



**MEF Standard  
MEF 91**

**Carrier Ethernet Test Requirements**

**March 2021**

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## Table of Contents

<b>1</b>	<b>Abstract.....</b>	<b>1</b>
<b>2</b>	<b>Compliance Levels .....</b>	<b>1</b>
<b>3</b>	<b>Numerical Prefix Conventions.....</b>	<b>1</b>
<b>4</b>	<b>Introduction.....</b>	<b>2</b>
4.1	Scope .....	2
4.2	Out of Scope .....	2
<b>5</b>	<b>Test Topology .....</b>	<b>3</b>
5.1	Subscriber Ethernet Services Test Topologies .....	3
5.2	Operator Ethernet Services Test Topologies .....	3
<b>6</b>	<b>Test Requirements for Subscriber Ethernet Services .....</b>	<b>4</b>
6.1	E-Line Services.....	4
6.1.1	E-Line - UNI Service Attributes and Test Requirements .....	4
6.1.2	E-Line - EVC per UNI Service Attributes and Test Requirements .....	5
6.1.3	E-Line - EVC Service Attributes and Test Requirements .....	6
6.2	E-LAN Services.....	7
6.2.1	E-LAN - UNI Service Attributes and Test Requirements .....	7
6.2.2	E-LAN - EVC per UNI Service Attributes and Test Requirements .....	8
6.2.3	E-LAN - EVC Service Attributes and Test Requirements .....	9
6.3	E-Tree Services.....	10
6.3.1	E-Tree - UNI Service Attributes and Test Requirements .....	10
6.3.2	E-Tree - EVC per UNI Service Attributes and Test Requirements .....	11
6.3.3	E-Tree - EVC Service Attributes and Test Requirements .....	12
<b>7</b>	<b>Test Requirements for Operator Ethernet Services .....</b>	<b>13</b>
7.1	Access E-Line Services .....	13
7.1.1	Access E-Line - Operator UNI Service Attributes and Test Requirements.....	13
7.1.2	Access E-Line - ENNI Service Attributes and Test Requirements .....	14
7.1.3	Access E-Line - OVC Service Attributes and Test Requirements .....	15
7.1.4	Access E-Line - OVC End Point Service Attributes and Test Requirements.....	16
7.2	Transit E-Line Services .....	17
7.2.1	Transit E-Line - ENNI Service Attributes and Test Requirements .....	17
7.2.2	Transit E-Line - OVC Service Attributes and Test Requirements .....	18
7.2.3	Transit E-Line - OVC End Point Service Attributes and Test Requirements.....	19
<b>8</b>	<b>References.....</b>	<b>20</b>

## List of Figures

Figure 1: Example of E-Line Service test topology.....	3
Figure 2: Example of E-LAN Service test topology.....	3
Figure 3: Example of E-Tree Service test topology.....	3
Figure 4: Example of Access E-Line Service test topology .....	3
Figure 5: Example of Transit E-Line Service test topology .....	3

## List of Tables

Table 1: Numerical Prefix Conventions .....	1
Table 2: E-Line - UNI Service Attributes and Test Requirements .....	4
Table 3: E-Line - EVC per UNI Service Attributes and Test Requirements .....	5
Table 4: E-Line - EVC Service Attributes and Test Requirements .....	6
Table 5: E-LAN - UNI Service Attributes and Test Requirements .....	7
Table 6: E-LAN - EVC per UNI Service Attributes and Test Requirements .....	8
Table 7: E-LAN - EVC Service Attributes and Test Requirements .....	9
Table 8: E-Tree - UNI Service Attributes and Test Requirements .....	10
Table 9: E-Tree - EVC per UNI Service Attributes and Test Requirements .....	11
Table 10: E-Tree - EVC Service Attributes and Test Requirements .....	12
Table 11: Access E-Line - Operator UNI Service Attributes and Test Requirements .....	13
Table 12: Access E-Line - ENNI Service Attributes and Test Requirements .....	14
Table 13: Access E-Line - OVC Service Attributes and Test Requirements .....	15
Table 14: Access E-Line - OVC End Point Service Attributes and Test Requirements .....	16
Table 15: Transit E-Line - ENNI Service Attributes and Test Requirements .....	17
Table 16: Transit E-Line - OVC Service Attributes and Test Requirements .....	18
Table 17: Transit E-Line - OVC End Point Service Attributes and Test Requirements .....	19

## 1 Abstract

This document sets out test requirements for Subscriber and Operator Ethernet Services. The test requirements are based on the requirements laid out in MEF 6.2, MEF 10.3, MEF 45 and MEF 51. The document is designed to be used by service providers and technology vendors for the purposes of designing test environments and/or preparing for certification of their ability to deliver MEF 3.0-conformant Carrier Ethernet services.

## 2 Compliance Levels

The key words "**MUST**", "**MUST NOT**", "**REQUIRED**", "**SHALL**", "**SHALL NOT**", "**SHOULD**", "**SHOULD NOT**", "**RECOMMENDED**", "**NOT RECOMMENDED**", "**MAY**", and "**OPTIONAL**" in this document are to be interpreted as described in BCP 14 (RFC 2119 [1], RFC 8174 [2]) when, and only when, they appear in all capitals, as shown here. All key words must be in bold text.

Items that are **REQUIRED** (contain the words **MUST** or **MUST NOT**) are labeled as **[Rx]** for required. Items that are **RECOMMENDED** (contain the words **SHOULD** or **SHOULD NOT**) are labeled as **[Dx]** for desirable. Items that are **OPTIONAL** (contain the words **MAY** or **OPTIONAL**) are labeled as **[Ox]** for optional.

## 3 Numerical Prefix Conventions

This document uses the prefix notation to indicate multiplier values as shown in Table 1.

Decimal		Binary	
Symbol	Value	Symbol	Value
k	$10^3$	Ki	$2^{10}$
M	$10^6$	Mi	$2^{20}$
G	$10^9$	Gi	$2^{30}$
T	$10^{12}$	Ti	$2^{40}$
P	$10^{15}$	Pi	$2^{50}$
E	$10^{18}$	Ei	$2^{60}$
Z	$10^{21}$	Zi	$2^{70}$
Y	$10^{24}$	Yi	$2^{80}$

**Table 1: Numerical Prefix Conventions**

## 4 Introduction

The MEF 3.0 CE certification for Carrier Ethernet Services extends CE 2.0 certification by adding two new connectivity services to the certification program; Access E-Line and Transit E-Line, based on MEF 51 [11] ‘OVC Services Definitions’ and MEF 26.2 [8] ‘External Network-Network Interfaces and Operator Service Attributes’. It also enhances the existing E-Line, E-LAN and E-Tree connectivity services with new and re-defined service attributes, specified in MEF 6.2 [3] ‘Ethernet Services Definitions Phase 3’, MEF 10.3 [4] ‘Ethernet Services Attributes Phase 3’, MEF 23.2 [5] ‘CoS IA Phase 3’, MEF 23.2.1 [6] ‘Models for bandwidth profile with token sharing’, MEF 45 [9] ‘Multi-CEN L2CP’ and MEF 45.0.1 [10] ‘OVC Services Requirements for L2CP’.

### 4.1 Scope

The Subscriber Ethernet Services that are in scope are E-Line (EPL and EVPL), E-LAN (EP-LAN and EVP-LAN), E-Tree (EP-Tree and EVP-Tree) as defined in MEF 6.2 [3] and the Operator Ethernet Services that are in scope are Access E-Line and Transit E-Line as defined in MEF 51 [11].

The Subscriber and Operator Services and associated test requirements are specified in sections 5 and 6 respectively.

For E-Line, E-LAN and E-Tree Services, the following tables of attributes and test requirements are specified:

- UNI Service Attributes
- EVC per UNI Service Attributes
- EVC Service Attributes

For Access E-Line, the following tables of attributes and test requirements are specified:

- Operator UNI Service Attributes
- ENNI (including ENNI, ENNI Common and Operator Multilateral) Service Attributes
- OVC Service Attributes
- OVC End Point Service Attributes

For Transit E-Line, the following tables of attributes and test requirements are specified:

- ENNI (including ENNI, ENNI Common and Operator Multilateral) Service Attributes
- OVC Service Attributes
- OVC End Point Service Attributes

### 4.2 Out of Scope

Control and management protocols such as E-LMI, Link OAM, Service OAM UNI-MEG, Service OAM ENNI-MEG, Test MEG or protection mechanisms that may be operating at the external interfaces are outside the scope of the MEF 3.0 certification program. The deployment and verification of these protocols are to be handled between subscriber/service provider/operator.

The scope of this document may be extended in the future to include other Subscriber and Operator Ethernet Services, as and when they are defined by MEF.

## 5 Test Topology

This section provides high level examples of test topologies for the Subscriber and Operator Ethernet Services covered in this document.

### 5.1 Subscriber Ethernet Services Test Topologies

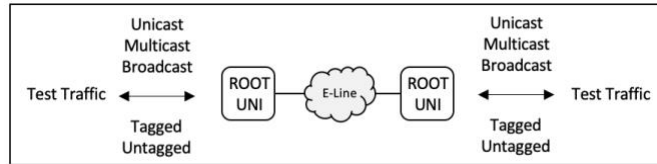


Figure 1: Example of E-Line Service test topology

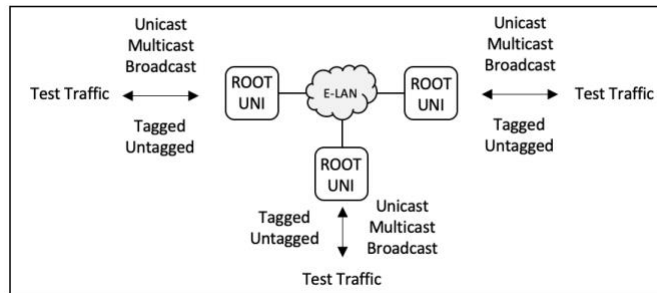


Figure 2: Example of E-LAN Service test topology

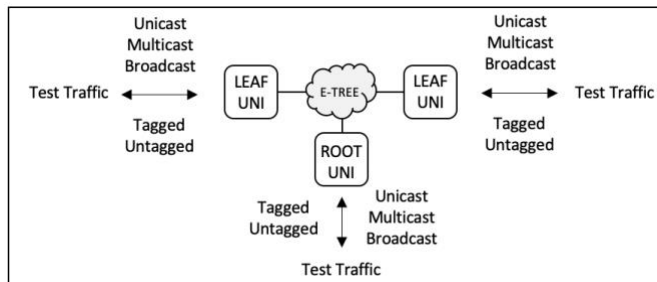


Figure 3: Example of E-Tree Service test topology

### 5.2 Operator Ethernet Services Test Topologies

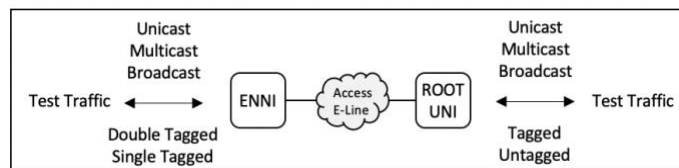


Figure 4: Example of Access E-Line Service test topology

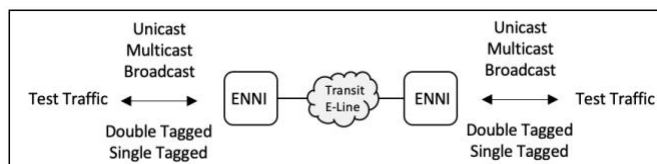


Figure 5: Example of Transit E-Line Service test topology



## 6 Test Requirements for Subscriber Ethernet Services

### 6.1 E-Line Services

#### 6.1.1 E-Line - UNI Service Attributes and Test Requirements

Index	Service Attributes	Service Reference	Test Requirements	Certification Applicability		Summary Description
				● = Tested	○ = Not Tested	
1	UNI ID	MEF 6.2 Tables 4, 7 and 10	-	EPL ○	EVPL ○	String as specified in Section 9.1 of MEF 10.3
2	Physical Layer	MEF 6.2 Tables 4, 7 and 10	MEF 10.3 R60, R61	EPL ●	EVPL ●	List of Physical Layers as specified in Section 9.2 of MEF 10.3
3	Synchronous Mode <sup>1</sup>	MEF 6.2 Tables 4, 7 and 10	-	EPL ○	EVPL ○	List of Disabled or Enabled for each link in the UNI as specified in Section 9.3 of MEF 10.3
4	Number of Links <sup>1</sup>	MEF 6.2 Tables 4, 7 and 10	-	EPL ○	EVPL ○	At least 1 as specified in Section 9.4 of MEF 10.3
5	UNI Resiliency <sup>1</sup>	MEF 6.2 Tables 4, 7 and 10	-	EPL ○	EVPL ○	None or 2-link Aggregation or Other as specified in Section 9.5 of MEF 10.3
6	Service Frame Format	MEF 6.2 Tables 4, 7 and 10	MEF 10.3 R68, R69, R70	EPL ●	EVPL ●	IEEE 802.3 – 2012 as specified in Section 9.6 of MEF 10.3
7	UNI Maximum Service Frame Size	MEF 6.2 Tables 4, 7 and 10	MEF 10.3 R71	EPL ●	EVPL ●	At least 1522 Bytes as specified in Section 9.7 of MEF 10.3. SHOULD be ≥ 1600 Bytes
8	Service Multiplexing <sup>3</sup>	MEF 6.2 Tables 4, 7 and 10	-	EPL ○	EVPL ○	Enabled or Disabled as specified in Section 9.8 of MEF 10.3
9	CE-VLAN ID for Untagged and Priority Tagged Service Frames	MEF 6.2 Tables 4, 7 and 10	MEF 10.3 R73, R74, R75	EPL ○	EVPL ●	A value in the range 1 to 4094 as specified in Section 9.9 of MEF 10.3
10	CE-VLAN ID/EVC Map	MEF 6.2 Tables 4, 7 and 10	MEF 10.3 R76, R77, R78	EPL ●	EVPL ●	A map as specified in Section 9.10 of MEF 10.3
11	Maximum number of EVCs	MEF 6.2 Tables 4, 7 and 10	MEF 10.3 R79	EPL ●	EVPL ●	At least 1 as specified in Section 9.11 of MEF 10.3
12	Bundling	MEF 6.2 Tables 4, 7 and 10	MEF 10.3 R80, R81	EPL ○	EVPL ●	Enabled or Disabled as specified in Section 9.12 of MEF 10.3
13	All to One Bundling	MEF 6.2 Tables 4, 7 and 10	MEF 6.2 R21 and MEF 10.3 R82, R83	EPL ●	EVPL ○	Enabled or Disabled as specified in Section 9.13 of MEF 10.3
14	Token Share	MEF 6.2 Tables 4, 7 and 10	MEF 6.2 R3	EPL ●	EVPL ●	Enabled or Disabled as specified in Section 8.2.1 of this MEF 6.2
15	Envelopes	MEF 6.2 Tables 4, 7 and 10	MEF 10.3 R141, R142	EPL ●	EVPL ●	list of <Envelope ID, CF <sup>n</sup> , n >, where <Envelope ID, CF <sup>n</sup> > is as specified in Section 12.1 of MEF 10.3 and n is the number of Bandwidth Profile Flows in the Envelope
16	Ingress BWP per UNI	MEF 6.2 Tables 4, 7 and 10	-	EPL ○	EVPL ○	Ingress BWP per UNI as specified in Section 9.14 of MEF 10.3 MUST be No
17	Egress BWP per UNI	MEF 6.2 Tables 4, 7 and 10	-	EPL ○	EVPL ○	Egress BWP per UNI as specified in Section 9.14 of MEF 10.3 MUST be No
18	Link OAM <sup>1</sup>	MEF 6.2 Tables 4, 7 and 10	-	EPL ○	EVPL ○	Enabled or Disabled as specified in Section 9.16 of MEF 10.3
19	UNI MEG <sup>1</sup>	MEF 6.2 Tables 4, 7 and 10	-	EPL ○	EVPL ○	Enabled or Disabled as specified in Section 9.17 of MEF 10.3
20	E-LMI <sup>1</sup>	MEF 6.2 Tables 4, 7 and 10	-	EPL ○	EVPL ○	Enabled or Disabled as specified in Section 9.18 of MEF 10.3
21	UNI L2CP Address Set	MEF 6.2 Tables 4, 7 and 10	MEF 45 R23, R24, R25	EPL ●	EVPL ●	CTB or CTB-2 or CTA as specified in MEF 45 table 11 for EVPL and Table 12 for EPL
22	UNI L2CP peering <sup>2</sup>	MEF 6.2 Tables 4, 7 and 10	MEF 45 R10	EPL ●	EVPL ●	None or list of {Destination Address, Protocol Identifier} or list of {Destination Address, Protocol Identifier, Link Identifier} to be Peered as specified in MEF 45

Table 2: E-Line - UNI Service Attributes and Test Requirements

<sup>1</sup>: Control and management protocols such as E-LMI, Link OAM, Service OAM UNI-MEG, Service OAM ENNI-MEG, Test MEG or protection mechanisms that may be operating at the external interfaces are outside the scope of the MEF 3.0 CE certification program. The deployment and verification of these protocols are to be handled between subscriber/service provider/operator.

<sup>2</sup>: Protocols not in list are either Passed to EVC or Discarded based on the Destination Address.

<sup>3</sup>: Service Multiplexing requires the instantiation of at least two services at the UNI which is outside the scope of the MEF 3.0 CE certification program.

### 6.1.2 E-Line - EVC per UNI Service Attributes and Test Requirements

Index	Service Attributes	Service Reference	Test Requirements	Certification Applicability		Summary Description
				● = Tested	○ = Not Tested	
23	UNI EVC ID	MEF 6.2 Tables 5, 8 and 11	-	EPL ○	EVPL ○	String as specified in Section 10.1 of MEF 10.3
24	Class of Service Identifier for Data Service Frame	MEF 6.2 Tables 5, 8 and 11	MEF 10.3 R91, R92, R93, R94, R95, R96, R97	EPL ●	EVPL ●	EVC or CE-VLAN CoS or IP value(s) and corresponding CoS Name as specified in Section 10.2.1 of MEF 10.3
25	Class of Service Identifier for L2CP Service Frame	MEF 6.2 Tables 5, 8 and 11	MEF 10.3 R98, R99	EPL ●	EVPL ●	"All" or list of each L2CP in the EVC and corresponding CoS Name as specified in Section 10.2.2 of MEF 10.3
26	Class of Service Identifier for SOAM Service Frame	MEF 6.2 Tables 5, 8 and 11	MEF 10.3 R100, R101	EPL ●	EVPL ●	Basis same as for Data Service Frames as specified in Section 10.2.3 of MEF10.3
27	Color Identifier for Service Frame	MEF 6.2 Tables 5, 8 and 11	MEF 10.3 R102, R103, R104, R105, R106, R107, R108, R109, R110, R111, R112	EPL ●	EVPL ●	None or EVC or CE-VLAN CoS or CE-VLAN Tag DEI or IP as specified in Section 10.3 of MEF 10.3
28	Egress Equivalence Class Identifier for Data Service Frames <sup>4</sup>	MEF 6.2 Tables 5, 8 and 11	See note <sup>4</sup>	EPL ○	EVPL ●	CE-VLAN CoS or IP value(s) and corresponding CoS Name(s) as specified in Section 10.4.1 of MEF 10.3
29	Egress Equivalence Class Identifier for L2CP Service Frames <sup>4</sup>	MEF 6.2 Tables 5, 8 and 11	See note <sup>4</sup>	EPL ○	EVPL ●	"All" or list of each L2CP in the EVC and corresponding Egress Equivalence Class as specified in Section 10.4.2 of MEF 10.3
30	Egress Equivalence Class Identifier for SOAM Service Frames <sup>4</sup>	MEF 6.2 Tables 5, 8 and 11	See note <sup>4</sup>	EPL ○	EVPL ●	Basis same as for Data Service Frames as specified in Section 10.4.3 of MEF 10.3
31	Ingress Bandwidth Profile per EVC	MEF 6.2 Tables 5, 8 and 11	-	EPL ○	EVPL ○	Ingress Bandwidth Profile per EVC as specified in Section 10.5 of MEF 10.3 MUST be No
32	Egress Bandwidth Profile per EVC	MEF 6.2 Tables 5, 8 and 11	-	EPL ○	EVPL ○	Egress Bandwidth Profile per EVC as specified in Section 10.7 of MEF 10.3 MUST be No
33	Ingress Bandwidth Profile per Class of Service Identifier	MEF 6.2 Tables 5, 8 and 11	MEF 10.3 R125	EPL ●	EVPL ●	No or Parameters with Bandwidth Profile as defined in Section 10.6 of MEF 10.3
34	Egress Bandwidth Profile per Egress Equivalence Class	MEF 6.2 Tables 5, 8 and 11	MEF 10.3 R127	EPL ○	EVPL ●	No or Parameters with Bandwidth Profile as defined in Section 10.8 of MEF 10.3
35	Source MAC Address Limit	MEF 6.2 Tables 5, 8 and 11	MEF 6.2 R32 and MEF 10.3 R128	EPL ○	EVPL ●	Enabled or Disabled as specified in Section 10.9 of MEF 10.3
36	Test MEG <sup>1</sup>	MEF 6.2 Tables 5, 8 and 11	-	EPL ○	EVPL ○	Enabled or Disabled as specified in Section 10.10 of MEF 10.3
37	Subscriber MEG MIP	MEF 6.2 Tables 5, 8 and 11	MEF 10.3 R130	EPL ●	EVPL ●	Enabled or Disabled as specified in Section 10.11 of MEF 10.3

Table 3: E-Line - EVC per UNI Service Attributes and Test Requirements

<sup>1</sup>: Control and management protocols such as E-LMI, Link OAM, Service OAM UNI-MEG, Service OAM ENNI-MEG, Test MEG or protection mechanisms that may be operating at the external interfaces are outside the scope of the MEF 3.0 CE certification program. The deployment and verification of these protocols are to be handled between subscriber/service provider/operator.

<sup>4</sup>: Refer to Egress Bandwidth Profile per Egress Equivalence Class.

### 6.1.3 E-Line - EVC Service Attributes and Test Requirements

Index	Service Attributes	Service Reference	Test Requirements	Certification Applicability		Summary Description
				● = Tested	○ = Not Tested	
38	EVC Type	MEF 6.2 Tables 6, 9 and 12	MEF 6.2 R25	EPL ●	EVPL ●	MUST be Point-to-Point as specified in Section 8.1 of MEF 10.3
39	EVC ID	MEF 6.2 Tables 6, 9 and 12	-	EPL ○	EVPL ○	String as specified in Section 8.2 of MEF 10.3
40	UNI List	MEF 6.2 Tables 6, 9 and 12	MEF 10.3 R12	EPL ●	EVPL ●	List of <UNI ID, UNI Role> pairs as specified in Section 8.3 of MEF 10.3 for UNIs associated by the EVC
41	Maximum Number of UNIs	MEF 6.2 Tables 6, 9 and 12	MEF 10.3 R13	EPL ●	EVPL ●	MUST be two as specified in Section 8.4 of MEF 10.3
42	Unicast Service Frame Delivery	MEF 6.2 Tables 6, 9 and 12	MEF 6.2 R26 and MEF 10.3 R17	EPL ●	EVPL ●	Discard or Deliver Unconditionally or Deliver Conditionally as specified in Section 8.5.2 of MEF 10.3
43	Multicast Service Frame Delivery	MEF 6.2 Tables 6, 9 and 12	MEF 6.2 R27 and MEF 10.3 R18	EPL ●	EVPL ●	Discard or Deliver Unconditionally or Deliver Conditionally as specified in Section 8.5.2 of MEF 10.3
44	Broadcast Service Frame Delivery	MEF 6.2 Tables 6, 9 and 12	MEF 6.2 R28 and MEF 10.3 R19	EPL ●	EVPL ●	Discard or Deliver Unconditionally or Deliver Conditionally as specified in Section 8.5.2 of MEF 10.3
45	CE-VLAN ID Preservation <sup>5</sup>	MEF 6.2 Tables 6, 9 and 12	MEF 6.2 R29 and MEF 10.3 R20, R21, R22, R23, R24, R25	EPL ●	EVPL ●	Enabled or Disabled as specified in Section 8.6.1 of MEF 10.3
46	CE-VLAN CoS Preservation	MEF 6.2 Tables 6, 9 and 12	MEF 6.2 R30 and MEF 10.3 R26	EPL ●	EVPL ●	Enabled or Disabled as specified in Section 8.6.2 of MEF 10.3
47	EVC Performance	MEF 6.2 Tables 6, 9 and 12	MEF 6.2 D13, D14	EPL ●	EVPL ●	List of performance metrics and associated parameters and performance objectives as specified in Section 8.8 of MEF 10.3
48	EVC Maximum Service Frame Size	MEF 6.2 Table 6	MEF 10.3 R55, R56	EPL ●	EVPL ●	At least 1522 as specified in Section 8.9 of MEF 10.3

Table 4: E-Line - EVC Service Attributes and Test Requirements

<sup>5</sup>: CE-VLAN ID Preservation testing includes the Service Frame Transparency verification.

## 6.2 E-LAN Services

### 6.2.1 E-LAN - UNI Service Attributes and Test Requirements

Index	Service Attributes	Service Reference	Test Requirements	Certification Applicability		Summary Description
				● = Tested	○ = Not Tested	
49	UNI Identifier	MEF 6.2 Tables 4, 13 and 16	-	EP-LAN ○	EVP-LAN ○	String as specified in Section 9.1 of MEF 10.3
50	Physical Layer	MEF 6.2 Tables 4, 13 and 16	MEF 10.3 R60, R61	EP-LAN ●	EVP-LAN ●	List of Physical Layers as specified in Section 9.2 of MEF 10.3
51	Synchronous Mode <sup>1</sup>	MEF 6.2 Tables 4, 13 and 16	-	EP-LAN ○	EVP-LAN ○	List of Disabled or Enabled for each link in the UNI as specified in Section 9.3 of MEF 10.3
52	Number of Links <sup>1</sup>	MEF 6.2 Tables 4, 13 and 16	-	EP-LAN ○	EVP-LAN ○	At least 1 as specified in Section 9.4 of MEF 10.3
53	UNI Resiliency <sup>1</sup>	MEF 6.2 Tables 4, 13 and 16	-	EP-LAN ○	EVP-LAN ○	None or 2-link Aggregation or Other as specified in Section 9.5 of MEF 10.3
54	Service Frame Format	MEF 6.2 Tables 4, 13 and 16	MEF 10.3 R68, R69, R70	EP-LAN ●	EVP-LAN ●	IEEE Std. 802.3 – 2012 as specified in Section 9.6 of MEF 10.3
55	UNI Maximum Service Frame Size	MEF 6.2 Tables 4, 13 and 16	MEF 10.3 R71	EP-LAN ●	EVP-LAN ●	At least 1522 B as specified in Section 9.7 of MEF 10.3
56	Service Multiplexing <sup>3</sup>	MEF 6.2 Tables 4, 13 and 16	-	EP-LAN ○	EVP-LAN ○	Enabled or Disabled as specified in Section 9.8 of MEF 10.3
57	CE-VLAN ID for Untagged and Priority Tagged Service Frames	MEF 6.2 Tables 4, 13 and 16	MEF 10.3 R73, R74, R75	EP-LAN ○	EVP-LAN ●	A value in the range 1 to 4094 as specified in Section 9.9 of MEF 10.3
58	CE-VLAN ID/EVC Map	MEF 6.2 Tables 4, 13 and 16	MEF 10.3 R76, R77, R78	EP-LAN ●	EVP-LAN ●	A map as specified in Section 9.10 of MEF 10.3
59	Maximum number of EVCs	MEF 6.2 Tables 4, 13 and 16	MEF 10.3 R79	EP-LAN ●	EVP-LAN ●	At least 1 as specified in Section 9.11 of MEF 10.3
60	Bundling	MEF 6.2 Tables 4, 13 and 16	MEF 10.3 R80, R81	EP-LAN ○	EVP-LAN ●	Enabled or Disabled as specified in Section 9.12 of MEF 10.3
61	All to One Bundling	MEF 6.2 Tables 4, 13 and 16	MEF 6.2 R36 and MEF 10.3 R82, R83	EP-LAN ●	EVP-LAN ○	Enabled or Disabled as specified in Section 9.13 of MEF 10.3
62	Token Share	MEF 6.2 Tables 4, 13 and 16	MEF 6.2 R3	EP-LAN ●	EVP-LAN ●	Enabled or Disabled as specified in Section 8.2.1 of this MEF 6.2
63	Envelopes	MEF 6.2 Tables 4, 13 and 16	MEF 10.3 R141, R142	EP-LAN ●	EVP-LAN ●	list of <Envelope ID, CF0, n >, where <Envelope ID, CF0 > is as specified in Section 12.1 of MEF 10.3 and n is the number of Bandwidth Profile Flows in the Envelope
64	Ingress BWP per UNI	MEF 6.2 Tables 4, 13 and 16	-	EP-LAN ○	EVP-LAN ○	Ingress BWP per UNI as specified in Section 9.14 of MEF 10.3 MUST be No
65	Egress BWP per UNI	MEF 6.2 Tables 4, 13 and 16	-	EP-LAN ○	EVP-LAN ○	Egress BWP per UNI as specified in Section 9.14 of MEF 10.3 MUST be No
66	Link OAM <sup>1</sup>	MEF 6.2 Tables 4, 13 and 16	-	EP-LAN ○	EVP-LAN ○	Enabled or Disabled as specified in Section 9.16 of MEF 10.3
67	UNI MEG <sup>1</sup>	MEF 6.2 Tables 4, 13 and 16	-	EP-LAN ○	EVP-LAN ○	Enabled or Disabled as specified in Section 9.17 of MEF 10.3
68	E-LMI <sup>1</sup>	MEF 6.2 Tables 4, 13 and 16	-	EP-LAN ○	EVP-LAN ○	Enabled or Disabled as specified in Section 9.18 of MEF 10.3
69	UNI L2CP Address Set	MEF 6.2 Tables 4, 13 and 16	MEF 45 R23, R24	EP-LAN ●	EVP-LAN ●	CTB or CTB-2 or CTA as specified in MEF 45 table 11 for EVP-LAN and Table 12 for EP-LAN
70	UNI L2CP peering <sup>2</sup>	MEF 6.2 Tables 4, 13 and 16	MEF 45 R10	EP-LAN ●	EVP-LAN ●	None or list of {Destination Address, Protocol Identifier} or list of {Destination Address, Protocol Identifier, Link Identifier} to be Peered as specified in MEF 45

Table 5: E-LAN - UNI Service Attributes and Test Requirements

<sup>1</sup>: Control and management protocols such as E-LMI, Link OAM, Service OAM UNI-MEG, Service OAM ENNI-MEG, Test MEG or protection mechanisms that may be operating at the external interfaces are outside the scope of the MEF 3.0 CE certification program. The deployment and verification of these protocols are to be handled between subscriber/service provider/operator.

<sup>2</sup>: Protocols not in list are either Passed to EVC or Discarded based on the Destination Address.

<sup>3</sup>: Service Multiplexing requires the instantiation of at least two services at the UNI which is outside the scope of the MEF 3.0 CE certification program.

### 6.2.2 E-LAN - EVC per UNI Service Attributes and Test Requirements

Index	Service Attributes	Service Reference	Test Requirements	Certification Applicability		Summary Description
				● = Tested	○ = Not Tested	
71	UNI EVC ID	MEF 6.2 Tables 5, 14 and 17	-	EP-LAN ○	EVP-LAN ○	String as specified in Section 10.1 of MEF 10.3
72	Class of Service Identifier for Data Service Frame	MEF 6.2 Tables 5, 14 and 17	MEF 10.3 R91, R92, R93, R94, R95, R96, R97	EP-LAN ●	EVP-LAN ●	EVC or CE-VLAN CoS or IP value(s) and corresponding CoS Name as specified in Section 10.2.1 of MEF 10.3
73	Class of Service Identifier for L2CP Service Frame	MEF 6.2 Tables 5, 14 and 17	MEF 10.3 R98, R99	EP-LAN ●	EVP-LAN ●	"All" or list of each L2CP in the EVC and corresponding CoS Name as specified in Section 10.2.2 of MEF 10.3
74	Class of Service Identifier for SOAM Service Frame	MEF 6.2 Tables 5, 14 and 17	MEF 10.3 R100, R101	EP-LAN ●	EVP-LAN ●	Basis same as for Data Service Frames as specified in Section 10.2.3 of MEF10.3
75	Color Identifier for Service Frame	MEF 6.2 Tables 5, 14 and 17	MEF 10.3 R102, R103, R104, R105, R106, R107, R108, R109, R110, R111, R112	EP-LAN ●	EVP-LAN ●	None or EVC or CE-VLAN CoS or CE-VLAN Tag DEI or IP as specified in Section 10.3 of MEF 10.3
76	Egress Equivalence Class Identifier for Data Service Frames <sup>4</sup>	MEF 6.2 Tables 5, 14 and 17	See note <sup>4</sup>	EP-LAN ●	EVP-LAN ●	CE-VLAN CoS or IP value(s) and corresponding CoS Name(s) as specified in Section 10.4.1 of MEF 10.3
77	Egress Equivalence Class Identifier for L2CP Service Frames <sup>4</sup>	MEF 6.2 Tables 5, 14 and 17	See note <sup>4</sup>	EP-LAN ●	EVP-LAN ●	"All" or list of each L2CP in the EVC and corresponding Egress Equivalence Class as specified in Section 10.4.2 of MEF 10.3
78	Egress Equivalence Class Identifier for SOAM Service Frames <sup>4</sup>	MEF 6.2 Tables 5, 14 and 17	See note <sup>4</sup>	EP-LAN ●	EVP-LAN ●	Basis same as for Data Service Frames as specified in Section 10.4.3 of MEF 10.3
79	Ingress Bandwidth Profile per EVC	MEF 6.2 Tables 5, 14 and 17	-	EP-LAN ○	EVP-LAN ○	Ingress Bandwidth Profile per EVC as specified in Section 10.5 of MEF 10.3 MUST be No
80	Egress Bandwidth Profile per EVC	MEF 6.2 Tables 5, 14 and 17	-	EP-LAN ○	EVP-LAN ○	Egress Bandwidth Profile per EVC as specified in Section 10.7 of MEF 10.3 MUST be No
81	Ingress Bandwidth Profile per Class of Service Identifier	MEF 6.2 Tables 5, 14 and 17	MEF 10.3 R125	EP-LAN ●	EVP-LAN ●	No or Parameters with Bandwidth Profile as defined in Section 10.6 of MEF 10.3
82	Egress Bandwidth Profile per Egress Equivalence Class <sup>4</sup>	MEF 6.2 Tables 5, 14 and 17	MEF 10.3 R127	EP-LAN ●	EVP-LAN ●	No or Parameters with Bandwidth Profile as defined in Section 10.8 of MEF 10.3
83	Source MAC Address Limit	MEF 6.2 Tables 5, 14 and 17	MEF 10.3 R128	EP-LAN ●	EVP-LAN ●	Enabled or Disabled as specified in Section 10.9 of MEF 10.3
84	Test MEG <sup>1</sup>	MEF 6.2 Tables 5, 14 and 17	-	EP-LAN ○	EVP-LAN ○	Enabled or Disabled as specified in Section 10.10 of MEF 10.3
85	Subscriber MEG MIP	MEF 6.2 Tables 5, 14 and 17	MEF 10.3 R130	EP-LAN ●	EVP-LAN ●	Enabled or Disabled as specified in Section 10.11 of MEF 10.3

Table 6: E-LAN - EVC per UNI Service Attributes and Test Requirements

<sup>1</sup>: Control and management protocols such as E-LMI, Link OAM, Service OAM UNI-MEG, Service OAM ENNI-MEG, Test MEG or protection mechanisms that may be operating at the external interfaces are outside the scope of the MEF 3.0 CE certification program. The deployment and verification of these protocols are to be handled between subscriber/service provider/operator.

<sup>4</sup>: Refer to Egress Bandwidth Profile per Egress Equivalence Class.

### 6.2.3 E-LAN - EVC Service Attributes and Test Requirements

Index	Service Attributes	Service Reference	Test Requirements	Certification Applicability		Summary Description
				● = Tested	○ = Not Tested	
86	EVC Type	MEF 6.2 Tables 6, 15 and 18	MEF 6.2 R38	EP-LAN ●	EVP-LAN ●	MUST be Multipoint-to-Multipoint as specified in Section 8.1 of MEF 10.3
87	EVC ID	MEF 6.2 Tables 6, 15 and 18	-	EP-LAN ○	EVP-LAN ○	String as specified in Section 8.2 of MEF 10.3
88	UNI List	MEF 6.2 Tables 6, 15 and 18	MEF 10.3 R12	EP-LAN ●	EVP-LAN ●	List of <UNI ID, UNI Role> pairs as specified in Section 8.3 of MEF 10.3 for UNIs associated by the EVC
89	Maximum Number of UNIs	MEF 6.2 Tables 6, 15 and 18	MEF 10.3 R14	EP-LAN ●	EVP-LAN ●	Two or three or greater as specified in Section 8.4 of MEF 10.3
90	Unicast Service Frame Delivery	MEF 6.2 Tables 6, 15 and 18	MEF 10.3 R17	EP-LAN ●	EVP-LAN ●	Discard or Deliver Unconditionally or Deliver Conditionally as specified in Section 8.5.2 of MEF 10.3
91	Multicast Service Frame Delivery	MEF 6.2 Tables 6, 15 and 18	MEF 10.3 R18	EP-LAN ●	EVP-LAN ●	Discard or Deliver Unconditionally or Deliver Conditionally as specified in Section 8.5.2 of MEF 10.3
92	Broadcast Service Frame Delivery	MEF 6.2 Tables 6, 15 and 18	MEF 10.3 R19	EP-LAN ●	EVP-LAN ●	Discard or Deliver Unconditionally or Deliver Conditionally as specified in Section 8.5.2 of MEF 10.3
93	CE-VLAN ID Preservation <sup>5</sup>	MEF 6.2 Tables 6, 15 and 18	MEF 10.3 R20, R21, R22, R23, R24, R25	EP-LAN ●	EVP-LAN ●	Enabled or Disabled as specified in Section 8.6.1 of MEF 10.3
94	CE-VLAN CoS Preservation	MEF 6.2 Tables 6, 15 and 18	MEF 10.3 R26	EP-LAN ●	EVP-LAN ●	Enabled or Disabled as specified in Section 8.6.2 of MEF 10.3
95	EVC Performance	MEF 6.2 Tables 6, 15 and 18	MEF 6.2 D13, D14	EP-LAN ●	EVP-LAN ●	List of performance metrics and associated parameters and performance objectives as specified in Section 8.8 of MEF 10.3
96	EVC Maximum Service Frame Size	MEF 6.2 Tables 6, 15 and 18	MEF 10.3 R55, R56	EP-LAN ●	EVP-LAN ●	At least 1522 as specified in Section 8.9 of MEF 10.3

Table 7: E-LAN - EVC Service Attributes and Test Requirements

<sup>5</sup>: CE-VLAN ID Preservation testing includes the Service Frame Transparency verification.

## 6.3 E-Tree Services

### 6.3.1 E-Tree - UNI Service Attributes and Test Requirements

Index	Service Attributes	Service Reference	Test Requirements	Certification Applicability		Summary Description
				● = Tested	○ = Not Tested	
97	UNI Identifier	MEF 6.2 Tables 4, 19 and 22	-	EP-Tree ○	EVP-Tree ○	String as specified in Section 9.1 of MEF 10.3
98	Physical Layer	MEF 6.2 Tables 4, 19 and 22	MEF 10.3 R60, R61	EP-Tree ●	EVP-Tree ●	List of Physical Layers as specified in Section 9.2 of MEF 10.3
99	Synchronous Mode <sup>1</sup>	MEF 6.2 Tables 4, 19 and 22	-	EP-Tree ○	EVP-Tree ○	List of Disabled or Enabled for each link in the UNI as specified in Section 9.3 of MEF 10.3
100	Number of Links <sup>1</sup>	MEF 6.2 Tables 4, 19 and 22	-	EP-Tree ○	EVP-Tree ○	At least 1 as specified in Section 9.4 of MEF 10.3
101	UNI Resiliency <sup>1</sup>	MEF 6.2 Tables 4, 19 and 22	-	EP-Tree ○	EVP-Tree ○	None or 2-link Aggregation or Other as specified in Section 9.5 of MEF 10.3
102	Service Frame Format	MEF 6.2 Tables 4, 19 and 22	MEF 10.3 R68, R69, R70	EP-Tree ●	EVP-Tree ●	IEEE Std. 802.3 – 2012 as specified in Section 9.6 of MEF 10.3
103	UNI Maximum Service Frame Size	MEF 6.2 Tables 4, 19 and 22	MEF 10.3 R71	EP-Tree ●	EVP-Tree ●	At least 1522 B as specified in Section 9.7 of MEF 10.3
104	Service Multiplexing <sup>3</sup>	MEF 6.2 Tables 4, 19 and 22	-	EP-Tree ○	EVP-Tree ○	Enabled or Disabled as specified in Section 9.8 of MEF 10.3
105	CE-VLAN ID for Untagged and Priority Tagged Service Frames	MEF 6.2 Tables 4, 19 and 22	MEF 10.3 R73, R74, R75	EP-Tree ○	EVP-Tree ●	A value in the range 1 to 4094 as specified in Section 9.9 of MEF 10.3
106	CE-VLAN ID/EVC Map	MEF 6.2 Tables 4, 19 and 22	MEF 10.3 R76, R77, R78	EP-Tree ●	EVP-Tree ●	A map as specified in Section 9.10 of MEF 10.3
107	Maximum number of EVCs	MEF 6.2 Tables 4, 19 and 22	MEF 10.3 R79	EP-Tree ●	EVP-Tree ●	At least 1 as specified in Section 9.11 of MEF 10.3
108	Bundling	MEF 6.2 Tables 4, 13 and 16	MEF 10.3 R80, R81	EP-Tree ○	EVP-Tree ●	Enabled or Disabled as specified in Section 9.12 of MEF 10.3
109	All to One Bundling	MEF 6.2 Tables 4, 19 and 22	MEF 6.2 R45 and MEF 10.3 R82, R83	EP-Tree ●	EVP-Tree ○	Enabled or Disabled as specified in Section 9.13 of MEF 10.3
110	Token Share	MEF 6.2 Tables 4, 19 and 22	MEF 6.2 R3	EP-Tree ●	EVP-Tree ●	Enabled or Disabled as specified in Section 8.2.1 of this MEF 6.2
111	Envelopes	MEF 6.2 Tables 4, 19 and 22	MEF 10.3 R141, R142	EP-Tree ●	EVP-Tree ●	list of <Envelope ID, CF0, n >, where <Envelope ID, CF0 > is as specified in Section 12.1 of MEF 10.3 and n is the number of Bandwidth Profile Flows in the Envelope
112	Ingress BWP per UNI	MEF 6.2 Tables 4, 19 and 22	-	EP-Tree ○	EVP-Tree ○	Ingress BWP per UNI as specified in Section 9.14 of MEF 10.3 MUST be No
113	Egress BWP per UNI	MEF 6.2 Tables 4, 19 and 22	-	EP-Tree ○	EVP-Tree ○	Egress BWP per UNI as specified in Section 9.14 of MEF 10.3 MUST be No
114	Link OAM <sup>1</sup>	MEF 6.2 Tables 4, 19 and 22	-	EP-Tree ○	EVP-Tree ○	Enabled or Disabled as specified in Section 9.16 of MEF 10.3
115	UNI MEG <sup>1</sup>	MEF 6.2 Tables 4, 19 and 22	-	EP-Tree ○	EVP-Tree ○	Enabled or Disabled as specified in Section 9.17 of MEF 10.3
116	E-LMI <sup>1</sup>	MEF 6.2 Tables 4, 19 and 22	-	EP-Tree ○	EVP-Tree ○	Enabled or Disabled as specified in Section 9.18 of MEF 10.3
117	UNI L2CP Address Set	MEF 6.2 Tables 4, 19 and 22	MEF 45 R23, R24	EP-Tree ●	EVP-Tree ●	CTB or CTB-2 or CTA as specified in MEF 45 table 11 for EVP-Tree and Table 12 for EP-Tree
118	UNI L2CP peering <sup>2</sup>	MEF 6.2 Tables 4, 19 and 22	MEF 45 R10	EP-Tree ●	EVP-Tree ●	None or list of {Destination Address, Protocol Identifier} or list of {Destination Address, Protocol Identifier, Link Identifier} to be Peered as specified in MEF 45

Table 8: E-Tree - UNI Service Attributes and Test Requirements

<sup>1</sup>: Control and management protocols such as E-LMI, Link OAM, Service OAM UNI-MEG, Service OAM ENNI-MEG, Test MEG or protection mechanisms that may be operating at the external interfaces are outside the scope of the MEF 3.0 CE certification program. The deployment and verification of these protocols are to be handled between subscriber/service provider/operator.

<sup>2</sup>: Protocols not in list are either Passed to EVC or Discarded based on the Destination Address.

<sup>3</sup>: Service Multiplexing requires the instantiation of at least two services at the UNI which is outside the scope of the MEF 3.0 CE certification program.

**6.3.2 E-Tree - EVC per UNI Service Attributes and Test Requirements**

Index	Service Attributes	Service Reference	Test Requirements	Certification Applicability		Summary Description
				● = Tested	○ = Not Tested	
119	UNI EVC ID	MEF 6.2 Tables 5, 20 and 23	-	EP-Tree ○	EVP-Tree ○	String as specified in Section 10.1 of MEF 10.3
120	Class of Service Identifier for Data Service Frame	MEF 6.2 Tables 5, 20 and 23	MEF 10.3 R91, R92, R93, R94, R95, R96, R97	EP-Tree ●	EVP-Tree ●	EVC or CE-VLAN CoS or IP value(s) and corresponding CoS Name as specified in Section 10.2.1 of MEF 10.3
121	Class of Service Identifier for L2CP Service Frame	MEF 6.2 Tables 5, 20 and 23	MEF 10.3 R98, R99	EP-Tree ●	EVP-Tree ●	“All” or list of each L2CP in the EVC and corresponding CoS Name as specified in Section 10.2.2 of MEF 10.3
122	Class of Service Identifier for SOAM Service Frame	MEF 6.2 Tables 5, 20 and 23	MEF 10.3 R100, R101	EP-Tree ●	EVP-Tree ●	Basis same as for Data Service Frames as specified in Section 10.2.3 of MEF10.3
123	Color Identifier for Service Frame	MEF 6.2 Tables 5, 20 and 23	MEF 10.3 R102, R103, R104, R105, R106, R107, R108, R109, R110, R111, R112	EP-Tree ●	EVP-Tree ●	None or EVC or CE-VLAN CoS or CE-VLAN Tag DEI or IP as specified in Section 10.3 of MEF 10.3
124	Egress Equivalence Class Identifier for Data Service Frames <sup>4</sup>	MEF 6.2 Tables 5, 20 and 23	See note <sup>4</sup>	EP-Tree ●	EVP-Tree ●	CE-VLAN CoS or IP value(s) and corresponding CoS Name(s) as specified in Section 10.4.1 of MEF 10.3
125	Egress Equivalence Class Identifier for L2CP Service Frames <sup>4</sup>	MEF 6.2 Tables 5, 20 and 23	See note <sup>4</sup>	EP-Tree ●	EVP-Tree ●	“All” or list of each L2CP in the EVC and corresponding Egress Equivalence Class as specified in Section 10.4.2 of MEF 10.3
126	Egress Equivalence Class Identifier for SOAM Service Frames <sup>4</sup>	MEF 6.2 Tables 5, 20 and 23	See note <sup>4</sup>	EP-Tree ●	EVP-Tree ●	Basis same as for Data Service Frames as specified in Section 10.4.3 of MEF 10.3
127	Ingress Bandwidth Profile per EVC	MEF 6.2 Tables 5, 20 and 23	-	EP-Tree ○	EVP-Tree ○	Ingress Bandwidth Profile per EVC as specified in Section 10.5 of MEF 10.3 MUST be No
128	Egress Bandwidth Profile per EVC	MEF 6.2 Tables 5, 20 and 23	-	EP-Tree ○	EVP-Tree ○	Egress Bandwidth Profile per EVC as specified in Section 10.7 of MEF 10.3 MUST be No
129	Ingress Bandwidth Profile per Class of Service Identifier	MEF 6.2 Tables 5, 20 and 23	MEF 10.3 R125	EP-Tree ●	EVP-Tree ●	No or Parameters with Bandwidth Profile as defined in Section 10.6 of MEF 10.3
130	Egress Bandwidth Profile per Egress Equivalence Class	MEF 6.2 Tables 5, 20 and 23	MEF 10.3 R127	EP-Tree ●	EVP-Tree ●	No or Parameters with Bandwidth Profile as defined in Section 10.8 of MEF 10.3
131	Source MAC Address Limit	MEF 6.2 Tables 5, 20 and 23	MEF 10.3 R128	EP-Tree ●	EVP-Tree ●	Enabled or Disabled as specified in Section 10.9 of MEF 10.3
132	Test MEG <sup>1</sup>	MEF 6.2 Tables 5, 20 and 23	-	EP-Tree ○	EVP-Tree ○	Enabled or Disabled as specified in Section 10.10 of MEF 10.3
133	Subscriber MEG MIP	MEF 6.2 Tables 5, 20 and 23	MEF 10.3 R130	EP-Tree ●	EVP-Tree ●	Enabled or Disabled as specified in Section 10.11 of MEF 10.3

**Table 9: E-Tree - EVC per UNI Service Attributes and Test Requirements**

<sup>1</sup>: Control and management protocols such as E-LMI, Link OAM, Service OAM UNI-MEG, Service OAM ENNI-MEG, Test MEG or protection mechanisms that may be operating at the external interfaces are outside the scope of the MEF 3.0 CE certification program. The deployment and verification of these protocols are to be handled between subscriber/service provider/operator.

<sup>4</sup>: Refer to Egress Bandwidth Profile per Egress Equivalence Class.



### 6.3.3 E-Tree - EVC Service Attributes and Test Requirements

Index	Service Attributes	Service Reference	Test Requirements	Certification Applicability		Summary Description
				● = Tested	○ = Not Tested	
134	EVC Type	MEF 6.2 Tables 6, 21 and 24	MEF 6.2 R47	EP-Tree ●	EVP-Tree ●	MUST be Rooted-Multipoint as specified in Section 8.1 of MEF 10.3
135	EVC ID	MEF 6.2 Tables 6, 21 and 24	-	EP-Tree ○	EVP-Tree ○	String as specified in Section 8.2 of MEF 10.3
136	UNI List	MEF 6.2 Tables 6, 21 and 24	MEF 10.3 R11	EP-Tree ●	EVP-Tree ●	List of <UNI ID, UNI Role> pairs as specified in Section 8.3 of MEF 10.3 for UNIs associated by the EVC
137	Maximum Number of UNIs	MEF 6.2 Tables 6, 21 and 24	MEF 10.3 R14	EP-Tree ●	EVP-Tree ●	Two or three or greater as specified in Section 8.4 of MEF 10.3
138	Unicast Service Frame Delivery	MEF 6.2 Tables 6, 21 and 24	MEF 10.3 R17	EP-Tree ●	EVP-Tree ●	Discard or Deliver Unconditionally or Deliver Conditionally as specified in Section 8.5.2 of MEF 10.3
139	Multicast Service Frame Delivery	MEF 6.2 Tables 6, 21 and 24	MEF 10.3 R18	EP-Tree ●	EVP-Tree ●	Discard or Deliver Unconditionally or Deliver Conditionally as specified in Section 8.5.2 of MEF 10.3
140	Broadcast Service Frame Delivery	MEF 6.2 Tables 6, 21 and 24	MEF 10.3 R19	EP-Tree ●	EVP-Tree ●	Discard or Deliver Unconditionally or Deliver Conditionally as specified in Section 8.5.2 of MEF 10.3
141	CE-VLAN ID Preservation <sup>6</sup>	MEF 6.2 Tables 6, 21 and 24	MEF 10.3 R20, R21, R22, R23, R24, R25	EP-Tree ●	EVP-Tree ●	Enabled or Disabled as specified in Section 8.6.1 of MEF 10.3
142	CE-VLAN CoS Preservation	MEF 6.2 Tables 6, 21 and 24	MEF 10.3 R26	EP-Tree ●	EVP-Tree ●	Enabled or Disabled as specified in Section 8.6.2 of MEF 10.3
143	EVC Performance	MEF 6.2 Tables 6, 21 and 24	MEF 6.2 D13, D14	EP-Tree ●	EVP-Tree ●	List of performance metrics and associated parameters and performance objectives as specified in Section 8.8 of MEF 10.3
144	EVC Maximum Service Frame Size	MEF 6.2 Tables 6, 21 and 24	MEF 10.3 R55, R56	EP-Tree ●	EVP-Tree ●	At least 1522 as specified in Section 8.9 of MEF 10.3

Table 10: E-Tree - EVC Service Attributes and Test Requirements

<sup>5</sup>: CE-VLAN ID Preservation testing includes the Service Frame Transparency verification.

## 7 Test Requirements for Operator Ethernet Services

### 7.1 Access E-Line Services

#### 7.1.1 Access E-Line - Operator UNI Service Attributes and Test Requirements

Index	Service Attributes	Service Reference	Test Requirements	Certification Applicability ● = Tested ○ = Not Tested	Summary Description
145	Operator UNI Identifier	MEF 51 Section 8.5	-	Access E-Line ○	A string that is unique across the Operator CEN as specified in Table 25 of MEF 26.2
146	Operator UNI Physical Layer	MEF 51 Section 8.5	MEF 26.2 R89, R90	Access E-Line ●	A subset of the PHYs listed in IEEE Std. 802.3 – 2012 for each physical link as specified in Table 25 of MEF 26.2
147	Operator UNI Synchronous Mode <sup>1</sup>	MEF 51 Section 8.5	-	Access E-Line ○	A list of items, one for each physical link, where each item can equal either Enabled or Disabled as specified in Table 25 of MEF 26.2
148	Operator UNI Number of Links <sup>1</sup>	MEF 51 Section 8.5	-	Access E-Line ○	A strictly positive integer as specified in Table 25 of MEF 26.2
149	Operator UNI Link Aggregation <sup>1</sup>	MEF 51 Section 8.5	-	Access E-Line ○	None, 2-Link Active/Standby, All Active, or Other as specified in Table 25 of MEF 26.2
150	Operator UNI Port Conversation ID to Aggregation Link Map <sup>1</sup>	MEF 51 Section 8.5	-	Access E-Line ○	See IEEE Std. 802.1AX – 2014 as specified in Table 25 of MEF 26.2
151	Operator UNI Service Frame Format	MEF 51 Section 8.5	MEF 26.2 R101	Access E-Line ●	Ethernet MAC Frame conforming to Clause 3 of IEEE 802.3-2012 as specified in Table 25 of MEF 26.2
152	Operator UNI Maximum Service Frame Size	MEF 51 Section 8.5	MEF 26.2 R102	Access E-Line ●	An integer number of bytes greater than or equal to 1522 as specified in Table 25 of MEF 26.2
153	Operator UNI Default CE-VLAN ID	MEF 51 Section 8.5	MEF 26.2 R103	Access E-Line ●	An integer in the range 1,2, ... ,4094 as specified in Table 25 of MEF 26.2
154	Operator UNI Maximum Number of OVC End Points	MEF 51 Section 8.5	-	Access E-Line ○	A strictly positive integer as specified in Table 25 of MEF 26.2
155	Operator UNI Maximum Number of CE-VLAN IDs per OVC End Point	MEF 51 Section 8.5	-	Access E-Line ○	A strictly positive integer as specified in Table 25 of MEF 26.2
156	Operator UNI Ingress Bandwidth Profile per UNI <sup>3</sup>	MEF 51 Section 8.5	-	Access E-Line ○	Parameters or Disabled When Parameters, several parameter values need to be agreed to by the SP/SO and Operator as specified in Table 25 of MEF 26.2 (single bandwidth profile flow)
157	Operator UNI Egress Bandwidth Profile per UNI <sup>3</sup>	MEF 51 Section 8.5	-	Access E-Line ○	Parameters or Disabled When Parameters, several parameter values need to be agreed to by the SP/SO and Operator as specified in Table 25 of MEF 26.2 (single bandwidth profile flow)
158	Operator UNI Link OAM <sup>1</sup>	MEF 51 Section 8.5	-	Access E-Line ○	Enabled or Disabled as specified in Table 25 of MEF 26.2
159	Operator UNI MEG <sup>1</sup>	MEF 51 Section 8.5	-	Access E-Line ○	Enabled or Disabled as specified in Table 25 of MEF 26.2
160	Operator UNI LAG Link MEG <sup>1</sup>	MEF 51 Section 8.5	-	Access E-Line ○	Enabled or Disabled as specified in Table 25 of MEF 26.2
161	Operator UNI E-LMI <sup>1</sup>	MEF 51 Section 8.5	-	Access E-Line ○	Enabled or Disabled as specified in Table 25 of MEF 26.2
162	Operator UNI Token Share	MEF 51 Section 8.5	MEF 26.2 R116	Access E-Line ●	Enabled or Disabled as specified in Table 25 of MEF 26.2
163	Operator UNI Envelopes	MEF 51 Section 8.5	MEF 26 R117, R118	Access E-Line ●	A list of entries of the form <Envelope ID value, Envelope Coupling Flag value> as specified in Table 25 of MEF 26.2
164	Operator UNI L2CP Address set	MEF 45.0.1 Section 10.6.1	MEF 45.1 R3A, R4A	Access E-Line ●	CTB or CTB-2 or CTA as specified in MEF 45.0.1 Table A-1
165	Operator UNI L2CP Peering <sup>2</sup>	MEF 45 Section 8.2	MEF 45 R10	Access E-Line ●	The L2CP Peering service attribute value MUST be an empty list, or a list of entries identifying protocols to be Peered where each entry consists of {Destination Address, Protocol Identifier} or {Destination Address, Protocol Identifier, Link Identifier}

Table 11: Access E-Line - Operator UNI Service Attributes and Test Requirements

<sup>1</sup>: Control and management protocols such as E-LMI, Link OAM, Service OAM UNI-MEG, Service OAM ENNI-MEG, Test MEG or protection mechanisms that may be operating at the external interfaces are outside the scope of the MEF 3.0 CE certification program. The deployment and verification of these protocols are to be handled between subscriber/service provider/operator.

<sup>2</sup>: Protocols not in list are either Passed to OVC or Discarded based on the Destination Address.

<sup>3</sup>: Ingress Bandwidth Profile per Class of Service Identifier is mandatory for Access E-Line and Transit E-Line services. Other ingress or egress bandwidth profiles in combination with Ingress Bandwidth Profile per Class of Service Identifier are to be handled between subscriber/service provider/operator.

**7.1.2 Access E-Line - ENNI Service Attributes and Test Requirements**

Index	Service Attributes	Service Reference	Test Requirements	Certification Applicability ● = Tested ○ = Not Tested	Summary Description
166	Operator ENNI Identifier	MEF 51 Section 8.4	-	Access E-Line ○	A string that is unique across the ENNIs of the Operator CEN as specified in Table 24 of MEF 26.2
167	S-VLAN ID Control	MEF 51 Section 8.4	-	Access E-Line ○	Full or Partial as specified in Table 24 of MEF 26.2
168	Maximum Number of OVCs	MEF 51 Section 8.4	-	Access E-Line ○	A strictly positive integer as specified in Table 24 of MEF 26.2
169	Maximum Number of OVC End Points per OVC	MEF 51 Section 8.4	MEF 51 R26, R28	Access E-Line ●	A strictly positive integer as specified in Table 24 of MEF 26.2 (MUST be two for Access E-Line)
170	ENNI Token Share	MEF 51 Section 8.4	MEF 26.2 R83	Access E-Line ●	Enabled or Disabled as specified in Table 24 of MEF 26.2
171	ENNI Envelopes	MEF 51 Section 8.4	MEF 26.2 R84, R85	Access E-Line ●	A list of entries of the form <Envelope ID value, Envelope Coupling Flag value> as specified in Table 24 of MEF 26.2
Index	Common Service Attributes	Service Reference	Test Requirements	Certification Applicability ● = Tested ○ = Not Tested	Summary Description
172	ENNI Peering Identifier	MEF 51 Section 8.4	-	Access E-Line ○	A string that is unique across all of the ENNIs between the Operator CENs as specified in Table 3 of MEF 26.2
173	ENNI Physical Layer	MEF 51 Section 8.4	MEF 26.2 R5, R6, R7	Access E-Line ●	A subset of the PHYs listed in IEEE Std. 802.3 – 2012 for each physical link as specified in Table 3 of MEF 26.2
174	ENNI Frame Format	MEF 51 Section 8.4	MEF 26.2 R8, R9, R10	Access E-Line ●	Ethernet MAC Frame conforming to Clause 3 of IEEE 802.3-2012 as specified in Table 3 of MEF 26.2
175	ENNI Number of Links <sup>1</sup>	MEF 51 Section 8.4	-	Access E-Line ○	A strictly positive integer as specified in Table 3 of MEF 26.2
176	ENNI Link Aggregation <sup>1</sup>	MEF 51 Section 8.4	-	Access E-Line ○	None, 2-Link Active/Standby, All Active, or Other as specified in Table 3 of MEF 26.2
177	ENNI Port Conversation ID to Aggregation Link Map <sup>1</sup>	MEF 51 Section 8.4	-	Access E-Line ○	See IEEE Std. 802.1AX – 2014 as specified in Table 3 of MEF 26.2
178	ENNI MEG <sup>1</sup>	MEF 51 Section 8.4	-	Access E-Line ○	Enabled or Disabled as specified in Table 3 of MEF 26.2
179	ENNI LAG Link MEG <sup>1</sup>	MEF 51 Section 8.4	-	Access E-Line ○	Enabled or Disabled as specified in Table 3 of MEF 26.2
180	ENNI Link OAM <sup>1</sup>	MEF 51 Section 8.4	-	Access E-Line ○	Enabled or Disabled as specified in Table 3 of MEF 26.2
Index	Operator Multilateral Service Attributes	Service Reference	Test Requirements	Certification Applicability ● = Tested ○ = Not Tested	Summary Description
181	ENNI L2CP Peering <sup>2</sup>	MEF 45 Section 8.2	MEF 45 R10	Access E-Line ●	The L2CP Peering service attribute value MUST be an empty list, or a list of entries identifying protocols to be Peered where each entry consists of {Destination Address, Protocol Identifier} or {Destination Address, Protocol Identifier, Link Identifier}
182	ENNI Tagged L2CP Frame Processing	MEF 45 Section 8.3	MEF 45 D2	Access E-Line ●	An ENNI Tagged L2CP Frame Processing Service Attribute SHOULD be 802.1 compliant
183	ENNI Maximum Frame Size	MEF 51 Section 8.4	MEF 26.2 R27	Access E-Line ●	The maximum length ENNI Frame in bytes that can be reliably processed as specified in Table 5 of MEF 26.2

**Table 12: Access E-Line - ENNI Service Attributes and Test Requirements**

<sup>1</sup>: Control and management protocols such as E-LMI, Link OAM, Service OAM UNI-MEG, Service OAM ENNI-MEG, Test MEG or protection mechanisms that may be operating at the external interfaces are outside the scope of the MEF 3.0 CE certification program. The deployment and verification of these protocols are to be handled between subscriber/service provider/operator.

<sup>2</sup>: Protocols not in list are either Passed to OVC or Discarded based on the Destination Address.

### 7.1.3 Access E-Line - OVC Service Attributes and Test Requirements

Index	Service Attributes	Service Reference	Test Requirements	Certification Applicability ● = Tested ○ = Not Tested	Summary Description
184	OVC Identifier	MEF 51 Table 5	-	Access E-Line ○	A unique identifier within the Operator's network for the OVC as specified in Table 6 of MEF 26.2
185	OVC Type	MEF 51 Table 8	MEF 51 R18	Access E-Line ●	OVC type as specified in Table 6 of MEF 26.2. Access E-Line MUST be Point-to-Point
186	OVC End Point List	MEF 51 Table 11	MEF 51 R26	Access E-Line ●	A list of OVC End Point Identifiers as specified in Table 6 of MEF 26.2. Access E-Line MUST have one OVC End Point at an ENNI and one OVC End Point at a UNI
187	Maximum Number of UNI OVC End Points	MEF 51 Table 11	MEF 51 R27	Access E-Line ●	An integer greater than or equal to 0 as specified in Table 6 of MEF 26.2. MUST be 1 for Access E-Line
188	Maximum Number of ENNI OVC End Points	MEF 51 Table 11	MEF 51 R28	Access E-Line ●	A strictly positive integer as specified in Table 6 of MEF 26.2. MUST be 1 for Access E-Line
189	OVC Maximum Frame Size	MEF 51 Table 5	MEF 26.2 R40, R41	Access E-Line ●	At least 1526 as specified in Table 6 of MEF 26.2
190	OVC CE-VLAN ID Preservation	MEF 51 Table 11	MEF 26.2 R42, R43	Access E-Line ●	Can be one of Preserve, Strip, or Retain as specified in Table 6 of MEF 26.2
191	OVC CE-VLAN CoS (PCP) Preservation	MEF 51 Table 11	MEF 26.2 R45	Access E-Line ●	Enabled or Disabled as specified in Table 6 of MEF 26.2
192	OVC S-VLAN ID Preservation	MEF 51 Table 5	-	Access E-Line ○	Enabled or Disabled in MEF 51 Table 5 and as defined in MEF 26.1. The attribute has been removed from 26.2
193	OVC S-VLAN CoS (PCP) Preservation	MEF 51 Table 5	-	Access E-Line ○	Enabled or Disabled as specified in Table 6 of MEF 26.2
194	Color Forwarding	MEF 51 Table 5	-	Access E-Line ○	Yes or No in MEF 51 Table 5 and as defined in MEF 26.1. The attribute has been removed from 26.2
195	Service Level Specification	MEF 51 Table 5 & 8	MEF 51 D3, D4, D14	Access E-Line ●	Any combination of some or all of performance metrics defined in MEF 26.2 can be used in an SLS
196	Unicast Frame Delivery	MEF 51 Table 8	MEF 51 R20	Access E-Line ●	Conditional or Unconditional or Discard as specified in Table 6 of MEF 26.2. If Conditional, the conditions need to be specified. The Operator MUST support unconditional unicast frame delivery
197	Multicast Frame Delivery	MEF 51 Table 8	MEF 51 R21	Access E-Line ●	Conditional or Unconditional or Discard as specified in Table 6 of MEF 26.2. If Conditional, the conditions need to be specified. The Operator MUST support unconditional multicast frame delivery
198	Broadcast Frame Delivery	MEF 51 Table 8	MEF 51 22	Access E-Line ●	Conditional or Unconditional or Discard as specified in Table 6 of MEF 26.2. If Conditional, the conditions need to be specified. The Operator MUST support unconditional broadcast frame delivery
199	OVC Available MEG Level	MEF 51 Table 5	MEF 51 R4	Access E-Line ●	OVC Available MEG Level (0,1,2, ..., 7 or None) as specified in Table 6 of MEF 26.2. It specifies the lowest MEG Level available for the Service Provider or SOAM Super Operator

Table 13: Access E-Line - OVC Service Attributes and Test Requirements

### 7.1.4 Access E-Line - OVC End Point Service Attributes and Test Requirements

Index	Service Attributes (End Point @ UNI)	Service Reference	Test Requirements	Certification Applicability ● = Tested ○ = Not Tested	Summary Description
200	OVC End Point Identifier	MEF 51 Table 7	-	Access E-Line ○	A unique identifier within the Operator's network for a specific OVC at the UNI. Specified in MEF 26.2 Table 30.
201	OVC End Point Map	MEF 51 Table 7 & 13	MEF 51 R31, R32	Access E-Line ●	The CE-VLAN ID(s) that map to the OVC End Point at the UNI. Specified in MEF 26.2 Table 30.
202	OVC End Point Class of Service Identifiers	MEF 51 Table 7	MEF 26.2 R171, R172, R173, R174, R175, R176, R177, R178, R179, R180, R181	Access E-Line ●	The way that a Class of Service Name is determined for ingress Service Frames at a UNI as specified in MEF 26.2 Table 30.
203	Ingress Bandwidth Profile per OVC End Point <sup>3</sup>	MEF 51 Table 7	-	Access E-Line ○	Ingress policing on all ingress EI Frames mapped to the OVC End Point as specified in MEF 26.2 Table 30. MUST be No for Access E-Line.
204	Ingress Bandwidth Profile per Class of Service Identifier (Name)	MEF 51 Table 7	MEF 51 R12	Access E-Line ●	Ingress policing by the Operator on all ingress frames with the CoS ID for a given OVC End Point at a UNI as specified in MEF 26.2 Table 30.
205	Egress Bandwidth Profile per OVC End Point <sup>3</sup>	MEF 51 Table 7	-	Access E-Line ○	Egress policing and shaping on all egress EI Frames mapped to the OVC End Point as specified in MEF 26.2 Table 30. MUST be No for Access E-Line.
206	Egress Bandwidth Profile per Class of Service Identifier (Name) <sup>3</sup>	MEF 51 Table 7	-	Access E-Line ○	Traffic limiting of egress Service Frames with the CoS ID mapped to the OVC End Point at a UNI. Specified in MEF 26.2 Table 30.
207	Source MAC Address Limit	MEF 51 Section 8.5	MEF 26.2 D14	Access E-Line ●	Enabled or Disabled as specified in as specified in MEF 26.2 Table 30.
208	Maintenance End Point (MEP) List	MEF 51 Table 7	-	Access E-Line ○	A list of MEPs, with their direction (Up or Down), MEG and MEG level, to be enabled at the OVC End Point. Specified in MEF 26.2 Table 30.
209	Subscriber MEG MIP	MEF 51 Table 7	MEF 51 D13	Access E-Line ●	The indication of the instantiation of a MIP, Enabled or Disabled as specified in MEF 26.2 Table 30.
Index	Service Attributes (End Point @ ENNI)	Service Reference	Test Requirements	Certification Applicability ● = Tested ○ = Not Tested	Summary Description
210	OVC End Point Identifier	MEF 51 Table 6	-	Access E-Line ○	A unique identifier within the Operator's network for the OVC End Point. Specified in MEF 26.2 Table 30.
211	Trunk Identifier	MEF 51 Table 6	-	Access E-Line ○	A pair of S-VLAN ID values used on the ENNI for distinguishing between Root and Leaf originated frames. Not applicable for Access E-Line Services and has been removed from 26.2
212	OVC End Point Map	MEF 51 Section 8.4	MEF 51 R14	Access E-Line ●	Each S-VLAN ID value associated with an instance of an OVC Service, as defined in this document, MUST map to a distinct End Point of Type = 'OVC'. Specified in MEF 26.2 Table 30.
213	Class of Service Identifier for ENNI Frames	MEF 51 Table 6	MEF 26.2 R167, R168, R169, R170	Access E-Line ●	The way that a Class of Service Name is determined for ingress ENNI Frames at an ENNI as specified in MEF 26.2 Table 30
214	Ingress Bandwidth Profile per OVC End Point <sup>3</sup>	MEF 51 Table 6	-	Access E-Line ○	Ingress policing on all ingress EI Frames mapped to the OVC End Point as specified in MEF 26.2 Table 30. MUST be No for Access E-Line.
215	Ingress Bandwidth Profile per Class of Service Identifier (Name)	MEF 51 Table 6	MEF 51 R8	Access E-Line ●	Ingress policing by the Operator on all ingress ENNI frames with the CoS ID mapped to the OVC End Point as specified in MEF 26.2 Table 30
216	Egress Bandwidth Profile per OVC End Point <sup>3</sup>	MEF 51 Table 6	-	Access E-Line ○	Egress policing and shaping on all egress EI Frames mapped to the OVC End Point as specified in MEF 26.2 Table 30. MUST be No for Access E-Line.
217	Egress Bandwidth Profile per Class of Service Identifier <sup>3</sup>	MEF 51 Table 6	-	Access E-Line ○	Traffic limiting of egress Service Frames with the CoS ID mapped to the OVC End Point at an ENNI. Specified in MEF 26.2 Table 30.
218	Source MAC Address Limit	MEF 51 Section 8.4	MEF 26.2 D14	Access E-Line ●	Enabled or Disabled as specified in as specified in MEF 26.2 Table 30.
219	Maintenance End Point (MEP) List	MEF 51 Table 6	-	Access E-Line ○	A list of MEPs, with their direction (Up or Down), MEG and MEG level, to be enabled at the OVC End Point. Specified in MEF 26.2 Table 30.
220	Maintenance Intermediate Point (MIP)	MEF 51 Table 6	MEF 51 D10	Access E-Line ●	The indication of the instantiation of a MIP, Enabled or Disabled as specified in MEF 26.2 Table 30.

Table 14: Access E-Line - OVC End Point Service Attributes and Test Requirements

<sup>3</sup>: Ingress Bandwidth Profile per Class of Service Identifier is mandatory for Access E-Line and Transit E-Line services. Other ingress or egress bandwidth profiles in combination with Ingress Bandwidth Profile per Class of Service Identifier are to be handled between subscriber/service provider/operator.

## 7.2 Transit E-Line Services

### 7.2.1 Transit E-Line - ENNI Service Attributes and Test Requirements

Index	Service Attributes	Service Reference	Test Requirements	Certification Applicability ● = Tested ○ = Not Tested	Summary Description
221	Operator ENNI Identifier	MEF 51 Section 8.4	-	Transit E-Line ○	A string that is unique across the ENNIs of the Operator CEN as specified in Table 24 of MEF 26.2
222	S-VLAN ID Control	MEF 51 Section 8.4	-	Transit E-Line ○	Full or Partial as specified in Table 24 of MEF 26.2
223	Maximum Number of OVCs	MEF 51 Section 8.4	-	Transit E-Line ○	A strictly positive integer as specified in Table 24 of MEF 26.2
224	Maximum Number of OVC End Points per OVC	MEF 51 Section 8.4	MEF 51 R38, R39	Transit E-Line ●	A strictly positive integer as specified in Table 24 of MEF 26.2 (MUST be two for Access E-Line)
225	ENNI Token Share	MEF 51 Section 8.4	MEF 26.2 R83	Transit E-Line ●	Enabled or Disabled as specified in Table 24 of MEF 26.2
226	ENNI Envelopes	MEF 51 Section 8.4	MEF 26.2 R84, R85	Transit E-Line ●	A list of entries of the form <Envelope ID value, Envelope Coupling Flag value> as specified in Table 24 of MEF 26.2
Index	Common Service Attributes	Service Reference	Test Requirements	Certification Applicability ● = Tested ○ = Not Tested	Summary Description
227	ENNI Peering Identifier	MEF 51 Section 8.4	-	Transit E-Line ○	A string that is unique across all of the ENNIs between the Operator CENs as specified in Table 3 of MEF 26.2
228	ENNI Physical Layer	MEF 51 Section 8.4	MEF 26.2 R5, R6, R7	Transit E-Line ●	A subset of the PHYs listed in IEEE Std. 802.3 – 2012 for each physical link as specified in Table 3 of MEF 26.2
229	ENNI Frame Format	MEF 51 Section 8.4	MEF 26.2 R8, R9, R10	Transit E-Line ●	Ethernet MAC Frame conforming to Clause 3 of IEEE 802.3-2012 as specified in Table 3 of MEF 26.2
230	ENNI Number of Links <sup>1</sup>	MEF 51 Section 8.4	-	Transit E-Line ○	A strictly positive integer as specified in Table 3 of MEF 26.2
231	ENNI Link Aggregation <sup>1</sup>	MEF 51 Section 8.4	-	Transit E-Line ○	None, 2-Link Active/Standby, All Active, or Other as specified in Table 3 of MEF 26.2
232	ENNI Port Conversation ID to Aggregation Link Map <sup>1</sup>	MEF 51 Section 8.4	-	Transit E-Line ○	See IEEE Std. 802.1AX – 2014 as specified in Table 3 of MEF 26.2
233	ENNI MEG <sup>1</sup>	MEF 51 Section 8.4	-	Transit E-Line ○	Enabled or Disabled as specified in Table 3 of MEF 26.2
234	ENNI LAG Link MEG <sup>1</sup>	MEF 51 Section 8.4	-	Transit E-Line ○	Enabled or Disabled as specified in Table 3 of MEF 26.2
235	ENNI Link OAM <sup>1</sup>	MEF 51 Section 8.4	-	Transit E-Line ○	Enabled or Disabled as specified in Table 3 of MEF 26.2
Index	Operator Multilateral Service Attributes	Service Reference	Test Requirements	Certification Applicability ● = Tested ○ = Not Tested	Summary Description
236	ENNI L2CP Peering <sup>2</sup>	MEF 45 Section 8.2	MEF 45 R10	Transit E-Line ●	The L2CP Peering service attribute value MUST be an empty list, or a list of entries identifying protocols to be Peered where each entry consists of {Destination Address, Protocol Identifier} or {Destination Address, Protocol Identifier, Link Identifier}
237	ENNI Tagged L2CP Frame Processing	MEF 45 Section 8.3	MEF 45 D2	Transit E-Line ●	An ENNI Tagged L2CP Frame Processing Service Attribute SHOULD be 802.1 compliant
238	ENNI Maximum Frame Size	MEF 51 Section 8.4	MEF 26.2 R27	Transit E-Line ●	The maximum length ENNI Frame in bytes that can be reliably processed as specified in Table 5 of MEF 26.2

Table 15: Transit E-Line - ENNI Service Attributes and Test Requirements

<sup>1</sup>: Control and management protocols such as E-LMI, Link OAM, Service OAM UNI-MEG, Service OAM ENNI-MEG, Test MEG or protection mechanisms that may be operating at the external interfaces are outside the scope of the MEF 3.0 CE certification program. The deployment and verification of these protocols are to be handled between subscriber/service provider/operator.

<sup>2</sup>: Protocols not in list are either Passed to OVC or Discarded based on the Destination Address.

### 7.2.2 Transit E-Line - OVC Service Attributes and Test Requirements

Index	Service Attributes	Service Reference	Test Requirements	Certification Applicability ● = Tested ○ = Not Tested	Summary Description
239	OVC Identifier	MEF 51 Table 5	-	Transit E-Line ○	A unique identifier within the Operator's network for the OVC as specified in Table 6 of MEF 26.2
240	OVC Type	MEF 51 Table 8	MEF 51 R18	Transit E-Line ●	OVC type as specified in Table 6 of MEF 26.2. Access E-Line MUST be Point-to-Point
241	OVC End Point List	MEF 51 Table 17	MEF 51 R37	Transit E-Line ●	A list of OVC End Point Identifiers as specified in Table 6 of MEF 26.2. Access E-Line MUST have one OVC End Point at an ENNI and one OVC End Point at a UNI
242	Maximum Number of UNI OVC End Points	MEF 51 Table 17	-	Transit E-Line ○	An integer greater than or equal to 0 as specified in Table 6 of MEF 26.2. MUST be 1 for Access E-Line
243	Maximum Number of ENNI OVC End Points	MEF 51 Table 17	MEF 51 R39	Transit E-Line ●	A strictly positive integer as specified in Table 6 of MEF 26.2. MUST be 1 for Access E-Line
244	OVC Maximum Frame Size	MEF 51 Table 5	MEF 26.2 R40, R41	Transit E-Line ●	At least 1526 as specified in Table 6 of MEF 26.2
245	OVC CE-VLAN ID Preservation	MEF 51 Table 17	MEF 51 R40	Transit E-Line ●	Can be one of Preserve, Strip, or Retain as specified in Table 6 of MEF 26.2
246	OVC CE-VLAN CoS (PCP) Preservation	MEF 51 Table 17	MEF 51 R41	Transit E-Line ●	Enabled or Disabled as specified in Table 6 of MEF 26.2
247	OVC S-VLAN ID Preservation	MEF 51 Table 5	MEF 26.1 R46, R47, R48	Transit E-Line ●	Enabled or Disabled in MEF 51 Table 5 and as defined in MEF 26.1. The attribute has been removed from 26.2
248	OVC S-VLAN CoS (PCP) Preservation	MEF 51 Table 5	MEF 26.2 R49	Transit E-Line ●	Enabled or Disabled as specified in Table 6 of MEF 26.2
249	Color Forwarding	MEF 51 Table 5	-	Transit E-Line ○	Yes or No in MEF 51 Table 5 and as defined in MEF 26.1. The attribute has been removed from 26.2
250	Service Level Specification	MEF 51 Table 5 & 8	MEF 51 D3, D4, D14	Transit E-Line ●	Any combination of some or all of performance metrics defined in MEF 26.2 can be used in an SLS
251	Unicast Frame Delivery	MEF 51 Table 8	MEF 51 R20	Transit E-Line ●	Conditional or Unconditional or Discard as specified in Table 6 of MEF 26.2. If Conditional, the conditions need to be specified. The Operator MUST support unconditional unicast frame delivery
252	Multicast Frame Delivery	MEF 51 Table 8	MEF 51 R21	Transit E-Line ●	Conditional or Unconditional or Discard as specified in Table 6 of MEF 26.2. If Conditional, the conditions need to be specified. The Operator MUST support unconditional multicast frame delivery
253	Broadcast Frame Delivery	MEF 51 Table 8	MEF 51 22	Transit E-Line ●	Conditional or Unconditional or Discard as specified in Table 6 of MEF 26.2. If Conditional, the conditions need to be specified. The Operator MUST support unconditional broadcast frame delivery
254	OVC Available MEG Level	MEF 51 Table 5	MEF 51 R4	Transit E-Line ●	OVC Available MEG Level (0,1,2, ..., 7 or None) as specified in Table 6 of MEF 26.2. It specifies the lowest MEG Level available for the Service Provider or SOAM Super Operator

Table 16: Transit E-Line - OVC Service Attributes and Test Requirements

### 7.2.3 Transit E-Line - OVC End Point Service Attributes and Test Requirements

Index	Service Attributes (End Point @ ENNI)	Service Reference	Test Requirements	Certification Applicability ● = Tested ○ = Not Tested	Summary Description
255	OVC End Point Identifier	MEF 51 Table 6	-	Access E-Line ○	A unique identifier within the Operator's network for the OVC End Point. Specified in MEF 26.2 Table 30.
256	Trunk Identifier	MEF 51 Table 6	-	Access E-Line ○	A pair of S-VLAN ID values used on the ENNI for distinguishing between Root and Leaf originated frames. Not applicable for Access E-Line Services and has been removed from 26.2
257	OVC End Point Map	MEF 51 Section 8.4	MEF 51 R14	Access E-Line ●	Each S-VLAN ID value associated with an instance of an OVC Service, as defined in this document, MUST map to a distinct End Point of Type = 'OVC'. Specified in MEF 26.2 Table 30.
258	Class of Service Identifier for ENNI Frames	MEF 51 Table 6	MEF 26.2 R167, R168, R169, R170	Access E-Line ●	The way that a Class of Service Name is determined for ingress ENNI Frames at an ENNI as specified in MEF 26.2 Table 30
259	Ingress Bandwidth Profile per OVC End Point <sup>3</sup>	MEF 51 Table 6	-	Access E-Line ○	Ingress policing on all ingress EI Frames mapped to the OVC End Point as specified in MEF 26.2 Table 30. MUST be No for Access E-Line.
260	Ingress Bandwidth Profile per Class of Service Identifier (Name)	MEF 51 Table 6	MEF 51 R8	Access E-Line ●	Ingress policing by the Operator on all ingress ENNI frames with the CoS ID mapped to the OVC End Point as specified in MEF 26.2 Table 30
261	Egress Bandwidth Profile per OVC End Point <sup>3</sup>	MEF 51 Table 6	-	Access E-Line ○	Egress policing and shaping on all egress EI Frames mapped to the OVC End Point as specified in MEF 26.2 Table 30. MUST be No for Access E-Line.
262	Egress Bandwidth Profile per Class of Service Identifier <sup>3</sup>	MEF 51 Table 6	-	Access E-Line ○	Traffic limiting of egress Service Frames with the CoS ID mapped to the OVC End Point at an ENNI. Specified in MEF 26.2 Table 30.
263	Source MAC Address Limit	MEF 51 Section 8.4	MEF 26.2 D14	Access E-Line ●	Enabled or Disabled as specified in as specified in MEF 26.2 Table 30.
264	Maintenance End Point (MEP) List	MEF 51 Table 6	-	Access E-Line ○	A list of MEPs, with their direction (Up or Down), MEG and MEG level, to be enabled at the OVC End Point. Specified in MEF 26.2 Table 30.
265	Maintenance Intermediate Point (MIP)	MEF 51 Table 6	MEF 51 D10	Access E-Line ●	The indication of the instantiation of a MIP, Enabled or Disabled as specified in MEF 26.2 Table 30.

Table 17: Transit E-Line - OVC End Point Service Attributes and Test Requirements

<sup>3</sup>: Ingress Bandwidth Profile per Class of Service Identifier is mandatory for Access E-Line and Transit E-Line services. Other ingress or egress bandwidth profiles in combination with Ingress Bandwidth Profile per Class of Service Identifier are to be handled between subscriber/service provider/operator.



## 8 References

- [1] Internet Engineering Task Force RFC 2119, *Key words for use in RFCs to Indicate Requirement Levels*, March 1997.
- [2] Internet Engineering Task Force RFC 8174, *Ambiguity of Uppercase vs Lowercase in RFC 2119 Key Words*, May 2017.
- [3] MEF 6.2, *EVC Ethernet Service Definitions – Phase 3*, August 2014
- [4] MEF 10.3, *Ethernet Services Attributes – Phase 3*, October 2013.
- [5] MEF 23.2, *Carrier Ethernet Class of Service – Phase 2*, January 2012.
- [6] MEF 23.2.1, *Models for Bandwidth Profiles with Token Sharing*, January 2017.
- [7] MEF 26.1, *External Network Network Interface (ENNI) – Phase 2*, January 2012.
- [8] MEF 26.2, *External Network Network Interface (ENNI) and Operator Services Attributes*, August 2016.
- [9] MEF 45, *Multi-CEN L2CP*, August 2014.
- [10] MEF 45.0.1, *Amendment to MEF 45: OVC Services Requirements for L2CP*, April 2017.
- [11] MEF 51, *OVC Service Definitions*, August 2015.