



Your response

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<p>Question 1: What is the market opportunity for D2D services? What is the nature of the benefits that could be delivered to people and business in the UK and what do you estimate the magnitude of the benefits to be?</p>	<p>In this consultation Kinéis understands that OFCOM differentiates satellite operators mainly from a regulatory standpoint:</p> <ul style="list-style-type: none"> - What type of spectrum is used: whether the operator rely on Mobile Satellite Service (MSS) frequency band or Mobile band or other type of spectrum? The national licensing regime will differ as the type of infrastructure to be deployed presents intrinsic differences (technology, economic, regulatory and investments). - What type of terminal is serviced: whether the satellite service can reach consumer mobile phone or not? The distinction seems to come from the fact that those standardized terminals are already under contract with mobile operators that have been granted a mobile license in the UK, hence bringing regulatory considerations with regards to national telecom public policy (competition, interference free environment in and outside UK, coverage commitments, etc.). 			
	<p>Type of satellite operator as presented in the OFCOM consultation</p>	<p>Radio Service</p>	<p>Terminals</p>	<p>Kinéis interest and market opportunities</p>
	<p>D2D in Mobile spectrum</p>	<p>MS</p>	<p>Consumer mobile handsets</p>	<p>Kinéis recognizes the interest to address the existing voice/SMS/messaging/broadband connectivity mass market but identifies that the high complexity of providing such service brings uncertainty from the regulatory, infrastructure and economical model standpoints.</p>

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	D2D in MSS spectrum Incl. future Kinéis services	MSS	Terminals that onboard satellite IMT bands	The next Kinéis generation would benefit from satellite IMT standards that open terminal and network infrastructure availability. The radio equipment ecosystem is a key factor for easier-to-use satellite connectivity, hence opening new market opportunity in the midterm for Kinéis (~2030).
	Non D2D in MSS spectrum Incl. current Kinéis services	MSS (incl. UHF)	Non-standard devices	Kinéis currently operates the MSS UHF band for space IoT applications and provides services to various verticals.
	Non D2D in other frequency bands	EESS UHF	Non-standard devices	Since 2019, Kinéis operates the data collection system (established in the 80's) that offers Argos services to environmental applications for scientific and governmental users.
<p>From a market standpoint, Kinéis finds that those regulatory considerations are necessary for the implementation of the services as licensing regime needs to be established but do not define the need expressed by Kinéis satellite connectivity customers and users. They mainly seek simple, cost effective and seamless connectivity for low data applications that allow to improve industrial processes or monitor and protect natural and business resources on a worldwide basis. Three main connectivity features are required: data collection, asset location and alerting with transmissions typically of up to 16 Bytes data size.</p> <p>Those needs may be satisfied by all types of operators shown in the table. The difference will come from the infrastructure complexity and business models associated to each type of operators:</p>				

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	<ul style="list-style-type: none"> - Operation in terrestrial mobile spectrum will define business model to be built between terrestrial mobile operators, satellite operators and the end-customers data plan, with the aim to establish how the satellite deployment infrastructure is financially backed. - Operation in non-terrestrial mobile spectrum presents a simpler model as the satellite operator remains autonomous from other operators with regards to spectrum access and data plan for its customers. <p>Kinéis has built its business model around a cost-effective infrastructure and connectivity on a limited niche market; made possible thanks to a low data dedicated networks in non-terrestrial mobile bands. Kinéis services are of interests to the UK market to reach not covered areas (UK remote areas, waterways and seas) and to ensure a consistent connectivity on a worldwide scale to UK-based company and organizations that require to connect devices for UK usage but also for their non-UK locations.</p> <p>Kinéis addresses the following market for Direct to Device low data communications via satellite. The Kinéis niche market spreads across various verticals that have expressed a need for the unique solutions developed by our company:</p> <ul style="list-style-type: none"> - Environment: hydrology, oceanography and glaciology, wildlife, forestry and meteorology. In UK, the Meteorology Office has been an historic user of the Argos program. - Maritime: merchant shipping, leisure boating, fishery. Kinéis connectivity brings tracking and safety features to various parties. For example, Kinéis connectivity allows some governments to ensure the fish origin traceability around protected areas. - Agriculture: crops and cattle monitoring and alerting. The small factor of the Kinéis enabled devices allow for easy integrations and deployment in this sector. - Transportation: global assets monitoring. Adding Kinéis connectivity brings value to this coverage dependent applications. - Energy: oil and gas, utilities, mining. Those businesses require to monitor remote locations spread around the globe. - Infrastructure monitoring: telecom, utilities, rail, road and bridges.

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<p>Question 2: Are there any wider citizen or societal benefits that D2D services could deliver that the market might not deliver? What is the nature of these benefits and why might the market fail to deliver them? For example, what role could D2D have in improving the availability of 999 services in the UK?</p>	<p>n/a</p>
<p>Question 3: Subject to suitable regulatory frameworks being in place, do you have an interest in offering D2D services or expanding an existing service, in the UK? Which customer segments, devices and use cases would be served? Would your D2D service complement or compete with services delivered over existing mobile?</p>	<p>See answer to Question 1 for the customer segments and considerations regarding direct to device market division between satellite operators.</p> <p>Kinéis services are complementary to mobile operators as part of the Kinéis enabled devices are multimode with terrestrial connectivity activated in urban areas and Kinéis connectivity outside of terrestrial coverage.</p>
<p>If you have considered launching or expanding a D2D service in the UK:</p>	<p>See answer to Question 1 for the customer segments and considerations regarding direct to device market division between satellite operators.</p> <p>Kinéis offers D2D low data satellite services via sun-synchronous satellites in Low Earth Orbit (500-800km):</p> <ul style="list-style-type: none"> - 9 payloads onboard partner satellites (NOAA, CNES, ISRO and EUMETSAT) - <p>A constellation of 25 satellites under delivery and launches:</p>

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<p>Question 4: What technology and network architecture do you consider appropriate to use to deliver D2D services? For example, what altitude and how many HAPS, LAPS or satellites would be required to deliver an initial service?</p> <p>We're aware that different technologies and network architectures will have different costs, performance, and spectrum efficiency trade-offs.</p>	<ul style="list-style-type: none"> ○ 5 satellites have been launched June 20, 2024. ○ 5 are planned to be launched September 17, 2024. ○ The last 15 will be launched before the first quarter 2025. <p>Kinéis relies on two radio allocations in the UHF bands:</p> <ul style="list-style-type: none"> - Mobile Satellite Service (MSS) to support generic low data communication in various sectorial activities to collect data, locate assets and alert on specific event. Applications target improving resource management, monitor cattle and field or track valuable assets - Earth Exploration Satellite Service (EESS) that have been used for the ARGOS services for more than four decades to serve data collection platforms deployed by government and scientific users for monitoring and protecting the environment (wildlife tracking, oceanographic and meteorological data for weather forecast, etc.). <p>Kinéis targets to update the current infrastructure with a new constellation (around 60 LEO satellites) around 2030 to supplement the current capacity and to bring additional services and features. Kinéis expects to add on top of UHF, the operation in higher frequency band and is seeking access to the 2 GHz that present advantages for its niche market of low data communications: existing standards and radio equipment, capacity (uplink and downlink), radio propagation, etc.</p> <p>At this stage, Kinéis has not identified interest to operate in existing mobile allocations due to an expected complex and costly system for which a return of investment would hardly be reached if not addressing consumers voice and broadband markets.</p>
<p>Question 5: What capacity (e.g., Mbps/Km²/MHz) and quality of service (e.g., latency) could be delivered with the D2D service you are proposing? What percentage of the UK landmass could be covered, and would coverage be provided indoors?</p>	<p>Kinéis addresses a niche market of low data applications, i.e. needing up to 16 Bytes per message with a low latency thanks to the constellation design. Kinéis will complete its portfolio with additional capacity and complementary services to satisfy future market expansion.</p>

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<p>Question 6: To inform our future policy development, which spectrum band would you like to deploy the service in? How much bandwidth would be required to provide the service at launch?</p>	<p>Today, for its market, Kinéis relies on less than 1 MHz in the UHF band for uplink and downlink communications. With its next generation, Kinéis would need up to 5 MHz duplex to satisfy capacity extension and new features. This spectrum requirement could be accommodated in the current MSS 2 GHz band.</p>
<p>Question 7: What take-up profile do you assume in your planning? For example, the number of active devices, monthly calls made, and data transferred per device. What is the roadmap for enhancing your network to meet anticipated future growth? What additional infrastructure and/or spectrum would be required? When?</p>	<p>The needs for UHF have been established from current spectrum availability and low data market target.</p> <p>The 5MHz duplex needs in the 2GHz range comes from two main considerations:</p> <ul style="list-style-type: none"> - Spectrum availability after 2027 in Europe, - A trade-off between infrastructure design (60 light weight satellites in LEO), communications capacity (multiple narrow channels combined with multibeam technology) and service delivered (dedicated to low data rate services up to 100kbps). <p>This approach is consistent with the Kinéis development strategy and extensive experience in its niche market.</p>
<p>Question 8: What are the use cases and the benefits these services would deliver? What technology, network infrastructure and frequencies would be required to deliver the service? What are the advantages of using this MSS spectrum compared to other bands?</p>	<p>See previous answers.</p>

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<p>Question 9: What current, or future, technology developments will offer the opportunity for more efficient use of MSS spectrum? E.g., more spectrally efficient, or greater ability to share spectrum.</p>	<p>n/a</p>
<p>Question 10: Could your existing, or proposed, service coexist with other users of the same frequencies within the MSS spectrum bands? If so, how is coexistence achieved? If not, please explain why sharing is not possible.</p>	<p>The Kinéis current services rely on shared spectrum for which mandatory coordination is held at the ITU level and for which technical conditions have been defined in the ERC/DEC/(99)06. This is rendered feasible thanks to the random access and burst transmission and the communication protocol that increases the success rate of the radiocommunications.</p> <p>For the next generation, Kinéis plans to access dedicated spectrum (MSS 2 GHz) to secure additional capacity and extend its service portfolio. With this low spectrum requirements, Kinéis believes that enough spectrum will remain available to accommodate other operators or systems in the 1-3 GHz MSS ranges.</p>
<p>Question 11; Do you expect D2D services to be available prior to WRC-27? What services and benefits do you think an authorisation prior to WRC-27 might bring to UK consumers and businesses?</p>	<p>See previous answers.</p>

Question 12: Are there any mobile bands that should be prioritised for satellite based D2D?	n/a
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Question 13: Are there existing systems that you consider could be subject to an increased risk of harmful interference from the introduction of satellite based D2D using mobile bands? If yes, are there specific mobile bands that you consider should be avoided to reduce this risk?	n/a

<p>Question 14: Do you have any views on how spectrum for D2D services should be authorised? Does this vary by band, or type of NTN? Please explain the reasoning behind your preference.</p>	<p>As expressed before, Kinéis offers a direct to device connectivity relying on satellite frequency bands. Hence, Kinéis welcomes the OFCOM initiative to authorize satellite-based services in its territory and urges OFCOM to set up a licensing scheme for Kinéis existing services that fell short of an appropriate framework in the UK.</p> <p>Hence, Kinéis takes this opportunity to reiterate its request to be authorized to operate in the United Kingdom (see contribution to the OFCOM Space spectrum Strategy in May 2022).</p> <p>OFCOM could base this framework on the CEPT decision (ERC/DEC/(99)06) that has been implemented across Europe after an extensive technical review and multiple consultation processes at CEPT level since 2020. Thanks to regulatory updates in various European jurisdictions adopting the revision of the ERC/DEC/(99)06, Kinéis has been authorized through two types of instruments: a licence-exempted or a network licence in most of the European countries.</p> <p>In addition, Kinéis also wishes to express a need for 5MHz duplex in the 2GHz range for which individual licensing is preferred.</p> <ul style="list-style-type: none"> - The current MSS 2 GHz offers a unique opportunity to accommodate future services in the 2030 horizon (see RSPG contribution to the 2GHz consultation last year); - The agenda item 1.12 of the WRC-27 targets additional spectrum for low data satellite-based communications.
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<p>Question 15: Are there any other points that you think would be useful in our considerations? In providing your response, please provide as much evidence as possible.</p>	<p>n/a</p>

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