

ISO/IEC/IEEE 8802-15-9:2024-11 (E)

Telecommunications and information exchange between systems - Local and metropolitan area networks specific requirements - Part 15-9: Transport of Key Management Protocol (KMP) Datagrams

Contents	Page
1. Overview.....	12
1.1 General.....	12
1.2 Scope.....	12
1.3 Purpose.....	12
1.4 Deprecated features.....	12
1.5 Word usage	12
2. Normative references.....	13
3. Definitions, acronyms, and abbreviations.....	13
3.1 Definitions	13
3.2 Acronyms and abbreviations	13
4. Introduction.....	14
4.1 Overview.....	14
4.2 System view	15
4.3 Network view.....	16
4.4 Security associations.....	16
4.5 Process flow.....	16
4.6 State machine.....	17
4.7 Address formats	17
4.8 KMP payload size.....	17
4.9 Format conventions.....	17
5. MPX data service.....	17
5.1 Description.....	17
5.2 MPX data primitives	18
5.3 MPX-PURGE primitive.....	25
5.4 MPX PIB attributes.....	27
6. KMP transport service	27
6.1 Overview.....	27
6.2 KMP-CREATE primitives.....	28
6.3 KMP-FINISHED primitives.....	33
6.4 KMP-DELETE primitives	35
6.5 KMP-PURGE primitives	37
7. MPX IE format	39
7.1 IE overview.....	39
7.2 Payload IE group ID	39
7.3 MPX IE content	39
8. KMP Service.....	43
8.1 KMP ID.....	43
8.2 Vendor-specific KMPs	43

9.	State machines	44
9.1	Inbound state machine	44
9.2	Outbound state machine.....	46
	Annex A (informative) KMP specifics—IEEE 802.1X/MKA.....	47
A.1	Description.....	47
A.1.1	Device authentication.....	47
A.1.2	Device authentication and cryptographic key agreement.....	48
A.2	Use cases.....	51
A.2.1	Overview	51
A.2.2	Isolated enclave	52
A.2.3	Star topology	52
A.2.4	Mesh	52
A.3	IEEE 802.15 specifics.....	52
A.3.1	EAPOL message framing.....	52
A.3.2	EAPOL-MKA	52
A.3.3	EAPOL-KEY	54
A.3.4	ETSI TS 102 887-2	54
A.3.5	Group Traffic Key Generation	54
	Annex B (informative) KMP specifics—IKEv2	56
B.1	Description.....	56
B.2	Use cases.....	56
B.2.1	General	56
B.2.2	Minimal IKEv2 use cases.....	56
B.2.3	Enterprise or large-scale IKEv2 use cases	57
B.3	IKEv2 and IEEE 802.15 specifics	57
B.3.1	Overview	57
B.3.2	Supported IKEv2 features	57
B.3.3	Unused IKEv2 features	57
B.3.4	Message framing	57
B.3.5	Algorithm negotiation	58
B.3.6	Key derivation.....	58
B.3.7	Broadcast and multicast key distribution	58
	Annex C (informative) KMP specifics—HIP.....	59
C.1	Description.....	59
C.2	Use cases.....	59
C.2.1	General	59
C.2.2	Isolated enclave	59
C.2.3	Home net	60
C.2.4	City net	60
C.2.5	RFID networks	60
C.2.6	Infrastructure sensor nets.....	60
C.3	IEEE 802.15TM specifics.....	60
C.3.1	Message framing	60
C.3.2	Key derivation and security PIB interaction	60
C.3.3	Deployment recommendations.....	60
C.3.4	HIT authentication.....	61

Annex D (informative) KMP specifics—PANA	62
D.1 Description.....	62
D.2 Use cases.....	62
D.3 IEEE 802.15 specifics.....	62
Annex E (informative) KMP specifics—Dragonfly.....	65
E.1 Description.....	65
E.1.1 General	65
E.1.2 Device authentication.....	65
E.1.3 Device authentication and cryptographic key establishment	65
E.2 Use cases.....	67
E.3 Dragonfly and IEEE 802.15 specifics.....	67
E.3.1 Overview	67
E.3.2 Algorithm negotiation	68
E.3.3 Key derivation	68
E.3.4 Message framing	68
E.3.5 Broadcast and multicast key distribution	69
Annex F (informative) IEEE 802.15.4 security.....	70
F.1 Description.....	70
F.2 Link keys.....	70
F.3 Group keys.....	71
F.3.1 Overview	71
F.3.2 Key Identifier Mode 0x01	71
F.3.3 Key Identifier Mode 0x02	71
F.3.4 Key Identifier Mode 0x03	72
Annex G (informative) Bibliography	73