**Griffie Commissie Economische Zaken en Klimaat**

**Postbus 20018**

**2500 EA Den Haag**

Burum, March 26th, 2017

Dear Mr. Kruithof,

I would like to thank you for your invitation to join the round table discussion on the roll-out of 5G in the Netherlands. We welcome the opportunity to discuss the topic with the Commission. In preparation for the meeting, we have summarized our views on the topic in the attachment.

Best regards,

Gerard Luursema

Director - Inmarsat Solutions B.V.

Inmarsat was set up in 1979 by the International Maritime Organization (IMO) to enable ships to stay in constant touch with shore or to call for help in an emergency, no matter how far out to sea. Today Inmarsat plc is the market leader in the provision of mobile satellite services, with the largest and most mature portfolio of global satellite communications solutions and value-added services on the market. As well as merchant shipping, customers include governments, airlines, the broadcast media, the oil and gas industry, mining, construction, and humanitarian aid agencies. They are connecting via a fleet of 13 satellites using a range of equipment, including global handheld satellite phones and notebook-size broadband internet devices, as well as specialist terminals and antennas fitted to ships, aircraft and road vehicles.

Today, customers use Inmarsat’s network to communicate where reliability, mobility and security are key requirements, including: electrical grids, utility networks, autonomous trains and vessels and security communications. The services are also used where terrestrial telecom networks are unreliable or simply cannot reach but communications are critical. Inmarsat continues to be the unique cornerstone of safety communications at sea providing Global Maritime Distress and Safety System (GMDSS) to mariners and is one of the primary providers of Aeronautical Mobile Satellite (Root) Service to the operation of airplanes. Inmarsat’s role in aviation safety is expanding, for example in provision of services for the Global Aeronautical Distress and Safety System (GADSS) and in the European Space Agency’s Iris project which supports the Single European Sky ATM Management (SESAR) initiatives and air traffic growth in Europe. Investments in this area include those driven by the recognition that additional security measures are needed to protect passengers.

Inmarsat builds and operates their own satellites, and coordinates the required spectrum and orbital slots for its spacecraft. This is a complex activity that takes place in a competitive international environment. Once built and launched, the satellites, which will generally have a design life of 15 years, often stay in orbit for a period longer than that, during which users, regulators, including the IMO and ICAO, expect the services to be reliably available, without interference.

Inmarsat’s L-band satellites carry safety service traffic as the only operator authorized to do so by the IMO and additionally supported by International Civil Aeronautical Organization as well as key security and critical infrastructure services. They use the 3.5 GHz band for receiving signals from the satellite to its Ground Network. The expected lifetime of these satellites is beyond 2030, with new satellites under development and these bands have already been included and coordinated.

Inmarsat’s European Teleport operations in 3.5 GHz are located in Burum (Netherlands) and Fucino (Italy), where the 2 sites together provide the Ground Segment redundancy mandated for these critical services. The Burum Teleport was built by the Dutch PTT in 1973 and has serviced the Inmarsat satellites over the last 30 years, in the 3.5 GHz band. Ownership moved to Inmarsat after KPN divested its satellite communications activities and the Burum Teleport developed into the largest and key node in the Inmarsat Ground Network.

Inmarsat acknowledges the EC decision (2014/276/EU) on the use of the 3400-3800 MHz band for use of terrestrial electronic communications networks. Having said that, under the same decision, the EC has left room for Member States to protect the continued operation of existing use in the band.

While Inmarsat is very appreciative of the footnote HOL-008 in the National Frequency Plan (the line Amsterdam-Zwolle), it also supports further exploration of shared use of the band. Newer technology, such as Software Defined Radio (SDR) could allow more flexible co-existence of users in the 3.5 GHz band. Transmitters aware of geo-location or environmental conditions could adjust the use of the band based upon certain criteria. Further technical research could provide guidelines to arrive at workable criteria. Alternatively, 5G systems using small cells or indoor cells could operate closer to Burum.

While the 3.5 GHz band has been identified for 5G use, which will be a network of networks, using multiple technologies, including satellites, as such, it is certainly not the only band that is available for the use of 5G technology. Therefore, the discussion about the potential application of 5G should be de-coupled from the 3.5 GHz band. For reliable 5G coverage, one could consider hybrid networks, using a combination of different frequency bands to improve reliability and availability. Such hybrid networks could potentially combine well with a shared use of the 3.5 GHz band, providing capacity where and when available.