

VCCI Test Report

Product Name : Network Camera
Model No. : FD9389-EHTV-v2, FD9389-EHV-v2, FD839-EHV, FD839-EHTV,
FD9389-EHV-v2(w/cable)

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

Date of Receipt : 2021/06/25
Issued Date : 2022/06/02
Report No. : 2161042R-E3012130011
Report Version : V3.0



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.
This report must not be used to claim product endorsement by TAF or any agency of the government.
The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.
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.

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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. : FD9389-EHTV-v2, FD9389-EHV-v2, FD839-EHV, FD839-EHTV,
FD9389-EHV-v2(w/cable)
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
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TEL:+866-2-8601-3788 / FAX:+886-2-8601-3789

Documented By :



(Adm. Specialist / Vita Wang)

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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Product Photos: Please refer to the file: 2161042R-Product Photos

Revision History

| Report No. | Version | Description | Issued Date |
|----------------------|----------------|--|--------------------|
| 2161042R-E3012130011 | V1.0 | Initial issue of report. | 2021-07-14 |
| 2161042R-E3012130011 | V2.0 | adding the Model No. FD839-EHV, FD839-EHTV | 2021-12-20 |
| 2161042R-E3012130011 | V3.0 | Adding Model No.: FD9389-EHV-v2(w/cable), With Cable Version, Same layout, Cancel RJ45 connector and add IO PCBA. | 2022-06-02 |

1. General Information

1.1. EUT Description

| | |
|-------------------|--|
| Product Name | Network Camera |
| Trade Name | VIVOTEK |
| Model No. | FD9389-EHTV-v2, FD9389-EHV-v2, FD839-EHV, FD839-EHTV, FD9389-EHV-v2(w/cable) |
| EUT Max Frequency | 3200MHz |

Note: The EUT is including five models for different marketing requirement, the different of two models shown as follows:

| Project Name | FD9389-EHV-v2 | FD839-EHV | FD9389-EHV-v2(w/cable) | FD9389-EHTV-v2 | FD839-EHTV |
|--------------|--|-----------|---|--|------------|
| Lens Type | Fixed-focal | | | Motorized, Vari-focal, Remote Focus | |
| Connectors | RJ-45 cable connector for Network 10/100 Mbps PoE connection | | RJ-45 cable connector for Network 10/100 Mbps PoE connection (cable out with RJ45 female connector) | RJ-45 cable connector for Network 10/100 Mbps PoE connection | |

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:

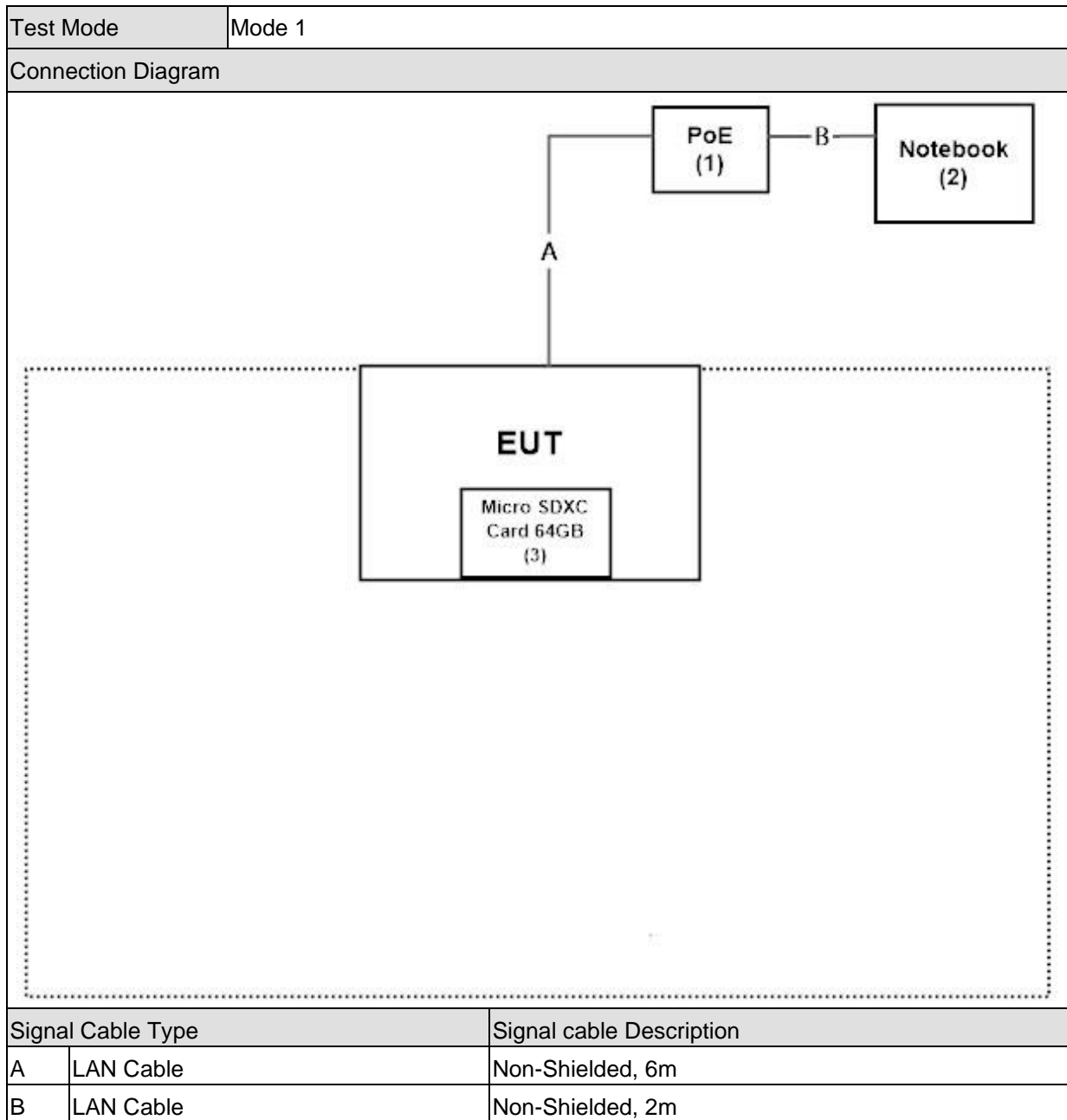
| | |
|--|--|
| Pre-Test Mode | |
| Mode 1: FD9389-EHTV-v2, PoE Mode | |
| Mode 2: FD9389-EHV-v2(w/cable), PoE Mode | |
| Final Test Mode | |
| Emission | Mode 1: FD9389-EHTV-v2, PoE Mode Mode 2: FD9389-EHV-v2(w/cable), PoE Mode |

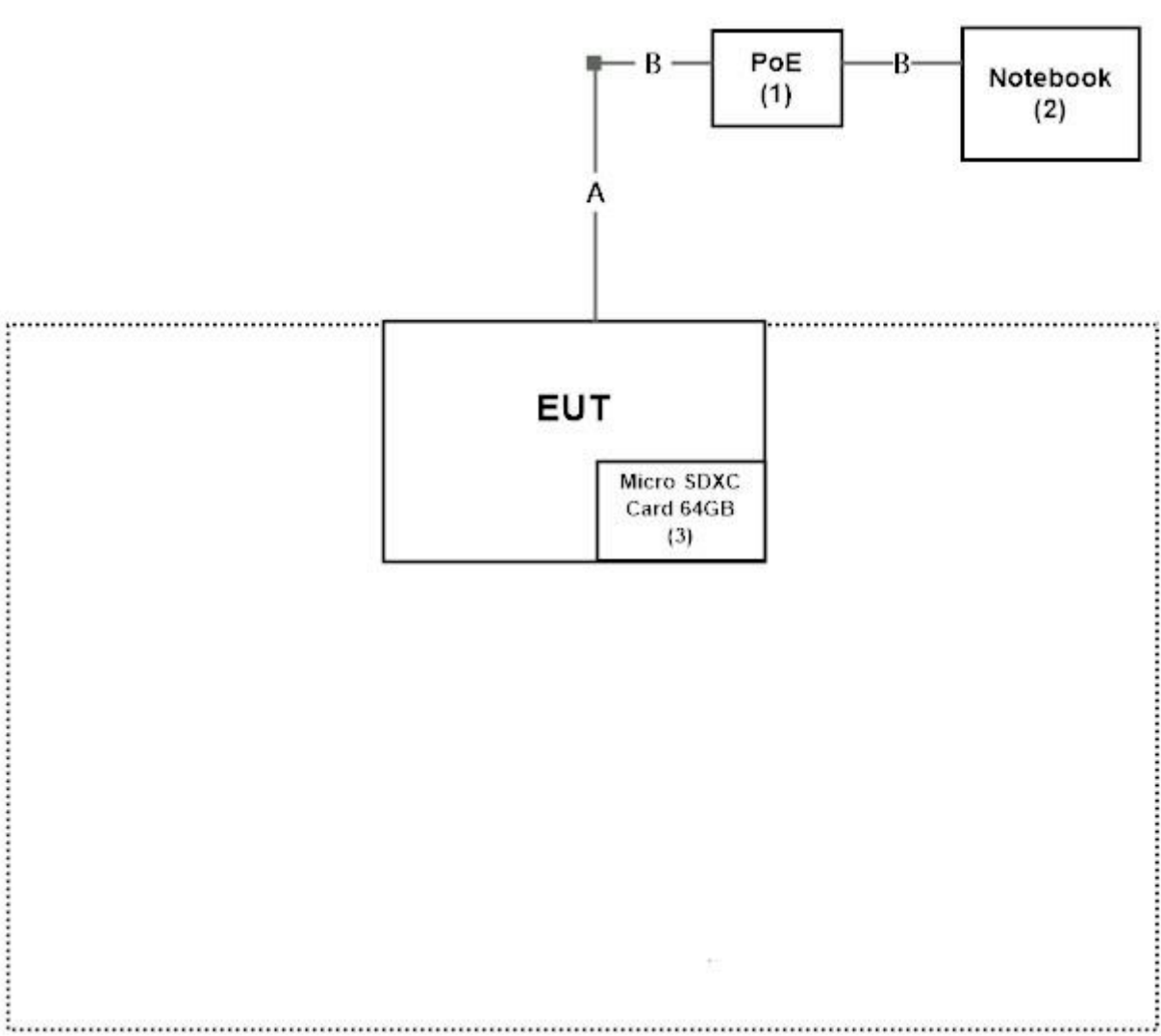
1.3. Tested System Details

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 | PoE | N/A | N/A | Non-Shielded, 1.8m | |
| 2 | Notebook | Lenovo | ThinkPad T490 | PF-21W2ES | Non-Shielded, 0.8m |
| 3 | Micro SDXC Card 64GB | SanDisk | SanDisk Extreme microSDXC UHS-I | N/A | N/A |

1.4. Configuration of Tested System



| | | |
|---|--------------|----------------------------|
| Test Mode | | Mode 2 |
| Connection Diagram | | |
|  <p>The diagram shows a central box labeled 'EUT' containing a 'Micro SDXC Card 64GB (3)'. A vertical line labeled 'A' connects the top of the EUT box to a small square terminal. From this terminal, a horizontal line labeled 'B' connects to a box labeled 'PoE (1)'. Another horizontal line labeled 'B' connects 'PoE (1)' to a box labeled 'Notebook (2)'. A dashed rectangular border encloses the EUT box and the connection point 'A'.</p> | | |
| Signal Cable Type | | Signal cable Description |
| A | Signal Cable | Non-Shielded, 0.15m |
| B | LAN Cable | Non-Shielded, 6m, two PCS. |

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

For mode 1

Impedance Stabilization Network / SR1

| Instrument | Manufacturer | Type No. | Serial No | Cal. Date |
|---------------------------------|--------------|----------|------------|------------|
| EMI Test Receiver | R&S | ESR3 | 102041 | 2021/06/30 |
| Two-Line V-Network | R&S | ENV216 | 101105 | 2021/05/04 |
| Two-Line V-Network | R&S | ESH3-Z5 | 836679/023 | 2021/04/22 |
| Coaxial Cable | SUHNER | RG 400 | LC016-RG | 2021/06/18 |
| Impedance Stabilization Network | TESEQ | ISN T800 | 30303 | 2021/06/27 |

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

Radiated Emission / Site1

| Instrument | Manufacturer | Type No. | Serial No | Cal. Date |
|-------------------|-----------------|-------------|-----------------|------------|
| Bilog Antenna | Schaffner Chase | CBL6112B | 2905 | 2021/01/18 |
| EMI Test Receiver | R&S | ESR3 | 102042 | 2021/05/12 |
| Coaxial Cable | SUHNER | RG 214 | LC001-RG | 2021/06/09 |
| Preamplifier | Jet-Power | JPA-10M1G33 | 170101000330008 | 2021/06/09 |
| NSA | DEKRA | N/A | N/A | 2021/06/09 |

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

Radiated Emission / CB8

| Instrument | Manufacturer | Type No. | Serial No | Cal. Date |
|----------------------------------|--------------|----------|------------|------------|
| Double Ridged Guide Horn Antenna | ETS-Lindgren | 3117 | 00227710 | 2021/01/26 |
| EMI Test Receiver | R&S | ESR26 | 101385 | 2020/12/22 |
| Microwave Preamplifier | SGH | PRAMP118 | 20200921-1 | 2021/04/07 |
| VSWR | DEKRA | N/A | N/A | 2021/06/23 |

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) | SR1 | T-11473 |
| Radiated Emission | Site 1 | R-12231 |
| Radiated Emission (Above 1GHz) | CB8(9x6x6_Chamber) | G-10947 |

For mode 2

Impedance Stabilization Network / LK-SR08 (SR8)

| Instrument | Manufacturer | Type No. | Serial No | Cal. Date |
|---------------------------------|--------------|----------|-----------|------------|
| EMI Test Receiver | R&S | ESR3 | 101973 | 2021/11/12 |
| Two-Line V-Network | R&S | ENV216 | 101479 | 2021/08/13 |
| Two-Line V-Network | R&S | ENV216 | 101105 | 2021/05/04 |
| Coaxial Cable | SUHNER | RG 400 | LC018-RG | 2021/06/18 |
| Impedance Stabilization Network | TESEQ | ISN T800 | 42815 | 2021/09/13 |

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

Radiated Emission / LK-Site07 (Site7)

| Instrument | Manufacturer | Type No. | Serial No | Cal. Date |
|-------------------|--------------|----------|------------------------|------------|
| Bilog Antenna | Schaffner | CBL6112B | 2922 | 2021/09/28 |
| EMI Test Receiver | R&S | ESCI | 100649 | 2021/10/08 |
| Coaxial Cable | SUHNER | RG 214 | LC007A-RG LC007B-RG | 2021/06/15 |
| Preamplifier | QuieTek | AP/0100A | CHM/1009094 | 2021/06/15 |
| NSA | DEKRA | N/A | N/A | 2021/06/15 |

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

Radiated Emission (Above 1GHz) / LK-CB05 (CB7)

| Instrument | Manufacturer | Type No. | Serial No | Cal. Date |
|----------------------------------|--------------|-------------|-----------|------------|
| Double Ridged Guide Horn Antenna | ETS-Lindgren | 3117 | 00202723 | 2021/10/12 |
| EMI Test Receiver | R&S | ESU26 | 100433 | 2022/01/12 |
| Microwave Preamplifier | EMCI | EMC051845SE | 980359 | 2021/12/14 |
| VSWR | DEKRA | N/A | N/A | 2021/06/22 |

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

VCCI Test Site:

Member number of a test laboratory: 1153

| Test Item | Test Site | VCCI No. |
|---|-------------------------------|----------|
| Conducted Emission (Telecommunication Port) | LK-SR08 (SR8) | T-11887 |
| Radiated Emission | LK-Site07 (Site7) | R-13748 |
| Radiated Emission (Above 1GHz) | LK-CB05 (CB7) (9x6x6_Chamber) | G-10035 |

2.3. Measurement Uncertainty

For mode 1

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.

For mode 2

Impedance Stabilization Network

The measurement uncertainty is evaluated as ± 3.88 dB.

Radiated Emission

The measurement uncertainty is evaluated as ± 5.16 dB.

Radiated Emission Above 1GHz

The measurement uncertainty is evaluated as ± 4.88 dB.

2.4. Test Environment

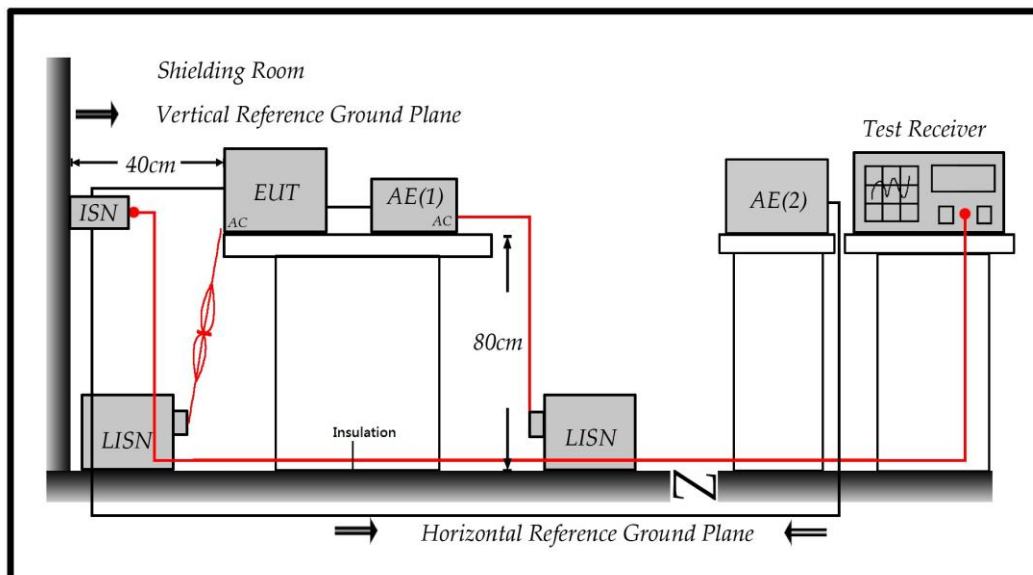
| Performed Item | Items | Required |
|---------------------------------|------------------|----------|
| Impedance Stabilization Network | Temperature (°C) | 10-40 |
| | Humidity (%RH) | 10-90 |
| Radiated Emission | Temperature (°C) | 10-40 |
| | Humidity (%RH) | 10-90 |

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 | |

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.

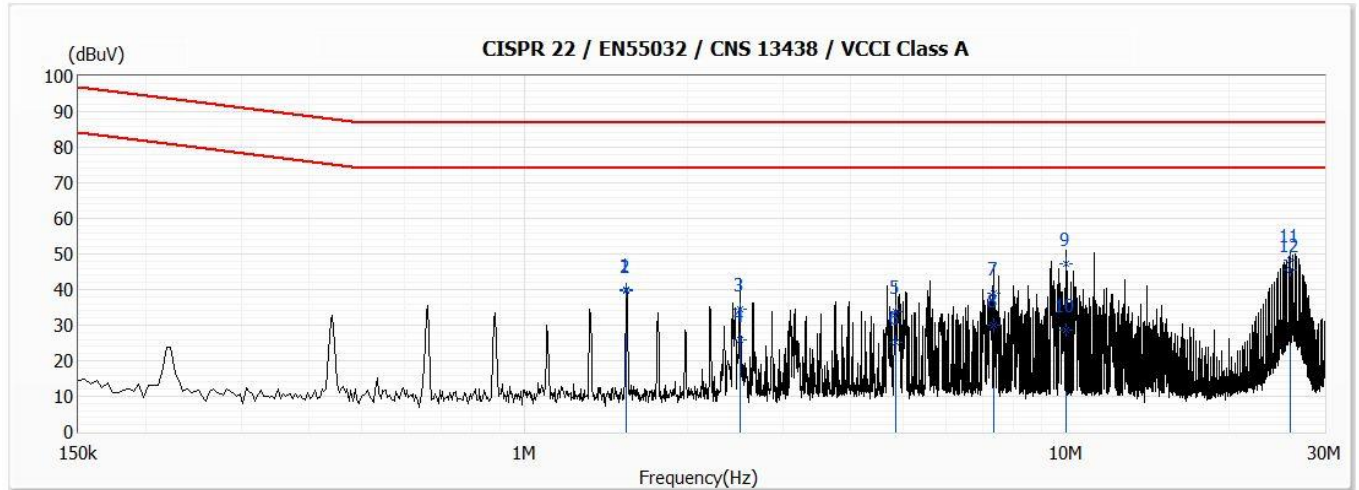
The 75dB LCL ISN is used for cat. 6 cable, the 65dB LCL ISN is used for cat. 5 cable, 55dB LCL ISN is used for cat. 3.

3.5. Deviation from Test Standard

No deviation.

3.6. Test Result

| | | | |
|----------------|----------------|------------------|---------------|
| Model No | FD9389-EHTV-v2 | Site | SR1 |
| Test Voltage | POE | Test Date | 2021/6/26 |
| Test Mode | Mode 1 | Engineer | Shianyu Chiou |
| Phase | L1 | Temperature (°C) | 23.4 |
| Test Condition | 10M | Humidity (%RH) | 50 |

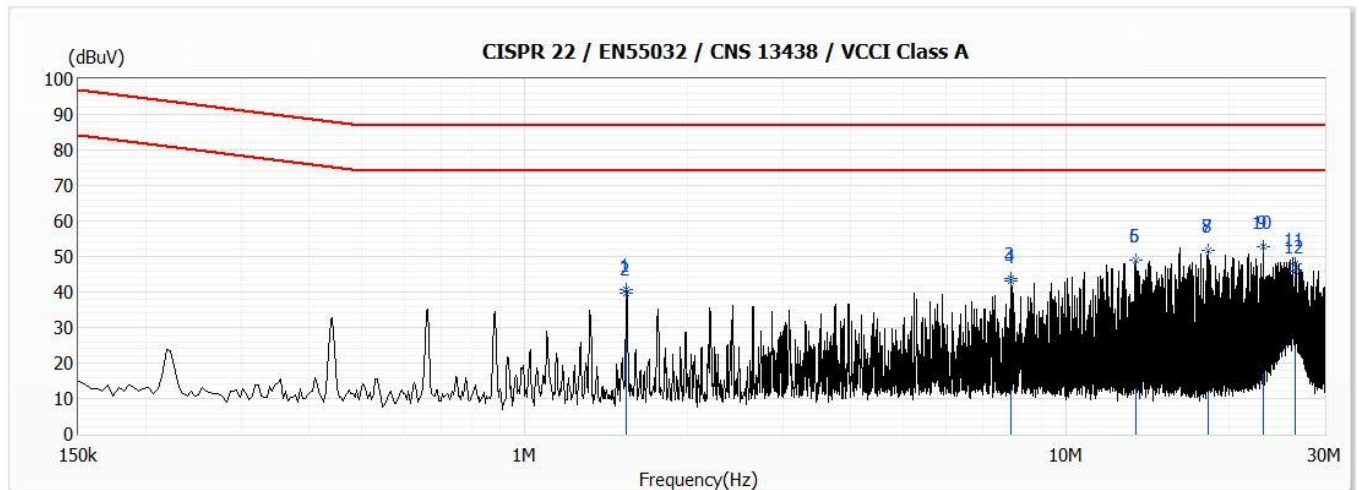


| No | Frequency (MHz) | Emission Level (dBuV) | Limit (dBuV) | Margin (dB) | Reading Level (dBuV) | Correct Factor (dB) | Detector Type |
|-----|-----------------|-----------------------|--------------|-------------|----------------------|---------------------|---------------|
| 1 | 1.541 | 40.01 | 87.00 | -46.99 | 30.27 | 9.74 | QP |
| 2 | 1.541 | 39.55 | 74.00 | -34.45 | 29.81 | 9.74 | AV |
| 3 | 2.501 | 34.40 | 87.00 | -52.60 | 24.68 | 9.72 | QP |
| 4 | 2.501 | 25.94 | 74.00 | -48.06 | 16.22 | 9.72 | AV |
| 5 | 4.837 | 33.85 | 87.00 | -53.15 | 24.08 | 9.77 | QP |
| 6 | 4.837 | 25.21 | 74.00 | -48.79 | 15.44 | 9.77 | AV |
| 7 | 7.337 | 38.97 | 87.00 | -48.03 | 29.13 | 9.84 | QP |
| 8 | 7.337 | 30.15 | 74.00 | -43.85 | 20.31 | 9.84 | AV |
| 9 | 9.996 | 47.16 | 87.00 | -39.84 | 37.26 | 9.90 | QP |
| 10 | 9.996 | 28.61 | 74.00 | -45.39 | 18.71 | 9.90 | AV |
| 11 | 25.988 | 48.38 | 87.00 | -38.62 | 38.06 | 10.32 | QP |
| *12 | 25.988 | 45.49 | 74.00 | -28.51 | 35.17 | 10.32 | 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 | FD9389-EHTV-v2 | Site | SR1 |
| Test Voltage | POE | Test Date | 2021/6/26 |
| Test Mode | Mode 1 | Engineer | Shianyu Chiou |
| Phase | L1 | Temperature (°C) | 23.4 |
| Test Condition | 100M | Humidity (%RH) | 50 |

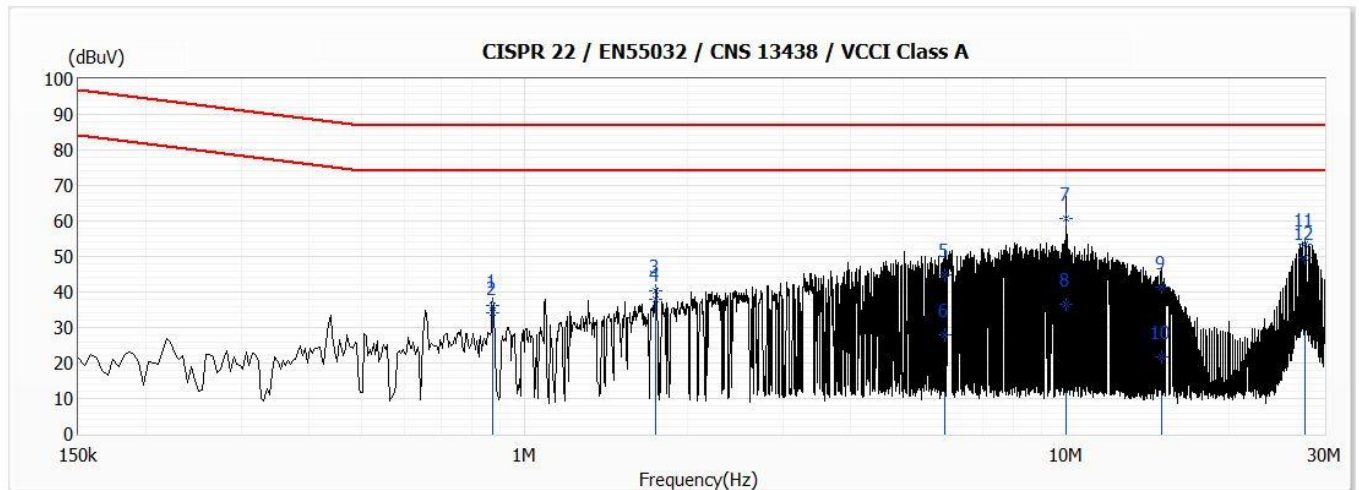


| No | Frequency (MHz) | Emission Level (dBuV) | Limit (dBuV) | Margin (dB) | Reading Level (dBuV) | Correct Factor (dB) | Detector Type |
|-----|-----------------|-----------------------|--------------|-------------|----------------------|---------------------|---------------|
| 1 | 1.541 | 40.70 | 87.00 | -46.30 | 30.96 | 9.74 | QP |
| 2 | 1.541 | 39.66 | 74.00 | -34.34 | 29.92 | 9.74 | AV |
| 3 | 7.923 | 43.67 | 87.00 | -43.33 | 33.81 | 9.86 | QP |
| 4 | 7.923 | 42.97 | 74.00 | -31.03 | 33.11 | 9.86 | AV |
| 5 | 13.419 | 49.08 | 87.00 | -37.92 | 39.12 | 9.96 | QP |
| 6 | 13.419 | 49.07 | 74.00 | -24.93 | 39.11 | 9.96 | AV |
| 7 | 18.243 | 51.81 | 87.00 | -35.19 | 41.73 | 10.08 | QP |
| 8 | 18.243 | 51.80 | 74.00 | -22.20 | 41.72 | 10.08 | AV |
| 9 | 23.128 | 52.67 | 87.00 | -34.33 | 42.44 | 10.23 | QP |
| *10 | 23.128 | 52.64 | 74.00 | -21.36 | 42.41 | 10.23 | AV |
| 11 | 26.421 | 47.91 | 87.00 | -39.09 | 37.58 | 10.33 | QP |
| 12 | 26.421 | 45.87 | 74.00 | -28.13 | 35.54 | 10.33 | 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 | FD9389-EHV-v2(w/cable) | Site | SR8 |
| Test Voltage | POE | Test Date | 2022/3/18 |
| Test Mode | Mode 2 | Engineer | Jackal Chen |
| Phase | | Temperature (°C) | 24.6 |
| Test Condition | 10Mbps | Humidity (%RH) | 44 |

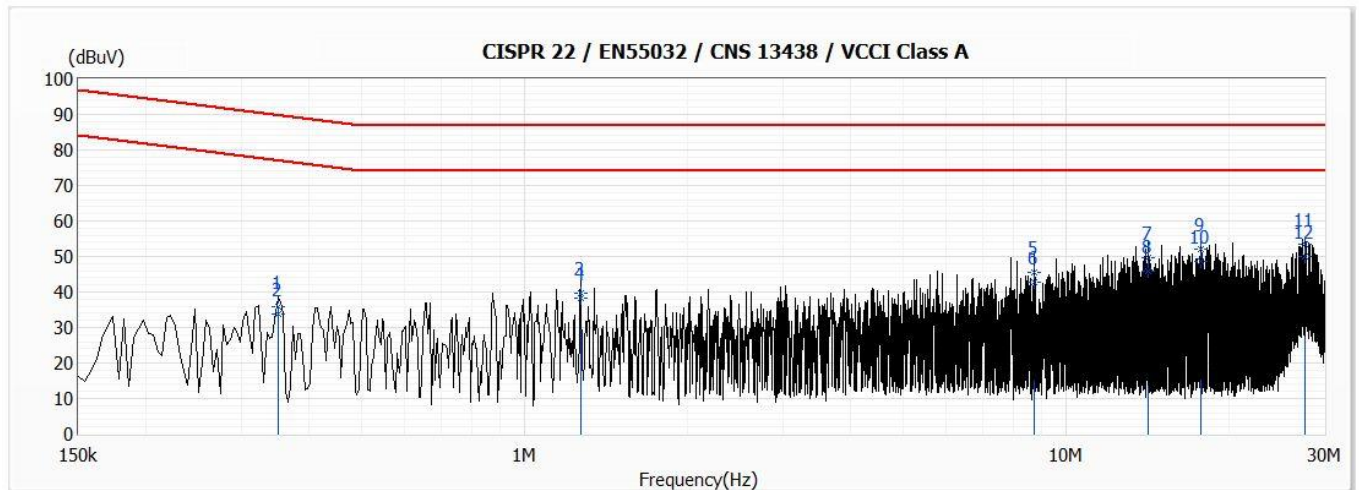


| No | Frequency (MHz) | Emission Level (dBuV) | Limit (dBuV) | Margin (dB) | Reading Level (dBuV) | Correct Factor (dB) | Detector Type |
|-----|-----------------|-----------------------|--------------|-------------|----------------------|---------------------|---------------|
| 1 | 0.874 | 36.09 | 87.00 | -50.91 | 26.33 | 9.76 | QP |
| 2 | 0.874 | 34.03 | 74.00 | -39.97 | 24.27 | 9.76 | AV |
| 3 | 1.748 | 40.22 | 87.00 | -46.78 | 30.50 | 9.72 | QP |
| 4 | 1.748 | 37.92 | 74.00 | -36.08 | 28.20 | 9.72 | AV |
| 5 | 5.960 | 44.84 | 87.00 | -42.16 | 35.10 | 9.74 | QP |
| 6 | 5.960 | 28.06 | 74.00 | -45.94 | 18.32 | 9.74 | AV |
| 7 | 10.002 | 60.80 | 87.00 | -26.20 | 50.98 | 9.82 | QP |
| 8 | 10.002 | 36.70 | 74.00 | -37.30 | 26.88 | 9.82 | AV |
| 9 | 15.005 | 41.38 | 87.00 | -45.62 | 31.44 | 9.94 | QP |
| 10 | 15.005 | 21.73 | 74.00 | -52.27 | 11.79 | 9.94 | AV |
| 11 | 27.537 | 53.37 | 87.00 | -33.63 | 43.04 | 10.33 | QP |
| *12 | 27.537 | 49.61 | 74.00 | -24.39 | 39.28 | 10.33 | 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 | FD9389-EHV-v2(w/cable) | Site | SR8 |
| Test Voltage | POE | Test Date | 2022/3/18 |
| Test Mode | Mode 2 | Engineer | Jackal Chen |
| Phase | | Temperature (°C) | 24.6 |
| Test Condition | 100Mbps | Humidity (%RH) | 44 |



| No | Frequency (MHz) | Emission Level (dBuV) | Limit (dBuV) | Margin (dB) | Reading Level (dBuV) | Correct Factor (dB) | Detector Type |
|-----|-----------------|-----------------------|--------------|-------------|----------------------|---------------------|---------------|
| 1 | 0.351 | 35.92 | 89.94 | -54.02 | 26.03 | 9.89 | QP |
| 2 | 0.351 | 33.77 | 76.94 | -43.17 | 23.88 | 9.89 | AV |
| 3 | 1.267 | 39.52 | 87.00 | -47.48 | 29.77 | 9.75 | QP |
| 4 | 1.267 | 38.41 | 74.00 | -35.59 | 28.66 | 9.75 | AV |
| 5 | 8.717 | 45.39 | 87.00 | -41.61 | 35.60 | 9.79 | QP |
| 6 | 8.717 | 42.61 | 74.00 | -31.39 | 32.82 | 9.79 | AV |
| 7 | 14.152 | 49.80 | 87.00 | -37.20 | 39.88 | 9.92 | QP |
| 8 | 14.152 | 45.98 | 74.00 | -28.02 | 36.06 | 9.92 | AV |
| 9 | 17.693 | 52.00 | 87.00 | -35.00 | 42.01 | 9.99 | QP |
| 10 | 17.693 | 48.49 | 74.00 | -25.51 | 38.50 | 9.99 | AV |
| 11 | 27.540 | 53.61 | 87.00 | -33.39 | 43.28 | 10.33 | QP |
| *12 | 27.540 | 49.90 | 74.00 | -24.10 | 39.57 | 10.33 | 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

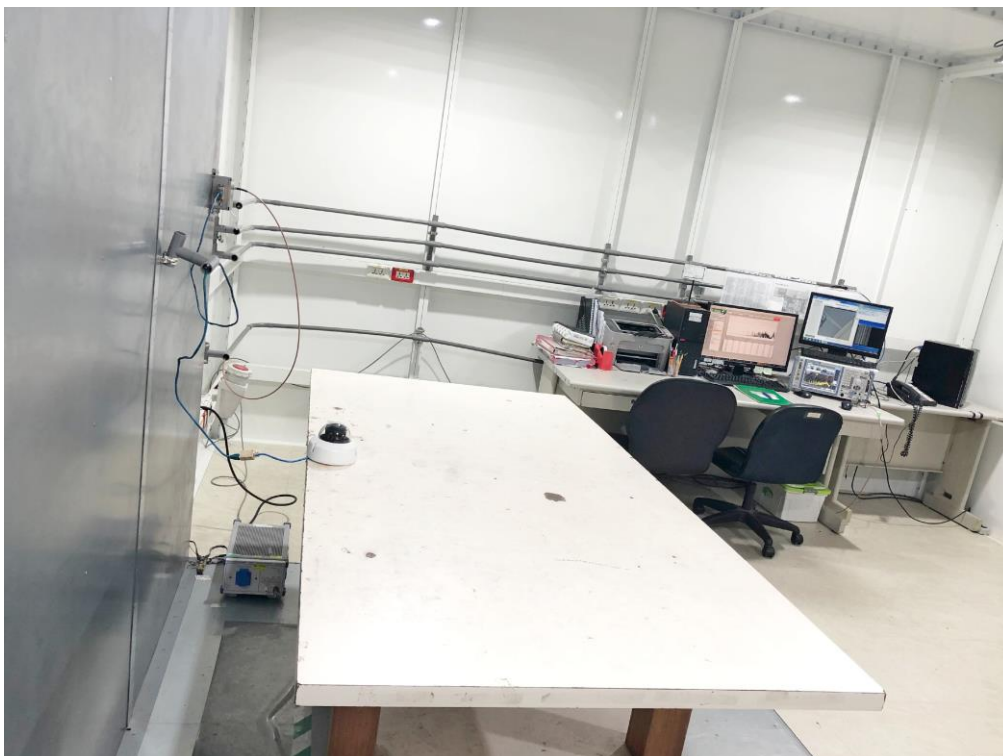
Test Mode : Mode 1: FD9389-EHTV-v2, PoE Mode

Description : Front View of ISN Test



Test Mode : Mode 1: FD9389-EHTV-v2, PoE Mode

Description : Back View of ISN Test



Test Mode : Mode 2: FD9389-EHV-v2(w/cable), PoE Mode

Description : Front View of ISN Test



Test Mode : Mode 2: FD9389-EHV-v2(w/cable), PoE Mode

Description : Back View of ISN Test



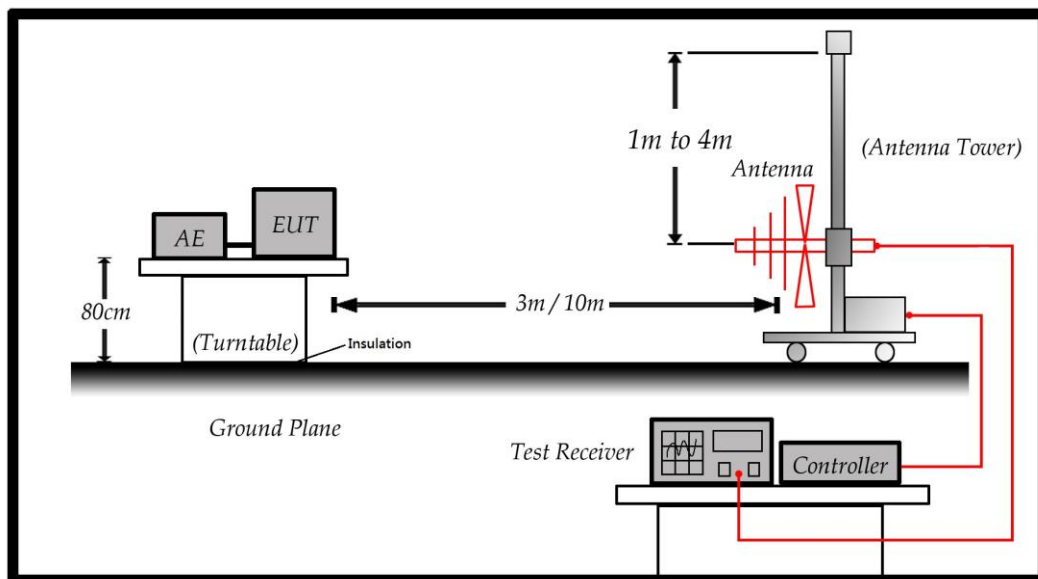
4. Radiated Emission

4.1. Test Specification

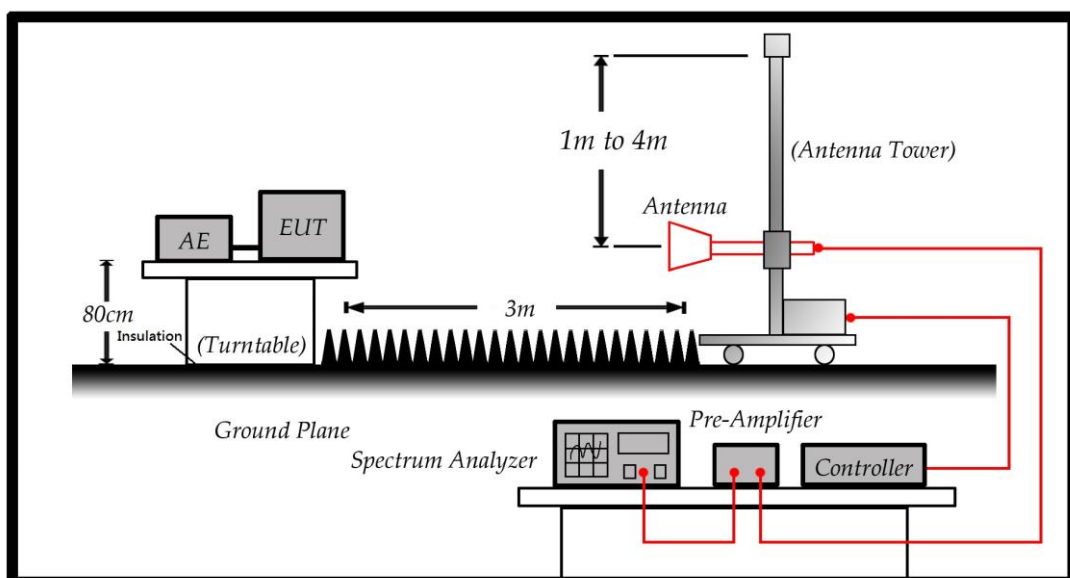
According to EMC Standard : VCCI CISPR 32

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 | | 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 |

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.

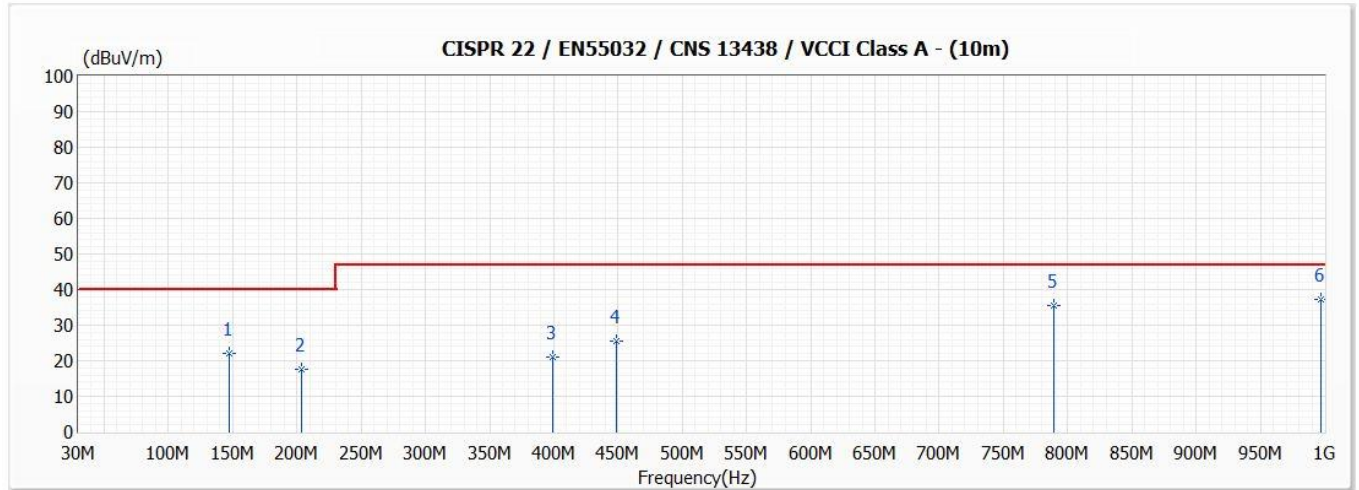
Radiated emissions were investigated over the frequency range from 30MHz to 1GHz using a receiver bandwidth of 120kHz. Radiated was performed at an antenna to EUT distance of 10 meters.

4.5. Deviation from Test Standard

No deviation.

4.6. Test Result

| | | | |
|----------------|----------------|------------------|-----------|
| Model No | FD9389-EHTV-v2 | Site | SITE1 |
| Test Voltage | POE | Test Date | 2021/6/26 |
| Test Mode | Mode 1 | Engineer | Peter Lin |
| Polarity | Horizontal | Temperature (°C) | 26 |
| Test Condition | -- | Humidity (%RH) | 87 |

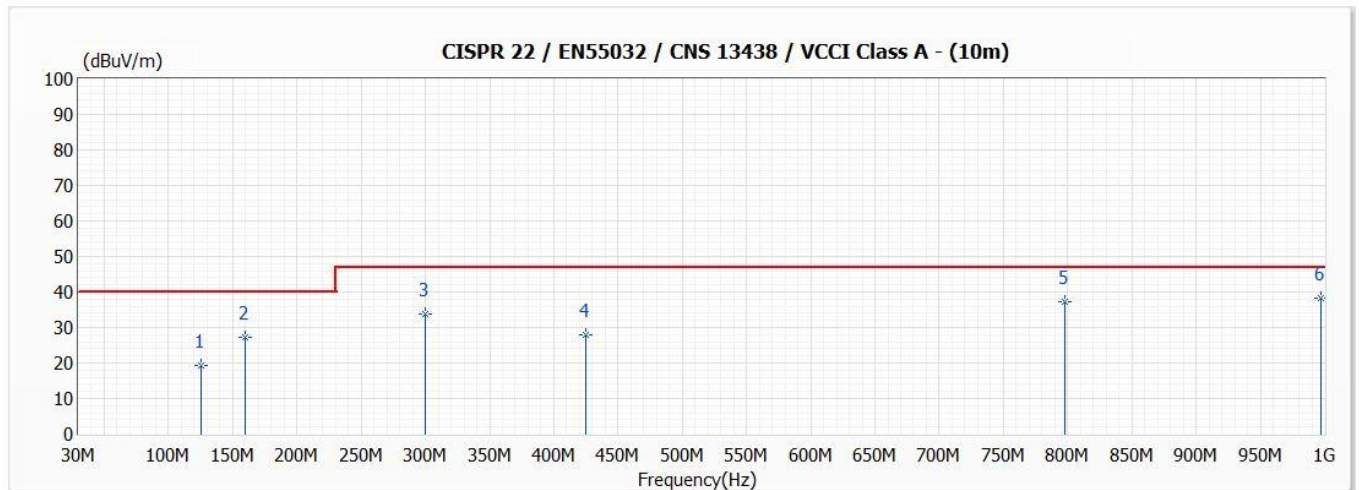


| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Reading Level (dBuV) | Correct Factor (dB/m) | Ant Pos (cm) | TT Pos (deg) | Detector Type |
|-----|-----------------|-------------------------|----------------|-------------|----------------------|-----------------------|--------------|--------------|---------------|
| 1 | 147.450 | 22.24 | 40.00 | -17.76 | 35.90 | -13.66 | 370 | -24 | QP |
| 2 | 204.010 | 17.67 | 40.00 | -22.33 | 32.10 | -14.43 | 370 | -126 | QP |
| 3 | 398.810 | 20.89 | 47.00 | -26.11 | 27.40 | -6.51 | 300 | 18 | QP |
| 4 | 448.410 | 25.61 | 47.00 | -21.39 | 30.90 | -5.29 | 200 | 83 | QP |
| 5 | 789.050 | 35.67 | 47.00 | -11.33 | 34.50 | 1.17 | 100 | -160 | QP |
| * 6 | 997.360 | 37.14 | 47.00 | -9.86 | 32.90 | 4.24 | 100 | -100 | 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 | FD9389-EHTV-v2 | Site | SITE1 |
| Test Voltage | POE | Test Date | 2021/6/26 |
| Test Mode | Mode 1 | Engineer | Peter Lin |
| Polarity | Vertical | Temperature (°C) | 26 |
| Test Condition | -- | Humidity (%RH) | 87 |

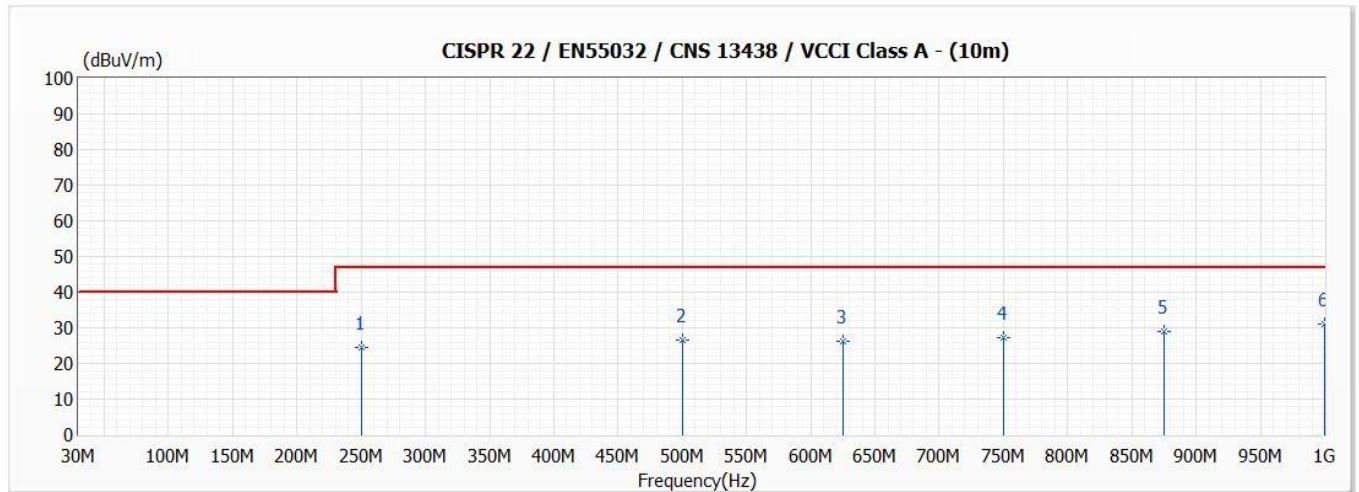


| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Reading Level (dBuV) | Correct Factor (dB/m) | Ant Pos (cm) | TT Pos (deg) | Detector Type |
|-----|-----------------|-------------------------|----------------|-------------|----------------------|-----------------------|--------------|--------------|---------------|
| 1 | 125.000 | 19.18 | 40.00 | -20.82 | 31.80 | -12.62 | 100 | 176 | QP |
| 2 | 159.740 | 27.40 | 40.00 | -12.60 | 41.70 | -14.30 | 100 | 10 | QP |
| 3 | 300.000 | 33.89 | 47.00 | -13.11 | 43.70 | -9.81 | 100 | 153 | QP |
| 4 | 424.960 | 28.02 | 47.00 | -18.98 | 33.60 | -5.58 | 300 | 42 | QP |
| 5 | 798.070 | 37.37 | 47.00 | -9.63 | 36.20 | 1.17 | 250 | -169 | QP |
| * 6 | 997.030 | 38.32 | 47.00 | -8.68 | 34.10 | 4.22 | 100 | -63 | 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 | FD9389-EHV-v2(w/cable) | Site | SITE7 |
| Test Voltage | POE | Test Date | 2022/3/18 |
| Test Mode | Mode 2 | Engineer | Aby Guo |
| Polarity | Horizontal | Temperature (°C) | 21.7 |
| Test Condition | -- | Humidity (%RH) | 46 |

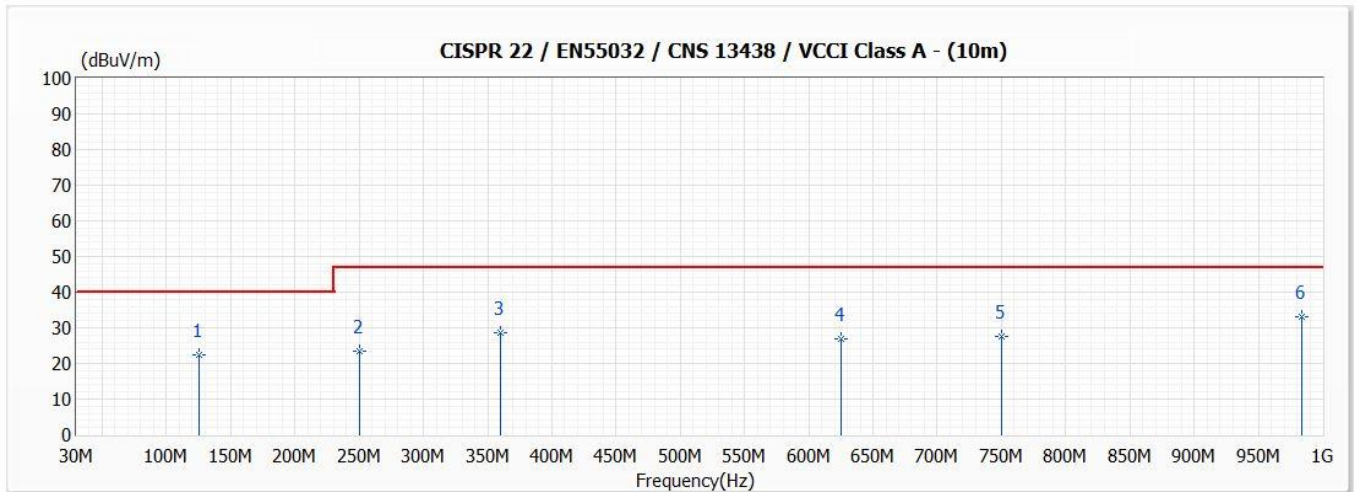


| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Reading Level (dBuV) | Correct Factor (dB/m) | Ant Pos (cm) | TT Pos (deg) | Detector Type |
|-----|-----------------|-------------------------|----------------|-------------|----------------------|-----------------------|--------------|--------------|---------------|
| 1 | 250.000 | 24.51 | 47.00 | -22.49 | 34.80 | -10.29 | 370 | 190 | QP |
| 2 | 500.000 | 26.68 | 47.00 | -20.32 | 29.60 | -2.92 | 200 | 200 | QP |
| 3 | 625.000 | 26.37 | 47.00 | -20.63 | 26.30 | 0.07 | 100 | 170 | QP |
| 4 | 750.000 | 27.30 | 47.00 | -19.70 | 25.60 | 1.70 | 100 | 140 | QP |
| 5 | 875.000 | 28.99 | 47.00 | -18.01 | 25.80 | 3.19 | 100 | 190 | QP |
| * 6 | 1000.000 | 30.88 | 47.00 | -16.12 | 26.30 | 4.58 | 100 | 200 | 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 | FD9389-EHV-v2(w/cable) | Site | SITE7 |
| Test Voltage | POE | Test Date | 2022/3/18 |
| Test Mode | Mode 2 | Engineer | Aby Guo |
| Polarity | Vertical | Temperature (°C) | 21.7 |
| Test Condition | -- | Humidity (%RH) | 46 |

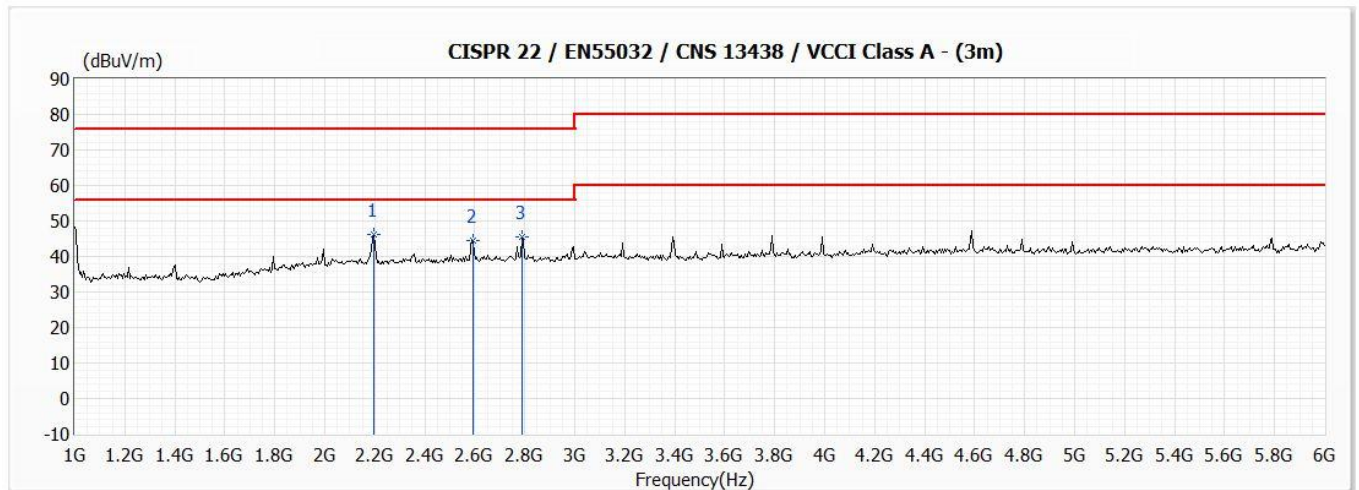


| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Reading Level (dBuV) | Correct Factor (dB/m) | Ant Pos (cm) | TT Pos (deg) | Detector Type |
|-----|-----------------|-------------------------|----------------|-------------|----------------------|-----------------------|--------------|--------------|---------------|
| 1 | 125.000 | 22.41 | 40.00 | -17.59 | 34.80 | -12.39 | 100 | 200 | QP |
| 2 | 250.000 | 23.31 | 47.00 | -23.69 | 33.60 | -10.29 | 100 | 190 | QP |
| 3 | 360.000 | 28.70 | 47.00 | -18.30 | 35.70 | -7.00 | 100 | 150 | QP |
| 4 | 625.000 | 26.87 | 47.00 | -20.13 | 26.80 | 0.07 | 250 | 160 | QP |
| 5 | 750.000 | 27.50 | 47.00 | -19.50 | 25.80 | 1.70 | 250 | 200 | QP |
| * 6 | 984.000 | 33.20 | 47.00 | -13.80 | 28.80 | 4.40 | 150 | 90 | 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 | FD9389-EHTV-v2 | Site | CB8 |
| Test Voltage | POE | Test Date | 2021/6/26 |
| Test Mode | Mode 1 | Engineer | Shianyu Chiou |
| Polarity | Horizontal | Temperature (°C) | 25.1 |
| Test Condition | -- | Humidity (%RH) | 53 |

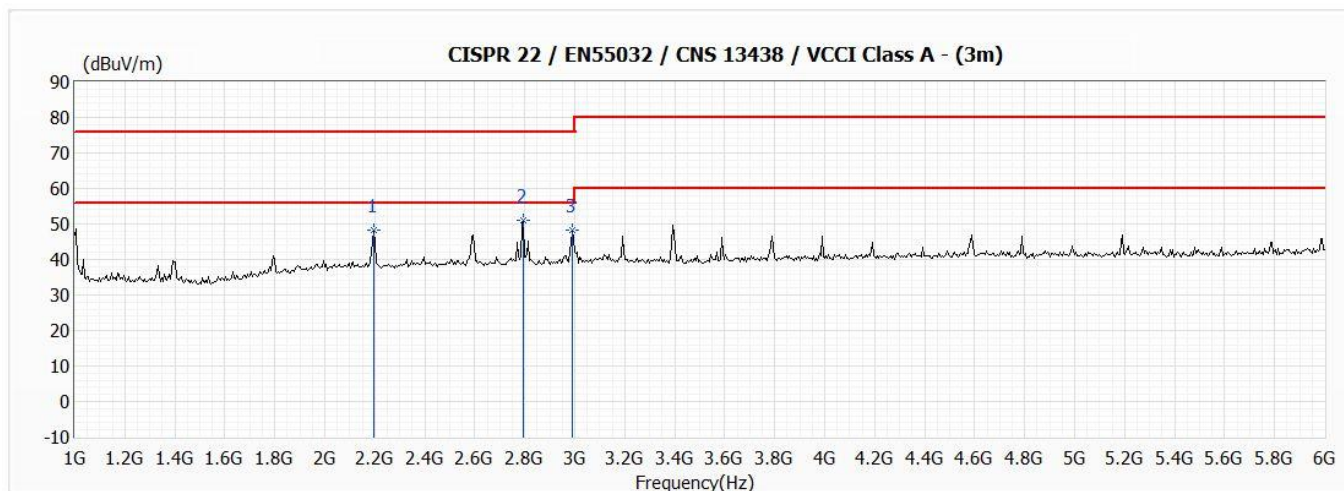


| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Reading Level (dBuV) | Correct Factor (dB/m) | Ant Pos (cm) | TT Pos (deg) | Detector Type |
|-----|-----------------|-------------------------|----------------|-------------|----------------------|-----------------------|--------------|--------------|---------------|
| * 1 | 2195.000 | 46.13 | 76.00 | -29.87 | 60.24 | -14.11 | 100 | 173 | PK |
| 2 | 2595.000 | 44.62 | 76.00 | -31.38 | 57.94 | -13.32 | 100 | -91 | PK |
| 3 | 2790.000 | 45.51 | 76.00 | -30.49 | 58.34 | -12.83 | 100 | -117 | 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 | FD9389-EHTV-v2 | Site | CB8 |
| Test Voltage | POE | Test Date | 2021/6/26 |
| Test Mode | Mode 1 | Engineer | Shianyu Chiou |
| Polarity | Vertical | Temperature (°C) | 25.1 |
| Test Condition | -- | Humidity (%RH) | 53 |

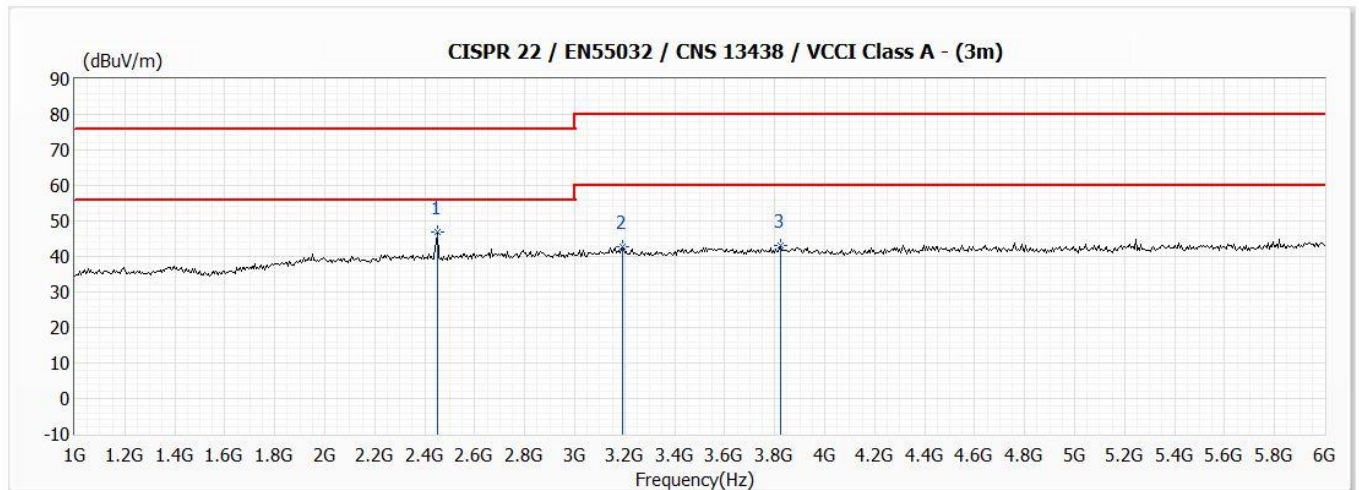


| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Reading Level (dBuV) | Correct Factor (dB/m) | Ant Pos (cm) | TT Pos (deg) | Detector Type |
|-----|-----------------|-------------------------|----------------|-------------|----------------------|-----------------------|--------------|--------------|---------------|
| 1 | 2195.000 | 48.17 | 76.00 | -27.83 | 62.28 | -14.11 | 100 | 164 | PK |
| * 2 | 2795.000 | 51.15 | 76.00 | -24.85 | 63.97 | -12.82 | 100 | -51 | PK |
| 3 | 2990.000 | 48.20 | 76.00 | -27.80 | 60.61 | -12.41 | 100 | -67 | 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 | FD9389-EHV-v2(w/cable) | Site | CB7 |
| Test Voltage | POE | Test Date | 2022/3/19 |
| Test Mode | Mode 2 | Engineer | Nilk Chen |
| Polarity | Horizontal | Temperature (°C) | 21.9 |
| Test Condition | -- | Humidity (%RH) | 67 |

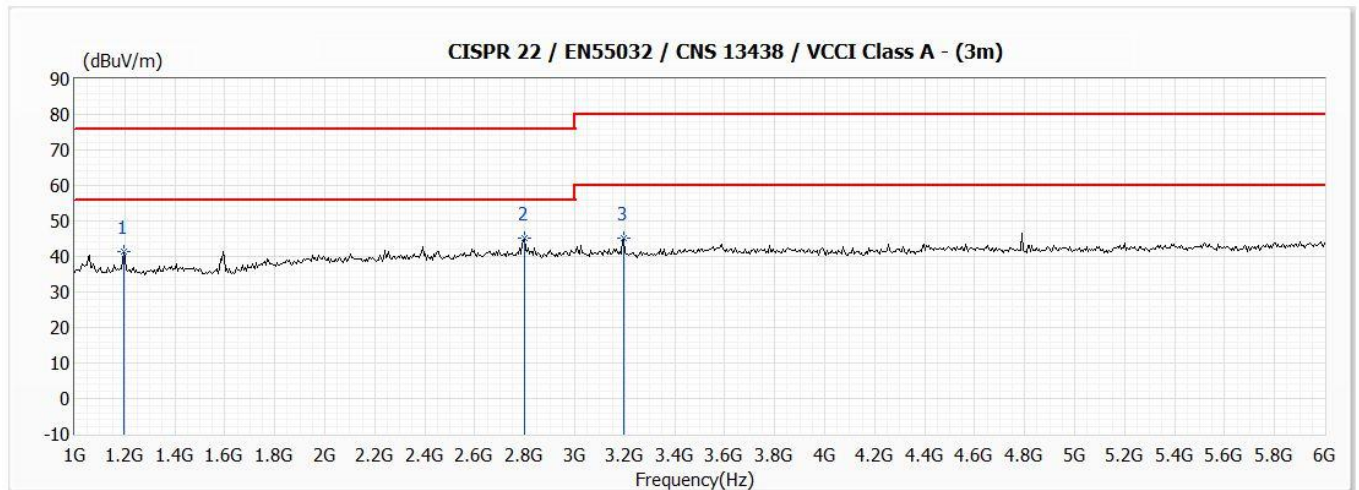


| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Reading Level (dBuV) | Correct Factor (dB/m) | Ant Pos (cm) | TT Pos (deg) | Detector Type |
|-----|-----------------|-------------------------|----------------|-------------|----------------------|-----------------------|--------------|--------------|---------------|
| * 1 | 2450.000 | 47.00 | 76.00 | -29.00 | 53.88 | -6.88 | 120 | 72 | PK |
| 2 | 3190.000 | 42.91 | 80.00 | -37.09 | 47.25 | -4.34 | 100 | 152 | PK |
| 3 | 3825.000 | 43.25 | 80.00 | -36.75 | 46.28 | -3.03 | 160 | -107 | 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 | FD9389-EHV-v2(w/cable) | Site | CB7 |
| Test Voltage | POE | Test Date | 2022/3/19 |
| Test Mode | Mode 2 | Engineer | Nilk Chen |
| Polarity | Vertical | Temperature (°C) | 21.9 |
| Test Condition | -- | Humidity (%RH) | 67 |



| 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 | 1195.000 | 41.33 | 76.00 | -34.67 | 54.07 | -12.74 | 140 | 93 | PK |
| * 2 | 2800.000 | 45.26 | 76.00 | -30.74 | 50.97 | -5.71 | 160 | -76 | PK |
| 3 | 3195.000 | 45.22 | 80.00 | -34.78 | 49.58 | -4.36 | 100 | 179 | 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: FD9389-EHTV-v2, PoE Mode

Description : Front View of Radiated Test



Test Mode : Mode 1: FD9389-EHTV-v2, PoE Mode

Description : Back View of Radiated Test



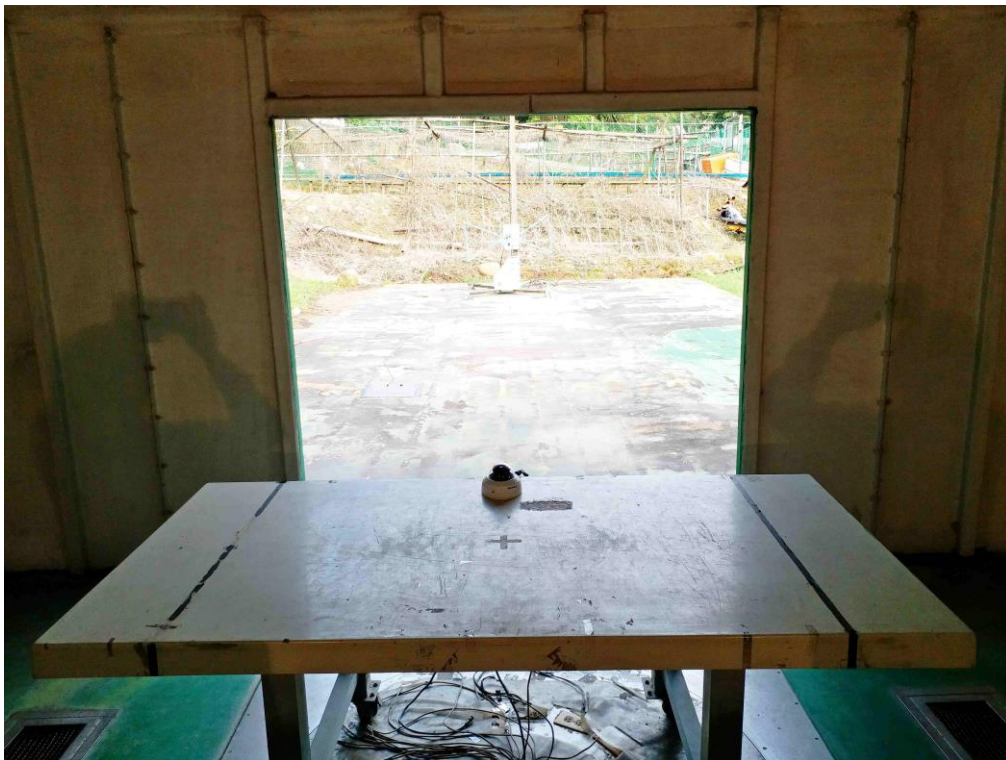
Test Mode : Mode 1: FD9389-EHTV-v2, PoE Mode

Description : Front View of High Frequency Radiated Test



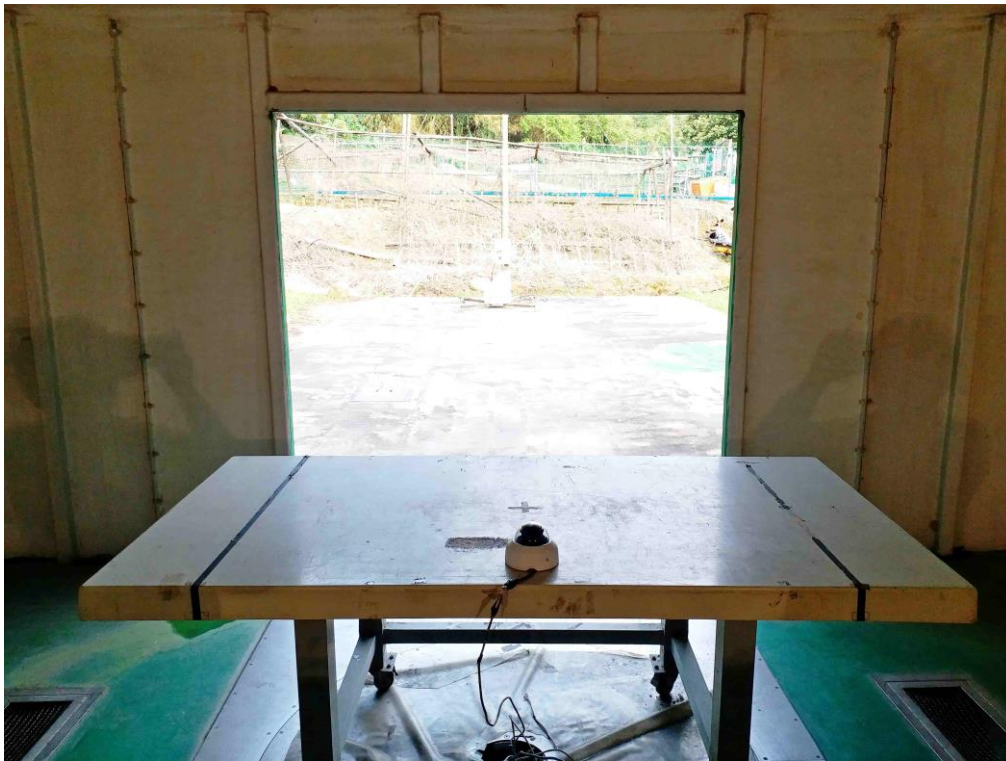
Test Mode : Mode 2: FD9389-EHV-v2(w/cable), PoE Mode

Description : Front View of Radiated Test



Test Mode : Mode 2: FD9389-EHV-v2(w/cable), PoE Mode

Description : Back View of Radiated Test



Test Mode : Mode 2: FD9389-EHV-v2(w/cable), PoE Mode

Description : Front View of High Frequency Radiated Test

