



VCCI Test Report

Issued date: May 16, 2024

Project No.: 24Q012304

Product : Network Camera

Model : IB9383-HTV, IB9383-HV, IB833-HV, IB833-HTV

Applicant : VIVOTEK INC.

Address : 6F, No.192, Lien-Cheng Rd., Chung-Ho , New Taipei City, 235,
Taiwan, R.O.C.

Report No: WD-EV-R-240129-A0

According to
VCCI-CISPR32: 2016, Class A

Authorized Signatory :  / Ken Huang

Wendell Industrial Co., Ltd
Wendell EMC & RF Laboratory

Add: 5F-1, No. 188, Baoqiao Road, Xindian District, New Taipei City 23145, Taiwan R.O.C.



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History of this test report

Report No.	Issue date	Description
WD-EV-R-240129-A0	May 16, 2024	Initial Issue

Declaration

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us.



History of supplementary report

Report No.	Issue date	Description
WD-EV-R-240129-A0	May 16, 2024	Original report

Declaration

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us.



1 Certification

Product: Network Camera

Brand Name: VIVOTEK

Model: IB9383-HTV, IB9383-HV, IB833-HV, IB833-HTV

Applicant: VIVOTEK INC.

Tested: May 02 ~ May 06, 2024

Standard: VCCI-CISPR32: 2016, Class A

The above equipment (Model: IB9383-HTV) has been tested by **Wendell EMC & RF Laboratory**, and found compliance with the requirement of the above standards. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Please note that the measurement uncertainty are provided for informational purpose only and are not used in determining the Pass/Fail results.



1.1 Summary of Test Result

The EUT has been tested according to the following specifications:

Emission				
Standard	Test Item	Limit	Result	Remark
VCCI-TECHNICAL REQUIREMENTS (VCCI-CISPR 32: 2016) CISPR 32: 2015	Conducted disturbance at mains terminals	-	N/A	Without AC main power port of the EUT
	Conducted disturbance at telecommunication ports test	Class A	Pass	Meets the requirements
	Radiated disturbance	Class A	Pass	Meets the requirements

Note: Test record contained in the referenced test report relate only to the EUT sample and test item.



2 Test Configuration of Equipment Under Test

2.1 Test Facility

Conducted disturbance at mains terminals and Conducted disturbance at telecommunication ports Tests

W01: 5F-1, No.188, Baoqiao Rd., Xindian Dist., New Taipei City 23145, Taiwan (R.O.C)

Conducted disturbance at mains terminals, Conducted disturbance at telecommunication ports and Radiated emission (9*6*6 Chamber) Tests

W08: No.119, Wugong 3rd Rd., Wugu Dist., New Taipei City 248, Taiwan (R.O.C)

ACCREDITATIONS

The laboratories are accredited and approved by the TAF according to ISO/IEC 17025.

2.2 Measurement Uncertainty

The measurement instrumentation uncertainty is evaluated according to CISPR 16-4-2.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Wendell EMC & RF Laboratory U_{lab} is less than U_{cisp} , therefore compliance or non-compliance with a disturbance limit shall be determined in the following manner.

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

Please note that the measurement uncertainty (U_{lab}) is provided for informational purpose only and is not used in determining the Pass/Fail results.

2.2.1 Conducted Emission test

Test Site	Measurement Freq. Range	dB (U_{lab})	VCCI Site Registration No.	Note
W01-CE	150 kHz~30 MHz	2.75	C-14684	N/A
W08-CE	150 kHz ~ 30 MHz	2.76	C-20088	N/A

2.2.2 Conducted emission at telecom port test

Test Site	Measurement Freq. Range	dB (U_{lab})	VCCI Site Registration No.	Note
W01-CE	150 kHz~30 MHz	2.74	T-12224	N/A
W08-CE	150 kHz ~ 30 MHz	2.92	T-20089	N/A

2.2.3 Radiated Emission test

Test Site	Measurement Freq. Range	Ant	dB (U_{lab})	VCCI Site Registration No.	Note
W08-966-1	30 MHz ~ 200 MHz	V	3.78	R-20086	N/A
	30 MHz ~ 200 MHz	H	2.69		N/A
	200 MHz ~ 1000 MHz	V	4.91		N/A
	200 MHz ~ 1000 MHz	H	3.40		N/A
W08-966-1	1 GHz ~ 6 GHz	V	4.48	G-20086	N/A
	1 GHz ~ 6 GHz	H	4.33		N/A



3 General Information

3.1 Description of EUT

Product	Network Camera
Brand	VIVOTEK
Model	IB9383-HTV, IB9383-HV, IB833-HV, IB833-HTV
Applicant	VIVOTEK INC.
Received Date	Jan. 23, 2024
EUT Power Rating	54Vdc (from PoE injector)
Model Differences	Refer to Note for more details
Operating System	N/A
Data Cable Supplied	N/A
Accessory Device	N/A
I/O Port	Please refer to the User's Manual

Note:

1. The following models are provided to this EUT. The models are electrically identical, different models no. are for marketing purpose. The series model information is provided by client.

Brand Name	Model	Difference
VIVOTEK	IB9383-HTV	remote lens
	IB9383-HV	fixed lens
	IB833-HV	fixed lens
	IB833-HTV	remote lens

2. The EUT's highest operating frequency is 1600MHz. Therefore the radiated emission is tested up to 6GHz.



3.2 Description of Test Modes

For conducted emission test at telecom port test, the EUT has been pre-tested under the following test modes, and **test mode 1** was the worst case for final test.

Test Mode	Test Condition
1	PoE mode, LAN(10Mbps/100Mbps/1Gbps), IR ON
2	PoE mode, LAN(10Mbps/100Mbps/1Gbps), IR OFF

For radiated emission, the EUT has been pre-tested under the following test modes, and **test mode 1** was the worst case for final test.

Test Mode	Test Condition
1	PoE mode, IR ON
2	PoE mode, IR OFF

Test results are presented in the report as below.

Test Mode	Test Condition
Conducted emission test at telecom port test	
-	PoE mode, LAN(10Mbps/100Mbps/1Gbps), IR ON
Radiated emission 30MHz ~ 1GHz test	
-	PoE mode, IR ON
Radiated emission above 1GHz test	
-	PoE mode, IR ON

3.3 EUT Operating Condition

- Placed the EUT on the test table.
- Prepare PC and PoE injector to act as a communication partner and placed it outside of testing area.
- The EUT was connected to PC via LAN and PoE injector.
- The communication partner sent data to EUT by command "ping" via LAN.
- The EUT sent video signal to PC via LAN cable.
- The EUT write data with micro SD card.



3.4 Description of Support Unit

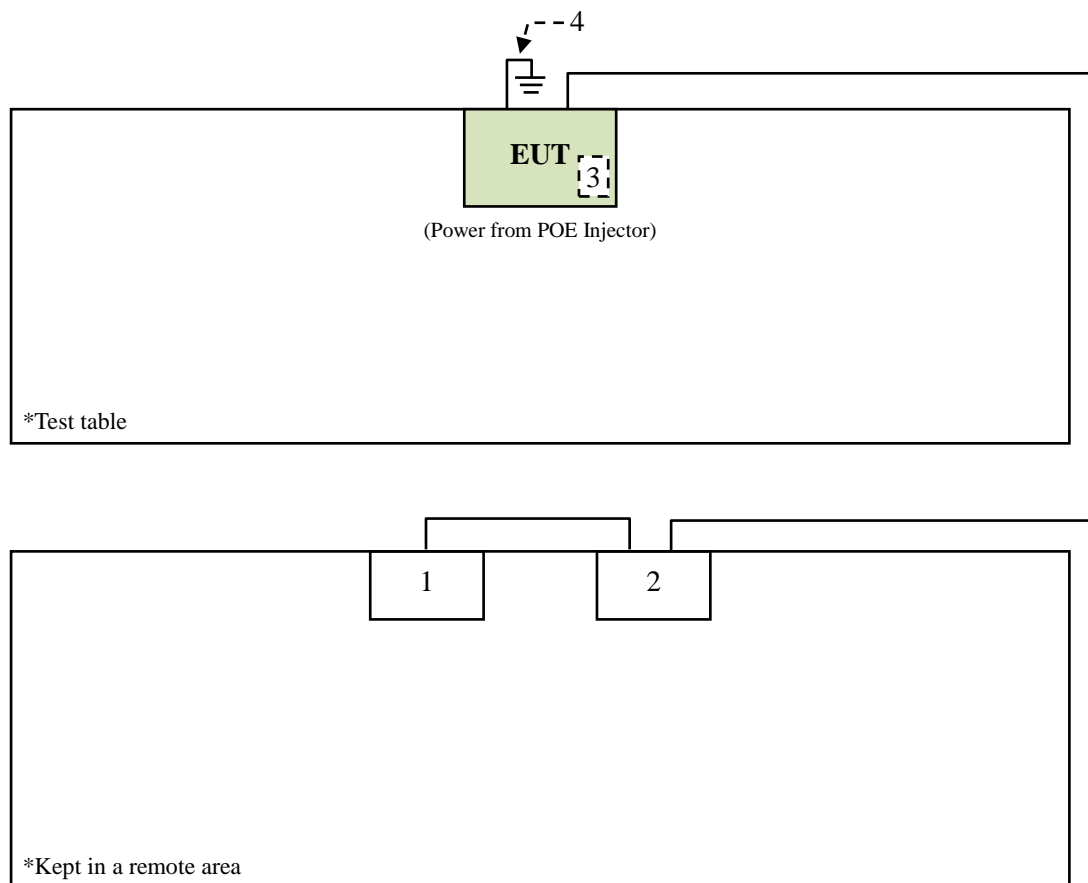
The EUT has been conducted testing with other necessary accessories or support units.

Item	Equipment	Brand	Model No.	Serial No.	FCC ID	Data Cable	Power Cable	Remark
1	Desktop PC	DELL	D13M	H6K10 A00	FCC DoC Approved	1m CAT.5E non-shielded RJ45 cable	1.8m non-shielded cable	-
2	POE Injector	VIVOTEK	AP-GIC-011 A-095	N/A	N/A	20m CAT.5E non-shielded RJ45 cable	1.8m non-shielded cable	Supplied by client
3	Micro SD Card	ADATA	32GB	N/A	N/A	N/A	N/A	-
4	Grounding wire	N/A	N/A	N/A	N/A	1m non-shielded cable	N/A	-

- Note:**
1. The core(s) is(are) originally attached to the cable(s).
 2. Item 1-2 acted as communication partners to transfer data.
 3. The EUT uses the follow POE:

POE Injector (Support unit only)	
Brand	VIVOTEK
Model	AP-GIC-011A-095
Input Power	100-240Vac, 50-60Hz
Output Power	54Vdc, 95W
Power line	1.8m non-shielded cable

3.5 Configuration of System Under Test





4 Emission Test

4.1 Conducted Emission Measurement (Frequency Range 150 KHz-30MHz)

The test is determined no necessary for the EUT do not operate from the AC main power lines or contain provisions for operation while connected to the AC main power lines.

4.2 Conducted Emission at Telecommunication Ports Test

4.2.1 Limit of Conducted Emission at Telecommunication Ports Test

Class A equipment:

Requirements for asymmetric mode conducted emissions from Class A equipment			
Frequency (MHz)	Measurement		Class A limits dB(μV)
	Coupling device	Detector type/ bandwidth	
0.15 to 0.5	AAN	Quasi Peak / 9 kHz	97 to 87*
0.5 to 30			87
0.15 to 0.5	AAN	Average / 9 kHz	84 to 74*
0.5 to 30			74

* Decreases with the logarithm of the frequency.

Class B equipment:

Requirements for asymmetric mode conducted emissions from Class B equipment			
Frequency (MHz)	Measurement		Class B limits dB(μV)
	Coupling device	Detector type/ bandwidth	
0.15 to 0.5	AAN	Quasi Peak / 9 kHz	84 to 74*
0.5 to 30			74
0.15 to 0.5	AAN	Average / 9 kHz	74 to 64*
0.5 to 30			64

* Decreases with the logarithm of the frequency.

- Note:**
1. The lower limit shall apply at the transition frequencies.
 2. Detector function in the form: PK = Peak, QP = Quasi Peak, AV = Average
 3. The test result calculated as following:
 Measurement Value = Reading Level + Correct Factor
 Correction Factor = Insertion loss of ISN + Cable loss
 Margin Level = Measurement Value – Limit Value

4.2.2 Test Instrument

Test Site: W01-CE					
Item	Equipment	Manufacturer	Model	Meter No.	Calibration Date
1	TWO-LINE V-NETWORK	R&S	ENV216	CT-1-025-1	Jun. 09, 2023
2	EMI Test Receiver	R&S	ESCI	CT-1-024	May 30, 2023
3	Impedance Stabilization Network	TESEQ	T8-CAT6	CT-1-105	Jun. 02, 2023
4	Artificial Mains Network (AMN)	SCHWARZBECK	NSLK 8127	CT-1-104-1	Jun. 09, 2023
5	RF Cable	MVE	200200.400LL .500A	CT-9-101	Jun. 01, 2023
6	50ohm Termination	N/A	N/A	CT-1-065-2	Jun. 12, 2023
7	Measurement Software	EZ-EMC	Ver: EMC-CON 3A1	CT-3-012	No calibration request

Note: 1. The calibration interval of the above test instruments is 12 months.

Test Site: W08-CE					
Item	Equipment	Manufacturer	Model	Meter No.	Calibration Date
1	TWO-LINE V-NETWORK	R&S	ENV216	CT-1-025-2	Jun. 16, 2023
2	RF Cable	EMCI	EMCCFD300-BM-BM-5000	CT-1-107-2	Jun. 17, 2023
3	EMI Test Receiver	R&S	ESR3	CT-1-103	Jun. 19, 2023
4	Artificial Mains Network (AMN)	SCHWARZBECK	NSLK 8127 RC	CT-1-104-1R C	Jun. 16, 2023
5	Four Balanced Pair ISN	FCC	F-071115-105 7-1-09	CT-1-027	Jun. 16, 2023
6	50ohm Termination	N/A	N/A	CT-1-109-2	Jun. 16, 2023
7	Measurement Software	EZ-EMC	Ver: EMC-CON 3A1	CT-3-012	No calibration request

Note: 1. The calibration interval of the above test instruments is 12 months.



4.2.3 Test Procedure

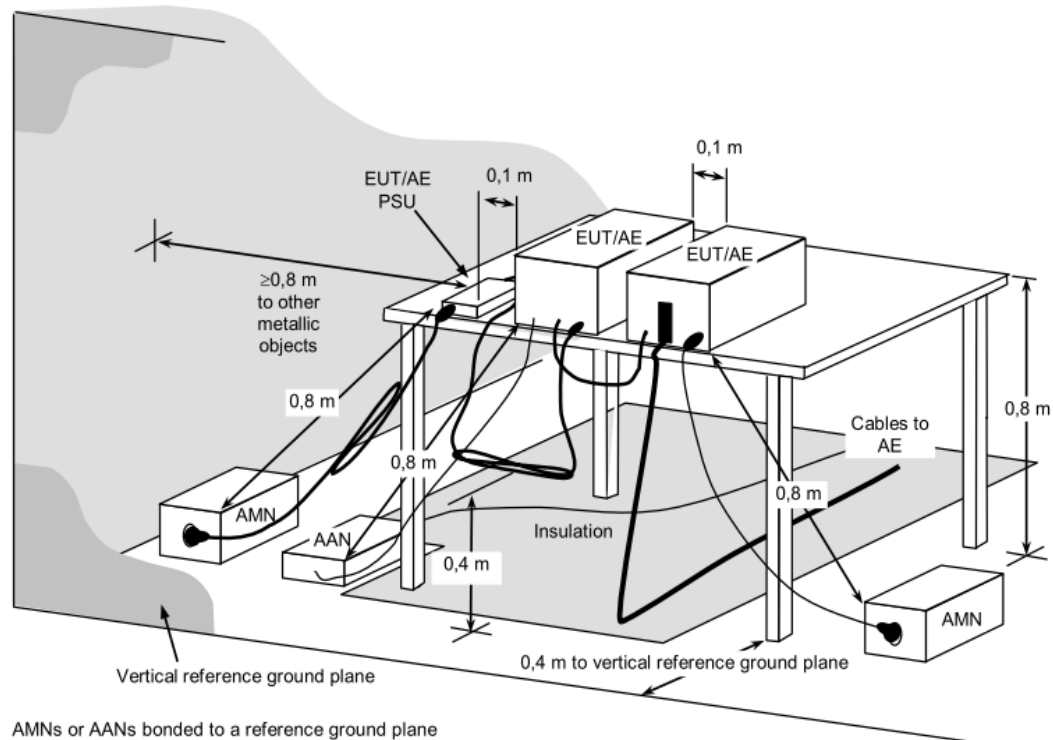
- a. The table-top EUT was placed 0.8 meter height wooden table from the horizontal ground plane with EUT being connected to power source through a line impedance stabilization network (LISN). The floor-standing EUT was placed insulation support unit from the horizontal ground plane. The LISN at least be 80 cm from nearest chassis of EUT.
- b. The line impedance stabilization network (LISN) provides 50 ohm/50uH of coupling impedance for the measuring instrument. All other support equipments powered from additional LISN(s).
- c. Interrelating cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle. All I/O cables were positioned to simulate typical usage.
- d. All I/O cables that are not connected to a peripheral shall be bundle in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- e. ISN at least 80 cm from nearest chassis of EUT. The communication function of EUT was executed in normal condition. ISN was connected between EUT and associated equipment and ISN was connected directly to reference ground plane. The actual test configuration, please refer to EUT test photos.
- f. The receiver scanned from 150kHz to 30MHz for emissions in each of test modes. The test mode included 10Mbps, 100Mbps, 1Gbps, 10Gbps and POE mode. Emission frequency and amplitude were recorded, recording at least six highest emissions.
- g. The EUT and cable configuration of the above highest emission levels were recorded. The test data of the worst case was recorded.

4.2.4 Deviation from Test Standard

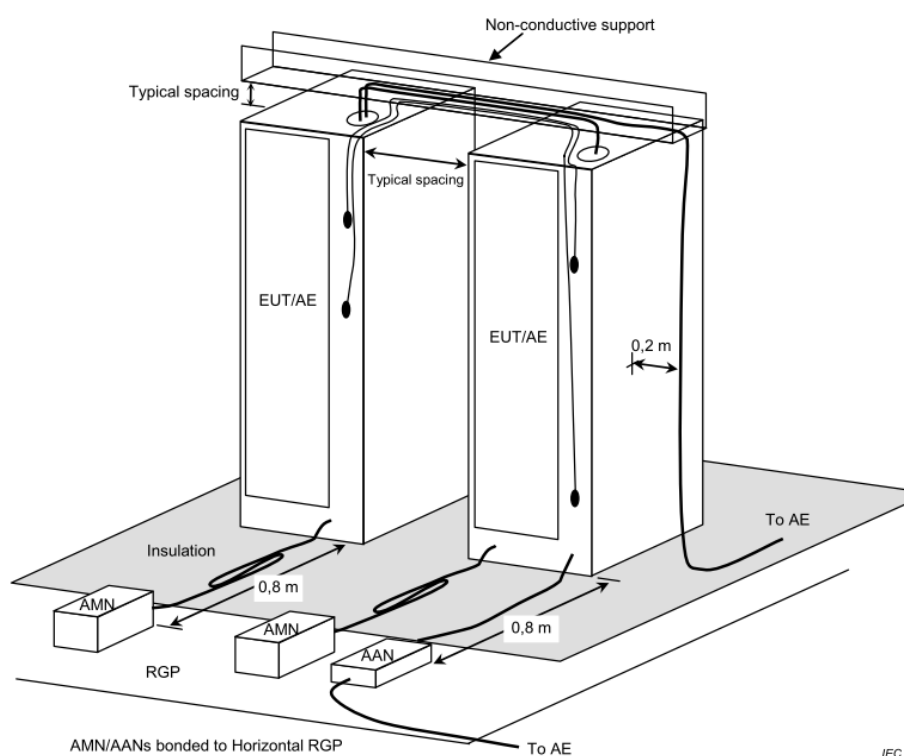
No deviation

4.2.5 Test Setup

< Table-Top equipment >



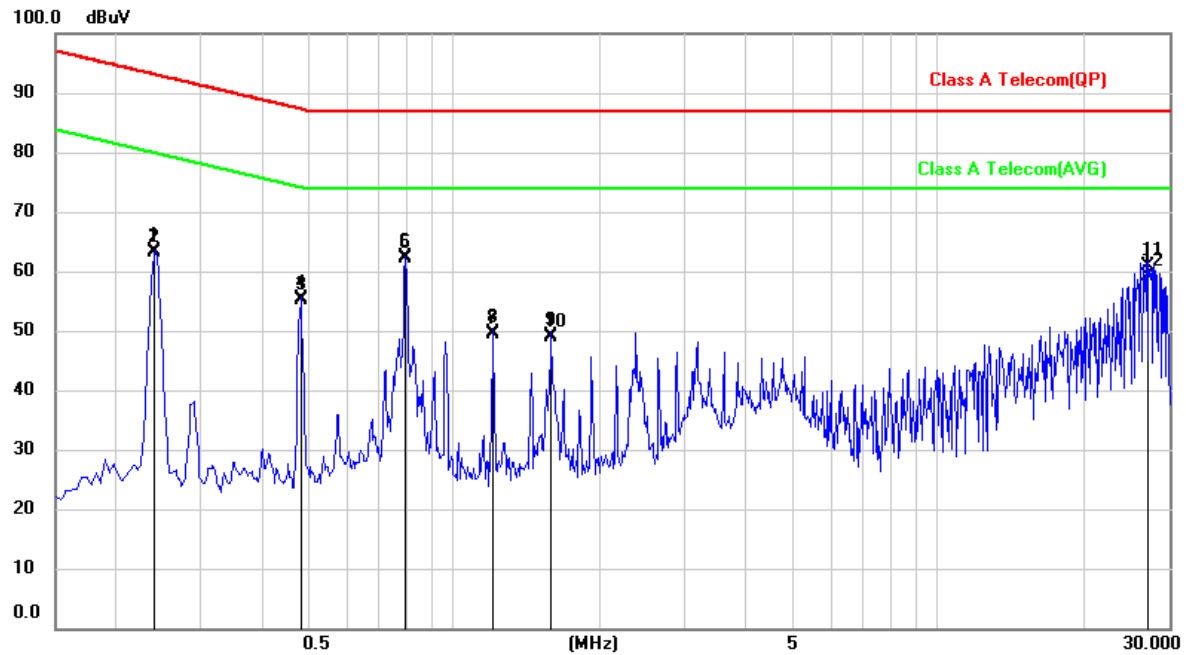
< Floor-Standing equipment >



Note: Please refer to the 4.2.7 for the actual test configuration.

4.2.6 Test Result

Test Voltage	54Vdc (from PoE)	Frequency Range	0.15-30 MHz
Environmental Conditions	24°C , 64% RH	6dB Bandwidth	9 kHz
Test Date	2024/05/02	Test Condition	LAN port with ISN (10Mbps)
Tested by	Guanwei Liao	Test Site	W01-CE

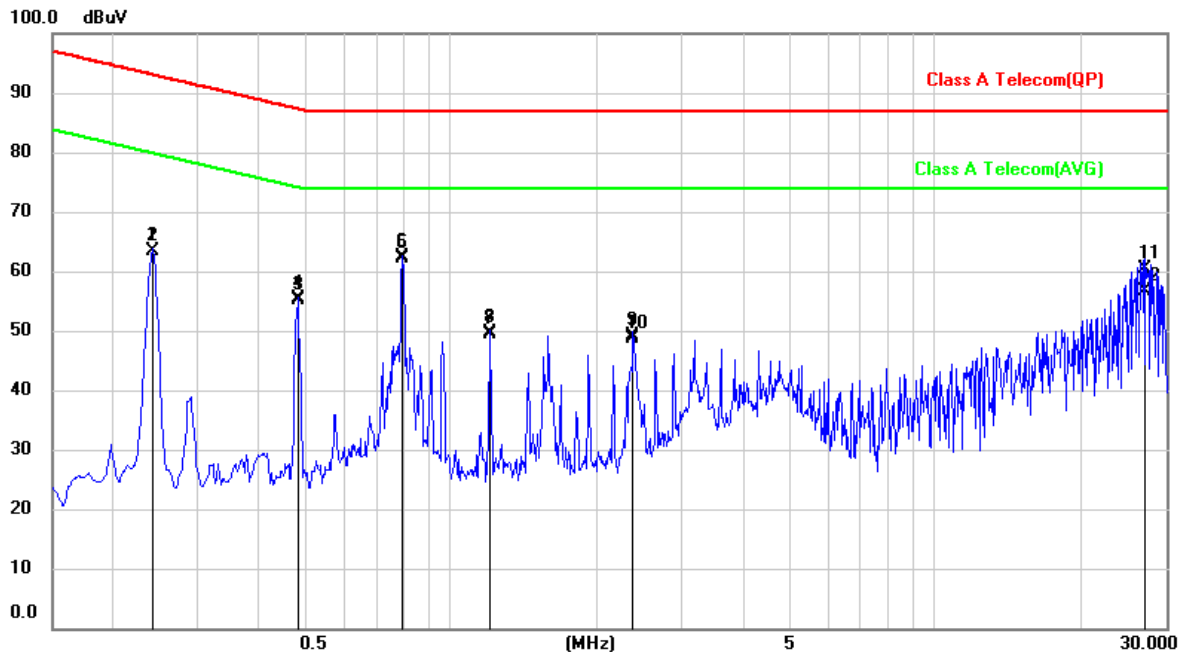


No.	Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measurement (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.2399	43.62	19.67	63.29	93.10	-29.81	QP
2	0.2399	43.45	19.67	63.12	80.10	-16.98	AVG
3	0.4806	35.53	19.51	55.04	87.33	-32.29	QP
4	0.4806	35.82	19.51	55.33	74.33	-19.00	AVG
5	0.7932	42.71	19.44	62.15	87.00	-24.85	QP
6	0.7932	42.92	19.44	62.36	74.00	-11.64	AVG
7	1.2026	30.01	19.42	49.43	87.00	-37.57	QP
8	1.2026	30.12	19.42	49.54	74.00	-24.46	AVG
9	1.5859	29.60	19.41	49.01	87.00	-37.99	QP
10	1.5859	29.50	19.41	48.91	74.00	-25.09	AVG
11	27.1792	41.28	19.65	60.93	87.00	-26.07	QP
12	27.1792	39.59	19.65	59.24	74.00	-14.76	AVG

Remark: 1. QP = Quasi Peak, AVG = Average
2. Correction Factor = Insertion loss of ISN + Cable loss
3. Measurement Value = Reading Level + Correct Factor
4. Margin Level = Measurement Value - Limit Value



Test Voltage	54Vdc (from PoE)	Frequency Range	0.15-30 MHz
Environmental Conditions	24°C, 64% RH	6dB Bandwidth	9 kHz
Test Date	2024/05/02	Test Condition	LAN port with ISN (100Mbps)
Tested by	Guanwei Liao	Test Site	W01-CE

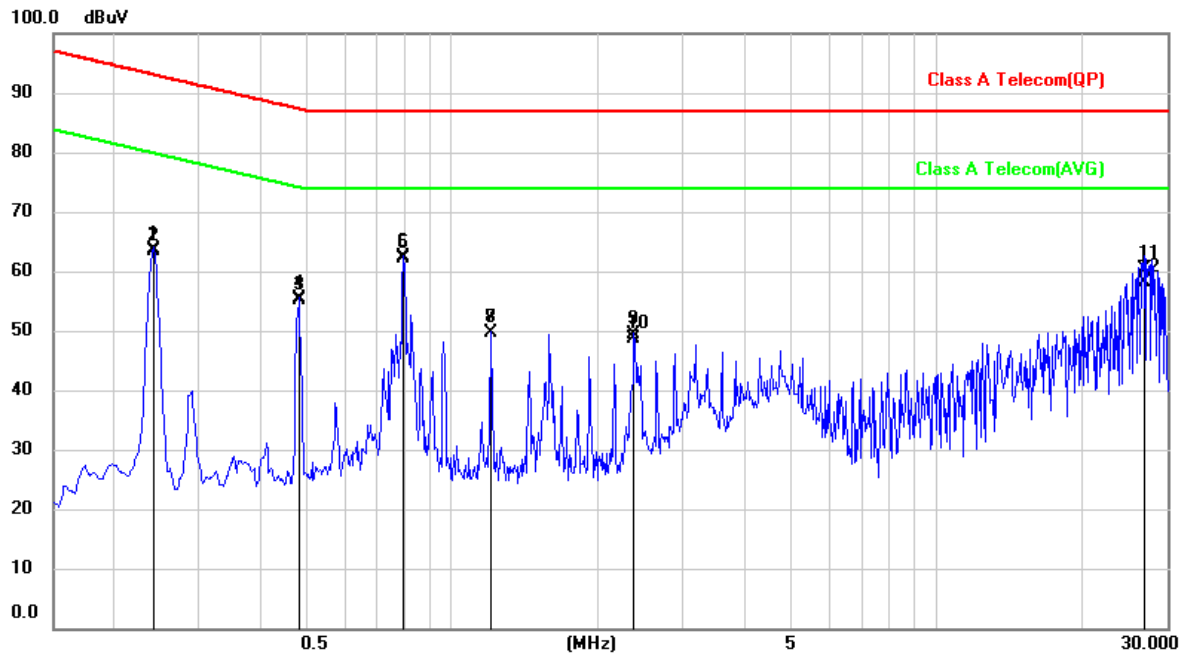


No.	Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measurement (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.2410	43.66	19.67	63.33	93.06	-29.73	QP
2	0.2410	43.64	19.67	63.31	80.06	-16.75	AVG
3	0.4817	35.50	19.51	55.01	87.31	-32.30	QP
4	0.4817	35.78	19.51	55.29	74.31	-19.02	AVG
5	0.7931	42.70	19.44	62.14	87.00	-24.86	QP
6	0.7931	42.91	19.44	62.35	74.00	-11.65	AVG
7	1.2028	30.04	19.42	49.46	87.00	-37.54	QP
8	1.2028	30.15	19.42	49.57	74.00	-24.43	AVG
9	2.3795	29.76	19.39	49.15	87.00	-37.85	QP
10	2.3795	29.16	19.39	48.55	74.00	-25.45	AVG
11	27.1733	40.70	19.65	60.35	87.00	-26.65	QP
12	27.1733	36.87	19.65	56.52	74.00	-17.48	AVG

Remark: 1. QP = Quasi Peak, AVG = Average
2. Correction Factor = Insertion loss of ISN + Cable loss
3. Measurement Value = Reading Level + Correct Factor
4. Margin Level = Measurement Value - Limit Value



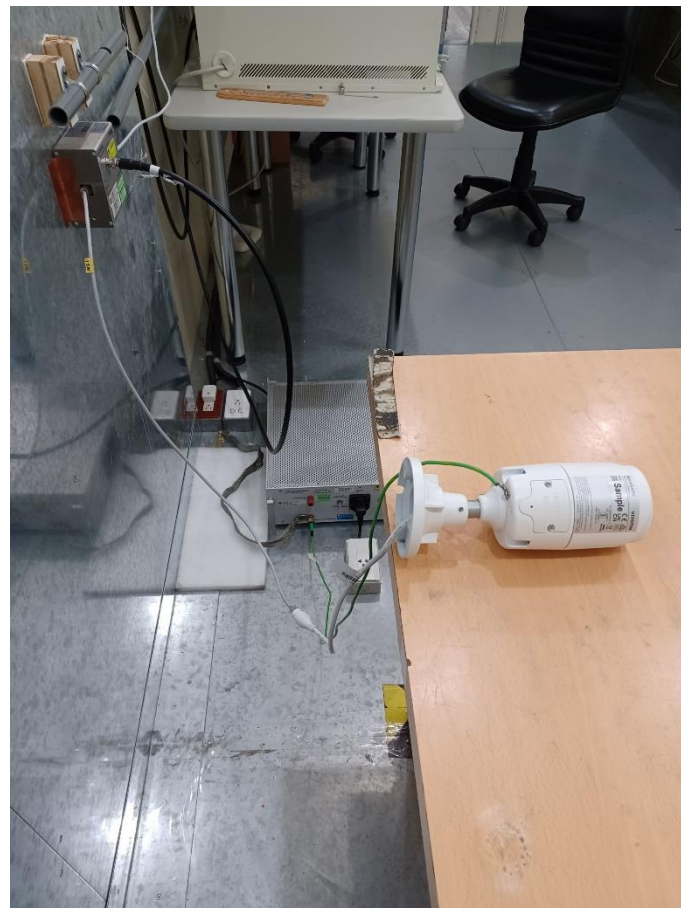
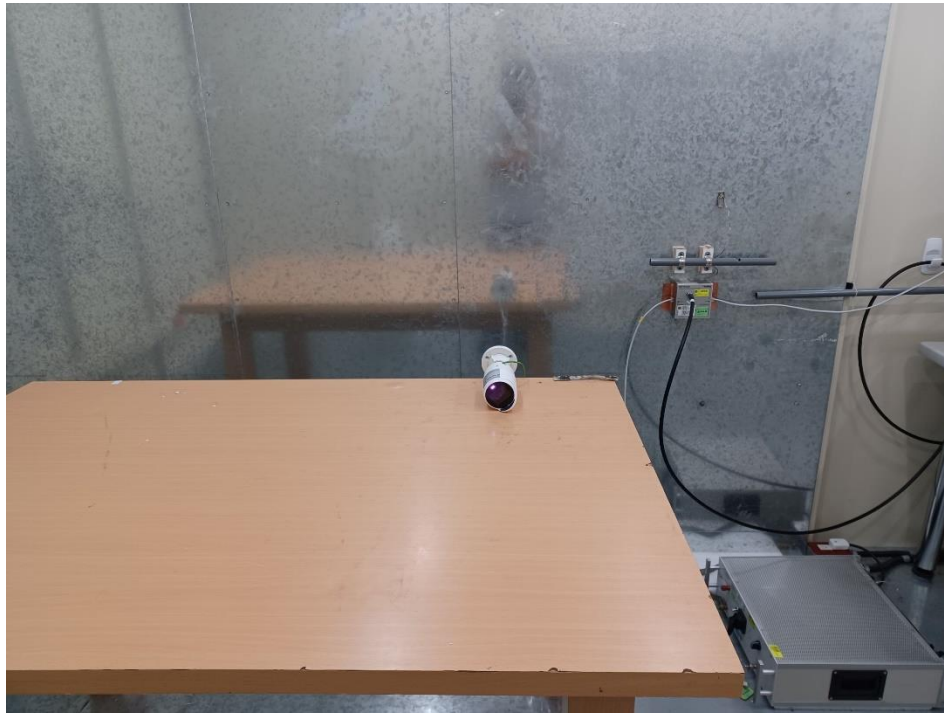
Test Voltage	54Vdc (from PoE)	Frequency Range	0.15-30 MHz
Environmental Conditions	24°C , 64% RH	6dB Bandwidth	9 kHz
Test Date	2024/05/02	Test Condition	LAN port with ISN (1Gbps)
Tested by	Guanwei Liao	Test Site	W01-CE



No.	Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measurement (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.2405	44.00	19.67	63.67	93.08	-29.41	QP
2	0.2405	43.81	19.67	63.48	80.08	-16.60	AVG
3	0.4809	35.67	19.51	55.18	87.32	-32.14	QP
4	0.4809	35.94	19.51	55.45	74.32	-18.87	AVG
5	0.7941	42.79	19.44	62.23	87.00	-24.77	QP
6	0.7941	42.98	19.44	62.42	74.00	-11.58	AVG
7	1.2020	30.09	19.42	49.51	87.00	-37.49	QP
8	1.2020	30.19	19.42	49.61	74.00	-24.39	AVG
9	2.3811	29.88	19.39	49.27	87.00	-37.73	QP
10	2.3811	29.36	19.39	48.75	74.00	-25.25	AVG
11	26.9360	40.69	19.65	60.34	87.00	-26.66	QP
12	26.9360	38.38	19.65	58.03	74.00	-15.97	AVG

Remark: 1. QP = Quasi Peak, AVG = Average
2. Correction Factor = Insertion loss of ISN + Cable loss
3. Measurement Value = Reading Level + Correct Factor
4. Margin Level = Measurement Value - Limit Value

4.2.7 Photographs of Test Configuration



4.3 Radiated Emission Measurement

4.3.1 Limits of Radiated Emission Measurement

According to VCCI-CISPR32 table1 - Required highest frequency for radiated measurement:

Highest internal frequency (F_x)	Highest measured frequency
$F_x \leq 108 \text{ MHz}$	1 GHz
$108 \text{ MHz} < F_x \leq 500 \text{ MHz}$	2 GHz
$500 \text{ MHz} < F_x \leq 1 \text{ GHz}$	5 GHz
$F_x > 1 \text{ GHz}$	$5 \times F_x$ up to a maximum of 6 GHz

Remark:

1. F_x : highest fundamental frequency generated or used within the EUT or highest frequency at which it operates.
2. Where F_x is unknown, the radiated emission measurements shall be performed up to 6 GHz.

Class A equipment:

Requirements for radiated emissions at frequencies up to 1 GHz for Class A equipment			
Frequency (MHz)	Measurement		Class A limits dB(μV/m)
	Distance (m)	Detector type/ bandwidth	OATS/SAC
30 to 230	10	Quasi Peak / 120 kHz	40
230 to 1000			47
30 to 230	3		50
230 to 1000			57

Requirements for radiated emissions at frequencies above 1 GHz for Class A equipment			
Frequency (MHz)	Measurement		Class A limits dB($\mu\text{V/m}$)
	Distance (m)	Detector type/ bandwidth	FSOATS
1000 to 3000	3	Average / 1 MHz	56
3000 to 6000			60
1000 to 3000		Peak / 1 MHz	76
3000 to 6000			80

Class B equipment:

Requirements for radiated emissions at frequencies up to 1 GHz for Class B equipment			
Frequency (MHz)	Measurement		Class B limits dB(μV/m)
	Distance (m)	Detector type/ bandwidth	OATS/SAC
30 to 230	10	Quasi Peak / 120 kHz	30
230 to 1000			37
30 to 230	3		40
230 to 1000			47

Requirements for radiated emissions at frequencies above 1 GHz for Class B equipment			
Frequency (MHz)	Measurement		Class B limits dB(μ V/m)
	Distance (m)	Detector type/ bandwidth	FSOATS
1000 to 3000	3	Average / 1 MHz	50
3000 to 6000			54
1000 to 3000		Peak / 1 MHz	70
3000 to 6000			74

Note: 1. The lower limit shall apply at the transition frequency.
2. Detector function in the form: PK = Peak, QP = Quasi Peak, AV = Average
3. The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correction Factor = Antenna factor + Cable loss (Antenna to preamplifier) - preamplifier Gain
+ Cable loss (preamplifier to receiver)
Margin Level = Measurement Value - Limit Value

4.3.2 Test Instrument

Test Site: W08-966-1					
Item	Equipment	Manufacturer	Model	Meter No.	Calibration Date
1	Horn Antenna	Schwarzbeck	BBHA 9120D	CT-9-031	Jul. 31, 2023
2	Horn Antenna	Schwarzbeck	BBHA 9170	CT-9-032	Aug. 21, 2023
3	TRILOG Broadband Antenna with 6 dB Attenuator	Schwarzbeck & MVE	VULB 9168 & MVE2251-06	CT-1-096-1	May 17, 2023
4	Spectrum Analyzer	Agilent	E4407B	CT-1-003(1)	Aug. 02, 2023
5	EXA Signal Analyzer	Keysight	N9010A	CT-1-093	Aug. 18, 2023
6	EMI Test Receiver	Keysight	N9038A	CT-9-007	Aug. 02, 2023
7	Preamplifier	EM	EM 330	CT-9-024	Aug. 03, 2023
8	Preamplifier	SGH & MCL	SGH118 & BW-S15W2+	CT-9-071	Aug. 03, 2023
9	Preamplifier	EMCI	EMC184045SE	CT-9-013	Aug. 22, 2023
10	Test Cable	EMCI	EMCCFD400-NM-NM-1000	CT-1-132	Aug. 03, 2023
11	Test Cable	PEWC	CFD400NL-LW-NM-NM-3000	CT-1-141	Aug. 03, 2023
12	Test Cable	EMCI	EMCCFD400-NM-NM-15000	CT-1-133	Aug. 03, 2023
13	Test Cable	EMCI	EMC104-SM-35M-600	CT-1-134	Aug. 03, 2023
14	Test Cable	MVE	280280.LL266.1400	CT-9-072	Aug. 03, 2023
15	Test Cable	EMCI	EMC102-KM-KM-600	CT-1-136	Aug. 22, 2023
16	Measurement Software	EZ-EMC	Ver :WD-03A1-1	CT-3-012	No calibration request

Note: 1. The calibration interval of the above test instruments is 12 months.



4.3.3 Test Procedure

- a. The table-top EUT was placed on the top of a turntable 0.8 meters above the ground at 3 m 966 chamber. The floor-standing EUT was placed insulation support unit from the horizontal ground plane. The table was rotated 360 degrees to determine the position of the high radiation emissions.
- b. The height of the test antenna shall vary between 1 m to 4 m. Both vertical and horizontal polarizations of the antenna were set to make the measurement.
- c. The EUT was set up as per the test configuration to simulate typical usage per the user's manual. All I/O cables were positioned to simulate typical usage. The actual test configuration, please refer to EUT test photos.
- d. The initial step in collecting radiated emission data is a Spectrum Mode scanning the measurement frequency range.

Below 1GHz:

Reading in which marked as QP or Peak means measurements by using Spectrum Mode with detector RBW=120kHz.

If the Spectrum Mode measured peak value compliance with and lower than Quasi Peak Limit, the EUT shall be deemed to meet QP Limits.

Above 1GHz:

Reading in which marked as Peak & AVG means measurements by using Spectrum Mode with setting in RBW=1MHz.

If the Spectrum Mode measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak and AVG Limits.

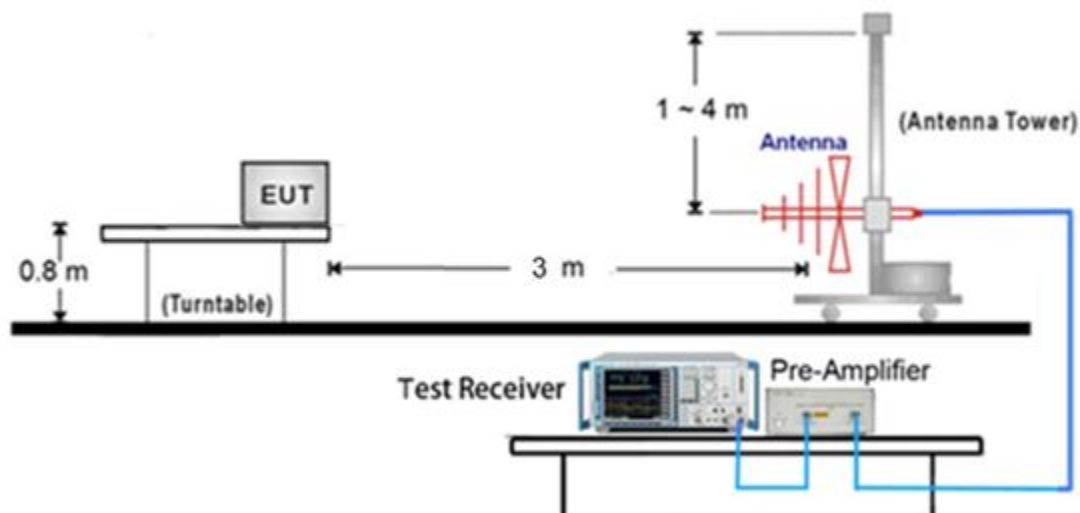
- e. Emission frequency and amplitude were recorded, recording at least six highest emissions. The EUT and cable configuration of the above highest emission levels were recorded. The test data of the worst case was recorded.

4.3.4 Deviation from Test Standard

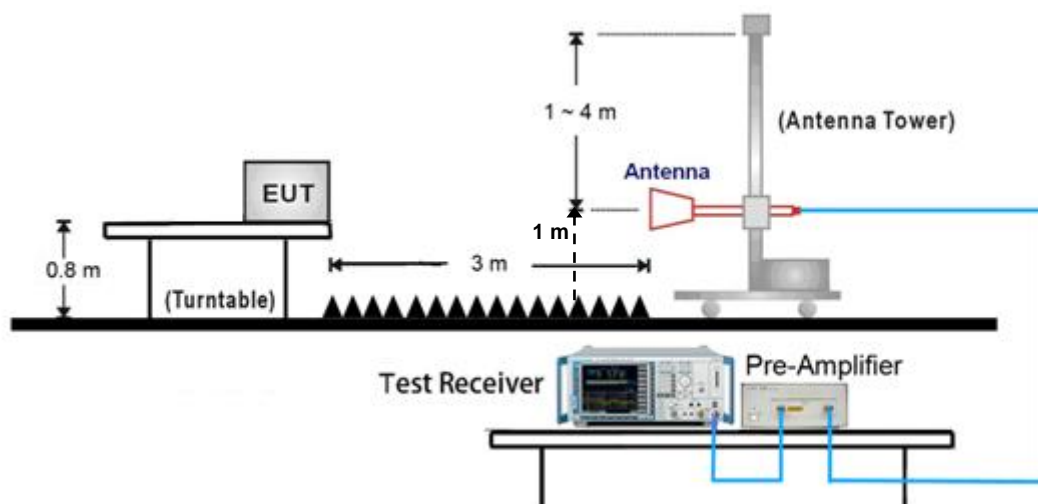
No deviation

4.3.5 Test Setup

< Radiated Emissions Frequency: 30 MHz to 1000 MHz >



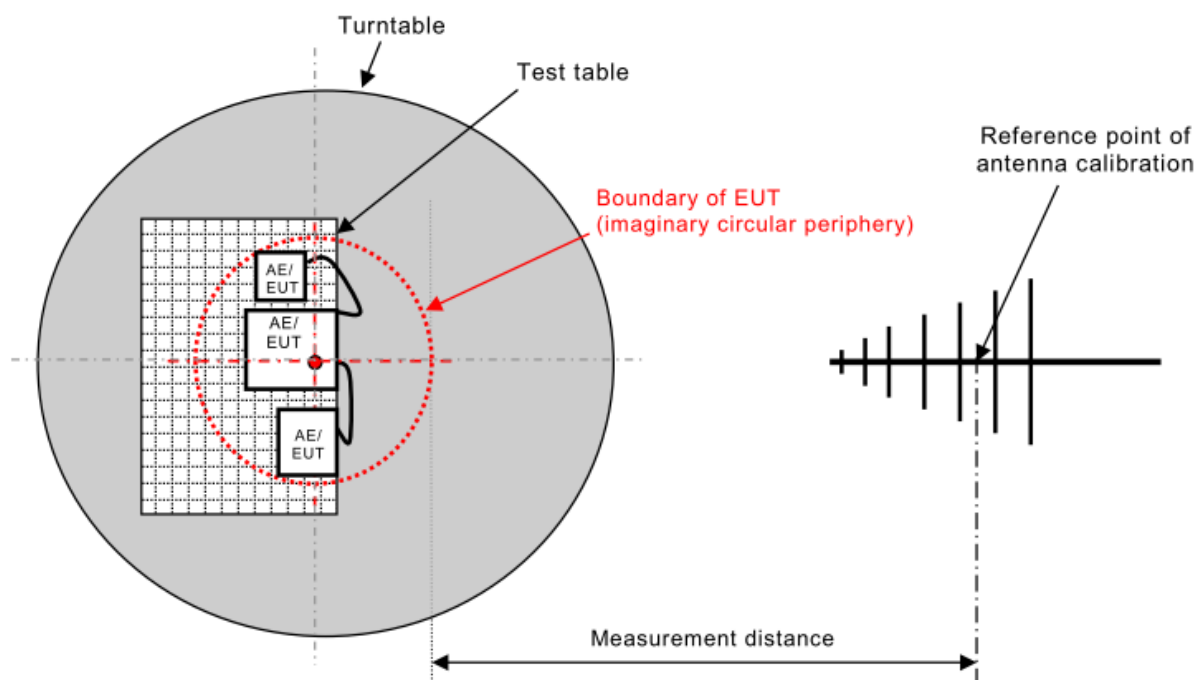
< Radiated Emissions Frequency: above 1GHz >



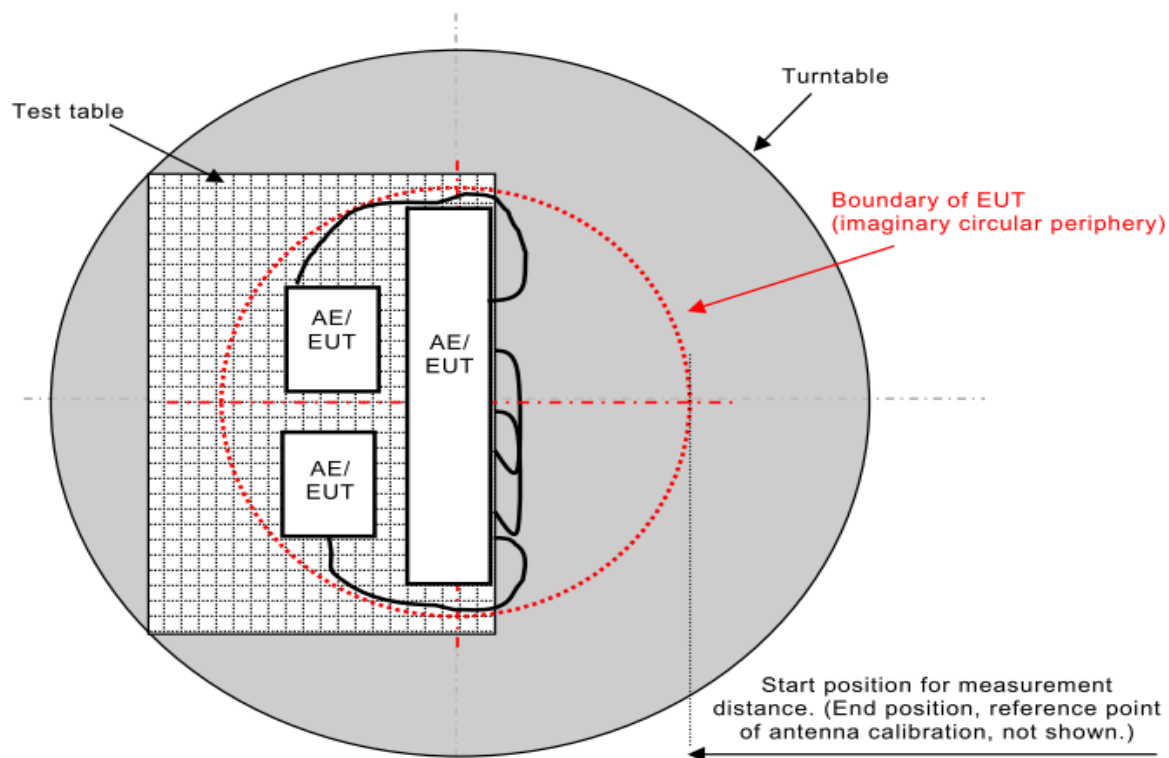
Note:

- (1) Please refer to the 4.3.7 for the actual test configuration.
- (2) The formula of measured value as: Test Result = Reading + Correction Factor
- (3) Detector function in the form: PK = Peak, QP = Quasi Peak, AV = Average
- (4) The test result calculated as following:
 Measurement Value = Reading Level + Correct Factor
 Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain (if use)
 Margin Level = Measurement Value - Limit Value

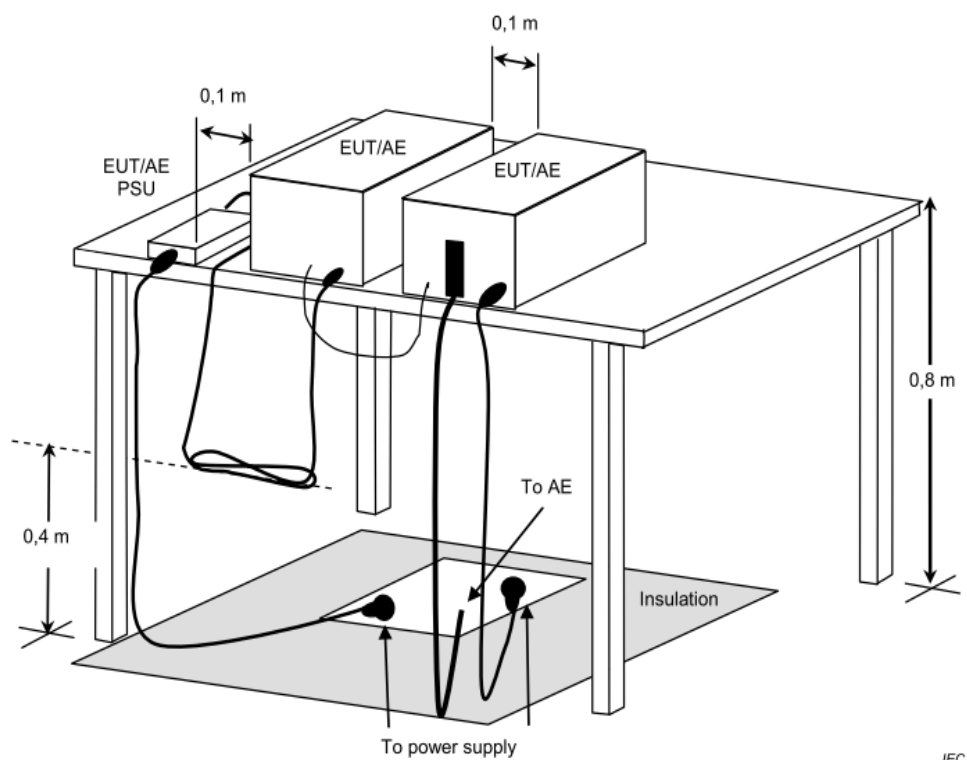
< EUT placement top view and measurement distance >



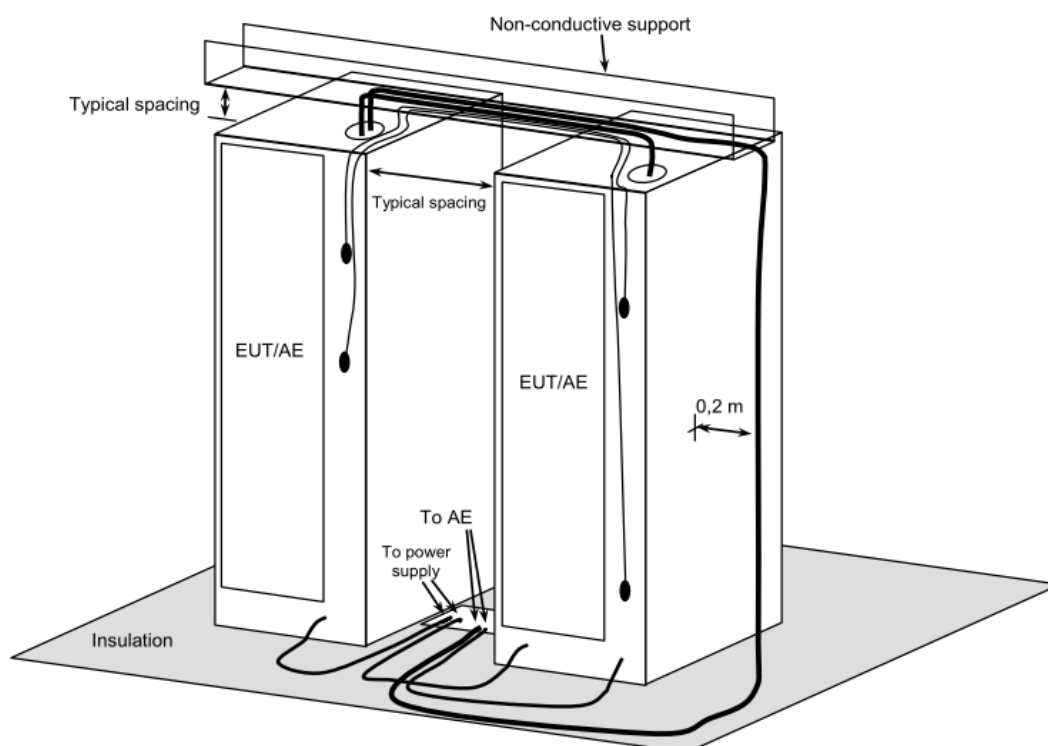
< Boundary of EUT, Local AE and associated cabling >



< Table-Top equipment >



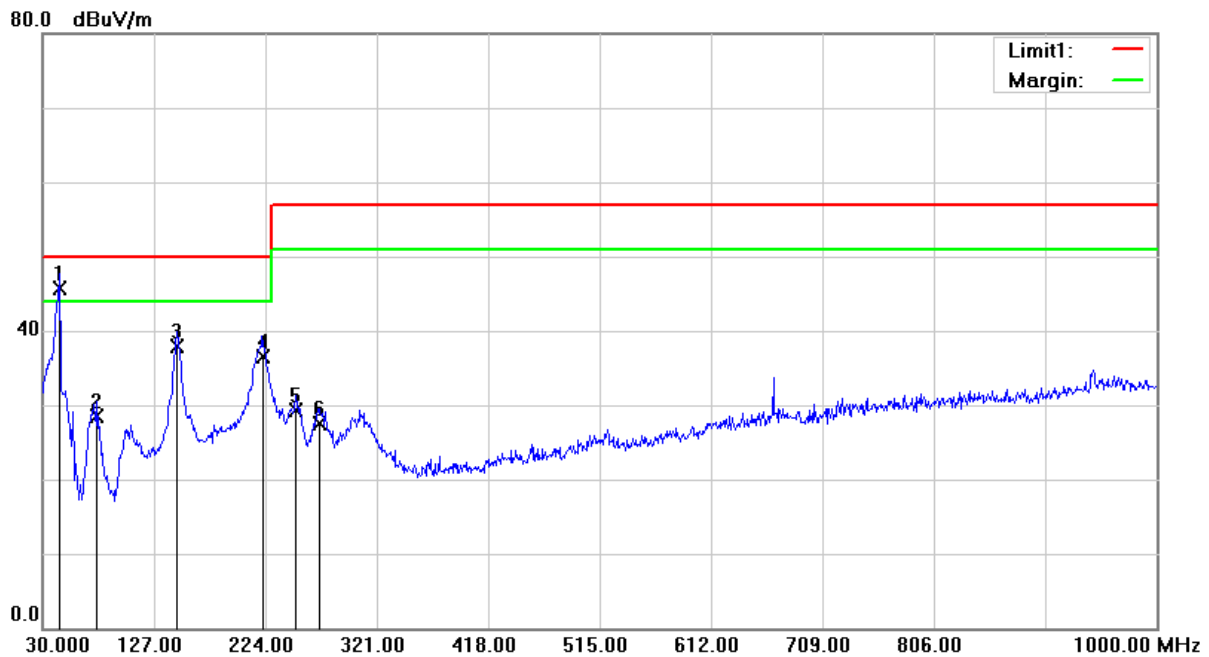
< Floor-Standing equipment >



Note: Please refer to the 4.3.7 for the actual test configuration.

4.3.6 Test Result

Test Voltage	54Vdc (from PoE)	Frequency Range	30 – 1000 MHz
Environmental Conditions	24°C, 50% RH	6dB Bandwidth	120 kHz
Test Date	2024/05/06	Test Distance	3m
Tested by	Karwin Kao	Polarization	Vertical
Test Site	W08-966-1		



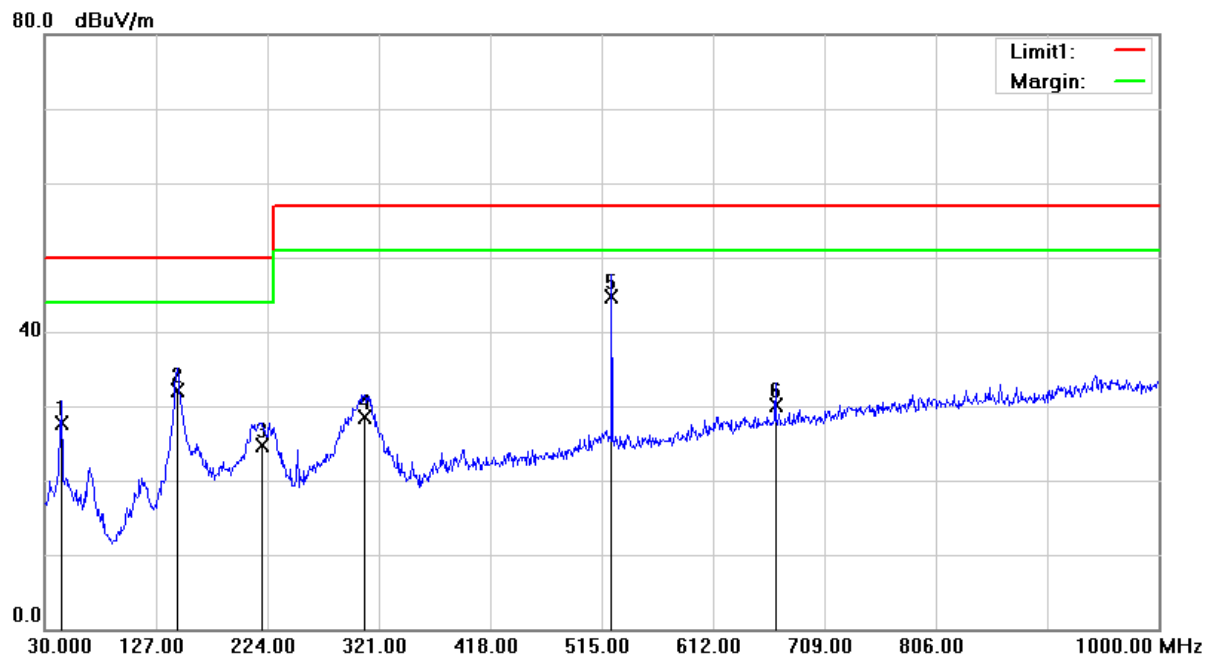
No.	Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB/m)	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Table Degree (degree)	Antenna Height (cm)	Detector
1	44.5500	55.57	-9.83	45.74	50.00	-4.26	236	200	QP
2	77.5300	42.78	-14.23	28.55	50.00	-21.45	330	100	QP
3	146.4000	47.42	-9.61	37.81	50.00	-12.19	147	100	QP
4	222.0600	48.84	-12.41	36.43	50.00	-13.57	151	100	QP
5	250.1900	39.70	-10.41	29.29	57.00	-27.71	93	100	QP
6	270.5600	36.99	-9.53	27.46	57.00	-29.54	137	100	QP

Remark:

1. QP = Quasi Peak
2. Correction Factor = Antenna factor + Cable loss (Antenna to preamplifier) - preamplifier Gain + Cable loss (preamplifier to receiver)
3. Measurement Value = Reading Level + Correct Factor
4. Margin Level = Measurement Value - Limit Value



Test Voltage	54Vdc (from PoE)	Frequency Range	30 – 1000 MHz
Environmental Conditions	24°C, 50% RH	6dB Bandwidth	120 kHz
Test Date	2024/05/06	Test Distance	3m
Tested by	Karwin Kao	Polarization	Horizontal
Test Site	W08-966-1		

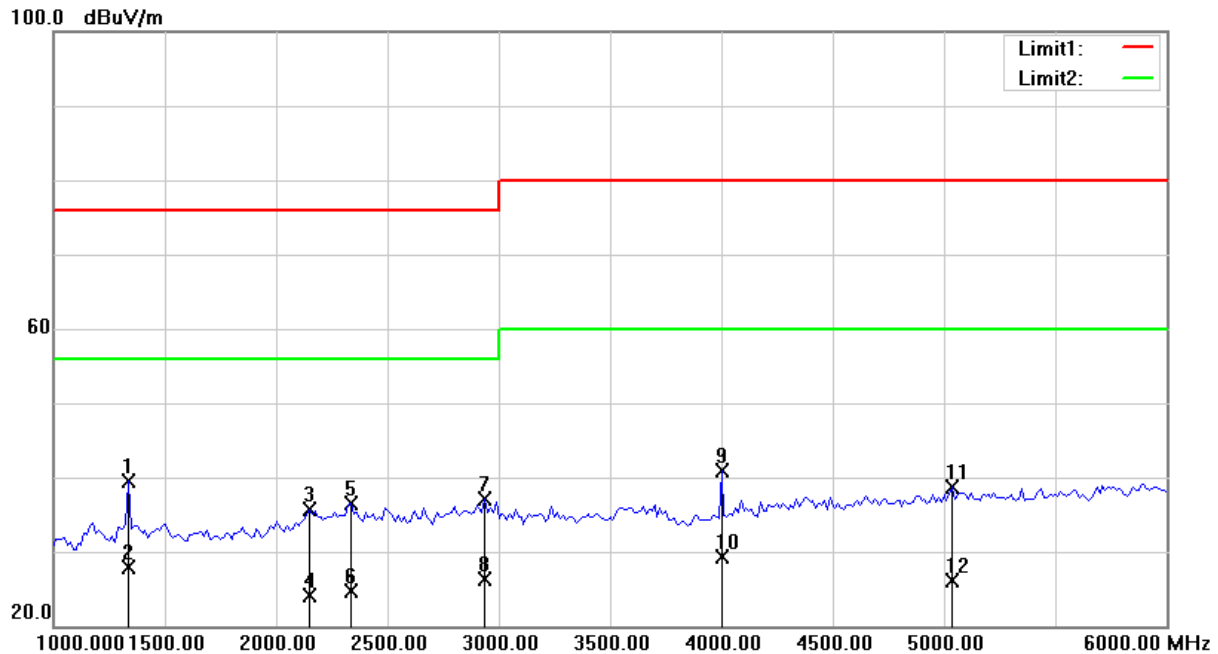


No.	Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB/m)	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Table Degree (degree)	Antenna Height (cm)	Detector
1	44.5500	37.56	-9.83	27.73	50.00	-22.27	0	100	QP
2	145.4300	41.79	-9.75	32.04	50.00	-17.96	269	200	QP
3	219.1500	37.14	-12.37	24.77	50.00	-25.23	127	100	QP
4	308.3900	36.95	-8.36	28.59	57.00	-28.41	243	100	QP
5	523.7300	47.36	-2.74	44.62	57.00	-12.38	299	200	QP
6	666.3200	29.30	0.84	30.14	57.00	-26.86	360	191	QP

Remark: 1. QP = Quasi Peak
2. Correction Factor = Antenna factor + Cable loss (Antenna to preamplifier) - preamplifier Gain + Cable loss (preamplifier to receiver)
3. Measurement Value = Reading Level + Correct Factor
4. Margin Level = Measurement Value - Limit Value



Test Voltage	54Vdc (from PoE)	Frequency Range	1 – 6GHz
Environmental Conditions	24°C, 50% RH	6dB Bandwidth	1MHz
Test Date	2024/05/03	Test Distance	3m
Tested by	Karwin Kao	Polarization	Vertical
Test Site	W08-966-1		



No.	Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB/m)	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Table Degree (degree)	Antenna Height (cm)	Detector
1	1337.500	57.88	-18.29	39.59	76.00	-36.41	344	100	peak
2	1337.500	46.29	-18.29	28.00	56.00	-28.00	344	100	AVG
3	2150.000	51.14	-15.36	35.78	76.00	-40.22	284	100	peak
4	2150.000	39.44	-15.36	24.08	56.00	-31.92	284	100	AVG
5	2337.500	51.14	-14.71	36.43	76.00	-39.57	359	100	peak
6	2337.500	39.49	-14.71	24.78	56.00	-31.22	359	100	AVG
7	2937.500	50.19	-13.16	37.03	76.00	-38.97	111	100	peak
8	2937.500	39.51	-13.16	26.35	56.00	-29.65	111	100	AVG
9	4000.000	51.85	-10.93	40.92	80.00	-39.08	11	100	peak
10	4000.000	40.21	-10.93	29.28	60.00	-30.72	11	100	AVG
11	5037.500	46.71	-8.08	38.63	80.00	-41.37	108	100	peak
12	5037.500	34.28	-8.08	26.20	60.00	-33.80	108	100	AVG

Remark: 1. peak = Peak, AVG = Average

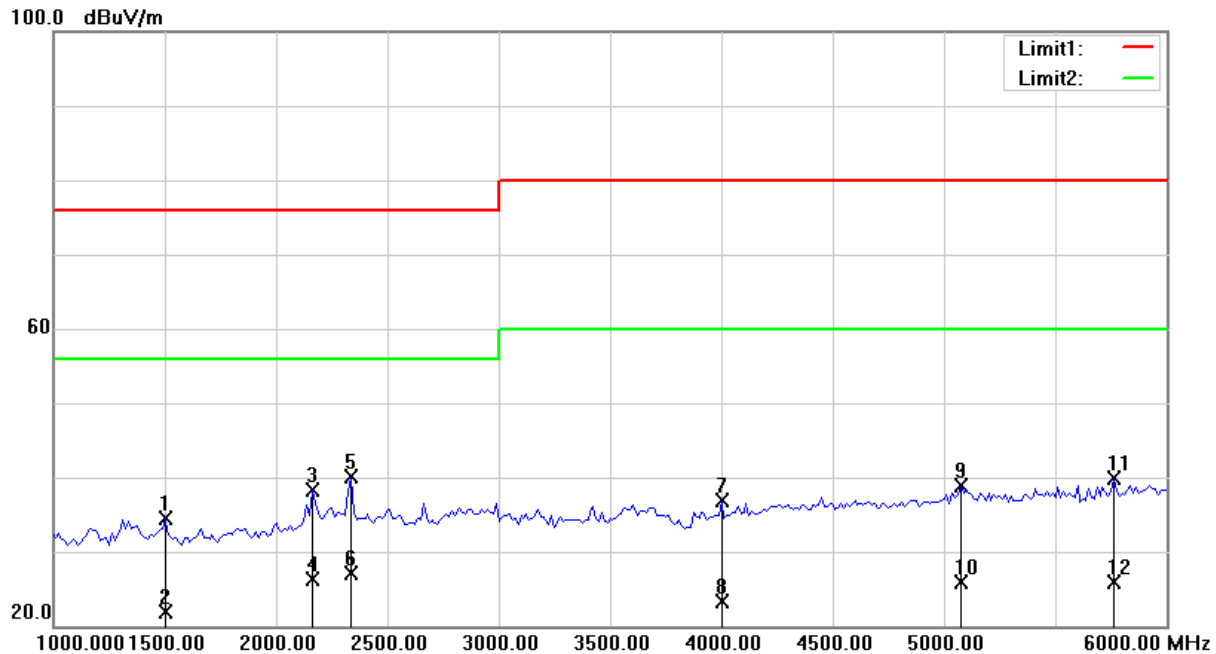
2. Correction Factor = Antenna factor + Cable loss (Antenna to preamplifier) - preamplifier Gain
+ Cable loss (preamplifier to receiver)

3. Measurement Value = Reading Level + Correct Factor

4. Margin Level = Measurement Value - Limit Value



Test Voltage	54Vdc (from PoE)	Frequency Range	1 – 6GHz
Environmental Conditions	24°C, 50% RH	6dB Bandwidth	1MHz
Test Date	2024/05/03	Test Distance	3m
Tested by	Karwin Kao	Polarization	Horizontal
Test Site	W08-966-1		



No.	Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB/m)	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Table Degree (degree)	Antenna Height (cm)	Detector
1	1500.000	53.01	-18.45	34.56	76.00	-41.44	53	100	peak
2	1500.000	40.36	-18.45	21.91	56.00	-34.09	53	100	AVG
3	2162.500	53.57	-15.20	38.37	76.00	-37.63	166	100	peak
4	2162.500	41.59	-15.20	26.39	56.00	-29.61	166	100	AVG
5	2337.500	54.72	-14.71	40.01	76.00	-35.99	56	100	peak
6	2337.500	41.77	-14.71	27.06	56.00	-28.94	56	100	AVG
7	4000.000	47.75	-10.93	36.82	80.00	-43.18	317	100	peak
8	4000.000	34.23	-10.93	23.30	60.00	-36.70	317	100	AVG
9	5075.000	46.73	-7.89	38.84	80.00	-41.16	270	100	peak
10	5075.000	33.69	-7.89	25.80	60.00	-34.20	270	100	AVG
11	5762.500	46.71	-6.75	39.96	80.00	-40.04	0	100	peak
12	5762.500	32.57	-6.75	25.82	60.00	-34.18	0	100	AVG

Remark: 1. peak = Peak, AVG = Average

2. Correction Factor = Antenna factor + Cable loss (Antenna to preamplifier) - preamplifier Gain
+ Cable loss (preamplifier to receiver)

3. Measurement Value = Reading Level + Correct Factor

4. Margin Level = Measurement Value - Limit Value

4.3.7 Photographs of Test Configuration

Radiated Emission Test (30MHz~1GHz)



Radiated Emission Test (Above 1GHz)

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