

MOST

Media Oriented Systems Transport

Multimedia and Control
Networking Technology

MOST FBlock Enhanced Testability

Rev 2.6.2

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Bibliography

All documents, which this MOST document has references to, are listed here with the actual revision this document is referring to.

Number	Document	Revision
[1]	MOST Specification	2.5

Document History

Changes EnhancedTestability FBlock Rev. 2.6.1 to EnhancedTestability FBlock Rev. 2.6.2

Change Ref.	FktID	Changes
2V62-001	General	Set Occurrence attribute for all functions. (MCTG review)
2V62-002	0x200	Deleted function 0x200 Attenuation. (MCTG decision D175-2)
2V62-003	0x201	AutoWakeup: <ul style="list-style-type: none"> Added clarification for Duration = 0. (MCTG decision D176-4) Deleted "or a timeout of 5 min. after NetInterface Off." (MCTG decision D177-1) Deleted "The option Diagnosis has only to be implemented in nodes which handle RBD." (MCTG decision D177-3) Changed to Conditional occurrence. (MCTG decision D177-3)
2V62-004	0x203	DiagResult: Deleted "A value of 0x40 indicates signal at input but stable lock was never gained." (MCTG decision D177-3)
2V62-005	0x204	Shutdown: Changed to Conditional occurrence. (MCTG decision D177-3)
2V62-006	0x205	ShutdownSuspendMode: <ul style="list-style-type: none"> Added clarification regarding default mode and default behavior. (MCTG review) Deleted superfluous remark that the (mandatory) function has to be implemented in every node. (MCTG decision D177-3)
2V62-007	0x206	Deleted function 0x206 NetInterfaceState. (MCTG decision D175-2)
2V62-008	0x207	SendMessage: In the case of a dynamic buffer, the message must not exceed 4 segments. (MCTG review)
2V62-009	0x208	EchoMessage: Deleted superfluous remark that the (mandatory) function has to be implemented in every node. (MCTG decision D177-3)
2V62-010	0x209	MessageBufSize: Deleted superfluous remark that the (mandatory) function has to be implemented in every node. (MCTG decision D177-3)
2V62-011	0x20E	Deleted function 0x20E ResetTests. (MCTG decision D175-2)
2V62-012	0x20F	Deleted function 0x20F CodingErrors. (MCTG decision D175-2)
2V62-013	0x211	Reset: Resets Network Interface Controller, not the NetInterface. (MCTG decision D165-1)
2V62-014	0x214	Deleted function 0x214 ManufacturerTimings. (MCTG decision D175-2)
2V62-015	0x215	Deleted function 0x215 ActivateSlaveMode. (MCTG decision D175-2)
2V62-016	0x216	Deleted function 0x216 SystemState. (MCTG decision D175-2)
2V62-017	0x3C8	Void: Deleted misleading remark that the (mandatory) function must not to be implemented in any node. (MCTG decision D177-3)
2V62-018	0x3FE	DSO: <ul style="list-style-type: none"> Improved description of NextPacketMethod. (MCTG decision D151-5) Marked SingleFrameAcknowledge as deprecated. (MCTG review)
2V62-019	0x3FF	Deleted function 0x3FF DSIHold. (MCTG decision D175-2)
2V62-020	0x400	DSI (0x400): Added test vectors. (MCTG decision D164-8)
2V62-021	0xF00	Deleted function 0xF00 Version. (MCTG decision D175-2)

Changes EnhancedTestability FBlock Rev. 2.6 to EnhancedTestability FBlock Rev. 2.6.1

Change Ref.	FktID	Changes
2V61-001	General	Minor editorial corrections.
2V61-002	0x000	Function FktIDs no longer referenced from GeneralFBlock.
2V61-003	0x203	Added description for code 0x40 to DiagResult.
2V61-004	0x3FD	Added new function DSIDSOCCount.

Changes EnhancedTestability FBlock 2V5 to EnhancedTestability FBlock 2V6

Change Ref.	FktID	Changes
2V6-001	General	General: Corrections of clerical errors and unification of spelling of MOST terms.
2V6-002	General	Added reference to GeneralFBlock 2.5.1, which covers FktIDs (0x000) and Version (0x010)
2V6-003	0x000	Removed function FktIDs
2V6-004	0x200	Function becomes optional. Not applicable for ePhy.
2V6-005	0x201	AutoWakeup: <ul style="list-style-type: none"> Function not used for ePhy Replaced AbilityToWake by CapabilityToWake resp. PermissionToWake Improved description of parameter "Duration" and "Delaytime": wakeup condition Figures added to explain "wakeup condition" and "timing"
2V6-006	0x202	DiagTimeout: Function not used for ePhy
2V6-007	0x203	DiagResult: Function not used for ePhy
2V6-008	0x204	Shutdown: Improved description in case neither PM nor temp. management supported.
2V6-009	0x206	Function becomes optional.
2V6-010	0x207	Function becomes optional.
2V6-011	0x209	MessageBufSize : <ul style="list-style-type: none"> Changed unit for MessageLengthRx and MessageLengthTx from none to Byte Description improved: consideration of "parallel message buffers"
2V6-012	0x20A	SendViaMHP: Deleted function.
2V6-013	0x20B	EchoViaMHP: Deleted function.
2V6-014	0x20C	MHPData: Deleted function.
2V6-015	0x20D	MamacPing: Deleted function.
2V6-016	0x211	Reset: <ul style="list-style-type: none"> Function not used for ePhy Description improved: Function has to reset NetInterface
2V6-017	0x214	ManufacturerTimings: Modified Enum description.
2V6-018	0x216	SystemState: New function.
2V6-019	0x3FE	DSO: New function.
2V6-020	0x3FF	DSIHold: New function.
2V6-021	0x400	DSI: New function.
2V6-022	0xF00	Marked Version as deprecated.
2V6-023	-	Removed empty "Dynamic Specification" chapter.

Changes EnhancedTestability FBlock 2V4 to EnhancedTestability FBlock 2V5

Change Ref.	Section	Changes
2V5-001	General	Using new MOST_document_template for better FCat consistency.
2V5-002	General	Change of erroneous Section types.
2V5-003	General	Revised descriptions.
2V5-004		Added Introduction regarding ErrorCode and ErrorInfo.
2V5-005		Added parameters Hysteresis and Timeout to function CodingErrors (0x20F). Changed description.
2V5-006		Added function ActivateSlaveMode (0x215).
2V5-007		Added function Void (0x3C8).

Changes EnhancedTestability FBlock 2V3 to EnhancedTestability FBlock 2V4

Change Ref.	Section	Changes
2V4-001	0x200	Inverted parameter Enabled.
2V4-002	0x201	Added parameter Duration for Set.
2V4-003	0x201	Added parameter Duration for SetGet.
2V4-004	0x201	Added parameter Duration for Status.
2V4-005	0x209	Changed description for parameter MessageLengthRx.
2V4-006	0x209	Changed description for parameter MessageLengthTx.
2V4-007	0x20D	Changed unit for parameter Timeout to ms.
2V4-008	0x20F	Added function CodingErrors.
2V4-009	0x210	Added function VoltageLevels.
2V4-010	0x211	Added function Reset.
2V4-011	0x212	Added function CentralRegistrySize.
2V4-012	0x213	Added function NotificationMatrixSize.
2V4-013	0x214	Added function ManufacturerTimings.
2V4-014	0xF00	Added function Version.

1 Introduction

A MOST Function Catalog is a collection of MOST Function Blocks (FBlocks).

This document contains the specification of an FBlock. MOST FBlocks are standardized and maintained by MOST workgroup Device Architecture (WG_DA). In order to speed up the process of making new FBlocks available, every FBlock will be updated individually as required.

2 Function Catalog

2.1 EnhancedTestability (FBlockID=0x0F)

This FBlock is used to trigger sequences which have to be tested in the MOST Compliance Test but which are normally triggered by a project specific, sometimes complicated, mechanism. Due to the nature of this FBlock neither notification nor processing messages will be implemented.

The FBlock should be initialized every time the NetOn state is reached. The FBlock is only available during NetOn. All properties are reset to their default state when entering NetOn, if not mentioned otherwise.

The functions in this FBlock describe a general interface for starting functionality partly implemented in the application, partly in the Network Service.

If an application callback returns wrong or unexpected values the FBlock sends a "device malfunction" error message (code 0x0B).

FBlock EnhancedTestability philosophy: This FBlock generates or suppresses signals. It resides between application and the Netinterface. It should have no impact on the devices overall behavior, especially when the device is not under test condition. FBlock EnhancedTestability does not store any values when disconnected from power.

In addition to the functions contained in this document, the following functions are also part of the EnhancedTestability FBlock. They exist in the GeneralFBlock template and are included here by reference:

FktID	Function name
0x010	Version

Function Overview		
FktID	Name	Occurrence
0x201	AutoWakeup	Conditional
0x202	DiagTimeout	Conditional
0x203	DiagResult	Conditional
0x204	Shutdown	Conditional
0x205	ShutdownSuspendMode	Mandatory
0x207	SendMessage	Optional
0x208	EchoMessage	Mandatory
0x209	MessageBufSize	Mandatory
0x210	VoltageLevels	Conditional
0x211	Reset	Conditional
0x212	CentralRegistrySize	Conditional
0x213	NotificationMatrixSize	Optional
0x3C8	Void	Mandatory
0x3FD	DSIDSOCCount	Mandatory
0x3FE	DSO	Conditional
0x400	DSI	Conditional

2.1.1 AutoWakeup (0x201)

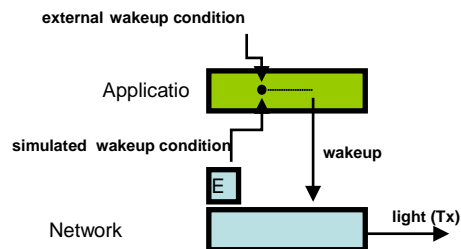
Occurrence: Conditional

Condition: AutoWakeup has to be implemented in every node except ePhy nodes.

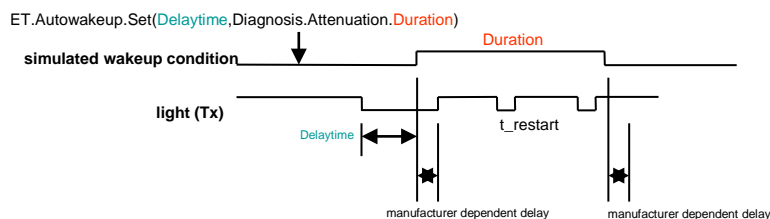
After the MOST network has been shutdown by the tester, the device will wakeup (optionally using ring break diagnosis) as if it was triggered by an external event. The result of a diagnosis will be stored in the property DiagResult until it is either overwritten by the next result or the device is disconnected from power. In normal wakeup scenario the property PermissionToWake of the NetBlock must be considered. If PermissionToWake is set to False, the device will not wakeup the network.

For further clarification, see following figures:

Wakeup condition triggered by FBlock ET



Timing example:



If the parameter Delaytime equals zero, the AutoWakeup is disabled.

The default state is DelayTime = 0, Diagnosis = False, Duration = 0.

When an AutoWakeup was performed the property returns to its default state.

When the sender sends Delaytime > 0 and Diagnosis = False and the NetBlock.PermissionToWake property is 0x00 (Off) or the device generally cannot wake up the network (CapabilityToWake), the device returns a "parameter not available" error message (code 0x07). The property shall be unchanged.

In case the NetBlock.PermissionToWake property is set to 0x00 after an AutoWakeup was scheduled and before the device shuts down it will not wakeup. In such a case no error message can be sent (not in NetOn state).

Diagnosis can be started even if PermissionToWake = False, Diagnosis = True. This implies that the result is not ErrorCode 0x07, but execution of diagnosis will be triggered.

If AutoWakeUp is started with parameter Diagnosis = True and RBD is not finished automatically by the Network Service, then the application has to stop RBD after a device dependent timeout. In that case the function DiagTimeout (0x202) has to return the appropriate value.

Note: Calling AutoWakeUp.Set or AutoWakeUp.SetGet configures the wake-up behavior.

*AutoWakeup gets valid with the most recent set of values on the next transition to NetInterface Off. It masks other wake-up signals of the application that might interfere.
This is valid until the next transition to NetInterface Normal Operation. Then the property is reset to its default state (and AutoWakeup is disabled.)*

Diagnosis = false: Until next NetOn, diagnosis is forbidden.

Diagnosis = true: Until next NetOn, diagnosis must be performed.

Default behavior: The application decides whether RBD is performed or not. The Default behavior is reached on every NetOn event.

This behavior is valid until EnhancedTestability AutoWakeUp is called.

2.1.1.1 Format of Function

Function classes: Unclassified Property

FBlock	Function	OPType	Parameter
EnhancedTestability (0x0F)	AutoWakeup (0x201)	Set	DelayTime , Diagnosis , Reserved , Duration
		Get	-
		SetGet	DelayTime , Diagnosis , Reserved , Duration
		Status	DelayTime , Diagnosis , Reserved , Duration
		Error	ErrorCode, ErrorInfo

2.1.1.2 Parameter

DelayTime

Time the device waits after shutdown before it will initiate a wakeup event (starts after NetInterfacePowerOff).

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Byte	0		1	s

Diagnosis

If the device should wake up using ring break diagnosis.

Basis data type	Bit #	Code	Description
Boolean	Bit 0	True	Wakeup after Delaytime using ring break diagnosis.
		False	Wakeup after Delaytime, if NetBlock.AbilityToWake allows it.

Reserved

Basis data type	Bit #	Code	Description
Boolean	Bit 0	True	-
		False	This parameter is always set to false.

Duration

This parameter describes how long the simulated wakeup event (= wakeup condition) should be active. The value of Duration = 0 is mapped to 255 s.

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Byte	0		1	s

2.1.2 DiagTimeout (0x202)

Occurrence: Conditional

Condition: DiagTimeout has to be implemented in nodes which handle RBD except ePhy nodes.

This is a read only property to retrieve the timeout value used by the device for ring break diagnosis.

Note: A master device will answer with *t_diag_master* while a slave device will answer with *t_diag_slave*.

2.1.2.1 Format of Function

Function classes: Number

FBlock	Function	OPType	Parameter
EnhancedTestability (0x0F)	DiagTimeout (0x202)	Get	-
		Status	Timeout
		Error	ErrorCode, ErrorInfo

2.1.2.2 Parameter

Timeout

Timeout set in Network Service.

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Word	0		1	ms

2.1.3 DiagResult (0x203)

Occurrence: Conditional

Condition: DiagResult has to be implemented in nodes which handle RBD except ePhy nodes.

The result from a preceding ring break diagnosis is stored in this property and can be accessed in a following network session.

The content of the property is stored over a NetOff phase as long as power is connected. The content changes with every new result of a running RBD. The content may get lost if the device is disconnected from power. Due to this special need the value of DiagResult cannot be initialized.

In other words: You may only trust this value, if you know there was a ring break diagnosis since the device was connected to power!

2.1.3.1 Format of Function

Function classes: Number

FBlock	Function	OPType	Parameter
EnhancedTestability (0x0F)	DiagResult (0x203)	Get	-
		Status	Result
		Error	ErrorCode, ErrorInfo

2.1.3.2 Parameter

Result

Result given by Network Service at the end of ring break diagnosis.

- A value from 0x00 to 0x3F indicates the relative position value in case of Ring-Break.
- A value of 0xFC indicates network activity but no lock.
- A value of 0xFD indicates no Ring-Break and no TimingMaster exists (AllSlaveNetwork).
- A value of 0xFE indicates no Ring-Break and there is more than one TimingMaster in the network.
- A value of 0xFF indicates a fully operational network.

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Byte	0		1	none

2.1.4 Shutdown (0x204)

Occurrence: Conditional

Condition: Shutdown has to be implemented in the PM node and nodes that implement temperature management.

Type = 0x00 only has to be supported by nodes containing the PowerMaster (PM).
Type = 0x01,0x02 only have to be supported by nodes which handle the temperature management.

This method is used to trigger different shutdown scenarios:

- * Normal shutdown (PowerMaster only)
- * Simulation of Shutdown
- * Simulation of Dead

In the case that no PM is implemented and no temperature management supported, a "function not available" error message (error code 0x03) shall be returned.

If a "Normal shutdown" is sent to a device, which is not PowerMaster, a "parameter not available" error message (code 0x07) shall be returned.

Pending or new wake-up conditions have to be ignored to allow Compliance tests, if the method is called with parameter Type = 0.

All signals from the application within the DUT which prevent PM to shutdown are ignored.

The MOST message NetBlock.Shutdown.Result(Suspend) has to be respected.

2.1.4.1 Format of Function

Function classes: Unclassified Method

FBlock	Function	OPType	Parameter
EnhancedTestability (0x0F)	Shutdown (0x204)	Start	Type
		Error	ErrorCode, ErrorInfo

2.1.4.2 Parameter

Type

If Type is 0x00 and the device is PowerMaster it will start the Shutdown sequence. Codes 0x01 and 0x02 refer to the over-temperature management as specified in MOST Specification 2.5, section 3.2.5.6.

Basis data type	Range of values	Code	Description
Enum	0x00...0x02	0x00	Start shutdown sequence if PowerMaster
		0x01	Simulate Shutdown
		0x02	Simulate Dead

2.1.5 ShutdownSuspendMode (0x205)

Occurrence: Mandatory

This property can be set to On or Off. If set to "On" the device will respond with a report NetBlock.Shutdown.Result(Suspend) to each NetBlock.Shutdown.Start(Query) it receives. If set to "Off" no report NetBlock.Shutdown.Result(Suspend) will be sent. In "Default" mode (which is the default for this function), the application decides whether the sending of Suspend messages is required.

2.1.5.1 Format of Function

Function classes: Enumeration

FBlock	Function	OPType	Parameter
EnhancedTestability (0x0F)	ShutdownSuspendMode (0x205)	Set	Suspend
		Get	-
		SetGet	Suspend
		Status	Suspend
		Error	ErrorCode, ErrorInfo

2.1.5.2 Parameter

Suspend

Basis data type	Range of values	Code	Description
Enum	0x00...0x02	0x00	Off / Do not send Suspend
		0x01	On / Always send Suspend
		0x02	Default behavior (i.e., FBlock EnhancedTestability does not change the behavior of the application)

2.1.6 SendMessage (0x207)

Occurrence: Optional

The device will answer to this function call by sending an application message via Control Channel. The maximum length the device can use for sending should determine the length of the complete message. This should be indicated by the parameter MessageLengthTx of the MessageBufSize property.

In the case of a dynamic buffer (i.e., MessageLengthTx = 0), the message must not exceed 4 segments. The minimum length is LAMSmax + 1.

2.1.6.1 Format of Function

Function classes: Unclassified Method

FBlock	Function	OPType	Parameter
EnhancedTestability (0x0F)	SendMessage (0x207)	StartResult	-
		Result	Data
		Error	ErrorCode, ErrorInfo

2.1.6.2 Parameter

Data

The payload of SendMessage.Result is a well-known pattern. The first data byte shall be 0x00; the second shall be 0x01 etc. The value is increased with every data byte. If 0xFF is reached the next data byte starts with 0x00 again ...

Basis data type	Length	Condition	Description
Stream		-	

2.1.7 EchoMessage (0x208)

Occurrence: Mandatory

The device will answer to this request by sending back an application message via Control Channel that contains the same data as the request.

2.1.7.1 Format of Function

Function classes: Unclassified Method

FBlock	Function	OPType	Parameter
EnhancedTestability (0x0F)	EchoMessage (0x208)	StartResult	Data
		Result	Data
		Error	ErrorCode, ErrorInfo

2.1.7.2 Parameter

Data

Arbitrary data that shall be echoed by the device under test. If the device can receive messages that are longer than the maximum length that can be transmitted, the echoed data will be truncated in such way that the first n bytes of the data are discarded. Discarding first n bytes is used for a test scenario where TxBuf < RxBuf.

Basis data type	Length	Condition	Description
Stream		-	

2.1.8 MessageBufSize (0x209)

Occurrence: Mandatory

Read only function to retrieve the number of message buffers available in parallel for message reception and their size in bytes from a device.

2.1.8.1 Format of Function

Function classes: Unclassified Property

FBlock	Function	OPType	Parameter
EnhancedTestability (0x0F)	MessageBufSize (0x209)	Get	-
		Status	BufferCountRx , MessageLengthRx , BufferCountTx , MessageLengthTx , Shared
		Error	ErrorCode, ErrorInfo

2.1.8.2 Parameter

BufferCountRx

Maximum number of message buffers available in parallel for message reception. 0x0000 may be used to indicate that the number is not fixed (e.g., dynamic memory allocation).

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Word	0		1	none

MessageLengthRx

Maximum size of receivable application messages in Byte. This value counts only the payload bytes. Header information like FBlockID InstID, Function, OpType, or additional information like MessageHandle, Status, Priority, Target address are not included. 0x0000 may be used to indicate that the length is not fixed (e.g., dynamic memory allocation).

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Word	0		1	Byte

BufferCountTx

Maximum number of message buffers available for sending. 0x0000 may be used to indicate that the number is not fixed (e.g., dynamic memory allocation).

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Word	0		1	none

MessageLengthTx

Maximum size of transmittable application messages in Byte. This value counts only the payload bytes. Header information like FBlockID InstID, Function, OpType, Length or additional information like MessageHandle, Status, Priority, Target address are not included. 0x0000 may be used to indicate that the length is not fixed (e.g., dynamic memory allocation).

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Word	0		1	Byte

Shared

Indicates that RX and TX buffers share the same memory pool.

Basis data type	Bit #	Code	Description
Boolean	Bit 0	True	RX and TX buffers share the same buffer pool.
		False	RX and TX own separate buffer pools.

2.1.9 VoltageLevels (0x210)

Occurrence: Conditional

Condition: VoltageLevels has to be implemented in nodes which handle the device's power management.

This read only property is used to specify the voltage level values of the device.

2.1.9.1 Format of Function

Function classes: Unclassified Property

FBlock	Function	OPType	Parameter
EnhancedTestability (0x0F)	VoltageLevels (0x210)	Get	-
		Status	USuper , UNormal , UCritical , ULow
		Error	ErrorCode, ErrorInfo

2.1.9.2 Parameter

USuper

Voltage Level USuper as reported from DUT. The device is in a safe operation state, which must be defined for each device individually. A typical value for USuper is 16V.

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Byte	-1		1	V

UNormal

Voltage Level UNormal as reported from DUT. Device works normally, all functions are within the specified tolerances.

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Byte	-1		1	V

UCritical

Voltage Level UCritical as reported from DUT

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Byte	-1		1	V

ULow

Voltage Level ULow as reported from DUT

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Byte	-1		1	V

2.1.10 Reset (0x211)

Occurrence: Conditional

Condition: Reset has to be implemented in every node except ePhy nodes.

The Reset function performs a reset of the Network Interface Controller.

2.1.10.1 Format of Function

Function classes: Trigger

FBlock	Function	OPType	Parameter
EnhancedTestability (0x0F)	Reset (0x211)	Start	-
		Error	ErrorCode, ErrorInfo

2.1.11 CentralRegistrySize (0x212)

Occurrence: Conditional

Condition: CentralRegistrySize has to be implemented in the node containing the NetworkMaster (NWM).

This Property indicates the size of the Central Registry. This Property is only used for devices with NetworkMaster functionality

2.1.11.1 Format of Function

Function classes: Number

FBlock	Function	OPType	Parameter
EnhancedTestability (0x0F)	CentralRegistrySize (0x212)	Get	-
		Status	Size
		Error	ErrorCode, ErrorInfo

2.1.11.2 Parameter

Size

Parameter Size describes the maximum number of FBlocks the NWM can store in his registry. The value 0 describes a dynamic size.

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Word	0		1	none

2.1.12 NotificationMatrixSize (0x213)

Occurrence: Optional

The NotificationMatrixSize property contains the minimum and maximum values of the size of the Notification Matrix across all FBlocks.

2.1.12.1 Format of Function

Function classes: Unclassified Property

FBlock	Function	OPType	Parameter
EnhancedTestability (0x0F)	NotificationMatrixSize (0x213)	Get	-
		Status	MinSize , MaxSize
		Error	ErrorCode, ErrorInfo

2.1.12.2 Parameter

MinSize

Describes the minimum size of all Notification Matrices. If at minimum one FBlock supports notification then MinSize is greater than 0.

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Byte	0		1	none

MaxSize

Describes the maximum size of all Notification Matrices. The Value 0xFF indicates that the device uses dynamic Notification Matrices

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Byte	0		1	none

2.1.13 Void (0x3C8)

Occurrence: Mandatory

Function 0x3C8 shall be kept empty without implementation as a place holder for test purposes, so that, e.g., a Broadcast Error Test with a message like "EnhancedTestability.InstlD.0x3C8.SetGet" might be established.

2.1.13.1 Format of Function

Function classes: Unclassified Method

FBlock	Function	OPType	Parameter
EnhancedTestability (0x0F)	Void (0x3C8)	Error	ErrorCode, ErrorInfo

2.1.14 DSIDSOCount (0x3FD)

Occurrence: Mandatory

DSIDSOCount has to be implemented in every node to indicate the maximum number of simultaneous MOST High Protocol connections (DSI / DSO).

In the case that no DSI is implemented, the parameter DSICount has to return "0x00". In the case that no DSO is implemented, the parameter DSOCount has to return "0x00".

2.1.14.1 Format of Function

Function classes: Sequence Property

FBlock	Function	OPType	Parameter
EnhancedTestability (0x0F)	DSIDSOCount (0x3FD)	Get	-
		Status	DSICount , DSOCount
		Error	ErrorCode, ErrorInfo

2.1.14.2 Parameter

DSICount

Maximum number of simultaneous (external) receiving MOST High Protocol connections (DSI).

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Byte	0		1	none

DSOCount

Maximum number of simultaneous (external) sending MOST High Protocol connections (DSO).

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Byte	0		1	none

2.1.15 DSO (0x3FE)

Occurrence: Conditional

Condition: DSO has to be implemented in every node with Data source (DSO) functionality (conditional for MOST High source).

The device will answer to this function call by opening a connection with MHP via the Packet Data Channel (target: TargetFBlockID, TargetInstID, TargetFktID and TargetOPType). The device has to send dummy data via MOSTHigh using suitable PacketSize and a well-known pattern. The first data byte shall be 0x00, the seconds shall be 0x01, etc. The value is increased with every data byte. If 0xFF is reached the next data byte starts with 0x00 again.

If the maximum number of connections is reached or there is already a connection, the method may return a 'function busy' (error code 0x40) error message. If a 'device malfunction' (error code 0x0B) error message is sent, there was not enough memory available to allocate the buffers (the application callback returned no memory). The operations StartAck, and ErrorAck of this method are transmitted via the Control Channel. "Prio" and "RevID" have to be chosen by DUT. The tester cannot give a priority to DUT.

2.1.15.1 Format of Function

Function classes: Unclassified Method

FBlock	Function	OPType	Parameter
EnhancedTestability (0x0F)	DSO (0x3FE)	StartAck	SenderHandle , NumPackets , NextPacketMethod , AckMode , MHP_ConID
		ErrorAck	SenderHandle , ErrorCode, ErrorInfo

2.1.15.2 Parameter

SenderHandle

Unique identifier of the 'send'-task within the device.

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Word	0		1	none

NumPackets

Number of MOSTHigh packets that shall be sent. This is used for long-term and performance tests, as well as for testing the protocol handshaking, like the blocks hand-over and MOSTHigh connection establishing procedure.

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Word	0		1	none

NextPacketMethod

Determine what to do after a TX_SUCCESS event.
In NextPacketMethod "Hold" and "SendNext", every packet is sent in the same connection. In

NextPacketMethod "Terminate", every packet is sent in a separate connection.

If NextPacketMethod=0x02 is not supported, ErrorAck is sent, using ErrorCode 0x42.

Basis data type	Range of values	Code	Symbolic Name	Description
Enum	0x00...0x02	0x00	Hold	Normal HOLD phase (will close after timeout).
		0x01	Terminate	Terminate the connection and open a new one if necessary.
		0x02	SendNext	Try to send next packet without a hold (optional).

AckMode

Determine acknowledge method

Basis data type	Range of values	Code	Symbolic Name	Description
Enum	0x00...0x01	0x00	SingleFrameAcknowledge	use single frame acknowledge (deprecated)
		0x01	BlockAcknowledge	use block acknowledge

MHP_ConID

Determine target FBlockID, InstID, FktID and CmdOPType for MHP connection. The source address of the request is used as target address.

Basis data type	Length	Condition	Description
Stream		-	Content: TargetFBlockID , TargetInstID , TargetFktID , TargetOPType

TargetFBlockID

Target FBlockID for MHP connection

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Byte	0	0xF...0xF	1	none

TargetInstID

Target InstID for MHP connection

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Byte	0		1	none

TargetFktID

Target FktID for MHP connection

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Word	0	0x400...0x4FF	1	none

TargetOPType

Target OPType (only commands allowed) for MHP connection.

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Byte	0	0x0...0x8	1	none

2.1.16 DSI (0x400)

Occurrence: Conditional

Condition: DSI has to be implemented in every node with DSI functionality (conditional for MOSTHigh sinks).

This function has to be called with MHP via Packet Data Channel. The device will answer to this function call with result, transmitted via Control Channel (no MHP used). With the result, the device has to return the checksum of the data, received during the function call via MHP).

Note: For checksum calculation, use CRC32 algorithm (according to IEEE 802.3). This is a standard cyclic redundancy check classified by the following properties:

- CRC polynomial is 0x04C11DB7 (bit sequence of coefficients)
- CRC is 32bit wide
- Initial value is 0xFFFFFFFF
- Result must be XOR-ed to 0xFFFFFFFF
- Reversing bit order on incoming values
- Reversing bit order on resulting data

The checksum must be calculated highest byte of Data first.

The following test vectors can be used:

No.	Data	DataLength	crc32
a	{0x31, 0x32, 0x33, 0x34, 0x35, 0x36, 0x37, 0x38, 0x39}	9	0xCBF43926
b	{0xEF, 0x29, 0x1B, 0x81, 0x56, 0x38, 0xC7, 0xD8}	8	0x48CD00A8
c	{0x00, 0x00, 0x00}	3	0xFF41D912
d	{}	0	0

The FBlock EnhancedTestability has to provide as many 'copies' of function 'DSI' as the DUT supports simultaneous MOST High connections (as stated in the DUT Manufacturer Information List). This is necessary to check whether the DUT is able to handle the maximum amount of connections. For every connection, one FktID is used. The function DSI and its copies have to be implemented in contiguous FktID range starting from 0x400 to (at max.) 0x4FF.

2.1.16.1 Format of Function

Function classes: Unclassified Method

FBlock	Function	OPType	Parameter
EnhancedTestability (0x0F)	DSI (0x400)	StartResultAck	SenderHandle , Data
		ErrorAck	SenderHandle , ErrorCode , ErrorInfo
		ResultAck	SenderHandle , crc32 , DataLength

2.1.16.2 Parameter

SenderHandle

Unique identifier of the 'send'-task within the device.

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Word	0		1	none

Data

Arbitrary data that shall be used by the device to calculate the checksum.

Basis data type	Length	Description
Stream		

crc32

Checksum of received data

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Long	0		1	none

DataLength

Length (in byte) of received data

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Long	0		1	Byte

Notes: