

# Mississippi State University

## Notice of Proposed Sole Source Purchase

**190-21**

Mississippi State University anticipates purchasing the item(s) listed below as a sole source purchase. Anyone objecting to this purchase shall follow the procedures outlined below.

**1. Commodity or commodities to be purchased (make, model, description):**

**RFeye Node 50-8:** Baseline intelligent wideband receiver from 9kHz to 8GHz band with 50 MHz instantaneous bandwidth.

**RFeye NCP Licence:** NCP is the required embedded software license for the API control of node, baseband signal processing.

**POnE injector PSU:** Required cables for RFeye Node device.

**2. Explanation of the need to be fulfilled by this item(s), how is it unique from all other options, and why it is the only one that can meet the specific needs of the department:**

In this research we plan to simultaneously use all the already available opportunistic signals at a very high precision required by the application. These opportunistic signals such as radio, TV, various satellites, GPS, RF control, radar etc. signals are at various frequencies from tens of MHz to 6-8 GHz ranges. Instead of a purchase that has receiving capabilities for a given center frequency this device should give optimal performance over all this wide bandwidth from 9KHz to 8GHz. In addition, the instantaneous bandwidth of the device should be able to cover the instantaneous bandwidth of the opportunistic signal observed at the chosen center frequency. The requested device has a 50MHz instantaneous bandwidth enough to observe nearly all the opportunistic signals freely available except very high resolution radar systems. The device also provide access to the raw IQ data from the heterodyne receiver system rather than observed power which allows us to develop signal processing, machine learning techniques directly on the raw level data. Other important properties of the device, which are unique, are the sweeping speed, programmable modes and sampling resolution. Sweeping speed is very important while you are dealing with signals at very different center frequencies. This device has a sweep speed of 151 GHz/s so that you can scan the full bandwidth nearly 20 times in a second. Also one can program the device as continuous or adaptive, which is very crucial in adaptive and cognitive sensing.

**3. Name of company/individual selling the item and why that source is the only possible source that can provide the required item(s):**

CRFS Inc, (<https://www.crfs.com/>) is the company selling the device. They are the sole developer of the device.

**4. Estimated cost of item(s) and an explanation why the amount to be expended is considered reasonable:**

The price was negotiated extensively to get the best possible price. We were able to negotiate the price down from the list price of \$27,291 to the current quoted price (\$24,562), which includes 10% educational discount. We found the pricing reasonable considering the unique capabilities of the device listed above. This device will allow us to receive any signal available from DC to 8GHz so no need to purchase additional receivers for every frequency band that is specific to a single signal type or frequency.

**5. Explanation of the efforts taken by the department to determine this is the only source and the efforts used to obtain the best possible price:**

We did thorough review of the market for this kind of equipment and could find no other producer or seller of equipment with this capability. RFEye Node 50-8 system is the only commercial product that meets our research needs (access to raw IQ data, high instantaneous and full bandwidth, high precision, sweep speeds, programmable modes). We believe that this is the best possible price (includes educational 10 % discount) for the device.

Any person or entity that objects and proposes that the commodity listed is not sole source and can be provided by another person or entity shall submit a written notice to:

Don Buffum, CPPO

Director of Procurement & Contracts

[dbuffum@procurement.msstate.edu](mailto:dbuffum@procurement.msstate.edu)

**Subject Line must read "Sole Source Objection"**

The notice shall contain a detailed explanation of why the commodity is not a sole source procurement. Appropriate documentation shall also be submitted if applicable.

If after a review of the submitted notice and documents, MSU determines that the commodity in the proposed sole source request can be provided by another person or entity, then MSU will withdraw the sole source request publication from the procurement portal website and submit the procurement of the commodity to an advertised competitive bid or selection process.

If MSU determines after review that there is only one (1) source for the required commodity, then MSU will appeal to the Public Procurement Review Board. MSU will have the burden of proving that the commodity is only provided by one (1) source.