

SaskTel Comments:

In Response to the

Notice of Application Received from
Globalstar Canada Satellite Co. for
Ancillary Terrestrial Component (ATC) Authority
in the 2.4 GHz Band (2483.5-2500 MHz)

September 19, 2019

INTRODUCTION

1. Saskatchewan Telecommunications (“SaskTel” or “the Company”) is pleased to provide this response to the “*Notice of Application Received from Globalstar Canada Satellite Co. for Ancillary Terrestrial Component (ATC) Authority in the 2.4 GHz Band (2483.5-2500 MHz)*” published on the Innovation, Science and Economic Development (ISED) website August 8, 2019 (“the Notice”).¹
2. SaskTel’s detailed responses to the Notice are below. Failure to address any particular issue or item, or the Comments made by any other party, should not be construed as agreement with those Comments where such agreement is not in the interests of SaskTel.

SASKTEL RESPONSE TO THE NOTICE OF APPLICATION RECEIVED FROM GLOBALSTAR CANADA SATELLITE CO. FOR ANCILLARY TERRESTRIAL COMPONENT (ATC) AUTHORITY IN THE 2.4 GHz BAND (2483.5-2500 MHz)

1. Summary of the Application

3. As published in the Notice on the ISED website, the Department is seeking public comments on an application received from Globalstar Canada for authority to provide Ancillary Terrestrial Component (ATC) mobile services in the 2.4 GHz band (2483.5 – 2500 MHz) currently licensed for Mobile Satellite Services (MSS).² The licensing policy principles for the implementation of ATC have been established in ISED document RP-023 “*Spectrum and Licensing Policy to Permit Ancillary Terrestrial Mobile Services as Part of Mobile-Satellite Service Offerings.*”³
4. Specifically, Globalstar Canada is requesting that ISED adopt similar operational requirements and technical rules as established by the US Federal

¹ <https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11521.html>

² [https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/terreStar-app-upd-apr-2019.pdf/\\$FILE/terreStar-app-upd-apr-2019.pdf](https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/terreStar-app-upd-apr-2019.pdf/$FILE/terreStar-app-upd-apr-2019.pdf)

³ <https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08174.html>

Communications Commission (FCC) in their Report & Order FCC 16-181
“*Terrestrial Use of the 2473-2495 MHz Band for Low-Power Mobile Broadband Networks; Amendments to Rules for the Ancillary Terrestrial Component of Mobile Satellite Service Systems.*”⁴

5. Although the FCC technical rules for ATC services established in Report and Order FCC 16-181 are only applicable to the 2483.5 – 2495 MHz band, Globalstar has requested authority to provide terrestrial ATC mobile services in the 2483.5 – 2500 MHz band. Globalstar is proposing to deploy time division duplex-based LTE (TDD-LTE) ATC systems in this spectrum, in alignment with new 3GPP band 53 specifications.⁵
6. SaskTel has very serious concerns for potential interference between our existing and planned frequency division duplex LTE (FDD-LTE) deployments in the adjacent BRS 2500 MHz band and the proposed Globalstar ATC deployments using TDD-LTE. While the technical rules as established in FCC Report & Order 16-181 provide for a 5 MHz guard band between the ATC deployments (2483.5-2495 MHz) and the BRS band starting at 2500 MHz, the Globalstar proposal to allow ATC operations up to 2500 MHz would not include a guard band. A minimum 5 MHz guard band is necessary to protect adjacent LTE networks from interference arising from the differing duplex methods (TDD vs. FDD).
7. As stated by the Department in RP-023,

*“The ATC operation ... will neither cause harmful interference to, nor claim protection from, MSS and other primary radio services operating in adjacent bands. ATC operations will be subject to technical and operational requirements considered appropriate to mitigate potential interference.”*⁶
8. The elimination of the guard band as proposed by Globalstar would clearly not be in alignment with the policies established in RP-023.

⁴ <https://docs.fcc.gov/public/attachments/FCC-16-181A1.pdf>

⁵ The Notice, section 3, and the Application, Appendix A part iii

⁶ ISED document RP-023, page 2, item (d)

2 Comments on the Policy and Technical Considerations

2.1 FDD vs. TDD Interference to existing 2500 MHz BRS systems

9. SaskTel has extensively deployed both Frequency Division Duplex (FDD) and Time Division Duplex (TDD) LTE networks in the BRS 2500 MHz band in Saskatchewan. Currently the majority of SaskTel's FDD-LTE deployments are in urban areas, utilizing the 2620 – 2640 MHz downlink block, but more importantly the 2500-2520 MHz uplink frequency block.
10. In the Application, Globalstar proposes to deploy ATC systems in the adjacent 2483.5 – 2500 MHz band using TDD-LTE, eliminating the guard band between ATC systems and BRS FDD-LTE operations. Without a 5 MHz guard band, the proposed ATC TDD-LTE installations will create a conflict resulting from the differing duplex methods and cause interference to nearby FDD-LTE uplink receivers in the BRS band.
11. Globalstar does not indicate in their Application where they plan to deploy TDD-LTE ATC systems. Should the Department choose to grant the Globalstar application, it is a reasonable assumption that Globalstar would plan to deploy ATC systems in urban areas using a small cell concept. Therefore, there is a high likelihood that the Globalstar TDD-LTE ATC systems would be located in close proximity to SaskTel's existing and planned 2500 MHz FDD-LTE deployments in urban areas.
12. The technical rules established in FCC Report & Order 16-181 provide for the operation of ATC systems in the 2483.5 – 2495 MHz band while still protecting operations in the 2500 MHz BRS band. The FCC has extensively studied the issue of protecting adjacent operations in the BRS band. The power limits and out-of-band emissions requirements detailed in FCC R&O 16-181 were established based on the upper limit of 2495 MHz and therefore a 5 MHz guard band between ATC systems and BRS systems. Without this 5 MHz guard band, far more rigid power and emissions limits than those established in the FCC R&O will be required to protect adjacent BRS systems from interference resulting from the conflicting duplex methods.

13. The requirement for and use of a 5 MHz guard band between FDD and TDD based systems is also well established in the ITU band plan for the 2500 MHz BRS band that was adopted by ISED.⁷ The ISED 2500 MHz BRS band plan uses 5 MHz guard bands (labelled as “Restricted Bands”) to protect FDD operations from interference from TDD-based systems operating in the 2575-2615 MHz range. The 5 MHz guard bands have allowed for the orderly deployment of both FDD and TDD LTE systems in the 2500 MHz band, without any FDD vs. TDD interference issues.
14. Should the Department choose to grant the Globalstar application, SaskTel would not oppose the proposed licensing of ATC systems using the same technical rules as established in FCC R&O 16-181.⁸ However ATC systems must only be authorized in the 2483.5-2495 MHz range in adherence to the technical rules including power and emissions limits found in FCC R&O 16-181 which will provide a 5 MHz guard band that will mitigate interference to adjacent FDD-LTE systems operating in the 2500 MHz BRS band. This will allow adherence to ISED’s policy as stated in RP-023 that authorized ATC operations “*will neither cause harmful interference to, nor claim protection from, ... primary radio services operating in adjacent bands.*”⁹

3 Comments on ATC Licences, Fees, and Annual Reporting

15. As stated in the Notice, should the Department choose to grant the Globalstar application, the Department plans to issue spectrum licences for authorized ATC systems, and that the fees for these spectrum licences would be established through a separate public consultation process. Because this consultation process has not taken place, the Department proposes as an interim measure to require site-specific radio station licences and associated fees as detailed in the Notice until the spectrum licence fees have been established.¹⁰

⁷ SLPB-001-14 “Licensing Framework for Broadband Radio Service (BRS) – 2500 MHz Band”, section 3.1. The 2500 MHz band plan is also available at <https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10355.html>

⁸ <https://docs.fcc.gov/public/attachments/FCC-16-181A1.pdf>

⁹ RP-023, page 2, item (d)

¹⁰ The Notice, section 4

16. SaskTel has no objections to the proposals by the Department to establish site-specific radio station licences with the associated licence fees as detailed in the Notice as an interim measure for proposed ATC system deployments, prior to the planned public consultation process to establish proper ATC spectrum licensing policies and spectrum licence fees.
17. Should the Department grant the request by Globalstar Canada to allow low-power ATC systems, SaskTel agrees with the proposal to develop Conditions of Licence to reflect the requirements of section 3 of the Notice and the requirements of RP-023. These Conditions of Licence should specifically require adherence to the technical rules as given in FCC R&O 16-181, including operation only in the 2483.5-2495 MHz band.

CONCLUSION AND RECOMMENDATIONS

18. SaskTel has reviewed the Notice and Application from Globalstar as published on the ISED website seeking authority to provide low power ATC mobile services in the 2483.5-2500 MHz band.
19. As stated above, SaskTel has no objections in general to the proposal from Globalstar to allow the deployment of low power ATC systems in compliance with the policies established by the Department in RP-023. We have no objections to the proposed use of site licensing on an interim basis and the proposed fees.
20. SaskTel however has strong objections to the licensing of low power ATC systems above 2495 MHz as this will eliminate an essential guard band between proposed TDD-LTE ATC systems and existing and planned BRS 2500 MHz FDD-LTE systems.
21. Because Globalstar proposes to deploy TDD-LTE ATC systems, there will be a conflict with adjacent FDD-LTE systems in the 2500 MHz BRS band due to the different duplexing methods. The result will be interference into SaskTel's FDD-LTE uplink receivers. The use of a 5 MHz guard band combined with the power and emission limits established by the FCC in R&O 16-181 should effectively mitigate this interference.

22. Should the Department choose to grant the application from Globalstar, SaskTel recommends that

ATC systems only be authorized in the 2483.5-2495 MHz range in adherence to the technical rules including power and emissions limits found in FCC R&O 16-181¹¹ which will provide a 5 MHz guard band that will mitigate interference to adjacent FDD-LTE systems operating in the 2500 MHz BRS band.

23. SaskTel is pleased to have had the opportunity to provide our inputs and comments on the important issues raised in this Notice. We hope that our submission will provide a fuller view of these issues to the Department.

¹¹ <https://docs.fcc.gov/public/attachments/FCC-16-181A1.pdf>