

Multimedia over Coax Alliance

The **Multimedia over Coax Alliance** (**MoCA**) is an international standards consortium publishing specifications for networking over coaxial cable.

There are three versions of the specification currently available, MoCA 1.1, MoCA 2.0, and MoCA 2.5.



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History

MoCA was established in 2004.

MoCA 1.0 was approved in 2006, MoCA 1.1 in April 2010, MoCA 2.0 in June 2010, and MoCA 2.5 in April 2016.^[1]

Membership

The Alliance currently has 45 members including pay TV operators, OEMs, CE manufacturers and IC vendors.^[2]

MoCA's board of directors consists of *Arris*, *Broadcom*, *Comcast*, *Cox Communications*, *DirecTV*, *EchoStar*, *Intel*, *MaxLinear* and *Verizon*.

Technology

Within the scope of the Internet protocol suite, MoCA is a protocol that provides the link layer. In the 7-layer OSI model, it provides definitions within the data link layer (layer 2) and the physical layer (layer 1). DLNA approved of MoCA as a layer 2 protocol.^[3]

MoCA 1.1

MoCA 1.1 provides 175 Mbit/s net throughputs (275 Mbit/s PHY rate) and operates in the 500 to 1500 MHz frequency range.^[4]

MoCA 2.0

MoCA 2.0 offers actual throughputs (MAC rate) up to 1 Gbps. Operating frequency range is 500 to 1650 MHz. Packet error rate is 1 packet error in 100 million.^[5]

MoCA 2.0 also offers lower power modes of sleep and standby and is backward interoperable with MoCA 1.1.^[6]

In March 2017, SCTE/ISBE society and MoCA consortium began creating a new "standards operational practice" (SCTE 235) to provide MoCA 2.0 with Doecsis 3.1 interoperability. Interoperability is necessary because both MoCA 2.0 and Doecsis

3.1 may operate in the frequency range above 1 GHz. The standard "addresses the need to prevent degradation or failure of signals due to a shared frequency range above 1 GHz".^{[7][8]}

MoCA 2.5

MoCA 2.5 (introduced April 13, 2016^[9]) offers actual data rates up to 2.5 Gbit/s, continues to be backward interoperable with MoCA 2.0 and MoCA 1.1, and adds MoCA protected setup (MPS), Management Proxy, Enhanced Privacy, Network wide Beacon Power, and Bridge detection.^[10]

MoCA Access is intended for multiple dwelling units (MDUs) such as hotels, resorts, hospitals, or educational facilities. It is based on the current MoCA 2.0 standard which is capable of 1 Gbps net throughputs, and MoCA 2.5 which is capable of 2.5 Gbps^[11].

MoCA performance profiles

	MoCA 1.0	MoCA 1.1	MoCA 2.0	MoCA 2.0 bonded	MoCA 2.1	MoCA 2.1 bonded	MoCA 2.5
Mbit/s actual throughput	100	175	500	1000	500	1000	2500
Number of channels bonded				2		2	3~5
Power save (standby and sleep)			X	X	X	X	X
MoCA protected setup (MPS)					X	X	X
Management proxy					X	X	X
Enhanced privacy					X	X	X
Network wide beacon power					X	X	X
Bridge detection					X	X	X

Frequency band plan

Channel	Frequency (center), MHz ^[12]
E1	500
E2	525
E3	550
E4	575
E5	600
A1	875
B1	900
C1	925
C2	950
C3	975
C4	1000
D1	1150
D2	1200
D3	1250
D4	1300
D5	1350
D6	1400
D7	1450
D8	1500

Notes:

- Channel C4 is commonly used for Verizon FiOS for the "WAN" link from the ONT to the router.^[13]
- Channels D1-D8 are commonly used for "LAN" links, between set-top boxes and the router.^[13]
- E band channels are commonly used by *DirecTV* converter boxes. The DirecTV Ethernet-to-Coax Adapter (**DECA**) uses MoCA on this "Mid-RF" frequency band.

See also

- Ethernet over coax
- G.hn
- Home gateway
- HomePlug Powerline Alliance
- Home network
- IEEE 802.3
- IEEE 802.11
- IEEE 1905
- Router (computing)
- Ultra high definition television
- Wireless LAN
- HomePNA

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- Verizon Online FiOS FAQ → 3.2 MOCA (http://www.dslreports.com/faq/verizonfios/3.2_MOCA)

External links

- Official website (http://www.mocalliance.org)

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