

# INTERNATIONAL CENTRE FOR AUTOMOTIVE TECHNOLOGY

[A Division of NATRiP Implementation Society (NATIS), Govt. of India]

## TEST REPORT

Non-Transferable

Test Report No. :

C T 2 G P 8 0 1 4





Date: 30.01.2020

- NAME AND ADDRESS OF THE CUSTOMER**  
M/s iTriangle Infotech Pvt. Ltd.  
# 803/A (803/A-1-3), 76th 'A' Cross, West of Chord Road, 6th Block Rajaji Nagar, Bengaluru, Karnataka-560010
- NAME AND ADDRESS OF THE MANUFACTURER**  
M/s Tecno Systems India Electronics Pvt. Ltd.  
Khata No. 229/195/A, Marsur, Kasaba hobli, Anekal Taluk, Bengaluru, Karnataka, 562106 India

**3. DESCRIPTION OF DEVICE UNDER TEST (DUT)**

VTD (Vehicle Tracking Device)	Emergency Button
Model No: aQuila Bharat101 with IRNSS	Model Name: aQuila_SOS
Part No: ITR-BH-0020	Part No: ITR-PB-0029
Drawing No. : ITR000-10_128_G2.3	Drawing No. : ITR-DWG-PB-0029
GSM/GPRS Make/Module: SIMCOM SIM800	
GNSS/GPS Make/IRNSS Module: Quectel L89 (GPS+IRNSS)	
Accelerometer & Gyroscope Make/Module: STMicroelectronics LSM6DSL	
Voltage System: 12V & 24V	
e-Sim Make/Network Profiles: Sensorise/Idea & BSNL	
Firmware Version/Software Version: 1_36T02B0164MAIS_6/Nucleus	

- DATE OF RECEIPT OF SAMPLE (DUT)** 25.02.2019
- CONDITION OF SAMPLE(s)** OK
- TEST OBJECTIVE**  
To carry out the tests as per AIS 140 as amended up to December 2018 on samples mentioned in Sr. No. 2 above.
- TEST METHOD**  
As per AIS 140 as amended up to December 2018.
- JUSTIFICATION FOR EXTENSION:**  
Vehicle location tracking Unit (Part no. ITR-BH-0019) with Emergency Button (Part Nos ITR-PB-0023, ITR-PB-0029, ITR-PB-0030) has already been approved as per AIS: 140 as amended up to December 2017 vide Test Report No. CT0GN0035 dated 31.01.2018 & CT1GN0371 dated 11.12.2018 which was supporting only GPS constellations. The customer now seeks supplement test report for the approved part declaring that they had changed the GNSS module from Quectel L86 to Quectel L89 with some other changes as mentioned in Sr. No. 14 of this test report to meet the requirements as per AIS 140 Amd 2. Based on customer declared changes relevant tests has been conducted as mentioned in Sr. No. 14 of this test report & supplement report may be issued as per AIS: 140 as amended up to December 2018.
- CONCLUSION**  
Based on the declaration, drawings submitted by the customer and after the physical verification of the components, the supplement test report is being issued as per AIS: 140 as amended up to December 2018, to the VLTD with emergency button as specified in Sr. No. 2 as per the revised drawings.
- TEST DESCRIPTION AND DATE OF PERFORMANCE OF TEST:**  
All tests mentioned in Sr. No. 12 of this test report were conducted from 25.02.2019-30.03.2019.  
**Note:**  
\*This Report should be read along with Test Report No. CT0GN0035 dated 31.01.2018 & CT1GN0371 dated 11.12.2018.  
\*\*This Report Supersedes report no CT1GO0112 Dated 08.04.2019

Prepared By	Checked By	Approved By	
			
SONIA NAIN Asst. Manager	SONU KR. SUDRANIA Manager	PAMELA TIKKU Sr. General Manager	Page 1 of 17 + Drwg. (2 pages) [75149]

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11. TEST RESULTS

DUT as mentioned in Sr. No. 2 above *meets* all the Test requirements as per AIS 140 as amended up to December 2018.



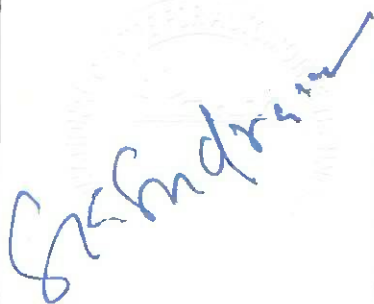
12. CUSTOMER DECLARED CHANGES:

Sr. No.	Description of changes	Reason of change
1.	GNSS Module changed from Quectel L86 to Quectel L89	To provide support of IRNSS with GPS
2.	Firmware up gradation	To meet the protocol requirements as per AIS 140 amd 2.

13 DUT Description:

VTS (Vehicle Tracking System)	Emergency Switch
	
	

System Details		
1	Main GSM antenna	Internal
2	GPS antenna	Internal Patch Antenna
3	WLAN antenna	NA
4	System Software:	
4.1	Make	Windows
4.2	Version	Microsoft
4.3	Operating System Details with Version	Windows 7, Windows 10
5	Communication Protocol Used:	
5.1	Vehicle to center	TCP/IP as per AIS140 guidelines
5.2	VLT to control center	TCP/IP as per AIS140 guidelines
6	Command set for configurations	Available as per AIS 140 guidelines
7	Description of device	TCP/IP as per AIS140 guidelines

Prepared By		Checked By	
			
SONIA NAIN Asst. Manager		SONU KR. SUDRANIA Manager	Page 2 of 17 + Drwg. (2 pages) [75149]



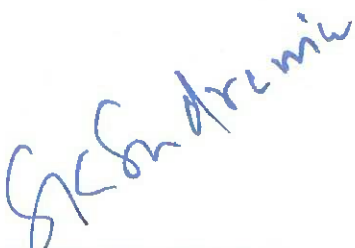
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14. TEST DETAILS:

Sr. No.	Test Title	ICAT Sample I.D	Reference Standard	Observations/ Results
1.	Dry Heat / High Temperature Test	ICAT/AEEL/65845/01	As per AIS 140 Cl. No. 6.3.3 (Sr. No. 1) further referring IS: 9000 (Part 3/Sec 5)	<b>SATISFACTORY</b>
2.	Cold Test	ICAT/AEEL/65845/02	As per AIS 140 Cl. No. 6.3.3 (Sr. No. 2) further referring IS 9000 (Part 2/Sec 4 - 1977)	<b>SATISFACTORY</b>
3.	Temperature Shock Test	ICAT/AEEL/65845/03	As per AIS 140 Cl. No. 6.3.3 (Sr. No. 4)	<b>SATISFACTORY</b>
4.	Damp Heat Cycle Test.	ICAT/AEEL/65845/02	As per AIS 140 Cl. No. 6.3.3 (Sr. No. 3) further referring IS 9000 (Part 5/Sec 2 - 1981)	<b>SATISFACTORY</b>
5.	High Voltage Test	ICAT/AEEL/65845/01	As per AIS 140 Cl. No. 6.3.3 (Sr. No. 6) further referring ISO 16750-2:2010	<b>SATISFACTORY</b>
6.	Shock Test	ICAT/AEEL/65845/02	As per AIS 140 Cl. No. 6.3.2 (Sr. No. 1) further referring IS 9000-part 7 – 2006	<b>SATISFACTORY</b>
7.	Vibration Test	ICAT/AEEL/65845/02	As per AIS 140 Cl. No. 6.3.2 (Sr. No. 2) further referring IS 9000-part 8 – 1981	<b>SATISFACTORY</b>
8.	Reverse Polarity Protection without fuse	ICAT/AEEL/65845/01	As per AIS 140 Cl. No. 6.3.2 (Sr. No. 6)	<b>SATISFACTORY</b>
9.	Performance Parametric Test	ICAT/AEEL/65845/05	As per Cl. No. 6.3.2 of (Sr. No. 10) of AIS 140	<b>SATISFACTORY</b>
10.	Tracking Functionality Test	ICAT/AEEL/65845/03	As per Cl. No. 6.3.1 (Sr. No. 1) of AIS 140	<b>SATISFACTORY</b>
11.	Location Accuracy Test	ICAT/AEEL/65845/03	As per Cl. No. 6.3.1 (Sr. No. 2) of AIS 140	<b>SATISFACTORY</b>
12.	Acquisition Sensitivity Test	ICAT/AEEL/65845/03	As per Cl. No. 6.3.1 (Sr. No. 3) of AIS 140	<b>SATISFACTORY</b>
13.	Tracking Sensitivity Test	ICAT/AEEL/65845/03	As per Cl. No. 6.3.1 (Sr. No. 4) of AIS 140	<b>SATISFACTORY</b>

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<p><b>Prepared By</b></p>  <p><b>SONIA NAIN</b> Asst. Manager</p>		<p><b>Checked By</b></p>  <p><b>SONU KR. SUDRANIA</b> Manager</p>	<p>Page 3 of 17 + Drwg. (2 pages) [75149]</p>
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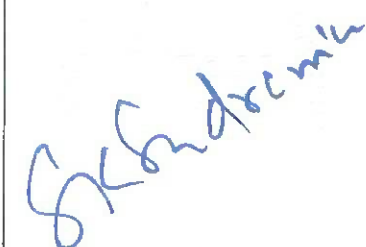


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Sr. No.	Test Title	ICAT Sample I.D	Reference Standard	Observations/ Results
14.	Cold-Start Time to First Fix (TTF) Test	ICAT/AEEL/65845/03	As per Cl. No. 6.3.1 (Sr. No. 5) of AIS 140	<b>SATISFACTORY</b>
15.	Warm-Start Time to First Fix Test	ICAT/AEEL/65845/03	As per Cl. No. 6.3.1 (Sr. No. 6) of AIS 140	<b>SATISFACTORY</b>
16.	Hot-Start Time to First Fix Test	ICAT/AEEL/65845/03	As per Cl. No. 6.3.1 (Sr. No. 7) of AIS 140	<b>SATISFACTORY</b>
17.	Embedded SIM/UICC Test	ICAT/AEEL/65845/03	As per Cl. No. 6.3.1 (Sr. No. 8) of AIS 140	<b>SATISFACTORY</b>
18.	Functional Endurance Test	ICAT/AEEL/65845/02	As per Cl. No. 6.3.1 of (Sr. No. 9) of AIS 140	<b>SATISFACTORY</b>
19.	On Vehicle Dynamic Location Test	ICAT/AEEL/65845/04	As per Cl. No. 6.3.1 of (Sr. No. 10) of AIS 140	<b>SATISFACTORY</b>
20.	SMS Fall Back	ICAT/AEEL/65845/04	As per Cl. No. 3.1.5 of AIS 140	<b>SATISFACTORY</b>
21.	EMI/EMC Test	ICAT/EMC/65845/06	As per Cl. No. 6.3.2 of (Sr. No. 4) of AIS 140 further referring AIS 004-3	<b>Refer Report no CTOMP0061 Dated 30-01-2020 SATISFACTORY</b>
22.	Load Dump Test	ICAT/EMC/65845/06	As per Cl. No. 6.3.2 of (Sr. No. 12) of AIS 140 further referring ISO 7637-2:2004	<b>Refer Report no CTOMP0061 Dated 30-01-2020 SATISFACTORY</b>

<b>Prepared By</b>   <b>SONIA NAIN</b> Asst. Manager		<b>Checked By</b>   <b>SONU KR. SUDRANIA</b> Manager	Page 4 of 17 + Drwg. (2 pages) [75149]
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