WB GROUP

Software defined radio

COMP@N

Software defined radio COMP@N

COMP@N radios characterized by versatility, flexibility and ease of adapting the functionality to the requirements of final customer. The family of the COMP@N radios was developed thanks to years of experience in realizing many research and development projects – within RADMOR S.A., and of national and international range (e. g. ESSOR).

TRUE SDR philosophy

The latest spectrum of products – the family of COMP@N software defined radios – meets requirements of the customer, that wants a radio with dynamically changeable functionality according to specificity of situation and circumstances of usage. Range of functionality of our products is defined by the software. Thereby the user decides whether it will be the device with basic functionalities (e. g. voice transmission broadcast), or with more complex mechanisms (e.g. MANET radio), or with all available functions.

Within the family of COMP@N radios it is possible to choose between different waveforms (WF), range of supported frequencies and solutions of Digital Processing Block (DPB).

In case of supported frequencies there are three possible ranges to choose. The most universal and providing widest range of possibilities of supported WFs is RF block working in range 20 – 520 MHz. The other two, with narrowed bands, are targeted to lower product price and higher efficiency of work with one accumulator.

Dedicated solutions and functionality

One possibility of choose is realization of DPB module dedicated in particular for implementation of WFs and selected services of target radio. Depending from the need it is possible to choose between proposed solutions, which differ i.e. available computing power or purpose. The DPB module may also be designed in cooperation with the customer, e.g. for realizing functionality of particular WF.

Due to wide choice of products offered by RADMOR S.A., it is possible to compromise between lower cost of device and higher flexibility that allows use of more complicated WFs, both currently available and those that will be developed in the future. The biggest advantage of the solution is ability to prepare dedicated DPB, that is compatible with detailed customer requirements. Use of DPB module developed that way makes possible to fit up the device with waveforms or encryption mechanisms that are unknown and unavailable for manufacturer.

General specification of the COMP@N SDR platform

General	a large color display	
	auto backlight intensity regulation	
	menu	
	double PTT button	
	backlit keyboard	
	Emergency Clear button	
	build-in GPS receiver	
	dimensions (without antenna)	220 x 86 x 44 mm
	weight (with battery and antenna)	~ 1000 g
	with amplifier and car adapter creates 50 W vehicular set	
RF	frequency range	20÷520 MHz
	output power	up to 5 W
	3 definable output power levels	
	suppression of harmonics	> 50 dBc
	frequency stability	± 1 ppm
	sensitivity	- 116 dBm (SINAD 20 dB)
	adjacent channel selectivity	≥ 50 dB
Interfaces	Audio / PTT	
	RS232	
	Ethernet 10/100	
	USB	
	CAN	
	Side Connector (to work with COMP@N accesorries)	
Environmental parameters	operational temperature	-32°C ÷ +55°C
	immersion 1m for 2 hours (MIL-STD-810G)	
	MIL-STD-810G	
	EMC MIL-STD-461F	

The family of COMP@N radios

Within the COMP@N family, RADMOR S.A. offers radios COMP@N H07, COMP@N H08 and COMP@N H09.

COMP@N H07

The COMP@N H07 is a multisystem handheld SDR radio, developed using a common hardware platform for all COMP@N family radios, on which there are a number of waveforms implemented. The radio is designed for voice communication, including: tactical short-range VHF and UHF communication for land forces; tactical short-range communication VHF for air force; communication with civilian services that use radio channels and modulation types available in the radio.

COMP@N H07 Waveforms

DV Reutech	narrowband waveform providing services of secure voice transmission interoperable with Reutech radios
RSD	narrowband waveform for data transmission
FM/AM fixed frequency	interoperable with devices that support STANAG 4203/4204/4205

COMP@N H08

The COMP@N H08 is a SDR handheld radio, developed using a common hardware platform for all COMP@N family radios. This COMP@N radio has implemented a frequency hopping waveform (W2FH), which allows simultaneous transmission of voice, data, SA (Situation Awareness) and GPS reports.

COMP@N H08 Waveforms

W2FH (Waveform with Frequency Hopping)	narrowband EPM (Electronic Protective Measures) waveform that can operate in the frequency hopping mode or at fixed frequency
FM/AM fixed frequency	interoperable with devices that support STANAG 4203/4204/4205

COMP@N H09

The COMP@N H09 is a SDR handheld radio, developed using a common hardware platform for all COMP@N family radios. This COMP@N radio has implemented among others MANET class waveform which allows simultaneous voice and data transmission (IP, sensor, RS232, GPS, Situation Awareness).

COMP@N H09 Waveforms

BMS IP WF	narrowband MANET (Mobile Adhoc NETwork) waveform that supports services required by battlefield management systems.
FM/AM fixed frequency	interoperable with devices that support STANAG 4203/4204/4205

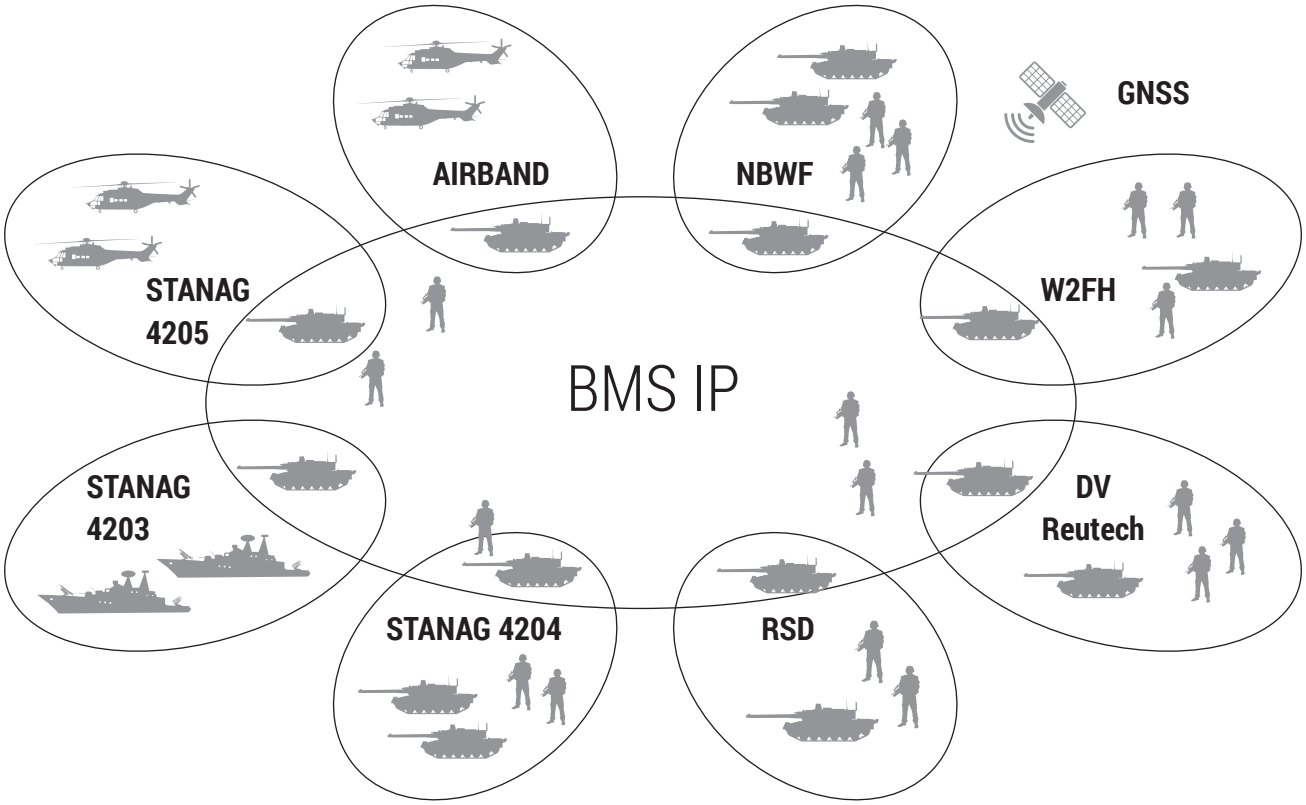
The narrowband system based on COMP@N radios

Current requirements of the modern battlefield, with all limitations, or even a lack of available radio resources, determine the need to use various types of radios working with many types of waveforms (WF). Fulfilling of these expectations is a challenge that can only be achieved by a radio communication system, for which the main goal is to provide a comprehensive implementation of user's services while taking into account the limitations of the planning spectrum.

COMP@N family radios provide a comprehensive security in the range of TRANSEC, NETSEC and COMSEC mechanisms based on AES-256 algorithms and additional usage of SCIP technology (STANAG 5068).

Main services:

data services	IP data
	Serial Data
	sensor data
	data for BMS systems Situation Awareness / GPS
voice services	analog voice
	digital voice (which supports the flat and vertical structure)
management services	remote (e.g. SNMP v3)
	local (e.g. HMI, Fillgun)



Capability to integrate with existing infrastructure elements:

other radios

other terminal devices (e.g. user terminal)

vehicle infrastructure

wired infrastructure (e.g. LAN)

„civilian" radio infrastructure (e.g. GSM, LTE, TETRA, DMR)

Effective extension of narrowband system

The flexibility of the system allows for its cooperation with other currently use and future radios and communication systems. In such manner the core of the system is being complemented with additional services and possible operational scenarios. These are i.e. the functionalities offered by:

- VHF tactical radios e.g. 3501, F@STNET
- PRR personal radios e.g. 35010, PERAD.
- wideband radios
- satellite communications (SATCOM)
- on-board communication and integration system on the vehicle e.g. FONET
- crypto devices
- multisystem gateways
- communications with the UAV e.g. FlyEye
- wired network infrastructure
- „civilian" infrastructure (e.g. eLTE,3G,TETRA, DMR)

RADMOR S.A. is constantly working on a comprehensive development of the system, enriching the functionalities of its individual components and developing new ones.

COMP@N radios family – dedicated solutions

True SDR (Software Defined Radio) philosophy vs. dedicated solutions

According to the philosophy of software defined radios (SDR), change in device's functionality ensues from change of software. In this case, architecture of radio should guarantee maximum flexibility of using its components, wide range of working frequency, and high computing performance. All of these features have been realized by RADMOR S.A. as COMP@N radios family.

But what solution should be applied when future radio station user will require specific functionality, when security aspects are essential as well as capability of implementing personal solutions in this matter, or when the user wants to keep in confidence mechanisms used in the waveform, realizing its functionality by himself?

Model I: „Precise your requirements and let us work."

The customer delivers to RADMOR S.A. his individual, specific requirements, which are then defined precisely. Based on them, RADMOR S.A. develops (if necessary) dedicated DPB (Digital Processing Block), which is able to process data in required way. As a result a dedicated waveform (WF) is developed, that performs functionality of the radio required by the customer, and fulfilled expected requirements.

Model II: „Do you have an idea that needs precising? We invite you to cooperation."

The customer participates in development of radio functionalities during all the time of elaboration. Future user of COMP@N radios may wish to implement specific functionality, that existed so far as:

- theoretical study
- computer simulation
- national WF used in another device (e.g. Legacy WFs used in old hardware park)

Having regard to proper data security, and ownership rights, RADMOR S.A. is able to functionally adjust the radio station to the customer requirements.

Model III: „Do you have ready solution? We are ready to implement it in our device!"

The customer develops hardware/software blocks independently, according to guidelines from RADMOR S.A., with regard to interfaces of the radio available for the block, and space available inside the radio. The COMP@N radio is fit up with WF that is based on dedicated digital processing block (DPB). The customer doesn't have to share any information about type and kind of implemented WF, used hardware and software solutions, or cryptographic mechanisms used in the block. This issue may be particularly important in case of COMP@N radio working with WFs that are protected property of military forces of given country.

Using the architecture and modular construction of COMP@N, RADMOR S.A. is able to meet most customer requirements for radio functionality. By providing the customer with product that is complete in every aspect, RADMOR S.A. allows him to work simultaneously with other WFs available in the family.

www.wbgroup.pl

RADMOR
WB GROUP

RADMOR S.A.
ul. Hutnicza 3, 81-212 Gdynia, Poland

t: +48 58 7655 621
f: +48 58 7655 662

market@radmor.com.pl

Note: The given parameters are not binding specifications. The company reserves the right to change the technical parameters of the device.