FCC CFR47 PART 15 SUBPART B

TEST REPORT

FOR

FM RECEIVER

FCC ID: UY6-RFM96D

MODEL NUMBER: R-FM96D

REPORT NUMBER: 07J10799-1

ISSUE DATE: FEBRUARY 09, 2007

Prepared for
TOHNICHI MFG. CO., LTD
2-12 OMORI-KITA 2-CHOME, OTA-KU
TOKYO 143-0016, JAPAN

Prepared by
COMPLIANCE CERTIFICATION SERVICES
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888

NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	02/09/07	Initial Issue	T. C.

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: TOHNICHI MFG. CO., LTD
2-12, OMORI-KITA 2-CHOME
OTA-KU, TOKYO, 143-0016, JAPAN

EUT DESCRIPTION: FM RECEIVER

MODEL: R-FM96D

SERIAL NUMBER: 801180V

DATE TESTED: JANUARY 25, 2007

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15 SUBPART B	NO NON-COMPLIANCE NOTED

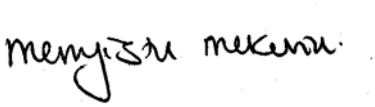
Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

THU CHAN
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

Tested By:



MENGISTU MEKURIA
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz	+/- 3.3 dB
Radiated Emission, 200 to 1000 MHz	+4.5 / -2.9 dB
Radiated Emission, 1000 to 2000 MHz	+4.5 / -2.9 dB
Power Line Conducted Emission	+/- 2.9 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The R-FM96D FM Receiver, which is far from TOHNICHI torque wrenches, receives the tightening completion using FM wave from the transmitter installed on the wrench.

GENERAL INFORMATION

CHASSIS MATERIAL	METAL
ENCLOSURE MATERIAL	METAL
POWER REQUIREMENTS	100 -115 VAC / 60 Hz
POWERLINE FILTER MANUFACTURER AND MODEL	Built-in
LIST OF ALL OSCILLATOR FREQUENCIES GREATER THAN OR EQUAL TO 9 kHz	30.325MHz (x6), 10.245MHz, 3.57MHz, 10MHz (x2)

5.2. PRELIMINARY TEST CONFIGURATIONS

The following configurations were investigated during preliminary testing:

EUT Configuration	Description
NORMAL	CONTINUIOUSLY RECEIVING MODE

5.3. MODE(S) OF OPERATION

Mode	Description
NORMAL	CONTINUIOUSLY RECEIVING MODE

5.4. MODIFICATIONS

No modifications were made during testing.

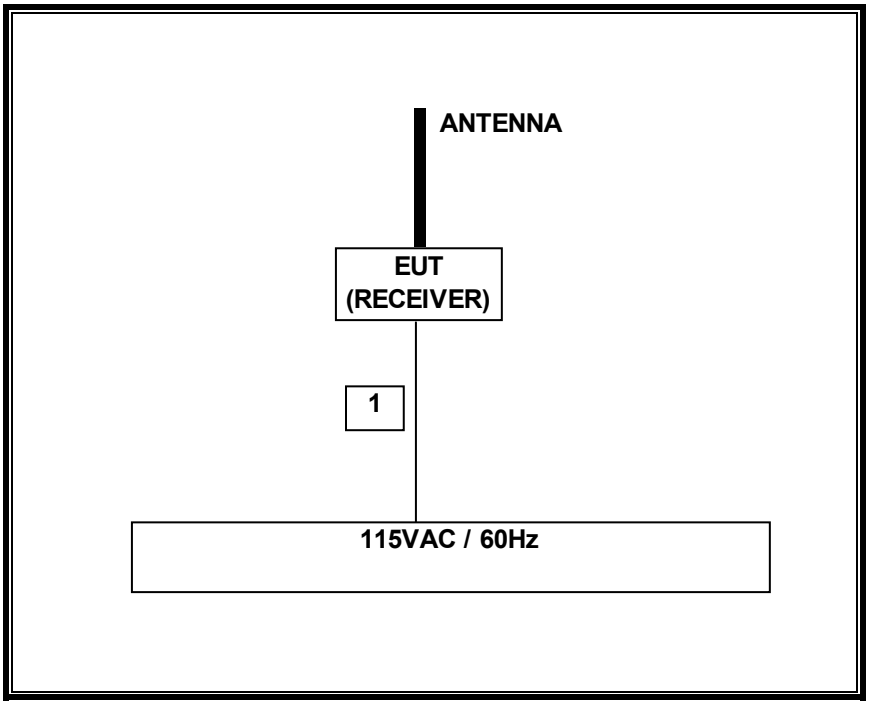
5.5. DETAILS OF TESTED SYSTEM

I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	US 115V	Unshelded	2	N/A

TEST SETUP

The Receiver EUT is standalone unit testing with the Transmitter as a trigger device.



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**Cal Due**
EMI Receiver, 9 kHz ~ 2.9 GHz	Agilent / HP	8542E	3942A00286	2/4/2007
RF Filter Section	Agilent / HP	85420E	3705A00256	2/4/07
Antenna, Bilog 30 MHz ~ 2 Ghz	Sunol Sciences	JB1	A121003	8/13/07
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	9/15/07
AC Power Source, 10 kVA	ACS	AFC-10K-AFC-2	J1568	CNR
EMI Test Receiver	R & S	ESHS 20	827129/006	1/27/08

7. APPLICABLE LIMITS AND TEST RESULTS

7.1. RADIATED EMISSIONS

TEST PROCEDURE

ANSI C63.4

The highest clock frequency generated or used in the EUT is 30.325 MHz, therefore the frequency range was investigated from 30 MHz to 100 MHz.

LIMIT

§15.109 (a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Limits for radiated disturbance of Class B ITE at measuring distance of 3 m	
Frequency range (MHz)	Quasi-peak limits (dBµV/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960 MHz	54
Note: The lower limit shall apply at the transition frequency.	

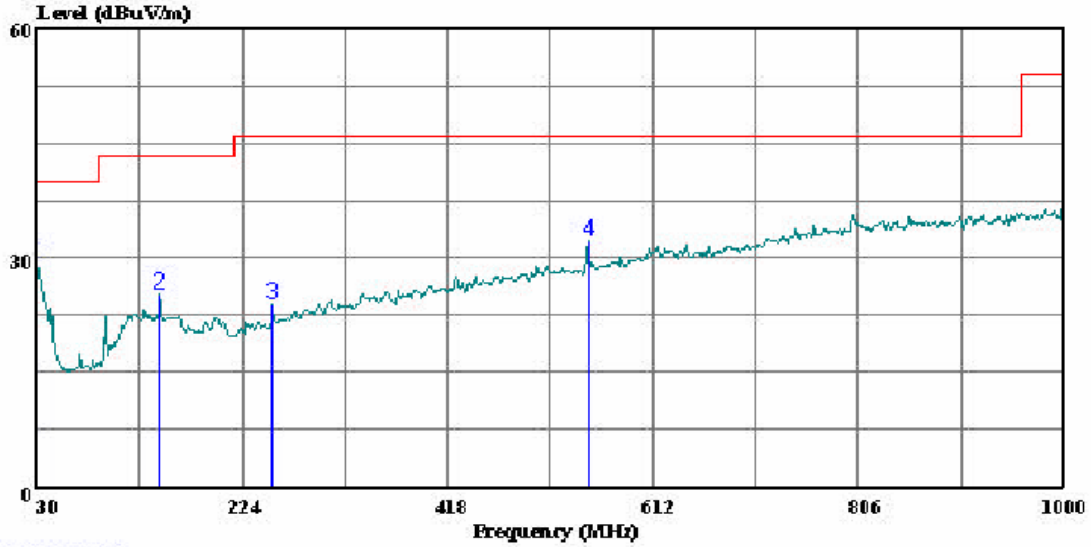
RESULTS

No non-compliance noted:

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

COMPLIANCE Engineering Services, Inc.
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1052
Fax: (510) 661-0888

Data#: 12 File#: 07J10799.EMI Date: 01-25-2007 Time: 19:57:44



Trace: 11 Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator: : Mengistu Mekuria
Company: : Tohnichi Mfg. Co., Ltd.
Project #: : 07J10799
Configuration: : EUT Alone
Mode of Operation:: Rx
Target: : FCC Class B

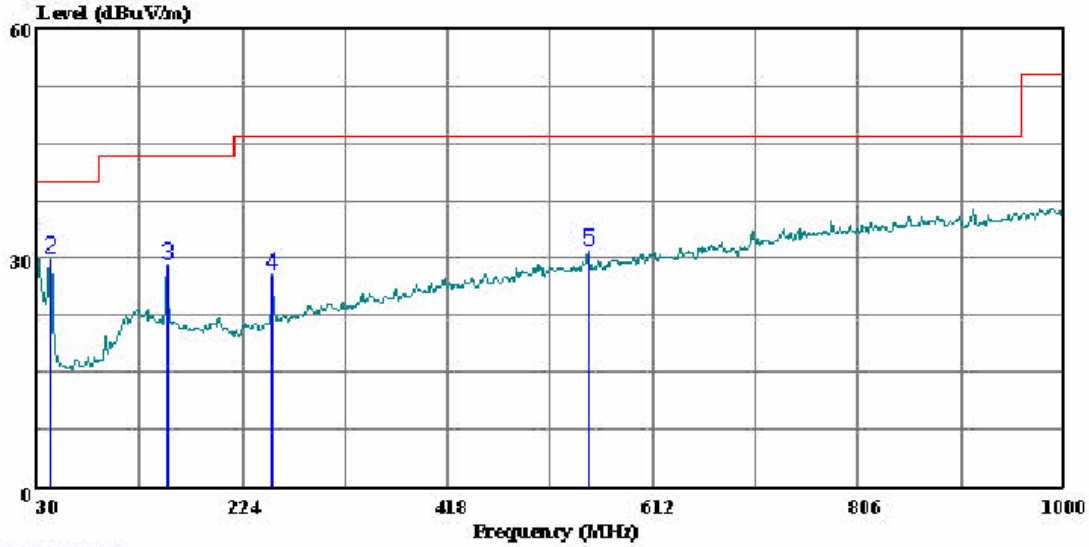
Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.970	6.34	22.65	28.99	40.00	-11.01	Peak
2	145.430	10.47	14.67	25.14	43.50	-18.36	Peak
3	252.130	9.97	13.94	23.91	46.00	-22.09	Peak
4	550.890	10.93	21.23	32.16	46.00	-13.84	Peak

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

COMPLIANCE Engineering Services, Inc.
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1052
Fax: (510) 661-0888

Data#: 10 File#: 07J10799.EMI Date: 01-25-2007 Time: 19:52:09



(Audix ATC)

Trace: 9 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator: : Mengistu Mekuria
Company: : Tohnichi Mfg. Co., Ltd.
Project #: : 07J10799
Configuration: : EUT Alone
Mode of Operation:: Rx
Target: : FCC Class B

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	9.02	22.65	31.67	40.00	-8.33	Peak
2	43.580	16.38	13.51	29.89	40.00	-10.11	Peak
3	153.190	14.93	14.19	29.12	43.50	-14.38	Peak
4	252.130	13.73	13.94	27.67	46.00	-18.33	Peak
5	550.890	9.64	21.23	30.87	46.00	-15.13	Peak

7.2. AC MAINS LINE CONDUCTED EMISSIONS

TEST PROCEDURE

CISPR 22

LIMIT

CISPR 22 Class B

Frequency range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Notes: 1. The lower limit shall apply at the transition frequencies 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

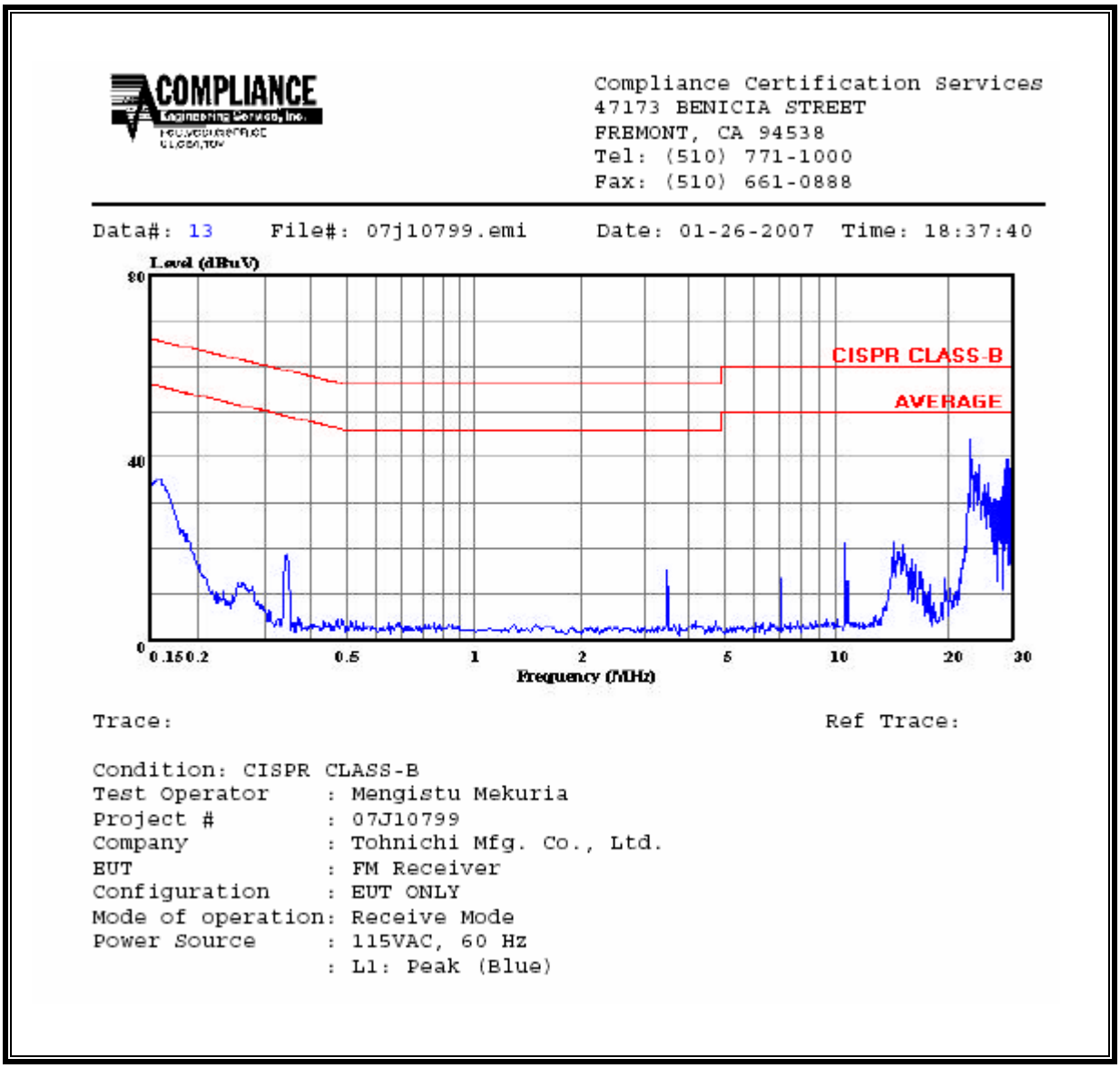
RESULTS

No non-compliance noted:

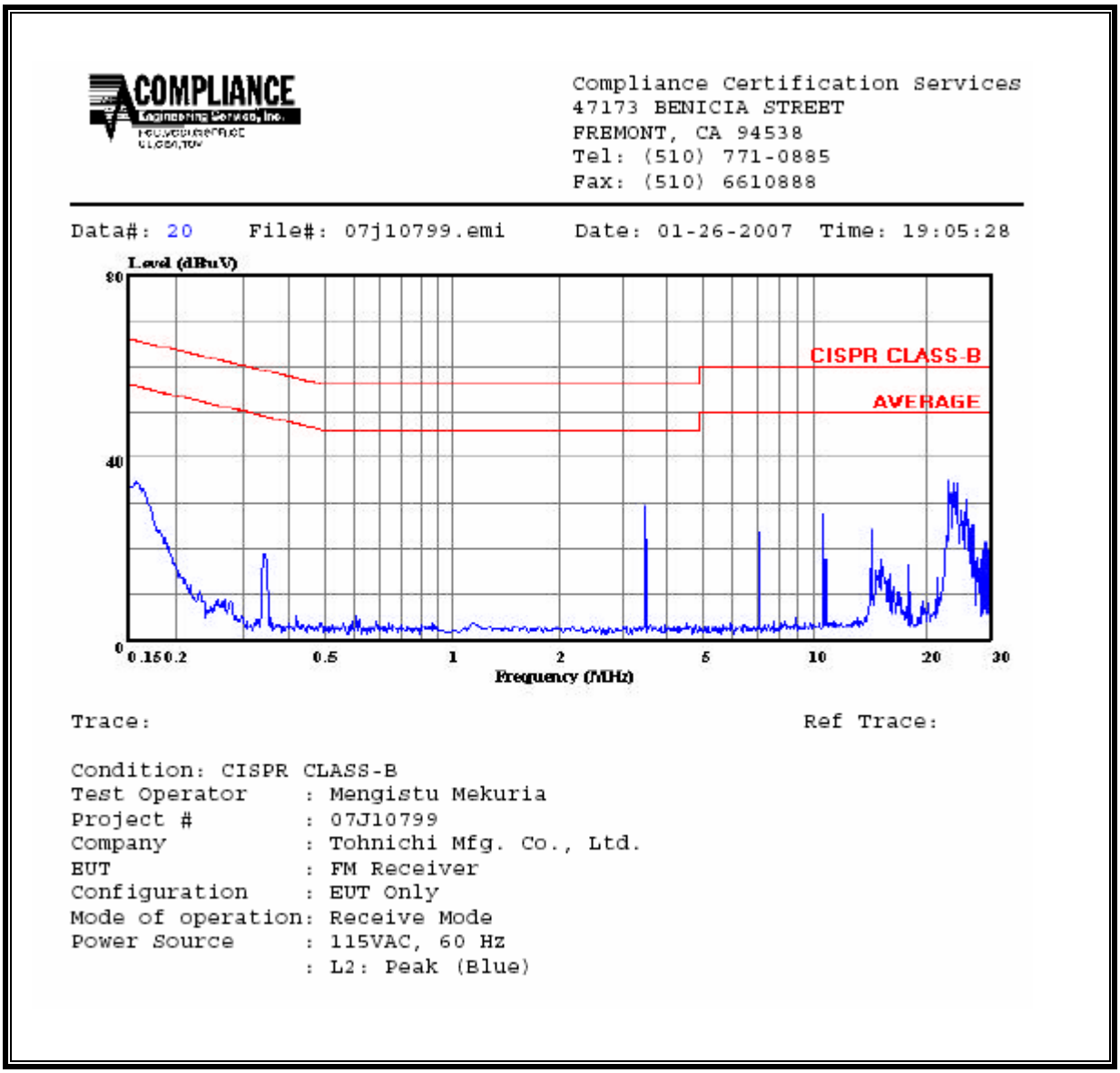
6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.16	35.24	--	--	0.00	65.46	55.46	-30.22	-20.22	L1
23.14	43.87	--	--	0.00	60.00	50.00	-16.13	-6.13	L1
29.06	39.56	--	--	0.00	60.00	50.00	-20.44	-10.44	L1
0.16	34.58	--	--	0.00	65.46	55.46	-30.88	-20.88	L2
3.58	29.32	--	--	0.00	56.00	46.00	-26.68	-16.68	L2
29.06	35.14	--	--	0.00	60.00	50.00	-24.86	-14.86	L2
6 Worst Data									

LINE 1 RESULTS



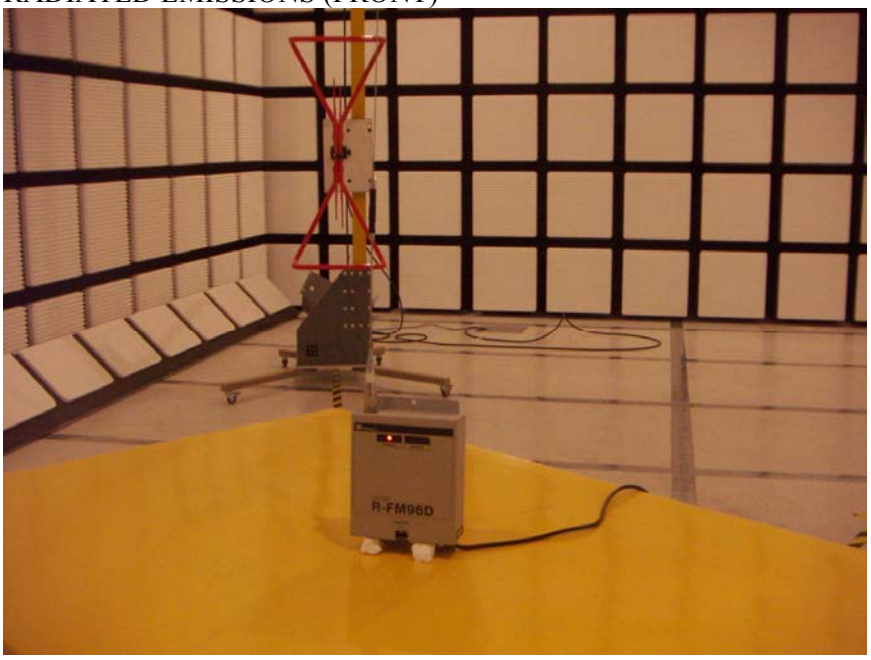
LINE 2 RESULTS



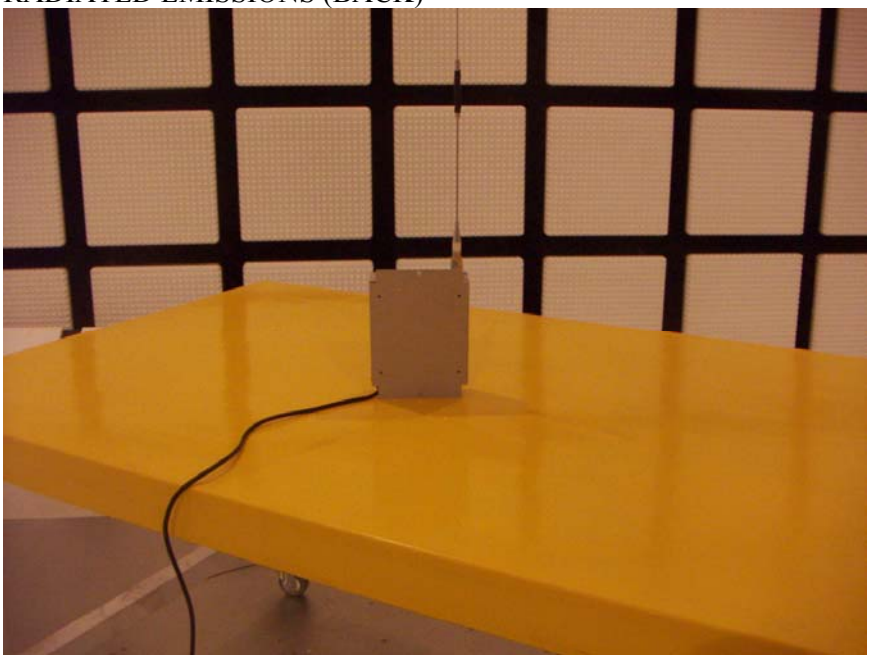
8. SETUP PHOTOS

RADIATED EMISSION

RADIATED EMISSIONS (FRONT)

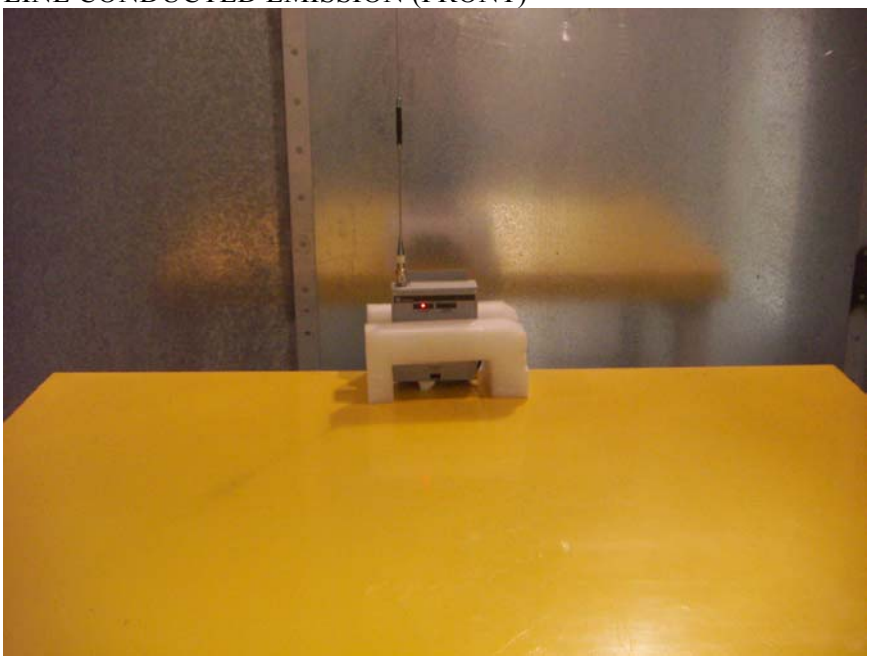


RADIATED EMISSIONS (BACK)



AC MAINS LINE CONDUCTED EMISSION

LINE CONDUCTED EMISSION (FRONT)



LINE CONDUCTED EMISSION (BACK)

END OF REPORT