



Man-portable Spectrum Surveillance

- **Complete self-contained backpack system for local spectrum surveys**
- **Pre-integrated man-portable solution**
- **Self-contained, discreet**
- **Long battery life**
- **Low weight**
- **Designed for use by unskilled personnel if required**
- **Optional RFeyeView data mapping software**
- **Easy integration with RFeye Spectrum Management Systems**
- **Airline transportable**
- **Optional connection to local PC for live monitoring**

The RFeye Backpack System is a complete pre-integrated man-portable solution designed to allow discreet spectrum surveillance in urban or security-critical environments.

Built into a standard commercial backpack, the system includes an RFeye node, internally-mounted antennas, battery providing approximately 5 hours of useful life, power controller and charger, and high-capacity USB memory stick for local storage. Overall backpack weight is approximately 6 kg (13.2 lb).

The system may be pre-programmed with the required measurement profile (frequency range(s), measurement interval(s), resolution bandwidth(s), statistical processing required, etc.) prior to the start of the survey, allowing use by non-technical personnel where required. The built-in high accuracy GPS receiver is used to tag the data received to allow mapping of data against location, and data is also time-stamped using the precision GPS-derived clock, allowing later TDOA (time difference of arrival) analysis against data from other nodes for signal location purposes. In locations with poor GPS coverage, 'waypoint' based location logging may alternatively be used. Data is logged to a USB memory stick for easy transfer of data after each survey.

The powerful Linux PC built into the RFeye node allows for conditional data acquisition (inc. if-then-else constructs) and statistical analysis as the data is collected to maximise the usefulness of the survey. In addition, a netbook PC may be connected for monitoring signals received whilst the survey is underway.

Features	
<ul style="list-style-type: none"> • Portable • Lightweight (6 kg / 13.2 lb) • Long battery life (typ. 5 hours) 	<ul style="list-style-type: none"> • System Includes: • RFeye Node: 10 MHz - 6 GHz • Battery • Power controller/charger and mains/car power adaptors • GPS and GPRS/HSPA antennas • USB memory stick for data storage
<ul style="list-style-type: none"> • Options: • Stub antennas for specific frequency bands • Broadband omnidirectional antenna • RFeyeView data mapping software 	

Three easy steps to discreet spectrum surveillance:

1): Define acquisition scenario

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[config]
# Define maximum file size in bytes for data files:
max_file_size = 10000000

# Define unit or campaign information:
unit_info = "Town Survey 050709"

# Describe the scans the unit will perform and onboard data processing required:

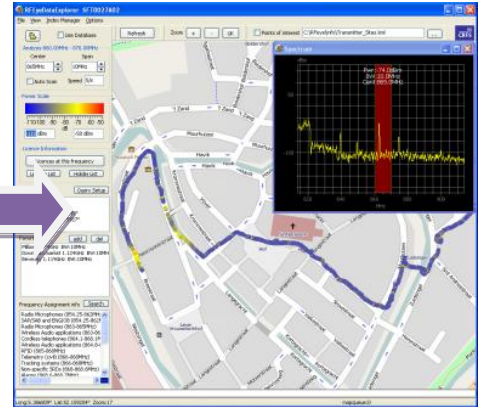
[scan1]
# First scan: 800 - 2000 MHz, 0.1sec between scans, narrow RBW
scan = 0.1,1,800,2000,1024,8
#
# Define statistics to be collected for scan1:
peak = 11.4,-1,"Peak capture for scan1"
mean = 12.4,-1,"Mean capture for scan1"
cpeak = 13.1,-1,"Compressed peak",-110
occ1 = 16.1,-1,"Occupancy -100 threshold 5mins",300,-115,8

[scan2]
# Second scan: 100 - 5000 MHz, 5 sec between scans, wider RBW
scan = 5.0,1,100,5000,256,16
#
# Define statistics to be collected for scan2:
cpeak = 17.1,-1,"Compressed peak from 100MHz to 5GHz",-100
```

2): Perform survey



3): Analyse data using RFeyeView software



Technical specification

Frequency

Range	10 MHz to 6 GHz
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Sensitivity (equivalent noise figures at maximum sensitivity)

10 MHz - 4 GHz	8 dB typical
4 GHz - 6 GHz	11 dB typical

Signal Input

Maximum input level	+15 dBm; 15 VDC
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Internal Frequency Reference

Initial accuracy	better than ± 2 ppm at 20°C
Stability	better than ± 1 ppm (10°C to 30°C)
Ageing	better than ± 2 ppm per year

Sweep and Triggering

Sweep time	10 MHz - 6 GHz: less than 100ms*
Sweep mode	Fully programmable: Free run continuous, single, timed, delay timed, user trigger, adaptive (if-then-else)
Trigger on event	Fully programmable: user-definable masks, user-definable action when mask exceeded

Signal Analysis

Real-time analysis bandwidth	20 MHz maximum
Equivalent resolution bandwidth	20 kHz min. (max. analysis b/w) 2 kHz min. (reduced analysis b/w)

Operating System and Software Development Options

Linux OS version	2.6
Python version	2.6
Development environments	Full SDK C and Python development environment available

*: Fast sweep mode

Antennas

Measurement	Connection provided for external antenna or internal stub antenna
GPS	Built-in
GPRS/HSPA	Built-in

Interfaces

DC power	For external DC supply
100 Base T Ethernet	For external monitoring
USB	2, for memory sticks (system programming and/or bulk result storage)

Power Supplies

Battery	Dry cell AGM type (non-spillable), 5 hour nominal capacity
Charger	Universal, 100 - 240 VAC
Charge time	6 hrs (typical)
Ext DC input	10 - 48 VDC
Power consumption	12 - 18 W, radio operational 6 W typical, radio idle

Mechanical

Dimensions (w d h)	35 cm x 21.5 cm x 44.5 cm (13.8 in x 8.5 in x 17.5 in)
Weight	6.0 kg (13.2 lb)

Environmental

Operating temperature	-30 to +30°C (-22 to 86 °F)
Storage temperature	-40 to +50°C (-40 to 122 °F)

For more information