



The BACW's Bidding Commission hereby present questions made by companies with their respective answers.

REMARK: The questions presented in this "Questions and Answers" shall be numbered as they are received by the Bidding Commission and may not match the numbering provided by the companies.

Therefore, the Bidding Commission has answered previous questions on November 6, 2017 and November 8, 2017 and they are published on BACW's website.

Question 4 – *Seção 4.3.15 fala a uma faixa de 450MHz a 2500MHz? Por favor, esclareça a definição desse alcance, pois é muito mais do que o padrão da indústria da banda S?*

Answer: Due to the technical nature of the question, the Bidding Commission requested consideration from the technical division of the requesting agency. Based on that, Section 4.3.15 states about NCM codes and descriptions, in order to assist in the export/import operations, presenting a summary of the elements that integrate the goods to be provided. The range of 450MHz a 2500MHz is related to the digital tracking receiver, not to the s-band data receiver. The lower part of the range shall be read as 2000MHz, not 450MHz.

The features and information about the equipment provided by the CONTRACTOR shall be evaluated in compliance to the technical specifications defined in Annex I and II of the Basic Project and in the Clarifications, which require that the S-band data receiver shall support the 2200 to 2300MHz range(item 2.3 of Annex I and item 2.2 of Annex II).

Question 5 – *Seção 4.4.3, cómo determinamos a conformidade com o "Padrão de Engenharia Brasileira", existe documentação disponível?*

Answer: Due to the technical nature of the question, the Bidding Commission requested consideration from the technical division of the requesting agency. Based on that, resolutions, regulations and standards governing equipment installations (including base construction), such as those issued by CREA, CONFEA, ABNT, INMETRO, etc. shall be followed. Normally, these standards follow international best practices and require, for example, registration of the responsible Engineer with CREA, the issuance of Technical Responsibility Notes for Engineering activities, the use of certified or conforming standards inputs, etc. If the bidder has never worked in Brazil, with installations or constructions, it is recommended to consult a Brazilian Engineering professional or company that has already worked in Brazil. In short, they are not abusive standards, just necessary to ensure the safety and quality of services, aligned to the international standards.

Question 6 – *In page 10 of document "Basic Project (English)", the 5th row of the table in item 4.3.15, a. Please confirm the bandwidth range, 450MHz is much lower than the lower-frequency limit of S band which is 1550MHz;*



b. Please confirm the value of acquisition bandwidth $\pm 500\text{MHz}$, based on our experience it is far beyond the general performance of SSPA.

Answer: Due to the technical nature of the question, the Bidding Commission requested consideration from the technical division of the requesting agency. Based on that, section 4.3.15 states about NCM codes and descriptions, to assist in the export/import operations, presenting a summary of the elements that integrate the goods to be provided. The features and information about the equipment provided by the CONTRACTOR shall be evaluated in compliance to the technical specifications defined in Annex I and II of the Basic Project and in the Clarifications.

a. The range of 450MHz a 2500MHz is related to the digital tracking receiver, not to the s-band data receiver. The lower part of the range shall be read as 2000MHz, not 450MHz. The S-band data receiver shall support the 2200 to 2300MHz range (item 2.3 of Annex I and item 2.2 of Annex II).

b. The acquisition range of $\pm 500\text{MHz}$ is related to the digital tracking receiver, not to the SSPA or the s-band data receiver. The SSPA shall be deployed in 1+1 redundancy and the the power shall be at least 100 W and sufficient for communication with all satellites listed in the requirements, as stated in the Clarifications.

Question 7 – *In page 34 of document "Basic Project (English)", item 2.19, please confirm the backup configuration of downconverters. In 2.19.1, it is 1+1 backup. But in 2.19.2, based on our understanding, it is 2+1: 2 downconverter units for RHC and LHC signal respectively, and 1 downconverter unit works as a backup of either of the RHC and LHC channel.*

Answer: Due to the technical nature of the question, the Bidding Commission requested consideration from the technical division of the requesting agency. Based on that, the redundancy configuration shall be 1+1, so the item 2.19.2 shall be read as: 2.19.2. One active downconverter unit must handle the RHC signal, the other the LHC signal, and the backup units must be able to take over in case of failure of the main units.

Question 8 – *In page 36 of document "Basic Project (English)", item 2.50.1, what is the concrete definition of "Capture bandwidth"? Is it the bandwidth of oscilloscope which will be used in real-time measurement?*

Answer: Due to the technical nature of the question, the Bidding Commission requested consideration from the technical division of the requesting agency. Based on that, the real-time spectrum analyzer shall process 110MHz of bandwidth in real time, so it's the real-time analysis bandwidth (RTBW). The real-time spectrum analyzer shall support the range from 10 KHz to 26.5 GHz, but is required to slice, process and display 110MHz at a time.

Question 9 – *Primary site in-band interferences*

The conclusions (Section 12, page 88) of the Brasília Site Survey (Annex III to Basic Project) reports the following: "Através das medidas em campo, até a data 12/01/2016 – final dos testes, foram identificados muitos sinais na faixa entre 7 e 8,5 GHz e em menor quantidade na faixa entre 8,5 e 10 GHz. Os sinais detectados na faixa entre 7 e 8,5 GHz, são potencialmente críticos para o sistema a ser"



*implantado. Não é possível determinar se a frequência a ser utilizada para o download dos dados está ou estará comprometida para todos os possíveis satélites, entretanto para o Satélite *Cosmos Skymed é possível afirmar que os dois links disponíveis para esta aplicação, 8120 e 8250 MHz, estão comprometidos. Independente da frequência dos links, só a intensidade dos sinais detectados nos testes é suficiente para comprometer parcialmente ou totalmente a recepção da estação, através da saturação do amplificador de baixo ruído utilizado na amplificação dos sinais recebidos pelo satélite. Os sinais detectados na faixa entre 8,5 e 10 GHz, não são críticos, eles estão fora da faixa comumente utilizada na recepção das estações em questão. Para a instalação de um sistema conforme citado no edital, não recomendamos que este local seja utilizado. Um local afastado de grandes centros urbanos é mais indicado para este fim.”*

In conclusion, installation of the Primary Antenna at Brasilia site is mandatory, but according to the Preliminary Survey this site is not suitable for the purposes of the present bid. Requirement 4.5.2.2 states that “The CONTRACTOR shall inform the PURCHASER of any interference or relevant aspect detected during the site survey, which may compromise the installation or imbalance the contract, generating costs other than reasonably expected, so that the PURCHASER can take mitigating measures”. Can you please explain what counter measures do you envisage, should the Site Survey performed by the Contractor confirm that Brasilia site is not suitable to host the Primary Antenna? Could different locations for the Primary Antenna be considered, and how would this be managed??

Answer: Due to the technical nature of the question, the Bidding Commission requested consideration from the technical division of the requesting agency. Based on that, The preliminary survey was concluded in the beginning of 2016. Since then, Censipam was performing the "area coordination" in accordance to Anatel and ITU regulations. Some of the major interferences (e.g. the ones reported to impact Cosmo Skymed) were dealt with, and are no longer active. That's why the CONTRACTOR's site survey, to be performed 2 years after the preliminary one, would provide a more precise information regarding the spectrum. Also, even if the new site survey reveals interferences that may compromise the installation, Censipam will have more than 10 (ten) months to deal with them (performing the "area coordination"), before the arrival of the antenna to the site. That's the mitigating measures informed. Nearby locations may be considered, as last resort mitigating measure, and in this extreme case, all additional costs, services, acquisitions, etc. shall be borne by Censipam. Since 2015, Censipam has visited several potential sites to install the antenna.

Question 10 – Secondary Antenna K-band compatibility

The table within section 4.3.15 of the Basic Project reports as second item (NCM 8517.70.29):

“Complete high efficiency Remote Sensing Antenna with 7- to 9-meter reflector, compatible with X, S and K bands, sub-reflector, simultaneous RHC and LHC (s) feeder for S-band and RHC or LHC selectable Sband transmission, simultaneous RHC and LHC feeder for X- reception, low, medium and geostationary orbital satellite tracking with elimination of the gimbal key hole, tracking mechanism containing precision servo motors for elevation, azimuth and adjustment for elimination of the gimbal key hole, extension of the antenna base, control unit of the tracking mechanism, temperature control of the components, with pressurized radome with temperature and humidity control, including kit of spare parts. (Item 1.3.1.1 + 1.3.1.2)”



This seems to imply that the Secondary 7-9 meters antenna shall receive in X and S band and transmit in S band, but shall also be compatible for k band. On the contrary, the Basic Project including Annex II (Secondary Antenna requirements) does not report any specific requirement on K band reception. We anticipate that K-band compatibility is quite demanding, as it implies more accurate surface and mechanical precision. Please, can you confirm if the secondary antenna shall be K-band ready, or if X and S band compatibility are enough?

Answer: Due to the technical nature of the question, the Bidding Commission requested consideration from the technical division of the requesting agency. Based on that, section 4.3.15 states about NCM codes and descriptions, to assist in the export/import operations, presenting a summary of the elements that integrate the goods to be provided. The features and information about the equipment provided by the CONTRACTOR shall be evaluated in compliance to the technical specifications defined in Annex I and II of the Basic Project and in the Clarifications. The 7-to-9 meter antenna does not require K-band compatibility.

Question 11 – Primary Antenna MTBF *The Annex I to Basic Project (Primary Antenna, Section 3 Reliability) reports as requirement 3.3.3: “MTBF (Mean Time Between Failures): hours.” On the contrary, the same requirement 3.3.3 for the Secondary Antenna (Annex II to Basic Project, Section 3 Reliability) reports: “MTBF (Mean Time Between Failures): > 4.000 hours.” Could you please clarify the value for Primary Antenna MTBF?”?*

Answer: Due to the technical nature of the question, the Bidding Commission requested consideration from the technical division of the requesting agency. Based on that, the MTBF of the Primary Antenna is also required to be more than 4.000 hours.

Notwithstanding, In accordance with the Invitation For Bid 173576/CABW/2017 item 25.1 *“Any doubts arising from the provisions of this Invitation for Bid may be the subject of consultation, in writing, to the **Bidding Commission** in charge of this bidding process, up to 48 hours before the delivery of the proposals.*

Based on that, the BACW’s Bidding Commission reinforces that questions shall be submitted to con@cabw.org and no agents outside BACW should be copied in the e-mail. Thus, only answers published in BACW’s website are considered official and part of the solicitation file.

Furthermore, the Brazilian Aeronautical Commission appreciates the question, and stands available to clarify and explain any doubts or concerns in order to increase the BID quality. Any questions or concerns must be submitted to [**con@cabw.org**](mailto:con@cabw.org)

Note: This information has been made available at BACW website in the publishing for the related Bidding Process.
<http://www.cabwnews.com/index.php/solicitations.html>