

No: UFD/E5880/2627/0180

Date: 22-04-2026

TEST AND CALIBRATION CERTIFICATE

PRODUCT : DIGITAL ULTRASONIC FLAW DETECTOR
MODEL/SR.NO. : Einstein-II DGS/E5880-1220
SUPPLIED TO : BHARTIA INFRA PROJECTS LIMITED.
KOLKATA.
VALID UPTO : 14-04-2027

We certify that the above machine was tested and calibrated by us on 15/04/2026 in accordance with the ASTM-E317-21 using Ultrasonic Block (IIW - V1 Block) identified with Sr. No.: 2868-05-2022 calibrated / certified by NPL – New Delhi (vide Certificate No. 24090850/D1.06/C-145 dated 11/10/2024 valid up to 11/10/2026. Following are the values of the important parameters evaluated by us.

1. **Horizontal Linearity** : Non-Linearity within $\pm 1\%$ (plus/minus one percent) for 0 % to 100% FS range.
2. **Vertical Linearity** : Non-Linearity within $\pm 5\%$ (plus/minus five percent) for 0% to 100 % FS range.
3. **Resolution** :
 - (A) **Near Surface Resolution** : Modsonic Probe Type MM4SN (10mm dia. x 4MHz) could distinctly resolve a Flat Bottom Hole (FBH) of 8/64" dia. (3.175mm dia.) at a metal distance of 0.3" (7.62mm) from the near surface.
 - (B) **Far Surface Resolution** : Modsonic Probe as in 3 (A) above could distinctly resolve a Flat Bottom Hole (FBH) of 3/64" dia. (1.19mm dia.) at a metal distance of 0.25" (6.35mm) from far surface.
4. **Sensitivity** : Modsonic probe as in 3(A) above could distinctly detect a FBH of 1/64" dia. in Aluminium block type 1-0300 with the gain 76dB and signal to noise ratio of 6:1.
5. **Penetration** : Modsonic probe type M2SN (24mm dia. x 2MHz) gave little more than 5 (five) full scale reflections and 6th appearing on the perspex in V1 (IIW type) Reference Block, with noise level of about 10%.
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Calibrated By : UTPAL OZA
Designation : SR.ENGINEER

