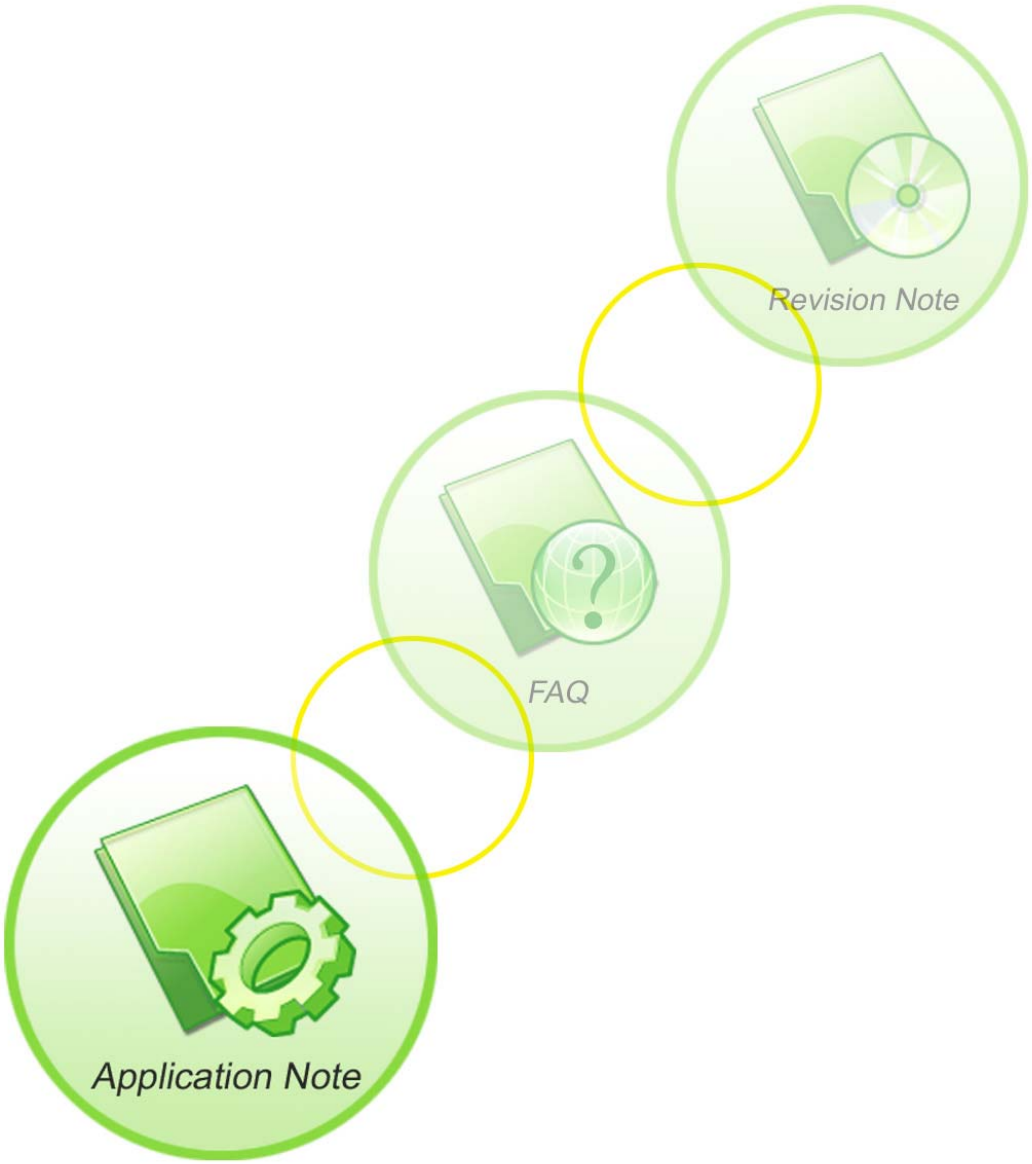
SIMCOM ECALL Specification

AN_SIMCOM ECALL Specification_V1.04



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Contents

Version history

Date	Version	Description of change	Author
2011-9-29	1.00	First Edition	Liu xin
2011-10-8	1.01	AT+CMSDFORMATID AT+CMSDMESSAGEID AT+CMSDSTORAGE AT+CMSDLOCATION AT+CECALL	Liu xin
2011-11-1	1.02	How to use PUSH mode	Liu xin
2011-11-8	1.03	AT+CMSDSTORAGE AT+CMSDCONTROL AT+CMSDBUILD	Liu xin
2011-11-10	1.04	AT+CMSDOIDDATA	Liu xin

1 Scope

This document describes SIMCom ECALL Solution, including: prepare working, AT Commands.

2 Introduce of ECALL.

2.1 what is ECALL

eCall is a European Union backed technology initiative designed to save lives by enabling emergency services to respond more quickly to road traffic accidents (golden hour rule). The system initiates an emergency call using an integral communications system based on the standard mobile telephone network.

- Automatically calls emergency services following collision
- Immediately sends GPS location and provides voice connection
- Enables rapid emergency response, saving thousands of lives a year

The call can be triggered manually by the vehicle occupants, or automatically when sensors of the airbag detect a collision. As well as establishing a voice connection between the vehicle occupants and emergency operator, eCall sends vital data such as the current GPS location coordinates, incident time and vehicle description in the EU standardized MSD (minimum set of Data) format.

By providing this key data automatically, eCall makes it easier for emergency services to respond to potentially life threatening situations and arrive on the scene much faster. When the EU carried out a study into the potential benefits of eCall, it concluded that emergency response times could be reduced by as much as 50%.

It is estimated that, if the system was implemented as standard in all vehicles, 2,500 lives could be saved across Europe every year and overall severity of injuries will be reduced by 15%.

eCall is expected to be fitted as a standard in all new cars sold in the EU starting form 2013 with a introduction scenario until 2015. As the service is rolled out, European drivers will find that it works in all EU nations so that it can help them even if they are involved in an accident while driving in another country.

3. ECALL Module

3.1 ECALL Module Introduction

This section describes SIMCom ECALL Solution and focuses on the client side, mainly the AT commands which are to be utilized to better support and integrate with the rest of ECALL components.

This section can help you to quickly understand the functionality of SIMCom ECALL AT commands, and as well their usage, thus hope to aid you in implementing and incorporating SIMCom ECALL solution into your applications.

3.2 ECALL AT COMMANDS

This clause of the documents exams SIMCOM ECALL AT commands and intends to give you a better understanding of how ECALL is implemented on SIMCOM modules and some of its important parameters.

3.2.1 AT+CMSDFORMATID Set the version of MSD format

AT+CMSDFORMATID Set the version of MSD format	
Write Command **AT+CMSDFORMATID=<formatid>**	Response : **OK** **ERROR**
	Parameter **<formatid >** 1-255 the version of MSD format.
Reference	Note The default format version will be 1.

3.2.2 AT+CMSDMESSAGEID Set the message identifier of msd data

AT+CMSDMESSAGEID Set the message identifier of msd data	
Write Command **AT+CMSDMESSAGEID =<messageid>**	Response : **OK** **ERROR**
	Parameter **<messageid >** 1-255 Message identifier, starting with 1 for each new eCall session and to be incremented with every application layer MSD retransmission following a new ‘Send MSD’ request after the incident event.
Reference	Note The default message identifier will be 1.

3.2.3 AT+CMSDCONTROL Set the control data in Minimum set of data (MSD)

AT+CMSDCONTROL Set the control data in Minimum set of data (MSD)	
Write Command **AT+CMSDCONTROL=<automaticActivation>,<testCall>,<positionCanBeTrusted>,<vehicleType>**	Response : **OK** **ERROR**
	Parameter **<automaticActivation>** 0 Manual activation 1 Automatic activation <**testCall**> 0 Emergency call 1 Test call <**positionCanBeTrusted** > 0 low confidence in position 1 Position can be trusted <**VehicleType**> 1 passengerVehicleClassM1 (1) 2 busesAndCoachesClassM2 (2) 3 busesAndCoachesClassM3 (3) 4 lightCommercialVehiclesClassN1 (4) 5 heavyDutyVehiclesClassN2 (5) 6 heavyDutyVehiclesClassN3 (6) 7 motorcyclesClassL1e (7) 8 motorcyclesClassL2e (8) 9 motorcyclesClassL3e (9) 10 motorcyclesClassL4e (10) 11 motorcyclesClassL5e (11) 12 motorcyclesClassL6e (12) 13 motorcyclesClassL7e (13)
Reference	Example: AT+CMSDCONTROL=1,0,1,1 means: ”Automatic activation” “Emergency call” “Position can be trusted” “passengerVehicleClassM1”.

3.2.4 AT+CMSDVIN Set the Vehicle identification data in Minimum set of data (MSD)

AT+CMSDVIN Set the Vehicle identification data in Minimum set of data (MSD)	
Write Command **AT+CMSDVIN= <vin>**	Response : **OK** **ERROR**
	Parameter **<vin>** VIN number according to ISO 3779. including: 1.World Manufacturer Index (WMI) 2.Vehicle Type Descriptor (VDS) 3.Vehicle Identification Sequence (VIS) The character in VIN must be the member of this table: ("A".."H"|"J".."N"|"P"|"R"..."Z"|"0".."9")
Reference	Note

3.2.5 AT+CMSDSTORAGE Set the Vehicle propulsion storage type

AT+CMSDSTORAGE Set the Vehicle propulsion storage type	
Write Command **AT+CMSDSTORAGE=<gasolineTankPresent>,<dieselTankPresent>,<compressedNaturalGas>,<liquidPropaneGas>,<electricEnergyStorage>,<hydrogenStorage>**	Response : **OK** **ERROR**
	Parameter **<gasolineTankPresent>** 0 indicates a type of storage not present 1 indicates type of storage which is present <**dieselTankPresent**> 0 indicates a type of storage not present 1 indicates type of storage which is present <**compressedNaturalGas**> 0 indicates a type of storage not present 1 indicates type of storage which is present <**liquidPropaneGas**> 0 indicates a type of storage not present 1 indicates type of storage which is present <**electricEnergyStorage**> 0 indicates a type of storage not present 1 indicates type of storage which is present <**hydrogenStorage**> 0 indicates a type of storage not present 1 indicates type of storage which is present
Reference	Example: AT+CMSDSTORAGE=1,0,0,0,1,0 means both gasoline tank propulsion and electric energy present .

3.2.6 AT+CMSDTIMESTAMP Set the time stamp

AT+CMSDTIMESTAMP Set the time stamp	
Write Command **AT+CMSDTIMESTAMP=<year>,<month>,<day>,<hour>,<minute>,<second>**	Response : **OK** **ERROR**
	Parameter **<year>** year <**month**> month <**day**> day <**hour**> hour <**minute**> minute <**second**> second
Reference	Note: "AT+CMSDTIMESTAMP=0,0,0,0,0,0 can be used if time is invalid.

3.2.7 AT+CMSDLOCATION Set the current location of the vehicle

AT+CMSDLOCATION Set the current location of the vehicle	
Write Command **AT+CMSDLOCATION=<latitude>,<longitude>**	Response : **OK** **ERROR**
	Parameter **<latitude>** the latitude in format of “hh.mmmmmm” <**longitude**> the longitude in format of “hh.mmmmmm”
Reference	Example: AT+CMSDLOCATION="48.300333","11.617367" Note

	If latitude or longitude is invalid or unknown, null value is also needed like AT+CMSDLOCATION="",""

3.2.8 AT+CMSDDIRECTION Set the direction of the vehicle

AT+CMSDDIRECTION Set the direction of the vehicle	
Write Command **AT+CMSDDIRECTION=<direction>**	Response : **OK** **ERROR**
	Parameter <**direction**> The direction of travel in 2°-degrees steps from magnetic north (0– 358, clockwise). Only values from 0 to 179 are valid. If direction of travel is invalid or unknown, the value 0xFF shall be used.
Reference	Note

3.2.9 AT+CMSDRECENT1 Set the location delta with respect to vehicle Location

AT+CMSDRECENT1 Set the location delta with respect to vehicle Location	
Write Command **AT+CMSDRECENT1=<Latitude Delta>,<Longitude Delta>**	Response : **OK** **ERROR**
	Parameter **<Latitude Delta>** Description of recent vehicle latitude lactation before the incident. 1 Unit = 100 miliarcseconds, which is approximately 3m. Coded value range (-512..511) representing -51200 to +51100 miliarcseconds, or from 51,2''S to 51,1''N from the reference position. **<Longitude Delta>** Description of recent vehicle longitude lactation before the incident. 1 Unit = 100 miliarcseconds, which is approximately 3m. Coded value range (-512..511) representing -51200 to +51100 miliarcseconds, or from 51,2''S to 51,1''N from the reference position.

Reference	Example: AT+CMSDRECENT1="10","-10" Note If latitude delta or longitude delta is invalid or unknown, null value is also needed like AT+ CMSDRECENT1="",""

3.2.10 AT+CMSDRECENT2 Set the location delta with respect to recentVehicleLocationN1

AT+CMSDRECENT2 Set the location delta with respect to recentVehicleLocationN1	
Write Command **AT+CMSDRECENT2=<Latitude Delta>,<Longitude Delta>**	Response : **OK** **ERROR**
	Parameter **<Latitude Delta>** Description of recent vehicle latitude lactation before the incident. 1 Unit = 100 miliarcseconds, which is approximately 3m. Coded value range (-512..511) representing -51200 to +51100 miliarcseconds, or from 51,2’’S to 51,1’’N from the reference position. **<Longitude Delta>** Description of recent vehicle longitude lactation before the incident. 1 Unit = 100 miliarcseconds, which is approximately 3m. Coded value range (-512..511) representing -51200 to +51100 miliarcseconds, or from 51,2’’S to 51,1’’N from the reference position.
Reference	Example: AT+CMSDRECENT2="10","-20" Note If latitude delta or longitude delta is invalid or unknown, null value is also needed like AT+ CMSDRECENT2="",""

3.2.11 AT+CMSDPASGNUM Set the number of passengers

AT+CMSDPASGNUM Set the number of passengers	
Write Command **AT+CMSDPASGNUM=<numberOfPassengers>**	Response : **OK** **ERROR**
	Parameter **<numberOfPassengers>** Minimum known number of fastened seatbelts, may be set to 0xFF.
Reference	Note

	Example: AT+CMSDPASGNUM=2

3.2.12 AT+CMSDOIDDATA Set the optional additional data

AT+CMSDOIDDATA Set the optional additional data	
Write Command **AT+CMSDOIDDATA=<oid>,<data>**	Response : **OK** **ERROR**
	Parameter **<oid>** Object identifier which uniquely identifies the format and meaning of the data which follows. **<data>** Transparent optional additional data.
Reference	Note Example: AT+CMSDOIDDATA="1.2.125","30304646"

3.2.13 AT+CMSDBUILD build the ecall Minimum set of data (MSD) to be sent

AT+CMSDBUILD build the ecall Minimum set of data (MSD) to be sent	
Write Command **AT+CMSDBUILD**	Response : +CMSDBUILD: “MSD DATA” **OK** **ERROR**
	Parameter
Read Command **AT+CMSDBUILD?**	Response : +CMSDBUILD: “MSD DATA” **OK**
Reference	Example: AT+CMSDBUILD +CMSDBUILD: "015c068150820442001426400042 0d1014ba73e4fbe44d1d9784c82db2207

	414fb414f6018180813e82181823230" OK

3.2.14 AT+CMSD input Minimum set of data (MSD)

AT+CMSD input Minimum set of data (MSD)	
Write Command **AT+CMSD=<msd>**	Response : **OK** **ERROR**
	Parameter <**msd**> the msd data generated by user which maximum size is 140 bits
Reference	Note

3.2.15 AT+CECALL setup an eCALL

AT+CECALL setup an eCALL	
Write Command **AT+CECALL=<number>,<emergency mode>[,<ivsmode>]**	Response : **OK** **ERROR**
	Parameter <**number**> The number of eCALL server. <**emergency mode**> 0 automatic ecall 1 manual ecall **<ivsmode>** 0 pull mode (default) 1 push mode
Reference	Note The default emergency mode will be automatic ecall mode. The default ivsmode will be pull mode.

3.3 How to use SIMCom ECALL AT COMMANDS

3.3.1 Example of send msd data generated by user

In this example, module sends the msd data generated by user. Module will not care about the original msd data.

AT+CMSD=”015C068150820442001426400042 0D101404E80DA4C89A3B2F09905B6440E829F6829EC020301027D04303046460”

AT+CECALL="112",0

3.3.2 Example of send msd data generated by module

In this example, user will use our MSD AT commands to input all the data like time stamp or latitude. Then module generates the msd data automatically.

AT+CMSDFORMATID=1

AT+CMSDMESSAGEID=1

AT+CMSDCONTROL=1,0,1,1

AT+CMSDVIN=" WMJVDSVDSYA123456"

AT+CMSDSTORAGE=1,0,0,0,1,0

AT+CMSDTIMESTAMP=2011,9,26,20,2,20

AT+CMSDLOCATION="48.300333","11.617367"

AT+CMSDDIRECTION=14

AT+CMSDRECENT1="10","-10"

AT+CMSDRECENT2="10","-20"

AT+CMSDPASGNUM=2

AT+CMSDBUILD

AT+CECALL=”112”,0 (Note: the default mode is PULL mode. AT+CECALL=”112”,0,1 means PUSH mode)

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