

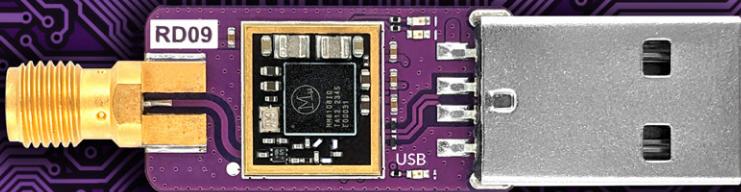


Morse Micro
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PRODUCT BRIEF

MM8108-EKH19 Evaluation Kit

Multi-region Wi-Fi HaLow® / IEEE 802.11ah Sub-1GHz USB 2.0 Network Adapter



Overview

Wi-Fi HaLow® (pronounced HEYlow) is the first global Wi-Fi standard (IEEE 802.11ah) tailored to meet the Internet of Things (IoT) needs. It's an open standard wireless network technology operating in the sub-1 GHz license-exempt RF bands (850-950 MHz range), so it doesn't incur ongoing monthly costs like cellular/mobile network connections. By operating in the sub-GHz range, this ultra-low-power wireless protocol can connect more IoT devices at much longer distances and much lower power than traditional Wi-Fi.

Morse Micro, the world's leading Wi-Fi HaLow® (802.11ah) solutions provider, offers several Wi-Fi HaLow® connectivity solutions. The MM8108 SoC is a single-chip solution with radio, PHY, and MAC functions that are compliant with the

IEEE 802.11ah standard. It supports unmatched transmit performance and energy efficiency with on-chip amplification of up to 26dBm and data rates up to 43.3 Mbps using world-first 256-QAM modulation at an 8 MHz bandwidth. It's ideal for high-speed agricultural, mining, industrial, home, and city applications.

The MM8108-EKH19 is an evaluation kit containing a USB 2.0 Network Adapter Reference Design based on the MM8108, an SMA Wi-Fi HaLow antenna and a Wi-Fi 6 GL-MT3000 router. It demonstrates the simplicity and cost-effectiveness of adding Morse Micro's world-leading Wi-Fi HaLow® technology to an existing or new design using a USB 2.0 interface.

Key features of the long-range, low-power Wi-Fi HaLow USB 2.0 Network Adapter Reference Design include:



802.11ah compliant
OFDM PHY supporting
MCS0-10



Radio supporting
worldwide sub 1GHz bands
(850-950 MHz, max output
power 26dBm)



Single-stream max PHY
rate of 43.33 Mbps at
8MHz with 256-QAM



Extremely high efficiency
integrated PA with 35%
efficiency at the maximum
26 dBm (400 mW)
output power



Configurable as an Access
Point or a Station



Wi-Fi Alliance
HaLow (802.11ah)
certification compliant



1/2/4/8 MHz channel
bandwidth in the sub-1
GHz licence-exempt
bands worldwide



Support for Linux and
OpenWrt with OSx
and Windows support
coming soon

Applications

- ✓ Long range security cameras
- ✓ Smart Grid and AMI 2.0
- ✓ Smart city networks
- ✓ Smart buildings
- ✓ Long-range APs
- ✓ Smart door locks and access control
- ✓ Smart home automation and connected appliances
- ✓ Smart agricultural sensors
- ✓ Retail or warehouse smart shelving

The Most Versatile Wi-Fi HaLow Evaluation Platform

With its USB 2.0 interface and the compact size, the MM8108-EKH19 is ideal for early-stage rapid prototyping.



Adding Wi-Fi HaLow to a router/gateway:

Demonstrate rapid roll out of Wi-Fi HaLow across a fleet of devices without redesigning hardware.

Adding Wi-Fi HaLow to your devices:

Use the EKH19 during early-stage rapid prototyping by using spare USB port on your development board or platform.

Wi-Fi HaLow® Modulation and Coding Scheme

MCS index	PHY data rate (Mbps) / Minimum receive sensitivity (dBm)			
	1 MHz	2 MHz	4 MHz	8 MHz
10	0.1 / -107	—	—	—
0	0.3 / -106	0.7 / -103	1.5 / -102	3.3 / -97
1	0.7 / -104	1.4 / -101	3.0 / -99	6.5 / -95
2	1.0 / -102	2.2 / -99	4.5 / -97	9.8 / -93
3	1.3 / -99	2.9 / -96	6.0 / -94	13 / -90
4	2.0 / -96	4.3 / -93	9.0 / -90	20 / -87
5	2.7 / -92	5.8 / -89	12 / -86	26 / -83
6	3.0 / -90	6.5 / -87	14 / -85	29 / -81
7	3.3 / -89	7.2 / -86	15 / -83	33 / -80
8	4.0 / -85	8.9 / -82	18 / -79	39 / -76
9	4.4 / -83	—	20 / -78	43 / -74

For more product information: www.morsemicro.com

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