

- අදාළ වෙනස්කම් තද අකුරින්(bold) දක්වා ඇත

**Specification for GPS Vehicle Tracking Devices for National Transport Commission (NTC) Expressway Passenger Transport Services**

Description	Requirement
<b>GPS Receiver</b>	
<b>Frequency</b>	L1, 1575.42 MHz
<b>Code</b>	C/A Code, 1.023 MHz chip rate
<b>Channels</b>	20
<b>Sensitivity</b>	-157 dBm (or lower)
<b>DGPS</b>	WAAS, EGNOS, MSAS (or better)
<b>Accuracy</b>	Position – 10 m 2D RMS (or better) Velocity – 0.1 m/s (or better) Time – 1 μs (synchronized to GPS time) (or better)
<b>Parameter Ranges</b>	Altitude ≤ 10,000 m (or higher) Velocity ≤ 500 m/s (or higher) Acceleration ≤ 4 g (or higher)
<b>Average Delays</b>	Cold Start – 42 s (or lower) Warm Start – 38 s (or lower) Hot Start – 1 s (or lower)
<b>Datum</b>	WGS-84
<b>Antenna</b>	Required
<b>GPS Antenna Open/Short Detection</b>	Required
<b>GSM Module</b>	
<b>Frequency Bands</b>	GSM 900/1800/1900
<b>SIM Card Support</b>	Standard SIM
<b>GPRS Connectivity</b>	GPRS multi-slot class 10 GPRS mobile station class B
<b>Bandwidth</b>	Uplink 42.8 kbps and downlink 85.6 kbps (or higher)
<b>Data Transmission Modes</b>	TCP/UDP/SMS
<b>SMS Support</b>	Required
<b>Retransmission After Dead Zone</b>	Required
<b>Voice</b>	2-way communication
<b>Data Requirements</b>	
<b>Flash Capacity</b>	4 Mb (or higher)
<b>Sampling Interval</b>	<b>Running : 10 s (or lower).</b> <b>Idle : 30 s All parameters must be uploaded to server at this rate</b>
<b>Event Triggered Upload</b>	Required

<b>Dead Zone Data Upload</b>	Required		
<b>Data Transfer Modes to NTC Server</b>	HTTP POST		
<b>Data Transfer Mechanism</b>	Directly from device to NTC central monitoring system or via vendor-specific data collection/translation application installed at NTC central monitoring system. <i>* In the latter case vendor must provide necessary software, licenses, and software updating and maintenance for 5 years. NTC does not cover any expenses related to software licenses, maintenance, etc. other than hosting the application.</i>		
<b>HTTP POST Format</b>	URL – http://host_name/gpsdatauploader/httpuploaderpost.php Keys – systemno, date_time, longitude, latitude, speed, direction, locate, idlestat, milage, altitude, acceleration		
<b>Data should be in this Format</b>	<b>Key</b>	<b>Format</b>	<b>Description</b>
	<b>s</b>	<b>Integer value</b>	<b>Unique device ID – must be globally unique or to be configured during device registration</b>
	<b>t</b>	<b>yyyy-mm-dd hh:mm:ss</b>	<b>Time - Converted to Sri Lankan time</b>
	<b>lg</b>	<b>Float value</b>	<b>Longitude - Decimal degree</b>
	<b>lt</b>	<b>Float value</b>	<b>Latitude - Decimal degree</b>
	<b>v</b>	<b>Integer value</b>	<b>Speed - Km/h</b>
	<b>d</b>	<b>Integer value ()</b>	<b>Direction - 0 – 359 degrees (a.k.a. azimuth)</b>
	<b>l</b>	<b>Binary</b>	<b>GPS -1, GPRS -0</b>
	<b>i</b>	<b>Binary</b>	<b>Ignition status, 1 – On, 0 - Off</b>
	<b>m</b>	<b>Integer value</b>	<b>Mileage - To be set during device registration and then to automatically update</b>
<b>al</b>	<b>Float value</b>	<b>Altitude - Decimal degree</b>	
<b>ac</b>	<b>Integer value</b>	<b>Acceleration - m<sup>2</sup>/s</b>	
<b>Mechanical and Environmental Properties</b>			
<b>Operating Voltage</b>	12/24 V ± 3 V (or higher)		
<b>Power Consumption</b>	≤ 200 mA		
<b>Overvoltage Protection</b>	Required		
<b>Operational Temperature</b>	5 - 70 °C (or higher)		
<b>Backup Power</b>	4 hours (or higher)		
<b>Casing</b>	Tamper and vibration proof casing (communication chip must be completely sealed)		
<b>Buzzer</b>	Required		
<b>Speaker and Microphone</b>	Required for 2-way voice communication		