

EMI TEST REPORT

Test report No.: EMC- FCC- 0217

Type of equipment: Network Video Camera

Model Name: AirGoggle NVC110W

FCC ID : SXRAGNVC110W

Applicant: Inscape Data Co.

Test standards: FCC part 15 subpart B Class B

Test Procedure and Items :

AC Power Line Conducted Emissions Measurement: ANSI C63.4:2001

Radiated Emissions Measurement : ANSI C63.4:2001

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: 2005. 01. 24~25 **Issued date: 2005 . 01. 26**

Tested by: 

YOO, SANG HUN

Approved by: 

CHUNG, MIN-SEOK

EMC Compliance Ltd.

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1. Client information

Applicant : Inscape Data Co.

Address : 1613 South Main St. Suite#105 Milpitas, CA 95035 USA

Telephone number : +1-408-935-8500 x12

Facsimile number : +1-408-935-8900

Contact Person: Soo Hang Ryu

Manufacturer : iCanTek, Co, Ltd.

Address : 211 2FI, Seongnam Venture Building, #587 Sujin 1-Dong,

Sujung-Gu, Seongnam-City, Kyonggi-Do 461-804 Korea

Telephone number : +82-31-711-7575

Facsimile number : +82-31-711-7798

2. Laboratory information

Address

EMC compliance Ltd.

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Telephone Number : 82 31 336 9919

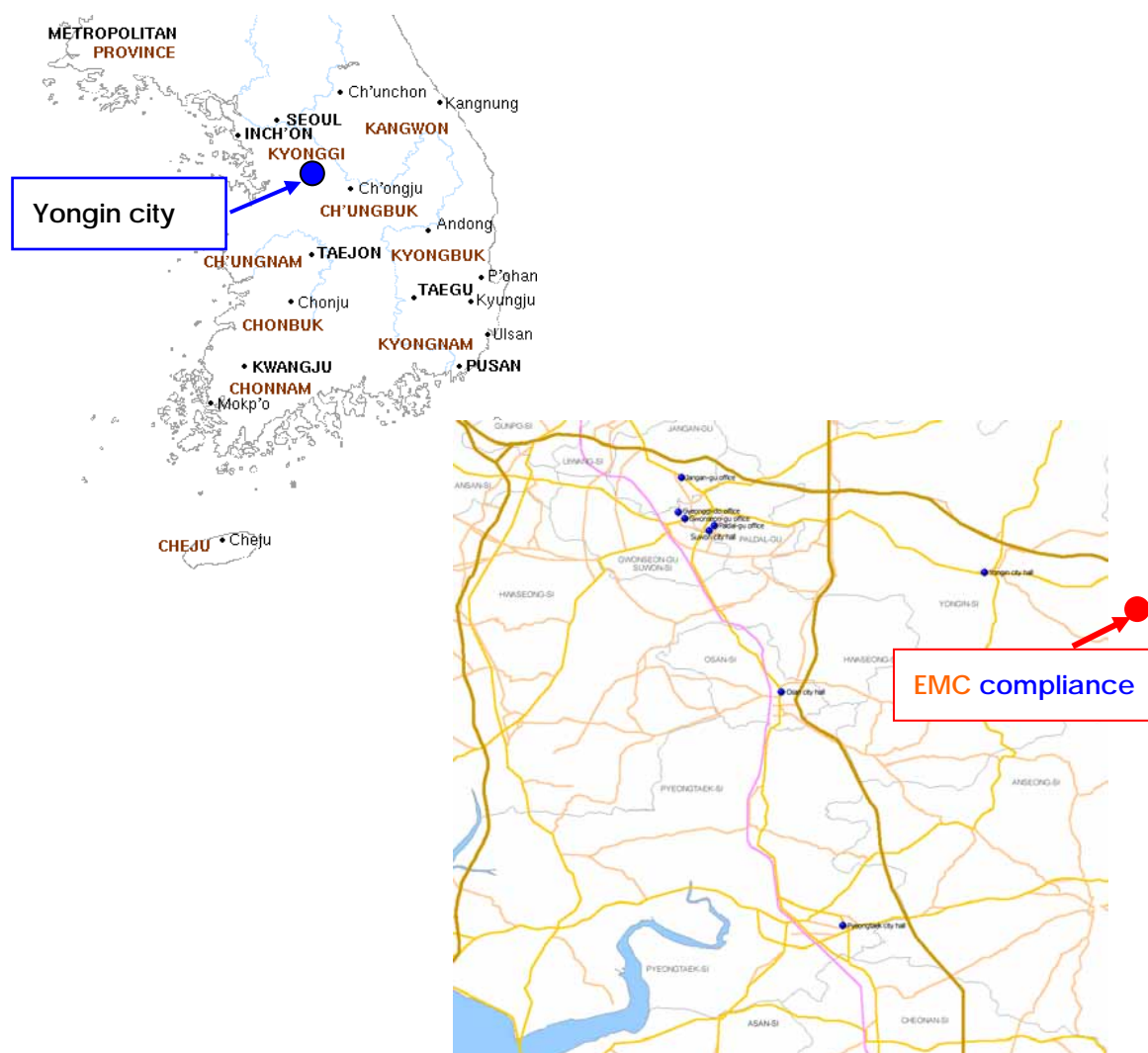
Facsimile Number : 82 31 336 4767

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 :	-2 °C	34 %	1005 hPa
Shielded room :	24 °C	38 %	1007 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

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

4. Description of EUT

4.1 Product description

Applicant:	Inscape Data Co.
Address of Applicant:	1613 South Main St. Suite#105 Milpitas, CA 95035 USA
Manufacturer:	iCanTek, Co, Ltd.
Address of Manufacturer:	211 2FI, Seongnam Venture Building, #587Sujin1-Dong,Sujung-Gu,Seongnam-City, Kyonggi-Do 461-804 Korea
Type of equipment :	Network Video Camera
Basic Model :	AirGoggle NVC110W
Serial No.:	N/A
Power rating :	Input: 100-240Vac, 1.0-0.5A, 50/60Hz AC-DC Adaptor output: DC12V, 3.75A

4.2 Peripherals

Description	Model / Part #	Serial number	Manufacture
NOTE PC	NOTE PC(SV9)	CN02050001	SAMSUNG
A.P (wireless Access point)	Air-AP1200 Series	VDF0622Q1UR	Cisco system

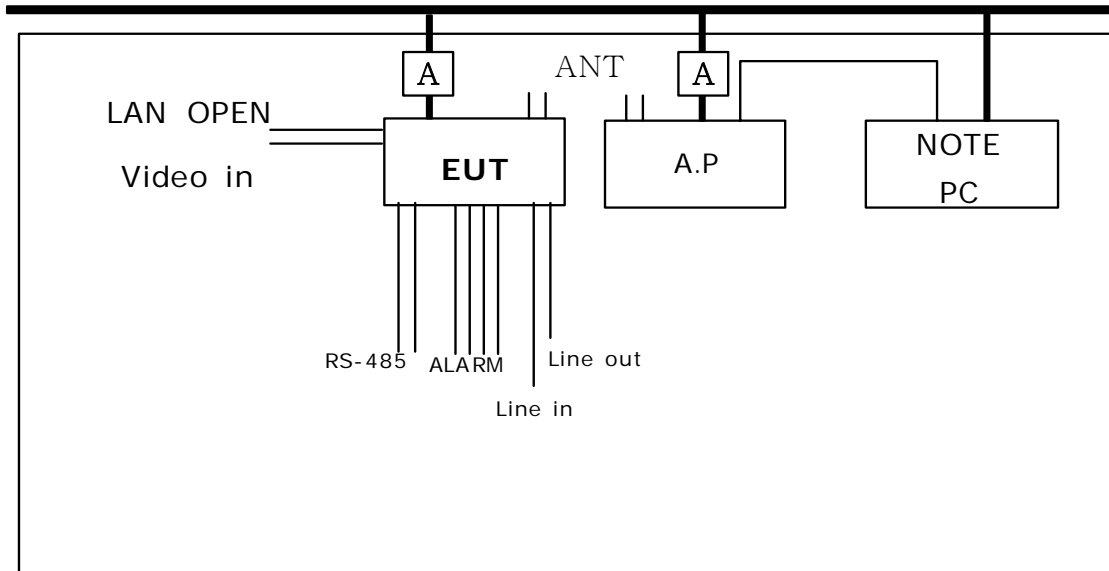
4.3 Operating conditions

Operating : Camera control image capture mode

4.4 Used cables

Start		END		Cable Spec.	
Name	I/O Port	Name	I/O Port	Length	Shield
	LAN		LAN	2.0	Unshield
	Video in		Video in	1.0	Shield
		OPEN	RS-485	1.0	Unshield
	ALARM		ALARM	1.0	Unshield
		OPEN	Line in	1.5	Unshield
	Line out	OPEN	Line out	1.5	Unshield

4.5 E.U.T. test configuration



5. Summary of test results

5.1 Modification to the E.U.T.

- None

5.2 Standards & results

FCC part 15 subpart B (Class B)

ANSI C63.4 – 2001

Test items	Test methods	Result
Conducted emission	ANSI C63.4-2001	Pass
Radiated emission	ANSI C63.4-2001	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 0.1m above the reference ground plane.

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

All other surfaces of tabletop were at least 0.8m away from any other grounded conducting surface.

Cables were folded back and forth forming a bundle 0.3m to 0.4m long and were hanged at a 0.4m height to the ground 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	05.05.13	<input checked="" type="checkbox"/>
L.I.S.N.	ESH3-Z5	100267	R&S	05.06.14	<input checked="" type="checkbox"/>
	L3-32A	0120J20305	PMM	05.04.03	<input checked="" type="checkbox"/>
Test site	Shield room	-	-	-	<input checked="" type="checkbox"/>

6.1.3 Measurement uncertainty

Conducted emission measurement : (k=2)

9kHz-150 kHz : ± 3.48

150kHz-300 MHz : ± 3.05

6.1.4 Test data

[MHz]	Correction Factor			Quasi-peak			Average		
	LISN	Cable		Limit	Reading [dBuV]	Result [dBuV]	Limit [dBuV]	Reading [dBuV]	Result [dBuV]
0.207	0.03	0.2	H	63.32	44.51	44.74	53.32	32.14	32.37
0.210	0.03	0.2	N	63.21	44.53	44.76	53.21	32.36	32.59
0.528	0.09	0.3	H	56.00	43.60	43.99	46.00	33.68	34.07
0.531	0.09	0.3	N	56.00	44.33	44.72	46.00	34.59	34.98
1.359	0.14	0.5	N	56.00	38.89	39.53	46.00	25.69	26.33
3.170	0.14	0.4	H	56.00	46.03	46.57	46.00	35.94	36.48
4.340	0.16	0.5	H	56.00	47.76	48.42	46.00	37.00	37.66
5.050	0.18	0.4	H	60.00	47.89	48.47	50.00	37.41	37.99
7.380	0.21	0.5	H	60.00	50.12	50.83	50.00	40.16	40.87
7.830	0.23	0.5	N	60.00	48.06	48.79	50.00	37.17	37.90

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

6.1.5. Result

Complied

6.2 Radiated emission

6.2.1 Measurement procedure

A pretest was performed at 3m distance in a semi-anechoic chamber for searching correct frequency. The final test was done at a 10m open area test site with a quasi-peak detector. EUT was placed on a non-metallic table height of 0.1m above the reference ground plane. Cables were folded back and forth forming a bundle 0.3m to 0.4m long and were hanged at a 0.4m 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.	M	Next cal. date	Used
Test receiver	ESVS10	827864/006	R&S	05.05.14	<input checked="" type="checkbox"/>
TRILOG Broadband Ant.	VULB 9160	3138	SCHWARZBECK	05.04.10	<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)
30-300 MHz ; 3 m: ± 3.56 , 10 m: ± 3.50
300-1000 MHz ; 3 m: ± 4.47 , 10 m: ± 2.64

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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			
206.44	16.0	H	4.0	128	9.95	2.46	30.0	28.41	1.59
206.44	14.3	V	2.4	127	9.95	2.46	30.0	26.71	3.29
225.00	9.0	H	4.0	334	10.62	2.65	30.0	22.27	7.73
233.38	22.0	H	4.0	265	11.15	2.73	37.0	35.88	1.12
233.38	12.5	V	4.0	192	11.15	2.73	37.0	26.38	10.62
748.00	6.4	H	2.4	87	21.79	6.32	37.0	34.51	2.49

*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

Complied

7. Test graphs

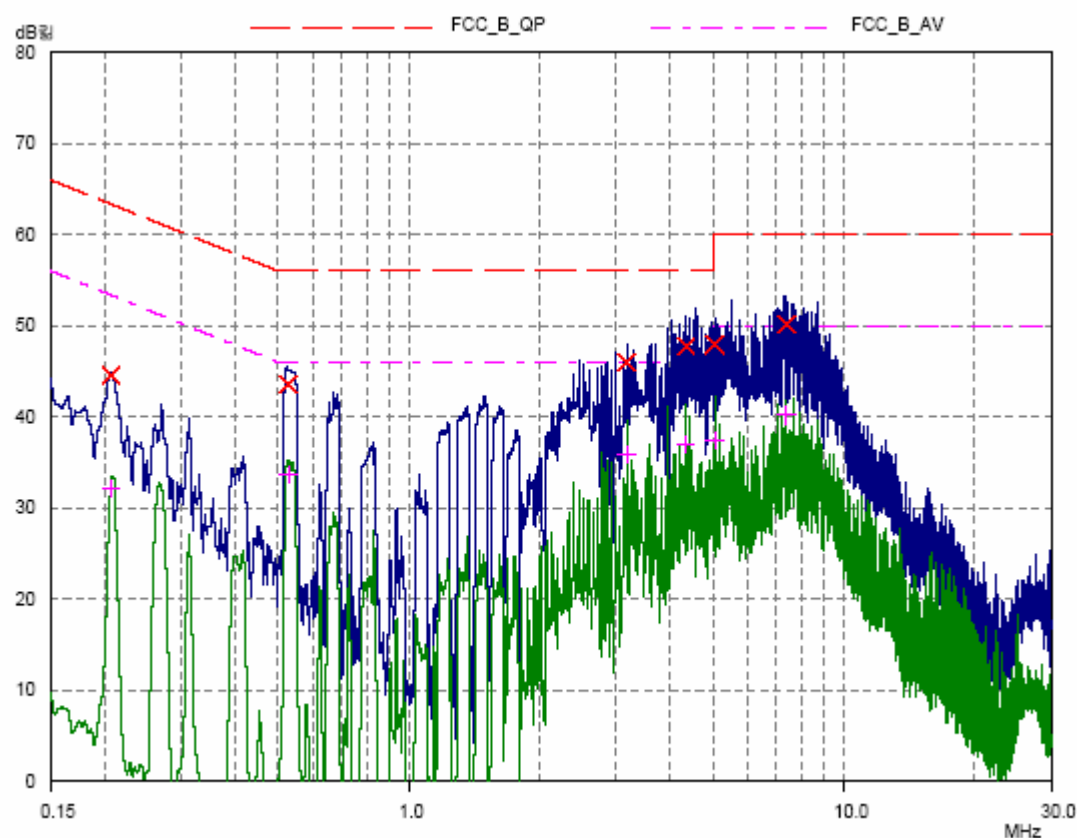
EUT:
Manuf: ICANTEK
Op Cond: H
Operator:
Test Spec: FCC Class A Conducted Emission
Comment:

Result File: ican_h.dat : New Measurement

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:
Manuf: ICANTEK
Op Cond: N
Operator:
Test Spec: FCC Class A Conducted Emission
Comment:

Result File: ican_n.dat : New Measurement

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

