

CNHF Radio

Revolutionary, cognitive, adaptive CNHF waveform



The CNHF Radio, developed by KNL in Finland, is a new era of HF radios. It is a fully-digital transceiver capable of spectrum estimation and optimising its own operation according to the signal environment and traffic at hand. The CNHF Radio is a software defined radio making it possible for remote configurations and updates.

Security

All CNHF traffic, including addresses and headers, is encrypted using AES256 encryption. The CNHF Radios acting in base station mode connect to the Administrative Server (AS) by using the Virtual Private Network (VPN) tunnel. Third-party or national security applications can be integrated.

HF for data communications

The core of the KNL system is a cognitive networked HF waveform, that's modern fully autonomous and automatic solution for long-range connectivity.

Same advanced waveform is utilised over the entire product portfolio allowing sending data over HF and cellular networks, independent of any other systems such as satellites. Our R&D has greatly improved the speed and reliability of HF for data communications, giving each radio a two-way connection range of up to 10,000 kilometres.

Mesh network capable

Each radio can both transmit, receive, and use multiple connections at the same time, for example for built-in cellular and HF Radio. The result is unmatched reliability and global access.



Technical specifications

HF RADIO: FREQUENCY RANGE	1.5 - 30 MHz
HF RADIO: BANDWIDTHS	1.9 - 48 kHz
HF RADIO: MODULATIONS	BPSK, QPSK, 8PSK, 16/32/64/128/256 QAM
HF BAND RADIO: SENSITIVITY	more than -125 dBm
HF BAND RADIO: DYNAMIC RANGE	140 dB
HF RADIO: TRANSMITTING POWER	250W PEP (Peak Envelope Power)
CELLULAR	UMTS/HSPA - 800/850/900/1700/1900/2100 MHz (Bands VI, V, VIII, IV, II, I) 3GPP Release 7 5.76 Mb/s uplink, 21.1 Mb/s downlink GSM - GSM 850/900/1800/1900 MHz 3GPP Release 7, PBCCH support GPRS - Class 12, CS1-CS4 - up to 86.5 kb/s: EDGE Class 12, MCS1-9 - up to 236.8 kb/s
GNSS (GLOBAL NAVIGATION SATELLITE SYSTEM)	GPS, GLONASS, GALILEO, QZSS and SBAS
ETHERNET	2 x 100 Mbps
SUPPLY VOLTAGE	AC: 100-240 VAC ±10%, 8.9A, 50-60Hz, 600W. DC: 12-30 VDC ±5%, 50A, 600W
DIMENSIONS	19"/6U rack mountable Width: 483mm - Height: 266mm - Depth: 425mm, Weight: 30kg
OPERATING TEMPERATURE RANGE	-20 - 55 °C
INTERFACES	HF antenna, connector type: N (F) Cellular antenna, connector type: TNC F) GNSS antenna, connector type: TNC (F), supply voltage for active antenna: 3.3VDC Ethernet connectors, 2 x RJ45
IP Class	IP 21

Type approvals

- In conformity with R&TTE Directive (1999/5/EC) and RoHS directive 2011/65/EU
- Radio Equipment Directive 2014/53/EU, RED-1158
- Certain HEALTH & SAFETY (Art. 3(1)(a)), EMC (Art. 3(1)(b)) and SPECTRUM (Art. 3(2))
- WEEE (Waste Electrical and Electronic Equipment) compatibility

HEALTH & SAFETY (ART. 3(1)(A))	HF: Compass safe distance test EN 60945:2002, EN 60950:2006 + A11:2009 + A12:2011 + A1:2010 + A2:2013 2G/3G: EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011, EN62311:2008
EMC (ART. 3(1)(B))	HF: EN 301 843-1 v.1.3.1, EN 301 843-5 v.1.1.1, EN 61000-6-2:2005 , EN 61000-6-3:2007, EN 61000-6-3/A1:2011, EN 301 489-1 v.1.9.2 Annex B 2G/3G: EN 30Spectrum (Art. 3(2)): 1 489-1 V1.8.1, EN 301 489-7 V1.3.1, EN 301 489-24 V1.5
Spectrum	HF: EN 300 373-1 V1.4.1, EN 300 373-2 V1.2.1, ITU M. 1798-1, ITU-R SM 329-12, EN 300 113-1 v.1.7.1 2G/3G: EN 301 511 V9.0.2, EN 301 908-1 V4.2.1, EN 301 908-2 V4.2.1 GNSS: EN 300 440-1 V1.6.1, EN 300 440-2 V1.4.1