Panasonic System Networks Evaluation Technology Co., Ltd. EMC Center

EMC TEST REPORT

REPORT NUMBER	:	ERJ13-19016R00F
APPLICANT	:	Panasonic Corporation
PRODUCT	:	Network camera extension unit and Network camera
MODEL NUMBER	:	WV-X65F1 and WV-X6533LN
STANDARD	:	FCC Rules and Regulations Part 15 Subpart B - Unintentional Radiators ICES-003 Issue 6

Issue Date: May 14, 2019

Authorized by: K. Nakamura
K. Nakamura
(Quality Manager)

Reviewed by: H. Nakayama
H. Nakayama
(Technical Manager)

TABLE of CONTENTS

SECTION 1. GENERAL INFORMATION

1.1 Testing Laboratory

Name:	Panasonic System Networks Evaluation Technology Co., Ltd. EMC Center
Address:	1-62, 4-chome, Minoshima Hakata-ku, Fukuoka 812-8531, Japan
TEL:	092-477-3267 (+81-92-477-3267)
FAX:	092-477-1587 (+81-92-477-1587)
Test Site 1	Panasonic System Networks Evaluation Technology Co., Ltd. Fukuoka Site
Address:	1-62, 4-chome, Minoshima Hakata-ku, Fukuoka 812-8531, Japan
Test Site 2	Chokuan Industry Development Center ADOX Fukuoka Site
Address:	1245-2, Oaza Ueki, Nogata, Fukuoka 822-0031, Japan

1.2 Detail of Applicant

Name:	Panasonic Corporation
Address:	1-62, 4-chome, Minoshima Hakata-ku, Fukuoka 812-8531, JAPAN
TEL:	050-3380-2439 (+81-50-3380-2439)

1.3 Information about Test Item

Kind of Test Item:	Network camera extension unit and Network camera
Model Number:	WV-X65F1 and WV-X6533LN
Trade Mark:	Panasonic
Type of Test Item:	Ceiling-mounted / Wall-mounted
Condition of Test Item:	Engineering Sample
Serial Number:	E.S.(No.1) and E.S.(No.2)
Rated Voltage/Frequency:	AC 24 V 60 Hz
Highest frequency (*Note 1):	792 MHz
Test Item Received Date:	April 11, 2019
Test Date:	April 13, 16, 2019

*Note 1: Highest frequency generated or used in the devices on which the device operates or tunes.

1.4 Regulation

Emission:	47 CFR Part 15 - Digital Devices Subpart A - General Subpart B - Unintentional Radiators (Class A) ICES-003 Issue 6 Section 6 Class A This measurement has performed at a distance of 3 meters using an extrapolation factor of 10.5 dB base on FCC subpart A Section 15.31 (f) and ICES-003 Section 6.2.

1.5 Test Procedure

General:	PSNET-EMC Procedure (EDC02), ANSI C63.4-2014 Section 6
ITE Measurement:	PSNET Procedure (EDX34), ANSI C63.4-2014 Section 11
Radiated Emission:	PSNET Procedure (EDX01,EDY01/02), ANSI C63.4-2014 Section 8 PSNET Procedure (EDX39), ICES-003 Issue 6 Section 5 (a)(ii), Section 5 (b)(ii)
Conducted Emission	PSNET Procedure (EDX02, EDY03), ANSI C63.4-2014 Section 7 PSNET Procedure (EDX39), ICES-003 Issue 6 Section 3 (b)

1.6 Notes

The results in this report apply only to the sample(s) tested.

The instruments used for the measurements were traceable to the national standards and foreign national standards laboratories.

SECTION 2. SUMMARY OF RESULTS

2.1 General Remarks

The EUT under the test configuration (as shown section 4) was tested according to the requirements of the Regulation as shown section 1.4.

The worst margin of test results was as follows:

Test Item	Worst Margin	Frequency	Polarity	Detector	Reference
Radiated Emission 30 MHz - 1000 MHz (Test Site 2)	13.9 dB	875.003 MHz	Vertical	Quasi-peak	Page 5
Radiated Emission 1 GHz - 5 GHz (Test Site 2)	15.4 dB	1937.507 MHz	Horizontal	Average	Page 6
	28.6 dB	1979.997 MHz	Vertical	Peak	Page 6
Conducted Emission (Test Site 1)	38.2 dB	17.33924 MHz	---	Quasi-peak	Page 7
	26.7 dB	17.87921 MHz	---	Average	Page 7

Note) Preliminary test was conducted for Upward-facing, Downward-facing and Side-facing.

2.2 Final Judgment

The EUT fulfills the test requirements of the regulation as shown section 1.4.

2.3 Uncertainty

The measurements uncertainty, at time of test, and at least 95 % confidence, was estimated to be as follows:

Radiated Emission Measurements: +/- 3.91 dB(3 m)[30 MHz - 300 MHz],
+/- 4.73 dB(3 m)[300 MHz - 1000 MHz]
+/- 4.95 dB(3 m)[1 GHz - 6 GHz]

Conducted Emission Measurements: +/-2.38 dB[0.15 MHz - 30 MHz]

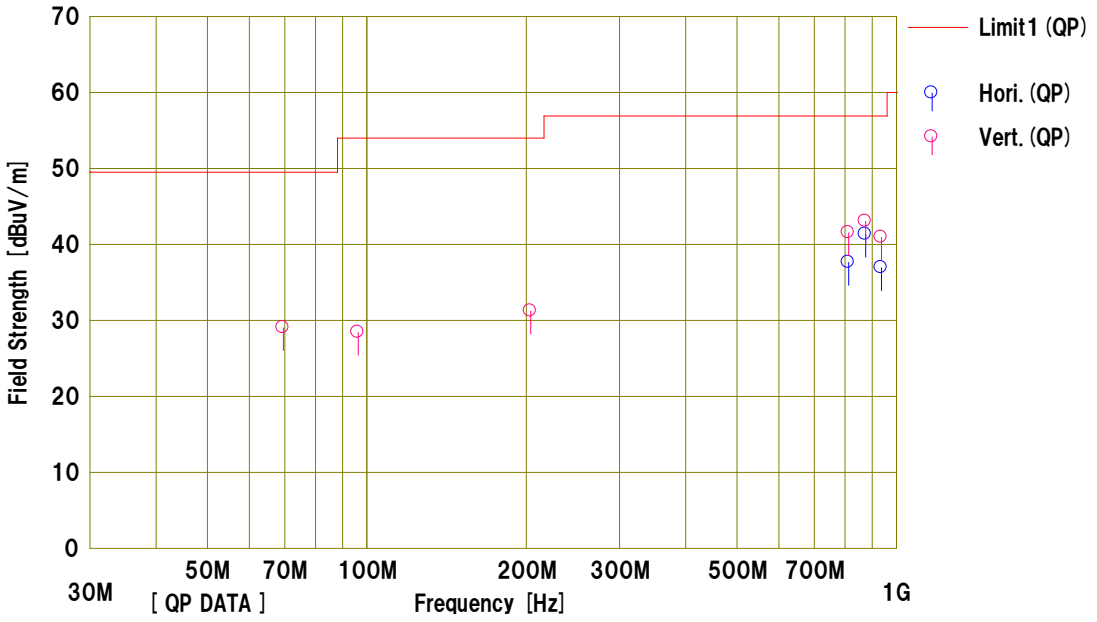
SECTION 3. TEST RESULTS

3.1 Radiated Emission 30 MHz - 1000 MHz

Model Name	: Network camera extension unit and Network camera	Test condition of instruments	
Model No.	: WV-X65F1 and WV-X6533LN	Date	: 2019/04/13
Serial No.	: E.S. (No.1) and E.S. (No.2)	Temperature	: 20 degree C
Operator	: S. Kitajima	Humidity	: 43 % 1018 hPa
Points	: 9	EUT Warm-up Time	: 30 minutes
Detector	: QP	Distance	: 3 m
RBW	: 120 kHz	Test Mode	: Continuous Communication via LAN, SD Recording, Voice reception and IR LED ON
		Comment	: AC 24 V 60 Hz

The measurement was conducted in the condition where maximum emission was detected by the preliminary test.
Level=Emission Level=Meter Reading+ Factor (Antenna + Cable + Preamp)

LIIMIT : FCC Part 15 Class A (3 m)
: ICES-003 Class A (3 m)



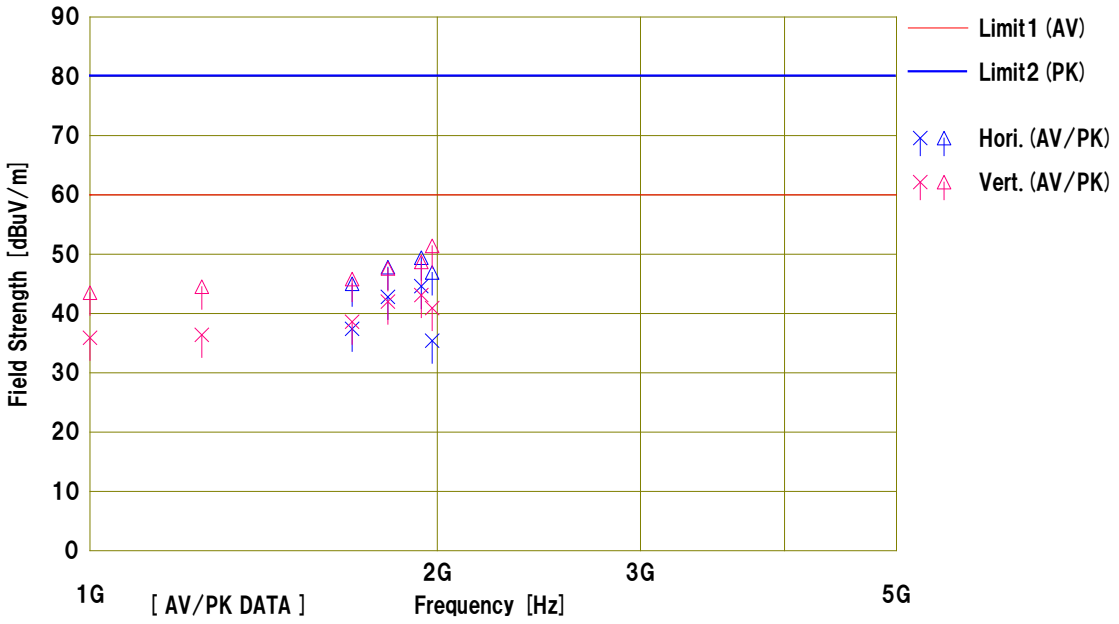
Frequency [MHz]	Meter Reading (QP) [dBuV]	Antenna (Factor) [dB/m]	Cable Loss + Gain [dB]	Result (QP) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	pola	Height [cm]	Angle [deg]
812.503	36.2	21.1	-19.7	37.6	56.9	19.3	Hori.	185	109
875.002	38.6	22.0	-19.3	41.3	56.9	15.6	Hori.	296	32
937.501	33.6	22.1	-18.8	36.9	56.9	20.0	Hori.	200	254
69.565	46.4	6.2	-23.6	29.0	49.5	20.5	Vert.	100	108
96.317	42.2	9.5	-23.3	28.4	54.0	25.6	Vert.	100	88
203.920	36.4	16.7	-21.9	31.2	54.0	22.8	Vert.	100	292
812.501	40.1	21.1	-19.7	41.5	56.9	15.4	Vert.	110	33
875.003	40.3	22.0	-19.3	43.0	56.9	13.9	Vert.	156	47
937.500	37.6	22.1	-18.8	40.9	56.9	16.0	Vert.	108	177

3.2 Radiated Emission 1 GHz - 5 GHz

Model Name	: Network camera extension unit and Network camera	Test condition of instruments	
Model No.	: WV-X65F1 and WV-X6533LN	Date	: 2019/04/13
Serial No.	: E.S. (No.1) and E.S. (No.2)	Temperature	: 21 degree C
Operator	: S. Kitajima	Humidity	: 43 % 1015 hPa
Points	: 10	EUT Warm-up Time	: 30 minutes
Detector	: PK/AV	Distance	: 3 m
RBW	: 1 MHz	Test Mode	: Continuous Communication via LAN, SD Recording, Voice reception and IR LED ON
		Comment	: AC 24 V 60 Hz

The measurement was conducted in the condition where maximum emission was detected by the preliminary test.
Level=Emission Level=Meter Reading+ Factor (Antenna + Cable + Preamp)

LIMIT : FCC Part 15 Class A (3 m)
: ICES-003 Class A (3 m)



Frequency [MHz]	Reading (AV) [dBuV]	Reading (PK) [dBuV]	Factor Antenna [dB/m]	Factor Loss+Gain [dB]	Factor D	Result (AV) [dBuV/m]	Result (PK) [dBuV/m]	Limit (AV) [dBuV/m]	Limit (PK) [dBuV/m]	Margin (AV) [dB]	Margin (PK) [dB]	pola	Height [cm]	Angle [deg]
1687.505	34.6	42.2	25.3	-25.3	2.8	37.4	45.0	60.0	80.0	22.6	35.0	Hori.	350	177
1812.505	39.5	44.5	25.5	-25.0	2.8	42.8	47.8	60.0	80.0	17.2	32.2	Hori.	352	249
1937.507	40.9	45.7	25.7	-24.8	2.8	44.6	49.4	60.0	80.0	15.4	30.6	Hori.	373	162
1979.997	31.5	43.0	25.8	-24.7	2.8	35.4	46.9	60.0	80.0	24.6	33.1	Hori.	384	277
1000.002	37.1	44.7	23.9	-27.9	2.8	35.9	43.5	60.0	80.0	24.1	36.5	Vert.	174	357
1250.004	36.0	44.1	24.4	-26.8	2.8	36.4	44.5	60.0	80.0	23.6	35.5	Vert.	359	89
1687.506	35.8	43.0	25.3	-25.3	2.8	38.6	45.8	60.0	80.0	21.4	34.2	Vert.	121	85
1812.505	38.7	44.3	25.5	-25.0	2.8	42.0	47.6	60.0	80.0	18.0	32.4	Vert.	260	290
1937.506	39.4	45.0	25.7	-24.8	2.8	43.1	48.7	60.0	80.0	16.9	31.3	Vert.	256	255
1979.997	37.0	47.5	25.8	-24.7	2.8	40.9	51.4	60.0	80.0	19.1	28.6	Vert.	400	7

D: Distance Factor

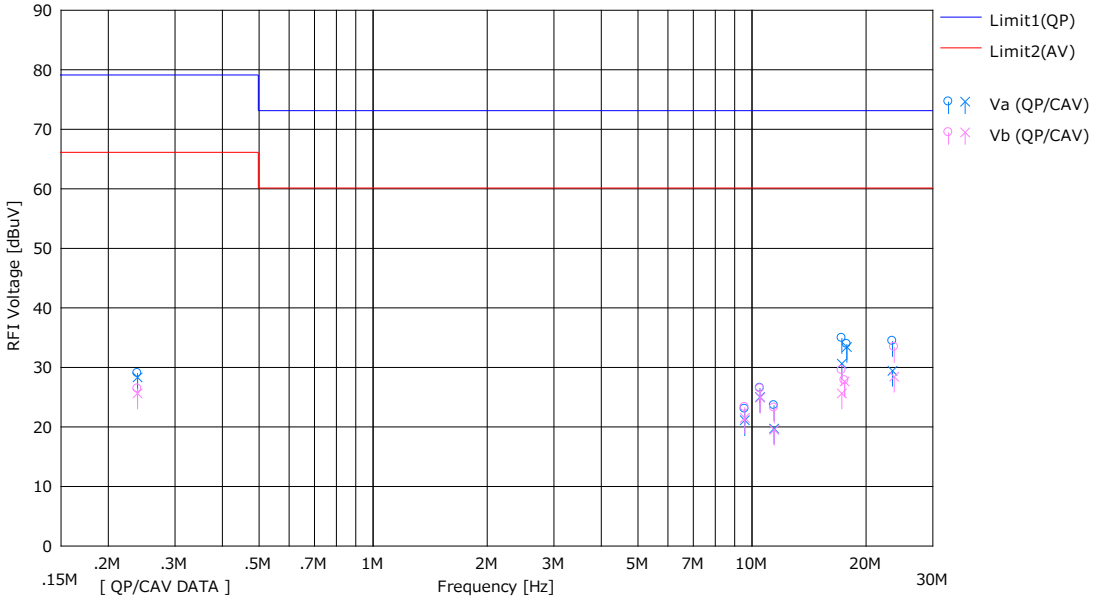
3.3 Conducted Emission

Model Name	: Network camera extension unit and Network camera	Test condition of instruments	
Model No.	: WV-X65F1 and WV-X6533LN	Date	: 2019/04/16
Serial No.	: E.S. (No.1) and E.S. (No.2)	Temperature	: 23 degree C
Operator	: S. Kitajima	Humidity	: 31 % 1017 hPa
Points	: 14	EUT Warm-up Time	: 30 minutes
Detector	: QP/Ave		
RBW	: 9 kHz	Test Mode	: Continuous Communication via LAN, SD Recording, Voice reception and IR LED ON
		Comment	: AC 24 V (AC 120 V, 60 Hz)

The measurement was conducted in the condition where maximum emission was detected by the preliminary test.
Level=Emission Level=Meter Reading+ Factor (Cable + LISN)

Limit: FCC Part 15 Class A (QP), ICES-003 Class A (QP),

Limit: FCC Part 15 Class A (AV), ICES-003 Class A (AV)

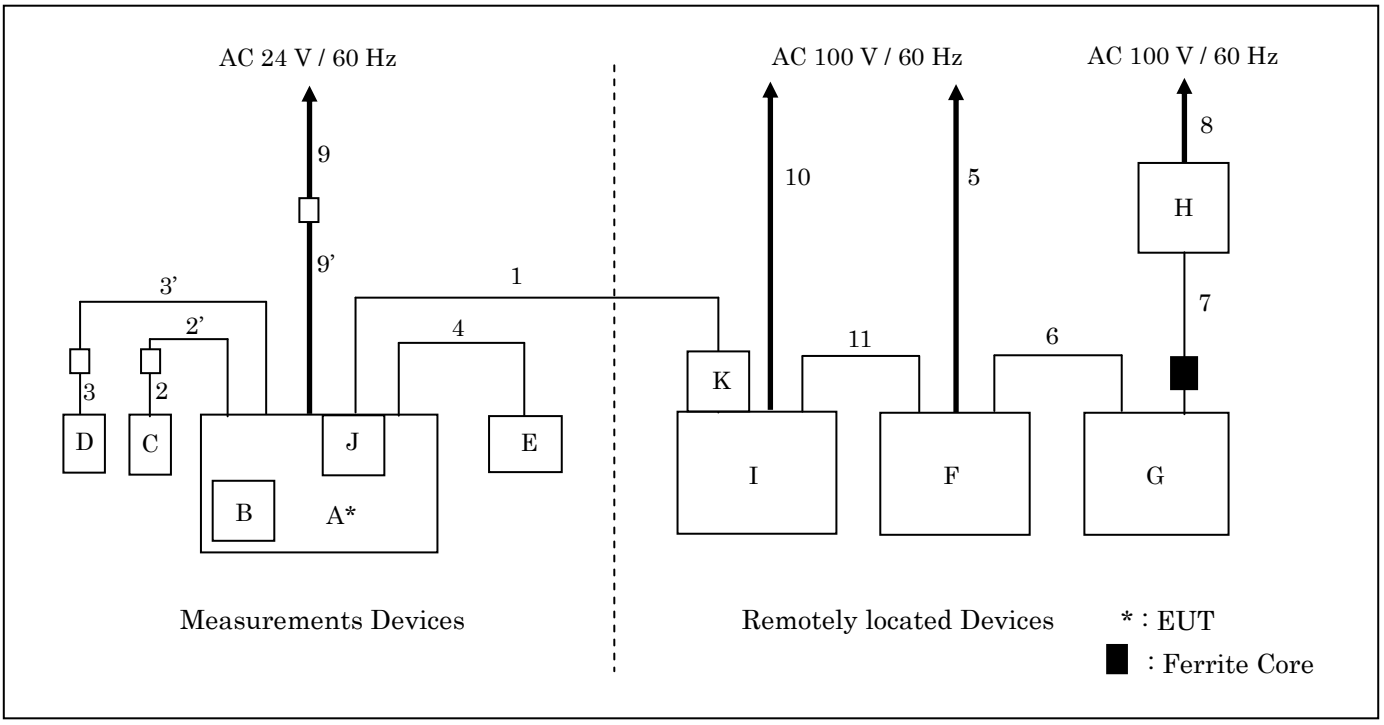


Frequency [MHz]	Line	Meter Reading (QP) [dBuV]	Meter Reading (AV) [dBuV]	Factor [dB]	Result (QP) [dBuV]	Result (AV) [dBuV]	Limit (QP) [dBuV]	Limit (AV) [dBuV]	Margin (QP) [dB]	Margin (AV) [dB]
0.24000	Va	18.6	17.9	10.3	28.9	28.2	79.0	66.0	50.1	37.8
9.61308	Va	12.3	10.4	10.6	22.9	21.0	73.0	60.0	50.1	39.0
10.54904	Va	15.8	14.3	10.6	26.4	24.9	73.0	60.0	46.6	35.1
11.48725	Va	12.9	9.0	10.6	23.5	19.6	73.0	60.0	49.5	40.4
17.33924	Va	23.9	19.6	10.9	34.8	30.5	73.0	60.0	38.2	29.5
17.87921	Va	22.9	22.4	10.9	33.8	33.3	73.0	60.0	39.2	26.7
23.60071	Va	23.3	18.3	11.0	34.3	29.3	73.0	60.0	38.7	30.7
0.24000	Vb	15.7	14.9	10.6	26.3	25.5	79.0	66.0	52.7	40.5
9.61758	Vb	12.3	10.5	10.9	23.2	21.4	73.0	60.0	49.8	38.6
10.55804	Vb	15.4	13.9	10.9	26.3	24.8	73.0	60.0	46.7	35.2
11.50075	Vb	12.1	8.4	11.0	23.1	19.4	73.0	60.0	49.9	40.6
17.33924	Vb	18.2	14.3	11.2	29.4	25.5	73.0	60.0	43.6	34.5
17.64297	Vb	16.5	16.3	11.2	27.7	27.5	73.0	60.0	45.3	32.5
23.84145	Vb	22.0	17.0	11.3	33.3	28.3	73.0	60.0	39.7	31.7

SECTION 4. DESCRIPTION OF EUT

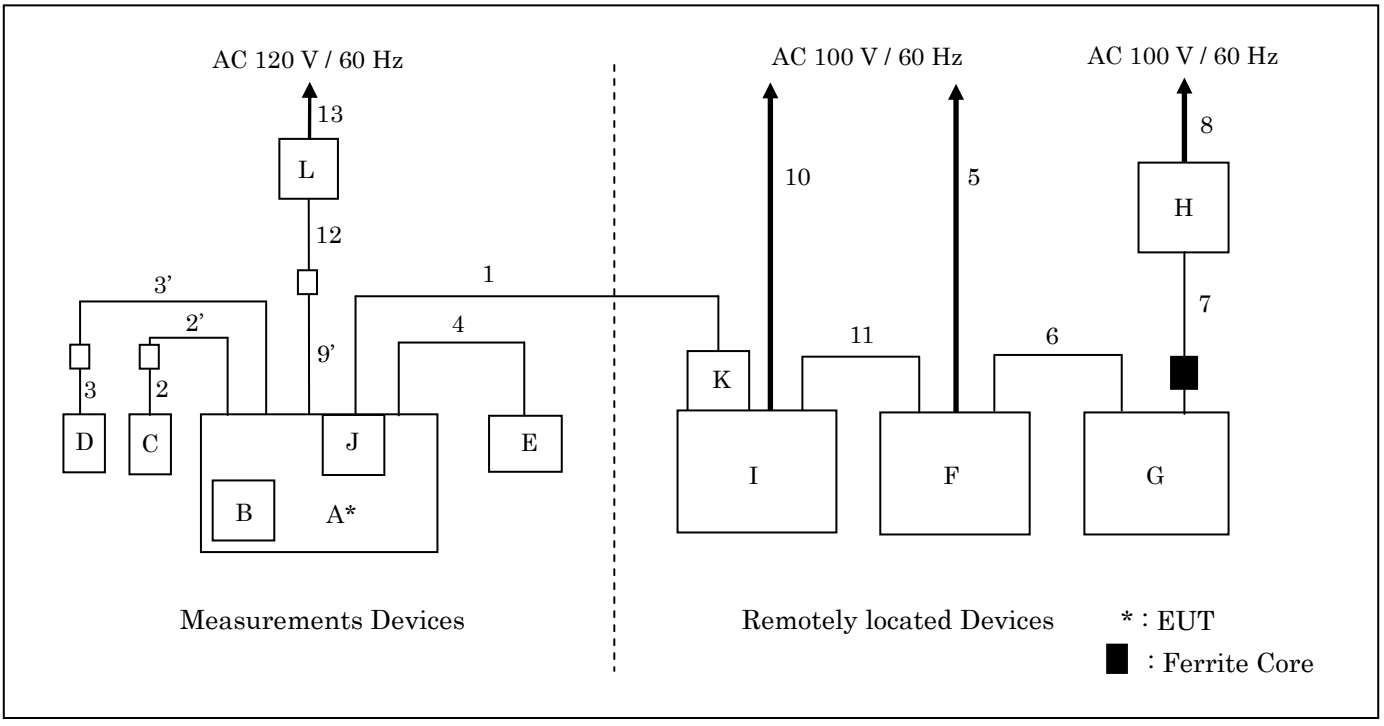
4.1 Construction of EUT

4.1.1 For Radiated Emission



Symbol or number assigned to equipment or cables on this diagram is used on tables in section 4.2 and 4.3

4.1.2 For Conducted Emission



4.2 EUT and Support Equipment Used

The EUT was supported by the following equipment during the test. Indication in the following left side column corresponds to section 4.1.

Symbol	Item	Model No.	[Manufacturer]	Serial No.	FCC ID
A	Network camera extension unit and Network camera [EUT]	WV-X65F1 and WV-X6533LN	[Panasonic]	E.S.(No.1) and E.S.(No.2)	DoC
B	SD Card	RP-SDW04G	[Panasonic]	SU2BA022825	---
C	Microphone	RP-VC201	[Panasonic]	---	---
D	Speaker	AT-SPP30	[Audio Technica]	1651	---
E	I/O JIG	---	[Panasonic]	---	---
F	Ethernet Hub	GA-AS4T	[Panasonic]	72P66000192	---
G	Notebook PC	CF-SX4	[Panasonic]	6HKSA70653	---
H	AC Adaptor	CF-AA6412C M4	[Panasonic]	6412CM416611819C	---
I	Media Converter	MCG1100SP	[Panasonic]	87P61100215	---
J	SFP Module	SFP-6	[COMNET]	181073410	---
K	SFP Module	SFP-6	[COMNET]	181073440	---
L	AC Adaptor	DJ-51-24	[TDC power]	---	---

4.3 Cable(s) Used

The following cable(s) was used for the test. Indication number in the following left side column corresponds to section 4.1

No.	Name	Length	Shield/ Unshielded	Connector	Ferrite Core
1	Optical fiber Cable	10.0 m	Unshielded	Plastic	None
2	Microphone Audio Cable	1.05 m	Shielded	Metallic	None
2'	Extension Cable	3.0 m	Shielded	Metallic	None
3	Speaker Audio Cable	0.1 m	Shielded	Metallic	None
3'	Extension Cable	3.0 m	Shielded	Metallic	None
4	I/O JIG Cable	3.2 m	Unshielded	Plastic	None
5	Hub AC Cable (3 wires)	1.8 m	Unshielded	Plastic	None
6	LAN Cable (UTP)	1.0 m	Unshielded	Plastic	None
7	DC Cable for AC Adaptor	0.9 m	Unshielded	Plastic	1
8	AC Cable for AC Adaptor (2 Wires)	0.85 m	Unshielded	Plastic	None
9	AC 24 V 60 Hz Cable (3 Wires)	1.9 m	Unshielded	Plastic	None
9'	Extension Cable	1.6 m	Unshielded	Plastic	None
10	Media Converter AC Cable (3 Wires)	2.0 m	Unshielded	Plastic	None
11	LAN Cable (UTP)	1.0 m	Unshielded	Plastic	None
12	Secondary AC Cable for AC Adaptor	1.8 m	Unshielded	Plastic	None
13	Primary AC Cable for AC Adaptor (2 Wires)	1.8 m	Unshielded	Plastic	None

4.4 Operating Condition(s)

The EUT was operated under the following condition during the test.

1) Mode

A: Continuous Communication via LAN, SD Recording, Voice reception and IR LED ON
(Cycle time: Continuous)

Connect the EUT (Network camera extension unit and Network camera) and the Personal computer via the HUB. Start the network camera setting application and search the EUT. Open the network camera and start SD recording and IR LED ON. (Default: 192.168.0.10)

4.5 Any Deviations from, Additions to or Exclusions from the Test Method

No deviation

4.6 Modifications to EUT

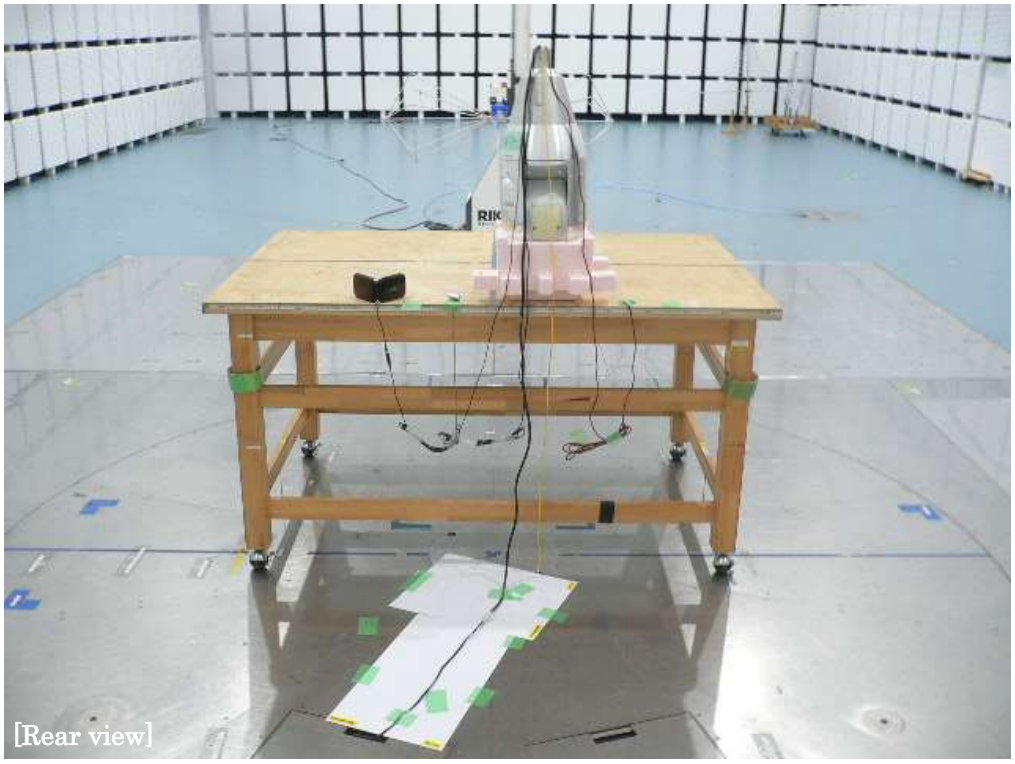
No modification was performed by the test laboratory during the test.

SECTION 5. PHOTOGRAPHS OF MAXIMUM EMISSION SET-UP

5.1 Radiated Emission, 30 MHz - 1000 MHz

Test setup in accordance with ANSI C63.4 -2014

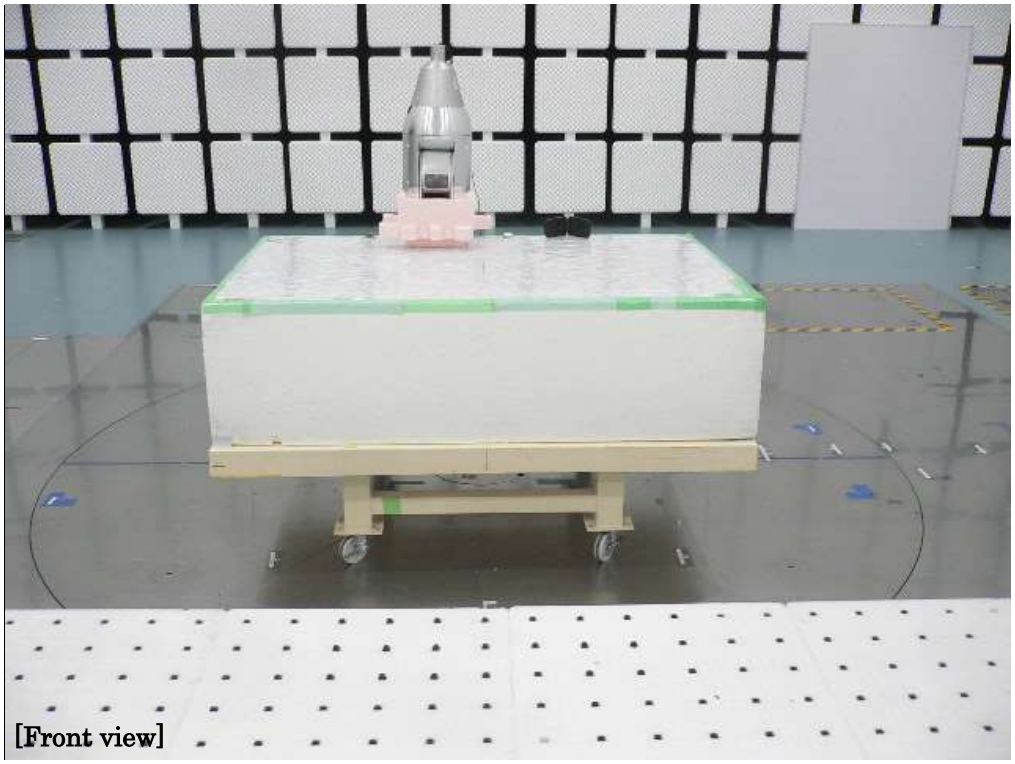
[Front view]



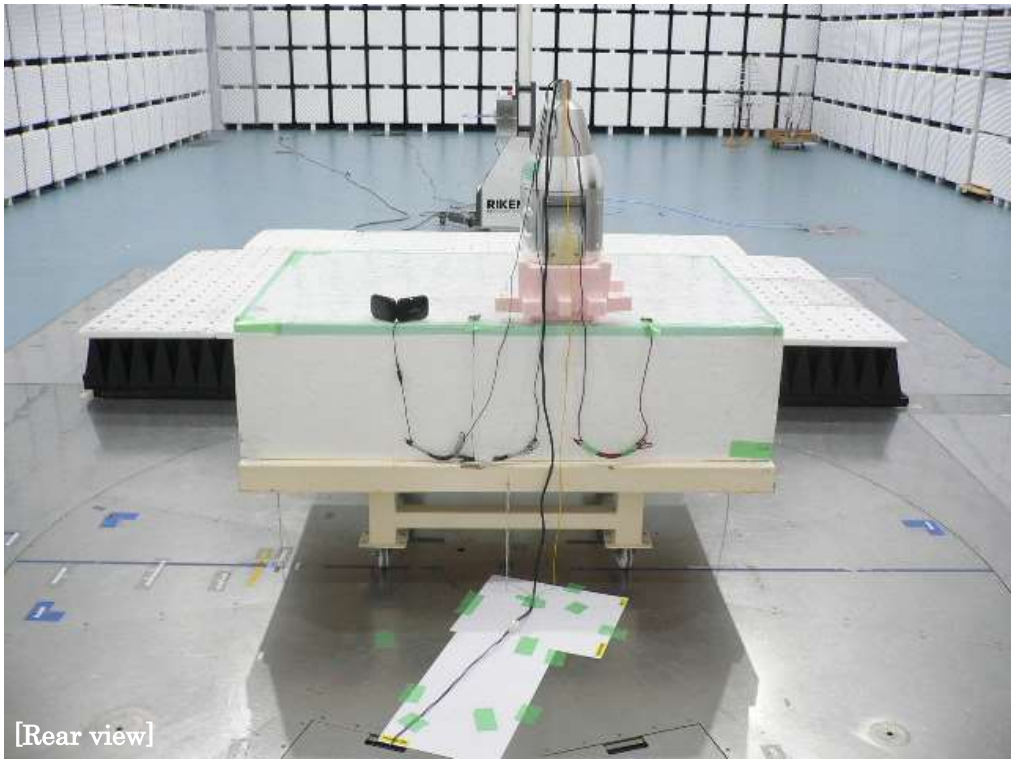
[Rear view]

5.2 Radiated Emission, 1 GHz - 5 GHz

Test setup in accordance with ANSI C63.4 -2014



[Front view]

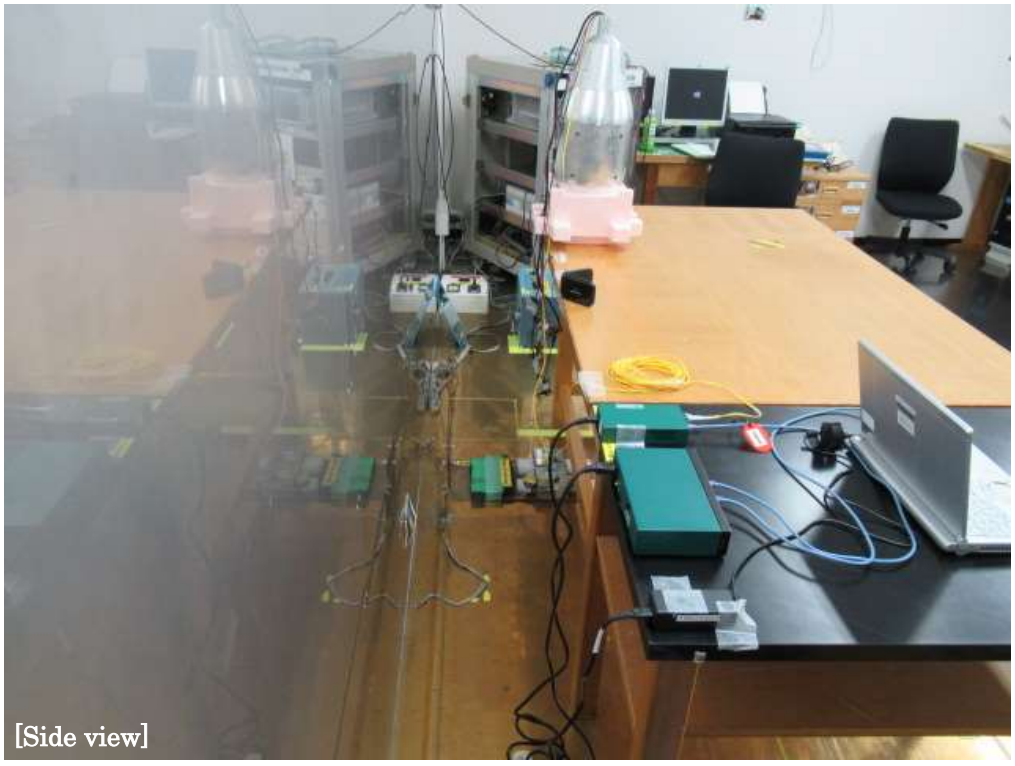


[Rear view]

5.3 Conducted Emission

Test setup in accordance with ANSI C63.4 -2014

[Front view]



[Side view]

SECTION 6. TEST INSTRUMENTS LIST

6.1 Radiated Emission (30 MHz - 1000 MHz)

No.	Apparatus	Model No. (Manufacturer)	Specification	Calibration		Serial No.
				Date	Interval	
1*	Power Supply	ES18000W CVCF7 (NF)	50 Hz/60 Hz 18 kVA, 264 V	---	---	909388-1.2
2*	Antenna	BBA9106/VHA9103 UHALP9108-A (Schwarzbeck)	30 MHz - 300 MHz 300 MHz - 1 GHz	2018/08/16 2018/06/19	1 year 2 years	2011 0446
3*	Pre-Amplifier	8447D (Agilent)	0.15 MHz - 1 GHz	2018/05/11	1 year	2944A10258
4*	EMI Test Receiver	ESU26 (R&S)	20 Hz - 26.5 GHz	2018/05/18	1 year	100105
5*	Personal Computer	PRODESK (HP)	---	---	---	JPH743P0M6
6*	3 dB Attenuator	6803.17.B (HUBER+SUHNER)	3 dB 9 kHz - 18 GHz	2018/05/11	1 year	RE2-01-01e
7*	RF RELAY MATRIX	RFM-E131/121 (TSJ)	---	2018/05/11	1 year	04287
8*	Position Controller	CO2000 (inn-co)	---	---	---	---
9*	Measurement Software	TEPTO DV EMI-R (TSJ)	V2.5.0147	---	---	---
10*	RF Cables	RE2-01-01e+10MRE32+10MRE12+3MRE8+3MRE9+EE1-5+10MRE15+10MRE16	0.15 MHz - 1 GHz	2018/05/11	1 year	CBRE2-78F
11*	Semi-Anechoic Chamber	10 method (NSA) (RIKEN)	30 MHz - 1 GHz	2018/11/14	2 years	ADF-008-2

* Used for final test

6.2 Radiated Emission (1 GHz - 5 GHz)

No.	Apparatus	Model No. (Manufacturer)	Specification	Calibration		Serial No.
				Date	Interval	
1*	Power Supply	ES18000W CVCF7 (NF)	50 Hz/60 Hz 18 kVA, 264 V	---	---	909388-1.2
2*	Antenna	BBHA9120D (Schwarzbeck)	1 GHz - 18 GHz	2018/12/25	1 year	271
3*	Pre-Amplifier	MLA-0120-A01-34 (TSJ)	1 GHz - 18 GHz	2018/05/11	1 year	0749-122
4*	EMI Test Receiver	ESU26 (R&S)	20 Hz - 26.5 GHz	2018/05/18	1 year	100105
5*	Personal Computer	PRODESK (HP)	---	---	---	JPH743P0M6
6*	RF RELAY MATRIX	RFM-E131/121 (TSJ)	---	2018/05/11	1 year	04287
7*	3 dB Attenuator	6803.17.B (HUBER+SUHNER)	3 dB 9 kHz - 18 GHz	2018/05/11	1 year	RE2-01-01e
8*	Position Controller	CO2000 (inn-co)	---	---	---	---
9*	Measurement Software	TEPTO DV EMI-R (TSJ)	V2.5.0147	---	---	---
10*	Absorber	PFP30 (RIKEN)	---	---	---	---
11*	Cables	RE2-01-01e+10MRE32+10MRE12+3MRE8+3MRE9+EE1-5+10MRE15+10MRE16	1 GHz - 6 GHz	2018/05/11	1 year	CBRE2-79F
12*	Semi-Anechoic Chamber	3m method(Svswr) (RIKEN)	1 GHz - 18 GHz	2018/11/14	2 years	---

* Used for final test

6.3 Conducted Emission

No.	Apparatus	Model No. (Manufacturer)	Specification	Calibration		Serial No.
				Date	Interval	
1*	Power Supply	ES040ES (NF)	50 Hz/60 Hz 4 kVA 264 V	---	---	9244357
2*	Attenuator	6910.01.A (HUBER+SUHNER)	10 dB 0.15 MHz - 30 MHz	2018/12/11	2 years	EMF-051-3
3*	AMN	KNW-407 (Kyoritsu)	250 V / 15 A	2018/12/11	2 years	8-1345-4
4*	AMN	KNW-242C (Kyoritsu)	9 kHz - 30 MHz	2018/09/05	2 years	8-1312-2
5*	EMI Test Receiver	ESR26 (R&S)	CISPR 16-1-1 9 kHz – 26.5 GHz	2018/10/18	1 year	101243
6*	Personal Computer	ProDesk 600 G2 SFF (hp)	---	---	---	JPH642HK9Q
7*	Measurement Software	TEPTO-DV/RE (tsj)	---	---	---	Ver.3.1.0029
8*	RF Fuse	MP612A (Anritsu)	---	2018/10/04	1 year	EMF-389
9*	Cable	---	0.15 MHz - 30 MHz	2018/10/04	1 year	EMF-532
10*	50 ohm Terminator	65 N-50-0-1/133 (SUHNER)	50 ohm	2017/08/07	2 years	EMF-658
11*	Shielded Room	--- (RIKEN)	0.15 MHz - 30 MHz	---	---	ELF-001

* Used for final test

SECTION 7. TEST PROCEDURE(s)

7.1 Radiated Emission

7.1.1 Measurement system

Equipment Set-up (Refer to section 4 and 5)

Tabletop Equipment

The EUT is placed on the table of size, 1.0 m(d) by 1.5 m(w), raised 0.8 m above the metal ground plane (turn table). The table is made of styrene foam or wooden.

Interconnecting Cables

The cables that hang closer than 40 cm to the ground plane is folded back and forth forming bundle 30 to 40 cm long, hanging in the middle between the ground plane and the table approximately.
The measurement is conducted the worst emissions condition.

Turn Table

The turn table is capable for EUT weight and rotatable 0 to 360 degree horizontally by remote control in the measurement room.

Antenna Mast

The antenna mast is attachable to all antennas described on section 6 and antenna height is adjustable 1 to 4 meters continuously by remote control at the measurement room, and antenna polarization is also changed by the remote control. Especially for 1 GHz to 40 GHz measurement antenna tilt angle is adjustable by remote control at the measurement room to keep the antenna in the “cone of radiation” of EUT.

Test Equipment (refer to section 6. 1. 1 and 6.1.2)

Test Facilities (30 MHz to 1 GHz)

The radiated emission test site is validated by measurements of the attenuation of signals propagated over the site and compared with theoretical attenuation of signals propagated over an ideal site. Horizontally and vertically polarized attenuation measurements are made over the frequency range of 30 MHz to 1 GHz. These measurements are made in accordance with the procedures of D.2 and/or D.3, as applicable of Annex D in the ANSI C63.4-2014 standard, and the results are normalized for comparison with the theoretical attenuation values.

Test Facilities (1 GHz to 40 GHz)

The test site complies with the S_{VSWR} requirements specified in 8.3.2 of CISPR 16-1-4:2010-04 over the frequency range of 1 GHz to 18 GHz, when tested in accordance with the site validation procedures requirements specified in 8.3.3 of CISPR 16-1-4:2010-04. Additionally, the RF absorbing materials used on the reference ground plane have a maximum height (thickness) of 30 cm (12 in) and have a minimum-rated attenuation of 20 dB (at normal incidence) at all frequencies from 1 GHz to 18 GHz.

7.1.2 Test Procedure

7.1.2.1 Preliminary Measurement

The EUT is tested on all operating conditions.

The spectrum analyzer is set max-hold mode and swept during turntable is rotated 0 to 360 degree and antenna is moving 1 to 4 meter height. Then spectrum chart is plotted out to detect the worst conditions in configuration, operating mode and/or ambient noise notation.

7.1.2.2 Final Measurement

The EUT is operated in the condition where maximum emission is detected by the preliminary test.

EMI Test Receiver is used for final measurement. The turntable azimuth (EUT direction) and antenna height are adjusted the position so that maximum field strength is obtained for each frequency spectrum to be measured. Especially for 1 GHz to 40 GHz measurement antenna tilt angle are adjusted to obtain the maximum field strength.

The equipment and cables are arranged or manipulated within the range of the test standard in the above condition.

7.2 Conducted Emission

7.2.1 Measurement system

Equipment Set-up (Refer to section 4 and 5)

Tabletop Equipment

EUT is placed on EUT table of size, 1.0m(d) by 1.5m(w), raised 0.8m above the metal ground plane and 0.4 m from vertical metal plane.

Interconnecting Cables

Excess part of the interconnecting cables longer than 1 meter are bundled in the center.
Cables that hang closer than 40 cm to the ground plane are folded back and forth forming bundle 30 to 40 cm long, hanging approx. in the middle between ground plane and table.
The measurement was conducted the worst emissions condition.

AC Power Cord

AC power cord for the EUT is connected to one LISN which is placed on the ground plane. The LISN is placed in 80 cm from the nearest part of EUT chassis.
The excess power cable is bundled in the center, or shortened to appropriate length.
AC cables except from the EUT are connected second LISN.

LISN

The chassis of the LISN is placed on the metal ground plane maintaining the direct current resistance of less than or equal to 2.5m ohm. The lead to be tested is selectable by switch, and the terminals which are not connected to the EUT are terminated in 50 ohm resistor termination.

Test Equipment (refer to section 6. 3)

7.2.2 Test Procedure

7.2.2.1 Preliminary Measurement

The EUT is tested on all operating conditions.
The spectrum analyzer is set max-hold mode and swept till no variation. Then spectrum chart is plotted out to detect the worst conditions in configuration and/or operating mode. All cables except for safety grounded are tested.

7.2.2.2 Final Measurement

The EUT is operated in the condition where maximum emission is detected by the preliminary test.
EMI Test Receiver is used for final measurement. The equipment and cables are arranged or manipulated within the range of the test standard in the above condition.