



Radio Monitoring



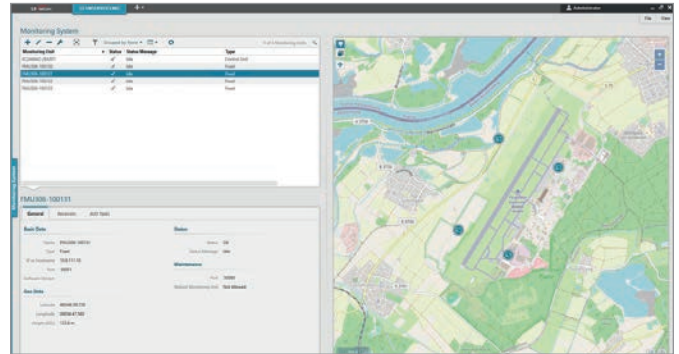
# Centralized management of monitoring units & measurement analysis



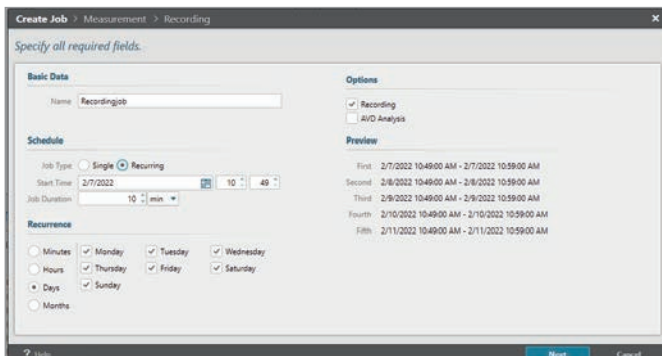
LS OBSERVER  
Central Monitoring Software (CMS)

# LS OBSERVER **CENTRAL MONITORING SOFTWARE (CMS)**

- Management of networked monitoring units
- Control of LS OBSERVER and 3rd party (e.g. R&S) equipment
- Spectrum management interface
- User management
- Job scheduling

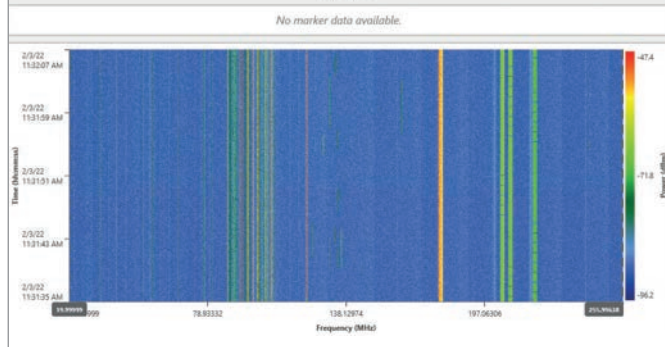
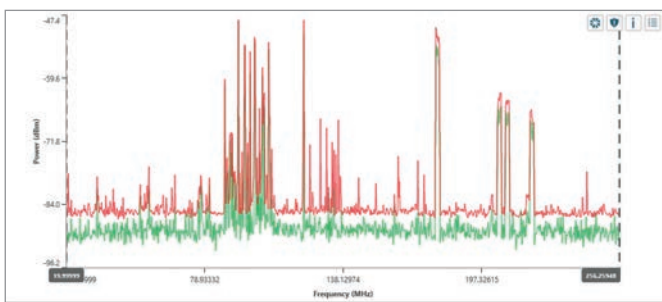


Management of monitoring units

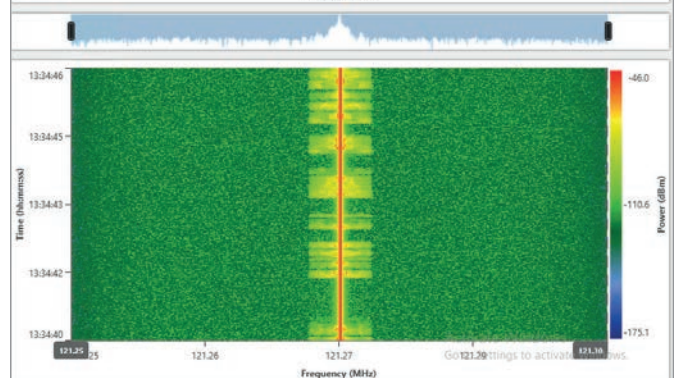
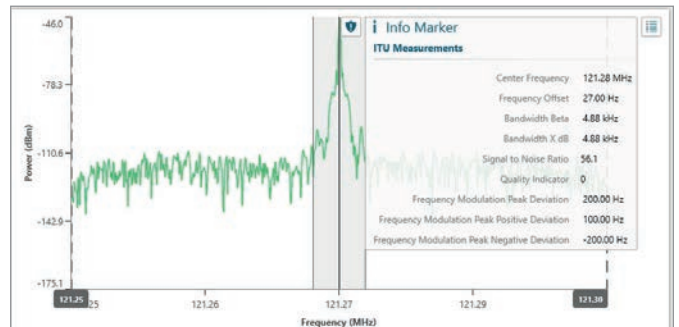


Job definition

- Scan and fixed frequency mode
- ITU compliant signal parameter measurement
- AI based signal classification
- Demodulation
- Channel power measurements

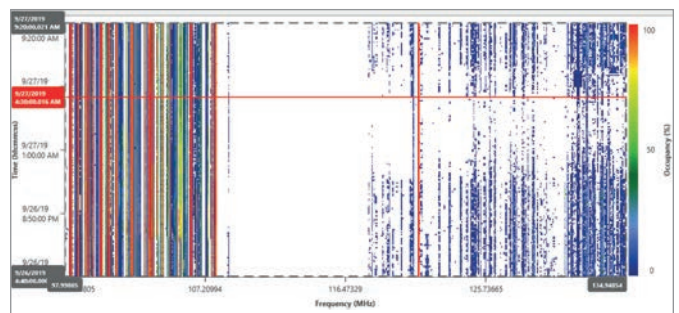


Spectrum scan



ITU compliant signal parameter measurement

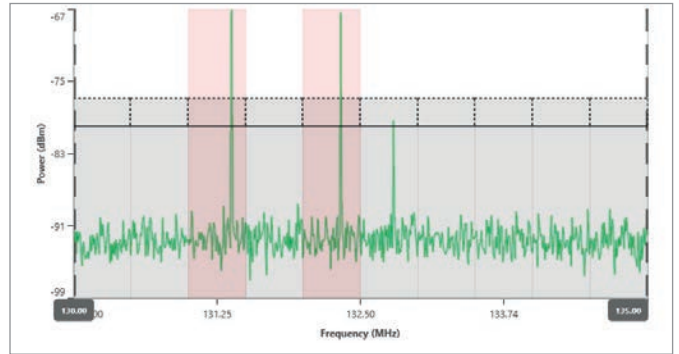
- Recording (spectrum, IQ, occupancy, statistical data)
- Channel occupancy measurements
- Multi-channel analysis



Frequency channel occupancy (FCO) measurement

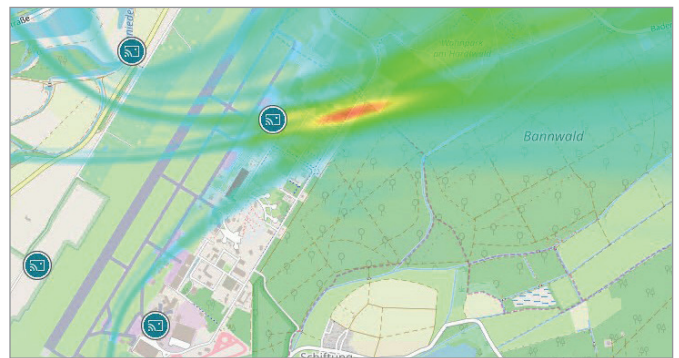


- Automatic violation detection (AVD)
- AI based smart AVD
- Advanced AVD based on wave propagation calculations

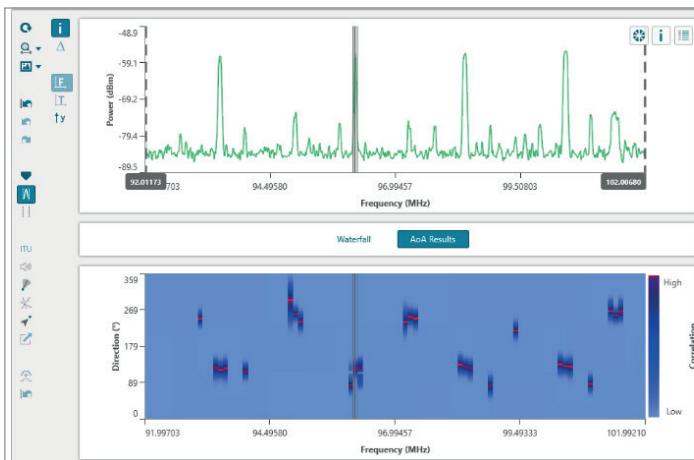


Automatic violation detection (AVD)

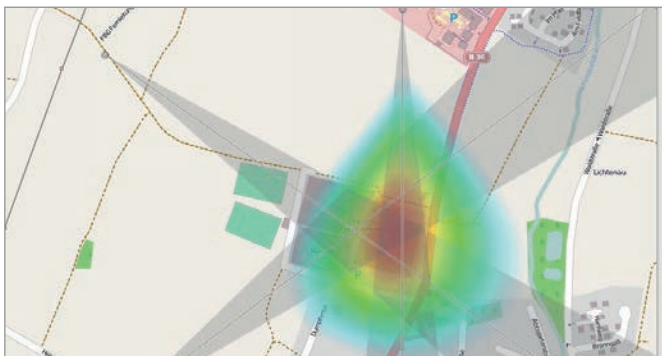
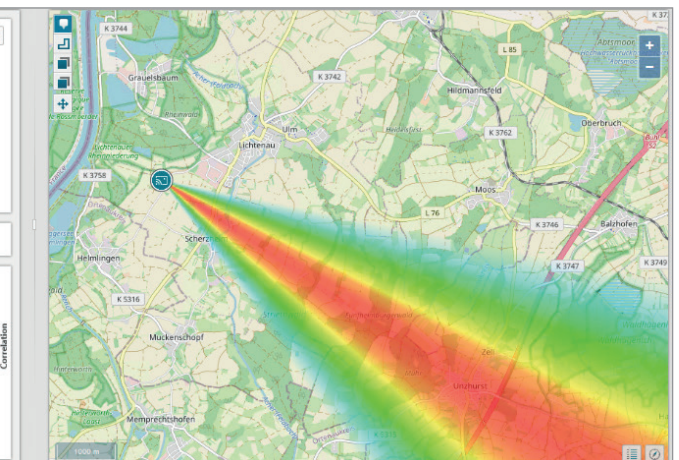
- Direction finding and DF Time Travel®
- Time difference of arrival (TDOA)
- Gain ratio of arrival (GROA+®)
- Homing



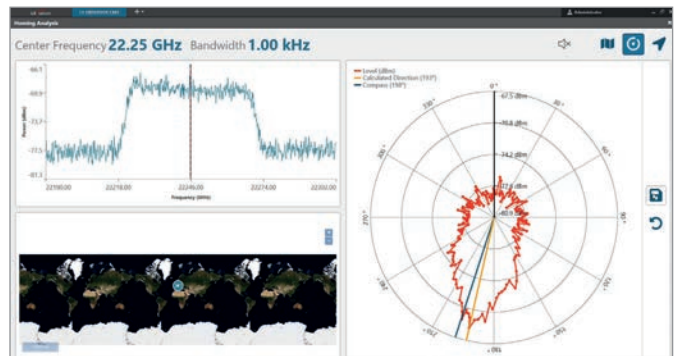
Time difference of arrival (TDOA)



Multi-channel direction finding



Triangulation



Manual direction finding and homing

- Reporting
  - Field strength
  - Occupancy
  - DF results
  - Signal analysis
- Data export

**Spectrum Field Strength Report**  
Generated at 2021/07/19 by Administrator using LS OBSERVER CMS 10.1.8.0-24

Office: LS telcom AG  
Im Gewerbegebiet 31-33  
77839 Lichtenau  
Germany  
+49 (0) 7227 9535 600  
info@lsstelcom.com

Remarks: Test report

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**Measurement Parameters**

**Monitoring Station**  
Name: FME206-001130  
Latitude: 49.0917196681641 °  
Longitude: 8.76353223843 °  
Receiver: LS Broadband

**Data**  
Type: Raw  
Channel Sets: Raw (no audio signal)

**Measurement**  
Name: 614  
Mode: Frequency Range  
Freq. Range: 90.00 MHz - 470.00 MHz  
Step Width: 4.00 MHz  
Start Time: 6/16/2021 1:42:00 PM  
Stop Time: 6/16/2021 1:20:00 PM  
Duration: 12 Minutes 35 Seconds

**Receiver Settings**  
Attenuation: 0 dB  
Gain: No Gain  
Reference Level: Average  
Detector Mode: Average  
Sweep Time: 1 ms  
Sweep Interval: 0 μs

Field strength report header

<b>Monitoring Unit:</b>	FMU306-100130	<b>Analysis:</b>	Start Time:	9/26/2019 2:40:00 PM
<b>Data Type:</b>	FCO 5		End Time:	9/27/2019 7:20:00 AM
<b>Mode:</b>	Frequency Range		Duration:	16 Hours 40 Minutes 0 Second

Channel Name	Main Frequency	Bandwidth	Occupancy [%]		
			Max	Avg	Min
SWR3	98.40000 MHz	150.00000 kHz	100	100	100
Radio Regenbogen	100.40000 MHz	150.00000 kHz	100	100	100
Deutschlandfunk	106.30000 MHz	150.00000 kHz	100	100	100

Occupancy report

**Export Measurement**

Specify all required fields.

**General**  
Export Format: CSV XML  
Compression: Compress File

**Limits**  
Frequency Range: 20.00 MHz - 6.00 GHz  
Start Time: 8/7/2020 13:39:50  
Stop Time: 8/7/2020 15:44:57

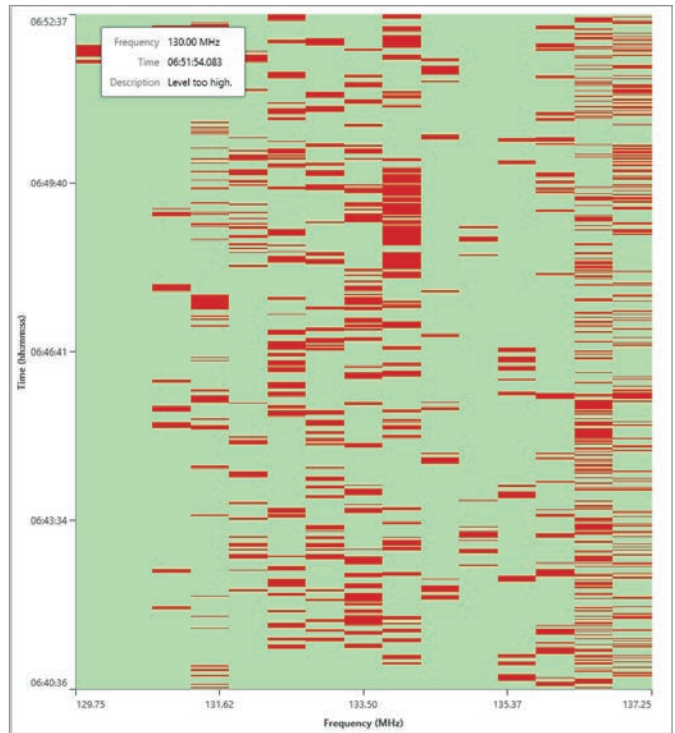
**Frequency Downsampling**  
None Max Average Min  
Divide measurement into intervals of 100.00 MHz

**Time Downsampling**  
None Max Average Min  
One Data Row  
Divide individual scans into intervals of 1 min

**Estimation**  
Uncompressed File Size: 1.02 GB

Export Cancel

Measurement data export



AVD alarm report

CBA

For more information on products and solutions, please visit our website at [www.LStelcom.com](http://www.LStelcom.com) or contact us:

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[www.LStelcom.com](http://www.LStelcom.com)

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Smart Spectrum Solutions

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