



**CISA IKAR – Zermatt - 2009**

# ARVA | CISA IKAR



## Agenda

- I. Problems in multiple burials scenario / compatibility old VS new beacons
- II. International frequency 457kHz – limit of the standard
- III. Opportunities : W-link 868MHz
- IV. Partnership ARVA & MAMMUT
- V. New avalanche beacon : LINK
- VI. Arva 2009-2010 range



## 1. Problems in multiple burials scenario / compatibility old vs new beacons

- Reliable determination of the amount of buried subjects
- Excluding (marking) the signal of a successfully located burial
- Detection of beacons ( frequency deviation from the standard + transmitter with weak signal )
- Modification of pulse rate to avoid overlapping



## 2. International frequency 457 KHz - Limit of the standard

- Transceivers in compliance with European standard ETS 300718 should transmit and receive in the range of 457kHz +/- 80 Hz
- Frequency,  $t_{on}$  /  $t_{off}$  and period, strength of the signal directly influences performance in distance and accuracy
- No definition for the receiving band width
- An accurate transmit frequency allows better performance.



## Problems

- Major differences in transmit frequency and transmit power lead to performance and compatibility issues. We have measured until 30% loss of performance (range) between beacons of different brands
- The increasing of the receiving band will create more noise and would decrease the performance
- No modulation of frequency is allowed by the standards



## 3. Opportunities : W-link 868MHz

- New **additional** frequency : 868MHz.
- Wireless technology to exchange additional, more reliable information.
- Create a new network.
- Increase of performance and reliability.
- Unique ID for each beacon.



## 3. W-link 868MHz advantages

- Faster and more reliable indication of the amount of burials
- Clear list of the amount of buried subject
- Reliable marking function in multi-burials scenario (W link network)
- Possibility to choose in the list the burial subject you want to search
- Vital data exchange
- Low power requirement
- Open to new features for the future

# ARVA | W-LINK

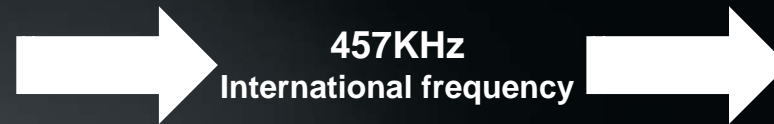


Example

Transmit



Receive





# ARVA | W-LINK



More reliability in avalanche Rescue safety



**Avalanche Safety  
Revolution  
with**



- Partnership ARVA & Barryvox / MAMMUT
- New Standard / Network
- Licensing of a running platform
- Sharing of information
- More reliable / user's friendly beacons
- Marketing with common W link logo

# ARVA | LINK



New dual band avalanche beacon (457kHz and 868 MHz)



- 3 antennas with analog & digital mode
- W-link
- Hi resolution screen - 128x128 px
- Fast & precise location
- Intuitive & super easy to use
- Processor 32bits Cortex M3
- DSP Algorithm
- Electromagnetic compass
- 360° directional guide



- 3 Antennen, analog & digital
- W-Link
- Display hochauflösend – 128 x 128 Px
- Präzises & schnelles Suche
- Intuitive & sehr einfacher Anwendung
- 32 Bit-Prozessor Cortex M3
- Algorithm DSP
- Elektromagnetischer Kompass
- Kompassrichtungsführung 360°



# ARVA | LINK

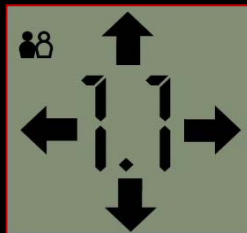
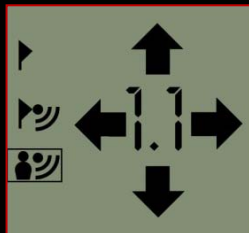
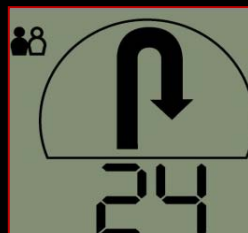
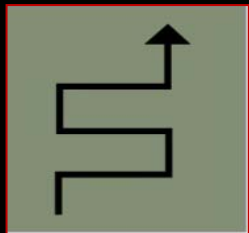
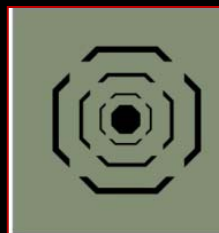
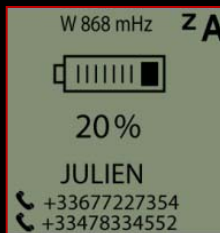
Reliable & easy to use



# ARVA | LINK



## Screens



Buried subject

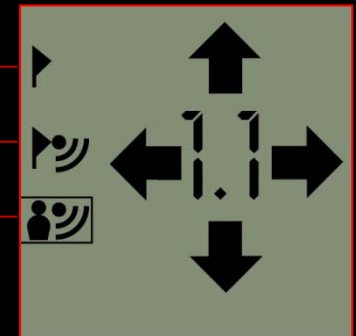
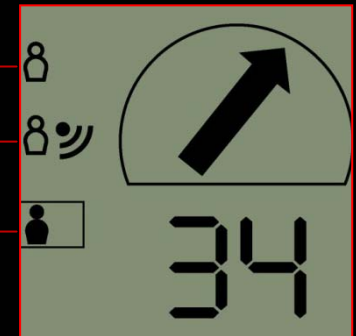
Buried subject victim with W-Link

Subject currently searched

Marked burial

Marked burial with W-Link

Subject currently searched with W-Link



# ARVA | ARVA BEACONS



100% 3 antenna beacons

## EVO3



100% digital  
3 antennas  
Super easy to use  
Distance & direction indicators  
Marking function for multiple burial situations

## 3AXES



Analog & digital mode  
3 antennas  
Estimation of number  
of buried victims - 1,2,3 and more  
Marking function for multiple  
burial situations  
Distance & direction indicators  
in real time

## LINK



3 antennas  
with analog & digital mode  
W-link  
Hi resolution screen - 128x128 px  
Quick & precise location  
Intuitive & super easy to use  
Processor 32bits Cortex M3  
DSP Algorithm  
Electromagnetic compass  
360° directional guide

# ARVA | ARVA ACCESSORIES



Shovels, probes, backpacks ...

## SHOVELS



## PROBES



## BACKPACKS

