

VCCI Test Report

Product Name : Network Camera

Model No. : IB9389-EH-v2, IB9389-EHT-v2, IB839-EH, IB839-EHT

Applicant : VIVOTEK INC.

Address : 6F, No.192, Lien-Cheng Rd., Chung-Ho, New Taipei City,
Taiwan, R.O.C.

Date of Receipt : 2021/06/30

Issued Date : 2021/12/20

Report No. : 2161206R-E3012130011

Report Version : V2.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

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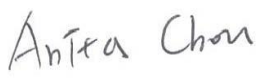
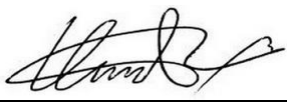
Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Test Report

Issued Date : 2021/12/20
Report No. : 2161206R-E3012130011



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Applicant : VIVOTEK INC.
Address : 6F, No.192, Lien-Cheng Rd., Chung-Ho, New Taipei City,
Taiwan, R.O.C.
Manufacturer : VIVOTEK INC.
Model No. : IB9389-EH-v2, IB9389-EHT-v2, IB839-EH, IB839-EHT
EUT Rated Voltage : PoE
EUT Test Voltage : PoE
Trade Name : VIVOTEK
Applicable Standard : VCCI CISPR 32: 2016-11, Class A
Test Result : Complied
Performed Location : DEKRA Testing and Certification Co., Ltd.
Linkou Laboratory
No. 5-22, Ruishukeng
Linkou District, New Taipei City, 24451, Taiwan
TEL:+886-2-8601-3788 / FAX:+886-2-8601-3789

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Approved By : 
(Director / Vincent Lin)

Laboratory Information

We, **DEKRA Testing and Certification Co., Ltd.**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scopes:

Taiwan	:	BSMI, NCC, TAF
Norway	:	DNVGL
USA	:	FCC
Japan	:	VCCI

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site : <http://www.dekra.com.tw>

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Revision History

Report No.	Version	Description	Issued Date
2161206R-E3012130011	V1.0	Initial issue of report	2021-07-16
2161206R-E3012130011	V2.0	Add two new models	2021-12-20

1. General Information

1.1. EUT Description

Product Name	Network Camera
Trade Name	VIVOTEK
Model No.	IB9389-EH-v2, IB9389-EHT-v2, IB839-EH, IB839-EHT

Note: The different of each model is shown as below:

Project Name	IB9389-EH-v2	IB839-EH	IB9389-EHT-v2	IB839-EHT
Lens Type	Fixed-focal		Motorized, Vari-focal, Remote Focus	

1.2. Mode of Operation

DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

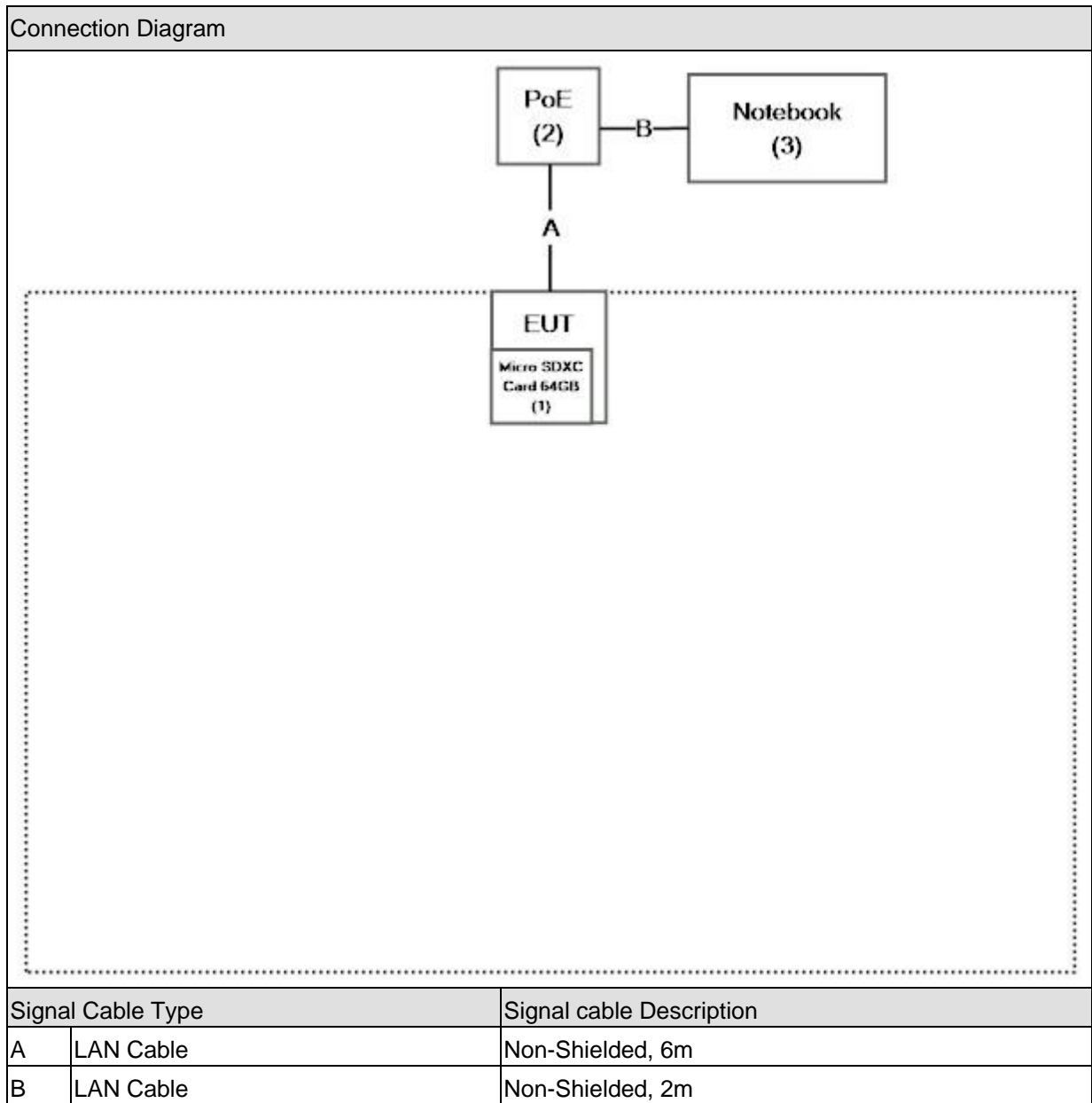
Pre-Test Mode	
Mode 1: IB9389-EHT-v2, PoE Mode	
Mode 2: IB9389-EH-v2, PoE Mode	
Final Test Mode	
Emission	Mode 1: IB9389-EHT-v2, PoE Mode

1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	Power Cord	
1	Micro SDXC Card 64GB	SanDisk	SanDisk Extreme microSDXC UHS-I	N/A	N/A
2	PoE	N/A	N/A	N/A	N/A
3	Notebook	Lenovo	ThinkPad T490	PF-21W2ES	Non-Shielded, 0.8m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.4.
2	Turn on the power of all equipment.
3	All the features of the EUT operation normally.

2. Technical Test

2.1. Summary of Test Result

- No deviations from the test standards
- Deviations from the test standards as below description:

Emission			
Performed Item	Normative References	Test Performed	Deviation
Conducted Emission	VCCI CISPR 32: 2016-11, Class A	No	No
Impedance Stabilization Network	VCCI CISPR 32: 2016-11, Class A	Yes	No
Radiated Emission	VCCI CISPR 32: 2016-11, Class A	Yes	No

2.2. List of Test Equipment

Impedance Stabilization Network / SR8

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESR3	101973	2020/11/19
LISN	R&S	ENV216	100097	2021/03/24
LISN	R&S	ESH3-Z5	836679/017	2021/03/12
Coaxial Cable	DEKRA	RG 400	LC018-RG	2021/06/18
Impedance Stabilization Network	Teseq	ISN T800	42815	2020/08/27

Note: All equipments that need to calibrate are with calibration period of 1 years.

Radiated Emission / Site2

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Bilog Antenna	Schaffner Chase	CBL6112B	2923	2020/11/24
EMI Test Receiver	R&S	ESCS 30	100369	2020/12/09
Coaxial Cable	DEKRA	RG 214	LC002-RG	2021/06/10
Pre-Amplifier	Jet-Power	JPA-10M1G33	170101000330009	2021/06/10
Coaxial signal switch	Anritsu	MP59B	6200436230	2021/06/10
Site2 NSA	DEKRA	N/A	N/A	2021/06/10

Note: All equipments that need to calibrate are with calibration period of 1 years.

Radiated Emission / CB7

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESU26	100433	2020/11/20
Horn Antenna	ETS-Lindgren	3117	00202723	2020/09/25
Pre-Amplifier	EMCI	EMC051845SE	980359	2020/11/11
CB7 VSWR	DEKRA	N/A	N/A	2021/06/22

Note: All equipments that need to calibrate are with calibration period of 1 years.

VCCI Test Site:

Member number of a test laboratory: 1153

Test Item	Test Site	VCCI No.
Conducted Emission (Telecommunication Port)	SR8	T-11887
Radiated Emission	Site 2	R-12232
Radiated Emission (Above 1GHz)	CB7(9x6x6_Chamber)	G-10035

2.3. Measurement Uncertainty

Impedance Stabilization Network

The measurement uncertainty is evaluated as ± 3.88 dB.

Radiated Emission(Under 1GHz)

The measurement uncertainty is evaluated as ± 4.22 dB.

Radiated Emission(Above 1GHz)

The measurement uncertainty is evaluated as ± 5.08 dB.

2.4. Test Environment

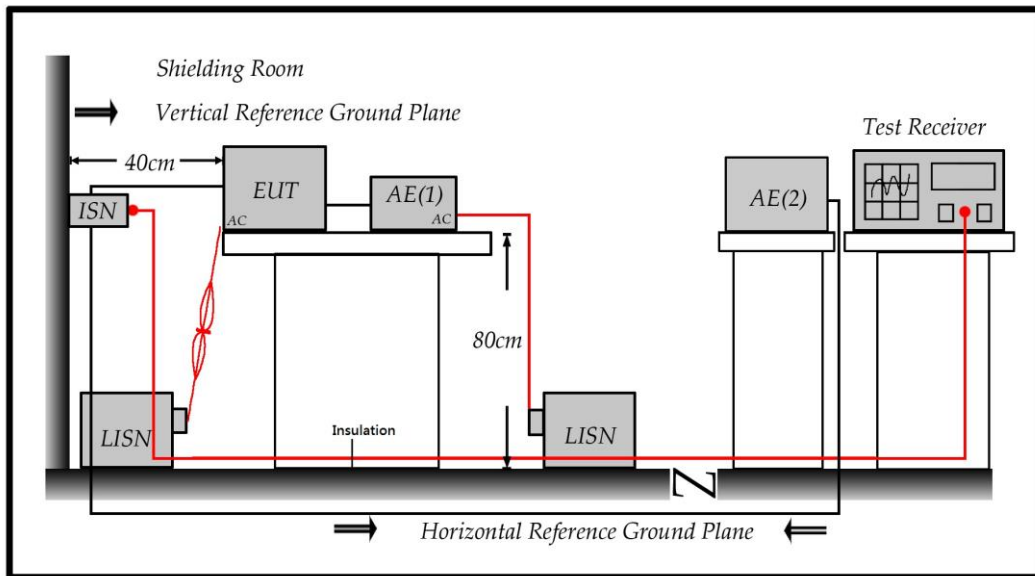
Performed Item	Items	Required
Impedance Stabilization Network	Temperature (°C)	10-40
	Humidity (%RH)	10-90
Radiated Emission	Temperature (°C)	10-40
	Humidity (%RH)	10-90

3. Conducted Emissions (Telecommunication Ports)

3.1. Test Specification

According to EMC Standard : VCCI CISPR 32

3.2. Test Setup



3.3. Limit

Applicable to					
1. wired network ports					
2. optical fibre port with metallic shield or tension members					
3. antenna ports					
Frequency range MHz	Coupling device	Detector type / Bandwidth	Class A voltage limits dB(μ V)	Class A current limits dB(μ A)	
0.15 – 0.5	AAN	Quasi Peak / 9 KHz	97 – 87	N / A	
0.5 – 30			87		
0.15 – 0.5	AAN	Average / 9 KHz	84 – 74		
0.5 – 30			74		
0.15 – 0.5	CVP And current probe	Quasi Peak / 9 KHz	97 – 87		53 – 43
0.5 – 30			87		43
0.15 – 0.5	CVP And current probe	Average / 9 KHz	84 – 74	40 – 30	
0.5 – 30			74	30	
0.15 – 0.5	Current Probe	Quasi Peak / 9 KHz	N / A	53 – 43	
0.5 – 30				43	
0.15 – 0.5	Current Probe	Average / 9 KHz		40 – 30	
0.5 – 30				30	
The choice of coupling device and measurement procedure is defined in VCCI CISPR32:2016 Annex C.					
AC mains ports that also have the function of a wired network port shall meet the limits given in VCCI CISPR32:2016 Table A.9.					
The measurement shall cover the entire frequency range.					
The application of the voltage and/or current limits is dependent on the measurement procedure used. Refer to CISPR32 Table C.1 for applicability.					
Testing is required at only one EUT supply voltage and frequency.					
Applicable to ports listed above and intended to connect to cables longer than 3 m					

3.4. Test Procedure

Telecommunication Port:

The mains voltage shall be supplied to the EUT via the LISN when the measurement of telecommunication port is performed. The common mode disturbances at the telecommunication port shall be connected to the ISN, which is 150 ohm impedance.

Both alternative cables are tested related to the LCL requested. The measurement range is from 150kHz to 30MHz. The bandwidth of measurement is set to 9kHz.

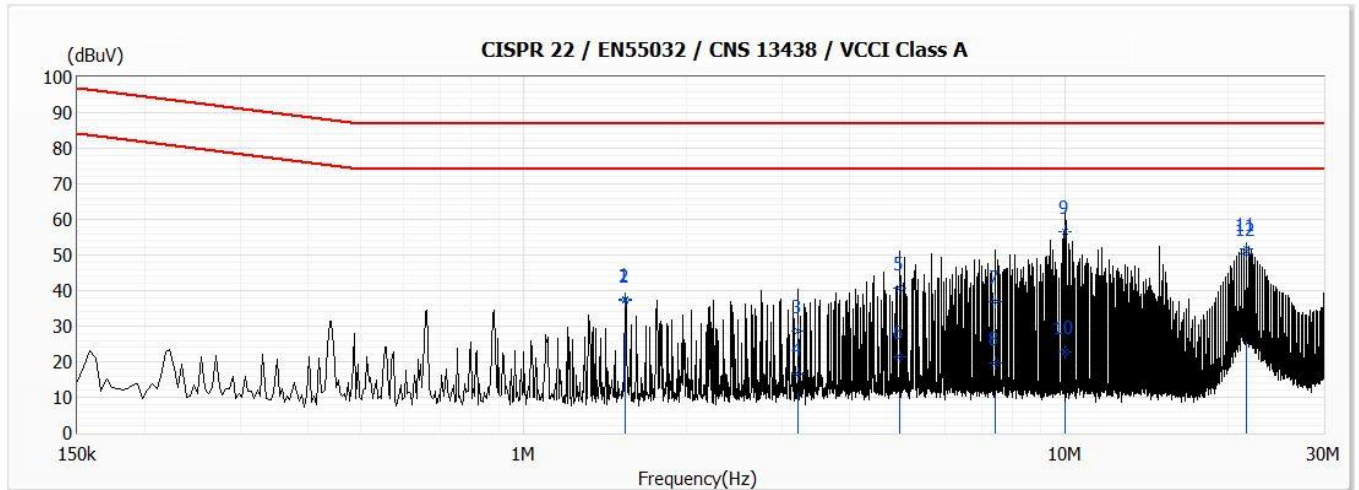
The 75dB LCL ISN is used for cat. 6 cable, the 65dB LCL ISN is used for cat. 5 cable, 55dB LCL ISN is used for cat. 3.

3.5. Deviation from Test Standard

No deviation.

3.6. Test Result

Model No	IB9389-EHT-v2	Site	SR8
Test Voltage	PoE	Test Date	2021/7/2
Test Mode	Mode 1	Engineer	Gary Luo
Phase	L1	Temperature (°C)	26.1
Test Condition	10Mbps	Humidity (%RH)	48

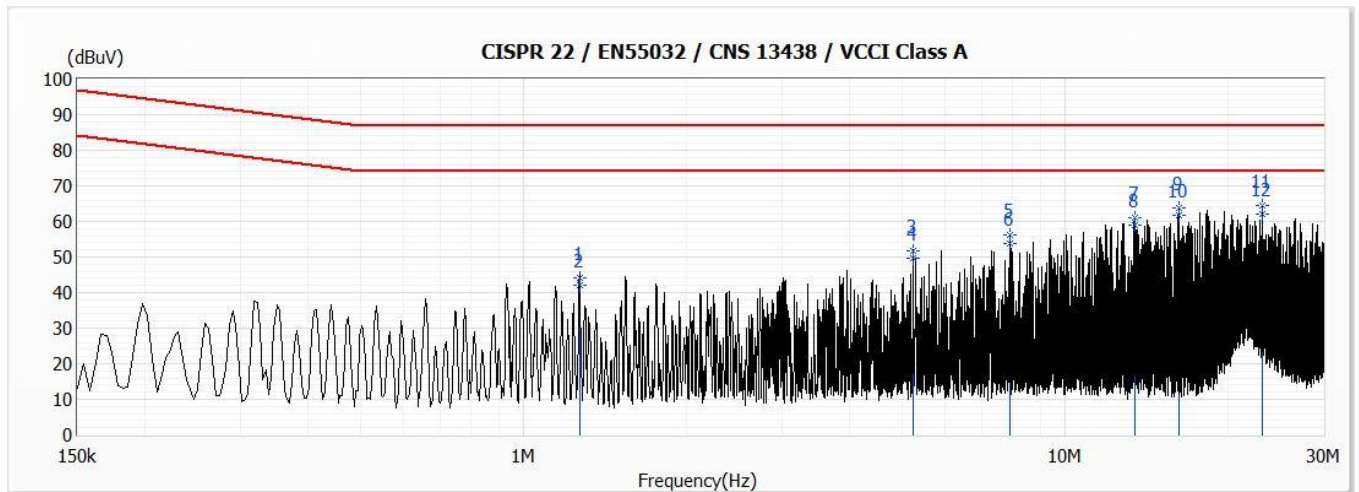


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	1.541	37.65	87.00	-49.35	27.80	9.85	QP
2	1.541	37.37	74.00	-36.63	27.52	9.85	AV
3	3.216	28.59	87.00	-58.41	18.76	9.83	QP
4	3.216	16.52	74.00	-57.48	6.69	9.83	AV
5	4.956	40.63	87.00	-46.37	30.79	9.84	QP
6	4.956	21.27	74.00	-52.73	11.43	9.84	AV
7	7.437	36.80	87.00	-50.20	26.91	9.89	QP
8	7.437	19.60	74.00	-54.40	9.71	9.89	AV
9	9.997	56.58	87.00	-30.42	46.65	9.93	QP
10	9.997	22.93	74.00	-51.07	13.00	9.93	AV
11	21.565	51.67	87.00	-35.33	41.45	10.22	QP
*12	21.565	50.29	74.00	-23.71	40.07	10.22	AV

Remark:

1. "*" means this data is the worst emission level;"!" means this data is over limit.
2. Emission Level=Reading Level + Correct Factor(Correct Factor=LISN Factor+Cable Loss).
3. Margin=Emission Level-Limit

Model No	IB9389-EHT-v2	Site	SR8
Test Voltage	PoE	Test Date	2021/7/2
Test Mode	Mode 1	Engineer	Gary Luo
Phase	L1	Temperature (°C)	26.1
Test Condition	100Mbps	Humidity (%RH)	48



No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	1.267	44.12	87.00	-42.88	34.26	9.86	QP
2	1.267	41.94	74.00	-32.06	32.08	9.86	AV
3	5.237	51.85	87.00	-35.15	42.01	9.84	QP
4	5.237	49.52	74.00	-24.48	39.68	9.84	AV
5	7.923	56.04	87.00	-30.96	46.15	9.89	QP
6	7.923	53.71	74.00	-20.29	43.82	9.89	AV
7	13.419	61.19	87.00	-25.81	51.18	10.01	QP
8	13.419	58.92	74.00	-15.08	48.91	10.01	AV
9	16.228	63.93	87.00	-23.07	53.86	10.07	QP
10	16.228	61.70	74.00	-12.30	51.63	10.07	AV
11	23.128	64.34	87.00	-22.66	54.06	10.28	QP
*12	23.128	62.22	74.00	-11.78	51.94	10.28	AV

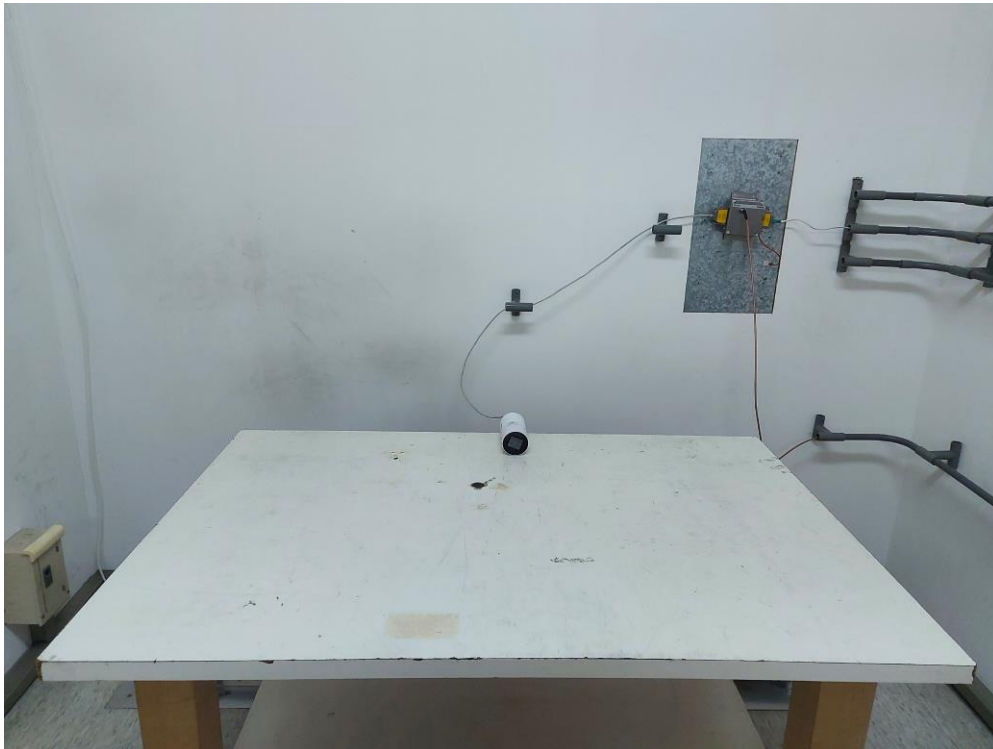
Remark:

1. "*" means this data is the worst emission level;"!" means this data is over limit.
2. Emission Level=Reading Level + Correct Factor(Correct Factor=LISN Factor+Cable Loss).
3. Margin=Emission Level-Limit

3.7. Test Photograph

Test Mode : Mode 1: IB9389-EHT-v2, PoE Mode

Description : Front View of ISN Test



Test Mode : Mode 1: IB9389-EHT-v2, PoE Mode

Description : Back View of ISN Test



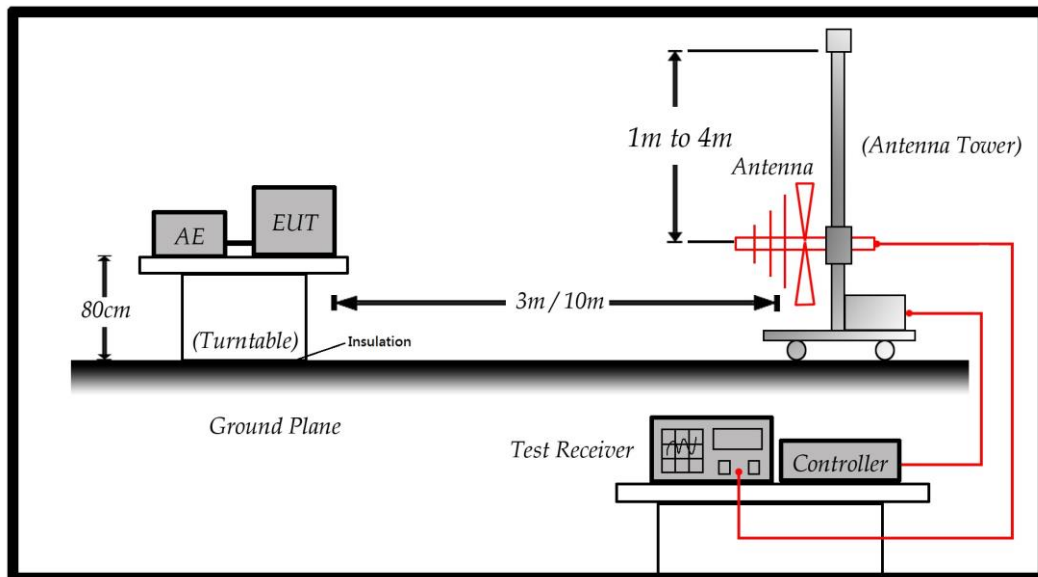
4. Radiated Emission

4.1. Test Specification

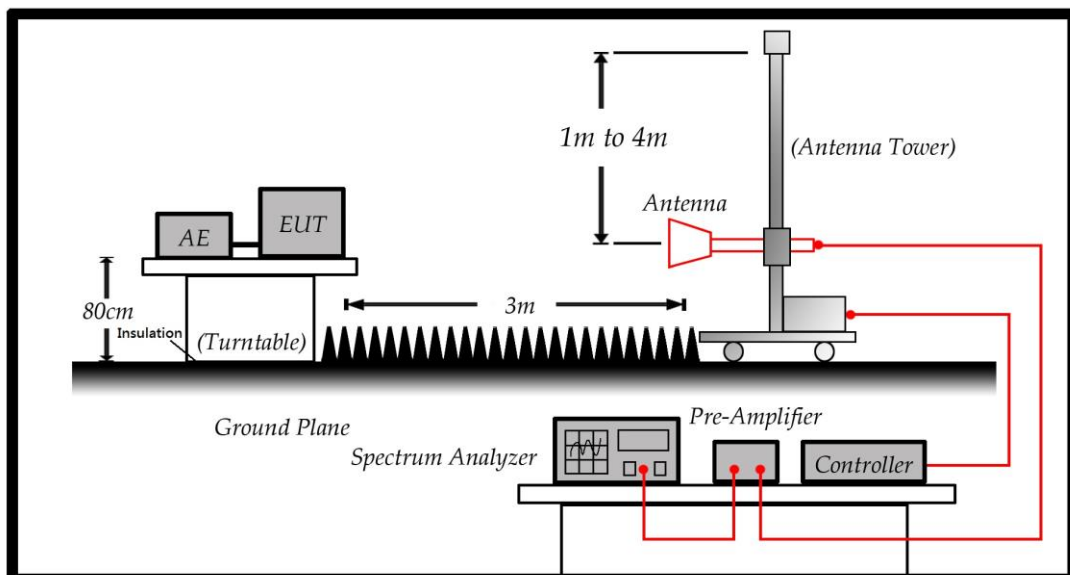
According to EMC Standard : VCCI CISPR 32

4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

Radiated emissions at frequencies up to 1 GHz

for Class A equipment

Frequency range MHz	Measurement		Class A limits dB(μ V/m)
	Distance m	Detector type/ Bandwidth	OATS / SAC
30-230	10	Quasi Peak / 120 KHz	40
230-1000			47
30-230	3	Quasi Peak / 120 KHz	50
230-1000			57
Apply only 3m or 10m across the entire frequency range			

Radiated emissions at frequencies above 1 GHz

for Class A equipment

Frequency range MHz	Measurement		Class A limits dB(μ V/m)
	Distance m	Detector type/ Bandwidth	OATS / SAC
1000-3000	3	Average / 1 MHz	56
3000-6000			60
1000-3000		Peak / 1 MHz	76
3000-6000			80
Both apply across the frequency range from 1000 MHz to the highest required frequency of measurement derived from			

Required highest frequency for radiated measurement

Highest internal frequency (F_x)	Highest measured frequency
$F_x \leq 108$ MHz	1 GHz
108 MHz $< F_x \leq 500$ MHz	2 GHz
500 MHz $< F_x \leq 1$ GHz	5 GHz
$F_x > 1$ GHz	$5 \times F_x$ up to a maximum of 6 GHz
NOTE 1 For FM and TV broadcast receivers, F_x is determined from the highest frequency generated or used excluding the local oscillator and tuned frequencies.	
NOTE 2 F_x is defined in 3.1.18.	

4.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 10 meters. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

All cable leaving the table-top EUT for a connection outside the test site (for example, mains cable, telephone lines, connections to auxiliary equipment located outside the test area) shall be fitted with ferrite clamps placed on the floor at the point where the cable reached the floor. Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to VCCI on radiated measurement.

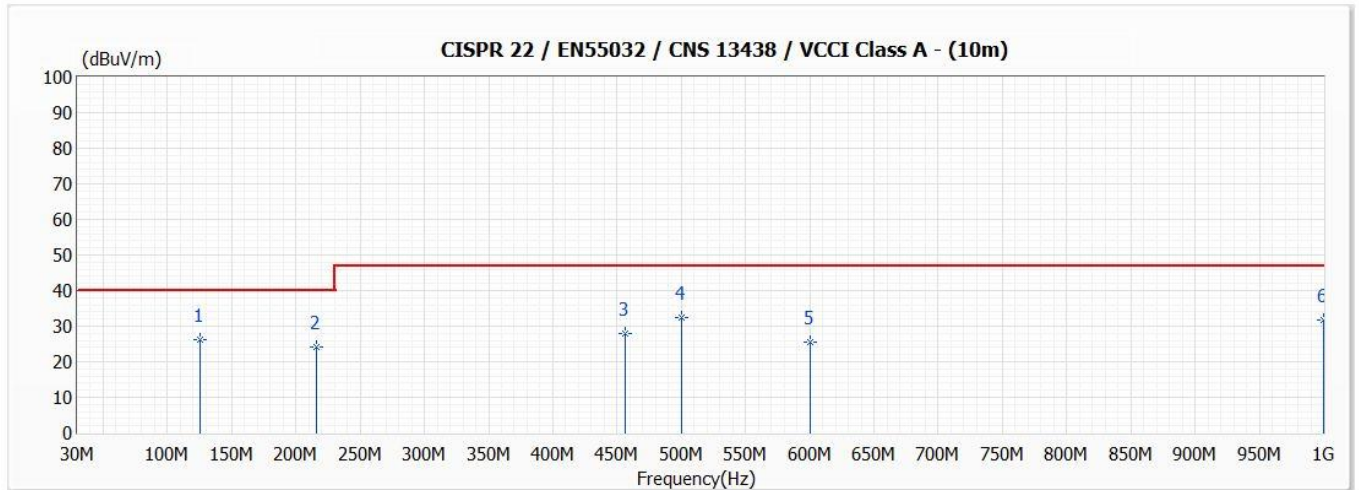
Radiated emissions were investigated over the frequency range from 30MHz to 1GHz using a receiver bandwidth of 120kHz. Radiated was performed at an antenna to EUT distance of 10 meters.

4.5. Deviation from Test Standard

No deviation.

4.6. Test Result

Model No	IB9389-EHT-v2	Site	SITE2
Test Voltage	PoE	Test Date	2021/7/2
Test Mode	Mode 1	Engineer	Edward Chi
Polarity	Horizontal	Temperature (°C)	27.5
Test Condition	--	Humidity (%RH)	58.8

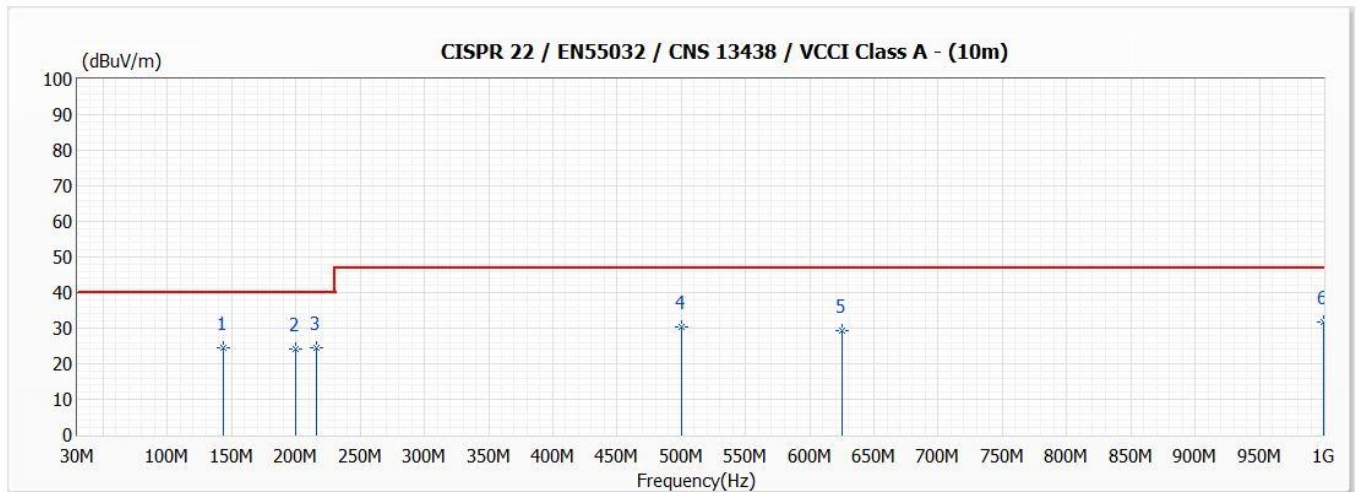


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB/m)	Ant Pos (cm)	TT Pos (deg)	Detector Type
* 1	125.000	26.11	40.00	-13.89	38.30	-12.19	370	164	QP
2	216.000	24.29	40.00	-15.71	38.70	-14.41	370	-91	QP
3	456.000	28.09	47.00	-18.91	32.90	-4.81	200	61	QP
4	500.000	32.40	47.00	-14.60	36.30	-3.90	200	87	QP
5	600.000	25.44	47.00	-21.56	27.10	-1.66	100	-81	QP
6	1000.000	31.59	47.00	-15.41	26.70	4.89	100	-43	QP

Remark:

1. "*" means this data is the worst emission level; "!" means this data is over limit.
2. Emission Level=Reading Level + Correct Factor(Correct Factor=Ant Factor+Cable Loss-Pre Amp).
3. Margin=Emission Level-Limit.

Model No	IB9389-EHT-v2	Site	SITE2
Test Voltage	PoE	Test Date	2021/7/2
Test Mode	Mode 1	Engineer	Edward Chi
Polarity	Vertical	Temperature (°C)	27.5
Test Condition	--	Humidity (%RH)	58.8

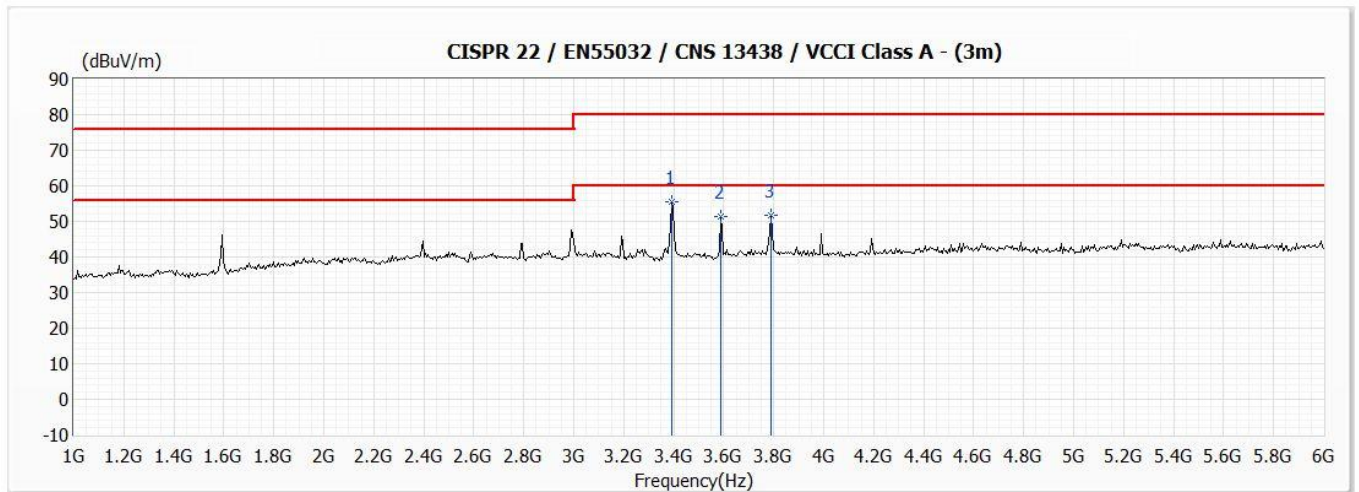


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB/m)	Ant Pos (cm)	TT Pos (deg)	Detector Type
1	143.300	24.47	40.00	-15.53	37.50	-13.03	100	97	QP
2	200.000	24.11	40.00	-15.89	38.40	-14.29	100	193	QP
3	216.000	24.49	40.00	-15.51	38.90	-14.41	100	-77	QP
4	500.000	30.50	47.00	-16.50	34.40	-3.90	300	-182	QP
5	625.000	29.48	47.00	-17.52	30.50	-1.02	250	17	QP
* 6	1000.000	31.59	47.00	-15.41	26.70	4.89	150	-49	QP

Remark:

1. "*" means this data is the worst emission level;"!" means this data is over limit.
2. Emission Level=Reading Level + Correct Factor(Correct Factor=Ant Factor+Cable Loss-Pre Amp).
3. Margin=Emission Level-Limit.

Model No	IB9389-EHT-v2	Site	CB7
Test Voltage	PoE	Test Date	2021/7/2
Test Mode	Mode 1	Engineer	Nilk Chen
Polarity	Horizontal	Temperature (°C)	27.1
Test Condition	--	Humidity (%RH)	55

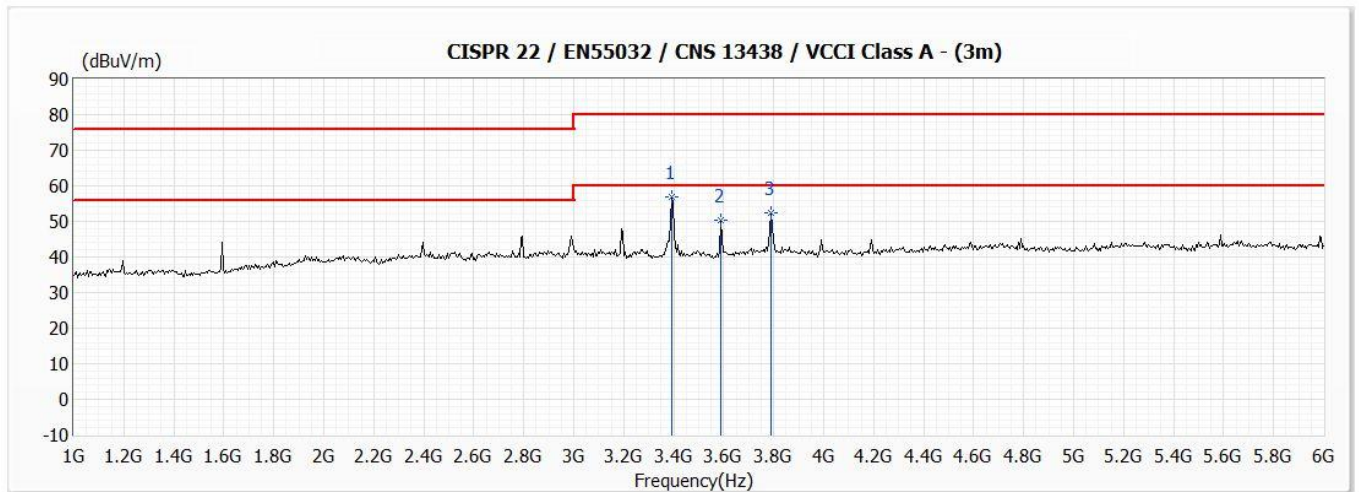


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB/m)	Ant Pos (cm)	TT Pos (deg)	Detector Type
* 1	3390.000	55.51	80.00	-24.49	60.25	-4.74	170	185	PK
2	3590.000	51.51	80.00	-28.49	55.72	-4.21	110	-137	PK
3	3790.000	51.77	80.00	-28.23	55.25	-3.48	100	41	PK

Remark:

1. "*" means this data is the worst emission level; "!" means this data is over limit.
2. Emission Level=Reading Level + Correct Factor (Correct Factor=Ant Factor+Cable Loss-Pre Amp).
3. Margin= Emission Level-Limit.
4. The above 1 GHz test. When PEAK measures level less than AV limit by 20 dBuV, its average is not measured separately.

Model No	IB9389-EHT-v2	Site	CB7
Test Voltage	PoE	Test Date	2021/7/2
Test Mode	Mode 1	Engineer	Nilk Chen
Polarity	Vertical	Temperature (°C)	27.1
Test Condition	--	Humidity (%RH)	55



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB/m)	Ant Pos (cm)	TT Pos (deg)	Detector Type
* 1	3390.000	56.76	80.00	-23.24	61.50	-4.74	100	6	PK
2	3590.000	50.36	80.00	-29.64	54.57	-4.21	150	-94	PK
3	3790.000	52.28	80.00	-27.72	55.76	-3.48	120	74	PK

Remark:

1. "*" means this data is the worst emission level; "!" means this data is over limit.
2. Emission Level=Reading Level + Correct Factor (Correct Factor=Ant Factor+Cable Loss-Pre Amp).
3. Margin= Emission Level-Limit.
4. The above 1 GHz test. When PEAK measures level less than AV limit by 20 dBuV, its average is not measured separately.

4.7. Test Photograph

Test Mode : Mode 1: IB9389-EHT-v2, PoE Mode

Description : Front View of Radiated Test



Test Mode : Mode 1: IB9389-EHT-v2, PoE Mode

Description : Back View of Radiated Test



Test Mode : Mode 1: IB9389-EHT-v2, PoE Mode

Description : Front View of High Frequency Radiated Test



5. Attachment

➤ **EUT Photograph**

(1) EUT Photo



(2) EUT Photo



(3) EUT Photo

