G.hn Overview of G.hn technology
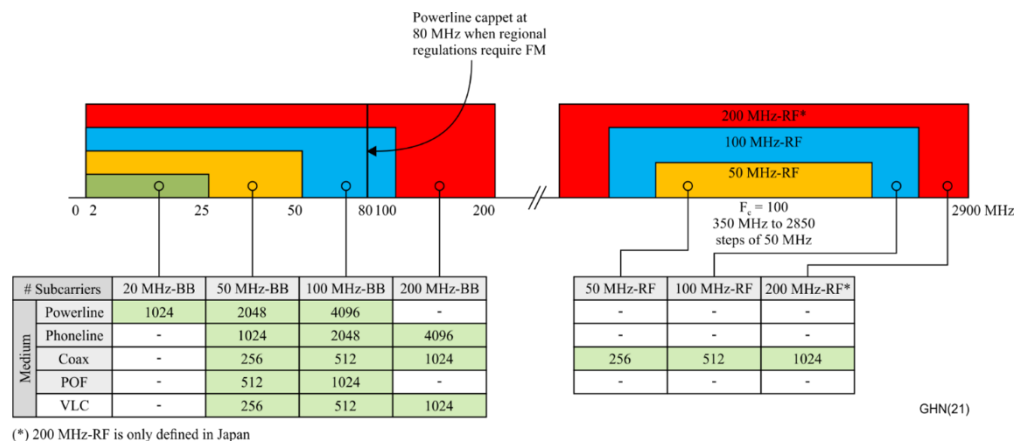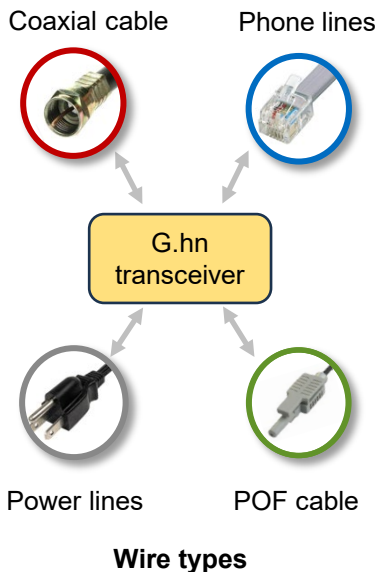
- Defined to operate over any physical networking medium ("any wire" nature) within in-premises networks.
- Adaptative OFDM per medium to maximize throughput (up to 2 Gbps PHY rate) and minimize latency.
- MIMO for power lines to boost throughput.
- Reliability and robustness (LDPC error correction, enhanced ACK-based selective retransmission, relaying).

- Flexible medium access schemes (TDMA, CSMA, token-passing) supporting different topology models.
- "Per stream" parameter-based QoS and priority-based QoS to adapt the QoS policy for each type of data.
- Native (ITU-T X.1305) and external (e.g. IEEE 802.1X) authentication and key exchange schemes.
- Flexibility to face different geographical regulatory constraints (PSD shaping) and coexistence with other mediums (coordination and isolation mechanisms).

Wire types

Coaxial cable · Phone lines · G.hn transceiver · Power lines · POF cable

Operational frequency bands

Powerline capped at 80 MHz when regional regulations require FM

# Subcarriers		20 MHz-BB	50 MHz-BB	100 MHz-BB	200 MHz-BB
Medium	Powerline	1024	2048	4096	-
	Phoneline	-	1024	2048	4096
	Coax	-	256	512	1024
	POF	-	512	1024	-
	VLC	-	256	512	1024

(*) 200 MHz-RF is only defined in Japan

	50 MHz-RF	100 MHz-RF	200 MHz-RF*
	-	-	-
	-	-	-
	256	512	1024
	-	-	-
	-	-	-

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G.hn core ITU-T Recommendations

- **G.9960** – System architecture and physical layer specification
- **G.9961** – Data link layer specification
- **G.9962** – Management specification
- **G.9963** – Multiple input/multiple output specification
- **G.9964** – Power spectral density specification

G.hn additional features ITU-T Recommendations

- **G.9972** – Coexistence mechanism for wireline home networking transceivers
- **G.9976** – Supporting ultra-high-definition video service over G.hn
- **G.9977** – Mitigation of interference between DSL and PLC
- **G.9978** – Secure admission in a G.hn network
- **G.9979** – Implementation of the generic mechanism in the IEEE 1905.1a-2014 standard to include applicable ITU-T Recommendations

Home Networking · Access · Applications · Smart grid · LiFi · Industrial

For more information, please visit the ITU-T Study Group 15 website at: www.itu.int/go/tsg15