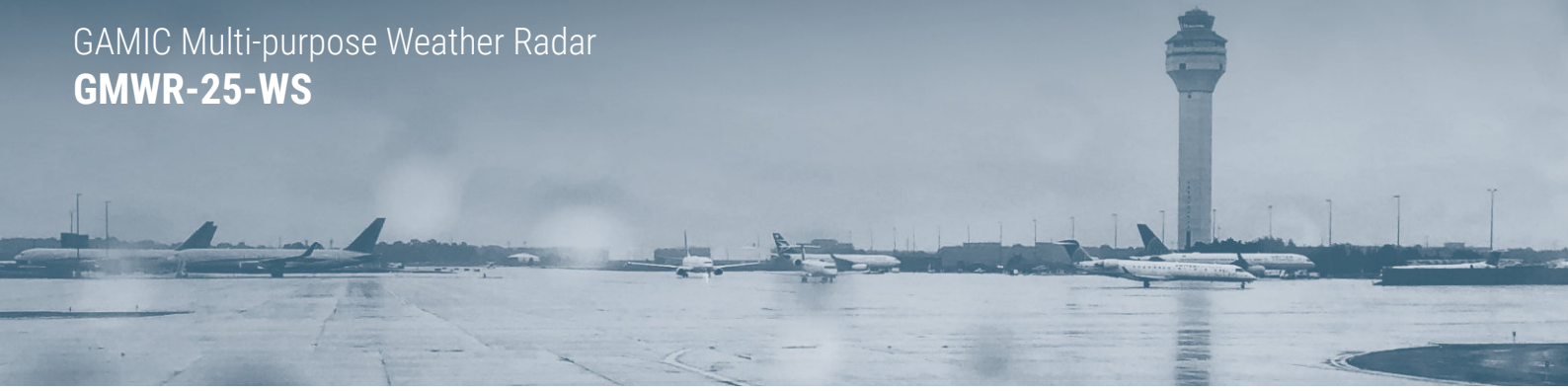GAMIC Multi-purpose Weather Radar
GMWR-25-WS

X-band Doppler radar for weather surveillance at airports and other applications

The GMWR-25-WS is a cost-effective X-band Doppler weather radar for reliable surveillance of critical weather around airports and other important infrastructures. It is designed for operation ranges up to 32 NM (60 km) and has very high update rates of less than 12 seconds per 360° scan. One major benefit is its seamless integration into ATC infrastructure.

STANDARD AND ATC DATA OUPUT

All GAMIC radars provide data in **standard weather radar data formats**. For optimal **compatibility with air traffic controller (ATC) consoles** and sharing data with other air traffic control agencies, the GMWR-25-WS additionally provides output formats ASTERIX CAT008 and CAT009.

ASTERIX CAT008 example output

Radar image from KNMI

ADVANCED SIGNAL PROCESSING

All GAMIC radars include our digital receiver and signal processor ENIGMA which allows **rapid scanning and analysis products of scientific quality and accuracy**. Digital Doppler velocity processing enables accurate velocity measurement.

The processing allows filtering of the input data, including clutter suppression (40 dB or better) resulting in less ground clutter, and the removal of distortions, speckles, interferences, and more. The result is **clean weather output data** which can be further processed as meteorological products.

WELL PROVEN AND RELIABLE HARDWARE

Our GMWR-25-WS radar uses a stable, well proven design based on standard radar technology and built with a minimum number of components. This enables a system with **low investment and small operating costs while being highly reliable**. Its hardware is fully solid state, except the magnetron transmitter. Hardware maintenance can be performed by any local technical service experienced in radar maintenance. The GMWR-25-WS is designed with easy replaceable sub-units (line replacement unit, LRU) which allows **quick repair and reduced downtime**.

Features

» **Weather surveillance radar** for airports and other applications
» **Seamless integration** into ATC (air traffic control) infrastructure
» **High update rates** of < 12 sec
» **ASTERIX CAT008** and **CAT009** output format
» **Powerful signal processing** with ENIGMA
» **No radome** needed

Technical details

» X-Band weather radar system
» Doppler velocity wind measurement
» Single polarization
» Fan beam antenna (2.4 m)
» Max. range up to 32 NM (60 km)
» Magnetron transmitter with 25 kW peak power, solid state modulator and power supplies
» Integrated low noise receiver front end

Extension for existing ATC radar

Looking for a solution to get meteorological data from your existing ASR/ATC radar installation? Check out the **GAMIC Weather Signal Extractor GWSP**:

» **Extraction of weather signal** to augment ASR/ATC radars
» **Seamless integration** into existing infrastructure
» **Output of typical meteorological moments** (reflectivity Z, radial velocity V, turbulence W)
» **Comprehensive product generation** with optional Frog-Muran software suite

More information at **www.gamic.com/gwsp**

WEATHER RADAR & SIGNAL PROCESSING

Transmitter

Polarization	Single polarization (H)
Peak power	25 kW
Operating frequency	9410 ± 30 MHz
Transmitter	Magnetron
Pulse width	0.2–1.1 µs (configurable)
PRF (pulse repetition freq.)	250–2500 Hz
Modulator	Solid-state
TX signal generation	Magnetron and modulator

Receiver

Type	Single polarization, Doppler
A/D conversion	16 bit
Sample rate	76.8 MHz
Dynamic range	~94 dB, >80 dB nominal
Sensitivity	-112 dBm @ 0.75 µs
Intermediate frequency (IF)	60 MHz
Noise figure LNA	<1 dB
Tuning	Adaptive AFC (automatic frequency control)

Antenna

Type	Slot antenna / fan beam
Diameter	2.4 m
Horizontal beam width	max. 1.0°
Vertical beam width	24° (nominal)
Side lobes	-23 dB within 10°
Gain	31 dBi
Antenna motion	Azimuth scan
Azimuth	360° (continuous)
Azimuth max. speed	60°/sec, 10 RPM
Weight (antenna + cabinet)	<150 kg

Signal processing

Type	ENIGMA V (2 channels)
Output data	ASTERIX CAT008 or CAT009
Processed bins	max. 4000
Pulse integration	Fixed or angle synced
Calibration	Manual with support tools (automatic optional)
Distortion removal	Clutter, aircrafts, interferences, ...

Software

Operating system	Linux
Software	Frog-Muran (Frog, RadarControl, Colibri), Webview, Dashboard
Data resolution (raw)	8, 16, 32 bit IEEE floating point
Max. range	400 km
Range resolution	25 m – 10 km
Vertical resolution	<100 m
Horizontal resolution	100 m – 1 km
Output products	>50 products for meteorology, hydrology, air traffic control, and more (please consult us)

General

Power consumption	<500 W average