



**Motor Vehicles Department
Government of Maharashtra**

Standard Operating Procedure for Manufacturers of AIS 140
Certified Vehicle Location Tracking (VLT) Devices with
Emergency Buttons for Specified Vehicles, in Maharashtra

Date: 28th June 2024

**Transport Commissioner
5th floor, Fountain Telecom Building-2, M.G. Road, Fort, Mumbai-400 001**

Transport Commissioner Office
M.T.N.L. Building,
5th Floor, Fountain Telecom-2,
Mahatma Gandhi Road, Fort,
Mumbai - 400 001



Document Control

SN	Particulars	Details
1.	Name of the Department	Motor Vehicles Department, Government of Maharashtra
2.	Non-Refundable Application Cost	<p>The application shall be paid and submitted along with a registration fee of INR 30,000/- (Indian Rupees Thirty Thousand only).</p> <p>For additional VLT models being submitted for Registration, the Manufacturer shall pay an additional fee of INR 15,000/- (Indian Rupees Fifteen Thousand only) for each model.</p>
3.	Application Submission	<p>Hardcopy submission of all the documents mentioned in this document to be submitted to:</p> <p>Transport Commissioner, 5th floor, Fountain Telecom Building-2, Mahatma Gandhi Road, Azad Maidan, Fort, Mumbai, Maharashtra 400001</p> <p>Online Registration and Testing link is as follow: manufacturerregistration.vahanshakti.in</p>
4.	Start date of submission of Documents	1 st July 2024
5.	Last date of submission of Documents	<p>For Existing Manufacturers (registered with MMVD as on date of publishing this SOP): 31st July 2024.</p> <p>For other manufacturers: No Last Date specified as of time being.</p>
6.	Performance Guarantee	<p>A performance guarantee (in Form of an irrevocable Bank Guarantee [as per prescribed format in Annexure I] to Motor Vehicles Department, MH) shall be submitted by the manufacturer for the period of eligibility.</p> <p>A Copy of the BG shall be uploaded along with the bid submission and the Original hard copy to be submitted to the Motor Vehicles Department along with the application.</p> <p>The Performance Security will be calculated for a minimum volume of 3,000 VLT devices. In case any applicant (registered VLTD manufacturer) undertakes sale of more than 3,000 VLT device, Applicant shall be required to submit an additional Performance Security in multiplication of 1,000 VLT devices. The value of the performance security shall be computed as follows:</p>



		<p>Performance Security = MRP for the VLT device x 1,000 x N x 10%</p> <p>Note:</p> <ol style="list-style-type: none"> 1. N = Number of Multiples of 1,000 VLT devices intended to be sold by registered VLTD Manufacturer. "MRP of VLTD device includes 2 years of device warranty at fitment centre in the Maharashtra State, installation charges, value added services, panic buttons, hooters, eSIM Charges, configuration, activation and all accessories etc. (inclusive of GST/tax). No hidden cost shall be charged by the VLTD manufacturer/fitment centres." 2. Minimum value of N shall be "3" ("Three") 3. Upper cap/limit for the Performance Guarantee is INR 1,00,00,000 ('Indian Rupees One Crore Only') <p>Amount of the PBG shall be increased from time to time by the eligible and registered VLTD manufacturer, until the same reaches the upper cap of INR 1 Cr.</p> <p>Validity of the PBG shall be extended from time to time and shall be valid during entire operational period of the VLTD manufacturer in State of Maharashtra</p> <p>Any manufacturer who does not submit a copy of the BG along with the bid submission and/or original hard copy within the specified time and date at the Motor Vehicles Department shall be disqualified and would be considered non-responsive.</p>
7.	Contact Details for Clarification	<p>Transport Commissioner</p> <p>5th floor, Fountain Telecom Building-2, M.G. Road, Fort, Mumbai - 400 001</p>

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1. Background

1.1 Project Background

Ministry of Road Transport & Highways (MoRTH), Government of India issued a notification vide no. G.S.R. 1095(E) dated 28 November 2016 amending Central Motor Vehicle Rules, 1989 (CMVR) and incorporated a rule 125 H. As per the rule 125 H, all Public Service Vehicle, as defined under section 2(35) of the Motor Vehicle Act, 1988 (except two-wheelers, e-rickshaws and three wheelers) were required to have vehicle location tracking devices and emergency buttons with effect from 01 January 2019.

MoRTH also issued a notification vide no. G.S.R. 1081 (E) dated 02 November 2018, mandating all National Permit Vehicles to be fitted with a vehicle tracking system device as per AIS 140.

In order to support States/UTs in the implementation of vehicle tracking platform for Safety and Enforcement as per AIS 140 specifications under the Nirbhaya Framework, MoRTH launched a Scheme vide no. RT-16011/1/2018-T dated 15 January 2020 ("Scheme"). The Government of Maharashtra has received funds from the Central Government for the implementation of the Vehicle Tracking Platform (VTP) for Safety & Enforcement as per AIS 140 specifications under the Scheme.

Motor Vehicles Department, Government of Maharashtra is entrusted with the responsibility of various road transport-related functions and activities including, inter alia, Registration of vehicles, issuance of driving licenses, issuance of

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various permits, collection of road taxes, enforcement of the provisions of the Motor Vehicles Act, 1988 and associated Rules in the State.

Motor Vehicles Department, Government of Maharashtra envisages setting up a vehicle tracking platform for tracking the Specified Vehicles in the State of Maharashtra. The objective of the project is to introduce a vehicle tracking system for continuous monitoring of Specified Vehicles for better safety and enforcement as per AIS 140 specifications.

Objective of this SOP:

The objective of this SOP is to describe the complete transparency process for registration of type approved VLTD manufacturer, VLT device for Smooth integration with the State backend application, ERSS and their fitment center in Maharashtra and provide after-sales services of the VLT devices to the vehicle owners.

In addition to standardize the VLTD data protocol and data format specification to meet the State specific requirements and to ensure that the vehicle owners shall avail VLT devices with higher quality. In addition, to ensure the continuity of the business and credibility of the VLTD manufacturer and performance security to ensure satisfactory performance and also to ensure that the vehicle owners are getting proper after sales services at all the districts through the registered fitment center of the VLTD manufacturer. By the medium of this Standard Operating Procedure (SOP) document, MMVD aims to rectify the issue of VLTD manufacturers shutting down their operations and/ or not providing after sales service to the consumers without any official intimation and/ or approval of concerned government authority. Also, To avoid hardship to the owner of specified vehicles of fitness renewal due to defective VLT devices.

Accordingly, eligibility criteria for the manufacturer and the specifications for vehicle location tracking device firmware and backend application details are listed in this document.

Specified Vehicles shall mean:

1. All public service vehicles, as defined under clause (35) of section 2 of the Motor Vehicles Act, except the following:
 - (i) two-wheelers; (ii) E-rickshaw; and (iii) three-wheelers;
2. All Vehicles to which National Permits are issued under sub-section (12) of section 88 of the Motor Vehicles Act.
3. Every vehicle of categories N2 and N3 as per GSR 617(E) dated 03 August 2022.
4. Unless already covered in point numbers 1, 2 and 3 above, the following vehicles will also be covered in the project:
 - A. Buses
 - School Buses
 - Stage Carriages including mofussil services.
 - Contract carriages
 - All India Tourist Vehicles
 - Private Service Vehicles
 - MSRTC Buses
 - B. Vehicles used for agriculture Goods Logistics
 - C. Sand Transportation Vehicles
 - D. Different types of Taxi (All India / State Operating)
 - E. Maxi Cabs
 - F. Ambulances
 - G. All goods carrier vehicles registered in Maharashtra.

The Motor Vehicles Department, Government of Maharashtra would like to undertake the Registration of the Manufacturer of Vehicle Location Tracking (VLT) Devices (AIS-140 Certified) with Emergency Buttons for Specified Vehicles, in Maharashtra.

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1.2 Regulatory Compliance

The following guidelines/notifications may be referred to in respect to the requirement for VLT devices with Emergency Buttons:

- 1. MoRTH, Central Government Notifications dated:**
 - a. 28.11.2016 (Mandatory VTL Device and Emergency Button in Public Service Vehicles),
 - b. 18.04.2018 (Date Extension),
 - c. Approach for Installation of VLTD and Emergency Alert SO number 5453 dated 25.10.2018
 - d. S.O. 5454(E) dated 25.10.2018
 - e. National Permit Vehicle to be equipped with AIS 140 VLTD as per GSR 1081(E) dated 02.11.2018
 - f. Second Amendments to AIS 140 – Requirements of Public Transport Vehicle Operation dated 05.12.2018
 - g. GSR 808(E) dated 23.10.2019
 - h. MoRTH SOP dated 22.02.2021
 - i. G.S.R. 617(E). dated 03 August 2022 regarding vehicle of categories N2 and N3 carrying dangerous or hazardous goods
- 2. Scheme for Implementation of “Development, Customization, Deployment and Management of State-wise vehicle tracking platform for Safety & Enforcement as per AIS 140 Specifications, in States / UTs under Nirbhaya Framework dated 15 January 2020.**

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2. About Motor Vehicles Department, Govt. of Maharashtra

Maharashtra Motor Vehicles Department (MMVD) is headed by the Transport Commissioner. The Transport Commissioner is assisted by Additional and Deputy Commissioners Transport.

The Joint Commissioners for Transport at Divisions supervise and guide the DCT & Senior RTOs/ RTOs and ARTOs working in their jurisdictions. Further, these officers also function as Appellate Authorities in respect of Driving licenses, conductor licenses, Registration of vehicles, renewal of registration certificates of Non-Transport Vehicles, renewal, suspension and cancellation of Fitness certificates of Transport Vehicles and Tax matters.

The details of the regional transport offices can be checked from the official website of MMVD.

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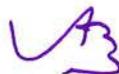
3. Scope of the Project

All Specified Vehicles as defined in Section 1.1 shall mandatorily be equipped with the Vehicle Location Tracking device (VLTD) along with one or more emergency button(s) in compliance with the standard of AIS-140 and MoRTH SOP in Maharashtra. These vehicles should be tagged with VLT devices in State Registration & Fitness application. The owners of the vehicles should purchase the VLT devices from registered VLTD manufacturers.

VLT Manufacturers will be given controlled access to the State Registration & Fitness application Portal by Motor Vehicles Department through IA (Implementation Agency) for state backend application for tagging (connecting) and feeding the details of the VLTs to the IA state backend application for Motor Vehicles Department, in real-time. The IA's Backend for the Motor Vehicles Department, Maharashtra will be used to provide login & monitoring interface to various stakeholders such as the state emergency response team, the Motor Vehicles Department, Police and any other agency defined by State as per requirement, Ministry of Road Transport and Highways and its designated agencies. In addition to the above, it will also ensure regular up-dation in the State Registration & Fitness application for the Registration, activation, health check and alerts updates of VLT devices.

The Manufacturer shall provide comprehensive warranty/maintenance support along with manufacturer's backend application to permit holders for a minimum period of two years and AMC for their products. Manufacturers have to supply and support registered VLT models across the State. Any complaint registered through the Motor Vehicles Department, Govt. of Maharashtra(website)/ IA's backend/ Email/Mobile App/or Motor Vehicles Department official should be serviced within the stipulated time as specified in general terms & conditions of the document.

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4. Manufacturer's Backend Application

For the benefit of the public, manufacturers are mandated to provide value added services through the backend system of the Manufacturer, herein referred to as "Manufacturer's Backend System", subject to manufacturer's backend application requirements of AIS-140, as per the clause 8 of the AIS-140 guidelines as per Amendment No.2 dated 5th December 2018. VLTD Manufacturer must provide the access of Manufacturer Backend Application to permit holder for the minimum period of the permit.

For security perspective, the VLTD devices will not communicate to any IP address located outside India whether it is the manufacturer's application or for purposes of configuration or firmware updates or Map Data or A-GPS etc. The IP of the manufacturer's backend system must be located in India and the Manufacturers must publish & whitelist the IP of their backend system in the State Backend application. The devices must be configured with the IP through the State Backend Application only. Manufacturer would be required to submit manual & list of all commands for querying and configuring the VLTD device parameters including the primary, secondary and any other IPs. The manufacturer's backend system must have valid Vulnerability analysis and penetration testing certificate from the authorized agency as per AIS140 guidelines. Additionally, the manufacturer's backend system application must be tested for test parameters.

5. Application Details for VLT Manufacturers

The objective of VLT Manufacturers registration is to avail good quality VLT devices with proper fitment in vehicles and after-sales services from VLTD manufacturers and its authorized channel for Sales /after-sales services from any type approved VLT device manufacturers as per AIS-140 from CMVR listed test agency. Motor Vehicles Department, Govt. of Maharashtra will publish the list of eligible VLTD manufacturers. Motor Vehicles Department, Govt. of Maharashtra will evaluate the application on the following criteria:

Table 5-1: Application Evaluation Criteria

S. No.	Criteria	Required Documents
Company Profile		
1.	<p>The Manufacturer is not blacklisted by any Central/ State Government / PSU agencies in India.</p> <p>The manufacturer has not shut down its operation and / or not providing after sales services without any official intimation and approval from the concerned government</p>	Self-declaration (On Letter Head) by the Manufacturer signed by the authorized signatory



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	authority of any State/ UT.	
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2.	Manufacturer should have at least one VLT model with valid TAC or COP as per the AIS-140 standard by the CMVR Test agency	Copy of Relevant Certificate(s)
3.	PAN and GST registration number of the Manufacturer	Copy of Relevant Certificate(s)
4.	Quality certification: Manufacturer should have quality management system certified for compliance to ISO / TS 16949 or ISO 9001 or any equivalent National or International standard.	Certificate Copy
Technical Aspect		
5.	Approach and documentation for: <ol style="list-style-type: none">1. Support of VLTD devices and Uptime2. Technical documentation of the device compliant to AIS-140 parameters and MoRTH guidelines3. Device configuration and management document4. Service support, Application & value adds; and Mechanism to meet MMVD requirements	Detailed documentation
6.	1. Each VLTD Manufacturer should have minimum 1 RFC in each District in the State of Maharashtra. 2. RFC Document and agreement should be part of document submission by VLTD Manufacturer.	PAN and GST Registration Certificate of RFC
7.	VLTD Manufacturer should have an office in Maharashtra or should have a Master Distributor with office in Maharashtra. All Sales should only be made via VLTD Manufacturer's Maharashtra office or Master Distributor's office	Registered Lease/rent agreement in case VLTD Manufacturer has office in Maharashtra. Distribution agreement incase Master Distributor is appointed by VLTD Manufacturer.
8.	Other documentation	As per Section 6, 7 & 8. Required Documentation

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<p>9. Performance Guarantee</p>	<p>A performance guarantee (in form of an irrevocable Bank Guarantee MH) shall be submitted by the manufacturer for the period 66 months.</p> <p>A Copy of the BG (the prescribed format as per Annexure I) shall be uploaded along with the bid submission and the Original hard copy to be submitted to the Motor Vehicles Department along with the application.</p> <p>The Performance Security will be calculated for a minimum volume of 3,000 VLT devices. In case any applicant (registered VLTD manufacturer) undertakes sale of more than 3,000 VLT device, Applicant shall be required to submit an additional Performance Security in multiplication of 1,000 VLT devices. The value of the performance security shall be computed as follows:</p> <p style="text-align: center;">Performance Security = MRP for the VLT device x 1,000 x N x 10%</p> <p>Note:</p> <ol style="list-style-type: none"> 1. N = Number of Multiples of 1,000 VLT devices intended to be sold by registered VLTD Manufacturer. "MRP of VLTD device includes 2 years of device warranty at fitment centre in the Maharashtra State, installation charges, value added services, panic buttons, hooters, eSIM Charges, configuration, activation and all accessories etc. (inclusive of GST/tax). No hidden cost shall be charged by the VLTD manufacturer/fitment centres." 2. Minimum value of N shall be "3" ("Three") 3. Upper cap/limit for the Performance Guarantee is INR 1,00,00,000 ('Indian Rupees One Crore Only') <p>Amount of the PBG shall be increased from time to time by the eligible and registered VLTD manufacturer, until the same reaches the upper cap of INR 1 Cr.</p> <p>Validity of the PBG shall be extended from time to</p>
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		<p>time and shall be valid during entire operational period of the VLTD manufacturer in State of Maharashtra.</p> <p>Any manufacturer who does not submit a copy of the BG along with the bid submission and/or original hard copy within the specified time and date at the Motor Vehicles Department shall be disqualified and would be considered non-responsive.</p>
10.	Affidavit for Litigation	Manufacture or its partner/director should not be under litigation from any of govt department/agency.
11.	Undertaking for Data Privacy	VLTD manufacturer shall submit an undertaking for not share any data with third party without consent of department and IA. Data privacy includes data/information stored related to VLTDs / Vehicles / vehicle owner etc.
12.	Undertaking for Not to Sell Different Product	VLTD manufacturer shall submit an undertaking for Not to sell Different Model of the Product other than the Testedone. If found different from field manufacture will be blacklisted forever from the state of Maharashtra.
13.	Undertaking for Onboarding and integrating all fitted/ affixed existing VLT devices to State backend system	VLTD manufacturer shall submit an undertaking for Onboarding and Integrating existing VLT devices sold by manufacturer and/ or authorized dealers to the State backend system.
14.	Undertaking for License Cancelled /Suspended/ Withdrawn	VLTD manufacturer shall submit an undertaking for incase of License Cancelled /Suspended/ Withdrawn the manufacturer will continue hisservices for 3 Years in the state.
15.	TAC or COP	VLTD Manufacturer shall submit separate TAC and/or COP certificates as per AIS 140 for each VLT device model applied for registration.

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		TAC or COP of manufacturer should be valid for next three month at least from the date of submission of document
16.	Authorization of the person	V LTD manufacturer should sent only authorized person during the testing and should be an employee of the company and have a valid ID card for the same.
17.	Backend License	V LTD manufacturer should have approved Manufacturer's backend or license from approved Manufacturer's backend of AIS140, as per latest guidelines issued by MoRTH.
18.	The RFC must have letter of authorization issued by V LTD manufacturer registered in Maharashtra, with minimum validity of 2 years from the date of application.	Self-attested copy of authorization letter of fitmentcenter submitted by manufacturer.

Note -

- a. A factory visit of the VLT device manufacturer may be done by the Motor Vehicles Department or IA to verify the credentials.
- b. Manufacturer should get their device tested from state backend agency. Testing date will be given with the concern of state backend IA only.
- c. Motor Vehicles Department reserve the rights to change and modify the SOP as and when required.
- d. Final approvals of eligibility of company would be given after clearance from backend (IA)
- e. The Manufacturer must submit all the certified and authenticated documentary proof for meeting the criteria above.

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6. REGISTRATION FEE FOR VLTD MANUFACTURER

The application shall be submitted along with registration fee of Rs. 30,000/- (Thirty thousand only) which also includes registration of one VLT device of the manufacturer and for additional VLT models being submitted for Registration, the Manufacturer shall pay an additional fee of INR 15,000/- (Indian Rupees Fifteen Thousand only) for each model as prescribed in this document. It must be submitted in shape of demand draft (separate for device registration and fitment Centre registration) drawn in favor of "Transport Commissioner, Maharashtra" from any nationalized bank payable at Mumbai. The registration fee is non-refundable. An application not accompanied with prescribed payment with the application shall be considered as non-responsive and will be rejected.

REGISTRATION FEE FOR RFC:

Application for RFC shall be submitted along with fitment center registration fee of Rs. 10,000/- (Ten thousand only) for each fitment center as prescribed in this document. It must be submitted in shape of demand draft drawn in favor of "Transport Commissioner, Maharashtra" from any nationalized bank payable at Mumbai. This registration fee is non-refundable. An application not accompanied with prescribed payment shall be considered as non-responsive and will be rejected.

7. Compliance Evaluation

Compliance against the operational specifications below needs to be submitted by the Applicant as per the points mentioned below:-

Table 7-1: Compliance Evaluation

Sl. No.	Specification	Confirmation (Yes/No)
1	Communication Protocol as per AIS140 standards and in line with Ministry of Road Transport & Highways (MoRTH) directives and notifications. Format Attached in Annexure M.	
2	The device should meet all the features, functionality and Specifications prescribed as per AIS-140	
3	Alert Messages and other parameters as per AIS- 140,	
4	The Primary source of power for the device should be from the vehicle's battery. When the device is disconnected from the vehicle battery it should start operating on the internal battery.	
5	Alert on tampering and vehicle battery removal.	
6	GPS odometer distance and Geo- fence entry/exit alerts.	
7	Real-time Location Accuracy as per AIS-140	
8	Over The Air (OTA) firmware upgrade	
9	All Alerts as per MoRTH notification and AIS 140	
10	Dynamic Location Accuracy Test	

Note:

- a) After successful evaluation intimation will be sent to successful manufacturers.
- b) Subsequent to this successful manufacturer name will be published in the registered VLT manufacturer list and the required credentials of the Motor Vehicles Department, Govt.of Maharashtra IA's portal will be issued to the Manufacturer.

8. Manufacturer must submit all the following documents:

VLT Device Manufacturers are advised to study the document carefully. Submission of application will be deemed to have been done after careful study of all instructions, eligibility norms, terms and requirement specifications in this document with the full understanding of its implications. Applications not complying with all the given clauses in the document are liable to be rejected. Failure to furnish all information specified in this document or submission of application not substantially responsive to the documentation all respects will be liable for rejection.

- a. All documents should be sealed and signed. Un-signed and un-sealed application shall not be accepted.
- b. All pages of the application and documents being submitted must be signed and sequentially numbered by the Applicant.
- c. Ambiguous applications will be out-rightly rejected.
- d. Applications not submitted as per the format will be rejected straight away.
- e. No deviations from the specifications will be accepted.
- f. The Applicant will bear all costs associated with the preparation and submission of their applications. Motor Vehicles Department, Govt. of Maharashtra will, in no case, beresponsible or liable for those costs, regardless of the outcome of the registration process.
- g. In case of incomplete applications where the Motor Vehicles Department, Govt. of Maharashtra requires the applicants to submit any missing/ incomplete information/documents, the receipt of such clarification/documents by Motor Vehicles Department, Govt. of Maharashtra shall be deemed to be the date of submission ofthe application. Motor Vehicles Department, Govt. of Maharashtra may, at its own discretion, can cancel the Registration; extend the date for submission of applications or any clause of this document.
- h. Manufacturers of all VLT device type with Valid Type Approval Certificate approved from CMVR test agencies as per AIS 140 are eligible to apply.

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- i. The Manufacturers can apply their VLT models for Registration based on the criteria specified in this document.
- j. The Manufacturer can register more than one AIS 140 certified VLTD model for installation in the vehicles in State. However, for each VLTD, the Manufacturer will need to submit a separate application for hardware approval.
- k. The Motor Vehicles Department, Government of Maharashtra and IA can terminate the approval of the registered Manufacturer at any time if it is found violating any of the provisions of the CMVR- 1989, AIS- 140, or any other direction issued by the Motor Vehicles Department, Govt. of Maharashtra, MoRTH or any other applicable law.
- l. VLT manufacturers cannot sell their VLTD models for Specified Vehicles in Maharashtra once their authorization/ certification issued by the testing agency is suspended, cancelled or not renewed for any reason.
- m. Manufacturers must give an undertaking to Motor Vehicles Department that in case their authorization/certification is suspended, cancelled or withdrawn for any reason, they will continue to support the devices already sold for Specified Vehicles.
- n. Unless the Registration of any VLT model is cancelled by Motor Vehicles Department, Govt. of Maharashtra, the certification of the VLT model shall remain valid as long as the such model continues to comply with the terms and conditions in the AIS- 140 standard. Before the expiry period manufacturers have to renew the certification in accordance with Motor Vehicles Department, Govt. of Maharashtra regulations.
- o. Motor Vehicles Department reserves the right to modify the VLT specification or add additional features to the existing specification in line with MoRTH notifications and guidelines. The release of the VLT specifications will be in a version-controlled manner.
- p. Every VLT model and service of manufacturers selected through the registration process will be reviewed periodically, and actions may be taken against those who violate any of the regulations listed in this document, including suspension or cancellation of its registration.
- q. Interested Manufacturers for the respective VLT models which comply with the Motor Vehicles Department requirements may download the registration document from the website and submit the same duly filled in and supplemented with all relevant documents to Motor Vehicles Department, Govt. of Maharashtra for further processing.

- r. **Customer Support:** The Manufacturer should set up a call center or a 24/7 number for customer support. Any queries regarding the VLT, service or complaints should be properly addressed.
- s. **Complaint Register:** The manufacturers are required to manage a complaint register. If the VLT device is found to have any complaints, then it should be registered in the complaint register module of the backend application to avoid false alerts. All the complaints registered should be rectified within the timeline specified as per the agreement between the VLTD manufacturer and permit holder.
- t. **State / National ERS:** As per the mandate of AIS140, when the NERS system of the state becomes operational, the device should send the emergency alert packet to the server mentioned by the S/NERS team (or any mechanism as specified by StateGovt. and IA). The data format should be as per the AIS 140/ NERS specifications. The manufacturers should ensure that all deployed devices meet this mandate.
- u. Motor Vehicles Department, Govt. of Maharashtra/ IA's backend will publish the IP/Domain and other details to which data should be sent. Manufacturers should ensure that the device will send data to the allowed IPs only, using a secured and authenticated channel as per AIS-140. The IP whitelisting from the telecom/ m2m provider must be provided by the VLTD manufacturers for integration to Maharashtra State IA's backend system.
- v. Motor Vehicles Department, Govt. of Maharashtra/ IA's backend may publish the SMS gateway short code or mobile number from which the activation key and other configuration parameters may send. The Manufacturer should ensure in the firmware that the device will not respond to any SMS from any unauthorized mobile number.
- w. All VLTD Manufacturer should have approved Manufacturer backend system or license from approved Manufacturer backend system provider as per standard AIS-140
- x. Eligibility approval will be given after testing and clearance by IA. Testing date will be given by MMVD in consultation with the IA.
- y. There should not be any cutting and overwriting on any document submitted by Manufacturer.

9. Forfeiture of Performance Security

Performance Security amount in full or part may be forfeited, including interest, if any, in the following cases: -

- a. When any of the conditions of circular/notifications is breached by the Manufacturer.
 - (i) AIS-140 Standard including amendment 1 (December 2017) & amendment 2 (December 2018) and any other amendments from time to time.
 - (ii) When the Manufacturer fails to comply with any other circular/notifications issued by MoRTH Central Government/ Motor Vehicles Department from time to time.
- b. When the Manufacturer fails to comply with any applicable terms & conditions of this document.
- c. When the Manufacturer is involved in malpractices.
- d. Notice will be given to the Manufacturer within 14 days before the Performance Bank Guarantee deposited is forfeited.
- e. No interest shall be payable on the Performance Bank Guarantee.

10. Submission of Application

- a. A Manufacturer can apply for Registration of one or more models of VLT devices, through separate applications. No separate Bank Guarantee is required for Registration of additional models.
- b. All the AIS140 approved manufacturers registered with MMVD are eligible, provided they fulfill all the terms and conditions specified in the SOP and submit required documents and Bank Guarantee as per SOP. Final decision in this regard shall be taken by Transport Commissioner, Maharashtra State and shall be binding on all parties.
- c. The Manufacturer is required to submit statement of compliance of the devices with the specifications as set out in this document (Section 7)
- d. The Manufacturer is required to submit their application in the prescribed format in this document along with all requisite Annexures (A to N) / Formats.
- e. The Manufacturer is also required to submit two VLT devices (along with panic button) with active data plan validity and all other necessary documentation needed for interfacing and testing. The department may call registered VLT devices for inspection at any time.
- f. All communications and proceedings shall be in writing, in English or Marathi language only.

11. Evaluation of Applications

- a. The application found complete in all respect shall be considered for processing and testing of VLT devices for compliance with specifications.
- b. Motor Vehicles Department, Govt. of Maharashtra reserves the right to verify all statements, information and documents submitted by the Applicant. The applicant may be asked to submit more documents if any clarification is required.
- c. The decision of the Motor Vehicles Department, Govt. of Maharashtra regarding registration/ rejection of the VLT devices under this process will be final and no correspondence in this regard will be entertained by Motor Vehicles Department, Govt. of Maharashtra.
- d. Selected manufacturer models will be published on Motor Vehicles Department, Govt. of Maharashtra website.
- e. Motor Vehicles Department, Govt. of Maharashtra may conduct site inspections and validate the facilities identified by the Manufacturer for distributing and fitting the VLT devices to customers' vehicles.

Transport Commissioner Office
M.T.N.L. Building,
5th Floor, Fountain Telecom-2,
Mahatma Gandhi Road, Fort,
Mumbai - 400 001



Annexure - A. Application Form

Application Form for Registration of VLT for Vehicles Specified in Maharashtra Format for VLT Application Form (On the official letterhead of the Manufacturer)

Date:

To,
Transport Commissioner
5th floor, Fountain Telecom Building-2,
M.G. Road, Fort, Mumbai,
Maharashtra - 400 001

Sub: Registration of VLT device for Vehicles Specified in Maharashtra

Sir,
We have fully understood the requirements of the process "**Registration of Vehicle Location Tracking device (VLT) for Vehicles Specified in Maharashtra**" and are submitting our registration application for the following VLT device(S) being manufactured by us together with the required details, other information as per the registration process and the compliance report for VLT specification and protocols.

VLT Device Manufacturer name and address	
VLT device model number(s) to be registered	
Manufactured by and Date	
Manufactured at (address of VLT production centre)	
Contact Person Details (If different from undersigned)	
Testing Agency name	
Device testing date	

In relation to our application, the Motor Vehicles Department, Govt. of Maharashtra may also note the following:

- a. Our application is unconditional and all information provided in the application is true and correct.
- b. We hereby declare that the VLT device(s) being submitted for Registration complies with the specifications as set out in the registration process document and we shall make available any additional information as Motor Vehicles Department, Govt. of Maharashtra may find necessary as required for clarification.

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Standard Operating Procedure for Manufacturers of AIS 140 Certified Vehicle Location Tracking (VLT) Devices with Emergency Buttons

- c. We acknowledge the right of the Motor Vehicles Department, Govt. of Maharashtra to reject our application without assigning any reason and accept the right of the Motor Vehicles Department to cancel the registration process at any time without incurring any liability to the registered Manufacturers.
- d. We confirm that we are not blacklisted by any state government or central government/department/ agency in India from participating in bids.
- e. We agree to maintain the quality of the registered VLT models and support the customers whenever required.

Sincerely,

(Signature, name and designation of the authorized signatory)

(Contact no. including, phone no., fax, email and contact address)

Transport Commissioner Office
M.T.H.L. Building,
5th Floor, Fountain Telecom-2,
Mahatma Gandhi Road, Fort,
Mumbai - 400 001



Annexure - B. VLTD Manufacturer Details

(On the official letterhead of the Manufacturer)

Application for Registration of Manufacturer for Vehicle Location Tracking (VLT) Devices (AIS-140 Certified) with Emergency Buttons for Specified Vehicles, in Maharashtra

1. Name of the Manufacturer :
2. Web Site Address :
3. Email id :
4. Address for Communication :
5. Telephone Nos :
6. Authorized Person :
Name :
Designation :
Mobile No :
Email id :
7. Company PAN No :
8. Company GST Registration No with address :
9. Company Quality Certification: ISO 9001: 2015 :
10. Details of VLT Model as per AIS 140 standard certified by the test agency

Test Agency Name :

Details of VLT Make & Model :

Details of Type Approval :

Details of COP :

11. Manufacturer Local Support Office details :

S.No	Division HQ	Address	City, Pin-code	Contact No, Email id
1				
2				

Transport Commissioner Office
M.T.N.L. Building,
5th Floor, Fountain Talaoor-2,
Mahatma Gandhi Road, Fort,
Mumbai - 400 001

VAB

Standard Operating Procedure for Manufacturers of AIS 140 Certified Vehicle Location Tracking (VLT) Devices with Emergency Buttons

3				
4				
5				
6				

- 12.** Details of manufacturing facilities for onboard VLTD in India:
- 13.** Self-declaration of Manufacturer not blacklisted by any central / state agencies of India as per format in Annexure E
- 14.** Details of performance guarantee (in Form of Bank Guarantee or DD):

Amount : INR
Mode of Payment(DD/BG) :
DD/BG No. :
Date :
Name of the Bank :
Address of the Bank :
Validity of BG :
.....

- 15.** Are you a MSME Unit. If yes, please furnish Registration Details, Name of the DIC/State :
- 16.** The following Documents are submitted to substantiate other eligibility criteria:
 - a.
 - b.
 - c.

DECLARATION

- a) We have read and understood the terms & conditions of the above-mentioned and comply with all Terms & Conditions of the application. (In case of any deviation, the applicant must attach a separate sheet clearly mentioning the Clause No. of the Registration and Deviation thereto)
- b) We certify that the information mentioned above is true and correct to the best of our knowledge.

(Name of the firm with stamp)

Place Authorized Signatory Name:

Date:

Designation:

Annexure - C. Retro Fitment/ Service Centres

(Separate for Each RFC)

S.No.	Description	Remark
1	Name of the Firm / Company	
2	E-Mail Id	
	Contact Detail	
	Address	
	District Name	
3	Details about infrastructure available at Service Centre	
4	Details about trained manpower appointed	
5	PAN and GST number of Service Centre(s) (If applicable)	
6	Particulars of the authorized signatory of the firm including name, designation, address, phone no., mobile no., fax no. and e-mail.	

Transport Commissioner Office
M.T.N.L. Building,
5th Floor, Fountain Telecom-2,
Mahatma Gandhi Road, Fort,
Mumbai - 400 001

Annexure – D. Guidelines for VLTD Manufacturers

1. Operational Process: -

- a. For ensuring proper fitment of VLTD in vehicles, the VLT manufacturer shall upload the Unique Identification numbers and other devices details in the State Backend (VLTD inventory upload). The State IA may verify random samples (around 1%) from each inventory upload for key parameters before upload into the state IA's backend. The same inventory should also be uploaded on Vahan VLTD Maker module.
- b. For ensuring proper fitment of VLTD in vehicles, the VLT manufacturer shall enter the Unique Identification number in the VAHAN/State registration database or State IA's backend for the purposes of linking the VLT device to the Specified Vehicles.
- c. Each VLT device manufacturer shall configure the details of their respective internet protocol address (IP address) and Short Message Service Gateway (SMS gateway) number of their respective emergency response system, where VLT devices will send the data to the IA's backend system.
- d. The vehicles with factory fitted VLT devices or the vehicles fitted at the dealer of vehicle manufacturer with AIS140 approved devices will need to be activated by the Vehicle Manufacturer / Dealer of Vehicle Manufacturer / VLT devices manufacturer on the State backend of Maharashtra. The list will need to be updated by the Vehicle manufacturers / Dealer of Vehicle Manufacturer / VLT Device Manufacturer on the State Backend along with the Unique ID of the VLT device, Vehicle Chassis and Engine number etc.
- e. An installation/activation certificate for the VLTD from IA's backend, along with the fitment certificate and warranty certificate must be issued to the vehicle owner as the owner's copy and Department of Transport copy. After activation of the device as per MoRTH guidelines and AIS-140 on the backend, the data will be available on RTO/ARTO login and enable proper checking of the vehicles for fitness certificate and for compliance of the functional requirements at the RTOs end.
- f. The VLTD manufacturers must comply with all the functional requirements of the AIS140 and MoRTH guidelines, each VLT device must send health & location data at regular intervals to the established backend system.
- g. VLT device Manufacturers must ensure that the Code of Practice for implementation of Vehicle Tracking (VLTD) Device, Emergency Button(s) and Command and Control Centers as per Section-8 of the AIS 140 has strictly adhered.



- h. Each Manufacturer must provide to State the commands and other information required to configure their respective devices from the State IA's Backend system, as per the requirements of the state from time to time. This configuration includes, but is not limited to configured parameters, as per AIS-140 and MoRTH guidelines like over-speed etc.
2. Amount of the PBG shall be increased from time to time by the eligible and registered VLTD manufacturer, until the same reaches the upper cap of INR 1 Cr.
3. Validity of the PBG shall be extended from time to time and shall be valid during entire operational period of the VLTD manufacturer in State of Maharashtra.
4. The VLTD manufacturers shall comply with the standard operational process/procedure as updated from time to time based on the State backend or process updates by the Motor Vehicles Department, Government of Maharashtra.
5. Service Level Agreement/SLA –

The VLT manufacturer will need to comply with uptime requirements as set out by the Motor Vehicles Department Govt. of Maharashtra from time to time.

- 1) VLT Devices should be free from any defect for the period of minimum 2 years
- 2) In case the VLT device goes offline, Manufacturer should be contacting the permit holder and share RFC details with the Permit holder for rectification of VLT device.

Transport Commissioner Office
MTNL Building,
5th Floor, Fountain Telecom-2,
Mahalaxmi Gandhi Road, Fort,
Mumbai - 400 001



Annexure – E. Blacklisting Certificate

(On Letter Head)

Date:

To,
Transport Commissioner
5th floor, Fountain Telecom Building-2,
M.G. Road, Fort, Mumbai,
Maharashtra - 400 001

UNDERTAKING

I/We, hereby undertake that, M/s is not blacklisted/banned by any Government Department (Central or State or Agency) /Public Sector undertaking/Autonomous body for participating in the Registration from the last five years and We have not shut down our operations and / or not providing after sales services without any official intimation and approval from the concerned government authority of any State/ UT.

Signature of the Authorized Signatory of the firm
/company/organization with Official Stamp/Seal.

Transport Commissioner Office
M.T.N.L. Building,
5th Floor, Fountain Telecom-2,
Mahatma Gandhi Road, Fort,
Mumbai - 400 001

Annexure – F. Opening of RFC/ Service Centers

(On Letter Head)

Date:

To,
Transport Commissioner
5th floor, Fountain Telecom Building-2,
M.G. Road, Fort, Mumbai,
Maharashtra - 400 001

SELF-DECLARATION

I Son / Daughter of
Shri..... age..... years,
resident of.....in the district
of....., (State Name), employed/self-employed in
M/s..... at the capacity of do hereby
declare that I will open service center/ RFC in each district of the State of Maharashtra within
1 (One) month from the date of registration.

I am well aware of the fact that in case of default from my side in this regard, the registration of
my company and any other benefits provided by the Transport Commissioner/Motor Vehicles
Department, Govt. of Maharashtra by virtue of registration shall be summarily cancelled.

Signature of the Authorized Signatory of the firm
/company/organization with Official Stamp/Seal.

Transport Commissioner Office
MTNL Building,
5th Floor, Fountain Telecom-2,
Mumbai - 400 001

AB

Annexure – G. Self-Declaration for Manufacturing Facility

(On Letter Head)

Date:

To,
Transport Commissioner
5th floor, Fountain Telecom Building-2,
M.G. Road, Fort, Mumbai,
Maharashtra - 400 001

SELF DECLARATION FOR MANUFACTURING FACILITY

I , Son / Daughter of
Shri..... age..... years, resident
of..... in the District
of....., (State Name), employed/self-employed in
M/s..... at the capacity of do hereby
solemnly affirm and declare as under:-

I have (own)/ (outsourced) manufacturing facilities for VLT Device in India (Make in India) as per the details attached.

I, solemnly swear that the contents of this document are true and correct, to the best of my knowledge & belief and that I agree to abide by the terms in this affidavit.

I am well aware of the fact that in case of default from my side in this regard, the registration of my company and any other benefits provided by the Transport Commissioner/Motor Vehicles Department, Govt. of Maharashtra shall be summarily cancelled.

Signature of the Authorized Signatory of the firm
/company/organization with Official Stamp/Seal.

Transport Commissioner Office
M.T.I.L. Building,
5th Floor, Fountain Telecom-2,
Mahatma Gandhi Road, Fort,
Mumbai - 400 001

Annexure – H. Letter of Undertaking

Authorization/Certification will get Suspended, Cancelled, or Withdrawn

To,
Transport Commissioner
5th floor, Fountain Telecom Building-2,
M.G. Road, Fort, Mumbai,
Maharashtra - 400 001

UNDERTAKING

I/We, hereby undertake that, M/Sin case of our authorization/certification will get suspended, cancelled, or withdrawn for any reason, we will continue to support the devices already sold for the Specified Vehicles in the State of Maharashtra for 3 Years.

Signature of the Authorized Signatory of the firm
/company/organization with Official Stamp/Seal.

Transport Commissioner Office
M.T.N.L. Building,
5th Floor, Fountain Telecom-2,
Manatina Gapadi Road, Fort,
Mumbai - 400 001

Annexure - I. Performance Bank Guarantee Format for Security

(Beneficiary: Motor Vehicles Department, Maharashtra)

Date: [Insert date of issue of BG]

Performance Bank Guarantee No. : [insert guarantee number]

Performance Bank Guarantee Amount : [Insert guarantee amount]

Manufacturer : [Insert manufacturer Name and Address]

Guarantor : [Insert name and address of the issuing Bank]

1. The Manufacturer named above has been registered with the Beneficiary, for the supply of VLT device and/or Services as defined in the said VLT device manufacturer registration. According to the conditions of the VLT device manufacturer registration, performance security is required to be furnished by the Manufacturer to the Beneficiary for the due performance of the contract.

2. At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding the total amount of INR _____/- (specify amount in words) upon receipt by us of the Beneficiary's demand stating that the Manufacturer is in breach of its obligation(s) specified in the registration document, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein. We do hereby undertake to pay the amount due and payable under this Guarantee without any demur, merely on a demand from the Beneficiary. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding INR _____/- (specify amount in words).

3. We undertake to pay the Beneficiary any money so demanded notwithstanding any dispute or disputes raised by the Manufacturer in any suit or proceeding pending before any Court or Tribunal relating thereto liability under this present being absolute and unequivocal.

4. The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment there under and the Manufacturer shall have no claim against us for making such payment.

Standard Operating Procedure for Manufacturers of AIS 140 Certified Vehicle Location Tracking (VLT) Devices with Emergency Buttons

5. We further agree that the Guarantee herein contained shall remain in full force and effect during the period of 66 months from the date of the issue i.e., till/..... /.....
6. We further agree with the Beneficiary that the Beneficiary shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Registration or to extend the time of performance by the said Manufacturer from time to time or to postpone any time or from time to time powers exercisable by the Beneficiary against the said Manufacturer/manufacturer and to forbear or enforce any of the terms and condition relating to the said Contract and we shall not be relieved from our liability by reason of any such variation, or the only extension is granted to the said Manufacturer or for any forbearance, act or omission on the part of the Beneficiary or any indulgence by the Beneficiary to the said Manufacturer or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have the effect of so relieving us.
7. Notwithstanding anything contained herein above our liability under the guarantee is restricted to Rs.and shall remain in force until
8. This Guarantee will not be discharged due to being changed in the constitution of the Bank or the Manufacture.
9. We lastly undertake not to revoke this Guarantee during its currency except with the previous consent of the Beneficiary in writing.

Dated..... For.....

(Indicate the name of the Bank)

Signature.....

Name of the Officer.....

Designation of the officer..... Code no.....

Name of the Bank and Branch.....

Transport Commissioner Office
M.T.C.L. Building,
5th Floor, Fountain Telecom-2,
Mahatma Gandhi Road, Fort,
Mumbai - 400 001

V3

Standard Operating Procedure for Manufacturers of AIS 140 Certified Vehicle Location Tracking (VLT) Devices with Emergency Buttons

Annexure – J.

Undertaking for not to sell different product

With reference to the document No., dated: We have fully understood the requirements of the process for "Standard Operating Procedure for Manufacturers of AIS 140 Certified Vehicle Location Tracking (VLT) Devices with Emergency Buttons for Specified Vehicles, in Maharashtra" we are undertaking that we will not sell any other product which is different from the approved device in the state of Maharashtra, Company or any Subsidiary or any director or officer sells other product other than the approved one hereby or thereby, our application would be liable for rejection in case any misrepresentation is made or discovered with regard to the requirements of this SOP document at any stage of the Process or thereafter the registration will be liable for termination and Transport Commissioner, Maharashtra may take appropriate action against us.

Dated this Day of

Signature of the Authorized Signatory of the firm
/company/organization with Official Stamp/Seal.

Transport Commissioner Office
M.T.M.L. Building,
5th Floor, Fountain Telecom-2,
Manatma Gandhi Road, Fort,
Mumbai - 400 001



Annexure – K.

Undertaking for Data Privacy

With reference to the document No., dated: We have fully understood the requirements of the process for "Standard Operating Procedure for Manufacturers of AIS 140 Certified Vehicle Location Tracking (VLT) Devices with Emergency Buttons for Specified Vehicles, in Maharashtra." we are confirming that our Backend application and data will be maintained in servers located in India only and we will ensure the privacy of the data/information stored related to VLTDs / Vehicles / vehicle owner etc. in our server. Our application would be liable for rejection in case any misrepresentation is made or discovered with regard to the requirements of this SOP document at any stage of the Process or thereafter the registration will be liable for termination and Transport Commissioner, Maharashtra may take appropriate action against us.

Dated this Day of

Signature of the Authorized Signatory of the firm
/company/organization with Official Stamp/Seal.

Transport Commissioner Office
M.T.N.I. Building,
5th Floor, Fountain Telecom-2,
Mahatma Gandhi Road, Fort,
Mumbai - 400 001



Annexure – L.

Affidavit for No Litigation

With reference to the document No., dated: We have fully understood the requirements of the process for "Standard Operating Procedure for Manufacturers of AIS 140 Certified Vehicle Location Tracking (VLT) Devices with Emergency Buttons for Specified Vehicles, in Maharashtra" we are confirming that we have no litigation, investigation, any criminal cases or proceeding before any arbitrator or Governmental Authority is pending against the Company or any Subsidiary or any director or officer thereof or against any of their respective properties or revenues with respect to any of the Loan Documents or any of the transactions contemplated hereby or thereby. our application would be liable for rejection in case any misrepresentation is made or discovered with regard to the requirements of this SOP document at any stage of the Process or thereafter the registration will be liable for termination and Transport Commissioner, Maharashtra may take appropriate action against us.

Dated this Day of

Signature of the Authorized Signatory of the firm
/company/organization with Official Stamp/Seal.



Annexure – M.

Undertaking for Onboarding and integrating existing VLT devices to State backend system

With reference to the document No., dated: We have fully understood the requirements of the process for "Standard Operating Procedure for Manufacturers of AIS 140 Certified Vehicle Location Tracking (VLT) Devices with Emergency Buttons for Specified Vehicles, in Maharashtra" we are undertaking that we will onboard and integrate all the existing VLT devices manufactured and/or affixed by us and/or by our authorized dealers within 12 months or renewal of fitness whichever is earlier, after being considered eligible and registered by MMVD. Our application would be liable for rejection in case any misrepresentation is made or discovered with this regard to the requirement of SOP document at any stage of the Process of thereafter the registration will be liable for termination and Transport Commissioner, Maharashtra may take appropriate action against us.

Dated this Day of

Signature of the Authorized Signatory of the firm
/company/organization with Official Stamp/Seal.

Transport Commissioner Office
A TMAU Building,
5th Floor, Pravartan Telecom-2,
Mahatma Gandhi Road, Fort,
Mumbai - 400 001



Annexure – N.

GPS TRACKER - AIS140 Protocol Description

Types of Packets from Device to Server

Sr.N o	Packet Type	Description
1	Login Packet	This is the first packet sent immediately after connection is established with the server
2	Normal Packet	This is regular tracking packet, as per AIS140 standard, sent at defined interval or turn detection or alert
3	Health Packet	This is regular health parameters packet sent at defined interval
4	Emergency Packet	This packet is sent at defined interval when emergency state is ON or when the emergency state is turned off by server
5	ACTVR	This packet is sent on demand on response to the ACTV command sent by the server
6	HCHKR	This packet is sent on demand on response to the HCHK command sent by the server
7	Configuration Commands	List of the commands that server / SMS shall be able to send to the device to configure the device for various parameters

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 5th Floor, Fountain Telecom-2,
 Mahatma Gandhi Road, Fort,
 Mumbai - 400 001



Log in Packet

\$LGN,ABCD01A,MH01PB0000,8888888888888888,1.6.5,AIS140,28.7589630,N,77.6277
844,E*54

Field	Description	Format	Size	Example
Start Character	Indicates start of login packet	\$	1 byte	\$
Header	Header of login packet	LGN	3 bytes	LGN
Vendor ID	Vendor ID	Alpha-numeric	Variable	ABCD01A
Device Name	Vehicle number on which the device is installed	Alpha-numeric	Variable	MH01PB0000
IMEI	IMEI	15DigitNumber	15 Bytes	888888888888888
Firmware Version	Version of firmware used in the device	x.x.x	5 bytes	1.6.5
Protocol Version	Version of frame format protocol	Alpha-numeric	variable	AIS140
Latitude	Latitude value in decimal degree (7 places after decimal)	dd.mmmmmmm	10 Bytes	28.7589630
Latitude Direction	Latitude direction, value will be either N or S,N=North ,S=South	Single Alphabet	1 Bytes	N
Longitude	Longitude value in decimal degree (7 places after decimal)	dd.mmmmmmm	10 Bytes	77.6277844
Longitude Direction	Longitude direction, the value will be either E or W,E=East, W=West	Single Alphabet	1 Bytes	E
End Character	Indicates the end of the packet	*	1 byte	*
Checksum	Ensures no error in transmission (optional)	CC	2 Bytes	54

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 Mahatma Gandhi Road, Fort,
 Mumbai - 400 001



Normal Packet

\$NMP,ABCD01A,1.6.5,NR,6,L,888888888888888,MH01PB0000,1,24032018,060122,28.7589630,
 N,77.627784 4,E,022.5,320.55,04,183.5,1.0,0.3,INA
 Airtel,1,1,12.5,4.2,0,C,25,404,10,00D6,CFBD,-74,1806,2031,-74,
 1878,151,-77,1806,2012,-81,1806,2032,0001,01,000005,03.1,10.2,0,(0,0,0)*49

Field	Description	Format	Size	Example
Start Character	Indicates start of Normal packet	\$	1 byte	\$
Header	Header of Normal packet	NMP	3 bytes	NMP
Vendor ID	Vendor ID	Alpha-numeric	Variable	ABCD01A
Firmware Version	Version of firmware used in the device	x.x.x	5 bytes	1.6.5
Packet Type	Specify the packet type NR = Normal EA=Emergency Alert TA = Tamper Alert HP = Health Packet IN = Ignition On IF=Ignition Off BD=Vehicle Battery Disconnect BR=Vehicle Battery Reconnect BL=Internal Battery Low OT=OTA Update Alert RT=Rash Turn HB=Harsh Breaking HA=Harsh Acceleration OS=Over Speed GI=Geo-fence In/Entry GO=Geo-Fence Out/Exit	XX	2 bytes	.NR

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 M.T.M.L Building,
 5th Floor, Fountain Telecom-2,
 Mahatma Gandhi Road, Fort,
 Mumbai - 400 001



Message & Alert ID	Refer to, Message & Alert ID Table below	Numeric	Variable Max. 2 bytes	6 10
Packet Status	L=Live or H=History	Single Alphabet	1 byte	L
IMEI	IMEI	15DigitNumber	15 Bytes	888888888888888
Vehicle Reg. No	Mapped vehicle registration number	Alpha-numeric	Variable	MH01PB0000
GPS Fix	1=GPSfixOR0=GPS invalid	Single Alphabet	1 byte	1
Date	Date value as per GPS date time per GPS date time (DDMMYYYY)	DDMMYYYY	8 bytes	24032018 For24-mar-2018
Time	Time value as per GPS date time in UTC format (hhmmss)	hhmmss	6 bytes	060122 For06:01:22am 180122 For06:01:22pm
Latitude	Latitude value in decimal degree (7 places after decimal)	dd.mmmmmmmm	10 Bytes	28.7589630
Latitude Direction	Latitude direction, the value will be either or ,N=North ,S=South	Single Alphabet	1 Bytes	N
Longitude	Longitude value in decimal degree(7placesafterdecimal)	dd.mmmmmmmm	10 Bytes	77.6277844
Longitude Direction	Longitude direction, value will be either-or, E=East ,W=West	Single Alphabet	1 Bytes	E
Speed	Speed of Vehicle as Calculated by GPS module in VLT. (in km/hr) (Upto One Decimal places)	ddd.d	5 bytes	022.5 For22.5km/hr
Heading	Course over ground in degrees (Up to two Decimal places)	ddd.dd	6 bytes	320.55 010.20

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M.T.N.L. Building,
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Mahatma Gandhi Road, Fort,
Mumbai - 400 001



No of Satellites	Number of satellites available for fix	Dd	2 bytes	04 14
Altitude	Height above mean sea level in meters, max: 100000m (Upto1 Decimal place)	Decimal number, variable size	Max. 8 bytes	183.5 21000.4
PDOP	Positional dilution of precision, max:99.0 (upto1decimalplace)	Decimal number, variable size	Max. 4 bytes	1.0 10.4
HDOP	Horizontal Dilution of Precision, max:99.0 (upto1decimalplace)	Decimal number, variable size	Max. 4 bytes	0.3 10.2
Network Operator Name	Name of Network Operator	Variable length string	Variable	INA Airtel
Ignition	Ignition input status of vehicle	1=Ignition On 0=Ignition Off	1 byte	1
Main Power Status	Device main power connection status	0=Vehicle Battery disconnected 1=Vehicle Battery reconnected	1 byte	1
Main Input Voltage	Indicator showing source voltage in Volts.(Upto One Decimal Value)	dd.d	4 bytes	12.5
Internal Battery Voltage	Indicator for level of battery charge remaining.(Upto One Decimal Value)	d.d	3 bytes	4.2
Emergency Status	Emergency mode status	1=On,0=Off	1 byte	0
Tamper Alert	Device casing status	C=Cover Closed, O= Cover Open	1 byte	C
GSM Signal Strength	Current GSM signal strength value	ValueRangingfrom0 -31, 99-network not known or not detectable	Variable,M ax.2 bytes	25 6

MCC	Mobile Country Code (serving)	Numeric	Variable Max. 3 bytes	404 Below value when no data from network x
MNC	Mobile Network Code (serving)	Numeric	Variable Max. 3 bytes	10 Below value when no data from network x
LAC	Location Area Code (serving)	2 bytes hex value in ASCII	Variable Max. 4 bytes	00D6 Below value when no data from network x
Cell ID	GSM Cell ID (serving)	2 bytes hex value in ASCII	Variable Max. 4 bytes	CFBD 151 Below value when no data from network x
NMR (Network Measurement Report) Neighboring Cell ID	Neighboring 4 cell ID along with their LAC & signal strength(ss)	<ss1>,<lac1>,<cellid1>,<ss2>,<lac2>,<cellid2>,<ss3>,<lac3>,<cellid3>,<ss4>,<lac4>,<cellid4>	Variable	-74;1806,2031,-74, 1878,151,-77,1806,2012,-8 1,1806,2032 Below value when no data from network x,x,x,x,x,x,x,x,x,x,x
Digital Input Status	4 external digital input status (Status of Input 1 to Input 4 (0=Off;1=On))	bbbb (DIN1 DIN2 DIN3 DIN4)	4 bytes	0001 1111 1110 0001

Digital Output Status	2 external digital output status (0=Off;1=On)	bb (DOUT1DOUT2)	2 bytes	01
Frame Number	Sequence Number of the messages(000001to999999)	Numeric	6 bytes	000005

Analog Input1	Voltage reading on analog input 1 (upto1 decimal value)	dd.d	4 bytes	03.1 11.5
Analog Input2	Voltage reading on analog input 2 (upto1 decimal value)	dd.d	4 bytes	10.2 00.1
Odometer	Total distance traveled till date	Numeric variable	Variable	0 25
OTA Update Details	ID of parameter changed and source of command <source>: IP or mobile number from which command sent <parameter id>: Command sent to Device <status>:1-success,0-failed or parameter value	(<source>, <parameterid>, <status>)	Variable	(100.100.10.1,SET:VRN,M H01PB0000) (+919001001001,GET:VR N, MH01PB0000) (100.100.10.1,GET:VRN,M H01PB0000)
End Character	Indicates end of packet	*	1 byte	*
Checksum	Ensures no error in transmission (optimal)	CC	2 Bytes	49

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Message & Alert ID Table

Alert ID	Message & Alerts	Remarks
1	Location Update	Default message coming from each device
2	Location Update (history)	Would be sent, if GPRS is not available at the time of sending the message in protocol format Zero, BLANK, NIL, etc.
3	Alert– Disconnect from main battery	If device is disconnected from vehicle battery and running on its internal battery
4	Alert–Low battery	If device internal battery has fallen below a defined threshold
5	Alert–Low battery removed	Indicates that device internal battery is charged again
6	Alert–Connect back to main battery	Indicates that device is connected back to main battery
7	Alert–Ignition ON	Indicates that Vehicle's Ignition is switched ON
8	Alert–Ignition OFF	Indicates that Vehicle's Ignition is switched OFF
9	Alert–GPS box opened (Optional)	Optional message would be generated indicating GPS box opened
10	Alert–Emergency State ON	When any of the emergency button is pressed
11	Alert–Emergency State OFF	When emergency state of vehicle is removed
12	Alert Over the air parameter change	When any parameter is changed over the air. Shall include the name of parameter changed and source of command
13	Harsh Braking	Alert indicating for harsh braking.

Analog Input1	Voltage reading on analog input 1 (upto1 decimal value)	dd.d	4 bytes	03.1 11.5
Analog Input2	Voltage reading on analog input 2 (upto1 decimal value)	dd.d	4 bytes	10.2 00.1
Odometer	Total distance traveled till date	Numeric variable	Variable	0 25
OTA Update Details	ID of parameter changed and source of command <source>: IP or mobile number from which command sent <parameter id>: Command sent to Device <status>:1-success,0-failed or parameter value	(<source>, <parameterid>, <status>)	Variable	(100.100.10.1,SET:VRN,M H01PB0000) (+919001001001,GET:VR N, MH01PB0000) (100.100.10.1,GET:VRN,M H01PB0000)
End Character	Indicates end of packet	*	1 byte	*
Checksum	Ensures no error in transmission (optimal)	CC	2 Bytes	49

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14	Harsh Acceleration	Alert indicating for harsh acceleration.
15	Rash Turning	Alert indicating for Rash turning.
16	Device Tempered	Alert Indicating Emergency button wire disconnect/ wire cut etc.
17	Over Speed	Alert Indicating Over Speed
18	Geo-fence In/Entry	Alert Indicating Geo-Fence In
19	Geo-Fence Out/Exit	Alert Indicating Geo-Fence Out

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Health Packet

\$HLP,ABCD01A,1.6.7,88888888888888,99,30,0,20,600,001100,00*

Field	Description	Format	Size	Example
Start Character	Indicates start of Health packet	\$	1 byte	\$
Header	Header of Health packet	HLP	3 bytes	HLP
Vendor ID	Vendor ID	Alpha-numeric	Variable	ABCD01A
Firmware Version	Version Of Firmware Used In The Device	x.x.x	5 bytes	1.6.7
IMEI	IMEI	15 Digit Number	15 Bytes	888888888888888
Battery Percentage	Indicates the internal battery charge percentage (0 to 100)	Numeric	Variable Max.3 Bytes	30 99
Low Battery Threshold value	Indicates Value On Which Low Battery alert generated in percentage (0 to 100)	Numeric	Variable Max.2 Bytes	30
Memory Percentage	Indicates Flash Memory Percentage Used (0 to 100)	Numeric	Variable Max.3 Bytes	1 30
Data Update Rate When Ignition ON	Indicated packet frequency on Ignition ON (value in sec) Min. Value 5sec	Numeric	Variable Max.4 Bytes	20 100
Data Update Rate When Ignition OFF	Indicated packet frequency on Ignition OFF(value in sec) Min. Value is 300 sec i.e.5min	Numeric	Variable Max.4 Bytes	300 600
Digital I/O Status	Inputs connected to the device (DIN1DIN2DIN3DIN4DOUT1DOUT2)	bbbbbb	6 Bytes	001100 000101
Analog I/O Status	Analog input status(AIN1 AIN2)	bb	2 Bytes	00 01
End Character	Indicate send of packet	*	1 byte	*

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Emergency Packet

\$EPB,EMR,888888888888888,NM,11052019104331,A,30.8825130,N,75.8476639,E,1
83.5,022.5,G,221,MH01PB0000,09001001001*32

Field	Description	Format	Size	Example
Start Character	Indicate start of Emergency packet	\$	1 byte	\$
Header	Header of Emergency packet	EPB	3 bytes	EPB
Packet Type	Message Types Supported. Emergency Message(EMR) or Stop Message(SEM)	Character	3 bytes	EMR SEM
IMEI	IMEI	15 Digit Number	15 bytes	888888888888888
Packet Status	NM-Normal Packet SP-Stored Packet	Character	2bytes	NM SP
Date	Date And Time of location	DDMMYYYYhhmmss	14 bytes	11052019104331
GPS Validity	A-Valid V-Invalid	Single Alphabet	1 byte	A V
Latitude	Latitude Value In Decimal Degree (7 places after decimal)	dd.mmmmmmmm	10 bytes	30.8825130
Latitude Direction	Latitude Direction, value will be either N or S, N=North, S=South	Single Alphabet	1 Bytes	N
Longitude	Longitude Value In Decimal degree(7places after decimal)	dd.mmmmmmmm	10 Bytes	75.8476639
Longitude Direction	Longitude Direction, value will be either E or W, E=East ,W=West	Single Alphabet	1 Bytes	E
Altitude	Height Above Mean Sea Level In meters, max: 100000m (Upto1 Decimal place)	Decimal Number, variable size	Max. 8 bytes	183.5 21000.4
Speed	Speed of Vehicle as Calculated by GPS module in VLT. (in km/hr) (Upto	ddd.d	5 bytes	022.5 For 22.5 km/hr

	One Decimal places)			
Provider	G—Fine GPS N—Coarse GPS or data from network	Single Character	1 byte	G N
Distance	Distance Calculated From Previous GPS data (in meters)	Decimal Number variable size	Variable Max. 6 bytes	221 11
Vehicle Reg. No	Mapped Vehicle Registration Number	Alpha-numeric	Variable	MH01PB0000
Reply Number	The mobile number to which test response needs to be sent (Emergency Mobile No. As specified by MHA/MoRTH/States)	Numeric	Variable size	9001001001
End Character	Indicate send of packet	*	1 byte	*
Checksum	Ensures no error in transmission(optimal)	CC	2 Bytes	32

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Emergency Packet

\$EPB,EMR,888888888888888,NM,11052019104331,A,30.8825130,N,75.8476639,E,1
83.5,022.5,G,221,MH01PB0000,09001001001*32

Field	Description	Format	Size	Example
Start Character	Indicate start of Emergency packet	\$	1 byte	\$
Header	Header of Emergency packet	EPB	3 bytes	EPB
Packet Type	Message Types Supported. Emergency Message(EMR) or Stop Message(SEM)	Character	3 bytes	EMR SEM
IMEI	IMEI	15 Digit Number	15 bytes	888888888888888
Packet Status	NM-Normal Packet SP-Stored Packet	Character	2bytes	NM SP
Date	Date And Time of location	DDMMYYYYhhmmss	14 bytes	11052019104331
GPS Validity	A-Valid V-Invalid	Single Alphabet	1 byte	A V
Latitude	Latitude Value In Decimal Degree (7 places after decimal)	dd.mmmmmmm	10 bytes	30.8825130
Latitude Direction	Latitude Direction, value will be either N or S, N=North, S=South	Single Alphabet	1 Bytes	N
Longitude	Longitude Value In Decimal degree(7places after decimal)	dd.mmmmmmm	10 Bytes	75.8476639
Longitude Direction	Longitude Direction, value will be either E or W, E=East ,W=West	Single Alphabet	1 Bytes	E
Altitude	Height Above Mean Sea Level In meters, max: 100000m (Upto1 Decimal place)	Decimal Number, variable size	Max. 8 bytes	183.5 21000.4
Speed	Speed of Vehicle as Calculated by GPS module in VLT. (in km/hr) (Upto	ddd.d	5 bytes	022.5 For 22.5 km/hr

Activation message and Health Check Message Protocol

The protocols for activation message and health check message are given below. Device shall send the activation and health check messages on request as specified below directly to the backend system (i.e. backend Command and Control Centre set up/ authorized by State/UT or a Common Layer system providing interface to VLT device manufacturers' backend applications).

Activation Format from Backend System to Device

For completion of the installation process, the VLT device shall undergo Activation process as per below:

- Activation Message Request Format from the Backend System to the Device (Through SMS/GPRS): **ACTV, <Random Code>,< Reply SMS Gateway no>**.
- Activation Message Reply Format from Device to the Backend System(Through SMS/GPRS)as per Table 1 Above:
- Activation Message Reply Format Should start with the "\$" and End with "*"

Sample Packet:

\$ACTVR,123456,vendorID,V2.0.9,8888888888888888,1,20.463195,N,85.85685,E,1,08052024
181651,317.43,000.0,20,404,76,128f,1,0,13.4,014132,NR*

**Table-1:
Activation Check Response SMS Format from Device to Backend System**

Field Name	Characters	Activation Example
Header	5	ACTVR
Separator	1	,
Random code	6	123456
Separator	1	,
Vendor ID	4	vendorID
Separator	1	,
Firmware version	6	V2.0.9
Separator	1	,
IMEI	15	8888888888888888
Separator	1	,
Alert ID	2	1
Separator	1	,
Latitude	12	20.463195
Separator	1	,
Direction	1	N
Separator	1	,
Longitude	12	85.85685
Separator	1	,
Direction	1	E
Separator	1	,
GPS fix	1	1
Separator	1	Transport Commissioner Office, M.T.N.L. Building, 5th Floor, Fountain Telecom-2, Mahatma Gandhi Road, East

Date and Time	15	08052024 181651
Separator	1	,
Heading	6	317.43
Separator	1	,
Speed	4	000.0

Separator	1	,
GSM Strength	2	20
Separator	1	,
Country Code (MCC)	3	404
Separator	1	,
Network Code (MNC)	4	76
Separator	1	,
LAC	4	128f
Separator	1	,
Main Power	1	1
Separator	1	,
IGN Status	1	0
Separator	1	,
Battery Voltage	4	13.4
Separator	1	,
Frame Number	6	014132
Separator	1	,
Vehicle mode	2	NR
Total Characters	139	

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Activation message and Health Check Message Protocol

The protocols for activation message and health check message are given below. Device shall send the activation and health check messages on request as specified below directly to the backend system (i.e. backend Command and Control Centre set up/ authorized by State/UT or a Common Layer system providing interface to VLT device manufacturers' backend applications).

Activation Format from Backend System to Device

For completion of the installation process, the VLT device shall undergo Activation process as per below:

- Activation Message Request Format from the Backend System to the Device (Through SMS/GPRS): **ACTV, <Random Code>,< Reply SMS Gateway no>**.
- Activation Message Reply Format from Device to the Backend System(Through SMS/GPRS)as per Table 1 Above:
- Activation Message Reply Format Should start with the "\$" and End with "**"

Sample Packet:

\$ACTVR,123456, vendorID, V2.0.9,8888888888888888,1,20.463195,N,85.85685,E,1,08052024
181651,317.43,000.0,20,404,76,128f,1,0,13.4,014132,NR*

**Table-1:
Activation Check Response SMS Format from Device to Backend
System**

Field Name	Characters	Activation Example
Header	5	ACTVR
Separator	1	,
Random code	6	123456
Separator	1	,
Vendor ID	4	vendorID
Separator	1	,
Firmware version	6	V2.0.9
Separator	1	,
IMEI	15	8888888888888888
Separator	1	,
Alert ID	2	1
Separator	1	,
Latitude	12	20.463195
Separator	1	,
Direction	1	N
Separator	1	,
Longitude	12	85.85685
Separator	1	,
Direction	1	E
Separator	1	,
GPS fix	1	1
Separator	1	Transport Commissioner Office,

Speed	4	000.0
Separator	1	,
GSM Strength	2	45
Separator	1	,
Country Code (MCC)	3	404
Separator	1	,
Network Code (MNC)	4	76
Separator	1	,
LAC	4	128f
Separator	1	,
Main Power	1	1
Separator	1	,
IGN Status	1	0
Separator	1	,
Battery Voltage	4	12.9
Separator	1	,
Frame Number	6	014420
Separator	1	,
Vehicle mode	2	NR
Total Characters	139	

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Frequency: Twice Daily (Recommended),

- Health Check Message Request Format from the Backend System to the Device (Through SMS/GPRS): **HCHK, <Random Generated ID>, < Reply SMS Gateway no>**.
- Health Check Message Reply Format from Device to Backend System (Through SMS/GPRS): As per Table below
- Health Check Message Reply Format Should start with the "\$" and End with "/*"

Sample Packet:

**\$HCHKR,675898,vendorID,V2.0.9,8888888888888888,1,20.481552,N,85.80760,E,1,13102023
080219,094.67,000.0,45,404,76,128f,1,0,12.9,014420,NR***

**Table-1:
Health Check Response SMS Format from Device to Backend System**

Field Name	Characters	Health Check Example
Header	5	HCHKR
Separator	1	,
Random code	6	675898
Separator	1	,
Vendor ID	4	vendorID
Separator	1	,
Firmware version	6	V2.0.9
Separator	1	,
IMEI	15	8888888888888888
Separator	1	,
Alert ID	2	1

Separator	1	,
Latitude	12	20.481552
Separator	1	,
direction	1	N
Separator	1	,
Longitude	12	85.80760
Separator	1	,
Direction	1	E
Separator	1	,
GPS fix	1	1
Separator	1	,
Date and Time	15	13102023 080219
Separator	1	,
Heading	6	094.67
Separator	1	,

OTA Commands via GPRS

These commands are used to configure the device directly from the server. Commands are of 3 types i.e. SET, GET, or CLR. Server will send these commands as required, only when connection is established between device and server.

	Command	Function
1	+S*R:<type>:GIP#<IP>,<PORT>;	To set IP and PORT for backend govt. server for VLT data Example: +S*R:SET:GIP#100.100.10.1,9501; +S*R:GET:GIP#; +S*R:CLR:GIP#;
2	+S*R:<type>:APN#<APN>;	To set access point name for provided network Example: +S*R:SET:APN#airtelgprs.com; +S*R:GET:APN#; +S*R:CLR:APN#;
3	+S*R:<type>:SOS#<mobileno>;	To set backend emergency control center mobile number Example: +S*R:SET:SOS#9001001001; +S*R:GET:SOS#; +S*R:CLR:SOS#;
4	+S*R:<type>:EIP#<IP>,<PORT>;	To set IP and PORT for backend Emergency control centre Example: +S*R:SET:EIP#100.100.20.2,8900; +S*R:GET:EIP#; +S*R:CLR:EIP#;
5	+S*R:<type>:VRN#<vehicleno>;	To set vehicle registration number Example: +S*R:SET:VRN#MH01PB0000; +S*R:GET:VRN#; +S*R:CLR:VRN#;

6	+S*R:<type>:LOGS#<interval>;	To set logs interval in sec when ignition ON Example: +S*R:SET:LOGS#20; +S*R:GET:LOGS#; +S*R:CLR:LOGS#;
7	+S*R:<type>:LOG2#<interval>;	To set logs interval in sec when ignition OFF Example: +S*R:SET:LOG2#600; +S*R:GET:LOG2#; +S*R:CLR:LOG2#;
8	+S*R:<type>:HPTI#<interval>;	To set health packet transmission interval in sec Example: +S*R:SET:HPTI#120; +S*R:GET:HPTI#; +S*R:CLR:HPTI#;
9	+S*R:<type>:EPTI#<interval>;	To set emergency packet transmission interval in sec Example: +S*R:SET:EPTI#60; +S*R:GET:EPTI#; +S*R:CLR:EPTI#;
10	+S*R:<type>:EMTD#<interval>;	To set emergency mode time-out duration in sec Example: +S*R:SET:EMTD#1200; +S*R:GET:EMTD#; +S*R:CLR:EMTD#;
11	+S*R:IMON#;	This command will switch ON Relay connected to device (Digital Output1) and Vehicle Ignition will be OFF
12	+S*R:IMOFF#;	This command will switch OFF Relay connected to device (Digital Output1) and Vehicle Ignition will be ON

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13	+S*R:RST#<logserasebit>;	<p>To restart device with/without erasing logs</p> <p>Example: To restart without erasing stored logs +S*R:RST#0;</p> <p>To restart with erasing all stored logs +S*R:RST#1;</p>
14	+S*R:FOTA#<file_name>;	<p>This command is used to update firmware in devices.</p> <p>If FOTA failed then device will send OTA alert with fail response. And if FOTA success then firmware will be updated.(approx time taken is 5 min after command)</p> <p>After firmware update all device packets will reflect the updated firmware version.</p> <p>Example: +S*R:FOTA#ABCD01A.bin;</p>
15	+S*R:<type>:PIP#<IP>,<PORT>;	<p>To set IP and PORT for private server for VLT data</p> <p>Example: +S*R:SET:PIP#100.100.30.3,9501;</p> <p>+S*R:GET:PIP#;</p> <p>+S*R:CLR:PIP#;</p>
16	+S*R:<type>:OSL#<SPEED>;	<p>To set Over Speed</p> <p>Example: +S*R:SET:OSL#80;</p> <p>+S*R:GET:OSL#;</p> <p>+S*R:CLR:OSL#;</p>

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+S*R:<TYPE>:PGF#<lat1>,<lon1>,<lat2>,<lon2>,<lat3>,<lon3>,<lat4>,<lon4>;

To Set /Get Geo-Fence In and Exit

Example: +S*R:**SET**:PGF#12.958475,77.568555,12.958575,77.568595,
12.958525,77.564595,12.958575,77.85976;

+S*R:**GET**:PGF#;

+S*R:**CLR**:PGF#;

*****End of Document*****

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