

NATIONAL RESEARCH & TECHNOLOGY CONSORTIUM

(An Autonomous Institute set up by the State Council for Science and Technology, Govt of H.P.)
Scientific & Industrial Research Organization (SIRO), recognized by DSIR, Govt. of India

Centre for Analysis, Calibration and Testing

(An NABL accredited laboratory in Calibration)

Deptt. of Industries Complex, Sector-1, PARWANOO-173 220 (H.P.) INDIA

Phone : 91-1792-233675, TFX : 91-1792-234107

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TEST REPORT

Report No.: S/TST/ELT/007/15/2012_ 3-3

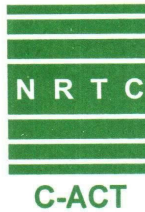
NRTC Jct No. 1213/00168 (4)

Test Report of: VHF Mobile Transceiver (136-174 MHz); 25 Watt

Date of Start of Testing : 28/06/2012
Date of Completion of Testing : 23/07/2012

1. UUT Identification
 - Nomenclature : VHF Mobile Transceiver (136-174 MHz); 25 Watt
 - Make : Surya Telecom
 - Model : Indus M900
 - Sr.No. : NM
 - Quantity : One
2. Address of Client : M/s. Surya Telecom Pvt. Ltd.
Plot-20A, Industrial Area, Sector-2
Parwanoo (HP)-173220
3. UUT received on : 23/06/2012
4. Testing Procedure adopted : Indentor's Specification and IS:9000 (Part-II, Part-III
Part-IV, Part-V, Part-VII, Part-VIII)
5. UUT adjusted/ not adjusted : Not applicable
6. Environmental Conditions Maintained : Lab. Ambient Temperature : (25 ± 2)°C
Relative Humidity : (55 ± 15)%





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Report No.: S/TST/ELT/007/15/2012_ 302

NRTC Job No. 1213/00168 (4)

7. Test Results:-

Test Stage	Test Requirements	Test condition	Observation	Remarks
1. Functional Test	Shall be functional	The Sample (Hand Held Transceiver) Shall be checked for performance as below: a) Test Frequency (Tx): 155 MHz Stability: ± 5 PPM b) RF Power output (Tx) shall be within $(25W \pm 0.5dB)$ +/-1dB c) Sensitivity: Frequency(Rx):155 MHz Receiver Sensitivity shall be $(0.3 \mu V$ for 12 dB SINAD) +/-1dB.	155.00005 MHz 26.8 W 0.3 μV for 13.8 dB S NAD	Pass
2. Dry Heat	As per IS: 9000 Part 3 Sec. 5/ 1977 Reaffirmed 2004 1. Frequency stability: should not degrade 2. RF Power output: should not degrade by more than 1 dB 3. Receiver sensitivity: should not degrade by more than 1 dB	55°C \pm 2°C relative humidity < 50% for 16 hrs. UUT kept in ON condition during last 4 hours and functional test carried out during last half an hour. a) Test Frequency (Tx): 155 MHz Stability: ± 5 PPM b) RF Power output (Tx) shall be within $(25W \pm 0.5dB)$ +/-1dB c) Sensitivity: Frequency(Rx):155 MHz Receiver Sensitivity shall be $(0.3 \mu V$ for 12 dB SINAD) +/-1dB.	No Visual or Functional defects 155.00009 MHz 26.7 W 0.3 μV for 13.4 dB SINAD	Pass
3. Damp Heat (cyclic) Test	As per IS: 9000 Part 5 Sec. 2/ Variant 1/1981 Reaffirmed 2004 1. Frequency stability: should not degrade 2. RF Power output: should not degrade by more than 1 dB 3. Receiver sensitivity: should not degrade by more than 1 dB	40°C \pm 2°C relative humidity 95% two cycles of 24 (12 + 12) hour each. UUT kept in ON condition during last 4 hours and functional test carried out during last half an hour. a) Test Frequency (Tx): 155 MHz Stability: ± 5 PPM b) RF Power output (Tx) shall be within $(25W \pm 0.5dB)$ +/-1dB c) Sensitivity: Frequency(Rx):155 MHz Receiver Sensitivity shall be $(0.3 \mu V$ for 12 dB SINAD) +/-1dB.	No Visual or Functional defects 155.00007 MHz 26.6 W 0.3 μV for 13.1 dB SINAD	Pass





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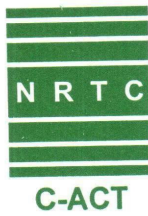
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Report No.: STST/ELT/007/15/2012_ 303 NRTC Job No. 1213/00168 (4)

Test Stage	Test Requirements	Test condition	Observation	Remarks
4. Cold Test	As per IS: 9000 Part 2 Sec. 4/ 1977 Reaffirmed 2004 1. Frequency stability: should not degrade 2. RF Power output: should not degrade by more than 1 dB 3. Receiver sensitivity: should not degrade by more than 1 dB	-10°C ± 3°C duration 16 hours. UUT kept in ON condition during last 4 hours and functional test carried out during last half an hour. a) Test Frequency (Tx): 155 MHz Stability: ± 5 PPM b) RF Power output (Tx) shall be within (25W ± 0.5dB) +/-1dB c) Sensitivity: Frequency(Rx):155 MHz Receiver Sensitivity shall be (0.3 µV for 12 dB SINAD) +/-1dB.	No Visual or Functional defects 155.00009 MHz 26.5 W 0.3 µV for 12.8 dB SINAD	Pass
5. Drop Test in packed condition	As per IS: 9000/ Sec 3/ Part 7 – 1979 Reaffirmed 2004	Fully charged UUT subjected to six drops on each face, height of fall 500 mm.	No electrical fault or mechanical damage or observed	Pass
6. Vibration Test	IS: 9000 (Part-VIII)-1981 Reaffirmed 2006	Frequency: 15 to 150Hz Amplitude:0.15mm/2g Sweep Rate: 1 octave/minute Duration: 12 Hrs.(4 hrs. In each axis X,Y,Z) Basic Motion: Sinusoidal Transverse Motion:+/- 25% Mounting: Mounted on fixture	No Visual or Functional defects	Pass
7. Storage Test	As per IS: 9000 Part 3 Sec. 5/ 1977 & Part 2 Sec. 4/1977 Reaffirmed 2004	-40°C for 5 hrs then raise temperature to 70°C for 16 hrs. Functional test carried out after cooling at ambient condition for half an hour.	No Visual or Functional defects	Pass
8. Bump Test	As per IS: 9000 Part VII / sec-2/1979 Reaffirmed 2004	Acceleration: 400m/s ² Bump Rate : 1-3 Bumps/Sec No. of Bumps: 4000+/-10 Mounting: unpacked Condition Pulse Shape: 1 half cycle of sine wave	No Visual or Functional defects	Pass





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Test Stage	Test Requirements	Test condition	Observation	Remarks
9. Functional Test (After Environment)	1. Frequency stability: should not degrade, 2. RF Power output: should not degrade by more than 1 dB 3. Receiver sensitivity: should not degrade by more than 1 dB	The Sample (Hand Held Transceiver) Shall be checked for performance as below: a) Test Frequency (Tx): 155 MHz Stability: ± 5 PPM b) RF Power output (Tx) shall be within (25W ± 0.5 dB) ± 1 dB c) Sensitivity: Frequency(Rx): 155 MHz Receiver Sensitivity shall be (0.3 μ V for 12 dB SINAD) ± 1 dB.	155.00009 MHz 26.5 W 0.3 μ V for 12.9 dB SINAD	Pass

Tested by
(Nitin Parmar)

Checked by
(Ashutosh Narayan)

Approved by
(Dr. S K Sinha)

Abbreviation used : UUT Unit Under Testing

Head, C-ACT
National Research & Technology Consortium
Sector-1, Parwanoo (HP) 173220

NOTE:

- This report refers only to the UUT actually tested and identified by Sr. No. 1.
- The Test results are valid at the time of test under stated lab. conditions.
- All the tests are done as per the customer's request.
- Functional Test carried out with the equipment provided by the customer.
- In case the test equipment not available or out of order, the test may be carried out through outsourcing.
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- Please refer the report no. & NRTC Job no. for any future correspondence to Head, C-ACT.

