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TerreStar Global Response to Ofcom's discussion document on Spectrum planning for the London 2012 Olympic Games and Paralympic Games

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INTRODUCTION

TerreStar Global (TSG) is responding to this consultation in order to bring Ofcom's attention to the important services that TSG can provide for the successful PMR licensees for the London 2012 Olympic Games and Paralympic games (the London Games). It is not doing so as a candidate for a PMR licence.

TSG is currently participating in the EC Selection and Authorisation process, which will assign spectrum in the 2 GHz band for Mobile Satellite Service with a Complementary Ground Component (MSS/CGC). This will allow TSG to provide a voice and data service which combines the disaster resilience of a satellite system with the capacity of a terrestrial service. TSG is well placed to be successful in this process and looks forward to being certain of its receipt of spectrum by the spring of 2009.

TSG's MSS/CGC service will have the ability to allow the user to seamlessly switch between the ground component, terrestrial base stations, and the satellite to connect a call. This ensures seamless connectivity, whatever your location, and guarantees that your call will be placed, even during an interruption of terrestrial service.

TSG plans to form partnerships with the PMR licence-holders for the 2012 London Games. It can add value not only through its ability to provide network redundancy but also the ubiquity of its coverage and the ability to provide backhaul for PMR licensees operating terrestrial-only networks.

To facilitate these partnerships TSG is developing a *Universal Chipset*™, which will be available in two varieties. The first will provide interoperability between GSM, UMTS, and TSG's MSS/CGC network, while the second will provide interoperability between PDR networks and the MSS/CGC network. This technology will allow partners to move and communicate between their own network and TSG's 2GHz network as and when required.

TSG's satellite will also have the ability to re-allocate power between beams, giving it the dynamic capability to capacity in areas of high demand. This will be an important component of the TSG service during the 2012 London Games, allowing capacity to be increased with a moment's notice. To complement the real-time allocation,

particularly during times of high demand or terrestrial network failure, TSG's all-IP service will enable prioritisation of users in a precise and carefully planned manner. This will ensure connectivity for high-priority users in any event where spectrum is severely congested.

In response to the need to relay information to groups of people as quickly as possible, TSG can also provide closed user groups for its partners, the membership of which can be changed in real-time.

Much of the spectrum used by the licensees at the 2012 London Games will be in the UHF band, while TSG's service will use the S-band. This means TSG is well placed to help alleviate any capacity difficulties caused by congestion in the UHF band, particularly during events which will have a high demand for spectrum.

ANNEX

ANSWERS TO OFCOM'S DISCUSSION DOCUMENT

Approaches and Assumptions

Question 1: Do you have any comments on our approach?

TSG agrees with Ofcom's assessment that the 'Bottom-up' approach will deliver the best assessment of the spectrum requirements for the London Games. However, the assessment must be conducted with complete transparency, thereby allowing all stakeholders equal opportunity to have their views heard and debated. The 'Top-down' and 'Theoretical' approaches provide supplementary guidance to the consulting process, these should be applied with caution, as they are not a useful method of judging which innovative technologies are likely to be available and to make an impact at the London Games.

Question 2: Do you have any comments on our assumptions?

At this stage TSG believes that Ofcom is correct in the assumptions it has made. However, TSG requests further information about the method by which the 2010 technology freeze will be assessed. For example, what stage of development do technologies need to be at, and can any extensions be granted in specific circumstances. Before any manufacturer can make plans for the London Games this information must be clarified.

Requirements for PMR and Broadcasting

Question 3a: What is your assessment of the requirements for handheld radio systems?

Due to the nature of the event, it is expected that handheld systems will be of particular importance to organisers, security, and emergency services. The planners for the Athens Games, and Beijing Games, expected two TETRA networks would be required. It is therefore assumed that at least similar requirements will be anticipated for the London Games. Two TETRA systems may therefore be anticipated for the Games.

Ofcom has stated that it believes that the London Games will see the emergence of many innovative technologies. It must be careful in its planning of the requirements for handheld radio systems that it does not fall back on old technologies through familiarity with them. A full assessment should be carried out that takes into account the range of possibilities that innovative technologies provide.

Question 3b: How can they be met most efficiently?

To make sure that the requirements for handheld radio systems are met efficiently, licensees' technologies must be designed to be as flexible as possible. TSG, through its Mobile Satellite Service with a Complementary Ground Component (MSS/CGC) system and *Universal Chipset*[TM] can help bridge the gaps between those services which are not compatible. TSG enabled handsets achieve this by their ability to switch between the MSS/CGC network and TETRA or GSM / UMTS networks.

Once licenses have been awarded Ofcom must facilitate the testing process. Any technology that is used at the London Games must be able to operate in the required environment within the required limits set out by the license. This can only be confirmed in field trials which often throw up problems unforeseen before full-scale testing begins.

A system of prioritisation must also be put in place. This would allow Ofcom to maintain a level of control over the use of spectrum during the London Games, maintaining critical services when they are threatened by improper or unforeseen actions.

Question 5a: What is your assessment of requirements for land mobile radio systems?

TSG agrees with Ofcom with regards to potential requirements for paging systems, short-term hire and local communications. While past Games provide a rough guide, there is general consensus that there will be a greater demand for spectrum than ever before and Ofcom must build enough flexibility into its approach to allow for this.

Question 5b: How can they be met most efficiently?

TSG believes that the same methods can be used as outlined in our answer to Question 3b.

Question 6a: What is your assessment of the requirements for maritime radio?

While Ofcom is of the opinion that the waterborne events will not require additional spectrum, TSG believe that Ofcom should fully assess the requirements in consultation with stakeholders before coming to a final conclusion.

6b: How can they be met most efficiently?

TSG believes that the same methods can be used as outlined in our answer to Question 3b.

Question 22: Do any public support services have spectrum requirements that cannot be met through existing allocation and assignment processes?

Ofcom must ensure that spectrum is available for safety of life services. The needs of such services should not be met through existing allocation and assignment processes. An assessment should be made to make sure that emergency services have the spectrum they require for critical services. TSG's MSS/CGC service will be interoperable with any handheld radios used by the emergency services and, through the disaster resilience of the satellite, will maintain critical communications even in the event of a failure of the terrestrial network rendering other communications networks inoperable.

<u>Requirements for Cultural Events</u>

Question 23a: What is your assessment of the requirements for cultural events?

At this point it is impossible to fully answer this question, as the full list of cultural events is unknown.

Question 23b: How can they be met most efficiently?

A system of prioritisation is paramount in allowing critical services to continue to function during events where spectrum could become heavily congested. In partnership with the licensees, TSG can provide all-IP prioritisation, which will allow critical services unbroken connectivity even during periods of peak demand, for example, during the opening and closing ceremonies.

<u>Other Requirements</u>

Question 24a: What is your assessment of other requirements?

Ofcom has stated that it expects innovative solutions to drive spectrum use during the London Games. To realise this expectation, Ofcom must ensure that a licensee's ability to provide such innovative and valuable solutions through complementary technology is not hampered. At the same time, Ofcom should ensure that the core technology of the licensee is stable and proven.

Stakeholders providing services which are expected to be utilised during the London Games but will not be direct licensees, such as TSG's MSS/CGC service, should be granted test licenses in the build-up to the London Games. Stakeholders with licences to operate PMR networks at the London Games will benefit from their partners having time to ensure that networks are fully interoperable long before the London Games. For Ofcom to act otherwise would risk the licensees' ability to ensure compatibility, leaving users of the licensees' networks open to a complete loss of connectivity.

Question 24b: How can they be met most efficiently?

Ofcom must ensure that when it carries out the assessment of spectrum needs for the London Games, it does not focus solely on the spectrum needs of the future licensees. Other complementary services must be taken into account, not only during the consultation process but also in the build-up to, and duration of the London Games. This will ensure that in the event of unforeseen loss of connectivity by any of the licensees, solutions are available to instantaneously provide back up.

Operational Issues

Question 25a: Do you have any views on previous or possible licensing systems?

Ofcom should make any licensing process as user-friendly as possible. It should include the possibility of the following features in the licensing mechanism:

- e-licensing
- test licences
- temporary licences for specific service providers
- ad-hoc licences to allow for unforeseen problems

Question 25b: When should the licensing system start to accept applications?

TSG agrees with Ofcom's opinion that licensing should begin 18 months before the start of the London Games. This will mean that applications should be accepted from 19 months before the start of the London Games, ensuring that the first licenses are available 18 months prior to the start of the London Games.

Question 26: Do you have any views on enforcement?

Ofcom must maintain close monitoring and management of frequency use throughout the duration of the licenses. Due to the damaging effect any interference could have on the smooth running of the London Games, Ofcom must maintain a supervisory role throughout the term of the licences.