Test report No.: 23HE0018-HO-1Page: 1 of 47Issued date: March 14, 2003FCC ID: HYQBTA01A

# **EMI TEST REPORT**

Test Report No. : 23HE0018-HO-1

Applicant	:	DENSO CORPORATION
Type of Equipment	:	Bluetooth ASSY
Model No.	:	BTA-01A
Test standard	:	FCC Part 15 Subpart C Section 15.247
FCC ID	:	HYQBTA01A
Test Result	:	Complied

1. This test report shall not be reproduced in full or partial, without the written approval of A-Pex International 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 :\_\_\_\_\_ March 5,6,7 and 8, 2003

Hiroka Umeyama EMC Head Office Division

Approved by :

Tested by

Hironobu Shimoji Group Leader of EMC Head Office Division

A-Pex International Co., Ltd. EMC Head Office Division. 4383-326 Asama-cho, Ise-shi, Mic-ken 516-0021 JAPAN Telephone: +81 596 24 8116 Facsimile: +81 596 24 8124

MF060b(23.04.02)

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## **<u>SECTION 1:</u>** Client information

Company Name	:	DENSO CORPORATION
Brand Name	:	DENSO
Address	:	1-1 Showa-cho, Kariya-shi, Aichi-ken, 448-8661 Japan
Telephone Number	:	+81-566-61-3711
Facsimile Number	:	+81-566-25-4941
Contact Person	:	Hiroshi Miyazaki

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

### 2.1 Identification of E.U.T.

Type of Equipment	: Bluetooth ASSY
Model No.	: BTA-01A
Serial No.	: 23, 40
Rating	: DC3.3V DC5V
Country of Manufacture	: Japan
Receipt Date of Sample	: March 5, 2003
Condition of EUT	: Production prototype

### 2.2 **Product Description**

Model: BTA-01A which was referred to as the EUT in this report is a Bluetooth ASSY. This product is installed in Display in a Navigation system. And this product is used for a Hands free system. Instead of having connected using the cable, a Navigation system is connected with a cellular phone on radio by using this product.

The specification is as following;

Equipment Type	:	Transceiver
Clock frequency used in EUT	:	13MHz
Frequency characteristics	:	from 2402MHz to 2480MHz
Type of modulation	:	GFSK
Bandwidth & Channel spacing	:	78MHz, 1MHz
Emission Designation (ITU Code)	:	F1D
Antenna Type	:	λ/ 4 Uni-pole
Antenna Connector type	:	MM8430-2600B
Antenna gain	:	1.0dBi (Max)
Method of Frequency Generation	:	■ Crystal ■ Synthesizer □ Other (Resonator)
Power Supply	:	DC3.3V
Operating voltage	:	DC3.1-3.5V
Duty cycle	:	0.78
Operating temperature	:	-30deg.C. to+85deg.C.
Power & Signal Cable Length	:	$\Box > 3m \blacksquare \leq 3m$

\*FCC Part 15.31(e) Verification of Input Power:

The host device BTA-01A provide the stable power-supply (DC 3.3V); and the Bluetooth ASSY complies power supply regulation.

\*FCC Part 15.203 Antenna requirement

The antenna built in the BTA-01A is a chip antenna and is permanently mounted by soldering on a printed electronic circuit board in BTA-01A. It is impossible for end users to replace it, because a special tool is necessary for removal of the antenna.

### **SECTION 3:** Test specification, procedures and results

### 3.1 Test Specification

Test Specification Title	:	FCC Part 15 Subpart C and Section15.247 FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
		Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz,
		5725-5850MHz

### 3.2 Procedures and results

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	Conducted	ANSI C63.4:2001	Section 15.207	N/A	Excluded	N/A	Complied
	Emission				*		
2	Carrier	ANSI C63.4:2001	Section15.247(a)(1)	Conducted	N/A	N/A	Complied
	Frequency						
	Separation						
3	20dB Bandwidth	ANSI C63.4:2001	Section15.247(a)(1)	Conducted	N/A	N/A	Complied
4	Number of	ANSI C63.4:2001	Section15.247(a)(1)(iii)	Conducted	N/A	N/A	Complied
	Hopping						
	Frequency						
5	Dwell time	ANSI C63.4:2001	Section15.247(a)(1)(iii)	Conducted	N/A	N/A	Complied
6	Maximum Peak	ANSI C63.4:2001	Section15.247(b)(1)	Conducted	N/A	N/A	Complied
	Output Power						
7	Band	ANSI C63.4:2001	Section15.247(c)	Conducted	N/A	N/A	Complied
	Edge Compliance						
8	Spurious	ANSI C63.4:2001	Section15.247(c)	Conducted/	N/A	5.8dB	Complied
	Emission			Radiated		223.20MHz	
						Horizontal/	
						Vertical	
* Th	<sup>5</sup> The test is not applicable since the EUT does not have possibility to be connected with the AC Power						

These tests were performed without any deviations from test procedure except for additions or exclusions.

### 3.3 Confirmation

# A-Pex International Co., Ltd. hereby confirms that E.U.T. , in the configuration tested, complies with the specifications FCC Part15 Subpart C Section 15.247.

### 3.4 Uncertainty

### Spurious Emission(Radiated)

The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is  $\pm 4.5$ dB. The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is  $\pm 5.2$ dB. The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is  $\pm 6.6$ dB.

The data listed in this test report may exceed the test limit because it does not have enough margin.

Other test except Conducted Emission and Spurious Emission(Radiated)

The measurement uncertainty (with a 95% confidence level) for this test was  $\pm 3.0$  dB. The data listed in this test report has enough margin.

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## 3.5 Test Location

A-Pex International Co., Ltd. EMC Head Office Division. No.2 semi anechoic chamber, 7.5 x 5.8 x 5.2m. 4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN Telephone: +81 596 24 8116 Facsimile: +81 596 24 8124 This site has been fully described in a report submitted to FCC office, and listed on June 05, 2002 (Registration number: 846015). \*NVLAP Lab. code: 200572-0 Industry Canada: IC4247-2

### 3.6 Test setup, Data of EMI and Test instruments

Refer to APPENDIX 1 to 3.

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

### 4.1 Operating Modes

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

The operating mode/system was as follows:

Operation mode : Transmitting

1.Transmitting mode(2402 MHz)
2.Transmitting mode(2441 MHz)
3.Transmitting mode(2480MHz)
4. Transmitting mode(Hopping on)
*This system does not have Inquiry mode
*This system uses only DH5 type (packet)

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	Remark
1	Bluetooth ASSY	BTA-01A	23, 40	DENSO	EUT
				CORPORATION	
2	DC Power Supply	MY40000510	6654A	Agilent	-
3	DC Power Supply	PCM35-2A	13D90501	KIKUSUI	-
4	JIGU	N/A	N/A	DENSO	-
				CORPORATION	

### List of cables used

No.	Name	Length (m)	Shield	Backshell Material
a	DC Power Cable	2.0	Ν	Polyvinyl chloride
b	DC Power Cable	1.0	Ν	Polyvinyl chloride
c	DC Power Cable	0.2	Ν	Polyvinyl chloride

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## SECTION 5: 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
Fest result
Pass

	•	1 ass
Test instruments	:	MTR-01, MCC-05

### SECTION 6: 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 2Test result:PassTest instruments:MTR-01, MCC-05

### SECTION 7: 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 2Test result:PassTest instruments:MTR-01, MCC-05

### SECTION 8: 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	:	MTR-01, MCC-05

### SECTION 9: 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	:	MTR-01, MCC-05, MAT-21

### SECTION 10: 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 2Test result:PassTest instruments:MTR-01, MCC-05

## SECTION 11: 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	:	MTR-01, 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.

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, MSA-02, MTR-02

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## APPENDIX 1: Photographs of test setup

Page 11 : Spurious Emission (Radiated)

Page 12 : Other tests except Conducted emission and Spurious Emission (Radiated)

### **APPENDIX 2:** Test instruments

Page 13 : Test instruments

### **APPENDIX 3: Data of EMI test**

- Page 14-16 : Carrier Frequency Separation
- Page 17-19 : 20dB Bandwidth
- Page 20-22 : Number of Hopping Frequency
- Page 23-29 : Dwell time
- Page 30-32 : Maximum Peak Output Power
- Page 33-35 : Band Edge Compliance
- Page 36-47 : Spurious Emission

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## APPENDIX 1: Photographs of test setup

## **Spurious Emission (Radiated)**





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Other tests except Conducted emission and Spurious Emission (Radiated)

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### Test Report No :23HE0018-HO- 1

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APPENDIX 2	· · · · ·	
Test Instruments		

### EMI test equipment

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Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date *
MTP-01	Tost Beesiver	Pahda & Sahwarz	ES140	DE	Interval(month)
	Anna hair Obamban	TDK			2002/11/01 + 12
MAEC-UZ	Anechoic Gnamber	IDK	Chamber 3m	RE	2002/04/12 * 12
MCC-11	Microwave coaxial cable	Suhner	SUCOFLEX 104	RE	2002/03/27 * 12
MBF-01	SHF Bandpass Filter	M-City	5GHz BPF	RE	2002/04/30 * 12
MAT-21	Attenuator	HIROSE ELECTRIC CO.,LTD.	AT-120	RE	2003/02/03 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	e 🚽 da e en primero	RE	2002/05/09 * 12
MHA-05	Hom Antenna	Schwarzbeck	BBHA9120D	RE	2003/01/11 * 12
MPA-01	Pre Amplifier	Agilent	8449B	RE	2003/02/08 * 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
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2002/05/02 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2002/05/02 * 12
MPA-04	Pre Amplifier	Agilent	8447D	RE	2002/03/13 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	RE	2002/12/24 * 12
MHA-01	Horn Antenna	EMCO	3160-09	RE	2003/01/11 * 12
MSA-02	Spectrum Analyzer	Advantest	R3265A	RE	2002/09/20 * 12
MTR-02	Test Receiver	Rohde & Schwarz	ESCS30	RE	2003/01/31 * 12
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All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards. Test Item:

**RE: Radiated emission** 

# A-PEX INTERNATIONAL CO., LTD.

# **DATA OF CARRIER FREQUENCY SEPARATION**

A-Pex International Co., Ltd. EMC HEAD OFFICE DIVISION No.2 SEMI ANECHOIC CHAMBER

Hiroka Umeyama

COMPANY	:	DENSO CORPORATION	REPORT NO	:	23HE0018-HO_ 1
EQUIPMENT	:	Bluetooth ASSY	REGULATION	:	Fcc Part15 Subpart C 15.247(a)(1)
MODEL	:	BTA-01A	TEST DISTANCE	:	na ann an Aonaichtean ann an Aonai Ann an Aonaichtean ann an Aonaichtea
S/ N	:	40	DATE	:	03/05/2003
FCC ID	· :	HYQBTA01A	TEMPERATURE	:	24°C
IC Number	:	1551A-BTA01A	HUMIDITY	:	34%
POWER	:	DC3.3V			
MODE	:	Tx (Hopping on)	in		
					malan

Enginee:

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

CH	FREQ	Channel separation	Limit
	[MHz]	[MHz]	
Low	2402.0	0.998	>20dB Bandwidth and 25[kHz]
Mid	2441.0	1.022	>20dB Bandwidth and 25[kHz]
High	2480.0	1.028	>20dB Bandwidth and 25[kHz]

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Test Report No.	:23HE0018-HO-1
FCC ID	:HYQBTA01A
IC No.	:1551A-BTA01A

## Carrier Frequency Separation: TX(Hopping on)2402MHz

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## Carrier Frequency Separation: TX(Hopping on)2441MHz



Test Report No.	:23HE0018-HO- <b>1</b>
FCC ID	:HYQBTA01A
IC No.	:1551A-BTA01A

# Carrier Frequency Separation:TX(Hopping on)2480MHz

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# **DATA OF 20dB BANDWIDTH**

A-Pex International Co., Ltd. EMC HEAD OFFICE DIVISION No.2 SEMI ANECHOIC CHAMBER

COMPANY	:	DENSO CORPORATION	<b>REPORT NO</b>		23НЕ0018-НО- 1
EQUIPMENT	:	Bluetooth ASSY	REGULATION	:	Fcc Part15 Subpart C 15.247(a)(1)
MODEL	. :	BTA-01A	TEST DISTANCE	:	
S/ N	:	40	DATE	:	03/05/2003
FCC ID	:	HYQBTA01A	TEMPERATURE	:	24°C
IC Number	:	1551A-BTA01A	HUMIDITY	::	34%
POWER	:	DC3.3V			
MODE	:	Tx (Hopping off)			
			Sta	4	mapma

Engineer: Hiroka Uneyama

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

CH	FREQ	20dB Bandwidth	Limit
	[MHz]	[MHz]	[MHz]
Low	2402.0	0.751	1.0
Mid	2441.0	0.812	1.0
High	2480.0	0.745	1.0

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Test Report No. :23HE0018-HO-1 FCC ID :HYQBTA01A IC No. :1551A-BTA01A



# 20dB Bandwidth:TX(Hopping off)2402MHz

Date:

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Test Report No.	:23HE0018-HO- <b>1</b>
FCC ID	:HYQBTA01A
IC No.	:1551A-BTA01A

# 20dB Bandwidth: TX(Hopping off)2480MHz

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# DATA OF NUMBER OF HOPPING FREQUENCY

A-Pex International Co., Ltd. EMC HEAD OFFICE DIVISION No.2 SEMI ANECHOIC CHAMBER

COMPANY	: DENSO CORPORATION	<b>REPORT NO</b>	: 23HE0018-HO- <b>1</b>
EQUIPMENT	: Bluetooth ASSY	REGULATION	: Fcc Part15 Subpart C 15.247(a)(1)(iii)
MODEL	: BTA-01A	TEST DISTANCE	
S/ N	: 40	DATE	: 03/05/2003
FCC ID	: HYQBTA01A	TEMPERATURE	: 24℃
IC Number	: 1551A-BTA01A	HUMIDITY	: 34%
POWER	: DC3.3V		
MODE	: Tx (Hopping on)	S HA	annom

Engineer

: Hiroka Umeyama

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

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Mode	Number of channel		Limit	11
	[time]	•	[time]	
Tx(Hoppng on)	79		≧15	
and the second s				

Test Report No.	:23HE0018-HO-1
FCCID	:HYQBTA01A
IC No.	: 1551A-BTA01A

## Number of Hopping Frequency:TX(Hopping on)2400-2430MHz

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Test Report No.	:23HE0018-HO-1
FCC ID	:HYQBTA01A
IC No.	:1551A-BTA01A

# Number of Hopping Frequency:TX(Hopping on)2460-2490MHz

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# DATA OF DWELL TIME

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A-Pex International Co., Ltd. EMC HEAD OFFICE DIVISION No.2 SEMI ANECHOIC CHAMBER

	COMPANY	:	DENSO CORPORATION	REPORT	NO	: 23HE0018-1	HO- <b>1</b>
	EQUIPMENT	:	Bluetooth ASSY	REGULA	TION	: Fcc Part15 S	Subpart C 15.247(a)(1)(iii)
	MODEL	:	BTA-01A	TEST DIS	STANCE	: -	
	S/N	:	40	DATE		: 03/05/2003	
	FCC ID	:	HYQBTA01A	TEMPER	ATURE	: 24°C	
	IC Number	. :	1551A-BTA01A	HUMIDI	ſY	: 34%	
	POWER	:	DC3.3V			•	
	MODE	:	Tx (Hopping off)	Ċ			
					V	map	ma
				Engineer		Hiroka Umey	ama
	PK DETECT(	S/A	:span ZERO, RBW 1MHz ,VBW 3MH	Iz, sweep time 20m	is)		
	Mode		Number of transmission	Length of	Result	Limit	
5	e e e porte de la composition de la com		in a 31.6(79 Hopping x 0.4)	transmission time		in the second	
			second period	[msec]	[msec]	[msec]	
	DH5		116 times	2.906	337	400	

Test Report No. FCC ID IC No.

:23HE0018-HO-1 :HYQBTA01A :1551A-BTA01A



## **Dwell time:**TX(Hopping on)DH5(1)

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Cantor 2.441 GHz 320 ms/ 5.MAR.2003 20:43:36 Date:

Test Report No.	:23HE001
FCC ID	: HYQBTA
IC No.	: 1551A-B

18-НО- **1** 101A TA01A

#### BOX LVL Delta 1 (Tlj REM 104 1882 RF Att 10 dB 0.00 48 VEW 100 kHz - 107 dBµV 2.905812 mic SNT 3.2 \$ Unit ď₿µV 107 100 g idel Idel 13HAX -7 4 34 Conter 2.441 GHz 320 ma/ 5.MAR.2003 20:43:09 Datar

## **Dwell time:**TX(Hopping on)DH5(3)

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## **Dwell time: TX(Hopping on)DH5(4)**



Test Report No. FCC ID IC No. : 23HE0018-HO- **1** : HYQBTA01A : 1551A-BTA01A

#### 100 kHz Delta 1 [T1] REW RF Att 10 18 Rof Lvl. 0.00 dB VEW 100 kHz 2.905812 ms Unit dBµV tor dBuV SPAT 3.2 a 10 2 20 -3311 1961 70 Center 2.441 GHz 320 383/ 5.MAR. 2003 20141:52 Dates

## **Dwell time:**TX(Hopping on)DH5(5)

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Test Report No.	:23HE0018·HO-1
FCC ID	:HYQBTA01A
IC No.	:1551A-BTA01A

#### Delta 1 [TI] 100 kHz 100 kHz RP ALL 10 dB RIM Ref Lui 0.00 dB VEW 107 dBuV 2.905912 mm SWT 3.2 0 Unit dBµ¥ 30 10 KAT. 91 ŭ 1143 1143 1148.8 7 2 Center 2.441 GHz 320 mm/ 5.MRR.2003 20:40:36 Dates

## Dwell time: TX(Hopping on)DH5(7)

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### Dwell time: TX(Hopping on)DH5(8)



Test Report No.	:23H
FCC ID	: HYG
IC No.	: 1551

: 23HE0018-HO- **1** : HYQBTA01A : 1551A-BTA01A

#### RF Att 10 dB 100 kHz Delta 1 [T1] 0.00 dB REW ROE LVL VEW 100 kHz diany 3.2 = Unit SHI 107 dBuV 2.903612 me 16 10 9 2012 100. 2 10 320 ma/ Centar 2.441 GHz 5. MAR. 2003 20139134 Dates

## Dwell time: TX(Hopping on)DH5(9)

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### **Dwell time: TX(Hopping on)DH5(10)**



Test Report No.: 23HFCC ID: HYOIC No.: 155

: 23HE0018-HO- **1** : HYQBTA01A : 1551A-BTA01A

### 100 kHz 100 kHz Delta 1 (T1) RF ALL 10 dB REN Ref LV1 9.00 dB 2.905912 ms VEW 107 depv 3.2 s Unit SHT dBhy 10 10 9 ñ 2013. 3360a 2 1 Contor 2.441 GHz 320 ms/ Date: 5.MAR.2003 20130150

# Dwell time: TX(Hopping on)DH5(11)

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# **DATA OF PEAK OUTPUT POWER(CONDUCTED)**

A-Pex International Co., Ltd. EMC HEAD OFFICE DIVISION No.2 SEMI ANECHOIC CHAMBER

COMPANY	:	DENSO CORPORATION	REPORT NO	:	23НЕ0018-НО- 1
EQUIPMENT	:	Bluetooth ASSY	REGULATION	•	Fcc Part15 Subpart C 15.247(b)(1)
MODEL	:	BTA-01A	TEST DISTANCE	:	
S/N	. :	40	DATE	÷	03/05/2003
FCC ID	:	HYQBTA01A	TEMPERATURE	:	24℃
IC Number		1551A-BTA01A	HUMIDITY	:	34%
POWER	• :	DC3.3V			
MODE	:	Tx (Hopping off)	Stor	2	metoma

Engineer : Hiroka Umeyama

	·	and the second				
CH	FREQ	T/R Reading	Cable	Result	Result	Limit
			Loss			(1W)
	[MHz]	[dBuV]	[dB]	[dBuV]	[dBm]	[dBm]
Low	2402.0	86.0	19.6	105.6	-1.40	30.0
Mid	2441.0	86.5	19.6	106.1	-0.90	30.0
High	2480.0	86.6	19.6	106.2	-0.80	30.0

Sample Calculation :

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Result = T/R Reading + Cable Loss(include attenuator)

Test Report No. :23HE0018-HO-1 FCC ID IC No.

# :HYQBTA01A :1551A-BTA01A



### Peak Output Power(Conducted):Tx(2402MHz)

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Test Report No.	:23HE0018-HO- <b>1</b>
FCC ID	:HYQBTA01A
IC No.	: 1551A-BTA01A

## Peak Output Power(Conducted):Tx(2480MHz)

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## DATA OF BAND EDGE COMPLIANCE

A-Pex International Co., Ltd. EMC HEAD OFFICE DIVISION No.2 SEMI ANECHOIC CHAMBER

: 34%

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COMPANY	:	DENSO CORPORATION
EQUIPMEN	:	Bluetooth ASSY
MODEL	:	BTA-01A
S/ N	:	40
FCCID	:	HYQBTA01A
IC Number	:	1551A-BTA01A
POWER	:	DC3.3V
MODE	:	TX(Hopping on)
		TX(Hopping off 2402/2480MHz)

REPORT NO REGULATION TEST DISTANCE DATE TEMPERATURE HUMIDITY : 23HE0018-HO- **1** : Fcc Part15 Subpart C 15.247(c) : -: 03/05/2003 : 24°C

Engineer

Hiroka Umeyama

PK DETECT(S/A :Span 30MHz, RBW 300kHz/1MHz ,VBW 300kHz, sweep time AUTO ) [Hopping on] Conducted

Frequency	Reading	Cable	Е	Р	Difference of	Field	Limit
		Loss			level	Strength	
[MHz]	[dBuV]	[dB]	[dBuV]	[nW]	[dB]	[dBuV/m]	
2390.0	45.1	0.1	45.2	0.66		34.4	<74[dBuV/m]
2399.8	57.0	0.1	57.1		48.6*	- 1. S	>20[dB]
2483.7	50.3	0.1	50.4	2.19	an an <mark>a</mark> n an an an	39.6	<74[dBuV/m]

\* Reference : Reading (105.6[dBuV]) + Cable Loss (0.1[dB]) = E (105.7[dBuV]) at 2402MHz.

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

L		/3					
Frequency	Reading	Cable	E	Р	Difference of	Field	Limit
r i tege		Loss			level	Strength	
[MHz]	[dBuV]	[dB]	[dBuV]	[nW]	[dB]	[dBuV/m]	
2389.6	48.0	0.1	48.1	1.29	-	37.3	<74[dBuV/m]
2400.0	62.0	0.1	62.1	•	43.6*	•	>20[dB]
2483.6	56.8	0.1	56.9	9.77	- 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10	46.1	<74[dBuV/m]
						**	and the second

\* Reference : Reading (105.6[dBuV]) + Cable Loss (0.1[dB]) = E (105.7[dBuV]) at 2402MHz.

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Sample Calculation: Field Strength =  $(\sqrt{30*P*10^{-9*}G}) / d$ 

E : Reading + Cable Loss

P: Converted to nW

d : Test distance(3.0m)

G: Numeric Antenna Gain 1.26

Test Report No.	:23HE0018-HO- 1
FCC ID	:HYQBTA01A
IC No.	:1551A-BTA01A

## Band Edge: TX(Hopping on)2402MHz

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						*1	[71]	Πſĭ	BAT
						₹2	[21]	2.39000	06 8151 012 69
-D1 85.	56 dBuV	ļ			1. N. 1.	<sup>47</sup> 3	[TL]	57	04 dBµ
1999 - S.		[		1. S.				2.30981	964 GH
1 <b>56</b> 03									
									<b></b>
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# Band Edge:TX(Hopping on)2480MHz

ROI LVL	Marker 1 [T1] 105.5 2.471815	52 dBµV 187 GHz	rew Vew Swt	300 k 300 k 5 л	HZ R HZ W W	10 dB dBµV	
<u>Innnnn</u>	INAAL S	1.11		*1	[71]	105	52 dispr
<u></u>				₹2	[T1]	2.49109	007-011 29 ЦВру 048 GH2
-101 85.52 dBu	v					[	
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THUN							
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		<u> </u>					<u> </u>
CURLOS 2.4803	10351 0412	3 M	mz/			Spar	30 MH2

Test Report No.	:23HE0018-HO- <b>1</b>
FCC ID	:HYQBTA01A
IC No.	:1551A-BTA01A

#### Ref Ivi 107 dBuv Narker 1 [T1] 105.62 dBµV 2.40185322 GHz 800 kHz 300 kHz 5 ms ren Vin 6wt RF Att 10 48 dBuV Uni 14 ₩1 [11] 105 62 2844 É. 105 62 200 105 720 200 105 700 200 105 700 200 105 700 200 105 700 200 105 700 200 105 700 200 105 700 200 105 700 200 105 700 200 105 700 200 105 700 200 105 700 200 105 700 200 105 700 200 1000 2 19 ¥2 (11) V3 1711 D1 65.62 day 1911 2140. 23-08X ų, rel خذ ۰., Start 2.377324151 GHz 3 Miz/ Stop 2. 407324161 GHz Dates 6.MAR.2003 13:36:08

## Band Edge: TX(Hopping off)2402MHz

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# **DATA OF RADIATION TEST**

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A-Pex International Co., Ltd. No.2 SEMI ANECHOIC CHAMBER Report No. : 23HE0018-H0-1

Appli Kind Model Seria Power Mode Remar Date Test Test Test Humid Regul	cant of Equ No. I No. ks Distand rature ity ation	ipment ce		Dens Blue BTA- 23 DC 3 TX (2 DETE 3/8/ 3 m 24 ° 34 9 FCC	o Corpo tooth A 01A .3V 402MHz) CTOR:QP 2003 C 6 § 15. 24	FCC	ו ID:HYQB	TAO1A I En	C NUMBE St gineer-	R:1551	A-BTA01 Sector iroka-U	A #77772 meyama	20
No.	FREQ. [MHz]	ANT TYPE	READ HOR [dB/	VER VER VV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESU HOR [dB µ \	JLT I VER V/m] [d]	LIMITS BµV/m]	MAF HOR [c	KGIN VER ∐B]
1. 2. 3. 4. 5. 6.	90. 00 126. 04 500. 37 600. 50 630. 46 800. 58	BB BB BB BB BB BB	31.0 18.4 24.9 25.6 29.7 29.7	33. 1 22. 9 35. 3 31. 7 35. 8 26. 8	8.3 13.4 18.5 19.1 19.1 22.0	27.0 26.7 27.6 27.7 27.7 27.1	1.1 1.2 2.6 3.1 3.4 3.5	6. 1 6. 0 6. 2 6. 1 6. 1 6. 1	19.5 12.3 24.6 26.2 30.6 34.2	21.6 16.8 35.0 32.3 36.7 31.3	43, 5 43, 5 46, 0 46, 0 46, 0 46, 0	24. 0 31. 2 21. 4 19. 8 15. 4 11. 8	21. 9 26. 7 11. 0 13. 7 9. 3 14. 7

CALCULATION: READING[dB $\mu$ V] + ANT.FACTOR[dB/m] + CABLE LOSS[dB] - AMP.GAIN[dB] + ATTEN[dB]. All other spurious emissions were less than 20dB for the limit. ANT.TYPE : 30-300MHz Biconical, 300-1000MHz Logperiodic, 1000MHz- Horn

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# **DATA OF RADIATION TEST**

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A-Pex International Co., Ltd. No.2 SEMI ANECHOIC CHAMBER Report No. : 23HE0018-H0-1

Appli Kind Model Seria Power Mode Remar Date Test Tempe Humic Regul	icant of Equ No. al No. rks Distance rature lity lation	ipment	<b>t</b>	Dense Blue BTA-( 23 DC 3. TX (24 DETE( 3/8/2 3 m 24 °C 34 % FCC	o Corpo tooth A 01A .3V 441MHz) CTOR:QP 2003 5 5 5 5 15.24	ratio SSY FCC 7 (C)	n ID:HYQB	TAO1A IO Eng	C NUMBER: Sineer	1551A-BTA ZM : Hiroka	01A <u>ce</u> que Umeyama	na
No.	FREQ. [MHz]	ANT TYPE	READ HOR [dB µ	ING VER 1 V]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR V [dB $\mu$ V/m	LIMITS ΈR δ] [dBμV/m	MA HOR ] [	RGIN VER dB]
1. 2. 3. 4. 5. 6.	90. 00 126. 04 500. 37 600. 50 630. 46 800. 58	BB BB BB BB BB BB	29.7 25.5 26.6 23.4 30.4 26.4	35. 6 24. 2 34. 9 31. 7 36. 3 26. 4	8.3 13.4 18.5 19.1 19.1 22.0	27.0 26.7 27.6 27.7 27.7 27.1	1.1 1.2 2.6 3.1 3.4 3.5	6. 1 6. 0 6. 2 6. 1 6. 1 6. 1	18. 2       2         19. 4       1         26. 3       3         24. 0       3         31. 3       3         30. 9       3	4. 1       43. 5         8. 1       43. 5         44. 6       46. 0         2. 3       46. 0         7. 2       46. 0         0. 9       46. 0	25. 3 24. 1 19. 7 22. 0 14. 7 15. 1	19. 4 25. 4 11. 4 13. 7 8. 8 15. 1

CALCULATION: READING[dB $\mu$ V] + ANT.FACTOR[dB/m] + CABLE LOSS[dB] - AMP.GAIN[dB] + ATTEN[dB]. All other spurious emissions were less than 20dB for the limit. ANT.TYPE : 30-300MHz Biconical, 300-1000MHz Logperiodic, 1000MHz- Horn

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# **DATA OF RADIATION TEST**

A-Pex International Co., Ltd. No.2 SEMI ANECHOIC CHAMBER Report No. : 23HE0018-H0- 1

Appli Kind Model Seria Power Mode Remar Date Test Test Humid Regul	cant of Equ No. I No. ks Distand rature ity ation	ipment ce		Dens Blue BTA- 23 DC 3 TX (2 DETE 3/8/ 3 m 24 °C 34 9 FCC	o Corpo tooth A 01A .3V 480MHz) CTOR:QP 2003 C 6 \$ 15.24	ration SSY FCC 7(C)	n I D : HYQB	TAO1A IO Eng	C NUMBE S gineer	R: 1551	A-BTA01 Brai i roka U	A 1999 meyama	10)
No.	FREQ. [MHz]	ANT TYPE	READ HOR [dB µ	ING VER ιV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESU HOR [dB µ V	LT VER /m] [d]	LIMITS ΒμV/m]	MAI HOR [c	RGIN VER 1B]
1. 2. 3. 4. 5. 6.	90.00 126.04 500.37 600.50 630.46 800.58	BB BB BB BB BB BB	27.2 22.1 22.6 26.5 31.2 23.6	35.5 36.4 35.7 35.2 28.3 22.3	8.3 13.4 18.5 19.1 19.1 22.0	27.0 26.7 27.6 27.7 27.7 27.1	1.1 1.2 2.6 3.1 3.4 3.5	6. 1 6. 0 6. 2 6. 1 6. 1 6. 1	15.7 16.0 22.3 27.1 32.1 28.1	24. 0 30. 3 35. 4 35. 8 29. 2 26. 8	43. 5 43. 5 46. 0 46. 0 46. 0 46. 0	27.8 27.5 23.7 18.9 13.9 17.9	19.5 13.2 10.6 10.2 16.8 19.2

CALCULATION: READING [dB  $\mu$  V] + ANT. FACTOR [dB/m] + CABLE LOSS [dB] - AMP. GAIN [dB] + ATTEN [dB].

All other spurious emissions were less than 20dB for the limit. ANT.TYPE : 30-300MHz Biconical, 300-1000MHz Logperiodic, 1000MHz- Horn

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# **DATA OF SPURIOUS EMISSIONS(1GHz to 25GHz)**

A-Pex International Co., Ltd. EMC HEAD OFFICE DIVISON No.2 SEMI ANECHOIC CHAMBER

COMPANY	:	DENSO CORPORATION	REPORTNO	· 2211E0018 110 1
EQUIPMENT	:	Bluetooth ASSY	REGULATION	Eco Port15 Submert C 15 047( )
MODEL	:	BTA-01A	TEST DISTANCE	• 3 and 1 m
<b>S/ N</b>	:	23	DATE	• 03/06/2002
FCC ID	:	HYQBTA01A	TEMPERATURE	· 200/2003
IC Number	:	1551A-BTA01A	HUMIDITY	· 22 C
POWER	:	DC3.3V		• • • • • • • • • • • • • • • • • • • •
MODE	•	Tx 2402MHz (Hopping off)	) VZ	anafranco
DIZ DIZIDI CON			Engineer :	Hiroka Umeyama

### **PK DETECT**

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No	EDEO	T/D DI	DADDIO	4.3.100							and the second	
110.	TREQ			ANT	AMP	CABLE	Band-Pass	RES	SULT	Limit	MA	RGIN
ľ.		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	РК	HOR	VER
	[MHz]	[dBi	ıV/m]	[dB/m]	[dB]	[dB]	[dB]	[dBi	1V/m1	[dBuV/m]	[JD]	L'ULI
	Test dis	stance 3r	neters R	ESHLT-	Reading	L ANT 1	Fastan A.					[ɑɒ]
	1000.0	10.6		DOULT	Acauing	TANI	LACTOL - UDIOR	ip Gain	+ CABL	E LOSS + E	land Pas	S.
<u> </u>	1200.0	49.6	47.8	23.3	37.6	4.7	0.0	40.0	38.2	74.0	34.0	35.8
1	2390.0	43.1	43.0	30.7	36.9	6.3	0.0	43.2	43 1	74.0	20.0	20.0
2	4803.7	49.2	50.6	35.1	36.8	11.6	03	50.4	60.0	74.0	30.0	30.9
3	7206.0	43.0	43.0	275	26.5	107	0.5	37.4	00.0	/4.0	14.6	13.2
	0609.0	42.0	40.0	57.5	30.3	10.7	0.0	54.7	54.7	74.0	19.3	19.3
	9008.0	43.0	43.0	37.4	37.2	12.7	0.0	55.9	55.9	74.0	18.1	181
1	est distan	ce 1mete	rs RES	ULT=Re	ading +	ANT For	tor - Amn	Coin + C	A TOT IN T	OCC I D	1 22	
5	12010.0	44.0	44.0	40.0		Chill Lat	aur - Amp	Jain + C		<u> USS + Ban</u>	d Pass -	Dfac
	12010.0	44.0	44.0	40.5	36.8	14.2	0.0	52.4	52.4	74.0	21.6	21.6
0	14412.0	43.0	43.0	42.8	35.3	15.8	0.0	56.8	56.8	74.0	17.2	17.2
7	16814.0	43.0	43.0	45.2	36.5	17.6	0.0	50.8	50.9	74.0	11.4	1/.2
8	19216.0	43.0	43.0	41.0	35.9	100	0.0	57.0	39.0	/4.0	14.2	14.2
0	21619.0	44.0	44.0	40.0	35.0	10.9	0.0	57.6	57.6	74.0	16.4	16.4
7	41010.0	44.0	44.0	40.9	36.8	19.5	0.0	58.1	58.1	74.0	15.9	15.9
10	24020.0	44.0	44.0	40.3	36.4	20.8	0.0	59.2	59.2	74.0	14.8	14.8

### **AV DETECT**

No	EDEO	70 01	ADDIT	1		The second s	-				1. A.	
INO,	FREQ	I/K KI	SADING	ANT	AMP	CABLE	Band-Pass	RES	SULT	Limit	MA	RGIN
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VFR
_	[MHz]	[dBi	1V/m]	[dB/m]	[dB]	[dB]	[dB]	[dBi	ıV/ml	IdBuV/m1	[dB]	[dD]
	Test dis	stance 3r	neters <b>R</b>	ESULT=	Reading	+ ANT	Factor - Am	n Coin	L CLADIT			
0	1200.0	250	1 22 6				avivi - Ail	p Gam.	T CABL	LUSS + L	sand Pas	S.
	1200.0	33.9	33.3	23.3	37.6	4.7	0.0	26.3	23.9	54.0	27.7	30.1
	2390.0	31.0	30.9	30.7	36.9	6.3	0.0	31.1	31.0	54.0	22.9	23.0
2	4803.9	32.9	33.3	35.1	36.8	11.6	0.3	43.1	43.5	54.0	10.0	10.5
3	7206.0	30.3	30.3	37.5	36.5	10.7	0.0	42.0	120	54.0	10.9	10.5
4	9608.0	30.7	207	274	27.0	10.7	0.0	42.0	42.0	54.0	12.0	12.0
	Foot dist.	30.7	30.7	37.4	31.4	12.7	0.0	43.6	43.6	54.0	10.4	10.4
	est distan	ce imete	<u>rs res</u>	ULT=Re	ading +	ANT Fac	tor - Amp (	Gain + C	ABLEL	OSS + Ban	d Dogo	Dfor
5	12010.0	30.9	31.3	40.5	36.8	142	0.0	20.2			u 1 ass -	Diac
6	14412.0	30.0	20.1	40.0	25.0	14.2	0.0	39.3	39.7	54.0	14.7	14.3
~	1 (01 / 0	50.0	50.1	42.0	35.5	15.8	0.0	43.8	43.9	54.0	10.2	10.1
7	16814.0	30.5	30.5	45.2	36.5	17.6	0.0	47.3	47.3	54.0	67	67
8	19216.0	30.5	30.5	41.0	35.8	18.9	0.0	451	15 1	54.0	0.7	0.7
9	21618.0	31.0	31.5	40.9	36.8	10.5	0.0	45 1	45.6	34.0	0.9	8.9
10	24020 0	21.5	21.6	40.2	26.4	19.5	0.0	43.1	45.6	54.0	8.9	8.4
10	27020.0	51.5	51.5	40.3	36.4	20.8	0.0	46.7	46.7	54.0	73	73

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

9.5 dB

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

# DATA OF SPURIOUS EMISSIONS(1GHz to 25GHz)

A-Pex International Co., Ltd. EMC HEAD OFFICE DIVISON No.2 SEMI ANECHOIC CHAMBER

COMPANY	:	DENSO CORPORATION	<b>REPORT NO</b>	•••	23НЕ0018-НО- 1
EQUIPMENT	:	Bluetooth ASSY	REGULATION	:	Fcc Part15 Subpart C 15.247( c )
MODEL	:	BTA-01A	TEST DISTANCE	:	3 and 1 m
S/N	:	23	DATE	:	03/06/2003
FCC ID	:	HYQBTA01A	TEMPERATURE	:	22°C
IC Number	:	1551A-BTA01A	HUMIDITY	:	49%
POWER	:	DC3.3V	5		
MODE	:	Tx 2441MHz (Hopping off)		4	mana
			Engineer :	F	iroka Umevama

### **PK DETECT**

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No.	FREQ	T/R 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]	[dBu	<u>V/m]</u>	[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass.												
0	1220.0	49.3	47.8	23.3	37.6	4.7	0.0	39.7	38.2	74.0	34.3	35.8
1	4881.6	50.2	48.6	35.5	36.8	11.7	0.4	61.0	59.4	74.0	13.0	14.6
2	7323.0	43.0	43.0	37.8	36.6	10.8	0.0	55.0	55.0	74.0	19.0	19.0
3	9764.0	43.0	43.0	37.0	37.2	12.8	0.0	55.6	55.6	74.0	18.4	18.4
Т	est distan	ce 1meter	rs RES	ULT=Re	ading +	ANT Fac	tor - Amp	<u>Gain + C</u>	ABLE I	OSS + Ban	nd Pass -	Dfac
4	12205.0	43.0	43.0	41.2	36.7	14.4	0.0	52.4	52.4	74.0	21.6	21.6
5	14646.0	43.0	43.0	43.1	35.5	16.0	0.0	57.1	57.1	74.0	16.9	16.9
6	17087.0	43.2	42.0	45.5	36.2	17.8	0.0	60.8	59.6	74.0	13.2	14.4
7	19528.0	43.0	42.8	40.6	36.0	19.0	0.0	57.1	56.9	. 74.0	16.9	17.1
8	21969.0	45.3	45.6	40.9	36.0	19.6	0.0	60.3	60.6	74.0	13.7	13.4
9	24410.0	44.0	44.0	40.5	36.9	21.0	0.0	59.1	59.1	74.0	14.9	14.9

### AV DETECT

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No.	FREQ	T/R READING		ANT	AMP	CABLE	<b>Band-Pass</b>	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBu	V/m]	[dB/m]	[dB]	[dB]	[dB]	[dBu	V/m]	[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass.												
0	1220.0	35.5	35.5	23.3	37.6	4.7	0.0	25.9	25.9	54.0	28.1	28.1
1	4881.6	33.3	32.6	35.5	36.8	11.7	0.4	44.1	43.4	54.0	9.9	10.6
2	7323.0	30.3	30.3	37.8	36.6	10.8	0.0	42.3	42.3	54.0	11.7	11.7
3	9764.0	30.7	30.7	37.0	37.2	12.8	0.0	43.3	43.3	54.0	10.7	10.7
Т	est distan	ce 1meter	rs RES	ULT=Re	ading +	ANT Fac	tor - Amp	Gain + C	ABLE I	.OSS + Ban	d Pass -	Dfac
4	12205.0	30.6	31.0	41.2	36.7	14.4	0.0	40.0	40.4	54.0	14.0	13.6
5	14646.0	30.5	30.5	43.1	35.5	16.0	0.0	44.6	44.6	54.0	9.4	9.4
6	17087.0	29.6	29.6	45.5	36.2	17.8	0.0	47.2	47.2	54.0	6.8	6.8
7	19528.0	30.3	30.2	40.6	36.0	19.0	0.0	44.4	44.3	54.0	9.6	9.7
8	21969.0	32.5	32.6	40.9	36.0	19.6	0.0	47.5	47.6	54.0	6.5	6.4
9	24410.0	31.6	31.7	40.5	36.9	21.0	0.0	46.7	46.8	54.0	7.3	7.2

Test Distance 1.0m : Distance Factor(Dfac) =  $20\log(3/1.0) =$ 

9.5 dB

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

# DATA OF SPURIOUS EMISSIONS(1GHz to 25GHz)

A-Pex International Co., Ltd. EMC HEAD OFFICE DIVISON No.2 SEMI ANECHOIC CHAMBER

COMPANY	:	DENSO CORPORATION	<b>REPORT NO</b>	:	23HE0018-HO- 1
EQUIPMENT	:	Bluetooth ASSY	REGULATION	:	Fcc Part15 Subpart C 15.247( c )
MODEL	:	BTA-01A	TEST DISTANCE	:	3 and 1 m
S/N	:	23	DATE	:	03/06/2003
FCC ID	:	HYQBTA01A	TEMPERATURE	:	22°C
IC Number	:	1551A-BTA01A	HUMIDITY	:	49%
POWER	;	DC3.3V			
MODE	•	Tx 2480MHz (Hopping off)	) A	$\leq$	mayma
		그는 것이 같은 것이 같은 것같은 것이 없는 것이 많이	Engineer '	L	liroka Umeyama

## **PK DETECT**

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No.	FREQ	T/R RE	ADING	ANT	AMP	CABLE	<b>Band-Pass</b>	RES	ULT	Limit	MAF	RGIN
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
	[MHz]	[dBu	V/m]	[dB/m]	[dB]	[dB]	[dB]	[dBu	V/m]	[dBuV/m]	[dB]	[dB]
	Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass.											
0	1240.0	48.3	46.5	23.4	37.6	4.8	0.0	38.9	37.1	74.0	35.1	36.9
1	2483.5	43.0	42.7	30.7	36.9	6.3	0.0	43.1	42.8	74.0	30.9	31.2
2	4960.0	49.6	49.5	36.0	36.8	11.8	0.5	61.1	60.5	74.0	12.9	13.5
3	7440.0	43.6	43.6	38.1	36.7	10.9	0.0	55.9	55.9	74.0	18.1	18.1
4	9920.0	43.0	43.0	36.5	37.3	13.0	0.0	55.2	55.2	74.0	18.8	18.8
]	lest distar	ice 1mete	ers RES	SULT=R	eading +	· ANT Fa	ctor - Amp	Gain + (	CABLE	LOSS + Ba	nd Pass -	Dfac
5	12400.0	43.0	43.0	41.8	36.6	14.5	0.0	53.2	53.2	74.0	20.8	20.8
6	14880.0	43.0	43.0	43.3	35.7	16.1	0.0	57.2	57.2	74.0	16.8	16.8
7	17360.0	43.0	43.0	45.4	36.2	18.0	0.0	60.7	60.7	74.0	13.3	13.3
8	19840.0	43.0	43.0	41.0	36.1	19.1	0.0	57.5	57.5	74.0	16.5	16.5
9	22320.0	45.0	45.7	40.8	35.5	19.8	0.0	60.6	61.3	74.0	13.4	12.7
10	24800.0	44.0	44.0	40.6	36.7	21.1	0.0	59.5	59.5	74.0	14.5	14.5

### **AV DETECT**

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No.	FREQ	T/R READING		ANT	AMP	CABLE	<b>Band-Pass</b>	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBu	V/m]	[dB/m]	[dB]	[dB]	[dB]	[dBu	V/m]	[dBuV/m]	[dB]	[dB]
	Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass.											
0	1240.0	34.0	32.7	23.4	37.6	4.8	0.0	24.6	23.3	54.0	29.4	30.7
1	2483.5	30.8	30.8	30.7	36.9	6.3	0.0	30.9	30.9	54.0	23.1	23.1
2	4960.0	33.0	32.8	36.0	36.8	11.8	0.5	44.5	44.3	54.0	9.5	9.7
3	7440.0	30.7	30.7	38.1	36.7	10.9	0.0	43.0	43.0	54.0	11.0	11.0
4	9920.0	30.6	30.6	36.5	37.3	13.0	0.0	42.8	42.8	54.0	11.2	11.2
7	lest distar	ice 1mete	ers RES	SULT=R	eading +	ANT Fa	ctor - Amp	Gain + (	CABLE ]	LOSS + Bai	nd Pass -	Dfac
5	12400.0	31.1	31.1	41.8	36.6	14.5	0.0	41.3	41.3	54.0	12.7	12.7
6	14880.0	30.5	30.5	43.3	35.7	16.1	0.0	44.7	44.7	54.0	9.3	9.3
7	17360.0	29.9	29.9	45.4	36.2	18.0	0.0	47.6	47.6	54.0	6.4	6.4
8	19840.0	30.3	30.3	41.0	36.1	19.1	0.0	44.8	44.8	54.0	9.2	9.2
9	22320.0	32.6	32.6	40.8	35.5	19.8	0.0	48.2	48.2	54.0	5.8	5.8
10	24800.0	31.9	31.9	40.6	36.7	21.1	0.0	47.4	47.4	54.0	6.6	6.6

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

Test Report No.	:23HE0018-HO-1
FCC ID	:HYQBTA01A
IC No.	:1551A-BTA01A



## Spurious Emission(Conducted):Tx(2402MIHz)

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## Spurious Emission(Conducted):Tx(2402MIHz)



Test Report No.	:23HE0018-HO- <b>1</b>
FCC ID	HYQBTA01A
IC No.	: 1551A-BTA01A

# Spurious Emission(Conducted):Tx(2402MHz)

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## Spurious Emission(Conducted):Tx(2402MHz)



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 Test Report No.
 : 23HE0018-HO- 1

 FCC ID
 : HYQBTA01A

 IC No.
 : 1551A-BTA01A

## Spurious Emission(Conducted);Tx(2441MHz)

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## Spurious Emission(Conducted):Tx(2441MHz)



:23HE0018-HO- 1
:HYQBTA01A
: 1551A-BTA01A

## Spurious Emission(Conducted):Tx(2441MHz)

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## Spurious Emission(Conducted):Tx(2441MHz)



Test Report No.	:23HE0018-HO-
FCCID	:HYQBTA01A
IC No.	:1551A-BTA01A

## Spurious Emission(Conducted):Tx(2480MHz)

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## Spurious Emission(Conducted):Tx(2480MHz)



Test Report No.	:23HE0018-HO-1
FCCID	:HYQBTA01A
IC No.	: 1551A-BTA01A

## Spurious Emission(Conducted):Tx(2480MHz)

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## Spurious Emission(Conducted):Tx(2480MHz)

