

Codifica documento

Revisione

Tipo documento

Denominazione gara

Tipo di procedura

Atto di avvio

Importo a base di gara

CUP

CIG

RFOF-FAQ

03

FAQ - risposte ai quesiti degli operatori economici

Fornitura di 40 moduli in fibra ottica a larga banda per il collegamento dei ricevitori ad alta frequenza del Sardinia Radio Telescope ai back-end di acquisizione e processing dei segnali radio astronomici

Procedura aperta ai sensi dell'art. 60 d.lgs. 18 aprile 2016, n. 50, e s.m.i.

Determinazione n. 242 – 3 dicembre 2020

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Come previsto dal Disciplinare di gara **RFoF-TSP-1**, con la presente nota si rappresentano le richieste di chiarimento sinora pervenute e le risposte fornite dalla stazione appaltante al fine di garantire la massima trasparenza e nel rispetto del principio generale di par condicio tra i concorrenti.

Q_1 *The SOW (RFoF SOW 01, pg. 5) states a link gain of 14 dB +/- 2dB. We understand the importance of gain flatness across the frequency band, 1-18 GHz. Question: Does this mean 12 dB minimum to 16 dB maximum acceptable range for the gain over the 1-18 GHz band or is it minimum average gain of 14 dB with maximum +/- 2 dB gain variation over the 1-18 GHz frequency range ? Must the total gain be at 14 dB or can it be as high as 22 dB while still maintaining a relative flatness of +/- 2 dB across the frequency spectrum?*

A_1 The specification you refer must be intended that the gain trend for all 40 modules have to fall in the 12 to 16 dB range over the 1-18GHz bandwidth. Thus, it is intended to be both a flatness and a repeatability over production. In principle, it should be allowed a constant $G=12\text{dB}$ or $G=16\text{dB}$ or $G=14\text{dB}$ and so on, through band. More realistically, you will get variable gain vs frequency, as long as within the specified range. This also answer the last question. The gain cannot be as high as 22 dB, as well as any value outside the specified range.

Q_2 *The SOW (RFoF SOW 01, page 6) states a SSB Phase noise: $< -80\text{dBc/Hz}$ at 10Hz offset. Question: How this parameter should be measured?*

A_2 There are several methods to measure phase noise. Among others, some of the most common are: spectrum analyser, delay line discriminator, quadrature method and FM discriminator. But the contracting authority cannot suggest or specify a particular measuring method. The operator is required to demonstrate the specification requested is reached with an appropriate test bench.

Q_3 *The SOW (RFoF SOW 01, page 6) states a Phase stability: ≤ 5 degree rms within 1 sec integration through band. Question: Does this mean for every frequency within the 1-18 GHz band the maximum phase variation shall be 5 degree over a period of 1 sec?*

A_3 Yes, the specification holds for every frequency inside the band 1-18GHz. Remember that the specification is given as RMS value.

Q_4 *The specified PRF (in the band of 1-18GHz) has to be considered the maximum PRFmax for the system? In that case which is the PRFmin to be considered for the analysis?*

A_4 PRF is an acronym not used in the technical specifications provided. If with PRF you are referring to RF power, there is no any specification of its maximum level at the RFoF link input. Only the P1dB level at link input has been specified.

Q_5 *Is the power of PRF of the link constant at -16dBm along all the link bandwidth of 1-18GHz?*

A_5 The RF power spectrum is not constant (flat) over the 1-18GHz frequency band. Also, since these links will be switched among different receivers of the radio-telescope, different RF power spectra will be presented over time at their inputs.

Q_6 *What is the instantaneous real-time bandwidth to be considered for the optical input link, if applicable?*

A_6 1-18GHz.

Q_7 *What is the maximum allowed latency for the RF signal out from the ORX (excluding the transmission delay of the fiber)?*

A_7 The fiber is not taken into account in the provided specifications. There is not a maximum limit for the latency for the rf signal out of the ORX even if we suggest to obtain the lower. But most important is the uniformity of the latency of the links (see the group delay specification in the rf specifications section)

Q_8 *Are prototypes required to be shipped to the contracting authority or is that only necessary if there are technical issues with the test results or methods?*

A_8 It is not necessary to ship the prototypes, unless technical issue arises with the test results or methods. In any case, possible shipping will be discussed and agreed between parties. Inside the SOW it is written (art.2, phase 1):
<<The contracting authority plans to visit the factory in order to tightly follow the tests on the prototypes either in presence or remotely, both for what concerns the

obtained results as well as the instrumentation and test methods used. On the basis of the achievements, the contracting authority could require to repeat the whole characterization, or only part of it, at the contracting authority site using own instrumentation and personnel. >>

Q_9 *If prototypes are required to be shipped to the contracting authority, is that permanent or will the prototypes be returned to the factory at some point? If this is a permanent transfer, this changes the terms of the supply from 40 to 43 links and increases the overall cost.*

A_9 This answer follows the previous one, the **A_8**. In any case, the prototypes will be returned.

Q_10 *Do to the lead times on many of the parts, we must place purchase orders well before the completion and test of the prototypes. In the unlikely event, the authority to proceed to Phase 2 is not granted, will the contracting authority pay for the costs incurred to that point?*

A_10 Unfortunately the rules of the bid, at this point, cannot be changed and the answer at your question is NO, we cannot pay FOR THE COSTS INCURRED TO THAT POINT if the prototypes are not accepted in the case they don't satisfy the specifications. What it can be said now is that the company has to be confident it can provide prototypes satisfying the specifications, because if this is accomplished the contracting authority is determined to complete the work in procuring the 40 links.