# Module --

# High-Level Description

The end of travel actuator management limit reduces the level of assist from the motor as the steering system approaches the mechanical end of stop of the system.

# Figures

## Diagram – Component

## 

## Diagram – Function Data Sharing

N/A

### Diagram – Function (\_Per1)

Note: The state control block needs to be evaluated prior to completing the End of Travel (Soft End Stops) block. More information contained within the MDD.

# Variable Data Dictionary

For details on module input / output variable, refer to the Data Dictionary for the application. Input / output variable names are listed here for reference.

(Note: Full variable names required in table.)

(Note: All global variables including End Of Line data used should be shown here)

|  |  |  |
| --- | --- | --- |
| Module Inputs | Module Outputs | |
| HwTorque\_HwNm\_f32 | | AssistEOTLimit\_MtrNm\_f32 |
| CwEOT\_HwDeg\_f32 | | AssistEOTGain\_Uls\_f32 |
| CcwEOT\_HwDeg\_f32 | | AssistEOTDamping\_MtrNm\_f32 |
| CwFound\_Cnt\_lgc | |  |
| CcwFound\_Cnt\_lgc | |  |
| HandWheelPos\_HwDeg\_f32 | |  |
| HandWheelAuth\_Uls\_f32 | |  |
| CRFMotorVel\_MtrRadpS\_f32 | |  |
| VehicleSpeed\_Kph\_f32 | |  |
| PreLimitTorque\_MtrNm\_f32 | |  |
| EOTDisable\_Cnt\_lgc | |  |

## Module Internal Variables

This section identifies the name, range and resolutions for module specific data created by this module. If there are no range restrictions on the variable, the term “FULL” is placed into the table for legal range.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable Name | Resolution | Legal Range  (min) | Legal Range  (max) | Software Segment |
| EOTImpactPos\_HwDeg\_M\_f32 | Single Precision Floating Point | 0 | 1440.11 | EOTACTUATORMNG\_START\_SEC\_VAR\_CLEARED\_32 |
| PrevEOTGain\_Uls\_M\_f32 | Single Precision Floating Point | 0 | 1 | EOTACTUATORMNG\_START\_SEC\_VAR\_CLEARED\_32 |
| FiltHWTrqSV\_HwNm\_M\_s7p24 | p-24 | -10 | 10 | EOTACTUATORMNG\_START\_SEC\_VAR\_CLEARED\_32 |
| SESState\_Uls\_M\_enum | Enum (see typedef table) | 0 | 3 | EOTACTUATORMNG\_START\_SEC\_VAR\_CLEARED\_UNSPECIFIED |
| FiltEOTGainSV\_HwNm\_M\_u1p31 | p-31 | 0.0 | 1.0 | EOTACTUATORMNG\_START\_SEC\_VAR\_CLEARED\_32 |

### User defined typedef definition/declaration

This section documents any user types uniquely used for the module.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Typedef Name | Element Name | User Defined Type | Legal Range  (min) | Legal Range  (max) |
| typedef enum \_sesState {} sesState\_T; | DISABLED | Uls | 0 | |
|  | ENTERING | Uls | 1 | |
|  | NORMAL | Uls | 2 | |
|  | EXITING | Uls | 3 | |

## Module Display Variables

This section identifies the name, range and resolutions for display specific data created by this module. If there are no range restrictions on the variable, the term “FULL” is placed into the table for legal range.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable Name | Resolution | Legal Range  (min) | Legal Range  (max) | Software Segment |
| EOTDet\_Cnt\_D\_lgc | Boolean | FALSE | TRUE | EOTACTUATORMNG\_START\_SEC\_VAR\_CLEARED\_BOOLEAN |
| EOTImpact\_HwDeg\_D\_f32 | Single Precision Floating Point | 0.0 | 1440.11 | EOTACTUATORMNG\_START\_SEC\_VAR\_CLEARED\_32 |
| LimitPosition\_HwDeg\_D\_f32 | Single Precision Floating Point | -1440.11 | 1440.11 | EOTACTUATORMNG\_START\_SEC\_VAR\_CLEARED\_32 |
| EOTEnterGain\_Uls\_D\_f32` | Single Precision Floating Point | 0.0 | 1.0 | EOTACTUATORMNG\_START\_SEC\_VAR\_CLEARED\_32 |
| EOTExitgain\_Uls\_D\_f32 | Single Precision Floating Point | 0.0 | 1.0 | EOTACTUATORMNG\_START\_SEC\_VAR\_CLEARED\_32 |
| EOTGain\_Uls\_D\_f32 | Single Precision Floating Point | 0.0 | 1.0 | EOTACTUATORMNG\_START\_SEC\_VAR\_CLEARED\_32 |
| FiltEOTGain\_Uls\_D\_f32 | Single Precision Floating Point | 0.0 | 1.0 | EOTACTUATORMNG\_START\_SEC\_VAR\_CLEARED\_32 |
| EOTDamping\_MtrNm\_D\_f32 | Single Precision Floating Point | -16.93 | 16.93 | EOTACTUATORMNG\_START\_SEC\_VAR\_CLEARED\_32 |

# Constant Data Dictionary

## Calibration Constants

This section lists the calibrations used by the module. For details on calibration constants, refer to the Data Dictionary for the application.

|  |
| --- |
| Constant Name |
| k\_SoftStopEOTEnable\_Cnt\_lgc |
| k\_EOTDefltPosition\_HwDeg\_u12p4 |
| t\_SpdIptTblXTbl\_HwDeg\_u12p4[2] |
| t\_SpdIptTblYTbl\_MtrRadpS\_u12p4[2] |
| k\_SpdIptScale\_MtrNmpRadpS\_u4p12 |
| k\_PosRampStep\_HwDeg\_u12p4 |
| k\_MinRackTrvl\_HwDeg\_u12p4 |
| k\_MaxRackTrvl\_HwDeg\_u12p4 |
| t2\_EOTEnterGainX\_HwDeg\_u12p4[4][4] |
| t2\_EOTEnterGainY\_Uls\_u1p15[4][4] |
| t\_EOTEnterGainVspd\_Kph\_u9p7[4] |
| k\_EOTStateHwTrqLPFKn\_Cnt\_u16 |
| k\_EOTDeltaTrqThrsh\_HwNm\_u9p7 |
| t\_TrqTableX\_HwNm\_u8p8[2] |
| k\_EOTEnterLPFKn\_Cnt\_u16 |
| k\_EOTExitLPFKn\_Cnt\_u16 |
| t2\_EOTPosDepDmpTblX\_HwDeg\_u12p4[4][2] |
| t2\_EOTPosDepDmpTblY\_MtrNmpRadpS\_u0p16[4][2] |
| t2\_EOTExPosDepDmpTblY\_MtrNmpRadps\_u0p16[4][2] |
| t\_EOTDmpVspd\_Kph\_u9p7[4] |
| k\_EOTImpSpdEn\_Kph\_u9p7 |

## Program(fixed) Constants

### Embedded Constants

All embedded constants whose values are provided in Eng units will be evaluated to the equivalent counts by using the FPM\_InitFixedPoint\_m() macro within the #define statement.

#### Local

|  |  |  |  |
| --- | --- | --- | --- |
| Constant Name | Resolution | Units | Value |
| D\_HWPOSAUTHHILMT\_ULS\_F32 | Single Precision Floating Point | Uls | 1.0 |
| D\_ONE\_ULS\_U16 | uint16 | Uls | 1U |
| D\_MINUSONE\_ULS\_S16 | sint16 | Uls | -1U |
| D\_MINUSONE\_ULS\_F32 | Single Precision Floating Point | Uls | -1.0 |
| D\_2MSLPFKN5HZ\_CNT\_U16 | uint16 | Cnt | 3991 |
| D\_SESSTATE\_PRI1\_ULS\_U16 | uint16 | Uls | 0x01 |
| D\_SESSTATE\_PRI2\_ULS\_U16 | uint16 | Uls | 0x02 |
| D\_SESSTATE\_PRI3\_ULS\_U16 | uint16 | Uls | 0x04 |
| D\_SESSTATE\_PRI4\_ULS\_U16 | uint16 | Uls | 0x08 |
| D\_EOTDAMPHILMT\_MTRNM\_F32 | Single Precision Floating Point | MtrNm | 8.8 |
| D\_EOTDAMPLOLMT\_MTRNM\_F32 | Single Precision Floating Point | MtrNm | -8.8 |
| D\_EOTGAINHILMT\_ULS\_F32 | Single Precision Floating Point | Uls | 1.0 |
| D\_EOTGAINLOLMT\_ULS\_F32 | Single Precision Floating Point | Uls | 0.0 |
| D\_EOTHILMT\_MTRNM\_F32 | Single Precision Floating Point | MtrNm | 8.8 |
| D\_EOTLOLMT\_MTRNM\_F32 | Single Precision Floating Point | MtrNm | 0.0 |

#### Global

This section lists the global constants used by the module. For details on global constants, refer to the Data Dictionary for the application.

|  |
| --- |
| Constant Name |
| D\_MTRTRQCMDHILMT\_MTRNM\_F32 |
| D\_ZERO\_ULS\_F32 |

### Module specific Lookup Tables Constants

(This is for lookup tables (arrays) with fixed values, same name as other tables)

|  |  |  |  |
| --- | --- | --- | --- |
| Constant Name | Resolution | Value | Software Segment |
| t\_TrqTblY\_Uls\_u2p14 | U2p14\_T | 0, 1 | AUTOMATIC |

# Functions/Macros used by the Sub-Modules

## Library Functions / Macros

The library and functions / Macros that are called by the various sub modules are identified below,

1. Abs\_f32\_m
2. S ign\_f32\_m
3. Abs\_s16\_m
4. FPM\_FixedToFloat\_m
5. FPM\_FloatToFixed\_m
6. IntplVarXY\_u16\_u16Xu16Y\_Cnt
7. LPF\_SvUpdate\_s16InFixKTrunc\_m
8. LPF\_OpUpdate\_s16InFixKTrunc\_m
9. Max\_m
10. BilinearXMYM\_u16\_u16XMu16YM\_Cnt

## Data Hiding Functions

1. N/A

## Global Functions/Macros Defined by this Module

N/A

## Local Functions/Macros Used by this MDD only

### EOT Determination

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Name** | EOTDetermination | Type | Min | Max |
| **Arguments Passed** | CwFound\_Cnt\_T\_lgc | Boolean | FALSE | TRUE |
|  | CcwFound\_Cnt\_T\_lgc | Boolean | FALSE | TRUE |
| **Return Value** | EOTDet\_Cnt\_T\_lgc | Boolean | FALSE | TRUE |

#### Description



### End of Travel Impact (Original)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Name** | EOTOrigImpact | Type | Min | Max |
| **Arguments Passed** | CwEOT\_HwDeg\_T\_f32 | float32 | 0.0 | 1440.11 |
|  | CcwEOT\_HwDeg\_T\_f32 | float32 | -1440.11 | 0.0 |
|  | HandWheelAuth\_Uls\_T\_f32 | float32 | 0.0 | 1.0 |
|  | MotorVel\_MtrRadpS\_T\_f32 | float32 | -1350.0 | 1350.0 |
|  | HandWheelPos\_HwDeg\_T\_f32 | float32 | -1440.11 | 1440.11 |
|  | VehicleSpeed\_Kph\_T\_f32 | float32 | 0 | 511.9921875 |
| **Return Value** | AssistEOTLimit\_MtrNm\_T\_f32 | float32 | 0 | 8.8 |

#### Description



### End of Travel Impact (Soft Stops) – Determine Limit Position

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Name** | SES\_DetLmtPos | Type | Min | Max |
| **Arguments Passed** | CwEOT\_HwDeg\_T\_f32 | float32 | 0.0 | 1440.11 |
|  | CcwEOT\_HwDeg\_T\_f32 | float32 | -1440.11 | 0.0 |
|  | HandWheelPos\_HwDeg\_T\_f32 | float32 | -1440.11 | 1440.11 |
| **Return Value** | LimitPos\_HwDeg\_T\_f32 | float32 | -1440.11 | 1440.11 |

#### Description





### End of Travel Impact (Soft Stops) – Calculate Exit Gain Value

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Name** | SES\_CalcExitGain | Type | Min | Max |
| **Arguments Passed** | HwTorque\_HwNm\_T\_f32 | float32 | -10.0 | 10.0 |
|  | PrevEOTGain\_Uls\_T\_f32 | float32 | 0.0 | 1.0 |
|  | HandWheelPos\_HwDeg\_T\_f32 | float32 | -1440.11 | 1440.11 |
|  | \* FiltHwTrqPtr\_HwNm\_T\_f32 | float32 | -10.0 | 10.0 |
| **Return Value** | LimitPos\_HwDeg\_T\_f32 | float32 | -1440.11 | 1440.11 |

#### Description



### End of Travel Impact (Soft Stops) – Calculate Enter Gain Value

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Name** | SES\_CalcEnterGain | Type | Min | Max |
| **Arguments Passed** | HandWheelPos\_HwDeg\_T\_f32 | float32 | -1440.11 | 1440.11 |
|  | LimitPosition\_HwDeg\_T\_f32 | float32 | -1440.11 | 1440.11 |
|  | VehicleSpeed\_Kph\_T\_f32 | float32 | 0.0 | 511.9921875 |
| **Return Value** | EOTEnterGain\_Uls\_T\_f32 | float32 | 0.0 | 1.0 |

#### Description



### End of Travel Impact (Soft Stops) – Calculate EOT Gain Value

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Name** | SES\_CalcEOTGain | Type | Min | Max |
| **Arguments Passed** | EOTEnterGain\_Uls\_T\_f32 | float32 | 0.0 | 1.0 |
|  | EOTExitGain\_Uls\_T\_f32 | float32 | 0.0 | 1.0 |
| **Return Value** | EOTGain\_Uls\_T\_f32 | float32 | 0.0 | 1.0 |

#### Description



### End of Travel Impact (Soft Stops) – Low Pass Filter

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Name** | SES\_FiltEOTGain | Type | Min | Max |
| **Arguments Passed** | EOTGain\_Uls\_T\_f32 | float32 | 0.0 | 1.0 |
| **Return Value** | FiltEOTGain\_Uls\_T\_f32 | float32 | 0.0 | 1.0 |

#### Description



### End of Travel Impact (Soft Stops) – Calculate EOT Damping Value

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Name** | SES\_CalcEOTDamp | Type | Min | Max |
| **Arguments Passed** | CwEOT\_HwDeg\_T\_f32 | float32 | 0.0 | 1440.11 |
|  | CcwEOT\_HwDeg\_T\_f32 | float32 | -1440.11 | 0.0 |
|  | VehicleSpeed\_Kph\_T\_f32 | float32 | 0 | 511.9921875 |
|  | HandWheelPos\_HwDeg\_T\_f32 | float32 | -1440.11 | 1440.11 |
|  | MotorVel\_MtrRadpS\_T\_f32 | float32 | -1350 | 1350 |
| **Return Value** | EOTDamping\_MtrNm\_T\_f32 | float32 | -16.93 | 16.93 |

#### Description





### End of Travel Impact (Soft Stops) – Soft Stop State Control

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Name** | SES\_StateCtrl | Type | Min | Max |
| **Arguments Passed** | FiltHwTrq\_HwNm\_T\_f32 | float32 | -10.0 | 10.0 |
|  | LimitPosition\_HwDeg\_T\_f32 | float32 | -1440.11 | 1440.11 |
|  | HandWheelPos\_HwDeg\_T\_f32 | float32 | -1440.11 | 1440.11 |
|  | HandWheelAuth\_Uls\_T\_f32 | float32 | 0.0 | 1.0 |
|  | VehicleSpeed\_Kph\_T\_f32 | float32 | 0 | 511.9921875 |
|  | EOTDet\_Cnt\_T\_lgc | Boolean | FALSE | TRUE |
|  | EOTDisable\_Cnt\_T\_lgc | Boolean | FALSE | TRUE |
| **Return Value** | N/A |  |  |  |

#### Description





# Software Module Implementation

## Runtime Environment (RTE) Initial Values

This section lists the initial values of data written by this module but controlled by the RTE. After RTE initialization, the data in this table will contain these values.

|  |  |
| --- | --- |
| Data | Value |
| Rte\_InitValue\_AssistEOTDamping\_MtrNm\_f32 | 0.0F |
| Rte\_InitValue\_AssistEOTGain\_Uls\_f32 | 1.0F |
| Rte\_InitValue\_AssistEOTLimit\_MtrNm\_f32 | 8.8F |
| Rte\_InitValue\_CcwEOT\_HwDeg\_f32 | 0.0F |
| Rte\_InitValue\_CcwFound\_Cnt\_lgc | FALSE |
| Rte\_InitValue\_CwEOT\_HwDeg\_f32 | 0.0F |
| Rte\_InitValue\_CwFound\_Cnt\_lgc | FALSE |
| Rte\_InitValue\_HandWheelAuth\_Uls\_f32 | 0.0F |
| Rte\_InitValue\_HandWheelPos\_HwDeg\_f32 | 0.0F |
| Rte\_InitValue\_HwTorque\_HwNm\_f32 | 0.0F |
| Rte\_InitValue\_MotorVel\_MtrRadpS\_f32 | 0.0F |
| Rte\_InitValue\_PreLimitTorque\_MtrNm\_f32 | 0.0F |
| Rte\_InitValue\_VehicleSpeed\_Kph\_f32 | 0.0F |
| Rte\_InitValue\_EOTDisable\_Cnt\_lgc | False |

## Initialization Functions

N/A

## Periodic Functions

### Per: \_Per1

#### Design Rationale

N/A

#### Program Flow Start

#### Rte\_Call\_EOTActuatorMng\_Per1\_CP0\_CheckpointReached()Store Module Inputs to Local copies

|  |  |
| --- | --- |
| Local Copy | Module Input |
| HwTorque\_HwNm\_T\_f32 | Rte\_IRead\_EOTActuatorMng\_Per1\_HwTorque\_HwNm\_f32() |
| CwEOT\_HwDeg\_T\_f32 | Rte\_IRead\_EOTActuatorMng\_Per1\_CwEOT\_HwDeg\_f32() |
| CcwEOT\_HwDeg\_T\_f32 | Rte\_IRead\_EOTActuatorMng\_Per1\_CcwEOT\_HwDeg\_f32() |
| CwFound\_Cnt\_ T\_lgc | Rte\_IRead\_EOTActuatorMng\_Per1\_CwFound\_Cnt\_lgc() |
| CcwFound\_Cnt\_ T\_lgc | Rte\_IRead\_EOTActuatorMng\_Per1\_CcwFound\_Cnt\_lgc() |
| HandWheelPos\_HwDeg\_T\_f32 | Rte\_IRead\_EOTActuatorMng\_Per1\_HandWheelPos\_HwDeg\_f32() |
| HandWheelAuth\_Uls\_T\_f32 | Rte\_IRead\_EOTActuatorMng\_Per1\_HandWheelAuth\_Uls\_f32() |
| MotorVel\_MtrRadpS\_T\_f32 | Rte\_IRead\_EOTActuatorMng\_Per1\_MotorVel\_MtrRadpS\_f32() |
| VehicleSpeed\_Kph\_T\_f32 | Rte\_IRead\_EOTActuatorMng\_Per1\_VehicleSpeed\_Kph\_f32() |
| EOTDisable\_Cnt\_T\_lgc | Rte\_IRead\_EOTActuatorMng\_Per1\_EOTDisable\_Cnt\_lgc() |

#### (Processing of function)………



#### Store Local copy of outputs into Module Outputs

|  |  |
| --- | --- |
| Local Copy | Module Output |
| AssistEOTLimit\_MtrNm\_T\_f32 | Rte\_IWrite\_EOTActuatorMng\_Per1\_AssistEOTLimit\_MtrNm\_f32() |
| AssistEOTGain\_Uls\_T\_f32 | Rte\_IWrite\_EOTActuatorMng\_Per1\_AssistEOTGain\_Uls\_f32() |
| AssistEOTDamping\_MtrNm\_T\_f32 | Rte\_IWrite\_EOTActuatorMng\_Per1\_AssistEOTDamping\_MtrNm\_f32() |

#### Program Flow End

## Rte\_Call\_EOTActuatorMng\_Per1\_CP1\_CheckpointReached()Fault Recovery Functions

N/A

## Shutdown Functions

N/A

## Interrupt Functions

N/A

# Execution Requirements

## Execution Sequence of the Module

(Describe in words relevant details about the execution sequence of the different sub modules.)

## Execution Rates for sub-modules called by the Scheduler

This table serves as reference for the Scheduler design

|  |  |  |
| --- | --- | --- |
| Function Name | Calling Frequency | System State(s) in which the function is called |
| EOTActuatorMng\_Per1 | 2ms | ALL |

## Execution Requirements for Serial Communication Functions

|  |  |
| --- | --- |
| Function Name | Sub-Module called by (Serial Comm Function Name) |
| N/A |  |

# Memory Map Definition Requirements

## Sub Modules (Functions)

This table identifies the software segments for functions identified in this module.

|  |  |
| --- | --- |
| Name of Sub Module | Software Segment |
| N/A |  |

## Local Functions

This table identifies the software segments for local functions identified in this module.

|  |  |
| --- | --- |
| Name of Sub Module | Software Segment |
| EOTDetermination | AUTOMATIC |
| EOTOrigImpact | AUTOMATIC |
| SES\_DetLmtPos | AUTOMATIC |
| SES\_CalcExitGain | AUTOMATIC |
| SES\_StateCtrl | AUTOMATIC |
| SES\_CalcEnterGain | AUTOMATIC |
| SES\_CalcEOTGain | AUTOMATIC |
| SES\_FiltEOTGain | AUTOMATIC |
| SES\_CalcEOTDamp | AUTOMATIC |

# Filter Analysis / Design

|  |  |
| --- | --- |
| File | Description |
|  | Filter analysis for all the LPF filters called in this MDD. Analysis contains high/low cutoff frequencies with max output. |

# Known Issues / Limitations With Design

1. INLINE functions defined in globalmacro.h are not unit tested.

# Revision Control Log

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item #** | **Rev #** | **Change Description** | **Date** | **Author Initials** |
| 1 | 1.0 | Initial Release | 06-Dec-11 | KJS |
| 2 | 2.0 | Added limitation with globalmacro.h known limitations | 06-Dec-11 | KJS |
| 3 | 3 | Changed units designator of k\_EOTStateHwTrqLPFKn\_Uls\_u16 to Cnt | 12-Dec-11 | JJW |
| 4 | 4 | Corrected assist EOT limit macro call. | 14-Dec-11 | KJS |
| 5 | 5 | Updated ranges for CcwEOT and CwEOT. | 22-Dec-11 | KJS |
| 6 | 6 | Anomaly 3003 and 3039 | 17-Mar-12 | M. Story |
| 7 | 7 | Updated incorrect indexing on tables (removed constant and replaced with TableSize macro) | 19-Mar-12 | LWW |
| 8 | 8 | Anomaly 3076 update to FDD fixes | 22-Mar-12 | M. Story |
| 9 | 9 | Changed t\_TrqTblY\_Uls\_u16p0 to t\_TrqTblY\_Uls\_u1p15 anomaly 3146 | 01-May\_12 | M. Story |
| 10 | 10 | Changed t\_TrqTblY\_Uls\_u1p15 to t\_TrqTblY\_Uls\_u2p14 anomaly 3146 | 01-May\_12 | M. Story |
| 11 | 11 | Changes for anomaly 3330 and update on units for embedded constants | 23-May-12 | LWW |
| 12 | 12 | Updated range on VehicleSpeed and EOTDamping per unit testing finds | 12-Jun-12 | LWW |
| 13 | 13 | Add defeat service per FDD v006 | 13-Sept-12 | BWL |
| 14 | 14 | Added watchdog checkpints | 20-Sept-12 | BWL |
| 15 | 15 | Added Memmap statements | 25 Sep12 | Selva |
| 16 | 16 | Changes in “End Of Travel Impact(Original)” for anomaly 3938 | 22 Oct 12 | Srikanth |
| 17 | 16.1.1 | MDD/Src mismatch fixes | 13-Feb-13 | VK |
| 18 | 16.1.2 | Version update as file mistakenly got checkedin without showing 16.1.1 changes | 20-Mar-13 | VK |
| 19 | 17 | Anomaly 4269 correction in SES\_CalcEnterGain() | 18-Jan-13 | KJS |
| 20 | 18 | Merging v16.12 and v17 of the MDD | 20-Mar-13 | VK |
| 21 | 19 | Increased resolution of t2\_EOTPosDepDmpTblY\_ and t2\_EOTExPosDepDmpTblY per FDD SF18 v7 | 26-Apr-13 | JJW |
| 22 | 20 | Corrected range of MotorVEl input to EOTOrigIMpact() and SES\_CalcEOTDamp() | 29-Apr-13 | JJW |