



**Telecommunications Regulatory Authority of the  
Kingdom of Bahrain  
Consultation Paper**

A public consultation document issued by the Telecommunications Regulatory Authority of the Kingdom of Bahrain (“**TRA**”)

**On the authorisation of Satellite Direct-to-Device (“D2D”) services in the Kingdom of Bahrain**

8 October 2025

Ref: LAD 1025 050

E-mail responses must be sent to the Authority’s email address at [wlfmd@tra.org.bh](mailto:wlfmd@tra.org.bh) and [LAD@tra.org.bh](mailto:LAD@tra.org.bh).

Alternatively, responses may be sent to the following address:

The General Director

Telecommunications Regulatory Authority

PO Box 10353

Manama, Kingdom of Bahrain

The deadline for responses is **4pm on 8 November 2025**

Purpose: To seek stakeholders’ views on the proposed introduction of Satellite Direct-to-Device services in the Kingdom of Bahrain.

## CONTENTS

I. OVERVIEW .....	3
Background .....	3
II. PROPOSED APPROACH .....	4
International Context .....	4
Enabling D2D in the Kingdom.....	5
Managing spectrum interference .....	6
Authorising D2D Services.....	7
Eligible Applicants .....	8
Procedures for obtaining a D2D Service in the MS and/or MSS bands .....	8
Fees .....	9
III. PURPOSE OF THIS CONSULTATION.....	10
ANNEX 1 – SCHEDULE TO THE INDIVIDUAL MOBILE TELECOMMUNICATIONS LICENCE – D2D SERVICES .....	11
ANNEX 2 – SUBMITTING A RESPONSE.....	14

## I. OVERVIEW

- 1 One of the TRA's strategic objectives is to ensure that Bahrain is among the best connected countries globally, with coverage available across the entire Kingdom. Satellite Direct-to-Device ("**D2D**") services are designed to provide satellite connectivity to mobile phones in areas not covered by terrestrial mobile networks. These services allow mobile handsets to connect via satellite when a terrestrial signal from a mobile network is not available.
- 2 The TRA is therefore proposing to authorise the provision of D2D services in the Kingdom of Bahrain, to safeguard the efficient use of spectrum while encouraging innovative solutions for the benefit of all subscribers and users.
- 3 We believe that by authorising D2D services in the Kingdom, we could further secure Bahrain's position as one of the most connected country in the World while opening up new areas of opportunity for licensed mobile network operators ("**MNOs**").
- 4 The TRA proposes to implement these authorisations by way of a Schedule to the Individual Mobile Telecommunications Licence ("**IMTL**"). This Schedule will set out the detailed conditions for the provision of D2D services. A draft of this Schedule is annexed to this Consultation Paper (Annex 1).

### Background

- 5 This consultation document sets out the Authority's proposal to enable the provision of D2D services in the Kingdom. The services would operate in the Mobile Service ("**MS**"), as shown in Section 19 and Mobile-Satellite Service ("**MSS**") bands, as set out in Table 1, and IMT bands that the TRA may individually authorise. The paper sets out an overview of D2D networks and how the service can be operated in Bahrain.
- 6 This paper is a general statement of the TRA's current views on this matter based upon existing technological limitations. As satellite technologies evolve in regard to the deployment and utilisation of spectrum frequency bands, the TRA's position may similarly change.
- 7 Following the introduction of D2D services, Satellite User Terminal Devices can now connect to satellites in situations where there is no coverage from a terrestrial mobile network. This might be due to a temporary outage on the terrestrial network or to provide coverage in territorial waters.

- 8 D2D services are at an early stage of development. It is expected that early D2D services will be limited to SMS, with low-speed data and voice services primarily for emergency use as the satellite constellations mature. Services will work best when the Satellite User Terminal Device is outside and has a clear line of sight to the sky.
- 9 In most countries where D2D services are being adopted, the model that is being used involves a Satellite Operator that provides a wholesale service whilst the MNO provides a retail service to the end-user. For example, the MNO includes access to D2D to customers as an added benefit or to support emergency services. The proposed model in this consultation follows a similar approach where D2D services are provided by MNOs working in partnership with a Satellite Operator.

## **II. PROPOSED APPROACH**

### **International Context**

- 10 The International Telecommunication Union's (ITU) Radio Regulations do not currently include any MSS allocations in the frequency bands for D2D-type services in the MS frequency bands that we are making available for D2D services. As such, there are no internationally agreed rules on how spectrum should be managed for D2D services.
- 11 Whilst there are no specific international regulations currently in place for D2D services in MS frequency bands, any such service must operate on a 'non-interference, non-protection' basis under Article 4.4 of the Radio Regulations. The satellite filing administration is responsible for addressing instances of interference.
- 12 A lack of international harmonisation does not prevent individual countries from authorising D2D services within their borders (subject to meeting certain conditions). A number of regulatory bodies have developed their own frameworks for the authorisation of D2D services. These include the FCC in the United States; the ACMA in Australia; the ISED in Canada; and Ofcom in the United Kingdom. In all these cases, the framework was built on the existence of a commercial partnership between an MNO and a satellite operator.

**Q1 Do you agree with our assessment of the development of D2D services internationally?**

## **Enabling D2D in the Kingdom**

- 13 We believe that the authorisation of D2D services by the TRA is necessary to manage the risks that the introduction of D2D services could cause harmful interference to existing radio spectrum users.
- 14 The TRA wishes to enable the potential benefits of D2D services for Bahraini residents. In our view D2D services will compliment mobile services. With 100% of the land mass in Bahrain already covered by 4G and 5G networks, the potential benefit of D2D services to Bahraini consumers may be limited when compared to other countries with large areas of low population density. Nevertheless, there are several potential benefits including:
  - (i) extending coverage beyond the reach of terrestrial networks, enabling coverage in the territorial waters of Bahrain (but not beyond);
  - (ii) providing a degree of backup coverage during power outages or network faults which affect terrestrial networks, such as natural disasters or extreme weather events, enhancing the resilience of mobile networks; and
  - (iii) improving access to emergency '999' services because of the above.
- 15 The ability to contact emergency services in its territorial waters is likely to be a key benefit of the introduction of D2D services. MNOs are required, by virtue of their licence terms, to provide public emergency call services. The licence also requires them to make sure that "999" is "continuously available without restriction" and "at any time".
- 16 The D2D service therefore will be beneficial to MNOs and to end-users as it will enable MNOs to enhance their capability to provide access to public emergency services by extending their coverage to areas beyond those covered by means of their respective networks.
- 17 Satellite operators and MNOs will be required to collaborate to provide D2D services in Bahrain and avoid interference between satellite and terrestrial networks.
- 18 The TRA is proposing to authorise the provision of D2D services in the MSS frequency bands listed in Table 1 below.

**Table 1: MSS Frequency Assignments**

<b>Frequency Band</b>	<b>Direction</b>	<b>Allocation</b>
1518-1525	Space-to-Earth	Mobile-satellite
1525-1530	Space-to-Earth	Mobile-satellite
1530-1535	Space-to-Earth	Mobile-satellite
1535-1559	Space-to-Earth	Mobile-satellite
1610-1626.5	Earth-to-Space	Mobile-satellite
1626.5-1660.5	Earth-to-Space	Mobile-satellite
1668-1675	Earth-to-Space	Mobile-satellite
1980-2010	Earth-to-Space	Mobile-satellite
2170-2200	Space-to-Earth	Mobile-satellite
2483.5-2500	Space-to-Earth	Mobile-satellite

- 19 In addition, the TRA is considering the use of MS frequency bands allocated exclusively to MNOs and identified for IMT in accordance with the Bahrain National Frequency Plan, specifically within the range 694 – 2700 MHz.

**Q2 Do you consider that there are other benefits that could be realized through the authorisation of D2D services?**

**Q3 Are there any other spectrum bands that we should consider?**

### **Managing spectrum interference**

- 20 In order to minimize the risk of undue interference, we are proposing technical conditions on D2D satellite downlink transmission.
- 21 We are proposing specific technical conditions for D2D services with the aim of ensuring coexistence between satellite downlink transmissions and terrestrial services. These conditions include requiring operators to cease transmission if they cause interference.
- 22 D2D Services shall not cause or contribute to harmful interference to other radiocommunications stations, telecommunications networks, or with other electronic equipment (in particular medical and telecommunications equipment) in the Kingdom. The Licensee shall immediately eliminate all interference that occurs in connection with the use of

frequencies by taking all necessary measures (including decommissioning) and shall bear all the costs of removing such interference.

**Q4 Do you agree that the proposed technical conditions for D2D satellite emissions are sufficient to ensure protection against undue interference?**

#### **Authorising D2D Services**

- 23 The TRA wishes to enable new technologies and services for the benefit of Bahraini consumers.
- 24 We would invite any MNO that wishes to make D2D services available via the allocated spectrum to request the TRA to vary its Individual Mobile Telecommunications Licence. In so doing, if interference occurs, the TRA may take enforcement measures against MNOs.
- 25 When applying for a licence variation, MNOs would be required to provide (i) details of the frequencies they intend to use for D2D services, and (ii) evidence of a commercial agreement between the MNO and the Satellite Operator which includes clauses requiring the Satellite Operator's compliance with the technical conditions.
- 26 The authorisation process does not envisage the payment of any new service licence fees by MNOs.
- 27 The proposed conditions within the licence variation would enable the TRA to fulfil its spectrum management duties by ensuring that any interference issues are resolved in a timely manner by the licensed MNO.
- 28 We have included in this consultation document the draft Schedule to the IMTL in Annex 1. This sets out the licence conditions we propose to apply to any MNO wishing to offer D2D services. The key conditions are summarised in table 2 below.

**Table 2: Summary of key conditions included in the IMTL schedule**

<b>Condition</b>	<b>Summary</b>
<b>Amendment &amp; revocation</b>	The authorisation is personal to the licensee and may not be transferred. The authorisation may be amended or revoked by the TRA for any of the reasons set out therein.
<b>Harmful interference</b>	Licensee must immediately take all necessary measure to eliminate all interference including by way of decommissioning.
<b>Need for contractual agreement</b>	A contract between the MNO and Satellite Operator is required before D2D services can be provided. Services must cease if no contract is in place. The contract must ensure the Satellite Operator's compliance with the relevant conditions set out in the schedule.
<b>Non-interference, non-protection</b>	D2D services should not cause harmful interference to other services and MNOs providing D2D services cannot claim protection from interference from other services.
<b>Record keeping and reporting</b>	MNOs will be required to keep accurate records to show compliance with TRA's coordination procedures.
<b>Frequency</b>	The frequencies that can be used for D2D services will be set out in the Schedule.

**Q5 Do you have any comments relating to the proposed licence conditions?**

### **Eligible Applicants**

- 29 Only MNOs are eligible to apply for a licence variation to provide D2D Services in MS and/or MSS bands.

### **Procedures for obtaining a D2D Service in the MS and/or MSS bands**

- 30 The MNO must request a licence variation to enable the launch of D2D services.
- 31 The application must include:
- Details on existing assigned frequencies intended for use; where the MNO does not hold assigned frequencies, a new frequency licence must be requested; and
  - Evidence of a commercial agreement between an MNO and a satellite operator which includes clauses requiring the satellite operator's compliance with the technical conditions.



- 32 Applications must be submitted to the TRA using the designated form. The TRA reserves the right to request any applicant for any additional information that it may deem necessary for the purposes of processing a licence application and reserves the right to reject any application with or without reason.
- 33 The TRA will only grant approval in respect of satellite operators that are approved by the TRA. The grant of the licence variation is therefore conditional upon the MNO maintaining its contractual relationship with the TRA-approved satellite operator. The TRA may, for public policy reasons, withdraw such approval.

#### **Fees**

- 34 Given that this service must operate on a 'non-interference, non-protection' basis, the applicable frequency licence fees for any additional frequencies will be charged under Low Opportunity Cost Band, in accordance with the Schedule of Fees.

## **PURPOSE OF THIS CONSULTATION**

- 1 The Authority would like to receive views and comments on all aspects of the proposals to authorise Satellite Direct-to-Device services in Bahrain by 4pm on 8 November 2025.
- 2 It would be helpful if your response could include direct answers to the questions asked in the consultation document.
- 3 The information contained in this document is intended to provide background on the proposed introduction of D2D services. Interested parties should not take any actions in reliance on the information or proposals contained in this document. Any views set out in this Consultation Paper should be considered as indicative and will be subject to further consideration following the receipt of comments from interested parties.
- 4 This Consultation Paper is not a binding legal document and also does not contain legal, commercial, financial, technical or other advice. The Authority is not bound by it, nor does it necessarily represent a decision of the Authority. The matters discussed in this document remain open to consideration and should not be construed as indicating that the Authority has formed any final opinion or decision on the proposed introduction of D2D services.
- 5 Once the Authority has received and considered responses to this Consultation Paper, the Authority will decide whether to proceed to finalise the framework for D2D services. If appropriate, the Authority will prepare and publish a Final Direction which summarises the responses received together with the finalised Schedule to the IMTL that gives effect to the authorisation of D2D services.

**ANNEX 1 – SCHEDULE TO THE INDIVIDUAL MOBILE TELECOMMUNICATIONS  
LICENCE – D2D SERVICES**

**SCHEDULE [X] – DIRECT-TO-DEVICE SERVICES**

- 1 D2D Services refer to wireless communications services provided by the Licensee operating a mobile satellite system in conjunction with an approved satellite operator to enable users of telecommunications services to send and receive radio signals to and from a space station.
- 2 The Licensee is hereby authorised to provide D2D Services in the Licensed Area. This authorisation is not transferable and not tradeable. This authorisation may be amended or revoked by the Authority by simple notice in writing where (i) such amendment or revocation is necessary in the public interest or (ii) for public policy considerations or (iii) if the amendment or revocation is necessary as a consequence of the Kingdom's international obligations or (iv) where the Licence is revoked. Without prejudice to the foregoing, this authorisation will ipso facto expire upon the expiry of the term of the Licence.

**SPECIAL CONDITIONS RELATING TO THE OPERATION OF D2D SERVICES**

- 3 Without prejudice to section [18/19] of this Licence, the Licensee shall ensure that the provision of D2D Services shall not cause or contribute to harmful interference to other radiocommunications stations, telecommunications networks, or with other electronic equipment (in particular medical and telecommunications equipment) in the Kingdom. The Licensee shall immediately eliminate all interference that occurs in connection with the use of frequencies by taking all necessary measures (including decommissioning) and shall bear all the costs of removing such interference.
- 4 Prior to providing the D2D Services, the Licensee shall procure (by entering into an agreement with a licensed operator operating a mobile satellite system<sup>1</sup>) that that licensed operator (operating a mobile satellite system) complies with the provisions set out in paragraphs 5 – 10 of this Schedule. In the event that the afore-mentioned agreement terminates for whatever reason, the Licensee shall cease to provide D2D Services.
- 5 The Licensee shall compile and maintain accurate written records demonstrating how it has complied with any coordination procedures which the TRA may establish from time to time, including any coordination calculations.

---

<sup>1</sup> A "mobile satellite system" means an electronic communications network and associated facilities which is capable of providing radio-communications services between a mobile earth station and one of more space station.

- 6 The Licensee shall maintain records identifying customers who have access to D2D Services only where the D2D Services are not used exclusively for access to emergency “999” services.
- 7 The Licensee is authorised to provide D2D Services only in the following categories:
- (a) MSS frequency bands as set out in the Table below:

Frequency Band	Direction	Allocation
1518-1525	Space-to-Earth	Mobile-satellite
1525-1530	Space-to-Earth	Mobile-satellite
1530-1535	Space-to-Earth	Mobile-satellite
1535-1559	Space-to-Earth	Mobile-satellite
1610-1626.5	Earth-to-Space	Mobile-satellite
1626.5-1660.5	Earth-to-Space	Mobile-satellite
1668-1675	Earth-to-Space	Mobile-satellite
1980-2010	Earth-to-Space	Mobile-satellite
2170-2200	Space-to-Earth	Mobile-satellite
2483.5-2500	Space-to-Earth	Mobile-satellite

- (b) MS frequency bands allocated exclusively to MNOs and identified for IMT in accordance with the National Frequency Plan, specifically within the range 694 – 2700 MHz.

- 8 The D2D services shall be provided in the following frequencies only:

Downlink Frequencies	Uplink Frequencies
[range]	[range]

- 9 D2D Services shall operate on a non-interference, non-protection basis. Accordingly, (i) the provision of D2D Services must not cause undue interference to other authorised uses of radio spectrum; and (ii) no claim of protection can be made by the Licensee if interference is received from another authorised device or service.
- 10 The D2D Services shall be operated in compliance with such cross-border co-ordination and sharing procedures as may be notified to the Licensee by the Authority from time to time. Such procedures may include, without limitation, a requirement to reduce emission levels or to provide information to the Authority, or to migrate from one frequency band to another.
- 11 In the event of a failure of any part of the space station(s) required to provide the D2D Service as well as any earth station required for the delivery of the D2D Service, the Licensee shall

promptly notify the Authority of when the fault occurred, the nature of the failure and the remedial action being taken, including the anticipated date of restoration.

## ANNEX 2 – SUBMITTING A RESPONSE

- 1 The Authority invites comments on this consultation paper from all interested parties. Comments should be submitted no later than **8 November 2025** by **4pm**.
- 2 Responses to this document should be in a Microsoft Word format and must be accompanied by a consultation coversheet which can be downloaded from the [TRA website](#).
- 3 Responses should be sent to the Authority for the attention of the General Director by email to [wlfmd@tra.org.bh](mailto:wlfmd@tra.org.bh) and [LAD@tra.org.bh](mailto:LAD@tra.org.bh).
- 4 Alternatively, responses may be sent to the address below:  
  
The General Director  
  
Telecommunications Regulatory Authority  
  
P.O. BOX 10353, Manama, Kingdom of Bahrain
- 5 Responses should include direct answers to the questions asked in the consultation paper. Interested parties are encouraged to provide answers that are fully substantiated and supported as far as possible by evidence. The questions are listed within the document. Respondents do not have to answer all the questions in the consultation if they do not have a view; a short response is fine, the Authority also welcomes joint responses.
- 6 Respondents who wish to discuss the questions raised in this consultation paper may email [wlfmd@tra.org.bh](mailto:wlfmd@tra.org.bh) and [LAD@tra.org.bh](mailto:LAD@tra.org.bh).

### Confidentiality

- 7 In the interest of transparency and good regulatory practice, the Authority, subject to the confidentiality of the information received, will publish all responses received on its website as soon as it receives them. The Authority will evaluate requests for confidentiality in line with relevant legal provisions and the Authority's published guidance on the treatment of confidential and non-confidential information.<sup>2</sup>
- 8 Respondents are required to fill out the consultation coversheet and clearly mark any information included in their submission which is considered confidential. Where such confidential information is included, respondents are required to provide both a confidential and non-confidential version of their submission. If a submission is marked confidential in its entirety, reasons for this should be provided. The Authority may publish or refrain from publishing any document or submission at its sole discretion.

### Next steps

- 9 Once the Authority has received and considered responses to this document, the Authority will decide whether/how to proceed.

---

<sup>2</sup> [https://tra-website-prod-01.s3-me-south-1.amazonaws.com/Media/Documents/Position\\_Papers\\_&Guidelines/20220922120746880\\_2u01vqdj\\_mah.pdf](https://tra-website-prod-01.s3-me-south-1.amazonaws.com/Media/Documents/Position_Papers_&Guidelines/20220922120746880_2u01vqdj_mah.pdf)