EMI TEST REPORT

Test Report No. : 23HE0045-HO-3

Applicant	:	**BROTHER INDUSTRIES, LTD.**
Type of Equipment	:	**Mobile Printer**
Model No.	:	**MW-140BT**
Test standard	:	**FCC Part 15 Subpart C Section 15.207, Section 15.247**
FCC ID	:	**B3Q 5V6102**
Test Result	:	**Complied**

1. This test report shall not be reproduced in full or partial, without the written approval of UL Apex Co., Ltd.
2. The results in this report apply only to the sample tested.
3. This equipment is in compliance with above regulation. We hereby certify that the data contain a true representation of the EMC profile.
4. The test results in this report are traceable to the national or international standards.
5. This test report does not constitute an endorsement by NIST/NVLAP or U.S. Government.

Date of test : May 9, 13 and 15, 2003

Tested by :
Hiroka Umeyama
EMC Section

Approved by :
Hironobu Shimoji
Group Leader of EMC Section

UL Apex Co., Ltd.
Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124

CONTENTS

SECTION 1: Client information

Company name	:	BROTHER INDUSTRIES, LTD.
Brand name	:	BROTHER INDUSTRIES, LTD.
Address	:	15-1, Naeshiro-cho, Mizuho-ku, Nagoya 467-8562, Japan
Telephone Number	:	+81 52 824 2845
Facsimile Number	:	+81 52 824 2810
Contact Person	:	Yoshiyuki Kaneno

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment	:	Mobile Printer
Model No.	:	MW-140BT
Serial No.	:	EN61141-D3A398037: Spurious emission (Radiated) test EN61141-D3A397994: Conducted emission EN61141-D3A398028: Other tests except two tests above
Rating	:	7.4V built-in Li-ion battery, AC Adaptor (100-240V)
Country of Manufacture	:	Japan
Receipt Date of Sample	:	May 7, 2003
Condition of EUT	:	Production prototype

2.2 Product description

BROTHER INDUSTRIES, LTD., Model: MW-140BT (referred to as the EUT in this report) is the Mobile Printer. The clock frequency used in EUT is 14.74MHz (CPU), 6.000MHz (USB) and 16MHz (Bluetooth Module).

Equipment type	: Transceiver, Bluetooth Module (ALPS Electric UGXZ2-B05A)
Frequency band	: from 2400 MHz to 2483.5 MHz
Frequency of Operation	: from 2402 MHz to 2480 MHz
Bandwidth & channel spacing	: 1MHz/79 channel
Type of Modulation	: GFSK/FH
Antenna Type	: Chip Antenna (YOKOWO YCE-5207)
Antenna gain	: 2.5dBi
Method of frequency Generation	: Crystal
Power supply	: AC adaptor for charging, Li-ion battery (built in)
Operating voltage	: 3 to 10V
Operating temperature range	: 0 deg.C. to 40 deg. C.
Power & Signal Cable Length	: $\leq$ 3m

FCC Part15.31(e)
The host device MW-140BT constantly provide the stable power supply (DC 7.4V) by the AC Adaptor, and the Mobile Printer complies power supply regulation.

FCC Part 15.203 Antenna requirement
Mobile Printer and its antenna comply with this requirement since they are built in host device MW-140BT when they are put up for sale and they are used with a particular antenna connector for this EUT.

Revised date : June 24, 2003

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part15 Subpart C

Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits
Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz

3.2 Procedures and results

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	Conducted emission	ANSI C63.4:2001	Section 15.207	-	N/A	9.2dB 0.2633kHz, N	Complied
2	Carrier Frequency Separation	ANSI C63.4:2001	Section15.247(a)(1)	Conducted	N/A	-	Complied
3	20dB Bandwidth	ANSI C63.4:2001	Section15.247(a)(1)	Conducted	N/A	-	Complied
4	Number of Hopping Frequency	ANSI C63.4:2001	Section15.247(a)(1)(iii)	Conducted	N/A	-	Complied
5	Dwell time	ANSI C63.4:2001	Section15.247(a)(1)(iii)	Conducted	N/A	-	Complied
6	Maximum Peak Output Power	ANSI C63.4:2001	Section15.247(b)(1)	Conducted	N/A	-	Complied
7	Band Edge Compliance	ANSI C63.4:2001	Section15.247(c)	Conducted	N/A	-	Complied
8	Spurious Emission	ANSI C63.4:2001	Section15.247(c)	Conducted/ Radiated	N/A	5.9dB 4960MHz Horizontal	Complied

*These tests were also referred to FCC Public Notice DA 00-705 "Guidance on Measurement for Frequency Hopping Spread Spectrum Systems".

3.3 Confirmation

UL Apex Co., Ltd. hereby confirms that E.U.T., in the configuration tested, complies with the specifications FCC Part 15 Subpart C Section 15.207 and 15.247.

3.4 Uncertainty

Conducted Emission

The measurement uncertainty (with a 95% confidence level) for this test was ±1.3dB.
☐The result is within Head Office EMC lab's uncertainty.
■The data listed in this test report has enough margin.

Spurious Emission (Radiated)

The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is ±4.5dB.
The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is ±5.2dB.
The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is ±6.6dB.
■The result is within Head Office EMC lab's uncertainty.
☐The data listed in this test report has enough margin.

Other test except Conducted Emission and Spurious Emission (Radiated)

The measurement uncertainty (with a 95% confidence level) for this test was ±3.0dB.
☐The result is within Head Office EMC lab's uncertainty.
■The data listed in this test report has enough margin.

3.5 Test Location

UL Apex Co., Ltd. Head Office EMC Lab.
No.1 semi anechoic chamber, 19.2 x 11.2 x 7.7 m and No.2 semi Anechoic chamber, 7.5 x 5.8 x 5.2 m,
and No.3 measurement room.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124
This semi anechoic chamber has been fully described in a report submitted to FCC office, and listed on February 01 and June 05, 2002. (Registration number: No.1 : 313583, No.2 :846015 Industry Canada: No.1:IC4247, No.2 : IC4247-2)
*NVLAP Lab. code: 200572-0

3.6 Test set up, Test instruments and Data of EMI

Refer to APPENDIX 1 to 3.

SECTION 4: Operation of E.U.T. during testing

4.1 Operating Modes

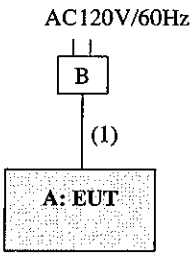
The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to typical use.

The sequence is used : 1. Transmitting (2402MHz)
2. Transmitting (2441MHz)
3. Transmitting (2480MHz)
4. Bluetooth print mode

Justification : The system was configured in typical fashion (as a customer would normally use it) for testing.

4.2 Configuration and peripherals

[Other test except Conducted Emission test]



* Cabling was taken into consideration and test data was taken under worst case conditions.

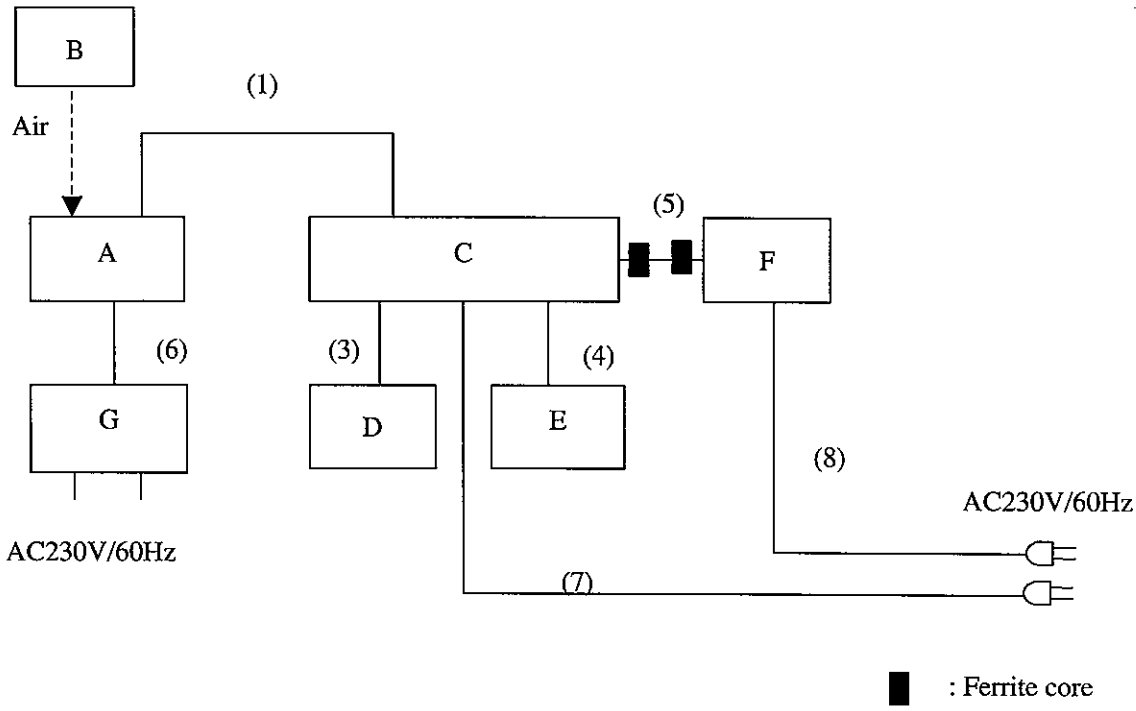
Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	FCC ID
A	Mobile Printer	MW-140BT	E61141-D3A39 8028/8037	BROTHER INDUSTRIES, LTD.	B3Q 5V6102
B	AC-Adaptor	AD-100	-	SINO-AMERICAN ELECTRONIC	-

List of cables used

No.	Name	Length (m)	Shield	Backshell Material
1	DC cable	1.95	N	Polyvinyl chloride

[Conducted Emission test]



■ : Ferrite core

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remark
A	Mobile Printer	MW-140BT	E61141-D3A397994	BROTHER INDUSTRIES, LTD.	B3Q 5V6102
B	PDA	H3870	4G26DW34S0DS	Compaq Computer Corporation	NM8ROSELLA
C	Personal Computer	Precision 330	BS2T41S	DELL Computer Corporation	-
D	Keyboard	RT7D00	TH-054EXM-371 71-16J-1025	DELL Computer Corporation	AQ6-7D0080C013
E	Mouse	IntelliMouse 1.3A PS/2 Compatible	3290115-1	DELL Computer Corporation	-
F	LCD	FlexScanL675	72822071	EIZO NANAO Corporation	-
G	AC-Adaptor	AD-130 or AD-100	-	SINO-AMERICAN ELECTRONIC	-

List of cables used

No.	Name	Length (m)	Shield	Backshell Material
1	USB Cable	0.5	Y	Polyvinyl choloride
3	Keyboard Cable	1.97	N	Polyvinyl choloride
4	Mouse Cable	1.9	N	Polyvinyl choloride
5	RGB Cable	1.88	Y	Polyvinyl choloride
6	DC Cable	1.95	N	Polyvinyl choloride
7	AC Cable	2.00	N	Polyvinyl choloride
8	AC Cable	2.00	N	Polyvinyl choloride

SECTION 5: Conducted Emission, Section 15.207

Test Procedure

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane.
The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT, including peripherals aligned and flushed with rear of tabletop. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface. AC cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane. Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN to the input power source.
The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT on a reference ground plane 4.0 x 4.0m in a No.2 semi Anechoic Chamber (7.5x5.8x5.2m).
The EUT was connected to a Line Impedance Stabilization Network (LISN).
An overview sweep with peak detection has been performed.
The measurements have been performed with a CISPR quasi-peak detector (IF BW 9 kHz).
Measurement range: 0.15-30MHz

Test data : **APPENDIX 3**
Test result : **Pass**
Test instruments : **MTR-01, MLS-02, MLS-03(EUT), MCC-03, MTA-01**

SECTION 6: Carrier Frequency Separation, Section15.247(a)(1)

Test Procedure

The carrier frequency separation was measured with a spectrum analyzer connected to the antenna port.

Test data : **APPENDIX 3**
Test result : **Pass**
Test instruments : **MBTR-01, MCC-11**

SECTION 7: 20dB Bandwidth, Section 15.247(a)(1)

Test Procedure

The 20dB bandwidth was measured with a spectrum analyzer connected to the antenna port.

Test data : **APPENDIX 3**
Test result : **Pass**
Test instruments : **MBTR-01, MCC-11**

SECTION 8: Number of Hopping Frequency, Section 15.247(a)(1)(iii)

Test Procedure

The Number of Hopping Frequency was measured with a spectrum analyzer connected to the antenna port.

Test data : **APPENDIX 3**
Test result : **Pass**
Test instruments : **MBTR-01, MCC-11**

SECTION 9: Dwell time, Section 15.247(a)(1)(iii)

Test Procedure

The Dwell time was measured with a spectrum analyzer connected to the antenna port.

Test data : **APPENDIX 3**
Test result : **Pass**
Test instruments : **MBTR-01, MCC-11**

SECTION 10: Maximum Peak Output Power, Section 15.247(b)(1)

Test Procedure

The Maximum Peak Output Power was measured with a spectrum analyzer connected to the antenna port.

Test data : **APPENDIX 3**
Test result : **Pass**
Test instruments : **MPM-01, MPSE-03**

SECTION 11: Band Edge Compliance, Section 15.247(c)

Test Procedure

The Band Edge Compliance was measured with a spectrum analyzer connected to the antenna port.

Test data : **APPENDIX 3**
Test result : **Pass**
Test instruments : **MBTR-01, MCC-11**

SECTION 12: Spurious Emission , Section 15.247(c)

[Conducted]

Test Procedure

The Spurious Emission (Conducted) was measured with a spectrum analyzer connected to the antenna port.

Test data : **APPENDIX 3**
Test result : **Pass**
Test instruments : **MBTR-01, MCC-11**

[Radiated]

Test Procedure

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane.
Test was made with the antenna positioned in both the horizontal and vertical planes of polarization.
The Radiated Electric Field Strength intensity has been measured in No.1 semi anechoic chamber (19.2x11.2x7.7m) and No.2 semi anechoic chamber (7.5x5.8x5.2m) with a ground plane at a distance of 3m.
The measuring antenna height was varied between 1 to 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.
The measurements were performed for both vertical and horizontal antenna polarization.

Test data : **APPENDIX 3**
Test result : **Pass**
Test instruments : **MTR-02, SA-07, MBA-02, MLA-02, MPA-04, MAT-07, MCC-12, MHA-01/05, MPA-03, MCC-04/06**

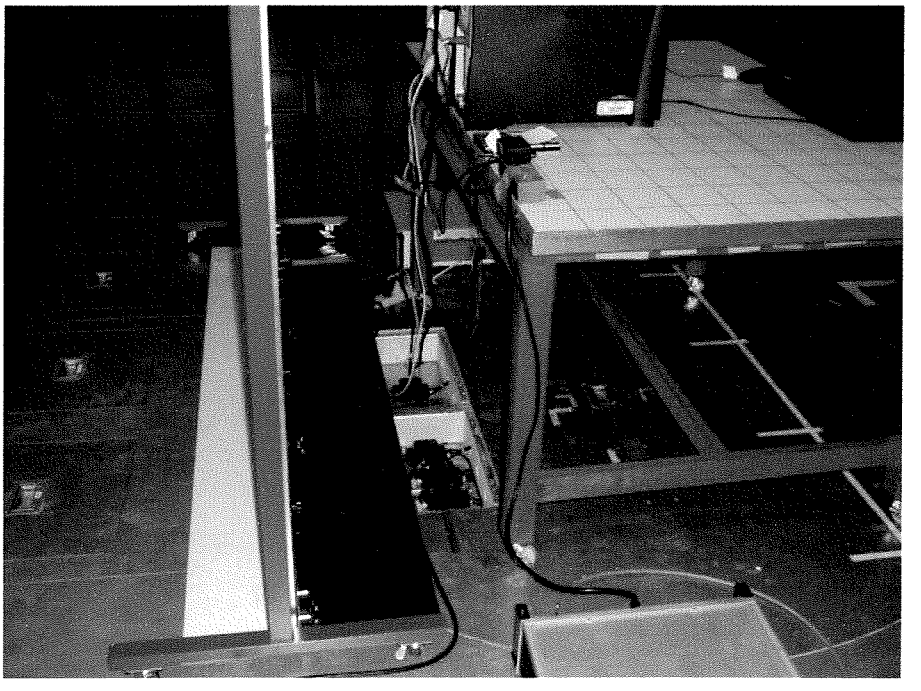
APPENDIX 1: Photographs of test setup

APPENDIX 2: Test instruments

APPENDIX 3: Data of EMI test

APPENDIX 1: Photographs of test setup

Conducted Emission



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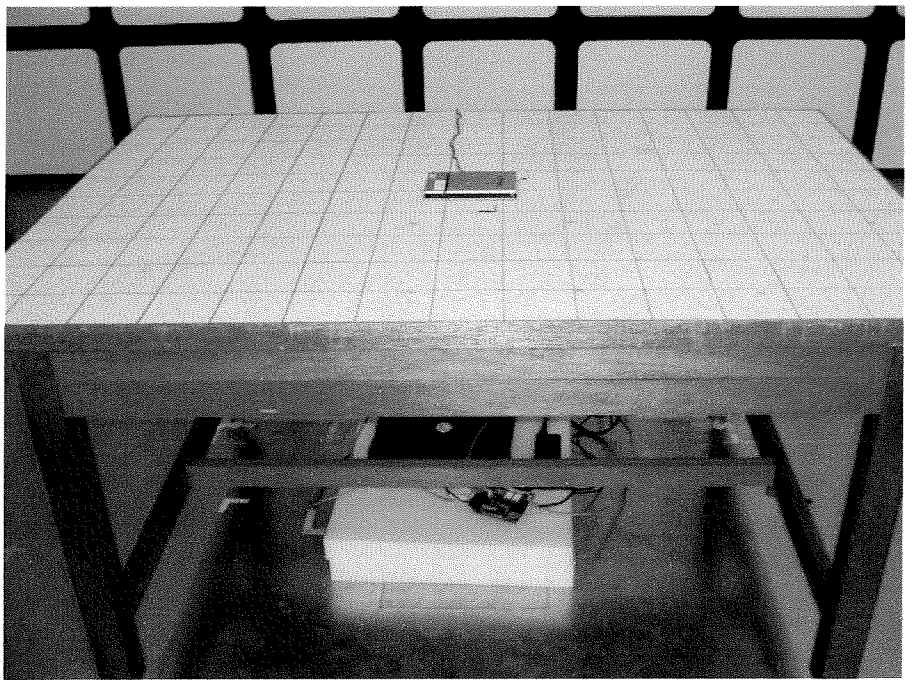
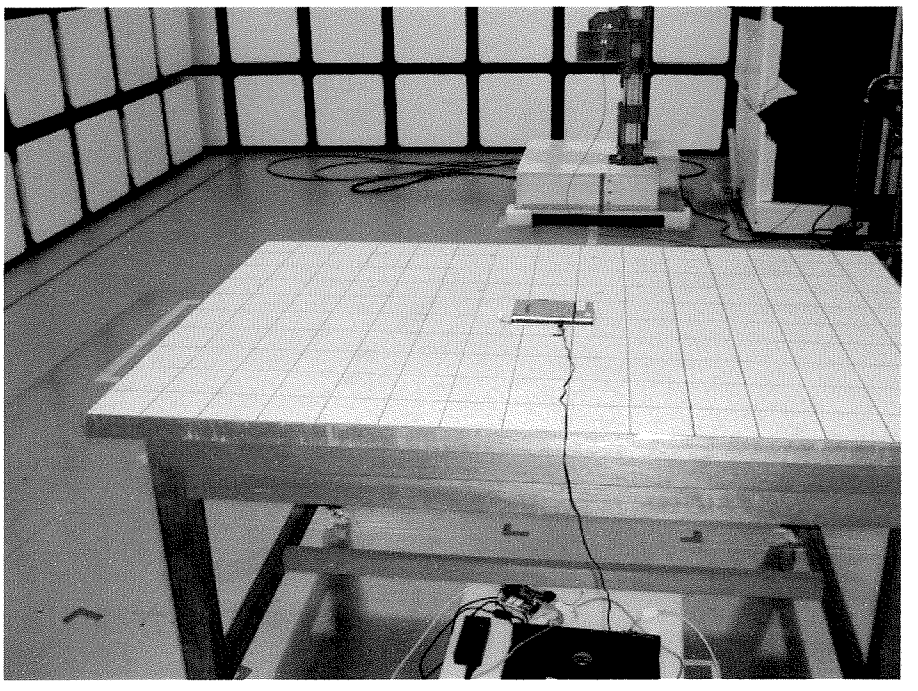
Spurious Emission (Radiated)





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Test Report No :23HE0045-HO-3

APPENDIX 2
Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-02	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2003/04/11 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	RE	2002/12/24 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	MCC-12-01(8D-2W15m),MCC-12-02(5D-2W-0.7),MCC-12-03(5D-2W-0.8),MCC-12-04(5D-2W-1m),MCC-12-05(RF SW),MCC-12-06(RF SW),※MCC-12-07(5D-2W-0.4m)5/8追加	RE	2003/05/08 * 12
MPA-04	Pre Amplifier	Agilent	8447D	RE	2003/03/13 * 12
MTR-02	Test Receiver	Rohde & Schwarz	ESCS30	RE	2003/01/31 * 12
SA-07	Spectrum Analyzer	Advantest	R3273	RE	2002/12/10 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	RE	2002/10/16 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2002/10/16 * 12
MPA-03	Microwave System Power Amplifier	Agilent	83050A	RE	2003/04/01 * 12
MPM-01	Power Meter	Agilent	E4417A	RE	2002/11/08 * 12
MPSE-03	Power sensor	Agilent	E9327A	RE	2003/04/14 * 12
MTR-01	Test Receiver	Rohde & Schwarz	ESI40	CE	2002/11/01 * 12
MCC-05	Microwave Cable	Storm	421-011	RE	2003/01/14 * 12
MPA-04	Pre Amplifier	Agilent	8447D	RE	2003/03/13 * 12
MHA-01	Horn Antenna	EMCO	3160-09	RE	2003/01/11 * 12
MHA-05	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2003/01/11 * 12
MCC-04	Microwave Cable	Storm	421-011	RE	2003/01/14 * 12
MCC-06	Microwave Cable	Storm	421-011	RE	2003/01/14 * 12
MLS-02	LISN(AMN)	Schwarzbeck	NSLK8127	CE	2002/11/11 * 12
MLS-03	LISN(AMN)	Schwarzbeck	NSLK8127	CE(EUT)	2002/11/11 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/Agilent/TSJ	-	CE	2002/12/19 * 12
MTA-01	Termination	TME	CT-01	CE	2003/01/07 * 12
MBTR10	Spectrum Analyzer	Rohde & Schwarz	FSP30	RE	2002/11/13 * 12
MCC-11	Microwave coaxial cable	Suhner	SUCOFLEX 104	RE	2003/03/27 * 12
MAEC-01	Anechoic Chamber	TDK	Semi Anechioc Chamber 10m	CE	2002/12/28 * 12

All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
Test Item:
CE: Conducted emission,
RE: Radiated emission,

DATA OF CONDUCTED EMISSION TEST

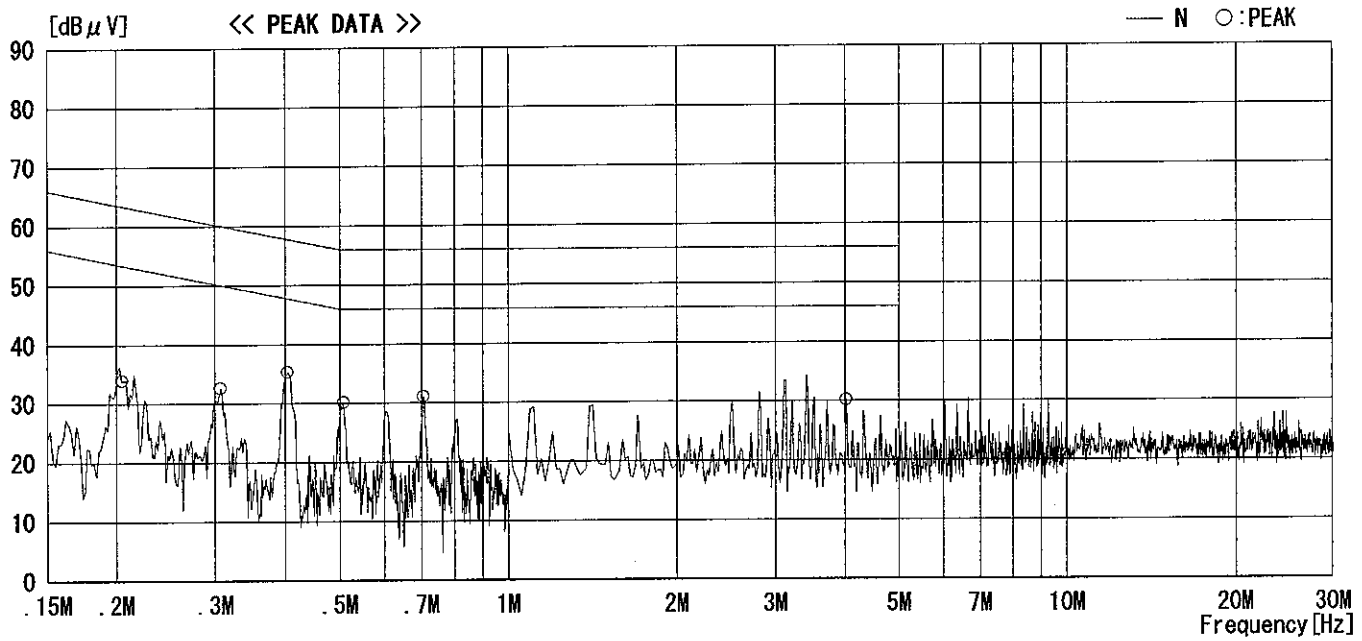
UL Apex Co., Ltd. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2003/05/13 16:07:02

Applicant : BROTHER INDUSTRIES,LTD.
Kind of EUT : Mobile Printer
Model No. : MW-140BT
Serial No. : E61141-D3A397994

Report No. : 23HE0045-H0- 3
Power : AC120V / 60Hz
Temp℃/Humi% : 23 / 44
Operator : Hiroka Umeyama

Mode / Remarks : Bluetooth Print mode

LIMIT : FCC15C §15.207 (QP)
FCC15C §15.207 (AV)



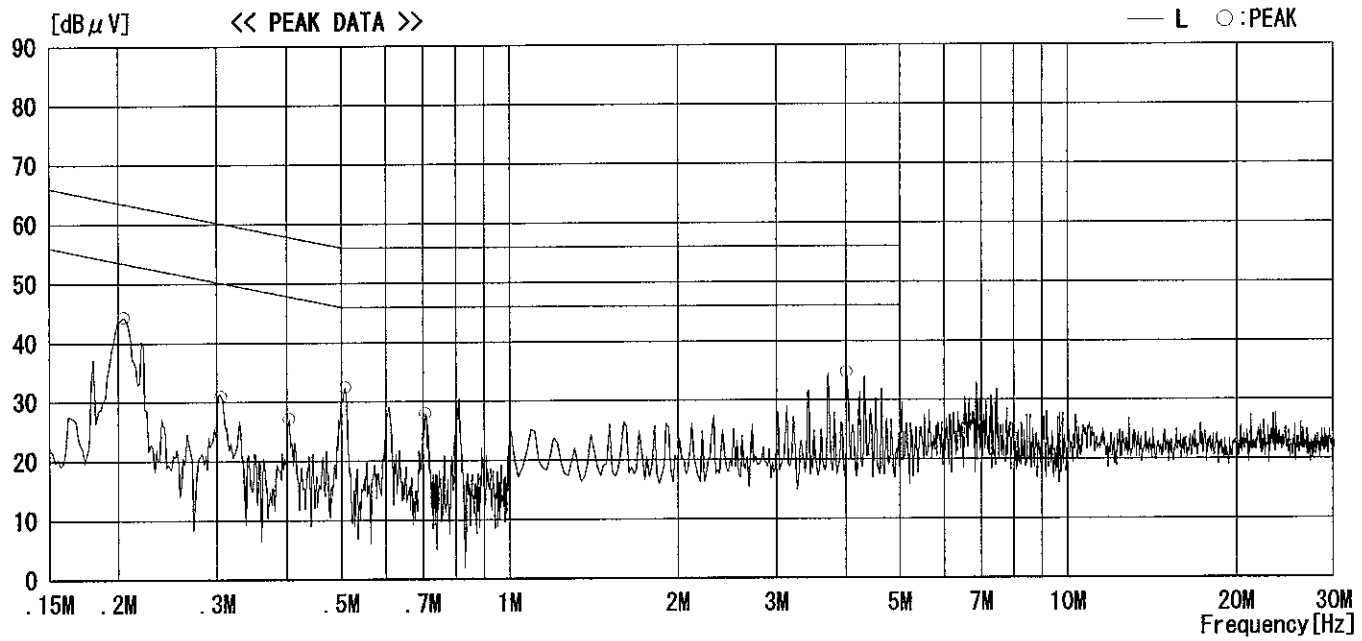


CHART:WITHOUT FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN+CABLE+Limitter)
Except for the above table : adequate margin data below the limits. MLS-03

DATA OF CONDUCTED EMISSION TEST

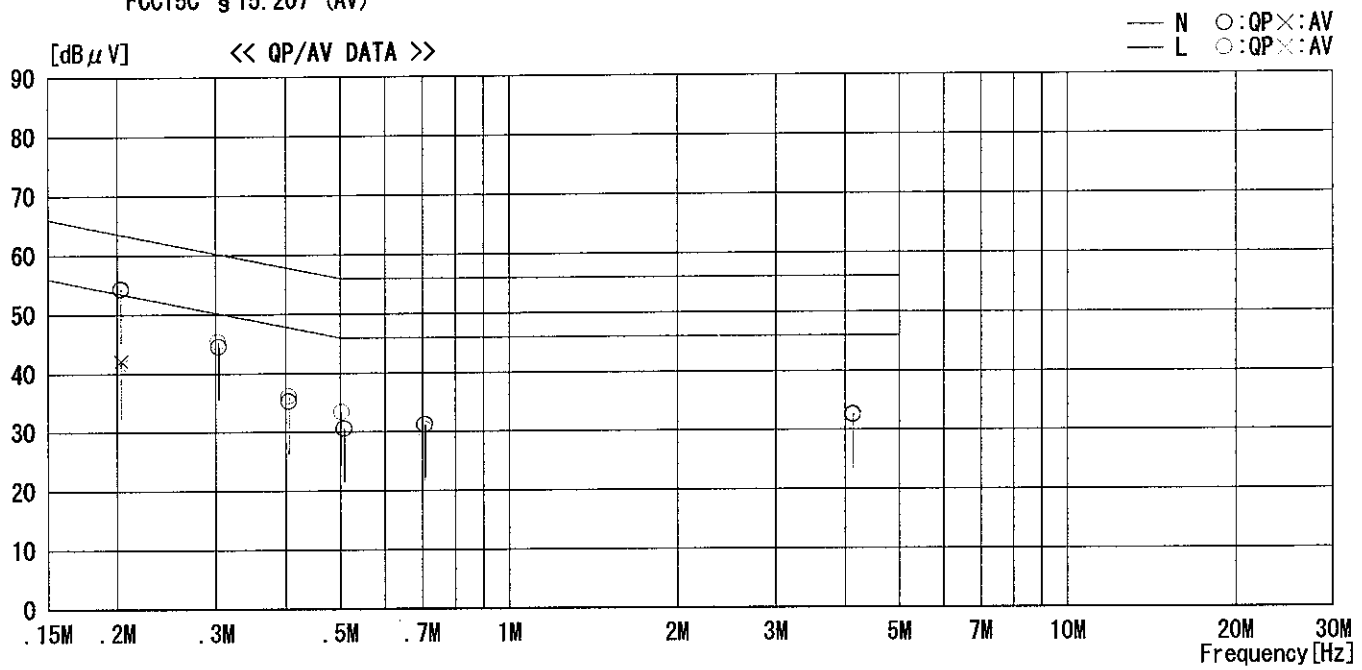
UL Apex Co., Ltd. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2003/05/13 16:07:02

Applicant : BROTHER INDUSTRIES, LTD.
Kind of EUT : Mobile Printer
Model No. : MW-140BT
Serial No. : E61141-D3A397994

Report No. : 23HE0045-H0 - 3
Power : AC120V / 60Hz
Temp℃/Humi% : 23 / 44
Operator : Hiroka Umeyama

Mode / Remarks : Bluetooth Print mode

LIMIT : FCC15C §15.207 (QP)
FCC15C §15.207 (AV)



NO	FREQ	READING QP	READING AV	C.F	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBμV]	[dBμV]	[dB]	[dBμV]	[dBμV]	[dBμV]	[dBμV]	[dB]	[dB]	
1	0.2033	54.0	41.8	0.3	54.3	42.1	63.5	53.5	9.2	11.4	N
2	0.3040	44.2	----	0.3	44.5	----	60.1	----	15.6	----	N
3	0.4048	34.8	----	0.4	35.2	----	57.8	----	22.6	----	N
4	0.5080	30.2	----	0.4	30.6	----	56.0	----	25.4	----	N
5	0.7069	30.8	----	0.4	31.2	----	56.0	----	24.8	----	N
6	4.1360	31.7	----	0.9	32.6	----	56.0	----	23.4	----	N
7	0.2033	53.8	41.0	0.3	54.1	41.3	63.5	53.5	9.4	12.2	L
8	0.3026	45.0	----	0.3	45.3	----	60.2	----	14.9	----	L
9	0.4048	35.7	----	0.4	36.1	----	57.8	----	21.7	----	L
10	0.5035	33.0	----	0.4	33.4	----	56.0	----	22.6	----	L
11	0.7067	30.1	----	0.4	30.5	----	56.0	----	25.5	----	L
12	4.1360	31.5	----	0.9	32.4	----	56.0	----	23.6	----	L

CHART:WITHOUT FACTOR, Peak hold data. Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN+CABLE+Limitter)
Except for the above table : adequate margin data below the limits. MLS-03

DATA OF CARRIER FREQUENCY SEPARATION

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

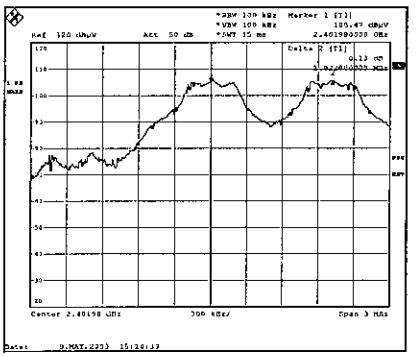
COMPANY	:	BROTHER INDUSTRIES, LTD.	REPORT NO	:	23HE0045-HO - 3
EQUIPMENT	:	Mobile Printer	REGULATION	:	Fcc Part15 Subpart C 15.247(a)(1)
MODEL	:	MW-140BT	TEST DISTANCE	:	-
S/ N	:	E61141-D3A398028	DATE	:	05/09/2003
FCC ID	:	B3Q5V6102	TEMPERATURE	:	24℃
IC Number	:	1112C-5V6102	HUMIDITY	:	42%
POWER	:	AC120V/60Hz			
MODE	:	Tx (Hopping on) /Inquiry			

Engineer: Hiroka Umeyama

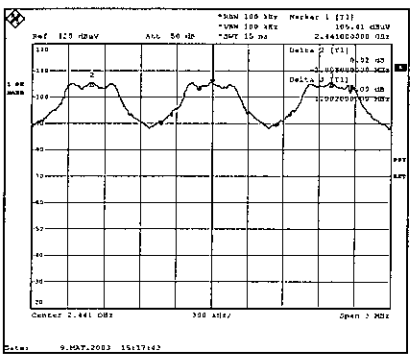
PK DETECT(S/A :span 3MHz, RBW 100kHz ,VBW 100kHz, sweep time AUTO)

CH	FREQ [MHz]	Channel separation [MHz]	Limit
Low	2402.0	1.000	>20dB Bandwidth and 25[kHz]
Mid	2441.0	1.000	>20dB Bandwidth and 25[kHz]
High	2480.0	1.000	>20dB Bandwidth and 25[kHz]
Inquiry	2441.0	2.000	>20dB Bandwidth and 25[kHz]

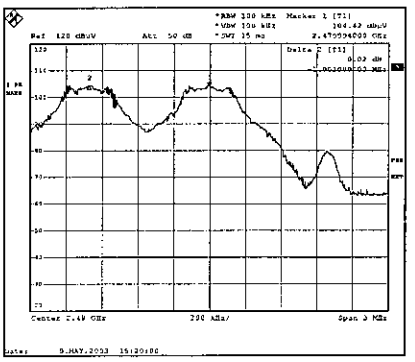
2402MHz



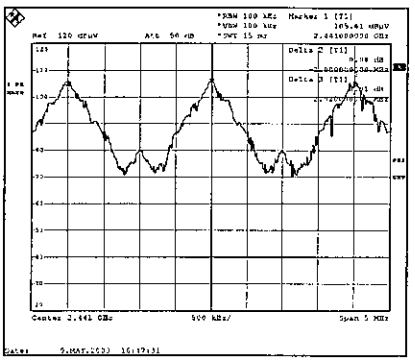
2441MHz



2480MHz



Inquiry



DATA OF 20dB BANDWIDTH

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

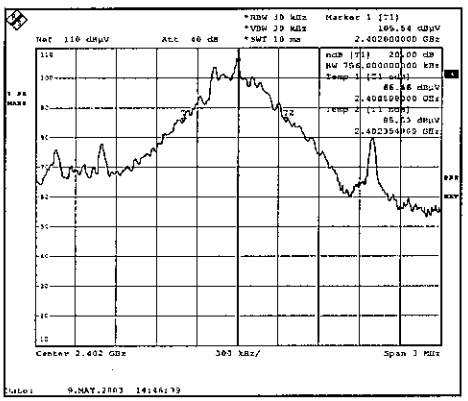
COMPANY	:	BROTHER INDUSTRIES, LTD.	REPORT NO	:	23HE0045-HO - 3
EQUIPMENT	:	Mobile Printer	REGULATION	:	Fcc Part15 Subpart C 15.247(a)(1)
MODEL	:	MW-140BT	TEST DISTANCE	:	-
S/ N	:	E61141-D3A398028	DATE	:	05/09/2003
FCC ID	:	B3Q5V6102	TEMPERATURE	:	24℃
IC Number	:	1112C-5V6102	HUMIDITY	:	42%
POWER	:	AC120V/60Hz			
MODE	:	Tx (Hopping off) /Inquiry			

Engineer: Hiroka Umeyama

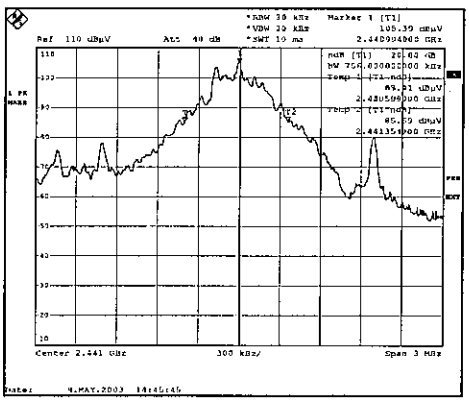
PK DETECT(S/A: span 3MHz, RBW 30kHz ,VBW 30kHz, sweep time AUTO)

CH	FREQ [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
Low	2402.0	0.756	1.0
Mid	2441.0	0.756	1.0
High	2480.0	0.768	1.0
Inquiry	2441.0	0.749	1.0

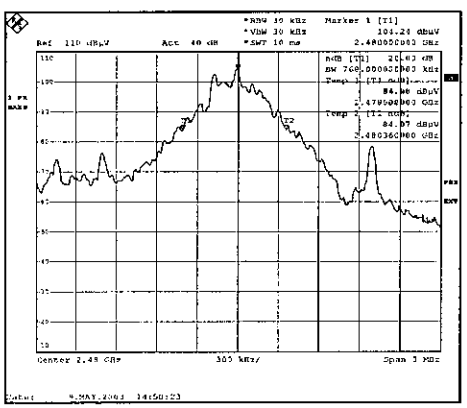
2402MHz



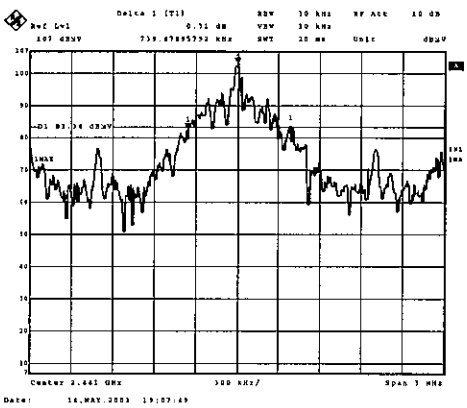
2441MHz



2480MHz



Inquiry



DATA OF NUMBER OF HOPPING FREQUENCY

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

COMPANY	:	BROTHER INDUSTRIES, LTD.	REPORT NO	:	23HE0045-HO - 3
EQUIPMENT	:	Mobile Printer	REGULATION	:	Fcc Part15 Subpart C 15.247(a)(1)(iii)
MODEL	:	MW-140BT	TEST DISTANC	:	-
S/ N	:	E61141-D3A398028	DATE	:	05/09/2003
FCC ID	:	B3Q5V6102	TEMPERATURI	:	24℃
IC Number	:	1112C-5V6102	HUMIDITY	:	42%
POWER	:	AC120V/60Hz			
MODE	:	Tx (Hopping on) /Inquiry			

Engineer : Hiroka Umeyama

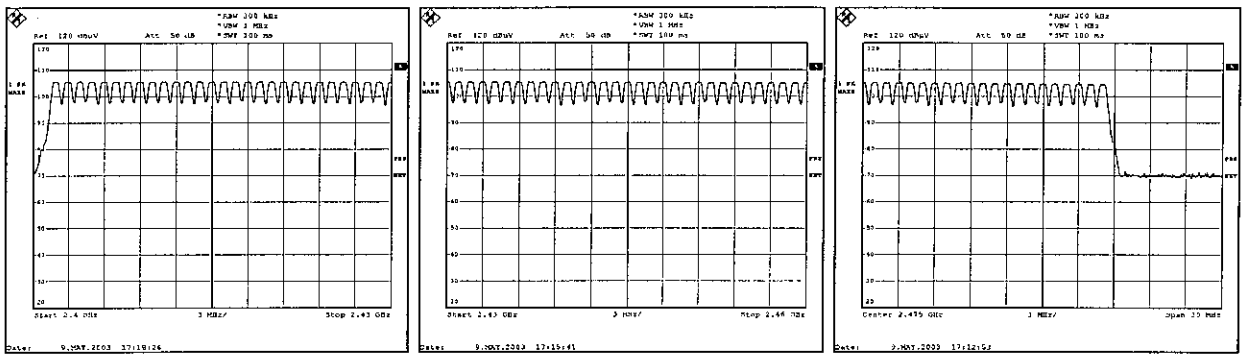
PK DETECT(S/A : RBW 300kHz ,VBW 1MHz, sweep time AUTO)

Mode	Number of channel [time]	Limit . [time]
Tx(Hoppng on)	79	≧15

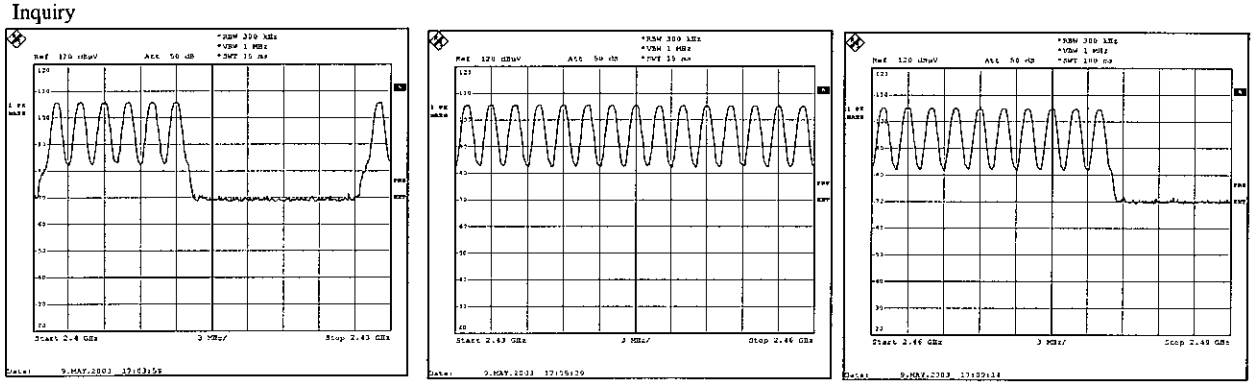
PK DETECT(S/A : RBW 300kHz ,VBW 1MHz, sweep time AUTO)

Mode	Number of channel [time]	Limit [time]
Inquiry	32	≧15

Hopping on



Inquiry



DATA OF DWELL TIME

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

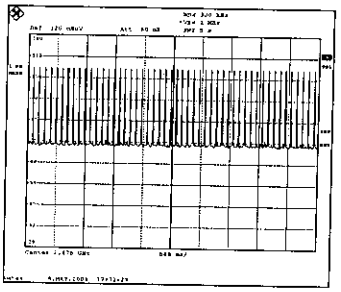
COMPANY	:	BROTHER INDUSTRIES, LTD.	REPORT NO	:	23HE0045-HO - 3
EQUIPMENT	:	Mobile Printer	REGULATION	:	Fcc Part15 Subpart C 15.247(a)(1)(iii)
MODEL	:	MW-140BT	TEST DISTANCE	:	-
S/ N	:	E61141-D3A398028	DATE	:	05/09/2003
FCC ID	:	B3Q5V6102	TEMPERATURE	:	24℃
IC Number	:	1112C-5V6102	HUMIDITY	:	42%
POWER	:	AC120V/60Hz			
MODE	:	Tx (Hopping off) /Inquiry			

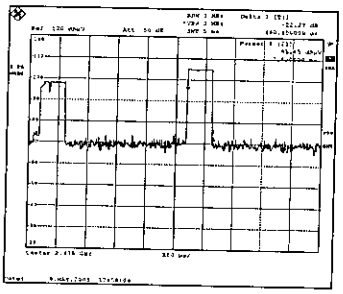
Engineer : Hiroka Umeyama

PK DETECT(S/A :span ZERO, RBW 1MHz ,VBW 3MHz, sweep time 1ms-10ms)

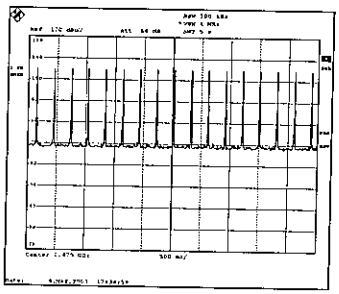
Mode	Number of transmission in a 31.6(79 Hopping x 0.4) / 12.8(32 Hopping x 0.4)second period	Length of transmission time [msec]	Result [msec]	Limit [msec]
DH1	50 times /5sec. x 31.6 = 316 times	0.460	146	400
DH3	17 times / 5sec. x 31.6 = 107 times	1.710	184	400
DH5	10 times / 5 sec. x 31.6 = 63 times	2.960	187	400
Inquiry	100 times / 1sec. x 12.8 = 1280 times	0.140	180	400

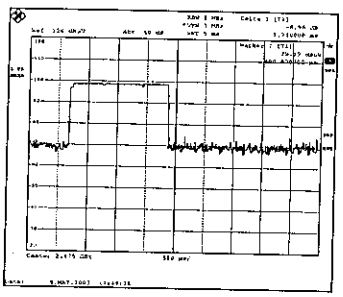
DH1



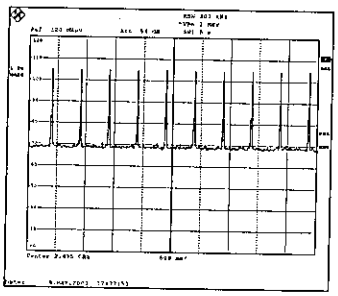


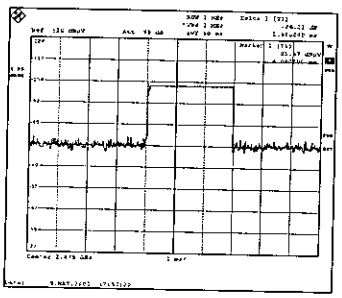
DH3



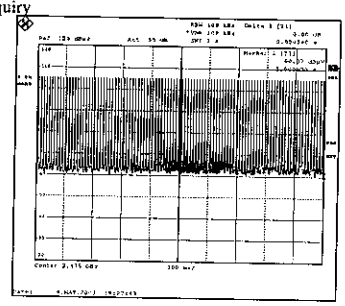


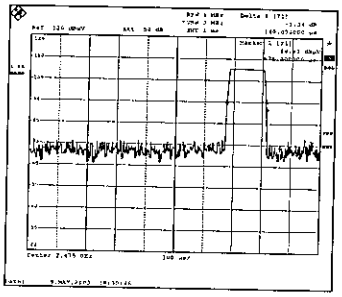
DH5





Inquiry





DATA OF PEAK OUTPUT POWER(CONDUCTED)

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

COMPANY	:	BROTHER INDUSTRIES, LTD.	REPORT NO	:	23HE0045-HO - 3
EQUIPMENT	:	Mobile Printer	REGULATION	:	Fcc Part15 Subpart C 15.247(b)(1)
MODEL	:	MW-140BT	TEST DISTANCE	:	-
S/ N	:	E61141-D3A398028	DATE	:	05/09/2003
FCC ID	:	B3Q5V6102	TEMPERATURE	:	24℃
IC Number	:	1112C-5V6102	HUMIDITY	:	42%
POWER	:	AC120V/60Hz			
MODE	:	Tx (Hopping off) /Inquiry			

Engineer : Hiroka Umeyama

CH	FREQ [MHz]	P/M Reading [dBm]	Limit [dBm]
Low	2402.0	-1.1	30.0
Mid	2441.0	-1.3	30.0
High	2480.0	-2.2	30.0
Inquiry	2441.0	-0.8	21.0

RESTRICTED BAND EDGES (CONDUCTED)

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

COMPANY	:	BROTHER INDUSTRIES, LTD.	REPORT NO	:	23HE0045-HO - 3
EQUIPMENT	:	Mobile Printer	REGULATION	:	Fcc Part15 Subpart C 15.247(c)
MODEL	:	MW-140BT	TEST DISTANCE	:	-
S/N	:	E61141-D3A398028	DATE	:	05/09/2003
FCC ID	:	B3Q5V6102	TEMPERATURE	:	24℃
IC Number	:	1112C-5V6102	HUMIDITY	:	42%
POWER	:	AC120V/60Hz			
MODE	:	Tx (Hopping on/off)			

ENGINEER : Hiroka Umeyama

PK DETECT(S/A :Span 10MHz, RBW 100kHz/1MHz ,VBW 100kHz/1MHz, sweep time AUTO)

[Hopping on] Conducted

Frequency [MHz]	Reading [dBuV]	Cable Loss [dB]	E [dBuV]	P [nW]	Difference of level [dB]	Field Strength [dBuV/m]	Limit
2390.0	63.2	0.2	63.4	43.65	-	54.1	<74[dBuV/m]
2400.0	63.3	0.2	63.5	-	39.8*	-	>20[dB]
2483.7	63.4	0.2	63.6	45.71	-	54.3	<74[dBuV/m]

* Reference : Reading (103.10[dBuV]) + Cable Loss (0.2[dB]) = E (103.03[dBuV]) at 2413.6MHz.

[Hopping off Tx (2402/2480MHz)] Conducted

Frequency [MHz]	Reading [dBuV]	Cable Loss [dB]	E [dBuV]	P [nW]	Difference of level [dB]	Field Strength [dBuV/m]	Limit
2390.0	66.2	0.2	66.4	87.10	-	57.1	<74[dBuV/m]
2400.0	68.1	0.2	68.3	-	37.8*	-	>20[dB]
2483.7	64.7	0.2	64.9	61.66	-	55.6	<74[dBuV/m]

* Reference : Reading (105.89[dBuV]) + Cable Loss (0.2[dB]) = E (106.09[dBuV]) at 2413.6MHz.

Sample Calculation:

Field Strength = 20log((√30*P*10^-9*G) / d *10^6)

E : Reading + Cable Loss

P : Converted to nW

d : Test distance(m) 3

G : Numeric Antenna 1.78

DATA OF RADIATION TEST

UL Apex Co., Ltd. Head Office EMC Lab.
No.2 Semi Anechoic Chamber
Report No.: 23HE0045-HO - 3

Applicant	:	BROTHER INDUSTRIES, LTD.
Kind of Equipment	:	Mobile Printer
Model No.	:	MW-140BT
Serial No.	:	E61141-D3A398037
Power	:	AC120V / 60Hz
Mode	:	Tx (2402MHz)
Remarks	:	DETECTOR: QP (Hor: Z-axis / Ver: X-axis)
Date	:	5/13/2003
Test Distance	:	3 m
Temperature	:	27 ℃
Humidity	:	47 %
Regulation	:	FCC §15.247(C)

Engineer : Hiroka Umeyama

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	44.45	BB	27.5	37.1	13.0	27.9	0.8	6.0	19.4	29.0	40.0	20.6	11.0
2.	100.69	BB	41.2	36.4	10.0	26.5	1.2	6.0	31.9	27.1	43.5	11.6	16.4
3.	118.52	BB	29.8	30.2	13.1	26.5	1.4	6.0	23.8	24.2	43.5	19.7	19.3
4.	132.89	BB	29.2	37.0	14.0	26.7	1.5	6.0	24.0	31.8	43.5	19.5	11.7
5.	333.00	BB	22.0	29.0	15.4	26.9	2.5	6.1	19.1	26.1	46.0	26.9	19.9
6.	398.65	BB	32.7	32.9	17.4	27.2	2.7	6.2	31.8	32.0	46.0	14.2	14.0
7.	480.04	BB	29.8	27.4	18.1	28.1	3.0	6.2	29.0	26.6	46.0	17.0	19.4

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

Except for the above table: adequate margin data below the limits.
ANT TYPE:30-300MHz Biconical , 300-1000MHz Logperiodic.

DATA OF RADIATION TEST

UL Apex Co., Ltd. Head Office EMC Lab.
No.2 Semi Anechoic Chamber
Report No.: 23HE0045-H0 - 3

Applicant	: BROTHER INDUSTRIES, LTD.
Kind of Equipment	: Mobile Printer
Model No.	: MW-140BT
Serial No.	: E61141-D3A398037
Power	: AC120V / 60Hz
Mode	: Tx (2441MHz)
Remarks	: DETECTOR: QP (Hor: Z-axis / Ver: X-axis)
Date	: 5/13/2003
Test Distance	: 3 m
Temperature	: 27 °C
Humidity	: 47 %
Regulation	: FCC § 15.247(C)

Engineer : Hiroka Umeyama

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	44.45	BB	27.4	37.0	13.0	27.9	0.8	6.0	19.3	28.9	40.0	20.7	11.1
2.	100.69	BB	41.5	36.4	10.0	26.5	1.2	6.0	32.2	27.1	43.5	11.3	16.4
3.	118.52	BB	30.2	30.0	13.1	26.5	1.4	6.0	24.2	24.0	43.5	19.3	19.5
4.	333.00	BB	22.8	31.0	15.4	26.9	2.5	6.1	19.9	28.1	46.0	26.1	17.9
5.	398.65	BB	33.9	32.8	17.4	27.2	2.7	6.2	33.0	31.9	46.0	13.0	14.1
6.	480.04	BB	29.9	28.0	18.1	28.1	3.0	6.2	29.1	27.2	46.0	16.9	18.8

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

Except for the above table: adequate margin data below the limits.
ANT TYPE:30-300MHz Biconical , 300-1000MHz Logperiodic.

DATA OF RADIATION TEST

UL Apex Co., Ltd. Head Office EMC Lab.
No.2 Semi Anechoic Chamber
Report No.: 23HE0045-HO_ 3

Applicant : BROTHER INDUSTRIES, LTD.
Kind of Equipment : Mobile Printer
Model No. : MW-140BT
Serial No. : E61141-D3A398037
Power : AC120V / 60Hz
Mode : Tx (2480MHz)
Remarks : DETECTOR: QP (Hor: Z-axis / Ver: X-axis)
Date : 5/13/2003
Test Distance : 3 m
Temperature : 27 ℃
Humidity : 47 %
Regulation : FCC §15.247(C)

Engineer : Hiroka Umeyama

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	44.45	BB	27.1	37.4	13.0	27.9	0.8	6.0	19.0	29.3	40.0	21.0	10.7
2.	88.89	BB	29.9	30.0	7.5	27.2	1.1	6.0	17.3	17.4	43.5	26.2	26.1
3.	100.69	BB	41.1	37.2	10.0	26.5	1.2	6.0	31.8	27.9	43.5	11.7	15.6
4.	118.52	BB	28.8	29.7	13.1	26.5	1.4	6.0	22.8	23.7	43.5	20.7	19.8
5.	333.01	BB	23.4	31.6	15.4	26.9	2.5	6.1	20.5	28.7	46.0	25.5	17.3
6.	398.65	BB	31.7	33.1	17.4	27.2	2.7	6.2	30.8	32.2	46.0	15.2	13.8
7.	480.05	BB	29.2	29.6	18.1	28.1	3.0	6.2	28.4	28.8	46.0	17.6	17.2

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

Except for the above table: adequate margin data below the limits.
ANT TYPE:30-300MHz Biconical , 300-1000MHz Logperiodic.

DATA OF SPURIOUS EMISSIONS(1GHz to 26.5GHz)

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

COMPANY : BROTHER INDUSTRIES,LTD.
EQUIPMENT : Mobile Printer
MODEL : MW-140BT
S/ N : E61141-D3A398037
FCC ID : -
POWER : AC120V / 60Hz
MODE : Tx (2402MHz)
AXIS : Hor: Z-axis , Ver: X-axis

REPORT NO : 23HE0045-HO - 3
REGULATION : FCC Part 15 Subpart C 15.247(c)
TEST DISTANCE : 3 and 1m
DATE : 2003/5/13
TEMPERATURE : 24℃
HUMIDITY : 57%

ENGINEER : Hiroka Umeyama

PK DETECT (RBW: 1MHz , VBW:1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass.												
1	1063.0	44.2	43.4	21.8	27.3	3.0	0.0	41.7	40.9	74.0	32.3	33.1
2	1196.4	45.6	46.2	22.6	27.3	3.1	0.0	44.0	44.6	74.0	30.0	29.4
3	1462.5	43.1	44.4	24.0	27.2	3.4	0.0	43.3	44.6	74.0	30.7	29.4
4	2390.0	39.2	38.7	30.5	26.9	4.4	0.0	47.3	46.7	74.0	26.7	27.3
5	4804.0	43.5	41.0	35.5	25.8	6.4	0.0	59.6	57.1	74.0	14.4	16.9
6	7206.0	38.4	38.3	37.6	25.0	7.6	0.0	58.6	58.5	74.0	15.4	15.5
7	9608.0	38.8	39.6	37.3	25.1	8.9	0.0	59.8	60.7	74.0	14.2	13.3
Test distance 1meters RESULT=Reading - Amp Gain + CABLE LOSS + Band Pass - Dfac												
8	12010.0	45.0	45.8	40.1	36.8	9.9	0.0	48.7	49.5	74.0	25.3	24.5
9	14412.0	45.7	44.9	43.0	35.3	11.0	0.0	54.9	54.1	74.0	19.1	19.9
10	16814.0	46.7	46.4	44.7	36.5	12.2	0.0	57.6	57.3	74.0	16.4	16.7
11	19216.0	46.0	47.3	41.0	35.8	13.0	0.0	54.6	55.9	74.0	19.4	18.1
12	21618.0	47.6	47.9	40.5	36.8	14.1	0.0	56.0	56.3	74.0	18.0	17.7
13	24020.0	47.7	47.9	40.2	36.4	14.7	0.0	56.7	56.9	74.0	17.3	17.1

AV DETECT (RBW: 1MHz , VBW:10Hz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass.												
1	1063.0	32.8	29.5	21.8	27.3	3.0	0.0	30.3	27.0	54.0	23.7	27.0
2	1196.4	32.0	34.9	22.6	27.3	3.1	0.0	30.4	33.3	54.0	23.6	20.7
3	1462.5	30.2	29.1	24.0	27.2	3.4	0.0	30.5	29.3	54.0	23.5	24.7
4	2390.0	26.2	26.3	30.5	26.9	4.4	0.0	34.3	34.3	54.0	19.7	19.7
5	4804.0	30.9	27.9	35.5	25.8	6.4	0.0	47.0	44.0	54.0	7.0	10.0
6	7206.0	25.9	25.8	37.6	25.0	7.6	0.0	46.1	46.0	54.0	7.9	8.0
7	9608.0	27.1	26.8	37.3	25.1	8.9	0.0	48.1	47.9	54.0	5.9	6.1
Test distance 1meters RESULT=Reading - Amp Gain + CABLE LOSS + Band Pass - Dfac												
8	12010.0	32.7	32.3	40.1	36.8	9.9	0.0	36.4	36.0	54.0	17.6	18.0
9	14412.0	32.4	31.9	43.0	35.3	11.0	0.0	41.6	41.1	54.0	12.4	12.9
10	16814.0	32.1	32.2	44.7	36.5	12.2	0.0	43.0	43.1	54.0	11.0	10.9
11	19216.0	33.2	33.4	41.0	35.8	13.0	0.0	41.8	42.0	54.0	12.2	12.0
12	21618.0	34.3	34.2	40.5	36.8	14.1	0.0	42.7	42.6	54.0	11.3	11.4
13	24020.0	34.4	34.3	40.2	36.4	14.7	0.0	43.4	43.3	54.0	10.6	10.7

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5 dB
*1: Except for the above table : All other spurious emissions were less than 20dB for the limit.

DATA OF SPURIOUS EMISSIONS(1GHz to 26.5GHz)

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

COMPANY : BROTHER INDUSTRIES,LTD.
EQUIPMENT : Mobile Printer
MODEL : MW-140BT
S/ N : E61141-D3A398037
FCC ID : -
POWER : AC120V / 60Hz
MODE : Tx (2441MHz)
AXIS : Hor: Z-axis , Ver: X-axis

REPORT NO : 23HE0045-HO-3
REGULATION : FCC Part 15 Subpart C 15.247(c)
TEST DISTANCE : 3 and 1m
DATE : 2003/5/13
TEMPERATURE : 24℃
HUMIDITY : 57%

ENGINEER : Hiroka Umeyama

PK DETECT (RBW: 1MHz , VBW:1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass.												
1	1063.0	44.2	43.7	21.8	27.3	3.0	0.0	41.7	41.1	74.0	32.3	32.9
2	1196.4	46.0	45.9	22.6	27.3	3.1	0.0	44.4	44.2	74.0	29.6	29.8
3	1462.5	50.9	42.3	24.0	27.2	3.4	0.0	51.2	42.5	74.0	22.8	31.5
4	2390.0	38.8	38.8	30.5	26.9	4.4	0.0	46.9	46.9	74.0	27.1	27.1
5	4882.0	44.7	41.4	36.0	25.8	6.4	0.0	61.4	58.1	74.0	12.6	15.9
6	7329.4	38.7	38.5	37.8	25.0	7.6	0.0	59.1	58.9	74.0	14.9	15.1
7	9764.0	38.9	39.5	36.9	25.2	9.0	0.0	59.6	60.2	74.0	14.4	13.8
Test distance 1meters RESULT=Reading - Amp Gain + CABLE LOSS + Band Pass - Dfac												
8	12205.0	46.0	45.3	41.1	36.7	10.0	0.0	50.9	50.2	74.0	23.1	23.8
9	14646.0	45.4	44.8	43.2	35.5	11.1	0.0	54.7	54.1	74.0	19.3	19.9
10	17087.0	46.2	46.1	44.9	36.2	12.3	0.0	57.7	57.6	74.0	16.3	16.4
11	19528.0	46.3	46.4	40.5	36.0	13.0	0.0	54.4	54.5	74.0	19.6	19.5
12	21969.0	47.0	47.2	40.6	36.0	14.3	0.0	56.4	56.6	74.0	17.6	17.4
13	24410.0	47.6	47.2	40.4	36.9	14.9	0.0	56.4	56.0	74.0	17.6	18.0

AV DETECT (RBW: 1MHz , VBW:10Hz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass.												
1	1063.0	30.2	31.1	21.8	27.3	3.0	0.0	27.7	28.6	54.0	26.3	25.4
2	1196.4	32.7	33.6	22.6	27.3	3.1	0.0	31.1	32.0	54.0	22.9	22.0
3	1462.5	31.5	29.7	24.0	27.2	3.4	0.0	31.7	29.9	54.0	22.3	24.1
4	2390.0	26.3	26.4	30.5	26.9	4.4	0.0	34.4	34.5	54.0	19.6	19.5
5	4882.0	30.7	28.7	36.0	25.8	6.4	0.0	47.4	45.4	54.0	6.6	8.6
6	7329.4	26.1	26.5	37.8	25.0	7.6	0.0	46.5	46.9	54.0	7.5	7.1
7	9764.0	26.6	26.7	36.9	25.2	9.0	0.0	47.4	47.4	54.0	6.6	6.6
Test distance 1meters RESULT=Reading - Amp Gain + CABLE LOSS + Band Pass - Dfac												
8	12205.0	32.5	32.1	41.1	36.7	10.0	0.0	37.4	37.0	54.0	16.6	17.0
9	14646.0	32.1	31.7	43.2	35.5	11.1	0.0	41.4	41.0	54.0	12.6	13.0
10	17087.0	31.6	31.1	44.9	36.2	12.3	0.0	43.1	42.6	54.0	10.9	11.4
11	19528.0	34.8	33.2	40.5	36.0	13.0	0.0	42.9	41.3	54.0	11.1	12.7
12	21969.0	33.5	33.3	40.6	36.0	14.3	0.0	42.9	42.7	54.0	11.1	11.3
13	24410.0	33.7	33.8	40.4	36.9	14.9	0.0	42.5	42.6	54.0	11.5	11.4

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5 dB
*1: Except for the above table : All other spurious emissions were less than 20dB for the limit.

DATA OF SPURIOUS EMISSIONS(1GHz to 26.5GHz)

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

COMPANY : BROTHER INDUSTRIES,LTD.
EQUIPMENT : Mobile Printer
MODEL : MW-140BT
S/ N : E61141-D3A398037
FCC ID : -
POWER : AC120V / 60Hz
MODE : Tx (2480MHz)
AXIS : Hor: Z-axis , Ver: X-axis

REPORT NO : 23HE0045-HO - 3
REGULATION : FCC Part 15 Subpart C 15.247(c)
TEST DISTANCE : 3 and 1m
DATE : 2003/5/13
TEMPERATURE : 24℃
HUMIDITY : 57%

ENGINEER : Hiroka Umeyama

PK DETECT (RBW: 1MHz , VBW:1MHz)

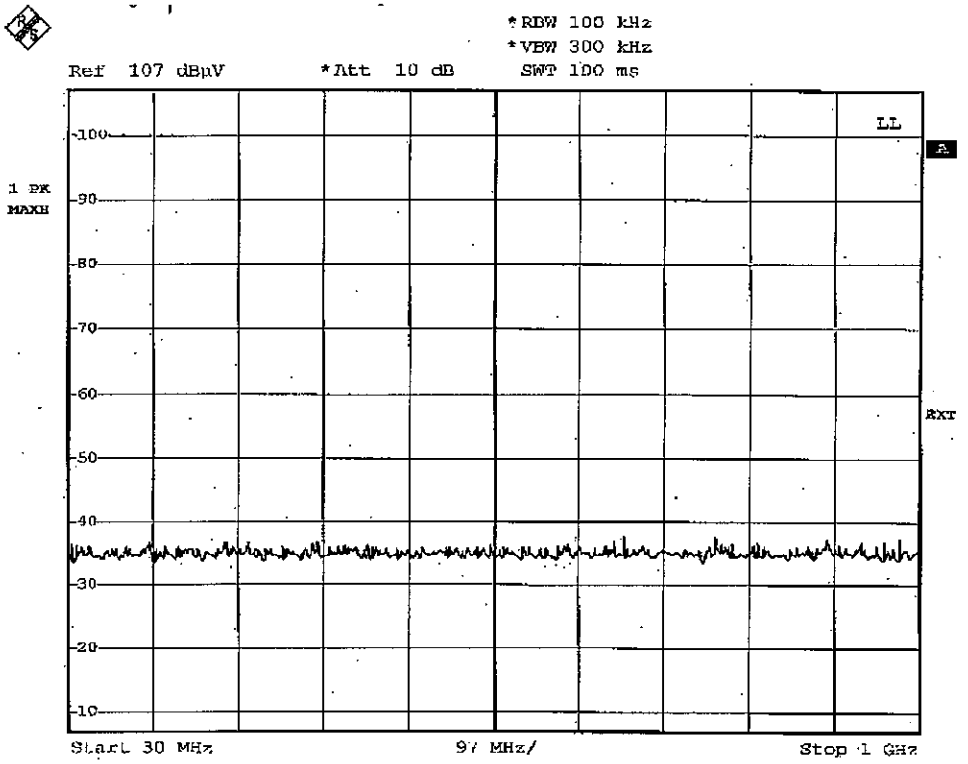
No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass.												
1	1063.0	43.5	44.5	21.8	27.3	3.0	0.0	41.0	42.0	74.0	33.0	32.0
2	1196.4	47.3	48.4	22.6	27.3	3.1	0.0	45.7	46.7	74.0	28.3	27.3
3	1462.5	41.8	42.1	24.0	27.2	3.4	0.0	42.1	42.4	74.0	31.9	31.6
4	2483.7	38.9	38.6	30.6	26.8	4.5	0.0	47.1	46.8	74.0	26.9	27.2
5	4960.0	44.0	42.3	36.5	25.8	6.5	0.0	61.3	59.6	74.0	12.7	14.4
6	7440.0	38.6	38.5	37.9	25.0	7.7	0.0	59.2	59.1	74.0	14.8	14.9
7	9920.0	39.9	39.6	36.4	25.2	9.1	0.0	60.3	60.0	74.0	13.7	14.0
Test distance 1meters RESULT=Reading - Amp Gain + CABLE LOSS + Band Pass - Dfac												
8	12400.0	45.6	45.5	42.1	36.6	10.1	0.0	51.7	51.6	74.0	22.3	22.4
9	14880.0	45.7	44.9	43.4	35.7	11.2	0.0	55.1	54.3	74.0	18.9	19.7
10	17360.0	46.9	46.2	45.9	36.2	12.4	0.0	59.5	58.8	74.0	14.5	15.2
11	19840.0	48.0	46.0	40.7	36.1	13.1	0.0	56.2	54.2	74.0	17.8	19.8
12	22320.0	47.2	46.2	40.7	35.5	14.4	0.0	57.3	56.3	74.0	16.7	17.7
13	24800.0	46.8	47.4	40.4	36.7	15.1	0.0	56.1	56.7	74.0	17.9	17.3

AV DETECT (RBW: 1MHz , VBW:10Hz)

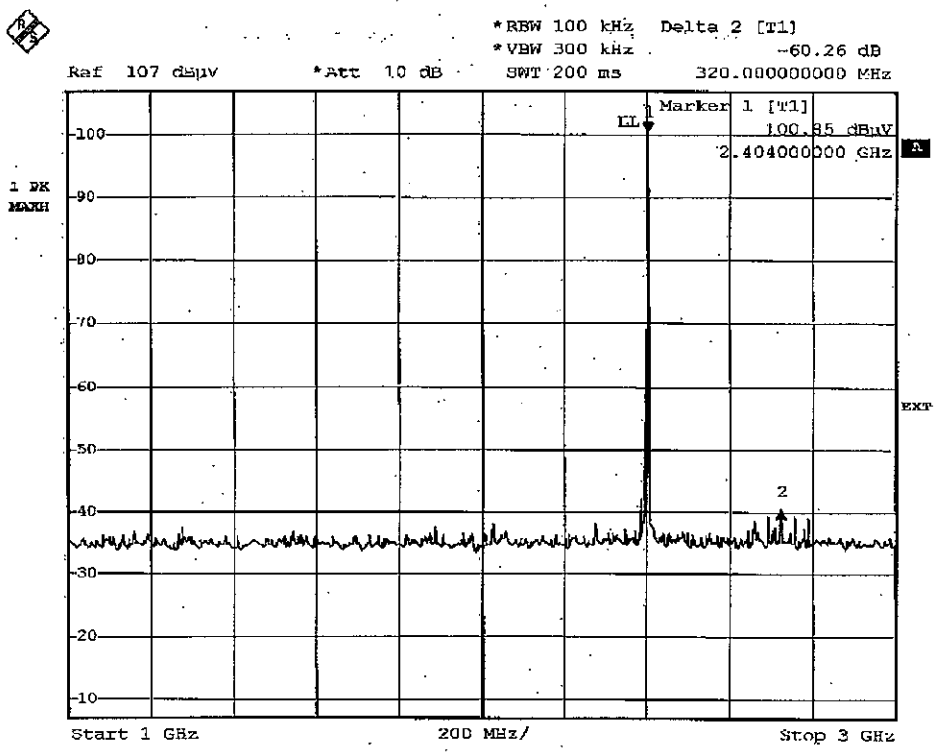
No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass.												
1	1063.0	31.4	32.4	21.8	27.3	3.0	0.0	28.8	29.9	54.0	25.2	24.1
2	1196.4	34.6	35.0	22.6	27.3	3.1	0.0	33.0	33.4	54.0	21.0	20.6
3	1462.5	29.0	29.1	24.0	27.2	3.4	0.0	29.3	29.3	54.0	24.7	24.7
4	2483.7	26.4	26.4	30.6	26.8	4.5	0.0	34.6	34.7	54.0	19.4	19.3
5	4960.0	30.5	29.2	36.5	25.8	6.5	0.0	47.8	46.4	54.0	6.2	7.6
6	7440.0	26.1	26.4	37.9	25.0	7.7	0.0	46.7	47.0	54.0	7.3	7.0
7	9920.0	27.1	27.1	36.4	25.2	9.1	0.0	47.5	47.5	54.0	6.5	6.5
Test distance 1meters RESULT=Reading - Amp Gain + CABLE LOSS + Band Pass - Dfac												
8	12400.0	32.9	32.3	42.1	36.6	10.1	0.0	39.0	38.4	54.0	15.0	15.6
9	14880.0	32.6	32.1	43.4	35.7	11.2	0.0	42.0	41.5	54.0	12.0	12.5
10	17360.0	31.8	31.7	45.9	36.2	12.4	0.0	44.4	44.3	54.0	9.6	9.7
11	19840.0	34.7	33.6	40.7	36.1	13.1	0.0	42.9	41.8	54.0	11.1	12.2
12	22320.0	33.5	33.2	40.7	35.5	14.4	0.0	43.6	43.3	54.0	10.4	10.7
13	24800.0	33.3	33.9	40.4	36.7	15.1	0.0	42.6	43.2	54.0	11.4	10.8

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5 dB
*1: Except for the above table : All other spurious emissions were less than 20dB for the limit.

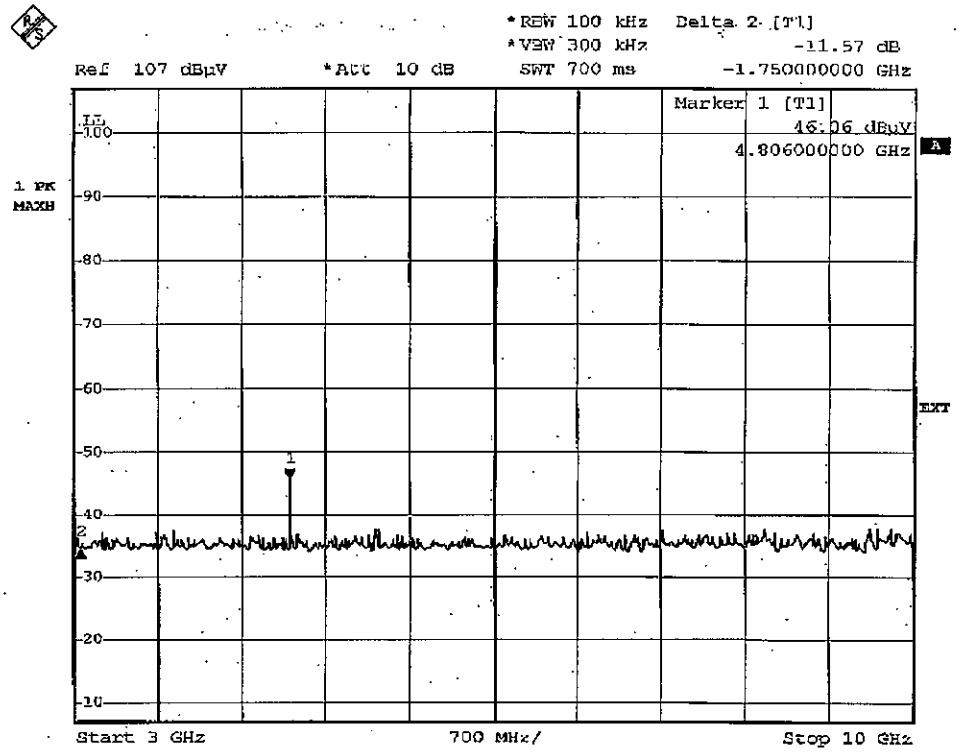
Spurious Emission(Conducted) :Tx(2402MHz)



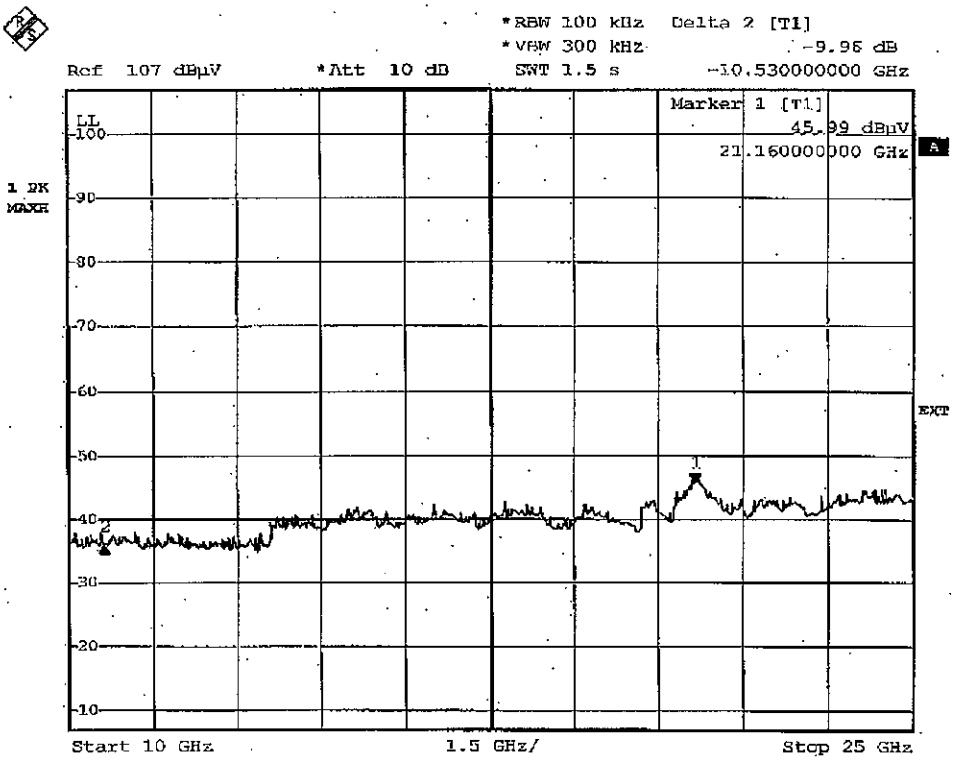
Spurious Emission(Conducted) :Tx(2402MHz)



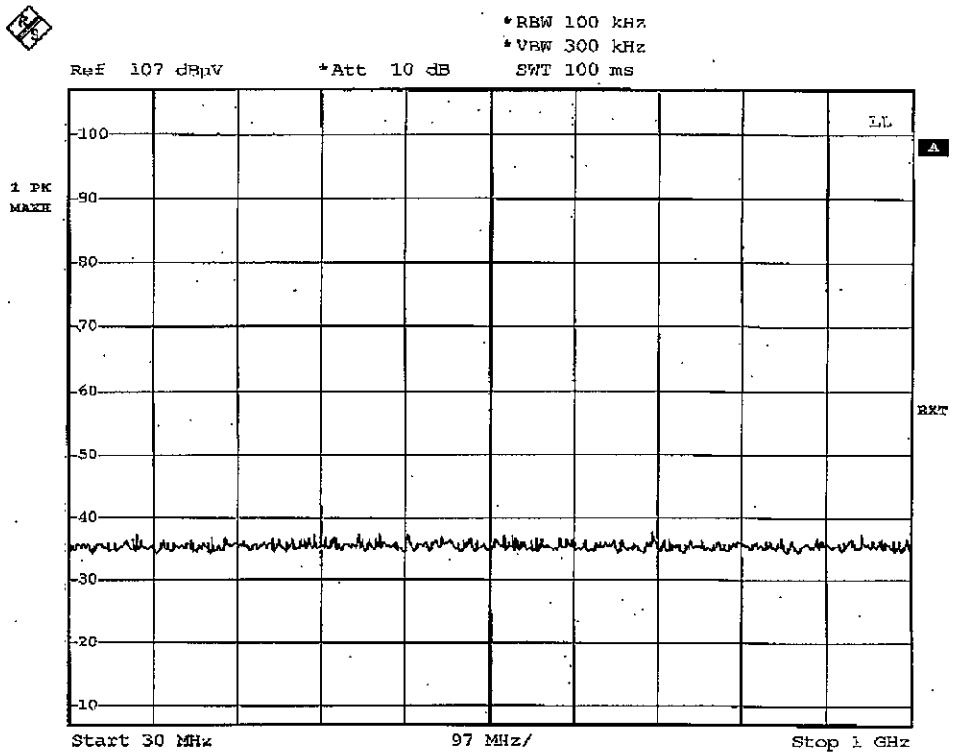
Spurious Emission(Conducted) :Tx(2402MHz)



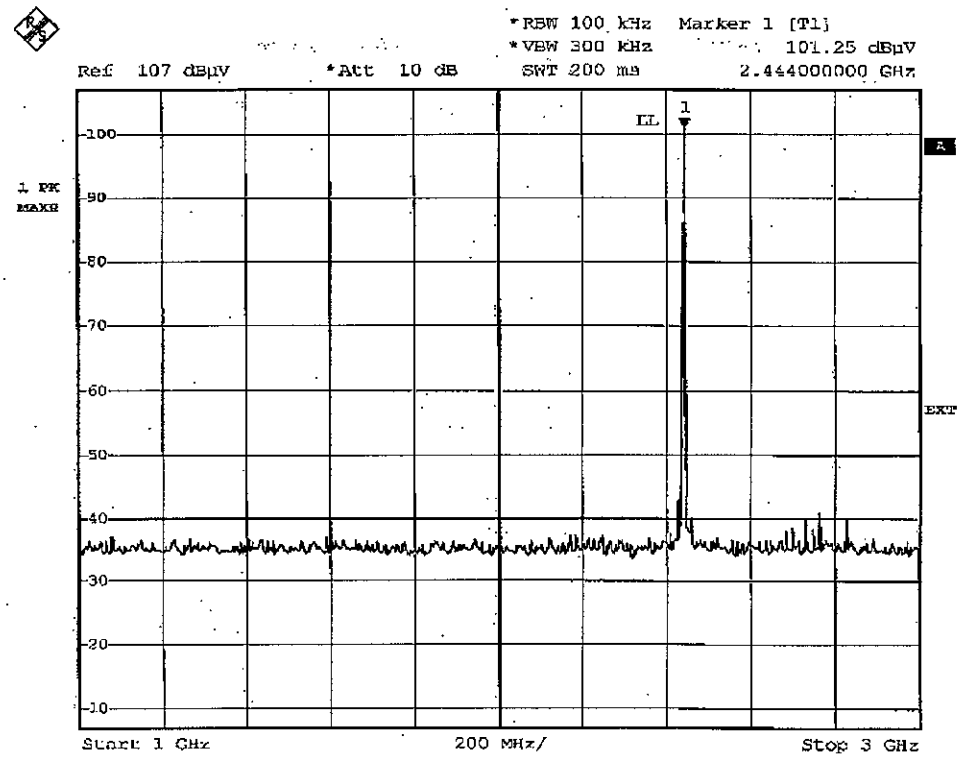
Spurious Emission(Conducted) :Tx(2402MHz)



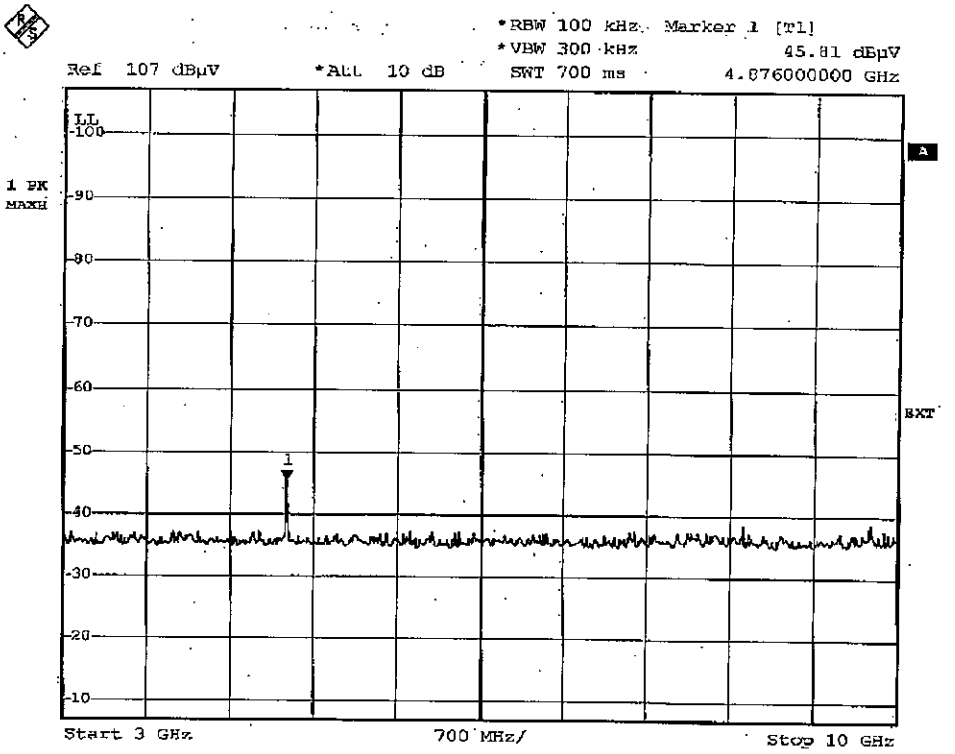
Spurious Emission(Conducted) :Tx(2441MHz)



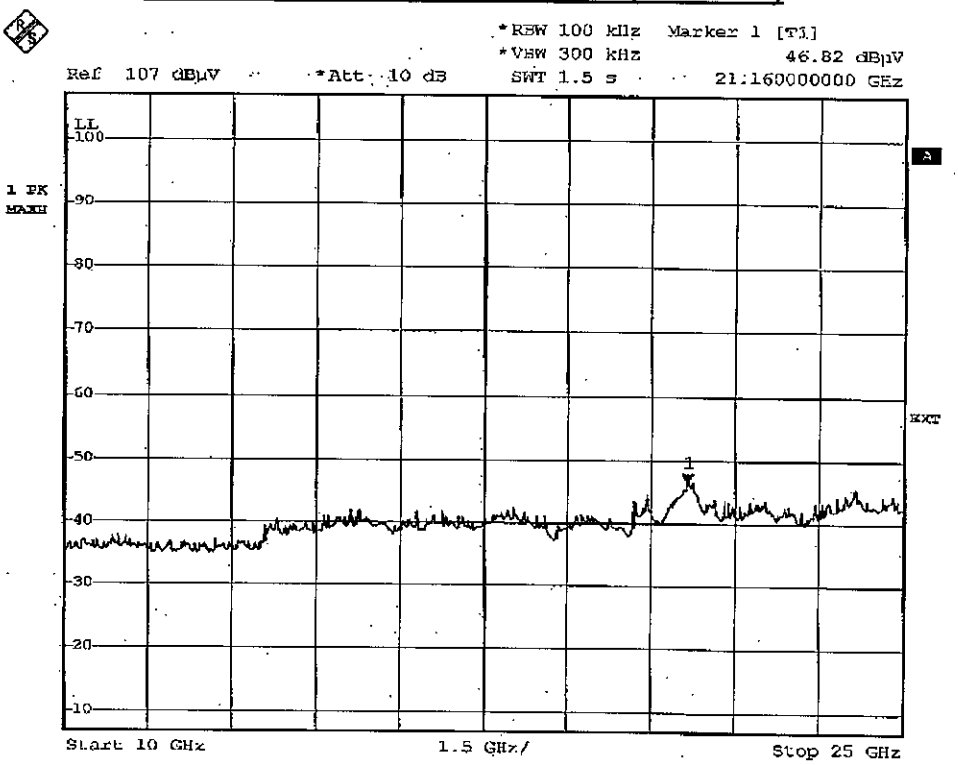
Spurious Emission(Conducted) :Tx(2441MHz)



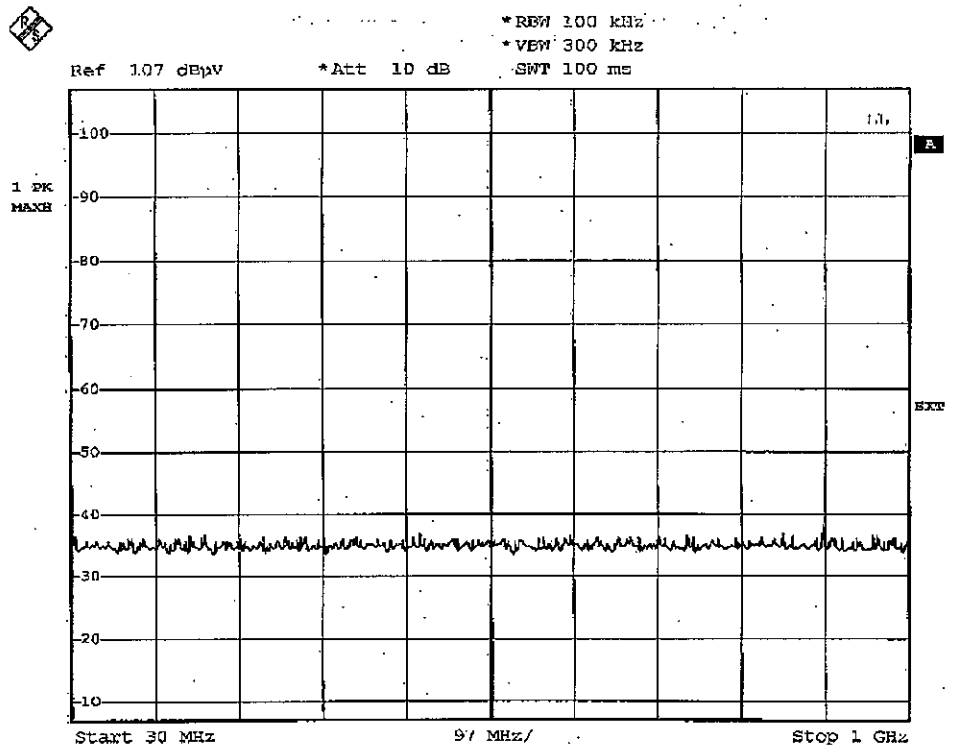
Spurious Emission(Conducted) :Tx(2441MHz)



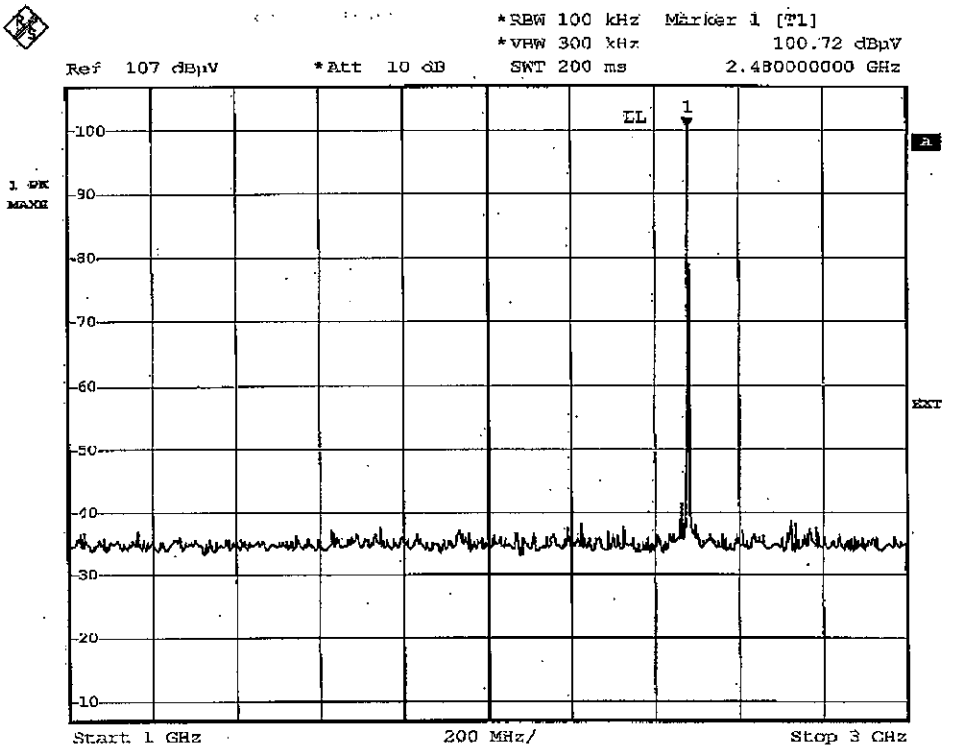
Spurious Emission(Conducted) :Tx(2441MHz)



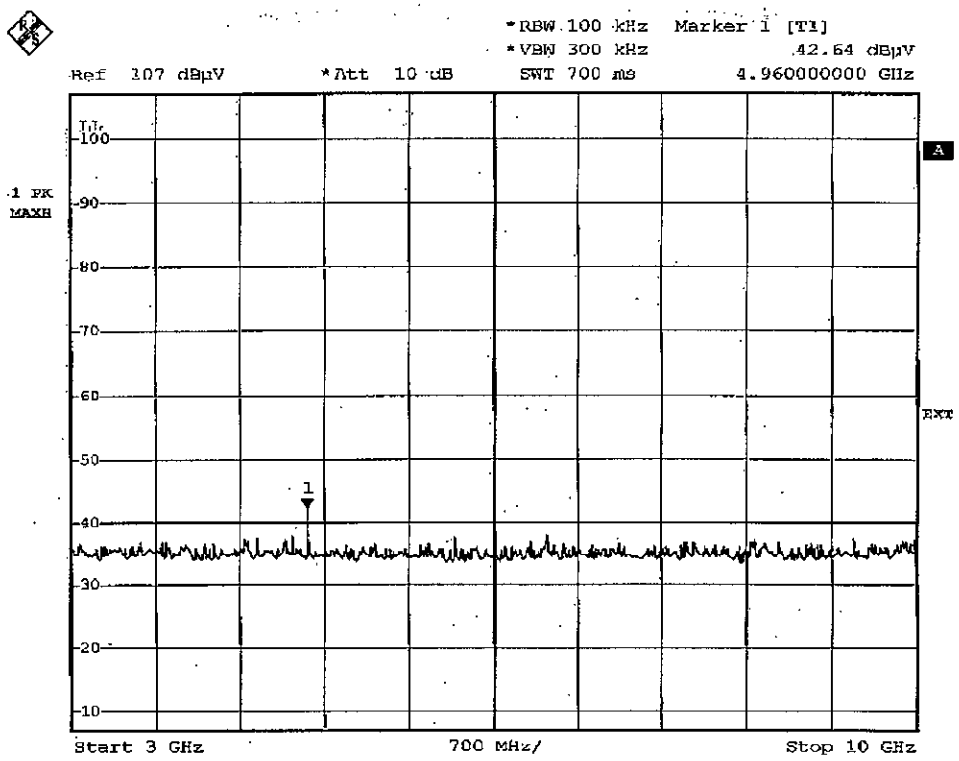
Spurious Emission(Conducted) :Tx(2480MHz)



Spurious Emission(Conducted) :Tx(2480MHz)



Spurious Emission(Conducted) :Tx(2480MHz)



Spurious Emission(Conducted) :Tx(2480MHz)