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**Information technology — Coding of
multimedia and hypermedia information —**

Part 3:

MHEG script interchange representation

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*Technologies de l'information — Codage de l'information multimédia et
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Partie 3. Représentation d'échange script MHEG

INTERNATIONAL

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Contents

1	Scope	1
1.1	Context of the scope	1
1.2	Scope of this part of ISO/IEC 13522	1
2	Normative references	1
3	Definitions	2
4	Abbreviations	6
5	Conformance	7
5.1	Information object conformance	7
5.1.1	Profiles	7
5.1.2	Encoding	7
5.1.3	Syntax	8
5.1.4	Semantics	8
5.2	Implementation conformance	8
5.2.1	Conformance requirements	8
5.2.2	Conformance documentation	8
5.3	Application conformance	9
5.4	Test Methods	9
6	Overview	9
6.1	Description methodology	9
6.2	Data processing operations	10
6.3	Access to external data and functions	10
7	MHEG/MHEG-3 relationship	11
7.1	MHEG entities	11
7.2	Functional entities	11
7.3	MHEG-SIR script interpreter	12
8	Elements of MHEG-SIR	12
8.1	Data types	12
8.1.1	Predefined types	13
8.1.1.1	Primitive types	13
8.1.1.1.1	void type	14
8.1.1.1.2	octet type	14
8.1.1.1.3	short type	14
8.1.1.1.4	long type	14
8.1.1.1.5	unsigned short type	14

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		8.1.1.1.6	unsigned long type	14	
		8.1.1.1.7	float type	14	
		8.1.1.1.8	double type	14	
		8.1.1.1.9	boolean type	14	
		8.1.1.1.10	character type	14	
		8.1.1.1.11	data identifier type	14	
		8.1.1.1.12	object reference type	15	
	8.1.1.2		Predefined constructed types	15	
8.1.2			Declared constructed types	15	
	8.1.2.1		sequence types	15	
	8.1.2.2		string types	16	
	8.1.2.3		array types	16	
	8.1.2.4		structure types	17	
	8.1.2.5		union types	17	
8.2	Data			17	
	8.2.1		Immediate values	18	
	8.2.2		Constants	18	
	8.2.3		Variables	18	
		8.2.3.1	Global variables	19	
		8.2.3.2	Local variables	19	
		8.2.3.3	Dynamic variables	19	
8.3	Functions			19	
	8.3.1		Routines	20	
	8.3.2		Services	20	
	8.3.3		Predefined functions	21	
8.4	Messages			21	
	8.4.1		Package exceptions	21	
	8.4.2		Predefined messages	22	
8.5	Instructions			22	
8.6	Identifiers			22	
	8.6.1		Type identifiers	22	
	8.6.2		Data identifiers	23	
	8.6.3		Function identifiers	23	
	8.6.4		Message identifiers	23	
9	The MHEG-SIR virtual machine			23	
	9.1		Structure of the MHEG-SIR virtual machine	24	
	9.2		Structures and notations	24	
		9.2.1	Table	24	
		9.2.2	Stack	24	
		9.2.3	Parameter stack	25	
		9.2.4	Queue	25	
		9.2.5	Data representation	25	
	9.3		Memory areas	26	
		9.3.1	Mh-script memory areas	26	
			9.3.1.1 Data areas	27	
				9.3.1.1.1 Type definition table	27
				9.3.1.1.2 Constant table	27
				9.3.1.1.3 Global variable definition table	27
			9.3.1.2 Code areas	27	
				9.3.1.2.1 Routine definition table	27
				9.3.1.2.2 Package definition table	28
				9.3.1.2.3 Service definition table	28
				9.3.1.2.4 Exception definition table	28
				9.3.1.2.5 Handler definition table	29
				9.3.1.2.6 Program code area	29

9.3.2	Rt-script memory areas.....	29
9.3.2.1	Dynamic memory areas.....	29
9.3.2.1.1	Variable table.....	29
9.3.2.1.2	Call stack.....	30
9.3.2.1.3	Parameter stack.....	30
9.3.2.1.4	Message queue.....	31
9.3.2.1.5	Heap.....	31
9.3.2.2	Registers.....	31
9.3.2.2.1	Instruction pointer register.....	32
9.3.2.2.2	Instruction register.....	32
9.3.2.2.3	Error register.....	32
9.3.2.2.4	Stack pointer register.....	32
9.3.2.2.5	Frame pointer register.....	32
9.3.2.2.6	Queue pointer register.....	32
9.3.2.2.7	Function register.....	32
9.4	Script statuses.....	33
9.4.1	Mh-script statuses.....	33
9.4.1.1	Not available.....	33
9.4.1.2	Available.....	33
9.4.2	Rt-script statuses.....	33
9.4.2.1	Not ready.....	33
9.4.2.2	Ready.....	33
9.4.2.3	Running.....	34
9.4.2.4	Erroneous.....	34
9.5	Processing units.....	34
9.5.1	Message reception.....	34
9.5.1.1	MHEG-3 API operations.....	34
9.5.1.2	External exception.....	34
9.5.1.3	InstructionExecutionError exception.....	35
9.5.1.4	MHEG-3 API exception.....	35
9.5.2	Mh-script initialisation.....	35
9.5.3	Rt-script initialisation.....	35
9.5.4	Rt-script execution unit.....	36
9.5.5	MHEG-SIR instruction execution unit.....	36
10	Provisions for run-time environment access.....	36
10.1	General model.....	36
10.2	Declaration of IDL interfaces.....	37
10.3	Invocation of external operations in an MHEG-SIR program.....	38
10.4	Handling of external exceptions in an MHEG-SIR program.....	38
10.5	Invocation of external operations by an MHEG-3 engine.....	38
10.6	Handling of external exceptions by an MHEG-3 engine.....	38
10.7	Platform mapping specifications.....	39
11	Provisions for MHEG object manipulation.....	39
11.1	Invoking MHEG actions.....	39
11.1.1	Sending messages to other scripts.....	39
11.1.2	Exchange of information with MHEG objects.....	40
11.2	Receiving MHEG messages.....	40
11.2.1	MHEG-3 API run operations.....	40
11.2.2	MHEG API exceptions.....	40
12	MHEG-SIR declarations.....	40
12.1	Type declaration.....	41
12.1.1	Type identifier.....	41
12.1.2	Type description.....	41

	12.1.2.1	String description.....	42
	12.1.2.2	Sequence description.....	42
	12.1.2.3	Array description.....	42
	12.1.2.4	Structure description.....	42
	12.1.2.5	Union description.....	42
12.2		Constant declaration.....	43
	12.2.1	Data identifier.....	43
	12.2.2	Type identifier.....	43
	12.2.3	Constant value.....	43
12.3		Global variable declaration.....	44
	12.3.1	Data identifier.....	44
	12.3.2	Type identifier.....	44
	12.3.3	Constant reference.....	44
12.4		Package declaration.....	45
	12.4.1	Package identifier.....	45
	12.4.2	Name.....	45
	12.4.3	Service description.....	45
	12.4.3.1	Function identifier.....	45
	12.4.3.2	Name.....	46
	12.4.3.3	Calling mode.....	46
	12.4.3.4	Type identifier.....	46
	12.4.3.5	Parameter description.....	46
	12.4.3.5.1	Passing mode.....	46
	12.4.3.5.2	Type identifier.....	47
	12.4.4	Exception description.....	47
	12.4.4.1	Message identifier.....	47
	12.4.4.2	Parameter description.....	47
12.5		Handler declaration.....	47
	12.5.1	Message identifier.....	48
	12.5.2	Function identifier.....	48
12.6		Routine declaration.....	48
	12.6.1	Function identifier.....	48
	12.6.2	Type identifier.....	48
	12.6.3	Parameter description.....	48
	12.6.3.1	Passing mode.....	49
	12.6.3.2	Type identifier.....	49
	12.6.4	Local variable declaration.....	49
	12.6.4.1	Data identifier.....	49
	12.6.4.2	Type identifier.....	49
	12.6.4.3	Constant reference.....	49
	12.6.5	Program code.....	50
13		MHEG-SIR instructions.....	50
	13.1	Presentation methodology.....	50
	13.1.1	Error conditions.....	50
	13.1.2	Formal specification.....	51
	13.1.3	Data table notation.....	51
	13.1.4	Template instruction notation.....	51
	13.1.5	Primitives.....	52
	13.2	Classification of MHEG-SIR instructions.....	52
	13.3	Description of instructions.....	54
	13.3.1	No operation.....	54
	13.3.2	Yield.....	54
	13.3.3	Return.....	54
	13.3.4	Free.....	55
	13.3.5	Not.....	55

13.3.6	Or	56
13.3.7	Exclusive or	56
13.3.8	And	57
13.3.9	Equal reference	57
13.3.10	Equal	58
13.3.11	Less than	58
13.3.12	Greater than	59
13.3.13	Add	59
13.3.14	Subtract	59
13.3.15	Multiply	60
13.3.16	Divide	60
13.3.17	Negate	61
13.3.18	Remainder	61
13.3.19	Duplicate	62
13.3.20	Convert	62
13.3.21	Jump on true	62
13.3.22	Jump on false	63
13.3.23	Jump	63
13.3.24	Shift	64
13.3.25	Get object reference	64
13.3.26	Long jump on true	65
13.3.27	Long jump on false	65
13.3.28	Long jump	65
13.3.29	Call	66
13.3.30	External call	67
13.3.31	Push	68
13.3.32	Push reference	69
13.3.33	Push immediate	69
13.3.34	Pop	70
13.3.35	Pop reference	70
13.3.36	Pop contents	70
13.3.37	Allocate	71
13.3.38	Increment	71
13.3.39	Decrement	72
13.3.40	Get	72
13.3.41	Get contents	73
13.3.42	Set	74
13.3.43	Set contents	75
13.4	Type conversion rules	75
13.4.1	Reversible conversions	76
13.4.2	Lossless extensions	76
13.4.2.1	Conversions from boolean	76
13.4.2.2	Conversions from octet to a numeric type	76
13.4.2.3	Lossless conversions from a numeric to a larger numeric type	76
13.4.3	Lossy extensions	77
13.4.4	Truncations to boolean	77
13.4.5	Truncations between integer or between floating-point types	77
13.4.6	Truncations from floating-point to integer	77
14	IDL mapping to MHEG-SIR	77
14.1	IDL specifications	77
14.2	IDL interfaces and modules	78
14.3	IDL operations	78
14.3.1	Operation name	78
14.3.2	Operation parameters	78

	14.3.3	Implicit parameter.....	78
	14.3.4	Return value.....	78
14.4		IDL attributes.....	78
	14.4.1	Accessor.....	79
	14.4.2	Modifier.....	79
	14.4.3	Readonly attribute.....	79
14.5		IDL inherited operations.....	79
14.6		IDL exceptions.....	79
	14.6.1	Exception name.....	79
	14.6.2	Exception members.....	79
	14.6.3	Implicit member.....	79
14.7		IDL types.....	80
	14.7.1	char type.....	80
	14.7.2	enum type.....	80
	14.7.3	Constructed types.....	80
	14.7.4	any type.....	81
	14.7.5	Restrictions on types.....	81
14.8		IDL constants.....	81
15		The MHEG-3 API.....	81
	15.1	ScriptInterpreter object.....	81
	15.1.1	kill operation.....	82
	15.1.2	prepare operation.....	82
	15.2	MhScript object.....	83
	15.2.1	destroy operation.....	83
	15.2.2	new operation.....	83
	15.3	RtScript object.....	84
	15.3.1	delete operation.....	84
	15.3.2	setPriority operation.....	84
	15.3.3	getPriority operation.....	84
	15.3.4	setData operation.....	85
	15.3.5	getData operation.....	85
	15.3.6	allocate operation.....	86
	15.3.7	free operation.....	86
	15.3.8	stop operation.....	87
	15.3.9	relnit operation.....	87
	15.3.10	getRtScriptStatus operation.....	88
	15.3.11	open operation.....	88
	15.4	RoutineInvocation object.....	88
	15.4.1	close operation.....	88
	15.4.2	routine_id readonly attribute.....	89
	15.4.3	setParameter operation.....	89
	15.4.4	getPrototype operation.....	90
	15.4.5	run operation.....	90
	15.4.6	reset operation.....	91
	15.4.7	getInvocationStatus operation.....	91
		Annex A (normative) ASN.1 specification of interchanged scripts.....	92
		Annex B (normative) Coded representation of interchanged scripts.....	95
B.1		Coding for interchanged scripts.....	95
B.2		Coding for the program code.....	95
	B.2.1	Instruction op-codes.....	95
	B.2.2	Instruction operands.....	95

B.2.2.1	Data identifier operands	95
B.2.2.2	Function identifier operands	95
B.2.2.3	Miscellaneous numeric operands	96
Annex C	(normative) MHEG-SIR predefined elements	101
C.1	Predefined types	101
C.1.1	Primitive types	101
C.1.2	MHEG API types	102
C.2	Predefined functions	102
C.2.1	MHEG API operations	102
C.2.2	MHEG-3 API operations	102
C.3	Predefined messages	103
C.3.1	MHEG-3 API operations	103
C.3.2	The InstructionExecutionError exception	103
C.3.3	MHEG-3 API exceptions	104
C.3.4	MHEG API exceptions	104
Annex D	(normative) IDL Platform mapping specification form	105
	Platform description	105
	Package availability procedure	105
	Package load procedure	105
	Package unload procedure	105
	Operation invocation procedure	105
	Parameter passing procedure	105
	Output parameter retrieval procedure	105
	Return value retrieval procedure	106
	Data encoding rules	106
	Exception retrieval procedure	106
	System exceptions	106
	Resource limitations	106
Annex E	(normative) MHEG API definition process	107
E.1	Generic API definition framework	107
E.1.1	MHEG elements input to MHEG API definition process	107
E.1.2	IDL elements output by MHEG API definition process	107
E.1.3	Requirements on the MHEG API definition process	107
E.1.3.1	Portability	108
E.1.3.2	Genericity	108
E.1.3.3	Conformance testability	108
E.1.3.4	Implementability	108
E.1.3.5	Fulfilment of technical requirements	108
E.1.4	General structure of the MHEG API	109
E.1.5	IDL non-object datatype definition	109
E.1.5.1	Name mapping	109
E.1.5.1.1	Data types	109
E.1.5.1.2	Components	109
E.1.5.1.3	Values	110
E.1.5.2	Type mapping	110
E.1.5.2.1	INTEGER	110
E.1.5.2.2	BOOLEAN	110
E.1.5.2.3	OCTET STRING	111
E.1.5.2.4	ENUMERATED	111

	E.1.5.2.5	SEQUENCE OF	111
	E.1.5.2.6	CHOICE	111
	E.1.5.2.7	SEQUENCE	112
	E.1.5.3	Order of declarations	112
E.1.6		IDL interface definition	114
E.1.7		IDL attribute definition	114
	E.1.7.1	MHEG interchanged attributes	114
	E.1.7.2	MHEG internal attributes	115
E.1.8		IDL operation definition	115
	E.1.8.1	Operations mapping MHEG elementary actions	115
	E.1.8.2	Operations enabling the deletion of an interface instance	116
	E.1.8.3	Operations to attach and detach an interface instance to a MHEG entity	117
E.1.9		IDL exception definition	117
E.2		MHEG API mapping to MHEG-SIR	118
Annex F (normative) IDL specification of the MHEG-3 API			119
Annex G (normative) Relationships with other parts of ISO/IEC 13522			121
G.1		Relationships with ISO/IEC 13522-1	121
G.2		Relationships with ISO/IEC 13522-5	122
Annex H (informative) MHEG-SIR syntax (EBNF notation)			123
Annex J (informative) Textual notation for MHEG-SIR scripts			125
Annex K (informative) MHEG entities			128
K.1		MHEG objects	128
K.2		Mh-objects	128
K.3		Rt-objects	128
K.4		Interchanged MHEG objects	129
Annex L (informative) Main features of MHEG-SIR			130
L.1		Features of using applications	130
	L.1.1	Manipulation of MHEG entities	130
	L.1.2	Computations, variable handling and control structures	130
	L.1.3	External device control	130
	L.1.4	Data acquisition	130
	L.1.5	Access to external data	131
	L.1.6	Access to arbitrary external run-time services	131
L.2		Functional features	131
	L.2.1	Data processing operations	131
	L.2.2	Access to external data and functions	131
L.3		Technical features	132
	L.3.1	Hardware independence	132
	L.3.2	Final form representation	133
	L.3.3	Compactness	133

L.3.4	Ease of implementation	133
L.3.5	Interpretation efficiency.....	133
L.3.6	Openness and extensibility.....	133
L.3.7	Non-revisability	134
L.3.8	Provisions for real-time interchange	134
L.3.9	Semantic validation for quality of service purposes.....	134
L.3.10	Syntax checkability (with regard to contamination hazards).....	134
L.3.11	Non-proprietary representation.....	134
L.3.12	Secure script processing	134

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialised system for worldwide standardisation. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organisation to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organisations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

International Standard ISO/IEC 13522-3 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

ISO/IEC 13522 consists of the following parts, under the general title *Information technology - Coding of multimedia and hypermedia information*

- Part 1: MHEG object representation — Base notation (ASN.1)
- Part 3: MHEG script interchange representation
- Part 4: MHEG registration procedure
- Part 5: Support for base-level interactive applications
- Part 6: Support for enhanced interactive applications

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Annexes A to G form an integral part of this part of ISO/IEC 13522. Annexes H to K are for information only.

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Information technology — Coding of multimedia and hypermedia information —

Part 3: MHEG script interchange representation

1 Scope

1.1 Context of the scope

ISO/IEC 13522 specifies the coded representation of multimedia/hypermedia information objects (MHEG objects) for interchange as final form units within or across services and applications, by any means of interchange including local area networks, wide area telecommunication or broadcast networks, storage media, etc.

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MHEG objects are usually produced by computer tools taking as a source form multimedia applications designed using multimedia scripting languages. In this context, one of the MHEG object classes, the script class, is intended to complement the other MHEG classes in expressing the functionality commonly supported by scripting languages. Script objects express more powerful control mechanisms and describe more complex relationships among MHEG objects than can be expressed by MHEG action and link objects alone. Furthermore, script objects express access and interaction with external services provided by the run-time environment.

Other parts of ISO/IEC 13522 define the coded representation for script objects in an open manner so that script objects may encapsulate either standardised or proprietary script code. Script objects encapsulate scripts that may be encoded in any encoding format as registered according to ISO/IEC 13522-4.

1.2 Scope of this part of ISO/IEC 13522

The scope of this part of ISO/IEC 13522 is to extend the coded representation of the MHEG script object class defined by another part of ISO/IEC 13522, including ISO/IEC 13522-1 and ISO/IEC 13522-5.

This part of ISO/IEC 13522 specifies the MHEG script interchange representation (MHEG-SIR) for the contents of script objects, i.e. the encoding of the script data component of the MHEG script class.

MHEG engines are system or application components that handle, interpret and present MHEG objects. This part of ISO/IEC 13522 also specifies the semantics of interchanged scripts. These semantics are defined in terms of minimum requirements on the behaviour of MHEG engines that support the interpretation of interchanged scripts.

This part of ISO/IEC 13522 is applicable to all applications that interchange multimedia and hypermedia information.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 13522. At the time of publication, the editions indicated were valid. All standards are subject

to revision, and parties to agreements based on this part of ISO/IEC 13522 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of ISO and IEC maintain registers of currently valid International Standards.

- [1] ISO/IEC 8824-1:1995|ITU-T Recommendation X.680 (1994): *Information technology — Abstract Notation One (ASN.1): Specification of basic notation.*
- [2] ISO/IEC 8825-1:1995|ITU-T Recommendation X.690 (1994): *Information technology — ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER).*
- [3] ISO/IEC 9646:1992-1995, *Information technology — Open Systems Interconnection — Conformance testing methodology and framework* (all parts).
- [4] ISO/IEC 10646-1:1993, *Information technology — Universal Multiple-Octet Coded Character Set (UCS) — Part 1: Architecture and Basic Multilingual Plane.*
- [5] ISO/IEC 13522-1:1997, *Information technology — Coding of multimedia and hypermedia information — Part 1: MHEG object representation — Base notation (ASN.1).*
- [6] ISO/IEC 13522-4:1996, *Information technology — Coding of multimedia and hypermedia information — Part 4: MHEG registration procedure.*
- [7] ISO/IEC 13522-5:1997, *Information technology — Coding of multimedia and hypermedia information — Part 5: Support for base-level interactive applications*
- [8] ISO/IEC 14750:—¹⁾, *Information technology — Open Distributed Processing — Interface Definition Language*
- [9] IEEE 754-1985, *IEEE Standard for Binary Floating-Point Arithmetic.*

3 Definitions

For the purposes of this part of ISO/IEC 13522, the definitions given in ISO/IEC 8824-1 [1], ISO/IEC 8825-1 [2] and the following definitions apply.

- 3.1 application programming interface (API):** Boundary across which a software application uses facilities of programming languages to invoke software services. These facilities may include procedures or operations, shared data objects and resolution of identifiers.
- 3.2 attribute:** (1) MHEG attribute (see ISO/IEC 13522-1 [5]);
(2) IDL attribute (q.v.).
- 3.3 conforming MHEG-3 engine:** MHEG-3 engine whose implementation conforms to the provisions of this part of ISO/IEC 13522.
- 3.4 conforming MHEG-3 interchanged script:** Interchanged script that conforms to the provisions of this part of ISO/IEC 13522.
- 3.5 conforming MHEG-3 object:** MHEG script object whose coded representation conforms to the provisions of this part of ISO/IEC 13522.

1) To be published.

- 3.6 frame:** Record of elements on the call stack that define an execution context; one such record is pushed onto the call stack everytime a routine is called, to memorize the current execution context; one is popped from the call stack when the routine is returned from, to restore the execution context at the time of calling.
- 3.7 hypermedia (adj.):** Featuring access monomedia and multimedia information by interaction with explicit links.
- 3.8 interchanged script:** The coded representation of the "script data" attribute of an MHEG script object.
- 3.9 interface definition language (IDL):** Formal notation that is used to specify types and objects through the definition of the interface that they provide, as defined by ISO/IEC 14750-1 [8].
- 3.10 IDL attribute:** Named, typed association between an object and a value; it is declared as part of an IDL interface; it is made visible to clients as a pair of operations: an accessor (get) and a modifier (set); if it is read-only, it only provides an accessor.
- 3.11 IDL exception:** Message that can be raised when an exceptional condition occurs during the performance of the request to an IDL operation; it is defined in an IDL module and may have members, which are returned to the caller together with the message identifier.
- 3.12 IDL instance:** Object that provides the operations, signatures and semantics specified by an IDL interface; its creation and management is implementation-specific.
- 3.13 IDL interface:** Description, using IDL, of a set of operations that a client may request of an IDL object.
- 3.14 IDL object:** Identifiable, encapsulated entity that provides one or more services which can be requested by a client.
<https://standards.iteh.ai/catalog/standards/sist/22835986-395c-4750-92e3-11238c910507/iso-iec-13522-3-1997>
- 3.15 IDL operation:** Service that can be requested and is provided by an IDL object; it is defined within an IDL interface by a name, a signature which defines the type of its parameters and return value, and the list of exceptions that its invocation may raise.
- 3.16 mh-script:** Internal representation, within an MHEG engine, of an "available" MHEG script object.
- 3.17 MHEG action:** Operation that applies to MHEG objects and consists of sequential and/or parallel combinations of MHEG elementary actions.
- 3.18 MHEG action object:** MHEG object that describes MHEG actions.
- 3.19 MHEG application:** Application that involves the interchange of MHEG objects within itself or with another application.
- 3.20 MHEG conforming object:** Information object whose coded representation conforms to the provisions of another part of ISO/IEC 13522.
- 3.21 MHEG elementary action:** One of the basic operations applying to MHEG objects; it maps one MHEG API primitive.
- 3.22 MHEG engine:** Process or set of processes able to interpret MHEG objects.
- 3.23 MHEG entity:** Any MHEG object, rt-object, content data, script data, socket, channel or other construction defined by ISO/IEC 13522.
- 3.24 MHEG link:** MHEG object that defines spatio-temporal relationships among MHEG objects expressed in terms of trigger conditions and actions.