

TAG CORPORATION

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Test Report No.: CT / 107 / 2007

22 / 03 / 2007

1. **COMMODITY** : AAAC "Mulberry" Conductor
Size 19/3.18 mm
2. **MANUFACTURER** : Diamond Cables Limited,,
District Baroda.
3. **DATE OF TEST** : 20-03-2007
4. **TEST PERFORMED AT** : TAG LABORATORIES, Chennai 44., INDIA
5. **NATURE OF TEST** :
 1. Surface condition
 2. Tensile Test.
 3. Measurement of Diameter of individual strands.
 4. Measurement of Lay Ratio.
 5. Breaking Load of individual strands.
 6. Elongation of individual strands.
 7. Resistance of individual strands.
 8. DC Resistance of complete conductor.
6. **NUMBER OF SAMPLES TESTED** : ONE LENGTH for each test.
Drum No. MEC/MOZ/C-076/AM-.039.
Sample received vide Blue Dart Express
C.N. No.5804 2419 956, dated 14 / 03 / 2007.
7. **SPECIFICATION APPLIED** : IEC 61089-91, IEC 60104
8. **DETAILS & RESULTS** : AS GIVEN IN PAGES TWO to FOUR


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ISO CERTIFIED COMPANY – Cert.Regn.No. 99 100 00505



1. SURFACE CONDITION TEST:

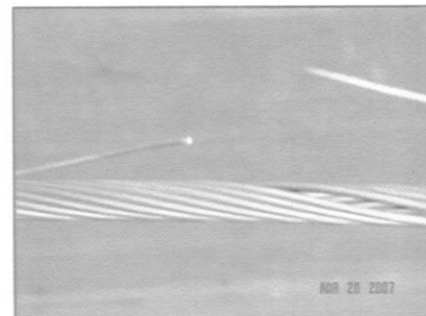
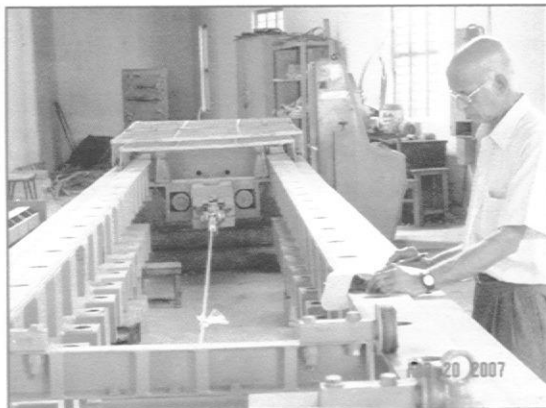
The surface of the AAAC "Mulberry" conductor was free from all imperfections visible to the unaided eye. There was no nick, indentation etc and the surface finish was satisfactory.

2. TENSILE TEST ON THE COMPLETE CONDUCTOR:

The sample of AAAC "Mulberry" conductor was fitted with suitable compression dead ends and the assembly was mounted on a tensile testing machine. The load was applied gradually maintaining the rate of increase as per Clause B.6.8 of annex B. At a load of 4,400 kg (43.16 kN), one strand broke in the middle of the span.

Results:

- 1) The sample of the conductor withstood 95% of the specified ultimate strength of 4,312 kg.
- 2) The breaking load achieved was **4,400 kg (43.16 kN)**.




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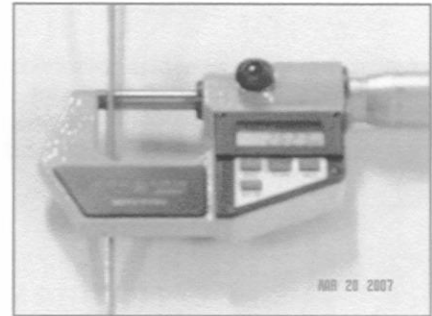




3. MEASUREMENT OF DIAMETER OF INDIVIDUAL STRANDS:

The diameter of the aluminium alloy strands cut from the conductor was measured using a micrometer.

The average diameter of the wires ranged from 3.175 mm to 3.180 mm.
(Required value – 3.15 mm to 3.21 mm)



4. MEASUREMENT OF LAY RATIO:

The lay ratio of each layer of the conductor measured and presented below:



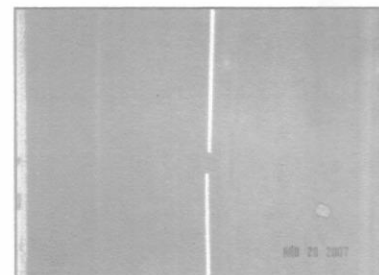
LAYER	LAY RATIO Of the conductor	SPECIFIED In the IS
Outer Most Layer.	RH – 12.19	(10 – 14)
Innermost Layer	LH – 15.81	(10 – 16)

The lay ratios were found to meet the requirement of the specification as per Clause 5.4.

5. BREAKING LOAD TEST ON INDIVIDUAL STRANDS:

One length of the individual strand of aluminium alloy cut from the conductor was fixed between the jaws of the tensile testing machine and the load was applied.

The breaking load of the Al. alloy wire was 304 MPa
(Value specified – 295 MPa Min.)




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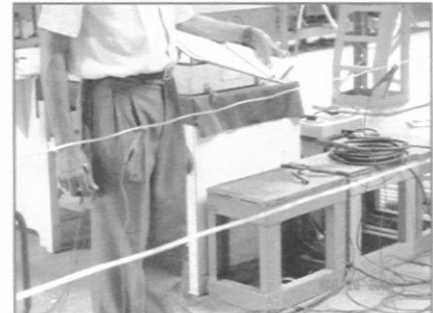
6. ELONGATION TEST:

One specimen of the aluminium alloy strand was cut from the conductor and was mounted on the tensile testing machine between the jaws after marking a gauge length of 250 mm. The load was applied and after the breakage, the length between the gauge marks was measured. The elongation was 4.0 % as against the specified minimum elongation of 3.5 % and hence the sample met the minimum requirement of the specification.

7. RESISTANCE TEST OF THE INDIVIDUAL ALUMINIUM STRANDS:

The electrical resistance of one aluminium alloy wire cut from the conductor was measured at the ambient temperature. The measured resistance was corrected to a value at 20 Deg.C. The resistance for 1-km length of the wire was calculated for this corrected value.

The resistance at 20 Deg. C was 25.908 nΩm as against the maximum permissible value of 32.530 nΩm and hence the sample meets the requirement of the specification.



8. RESISTANCE TEST OF THE COMPLETE CONDUCTOR:



The electrical resistance of the complete conductor was measured at the ambient temperature. The measured resistance was corrected to a value at 20 Deg.C. The resistance for 1-km length of the conductor was calculated for this corrected value.

The resistance of the complete conductor at 20 Deg. C was 0.2109 Ohm/km.


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