SIM808 AT Commands Reference

This document provides a reference for the AT commands used in the STM32 SIM808 GPS Tracker project.

Basic AT Commands

Test Communication

```
AT
```

Response:@

Get Module Information

```
AT+GSV
```

Response: Module firmware version information

GPS Commands

Enable GPS Power

```
AT+CGNSPWR=1
```

Response: OK

Disable GPS Power

```
AT+CGNSPWR=0
```

Response: OK

Get GPS Information

```
AT+CGNSINF
```

Response Format:

```
+CGNSINF: <GPS run status>,<Fix status>,<UTC date & Time>,<Latitude>,<Longitude>,<MS
Altitude>,<Speed
Over Ground > / < Course Over Ground < Fix Resetvedl < HDOP>, < PDOP>, <Reserved2>, <GPS Satellites in
View>,<GNSS Satellites Used>,<GLONASS Satellites Used>,<Reserv >,<max>,<HPA>,<VPA>


OK
```

Field Descriptions:

GPS run status: 1 -GPS on, 0=GPS off

Fix status: 1 -Fix, 0=No fix

UTC date & Time: Format: yyyymmddhhmmss.sss

Latitude: Degrees (negative = South)

- Longitude: Degrees (negative = West)

MSL Altitude: Meters above sea level

Speed Over Ground: km/h

Course Over Ground: Degrees

Fix Mode: O=N0 fix, 1   2=DGPS, 3=PPS

HDOP/PDOP/VDOP: Dilution of precision values

GPS Satellites in View: Number of satellites

GNSS/GLONASS Satellites Used: Number of satellites used

Example response:

```
+ CGNSI N F: I, I 20230615123045.000,40.748817,-73.985428,33.400000,0.13,0.00,I „ I A, I
OK
```

GPRS Commands

Configure Bearer Profile

```
AT+SAPBR=3,1,"CONTYPE","GPRS"
  +SAPBR=3,1,"APN","your_apn_here"
  +SAPBR=3,1,"USER","username"   ///Optional
  +SAPBR=3,1,"PWD","password"   // Optional
```

Open Bearer Profile

```
AT+SAPBR= 1 1
```

Response: OK

Query Bearer Profile Status

```
AT+SAPBR=2,1
```

Response: `+SAPBR: 1,1,"10.xxx.xxx.xxx"`

Close Bearer Profile

```
AT+SAPBR=0,1
```

Response: OK

HTTP Commands

Initialize HTTP Service

```
AT+HTTPINIT
```

Response: OK

Set HTTP Parameters

```
AT+HTTPPARA="CID",1
AT+HTTPPARA="URL","http://example.com/api"
AT+HTTPPARA="CONTENT","application/x-www-form-urlencoded"
```

Execute HTTP Actions

```
AT+HTTPACTION=0    // GET
AT+HTTPACTION=1    // POST
AT+HTTPACTION=2    // HEAD
```

Response: `+HTTPACTION: <method>,<status_code>,<data_length>`

Read HTTP Response

```
AT+HTTPREAD
```

Response: Server response data

Terminate HTTP Service

```
AT+HTTPTERM
```

Response: OK

Network Commands

Check Network Registration

```
AT+CREG?
```

Response: +CREG: <mode>,<stat>[,<lac>,<ci>] ● stat: 0=not registered, l=registered home,

  2=searching, 3=denied, 5=registered roaming

Check Signal Quality

```
AT+CSQ
```

Response: +CSQ: <rssi>,<ber> ● rssi: 0-31 (31 -

  best signal), 99=unknown e ber: Bit error rate

Common APN Settings by Carrier

AT&T (USA)

```
AT+SAPBR=3,1,"APN","phone"
```

Verizon (USA)

```
AT+SAPBR=3,1,"APN","vzwinternet"
```

T-Mobile (USA)

```
AT+SAPBR=3,1,"APN","fast.t-mobile.com"
```

Vodafone (Europe)

```
AT+SAPBR=3,1,"APN","internet"
```

Orange (Europe)

```
AT+SAPBR=3,1,"APN","orange"
```

Error Codes

Common HTTP Error Codes

- 200: OK
- 400: Bad Request ● 401: Unauthorized
- 403: Forbidden ● 404: Not Found
- 500: Internal Server Error

AT Command Error Responses

' ERROR: Command not recognized or syntax error
' +CME ERROR: <error code>: Extended error information
- +CMS ERROR: <error code>: SMS related error

Troubleshooting Commands

Reset Module

```
AT+CFUN=1,1
```

Factory Reset

```
AT&F
```

Check SIM Card Status

```
AT+CPIN?
```

Response:

- READY: SIM card ready '
 SIM PIN: PIN required
 ' SIM PUK: PUK required
Check IMEI

```
AT+GSN
```

Response: 15-digit IMEI number

Check SIM CCID

```
AT+CCID
```

Response: SIM card serial number

Usage Notes

1. All AT commands must end with@
2. Wait for response before sending next command
3. GPS fix can take 30+ seconds on first startup
4. Ensure good antenna connections for both GPS and GSM
5. Some carriers require username/password for GPRS connection
6. HTTP requests have timeout limits (usually 60-120 seconds)

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