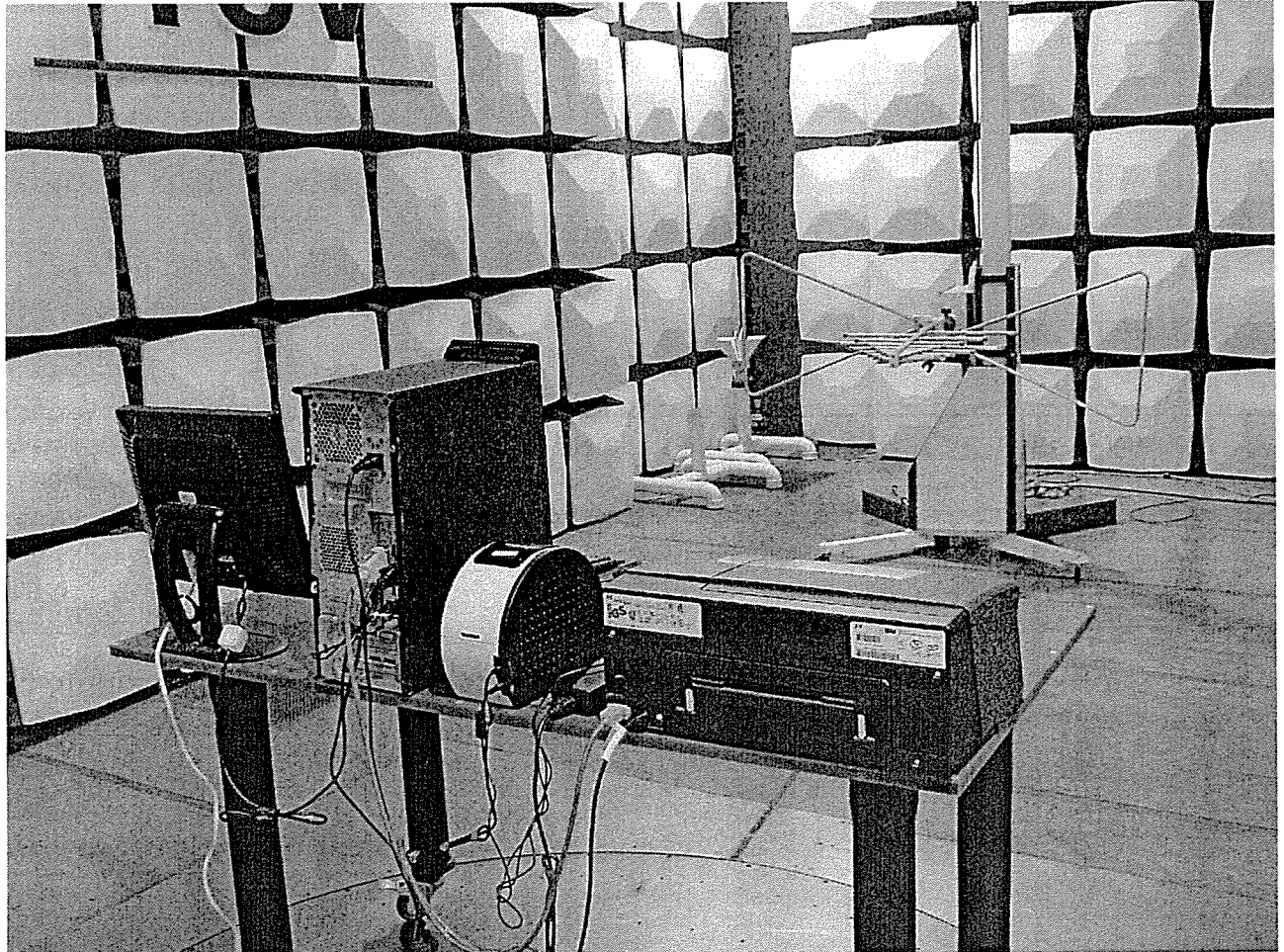
Photograph 1: Set-up for Conducted Emission



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Photograph 2: Set-up for Radiated Emission



30MHz - 1GHz (3m distance)

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