






# TEST REPORT

<b>Eurofins KCTL Co.,Ltd.</b> 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea Tel: 82-70-5008-1021 Fax: 82-505-299-8311 <a href="http://www.kctl.co.kr">www.kctl.co.kr</a>	Report No.: KR24-SEF0118 Page (1) of (33)	   <b>KCTL</b>
<b>1. Client</b>		
<ul style="list-style-type: none"> <li>◦ Name : IDIS CO., LTD.</li> <li>◦ Address : 8-10, TECHNO 3-RO, YUSEONG-GU, DAEJEON, KOREA</li> <li>◦ Date of Receipt : 2024-07-18</li> </ul>		
<b>2. Use of Report</b> : -		
<b>3. Name of Product / Model</b> : NETWORK CAMERA / DC-D2511FCR		
<b>4. Manufacturer / Country of Origin</b> : IDIS CO., LTD. / Korea		
<b>5. Date of Test</b> : 2024-08-20		
<b>6. Location of Test</b> : <input checked="" type="checkbox"/> Permanent Testing Lab <input type="checkbox"/> On Site Testing (Address: 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea)		
<b>7. Test method used</b> : ANSI C63.4:2014, Class A FCC Part 15 Subpart B ICES-003 Issue 7(ANSI C63.4a:2017)		
<b>8. Test Results</b> : Refer to the test result in the test report		
Affirmation	Tested by  Name : Seungkyun Yoo (Signature)	Technical Manager  Name : Moonseop Cho (Signature)
2024-08-28		
<b>Eurofins KCTL Co.,Ltd.</b>		
As a test result of the sample which was submitted from the client, this report does not guarantee the whole product quality. This test report should not be used and copied without a written agreement by Eurofins KCTL Co.,Ltd.		

## REPORT REVISION HISTORY

Date	Revision	Page No
2024-08-28	Originally issued	-

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## General remarks for test reports

### Statement concerning the uncertainty of the measurement systems used for the tests

(may be required by the product standard or client)

Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:

#### Procedure number, issue date and title:

Calculations leading to the reported values are on file with the testing laboratory that conducted the testing.

Statement not required by the standard or client used for type testing

# Contents

<b>1. Applicant information</b> .....	<b>4</b>
<b>2. Laboratory information</b> .....	<b>5</b>
<b>3. Test system configuration</b> .....	<b>6</b>
3.1 Operation environment.....	6
3.2 Measurement Uncertainty .....	7
3.3 Measurement Program.....	8
<b>4. Description of EUT</b> .....	<b>9</b>
4.1 General information.....	9
4.2 Product description.....	10
4.3 Auxiliary equipments .....	10
4.4 Test configuration .....	11
4.5 Operating conditions .....	13
<b>5. Summary of test results</b> .....	<b>14</b>
5.1 Summary of EMI emission test results.....	14
<b>6. Test results</b> .....	<b>15</b>
6.1 Conducted Emissions.....	15
6.2 Radiated Emission .....	19
<b>7. EUT photographs</b> .....	<b>30</b>

## 1. Applicant information

**Applicant:** IDIS CO., LTD.  
**Address:** 8-10, TECHNO 3-RO, YUSEONG-GU, DAEJEON, KOREA

**Manufacturer:** IDIS CO., LTD.  
**Address:** 8-10, TECHNO 3-RO, YUSEONG-GU, DAEJEON, KOREA



## 2. Laboratory information

### Address

#### **Eurofins KCTL Co.,Ltd. (Suwon Lab.)**

65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea

Telephone Number: 82 70 5008 1021

Facsimile Number: 82 505 299 8311

FCC Site Designation No: KR0040

VCCI Registration No.: R-20080, G-20078, C-20059, T-20056

Industry Canada Registration No. : 8035A

KOLAS NO.: KT231

### **SITE MAP**



### 3. Test system configuration

#### 3.1 Operation environment

	Temperature	Humidity	Pressure
Chamber 10 m (RE)	25.5 °C / 25.3 °C	41.3 % R.H. / 40.9 % R.H.	-
Shielded room(CE)	25.7 °C	41.2 % R.H.	-

#### Test site

These testing items were performed following locations;

Test item	Test site
Conducted Emission	Shielded Room
Radiated Emission	10 m Chamber

### 3.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC.

The factors contributing to uncertainties are test receiver, cable loss, antenna factor calibration, Antenna directivity, antenna factor variation with height, antenna phase center variation, antenna frequency interpolation, measurement distance variation, site imperfection, mismatch, and system repeatability. Based on CISPR 16-4-2, the measurement uncertainty level with a 95 % confidence level was applied.

Conducted Emission measurement (Confidence level about 95 %, $k = 2$ )			
Shielded Room (CE#1)	9 kHz ~ 150 kHz:	3.6 dB	
	150 kHz ~ 30 MHz:	3.1 dB	
Shielded Room (CE#2)	9 kHz ~ 150 kHz:	3.6 dB	
	150 kHz ~ 30 MHz:	3.1 dB	
Radiated Emission measurement (Confidence level about 95 %, $k = 2$ )			
10 m Chamber (4F)	30 MHz ~ 1 000 MHz	3 m:	6.2 dB
		10 m:	5.0 dB
	1 GHz ~ 6 GHz	3 m:	5.5 dB
	6 GHz ~ 18 GHz	3 m:	6.1 dB
	18 GHz ~ 30 GHz	3 m:	5.2 dB
	30 GHz ~ 40 GHz	3 m:	4.7 dB
10 m Chamber (2F)	30 MHz ~ 1 000 MHz	3 m:	5.8 dB
		10 m:	4.5 dB
	1 GHz ~ 6 GHz	3 m:	5.3 dB
	6 GHz ~ 18 GHz	3 m:	6.2 dB

### 3.3 Measurement Program

These test items were performed by software programs;

Test item	Measurement Program		Used
Conducted Emission	EP5/CE_Ver 5.4.0(TOYO)		☒
Radiated Emission	2F	EP10/RE_Ver 2021.01.000 (TOYO)	☒
	4F	EP5/RE_Ver 5.11.10(TOYO)	



## 4. Description of EUT

### 4.1 General information

Video	
Image sensor	1/2.8" SONY IMX335 Starvis CMOS Sensor
Max. Resolution	2704 x 2104
Scanning Mode	Progressive Scan
Lens Type	Fixed Lens
Focal Length	F=4.0mm (Optional 2.8mm)
Aperture	F=1.6
Iris Control	Fixed
Angular Field of View	4.0mm: 104.9°(D), 87.5°(H), 44.4°(V), 2.8mm: 134.45°(D), 113.74°(H), 61.5°(V)
Electronic Shutter Speed	Min. 1/100,000 sec ~ Max. 1/2 sec
Day and Night Mode	Auto / Day(Color) / Night(BW) / External
IR Distance	20 m
Auto White Balance Mode	Automatic, Manual
Noise Reduction	2DNR/3DNR
Backlight Correction	True WDR
Network	
Video Compression	H.265 Main profile, H.264(High, Main, Base line profile), MJPEG
SDK Support	API, ONVIF Profile S/T Compliant
Video Frame Rate	Up to 30fps@2592x1944p
Video Resolution	2592x1944, 2560x1920, 2048x1536, 1920x1440, 1600x1200, 1280x960, 800x600, 640x480, 480x360
Video Streaming (3 Streaming)	Simultaneously H.265 and MJPEG (Multi Streaming) or Simultaneously H.264 and MJPEG (Multi Streaming) Independent Frame Rate and Bandwidth Control, VBR/CBR Mode
Protocols	TCP/IP, UDP, IPv4/v6, HTTP, HTTPS, FTP, UPnP, RTP, RTSP, RTCP, DHCP, ARP, Zeroconf
Security	Multi User Authority, IP Filtering, HTTPS
Ethernet	RJ45 (10/100BASE-T)
Event	
Event In	Onboot/Trigger/Network Loss/Motion/ AI Event
Event Out Notification	Network
Audio In/Out	Optional
Alarm In/Out	Optional
AI	
AI	Motion/Human detection/ Vehicle Detection
General	
Vandal Proof Casing	IK08
Outdoor Ready	IP67
Operation Temperature	-20°C ~ +50°C
Operation Humidity	0% ~ 95%
Electrical	
Power Source	PoE (IEEE 802.3af Class 2), DC12V
Power Consumption	Max 4.0W
Approval	CE, FCC
Mechanical	
Dimension	Surface Type: Ø82 x 52(H)mm, Flush Type: Ø94 x 25(H)mm

## 4.2 Product description

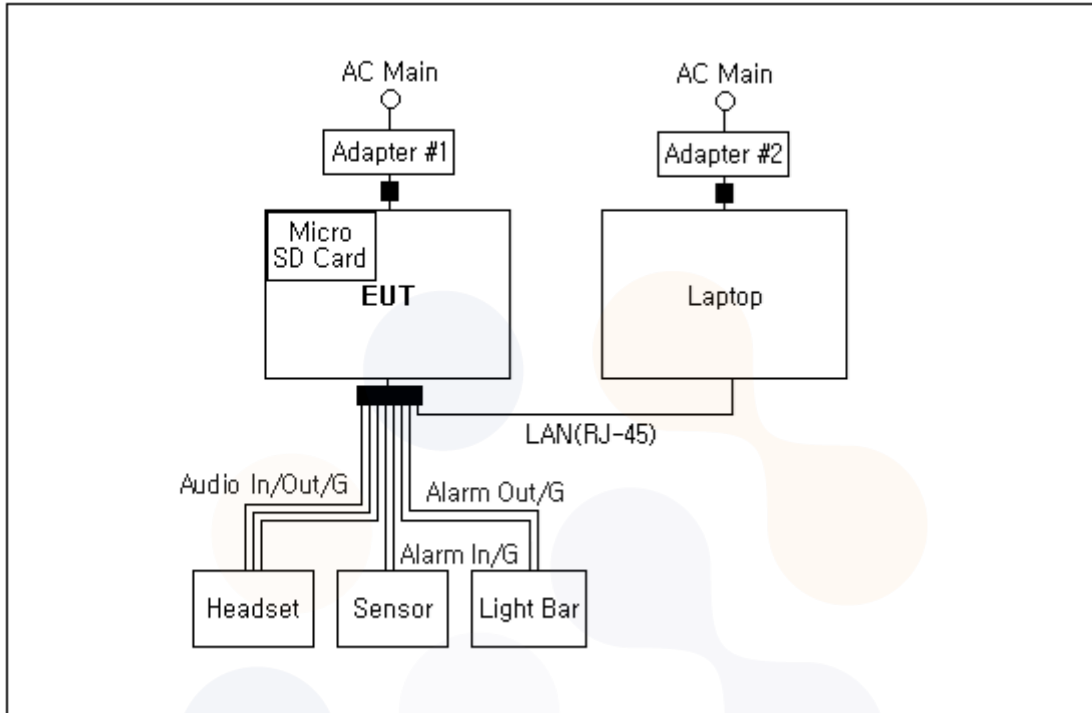
Type of product	NETWORK CAMERA
Model name (Basic)	DC-D2511FCR
Model name (Variant)	DC-D1125FCR, NC-D2511FCR
Difference	Buyel model names
Serial no	-
Testing voltage	120 V, 60 Hz / PoE
Input rating	DC 12 V, PoE
Internal clock frequency	1 GHz
Note	<p>-It mentioned the worst case test one of the IR ON/IR OFF Mode. [IR OFF Mode]</p> <p>-This product is an device with a DC power port powered by an AC/DC power converter, so it is tested considering it as an AC mains power-using device.</p> <p>-The following accessories were not provided by the manufacturer.</p> <ol style="list-style-type: none"> <li>1) Adapter #1</li> <li>2) PoE Switch</li> </ol>

## 4.3 Auxiliary equipments

Type	Model / Part #	S/N	Manufacturer
Adapter #1	CS-1205000	-	-
Laptop	E470-DOS	PF-10DS49	Lenovo
Adapter #2	ADLX45NCC3A	8S5A10H03912C1SG 5BT0NH1	Lenovo
PoE Switch	-	-	-
Light Bar	DS-360	-	DAE MYUNG ELECTRONICS CO., LTD
Sensor	-	-	-
Headset	SHS-250V	-	SAMSUNG
Micro SD Card (64 GB)	-	-	-

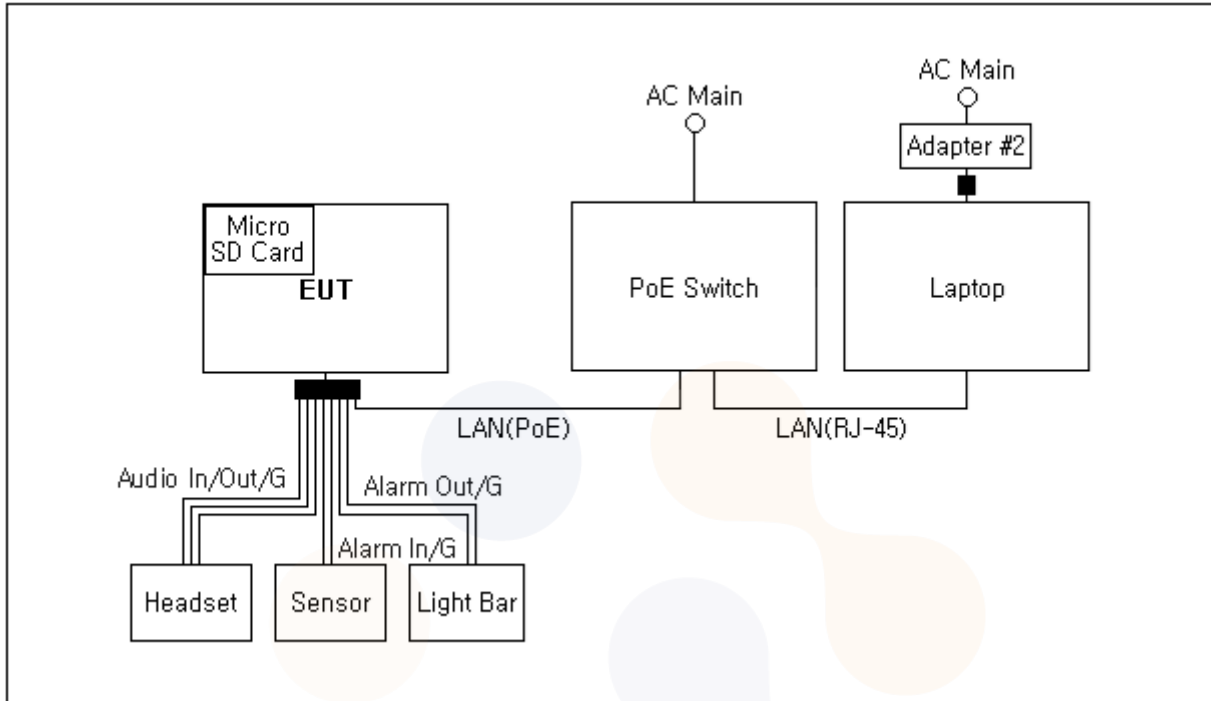
## 4.4 Test configuration

[Test #1]



	Start		End		Cable	
	Name	I/O port	Name	I/O port	Length (m)	Spec.
1	<b>EUT</b>	Power	Adapter #1	-	1.5	Unshield (Core)
2		LAN(RJ-45)	Laptop	LAN(RJ-45)	3.0	Unshield (Core)
3		Alarm In/G	Sensor	-	3.0	Unshield (Core)
4		Alarm Out/G	Light Bar	-	3.0	Unshield (Core)
5		Audio In/Out/G	Headset	-	3.0	Unshield (Core)
6		Micro SD	Micro SD Card	-	Direct	-
7	Laptop	Power	Adapter #2	-	1.5	Unshield (Core)

[Test #2]



Power supplied from PoE Switch

	Start		End		Cable	
	Name	I/O port	Name	I/O port	Length (m)	Spec.
1	EUT	LAN(PoE)	PoE Switch	LAN(PoE)	3.0	Unshield (Core)
2		Alarm In/G	Sensor	-	3.0	Unshield (Core)
3		Alarm Out/G	Light Bar	-	3.0	Unshield (Core)
4		Audio In/Out/G	Headset	-	3.0	Unshield (Core)
5		Micro SD	Micro SD Card	-	Direct	-
6	Laptop	Power	Adapter #2	-	1.5	Unshield (Core)
7		LAN(RJ-45)	PoE Switch	LAN(RJ-45)	1.0	Unshield

## 4.5 Operating conditions

The EUT was configured as normal intended use.

Test mode	Normal operating
<p>Test #1 [Adapter]</p>	Supply power to the EUT to the Adapter #1, Check the real-time video using the web viewer of the Laptop.
	Check the alarm operation of the Alarm In/Out port using the Light Bar/Sensor.
	Check the operation of the Audio In/Out port using Headset.
	Check the task manager (Ethernet) data transmission throughput (Ping).
	Check the image stored on the Micro SD Card.
<p>Test #2 [PoE]</p>	Supply power to the EUT to the PoE Switch, Check the real-time video using the web viewer of the Laptop.
	Check the alarm operation of the Alarm In/Out port using the Light Bar/Sensor.
	Check the operation of the Audio In/Out port using Headset.
	Check the task manager (Ethernet) data transmission throughput (Ping).
	Check the image stored on the Micro SD Card.

Note: 2 types of powers are available for the product, that are Adapter, PoE.

Therefore, tests were performed for 2 different types of powers.

## 5. Summary of test results

### 5.1 Summary of EMI emission test results

Applied	Test items	Test method	Result
☒	Conducted Emission	ANSI C63.4:2014, FCC Part 15 Subpart B, Class A ICES-003 Issue 7 (ANSI C63.4a:2017)	Refer to Section 6.1.5
☒	Radiated Emission	ANSI C63.4:2014, FCC Part 15 Subpart B, Class A ICES-003 Issue 7 (ANSI C63.4a:2017)	Refer to Section 6.2.6

These results are deemed satisfactory evidence of compliance with ICES-003 of the Canadian Interference-Causing Equipment Regulations.

## 6. Test results

### 6.1 Conducted Emissions

Testing voltage	120 V, 60 Hz		
Test facility	Shielded room (CE#1)		
Date	2024-08-20		
Temperature (°C)	25.7 °C	Humidity (% R.H.)	41.2 % R.H.

#### 6.1.1 Limits of conducted emissions measurement

Frequency [MHz]	Class A (dB(μV))		Class B (dB(μV))	
	Quasi-peak	Average	Quasi-peak	Average
0.15 ~ 0.5	79	66	66 ~ 56 <sup>1)</sup>	56 ~ 46 <sup>1)</sup>
0.5 ~ 5	73	60	56	46
5 ~ 30	73	60	60	50

<sup>1)</sup> The limit decreases linearly with the logarithm of frequency

### 6.1.2 Measurement procedure

The measurements were performed in a shielded room. EUT was setup as shown in photograph and placed on a non-metallic table height of 0.8 m above the reference ground plane. The rear of table was located 0.4 m to the vertical conducted plane. EUT was power through the LISN, which was bonded to the ground plane. The LISN power was filtered. Each EUT power lead, except ground (safety) lead was individually connected through a LISN to input power source. EUT signal cables that hung closer than 0.4 m to the Horizontal metal ground 0.3 m ~ 0.4 m long. The power cord was bundles in the center. All peripheral equipment was powered from a sub LISN. The LISN and ISN were positioned 0.8 m from the EUT. Peak and Average detection were used in preliminary testing and Quasi-peak and Average detections were used at final measurement.

### 6.1.3 Used equipments

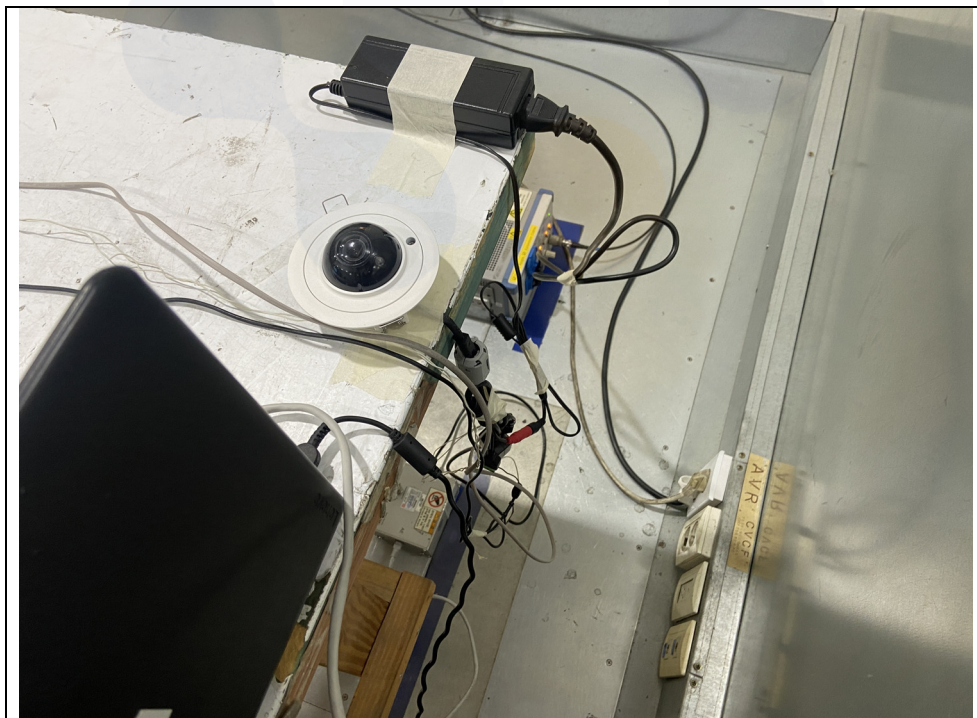
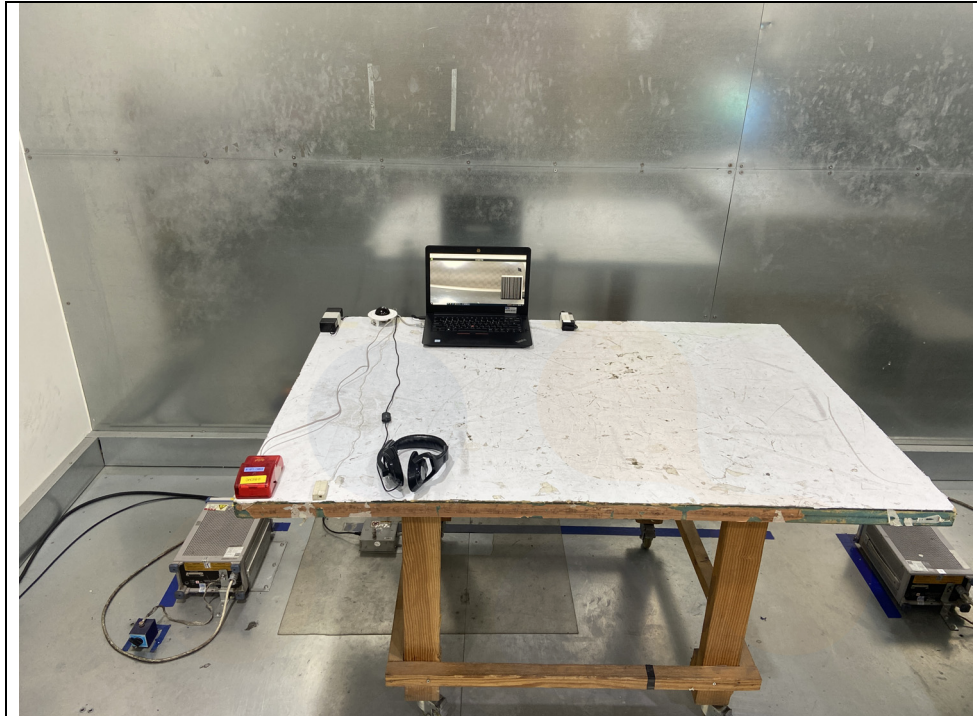
Date: 2024-08-20

Equipment	Model no.	Serial no.	Makers	Next Cal. Date	Used
EMI TEST RECEIVER	ESCI 3	101408	R&S	2025.08.12	<input checked="" type="checkbox"/>
TWO-LINE V-NETWORK	ENV216	101358	R&S	2024.09.27	<input checked="" type="checkbox"/>
TWO-LINE V-NETWORK	ENV216	101352	R&S	2025.03.27	<input type="checkbox"/>
8-WIRE ISN CAT5	NTFM 8158 ISN CAT5	CAT5 8158 #138	SCHWARZBECK	2025.03.26	<input checked="" type="checkbox"/>



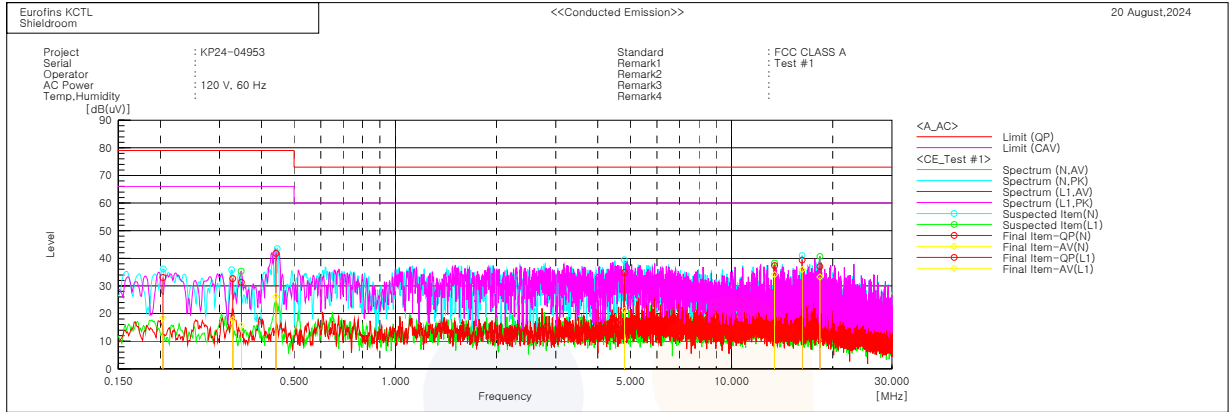
#### 6.1.4 Photographs of test setup

##### AC Main [Test #1]



## 6.1.5 Conducted emissions measurement result

### AC Main



## 6.2 Radiated Emission

Testing voltage		120 V, 60 Hz		
Test facility		10 m Chamber (4F)		
Site validation date		Below 1 GHz	2024-03-15	
		Above 1 GHz	2023-11-20	
Test distance		10 m, 3 m		
Date		2024-08-20		
10 m	Temperature (°C)	25.5 °C	Humidity (% R.H.)	41.3 % R.H.
3 m		25.3 °C		40.9 % R.H.

### 6.2.1 Limits of radiated emission measurement

Frequency [MHz]	Class A at 10 m QP(dB(μV/m))		Class B at 3 m QP(dB(μV/m))	
	FCC <sup>1)</sup>	ISED (ICES Issue 7)	FCC <sup>1)</sup>	ISED (ICES Issue 7)
30-88	39.1	40.0	40.0	40.0
88-216	43.5	43.5	43.5	43.5
216-230	46.4	46.4	46.0	46.0
230-960	46.4	47.0	46.0	47.0
Above 960	49.5	49.5	54.0	54.0

- <sup>1)</sup>: Alternative standard: CISPR, Pub. 22

- Test data in this section has been taken against the FCC 15.109(a) or (B) Limit as it is the most stringent limit.

By complying with more restrictive FCC 15.109 Limit compliance with the ICES-003 Issue 7 limit also demonstrated.

### 6.2.2 Measurement procedure

The test was done at a 10 m chamber with a quasi-peak detector. EUT was placed on a non-metallic table height of 0.8 m above the reference ground plane. Cables were folded back and forth forming a bundle 0.3 m to 0.4 m long and were hanged at a 0.4 m height to the ground plane.

Cables connected to EUT were fixed to cause maximum emission. Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

### 6.2.3 Used equipments

Date: 2024-08-20

Equipment	Model no.	Serial no.	Makers	Next Cal. Date	Used
EMI TEST RECEIVER	ESR7	101078	R&S	2025.08.12	<input checked="" type="checkbox"/>
Bilog Antenna	CBL 6112D	37876	TESEQ	2025.05.25	<input checked="" type="checkbox"/>
AMPLIFIER	310N	293004	SONOMA	2025.08.12	<input checked="" type="checkbox"/>
ATTENUATOR	8491B	MY39270292	AGILENT	-	<input checked="" type="checkbox"/>
Antenna Mast	MA4640-XP-ET	-	Innco Systems	-	<input checked="" type="checkbox"/>
Turn Table	DT3000-2t	-	Innco Systems	-	<input checked="" type="checkbox"/>
PREAMPLIFIER	8449B	3008A01547	AGILENT	2025.06.13	<input checked="" type="checkbox"/>
DOUBLE RIDGED HORN ANTENNA	3115	00086706	ETS-LINDGREN	2024.11.02	<input checked="" type="checkbox"/>

## 6.2.4 Sample calculation

The field strength is calculated adding the antenna Factor, cable loss and, Antenna pad adding, subtracting the amplifier gain from the measured reading.

The sample calculation is as follow:

$$\text{Result} = \text{M.R} + \text{C.F}(\text{A.F} + \text{C.L} + 6 \text{ dB Att} - \text{A.G})$$

M.R = Meter Reading

C.F = Correction Factor

A.F = Antenna Factor

C.L = Cable Loss

A.G = Amplifier Gain

6 dB Att = 6 dB Attenuator

If M.R is 30 dB, A.F 12 dB, C.L 5 dB, 6 dB, A.G 35 dB

The result is  $30 + 12 + 5 + 6 - 35 = 18 \text{ dB } (\mu\text{V/m})$

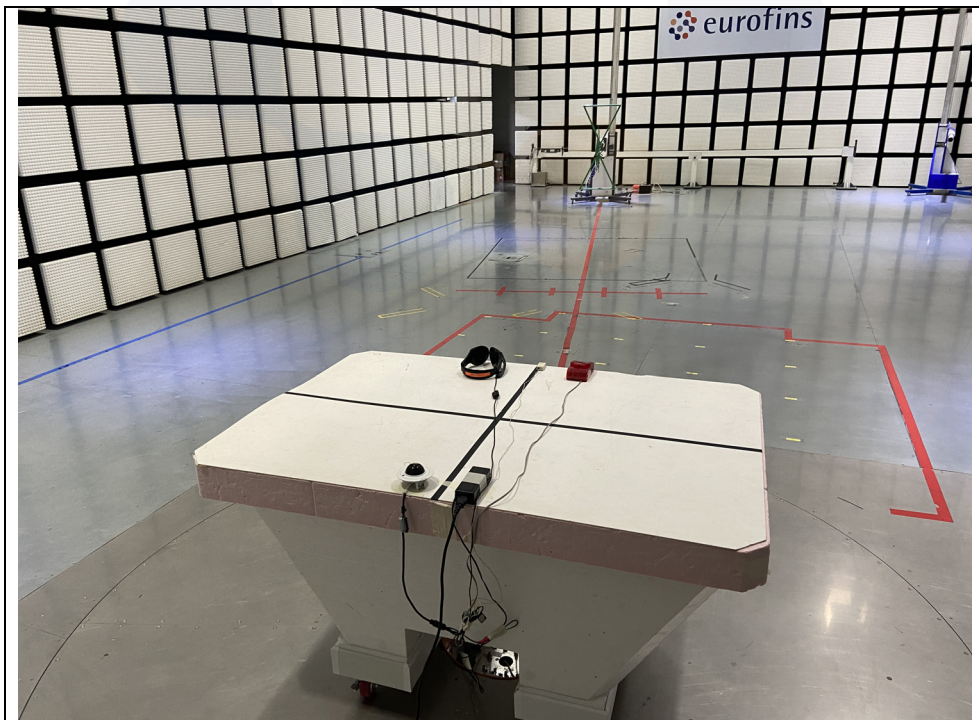
Bilog Antenna and ATTENUATOR (6 dB) were calibrated together.

AV = CAV : Abbreviation of CISPR Average



## 6.2.5 Photographs of test setup

30 MHz ~ 1 GHz [Test #1]

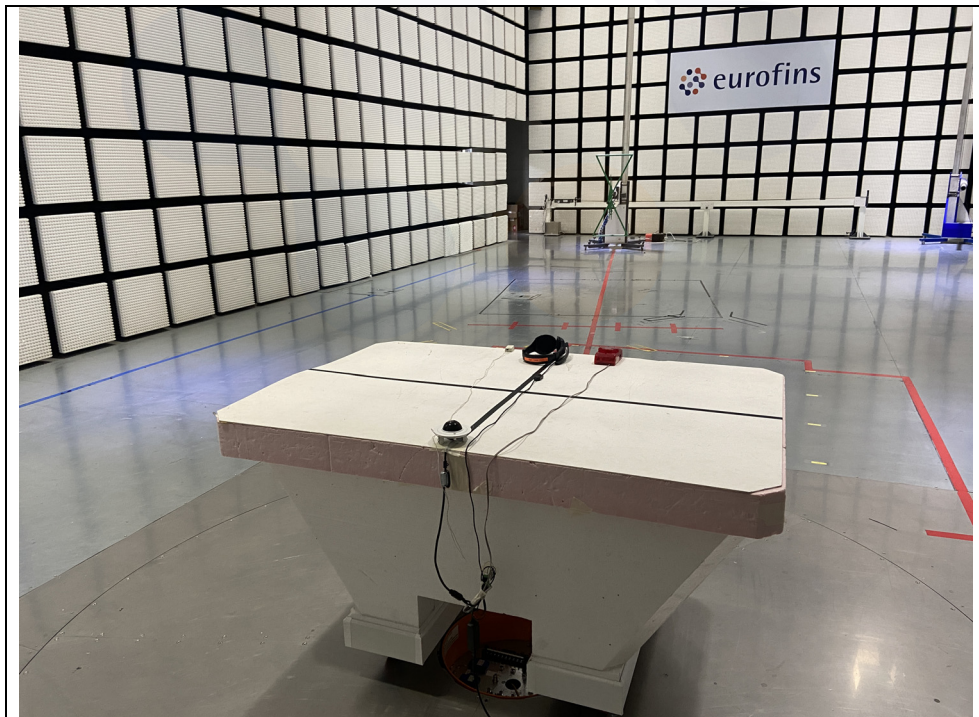


1 GHz ~ 6 GHz [Test #1]





30 MHz ~ 1 GHz [Test #2]



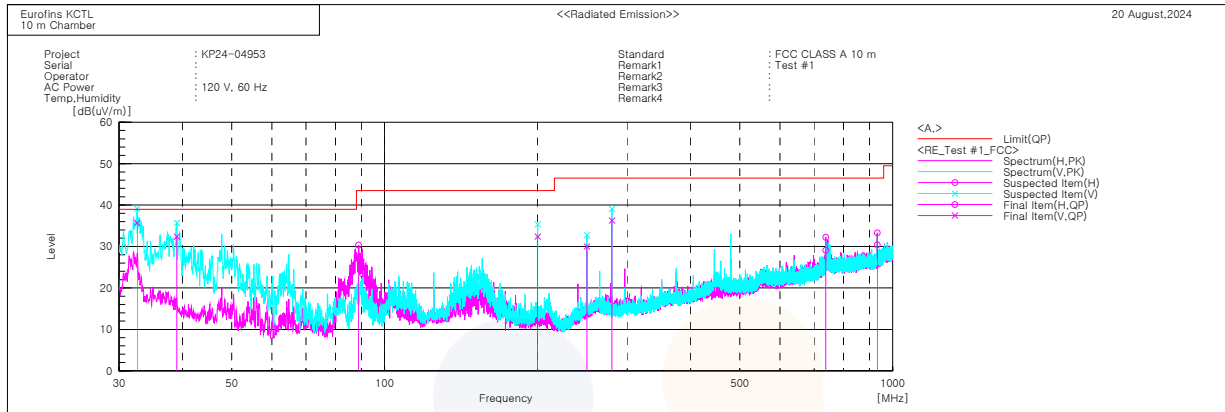


1 GHz ~ 6 GHz [Test #2]

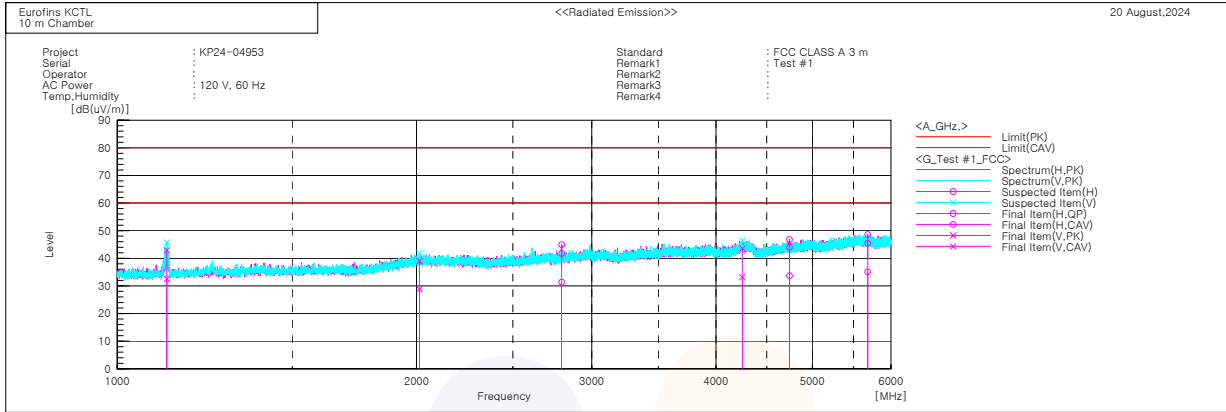


## 6.2.6 Radiated emission measurement result

30 MHz ~ 1 GHz



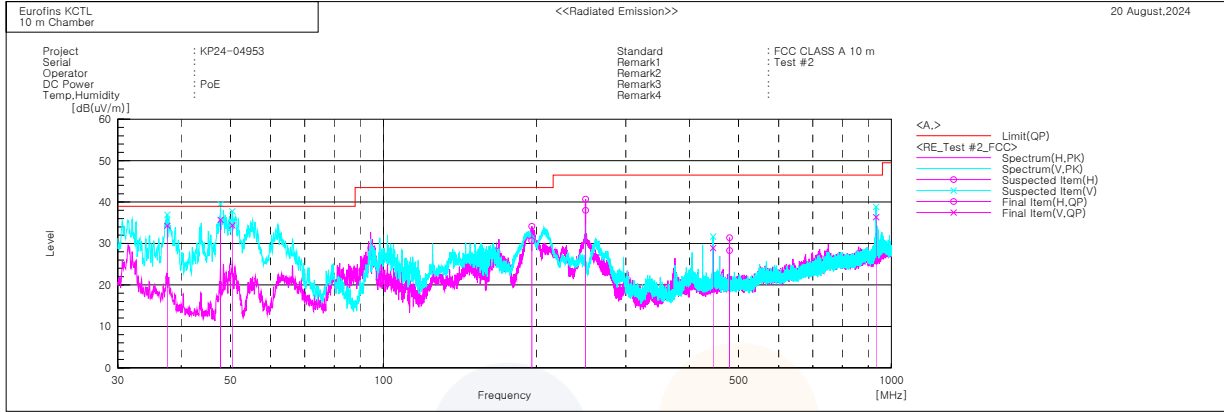
1 GHz ~ 6 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	1121.756	V	48.5	38.1	-5.5	43.0	32.6	80.0	60.0	37.0	27.4	186.0	0.0
2	2013.051	V	37.1	26.9	1.9	39.0	26.8	80.0	60.0	41.0	31.2	318.0	29.0
3	2799.340	H	38.2	27.8	3.6	41.8	31.4	80.0	60.0	38.2	28.6	229.0	21.0
4	4252.663	V	35.1	24.7	8.5	43.6	33.2	80.0	60.0	36.4	26.8	157.0	166.0
5	4742.187	H	35.4	25.1	8.6	44.0	33.7	80.0	60.0	36.0	26.3	359.0	225.0
6	5686.485	H	33.7	23.4	11.7	45.4	35.1	80.0	60.0	34.6	24.9	192.0	359.0

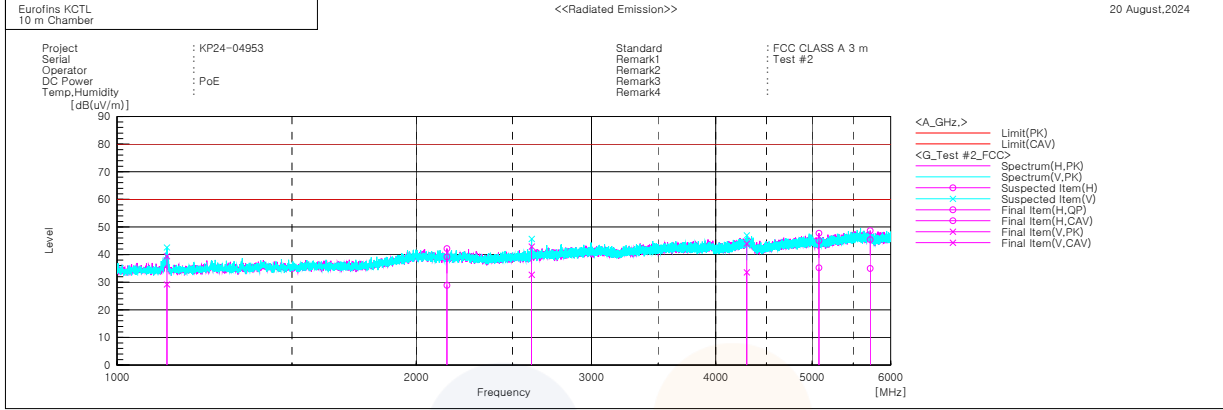
30 MHz ~ 1 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	37.566	V	40.2	-5.9	34.3	39.0	4.7	186.0	343.0
2	47.800	V	46.4	-10.7	35.7	39.0	3.3	341.0	321.0
3	50.420	V	46.4	-12.0	34.4	39.0	4.6	151.0	270.0
4	196.024	H	40.5	-9.8	30.7	43.5	12.8	116.0	291.0
5	250.007	H	43.9	-5.9	38.0	46.5	8.5	273.0	40.0
6	445.520	V	28.9	0.0	28.9	46.5	17.6	132.0	298.0
7	480.006	H	27.3	1.0	28.3	46.5	18.2	284.0	26.0
8	933.067	V	26.7	9.7	36.4	46.5	10.1	237.0	183.0

1 GHz ~ 6 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c. f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	1122.506	V	44.9	34.7	-5.5	39.4	29.2	80.0	60.0	40.6	30.8	265.0	231.0
2	2147.307	H	37.3	27.0	1.9	39.2	28.9	80.0	60.0	40.8	31.1	183.0	161.0
3	2612.331	V	40.1	29.9	2.8	42.9	32.7	80.0	60.0	37.1	27.3	243.0	216.0
4	4299.665	V	35.1	24.7	8.9	44.0	33.6	80.0	60.0	36.0	26.4	381.0	173.0
5	5081.204	H	35.6	25.8	9.4	45.0	35.2	80.0	60.0	35.0	24.8	156.0	327.0
6	5721.236	H	33.8	23.4	11.6	45.4	35.0	80.0	60.0	34.6	25.0	204.0	333.0

## 7. EUT photographs

### Front View



### Rear View





Left View



Right View



Top View



Bottom View





Inside



-End-