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THE **Regulator**

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QUARTERLY MAGAZINE OF THE TANZANIA COMMUNICATIONS REGULATORY AUTHORITY



New drive
for positive
ICT, social
media use

Optimizing
local content

KISWAHILI
SUPPLEMENT

Matumizi
salama ya
Mitandao

DIGITAL DIVIDEND
Tanzania to
Auction
Spectrum

Meet TCRA
Board
Members



Tanzania Computer Emergency Response Team (TZ-CERT) is a team within the structure of the Tanzania Communication Regulatory Authority (TCRA), with national responsibility for coordinating responses to cyber security incidents at the national level. It cooperates with regional and international entities involved in the management of cyber security incidents. TZ-CERT was established under section 124 of the Electronic and Postal Communications Act (EPOCA) of 2010.

TZ-CERT provides the following services to its constituencies and the general public.

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With the growth in cyber threats and vulnerabilities, TZ-CERT constantly monitors cyber security threats and vulnerabilities and advises both its constituencies and the general public.

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With expertise in cyber security, TZ-CERT can now work with constituency organizations to respond to all cyber security incidents in their respective networks. TZ-CERT provides step by step assistance to organizations facing cyber security attacks.

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The Regulator is published quarterly by the Tanzania Communications Regulatory Authority (TCRA), an independent Government agency established under the Tanzania Communications Regulatory Authority Act No. 12 of 2003 to regulate the electronic and postal sectors in Tanzania.

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Letter from the Editor



TCRA has the duty of educating the public and consumers of communications services and products and on developments in the ICT and postal sub sectors.

In this issue we have an update on the launching of a campaign promoting the responsible use of social media; with excerpts from the Electronic and Postal Communications Act (EPOCA) and the Cyber Crimes Act on penalties for the transmission of offensive messages.

Anxieties on the safety of mobile phones base stations are addressed in an article on electromagnetic field emissions which answers frequently asked questions on the subject.

Other areas covered include local broadcasting content, the proposed auction of

spectrum in the 700 MHz frequency range and the application of technology in rescue missions.

The next and subsequent issues will contain more updates.

We invite contributions of articles and pictures on all areas of electronic and postal communications. Articles should be original, with appropriate references, in font size 12, single-spaced, up to four A4 pages.

Articles should be submitted to: The Editor, Regulator Magazine, Tanzania Communications Regulatory Authority, Mawasiliano Towers, 20 Sam Nujoma Road, P. O. Box 474, 14414 Dar es Salaam. Email: regulator_magazine@tcra.go.tz

For more information and clarifications please contact the Editor on the addresses above.



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From The Director General's Desk

Revisiting Local Content

One of the most important issues in contemporary broadcasting services in many developing and low income countries including Tanzania is the creation, development and promotion of local content which reflects the interests and values of a nation.

The proportion of programming that is not imported which is socially, culturally, economically and politically relevant to the Tanzanian society, whether intended for use in or outside the country, is one of the elements of local content.

Local content is deemed intrinsically linked to an expression of the identity of a community and as such it is taken to safeguard, enrich and strengthen the political, socio and economic fabric of a nation.

The Tanzania Communications Regulatory Authority plays a key role in the promotion of local content in the country. After the successful migration from analogue to terrestrial digital television broadcasting in Tanzania, a number of initiatives have been taken to ensure that the production and airing of local broadcasting content becomes the priority to all licensed broadcasters; including:

- To redefine local content in regulations

and ensure that it is measurable to achieve specified quotas;

- To put in place regulations that will ensure multiplex operators play a significant role in promoting local content by setting aside enough capacity for free to air (FTA) channels, which are accessed by the majority of Tanzanians. The regulations require them to reserve one third of MUX capacity for FTA's.

- To encourage Broadcasters to start specialized channels which focus on promoting tourism and other programmes reflecting the national and cultural values of Tanzania. TCRA has noted that the public broadcaster is in the process of launching a specialized channel which will promote the country's tourism.

- To conduct workshops and seminars on quality local content production to editors, content producers, independent producers and radio and television journalists. The Authority has been facilitating these workshops; which provide opportunities to share experiences in local content creation and development and related challenges.

The National Kiswahili Council (BAKITA) has been engaged to provide education to chief editors and content producers on proper use of Kiswahili in productions and programmes aired over the radio and television.



TCRA at the Zanzibar H

Photographs by SEMU MWAKYANJALA



The Speaker of the Zanzibar House of Representatives, Hon. Zubeir Ali Maulid officially opening the educational programme. He is flanked by TCRA Chairman, Dr. Jones Killimbe (left) and Deputy Speaker, Hon Mgeni Hassan Juma.

THE Tanzania Communications Regulatory Authority recently made presentations to the Zanzibar House of Representatives on developments in the ICT sector and current regulatory issues. Topics covered:

- Significance of communication services to Tanzania's social economic development,
- Effective and efficient regulation of ICT
- Social media
- Cyber security
- The Cyber Crimes Act 2015

The TCRA team was led by the Author-



Hon Zubeir Ali Maulid, Dr. Jones Killimbe, Hon. Mgeni Hassan Juma and TCRA Board member Dr. Mzee Suleiman Mndewa (left) follow the presentations.



The honourable representatives. follow the pre-



TCRA acting Director of Information Communication Technologies, Connie Francis presenting.



A sign language interpreter at work.

House of Representatives



ity's Board Chairman Dr. Jones A. Killimbe. It included a Board member Eng. Dr. Mzee Suleiman Mndewa; TCRA Director of Consumer and Industry Affairs, Dr. Raynold Mfungahema; the Authority's acting Director of Information Communication Technologies Connie Francis; TCRA Senior Legal Officer Dr. Philip Filikunjombe and acting Manager, Corporate Communications Semu Mwakyanjala.

The educational programme was opened by the Speaker of the House Hon. Zubeir Ali Maulid.



The honourable representatives. On the foreground is Hon. Mahmoud Thabit Kombo (Rep. Kiembesamaki), Zanzibar Minister for Health.



representations.



TCRA's Senior Legal Officer, Dr. Philip Filikunjombe presenting.



TCRA Director of Consumer and Industry Affairs, Dr. Raynold Mfungahema presents a paper.



The Authority's Board Chairman, Dr. Jones Killimbe (third right), Content Committee Chairperson and Board member Valerie Msoka (first right) and Director General Engineer James Kilaba (first left) at the launching in Dar es Salaam recently.

New Campaign Targets Responsible Social Media Use

TCRA has launched the second phase of a campaign to promote responsible use of information and communications technologies and services with a focus on social media.

The rapid growth and use of ICT services and applications has transformed the lives of many Tanzanians. More telephone and internet users are now networked and share experiences, views and information through social media platforms; which are prone to misuse.

The current campaign pitches a slogan urging users to desist from sending or forwarding messages with offensive content. The message is: *"I don't want your messages. I will not forward them. I will report you to authorities"*.

Penalties for transmission of repugnant, unsolicited messages

Section 118 of the Electronic and Postal Communications Act (EPOCA) and sections 20 and 23 of the Cyber Crimes Act prohibit the transmission of repugnant and unsolicited messages.

EPOCA Section. 118

Any person who-
(a) by means of any network facilities, network services, applications services or content services, knowingly makes, creates, or solicits or initiates the transmission of any comment, request, suggestion or other communication which is obscene, indecent, false, menacing or offensive in character with intent to annoy, abuse, threaten or

harass another person;
 (b) initiates a communication using any applications services, whether continuously, repeatedly or otherwise, during which communication may or may not ensue, with or without disclosing his identity and with intent to annoy, abuse, threatens or harass any person at any number or electronic address.... commits an offence and shall, on conviction, be liable to a fine not less than five million Tanzanian shillings or to imprisonment for a term not less than twelve months, or to both and shall also be liable to a fine of seven hundred and fifty thousand Tanzanian shillings for every day during which the offence is continued after conviction (1).

Cyber Crimes Act

Section 20.-(1) A person shall not, with intent to commit an offence under this Act -

- (a) initiate the transmission of unsolicited messages;
 - (b) relay or retransmit unsolicited messages , or
 - (c) falsify header information in unsolicited messages;
- (2) A person who contravenes subsection (1)

commits an offence and is liable on conviction to a fine of not less than three million shillings or three times the value of undue advantage received, whichever is greater or to imprisonment for a term of not less than one year or to both.

(3) For the purpose of this section, “unsolicited messages” means any electronic message which is not solicited by the recipient.

23. (1) A person shall not initiate or send any electronic communication using a computer system to another person with intent to coerce, intimidate, harass or cause emotional distress.

(2) A person who contravenes subsection (1) commits an offence and is liable on conviction to a fine of not less than five million shillings or to imprisonment for a term of not less than three years or to both (2).

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The campaign logo and slogan.



Spectrum Auction Road Map Released

The Tanzania Communications Regulatory Authority has released a roadmap for auctioning and licensing spectrum in the 700 MHz frequency range for mobile broadband services by June next year.

The spectrum, which was released after the successful migration from analogue to terrestrial digital television is known as the digital dividend. Tanzania was among the first African countries to migrate in 2014.

Digital television allows the transmission of up to six standard digital channels in the radio frequency spectrum previously used by a single analogue channel.

One characteristic of the spectrum to be auctioned is its ability to carry bandwidth suitable for broadband data services. The public notice below can be accessed on the TCRA website: www.tcra.go.tz.

Notice of Intention to Initiate a Spectrum Assignment Process for 700 MHz Band

PURSUANT to the provision of the Tanzania Communications Regulatory Authority Act Chapter 172 and the Electronic and Postal Communications Act, (EPOCA) Chapter 306 of the laws of the United Republic of Tanzania, the Tanzania Communication Regulatory Authority (TCRA) is vested with powers to allocate, assign, issue, distribute, retrieve, suspend, cancel or otherwise modify distribution among users or licensees of any radio communication frequencies or frequencies channels.

In exercising its powers, TCRA is also guided by the National Information Communications and Technology Policy, 2016 (National ICT Policy) whose key policy objectives relevant to the use of frequency spectrum are:

- i]. promotion of an efficient use of spectrum (where efficiency implies assigning spectrum to those that will generate the greatest socio-economic benefit from its use);
 - ii]. promotion of competition, i.e. an outcome which supports or does not undermine effective competition;
 - iii]. promotion of benefits to consumers, through the sustainable provision of widespread, high quality services; and
 - iv]. promotion of investment and innovation.
- Following the successful migration from analogue to digital television, spectrum in the 700 MHz frequency range, which was previously being used for analogue Television Broadcasting, has now been released and is now available to be assigned

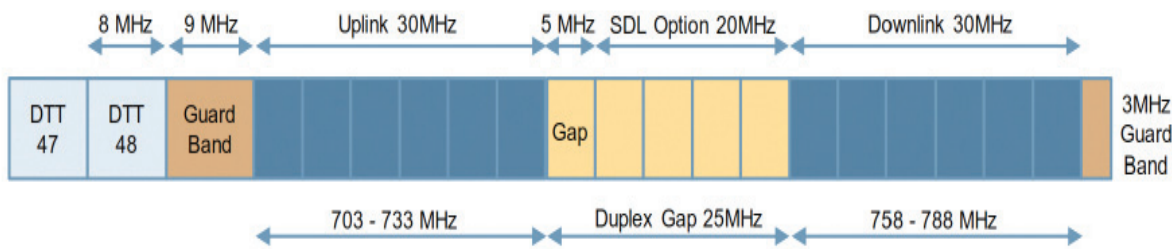
for mobile broadband services.

In furtherance of the National ICT Policy, it is the intention of TCRA that the planned spectrum auction of the 700 MHz band will, among other things, bring the following benefits to the nation:-

- a]. Advancement of the country's mobile broadband infrastructure and capability which will serve as a catalyst for the nation's economic development;
- b]. Facilitation of social economic benefits as mobile broadband will be key for promoting efficient provision of services such as education, health, agriculture, commerce, financial services through ICTs;
- c]. Lowering mobile communications costs due to cost savings as a result of deploying fewer base stations for wider coverage and therefore potential lower consumer prices.
- d. Extending the provision of mobile broadband services to a wider Tanzanian population especially those in rural areas;
- e. Promotion, enhancement and facilitation of innovation for new ICT services and technologies to be deployed in the band; and
- f. Source of national revenue by obtaining optimal return for the spectrum band as a scarce resource.

TCRA hereby notifies the general public and stakeholders that it intends to assign the spectrum in 700 MHz band through an auction, subject to a reserve price. The spectrum to be assigned represents 2 x 30 MHz of Frequency Division Duplex (FDD) as presented in the chart on page 9.

CEPT Channel Arrangements – APT 700MHz Lower Duplex - 3GPP Band 28



Note: The SDL Option: "The zero or up to 4 blocks of 5MHz approach" provides flexibility for other options being considered

Source: CEPT Report 60 approved 1st March 2106 by the ECC

To ensure that consumers benefit fully from access to mobile broadband services TCRA will include coverage obligations as part of the assignment process. Prior to the formal commencement of the assignment process, TCRA will be conducting consultation meetings to which key stakeholders will be invited to participate.

To allow stakeholders to begin their initial planning for the intended spectrum auction, an indicative timetable has been provided on this notice for the spectrum auction process. In case of any material change to the timetable the general public will be further informed.

Indicative timetable

S/No.	ACTIVITY	DATE
1	Publication of Consultation Document (Draft Information Memorandum)	Mid January, 2018
2	Submission of Stakeholder Comments on Draft Memorandum	Mid February, 2018
3	Publication of Information Memorandum	End February, 2018
4	Deadline for receiving Applications for participation in the Auction	Early May, 2018
5	Actual Spectrum Auction	Mid to End May, 2018
6	Payment deadline	Mid June, 2018
7	Grant of licences and /Assignment of Spectrum	Mid to End June, 2018

Pursuant to Rule 4 of the Electronic and Postal Communications (Licensing Procedure) Rules, 2014 (G.N No.422) TCRA hereby notifies the general public and stakeholders that it intends to assign the spectrum in 700 MHz band through an auction, as herein notified.

Interested persons and stakeholders are urged and encouraged to make preparations for the said spectrum auction and observe the above time schedule.

ISSUED BY:

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Optimizing Local Content

■ **Isaac Mruma – Communication Consultant and Managing Partner, Tanamera Corporate Limited, Dar Es Salaam. Email: info@tanamera.co.tz**

Introduction

The mission of radio and television to inform, educate, entertain and – recently added – to persuade has remained unchanged over the years (1). Although newspapers and broadcasting media are all sources of content, television and radio utilize spectrum, a scarce national resource; have a wider reach, can be more freely accessed, and are based on technology: hence the rationale for their regulation (2).

Broadcasting media are regulated through licence conditions, rules, regulations, codes and guidelines covering the efficient use of spectrum, standards, quality of service and quality of experience and complaints handling. Governments, directly or through regulatory agencies, have introduced regulations with conditions, including specific periodic quotas for the production and broadcasting of local content.

Definition of local content

The Organization for Economic Co-operation and Development (OECD) defines local content as the domestically specified minimum percentage of inputs that a manufacturer, miner or businessman must obtain from the area where a product is made (3).

Regardless of the sectors they cover, regulatory requirements for ‘local content’ quotas are designed to promote the internal capacity for the provision of support services; and to increase the share of local materials and human resources in the package of inputs for production or service delivery.

Local Content in broadcasting

Notwithstanding the definitions in the various policies, regulations and codes, local content in broadcasting refers to the quantity of material, the involvement of human resources in the production of the material to be broadcast and location where it is produced.

The definition of local content in African countries

Broadcasting policies, regulations and codes of most African countries have requirements for local content. Although definitions vary, they feature key common elements; mainly protecting the national identity and promoting local skills and entrepreneurship. The regula-

tions and codes specify the percentage of local content and schedule in which they are aired.

Local content quotas are basically protectionist. The production and airing of local content protects a country against content that could harm its identity, culture, and character or threaten its unity and sovereignty, national security and democracy.

Local content promotes a country’s social, cultural and moral values. A country’s broadcasting system should contribute to the maintenance and enhancement of national identity and cultural sovereignty (4). A study carried out in South Africa established that local content regulations had led to the promotion of local music in that country (5).

The enforcing of regulations with local content quotas creates demand for content, hence promoting entrepreneurship. Besides meeting regulatory requirements, broadcasters who commit themselves to the production of local content either in-house or through independent producers contribute to the creation of jobs and improvement of skills along the entire value chain.

Quality content brands a country. Locally produced films and series have raised the visibility of Nigeria, South Africa and Ghana. Kenya is also poised to break through.

However, unless the enforcement of regulatory requirements for local content quotas focus on quality, sub standard films and documentaries may flood the market and defeat the original purpose of encouraging the production of local content.

Uganda has addressed this in its broadcasting policy by requiring the regulator – Uganda Communications Commission - to ensure that the aspect of human resources development is considered when licencing broadcasters.

The Kenyan and South African definitions highlight the issue of ownership of broadcasting companies and media production entities; addressed by licence conditions in other countries. Tanzania’s EPOCA Licencing Regulations (under review) require operators to meet specific shareholding requirements; at least 51 per cent of shares of content service providers must be locally owned (12).

Poor quality has prejudiced viewers’ perceptions of locally produced content. A recent interview with a cross

Fig.1: Definition of local content in six African countries



Country	Definition
Tanzania	The EPOCA Content Regulations are being developed. The definition in the draft covers the use of Tanzania’s languages (Kiswahili and English), content which deals with issues that are unique and relevant to Tanzanian audiences, is produced locally and by a company with certain percentage of local shares. Quotas will exclude certain genres (6).
Uganda	Broadcasting content which recognizes the cultural and linguistic diversity of Uganda, carries themes of relevance to the local audience and is produced under Uganda’s creative control (7).
Kenya	The total of all television or radio programmes which fulfill any five of the following conditions: (a) the production is made in either Kenya’s native languages or official languages of Kenya; (b) production was done in Kenya; (c) the content deals with issues that are unique and relevant to Kenyan audiences; (d) at least twenty per cent of the share of the production company are owned by Kenyans; (e) a majority of the artistes are Kenyans; (f) the location of shooting, in case of audiovisual programmes or performance was in Kenya; (g) the author thereof must be a Kenyan national and in case of co-authorship or multi-authorship fifty percentum or more of the authors must be Kenyan; (h) the production is made under Kenyan creative and technical control. Local content does not include news and commentaries (8).
Nigeria	Production with substantially indigenous inputs in which Nigerians have editorial and creative control (9).
South Africa	A television programme, excluding transmission of sporting events and compilations thereof, advertisements, teletext and continuity announcements. The programme should be produced by-(i) a broadcasting service licensee; (ii) a person who is a citizen of, and permanently resident in, South Africa; (iii) a juristic person, the majority of the directors, shareholders or members of whom are citizens of, and permanently resident in, SA. Where the programme is co produced, the persons referred to in subparagraphs (i), (ii) or (iii) should have at least a 50 percent financial interest. The law also refers to issues of citizenship and residence of key personnel who are involved in production; and the percentage of the production costs (10).
Ghana	Airtime devoted to promoting Ghanaian culture, creative works and development of a national identity (11).



Optimizing Local Content

section of residents of Upanga, Dar Es salaam on television viewing habits shows that most find Tanzanian films and mini series unappealing. Reasons cited are dull and monotonous dialogues, the use of excessively aggressive language and poor grammar in subtitles in work that producers have attempted to translate into English.

“ In Kenya for example, a Mexican telenovela will receive higher ratings than a local production”, says Wangeci Murage, Managing Partner of a Nairobi-based consultancy company – Media Pros Africa (13).

“African content cannot be exported due to the narrow target of demographics. It thus lowers its exportability. Developing content that has the ability to cross borders and can possibly be used on different media platforms increases the chances of distribution”.

Discussing local production challenges in Africa, she explains that local stations should invest in local content production or acquisition in order to achieve the quotas in the respective regulations and codes. Countries should see the setting of quotas as catalysts to increase local content.

“ If broadcasters can allocate more airtime for local production, then content developers will be in a better position to produce more content at relatively low prices. The higher the demand, the more the supply”, she adds.

Local broadcasting content in Tanzania is regulated by the Tanzania Communications Regulatory Authority – for the Mainland and in Zanzibar by the Zanzibar Broadcasting Commission (ZBC).

The Converged Licensing Framework (CLF), under which TCRA has been licensing service providers since 2005 has eight content service licence categories separately for television and radio at the national, regional,

district and community levels.

Broadcasting content regulations are made by the minister responsible for public broadcasting upon recommendations of the Content Committee.

EPOCA regulations are being reviewed. The draft content regulations define the obligations of the public, commercial, non-commercial, community and subscription content services providers. TCRA has formulated guidelines for establishing and running community radio stations.

The draft regulations define the roles and obligations of content service providers and what is required of them in terms of the protection of children, broadcasting content with violence, the period within which certain content is universally allowed, presentation of news and current affairs and coverage of court and parliamentary proceedings and elections.

This is in line with section 104 of EPOCA which refers to the formulation of a code of conduct for content service licensees designed to:

- Protect the public against offensive and harmful content;
- Prohibit the provision of content which is indecent, obscene, false, menacing or otherwise offensive in character;
- Protect children;
- Prohibit the broadcast of content likely to encourage or incite the commission of crime (14).

The new regulations also address advertisements and sponsorships, product marketing, educational programmes, the production and broadcast of local content, coverage of events of national interest and special requirements for viewers or listeners with sight or hearing challenges. The draft has been presented to stakeholders for their input after which it will be submitted to the



Better storylines, scripts and standard translation into English could propel locally produced Tanzanian comedy series Mizengwe (above) to the Telenovela appeal.



Eng. Andrew Kisaka of the TCRA Broadcasting Department in the Authority's content monitoring station in Dar es Salaam.

Minister responsible for public broadcasting.

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TCRA Content Committee



TCRA Board Chairman, Dr Jones Killimbe opening the stakeholders' consultative meeting convened by the Authority on draft EPOCA Content Regulations. Others in the picture, from right are: Director General, Eng. James Kilaba, Content Committee Chairman Valerie Msoka, Director of Broadcasting Affairs Frederick Ntobi.

TCRA regulates broadcasting through licence conditions; and regulations, which are currently based on the Electronic and Postal Communications Act (EPOCA) of 2010.

The Authority has established standards, procedures, codes and ethics for broadcasting services.

It monitors broadcasting content and carries out regular inspections of licenced radio and television stations to enforce compliance.

Non-compliant broadcasters are subject to disciplinary hearings carried out by the TCRA Content Committee, an organ established pursuant to section 26.-(I) of the Tanzania Communications Regulatory Authority Act of 2003. Its members are appointed by the Minister responsible for public broadcasting.

The Committee has both advisory and disciplinary mandates. Its powers and functions as spelled out in Section 27.-(I) are to:

1. Advise the Sector Minister on broadcasting policy.

From the TCRA Act

26.-(I) There shall be established by the Minister a Content Committee, herein this Part referred to as the Committee.

(2) The Committee shall consist of not more than five members -

- (a) the Vice Chairman of the Authority who shall be the Chairman of the Committee; (b) four members appointed by the Minister upon consultation with the Chairman of the Board; (c) the Committee shall co-opt an expert or any person as it considers necessary.

27.-(I) The Committee shall have such powers and functions as the Authority may determine in the exercise of the powers conferred under sections 5 and 6 of the Act and in particular shall:-

- (a) advise the Sector Minister on broadcasting policy;
- (b) monitor and regulate broadcast content;
- (c) handle complaints from operators and consumers; and
- (d) monitor broadcasting ethics compliance.

(2) The Committee shall have such functions as the Authority, in the exercise of the powers under this Part may confer to the Committee.

(3) The Authority may determine the functions of the Committee which shall include the carrying out of functions in relation to -

- (a) matters that concern the content of anything which is or may be broadcast or otherwise transmitted by means of electronic Communications networks; and



Members of the Content Committee at the consultative meeting on draft EPOCA Content Regulations. From left: Derek Murusuri, Abdul Ngarawa, Joseph Mapunda.

2. Monitor and regulate broadcast content;
3. Handle complaints from operators and consumers;
4. Monitor broadcasting ethics compliance.

The advise in (1) above may be in the form of recommendations on effective regulation of content (ref: section 103 (1) of the Electronic and Postal Communications Act –EPOCA – 2010). The Authority may make rules on content related matters upon recommendation of the Content Committee (EPOCA 103(2)).

According to the TCRA Act, the committee may carry out functions in relation to matters that concern the content of anything which is or may be broadcast or otherwise transmitted by means of electronic communications networks and the promotion of public un-

derstanding and awareness on broadcasting and electronic media matters.

The Committee has been applying mainly ex post interventions; sanctioning broadcasters who breach broadcasting regulations and codes.

It imposes punishment, ranging from the suspension of radio stations for specific periods to fines and stern warnings.

There are currently visible moves towards ex ante regulation; the Committee has increased its dialogues with broadcasters and has introduced focused education campaigns on content regulations and the broadcasting code of ethics. The process of making new broadcasting regulations has involved broadcasters.

- (b) the promotion of public understanding of awareness of matters relating to the publication of matter by means of the electronic media.
- (4) In determining what functions to confer on the Committee, the Authority shall have in particular regard to the desirability of securing that the Committee have at least a significant influence on decisions which - (a) relate to the matters mentioned in subsection (3); and (b) involve the consideration of different interests and other factors

with respect to different parts of the Mainland Tanzania.

(5) It shall be the duty of the Committee to ensure, in relation to:

- (a) the carrying out of Authority's functions under this part;
- (b) the matters with respect to which functions are conferred on the Authority; and
- (c) such other matters mentioned in the Act, as the Authority may determine;
- (6) The Minister may by writing under

his hand give the Committee directions of a general or specific nature and the Committee shall comply with every such direction.

28.-(1) The Minister under this part, shall exercise his powers in of the respect to matters of national security, public safety and crisis or emergency.

(2) It shall be the duty of the Minister when appointing members of the Content Committee to appoint members who are not employees of the Authority or broadcasting organizations.



THE TCRA BOARD OF DIRECTORS

The TCRA Board of Directors is the governing body of the Authority and consists of seven members: Chairman and Vice-Chairman (both non-executive and appointed by the President of the United Republic of Tanzania), four non-executive members and the Director-General (all appointed by the Minister responsible for communications).

The following are the current TCRA Board Members: Dr. Jones A. Killimbe (Chairman), Ambassador Sylvester Massele Mabumba (Vice Chairman), Ms. Valerie Ndeneingo-Sia Msoka, Mrs. Butamo Kasuka Phillip, Dr. Mzee Suleiman Mndewa, Dr. Jabiri Kuwe Bakari and Eng. James M. Kilaba.

DR. JONES A. KILLIMBE



Dr. Killimbe holds a Master of Science degree and a Ph.D. in telecommunications from the University of Communications and Transport; Dresden, Germany.

He held several senior management positions in the Tanzania Telecommunications Company Limited (TTCL) from 1994 - 2003 including Director of International Relations, Director of Construction and Deputy Managing Director in charge of commercial services.

He served as Governor of INTELSAT's Board of Directors, representing Africa Region I and Director and Chairman of the Regional African Satellite Organization (RASCOM) Board of Directors. Dr. Killimbe was Director General and CEO of RASCOM for 10 years from 2004.

AMB. SYLVESTER MASSELE MABUMBA



Ambassador Mabumba is currently Tanzania's Ambassador to the Comoros. He has a Master of Science degree in Community Economic Development (Msc CED) from the Southern New Hampshire University, USA (in collaboration with the Open University of Tanzania); Postgraduate Diploma in Rural Regional Development Planning - Weitz Centre for Development Studies, Rehovot, Israel and an Advanced Diploma in Economic Planning from the Institute of Development Management-Mzumbe, Tanzania. He was Member of Parliament for Dole Constituency in Zanzibar between 2010 and 2015. During this period he was also elected Deputy Chair to the Parliamentary Committee on Subsidiary legislation (March 2011- November 2013) and later elected as Chair of the said Committee. He has also served as Presiding Officer of the Tanzania Parliament a position which enabled him to preside in the Speaker's chair. Other positions held by

Amb. Mabumba: Head of Young Child Survival Protection and Development (YCSPD) programme in the Ministry of Finance and Planning (Planning Commission) and Chief Economist, Zanzibar Planning Commission.

ENG. JAMES KILABA



Eng. Kilaba is the current TCRA Director General. He has a Master's degree in Telecommunications and Information Systems from Essex University, United Kingdom and a Bachelor's degree in Electronics and Communications Engineering from the University of Mysore; India. Eng. Kilaba also has a postgraduate Diploma in Business Administration. Before his new appointment, Eng. Kilaba held various posts, progressively from being an Executive Engineer to Director of ICT at TCRA. Eng. Kilaba is a registered professional engineer with the Engineers' Registration Board (ERB) of Tanzania and Senior Member of the Institute of Engineers Tanzania. He is has been a member of the Institution of Electrical and Electronics Engineers (IEEE) of USA for over 15 years.

MS. VALERIE NDENEINGO-SIA MSOKA



Ms. Msoka holds a Master of Arts degree in International Journalism from City University, UK and has attended several professional training in Management and Financial sustainability.

She has more than thirty years of experience in journalism during which she was United Nations Senior Public Information officer in Iraq and South Sudan and BBC World Service producer. Ms. Msoka has been Executive Director of the Tanzania Media Womens Association (TAMWA), an organization of which she is one of the founder member.

In 2015 she established the International NGO, Internews, in Tanzania of which she was the Project Director. She was also member of the Constitutional Assembly and

of the Drafting Committee of the proposed Constitution of Tanzania. She currently specializes in media, training and advocacy.

MS BUTAMO KASUKA PHILLIP



Mrs. Phillip was recently appointed Deputy Permanent Secretary, Vice President's Office (Union Affairs and the Environment). She holds a Master of Laws (LLM) degree in International and Comparative Law from Chicago - Kent College of Law, USA and Bachelor of Laws (LL.B Hons) degree, University of Dar es Salaam, Tanzania. She is an Advocate of the High Court of Tanzania and Courts subordinate thereto except Primary courts. Currently, Mrs Phillip is the Managing partner of Top Attorneys, a law firm based in Dar es Salaam. Mrs. Phillip has been State Attorney at the Ministry of Constitutional Affairs and Justice and Legal officer at the National Bank of Commerce. Mrs. Phillip is a Member of the Tanganyika Law Society (TLS), East Africa Law Society (EALS), Tanzania Women Lawyers Association (TAWLA); International Bar Association (IBA), Tanzania Chamber of Commerce and Industries, Dar es Salaam Chapter and Tanzania IFP Alumni Association.

She is also an associate member of the Panel of Arbitrators of the National Construction Council and the Tanzania Institute of Arbitrators (TIArb).

ENG. DR. MZEE SULEIMAN MNDEWA



Dr. Mndewa has a Ph.D. in Optoelectronic information engineering from Huazhong University of Science and Technology, Wuhan - China; Master of Information Technology (Griffith University, Queensland Australia); Bachelor of Science in Electronics (Osmania University Hyderabad, India) and Full Technician Certificate in Electrical Engineering (Karume Technical College, Zanzibar). He is currently the Director of Communications; Ministry of Infrastructure, Communications and Transportation; Zanzibar. He has been member of the Technical team for Tanzania National Fiber Optic Backbone Network Infrastructure (NICTBB) since 2004. Other positions held by Dr. Mndewa include Director of ICT at the University of Dodoma; ICT Consultant, Government of Tanzania and member and supervisor of the Technical team on E-Government Optical Transmission Network infrastructure Project - Zanzibar.

DR. JABIRI KUWE BAKARI



Dr. Jabiri Kuwe Bakari has a Ph.D in Computer and Systems Sciences from Stockholm University, Sweden (2007), a MSc. (Eng.) Data Communication Degree from the Department of Electronic and Electrical Engineering, Sheffield University in UK (1999), and a BSc. Computer Science Degree from the University of Dar-es-Salaam Tanzania (1996). He is currently the CEO of the Tanzania e-Government Agency. Prior to this, he was lecturer and Director of the Institute of Educational Technology, Open University of Tanzania (OUT). He joined OUT after 10 years of holding various technical, management and leadership positions at the University of Dar es Salaam including that of Deputy Managing Director of the University Computing Centre. Dr. Bakari is a senior member of Information Systems Audit

and Control Association (ISACA) and a founder and first Executive Secretary of the Tanzania Education and Research Network (TERNET).

EMF RADIATION FROM MOBILE

What is Radiation?

Radiation is energy that comes from a source and travels through space and may be able to penetrate various materials. There are two types of radiation, namely ionizing and non-ionizing radiation. Ionizing radiation carries enough energy to cause damage to chemical bonds or DNA, example X-rays, Gamma rays alpha rays, etc.

On the other hand, non-ionizing radiation does not carry enough energy to cause damage to chemical bonds or DNA. Some sources of non-ionizing radiation include cellular phones, base stations, hotspots, Wi-Fi, power lines, household wiring, and anything using electricity.

What is EMF Radiation?

EMF is short for electromagnetic field, also known as electromagnetic radiation (EMR) is a field produced by electrically charged objects. EMF consists of photons (light particles), which travel in a wave-like pattern at the speed of light.

The term “radiofrequency” (RF) represents frequency range used for wireless communication

in contrast with communication through fibers or electric cables. RF energy is a type of non-ionizing radiation.

The body absorbs RF energy when using mobile phones or working close to radio transmitting antennas. The unit of measurement for the amount of RF energy absorbed by the human body per unit mass of tissue is called Specific Absorption Rate (SAR). The maximum SAR levels for mobile phones are set by International Regulatory Agencies such as International Commission on Non-Ionizing Radiation Protection (ICNIRP) and the Institute of Electrical and Electronic Engineers (IEEE). SAR data for specific mobile phones, together with other practical information are provided in the operational manuals, and can also be found on manufacturers’ websites or on the third party websites.

Conducted Studies

TCRA in collaboration with Tanzania Atomic Energy Commission (TAEC) carries out electromagnetic field (EMF) measurements for various base stations in the United Republic of Tanzania to ensure that human exposure to RF energy does

not exceed the thresholds set by International Organizations. In addition, measurements of Specific Absorption Rate (SAR) for the collected sample of mobile phones available in the Tanzanian market were carried out in the UK, as there is no such a sophisticated laboratory to carry out SAR measurement in Tanzania. The objective of all these is to ensure that the public is appropriately protected from any potential adverse effects from RF exposure.

The results of EMF and SAR measurement are provided in the form of reports, available on the



EMF measurements at Manundu Primary School, Korogwe, Tanga.

PHONES AND BASE STATIONS

Authority’s website for public access.

The following frequently asked questions (FAQ) on the possible health effects of radiation emitted by mobile phones and base stations reveal major public concerns. The answers for these FAQ are as follows:

Does mobile phone radiation cause cancer?

Scientific Studies to date have shown no link between mobile phones and cancer. A mobile phone’s main source of RF energy is its antenna; mobile phones produce very low level of RF energy - considerably low to harm the human body. For compliance purposes, the Authority carried out measurements of Specific Absorption Rate (SAR) for a small sample of mobile phones available in the Tanzanian market. The SAR values of the collected sample of phones were well below the levels recommended by ICNIRP.

Is there any health effect when you sleep close to a mobile phone?

Radiation emitted by a mobile phone is relatively strong when transmitting as opposed to receiving. When idle, mobile phones will only be receiving signals, which imply that much less radiations are emitted by placing a mobile phone next to your pillow. No proved evidence of altered sleeping order has been reported so far.

Light from the display of a mobile phone may be a problem, since a flash of light or vibration of your mobile phone from a text message at the wrong moment could make you fully conscious.

Is there any relationship between erectile dysfunction and the use of mobile phone?

So far, studies have not shown health related side effects from RF fields on

human or animal reproduction and development.

Are there any health effects to a person living near a base station?

The strength of RF fields is greatest at its source, and diminishes quickly with distance. Access near base station antennas where RF signals levels may exceed international exposure limits is restricted. A study conducted by the Authority since 2011 to date has confirmed that RF exposures from base stations in residential areas are well below the ICNIRP recommended limits.

CONCLUSION

To date, no adverse health effects have been established as being caused by the use of mobile phones or base stations provided that EMF radiation levels comply with the international limits of RF exposure. Considering the results of EMF and SAR measurements as well as the available research results, there is no scientific evidence that weak RF signals from base stations and mobile phones can cause adverse health effects.





Application of Through-the-Wall Radar Imaging in Rescue Missions

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1.0. Introduction

Through-the-Wall Radar Imaging (TWRI) is an emerging technology which has witnessed a tremendous growth and attracted the attention of many researchers in the last few years. The ultimate objective of TWRI is to obtain high-resolution images of behind the wall scenes using electromagnetic (EM) waves. The technology has been sought out in rescue missions during fire outbreaks and earthquake tragedies. It has also been employed in inspection for law enforcement and in military applications [1–3].

However, there are still many challenges that need to be fully addressed to bring TWRI to its maximum potential. One of them is multipath. This is a physical phenomenon stemming from multiple reflections of EM waves from the walls, floors and ceilings [2,4]. Research findings have illustrated the adverse effects of multipath on urban communications and radar imaging and how to mitigate those effects.

Multipath reflections give rise to replica of targets during image reconstruction and consequently increase the probability of false alarms. The copies of the true target, referred to as ghosts, populate the scene and cause confusion with genuine targets.

Without an effective and efficient multipath ghost suppression techniques, TWRI technology may result in an incorrect scene interpreta-

tion which can lead to improper resources allocation.

The suppression of ghosts in TWRI applications has, therefore, become a topic of great interest. The applications of TWRI, in rescue missions for example, demand high resolution images.

Technically, this translates into the need for wide signal bandwidth and large aperture. Hence, more data need to be acquired, stored and processed. The storage and processing of big data has impacts on time, which is very critical in rescue missions. To overcome the big data problem, an efficient data acquisition approach based on compressive sensing (CS) was introduced in TWRI [5]. In this technique, only a small fraction of data is used to reconstruct highly resolved images [3,6,7]. Approaches based on CS are, currently, the leading techniques for image reconstruction in TWRI applications.

2.0. Through-the-Wall Radar Imaging Essentials

TWRI aims at sensing through walls of buildings using RF signals to reveal targets located behind the wall. In the TWRI literature, the scene of interest is mostly interrogated using either pulsed radar or Stepped-Frequency Radar (SFR) system. In the two systems, the transmitted Ultra-Wide Band (UWB) signal is realized in time and frequency domain, respectively. For pulsed radar, to acquire higher resolution the transmitted pulses should have shorter duration thereby increasing the transmitted bandwidth.

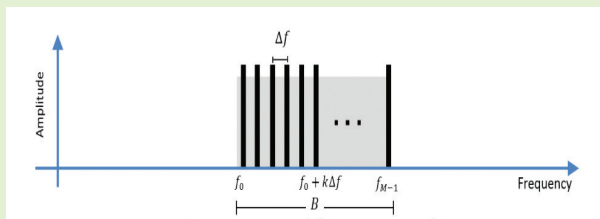
The transmission of shorter pulses, to earn higher range resolution, leads to low energy being transmitted and hence a reduction in the

Signal-to-Noise Ratio (SNR) for a given transmitter power [8].

Radar engineers, therefore, recommend radar waveforms with longer time to acquire high energy but at the same time give better range resolution. The most common approach is transmitting a series of monochromatic waves of linearly increasing frequency one after the other, known as stepped frequency signal.

2.1. Step Frequency Radar Design Parameters

In SFR, a series of M monochromatic waves whose frequency monotonically increases by a constant value, called frequency step size, Δf , as shown in Figure 1, are transmitted and received at each radar location with the initial frequency value f_0 and the final value $f_{(M-1)}$. The number of transceivers in a physical array or positions in Synthetic Aperture Radar (SAR) determine the aperture length of the radar system.



Stepped frequency signal

The choice of Δf is very crucial in the SFR design as it dictates the maximum range that the system can image without ambiguity. Other crucial parameters in SFR design include radar resolutions, sensitivity and its dynamic range.

2.2. Downrange and Crossrange Resolutions

Radar resolution measures the capability of the radar to distinguish two close targets in downrange and cross range directions [9]. The downrange resolution refers to the ability of the radar system to resolve distinct targets positioned along the same angular location but at different downranges. The downrange resolution improves with increasing bandwidth and that explains why the modern TWRI systems employ UWB signals.

On the other hand, the crossrange resolution refers to the ability of the radar to distinguish adjacent targets laying at the same downrange but with different angular displacements. The crossrange resolution improves with increasing aperture length and this explains why the modern TWRI systems use Synthetic Aperture Radar (SAR) to realize large aperture when physical array becomes infeasible. The crossrange resolution is also range dependent, i.e. the farther the targets they are, the lower the crossrange resolution the radar can achieve for a given aperture for the same operating frequency.

2.3. Sensitivity and Dynamic Range of the Radar

Radar sensitivity in a nutshell, is the minimum input RF power that the radar can detect. It provides a measure of the radar's ability to detect the presence or absence of a target [9]. The dynamic range on the other hand, is quantitatively defined as the ratio between the strongest signal to the weakest signal registered by the radar system and is normally expressed in decibel (dB) [9]. This number quantifies the maximum amount of loss that the radar signal can have, and still be detectable in the receiver [8].

In TWRI applications, strong reflections from the surrounding clutters including the front wall, if not well handled, may limit the radar's dynamic range which might saturate or even block the receiver and jeopardize the detection of the targets with low cross-sections.

3.0 Scene Geometry

Figure 2 shows a typical scenario in TWRI applications; say a mission to rescue two individuals trapped in a house on fire. Both transmitter and receiver are situated on the same side, few meters from the front wall referred to as back-off distance. EM waves traverse two different media from the transmitter reaching the receiver in a round trip fashion after being reflected by the behind the wall target.

The signal undergoes a significant distortion as the wave is refracted twice, once at the air-wall interface and then at the wall-air interface in the forward direction. When moving from the target back to the receiver similar action happens [1,10].

The received signal comprises of many components including the front wall returns, direct returns from the targets, reflections due to the interior walls, front wall reverberations, target-to-target interaction and floor/ceiling returns as shown in figure 2.

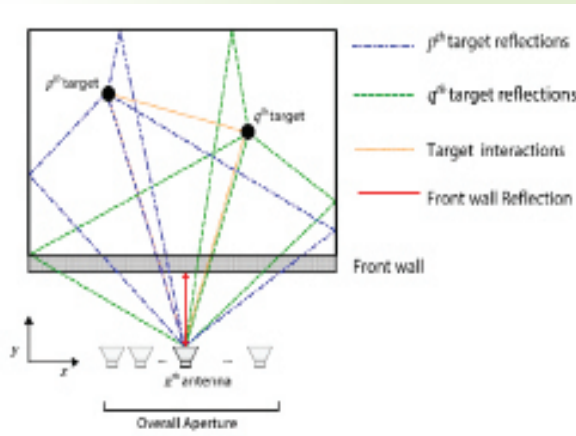


Figure 2. TWRI multipath scenario with first order returns.

4.0. Experimental Results

Researchers at the University of Dar Es Salaam, in collaboration with King Fahd University of Petroleum and Minerals, developed a novel technique to efficiently suppress multipath ghosts thereby enabling the clear identification of targets and their location. The technique has been tested experimentally.

A wideband SAR system was set up in a semi-controlled room with a schematic sketch and room layout shown in Figure 3 (a) and (b), respectively.

A SAR was deployed to cover 67 locations with an inter-element spacing of 2.5cm along the x-axis. An SFR occupying a spectrum between

1 and 3GHz with 201 frequency points was used for scene interrogation. The background information was first captured for clutter and the front wall mitigation.

Two metallic cylinders were placed at (-0.75,2) m and (0.5,3)m with the origin taken at the center of the aperture. The imaged region was chosen to be $4 \times 5 \text{m}^2$.

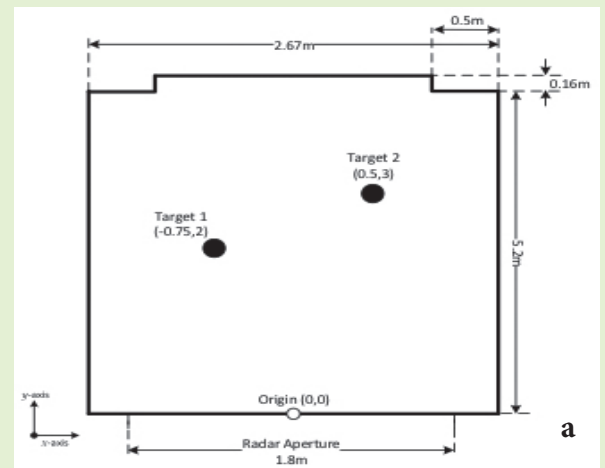
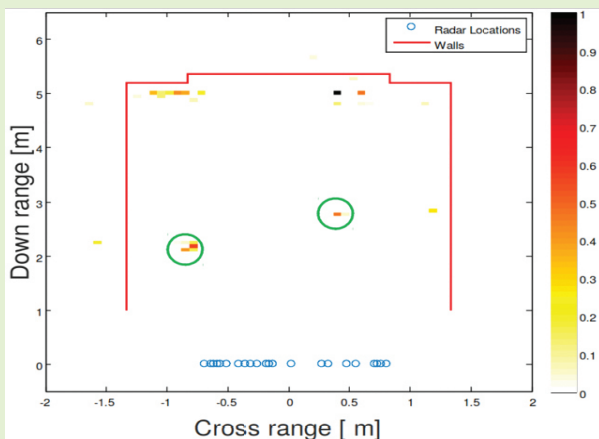
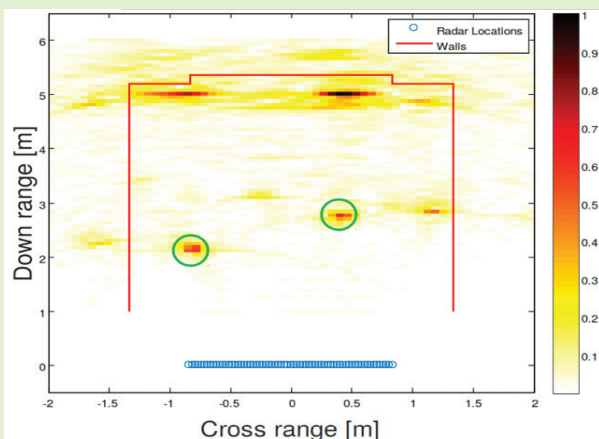


Figure 3. The scene, (a) room layout (b) experimental setup.

The image generated using Delay and Sum Beam forming (DSBF) with full data volume and CS using 12.5% of the data volume show the effect of multipath ghosts as depicted in Figure 4, which need to be suppressed for correct scene interpretation.



(a) DSBF with full data volume



(b) CS reconstruction with 12.5% data volume

5.0. Current Work at the University of Dar es Salaam

This research is ongoing at both collaborating universities. At the University of Dar Es Salaam, researchers are working towards the development of a system prototype for local piloting. Preliminary results have been disseminated in international conferences and peer reviewed journals. Locally, the authors have participated in research exhibitions including the Dar Es Salaam International Trade Fair to establish links with collaborators from the government and private sectors.

6.0. Conclusion

TWRI is an emerging technology which gives us ability to discern the scene which is behind the wall.

The research in the field is topical and attracted many researchers particularly on the multipath ghost suppression and the application of CS to TWRI.

Experimental results are promising which encourage more research works to be done.

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NATIONAL SIGNALLING POINT CODES PLANS AND ASSIGNMENTS

1.1 Introduction

The Signaling Point Codes (SPC) is used in the CCITT (International Telegraph and Telephone Consultative Committee) Signaling System No.7 (SS7) to identify the exchanges between which speech path connections are to be established.

The SPC code of a Signaling Point in a SS7 Network is an unambiguous identification code for an exchange (Signaling Point) in a network.

The SPC codes are processed in the SS7 network by the Message Transfer Part (MTP) of each Signaling Point (SP) or Signaling Transfer Point (STP) to enable establishment of speech path connections.

In SS7 Signalling traffic the SPC code allocated for the originating exchange is defined as Originating Point Code (OPC) and the SPC code allocated for the addressed exchange is defined as the Destination Point Code (DPC).

The SPC codes are divided into the international and the national SPC codes. The national SPC codes have been left by the ITU-T Secretariat to be defined in the national level.

As the national telecommunication networks in the United Republic of Tanzania consist of several operator networks, it is the responsibility of the Regulatory Body, the Tanzania Communications Regulatory Authority (TCRA), to allocate and administer the national SPC codes to enable interworking between the networks in the country.

This document specifies the confirmed international SPC code formats and as well as the national SPC code formats and later, SPC codes allocated to various operators in the United Republic of Tanzania.

1.2 The main format of the International

Signaling Point Codes (ISPCs) ITU-T has specified in the Recommendation Q.708 the following 14-bit binary format for the identification of the International Signaling Point Codes to be used in the international SS7 Signaling links:

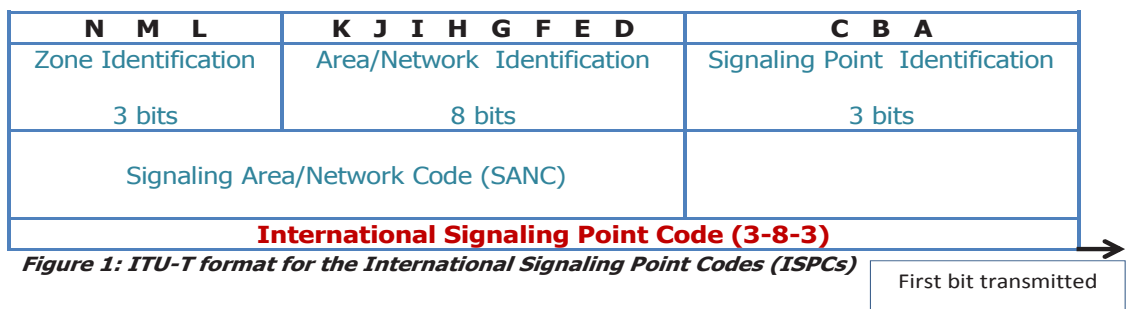


Figure 1: ITU-T format for the International Signaling Point Codes (ISPCs)



The 3-bit sub-field ‘NML’ defines the world geographical zone where the network is located in. The 8-bit sub-field ‘KJIHGFED’ identifies the geographical area or network within a specific world zone. The 3-bit sub-field ‘CBA’ identifies the Signaling point (international exchange) within a specific geographical area or network.

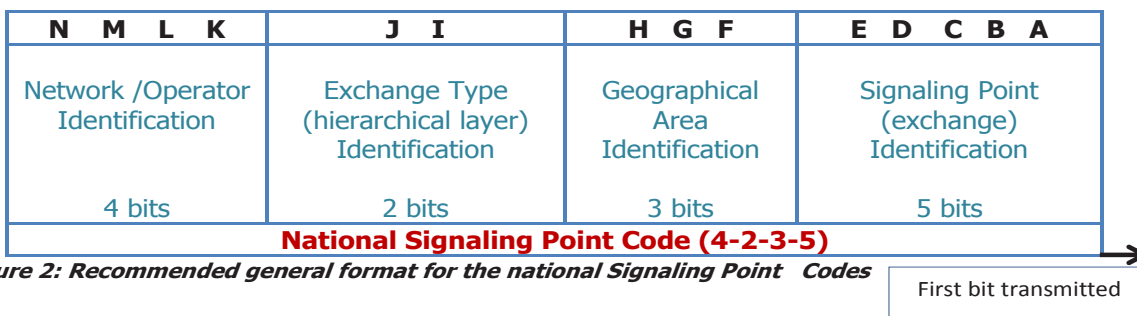
The combination of sub-fields ‘NML-KJIHGFED’ is defined as a Signaling Area /Network Code (SANC). Each country shall be assigned at least one SANC code.

The allocation of the codes in the first sub-field ‘CBA’ in this 3-8-3 bit structure is left for the national authorities with the responsibility to notify the ITU-T Secretariat on the codes used.

The 3-bit structure of the ‘CBA’ sub-field allows 8 International Signaling Point Codes to be used for each SANC code. Should more than 8 International Signaling Points be required, one or more additional SANC code(s) would then be assigned by ITU-T for the country.

1.3 The general Format of the National Signaling Point Codes

The following below structure is recommended for the use the 14-bits in the Signaling Point Code for the exchanges in the national networks:



In case an exchange is a combined exchange operating on two or more layers, it shall be specified on its highest operating layer in the sub-field ‘JI’.

Sub-field ‘NMLK’

The 4-bit sub-field ‘NMLK’ shall define the network (operator) in which the exchange is located in.

Sub-field ‘JI’

The 2-bit sub-field ‘JI’ shall define the hierarchical layer of the exchange in the operator’s network as follows:

Hierarchical Layer	Bit Pattern ‘JI’ [binary]	Bit Pattern ‘JI’ [decimal]
International layer	00	0
National transit layer	01	1
Local tandem layer	10	2
Local layer	11	3

Sub-field ‘HGF’

The 3-bit sub-field ‘HGF’ is used to identify the geographical area where the exchange is located.



The SPC area boundaries follow basically the local dialling numbering area boundaries in the new National Numbering Scheme. Exception is made in the Dar es Salaam numbering area that is divided into DSM North and DSM South Areas to provide enough capacity for the densely populated capital area.

The geographical areas to be used in the SPC numbering are shown in the following Table below.

Sub-field ‘EDCBA’

Code	Area Allocated
0	Dar es Salaam North
1	Dar es Salaam South
2	Coast, Morogoro, Mtwara and Lindi Regions
3	Zanzibar (including Unguja and Pemba) Regions
4	Mbeya, Ruvuma, Katavi, Songwe and Rukwa Regions
5	Dodoma, Iringa, Njombe, Tabora and Singida Regions
6	Arusha, Manyara, Kilimanjaro and Tanga Regions
7	Mwanza, Mara, Shinyanga, Simiyu, Geita, Kagera and Kigoma Regions

Table 1: Geographic Signaling Area Codes

The first sub-field to be transmitted (‘EDCBA’) shall define the exchange, i.e. the Signaling Point within a geographical area defined in the sub-field ‘HGF’.

2.0 CURRENT ASSIGNMENTS

The following is the current ISPC and National SPCs assignment based on services as per descriptions provided.

2.1 International Signaling Point Codes

S/N	EXCHANGE OPERATOR	ASSIGNED ISPC (3-8-3)
1.	TTCL	6 – 080 – 0
2.	TTCL	6 – 081 - 0
3.	BENSON INFORMATICS LTD	6 – 080 – 1
4.	MIC (T) LTD	6 – 080 – 2
5.	ZANZIBAR TELECOM LTD	6 – 080 – 3
6.	ZANZIBAR TELECOM LTD	6 – 080 – 7
7.	VODACOM (T) LTD	6 – 080 – 4
8.	VODACOM (T)LTD	6 – 081 – 3
9.	AIRTEL (T) LTD	6 – 080 – 5
10.	AIRTEL (T) LTD	6 - 081 - 5
11.	AIRTEL (T) LTD	6 - 081 - 6
12.	AIRTEL (T) LTD	6 – 081 - 7
13.	SIX TELECOMS COMPANY LTD	6 – 080 – 6
14.	VIETTEL (T) LTD	6 – 081 – 1
15.	VIETTEL (T) LTD	6 – 081 – 4
16.	SMILE COMMUNICATIONS (T) LTD	6 – 123 – 0
17.	WIAFRICA TANZANIA LIMITED	6 – 123 – 1

Table 2: International Signaling Point Codes (ISPCs) in Tanzania

2.2 National Signaling Point Codes



SERVICE	S/N	EXCHANGE OPERATOR	ASSIGNMENT SPC PLAN (4-2-3-5)
Call Centers for Life and Safety Numbers	General Range		1-0-0-21 to 1-0-0-31
	1.	Police Call Centre (111/112)	1-0-0-31
PSTN	1.	TTCL	1-Y-X-ZZ EXCEPT 1-0-0-21 to 1-0-0-31
	2.	ZANZIBAR TELECOM LTD	2-Y-X-ZZ
Voice over IP	General Range		4-Y-X-ZZ
	1.	SIMBANET (T) LTD	4-1-1-00 & 4-1-1-01
	2.	STARTEL (T) LTD	4-1-1-31
Mobile Networks	3.	SMILE COMMUNICATION (T) LTD	6-Y-X-ZZ
	4.	RURAL NETCO LTD	7-Y-X-ZZ
	5.	MIC (T) LTD	8-Y-X-ZZ
	6.	TTCL	9-Y-X-ZZ
	7.	ZANZIBAR TELECOM LTD	10-Y-X-ZZ
	8.	VODACOM (T) LTD	11-Y-X-ZZ
	9.	AIRTEL (T) LTD	12-Y-X-ZZ
	10.	BENSON INFORMATICS LTD	13-Y-X-ZZ
	11.	VIETTEL (T) LTD	14-Y-X-ZZ
	12.	WIAFRICA (T) LTD	15-Y-X-ZZ
RESERVED			0-Y-X-ZZ
RESERVED			3-Y-X-ZZ

Table 3: National Signaling Point Codes (ISPCs) in Tanzania

3.0 FUTURE ASSIGNMENTS

The SPCs will be assigned on a continuous basis depending on the applications received and emerging new or operators in accordance with the published APPLICATION GUIDELINES AND FEES FOR NUMBERING RESOURCES.



Short Messages Drop as M

SHORT messages service (SMS) traffic over Tanzania's seven mobile telephone network operators dropped by 23.7 per cent between May and June 2017 as subscriptions increased by three per cent during the period, according to quarterly statistics published by the Tanzania Communications Regulatory Authority (TCRA).

Mobile money accounts have increased by 25 per cent between January and June 2017. There were 16,299,440 accounts in January compared with 20,285,810 in June 2017. Mobile money platforms have led to the inclusion of more Tanzanians in the financial services sector.

The SMS dip is partly attributed to the increase in the use of interactive social media like WhatsApp, Snapchat and the possibilities of cheaper calls across networks through tariff bundles, according to analysts.

The report shows that 5,259,790,112 SMS passed over networks in June compared with 6,897,537,350 in May. There were 40,358,031 subscribers in June compared with 39,236,444 in May.

The seven mobile telephone service providers are Airtel, Halotel, Smart, Tigo, TTCL, Vodacom and Zantel.

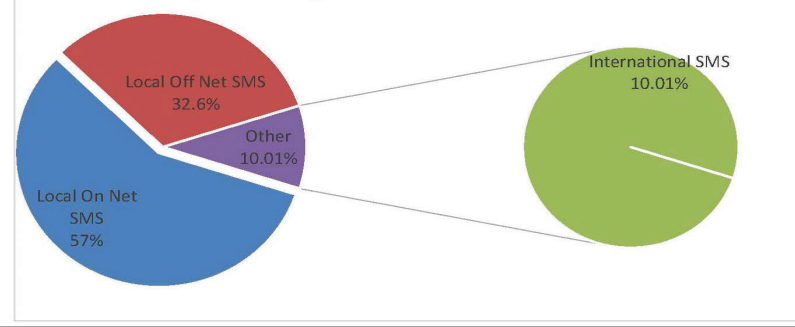
Part of the April - June 2017 quarterly report published here is available on the TCRA website - <https://www.tcra.go.tz>.

SHORT MESSAGES (SMS)

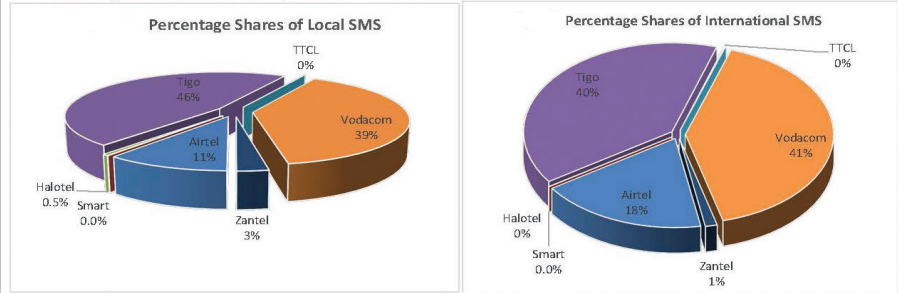
Local and International SMS

Destination	APRIL	MAY	JUNE	TOTAL
Local On Net SMS	4,102,108,551	4,329,342,589	2,389,240,880	10,820,692,020
Local Off Net SMS	2,028,065,991	1,956,855,583	2,154,414,270	6,139,335,844
International SMS	567,362,808	603,913,332.0	716,134,962.0	1,887,411,102
TOTAL	6,697,537,350	6,890,111,504	5,259,790,112	18,847,438,966

Percentage Shares of Local and International SMS



Percentage Shares of SMS Per Operators

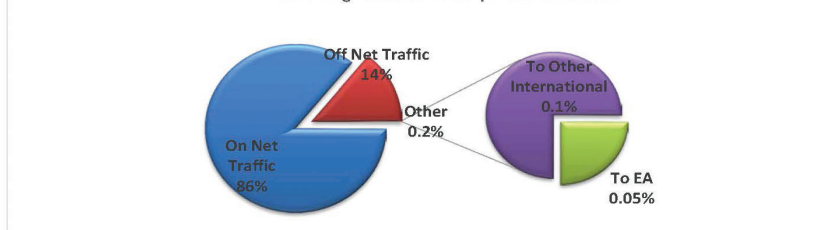


TRAFFIC MINUTES

Total Traffic

Destination	APRIL	MAY	JUNE	TOTAL
On Net Traffic	3,499,640,441	3,668,897,137	3,906,966,084	11,075,503,662
Off Net Traffic	586,629,208	590,329,209	648,916,909	1,825,875,326
To EA	2,463,430	1,868,388	1,928,083	6,259,901
To Other International	5,484,980	6,445,769	6,921,519	18,852,268
TOTAL	4,094,218,059	4,267,540,503	4,564,732,595	12,926,491,157

Percentage Share of Traffic per call Destination



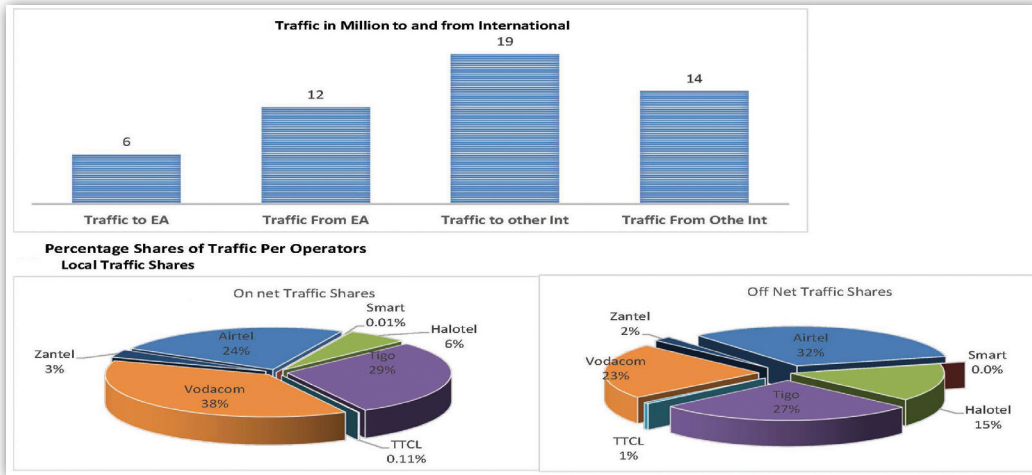
Traffic to and from International

Destination	APRIL	MAY	JUNE	TOTAL
Traffic to EA	2,463,430	1,868,388	1,928,083	6,259,901
Traffic From EA	4,686,023	3,680,084	3,821,563	12,187,670
Traffic to other Int	5,484,980	6,445,769	6,921,519	18,852,268
Traffic From Othe Int	3,402,108	5,486,727	5,323,568	14,212,403
TOTAL	16,036,541	17,480,968	17,994,733	51,512,242

Minutes Used Per Subscriber (MoU)

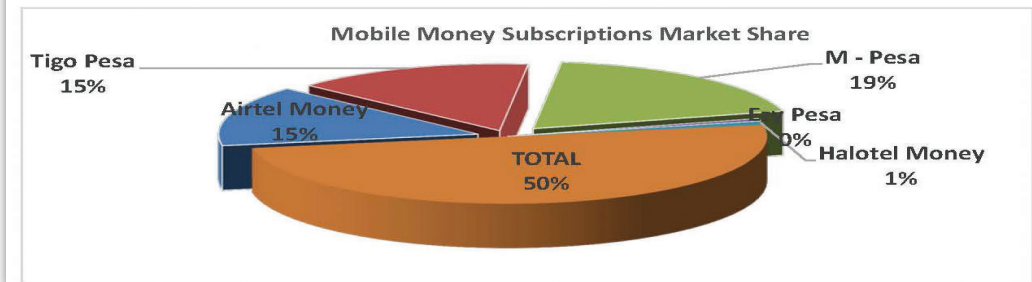
Destination	APRIL	MAY	JUNE	TOTAL
On net	88	92	97	276
Off Net	15	15	16	46
EA	0.1	0.0	0.0	0.2
Other Internationals	0.1	0.2	0.2	0.5
TOTAL	103	107	113	322

Mobile Money Accounts Soar



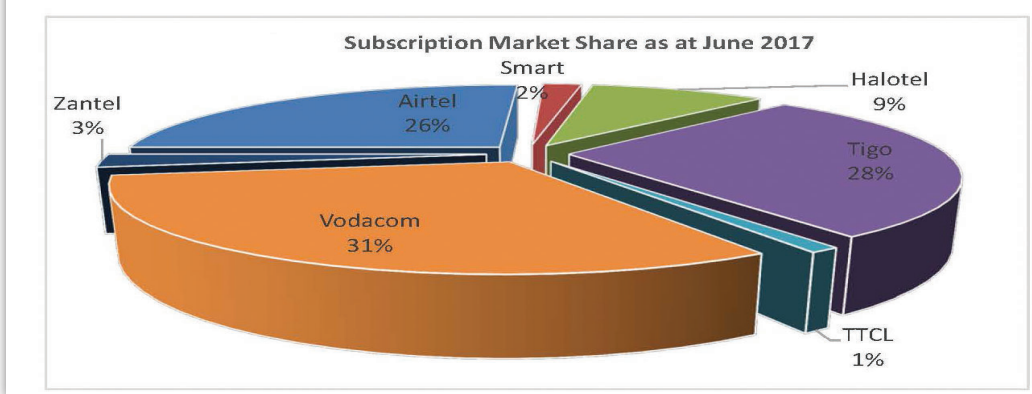
Mobile Money Subscriptions (Mobile Money Accounts)

Operator	APRIL	MAY	JUNE
Airtel Money	5,271,759	5,570,279	5,927,712
Tigo Pesa	5,995,258	6,010,320	6,055,879
M - Pesa	7,918,939	7,870,458	7,697,585
Ezy Pesa	213,660	246,400	246,417
Halotel Money	407,375	418,552	358,217
TOTAL	19,806,991	20,116,009	20,285,810



VOICE TELECOM SUBSCRIPTIONS

Operator	APRIL	MAY	JUNE
Airtel	10,212,483	10,245,201	10,349,345
Smart	895,376	885,878	828,772
Halotel	3,581,942	3,643,804	3,800,530
Tigo	11,256,790	11,265,628	11,370,493
TTCL	362,253	347,974	410,000
Vodacom	12,616,716	12,605,007	12,611,043
Zantel	1,004,967	996,575	987,848
TOTAL	39,930,527	39,990,067	40,358,031





EVENTS



As part of disseminating information on the regulated sectors and on TCRA, the Authority participated in this year's Farmers' Exhibition (Nane Nane) in Lindi. Eng. Jumanne Ikuja briefs visitors to the TCRA pavilion on spectrum monitoring, one of the Authority's duties.



Some of the stakeholders who participated in a consultative meeting at TCRA on online media ethics.



The management of the Mozambican ICT regulator - ICNM - recently visited Tanzania to benchmark best practices. They are pictured here with the Minister for Information, Culture, Arts and Sports, Dr. Harrison Mwakymbe (centre) in his office in Dar Es Salaam. Left is TCRA Director of Consumer and Industry Affairs, Dr. Raynold Mfungahema.



TCRA senior officers, from left; John Massai, Victor Nkya and Semu Mwakyanjala in a live interview at Mashujaa FM radio station in Lindi during this year's Farmers' Exhibition (Nane Nane).

UFAHAMU KUHUSU MATUMIZI SAHIHI NA SALAMA YA MITANDAO YA KOMPYUTA NA INTANETI



1. UTANGULIZI

Kitengo cha dharura cha kuitikia matukio ya usalama kwenye mitandao nchini (Tanzania Computer Emergency Response Team- TZ-CERT) kimepewa jukumu la kitaifa la kuratibu matukio ya usalama katika mitandao ya kompyuta na intaneti, kwa kushirikiana na vyombo vingine husika vya kikanda na kimataifa, katika kusimamia matukio ya usalama mitandaoni.

TZ-CERT ilianzishwa kwa sheria ya Mawasiliano ya Kielektroniki na Posta ya 2010, kifungu namba 124. Kifungu namba 5(1) cha kanuni za Mawasiliano ya kielektroniki na Posta (Timu ya kuitikia matukio ya dharura ya usalama mtandaoni) zilizotolewa Desemba 2011, kilielekeza uanzishwaji wa Timu ya kuitikia matukio ya dharura ya usalama mtandaoni ijulikanayo kwa kifupi TZ-CERT, ndani ya mfumo wa Mamlaka ya Mawasiliano Tanzania (TCRA). Huduma za TZ-CERT zilizinduliwa rasmi tarehe 17 mwezi Mei mwaka 2015.

Majukumu makuu ya TZ-CERT kisheria ni kuwa kiungo cha kitaifa nchini na kwa nchi za nje kwa masuala yote yanaohusiana na usalama mtandaoni. Katika kutimiza wajibu huo, TZ-CERT:

1. Inatoa ushauri wa kitaalamu wa kukabiliana na matukio ya kiusalama yanayotokea na kwa lengo la kuzuia madhara.
2. Inafanya uchambuzi wa taarifa za matukio ya usalama wa mtandao kutoka vyanzo mbalimbali, vya kimataifa na kitaifa, na kutumia matokeo ya uchambuzi huo kuongeza usalama wa matumizi ya kompyuta na mtandao wa intaneti.
3. Inatoa mwongozo wa kitaalamu kwa umma na wadau katika maeneo ambayo yameonekana kuwa na udhaifu.
4. Inahamasisha, inaelimisha na inajenga uwezo wa masuala ya usalama wa mitandao kwa umma, serikali na wa-

dau kutoka sekta mbalimbali.

5. Hufanya tathmini ya udhaifu wa mifumo ya kompyuta ya mitandao ya wadau wake.

Ikumbukwe kwa sasa Tanzania kuna watumiaji wa mtandao wanaokadiriwa kufikia milioni 18 (kumi na nane) kutoka milioni tano mwaka 2011.

Kutokana na uzoefu uliopatikana kwa muda wa mwaka mmoja toka TZ-CERT ianze rasmi kutoa huduma zake, TCRA imebaini kwamba, pamoja na mambo mengine, ukosefu wa taarifa muhimu za matumizi sahihi na salama ya mitandao kumechangia kuwepo kwa matukio ambayo yangeweza kuepukwa.

Kwa nini kuongeza ufahamu wa matumizi bora ya Mtandao? Kuongeza ufahamu kumekuja wakati muafaka baada ya TZ-CERT kubaini changamoto nyingi na aina mbalimbali za matatizo yaliyotokea wanayokutana nayo wananchi wengi ambayo yametokana na kuwa na ufahamu mdogo wa jinsi ya kujilinda wakiwa wanatumia huduma zilizopo katika mitandaoni kompyuta na intaneti, kulinda taarifa zao pamoja na matumizi sahihi ya mtandao kwa ujumla wake kama yanavyotolewa na watoa huduma.

2. MAMBO MUHIMU YA KUZINGATIA UTUMIAPO HUDUMA ZA INTANETI/ MITANDAO

- i) Kuwa makini na taarifa za binafsi unazoziweka kwenye mitandao wa jamii,
- ii) Ukisaidiwa kuanzisha akaunti za mtandao wa kijamii, hakikisha unabadilisha neno la siri lilotumika mara moja; neno lako la siri ni siri yako usimshirikishe mtu mwingine,



UFAHAMU KUHUSU MATUMIZI SAHIHI NA SALAMA YA MITANDAO YA KOMPYUTA NA INTANETI

- iii) Tunza neno lako la siri unalotumia katika huduma zako za kwenye mtandao, mfano barua pepe, miamala ya kibenki.
 - iv) Usijibu jumbe unazopokea kwenye akaunti yako ya barua pepe au ujumbe mfupi wa simu unaoulizia taarifa au unaokutaka kuhakiki taarifa zako binafsi za akaunti za huduma mbalimbali kwenye mtandao wa intaneti bila kuhakiki uhalali wa taarifa husika,
 - v) Usijibu ujumbe wowote wa barua pepe unakueleza kuwa umeshinda bahati nasibu bila kuhakiki uhalali wa barua pepe husika,
 - vi) Usifungue kiambatisho au kubofya kiungo (link) unayotumiwa na mtu usiye mjua kabla ya kuhakikisha uhalali wa barua pepe husika.
 - vii) Tumia programu za kompyuta za wakati na hakikisha kompyuta au kifaa chako cha kielektroniki zinatumia program zakujikinga na virusi hatarishi.
 - viii) Tumia muda kujielimisha kwa kusoma taarifa mbalimbali zinazohusiana na huduma za mtandao wa intaneti unazotumia.
- Ili kujiepusha kukiuka sheria mbalimbali za mawasiliano ya mtandao, unashauriwa kuzingatia yafuatayo:
- i) Usitunge na kusambaza ujumbe wa maudhi, uzushi au uchochezi,
 - ii) Usiendeleo kusambaza ujumbe wa chuki, maudhi au uchochezi unaopokea kutoka kwa mtu mwingine. Badala yake ufute mara uupokeapo au toa taarifa,
 - iii) Usitembelee tovuti au blogu za ponografia/ngono,
 - iv) Usitengeneze akunti za mitandao ama kwa lengo la kufanya utapeli, ulaghai au kwa kutumia taarifa zisizo zako,
 - v) Tunza kwa usalama vifaa vya kielektroniki unavyotumia kuhifadhi kumbukumbu zako

na usitumie vifaa hivi kwenye kompyuta za umma.

FAIDA ZA HUDUMA ZA MITANDAO:

- a) Hurahisisha mawasiliano.
- b) Hupunguza gharama.
- c) Huongeza ufanisi.
- d) Huokoa muda.

TAARIFA ZAIDI NA MAWASILIANO

Pata taarifa zaidi kutoka kwenye tovuti ya TZ-CERT kwa anuani ifwatayo: HYPERLINK "<http://www.tzcert.go.tz>" www.tzcert.go.tz.

Tovuti hii pia inatoa nafasi ya kutuma na kutoa taarifa za matukio mbali mbali kwa wataalamu wa TZ-CERT unapo hitaji msaada.

Kwa kutoa taarifa za tukio ili kupata msaada tumia anwani ya barua pepe ifwatayo: HYPERLINK "<mailto:incidents@tzcert.go.tz>" incidents@tzcert.go.tz au HYPERLINK "<mailto:info@tzcert.go.tz>" info@tzcert.go.tz

Pia unaweza kuwasiliana kupata taarifa muhimi na kutoa maoni au kuuliza maswali kwa kutumia akaunti za mitandao ya kijamii zifwatazo:

HYPERLINK "<https://www.facebook.com/Tz-Cert>" <https://www.facebook.com/Tz-Cert>

HYPERLINK "https://twitter.com/tz_cert" https://twitter.com/tz_cert

HYPERLINK "<https://www.instagram.com/>" <https://www.instagram.com/>

Kwa mawasiliano, tuandikie:

MKURUGENZI MKUU
Mamlaka ya Mawasiliano Tanzania (TCRA)
Mawasiliano Towers
20 Barabara ya Sam Nujoma
S.L.P. 474
14414 DAR ES SALAAM

Au piga simu: 022 2412 039 au 022 2199760-9



OUR VISION

To be a world-class Communications Regulator creating a level playing field among Communication Service Providers, and promoting environmentally friendly, accessible and affordable services to consumers.

OUR MISSION

To develop an effective and efficient communications regulatory framework, promote efficiency among the communications services providers, and protect consumer interests with an objective of contributing to socio-economic and technological development in the United Republic of Tanzania.

STRATEGIC GOAL

To enhance the welfare of Tanzanians through effective and efficient regulatory framework that ensures universal access to communications.

STRATEGIC OBJECTIVES

- ▶ To enhance TCRA capacity, staff competences in regulation, research and related fields;
- ▶ To promote efficient, reliable and affordable communications infrastructure and applications;
- ▶ To promote efficient communication services and increase access to ICTs in underserved and unserved areas;
- ▶ To protect the interests of consumers and enhance awareness of their rights and obligations;
- ▶ To monitor performance of regulated services and enforce compliance to legislations, regulations and standards;
- ▶ To coordinate implementation of regional and international sector commitments.

OUR QUALITY POLICY

TCRA is committed to enhancing the welfare of Tanzanians through provision of effective and efficient regulatory services that ensures universal access to communication services, through quality management system in all processes needed in our areas of jurisdiction. TCRA continuously improves and reviews her quality objectives regularly and communicates the policy within the organization.

QUALITY MANAGEMENT SYSTEM

TCRA is ISO 9001:2015 certified.

QUALITY OBJECTIVE

- ▶ To maintain an effective Quality Management System complying with International Standard ISO9001:2015;
- ▶ To achieve and maintain a level of quality which enhances TCRA's reputation among stakeholders;
- ▶ To ensure compliance with relevant statutory and regulatory requirements;
- ▶ To endeavour, at all times to maximize stakeholder satisfaction with our services.

TAHADHARI KUHUSU UJUMBE MTANDAONI



Usinitumie, Sitaki, Simtumii mwingine, Nitakuripoti



LinkedIn

Blogger



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