



TECHNICKÉ PARAMETRY SLUŽEB RADO

PŘÍLOHA 16



RADO Parameters	CEA						CEA SPECI						CEA MW	
	Asymmetric		Symetric up to 100M		Symetric above 100M		Metalic (ULAF)		Optical		Lic. MW		Nelic. MW	
Frame Loss Ratio on Point to Point Tail Circuit	0,25%, BER <10^-7		0,25% metallic infrastructure BER <10^-7		0,01% optical or MW infrastructure, BER <10^-9		0,1% metallic infrastructure BER <10^-7		0,01% optical, BER <10^-12,		0,01% MW infrastructure, BER <10^-12,		0,1% MW infrastructure, BER <10^-9	
Frame Delay on Point to Point Tail Circuit	RTD <20ms		RTD <20ms		RTD <10ms		RTD <10ms		RTD <10ms		RTD <10ms		RTD <10ms	
Frame Delay Variation (95% of troughput)	NA		NA		8 ms		5 ms		5 ms		5 ms		8 ms	
Inter Frame Delay Variation (99% of frames)*	not guaranteed (10 ms typical)		10 ms		5 ms		5 ms		5 ms		5 ms		5 ms	
UNI MAC Address limit or MAC learning	4		4		4		no limit		no limit		no limit		8192	
NNI MAC Address limit or MAC learning	16		16		16		16		16		16		16	
L2 Broadcast	conditional		conditional		conditional		unconditional		unconditional		conditional (max. 30%)		conditional (max. 10Mbps)	
GbE interface for services < 100 Mbps	No		No		No		No		Yes		Yes		No	
L2 Frame Length with FCS (UNI)	1522B (tagged)		till 20 Mbps 1522B, above 20 Mbps 1535B		1535B		2000 B		2000 B		2000 B		1535 B	
UNI	VLAN		untagged or tagged (single VLAN)		untagged or tagged (single VLAN)		untagged or tagged (single VLAN)		untagged or tagged (single VLAN)		untagged or tagged (single VLAN)		untagged or tagged (single VLAN)	
	VLAN ID range		2-4050		2-4050		2-4050		2-4050		2-4050		2-4050	
Additional service: VLAN transparency	Availability		from 16/1 Mbps		from 2 Mbps		no limit		no limit		no limit		no limit	
	Maximal number of tags		1		1		1		no limit		no limit		1	
Protocol / Frame type	Action	Limit [fps]	Action	Limit [fps]	Action	Limit [fps]	Action	Limit [fps]	Action	Limit [fps]	Action	Limit [fps]	Action	Limit [fps]
Generic IPv4/IPv6 unicast	PASS	NO	PASS	NO	PASS	NO	PASS	NO	PASS	NO	PASS	NO	PASS	NO
Generic IPv4 broadcast	PASS	NO	PASS	NO	PASS	NO	PASS	NO	PASS	NO	PASS	NO	PASS	NO
Generic IPv6 multicast to all nodes (broadcast)	PASS	NO	PASS	NO	PASS	NO	PASS	NO	PASS	NO	PASS	NO	PASS	NO
Generic IPv4 multicast	PASS	NO	PASS	NO	PASS	NO	PASS	NO	PASS	NO	PASS	NO	PASS	NO
Generic IPv6 multicast (exl. well known IPv6 multicast address)	PASS	NO	PASS	NO	PASS	NO	PASS	NO	PASS	NO	PASS	NO	PASS	NO
PPPoE IPv4	PASS	NO	PASS	NO	PASS	NO	PASS	NO	PASS	NO	PASS	NO	PASS	NO
PPPoE IPv6	PASS	24000	PASS	24000	PASS	24000	PASS	NO	PASS	NO	PASS	NO	PASS	NO
ARP	PASS	30	PASS	30	PASS	30	PASS	NO	PASS	NO	PASS	NO	PASS	NO
IPv6 ND	PASS	30	PASS	30	PASS	30	PASS	NO	PASS	NO	PASS	NO	PASS	NO
DHCPv6	PASS	30	PASS	30	PASS	30	PASS	NO	PASS	NO	PASS	NO	PASS	NO
DHCPv4 - client behind xDSL	PASS	30	PASS	30	PASS	30	PASS	NO	PASS	NO	PASS	NO	PASS	NO
DHCPv4 - server behind xDSL	NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		PASS	NO	PASS	NO	PASS	NO	PASS	NO
OSPFv2/v3	PASS	30	PASS	30	PASS	30	PASS	NO	PASS	NO	PASS	NO	PASS	NO
RIPv2/RIPv6	PASS	30	PASS	30	PASS	30	PASS	NO	PASS	NO	PASS	NO	PASS	NO
IS-IS (ISO/IEC 10589:2002)	NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		PASS	NO	PASS	NO	PASS	NO	PASS	NO
IGMPv2/v3	PASS	30	PASS	30	PASS	30	PASS	NO	PASS	NO	PASS	NO	PASS	NO
MLDv1/v2	PASS	30	PASS	30	PASS	30	PASS	NO	PASS	NO	PASS	NO	PASS	NO
CDP/VTP/PagP/DTP/UDLD	PASS	30	PASS	30	PASS	30	PASS	NO	PASS	NO	PASS	NO	PASS	NO
NTPv3/v4	PASS	30	PASS	30	PASS	30	PASS	NO	PASS	NO	PASS	NO	PASS	NO
PTP	NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED	
ICMP Echo	PASS	30	PASS	30	PASS	30	PASS	NO	PASS	NO	PASS	NO	PASS	NO
HSRPv1 (IPv4)	PASS	30	PASS	30	PASS	30	PASS	NO	PASS	NO	PASS	NO	PASS	NO
HSRPv2 (IPv4/IPv6)	NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		PASS	NO	PASS	NO	PASS	NO	PASS	NO
802.1AE	PASS	30	PASS	30	PASS	30	PASS	NO	PASS	NO	PASS	NO	PASS	NO
802.3 Raw Ethernet	PASS	30	PASS	30	PASS	30	PASS	NO	PASS	NO	PASS	NO	PASS	NO
STP/MSTP/PVSTP/RSTP	NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		PASS	NO	PASS	NO	PASS	NO	PASS	NO
LLDP	NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		PASS	NO	PASS	NO	PASS	NO	PASS	NO
LACP	NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		PASS	NO	PASS	NO	PASS	NO	PASS	NO
Link OAM (802.3ah)	NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		PASS	NO	PASS	NO	PASS	NO	PASS	NO
OAM CFM (802.1ag, Y.1731)	NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		PASS	NO	PASS	NO	PASS	NO	PASS	NO
ESMC (G.8264)	DISCARD		DISCARD		DISCARD		NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED	
E-LMI (MEF-16)	NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		PASS	NO	PASS	NO	PASS	NO	PASS	NO
MMRP/MVRP/MSRP/MIRP	NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		PASS	NO	PASS	NO	PASS	NO	PASS	NO
GARP/MRP	NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		PASS	NA	PASS	NA	PASS	NA	PASS	NA
MPLS	NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		PASS	NA	PASS	NA	PASS	NA	PASS	NA
VRRP v1 (IPv4), v2 (IPv4/IPv6)	NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		PASS	NA	PASS	NA	PASS	NA	PASS	NA
MAC control UNI	DISCARD		DISCARD		DISCARD		PEER		NOT GUARANTEED		NOT GUARANTEED		PEER	
MAC control NNI	DISCARD		DISCARD		DISCARD		DISCARD		DISCARD		DISCARD		DISCARD	
SA or DA MAC 00:00:00:00:00:00	NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED	
SA MAC = DA MAC	NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED		NOT GUARANTEED	

Notes:

PASS - frame is forwarded with fps limit provided or with service speed in case of no limit presented

NOT GUARANTEED - delivery of frame is not not guaranteed and test proved that is dropped on at least some platforms

DISCARD - frame is not delivered

All other procols delivery is not guaranteed.

*IFDV je definovaná jako určitý percentil absolutních hodnot rozdílů zpoždění dvou platných rámců stejné CoS v jednom směru za podmínky, že je konstantní rozložení rámců na vstupu (delta t = 0).

Platí dle MEF 10:

Frame Delay Variation = Inter-Frame Delay Variation

Jitter ≠ Frame Delay Variation

Percentil je kvantil, který rozděluje soubor hodnot na 100 částí. Pro udávanou hodnotu x platí, Pravděpodobnost(x<IFDV) = 0,99.

