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SERIES E: OVERALL NETWORK OPERATION,
TELEPHONE SERVICE, SERVICE OPERATION AND
HUMAN FACTORS

International operation – Operation of international
telephone services

Guidelines for ITU-T action on reported misuse of ITU-T E.164 number resources

Recommendation ITU-T E.156

International
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ITU-T E-SERIES RECOMMENDATIONS

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Recommendation ITU-T E.156

Guidelines for ITU-T action on reported misuse of ITU-T E.164 number resources

Summary

Recommendation ITU-T E.156 outlines the procedures for reporting and taking action regarding alleged misuse of numbers. It also outlines the procedures that the Director of the Telecommunication Standardization Bureau should undertake upon receipt of reports of alleged misuse from members, including methods to address and counter any alleged misuse when such reports are brought to the attention of the Director.

Amendment 1 (2020) includes Appendix IV, which reproduces verbatim the attachment to WTSA Resolution 61 (Rev. Dubai, 2012) on "Suggested guidelines for regulators, administrations and operating agencies authorized by Member States for dealing with number misappropriation".

History

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ITU-T E.156, misuse.

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* To access the Recommendation, type the URL http://handle.itu.int/ in the address field of your web browser, followed by the Recommendation's unique ID. For example, http://handle.itu.int/11.1002/1000/11830-en.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at http://www.itu.int/ITU-T/ipr/.

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Recommendation ITU-T E.156

Guidelines for ITU-T action on reported misuse of ITU-T E.164 number resources

1   Scope

This Recommendation provides guidelines for actions by administrations, ITU members and associates and by the Director of the Telecommunication Standardization Bureau (TSB) upon receipt of reports of alleged misuse of ITU-T E.164 numbering resources. It covers allegations of misuse that are both directly assigned by the ITU, and those that are indirectly assigned under the responsibility of member states, as indicated in [b-WTSA Res. 20].

The actions that the TSB Director can take with respect to each type of ITU-T E.164 numbering resource are limited by the extent to which the ITU-T has responsibility for assignment and management over that numbering resource.

These different types of numbering resources are as follows:

* country code for geographic areas;
* country codes for Inmarsat and groups of countries (e.g., +388);
* country code for networks (e.g., +882), country code for multi-use networks (e.g., +883), country codes for global services (e.g., +800, +878, etc.), country codes for global mobile satellite system (GMSS) operators (e.g., +881);
* country codes for trials (e.g., +991);
* unassigned country codes.

2   References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[ITU-T E.152]   Recommendation ITU-T E.152 (2006), *International freephone service*.

[ITU-T E.154]   Recommendation ITU-T E.154 (1998), *International Shared Cost Service*.

[ITU-T E.155]   Recommendation ITU-T E.155 (1998), *International Premium Rate Service*.

[ITU-T E.157]   Recommendation ITU-T E.157 (2009), *International calling party number delivery*.

[ITU-T E.164]   Recommendation ITU-T E.164 (2010), *The international public telecommunication numbering plan*.

[ITU-T E.164.1]   Recommendation ITU-T E.164.1 (2008), *Criteria and procedures for the reservation, assignment and reclamation of ITU-T E.164 country codes and associated identification codes (ICs)*.

[ITU-T E.164.2]   Recommendation ITU-T E.164.2 (2001), *ITU-T E.164 numbering resources for trials*.

[ITU-T E.164.3]	Recommendation ITU-T E.164.3 (2001), *Principles, criteria and procedures for the assignment and reclamation of ITU-T E.164 country codes and associated identification codes for groups of countries*.
[ITU-T E.168]	Recommendation ITU-T E.168 (2002), *Application of ITU-T E.164 numbering plan for UPT*.
[ITU-T E.169]	Recommendation ITU-T E.169 (2002), *Application of Recommendation ITU-T E.164 numbering plan for universal international numbers for international telecommunications services using country codes for global services*.
[ITU-T E.169.1]	Recommendation ITU-T E.169.1 (2019), *Application of Recommendation ITU-T E.164 numbering plan for universal international freephone numbers for international freephone service*.
[ITU-T E.169.2]	Recommendation ITU-T E.169.2 (2000), *Application of Recommendation ITU-T E.164 numbering plan for universal international premium rate numbers for the international premium rate service*.
[ITU-T E.169.3]	Recommendation ITU-T E.169.3 (2000), *Application of Recommendation ITU-T E.164 numbering plan for universal international shared cost numbers for international shared cost service*.
[ITU-T E.190]	Recommendation ITU-T E.190 (1997), *Principles and responsibilities for the management, assignment and reclamation of E-series international numbering resources*.

3   Definitions

3.1   Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1   country [b-ITU-T E.101]: A specific country, a group of countries in an integrated numbering plan or a specific geographical area.

3.1.2   operating agency [Definition 1007 of [b-ITU Constitution]]: Any individual, company, corporation or governmental agency which operates a telecommunication installation intended for an international telecommunication service or capable of causing harmful interference with such a service.

3.2   Terms defined in this Recommendation

This Recommendation defines the following terms:

3.2.1   assignee: An entity (member state, operating agency, sector member, associate or other) to whom an international telecommunication resource has been assigned, whether by the Director of the Telecommunication Standardization Bureau or an administration, or by an assignee authorized to sub-assign resources.

3.2.2   ITU-T E.164 number: A string of decimal digits that satisfies the three characteristics of structure, number length and uniqueness specified in [ITU-T E.164]. The number contains the information necessary to route the call to the end user or to a point where a service is provided.

NOTE – Based on [b-ITU-T E.101].

3.2.3   misuse: The use of international telecommunication numbering resources specified in ITU-T Recommendations other than by the assignee or for purposes other than those for which they were assigned or use of unassigned resources.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

BOIEXH	Barring of International Calls Except to Home Country
CLI	Calling Line Identity
GMSS	Global Mobile Satellite System
IPRN	International Premium Rate Number
IRSF	International Revenue Share Fraud
NCT	Numbering Coordination Team
OA	Operating Agency
PBX	Private Branch exchange
TIES	Telecommunication Information Exchange Services
TSB	Telecommunication Standardization Bureau

5 Misuse of international ITU-T E.164 numbering resources

International telecommunication numbering resources specified in ITU-T Recommendations shall be used only by the assignees and only for the purposes for which they were assigned (in accordance with relevant ITU-T Recommendation assignment criteria), whether directly or indirectly assigned by the Director of the Telecommunication Standardization Bureau (TSB). Unassigned resources shall not be used for any purpose prior to their assignment. The above provisions apply equally to sub-assigned resources. Examples of actual misuse are found in Appendix I.

Different types of ITU-T E.164 numbering resources have different assignment criteria, and therefore different forms of misuse may be identified.

There are two distinct situations:

1) misuse of numbers directly assigned by TSB to entities who meet the assignment criteria established by the relevant ITU-T Recommendations;

2) misuse of numbers that are assigned by national authorities (referred to hereafter as numbers indirectly assigned by TSB). The respective procedures are specified in clauses 10 and 11.

6 Procedures on reported misuse of ITU-T E.164 directly assigned international numbering resources

The procedures detailed in this Recommendation are intended to allow the TSB Director to take action, in accordance with the relevant Recommendations, concerning alleged misuse of directly assigned international numbering resources with the intention of stopping such misuse where it has been determined to exist. In this context, "misuse of numbering resources" means that they are not being used in accordance with the relevant ITU-T Recommendation(s). In this respect, attention is drawn to clauses 6.2.5 and 6.2.6 of [ITU-T E.190].

The numbering coordination team (NCT) (see clauses 8.0.1 and I.1 of [ITU-T E.164.1]) will advise the TSB Director on actions relating to misuses of a numbering resource.

6.1 Numbering resources that have been directly assigned

An administration, operating agency (OA), or other assignee that believes misuse of a numbering resource is occurring should contact the TSB Director (see clause 9).

1) Upon receipt of a report of a possible misuse of a directly assigned resource, the TSB Director will inform the NCT and the administration from whose jurisdiction the report is initiated.

Originators of reports may request to remain anonymous, in which case their names shall remain confidential within TSB.

2)   On conclusion of discussions of the assessment committee that there are bases for the alleged misuse of a numbering resource, the TSB Director will write to the assignee, requesting clarification from the assignee.

3)   The letter shall:

- • identify the issue of alleged misuse to the assignee;
- • remind the assignee of the relevant conditions associated with assignment, and ask for a response within 45 days as to whether the assignee:
  - – is aware of the reported alleged misuse; or
  - – considers that there is no misuse; or
  - – if aware of the misuse, how the assignee will proceed in rectifying the issue and in which timescale.

4)   Upon receipt of a response from the assignee, the TSB Director will inform the NCT and the administration from whose jurisdiction the report is initiated, and monitor any further actions as notified.

5)   The NCT will make a recommendation to the TSB Director with respect to what, if any, actions to take.

It should be noted that the TSB Director will not act as a mediator to resolve the misuse.

6)   The TSB Director will notify the initiator of the report of the progress and outcome of steps outlined above and update the website.

7)   When the TSB Director decides on an action, the NCT and the administration from whose jurisdiction the report is initiated will be informed of the details of the action. The NCT will report to the next meeting of the lead numbering study group.

6.2   Numbering resources that have not been assigned

ITU-T E.164 country codes that have not been assigned are listed as "spare" or "reserved" in the ITU *Operational Bulletin*, and for the purposes of this clause, the TSB Director is considered to be the assignee for these numbering resources. Subcodes under certain assigned codes (e.g., 882), whose assignment has not been published, are also considered to be unassigned and the TSB Director is considered to be the assignee for these numbering resources.

An ITU member or associate that believes that misuse of a numbering resource is occurring should contact the TSB Director (see clause 10).

1)   Upon receipt of a report of a possible use of an unassigned country code, the TSB Director will inform the NCT and the administration from whose jurisdiction the report is initiated. Originators of reports may request to remain anonymous, in which case their name shall remain confidential within TSB.

2)   If the NCT concludes that there is basis to believe that the use of an unassigned numbering resource is occurring, the TSB Director will write to the entity believed to be using the resource, requesting clarification of their use. A copy of the letter sent to the user will be sent to the administration with appropriate jurisdictional authority over the entity that is allegedly using the resource.

3)   The letter shall:

- • identify the issue to the entity determined to be using the resource;
- • remind the user that the country code has not been assigned, and ask for a response within 45 days as to whether the user:

– is aware of the reported alleged misuse;

  – if so, ask the user to either provide a reason for the use of an unassigned numbering resource or require that the user ceases to use the numbering resource.

4) Upon receipt of a response from the alleged user or from the relevant administration, the TSB Director will inform the NCT and the administration from whose jurisdiction the report is initiated, and monitor any further actions as notified.

5) The NCT will make a recommendation to the TSB Director with respect to what, if any, actions to take.

6) It should be noted that the TSB Director will not be required to act as mediator to resolve the misuse.

7) The TSB Director will notify the initiator of the report of the progress and outcome of steps outlined above, and update the website.

8) When the TSB Director decides on an action, the NCT and the administration from whose jurisdiction the report is initiated will be informed of the details of the action. The assessment committee will report to the next meeting of the lead numbering study group.

7 Measures available to address reported misuse of directly assigned ITU-T E.164 numbers

7.1 Numbering resources that have been directly assigned

Remedial actions include but are not limited to:

1. publicize the misuse via the *Operational Bulletin*;
2. publicize the misuse via an electronic mail exploder list (this mail exploder list will be open to member states and OAs with the aim of publicizing the misuse as widely as possible);
3. publicize measures, via the *Operational Bulletin* or the electronic mail exploder list, as advised by the assignee, so that originating networks are aware and can take actions to avoid routing calls to the numbers that are being misused;
4. if warranted by continued misuse, withdrawal of the assignment.

7.2 Numbering resources that have not been assigned

Potential remedial actions could be either or all (but not limited) to publicize:

• the misuse via the *Operational Bulletin*;

• the misuse via an electronic mail exploder list;

• measures, via the *Operational Bulletin* or the electronic mail exploder list, so that originating networks are aware and can take actions to avoid routing calls to the numbers that are being misused.

8 Measures available for misuse of indirectly assigned numbering resources

Misuse deemed to be occurring with indirectly assigned international numbering resources should be raised by the affected OA or administration directly with the OA or administration(s) under whose jurisdiction the misuse is purported to have originated. Administrations are encouraged to provide contact details to whom details of an alleged case of misuse can be directly notified, those contact details will be published in the ITU [b-Global Directory].

Administrations, OAs and assignees who supply communication services are encouraged to provide contact details to whom reports of misuse can be sent. Such reports should be provided directly to

any OA or administration that requests such contact details and may also be provided to the TSB Director for publication on the ITU website.

An administration, OA or other assignee that believes misuse of an indirectly assigned international numbering resource is occurring should:

a)   directly contact the OA believed to be involved in the misuse, if possible.

b)   contact the administration of the OA that is believed to be involved in the misuse.

c)   submit a misuse report to TSB using the TSB website, see clause 10 – the misuse report submitted to TSB should also be sent to the electronic mail exploder list, so that originating networks are aware and can take actions to avoid routing calls to the numbers that are being misused.

OAs may request their national regulator to access the ITU website to find contact information for other OAs, if those other OAs are ITU members. Administrations can find contact information for other administrations on the ITU website.

An OA or an administration may request that the TSB Director send a communication regarding the alleged misuse to the administration of the OA believed to be involved in the misuse, as provided in clause 10.

Administrations and the TSB Director may publicize via the ITU *Operational Bulletin* such communications as they think appropriate in connection with alleged misuse of numbering resources that are within their control. For example, pointing out that particular numbering ranges are not assigned and therefore should not be used for routing.

Administrations may consider taking actions as outlined in Appendix II.

9   Availability of misuse reports and responses

All misuse reports, and any responses, will be posted by the TSB Director on a website accessible by telecommunication information exchange services (TIES) users. Originators of reports may request to remain anonymous, in which case their name shall remain confidential and not be included in the published report.

10   Submission of reports of possible misuse of directly assigned resources

Administrations, OAs and other assignees may report alleged misuse by using the form available on the ITU website.

For those OAs who are either sector members or associates, the notification of alleged misuse may be made directly to the TSB Director and copied to the administration of the OA making the notification.

For those OAs who are not sector members or associates of the ITU, notification should be submitted via its administration, unless the administration has authorized direct communication with the TSB Director, in which case the notification can be submitted directly.

Any reported case of alleged misuse of directly assigned international numbering resources will be processed in accordance with clauses 6 and 7.

Information regarding reported cases and the actions taken in response to those reports is published on the ITU website.

11   Submission of reports of possible misuse of indirectly assigned resources

The recommended sequence of actions in the case of misuse of numbers that are assigned by national authorities is as follows.

1)   The ITU member or associate that detects the alleged misuse should directly contact the entity that appears to be involved in the misuse, if possible. Reporting entities can ask their national regulator to obtain contact information for other entities from the ITU website, if the other entity is an ITU member.

2)   The ITU member or associate that detects the alleged misuse can ask its national regulator to contact the regulator of the entity that appears to be involved in the misuse. If the national regulator authorizes it, the reporting entity can also ask the TSB Director to take action as specified in clause 11.1.

Administrations are requested to provide contact details of the person or functions within their administrations to whom reports of misuse should be sent. These contact details should be published in the ITU *Operational Bulletin*, and made available to ITU members. Upon receipt of a report of a misuse of numbering from the contact point of a reporting administration, the entity receiving the report of misuse should take the necessary and appropriate action determined by the receiving administration's national legal and regulatory framework.

11.1   Actions pursuant to a report

Administrations and OAs who are either sector members or associates may report the alleged misuse directly to the TSB Director, by using the form available on the ITU website. OAs should also send a copy of the report to their administration.

For those OAs who are not sector members or associates of the ITU, reports should be submitted via its administration, unless the administration has authorized direct communication with the TSB Director, in which case the notification can be submitted directly.

These misuse reports submitted to the TSB should also be sent to the electronic mail exploder list, so that originating networks are aware and can take actions to avoid routing calls to the numbers that are being misused.

1)   Upon receipt of a report of possible misuse of a numbering resource, the TSB Director, as a follow-up, will inform:

    a)   the assessment committee, who may provide additional information to the TSB Director that could be used by the concerned administrations informed in b) and c);

    b)   the administration from whose jurisdiction the report is initiated;

    c)   the administration in whose jurisdiction the alleged misuse is purported to be occurring (if different from b)).

2)   It should be noted that the TSB Director will not act as mediator to resolve the misuse (as stated in Council Resolution 262 (p. 182 of [b-Resolutions])), but if asked by the involved administrations, may provide such guidance and expert advice as appropriate.

3)   The TSB Director will notify the initiator of the report of the progress and outcome of steps outlined above, and update the website.

4)   The TSB Director will inform the assessment committee of the conclusion reached based on the steps outlined above.

5)   The assessment committee will report to the next meeting of the lead numbering study group.

The TSB Director's role will be limited to notifying the concerned member states, as described in this Recommendation.

The TSB Director will not intervene in any disputes concerning such numbering resources. Nonetheless, the TSB Director, if asked, can provide technical assistance to the concerned administrations to assist them in finding a solution. This assistance can be on a confidential basis.

Administrations may publicize via the ITU *Operational Bulletin* such communications as they think appropriate in connection with alleged misuse of numbering resources that are within their control. For example, pointing out that particular numbering ranges are not assigned and therefore should not be used for routing.

Appendix I

Examples of number resource misuse

(This appendix does not form an integral part of this Recommendation.)

The following constitute examples of misuse.

1.   The calling party does not have any reserved or allocated number (e.g., when delivering web or voice over Internet protocol communication services) with access to public telephone networks, and for call handling requires that an operator or service provider assign that party an ITU-T E.164 number that is random or does not belong to that party or is not bound to a user, and the number is transferred over the network.

2.   The calling subscriber has a reserved or allocated number, but during call handling that subscriber's number is substituted with another number without any justification or agreement.

3.   The calling subscriber has no reserved or allocated number; in routing an operator or a service provider shall not transfer any identifiers of a calling subscriber (nor transfer it partly).

4.   The calling subscriber has a reserved or allocated number and during call handling an operator or a service provider ceases the transfer of such a number as an identifier of that subscriber.

Appendix II

Possible national actions in case of misuse of indirectly assigned resources

(This appendix does not form an integral part of this Recommendation.)

Administrations may consider taking the following actions in the case of misuse.

1) Initiate an investigation that initially will include the following:

   a requesting information from the OA regarding how the disputed calls have been transited to their destination;

   b requesting information from the number range owner to determine whether the calls had terminated through their switch;

   c obtaining full call records from the OA operator so that these can be examined to determine whether there is evidence of traffic inflation (overlapping calls etc.);

   d if the alleged misuse involves a private branch exchange (PBX) or international call forwarding, checking with any third party carriers to determine whether the calling line identities (CLIs) are genuine or "spoofed".

2) From these investigations, which should be completed as soon as possible, the administration may determine whether this is misuse or misappropriation and also whether the misuse of misappropriation has occurred using number hijacking (i.e., the misuse of a valid number in order to generate revenue for the originator of the misuse).

3) If it involves number hijacking, the administration may recommend that payment be stopped on the basis that the service being charged for has never been delivered, e.g., a call billed to a specific country has been "short-stopped" elsewhere.

4) If the incident involves obvious misuse or misappropriation (traffic inflation, multiple overlapping calls etc.) and involves numbers from the operators who make numbers available for international premium rate number (IPRN) services, then it is also recommended that payment be stopped, and that the IPRN provider who has been assigned these numbers is advised that payment will be withheld.

Appendix III

Number resource misuse and fraud from GSMA *Public policy handbook*

(This appendix does not form an integral part of this Recommendation.)

The material in this appendix is reproduced with the kind permission of the GSMA, from pp. 204–5 of [b-GSMA].

Background

Many countries have serious concerns about number-resource misuse, a practice whereby calls never reach the destination indicated by the international country code. Instead, they are terminated prematurely through carrier and/or content provider collusion, to revenue-generating content services without the knowledge of the ITU-T assigned number-range holder.

This abuse puts such calls outside any national regulatory controls on premium-rate and revenue-share call arrangements, and is a key contributing factor to international revenue share fraud (IRSF) perpetrated against telephone networks and their customers. Perpetrators of IRSF are motivated to generate incoming traffic to their own services with no intention of paying the originating network for the calls. They then receive payment quickly, long before other parties within the settlement process.

Misuse also affects legitimate telephony traffic, as high-risk number ranges can be blocked as a side-effect.

Debate

How can regulators, number-range holders and other industry players collaborate to address this type of misuse and the resulting fraud?

Industry position

Number-resource misuse has a significant economic impact for many countries, so multi-stakeholder collaboration is key. The telecommunications fraud carried out as a consequence of number-resource misuse is one of the topics being addressed by the GSMA fraud and security group, a global conduit for best practice with respect to fraud and security management for mobile network operators. The fraud and security group's main focus is to drive industry management of mobile fraud and security matters to protect operators and consumers, and safeguard the mobile industry's trusted reputation.

The fraud and security group supports European Union guidelines under which national regulators can instruct communications providers to withhold payment to downstream traffic partners in cases of suspected fraud and misuse.

The group believes that national regulators can help communications providers reduce the risk of number-resource misuse by enforcing stricter management of national numbering resources. Specifically, regulators can:

- ensure national numbering plans are easily available, accurate and comprehensive.
- implement stricter controls over the assignment of national number ranges to applicants and ensure the ranges are used for the purpose for which they have been assigned.
- implement stricter controls over leasing of number ranges by number-range assignees to third parties.

The fraud and security group shares abused number ranges among its members and with other fraud-management industry bodies. It also works with leading international transit carriers to reduce the risk of fraud that arises as a result of number-resource misuse, and with law enforcement agencies to support criminal investigations in this area.

Recommended operator controls to reduce exposure to fraud from number-resource misuse

- Implement controls at the point of subscriber acquisition and controls to prevent account takeover.

- Remove the conference or multi-call facility from a mobile connection unless specifically requested, as fraudsters can use this feature to establish up to six simultaneous calls.

- Remove the ability to call forward to international destinations, particularly to countries whose numbering plans are commonly misused.

- Utilise the GSMA high-risk ranges list, so that unusual call patterns to known fraudulent destinations can raise alarms or be blocked.

- Ensure roaming usage reports received from other networks are monitored 24×7, preferably through an automated system.

- Ensure that up-to-date tariffs, particularly for premium numbers, are applied within roaming agreements.

- Implement the barring of international calls except to home country (BOIEXH) function for new or high-risk subscriptions.

Appendix IV

Suggested guidelines for regulators, administrations and operating agencies authorized by Member States for dealing with number misappropriation[1]

(This appendix does not form an integral part of this Recommendation.)

In the interest of global development of international telecommunications, it is desirable for regulators, administrations and operating agencies authorized by Member States to cooperate with others and to take a collaborative and reasonable approach to avoid the blocking of country codes. Cooperation and subsequent actions would have to take account of the constraints of national regulatory frameworks and laws. It is recommended that the following guidelines be applied in country X (the location of the calling party), country Y (the country through which the call is routed) and country Z (the country to which the call was originally destined) regarding number misappropriation.

Country X (location of call origination)	Country Y (country through which the call is routed)	Country Z (country to which the call was originally destined)
		On receipt of a complaint, the national regulator finds the information: name of the carrier from which the call originated, time of the call and called number, and passes this information to the national regulator in country X.
When a complaint is received, the first information that is required is the name of the carrier from which the call originated, the time of the call and the called number.		
Once the call details are known, the national regulator requests relevant information from the carrier from which the call originated, to determine the next carrier through which the call was routed.		
Once the relevant information has been found, the national regulator is to advise the national regulator of the next country of the call details (including the call detail record) and request the national regulator to request further information.	The national regulator asks the other carriers for relevant information. This process continues until the information on where the call was misappropriated is found.	
Cooperation from national regulators, as appropriate, to manage these issues.	Cooperation is required from entities involved, to attempt to bring a criminal case against the perpetrators.	Cooperation is encouraged between and among national regulators involved, to resolve these issues.

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[1]   Taken from [b-WTSA Res. 61].

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