

*Codifica documento*

*Revisione*

*Tipo documento*

*Denominazione gara*

*Tipo di procedura*

*Atto di avvio*

*Importo a base di gara*

*CUP*

*CIG*

**RFOF-FAQ**

**02**

***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**

**€ 700.000,00**

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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:  $\leq 5$  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)