



ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR SUPERHETRODYNE RECEIVER

Test report file number : E05NR-060

Applicant : TJ Media Co., Ltd.

Address : 640-8 Deungchon-dong, Gangseo-gu, Seoul Korea

Manufacturer : TJ Media Co., Ltd.

Address : 640-8 Deungchon-dong, Gangseo-gu, Seoul Korea

Type of Equipment : Wireless MIC Receiver

FCC ID : TO8-TJ-JI-200M

Model / Type No. : JI-200M

Serial number : N/A

Total page of Report : 12 pages (including this page)

Date of Incoming : September 19, 2005


Date of issuing : November 18, 2005

SUMMARY


The equipment complies with the regulation; **FCC PART 15 SUBPART B §15.101**

This test report contains only the result of a single test of the sample supplied for the examination. It is not a general valid assessment of the features of the respective products of the mass-production.

Prepared by: _____


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1. VERIFICATION OF COMPLIANCE

APPLICANT : TJ Media Co., Ltd.
 ADDRESS : 640-8 Deungchon-dong, Gangseo-gu, Seoul Korea
 CONTACT PERSON : Young-Hun Kwon / Research Engineer
 TELEPHONE NO : +82-2-3663-4700 (573)
 FCC ID : TO8-TJ-JI-200M
 MODEL NO/NAME : JI-200M
 SERIAL NUMBER : N/A
 DATE : November 18, 2005

EQUIPMENT CLASS	CXX-Communications Revr for use w/ licensed Tx and CBs
E.U.T. DESCRIPTION	Wireless MIC Receiver -SUPERHETRODYNE RECEIVER
THIS REPORT CONCERNS	ORIGINAL GRANT
MEASUREMENT PROCEDURES	ANSI C63.4/2003
TYPE OF EQUIPMENT TESTED	PRE-PRODUCTION
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	CERTIFICATION
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 15 §15.101
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 METER OPEN AREA TEST SITE

The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.



2. GENERAL INFORMATION

2.1 Product Description

The TJ Media Co., Ltd., Model JI-200M (referred to as the EUT in this report) is a receiver that is shall be used with licensed wireless microphone, Model: JI-200C FCC ID: TO8-TJ-JI-200C, which was manufactured by TJ Media Co., Ltd. The EUT has 4 channels for the above transmitter and stored image and audio in the EUT will be displayed on the screen of TV. The product specification described herein was obtained from product data sheet or user’s manual.

CHASSIS TYPE	Plastic
OPERATING FREQUENCY	798.375MHz, 798.625MHz, 798.875MHz, and 799.125MHz
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	9.6MHz, 12 MHz, 14.318MHz, and 27MHz
ANTENNA TYPE	Internal Wire Antenna
ANTENNA GAIN	- 3dBi
NUMBER OF LAYERS	RX Board: 2 Layers, Main Board: 4 Layers
RATED SUPPLY VOLTAGE	DC 5V
USED AC/DC ADAPTER	Model No: KP-106C, MFR: Kisan Electronics Co., Ltd.
EXTERNAL CONNECTOR	Video Input/Output, Audio Output, and DC Input Port

2.2 Alternative type(s)/model(s); also covered by this test report.

No other model differences have been mentioned.

2.3 Related Submittal(s) / Grant(s)

Original submittal only.

2.4 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4/2003. Radiated testing was performed at a distance of 3 meters from EUT to the antenna.

2.5 Test Facility

The open area test site and conducted measurement facilities are located on at 426-1 Daessangryung-Ri, Chowol-Myun, Kwangju-Kun, Kyunggi-Do 464-080 Korea. Description details of test facilities were submitted to the Commission on October 02, 2002. (Registration Number: 529838)

3. EUT MODIFICATIONS

None

**4. SYSTEM TEST CONFIGURATION****4.1 Justification**

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
MAIN BOARD	TJ Media Co., Ltd.	N/A	N/A
RX BOARD	TJ Media Co., Ltd.	N/A	N/A

4.2 Peripheral equipment

Defined as equipment needed for correct operation of the EUT, but not considered as tested:

Model	Manufacturer	FCC ID	Description	Connected to
JI-200M	TJ Media Co., Ltd.	TO8-TJ-JI-200M	Wireless MIC Receiver (EUT)	LCD Monitor
KP-106C	Kisan Electronics	N/A	AC/DC Adapter	EUT
LT201CC	KTV Co. Ltd.	DoC	LCD Monitor	HOST
8657A	H.P.	N/A	Signal Generator	N/A

4.3 Cable Description

	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
Wireless MIC Receiver (EUT)	N/A	N	D: 1.2m
AC/DC Adapter	N	N	P: 1.8m, D: 1.2m
LCD TV	N	N	P: 1.8m, D: 1.2m

* The marked "(P)" means the Power Cable and "D" means the I/O Cable.

4.4 Noise Suppression Parts on Cable

	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
Wireless MIC Receiver (EUT)	N	N/A	Y	BOTH END
AC/DC ADAPTER	N	N/A	Y	EUT END
LCD TV	N	N/A	Y	BOTH END



4.5 Mode of operation during the test

The EUT was tested as following 2 modes for getting maximum emission levels from the EUT, but the worst emissions were recorded in this test report.

1. Normal operation Mode: The EUT was set to wireless microphone and then stored image and sound in the EUT was continuously displayed on the screen of the TV during the testing.
2. Set signal generator at 798.375MHz and 799.125MHz and then EUT received the CW signal for coherent testing.

4.6 Configuration of Test System

Line Conducted Emission Test:

The receiver was connected to LISN. All supporting equipments were connected to another LISN. Preliminary Power line Conducted Emission test was performed by using the procedure in ANSI C63.4: 2003 7.2.3 to determine the worse operating conditions. It is not need to test this requirement, because the power of the EUT supplies from a car battery.

Radiated Emission Test:

Preliminary radiated emissions tests were conducted using the procedure in ANSI C63.4/2003, 8.3.1.1 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 meters open area test site.

Coherent Test:

During Radiated Emission Tests, H.P. signal generator model no: 8657A was used to radiate an unmodulated CW signal to EUT at 798.375 MHz and 799.125 MHz in order to cohere the individual components of the characteristic broadband emissions from EUT.

Antenna Power Conduction Test:

This equipment was only with a permanently attached antenna, so the radiated emission measurement was performed with the antenna attached.

5. PRELIMINARY TEST

5.1 AC Power line Conducted Emissions Tests

During Preliminary Tests, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
RX mode	X

5.2 Radiated Emissions Tests

During Preliminary Tests, the following operating modes were investigated

Operation Mode	The Worse operating condition (Please check one only)
RX mode	X



6. FINAL RESULT OF MEASUREMENT

Preliminary test was done in normal operation mode. And the final measurement was selected for the maximized emission level.

6.1 Conducted Emission Test

Humidity Level : 47 %

Temperature: 23 °C

Limits apply to : FCC CFR 47, PART 15, Subpart B, Section 15.107 (a)

Type of Test : Unintentional Radiator

Result : PASSED BY -8.55 dB at 0.195 MHz under peak detector mode

EUT : Wireless MIC Receiver

Date: October 17, 2005

Operating Condition : Receiving CW signal and display video and audio on the screen of TV.

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 9 kHz)

Frequency (MHz)	Line	Quasi-Peak (dBuV)			Margin (dB)	Average (dBuV)		Margin (dB)
		Emission level	Detect Mode	Limits		Emission level	Limits	
0.15	H	57.80	P	66.00	-8.20	43.27	56.00	-12.73
0.20	H	50.28	P	63.61	13.33	-	-	-
0.355	H	39.37	P	58.84	19.47	-	-	-
24.10	H	40.99	P	60.00	19.01	-	-	-
24.715	N	38.32	P	60.00	21.68	-	-	-
27.00	N	39.29	P	60.00	20.71	-	-	-

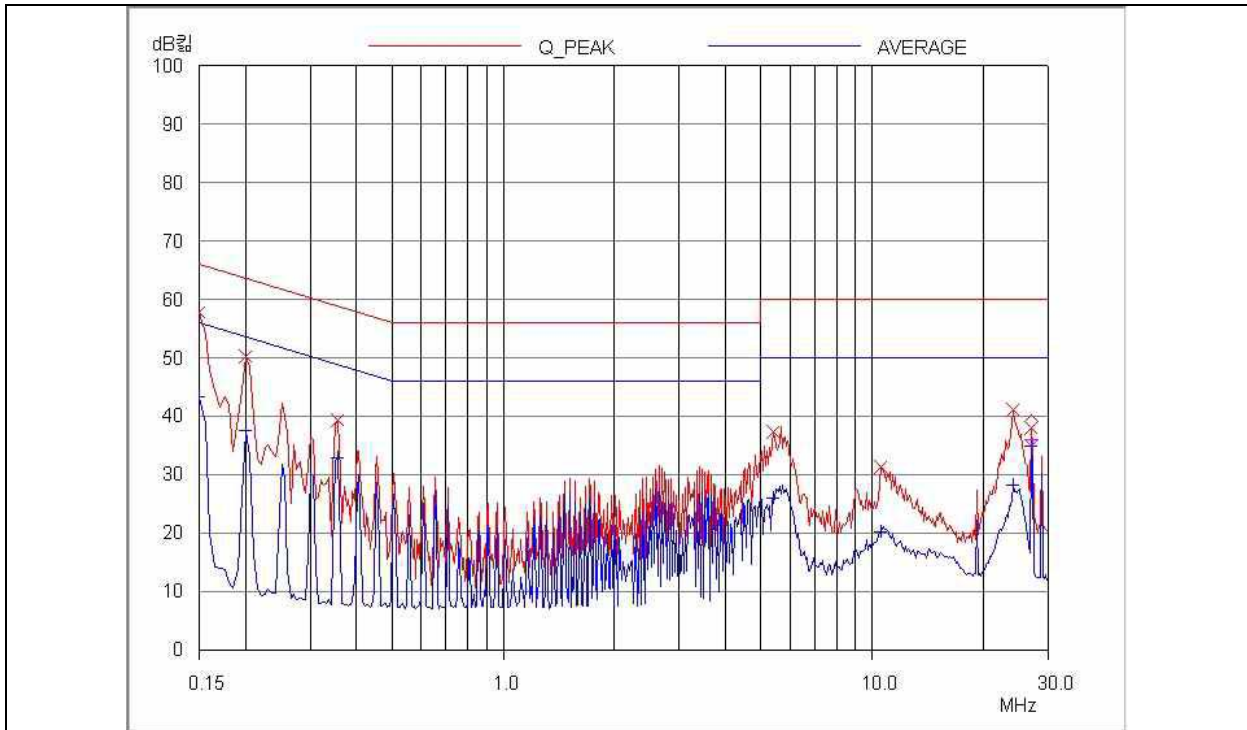
Line Conducted Emission Tabulated Data

Remark : "H": Hot Line, "N": Neutral line, "P": Peak detector.

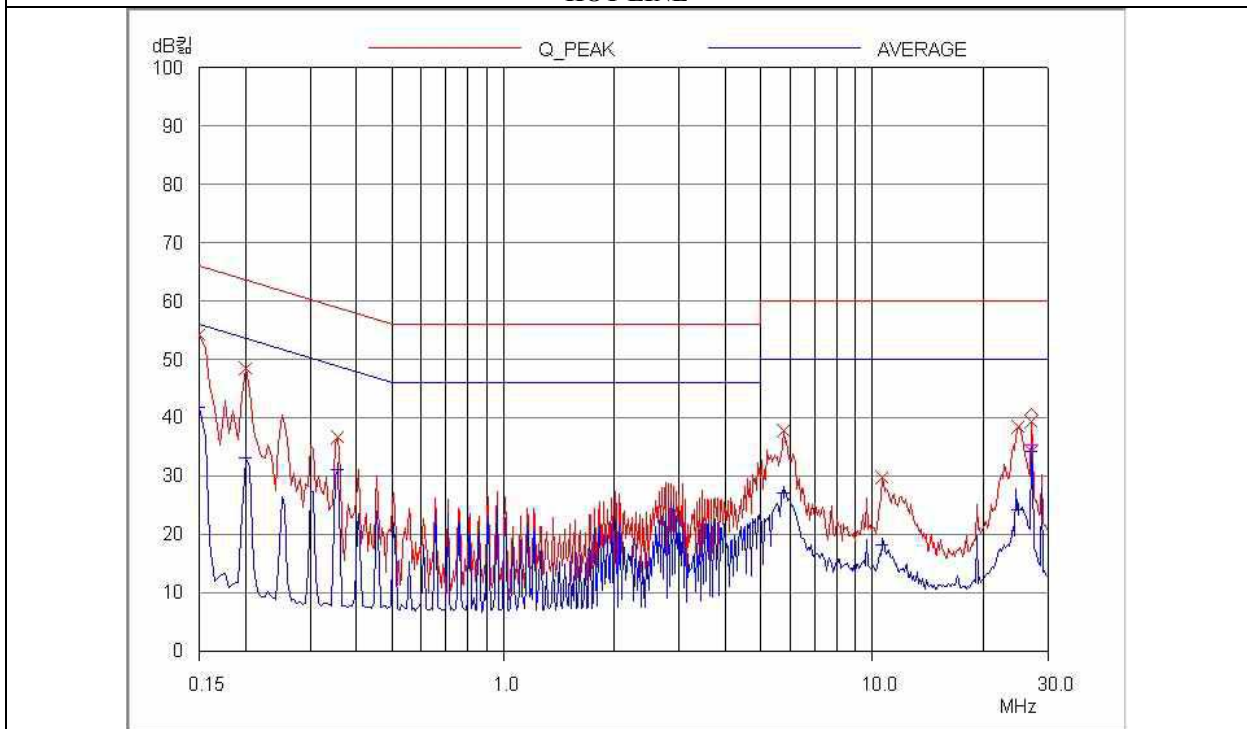
See next page for an overview sweep performed with peak and average detector.

Low and High Channels were tested, but the worst emissions were recorded in this table.

Tested by: Ki-Hong, Nam / Test Engineer



HOT LINE



NEUTRAL LINE



6.2 Radiated Emission Test

6.2.1 Test data at Receiving Condition

The following table shows the highest levels of radiated emission on both polarizations of horizontal and vertical.

Humidity Level : 49% Temperature: 24 °C
 Limits apply to : FCC CFR 47, PART 15, Subpart B Section: 15.109 (a)
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
 Type of Test : Unintentional Radiator
 Result : PASSED BY -2.63dB at 799.09 MHz

EUT : Wireless MIC Receiver Date: October 18, 2005
 Receiving Frequency : Bottom Frequency, 798.35MHz; Top Frequency, 799.09MHz
 Distance : 3 Meter

Radiated Emission		Ant	Correction Factors		Total	FCC	
Frequency (MHz)	Amplitude (dBuV)	Pol.	Antenna (dB/m)	Cable (dB)	Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)
798.35	15.40	H	20.41	7.19	43.00	46.02	-3.02
	11.30	V			38.90		-7.12
799.09	15.80	H	20.40	7.19	43.39	46.02	-2.63
	11.60	V			39.09		-6.93
1596.70	11.50	H	22.62	8.90	43.02	53.97	-10.95
	10.50	V			42.12		-11.85
1598.22	11.60	H	22.62	8.90	43.12	53.97	-10.85
	10.40	V			41.92		-12.05

Other frequencies are more than 30dB below the limit up to 5GHz.

Radiated Emission Tabulated Data

Tested by: Ki-Hong, Nam / Test Engineer



6.2.2 Test Data for Normal Operating Condition

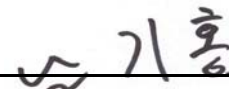
The following table shows the highest levels of radiated emission on both polarizations of horizontal and vertical.

Humidity Level : 49 % Temperature: 24 °C
 Limits apply to : FCC CFR 47, PART 15, Subpart B Section: 15.109 (a)
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
 Type of Test : Unintentional Radiator
 Result : PASSED BY -5.62dB at 297.01 MHz

EUT : Wireless MIC Receiver Date: October 18, 2005
 Receiving Frequency : Top Frequency, 799.09MHz
 Distance : 3 Meter

Radiated Emission		Ant	Correction Factors		Total	FCC	
Frequency (MHz)	Amplitude (dBuV)	Pol.	Antenna (dB/m)	Cable (dB)	Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)
52.30	17.00	V	9.96	1.45	28.31	40.00	-11.69
105.60	19.40	V	10.94	1.90	32.24	43.52	-11.28
107.99	23.50	V	11.28	1.90	36.68	43.52	-6.84
215.20	16.00	V	16.33	2.92	35.25	43.52	-8.27
297.01	16.60	V	20.04	3.76	40.40	46.02	-5.62
324.01	20.30	V	14.03	3.99	38.32	46.02	-7.70
668.19	11.40	V	19.73	5.95	37.08	46.02	-8.94
Other frequencies are more than 30dB below the limit up to 5GHz.							

Radiated Emission Tabulated Data



 Tested by: Ki-Hong, Nam / Test Engineer



7. FIELD STRENGTH CALCULATION

Meter readings are compared to the specification limit correcting for antenna and cable losses

+ Meter reading (dBuV)

+ Cable Loss (dB)

+ Antenna Factor (Loss) (dB/meter)

= Corrected Reading (dBuV/meter)

- Specification Limit (dBuV/meter)

= dB Relative to Spec (+/- dB)

**8. LIST OF TEST EQUIPMENT**

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	RS	ESVS 10	827864/005	DEC/04	12MONTH	■
2.	Test receiver	RS	ESHS10	834467/007	MAY/05	12MONTH	■
3.	Spectrum analyzer	HP	8567A	3021A00773	MAR/05	12MONTH	■
4.	RF preselector	HP	85685A	3107A01268	MAR/05	12MONTH	■
5.	Quasi-Peak Adapter	HP	85650A	3107A01550	MAR/05	12MONTH	■
6.	Spectrum analyzer	HP	8564E	3650A00756	JUL/05	12MONTH	■
7.	Preamplifier	Agilent	83051A	3950M00201	JUN/05	12MONTH	■
8.	Biconical antenna	Schwarzbeck EMCO	VHA9103 3104C	91031852 9109-4443 9109-4444	JAN/05 JUL/05	12MONTH	■
9.	Log Periodic antenna	Schwarzbeck EMCO	UHALP9018A 3146	62281001 9109-3214 9109-3217	FEB/05	12MONTH	■
10.	Horn Antenna	Schwarzbeck	BBHA9120D	BBHA9120D 294	JUN/05	12MONTH	■
11.	LISN	Schwarzbeck	NSLK8128	8128-216 9109-1869	JUL/05 NOV/05	12MONTH	■
12.	RF Amplifier	HP	8347F	3307A01354	JUN/05	N/A	
13.	Plotter	HP	7475A	30052 22986	N/A	N/A	
14.	Position Controller	HD	HD100	100/788	N/A	N/A	■
15.	Turn Table	HD	DS420S	N/A	N/A	N/A	■
16.	Antenna Master	HD	HD240	N/A	N/A	N/A	■
17.	Isolation Transformer	Digitek Power	DPT	DPF-22027	N/A	N/A	■
18.	Isolation Transformer	Digitek Power	DPT	DPF-22028	N/A	N/A	■
19.	Frequency Converter	Digitek Power	VFS/DEFC	N/A	N/A	N/A	■