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Title	FCAPS based structure for Mobile MIB, IEEE 802.16i
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Re:	Comment on P802.16i-06/001r3
Abstract	This contribution proposes the modification of the Mobile MIB 802.16i structures based on FCAPS model where applicable to clarify the differentiate the different tasks, related functionalities and their detailed FCAPS properties, parameters, counters gauges.
Purpose	Adoption
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1. Introduction

The purpose of the restructuring is to clarify the structure of the WiMax Mobile MIB according to TMF defined FCAPS model (FM, CM, AM, PM and SM). This would enable to insert and locate individual category group and item more easily and the MIB would be more readable by the people designing and implementing their part of the system as people usually dealing with each of the categories are different and the development processes are quite separated with each other.

All future contribution should following this basic cource. Additional subcategories can be added as needed and main categories not needed may be left out when applicaple.

2. Proposed Text Changes

Substitute from line 3 page 280 to line 30 page289 with the following text (starting from next page)

```
wman2IfMibObjects OBJECT IDENTIFIER ::= { wman2IfMib 1 }
wman2IfBsObjects OBJECT IDENTIFIER ::= { wman2IfMibObjects 1 }
wman2IfMsObjects OBJECT IDENTIFIER ::= { wman2IfMibObjects 2 }
wman2IfCommonObjects OBJECT IDENTIFIER ::= { wman2IfMibObjects 3 }

wmanIfBsFm OBJECT IDENTIFIER ::= { wman2IfBsObjects x } -- e.g. x=0
wmanIfBsCm OBJECT IDENTIFIER ::= { wman2IfBsObjects x } -- e.g. x=7
wmanIfBsAm OBJECT IDENTIFIER ::= { wman2IfBsObjects x } -- e.g. x=0
wmanIfBsPm OBJECT IDENTIFIER ::= { wman2IfBsObjects x } -- e.g. x=0
wmanIfBsSm OBJECT IDENTIFIER ::= { wman2IfBsObjects x } -- e.g. x=0

wmanIfMsFm OBJECT IDENTIFIER ::= { wman2IfMsObjects x } -- e.g. x=0
wmanIfMsCm OBJECT IDENTIFIER ::= { wman2IfMsObjects x } -- e.g. x=0
wmanIfMsAm OBJECT IDENTIFIER ::= { wman2IfMsObjects x } -- e.g. x=0
wmanIfMsPm OBJECT IDENTIFIER ::= { wman2IfMsObjects x } -- e.g. x=0
wmanIfMsSm OBJECT IDENTIFIER ::= { wman2IfMsObjects x } -- e.g. x=0

wmanIfBsCmHOConfiguration OBJECT IDENTIFIER ::= { wmanIfBsCm 2 }

wmanIfBsCmOperatorId OBJECT-TYPE
        SYNTAX Integer32
        MAX-ACCESS read-write
        STATUS current
        DESCRIPTION
                "An unique operator identifier."
        ::= { wmanIfBsCmHOConfiguration 1 }

wmanIfBsCmBsId OBJECT-TYPE
        SYNTAX WmanIfBsIdType
        MAX-ACCESS read-write
        STATUS current
        DESCRIPTION
                "An unique BS identifier."
        ::= { wmanIfBsCmHOConfiguration 2 }

wmanIfBsCmHOSupport OBJECT-TYPE
        SYNTAX BITS
                {
                MDHO/FBSS HO not supported(0),
                FBSS/MDHO DLRF combining supported(1),
                MDHO DL soft combining supported monitoring single MAP from anchor BS(2),
                MDHO DL soft combining supported monitoring MAPS from active BSs(3),
                reserved1(5),
                reserved2(6),
                reserved3(7)
                }
        MAX-ACCESS read-write
        STATUS current
        DESCRIPTION
                "The Handover supported field indicates what type(s) of HO the BS and the MS
        supports."
        ::= { wmanIfBsCmHOConfiguration 3 }

wmanIfBsCmHOResourceRetainTime OBJECT-TYPE
        SYNTAX Integer32
        MAX-ACCESS read-write
        STATUS current
        DESCRIPTION
                "The Resource_Retain_Time is the duration for MS s connection information
        that will be retained in serving BS. BS shall start Resource_Retain_Time timer at MS notification
        of pending HO attempt through MOB_HO-IND or by detecting an MS drop. The unit of this value
        is 100 milliseconds."
```

```
        ::= { wmanIfBsCmHOConfiguration 4 }

wmanIfBsCmHOProcessOptimizationMSTimer OBJECT-TYPE
        SYNTAX INTEGER
        MAX-ACCESS read-write
        STATUS current
        DESCRIPTION
                "The duration in frames MS shall wait until receipt
        of the next unsolicited network re-entry MAC management message as indicated in the HO Process
        Optimization element of the RNG-RSP message"
        ::= { wmanIfBsCmHOConfiguration 5 }

wmanIfBsCmHORetransmissionTimer OBJECT-TYPE
        SYNTAX INTEGER
        MAX-ACCESS read-write
        STATUS current
        DESCRIPTION
                "After a MS transmits MOB_MSHO-REQ to initiate a handover process, it shall
        start MS Handover Retransmission Timer and shall not transmit another MOB_MSHO-REQ until
        the expiration of the MS Handover Retransmission Timer."
        ::= { wmanIfBsCmHOConfiguration 6 }

wmanIfBsCmHOModeSupport OBJECT-TYPE
        SYNTAX BITS
                {
                handover support(0),
                sleep-mode support(1),
                idle-mode support(2)
                }
        MAX-ACCESS read-write
        STATUS current
        DESCRIPTION
                "This parameter is to represent the supported mobility mode."
        ::= { wmanIfBsCmHOConfiguration 7 }

wmanIfBsCmHOMsConnectProcessingTime OBJECT-TYPE
        SYNTAX INTEGER
        MAX-ACCESS read-write
        STATUS current
        DESCRIPTION
                "Time in ms the MS needs to process information on connections provided in RNGRSP or
        REG-RSP message during HO."
        ::= { wmanIfBsCmHOConfiguration 8 }

wmanIfBsCmHOMsTekProcessingTime OBJECT-TYPE
        SYNTAX INTEGER
        MAX-ACCESS read-write
        STATUS current
        DESCRIPTION
                "Time in ms the MS needs to completely process TEK information during HO."
        ::= { wmanIfBsCmHOConfiguration 9 }

wmanIfBsCmHOULPermutationBase OBJECT-TYPE
        SYNTAX OCTET STRING
        MAX-ACCESS read-write
        STATUS current
        DESCRIPTION
                "This parameter is used for uplink subcarrier allocation."
        ::= { wmanIfBsCmHOConfiguration 10 }

wmanIfBsCmHODLPermutationBase OBJECT-TYPE
        SYNTAX OCTET STRING
        MAX-ACCESS read-write
```

```
                STATUS current
                DESCRIPTION
                        "This parameter is used for downlink subcarrier allocation."
                ::= { wmanIfBsCmHOConfiguration 11 }

wmanIfBsCmHOPreambleIndex OBJECT-TYPE
                SYNTAX OCTET STRING
                MAX-ACCESS read-write
                STATUS current
                DESCRIPTION
                        "This parameter is used for downlink synchronization by MS."
                ::= { wmanIfBsCmHOConfiguration 12 }

wmanIfBsCmHOSegmentNumber OBJECT-TYPE
                SYNTAX INTEGER
                MAX-ACCESS read-write
                STATUS current
                DESCRIPTION
                        "This parameter is an unique segment identifier ."
                ::= { wmanIfBsCmHOConfiguration 13 }

wmanIfBsCmAdjacencyNeighbourBsTable OBJECT-TYPE
                SYNTAX SEQUENCE OF WmanIfNeighbourBsEntry
                MAX-ACCESS not-accessible
                STATUS current
                DESCRIPTION
                        "This table contains neighbouring BS
                ::= { wmanIfBsCmHOConfiguration 14 }

wmanIfBsCmAdjacencyNeighbourBsEntry OBJECT-TYPE
                SYNTAX WmanIfNeighbourBsEntry
                MAX-ACCESS not-accessible
                STATUS current
                DESCRIPTION
                        "This table is indexed by wmanIfNeighbourBsId."
                INDEX { ifIndex, wmanIfNeighbourBsId }
                ::= { wmanIfBsCmAdjacencyNeighbourBsTable 1 }

wmanIfBsCmAdjacencyNeighbourBsId OBJECT-TYPE
                SYNTAX WmanIfBsIdType
                MAX-ACCESS read-write
                STATUS current
                DESCRIPTION
                        "The neighbouring BS identifier."
                ::= { wmanIfBsCmAdjacencyNeighbourBsEntry 1 }

wmanIfBsCmAdjacencyNeighbourBsFAIndex OBJECT-TYPE
                SYNTAX INTEGER
                MAX-ACCESS read-write
                STATUS current
                DESCRIPTION
                        "Frequency Assignment Index."
                ::= { wmanIfBsCmAdjacencyNeighbourBsEntry 2 }

wmanIfBsCmAdjacencyNeighbourBsEIRP OBJECT-TYPE
                SYNTAX INTEGER (-128..127)
                MAX-ACCESS read-write
                STATUS current
                DESCRIPTION
                        "Neighbour BS EIRP."
                ::= { wmanIfBsCmAdjacencyNeighbourBsEntry 3 }
```

```
wmanIfBsCmAdjacencyNeighbourBsHOProcessOptimization OBJECT-TYPE
        SYNTAX Integer32
        MAX-ACCESS read-write
        STATUS current
        DESCRIPTION
                "Identifies re-entry process management current HO attempt due to the availability of
        MS service and operational status post-HO
        ::= { wmanIfBsCmAdjacencyNeighbourBsEntry 4 }

wmanIfBsCmAdjacencyNeighbourBsSchedulingServiceSupport OBJECT-TYPE
        SYNTAX BITS
                {
                real-time polling service(0),
                extended real-time polling service(1),
                non-real-time polling service(2),
                unsolicited grant service(3),
                best effort(4)
                }
        MAX-ACCESS read-write
        STATUS current
        DESCRIPTION
                "This parameter is used to indicate neighbouring BS scheduling service type."
        ::= { wmanIfBsCmAdjacencyNeighbourBsEntry 5 }

wmanIfBsCmAdjacencyNeighbourBsBandwidth OBJECT-TYPE
        SYNTAX Integer32
        MAX-ACCESS read-write
        STATUS current
        DESCRIPTION
                "This parameter is used to indicate neighbouring BS bandwidth."
        ::= { wmanIfBsCmAdjacencyNeighbourBsEntry 6 }

wmanIfBsCmAdjacencyNeighbourBsFFTSize OBJECT-TYPE
        SYNTAX Integer32
        MAX-ACCESS read-write
        STATUS current
        DESCRIPTION
                "This parameter is used to indicate neighbouring BS FFT size."
        ::= { wmanIfBsCmAdjacencyNeighbourBsEntry 7 }

wmanIfBsCmAdjacencyNeighbourBsCyclePrefix OBJECT-TYPE
        SYNTAX Integer32
        MAX-ACCESS read-write
        STATUS current
        DESCRIPTION
                "This parameter is used to indicate neighbouring BS Cycle prefix."
        ::= { wmanIfBsCmAdjacencyNeighbourBsEntry 8 }

wmanIfBsCmAdjacencyNeighbourBsFrameDurationCode OBJECT-TYPE
        SYNTAX Integer32
        MAX-ACCESS read-write
        STATUS current
        DESCRIPTION
                "This parameter is used to indicate neighbouring BS Frame duration code."
        ::= { wmanIfBsCmAdjacencyNeighbourBsEntry 9 }

wmanIfBsCmAdjacencyNeighbourBsULPermutationBase OBJECT-TYPE
        SYNTAX Integer32
        MAX-ACCESS read-write
        STATUS current
        DESCRIPTION
                "This parameter is used to indicate neighbouring BS uplink permutation base."
```

```
                ::= { wmanIfBsCmAdjacencyNeighbourBsEntry 10 }

wmanIfBsCmAdjacencyNeighbourBsDLPermutationBase OBJECT-TYPE
                SYNTAX Integer32
                MAX-ACCESS read-
                STATUS current
                DESCRIPTION
                                "This parameter is used to indicate neighbouring BS downlink permutation base."
                ::= { wmanIfBsCmAdjacencyNeighbourBsEntry 11 }

wmanIfBsCmAdjacencyNeighbourBsSegmentNumber OBJECT-TYPE
                SYNTAX Integer32
                MAX-ACCESS read-write
                STATUS current
                DESCRIPTION
                                "This parameter is used to indicate neighbouring BS segment number."

                ::= { wmanIfBsCmAdjacencyNeighbourBsEntry 12 }

wmanIfBsCmAdjacencyNeighbourBsPreambleIndex OBJECT-TYPE
                SYNTAX Integer32
                MAX-ACCESS read-write
                STATUS current
                DESCRIPTION
                                "This parameter is used to indicate neighbouring BS preamble index."
                ::= { wmanIfBsCmAdjacencyNeighbourBsEntry 13 }

wmanIfBsCmPagingGroupTable OBJECT-TYPE
                SYNTAX SEQUENCE OF WmanIfBsPagingGroupEntry
                MAX-ACCESS not-accessible
                STATUS current
                DESCRIPTION
                                "This table contains paging group related parameters."
                ::= { wmanIfBCm 3 }

wmanIfBsCmPagingGroupEntry OBJECT-TYPE
                SYNTAX WmanIfBsPagingGroupEntry
                MAX-ACCESS not-accessible
                STATUS current
                DESCRIPTION
                                "This table is indexed by wmanIfBsPagingGroupId."
                INDEX { wmanIfBsPagingGroupId }
                ::= { wmanIfBsCmPagingGroupTable 1 }

wmanIfBsCmPagingGroupEntry ::= SEQUENCE {
wmanIfBsCmPagingControlId IpAddress,
wmanIfBsCmPagingGroupId INTEGER,
wmanIfBsCmMgmtResourceHoldingTimerInteger32,
wmanIfBsCmT46Timer Integer32,
wmanIfBsCmPagingRetryCount INTEGER,
wmanIfBsCmREQDuration INTEGER,
wmanIfBsCmMACHashSkipThresholdInteger32,
wmanIfBsCmCDMATransmissionOpportunityAssignmentINTEGER,
wmanIfBsCmPagingResponseWindow INTEGER,
wmanIfBsCmIdleModeTimer INTEGER,
wmanIfBsCmIdleModeSystemTimer INTEGER,
wmanIfBsCmPagingIntervalLength INTEGER,
wmanIfBsCmPagingCycle INTEGER
}

wmanIfBsCmPagingControlId OBJECT-TYPE
                SYNTAX IpAddress
                MAX-ACCESS read-write
```

```
                STATUS current
                DESCRIPTION
                        "This parameter is used to indicate paging controller identifier connected by BS."
                ::= { wmanIfBsCmPagingGroupEntry 1 }

wmanIfBsCmPagingGroupId OBJECT-TYPE
                SYNTAX INTEGER
                MAX-ACCESS read-write
                STATUS current
                DESCRIPTION
                        "This parameter is used to indicate the paging group identifier assigned to BS by
                network."
                ::= { wmanIfBsCmPagingGroupEntry 2 }

wmanIfBsCmPagingMgmtResourceHoldingTimer  OBJECT-TYPE
                SYNTAX Integer32
                MAX-ACCESS read-write
                STATUS current
                DESCRIPTION
                        "Time the BS maintain connection information with the MS after the
                BS send DREG-CMD to the MS"
                ::= { wmanIfBsCmPagingGroupEntry 3 }

wmanIfBsCmPagingT46Timer  OBJECT-TYPE
                SYNTAX Integer32
                MAX-ACCESS read-write
                STATUS current
                DESCRIPTION
                        "Time the BS waits for DREGREQ in case of unsolicited Idle Mode initiation from BS."
                ::= { wmanIfBsCmPagingGroupEntry 4 }

wmanIfBsCmPagingRetryCount OBJECT-TYPE
                SYNTAX INTEGER
                MAX-ACCESS read-write
                STATUS current
                DESCRIPTION
                        "Number of retries on paging transmission. If the BS does not receive RNG-REQ from the MS
                until this value decreases to zero, it determines that the MS is unavailable."
                ::= { wmanIfBsCmPagingGroupEntry 5 }

wmanIfBsCmPagingREQDuration OBJECT-TYPE
                SYNTAX INTEGER
                MAX-ACCESS read-write
                STATUS current
                DESCRIPTION
                        "Waiting value for the DREG-REQ message re-transmission (measured in frames)."
                ::= { wmanIfBsCmPagingGroupEntry 6 }

wmanIfBsCmPagingMACHashSkipThreshold OBJECT-TYPE
                SYNTAX Integer32
                MAX-ACCESS read-write
                STATUS current
                DESCRIPTION
                        "Maximum number of successive MOB_PAG-ADV messages that may be sent from a BS
                without individual notification for an MS for which BS is allowed to skip MS MAC Address Hash
                when the Action Code for the MS is 0b00,'No Action Required'."
                ::= { wmanIfBsCmPagingGroupEntry 7 }

wmanIfBsCmPagingCDMATransmissionOpportunityAssignement OBJECT-TYPE
                SYNTAX INTEGER
                MAX-ACCESS read-write
                STATUS current
                DESCRIPTION
```

"The CDMA code and transmission opportunity assignment field indicates the assigned code and transmission opportunity for a MS who is paged to use over dedicated CDMA ranging region."
::= { wmanIfBsCmPagingGroupEntry 8 }

wmanIfBsCmPagingResponseWindow OBJECT-TYPE
SYNTAX INTEGER
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"The Page-Response Window indicates the Page-Response window for a MS who is paged to transmit the assigned code for CDMA ranging channel."
::= { wmanIfBsCmPagingGroupEntry 9 }

wmanIfBsCmPagingIdleModeTimer OBJECT-TYPE
SYNTAX INTEGER (128..65536)
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"MS timed interval to conduct Location Update. Set timer to MS Idle Mode Timeout capabilities setting. Timer recycles on successful Idle Mode Location Update."
::= { wmanIfBsCmPagingGroupEntry 10 }

wmanIfBsCmPagingIdleModeSystemTimer OBJECT-TYPE
SYNTAX INTEGER (128..65536)
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"For BS acting as Paging Controller, timed interval to receive notification of MS Idle Mode Location Update. Set timer to MS Idle Mode Timeout. Timer recycles on successful Idle Mode Location Update."
::= { wmanIfBsCmPagingGroupEntry 11 }

wmanIfBsCmPagingIntervalLength OBJECT-TYPE
SYNTAX INTEGER (2..5)
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"Time duration of Paging Interval of the BS."
::= { wmanIfBsCmPagingGroupEntry 12 }

wmanIfBsCmPagingCycle OBJECT-TYPE
SYNTAX INTEGER
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"Cycle in which the paging message is transmitted within the paging group."
::= { wmanIfBsCmPagingGroupEntry 13 }