

Daniel C.H. Mah
Senior Legal & Regulatory Counsel

Manager, Spectrum Planning

Spectrum Planning & Engineering Branch
Australian Communications and Media Authority
PO Box 78
Belconnen ACT 2616
Australia

Via Online Submission

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Future Use of the 3.6 GHz Band – Options Paper

Dear Manager,

New Skies Satellites Australia Pty Ltd (“SES”) hereby comments on the ACMA’s Options Paper on “Future Use of the 3.6 GHz Band” (the “Options Paper”).¹ SES is the Australian subsidiary of SES S.A., a global satellite operator with a fleet of over 50 C-, Ku- and Ka-band satellites in geostationary orbit. One of those satellites – NSS-9 at 177° West – operates in the 3575-3700 MHz (“3.6 GHz”) band with coverage of Australia.

Shared Use of 3575-3700 MHz

Instead of relocating existing earth stations in the 3.6 GHz band, SES would urge the ACMA to consider continued, long-term shared use of the band by the FSS and future mobile broadband (MBB) services. The ACMA is already proposing an extended re-allocation period of 7 years during which MBB will need to protect existing earth stations.² It is also proposing an open-ended period of shared use between MBB and the 3.6 GHz earth stations at Uralla.³ The methods and techniques developed for such extended periods of shared use may prove sustainable in the even longer run, thus obviating any need to relocate the FSS earth stations at all. This would require a more detailed and granular sharing analysis that is adapted to the local geography and local MBB deployments.

In addition, SES would request that the ACMA allow new apparatus licenses for 3.6 GHz FSS earth stations ought to be allowed under the extended and long-term shared use scenarios, at least when the new earth station is near other 3.6 GHz FSS earth stations.

Auction Proceeds and Relocation Costs

The ACMA expects that the proceeds from a future auction of the 3.6 GHz band for MBB services will exceed the expected costs of relocating incumbent services, including FSS earth stations. Since the

¹ See ACMA “Future use of the 3.6 GHz band – Options Paper”, available at http://www.acma.gov.au/theACMA/future-approach-to-the-3_6-ghz-band (last visited 3 August 2017) (“Options Paper”).

² Options Paper at 4.

³ Options Paper at 4.

ACMA's total welfare analysis depends on this expectation bearing out, SES would recommend that the ACMA make this a condition of any requirement or other plan designed to relocate incumbents.⁴

If incumbents are to be relocated, they should be compensated for their relocation costs out of the proceeds from the auction. This is a natural extension of the ACMA's total welfare analysis. Governments seeking to improve total welfare should not ignore the distributional effects of their actions, and should strive to compensate those harmed by its actions out of the surplus benefits created by their actions whenever feasible. In this case, there is no difficulty: (1) the value of the purported welfare-increasing re-allocation of spectrum is captured through an auction that will result in payments received by the government, (2) the proceeds from such auction is expected to exceed the costs of relocation; and (3) the incumbents who need to be compensated are readily identifiable. In the language of welfare economics, governments should not settle for a *Kaldor-Hicks efficient* outcome when a more equitable *Pareto efficient* outcome is readily achievable.

To the extent that legal authority is required to accomplish this outcome, SES would recommend that the ACMA seek such authority as part of the re-write of the *Radiocommunications Act 1992* that is currently being undertaken.

Protection of FSS Above 3700 MHz

As the ACMA is aware, there are many more FSS space and earth stations operating above 3700 MHz band than there are in the 3.6 GHz band, with many of them carrying or distributing vital news, sports and entertainment programming. Out-of-band emissions from new MBB devices in the 3.6 GHz can cause harmful interference into FSS earth station receivers operating above 3700 MHz, especially when aggregate interference is taken into account. As a result, reasonable measures should be put in place to prevent such interference.

Such measures could include a combination of (a) an out-of-band emission mask; (b) a guard band; and/or (c) minimum separation distances from FSS earth stations. The better the out-of-band emission mask and the larger the guard band, the smaller the separation distances that would be needed to protect FSS earth stations above 3700 MHz. The ACMA accepted the use of a guard band to manage adjacent interference between wireless broadband TDD providers,⁵ and the same mechanism should be considered for managing adjacent band interference into the FSS above 3700 MHz. Such a guard band should be situated below 3700 MHz so as not to impinge upon existing satellite telemetry and transponder transmissions immediately above 3700 MHz. The size of the required guard band will depend on the out-of-band emission performance of the MBB transmitters, which the ACMA should consider prescribing.⁶

⁴ SES notes that the lower range of the ACMA's valuation of the 3.6 GHz spectrum may not exceed the incremental costs of relocating all incumbents. Compare ACMA, "Future use of the 3.6 GHz band: Highest value use assessment—Quantitative analysis," at 2 (table 1) and 4 (table 2).

⁵ Options Paper at 72-73.

⁶ The Hong Kong Communications Authority is proposing a 100 MHz guard band across the entire 3.6-3.7 GHz. See Communications Authority, *Proposed Change in the Allocation of the 3.4-3.7 GHz Band from Fixed Satellite Service to Mobile Service*, at 10, available at: http://www.coms-auth.hk/filemanager/en/content_711/cp20170727_e.pdf (last visited 10 Aug. 2017).

Please contact the undersigned if you have any questions.

Yours Sincerely,



Daniel C.H. Mah
Senior & Legal Regulatory Counsel
for New Skies Satellites Australia Pty Ltd
daniel.mah@ses.com
Tel: +65 6593 3631

