

EMI TEST REPORT

Test report No.: EMC- FCC- 0365

Type of equipment: IRIS AUTHENTICATION CAMERA

Model Name: JPC-1000

FCC ID : TNIJPC1000

Applicant: JIRIS CO.,LTD

Test standards: FCC part 15 subpart B Class B

Test Procedure and Items :

AC Power Line Conducted Emissions Measurement: ANSI C63.4:2003

Radiated Emissions Measurement : ANSI C63.4:2003

Test result : Complied

The above equipment was tested by EMC compliance Testing Laboratory for compliance with the requirements of FCC Rules and Regulations.

The results of testing in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Date of test: 2006. 02. 07

Issued date: 2006. 03. 13

Tested by:



BAEK, JEONG-SOO

Approved by:



CHUNG, MIN-SEOK

EMC Compliance Ltd.

82-1 JEIL-RI, YANGJI-MYUN, YONGIN-CITY, KYUNGGI-DO 449-825, KOREA
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1. Client information

Applicant: JIRIS CO.,LTD
Address : #402 Shinwoo Bldg, 517-13 Dogok-Dong,
Gangnam-Gu 135-270 Seoul, Korea
Telephone Number: 82-2-571-2871
Facsimile Number: 82-2-571-2872
Contact Person: KIM EUN SUN

Manufacturer: JIRIS CO.,LTD
Address : #402 Shinwoo Bldg, 517-13 Dogok-Dong,
Gangnam-Gu 135-270 Seoul, Korea
Telephone Number: 82-2-571-2871
Facsimile Number: 82-2-571-2872
Contact Person: KIM EUN SUN

2. Laboratory information

Address

EMC compliance Ltd.

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Telephone Number : 82 31 336 9919

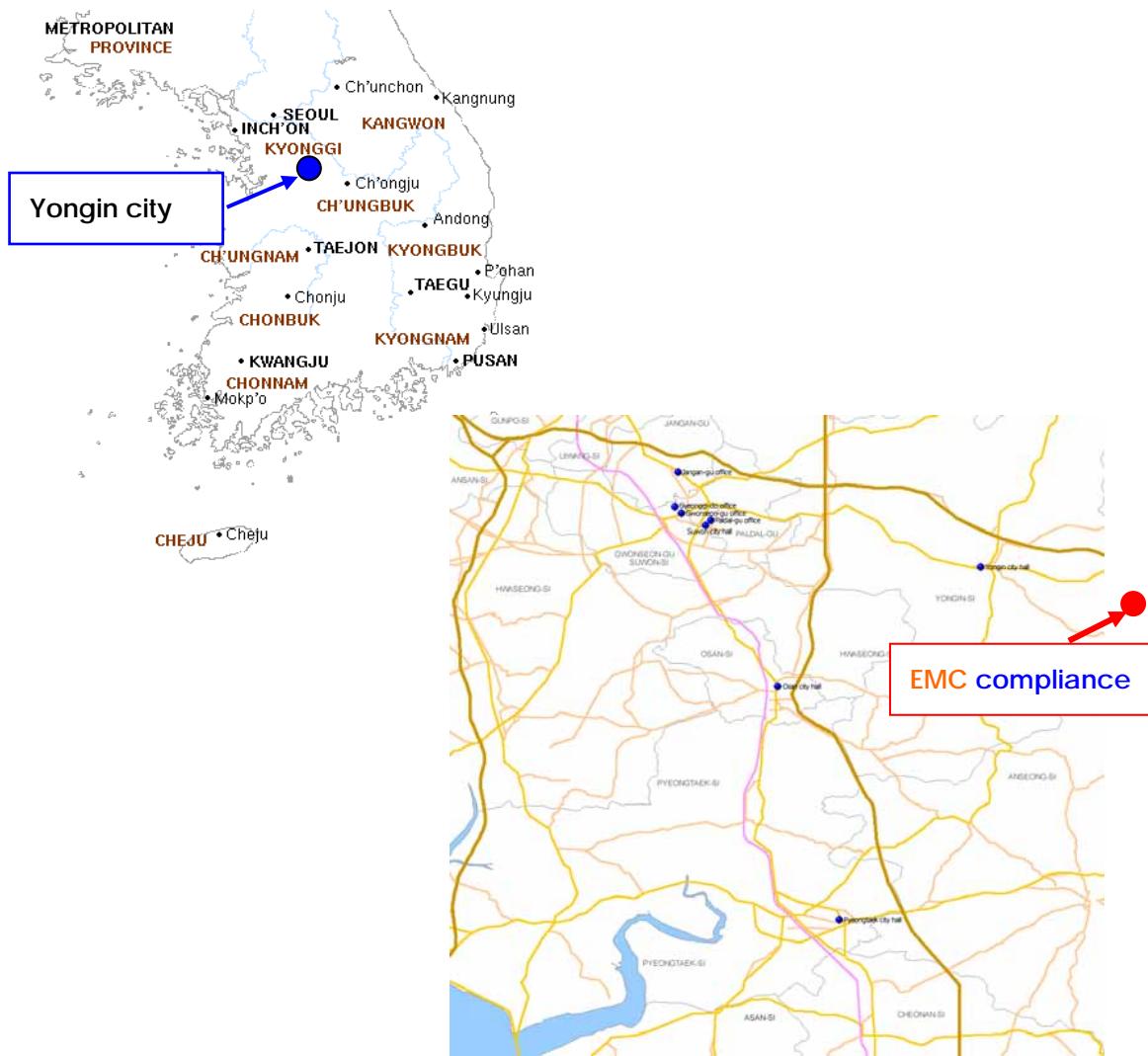
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FCC Filing No. : 793334

VCCI Registration No. : C-1713, R-1606

KOLAS NO.: 231

SITE MAP



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3. Test system configuration

3.1 Operation Environment

		Temperature	Humidity	Pressure
OATS	:	3 °C	30 %	1019 hPa
Shielded room	:	32 °C	28 %	1020 hPa

Test site

These testing were performed following locations;

OATS : Radiated emission

Shielded room: Conducted emission

3.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMI. The factors contributing to uncertainties are test receiver, Cable Loss, antenna factor calibration, Antenna directivity, antenna factor Variation with height, antenna phase center variation, antenna Frequency interpolation, measurement distance variation, Site imperfection, mismatching, and system repeatability.

Based on NIS 80, 81, the measurement uncertainty level with a 95% confidence level was applied.

3.3 Sample calculation

Radiated emission

The field strength is calculated adding the antenna Factor, cable loss and, Antenna pad adding, subtracting the amplifier gain from the measured reading.

The sample calculation is as follows :

$$FS = MR + AF + CL + AT - AG$$

MR = Meter Reading / AF = Antenna Factor / CL = Cable Loss

AP = Antenna Pad / AG=Amplifier Gain /

If MR is 30dB, AF 12dB, CL 5dB, AP 10dB, AG 35dB

The result (MR) is

$$30 + 12 + 5 + 10 - 35 = 22\text{dBuV/m}$$

Conducted emission

The field strength is calculated by adding the LISN factor, cable loss to the measured reading.

The sample calculation is as follows :

$$FS = MR + LF + CL$$

MR = Meter Reading

LF = LISN Factor

CL = Cable Loss

If MR is 30dB, LISN Factor 1dB, CL 1dB

The result (FS) is

$$30 + 1 + 1 = 32\text{dBuV}$$

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4. Description of E.U.T.

4.1 Product description

Applicant :	JIRIS CO.,LTD
Address of Applicant:	#402 Shinwoo Bldg, 517-13 Dogok-Dong, Gangnam-Gu 135-270 Seoul, Korea
Manufacturer:	JIRIS CO.,LTD
Address of Manufacturer:	#402 Shinwoo Bldg, 517-13 Dogok-Dong, Gangnam-Gu 135-270 Seoul, Korea
Type of equipment:	IRIS AUTHENTICATION CAMERA
Basic Model:	JPC-1000
Rating:	DC 5V/80mA from PC
Serial number:	N/A

4.2 Peripherals

Description	Model / Part #	Serial number	Manufacture
PC	EVO	6F28JYFZ7096	COMPAQ
MONITOR	52S-S	N379HVEY216557V	SAMSUNG
PRINTER	EPSON STYLUS C60	DR5K015097	EPSON
KEYBOARD	ACK-260	3010288	commaeul
MOUSE	SMOP5000WX	4110057517	SAMSUNG
HEADSET	RP-HM211	N/A	PANASONIC

4.3 Operating conditions

- Monitoring mode.(EyeNI program)

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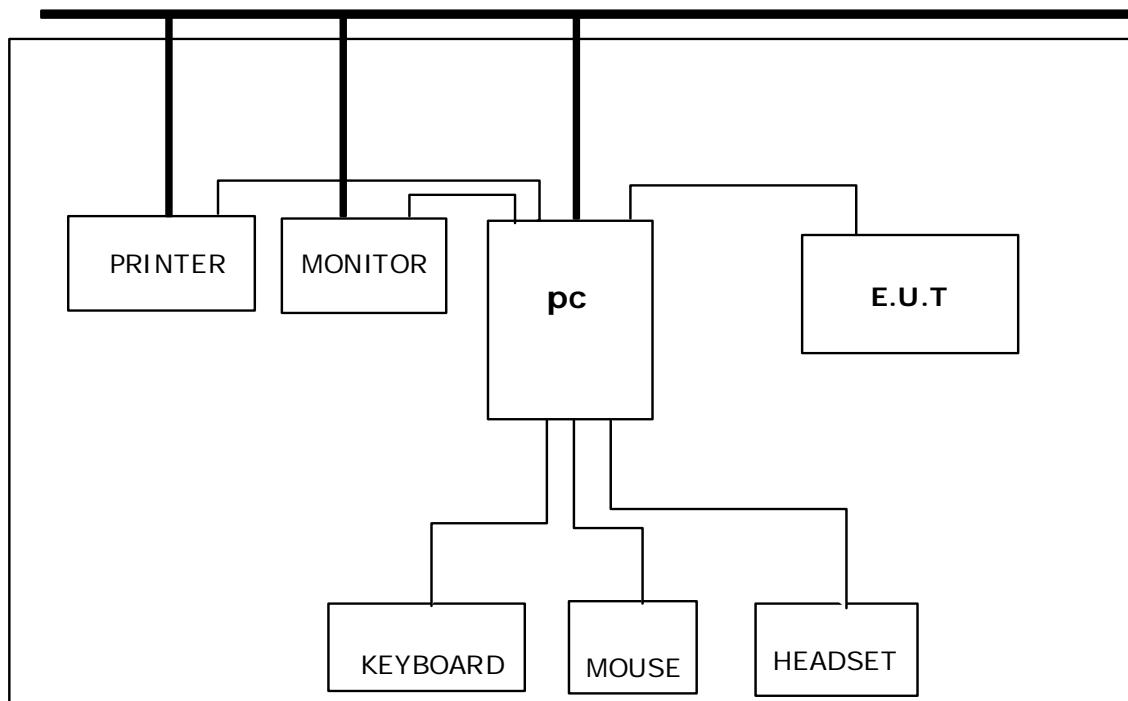
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4.4 Used cables

Start		END		Cable Spec.	
Name	I/O Port	Name	I/O Port	Length	Shield
EUT	USB	PC	USB	1.2	SHIELD

4.5 EUT test configuration



5. Summary of test results

5.1 Modification to the E.U.T.



-Add the core.



-Used shield cable.

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5.2 Standards & results

FCC part 15 subpart B (Class B)

ANSI C63.4 – 2003

Test items	Test methods	Result
Conducted emission	ANSI C63.4-2003	Pass
Radiated emission	ANSI C63.4-2003	Pass

6. Test results

6.1 Conducted Emission

6.1.1 Measurement procedure

Mains

The measurements were performed in a shielded room.

EUT was placed on a non-metallic table height of 0.8 m above the reference ground plane.

The rear of table was located 0.4 m to the vertical conducted plane.

Each EUT power lead, except ground (safety) lead, was individually connected through a LISN to input power source.

Both lines of power cord, hot and neutral, were measured.

6.1.2 Used equipments

Equipment	Model	Serial No.	Makers	Next Cal. Date	Used
Test receiver	ESHS10	843276/003	R&S	06.05.13	<input checked="" type="checkbox"/>
L.I.S.N.	L2-16A	0000J10705	PMM	06.11.20	<input checked="" type="checkbox"/>
	ESH3-Z5	100267	R&S	06.04.03	<input checked="" type="checkbox"/>
Test site	Shield room	-	-	-	<input checked="" type="checkbox"/>

6.1.3 Measurement uncertainty

Conducted emission measurement : (k=2, 95%)

9kHz-150 kHz : ± 3.47 [dB]

150kHz-300 MHz : ± 3.01 [dB]

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6.1.4 Test data

Frequency [MHz]	Correction Factor		Line	Quasi-peak			Average		
	LISN	Cable		Limit [dBuV]	Reading [dBuV]	Result [dBuV]	Limit [dBuV]	Reading [dBuV]	Result [dBuV]
0.171	0.28	0.2	N	64.91	43.85	44.33	54.91	39.17	39.65
0.192	0.12	0.1	N	63.95	44.63	44.85	53.95	40.38	40.60
0.210	0.12	0.1	N	63.21	41.77	41.99	53.21	37.85	38.07
0.267	0.12	0.1	N	61.21	38.64	38.86	51.21	35.15	35.37
0.438	0.13	0.1	H	57.10	36.60	36.83	47.10	32.38	32.61
0.531	0.14	0.1	H	56.00	38.32	38.56	46.00	34.88	35.12
0.837	0.15	0.1	H		40.02	40.27		36.30	36.55
0.858	0.16	0.1	N		35.81	36.07		32.14	32.40
0.930	0.15	0.2	H		38.45	38.80		34.62	34.97
3.630	0.26	0.3	H		36.41	36.97		31.08	31.64
5.090	0.29	0.3	H	60.00	35.69	36.28	50.00	30.88	31.47
6.950	0.36	0.4	H		32.36	33.12		25.97	26.73
15.900	0.69	0.2	H		33.13	34.02		27.67	28.56
20.420	0.83	0.3	H		36.35	37.48		30.13	31.26
28.390	1.19	0.4	H		33.05	34.64		23.44	25.03

- Note. QP = Quasi-Peak, AV= Average / LINE(N) : NEUTRAL, LINE(H) : HOT
- Loss = LISN Loss + Cable Loss
- Measurement time : 1s

6.1.5. Result

The EUT tested complied with the limits detailed in FCC Rules Part 15 Section 15.107(a).

6.2 Radiated Emission

6.2.1 Measurement procedure

A pretest was performed at 3 m distance in a mini chamber for searching correct frequency.

The final test was done at a 10 m open area test site with a quasi-peak detector.

EUT was placed on a non-metallic table height of 0.8 m above the reference ground plane.

They were folded back and forth forming a bundle 0.3 m to 0.4 m long and were hanged at a 0.4 m height to the ground plane.

Cables connected to EUT were fixed to cause maximum emission.

Test was made with the antenna positioned in both the horizontal and vertical planes of polarization.

The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

6.2.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next cal. date	Used
Test receiver	ESVD	841729/010	R&S	06.05.23	<input checked="" type="checkbox"/>
TRILOG SUPER Broadband ANT	VULB 9160	3138	Schwarzbeck Mess-Electronik	06.10.26	<input checked="" type="checkbox"/>
Antenna Mast	A109	N/A	DEAIL	-	<input checked="" type="checkbox"/>
Turn Table	TS14	N/A	DEAIL	-	<input checked="" type="checkbox"/>
10m OATS	-	-	EMC Compliance	-	<input checked="" type="checkbox"/>

6.2.3 Measurement uncertainty

Radiated Emission measurement : (k=2, 95%)

30-300 MHz ; 3 m: ± 3.69 [dB], 10 m: ± 3.67 [dB]

300-1000 MHz ; 3 m: ± 4.07 [dB], 10 m: ± 3.41 [dB]

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6.2.4 Test data

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	angle	Correction Factor		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
					Antenna	Cable			
57.29	2.1	V	1.0	228	11.75	0.90	30.0	14.75	15.25
144.00	1.9	V	1.0	116	12.71	1.90	30.0	16.51	13.49
169.28	2.2	V	1.0	194	12.06	2.00	30.0	16.26	13.74
212.23	4.8	H	4.0	140	9.65	2.30	30.0	16.75	13.25
317.01	7.9	H	4.0	339	13.26	3.20	37.0	24.36	12.64
446.73	8.2	V	1.0	228	16.43	4.00	37.0	28.63	8.37
649.03	0.3	H	4.0	341	20.03	5.50	37.0	25.83	11.17
701.34	1.7	H	4.0	270	20.69	5.90	37.0	28.29	8.71

* Receiving Antenna Mode : *Horizontal, Vertical*

* 10 m OATS

* Note : *Reading = Test Receiver meter,*

P= Polarization → POL H = Horizontal, POL V = Vertical

* *Result = Field Strength (Antenna factor + Cable factor + Reading)*

6.2.5. Result

The EUT tested complied with the limits detailed in FCC Rules Part 15 Section 15.109(g).

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7. Test graphs

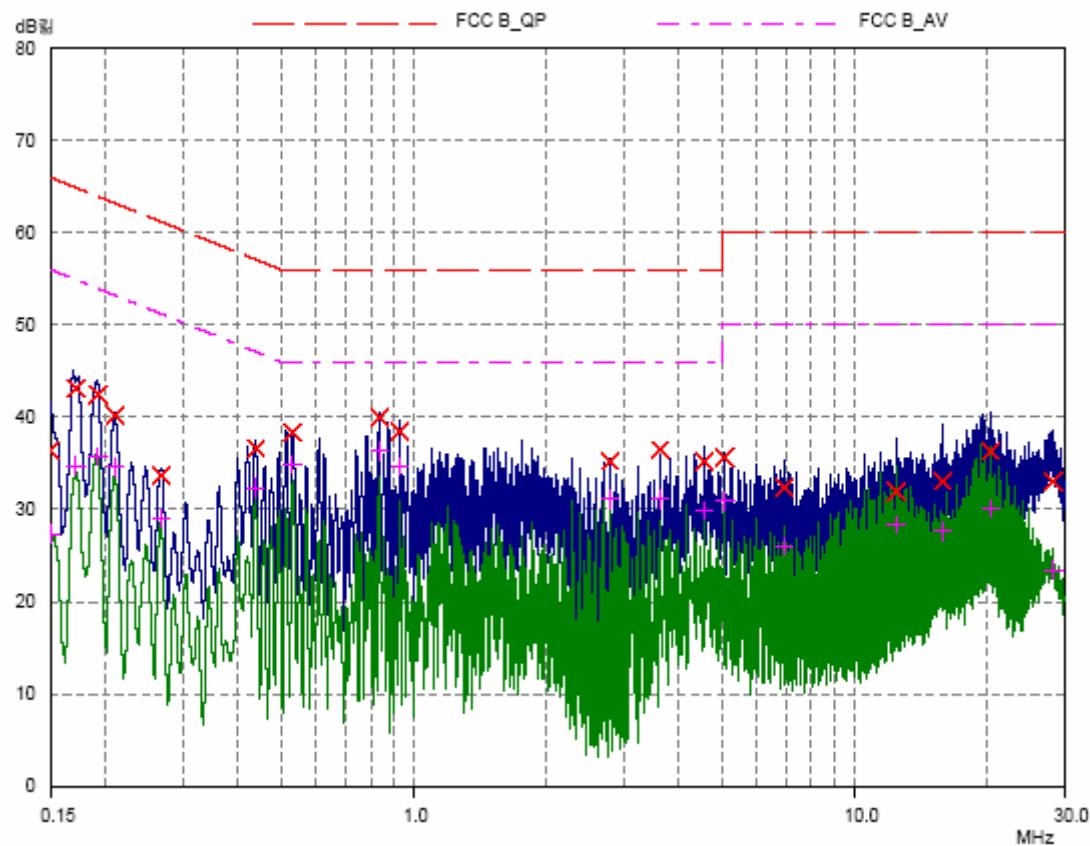
EUT: JPC-1000
 Manuf: H
 Op Cond: H
 Operator:
 Test Spec: FCC Class B Conducted Emission
 Comment:

Result File: 0602026h.dat : 0602026(CE)H

Scan Settings (2 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	3MHz	3kHz	10kHz	PK+AV	10msec	Auto	OFF	60dB
3MHz	30MHz	10kHz	10kHz	PK+AV	5msec	Auto	OFF	60dB

Final Measurement: Detectors: X QP / + AV
 Meas Time: 1sec
 Peaks: 8
 Acc Margin: 25 dB



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EUT: JPC-1000
 Manuf: N
 Op Cond: N
 Operator:
 Test Spec: FCC Class B Conducted Emission
 Comment:

Result File: 0602026n.dat : 0602026(CE)N

Scan Settings (2 Ranges)

Frequencies		Receiver Settings						
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	3MHz	3kHz	10kHz	PK+AV	10msec	Auto	OFF	60dB
3MHz	30MHz	10kHz	10kHz	PK+AV	5msec	Auto	OFF	60dB

Final Measurement: Detectors: X QP / + AV
 Meas Time: 1sec
 Peaks: 8
 Acc Margin: 25 dB

