Before the
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Flexibility for Delivery	)	IB Docket No. 01-185
of Communications by	)	
Mobile Satellite Service Providers	)	
in the 2 GHz and, the L-Band, and the	)	
1.6/2.4 GHz Band	)	

COMMENTS OF TELENOR BROADBAND SERVICES AS

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COMMENTS OF TELENOR BROADBAND SERVCICES PLC

TBS ("Telenor Broadband Services") hereby submits its comments in support of retaining the L-Band solely for satellite-based services and in opposition to Motient Services, Inc.'s ("Motient's") application to integrate terrestrial components into its MSS satellite network. TBS has an interest in this proceeding as an owner, operator and service provider in the Inmarsat system, a geostationary orbit MSS system that operates across the L-Band around the world, including within the United States.

The *Flexibility NPRM* is, in large part, prompted by Motient's application to add a terrestrial component to its L-Band satellite network. The Commission should decline to adopt this proposal for two main reasons: (i) Motient's proposed terrestrial use would create harmful inference to Inmarsat's network, including vital safety services provided in the L-Band and nearby frequencies; and (ii) Motient's business needs can be met in other frequency ranges without creating the problems identified here.

I. ABOUT TBS ("TELENOR BROADBAND SERVICES")

A. General about TBS and Telenor

Telenor ("Telenor ASA") is a worldwide provider of high quality telecommunications, data and media communication services, with a particularly strong focus on mobile, internet and broadband services. Headquartered in Oslo, Norway, the company is present in over 30 countries, has more than 21,000 employees, and had revenues of US$4.2 billion in 2000. Internationally, Telenor has over the last years steadily increased its investments within mobile, Internet, TV-distribution and satellite communications.

TBS is a wholly owned indirect subsidiary of Telenor, and is one of four core business areas within the Telenor Group. TBS is responsible for both the business applications, and the technical and operational aspects of all satellite and cable broadcasting and communication activities. TBS is a leading international European satellite operator, comprising global mobile satellite communications services through Inmarsat solutions, satellite networks (VSAT and BOD), gateway solutions and satellite broadcasting.

B. TBS's MSS business

TBS's Satellite Mobile division provides global satellite mobile communications services to and from MSS terminals globally, on land, at sea and in the air. Through the gateway, Eik LES(Land Earth Station) in Southern Norway, a full range of Inmarsat satellite telephony and data communications services are provided. Eik has visibility to three of the primary Inmarsat satellites, and one spare satellites used for lease traffic. The services supported at Eik LES are amongst others Inm-A, Inm-B, Inm-C, Inm-M, Aero-H, Aero-I, Mobiq(mini-M), and GAN, and several other product variants. Additionally, Sealink, a powerful VSAT service offered to high end maritime customers is offered by TBS from Eik. In the maritime market, Inmarsat services are known as Eik Global Communications. EGC covers all Inmarsat ocean regions and ascribes to all known Inmarsat maritime standards.

As one one the major service providers and gateway operators in the Inmarsat system, TBS has experienced a steady and long-lasting period of growth in its MSS business since the early 80s. Historically, the annual growth in number of Inmarsat users has been at approximately 30%, which is similar to the growth numbers experienced in the cellular world.

Also, on the product and services side there have been significant developments, fully in line with advances in cellular and fixed network offerings. For example, in 1996, the Mobiq (mini-M) service was launched. The Mobiq terminal is approximately 2kg and of laptop size, and provides voice, fax, low-speed data i.e. GSM-like services. In 1999, an evolved product, GAN (M4) was launched, the terminal is 3kg and of laptop size, and capable of offering 64kb/s ISDN services in addition to the baseline mini-M. TBS was the first Inmarsat service provider to offer both the GAN and mini-M services on a commercial basis. Inmarsat is currently developing a new packet data system, BGAN, which will be launched in 2004 and provide UMTS-type services up to 432 kb/s for even smaller terminals.

C. TBS's US interests

TBS regards the American MSS markets to be very important. So far TBS has provided MSS services to a number of US based governmental organizations, IGOs and NGOs (e.g. UN) as well as a number of US corporate customers in particular within media. So far the TBS's business focus has been on US customers that require land portable MSS products when abroad, but with the ongoing regulatory activities possibly opening for landbased use of Inmarsat services within US territory, TBS sees further opportunities in the US market and is committed to continue and increase efforts into serving US customers with competitive and advanced MSS services offerings in the future.

In March earlier this year, Telenor announced its acquisition of COMSAT Mobile Communications for US$116.5 million. The acquisition, which positions Telenor as a major global satellite mobile operator and service provider, is subject to regulatory approvals. COMSAT Mobile, with annual revenues in excess of US$100 million, provides global mobile communications solutions to the maritime, land mobile and aeronautical communities, and offers data, voice, fax, telex and video capabilities via the Inmarsat satellite constellation. Telenor's purchase of COMSAT Mobile operations also includes two earth station facilities in Southbury, Connecticut, and Santa Paula, California. Linking the two U.S. stations with Telenor's existing earth station in Eik, Norway, will enable Telenor to offer true global coverage for satellite mobile communication services. Following the transaction, Telenor will be one of the leading Inmarsat global operators. Additionally, in September 2000, Telenor purchased a portion of LMGT's (Lockheed Martin Global Telecommunications) Inmarsat shares to become the largest owner of Inmarsat, holding the maximum permitted stake of 15 percent. The companies are currently in the process of acquiring regulatory approvals from the U.S. government, a process expected to be completed over the next months. Upon completion of the transaction, COMSAT Mobile will become a key part of the satellite mobile division of Telenor Broadband Services AS, operating through its wholly owned U.S. subsidiary, Telenor Satellite Mobile Services, a Delaware corporation.

II. TBS'S VIEW OF THE MSS BUSINESS

A. MSS is a sound and growing business

There seems to be a perception that allocation of L-Band and other spectrum to MSS in general has proven to be a failure. Several cellular operators have through their comments to Motient's proposal, urged the Commission to initiate a rulemaking to examine whether the public interest would best be served by maintaining the allocation. The alleged evidence has been Motient's claim that it has been unable to attract sufficient customers for its satellite service, as well as the recent financial troubles of Iridium, ICO and Globalstar.

The business troubles of individual MSS operators do not justify the extreme action these parties propose. Despite the hardships experienced by some companies, MSS is far from dead.

Inmarsat is a world leader in the provision of MSS, offering a wide variety of land, aeronautical and maritime services, including voice, fax, intranet and Internet access and other data services. As of April 2001, over 220,000 terminals were registered to access Inmarsat's services. Inmarsat currently is developing its next generation of broadband satellite services as well. Contrary to the assertion of some parties, MSS provides extremely valuable commercial and public safety services and, in some instances, offers services of a quality and price that is superior to terrestrial mobile services. In fact, a recent study commissioned by Inmarsat indicated that using Inmarsat's mini-M satellite voice service is often cheaper than international roaming using UK cellular operators Cellnet or Vodafone.

And Inmarsat is not the only system that targets the MSS market in the United States. For example, despite the problems suffered by some companies, interest in the Commission's 2 GHz proceeding remains intense and, KITComm, another overseas MSS operator, have been over a long period urging the Commission to finally resolve the logjam in the lower L-Band and to allow them access to the U.S. market in that spectrum.

Finally, the cellular parties are too quick to ignore the willingness and ability of MSS operators, like any other businesses, to learn from their mistakes and adjust accordingly. For instance, it appears that both Iridium and Globalstar originally developed business plans based on the attracting mass markets with MSS terminals, whereas now both are attempting to address the markets in which Inmarsat has succeeded.

As is shown in the comments filed in previous proceedings and elsewhere, TBS, Inmarsat and other MSS operators are eager to enter the U.S. market. This demonstrates that, the problems of some service providers notwithstanding, the MSS industry is very much alive. The cellular operators and industries are mistaken in dismissing the entire MSS industry based on the fortunes of just a few companies.

B. MSS systems as a complement to other telecom network

Cellular phones have a become mass consumer products. One of the key reasons that it has been possible to develop small and attractive terminals at reasonable cost, is that cellular systems are not power limited. This technical fact has opened the opportunity to provide in-door penetration, urban and also sub-urban coverage, and sufficient link margins to make the systems operate

satisfactorily even when only attenuated reflection signals are available at the terminal or base station. In satellite communication, the situation is very different. Due to the propagation path lengths, and the satellite power limitations, the MSS system is power limited. Available spectrum and link margins must be managed carefully, and the trade-off involving terminal/antenna size, directive antenna, line-of-sight requirement vs. systems capacity and/or data rates is well known.

The MSS system designer must make a choice, as to which parameter he should optimize at the expense of others. Some MSS operators and system designers, possibly including Motient and ICO, have had handheld (cellular-phone like) terminal size as a primary objective, and let the other system parameters suffer accordingly. However, other MSS operators, including TBS, has had the belief that one should rather begin with identifying the markets and users that do benefit the most of the strengths of satellite, and then designing the MSS system, its terminals and services accordingly. Some of the natural strengths of satellite are coverage (typically global), rapid deployment, disaster-proof availability and independence of terrestrial infrastructure. Over the years these strengths have attracted professional users that have been operating in maritime, aeronautical or rural land environments, where few or no other communication alternatives exist. TBS believes that MSS systems and services target these markets best, and thereby complementing the coverage of other systems and networks such as fixed and cellular networks, and preferably with similar service capabilities as offered in those networks. With ongoing advances in technology e.g. satellite spot beam technologies, terminals can be made smaller and cheaper, with higher capabilities and reduced traffic tariffs. In this way, TBS believes the traditional MSS markets can be grown in a evolutionary and healthy manner, and let new types of users benefit from MSS services.

III. COMMENTS TO ICO AND MOTIENT PROPOSALS

In the following we have assessed and commented on some of the arguments which is understood to be key in ICOs and Motient's proposals.

A. The "need" for MSS services to attract consumer mass markets

There is no evidence that a MSS system needs to attract a consumer mass market in order to become a viable business. History shows that the most successful MSS players have been those that have targeted professional niche markets with tailor made applications and service offerings. On the other hand, the MSS operators that have attempted to compete head-to-head with cellular systems in mass markets, with handheld terminals and services limited to voice and low-speed data, have faced problems. Attempting to attract mass markets should therefore not be regarded being an objective itself, and the history of MSS systems indicate that the main and natural MSS markets actually are aeronautical, maritime and land based users requiring communication in rural and unserved areas. Even though these markets have grown the MSS business steadily, they are niches rather than mass markets. So, in TBS's view the prime condition for success is to target the appropriate markets with the appropriate services, rather than defining revolutionary and unrealistic visions about capturing mass markets.

B. The "need" for handheld MSS terminals

Handheld is being presented by ICO and Motient as necessary prerequisite in order to attract mass markets. In TBS's view, handheld terminal is not an essential requirement for MSS systems, in particular not for those systems that provide data services. A MSS system designed for handheld terminals, has inherent limitations in satellite resource management (due to power demand and frequency reuse limitations), thereby limiting system capacity and driving traffic tariffs. Also, MSS systems designed for handheld is only capable of delivering voice and lower data rate services (typically less than 9.6. kb/s). TBS's market experience shows that the handheld feature is regarded by the typical MSS users as less valuable than traffic tariffs and service capabilities.

C. The "need" to integrate MSS systems with terrestrial infrastructure, and operate them in the same bands

First of all, it is not at all clear that integration between MSS system and terrestrial systems is something that is attractive to operators or users at all. There are many technical and commercial problem issues related to integration, e.g. the cost and complexity of dual mode terminals, cost and complexity of network interworking, as well as issues related to numbering, routing, mobility management and charging. However, given that integration of MSS and cellular systems is found to be desirable, it can and should be done by dual band operation, and not by operating in the same band. As TBS sees it, this is mainly due to the following two reasons :

(i) Interference

Calculations made by Inmarsat, show that the base stations and mobiles in the systems proposed by Motient and ICO, may cause harmful interference to the MSS systems operating in the same band, and potentially cause serious limitations to the frequency reuse and capacity planning of existing and new MSS systems. In particular, Motient's proposal of using MSS L-band, would

potentially cause problems to Inmarsat's own network, which supports over 220000 users today with services that include safety/distress to the maritime and aeronautical communities. As a service provider for many of these users, and as Inmarsat gateway operator and owner, TBS is extremely concerned about any such adverse impacts. TBS trusts that the Commission will pay thorough attention to this problem which poses a critical threat to a sound and growing MSS system.

(ii) Licensing

ICO and Motient presents the concept of a combined MSS/terrestrial operator, operating a satellite component and a terrestrial component. In TBS's understanding, the proposals suggest that this combined MSS/terrestrial operator only need to adhere to the regulatory framework applicable for MSS operations. However, it can easily be envisaged how such an operator can change the scope from a MSS system with an ancillary terrestrial component to a cellular system with an ancillary MSS component. For example by flexibly reallocating capacity from the MSS segment to the terrestrial segment, the combined MSS/terrestrial operator could very easily end up operating as an ordinary cellular operator, competing with the other cellular operators. Therefore, the only sensible regulatory regime would be to require a combined MSS/terrestrial operator to fully adhere to all regulatory conditions for MSS operations for its MSS segment, and fully adhere to all regulatory conditions for cellular operations for its cellular segment.

D. The "need" for dual-mode and single-band MSS terminals

Both ICO's and Motient's concepts seem to be based on dual-mode terminals (satellite and cellular) but also operating in the same band, namely the MSS-bands in both cases. The experience so far has been that both cellular and MSS users tend to demand single mode terminals which are optimized to one segment and one usage type only. This allows manufacturers to streamline terminal types and benefit from economies of scale in production.

However, if the market should demand dual-mode terminals capable of accessing both MSS and cellular segments, then that can and should be done by a dual-band approach. The technical feasibility of dual-mode/dual-band terminals has already been proven by many operators and manufacturers both in the MSS world (e.g. ACES, Thuraya, Globalstar) and cellular world (GSM 900/1800 MHz). The dual-band approach would not only be the best in terms of avoiding licensing and interferences as addressed above, but would also be the most sensible approach in terms reuse of existing and planned network infrastructure and terminal technology. Although we have identified a number of problems associated with dual-mode/single-band terminals, we are unable to identify any advantages, technical or commercial.

E. The "need" for indoor MSS penetration

In TBS's view, this is not an essential requirement for MSS systems. The need for indoor penetration is only a problem for handhelds with omni-directional antennas. In MSS systems where the terminals deploy directional antennas for line-of-sight operation, the antenna will typically be pointed towards the satellite from a window or roof (i.e. outside the building), and thereby gaining link margins which instead can be used to enhance service capabilities or system capacity. Such terminals may anyway provide for in-door usage, by using appropriate local distribution technology, such as DECT or Wireless LAN 802.11a/b. This is a typical usage

scenario of for example for Inmarsat terminals, and represents a much more efficient use of the scarce MSS resources, rather than boosting satellite power or deploy a repeater infrastructure to penetrate buildings. TBS also takes the view that existing and planned cellular systems by design provides in-door penetration in a much more efficient manner than MSS.

F. The "need" for MSS coverage in urban areas

Similar to in-door penetration, providing good urban coverage in shadowed environment (due to high buildings) is another role that cellular systems typically satisfy in a very efficient manner, due to the generous link margins available. MSS systems should rather aim at complementing the cellular system coverage, rather than duplicating and thereby attempting to compete head-to-head. Hence, to provide coverage in urban areas should not be regarded as a key objective for MSS systems.

IV. CONCLUSIONS

From the discussion above, TBS conclude that:

- ICO and Motients proposals are harmful to the MSS business;
- ICO and Motients proposals do not add value for end-users;

In general, TBS recommends the Commission not to introduce "flexibility" for re-allocating any of the MSS bands, (L, 2GHz or Big LEO) for terrestrial usage, simply because the overall MSS business is healthy and growing, and needs to retain its spectrum allocation for future MSS usage.