

# IKEA of Sweden AB

# TEST REPORT

## SCOPE OF WORK:

FCC Part 15 subpart B – EMC report

### Model:

U2209 DÄCKSBÅT

### REPORT NUMBER

220802197SHA-001

### ISSUE DATE

October 19, 2022

### DOCUMENT CONTROL NUMBER

TTRFFCCPART15b\_V1

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Applicant : IKEA of Sweden AB  
Box 702 SE-343 81 Älmhult, SWEDEN

Manufacturer : IKEA of Sweden AB  
Box 702 SE-343 81 Älmhult, SWEDEN

FCC ID : FHO-U2209

### Summary

The equipment complies with the requirements according to the following standard(s) or Specification:

**47CFR Part 15 (2020):** Radio Frequency Devices (Subpart B)

**ANSI C63.4 (2014):** American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

**PREPARED BY:**

**REVIEWED BY:**



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Project Engineer  
Damon Ding

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Reviewer  
Eric Li

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### Revision History

Report No.	Version	Description	Issued Date
220802197SHA-001	Rev. 01	Initial issue of report	October 19, 2022

## Measurement result summary

TEST ITEM	FCC REFERENCE	TEST RESULT	NOTE
Conducted emission	15.107	Pass	
Radiation emission	15.109	Pass	

Notes: 1: NA =Not Applicable

2. Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.

3: Additions, Deviations and Exclusions from Standards: None.

## 1 GENERAL INFORMATION

### 1.1 Description of Equipment Under Test (EUT)

Product Name : Luminaire

Type/Model : The EUT is Luminaire, There are only one model. We test it and list the worst results in this report.

Description of EUT : U2209 DÄCKSBÅT

Rating : 110 - 120V~ 50/60Hz 7W

Brand name : IKEA

Category of EUT : Class B

EUT type :  Table top  
 Floor standing

Sample received date : October 1, 2022

Date of test : October 1, 2022 ~ October 19, 2022

**1.2 Description of Test Facility**

Name : Intertek Testing Services Shanghai

Address : Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R.  
China

Telephone : 86 21 61278200

Telefax : 86 21 54262353

The test facility is : CNAS Accreditation Lab  
recognized, certified, Registration No. CNAS L0139  
or accredited by these FCC Accredited Lab  
organizations Designation Number: CN0175

IC Registration Lab  
CAB identifier.: CN0051

VCCI Registration Lab  
Registration No.: R-14243, G-10845, C-14723, T-12252

A2LA Accreditation Lab  
Certificate Number: 3309.02

## 2 TEST SPECIFICATIONS

### 2.1 Standards or specification

**47CFR Part 15 (2020):** Radio Frequency Device: Subpart B

**ANSI C63.4 (2014):** Interim Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40GHz.

### 2.2 Mode of operation during the test

Within this test report, EUT was tested under all available operation modes and tested under its rating voltage and frequency. Other voltage and frequency is specified if used.

### 2.3 Test software list

Test Items	Software	Manufacturer	Version
Conducted emission	ESxS-K1	R&S	V2.1.0
Radiated emission	ES-K1	R&S	V1.71

### 2.4 Test peripherals list

Item No.	Name	Band and Model	Description

### 2.5 Record of climatic conditions

Test Item	Temperature (°C)	Relative Humidity (%)	Pressure (Kpa)
Conducted emission	24	49	101
Radiated Emission	24	48	101

Notes: NA =Not Applicable

## 2.6 Instrument list

Conducted Emission / Disturbance Power / Tri-loop Test / CDN method					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
<input checked="" type="checkbox"/>	Test Receiver	R&S	ESCS 30	EC 2107	2023-07-8
<input checked="" type="checkbox"/>	A.M.N.	R&S	ESH2-Z5	EC 3119	2022-11-9
<input checked="" type="checkbox"/>	Shielded room	Zhongyu	-	EC 2838	2023-01-11
Radiated Emission					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
<input checked="" type="checkbox"/>	Test Receiver	R&S	ESIB 26	EC 3045	2022-10-19
<input checked="" type="checkbox"/>	Bilog Antenna	TESEQ	CBL 6112B	EC 6411	2023-8-5
<input checked="" type="checkbox"/>	Semi-anechoic chamber	Albatross project	-	EC 3048	2023-08-21
Additional instrument					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
<input checked="" type="checkbox"/>	Therom-Hygrograph	ZJ1-2A	S.M.I.F.	EC 3783	2023-03-24
<input checked="" type="checkbox"/>	Therom-Hygrograph	ZJ1-2A	S.M.I.F.	EC 5198	2023-03-08
<input checked="" type="checkbox"/>	Pressure meter	YM3	Shanghai Mengde	EC 3320	2023-07-21

## 2.7 Measurement Uncertainty

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted emission at mains ports	9kHz ~ 150kHz	3.71 dB
	150kHz ~ 30MHz	3.31 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.04 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	4.97 dB
	6GHz ~ 18GHz	5.29 dB

### 3 Conducted emission

Test result: Pass

#### 3.1 Limits

##### 3.1.1 Limits for conducted emission of class A device

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0.15 ~ 0.5	79	66
0.5 ~ 30	73	60

Note: If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.

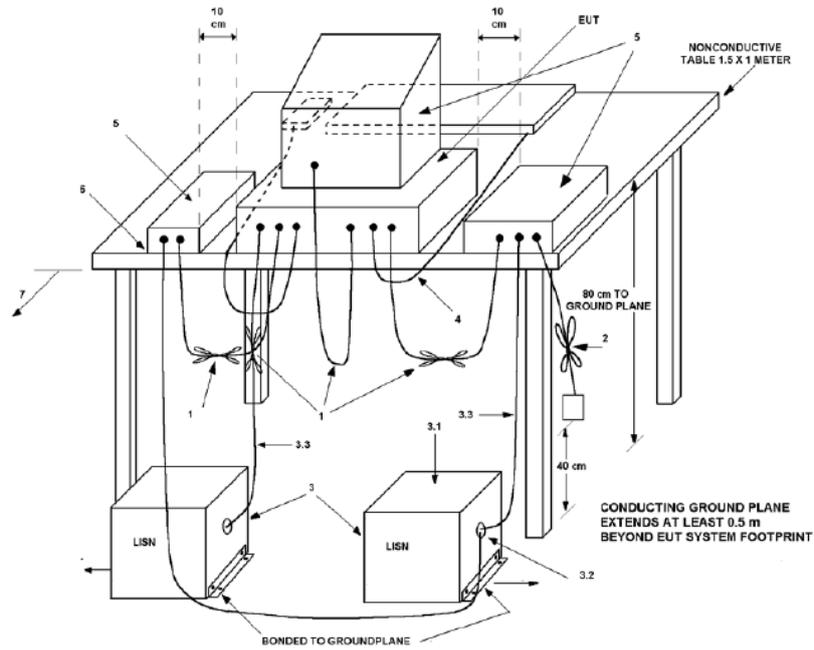
##### 3.1.2 Limits for conducted emission of class B device

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 ~ 56 *	56 ~ 46 *
0.5 ~ 5	56	46
5 ~ 30	60	50

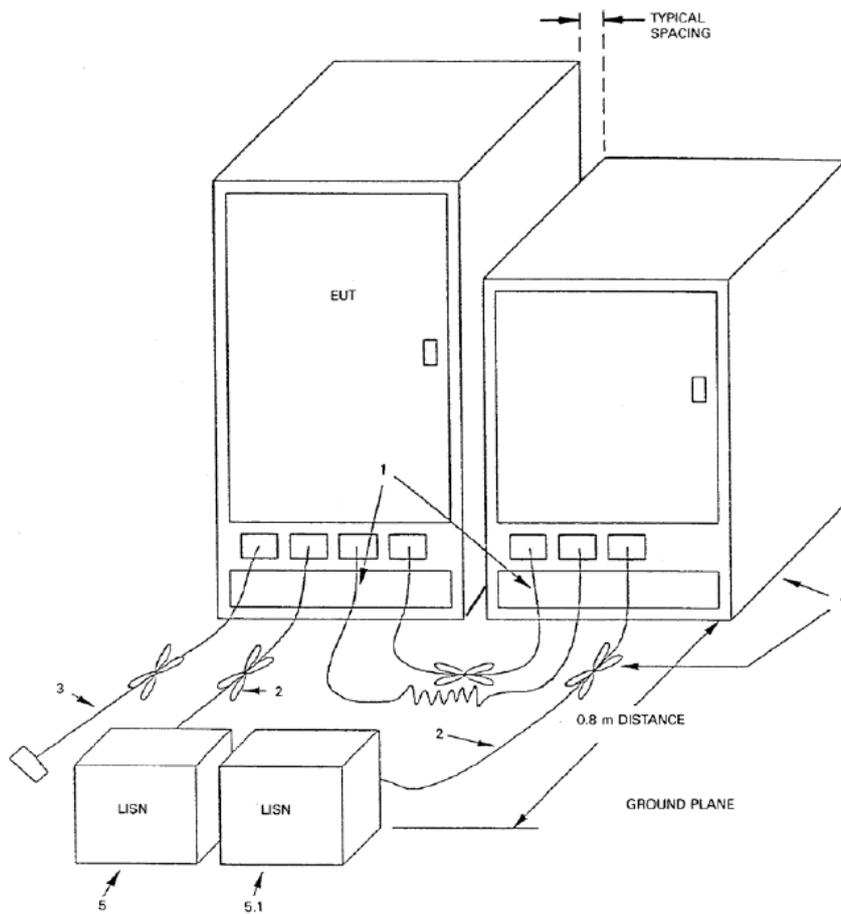
Note: 1. \* Means the limit decreasing linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz  
 2. If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.

**3.2 Test setup**

For table top equipment



For floor standing equipment



### **3.3 Test Setup and Test Procedure**

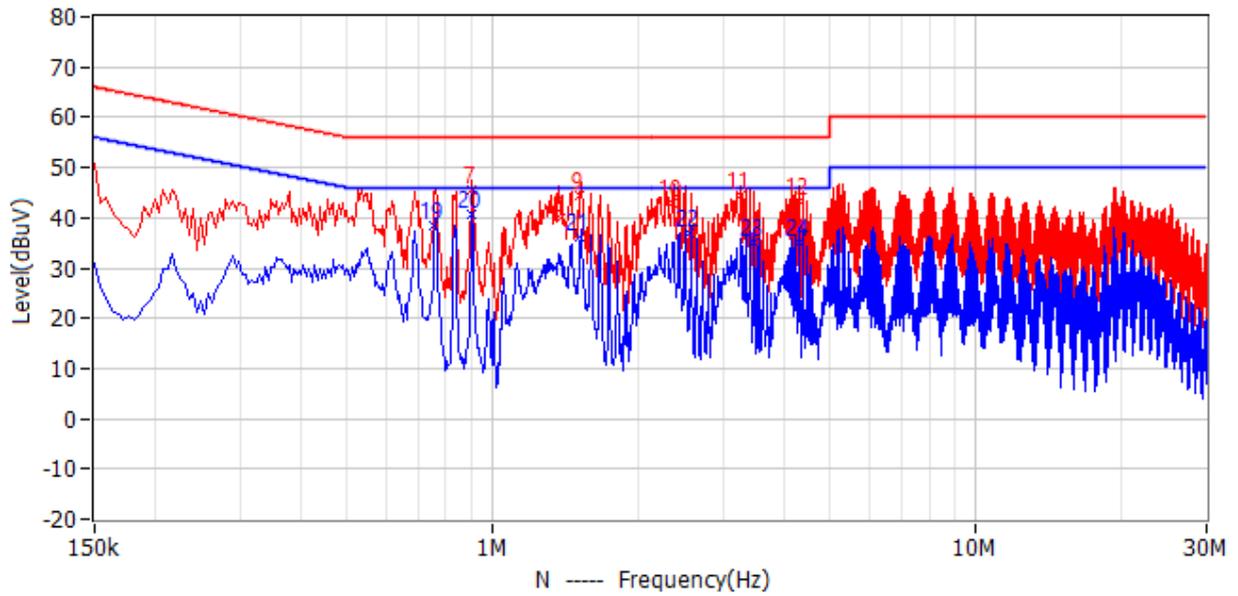
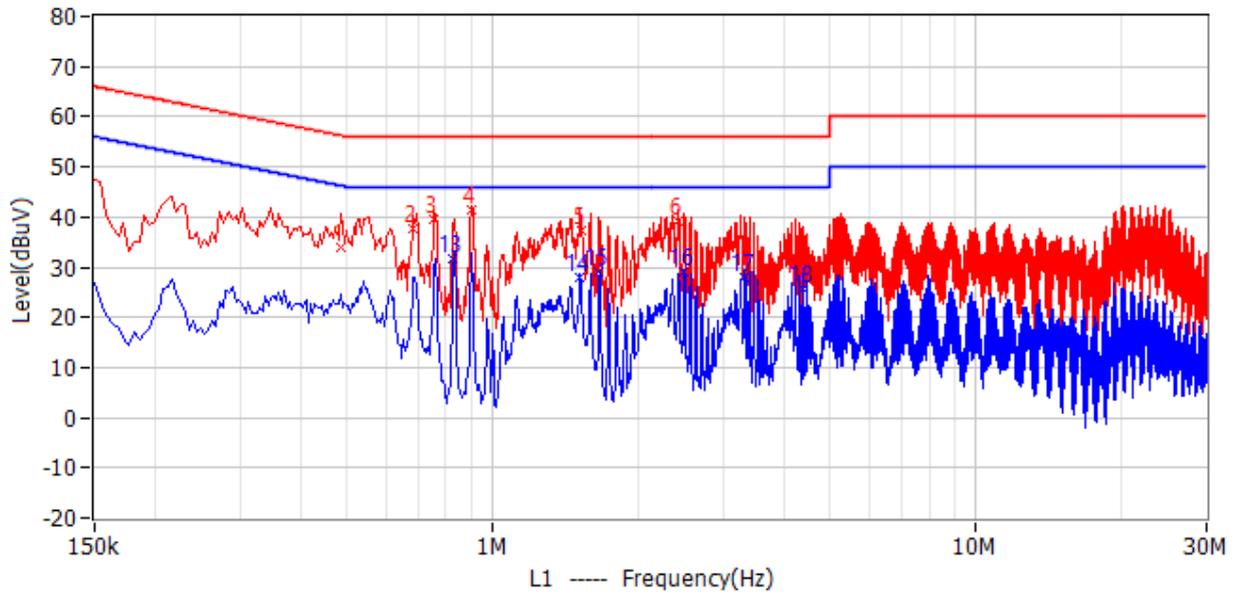
Measurement was performed in shielded room, and instruments used were following clause 4 and clause 5 of ANSI 63.4.

Detailed test procedure was following clause 7.3 of ANSI 63.4.

EUT arrangement and operation conditions were according to clause 6 and clause 7 of ANSI 63.4.

Frequency range 150kHz – 30MHz was checked and EMI receiver measurement bandwidth was set to 9 kHz.

3.4 Test Protocol



**Test Data:**

No.	Frequency	Limit dBuV	Level dBuV	Delta dB	Reading dBuV	Factor dB	Detector	Phase
1	483.000kHz	56.3	34.1	-22.2	27.9	6.2	QP	L1
2	685.500kHz	56.0	37.5	-18.5	31.3	6.2	QP	L1
3	757.500kHz	56.0	39.6	-16.4	33.4	6.2	QP	L1
4	901.500kHz	56.0	41.3	-14.7	35.1	6.2	QP	L1
5	1.523MHz	56.0	37.3	-18.7	31.1	6.2	QP	L1
6	2.418MHz	56.0	39.0	-17.0	32.8	6.2	QP	L1
7	901.500kHz	56.0	45.6	-10.4	39.3	6.3	QP	N
8	1.383MHz	56.0	40.1	-15.9	33.8	6.3	QP	N
9	1.514MHz	56.0	44.4	-11.6	38.1	6.3	QP	N
10	2.351MHz	56.0	43.0	-13.0	36.7	6.3	QP	N
11	3.246MHz	56.0	44.4	-11.6	38.1	6.3	QP	N
12	4.295MHz	56.0	43.4	-12.6	37.1	6.3	QP	N
13	829.500kHz	46.0	31.6	-14.4	25.4	6.2	CAV	L1
14	1.518MHz	46.0	28.1	-17.9	21.9	6.2	CAV	L1
15	1.662MHz	46.0	29.2	-16.8	23.0	6.2	CAV	L1
16	2.495MHz	46.0	28.9	-17.1	22.7	6.2	CAV	L1
17	3.323MHz	46.0	28.1	-17.9	21.9	6.2	CAV	L1
18	4.371MHz	46.0	25.7	-20.3	19.5	6.2	CAV	L1
19	757.500kHz	46.0	38.5	-7.5	32.2	6.3	CAV	N
20	901.500kHz	46.0	40.5	-5.5	34.2	6.3	CAV	N
21	1.518MHz	46.0	36.2	-9.8	29.9	6.3	CAV	N
22	2.562MHz	46.0	37.1	-8.9	30.8	6.3	CAV	N
23	3.467MHz	46.0	35.1	-10.9	28.8	6.3	CAV	N
24	4.299MHz	46.0	35.0	-11.0	28.7	6.3	CAV	N

- Remark: 1. Factor = LISN Factor + Cable Loss, the value was added to Original Receiver Reading by the software automatically.*
- 2. Level = Reading + Factor*
- 3. Delta = Level- Limit*
- 4. If the PK Level is lower than AV limit, the AV test can be elided.*

## 4 Radiated emission

Test result: PASS

### 4.1 Radiated emission limits

#### 4.1.1 Limits for radiated emission of class A device

Frequency (MHz)	Permitted limit in dB $\mu$ V/m (Quasi-peak) of Measurement Distance 10m
30 ~ 88	39
88 ~ 216	43.5
216 ~ 960	46.4
Above 960	49.5

Note: for the measurement distance other than 3m and 10m, the limit is varied according to 20dB/10 decades.

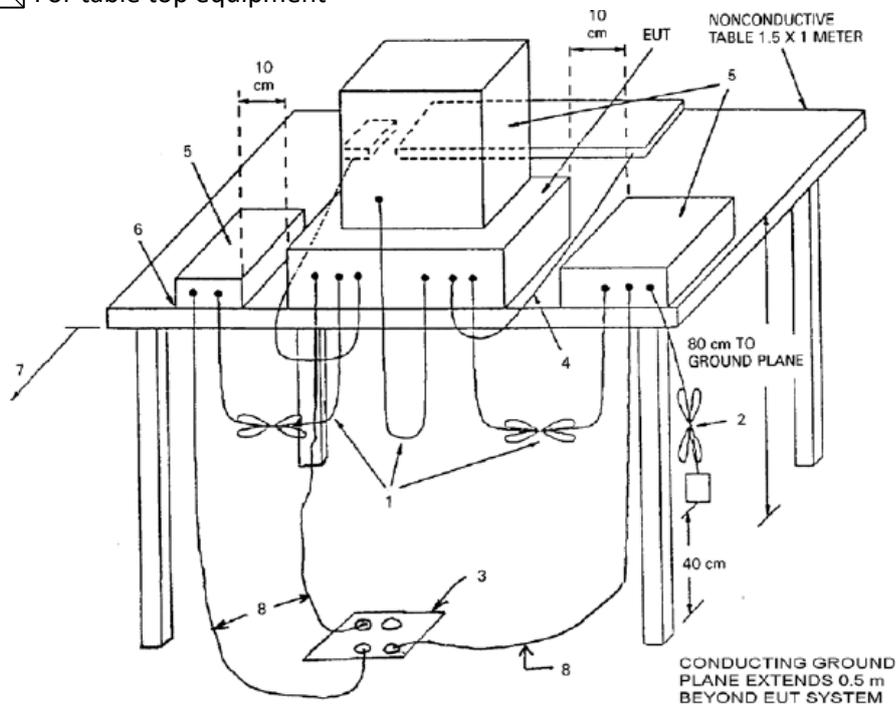
#### 4.1.2 Limits for radiated emission of class B device

Frequency (MHz)	Permitted limit in dB $\mu$ V/m (Quasi-peak) of Measurement Distance 3m
30 ~ 88	40.0
88 ~ 216	43.5
216 ~ 960	46.0
Above 960	54.0

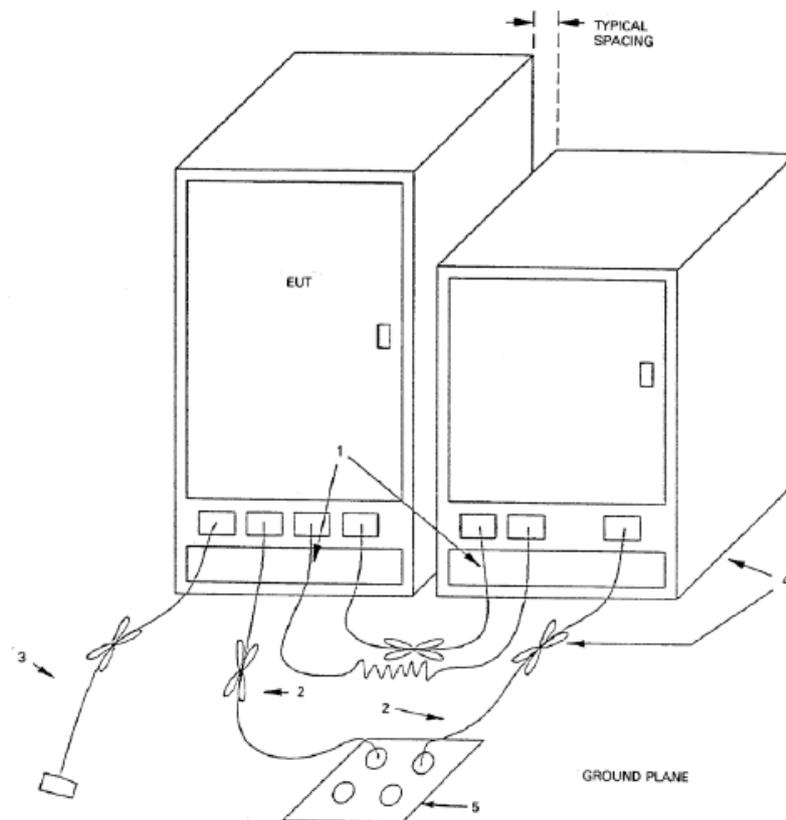
Note: for the measurement distance other than 3m and 10m, the limit is varied according to 20dB/10 decades.

**4.2 Block diagram and test set up**

For table top equipment



For floor standing equipment



### **4.3 Test Setup and Test Procedure**

The measurement was performed in a semi-anechoic chamber.

The distance from EUT to receiving antenna is 3 meter.

Measurement was performed according to clause 4 and clause 5 of ANSI 63.4.

Test procedure was according to clause 8.3 of ANSI 63.4.

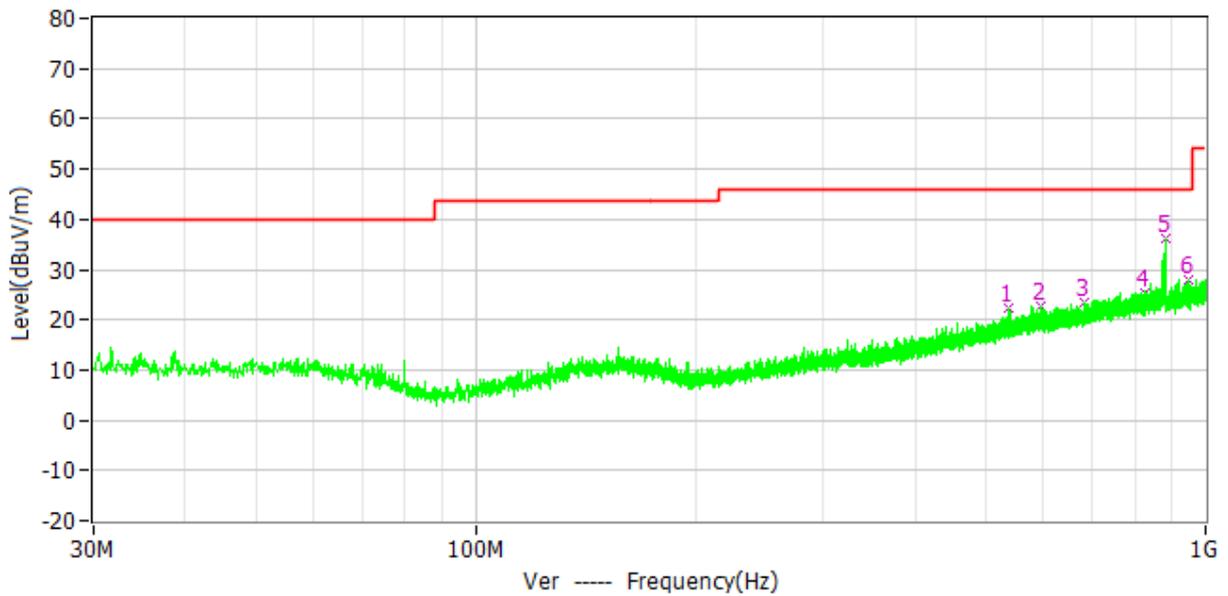
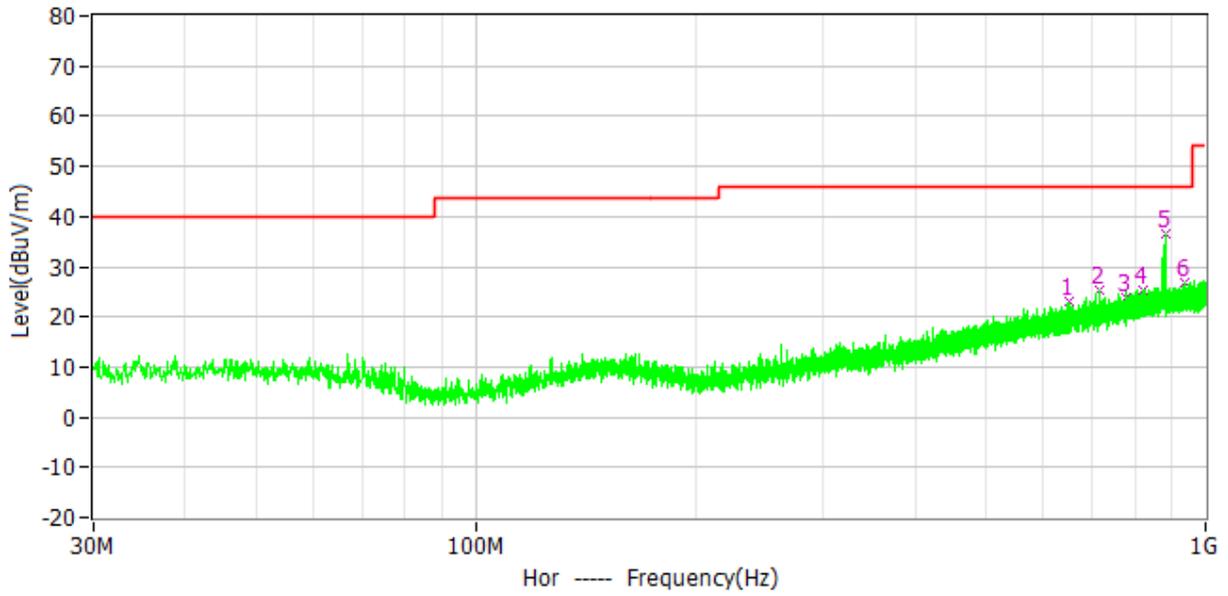
EUT arrangement and operate condition were according to clause 6 and clause 8 of ANSI 63.4.

The bandwidth setting on R&S Test Receiver was 120 kHz.

The required measurement frequency range was checked.

#### 4.4 Test Protocol

##### Test Curve:

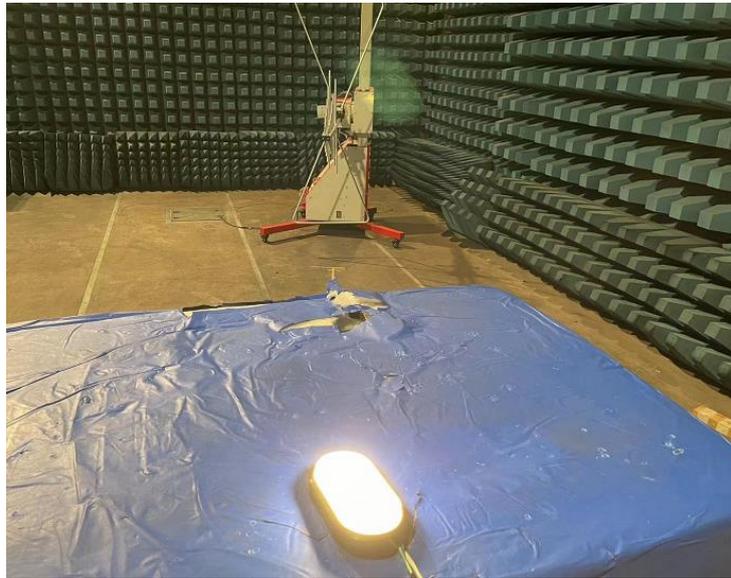


**Test Data:**

Frequency	Limit dBuV/m	Level dBuV/m	Delta dB	Factor dB/m	Detector	Polar
648.569MHz	46.0	22.9	-23.1	22.8	PK	Hor
715.014MHz	46.0	25.5	-20.5	23.8	PK	Hor
776.027MHz	46.0	23.9	-22.1	25.0	PK	Hor
823.460MHz	46.0	25.4	-20.6	25.7	PK	Hor
879.817MHz	46.0	36.5	-9.5	26.1	PK	Hor
935.398MHz	46.0	26.9	-19.1	26.6	PK	Hor
536.243MHz	46.0	22.5	-23.5	20.9	PK	Ver
593.376MHz	46.0	22.7	-23.3	22.1	PK	Ver
682.228MHz	46.0	23.4	-22.6	23.3	PK	Ver
823.945MHz	46.0	25.5	-20.5	25.7	PK	Ver
879.914MHz	46.0	36.1	-9.9	26.1	PK	Ver
946.844MHz	46.0	27.8	-18.2	26.7	PK	Ver

- Remark: 1. Factor = Antenna Factor + Cable Loss (+ Amplifier, for higher than 1GHz), the value was added to Original Receiver Reading by the software automatically.  
 2. Level = Original Receiver Reading + Factor  
 3. Delta = Level – Limit

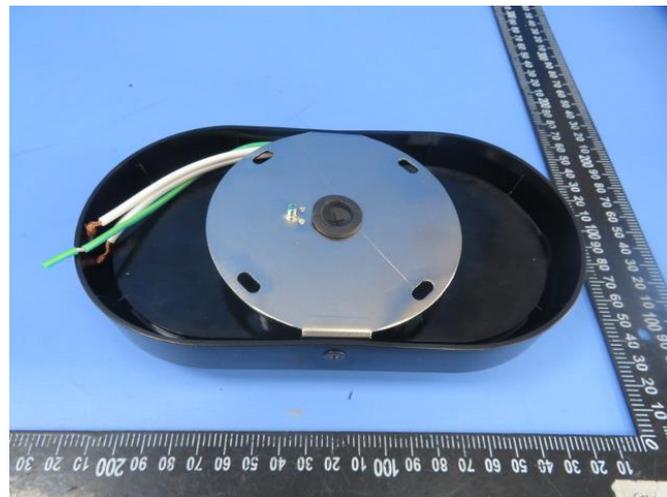
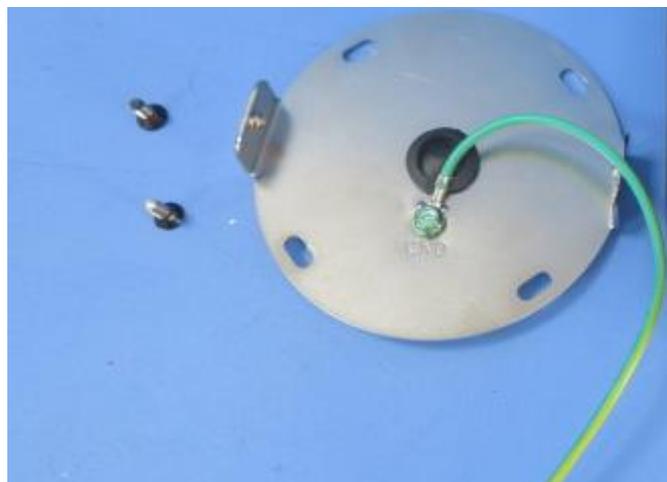
**Appendix I: Photograph of Test setup**

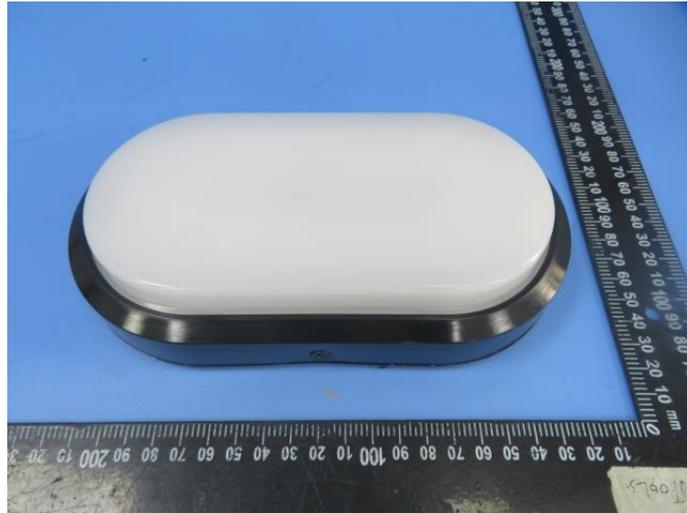


**Appendix II: Photograph of equipment under test**









**\*\*\*END of the report\*\*\***