Fabbian

Acustica F58

F58A11A47

Gio Minelli & Marco Fossati

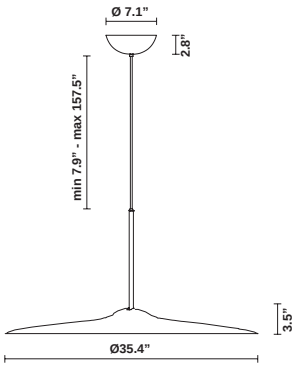
Fixture type

Project name





Dimensions



Material

Recycled PET, PMMA, Aluminum

Color

Honey

Other colors available

Check online www.fabbian.us

Included accessories

LED, Driver

Weight Lamp

8.9lbs (4Kg)

Options

4000K by request 47 custom color choices (minimum quantities apply) View color choices here: https://bit.ly/fabbian-custom-colors

Notes

See the following pages for the acoustic report

Description

Pendant light with a large and thin lampshade designed to absorb surrounding sounds and create a high level of acoustic comfort while providing direct ambient illumination. Recycled PET shade, black anodized aluminum structure and PMMA diffuser. Shade adjusts from level to inclined positions for dynamic and creative arrangements around its fixed central light source.

Voltage	Dimmable
120-277V (UNV)	0-10V

Specs

DRY IP40

Light source and Technical

Lamp type: LED
Wattage: 18W
Color temperature: 3000K
CRI: 90
Lumens: 1604

Pictures, descriptions, dimensions and technical data have to be considered as purely indicative. While maintaining the basic characteristics of the product, the manufacturer reserves the right to make modifications at any time with the sole aim of improvement.

ISTITUTO GIORDANO
BEYOND CERTIFICATION

ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 0021 L

TEST REPORT No. 381796

Customer

FABBIAN S.r.l.

Via Santa Brigida, 50 - Località Castelminio - 31023 RESANA (TV) - Italy

Item*

lamp named "F58 Acustica Ø900 mm"

Activity

measurement in reverberation room of the sound absorption "A_{obj}" of objects in accordance with standard ASTM C423 - 17

(*) according to that stated by the customer.

Bellaria-Igea Marina - Italy, 12 April 2021

Chief Executive Officer
(Dott. Arch. Sara Lorenza Giordano)

Firmato digitalmente da SARA LORENZA GIORDANO

Order:
87550

Item origin:
sampled and supplied by the customer

Identification of item received:
2021/0852/A dated 15 March 2021

Activity date:
25 March 2021

Activity site:
Istituto Giordano S.p.A. - Strada Erbosa Uno, 78 - 47043 Gatteo (FC) - Italy

Contents **Page**

Description of item*	2
Normative references	3
Apparatus	3
Method	3
Uncertainty of measurement	4
Environmental conditions	5
Results	5

This document is made up of 6 pages and shall not be reproduced except in full without extrapolating parts of interest at the discretion of the customer, with the risk of favoring an incorrect interpretation of the results, except as defined at contractual level.
The results relate only to the item examined, as received, and are valid only in the conditions in which the activity was carried out.
The original of this document consists of an electronic document digitally signed pursuant to the applicable Italian Legislation.

Chief Test Technician:
Dott. Andrea Muccioli
Head of Acoustics and Vibrations Laboratory::
Dott. Andrea Cucchi

Compiler: Agostino Vasini
Reviewer: Dott. Andrea Muccioli

Description of item*

The item under examination consists of circular lamps, having the dimensional characteristics stated in the following table.

Diameter of the single element "d"	900 mm
Measured thickness of the single object "T"	60 mm
Number of single objects "n"	4
Effective acoustic surface	5,08 m²
Measured mass per unit area of the item	3,5 kg/m²

The item, in particular, consists of a lampshade in thermoformed material, consisting of a thermoplastic texture based on modified copolyester and additive with nominal density of 50 g/m² containing polyester fiber.
The item is manufactured by the customer and it was placed in the reverberation room by Istituto Giordano staff.



Photograph of the item

(*) according to that stated by the customer, apart from characteristics specifically stated to be measurements; Istituto Giordano declines all responsibility for the information and data provided by the customer that may influence the results.

Normative references

Standard	Title
ASTM C423 - 17	Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method

Apparatus

Description
Behringer "EPX2000" 2000 W power amplifier
Behringer "DEQ2496" digital ⅓-octave equaliser
No. 2 omnidirectional speakers
Sinus "Soundbook" real-time analyser
Larson Davis "CAL200" acoustic calibrator for microphone calibration
No. 2 G.R.A.S. Sound & Vibration type "40AR" ½" microphones
No. 2 G.R.A.S. Sound & Vibration type "26AK" microphone preamplifiers
Kern "VB 150 K 50LM" electronic platform scale
Sola "Tri-Matic 5m/19mm" metric tape measure
Bosch "DLE 50 Professional" laser rangefinder
Delta Ohm "HD206-2" and "HD206S1" thermo-hygrometer
Brüel & Kjær "UZ001" barometer

Method

The test was carried out using detailed internal procedure PP016 in its current revision at date of testing.
The test environment consists of a parallelepiped-shaped reverberation room with a rectangular base and the following size specifications:

Plan-view dimensions	8,091 m × 6,782 m
Height "H"	3,994 m
Base surface area "S_b"	54,87 m²
Total surface area "S_t"	228,55 m²
Volume of the room	219,2 m³
Net volume of room "V"	218,8 m³

All surfaces of the test room were treated in such a way as to produce maximum sound reverberation; in addition, 14 slightly-curved diffusing elements having an overall surface area, including both faces, of approx. 40 m² were arranged and oriented randomly.
No. 4 objects were positioned in different positions of the reverberation room at different heights from the floor.
The test involves measuring decay rate the empty reverberation room "d_1" and with the item under examination "d_2" in order to determine the said object's sound absorption "A_{obj}"; measurements were taken in one-third-octave bands within the range 100 Hz to 5000 Hz using the interrupted noise method.

The test utilised a pink-noise generator, power amplifier and two dodecahedral omnidirectional speakers, operating alternatively for each one of the six microphone positions, such as to measure twelve decays in sound pressure level for each frequency band.

The sound absorption of the object "A_{obj}" was calculated using the following equations:

$$A_{obj} = \frac{A}{n}$$

$$A = A_2 - A_1 = 0{,}9210 \cdot \frac{V_2 (d_2 - d_{2,air})}{c_2} - 0{,}9210 \cdot \frac{V_1 (d_1 - d_{1,air})}{c_1}$$

$$c_2 = 20{,}047\sqrt{271{,}15 + t_2} \quad c_1 = 20{,}047\sqrt{271{,}15 + t_1}$$

where: A_{obj} = sound absorption of the object, in m²;
- S = surface of test item, in m²;
- n = number of objects;
- A = equivalent sound absorption area of the item under examination, in m²;
- A_2 = equivalent sound absorption area, in m², of the reverberation room with test item;
- A_1 = equivalent sound absorption area, in m², of the empty reverberation room;
- V_2 = effective volume, in m³, of the reverberation room with test item;
- V_1 = effective volume, in m³, of the empty reverberation room;
- d_2 = decay rate, in dB/s, of the reverberation room with test item;
- d_1 = decay rate, in dB/s, of the empty reverberation room;
- $d_{2,air}$ = decay rate, in dB/s, of the reverberation room with test item due to sound absorption of air and calculated in accordance with annex B of ANSI S1.26;
- $d_{1,air}$ = decay rate, in dB/s, of the empty reverberation room due to sound absorption of air and calculated in accordance with annex B of ANSI S1.26;
- c_2 = speed of sound in air, in m/s, of the reverberation room with test item;
- c_1 = speed of sound in air, in m/s, of the empty reverberation room;
- t_2 = air temperature, in °C, in the reverberation room with test item;
- t_1 = air temperature, in °C, in the empty reverberation room.

The test was carried immediately after the item under examination completion.

Uncertainty of measurement

Uncertainty of measurement was determined in accordance with guide JGCM 100:2008 dated September 2008 "Evaluation of measurement data - Guide to the expression of uncertainty in measurement", by calculating for each frequency the number of effective degrees of freedom "v_{eff}" and expanded uncertainty "U" of the sound absorption of object "A_{obj}", using a coverage factor "k" representing a confidence level of 95 %.

Environmental conditions

	Test without item	Test with item
Atmospheric pressure	101900 Pa	101900 Pa
Air temperature "t"	15,1 °C	14,9 °C
Relative humidity	43,3 %	42,1 %

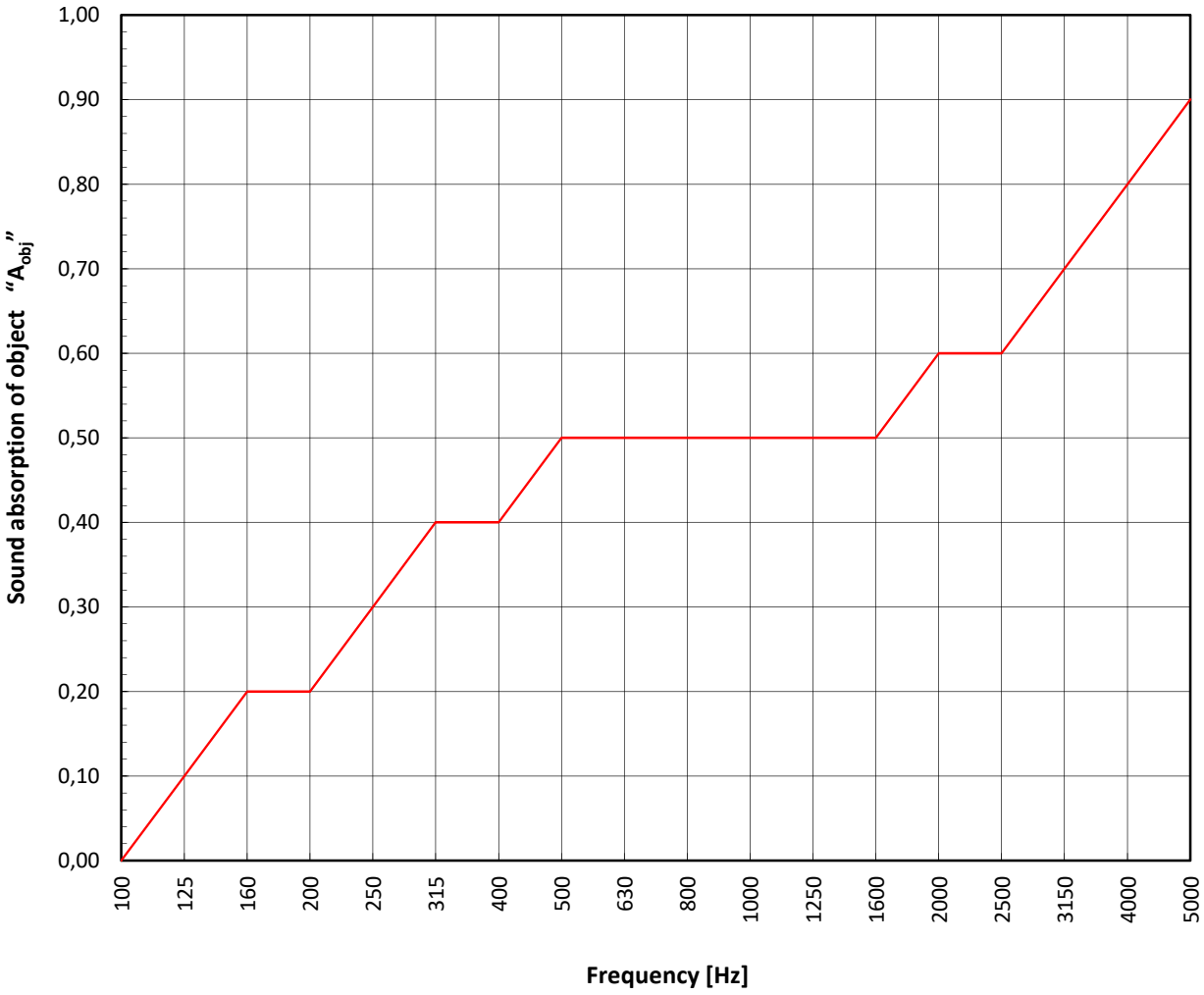
Results

Volume of reverberation room without item "V_1"	218,8 m^3
Volume of reverberation room with item "V_2"	218,8 m^3
Number of objects "n"	4

Frequency [Hz]	**d_1** [dB/s]	**d_2** [dB/s]	**A_{obj}** [m^2]	**v_{eff}**	**k**	**U**
100	8,19	8,31	**0,00**	22	2,00	0,04
125	7,87	8,39	**0,10**	22	2,00	0,05
160	7,51	8,53	**0,20**	19	2,00	0,07
200	7,41	8,56	**0,20**	22	2,00	0,05
250	7,80	9,91	**0,30**	21	2,00	0,07
315	7,79	10,22	**0,40**	17	2,00	0,05
400	7,98	10,33	**0,40**	19	2,00	0,04
500	8,41	11,46	**0,50**	20	2,00	0,04
630	10,14	13,29	**0,50**	18	2,00	0,04
800	11,30	14,59	**0,50**	15	2,00	0,05
1000	11,62	14,87	**0,50**	20	2,00	0,04
1250	13,14	16,79	**0,50**	21	2,00	0,07
1600	14,34	17,94	**0,50**	20	2,00	0,07
2000	16,12	19,99	**0,60**	22	2,00	0,06
2500	18,18	22,49	**0,60**	21	2,00	0,05
3150	22,08	27,42	**0,70**	23	2,00	0,06
4000	26,00	31,64	**0,80**	21	2,00	0,09
5000	33,57	40,53	**0,90**	22	2,00	0,09

LAB N° 0021 L

ONE-THIRD-OCTAVE BAND
SOUND ABSORPTION OF OBJECT "A_{obj}"



Chief Test Technician
(Dott. Andrea Muccioli)

Head of Acoustics and Vibrations Laboratory
(Dott. Andrea Cucchi)