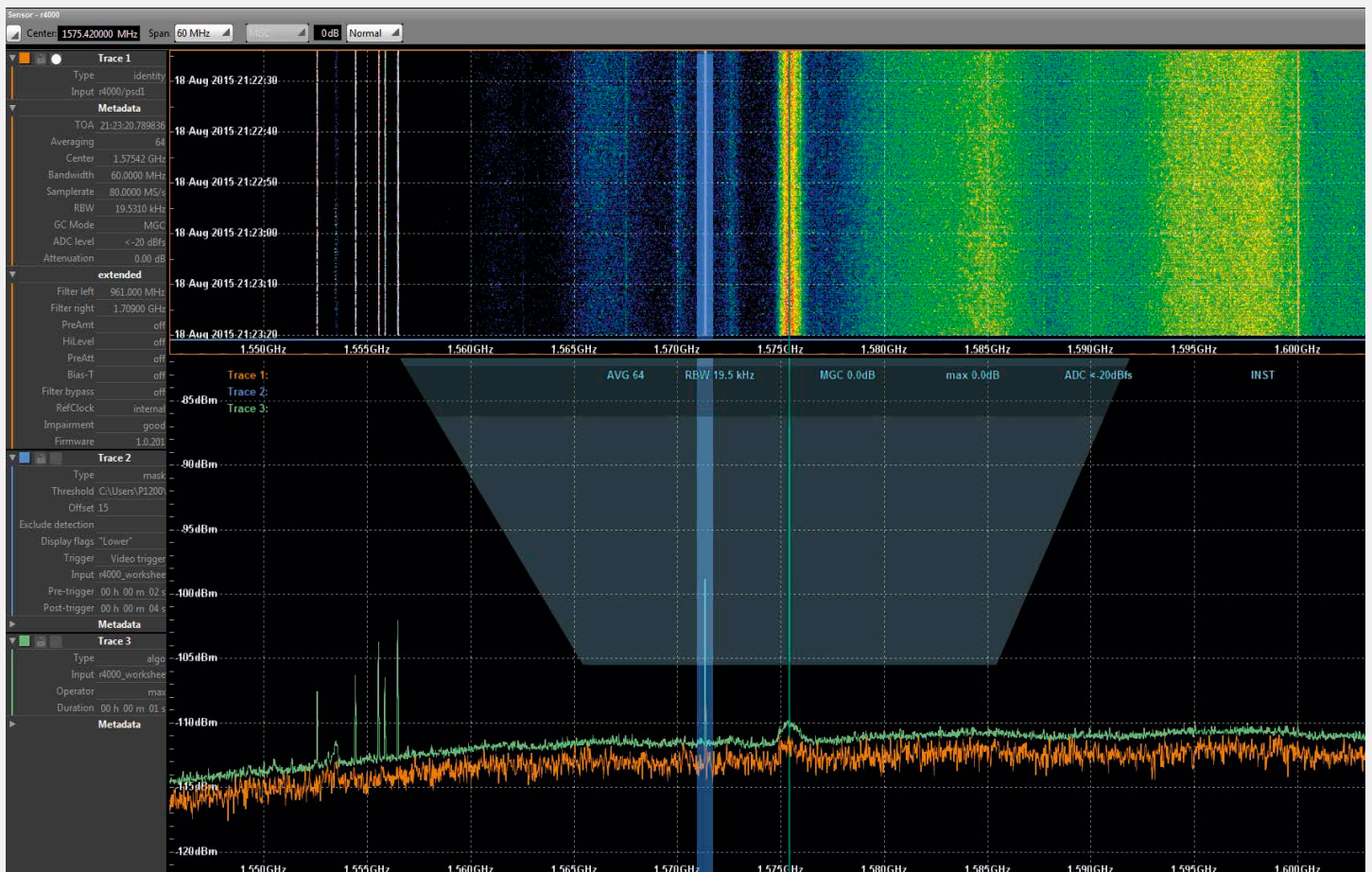


# IZT Signal Suite

## GNSS Monitoring and Interference Recording



- Interference analysis in GNSS bands
- GNSS spectrum band monitoring
- RF recording triggered on interferer events
- Adjustable pre-recording time



# IZT Signal Suite – GNSS Monitoring and Interference Recording

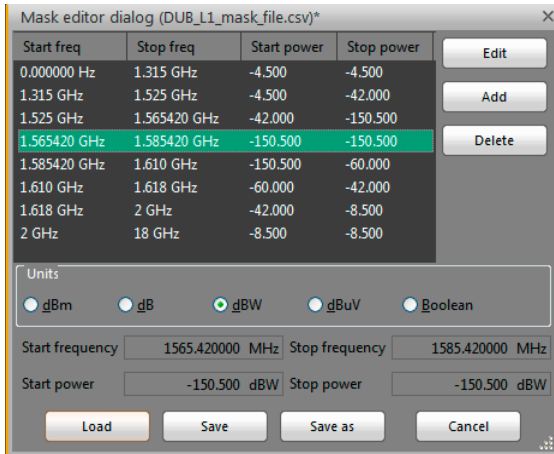


FIGURE 1: SPECTRUM MASK EDITOR

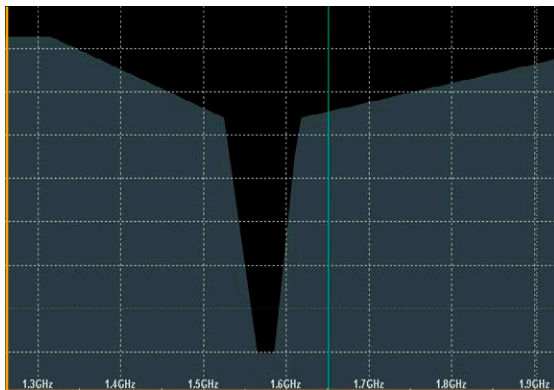


FIGURE 2: DEFINING ITU THRESHOLD FOR GPS L1

Professional receivers for Global Navigation Satellite System (GNSS) like GPS, Galileo and GLONASS are facing multiple threats caused by illegal transmissions, jamming devices and defective RF installations. IZT offers the ideal solution to record, analyse and identify both the interfering signals and the GNSS signal itself – including replay of the RF signal.

## TECHNICAL BACKGROUND

Due to their high dynamic range IZT receivers allow capturing GNSS content even under demanding situations when the system is dealing with strong interferer levels.

The IZT Signal Suite provides RF signal capture in combination with long-term spectrum band monitoring for many days to identify also those interferers which are only rarely in operation. If a jamming event occurs RF data is recorded automatically to file for detailed analysis in the lab. The trigger event can be defined by power limits exceeding ITU spectrum masks, captured reference traces or by external trigger pulses.

An adjustable pre-trigger and selectable follow-up time allows capturing not only the period of time when the interferer is active, but also including the recording of the past 1 to 30 minutes with the pure, undisturbed GNSS signal.

In addition to GNSS monitoring and interference detection this functionality allows verification of professional aeronautic GNSS receivers by replaying the captured GNSS content via the IZT S1000 Signal Generator to synchronize the built-in chipsets without running into problems because of its required lock time.

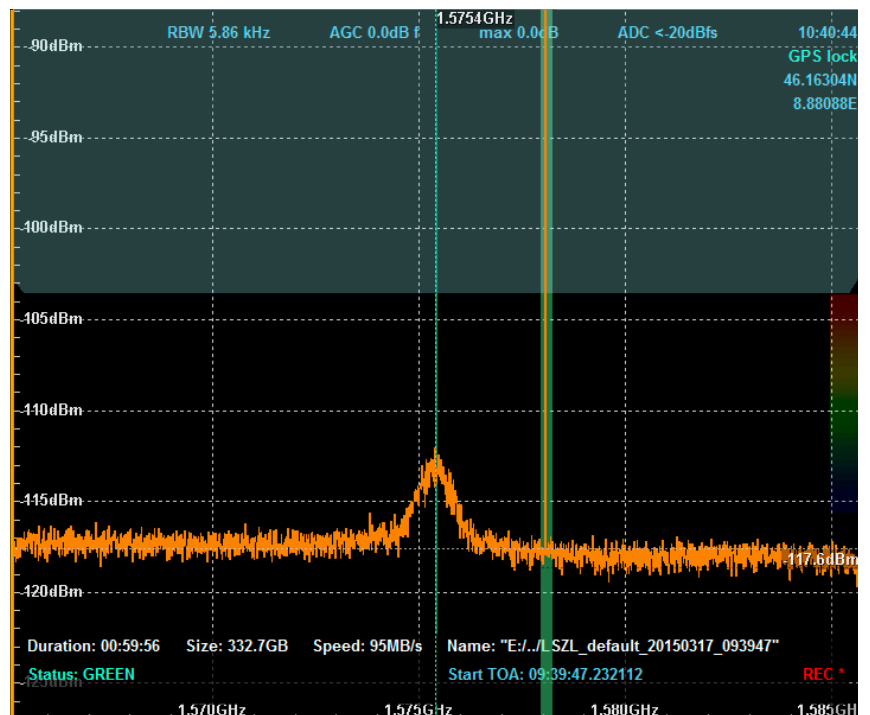


FIGURE 3: STATUS INFORMATION OF WIDEBAND IQ RECORDING WITH IZT R3301 RF RECORDER

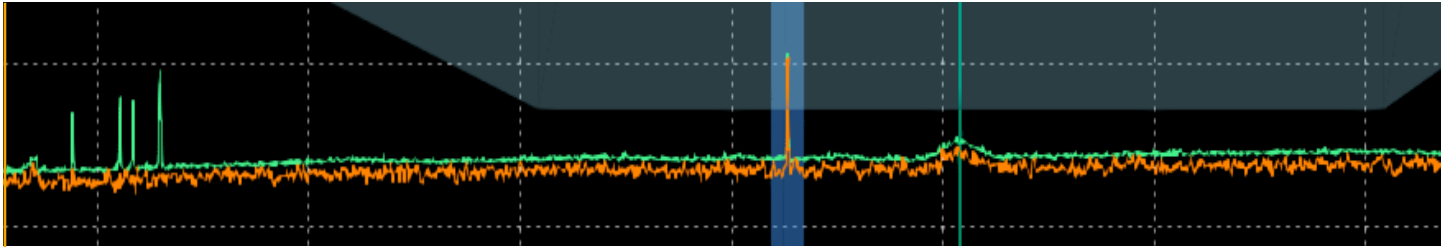


FIGURE 4: ONE INTERFERER MEETING MASK CRITERIA IS DETECTED AND TRIGGERS RECORDING TASK

Name	Status	LC	Start time	Stop time	Type
dummy	aborted	932	2013-Nov-08 18:36:39	2013-Nov-08 18:36:39	Recording
schedule 1	aborted	929	2013-Nov-08 18:39:24	2013-Nov-08 18:39:24	Recording
schedule 2	running	307	manually	manually	Recording

FIGURE 5: SCHEDULE LIST OF RECORDING TASKS

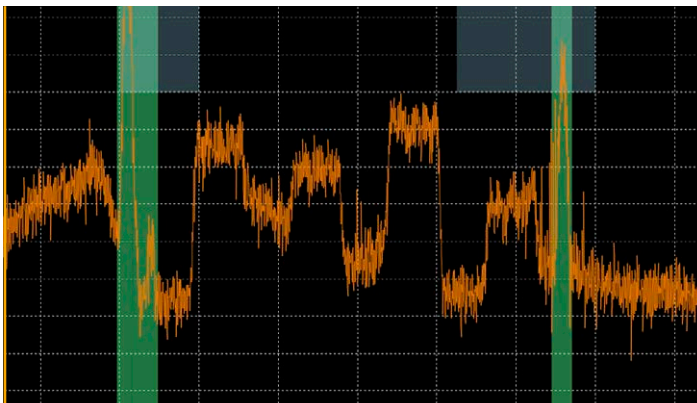


FIGURE 6: SELECTIVE TRIGGER ON SIGNAL EVENTS

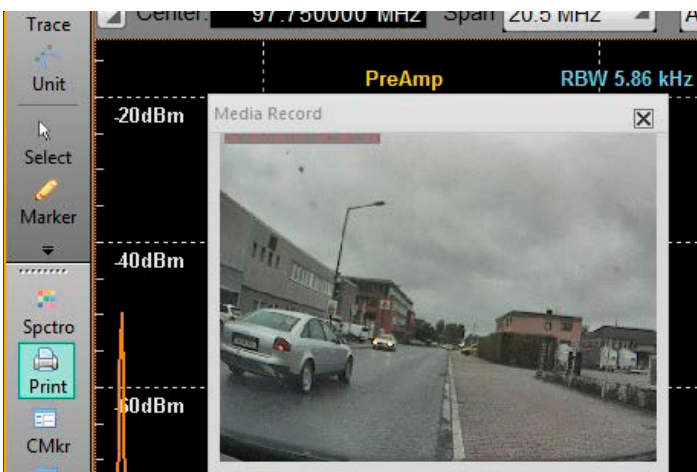


FIGURE 7: IP CAMERA PLUG-IN SUPPORTS VIDEO RECORDING OF POSSIBLE INTERFERER SOURCES

## KEY FEATURES

### Recording Signal & Interferers

- Continuous long-term recording
- The last 30 minutes of I/Q data are always present
- Video trigger saves event with pre-trigger
- Automatic storage clean-up
- Scheduled recording
- Automatic restart in case of failure

### Trigger constraints

- Mask defined on discrete set of nodes via editor
- Threshold defined by trace or constant power level

### Post processing

- Off-line spectrum and spectrogram analysis with IZT Viewer
- I/Q data extraction with IZT Data Processor
- IZT SDK for off-line data access with MATLAB, C# and C++
- RF replay with IZT S1000 Signal Generator

## USE CASES

- Protection of GNSS bands in sensitive areas
- Identifying interferer sources
- Evaluation of receiver performance under real interferer scenarios in the lab

## BENEFITS

- RF recording with high dynamic range preserves GNSS signal in case of interference
- High-fidelity recording of interference event and its history
- Simple, easy to use setup (one click recording)
- Compact, integrated equipment

## HARDWARE

- Ideal suited for IZT R3301, IZT R3302 and IZT R3411
- Supports IZT R4000 wideband RF recorder
- IZT Sensor Controllers

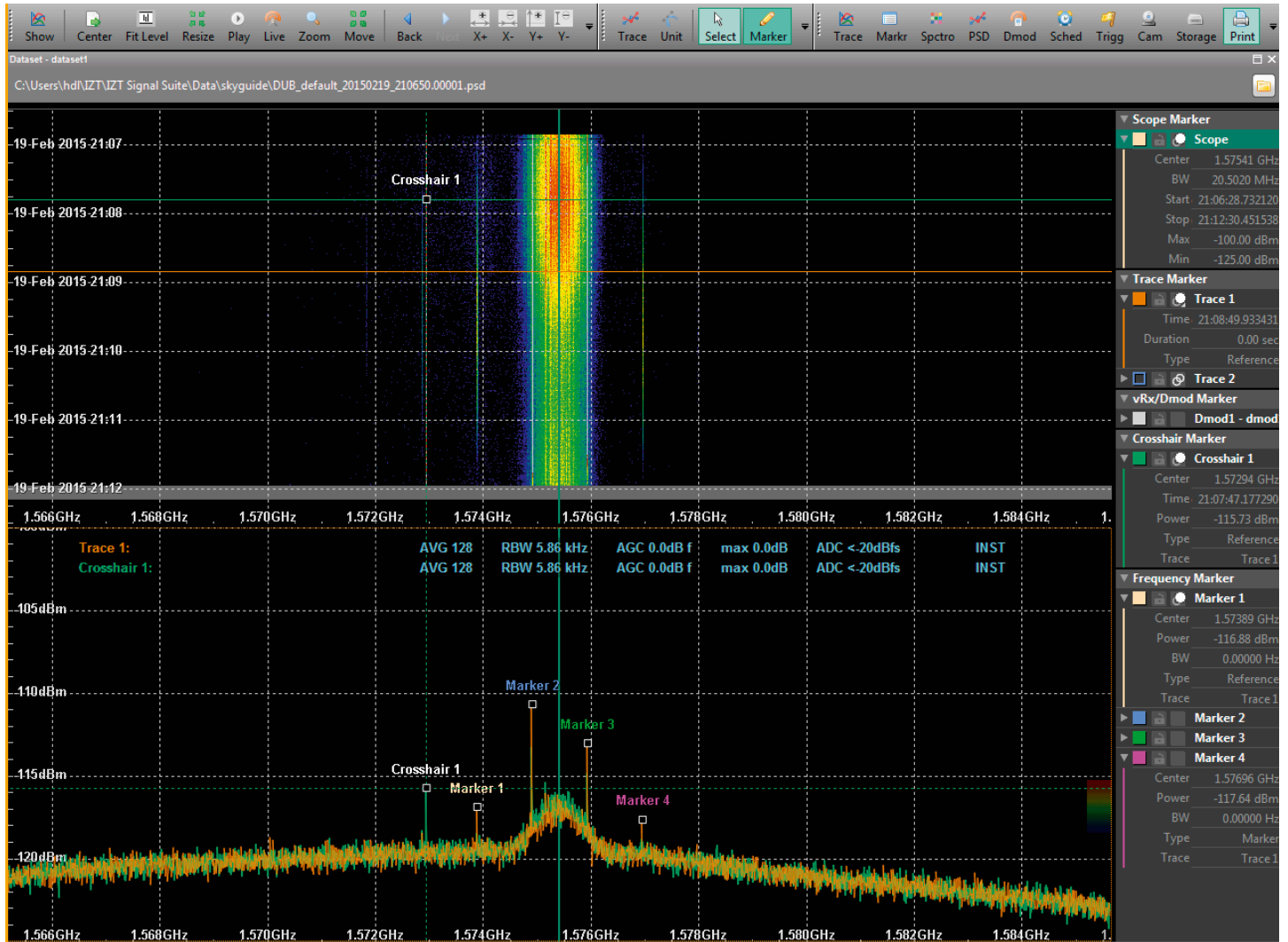


FIGURE 8: GNSS INTERFERER ANALYSIS WITH OFF-LINE APPLICATION IZT VIEWER