Radio Spectrum Policy Group – Secretariat
DG CNECT B4: Spectrum – Office: BU33 7/065
European Commission, B-1049 Brussels, Belgium

11 January 2017

Subject: Comments to RSPG document "*A Spectrum Roadmap for IoT - Draft Opinion on the Spectrum Aspects of the Internet-of-things (IoT) including M2M*".

Dear Sir, Madam,

The European Space Agency (ESA) welcomes the opportunity to contribute to the RSPG document "*A Spectrum Roadmap for IoT - Draft Opinion on the Spectrum Aspects of the Internet-of-things (IoT) including M2M*".

Based on consultations with various European industrial partners, ESA would like to offer the following comments on the draft opinion:

a. Regarding the RSPG opinion on IoT (point 1, page 2)

ESA supports this point of the draft opinion, in particular the statement that there will be heterogeneous solutions required. Satellite-based M2M/IoT will be one of those solutions, and shall therefore be part of any considerations on spectrum availability and access.

b. Regarding the RSPG opinion on IoT (point 2, page 2)

This point states that the availability of spectrum is currently not constraining the growth of IoT. ESA does not support this statement from the perspective of IoT/M2M services implemented via satellite systems, for reasons listed below:

- Only a limited number of spectrum allocations for space services are currently available and suitable for M2M/IoT usage. Like in terrestrial communications, low power M2M and IoT can be best offered using sub-GHz frequencies, for which there are very limited allocations for space services.
- With regards to M2M/IoT services offered using higher frequency bands which allocated to space services and using antennas with limited directivity, there are some stringent constraints with regards to the protection of other services.
- The few suitable frequency bands which are allocated to satellite services are all taken by satellite filings from incumbent M2M/IoT services, mostly offered by U.S. providers.

Coordination to allow new players (as desired by the RSPG draft opinion) to use such allocations will be extremely difficult.

c. Regarding the RSPG opinion on IoT (point 5, page 3)

The figure which lists a number of spectrum ranges for terrestrial M2M/IoT. It is suggested to indicate also which spectrum ranges are available for satellite M2M/IoT , including the realistic availability of these frequency ranges.

d. Regarding the RSPG opinion on IoT (point 8, page 3)

We fully support this point which addresses the need to make M2M/IoT stakeholders more aware of their options. In particular for new players in the area of satellite M2M/IoT, the access to spectrum is further complicated by the mechanisms of satellite filings and global frequency coordination.

e. With regards to the Annex, section 4

ESA does not support the statement that "there is no scarcity of spectrum for IoT", for reasons listed above.

f. With regards to the Annex section 6, point d

A considerable number of European entities are planning to offer M2M/IoT services via satellite. These entities struggle to obtain spectrum which is suitable for long-range, low-power M2M/IoT applications. At the same time there are a number of use cases which can only be satisfied using satellite-based M2M/IoT services.

ESA is therefore of the opinion that efforts to find additional spectrum for M2M/IoT satellite services have a high priority. Usage of such new spectrum could be space-to-earth, earth-to-space or both.

Such initiatives are already discussed within CEPT FM, FM44, and within the related M2M/IoT CEPT correspondence group ("M2M-via-satellite") but are not reflected in this draft opinion.

General recommendation

ESA supports the overall objective of the draft RSPG opinion.

However, ESA urges to consider more explicitly the role that satellite–based M2M/IoT systems can play. Satellite-based M2M/IoT can offer a complementary role to terrestrial M2M/IoT, and also offer services in regions that cannot be covered economically or are very remote.

ESA considered that there is a scarcity of suitable spectrum for satellite-based M2M/IoT systems, in contrast to what is stated in this draft opinion. Such spectrum should be suited to work with very-low power device. The RSPG is kindly requested to consider and support specific regulatory initiatives that address the current space services spectrum scarcity which hinders innovative M2M/IoT satellites to emerge. Such regulatory initiatives would support a number of European industrial efforts.

Respectfully submitted,

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