

**CONFIDENTIAL**

**TEST REPORT ON DETERMINATION OF  
RANDOM INCIDENCE SOUND ABSORPTION COEFFICIENT OF  
ECONA – T (QUADRA 10 MM) TILES**

**NVH/3100007296/2020-21/1203****18<sup>th</sup> June 2020**

- 1.0 CUSTOMER NAME :** GYPTECH SYSTEMS PVT. LTD.  
C-17, Miraj Apartment,  
NR Natubhai Circle Race Course,  
Vadodara, Gujarat – 390 007
- 2.0 LETTER REF. :** E-mail dated 16<sup>th</sup> March 2020
- 3.0 TEST COMPONENT DETAILS :** Econa-T (Quadra 10 mm) tiles sample details given by customer as follows:
- Sample Name : Econa-T (Quadra 10 mm)
  - Sample Details : Tissue Face Gypsum Perforated Tile
  - Size of one panel : 595 mm X 595 mm
  - Thickness : 12 mm
  - Area of test sample : 2.4 m x 2.4 m

**4.0 TEST REQUIREMENTS :**

Measurement of random incidence sound absorption coefficient on Econa-T (Quadra 10 mm) tissue face gypsum perforated tiles of 12 mm thick with type E-300 mounting (with 300 mm air gap) as per ASTM C-423 / ISO 354 in reverberation chamber.

**5.0 TEST PROCEDURE :**

The random incidence sound absorption coefficient measurement was carried out on Econa-T (Quadra 10 mm) tissue face gypsum perforated tiles as per ASTM C-423 / ISO 354 in reverberation chamber. The test sample of size 2.4 m × 2.4 m was directly mounted on the floor with type E-300 mounting using 300 mm height wooden frame. Total 16 test samples were used. Please refer figure 1 for test set up and test component details. The measurement was carried out at temperature  $26 \pm 1^{\circ}\text{C}$  and humidity 64%.

**6.0 DATE OF EVALUATION :**

The random incidence sound absorption coefficient measurement was carried out on above mentioned Econa-T (Quadra 10 mm) tissue face gypsum perforated tiles on 16<sup>th</sup> June 2020.

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**7.0 INSTRUMENTATION :**

| Sr. No | Instrument Name                       | Type / Model No                          | Make                    |
|--------|---------------------------------------|------------------------------------------|-------------------------|
| 1      | Multi-channel Data Acquisition System | 3560 D                                   | Brueel & Kjaer, Denmark |
| 2      | ½" Random Incidence Microphone        | 378B20                                   | PCB, USA                |
| 3      | Power Amplifier                       | 2716                                     | Brueel & Kjaer, Denmark |
| 4      | Omni directionnel sound source        | Omni power 4296                          | Brueel & Kjaer, Denmark |
| 5      | Reverberation room                    | 80 m <sup>3</sup> and 110 m <sup>3</sup> | -                       |

**8.0 TEST RESULTS :**

Table 1 and figure 2 shows the average values and plot for random incidence sound absorption coefficient of Econa-T (Quadra 10 mm) tissue face gypsum perforated tiles of 12 mm thick along with 300 mm air gap in the frequency range of 100 to 8000 Hz.

**9.0 CONCLUSIONS :**

- 9.1 The Noise Reduction Coefficient (NRC) is given by the average value of sound absorption coefficient at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz is calculated as per ASTM C- 423.
- 9.2 The weighted sound absorption coefficient ( $\alpha_w$ ) and sound absorption class are calculated as per ISO 11654 are given below.

| <b>Econa-T (Quadra 10 mm) tissue face gypsum perforated tiles of 12 mm thick along with 300 mm air gap</b> |         |
|------------------------------------------------------------------------------------------------------------|---------|
| Noise Reduction Coefficient (NRC)                                                                          | 0.55    |
| Weighted Sound Absorption Coefficient ( $\alpha_w$ )                                                       | 0.50(L) |
| Sound Absorption Class                                                                                     | Class D |

Report Prepared By:



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Engineer

Reviewed By:



**M. P. Joshi**  
Manager

Approved By:



**S. K. Jain**  
General Manager

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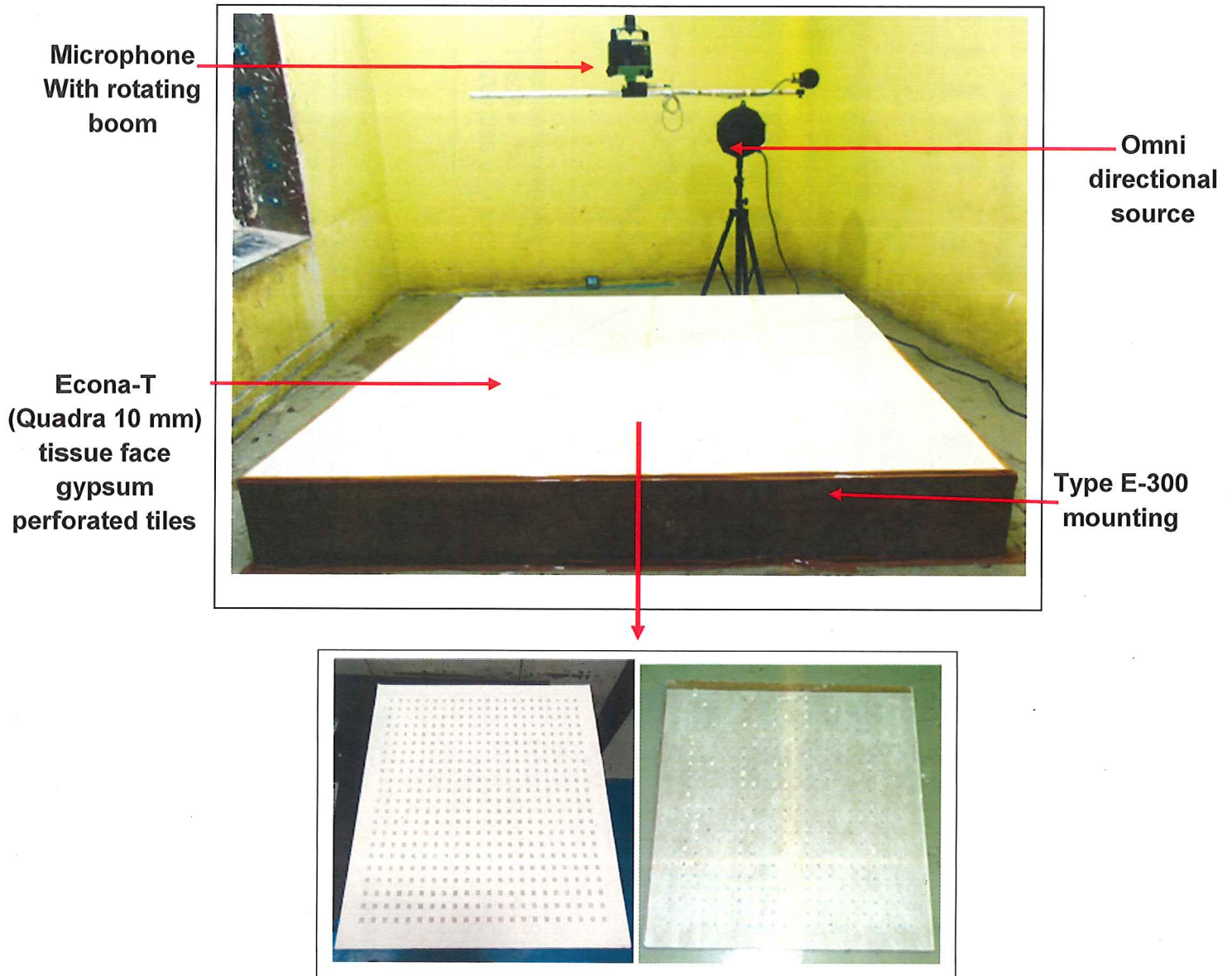


**Figure 1: Test set up for mounting and testing of Econa-T (Quadra 10 mm) tissue face gypsum perforated tiles of 12 mm thick along with 300 mm air gap in reverberation chamber**