GL53MG(Plus) Firmware Release Notes

EGPRS/LTE Cat-M1/LTE Cat-NB2/GNSS Tracker

TRACGL53MGRN0936



Driving Smarter IoT

www. queclink .com

Document Title	GL53MG(Plus) Firmware Release Notes
Version	N/A
Date	November 12, 2024
Status	Release
Document Control ID	TRACGL53MGRN0936

General Notes

Queclink offers this information as a service to its customers, to support application and engineering efforts that use the products designed by Queclink. The information provided is based upon requirements specifically provided to Queclink by the customers. Queclink has not undertaken any independent search for additional relevant information, including any information that may be in the customer's possession. Furthermore, system validation of this product designed by Queclink within a larger electronic system remains the responsibility of the customer or the customer's system integrator. All specifications supplied herein are subject to change.

Copyright

This document contains proprietary technical information which is the property of Queclink Wireless Solutions Co., Ltd. The copying of this document, distribution to others, and communication of the contents thereof, are forbidden without express authority. Offenders are liable to the payment of damages. All rights are reserved in the event of a patent grant or registration of a utility model or design. All specifications supplied herein are subject to change without notice at any time.

Queclink Confidential

Contents

Contents....2
1. Preamble....5
2. Current Release....6
2.1. GL53MGR00A09V36M512....6
2.1.1. GL53MG(Plus) @Track Protocol Support....6
2.1.2. MCU Firmware Version....6
2.1.3. Modem Firmware Version....6
2.1.4. New Features....6
2.1.5. Improved Features....7
2.1.6. Features Related Firmware Versions....7
3. Release History....8
3.1. GL53MGR00A09V31M512....8
3.1.1. GL53MG(Plus) @Track Protocol Support....8
3.1.2. MCU Firmware Version....8
3.1.3. Modem Firmware Version....8
3.1.4. New Features....8
3.1.5. Improved Features....9
3.1.6. Features Related Firmware Versions....9
3.2. GL53MGR00A09V14M512....10
3.2.1. GL53MG(Plus) @Track Protocol Support....10
3.2.2. MCU Firmware Version....10
3.2.3. Modem Firmware Version....10
3.2.4. New Features....10
3.2.5. Improved Features....11
3.3. GL53MGR00A09V13M512....11
3.3.1. GL53MG(Plus) @Track Protocol Support....11
3.3.2. MCU Firmware Version....11
3.3.3. Modem Firmware Version....11
3.3.4. New Features....12
3.3.5. Improved Features....12
3.4. GL53MGR00A09V06M512....13
3.4.1. GL53MG@Track Protocol Support....13
3.4.2. MCU Firmware Version....13
3.4.3. Modem Firmware Version....13
3.4.4. New Features....13
3.4.5. Improved Features....13
3.5. GL53MGR00A09V04M512....14
3.5.1. GL53MG@Track Protocol Support....14
3.5.2. MCU Firmware Version....14
3.5.3. Modem Firmware Version....14
3.5.4. New Features....14

Queclink Confidential

3.5.5. Improved Features 14
3.6. GL53MGR00A08V11M512 15
3.6.1. GL53MG@Track Protocol Support 15
3.6.2. MCU Firmware Version 15
3.6.3. Modem Firmware Version 15
3.6.4. New Features 15
3.6.5. Improved Features 15
3.7. GL53MGR00A08V09M512 16
3.7.1. GL53MG@Track Protocol Support 16
3.7.2. MCU Firmware Version 16
3.7.3. Modem Firmware Version 16
3.7.4. New Features 16
3.7.5. Improved Features 16
3.8. GL53MGR00A07V08M512 17
3.8.1. GL53MG@Track Protocol Support 17
3.8.2. MCU Firmware Version 17
3.8.3. Modem Firmware Version 17
3.8.4. New Features 17
3.8.5. Improved Features 18
3.9. GL53MGR00A06V05M512 18
3.9.1. GL53MG@Track Protocol Support 18
3.9.2. Modem Firmware Version 19
3.9.3. New Features 19
3.9.4. Improved Features 19
3.10. GL53MGR00A05V12M512 19
3.10.1. GL53MG@Track Protocol Support 19
3.10.2. Modem Firmware Version 20
3.10.3. New Features 20
3.10.4. Improved Features 20
3.11. GL53MGR00A04V35M512 21
3.11.1. GL53MG@Track Protocol Support 21
3.11.2. Modem Firmware Version 21
3.11.3. New Features 22
3.11.4. Improved Features 22
3.12. GL53MGR00A03V18M512 23
3.12.1. GL53MG@Track Protocol Support 23
3.12.2. Modem Firmware Version 23
3.12.3. New Features 24
3.12.4. Improved Features 24
3.13. GL53MGR00A03V15M512 24
3.13.1. GL53MG@Track Protocol Support 24
3.13.2. Modem Firmware Version 24
3.13.3. New Features 24
3.13.4. Improved Features 25

Queclink Confidential

3.14. GL53MGR00A02V29M512 25
3.14.1. GL53MG@Track Protocol Support 25
3.14.2. Modem Firmware Version 26
3.14.3. New Features 26
3.14.4. Improved Features 26
3.15. GL53MGR00A02V23M512 26
3.15.1. GL53MG@Track Protocol Support 26

Queclink Confidential

1. Preamble

This document introduces GL53MG(Plus) firmware version **GL53MGR00A09V36M512** and briefly describes new and improved features. From this document, you can find the differences between the current and the preceding releases.

Queclink Confidential

2. Current Release

2.1. GL53MGR00A09V36M512

2.1.1.GL53MG(Plus) @Track Protocol Support

The GL53MG(Plus) firmware **GL53MGR00A09V36M512** supports @Track air interface protocol V7.04. For detailed information about the protocol, please refer to the document GL53MG(Plus) @Track Air Interface Protocol V7.04.

The GL53MG(Plus) firmware **GL53MGR00A09V36M512** supports both GL53MG and GL53MG Plus hardware. The GL53MG Plus firmware GL53MGPR00A01V05M512 can be upgraded to **GL53MGR00A09V36M512** by using the data cable and upgrade tool Queclink_Firmware_Upgrade_Tool_MDM_V2.09 or later version.
Note 1: For FOTA process, the GL53MG Plus firmware GL53MGPR00A01V05M512 should be upgraded to GL53MGPR00A01V06M512 over the air first. The GL53MG Plus firmware GL53MGPR00A01V06M512 can support to upgrade to **GL53MGR00A09V36M512** over the air.
Note 2: It is not recommended to use the GL53MG Plus GL53MGPR00A01V06M512 as official release. It is only used as temp firmware to transit the GL53MG Plus firmware GL53MGPR00A01V05M512 to the GL53MG(Plus) firmware **GL53MGR00A09V36M512** over the air.

2.1.2.MCU Firmware Version

The GL53MG(Plus) firmware **GL53MGR00A09V36M512** should work with MCU Firmware **GL53MG_McuR12V9.10**. If an upgrade error occurs or a match with another version of the GL53MG(Plus) firmware is required, please contact fae@queclink.com. We can't guarantee that the version mismatch of the GL53MG(Plus) firmware and the MCU firmware could work well.

2.1.3.Modem Firmware Version

The GL53MG(Plus) firmware **GL53MGR00A09V36M512** should work with Modem Firmware Version 2.31 (i.e. <*Modem Firmware Version*> reported in the **+RESP:GTATI** message queried by sub command 0x1C of **AT+GTRTO** is 0231). Please choose the proper modem OTA bin according to the current <*Modem Firmware Version*> in the **+RESP:GTATI** message.

2.1.4.New Features

New features are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A09V31M512**).

Item	Brief Description
1	N/A.

2.1.5.Improved Features

Features or parameters that have been changed or improved are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A09V31M512**).

Item	Brief Description
1	Fixed an issue that sometimes **+RESP:GTGSM** messages would not contain valid neighbor cell information.
2	Fixed an issue that sometimes **+RESP:GTFRI** messages would not contain valid serving cell information.
3	Fixed an issue that the device did not reboot according to the <*Interval*> and <*Time*> in **AT+GTDOG** comomand.
4	Fixed an issue that the device would report additional **+RESP:GTFRI** message occasionally when <*Initial Wakeup Interval*> and <*Final Wakeup Interval*> in **AT+GTCFG** command were set to different values.
5	Fixed an issue that sometimes the <*RX Level*> field of **+RESP:GTGSM** message would be filled with zero.

2.1.6.Features Related Firmware Versions

The following table lists whether the new MCU version **GL53MG_McuR12V9.10** need to be upgraded for different features.

Item	MCU	Modem	Note
New feature 1	No	No	Upgrade MCU first, then upgrade BB.

Queclink Confidential

3. Release History

3.1. GL53MGR00A09V31M512

3.1.1.GL53MG(Plus) @Track Protocol Support

The GL53MG(Plus) firmware **GL53MGR00A09V31M512** supports @Track air interface protocol V7.04. For detailed information about the protocol, please refer to the document GL53MG(Plus) @Track Air Interface Protocol V7.04.

The GL53MG(Plus) firmware **GL53MGR00A09V31M512** supports both GL53MG and GL53MG Plus hardware. The GL53MG Plus firmware GL53MGPR00A01V05M512 can be upgraded to **GL53MGR00A09V31M512** by using the data cable and upgrade tool Queclink_Firmware_Upgrade_Tool_MDM_V2.09 or later version.
Note 1: For FOTA process, the GL53MG Plus firmware GL53MGPR00A01V05M512 should be upgraded to GL53MGPR00A01V06M512 over the air first. The GL53MG Plus firmware GL53MGPR00A01V06M512 can support to upgrade to **GL53MGR00A09V31M512** over the air.
Note 2: It is not recommended to use the GL53MG Plus GL53MGPR00A01V06M512 as official release. It is only used as temp firmware to transit the GL53MG Plus firmware GL53MGPR00A01V05M512 to the GL53MG(Plus) firmware **GL53MGR00A09V31M512** over the air.

3.1.2.MCU Firmware Version

The GL53MG(Plus) firmware **GL53MGR00A09V31M512** should work with MCU Firmware **GL53MG_McuR12V9.10**. If an upgrade error occurs or a match with another version of the GL53MG(Plus) firmware is required, please contact fae@queclink.com. We can't guarantee that the version mismatch of the GL53MG(Plus) firmware and the MCU firmware could work well.

3.1.3.Modem Firmware Version

The GL53MG(Plus) firmware **GL53MGR00A09V31M512** should work with Modem Firmware Version 2.31 (i.e. <*Modem Firmware Version*> reported in the **+RESP:GTATI** message queried by sub command 0x1C of **AT+GTRTO** is 0231). Please choose the proper modem OTA bin according to the current <*Modem Firmware Version*> in the **+RESP:GTATI** message.

3.1.4.New Features

New features are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A09V14M512**).

Item	Brief Description
2	Supported **AT+GTBID** function for GL53MG Plus.
3	Added the parameter <*TLS Enable*> to **AT+GTSRI** command.
4	Added parameters <*Discard No Fix*> and <*GSM Item Mask*> to **AT+GTCFG** command.
5	Added Bit 8 of parameter <*Report Item Mask*> to **AT+GTCFG**.
6	Add the parameter <*Battery Percentage*> to **+RESP:GTGSM.**

3.1.5.Improved Features

Features or parameters that have been changed or improved are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A09V14M512**).

Item	Brief Description
2	Optimized the manual registeration feature.
3	Optimized the calculation of power consumption.
4	Fixed an issue that the device entered manual registration when the <*Allowed Oper*> parameter in **AT+GTNTS** command was set to "MCCFF".
5	Fixed an issue that the device could not be upgraded by FOTA because of binarary file size.
6	Fixed an issue that the **+RESP:GTGSM** message could not be reported when sending **AT+GTRTO** command with <*Sub Command*> C to the device.
7	Fixed an issue that the message format could be changed from ASCII to HEX format after upgrading from A01V05(GL53MGP) to A09V13.
8	Fixed an issue that the fields <*MCC*>, <*MNC*>, <*LAC*> and <*Cell ID*> within **+RESP:GTFRI** message were empty after the device was powered on.
9	Fixed an issue that the device would report **+ACK:GTTMA** message three times after receiving the **AT+GTTMA** command.
10	Fixed an issue that the device might report an extra **+RESP:GTFRI** message that lacks location information after the device powered on.
11	Fixed an issue that the **+RESP:GTPNA** message was occurring earlier than **+RESP:GTFRI** message after power-on, but <*Send Time*> of **+RESP:GTPNA** message was later than **+RESP:GTFRI** message's.

3.1.6.Features Related Firmware Versions

The following table lists whether the new MCU version **GL53MG_McuR12V9.10** need to be upgraded for different features.

Item	MCU	Modem	Note
New feature 1	Yes	N/A	Upgrade BB first, then upgrade MCU.

3.2. GL53MGR00A09V14M512

3.2.1.GL53MG(Plus) @Track Protocol Support

The GL53MG(Plus) firmware **GL53MGR00A09V14M512** supports @Track air interface protocol V7.01. For detailed information about the protocol, please refer to the document GL53MG(Plus) @Track Air Interface Protocol V7.01.

The GL53MG(Plus) firmware **GL53MGR00A09V14M512** supports both GL53MG and GL53MG Plus hardware. The GL53MG Plus firmware GL53MGPR00A01V05M512 can be upgraded to **GL53MGR00A09V14M512** by using the data cable and upgrade tool Queclink_Firmware_Upgrade_Tool_MDM_V2.09.
Note 1: For FOTA process, the GL53MG Plus firmware GL53MGPR00A01V05M512 should be upgraded to GL53MGPR00A01V06M512 over the air first. The GL53MG Plus firmware GL53MGPR00A01V06M512 can support to upgrade to **GL53MGR00A09V14M512** over the air.
Note 2: It is not recommended to use the GL53MG Plus GL53MGPR00A01V06M512 as official release. It is only used as temp firmware to transit the GL53MG Plus firmware GL53MGPR00A01V05M512 to the GL53MG(Plus) firmware **GL53MGR00A09V14M512** over the air.

3.2.2.MCU Firmware Version

The GL53MG(Plus) firmware **GL53MGR00A09V14M512** should work with MCU Firmware **GL53MG_McuR12V9.05**. If an upgrade error occurs or a match with another version of the GL53MG(Plus) firmware is required, please contact fae@queclink.com. We can't guarantee that the version mismatch of the GL53MG(Plus) firmware and the MCU firmware could work well.

3.2.3.Modem Firmware Version

The GL53MG(Plus) firmware **GL53MGR00A09V14M512** should work with Modem Firmware Version 2.31 (i.e. <*Modem Firmware Version*> reported in the **+RESP:GTATI** message queried by sub command 0x1C of **AT+GTRTO** is 0231). Please choose the proper modem OTA bin according to the current <*Modem Firmware Version*> in the **+RESP:GTATI** message.

3.2.4.New Features

New features are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A09V13M512**).

Item	Brief Description
1.	N/A

3.2.5.Improved Features

Features or parameters that have been changed or improved are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A09V13M512**).

Item	Brief Description
1.	Optimized the manual registration feature to solve the issue that the device the device might fail to register on the roaming network if it registered on the home network before..

3.3. GL53MGR00A09V13M512

3.3.1.GL53MG(Plus) @Track Protocol Support

The GL53MG(Plus) firmware **GL53MGR00A09V13M512** supports @Track air interface protocol V7.01. For detailed information about the protocol, please refer to the document GL53MG(Plus) @Track Air Interface Protocol V7.01.

The GL53MG(Plus) firmware **GL53MGR00A09V13M512** supports both GL53MG and GL53MG Plus hardware. The GL53MG Plus firmware GL53MGPR00A01V05M512 can be upgraded to **GL53MGR00A09V13M512** by using the data cable and upgrade tool Queclink_Firmware_Upgrade_Tool_MDM_V2.09.
Note 1: For FOTA process, the GL53MG Plus firmware GL53MGPR00A01V05M512 should be upgraded to GL53MGPR00A01V06M512 over the air first. The GL53MG Plus firmware GL53MGPR00A01V06M512 can support to upgrade to **GL53MGR00A09V13M512** over the air.
Note 2: It is not recommended to use the GL53MG Plus GL53MGPR00A01V06M512 as official release. It is only used as temp firmware to transit the GL53MG Plus firmware GL53MGPR00A01V05M512 to the GL53MG(Plus) firmware **GL53MGR00A09V13M512** over the air.

3.3.2.MCU Firmware Version

The GL53MG(Plus) firmware **GL53MGR00A09V13M512** should work with MCU Firmware **GL53MG_McuR12V9.05**. If an upgrade error occurs or a match with another version of the GL53MG(Plus) firmware is required, please contact fae@queclink.com. We can't guarantee that the version mismatch of the GL53MG(Plus) firmware and the MCU firmware could work well.

3.3.3.Modem Firmware Version

The GL53MG(Plus) firmware **GL53MGR00A09V13M512** should work with Modem Firmware Version 2.29 (i.e. <*Modem Firmware Version*> reported in the **+RESP:GTATI** message queried by sub command 0x1C of **AT+GTRTO** is 0229). Please choose the

proper modem OTA bin according to the current <*Modem Firmware Version*> in the **+RESP:GTATI** message.

3.3.4.New Features

New features are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A09V06M512**).

Item	Brief Description
2.	Added <*Block List*> in **AT+GTNTS** command.
3.	Used <*Report Type*> field of **+RESP:GTFRI** message as <*Power On Type*> field.
4.	Merged GL53MG and GL53MG Plus.

3.3.5.Improved Features

Features or parameters that have been changed or improved are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A09V06M512**).

Item	Brief Description
2.	Optimized the manual registration feature.
3.	Fixed an issue that the device would send **+RESP:GTFRI** message twice after Bluetooth disconnected.
4.	Fixed an issue that the device reported **+RESP:GTNMR** messages whose field <*Report Type*> would be empty.
5.	Fixed an issue that the device did not report **+RESP:GTGSM** message if the parameters <*Include GNSS*> and <*GSM Report*> of the **AT+GTCFG** command were set to 0 and 3 respectively.
6.	Fixed an issue that the parameters of the **AT+GTTMA** command was not cleared when the device received **AT+GTRTO** command with <*Subcommand*> 4.
7.	Fixed an issue that the blue LED could not be turned off after the device powered on.
8.	Fixed an issue that the time would be incorrect for the first wake-up time when parameter <*Mode Selection*> of **AT+GTCFG** command set to 2.
9.	Fixed an issue that the device would report a **+RESP:GTNMR** message with <*Movement Status*> 0 (Rest) then a **+RESP:GTNMR** message with <*Movement Status*> 1 (Motion) after sending **AT+GTPDS** command which <*Mode*> was set to 2 and the device was rebooted.
10.	Fixed an issue that the device could return 'OK' when sending **AT+GTUPD** command for the second time.
11.	Fixed an issue that **+RESP:GTUPD** could instead of **+RESP:GTEUD** message when sending **AT+GTUPD** command twice quickly.

12.	Optimized the reporting of **+RESP:GTALM** message.

3.4. GL53MGR00A09V06M512

3.4.1.GL53MG@Track Protocol Support

The GL53MG firmware **GL53MGR00A09V06M512** supports @Track air interface protocol V5.09. For detailed information about the protocol, please refer to the document GL53MG@Track Air Interface Protocol V5.09.

3.4.2.MCU Firmware Version

The GL53MG firmware **GL53MGR00A09V06M512** should work with MCU Firmware **GL53MG_McuR12V9.02**. If an upgrade error occurs or a match with another version of the GL53MG firmware is required, please contact fae@queclink.com. We can't guarantee that the version mismatch of the GL53MG firmware and the MCU firmware could work well.

3.4.3.Modem Firmware Version

The GL53MG firmware **GL53MGR00A09V06M512** should work with Modem Firmware Version 2.25 (i.e. <*Modem Firmware Version*> reported in the **+RESP:GTATI** message queried by sub command 0x1C of **AT+GTRTO** is 0225). Please choose the proper modem OTA bin according to the current <*Modem Firmware Version*> in the **+RESP:GTATI** message.

3.4.4.New Features

New features are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A09V04M512**).

Item	Brief Description
1.	N/A.

3.4.5.Improved Features

Features or parameters that have been changed or improved are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A09V04M512**).

Item	Brief Description
1.	Enlarged the timeout for searching network to solve the issue that some network rejected the device with the cause value 15 (No Suitable Cells In tracking area) and the device needed extra time to search all cells for this network before searching next available network.
2.	Fixed an issue that RF could not be turned on when the GNSS signal was weak.

3.	Added sending detach message to the network before the device got into sleep.

3.5. GL53MGR00A09V04M512

3.5.1.GL53MG@Track Protocol Support

The GL53MG firmware **GL53MGR00A09V04M512** supports @Track air interface protocol V5.09. For detailed information about the protocol, please refer to the document GL53MG@Track Air Interface Protocol V5.09.

3.5.2.MCU Firmware Version

The GL53MG firmware **GL53MGR00A09V04M512** should work with MCU Firmware **GL53MG_McuR12V9.01**. If an upgrade error occurs or a match with another version of the GL53MG firmware is required, please contact fae@queclink.com. We can't guarantee that the version mismatch of the GL53MG firmware and the MCU firmware could work well.

3.5.3.Modem Firmware Version

The GL53MG firmware **GL53MGR00A09V04M512** should work with Modem Firmware Version 2.25 (i.e. <*Modem Firmware Version*> reported in the **+RESP:GTATI** message queried by sub command 0x1C of **AT+GTRTO** is 0225). Please choose the proper modem OTA bin according to the current <*Modem Firmware Version*> in the **+RESP:GTATI** message.

3.5.4.New Features

New features are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A08V11M512**).

Item	Brief Description
1.	Added new parameter <*Hold Time*> to the **AT+GTSVR** command.

3.5.5.Improved Features

Features or parameters that have been changed or improved are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A08V11M512**).

Item	Brief Description
1.	Optimized the **AT+GTSVR** feature.
2.	Fixed an issue where the device did not report the **+RESP:GTFRI** message immediately and report it after an incorrect interval when the device was in rest state and entered the working state specified by <*Working Hours Start*> in

	AT+TNMD command and the <*Mode*> in the command was set to **F.**

3.6. GL53MGR00A08V11M512

3.6.1.GL53MG@Track Protocol Support

The GL53MG firmware **GL53MGR00A08V11M512** supports @Track air interface protocol V5.08. For detailed information about the protocol, please refer to the document GL53MG@Track Air Interface Protocol V5.08.

3.6.2.MCU Firmware Version

The GL53MG firmware **GL53MGR00A08V11M512** should work with MCU Firmware **GL53MG_McuR12V8.06**. If an upgrade error occurs or a match with another version of the GL53MG firmware is required, please contact fae@queclink.com. We can't guarantee that the version mismatch of the GL53MG firmware and the MCU firmware could work well.

3.6.3.Modem Firmware Version

The GL53MG firmware **GL53MGR00A08V11M512** should work with Modem Firmware Version 2.21 (i.e. <*Modem Firmware Version*> reported in the **+RESP:GTATI** message queried by sub command 0x1C of **AT+GTRTO** is 0221). Please choose the proper modem OTA bin according to the current <*Modem Firmware Version*> in the **+RESP:GTATI** message.

3.6.4.New Features

New features are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A08V09M512**).

Item	Brief Description
1.	N/A

3.6.5.Improved Features

Features or parameters that have been changed or improved are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A08V09M512**).

Item	Brief Description
1.	Optimized the calculation of power consumption.
2.	Fixed an issue that the device would not wake up for a long time.
3.	Fixed an issue that the device would report the **+RESP:GTFRI** message if the <*Mode*> in the **AT+GTNMD** command changed from 7 to F when the sensor

	operated outside the range specified by <*Working Hours Start*> and <*Working Hours End*>.
4.	Fixed an issue that the next wake time was incorrect when the related parameters in the **AT+GTCFG** command which affect the send and wake interval were changed immediately upon startup.

3.7. GL53MGR00A08V09M512

3.7.1.GL53MG@Track Protocol Support

The GL53MG firmware **GL53MGR00A08V09M512** supports @Track air interface protocol V5.08. For detailed information about the protocol, please refer to the document GL53MG@Track Air Interface Protocol V5.08.

3.7.2.MCU Firmware Version

The GL53MG firmware **GL53MGR00A08V09M512** should work with MCU Firmware **GL53MG_McuR12V8.06**. If an upgrade error occurs or a match with another version of the GL53MG firmware is required, please contact fae@queclink.com. We can't guarantee that the version mismatch of the GL53MG firmware and the MCU firmware could work well.

3.7.3.Modem Firmware Version

The GL53MG firmware **GL53MGR00A08V09M512** should work with Modem Firmware Version 2.21 (i.e. <*Modem Firmware Version*> reported in the **+RESP:GTATI** message queried by sub command 0x1C of **AT+GTRTO** is 0221). Please choose the proper modem OTA bin according to the current <*Modem Firmware Version*> in the **+RESP:GTATI** message.

3.7.4.New Features

New features are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A07V08M512**).

Item	Brief Description
1	Added Bit 6 (0040): the **+RESP:GTNMR** of the parameter <*GSM Report*> to the **AT+GTCFG** command.
2	Added **+RESP:GTIND** message.

3.7.5.Improved Features

Features or parameters that have been changed or improved are listed in the following table, compared with the preceding firmware release (version

GL53MGR00A07V08M512).

Item	Brief Description
1.	Optimized the **AT+GTNMD** feature.
2.	Optimized the calculation of power consumption.
3.	Fixed an issue that the failure cause in the field <*SVR Appending Information*> of **+RESP:GTSVR** message was not converted into HEX format when the device Bluetooth failed to be paired.
4.	Fixed an issue that the **+RESP:GTFRI** message without location information would be reported on Sunday if <*Enable Report*> and <*Include GNSS*> of the parameter <*Week Report Selection*> within the **AT+GTCFG** command were set to 0 on Saturday and Sunday.
5.	Fixed an issue that the device would send repeated messages when the device received the OTA commands quickly.

3.8. GL53MGR00A07V08M512

3.8.1.GL53MG@Track Protocol Support

The GL53MG firmware **GL53MGR00A07V08M512** supports @Track air interface protocol V5.06. For detailed information about the protocol, please refer to the document GL53MG@Track Air Interface Protocol V5.06.

3.8.2.MCU Firmware Version

The GL53MG firmware **GL53MGR00A07V08M512** should work with MCU Firmware **GL53MG_McuR12V7.07**. If an upgrade error occurs or a match with another version of the GL53MG firmware is required, please contact fae@queclink.com. We can't guarantee that the version mismatch of the GL53MG firmware and the MCU firmware could work well.

3.8.3.Modem Firmware Version

The GL53MG firmware **GL53MGR00A07V08M512** should work with Modem Firmware Version 2.21 (i.e. <*Modem Firmware Version*> reported in the **+RESP:GTATI** message queried by sub command 0x1C of **AT+GTRTO** is 0221). Please choose the proper modem OTA bin according to the current <*Modem Firmware Version*> in the **+RESP:GTATI** message.

3.8.4.New Features

New features are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A06V05M512**).

Item	Brief Description
1	Added new parameters <*CSQ Threshold Times*> and <*CSQ Threshold Timeout*>

	to the **AT+GTCFG** command.
2	Added new parameters <*Working Hours Start*> and <*Working Hours End*> to the **AT+GTNMD** command.
3	Supported reporting <*MAC Address*> information in the **+RESP:GTVER** message .

Note: The new parameter <*MAC Address*> will be appended after the **+RESP:GTVER** message in firmware **GL53MGR00A07V08M512**. Please refer to chapter **3.3.2.4 +RESP:GTVER** in the document GL53MG@Track Air Interface Protocol V5.06 for detailed information.

3.8.5.Improved Features

Features or parameters that have been changed or improved are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A06V05M512**).

Item	Brief Description
1.	Optimized the **AT+GTSVR** feature.
2.	Optimized the calculation of power consumption.
3.	Fixed an issue that the **AT+GTUPD** command can be executed successfully when the parameter <*Update Type*> was out of range.
4.	Fixed an issue that the **AT+GTBSI** command can be executed successfully when the parameter <*APN Authentication Methods / Network Mode*> was illegal.
5.	Optimized the **AT+GTNMD** feature.
6.	Fixed an issue that the next wakeup time would be abnormal when the parameter <*Mode Selection*> was set to 2 and <*Continuous Send Interval*> was set to 10.
7.	Fixed an issue that the information of <*Modem Hardware Version*> in the **+RESP:GTVER** couldn't be shown.
8.	Fixed an issue that the parameter <*Adjustment Enable*> in the **AT+GTCFG** couldn't work normally when the parameter <*Start Mode*> was set to 2 and <*Hold Days*> was met.
9.	Fixed an issue the format of **+ACK:GTSRI** would be incorrect.

3.9. GL53MGR00A06V05M512

3.9.1.GL53MG@Track Protocol Support

The GL53MG firmware **GL53MGR00A06V05M512** supports @Track air interface protocol V5.03. For detailed information about the protocol, please refer to the document GL53MG@Track Air Interface Protocol V5.03.

3.9.2.Modem Firmware Version

The GL53MG firmware **GL53MGR00A06V05M512** should work with Modem Firmware Version 2.19 (i.e. <*Modem Firmware Version*> reported in the **+RESP:GTATI** message queried by sub command 0x1C of **AT+GTRTO** is 0219). Please choose the proper modem OTA bin according to the current <*Modem Firmware Version*> in the **+RESP:GTATI** message.

3.9.3.New Features

New features are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A05V12M512**).

Item	Brief Description
1	N/A

3.9.4.Improved Features

Features or parameters that have been changed or improved are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A05V12M512**).

Item	Brief Description
1.	Optimized the **AT+GTSVR** feature.
2.	Fixed an issue that the parameter <*PSM Network Hold Time*> of the **AT+GTBSI** command would be changed from 60 to 0 when the parameter <*Mode Selection*> in the **AT+GTCFG** command was switched from 0 (power saving mode) or 2 (automatic mode) to 1 (continuous mode).
3.	Fixed an issue that the device would report a **+RESP:GTFRI** message immediately after switching the parameter <*GNSS Enable*> in the **AT+GTCFG** command.
4.	Fixed an issue that the device wouldn't report **+RESP:GTSVR** messages filling with <*SVR Working State*> 2 after RTO-4 reboot operation if the SVR function of the matched primary device was disabled.

3.10. GL53MGR00A05V12M512

3.10.1.GL53MG@Track Protocol Support

The GL53MG firmware **GL53MGR00A05V12M512** supports @Track air interface protocol V5.03. For detailed information about the protocol, please refer to the document GL53MG@Track Air Interface Protocol V5.03.

3.10.2.Modem Firmware Version

The GL53MG firmware **GL53MGR00A05V12M512** should work with Modem Firmware Version 2.18 (i.e. <*Modem Firmware Version*> reported in the **+RESP:GTATI** message queried by sub command 0x1C of **AT+GTRTO** is 0218). Please choose the proper modem OTA bin according to the current <*Modem Firmware Version*> in the **+RESP:GTATI** message.

3.10.3.New Features

New features are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A04V35M512**).

Item	Brief Description
1	Added new parameters <*GNSS Timeout*> and <*CSQ Threshold*> to the **AT+GTCFG** command.
2	Added <*Power On Type*> 23: Non-movement detected by the device to the **+RESP:GTPNA** message.

3.10.4.Improved Features

Features or parameters that have been changed or improved are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A04V35M512**).

Item	Brief Description
1.	Optimized the calculation of the next wakeup time.
2.	Optimized the **AT+GTNMD** feature.
3.	Optimized the SVR feature.
4.	Fixed an issue that the device would stop reporting when in continuous mode, and the parameter <*SACK Enable*> was set to 0 and the <*Report Mode*> was set to 2 (UDP).
5.	Fixed an issue that the device would report two **+ACK:GTXXX** messages to the backend server when executing one protocol command.
6.	Fixed an issue that the device would reboot frequently and abnormally when switching the parameter <*Network Mode*> in the **AT+GTBSI** command from 2 to 1.
7.	Optimized the work logic of LEDs.
8.	Optimized the FOTA process.
9.	Fixed an issue that the **AT+GTBSI** command would return an error when the parameter <*Main Server IP / Domain Name*> was empty.
10.	Fixed an issue that the parameters of the **AT+GTBSI** command couldn't restore to default values when executing the **AT+GTRTO** command, whose <*Sub Command*> was set to 4 and <*Sub Command Parameter*> was set to 1.
11.	Fixed an issue that the <*Send Time*> of messages was incorrect when the device had no network and GNSS signal.

12.	Fixed an issue that the device couldn't return "Password Error" when executing commands with an incorrect password.
13.	Fixed an issue that the **AT+GTGLM** command would return OK but actually failed when the number of <*Phone Number End*> was less than those of the <*Phone Number Start*>.
14.	Fixed an issue that the **+RESP:GTFRI** message wouldn't be reported after wakeup if the option <*Include GNSS*> of the parameter <*Week Report Selection*> within the **AT+GTCFG** command was set to 0.
15.	Fixed an issue that parameters of the **AT+GTPIN** command would be erased with the option "Upgrade FW and Clear User Data" after upgrading the FULL package with the MDM tool.
16.	Fixed an issue that the **+RESP:GTPNA** message would be lost after wakeup triggered by the GTUPC function.
17.	Fixed an issue that the **+RESP:GTFRI** message couldn't be reported after wakeup.
18.	Fixed an issue that the percentage of battery would be reset after powered on.
19.	Fixed an issue that the <*CSQ BER*> within the **+RESP:GTFRI** message was filled incorrectly.
20.	Fixed an issue that the location information of the first **+RESP+GTSOS** message was incorrect when the parameter <*SOS Report Mode*> was set to 2.
21.	Fixed an issue that the first **+ACK:GTHBD** message could be reported many times when <*HBD Sack*> was disabled from the backend side, meanwhile the parameter <*Report Mode*> was set to 2 (UPD) and parameter <*SACK Enable*> was set to 1 within the **AT+GTSRI** command.

3.11. GL53MGR00A04V35M512

3.11.1.GL53MG@Track Protocol Support

The GL53MG firmware **GL53MGR00A04V35M512** supports @Track air interface protocol V4.02. For detailed information about the protocol, please refer to the document GL53MG@Track Air Interface Protocol V4.02.

3.11.2.Modem Firmware Version

The GL53MG firmware **GL53MGR00A04V35M512** should work with Modem Firmware Version 2.14 (i.e. <*Modem Firmware Version*> reported in the **+RESP:GTATI** message queried by sub command 0x1C of **AT+GTRTO** is 0214). Please choose the proper modem OTA bin according to the current <*Modem Firmware Version*> in the **+RESP:GTATI** message.

3.11.3.New Features

New features are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A03V18M512**).

Item	Brief Description
1.	Supported QIOT Link APP.
2.	Added Bit 7 (0080): <*Number of Satellites*> of the parameter <*Report Item Mask*> to the **AT+GTCFG** command.

3.11.4.Improved Features

Features or parameters that have been changed or improved are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A03V18M512**).

Item	Brief Description
1.	Fixed an issue that the green LED would be off when searching for network.
2.	Fixed an issue that the device wouldn't report the **+RESP:GTNMR** message after detecting a non-movement event.
3.	Optimized the handling of wakeup logic.
4.	Optimized the computation of <*Battery Percentage*>.
5.	Fixed an issue that device didn't follow <*GSM Report*> in the **AT+GTCFG** command to report the **+RESP:GTGSM** message in some circumstances.
6.	Fixed an issue that the device wouldn't report the **+RESP:GTFRI** message and GNSS info according to <*Week Report Selection*> in the **AT+GTCFG** command.
7.	Optimized the **AT+GTSVR** command (Stolen Vehicle Recovery function).
8.	Fixed an issue that the blue LED couldn't be turned off after releasing the Function Key.
9.	Fixed an issue that device would report different messages but with the same <*Count Number*>.
10.	Fixed an issue that the device would report messages in incorrect format.
11.	Fixed an issue that the device would report the **+RESP:GTFRI** message without GNSS info but with valid <*Number Of Satellites*>.
12.	Fixed an issue that the device wouldn't report the **+RESP:GTPFA** message when power-off action was triggered by pressing Function Key in sleep mode.
13.	Fixed an issue that the device wouldn't report the **+RESP:GTFRI** message in time when <*PSM Network Hold Time*> in the **AT+GTSRI** command was set as 86400.
14.	Fixed an issue that the device would report the **+RESP:GTFRI** message twice after waking up when <*Mode Selection*> was set to 2 and <*Continuous Send Interval*> in the **AT+GTCFG** command was set to 10, and <*Mode*> in the **AT+GTNMD** command was set to F.
15.	Fixed an issue that the device wouldn't reboot according to the **AT+GTDOG** command.

16.	Fixed an issue that the device wouldn't report the **+RESP:GTNMR** message to indicate the non-movement state after waking up by motion when the parameter <*Non-movement Duration*> in the **AT+GTNMD** command was set to 1.
17.	Fixed an issue that the **AT+GTFVR** command with illegal <*Generation Time*> could be executed successfully by the device.
18.	Fixed an issue that the device wouldn't report the **+RESP:GTFRI** message after executing FOTA successfully.
19.	Fixed an issue that the first **+RESP:GTFRI** message after reboot by **RTO-3** would have no valid GNSS info.
20.	Fixed an issue that the <*GNSS Accuracy*> field in the **+RESP:GTNMR** message was zero but the <*Number Of Satellites*> was a non-zero value.
21.	Fixed an issue that <*Send Time*> in the **+RESP:GTPNA** message would be reported with default value "202001010000".
22.	Fixed an issue that parameters in the **AT+GTCFG** command couldn't be restored to default values after executing the **AT+GTRTO** command, whose <*Sub Command*> was set to 4 and <*Sub Command Parameter*> was set to 1.
23.	Optimized the **AT+GTDMS** command.
24.	Fixed an issue that the report interval of the **+RESP:GTFRI** message was different from <*Continuous Send Interval*> in the **AT+GTCFG** command.
25.	Fixed an issue that the device would report the **+RESP:GTFRI** message many times after getting into sleep mode by motionless and then regularly waking up in automatic mode.
26.	Fixed an issue that the device wouldn't update the configuration according to <*Update Interval*> in the **AT+GTUPC** command.
27.	Fixed an issue that <*Report Frequency*> would become invalid if <*Week Report Selection*> in the **AT+GTCFG** command didn't configure all 7 days in one week.
28.	Fixed an issue that device would reboot unexpectedly after executing the **AT+GTDOG** command.

3.12. GL53MGR00A03V18M512

3.12.1.GL53MG@Track Protocol Support

The GL53MG firmware **GL53MGR00A03V18M512** supports @Track air interface protocol V3.00. For detailed information about the protocol, please refer to the document GL53MG@Track Air Interface Protocol R3.00.

3.12.2.Modem Firmware Version

The GL53MG firmware **GL53MGR00A03V18M512** should work with Modem Firmware Version 2.7 (i.e. <*Modem Firmware Version*> reported in the **+RESP:GTATI** message queried by sub command 0x1C of **AT+GTRTO** is 0207). Please choose the proper modem OTA bin according to the current <*Modem Firmware Version*> in the

+RESP:GTATI message.

3.12.3.New Features

New features are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A03V15M512**).

Item	Brief Description
1.	Optimized the AGPS function to improve TTFF.

3.12.4.Improved Features

Features or parameters that have been changed or improved are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A03V15M512**).

Item	Brief Description
1.	Fixed an issue that the device would report unexpected messages triggered by <*Week report Selection*> of the **AT+GTCFG** command.

3.13. GL53MGR00A03V15M512

3.13.1.GL53MG@Track Protocol Support

The GL53MG firmware **GL53MGR00A03V15M512** supports @Track air interface protocol V3.00. For detailed information about the protocol, please refer to the document GL53MG@Track Air Interface Protocol R3.00.

3.13.2.Modem Firmware Version

The GL53MG firmware **GL53MGR00A03V15M512** should work with Modem Firmware Version 2.7 (i.e. <*Modem Firmware Version*> reported in the **+RESP:GTATI** message queried by sub command 0x1C of **AT+GTRTO** is 0207). Please choose the proper modem OTA bin according to the current <*Modem Firmware Version*> in the **+RESP:GTATI** message.

3.13.3.New Features

New features are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A02V29M512**).

Item	Brief Description
1.	Added the parameter <*GSM Report*> to the **AT+GTCFG** command and the **+RESP:GTGSM** report message accordingly.

3.13.4.Improved Features

Features or parameters that have been changed or improved are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A02V29M512**).

Item	Brief Description
1.	Fixed an issue that AGPS data would be updated twice after first successful fix.
2.	Optimized the **AT+GTTMA** function.
3.	Optimized the **+RESP:GTFRI** message-related functions.
4.	Fixed an issue that the **+RESP:GTHBD** messages weren't reported at normal intervals.
5.	Fixed an issue that there was no **+RESP:GTPNL** message on boot when GNSS was disabled.
6.	Fixed an issue that the device went to sleep without reporting the **+RESP:GTNMR** message to indicate a non-movement state.
7.	Optimized the device wakeup logic.
8.	Optimized the <*Manual Netreg*> function in the **AT+GTSRI** command.
9.	Fixed an issue that the **+RESP:GTBPL** message wasn't reported according to the threshold set by <*Battery Low Percentage*>.
10.	Fixed an issue that the default value of the **AT+GTDOG** command wasn't the same as defined in @Track protocol after executing <*Sub Command*> 4 (RESET) in the **AT+GTRTO** command.
11.	Fixed an issue that the format of the **+RES:GTBPL** message was inconsistent with @Track protocol.
12.	Fixed an issue that the device might crash after receiving long command string multiple times from UDP port.
13.	Fixed an issue that the **+RESP:GTGLM** messages weren't reported properly after executing <*Sub Command*> 2 (READ) in the **AT+GTRTO** command.
14.	Fixed an issue that the format of the **+RES:GTINF** message was inconsistent with @Track protocol.
15.	Fixed an issue that the network LED stopped to work if the device was awaken many times from a non-movement state.

3.14. GL53MGR00A02V29M512

3.14.1.GL53MG@Track Protocol Support

The GL53MG firmware **GL53MGR00A02V29M512** supports @Track air interface protocol V2.00. For detailed information about the protocol, please refer to the document GL53MG@Track Air Interface Protocol R2.00.

3.14.2.Modem Firmware Version

The GL53MG firmware **GL53MGR00A02V29M512** should work with Modem Firmware Version 2.3 (i.e. <*Modem Firmware Version*> reported in the **+RESP:GTATI** message queried by sub command 0x1C of **AT+GTRTO** is 0203). Please choose the proper modem OTA bin according to the current <*Modem Firmware Version*> in the **+RESP:GTATI** message.

3.14.3.New Features

New features are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A02V23M512**).

Item	Brief Description
1	Supported MCU firmware upgrade via the USB cable.

3.14.4.Improved Features

Features or parameters that have been changed or improved are listed in the following table, compared with the preceding firmware release (version **GL53MGR00A02V23M512**).

Item	Brief Description
1.	Fixed an issue that the **GTDOG** command might be triggered unexpectedly.
2.	Fixed an issue that the **+RESP:GTPNA** message would be stored into the buffer when the devices was working in power-saving mode.
3.	Fixed an issue that the configuration upgrade OTA would retry to be executed in one minute continuously after failing to upgrade configuration OTA which was set to execute every 24 hours in the **AT+GTUPC** command.
4.	Fixed an issue that the format of position report messages was abnormal.
5.	Fixed an issue that the device restarted abnormally after executing FOTA together with full-buffered messages.
6.	Fixed an issue that wakeup time was abnormal when <*Mode*> in the **AT+GTNMD** command was set to a non-zero value or <*Start Mode*> in the **AT+GTCFG** command was set to 2.
7.	Fixed an issue that the device would rebooted unexpectedly and <*Count Number*> in report messages would be rolled back when it tried get into sleep mode.

3.15. GL53MGR00A02V23M512

3.15.1. GL53MG@Track Protocol Support

The GL53MG firmware **GL53MGR00A02V23M512** is the initial firmware release of GL53MG, which supports @Track air interface protocol V2.00. For detailed information

about the protocol, please refer to the document GL53MG@Track Air Interface Protocol R2.00.