# General Document

# User Manual Cobra Module

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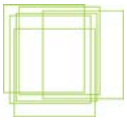

# About this document

## *Overview and Purpose*

This document describes how to register an Option Cobra Module on a CMU200.

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## *Version History*

| Date | Version | Author(s) | Revision(s) | Remarks |
|---|---|---|---|---|
| Apr 26, 2006 | V01 – F1 | R. Biesemans | | Initial version |
| July 31, 2006 | | J. Boeckx | | Review |
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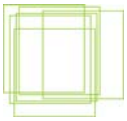

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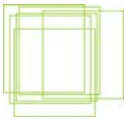

# 1 INTRODUCTION

This document describes how to register an Option Cobra Module on a CMU 200. This manual will guide you through the steps so you can do some tests on the CMU 200.

# 2 REGISTERING THE MODULE TO THE CMU200

*Note: When mentioned switch off, AT+CFUN should be set to: AT+CFUN=0*
*When mentioned switch on, AT+CFUN should be set to: AT+CFUN=1*

Use RF2 connection of CMU200 to connect the module. Select GSM or WCDMA on CMU. When the card is properly configured, and the preferred band is selected, the card will register automatically on the system.

When the card does not register on the CMU with the default setting of the CMU, please check the settings in the following paragraphs.

If the CMU has the integrity check enabled, you can use the card without any security setting changes (AT_OSEC=4). If not, please change the OSEC setting of the card: set OSEC to 3 (AT_OSEC=3) using a terminal program (for ex. HyperTerminal). For life networks, integrity checks are default enabled, so the OSEC setting needs to be set on 4.

## *2.1 Settings on CMU200*

1. RF connector compensation:

   Look if compensation settings are right: AF/RF. In normal use, meaning when your cables are all very well isolated, you have to compensate both directions for a minimum of +0,5 dB. You can choose higher values when you think the cables are not isolated enough.

2. BS signal too low:

   When at first try, the card doesn't seem to register, try to increase the BS signal levels. Normal operation would be around 65 dBm. Try this value and switch the card off and on again.

After checking these settings. Switch off and switch on the card again. (at+cfun=0 and at+cfun=1)
It is also recommended to safe remove the card.


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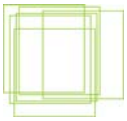

## *2.2 Settings on the module*

When previous steps didn't do the trick, please check the settings on the card.

All steps mentioned next, should be evaluated in this order.

**After each step, perform a safe removal of the card.**

1. At_opbm

   When not working in a shielded environment, all life networks could interfere with the signal coming from the CMU. When the simulated network is not in the same band as the surrounding life networks, this problem can be avoided by deselecting all other basebands but the one you are working in.
   This could be done using the at_opbm command:

   Extract from datasheet:

### Preferred Band Mode _OPBM

| Command | Possible response(s) |
|---|---|
| _OPBM=<band>,<n> | OK |
| _ OPBM =? | _OPBM: (list of supported <band>s) |
| _ OPBM? | <band>: <n>[<CR><LF><band>: <n>[…]] |

**Description**
This command is used to disable/enable specific frequency bands.

**Defined Values**

<band>
"ANY" : any band
"EGSM" : EGSM (900MHz) band
"DCS" : DCS (1800MHz) band
"PCS" : PCS (1900MHz) band
"G850" : GSM 850MHz band
"U2100" : WCDMA 2100MHz band
"U1900" : WCDMA 1900MHz band
"U1700"
"U17IV"
"U850" : WCDMA 1900MHz band

<n>
0 : disable
1 : enable

Eg: if you use GSM1900 (PCS) band, select only this band. All other bands have to be deselected. It is also very important to deselect EVERY UMTS band when trying to connect to a GSM network and vice versa:


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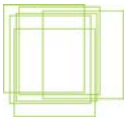

At_opbm = “PCS”,1 (selection of PCS band)
At_opbm = “DCS”,0 (deselection of DCS band)
*Same for the other bands, also the UMTS bands!!!*

To check if the band is really (de)selected, use “at_opbm?” The bands showing 0 are deselected, the bands showing 1 are selected.

2. AT_OPSYS

When the band settings did not work, try the OPSYS command: this command selects the UTRAN and the packet and/or circuit switched domain.

Extract from datasheet:

**Preferred SYStem “AT_OPSYS”**

| Command | Possible Response(s) |
|---|---|
| _OPSYS=[<mode>[,<domain>]] | OK |
| _OPSYS? | _OPSYS: <mode>,<domain> |
| _OPSYS=? | _OPSYS: (0-5),(0-6) |

**Description**
This command changes the preferred system, GSM/WCDMA, the acquisition order and the service domain preference PS/CS.

**Defined values**

<mode>:
0 GSM only
1 WDMA only
2 GSM first
3 WCDMA first
4 No change
5 Auto

<domain>:
0 Acquire only circuit-switched systems
1 Acquire only packet-switched systems
2 Acquire circuit-and/or packet-switched systems
3 Any domain will do; no preference

Eg: at_opsys=0,2 selects options:
GSM only and CS & PS domains


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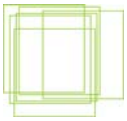

# 3 REFERENCES

| Ref | Document | |
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