RADIO TEST REPORT

Test Report No. : 28EE0183-HO-02-A-R1

Applicant	:	**FUJITSU TEN LIMITED**
Type of Equipment	:	**COMB PLAYER A**
Model No.	:	**FT0001a**
FCC ID	:	**BABFT0001A**
Test regulation	:	**FCC Part 15 Subpart C 2008 Section 15.247**
Test Result	:	**Complied**

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the above regulation.
4. The test results in this report are traceable to the national or international standards.
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6. Original test report number of this report is 28EE0183-HO-02-A.

Date of test: April 10 and 15, 2008

Tested by:

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NVLAP LAB CODE: 200572-0

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SECTION 1: Customer information

Company Name	:	FUJITSU TEN LIMITED
Address	:	2-28 Gosho-Dori 1-chome, Hyogo-ku, Kobe, 652-8510 Japan
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Facsimile Number	:	+81-78-671-7160
Contact Person	:	Hiroshi Uda

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

2.1 Identification of E.U.T.

Type of Equipment	:	COMB PLAYER A
Model No.	:	FT0001a
Serial No.	:	1, 2
Rating	:	DC13.2V
Receipt Date of Sample	:	April 10, 2008
Country of Mass-production	:	Mexico, China
Condition of EUT	:	Engineering Prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT	:	No modification by this test lab

2.2 Product Description

Model No: FT0001a (referred as the EUT in this report) is the COMB PLAYER A.
This EUT is for an audio system to listen to the AM / FM / CD in a car.
This EUT is installed with a Bluetooth function, which the users can use a cellular phone with hands-free in audio system of vehicles inside.
Clock Frequencies are 3.93216MHz(microcomputer), 35.28MHz(DSP), 4.5MHz(TUNER), 13MHz(BT RF-LSI), 18.432MHz and 16.9344MHz(BT BB-LSI)

Bluetooth (Ver. 1.2)

Equipment Type	Transceiver
Frequency of Operation	2402-2480MHz
Type of Modulation	FHSS
Bandwidth & Channel spacing	1MHz & 1MHz
Power Supply (inner)	DC3.3V/ DC1.5V
Antenna Type	Inverted F Antenna
Antenna Gain	-0.92dBi(AVE)
Antenna Connector Type	U.FL-R-SMT

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification	:	FCC Part15 Subpart C: 2008, final revised on March 24, 2008
Title	:	FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz

FCC 15.31 (e)
This EUT provides stable voltage(DC3.3V/DC1.5V) constantly to RF Module regardless of input voltage. Therefore, this EUT complies with the requirement.

FCC Part 15.203 Antenna requirement
It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

3.2 Procedures and results

[FHSS]

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst Margin	Results
1	Conducted emission	**FCC:** ANSI C63.4:2003 7. AC powerline conducted emission measurements	**FCC:** Section 15.207	-	N/A	N/A*1)	N/A
		IC: RSS-Gen 7.2.2	**IC:** RSS-Gen 7.2.2				
2	Carrier Frequency Separation	**FCC:** FCC Public Notice DA 00-705	**FCC:** Section15.247(a)(1)	Conducted	N/A	See data.	Complied
		IC: -	**IC:** RSS-210 A8.1 (b)				
3	20dB Bandwidth	**FCC:** FCC Public Notice DA 00-705	**FCC:** Section15.247(a)(1)	Conducted	N/A		Complied
		IC: -	**IC:** RSS-210 A8.1 (a)				
4	Number of Hopping Frequency	**FCC:** FCC Public Notice DA 00-705	**FCC:** Section15.247(a)(1)(iii)	Conducted	N/A		Complied
		IC: -	**IC:** RSS-210 A8.1 (d)				
5	Dwell time	**FCC:** FCC Public Notice DA 00-705	**FCC:** Section15.247(a)(1)(iii)	Conducted	N/A		Complied
		IC: -	**IC:** RSS-210 A8.1 (d)				
6	Maximum Peak Output Power	**FCC:** FCC Public Notice DA 00-705	**FCC:** Section15.247(b)(1)	Conducted	N/A		Complied
		IC: RSS-Gen 4.8	**IC:** RSS-210 A8.4 (2)				
7	Band Edge Compliance	**FCC:** FCC Public Notice DA 00-705	**FCC:** Section15.247(d)	Conducted	N/A		Complied
		IC: -	**IC:** RSS-210 A8.5				
8	Spurious Emission	**FCC:** FCC Public Notice DA 00-705	**FCC:** Section15.247(d)	Conducted/ Radiated	N/A	[Tx] 5.4dB 377.424MHz, QP Horizontal [Rx] 6.6dB 377.426MHz, QP Horizontal	Complied
		IC: RSS-Gen 4.9 RSS-Gen 4.10	**IC:** RSS-210 A8.5 RSS-Gen 7.2.1 and 7.2.3				

Note: UL Japan, Inc.'s EMI Work Procedures No.QPM05 and QPM15.
*1) The test is not applicable since this EUT operates with Car battery only.

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

* In case any questions arise about test procedure, ANSI C63.4: 2003 is also referred.

3.3 Addition to standards

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	99% Occupied Band Width	**IC:** RSS-Gen 4.6.1	**IC:** RSS-Gen 4.6.1	Conducted	N/A	N/A	N/A

3.4 Uncertainty

EMI
The following uncertainties have been calculated to provide a confidence level of 95% using a coverage factor k=2.

Test room	Conducted emission	Radiated emission (10m*)			Radiated emission (3m*)			Radiated emission (3m*)	
	150kHz-30MHz	9kHz-30MHz	30MHz-300MHz	300MHz-1GHz	9kHz-30MHz	30MHz-300MHz	300MHz-1GHz	1GHz-18GHz	18GHz-40GHz
No.1 semi-anechoic chamber (±)	3.7dB	3.1dB	4.7dB	4.4dB	3.2dB	3.7dB	4.4dB	5.9dB	6.1dB
No.2 semi-anechoic chamber (±)	3.7dB	-	-	-	3.2dB	4.3dB	3.9dB	5.9dB	6.1dB
No.3 semi-anechoic chamber (±)	3.7dB	-	-	-	3.2dB	4.2dB	4.4dB	5.9dB	6.1dB
No.4 semi-anechoic chamber (±)	3.7dB	-	-	-	3.2dB	4.2dB	4.4dB	5.9dB	6.1dB

*10m/3m = Measurement distance

Radiated emission test(3m)
The data listed in this test report has enough margin, more than the site margin.

Other test except Conducted Emission and Spurious Emission (Radiated)
The measurement uncertainty for this test is 3.0dB.

3.5 Test Location

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	FCC Registration Number	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms
No.1 semi-anechoic chamber	313583	2973C-1	19.2 x 11.2 x 7.7m	7.0 x 6.0m	No.1 Power source room
No.2 semi-anechoic chamber	655103	2973C-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	148738	2973C-3	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.3 Preparation room
No.3 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.4 semi-anechoic chamber	134570	2973C-4	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.4 Preparation room
No.4 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.5 semi-anechoic chamber	-	-	6.0 x 6.0 x 3.9m	6.0 x 6.0m	-
No.6 shielded room	-	-	4.0 x 4.5 x 2.7m	4.75 x 5.4 m	-
No.6 measurement room	-	-	4.75 x 5.4 x 3.0m	4.75 x 4.15 m	-
No.7 shielded room	-	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.8 measurement room	-	-	3.1 x 5.0 x 2.7m	N/A	-
No.9 measurement room	-	-	8.0 x 4.5 x 2.8m	2.0 x 2.0m	-
No.10 measurement room	-	-	2.6 x 2.8 x 2.5m	2.4 x 2.4m	-
No.11 measurement room	-	-	3.1 x 3.4 x 3.0m	2.4 x 3.4m	-

* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0m for No.1, No.2, No.3, and No.4 semi-anechoic chambers and No.3 and No.4 shielded rooms.

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

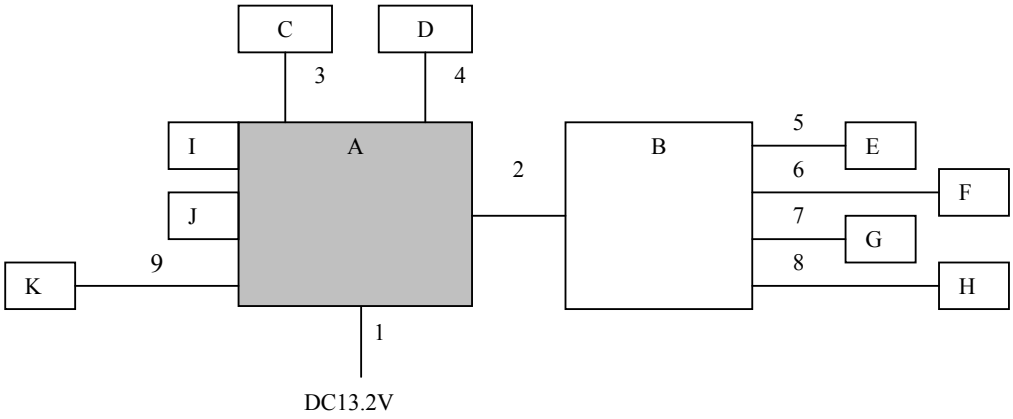
4.1 Operating Mode(s)

Test Item	Operating Mode	Tested frequency
Carrier Frequency Separation	Bluetooth Transmitting (Tx) Hopping On, Payload: PRBS9, DH5	Low: 2402MHz Mid: 2441MHz High: 2480MHz
	Inquiry	
20dB Bandwidth, Maximum Peak Output Power	Bluetooth Transmitting (Tx) Hopping Off, Payload: PRBS9, DH5	Low: 2402MHz Mid: 2441MHz High: 2480MHz
	Inquiry	
Number of Hopping Frequency	Bluetooth Transmitting (Tx) Hopping On, Payload: PRBS9, DH5	-
	Inquiry	
Dwell time	Bluetooth Transmitting (Tx) Hopping On, Payload: PRBS9, -DH1 -DH3 -DH5	-
	- Inquiry	
Spurious Emission (Conducted/Radiated)	Bluetooth Transmitting (Tx), Hopping Off, Payload: PRBS9, DH5,	Low: 2402MHz Mid: 2441MHz High: 2480MHz
	Bluetooth Receiving (Rx)	Mid: 2441MHz
Band Edge Compliance (Conducted)	Bluetooth Transmitting (Tx), Payload: PRBS9, DH5, -Hopping On -Hopping Off	Low: 2402MHz High: 2480MHz
(Radiated)	Bluetooth Transmitting (Tx), Hopping Off, Payload: PRBS9, DH5	Low: 2402MHz High: 2480MHz
99% Occupied Bandwidth	Bluetooth Transmitting (Tx), Payload: PRBS9, DH5, -Hopping On -Hopping Off	Low: 2402MHz Mid: 2441MHz High: 2480MHz

∗As a result of preliminary test, the formal test was performed with the above modes, which had the maximum power. (except Dwell time test)

Remarks: Test was not performed at AFH mode, because the decrease of number of channel (min: 20ch) at AFH mode does not influence on the output power and bandwidth of the EUT.
However, the limit level 125mWof AFH mode was used for the test.

4.2 Configuration and peripherals



* Cabling and setup were taken into consideration and test data was taken under worse case conditions.

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	COMB PLAYER A	FT0001a	1 *1) 2 *2)	FUJITSU TEN LIMITED	EUT
B	Amplifier	862800W390	-	HARMAN/BECKER	-
C	CD Changer	CDX-M8067ZT	DG900427	Pioneer	-
D	Steering Switch	-	-	-	-
E	Speaker	E 3308 BXR	-	FUJITSU TEN	-
F	Speaker	E 3308 BXR	-	FUJITSU TEN	-
G	Speaker	E 3308 BXL	-	FUJITSU TEN	-
H	Speaker	SB-9010	-	FUJITSU TEN	-
I	AM/FM Antenna (Main)	-	-	-	-
J	AM/FM Antenna (Sub)	-	-	-	-
K	Microphone	-	-	-	-

*1) Used for Antenna Terminal test
*2) Used for Radiated Emission test

List of cables used

No.	Name	Length (m)	Shield	
			Cable	Connector
1	DC Cable	2.1	Unshielded	Unshielded
2	Signal Cable	0.8	Unshielded	Unshielded
3	Signal Cable	6.5	Unshielded	Unshielded
4	Signal Cable	0.6	Unshielded	Unshielded
5	Speaker Cable	2.3	Unshielded	Unshielded
6	Speaker Cable	2.3	Unshielded	Unshielded
7	Speaker Cable	1.2	Unshielded	Unshielded
8	Speaker Cable	2.3	Unshielded	Unshielded
9	Microphone Cable	2.5	Unshielded	Unshielded

SECTION 5: Spurious Emission

[Conducted]
Test Procedure
The Out of Band Emission was measured with a spectrum analyzer connected to the antenna port.
The following spectrum analyzer setting was used:

- RBW: 100kHz
- VBW: 300kHz
- Sweep: Auto
- Detector: Peak
- Trace: Max Hold

Test data : APPENDIX 2
Test result : Pass

[Radiated]
Test Procedure
EUT was placed on a urethane platform of nominal size, 1.0m by 2.5m, raised 80cm above the conducting ground plane.
The Radiated Electric Field Strength intensity has been measured in a Semi Anechoic Chamber with a ground plane and at a distance of 3m(Below 10GHz) and 1m(Upper 10GHz).
The height of the measuring varied between 1 and 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 with the Test Receiver, or the Spectrum Analyzer (in linear mode).
The test was made with the detector (RBW/VBW) in the following table.
When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

The result also satisfied with the general limits specified in section FCC 15.209(a) / RSS-210 2.7 (IC).

Frequency	Below 1GHz	Above 1GHz
Instrument used	Test Receiver	Spectrum Analyzer
Detector IF Bandwidth	QP: BW 120kHz	PK: RBW:1MHz/VBW: 1MHz AV: RBW:1MHz/VBW:10Hz

The test was made on EUT at the normal use position.

Test data : APPENDIX 2
Test result : Pass

SECTION 6: Bandwidth

Test Procedure

The bandwidth was measured with a spectrum analyzer connected to the antenna port.
The following spectrum analyzer setting was used:

- Span: 3MHz (20dB, 99%, Hopping Off), 90MHz(99%, Hopping On)
- RBW: 30kHz (20dB), 100kHz (99%, Hopping Off), 1MHz (99%, Hopping On)
- VBW: 100kHz (20dB), 300kHz (99%, Hopping Off), 3MHz (99%, Hopping On)
- Sweep: Auto
- Detector: Peak
- Trace: Max Hold

*99%: 99% Occpupied Bandwidth

Test data : APPENDIX 2
Test result : Pass

SECTION 7: Maximum Peak Output Power

Test Procedure

The Maximum Peak Output Power was measured with a power meter (tested bandwidth: 50MHz) connected to the antenna port.

Test data : APPENDIX 2
Test result : Pass

SECTION 8: Carrier Frequency Separation

Test Procedure

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

- Span: 3MHz
- RBW: 100kHz
- VBW: 300kHz
- Sweep: Auto
- Detector: Peak
- Trace: Max Hold

Test data : APPENDIX 2
Test result : Pass

SECTION 9: Number of Hopping Frequency

Test Procedure

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

- Span: 30MHz
- RBW: 300kHz
- VBW: 1MHz
- Sweep: Auto
- Detector: Peak
- Trace: Max Hold

Test data : APPENDIX 2
Test result : Pass

SECTION 10: Dwell time

Test Procedure

The Dwell time was measured with a spectrum analyzer connected to the antenna port.
The following spectrum analyzer setting was used:

- Span: Zero Span
- RBW: 1MHz
- VBW: 3MHz
- Sweep: as necessary to capture the entire dwell time per hopping channel
- Detector: Peak
- Trace: Max Hold

Test data : APPENDIX 2
Test result : Pass