EMI TEST REPORT

Test Report No. : 23IE0032-HO-1

Applicant	:	**DENSO WAVE INCORPORATED**
Type of Equipment	:	**BARCODE HANDY TERMINAL**
Model No.	:	**BHT-8000DB, BHT-8000B, BHT-8100B**
Test standard	:	**FCC Part 15 Subpart C Section 15.207, Section 15.247**
FCC ID	:	**PZWBHT8000**
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 : April 28, 29 and May 17, 18 and 23, 2003

Tested by : Y. Iwasa
Yoshiaki Iwasa
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	:	DENSO WAVE INCORPORATED
Brand name	:	DENSO
Address	:	1-1, Showa-cho, Kariya-shi, Aichi-ken 448-8661 JAPAN
Telephone Number	:	+81-566-61-3815
Facsimile Number	:	+81-566-25-4741
Contact Person	:	Yasuo Yamada

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

2.1 Identification of E.U.T.

Type of Equipment	:	BARCODE HANDY TERMINAL
Model No.	:	BHT-8000DB, BHT-8000B, BHT-8100B
Serial No.	:	5496310204300050 5496310204300058 5496310204300008
Rating	:	DC3V
Country of Manufacture	:	Japan
Receipt Date of Sample	:	May 10, 2003
Condition of EUT	:	Production model

2.2 Product Description

DENSO WAVE INCORPORATED, Model: BHT-8000DB, BHT-8000B, BHT-8100B (referred to as the EUT in this report) is the BARCODE HANDY TERMINAL.
The clock frequency used in EUT is BHT : 29.4912 MHz, 32.768 KHz, Bluetooth : 16 MHz.
This product read the bar-code and sends the data of BARCODE HANDY TERMINAL to host computer by radio frequency.
The difference in Model Numbers is shown in the table below.
The test was performed on the Model (No. BHT-8000DB) that had Worst case.
Therefore, these all three models comply with the standard.

Product Type No	Description
BHT-8000DB	Straight Scanning - Beam, Long - range readable
BHT-8000B	Straight Scanning - Beam, Normal - range readable
BHT-8100B	Slant Scanning - Beam, Normal - range readable

The specification is as follows;

Frequency band	: from 2400 MHz to 2483.5 MHz
Frequency of operation	: 2402MHz – 2480MHz
Number of channels and channel spacing	: 79ch, 1MHz
Type of Modulation	: GFSK, FHSS
Antenna Type	: Inverted-F type multi-layer Antenna
Antenna Gain	: 2.06 dBi
Power Supply	: DC 3V
Operating temperature Range	: -5 deg.C. to +50 deg.C.

FCC 15.31 (e)
The host device BHT-8000DB, BHT-8000B, BHT-8100B provide the stable power supply (DC:3V), and the BARCODE HANDY TERMINAL complies power supply regulation.

FCC Part 15.203 Antenna requirement
BARCODE HANDY TERMINAL and its antenna comply with this requirement since they are built in host device BHT-8000DB when they are put up for sale and they are used with a particular antenna connector.

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	28.5dB 0.1519MHz N, L1	Complied
2	Carrier Frequency Separation	ANSI C63.4:2001	Section15.247(a)(1)	Conducted	N/A	N/A	Complied
3	20dB Bandwidth	ANSI C63.4:2001	Section15.247(a)(1)	Conducted	N/A	N/A	Complied
4	Number of Hopping Frequency	ANSI C63.4:2001	Section15.247(a)(1)(iii)	Conducted	N/A	N/A	Complied
5	Dwell time	ANSI C63.4:2001	Section15.247(a)(1)(iii)	Conducted	N/A	N/A	Complied
6	Maximum Peak Output Power	ANSI C63.4:2001	Section15.247(b)(1)	Conducted	N/A	N/A	Complied
7	Band Edge Compliance	ANSI C63.4:2001	Section15.247(c)	Conducted	N/A	N/A	Complied
8	Spurious Emission (Radiated)	ANSI C63.4:2001	Section15.247(c)	Conducted/ Radiated	N/A	4.2dB 7329.3MHz Horizontal	Complied

*These tests were performed without any deviations from test procedure except for additions or exclusions.
*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.2 semi Anechoic chamber.
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 June 05, 2002.
(Registration number: No.2 :846015 Industry Canada: 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

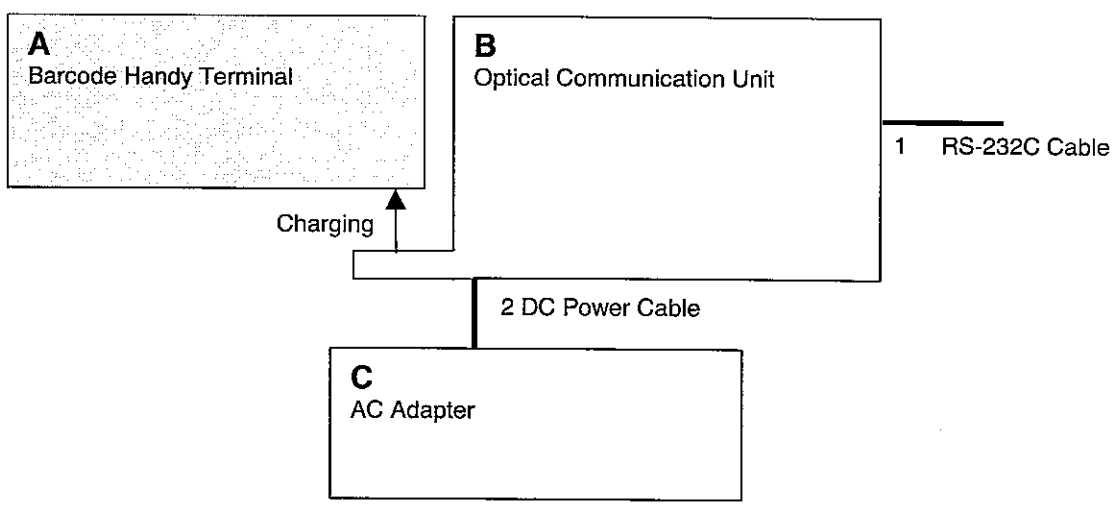
4.1 Operating Modes

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 : Bluetooth mode
Emitting radio frequency.
High : 2402MHz (Hopping Off)
Middle : 2441MHz (Hopping Off)
Low : 2480MHz (Hopping Off)

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

4.2 Configuration and peripherals



* 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	Barcode Handy Terminal	BHT-8000DB	5496310204300050 5496310204300058 and 5496310204300008 (for conducted)	DENSO WAVE INCORPORATED	PZWBHT8000
B	Optical Communication Unit	CU-8001	4963201360200056	DENSO WAVE INCORPORATED	-
C	AC Adaptor (120V)	-	496460013101	DENSO WAVE INCORPORATED	-

List of cables used

No.	Name	Length (m)	Shield	Backshell Material
1	RS-232C Cable	1.5m	Y	Polyvinyl chloride
2	DC Power Cable	1.9m	N	Polyvinyl chloride

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. EUT was located 80cm from LISN and excess AC cable was 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. All unused 50ohm connectors of the LISN were resistively terminated in 50ohm when not connected to the measuring equipment.
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.
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	:	**MCC-13, MLS-06, SA-07, MTR-02**

SECTION 6: Carrier Frequency Separation , Section 15.247(a)(1)

Test Procedure

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

Test data	:	**APPENDIX 2**
Test result	:	**Pass**
Test instruments	:	**MBTR10, MCC-05**

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 2**
Test result	:	**Pass**
Test instruments	:	**MBTR10, MCC-05**

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 2**
Test result	:	**Pass**
Test instruments	:	**MBTR10, MCC-05**

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 2**
Test result	:	**Pass**
Test instruments	:	**MBTR10, MCC-05**

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 2**
Test result	:	**Pass**
Test instruments	:	**MBTR10, MCC-05**

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 2**
Test result	:	**Pass**
Test instruments	:	**MBTR10, MCC-05**

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 2**
Test result	:	**Pass**
Test instruments	:	**MBTR10, MCC-05**

[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.2 semi anechoic chamber (7.5x5.8x5.2m) with a ground plane and 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.
The maximum output power of EUT was confirmed as the worst case condition in the photo of APPENDIX.

Test data	:	**APPENDIX 2**
Test result	:	**Pass**
Test instruments	:	**MTR-01, MCC-12, MCC-05, MCC-06,MHA-05, MPA-01 MBA-03, MLA-03, MPA-04, MAT-07, MCC-11 MBF-01, MHA-01, MRENT-02, MTR-02**

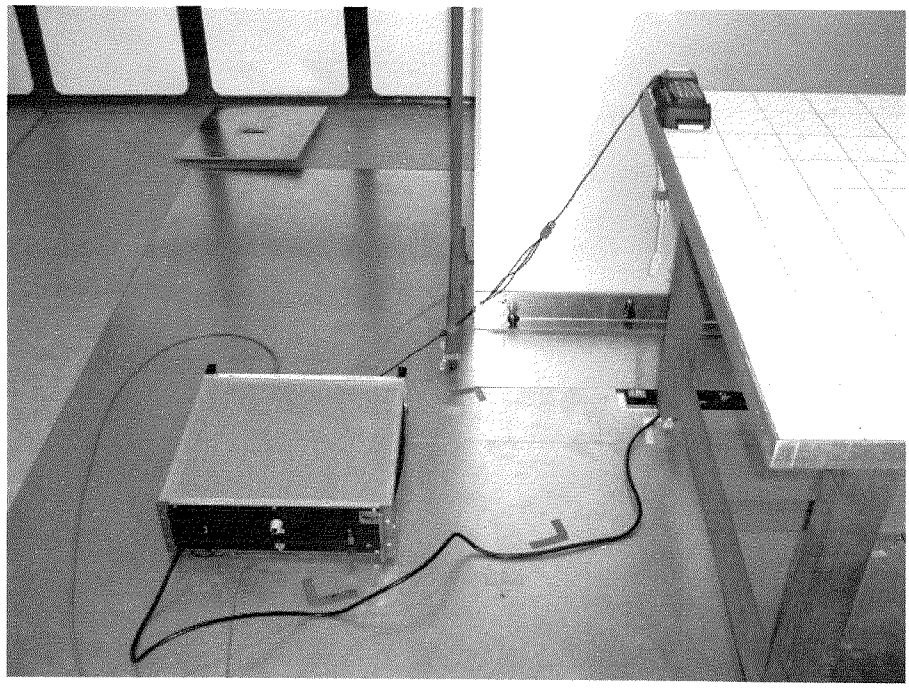
APPENDIX 1: Photographs of test setup

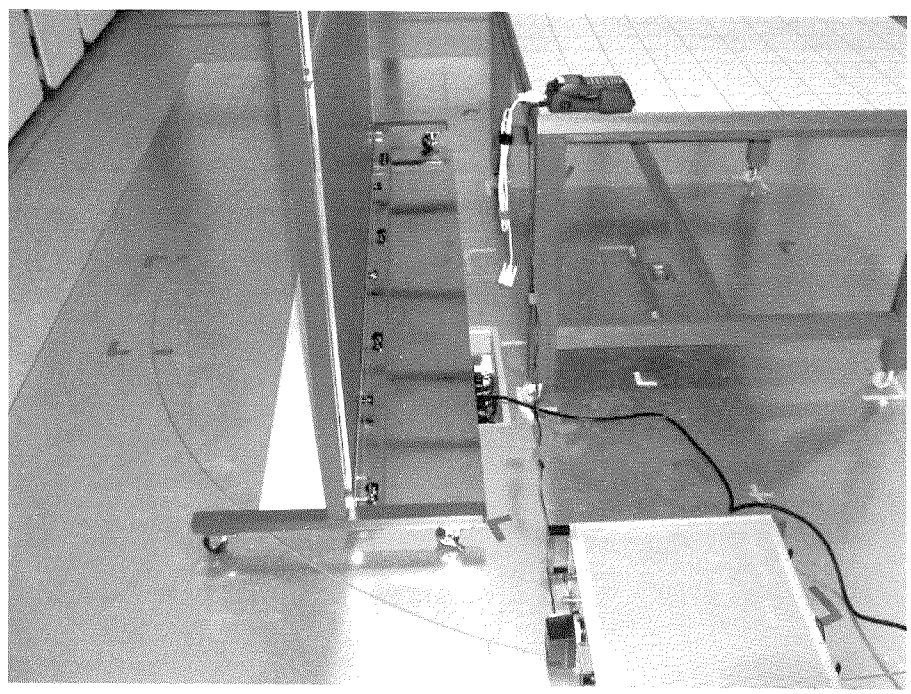
APPENDIX 2: Test instruments

APPENDIX 3: Data of EMI test

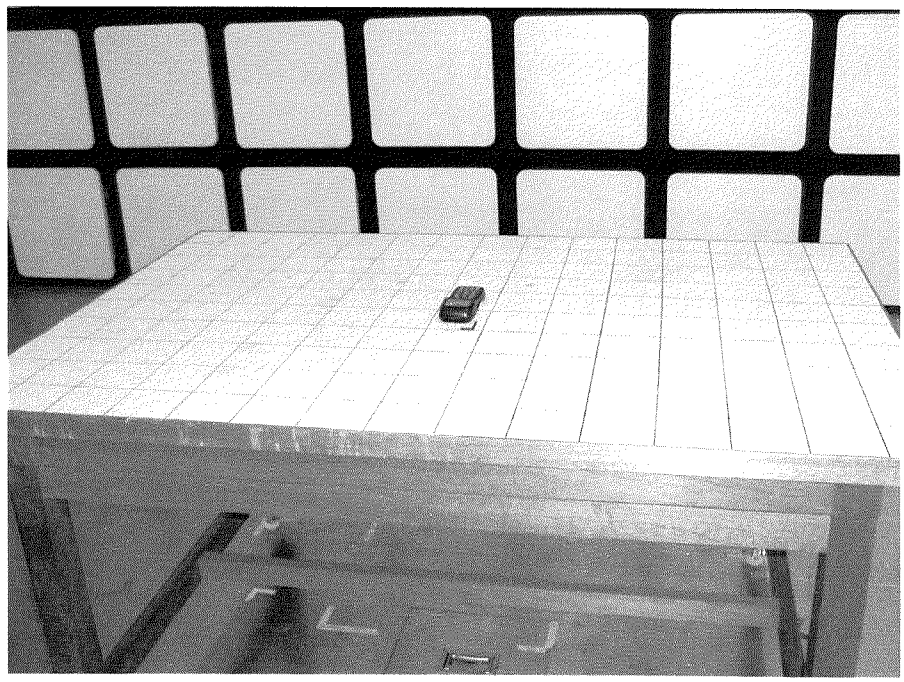
APPENDIX 1: Photographs of test setup

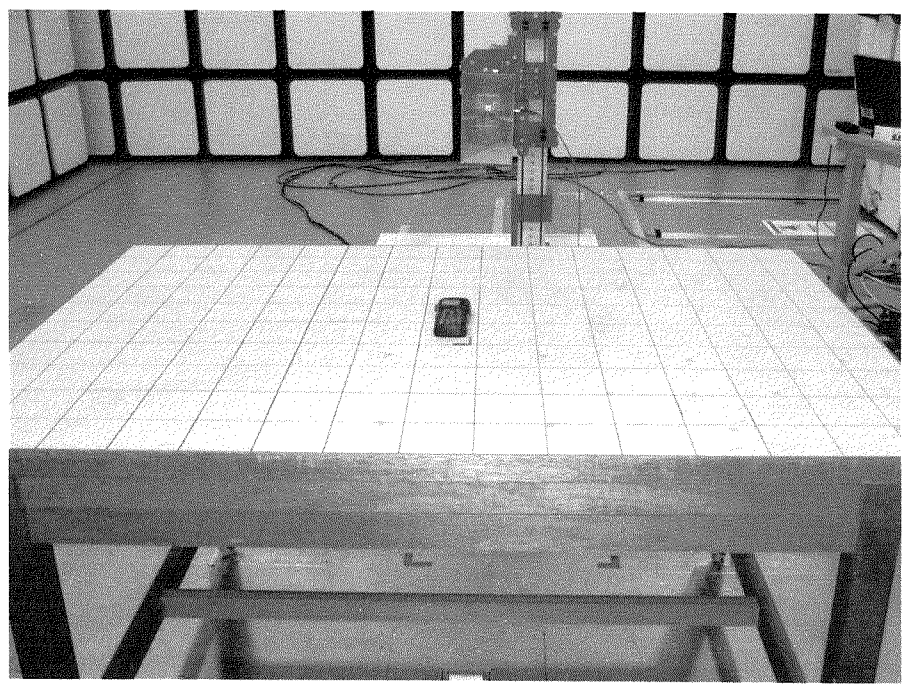
Conducted Emission



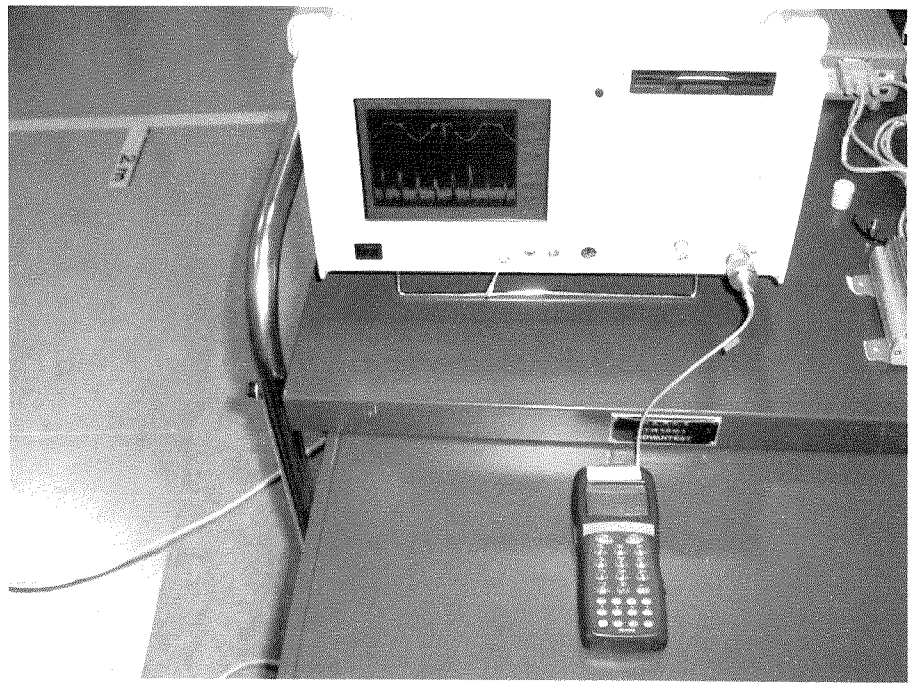


Spurious Emission (Radiated)





Other test except Conducted Emission and Spurious Emission (Radiated)



Test Report No : 23IE0032-HO-1

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 / CE	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/CE	2003/01/31 * 12
SA-07	Spectrum Analyzer	Advantest	R3273	RE / CE	2002/12/10 * 12
MCC-13	Coaxial Cable	Fujikura/Agilent	-	CE	2003/05/08 * 12
MCC-05	Microwave Cable	Storm	421-011	RE	2003/01/14 * 12
MCC-06	Microwave Cable	Storm	421-011	RE	2003/01/14 * 12
MHA-06	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2003/01/11 * 12
MHA-02	Horn Antenna	EMCO	3160-09	RE	2003/01/11 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	CE (EUT)	2003/03/18 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2002/10/16 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	RE	2002/10/16 * 12
MPA-03	Microwave System Power Amplifier	Agilent	83050A	RE	2003/04/01 * 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 CONDUCTION TEST

UL Apex Co., Ltd. Head Office EMC Lab.
No.2 Semi Anechoic Chamber
Report No.: 231E0032-HO- 1

Applicant	: DENSO WAVE INCORPORATED
Kind of Equipment	: BARCODE HANDY TERMINAL
Model No.	: BHT-8000DB
Serial No.	: 5496310204300050
Power	: AC120V / 60Hz
Mode	: Tx (2402MHz)
Remarks	: FCC ID: PZWBHT8000 / IC Number: 1551C-BHT8000
Date	: 5/23/2003
Phase	: Single Phase
Temperature	: 28 ℃
Humidity	: 45 %
Regulation	: FCC 15.207 (0.15-30MHz)

Engineer : Yoshiaki Iwasa

No.	FREQ.	READING(N) QP	READING(N) AV	READING(L1) QP	READING(L1) AV	LISN FACTOR	CABLE LOSS	ATTEN.	RESULT QP	RESULT AV	LIMITS QP	LIMITS AV	MARGIN QP	MARGIN AV
	[MHz]	[dBuV]		[dBuV]		[dB]	[dB]	[dB]	[dBuV]		[dBuV]		[dB]	
1.	0.1519	37.3	10.9	37.3	11.0	0.0	0.1	0.0	37.4	11.1	65.9	55.9	28.5	44.8
2.	0.8121	23.6	2.2	24.6	2.7	0.1	0.2	0.0	24.9	3.0	56.0	46.0	31.1	43.0
3.	1.5750	4.9	0.1	5.8	0.1	0.1	0.3	0.0	6.2	0.5	56.0	46.0	49.8	45.5
4.	2.6450	4.5	0.8	3.6	0.1	0.1	0.4	0.0	5.0	1.3	56.0	46.0	51.0	44.7
5.	10.0000	4.3	0.6	4.3	0.5	0.4	0.8	0.0	5.5	1.8	60.0	50.0	54.5	48.2
6.	25.0000	5.1	1.2	5.1	1.3	0.8	1.3	0.0	7.2	3.4	60.0	50.0	52.8	46.6

CALCULATION: READING[dBμV] + LISN FACTOR[dB] + CABLE LOSS[dB] + ATTEN[dB].

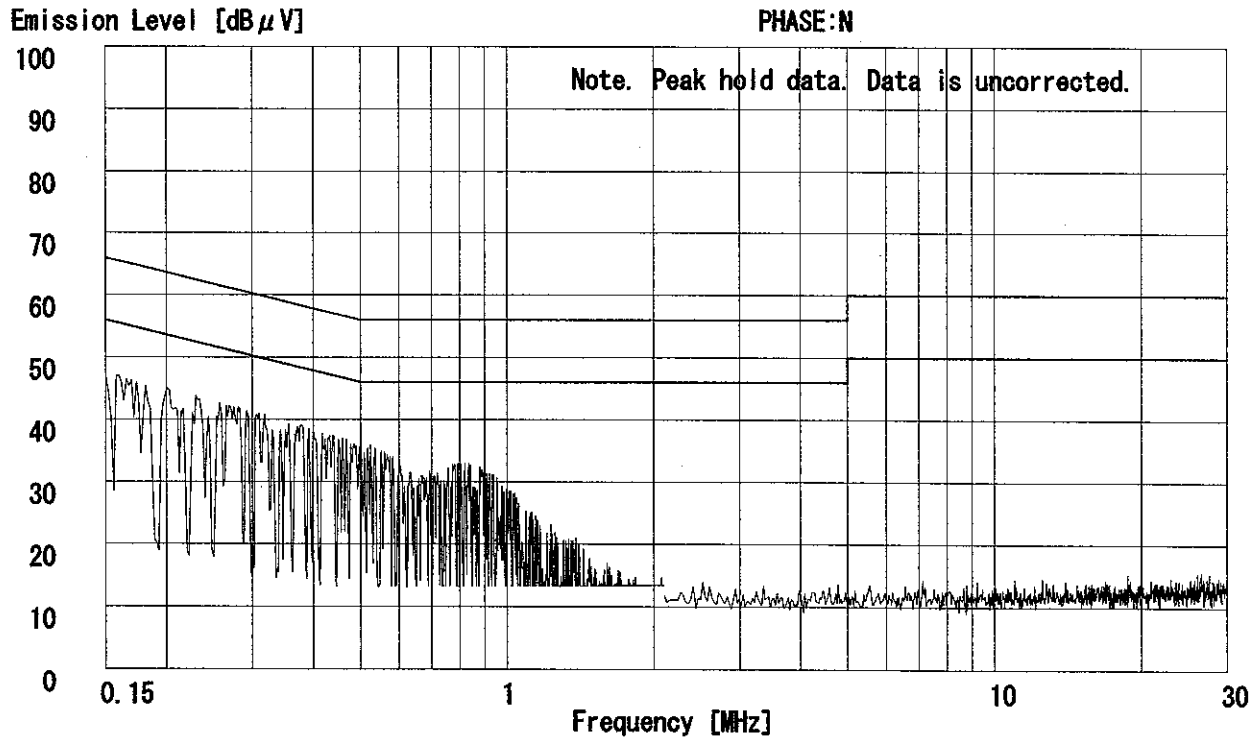
Except for the above table: adequate margin data below the limits.

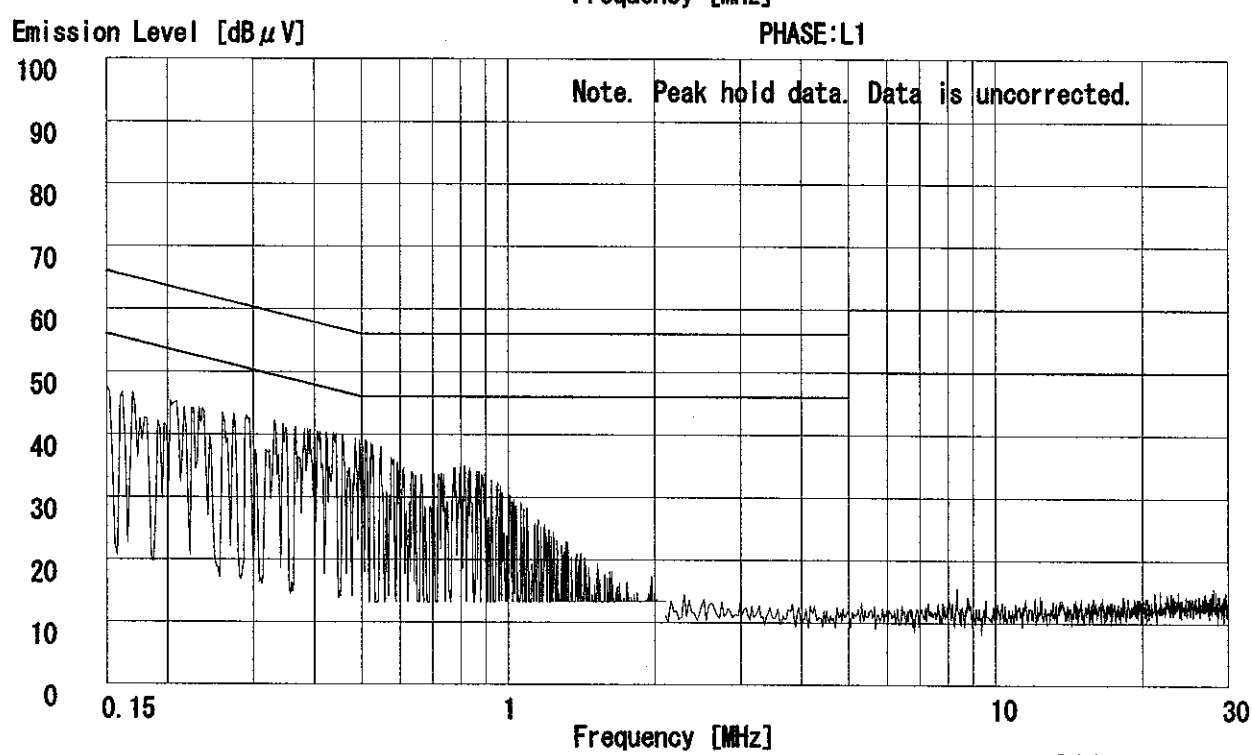
DATA OF CONDUCTION TEST CHART

UL Apex Co., Ltd. Head Office EMC Lab.
No.2 Semi Anechoic Chamber
Report No.: 23IE0032-H0- 1

Applicant	:	DENSO WAVE INCORPORATED
Kind of Equipment	:	BARCODE HANDY TERMINAL
Model No.	:	BHT-8000DB
Serial No.	:	5496310204300050
Power	:	AC120V / 60Hz
Mode	:	Tx (2402MHz)
Remarks	:	FCC ID: PZWBHT8000 / IC Number: 1551C-BHT8000
Date	:	5/23/2003
Phase	:	Single Phase
Temperature	:	28 ℃
Humidity	:	45 %
Regulation 1	:	FCC 15.207 (0.15-30MHz)
Regulation 2	:	None

Engineer : Yoshiaki Iwasa



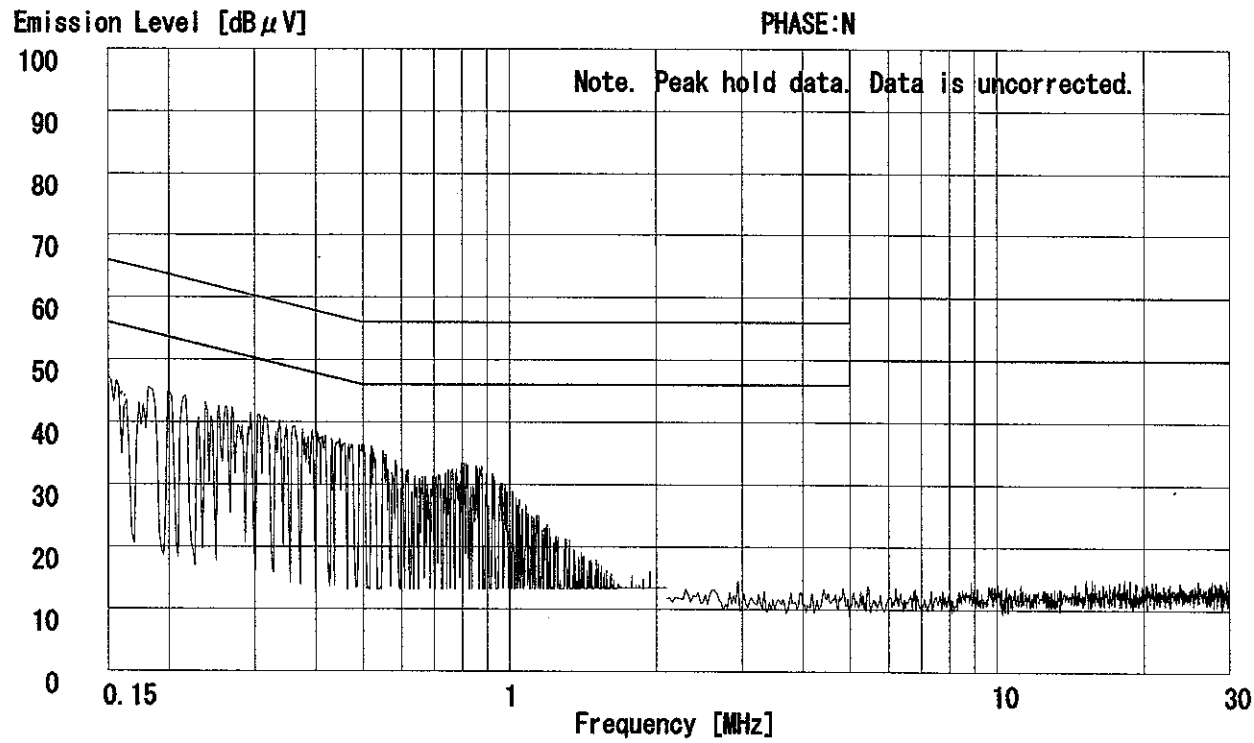


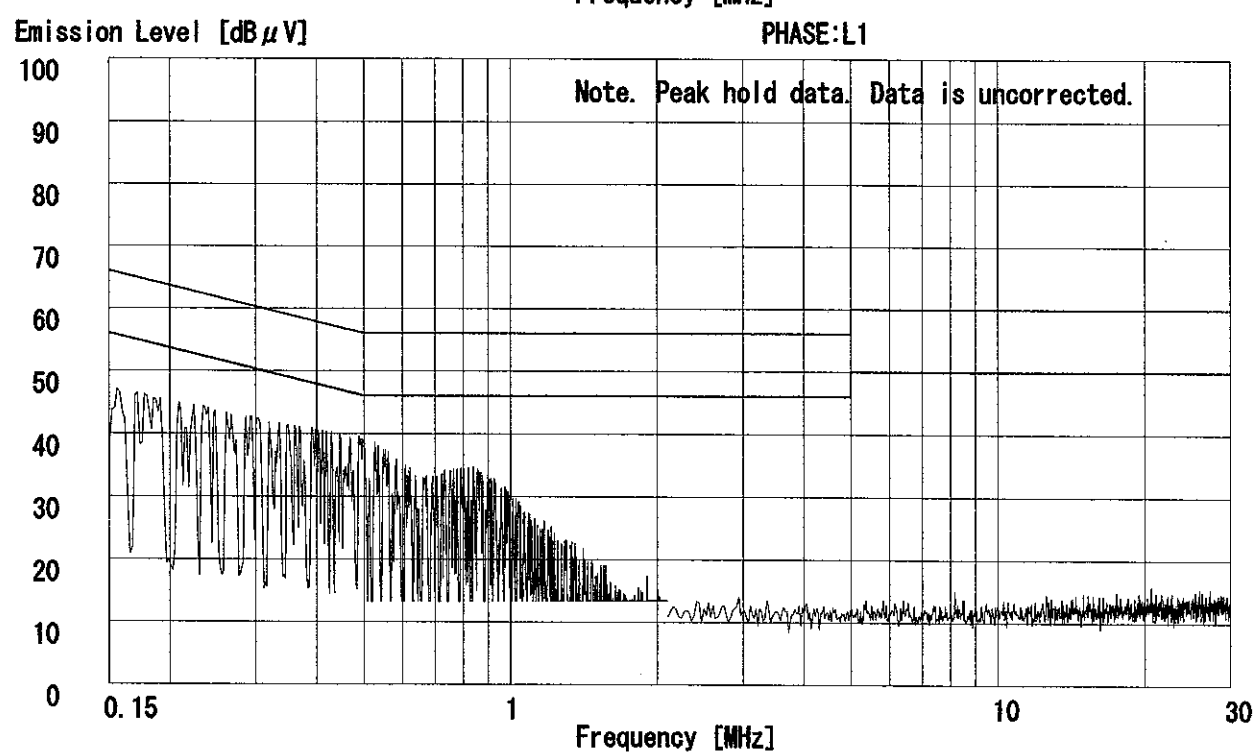
DATA OF CONDUCTION TEST CHART

UL Apex Co., Ltd. Head Office EMC Lab.
No.2 Semi Anechoic Chamber
Report No.: 23IE0032-HO- 1

Applicant	:	DENSO WAVE INCORPORATED
Kind of Equipment	:	BARCODE HANDY TERMINAL
Model No.	:	BHT-8000DB
Serial No.	:	5496310204300050
Power	:	AC120V / 60Hz
Mode	:	Tx (2441MHz)
Remarks	:	FCC ID: PZWBHT8000 / IC Number: 1551C-BHT8000
Date	:	5/23/2003
Phase	:	Single Phase
Temperature	:	28 ℃
Humidity	:	45 %
Regulation 1	:	FCC 15.207 (0.15-30MHz)
Regulation 2	:	None

Engineer : Yoshiaki Iwasa



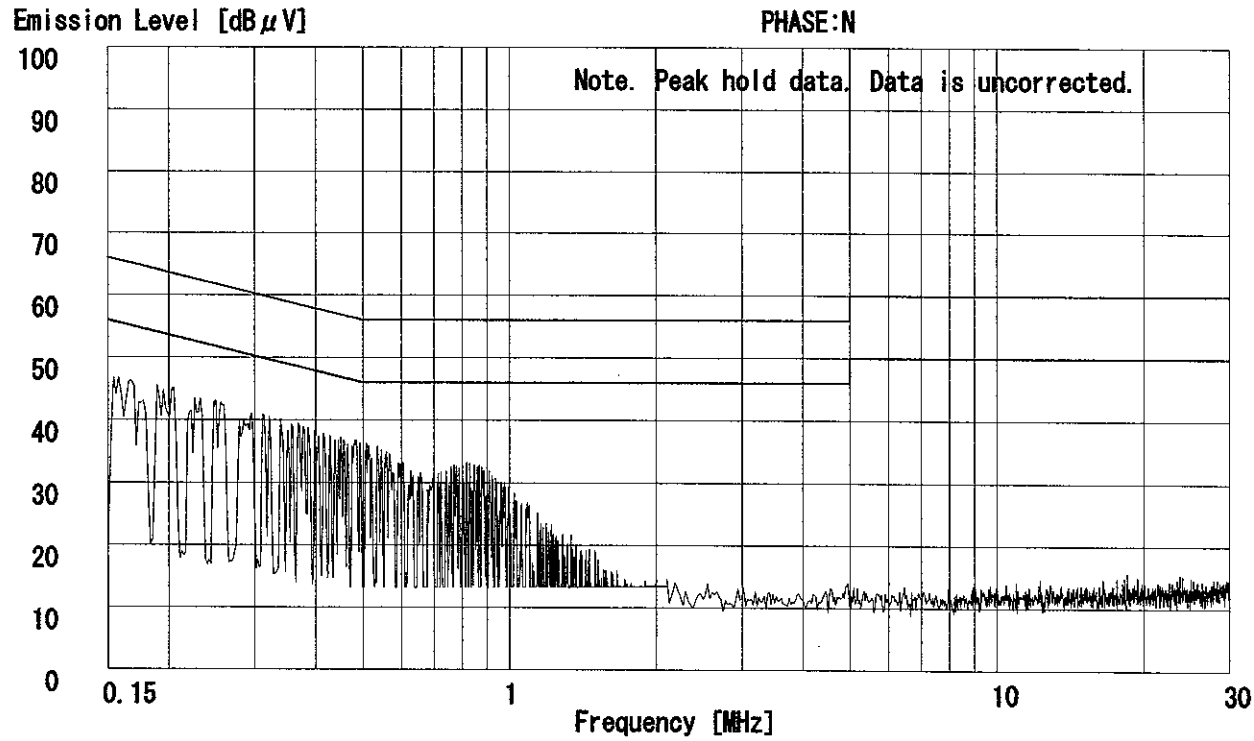


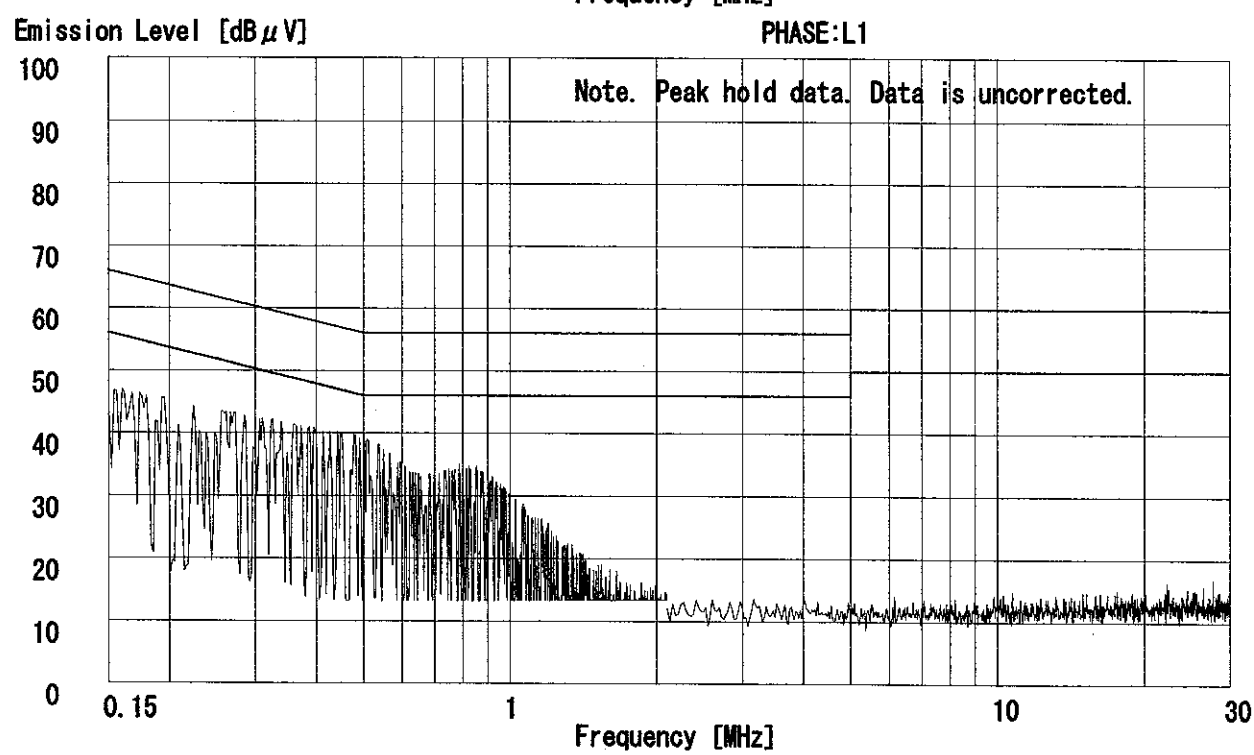
DATA OF CONDUCTION TEST CHART

UL Apex Co., Ltd. Head Office EMC Lab.
No.2 Semi Anechoic Chamber
Report No.: 23IE0032-H0- 1

Applicant	:	DENSO WAVE INCORPORATED
Kind of Equipment	:	BARCODE HANDY TERMINAL
Model No.	:	BHT-8000DB
Serial No.	:	5496310204300050
Power	:	AC120V / 60Hz
Mode	:	Tx (2480MHz)
Remarks	:	FCC ID: PZWBHT8000 / IC Number: 1551C-BHT8000
Date	:	5/23/2003
Phase	:	Single Phase
Temperature	:	28 ℃
Humidity	:	45 %
Regulation 1	:	FCC 15.207 (0.15-30MHz)
Regulation 2	:	None

Engineer : Yoshiaki Iwasa





DATA OF CARRIER FREQUENCY SEPARATION (CONDUCTED)

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

COMPANY : DENSO WAVE INCORPORATED
EQUIPMENT : BARCODE HANDY TERMINAL
MODEL : BHT-8000DB
S/ N : 5496310204300008
FCC ID : PZWBHT8000
IC Number : 1551C-BHT8000
POWER : DC 3V
MODE : Tx (Hopping on) / Inquiry

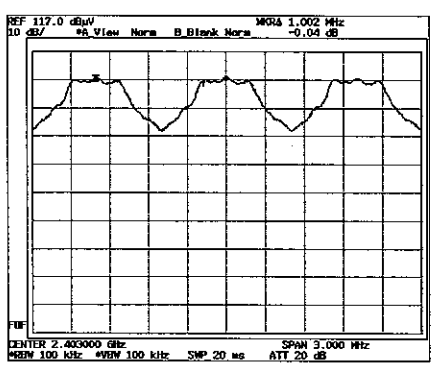
REPORT NO. : 23IE0032-HO - 1
REGULATION : Fcc Part15 Subpart C 15.247(a)(1)
TEST DISTANCE : -
DATE : 05/17/2003
TEMPERATURE : 26℃
HUMIDITY : 51%

Engineer : Yoshiaki Iwasa

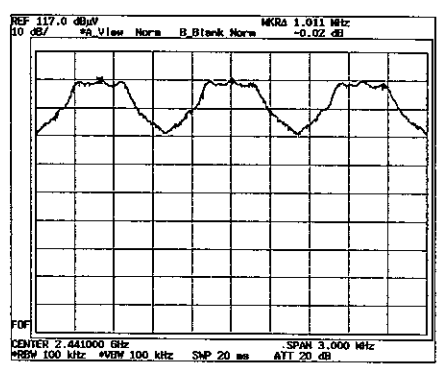
PK DETECT(S/A :span 3MHz, RBW 100kHz ,VBW 100kHz, sweep time AUTO)

CH	FREQ [MHz]	Channel separation [kHz]	Limit
Low	2402.0	1002.000	>20dB Bandwidth and 25[kHz]
Mid	2441.0	1011.000	>20dB Bandwidth and 25[kHz]
High	2480.0	996.000	>20dB Bandwidth and 25[kHz]
Inquiry	2441.0	2005.000	>20dB Bandwidth and 25[kHz]
Inquiry Scan	2441.0	2007.000	>20dB Bandwidth and 25[kHz]

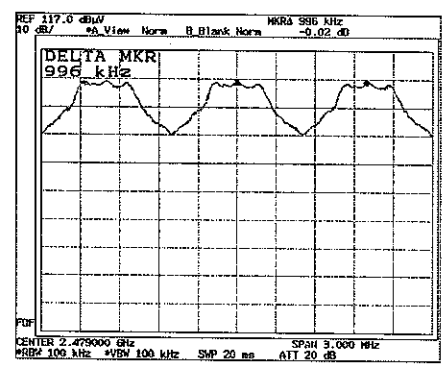
2402MHz



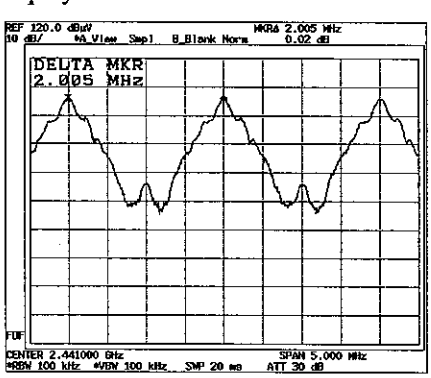
2441MHz



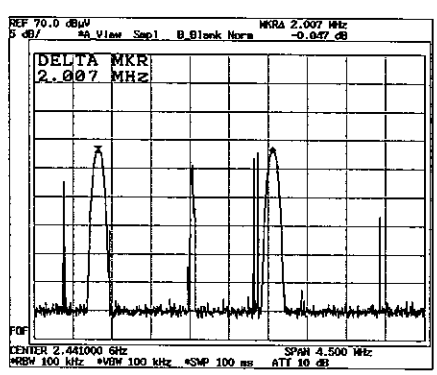
2480MHz



Inquiry



Inquiry Scan



DATA OF -20dB BANDWIDTH (CONDUCTED)

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

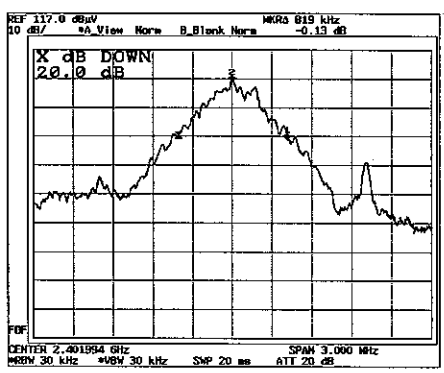
COMPANY	: DENSO WAVE INCORPORATED	REPORT NO.	: 23IE0032-HO - 1
EQUIPMENT	: BARCODE HANDY TERMINAL	REGULATION	: Fcc Part15 Subpart C 15.247(a)(1)
MODEL	: BHT-8000DB	TEST DISTANCE	: -
S/ N	: 5496310204300008	DATE	: 05/17/2003
FCC ID	: PZWBHT8000	TEMPERATURE	: 26℃
IC Number	: 1551C-BHT8000	HUMIDITY	: 51%
POWER	: DC 3V		
MODE	: Tx (Hopping off) /Inquiry		

Engineer : Yoshiaki Iwasa

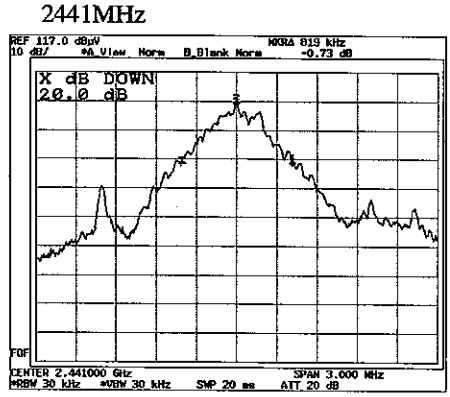
PK DETECT(S/A: span 3MHz, RBW 30kHz ,VBW 30kHz, sweep time AUTO)

CH	FREQ [MHz]	-20dB Bandwidth [MHz]	Limit [MHz]
Low	2402.0	0.819	1.0
Mid	2441.0	0.819	1.0
High	2480.0	0.816	1.0
Inquiry	2441.0	0.681	1.0
Inquiry Scan	2441.0	0.100	1.0

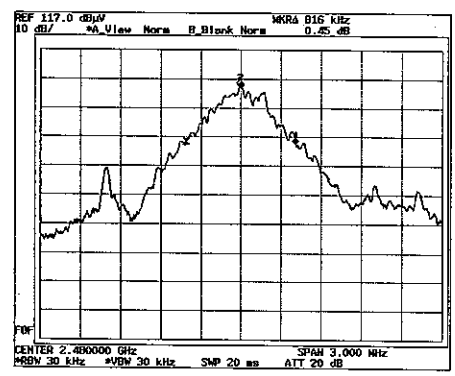
2402MHz



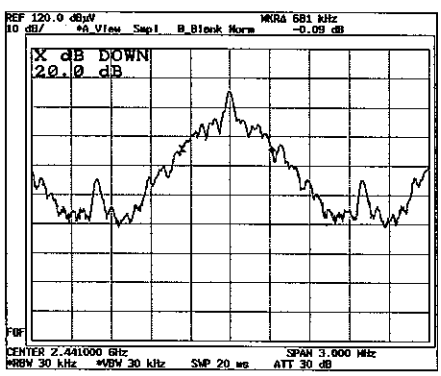
2441MHz



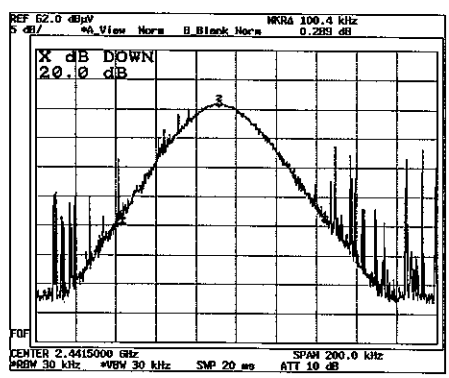
2480MHz



Inquiry



Inquiry Scan



DATA OF NUMBER OF HOPPING FREQUENCY (CONDUCTED)

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

COMPANY	: DENSO WAVE INCORPORATED	REPORT NO	: 23IE0032-HO - 1
EQUIPMENT	: BARCODE HANDY TERMINAL	REGULATION	: Fcc Part15 Subpart C 15.247(a)(1)
MODEL	: BHT-8000DB	TEST DISTANCE	: -
S/ N	: 5496310204300008	DATE	: 05/17/2003
FCC ID	: PZWBHT8000	TEMPERATURE	: 26℃
IC Number	: 1551C-BHT8000	HUMIDITY	: 51%
POWER	: DC 3V		
MODE	: Tx (Hopping on) / Inquiry		

Engineer : Yoshiaki Iwasa

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

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

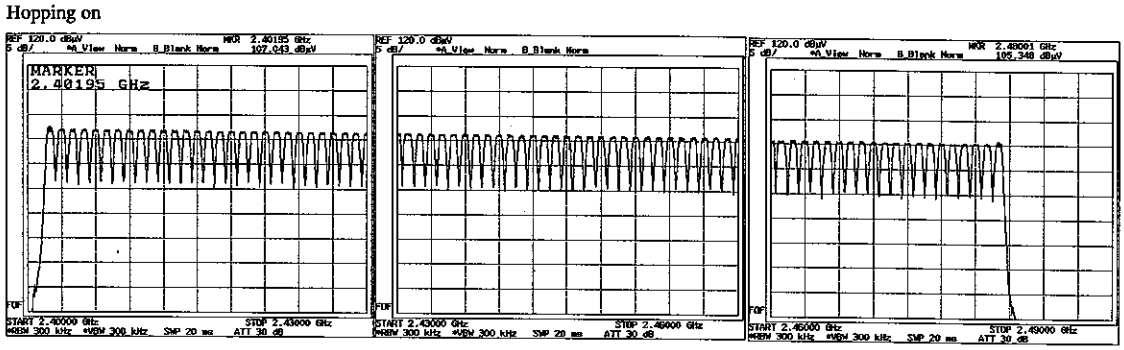
PK DETECT(S/A : RBW 300kHz ,VBW 300kHz, sweep time AUTO)

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

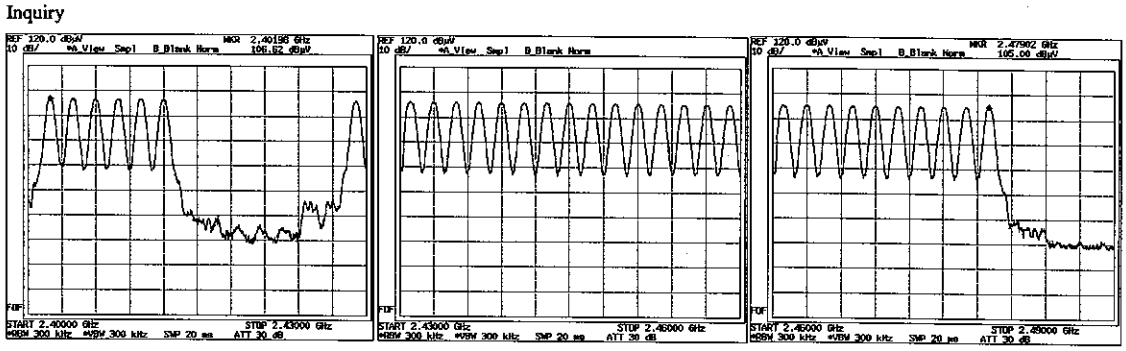
PK DETECT(S/A : RBW 300kHz ,VBW 300kHz, sweep time AUTO)

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

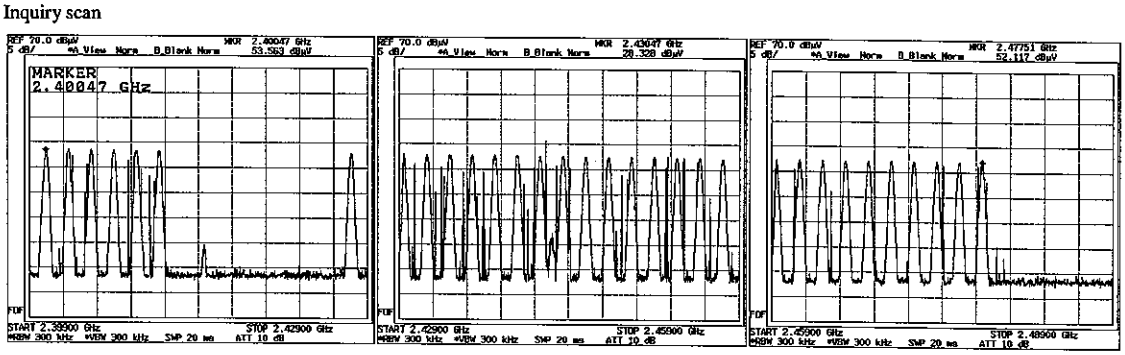
Hopping on



Inquiry



Inquiry scan



DATA OF DWELL TIME (CONDUCTED)

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

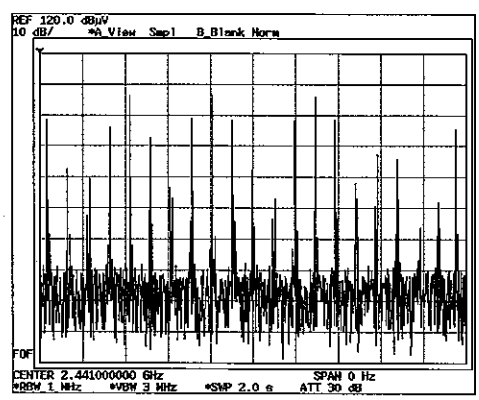
COMPANY	: DENSO WAVE INCORPORATED	REPORT NO	: 23IE0032-HO - 1
EQUIPMENT	: BARCODE HANDY TERMINAL	REGULATION	: Fcc Part15 Subpart C 15.247(a)(1)(iii)
MODEL	: BHT-8000DB	TEST DISTANCE	: -
S/ N	: 5496310204300008	DATE	: 05/17/2003
FCC ID	: PZWBHT8000	TEMPERATURE	: 26℃
IC Number	: 1551C-BHT8000	HUMIDITY	: 51%
POWER	: DC 3V		
MODE	: Tx (Hopping on) / Inquiry		

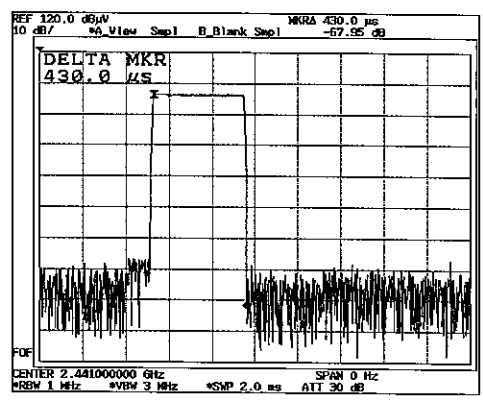
Engineer : Yoshiaki Iwasa

PK DETECT (S/A :span ZERO, RBW 1MHz ,VBW 3MHz, sweep time 0.5ms-100ms)

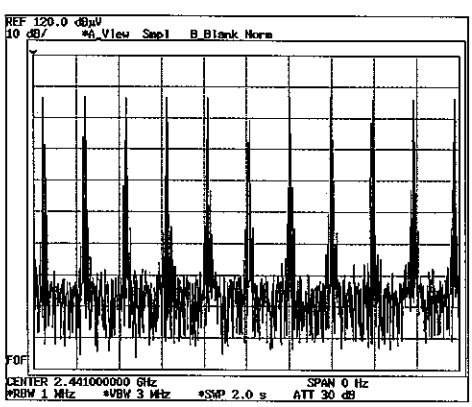
Mode	Number of transmission in a 31.6(79 Hopping x 0.4) / 12.8(32 Hopping x 0.4)second period	Length of transmission time [msec]	Result [msec]	Limit [msec]
DH1	21 times / 2 sec. x 31.6 = 332 times	0.430	142.67	400
DH3	11 times / 2 sec. x 31.6 = 174 times	1.700	295.46	400
DH5	17 times / 5 sec. x 31.6 = 107 times	2.940	315.87	400
Inquiry	43 times / 1 sec. x 12.8 = 550 times	0.136	74.58	400
Inquiry Scan	29 times / 200 sec. x 12.8 = 2 times	12.100	22.46	400

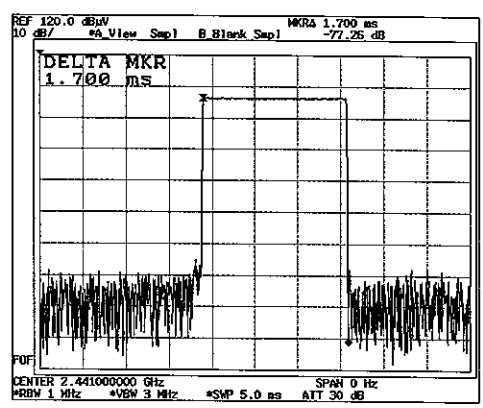
DH1





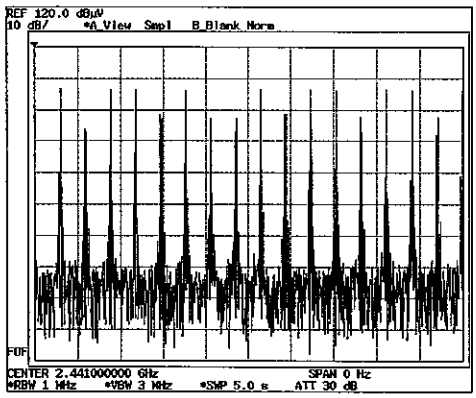
DH3

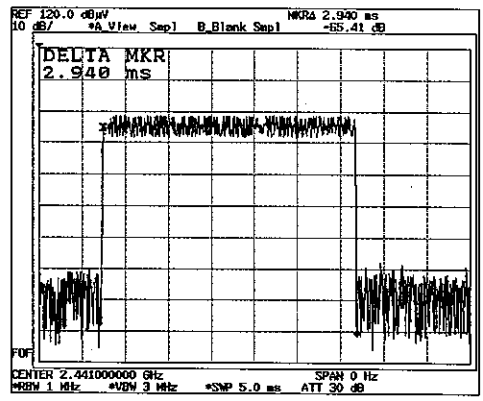




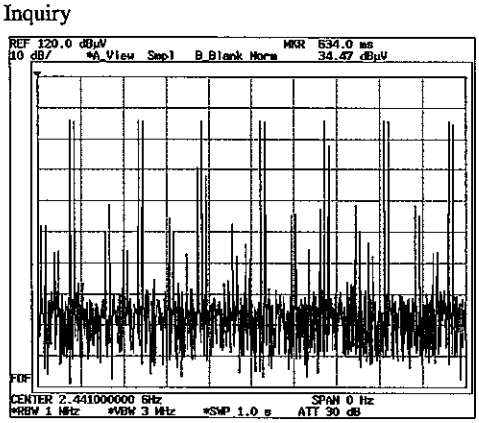
DATA OF DWELL TIME (Conducted)

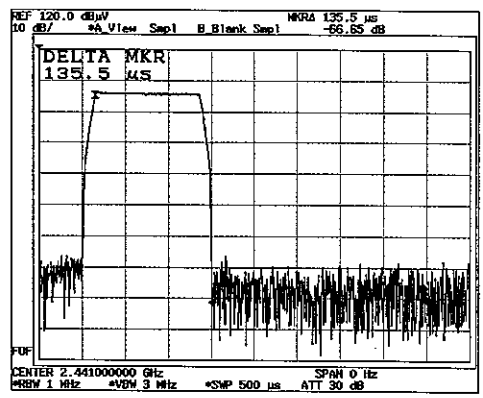
DH5



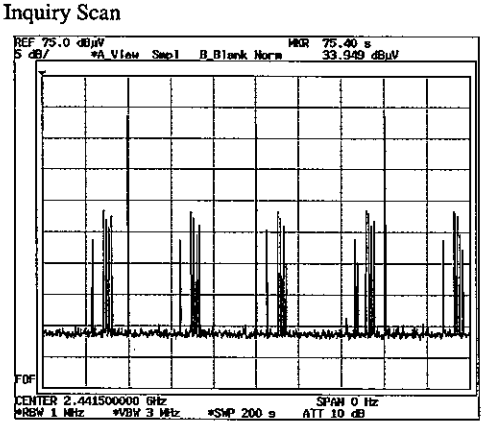


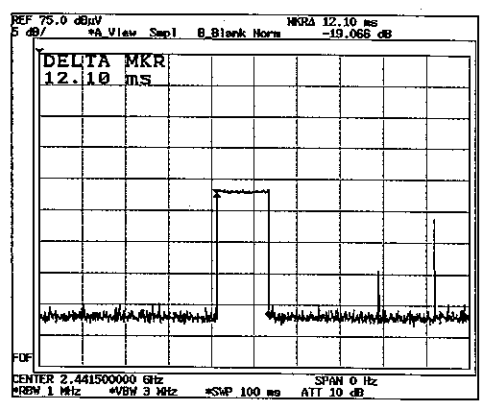
Inquiry





Inquiry Scan





DATA OF PEAK OUTPUT POWER(CONDUCTED)

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

COMPANY	: DENSO WAVE INCORPORATED	REPORT NO	: 23IE0032-HO - 1
EQUIPMENT	: BARCODE HANDY TERMINAL	REGULATION	: Fcc Part15 Subpart C 15.247(b)(1)
MODEL	: BHT-8000DB	TEST DISTANCE	: -
S/ N	: 5496310204300008	DATE	: 05/17/2003
FCC ID	: PZWBHT8000	TEMPERATURE	: 26℃
IC Number	: 1551C-BHT8000	HUMIDITY	: 51%
POWER	: DC 3V		
MODE	: Tx (Hopping off) / Inquiry		

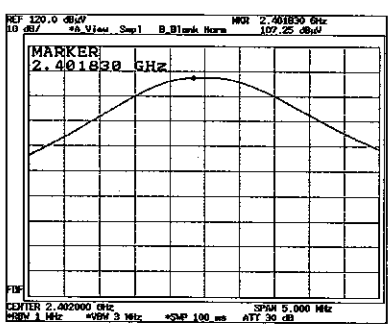
Engineer : Yoshiaki Iwasa

(SPAN: 5MHz , RBW: 1MHz , VBW: 3MHz , Sweep: AUTO)

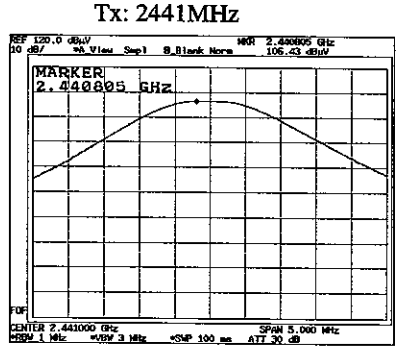
CH	FREQ [MHz]	S/A Reading [dBuV]	Cable loss [dB]	Result [dBm]	Limit (1W) [dBuV]	Margin [dBm]
Low	2402.0	107.3	1.1	1.3	30.0	28.7
Mid	2441.0	106.4	1.1	0.5	30.0	29.5
High	2480.0	105.7	1.1	-0.2	30.0	30.2
Inquiry	2441.0	105.8	1.1	-0.1	21.0	21.1
Inquiry scan	2441.0	53.3	1.1	-52.6	21.0	73.6

Sample Calculation:
Result=S/A Reading + Cable Loss

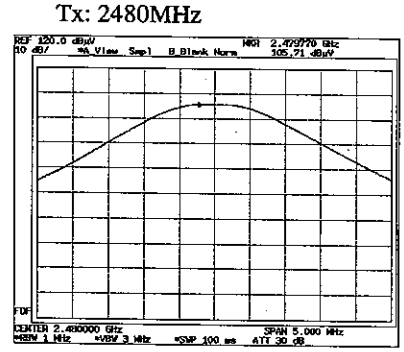
Tx: 2402MHz



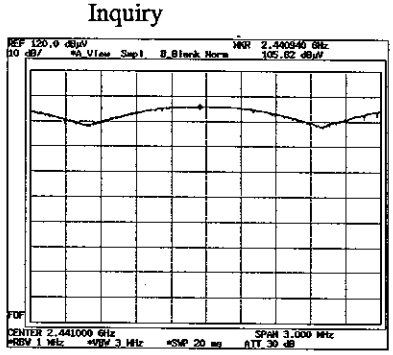
Tx: 2441MHz



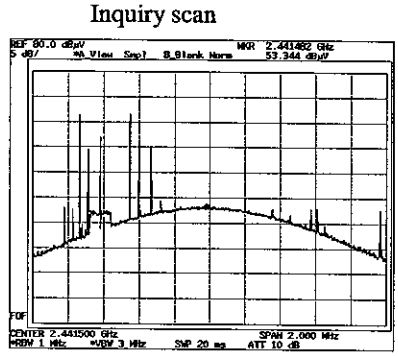
Tx: 2480MHz



Inquiry



Inquiry scan



DATA OF BAND EDGE (CONDUCTED)

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

COMPANY	: DENSO WAVE INCORPORATED	REPORT NO.	: 23IE0032-HO
EQUIPMENT	: BARCODE HANDY TERMINAL	REGULATION	: Fcc Part15 Subpart C 15.247(c)
MODEL	: BHT-8000DB	TEST DISTANCE	: -
S/ N	: 5496310204300008	DATE	: 05/18/2003
FCC ID	: PZWBHT8000	TEMPERATURE	: 25℃
IC Number	: 1551C-BHT8000	HUMIDITY	: 57%
POWER	: DC 3V		
MODE	: Tx (Hopping on/off)		

Engineer : Yoshiaki Iwasa

PK DETECT (S/A :SPAN 10MHz, RBW 100kHz ,VBW 100kHz, 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	55.1	1.1	56.2	8.32	-	46.5	<74[dBuV/m]	
2400.0	65.0	1.1	66.1	-	42.3	-	>20[dB]	*
2483.7	57.2	1.1	58.3	13.49	-	48.6	<74[dBuV/m]	

* Reference : Reading (107.25[dBuV]) + Cable Loss (1.1[dB])) = 108.35 [dBuV](at 2402MHz)

AV DETECT (S/A :SPAN 10MHz, RBW 10Hz ,VBW 10Hz, 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	20.0	1.1	21.1	0.00	-	11.4	<54[dBuV/m]
2483.7	21.2	1.1	22.3	0.00	-	12.6	<54[dBuV/m]

PK DETECT (S/A :SPAN 10MHz, RBW 100kHz ,VBW 100kHz, sweep time AUTO)
[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	56.4	1.1	57.5	11.22	-	47.8	<74[dBuV/m]	
2400.0	58.9	1.1	60.0	-	48.4	-	>20[dB]	*
2483.7	58.4	1.1	59.5	17.78	-	49.8	<74[dBuV/m]	

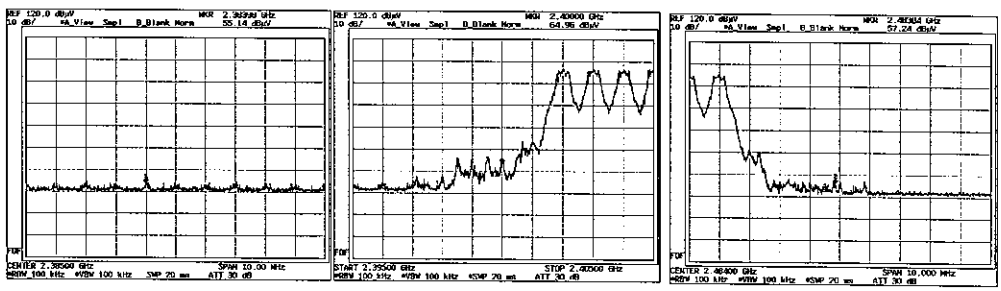
* Reference : Reading (107.25[dBuV]) + Cable Loss (1.1[dB])) = 108.35 [dBuV](at 2402MHz)

AV DETECT (S/A :SPAN 10MHz, RBW 10Hz ,VBW 10Hz, sweep time AUTO)
[Hopping off Tx (2402/2480MHz)] Conducted

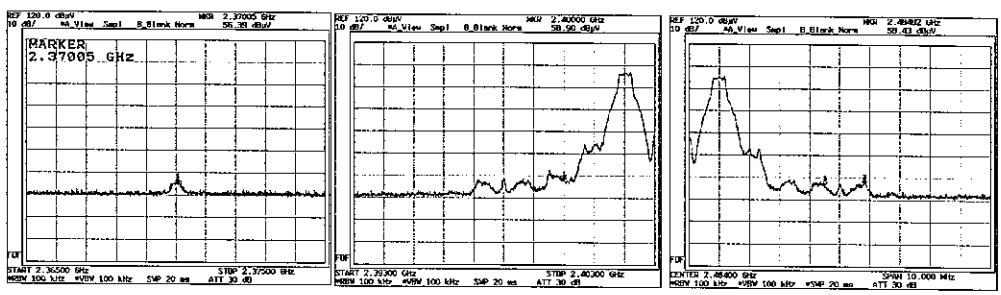
Frequency [MHz]	Reading [dBuV]	Cable Loss [dB]	E [dBuV]	P [nW]	Difference of level [dB]	Field Strength [dBuV/m]	Limit
2390.0	45.3	1.1	46.4	0.87	-	36.7	<54[dBuV/m]
2483.7	41.4	1.1	42.5	0.35	-	32.8	<54[dBuV/m]

Sample Calculation:
Field Strength = 20log((√30*P*10^-9*G) / d *10^6)
E : Reading + Cable Loss
P : Converted to nW
d : Test distance(3.0m)
G : Numeric Antenna G 1.61 (antenna gain 2.06 dBi)

Hopping on



Hopping off



DATA OF RADIATION TEST

UL Apex Co., Ltd. Head Office EMC Lab.
No.2 Semi Anechoic Chamber
Report No.: 231E0032-H0-1

Applicant	: DENSO WAVE INCORPORATED
Kind of Equipment	: BARCODE HANDY TERMINAL
Model No.	: BHT-8000DB
Serial No.	: 5496310204300058
Power	: DC 3V
Mode	: Tx (2402MHz)
Remarks	: DETECTOR: QP / FCC ID: PZWBHT8000 / IC No.: 1551C-BHT8000
Date	: 4/29/2003
Test Distance	: 3 m
Temperature	: 23 ℃
Humidity	: 56 %
Regulation	: FCC §15.247(C)

Engineer : Yoshiaki Iwasa

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.	73.74	BB	34.0	40.5	6.3	27.6	0.9	6.0	19.6	26.1	40.0	20.4	13.9
2.	88.47	BB	32.3	37.3	7.5	27.2	1.1	6.0	19.7	24.7	43.5	23.8	18.8
3.	98.32	BB	33.1	40.2	9.5	26.7	1.1	6.1	23.1	30.2	43.5	20.4	13.3
4.	648.80	BB	39.0	35.9	19.8	28.8	3.3	6.1	39.4	36.3	46.0	6.6	9.7
5.	707.78	BB	37.0	35.0	20.2	28.8	3.5	6.1	38.0	36.0	46.0	8.0	10.0
6.	943.71	BB	35.4	28.6	23.0	28.5	4.0	6.1	40.0	33.2	46.0	6.0	12.8

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.: 231E0032-H0-1

Applicant	: DENSO WAVE INCORPORATED
Kind of Equipment	: BARCODE HANDY TERMINAL
Model No.	: BHT-8000DB
Serial No.	: 5496310204300058
Power	: DC 3V
Mode	: Tx (2441MHz)
Remarks	: DETECTOR: QP / FCC ID: PZWBHT8000 / IC No.: 1551C-BHT8000
Date	: 4/29/2003
Test Distance	: 3 m
Temperature	: 23 ℃
Humidity	: 56 %
Regulation	: FCC §15.247(C)

Engineer : Yoshiaki Iwasa

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.	73.74	BB	37.6	37.7	6.3	27.6	0.9	6.0	23.2	23.3	40.0	16.8	16.7
2.	88.47	BB	25.8	33.4	7.5	27.2	1.1	6.0	13.2	20.8	43.5	30.3	22.7
3.	98.32	BB	32.9	33.3	9.5	26.7	1.1	6.1	22.9	23.3	43.5	20.6	20.2
4.	648.80	BB	38.9	36.2	19.8	28.8	3.3	6.1	39.3	36.6	46.0	6.7	9.4
5.	707.79	BB	38.1	35.3	20.2	28.8	3.5	6.1	39.1	36.3	46.0	6.9	9.7
6.	943.71	BB	35.8	29.0	23.0	28.5	4.0	6.1	40.4	33.6	46.0	5.6	12.4

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.: 231E0032-H0 - 1

Applicant	:	DENSO WAVE INCORPORATED
Kind of Equipment	:	BARCODE HANDY TERMINAL
Model No.	:	BHT-8000DB
Serial No.	:	5496310204300058
Power	:	DC 3V
Mode	:	Tx (2480MHz)
Remarks	:	DETECTOR: QP / FCC ID: PZWBHT8000 / IC No.: 1551C-BHT8000
Date	:	4/29/2003
Test Distance	:	3 m
Temperature	:	23 ℃
Humidity	:	56 %
Regulation	:	FCC §15.247(C)

Engineer : Yoshiaki Iwasa

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.	73.74	BB	27.3	40.3	6.3	27.6	0.9	6.0	12.9	25.9	40.0	27.1	14.1
2.	88.47	BB	25.3	36.5	7.5	27.2	1.1	6.0	12.7	23.9	43.5	30.8	19.6
3.	98.32	BB	33.8	40.8	9.5	26.7	1.1	6.1	23.8	30.8	43.5	19.7	12.7
4.	648.80	BB	39.1	36.2	19.8	28.8	3.3	6.1	39.5	36.6	46.0	6.5	9.4
5.	707.78	BB	38.1	35.1	20.2	28.8	3.5	6.1	39.1	36.1	46.0	6.9	9.9
6.	943.71	BB	35.1	28.4	23.0	28.5	4.0	6.1	39.7	33.0	46.0	6.3	13.0

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	: DENSO WAVE INCORPORATED	REPORT NO	: 23IE0032-HO - 1
EQUIPMENT	: BARCODE HANDY TERMINAL	REGULATION	: FCC Part 15 Subpart C 15.247(c)
MODEL	: BHT-8000DB	TEST DISTANCE	: 3 and 1m
S/ N	: 5496310204300058	DATE	: 4/28/2003 : 5/17/2003
FCC ID	: PZWBHT8000	TEMPERATURE	: 27°C : 26°C
IC Number	:1551C-BHT8000	HUMIDITY	: 45% : 51%
POWER	: DC 3V		
MODE	: Bluetooth Mode Tx (2402MHz)	ENGINEER	: Yoshiaki Iwasa
AXIS	: X-axis		

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

No.	FREQ	S/A READING HOR	S/A READING VER	ANT Factor	AMP GAIN	CABLE LOSS	Band-Pass Filter	RESULT HOR	RESULT VER	Limit PK	MARGIN HOR	MARGIN 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	1061.8	42.4	41.0	22.8	27.3	4.4	0.0	42.3	40.9	74.0	31.7	33.1
2	1201.5	45.5	42.9	23.3	27.3	4.6	0.0	46.1	43.5	74.0	27.9	30.5
3	2390.0	38.4	38.0	30.7	26.9	6.3	0.0	48.5	48.1	74.0	25.5	25.9
4	4804.0	39.5	38.3	35.1	25.8	8.7	0.0	57.5	56.3	74.0	16.5	17.7
5	7206.0	37.9	37.3	37.5	25.0	10.9	0.0	61.2	60.6	74.0	12.8	13.4
6	9608.0	40.1	39.9	37.3	25.1	4.1	0.0	56.4	56.2	74.0	17.6	17.8
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
7	12010.0	38.2	38.0	40.1	25.1	4.5	0.0	48.2	48.0	74.0	25.8	26.0
8	14412.0	38.2	40.0	43.0	24.8	5.1	0.0	52.1	53.9	91.1	39.0	37.2
9	16814.0	41.5	42.5	44.7	24.7	5.6	0.0	57.7	58.6	91.1	33.4	32.5
10	19216.0	41.5	41.7	41.0	24.5	6.1	0.0	54.5	54.8	74.0	19.5	19.2
11	21618.0	41.2	41.9	40.5	24.4	7.1	0.0	54.8	55.5	91.1	36.3	35.6
12	24020.0	42.3	42.8	40.2	25.3	7.2	0.0	54.8	55.4	91.1	36.3	35.7

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

No.	FREQ	S/A READING HOR	S/A READING VER	ANT Factor	AMP GAIN	CABLE LOSS	Band-Pass Filter	RESULT HOR	RESULT VER	Limit AV	MARGIN HOR	MARGIN 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	1063.7	31.6	31.0	22.8	27.3	4.4	0.0	31.5	30.9	54.0	22.5	23.1
2	1201.5	39.0	34.1	23.3	27.3	4.6	0.0	39.6	34.7	54.0	14.4	19.3
3	2390.0	25.2	25.3	30.7	26.9	6.3	0.0	35.4	35.4	54.0	18.6	18.6
4	4804.0	26.3	25.8	35.1	25.8	8.7	0.0	44.3	43.8	54.0	9.7	10.2
5	7206.0	25.4	25.0	37.5	25.0	10.9	0.0	48.7	48.3	54.0	5.3	5.7
6	9608.0	26.9	26.9	37.3	25.1	4.1	0.0	43.2	43.2	54.0	10.8	10.8
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
7	12010.0	25.5	25.5	40.1	25.1	4.5	0.0	35.5	35.5	54.0	18.5	18.5
8	14412.0	25.4	25.3	43.0	24.8	5.1	0.0	39.3	39.2	71.1	31.8	31.9
9	16814.0	29.3	29.3	44.7	24.7	5.6	0.0	45.5	45.5	71.1	25.6	25.6
10	19216.0	28.7	28.8	41.0	24.5	6.1	0.0	41.8	41.8	54.0	12.2	12.2
11	21618.0	29.3	29.4	40.5	24.4	7.1	0.0	43.0	43.0	71.1	28.1	28.1
12	24020.0	30.2	30.2	40.2	25.3	7.2	0.0	42.8	42.7	71.1	28.3	28.4

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.

*2: In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.

DATA OF SPURIOUS EMISSIONS(1GHz to 26.5GHz)

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

COMPANY	: DENSO WAVE INCORPORATED	REPORT NO	: 23IE0032-HO - 1
EQUIPMENT	: BARCODE HANDY TERMINAL	REGULATION	: FCC Part 15 Subpart C 15.247(c)
MODEL	: BHT-8000DB	TEST DISTANCE	: 3 and 1m
S/ N	: 5496310204300058	DATE	: 4/28/2003 : 5/17/2003
FCC ID	: PZWBHT8000	TEMPERATURE	: 27°C : 26°C
IC Number	:1551C-BHT8000	HUMIDITY	: 45% : 51%
POWER	: DC 3V		
MODE	: Bluetooth Mode Tx (2441MHz)	ENGINEER	: Yoshiaki Iwasa
AXIS	: X-axis		

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

No.	FREQ [MHz]	S/A READING HOR [dBuV/m]	S/A READING VER [dBuV/m]	ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Band-Pass Filter [dB]	RESULT HOR [dBuV/m]	RESULT VER [dBuV/m]	Limit PK [dBuV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass.												
1	1061.6	41.4	42.8	22.8	27.3	4.4	0.0	41.2	42.7	74.0	32.8	31.3
2	1220.1	43.3	40.8	23.3	27.3	4.6	0.0	44.1	41.5	74.0	29.9	32.5
3	2390.0	38.7	38.0	30.7	26.9	6.3	0.0	48.8	48.2	74.0	25.2	25.8
4	4882.0	39.2	39.0	35.5	25.8	8.8	0.0	57.7	57.6	74.0	16.3	16.4
5	7329.3	38.3	39.0	37.8	25.0	11.0	0.0	62.0	62.7	74.0	12.0	11.3
6	9764.0	39.3	38.9	36.9	25.2	4.2	0.0	55.2	54.8	74.0	18.8	19.2
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
7	12205.0	37.9	37.9	41.1	25.0	4.6	0.0	49.0	49.0	74.0	25.0	25.0
8	14646.0	35.2	37.7	43.2	24.8	5.2	0.0	49.4	51.9	91.1	41.7	39.2
9	17087.0	41.1	41.9	44.9	24.6	5.7	0.0	57.6	58.4	91.1	33.5	32.7
10	19528.0	41.5	41.5	40.5	24.5	6.1	0.0	54.1	54.2	74.0	19.9	19.8
11	21969.0	40.9	41.4	40.6	24.4	7.2	0.0	54.8	55.3	91.1	36.3	35.8
12	24410.0	42.3	43.0	40.4	25.5	7.4	0.0	55.1	55.7	91.1	36.0	35.4

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

No.	FREQ [MHz]	S/A READING HOR [dBuV/m]	S/A READING VER [dBuV/m]	ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Band-Pass Filter [dB]	RESULT HOR [dBuV/m]	RESULT VER [dBuV/m]	Limit AV [dBuV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass.												
1	1061.6	30.6	31.8	22.8	27.3	4.4	0.0	30.5	31.7	54.0	23.5	22.3
2	1220.1	36.0	31.5	23.3	27.3	4.6	0.0	36.7	32.2	54.0	17.3	21.8
3	2390.0	25.1	25.1	30.7	26.9	6.3	0.0	35.3	35.2	54.0	18.7	18.8
4	4882.0	25.6	25.5	35.5	25.8	8.8	0.0	44.2	44.1	54.0	9.8	9.9
5	7329.3	26.1	25.4	37.8	25.0	11.0	0.0	49.8	49.1	54.0	4.2	4.9
6	9764.0	26.6	26.6	36.9	25.2	4.2	0.0	42.5	42.5	54.0	11.5	11.5
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
7	12205.0	25.2	25.3	41.1	25.0	4.6	0.0	36.3	36.4	54.0	17.7	17.6
8	14646.0	25.2	25.2	43.2	24.8	5.2	0.0	39.4	39.3	71.1	31.7	31.8
9	17087.0	29.2	29.1	44.9	24.6	5.7	0.0	45.7	45.6	71.1	25.4	25.5
10	19528.0	29.3	29.4	40.5	24.5	6.1	0.0	42.0	42.1	54.0	12.0	11.9
11	21969.0	29.0	28.9	40.6	24.4	7.2	0.0	42.9	42.8	71.1	28.2	28.3
12	24410.0	29.9	29.8	40.4	25.5	7.4	0.0	42.6	42.6	71.1	28.5	28.5

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.

*2: In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.

DATA OF SPURIOUS EMISSIONS(1GHz to 26.5GHz)

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

COMPANY	: DENSO WAVE INCORPORATED	REPORT NO	: 23IE0032-HO- 1
EQUIPMENT	: BARCODE HANDY TERMINAL	REGULATION	: FCC Part 15 Subpart C 15.247(c)
MODEL	: BHT-8000DB	TEST DISTANCE	: 3 and 1m
S/ N	: 5496310204300058	DATE	: 4/28/2003 : 5/17/2003
FCC ID	: PZWBHT8000	TEMPERATURE	: 27°C : 26°C
IC Number	:1551C-BHT8000	HUMIDITY	: 45% : 51%
POWER	: DC 3V		
MODE	: Bluetooth Mode Tx (2480MHz)	ENGINEER	: Yoshiaki Iwasa
AXIS	: X-axis		

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	1061.9	42.1	43.0	22.8	27.3	4.4	0.0	41.9	42.8	74.0	32.1	31.2
2	1239.5	43.1	43.0	23.4	27.3	4.7	0.0	43.9	43.8	74.0	30.1	30.2
3	2390.0	37.7	38.0	30.7	26.9	6.3	0.0	47.9	48.2	74.0	26.1	25.8
4	4960.0	38.2	38.2	36.0	25.8	8.9	0.0	57.3	57.3	74.0	16.7	16.7
5	7440.0	37.8	37.7	38.1	25.0	11.0	0.0	61.9	61.8	74.0	12.1	12.2
6	9920.0	39.8	40.5	36.4	25.2	4.2	0.0	55.3	56.0	91.1	35.8	35.1
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
7	12400.0	39.7	38.4	42.1	25.0	4.6	0.0	51.9	50.6	74.0	22.1	23.4
8	14880.0	38.1	37.9	43.4	24.8	5.2	0.0	52.5	52.2	91.1	38.6	38.9
9	17360.0	41.6	41.6	45.9	24.6	5.8	0.0	59.2	59.1	91.1	31.9	32.0
10	19840.0	42.0	41.1	40.7	24.5	6.2	0.0	54.9	54.0	74.0	19.1	20.0
11	22320.0	41.6	42.7	40.7	24.6	7.2	0.0	55.4	56.5	74.0	18.6	17.5
12	24800.0	41.9	42.3	40.4	25.6	7.6	0.0	54.7	55.1	91.1	36.4	36.0

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	1061.9	31.5	31.9	22.8	27.3	4.4	0.0	31.3	31.7	54.0	22.7	22.3
2	1239.5	36.0	32.4	23.4	27.3	4.7	0.0	36.8	33.2	54.0	17.2	20.8
3	2390.0	25.0	25.1	30.7	26.9	6.3	0.0	35.2	35.2	54.0	18.8	18.8
4	4960.0	25.7	25.6	36.0	25.8	8.9	0.0	44.8	44.7	54.0	9.2	9.3
5	7440.0	25.3	25.3	38.1	25.0	11.0	0.0	49.3	49.4	54.0	4.7	4.6
6	9920.0	27.2	27.2	36.4	25.2	4.2	0.0	42.6	42.7	71.1	28.5	28.4
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
7	12400.0	25.9	25.9	42.1	25.0	4.6	0.0	38.1	38.1	54.0	15.9	15.9
8	14880.0	25.5	25.6	43.4	24.8	5.2	0.0	39.8	40.0	71.1	31.3	31.1
9	17360.0	29.3	29.4	45.9	24.6	5.8	0.0	46.9	46.9	71.1	24.2	24.2
10	19840.0	28.9	28.8	40.7	24.5	6.2	0.0	41.8	41.7	54.0	12.2	12.3
11	22320.0	29.4	29.3	40.7	24.6	7.2	0.0	43.2	43.1	54.0	10.8	10.9
12	24800.0	29.8	29.9	40.4	25.6	7.6	0.0	42.6	42.7	71.1	28.5	28.4

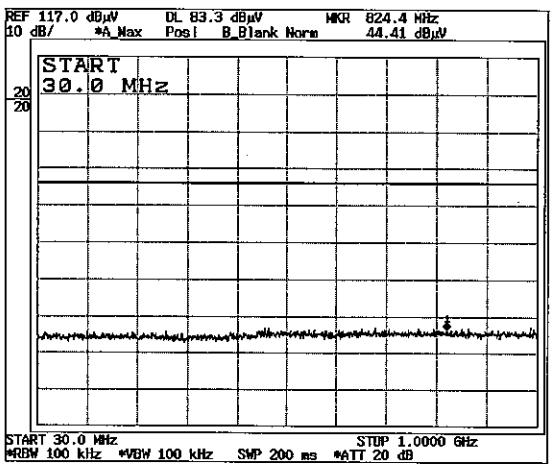
Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5 dB

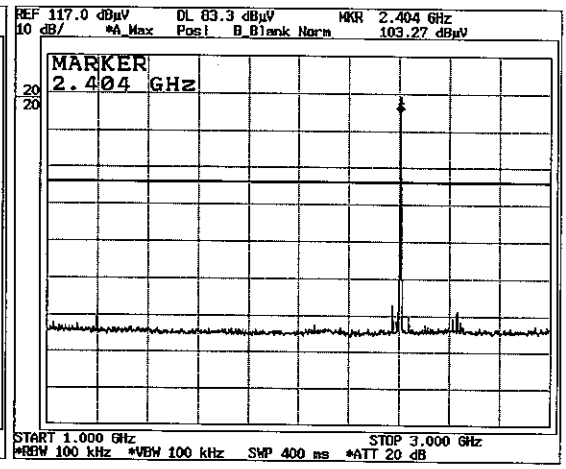
*1: Except for the above table : All other spurious emissions were less than 20dB for the limit.

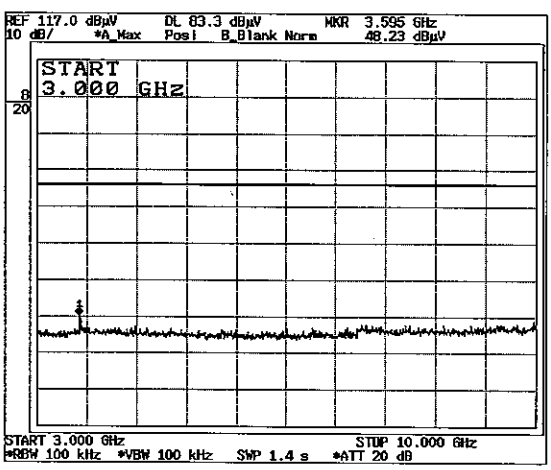
*2: In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.

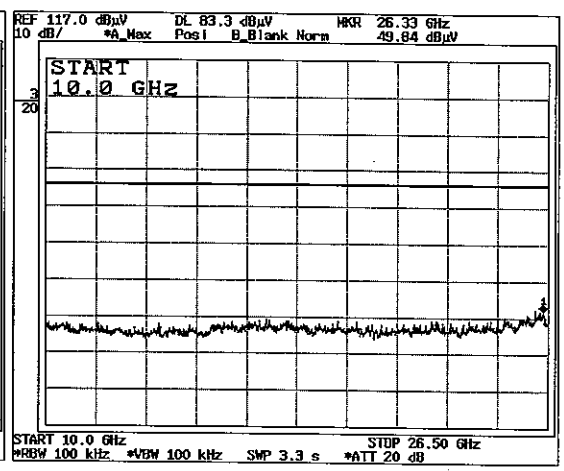
Spurious emission (Conducted)

Tx: 2402MHz

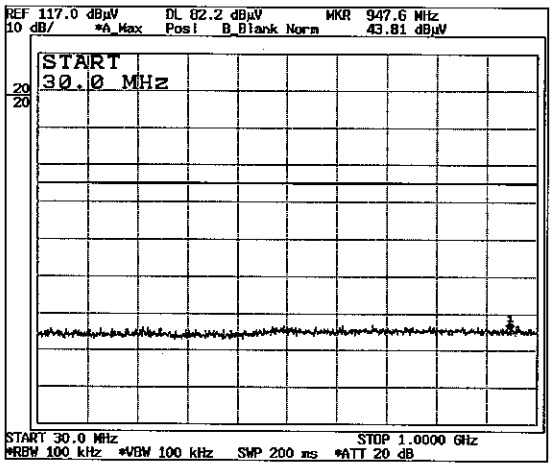


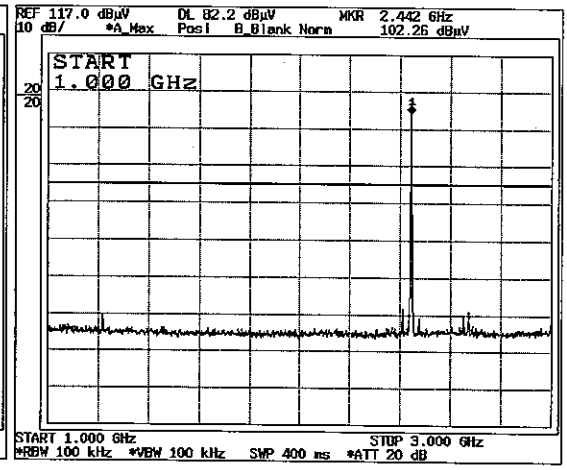


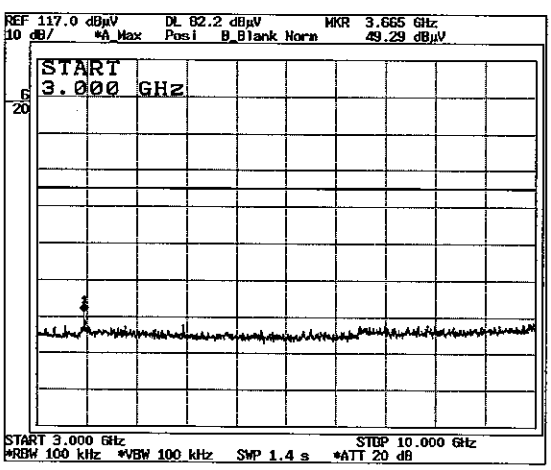


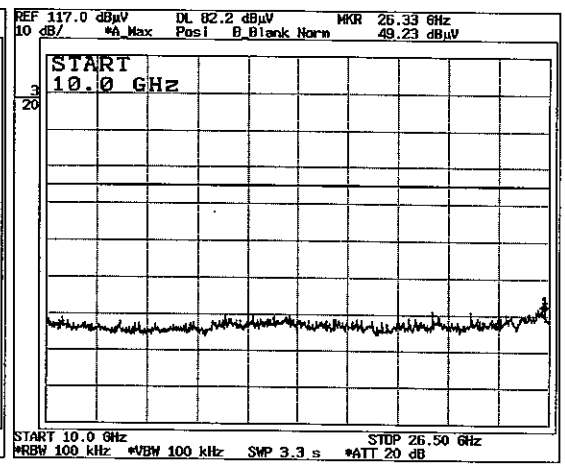


Tx: 2441MHz









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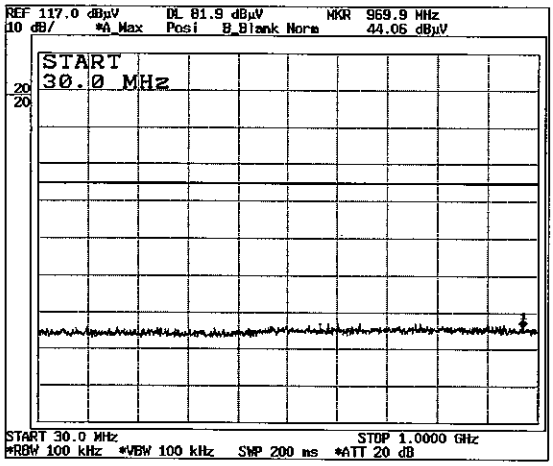
Tx: 2480MHz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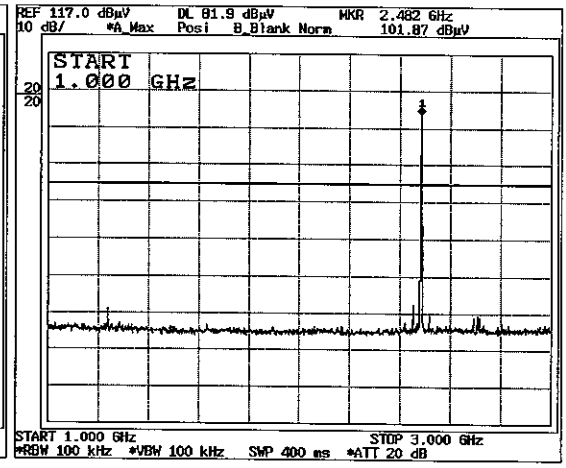
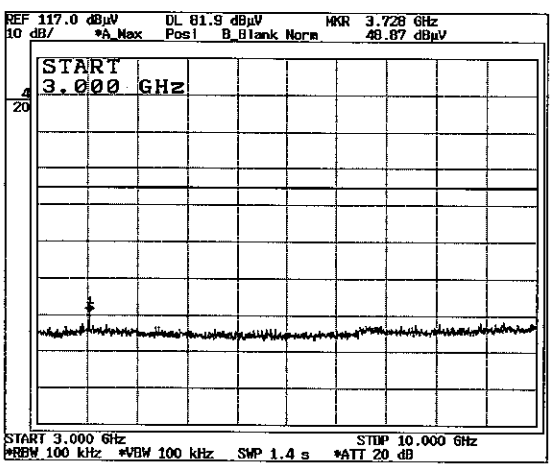
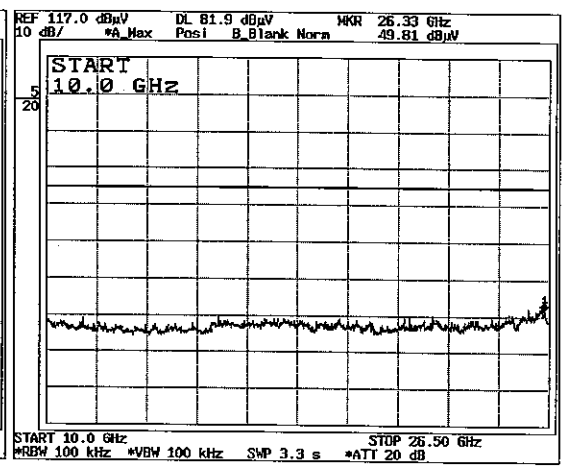
DL 81.9 dBµV
Posi B_Blank Norm
MKR 969.9 MHz
44.06 dBµV
START
30.0 MHz
START 30.0 MHz
STOP 1.0000 GHz
*RBW 100 kHz *VBW 100 kHz SWP 200 ms *ATT 20 dB


REF 117.0 dBµV
10 dB/ *A_Max
DL 81.9 dBµV
Posi B_Blank Norm
MKR 2.482 GHz
101.87 dBµV
START
1.000 GHz
START 1.000 GHz
STOP 3.000 GHz
*RBW 100 kHz *VBW 100 kHz SWP 400 ms *ATT 20 dB


REF 117.0 dBµV
10 dB/ *A_Max
DL 81.9 dBµV
Posi B_Blank Norm
MKR 3.728 GHz
48.87 dBµV
START
3.000 GHz
START 3.000 GHz
STOP 10.000 GHz
*RBW 100 kHz *VBW 100 kHz SWP 1.4 s *ATT 20 dB


REF 117.0 dBµV
10 dB/ *A_Max
DL 81.9 dBµV
Posi B_Blank Norm
MKR 26.33 GHz
49.81 dBµV
START
10.0 GHz
START 10.0 GHz
STOP 26.50 GHz
*RBW 100 kHz *VBW 100 kHz SWP 3.3 s *ATT 20 dB

99% Occupied Bandwidth