

# ISO/IEC 23008-1:2014-06 (E)

## Information technology - High efficiency coding and media delivery in heterogeneous environments - Part 1: MPEG media transport (MMT)

---

<b>Contents</b>		<b>Page</b>
Foreword .....		v
Introduction .....		vi
1	Scope .....	1
2	Normative references .....	1
3	Terms, definitions, symbols and abbreviated terms .....	2
3.1	Terms and definitions .....	2
3.2	Symbols and abbreviated terms .....	4
3.3	Conventions .....	6
4	Overview .....	6
5	MMT Data Model .....	9
5.1	Introduction .....	9
5.2	Package .....	10
5.3	Asset .....	10
5.4	Media Processing Unit (MPU) .....	11
6	ISOBMFF-based MPU .....	12
6.1	Introduction .....	12
6.2	MPU brand definition .....	13
6.3	MPU Box .....	14
7	MMT Hint Track .....	15
8	Packetized delivery of Package .....	18
8.1	Introduction .....	18
8.2	MMT protocol .....	18
8.3	The MMTP payload .....	21
8.4	MMTP Operation .....	30
9	Signalling .....	35
9.1	Introduction .....	35
9.2	Signalling message format .....	36
9.3	Signalling messages for Package Consumption .....	37
9.4	Signalling messages for Package Delivery .....	51
9.5	Descriptors .....	53
9.6	Syntax Element Groups .....	57
9.7	ID and Tags values .....	62
10	The Hypothetical Receiver Buffer Model .....	63
10.1	Introduction .....	63
10.2	The FEC Decoding Buffer .....	64
10.3	The De-jitter Buffer .....	64
10.4	The MMTP packet Decapsulation Buffer .....	65
10.5	Usage of Hypothetical Receiver Buffer Model .....	65
10.6	Estimation of end-to-end delay and buffer requirement .....	65
10.7	HRBM signalling .....	66

<b>Annex A (informative) Jitter Calculation in MMTP .....</b>	<b>67</b>
<b>A.1 Introduction .....</b>	<b>67</b>
<b>A.2 Network jitter calculation .....</b>	<b>67</b>
<b>Annex B XML Syntax and MIME Type for Signalling message .....</b>	<b>68</b>
<b>B.1 XML Syntax .....</b>	<b>68</b>
<b>B.2 MIME Type .....</b>	<b>74</b>
<b>Annex C (normative) Application Layer Forward Error Correction Framework for MMT .....</b>	<b>75</b>
<b>C.1 Introduction .....</b>	<b>75</b>
<b>C.2 FEC Coding Structure .....</b>	<b>76</b>
<b>C.3 Encoding Symbol Format .....</b>	<b>78</b>
<b>C.4 FEC Source or Repair Packet Format .....</b>	<b>82</b>
<b>C.5 FEC Signalling .....</b>	<b>83</b>
<b>C.6 FEC Message .....</b>	<b>86</b>
<b>Bibliography .....</b>	<b>91</b>