



**Č e s k ý t e l e k o m u n i k a č n í ú ř a d**  
**C z e c h T e l e c o m m u n i c a t i o n O f f i c e**

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To whom may concern,

CTO's departments of inspection and radio spectrum monitoring are responsible for RF spectrum matters like spectrum surveillance in order to reveal unauthorized transmissions or prevent and suppress disturbers in various frequency ranges such as FM, mobile communication etc.

CTO experts have large experience in the field of direction finding and localization of unwanted emissions by means of direction finders, spectrum analyzers or measurement receivers. Long time experience based on well-known manufacturer of RF technology was extended last year by purchasing of NARDA Signal Shark spectrum analyzers.

Signal Shark according to its specs has been revealed as very sensitive in combination with a good intermodulation free range due to good IP3/IP2.

CTU has purchased 10 pieces of fully equipped handheld Signal Sharks for last mile localization and 2 remote Sharks and 2 portable Sharks with ADFA-2 for installation in cars.

Main points for the decision to use Signal shark have been:

The Signal Shark receivers have excellent RF properties. The sensitivity and large signal immunity are even better than most of the other instruments used by CTU.

Noise figure of 14 dB specified in the data sheet. This means that the receiver is much more sensitive (by about 10 dB) than all other receivers and analyzers without preamplifier that are currently used. Narda does also offer a preamplifier, but this is built into the antennas that match the Signal Shark, and so cannot be used with the remote-controlled model.

There is an RF attenuator that is switchable in 0.5 dB steps (!) up to 31.5 dB. Although it is highly unlikely that these are classic analogue attenuators, the attenuation works reliably against overloading exactly as expected. The extremely fine adjustment of attenuation means that the receiver can be driven up to the maximum operating point in practically any situation to achieve the highest possible dynamic range even in the presence of strong signals.

The Signal Shark equipment covers up real-time spectrum analyzer with BW of 40 MHz and measurement receiver at once.

Outstanding Shark's facility is map localization firmware so called "heat map" in connection with ADFA antenna which is integrated inside the equipment without necessity to use external notebook with special app. unlike other producers. Similarly, the system does not need to be connected to the public Internet to display maps. The map material for the area of interest can be either downloaded automatically with a fixed Internet connection or copied to the equipment from a USB stick.

Shark can include two batteries, so their replacement is possible without the breaking the operation.

Shark can be equipped with filters according to CISPR standard and is suitable for EMC measurements.

Many advantages to use MS Windows as operating system.

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