



The ITU - challenges in the 21st century: Preventing Harmful Interference to Satellite Systems



IRIB Satellite R&D Center

**VER:1
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General view



- Section 1: what actions is usually done when an interference is encountered
- Section 2: Practical Aspects For IRIB
 - May 2009 cases
 - Repetitive Other Cases
- Section 3: Practical Aspects For Others
- Section 4: Present & Future Challenges

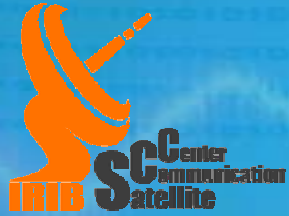
Section One



- What actions is usually done when an interference is encountered

➤ Technical Aspects

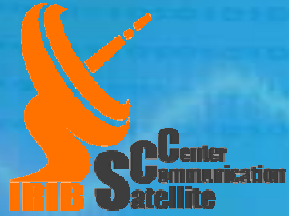
- Provider/Operator as the first point to notice
- When ITU reacts to an interference report



Provider as the first place to notice



- what are the provider obligations? (ambiguity in providers/operators responsibilities)
- Whose problem an interference is?
- what if the provider/operator doesn't react ?
 - Reasons: commercial issues between capacity leaser and leasee(operator/customer), political issues, logistic issues, coordination issues, third party involvement no responsibility
- what if the provider reacts but doesn't disclosed the information about the source (what is the customer rights?)



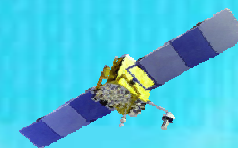
Provider as the first place to notice



- What if the interference interval is short so that reaction needs great efforts and state of alert.
- what if the interference is from a place or in territories which are not under the control of certain Administration or the concerned Administration has no control over it(i.e. a war-torn or occupied territory in which there is no one to answer)



ITU Procedure for Reporting an Interference



- ITU Procedure is provocation of Article 15 of Radio Regulation and reporting Harmful interference according to Appendix 10 in which you should name the source.
- if the victim doesn't have a Geo-location facility, then the only source is operator provided information(as it is the case for majority of victims)
- no operator provided information=nothing is triggered in ITU! It is like going to judge without having any one to accuse.
- IRIB has experienced such process with no outcome.



- practical cases for IRIB
 1. May 2009 Cases
 2. Repetitive Other Cases



May 2009 Cases

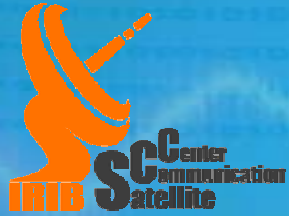


- IRIB main bouquet on its oldest platform working for more than 20 years, containing 10 main National channels feeding 26000 terrestrial TV and Radio stations and millions of DTH users in Middle East was jammed for a period of one week by strong non-modulated CW signal with a high power which dominated the main transmission which was capable of sending 93.29 dBW at 14 GHz band!

May 2009 Cases



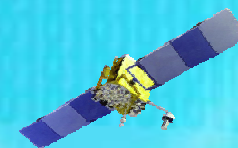
- the jamming was done in a major national event and in programs that had a great audience (nearly every household in Iran and millions abroad) and created lot of complaints
- the carrier was durable, powerful and as it was content oriented and predictable, so IRIB expected that operator could find it.
- the operator announced that it put a lot of effort to find the source, but eventually, reported that the origin is not detected due to following reasons:
 - 1) it is a non-modulated carrier.
 - 2) the source has a big antenna which is not detectable by adjacent satellites in Geo-location procedure



May 2009 Cases



- Case Concluded by following Summary by the operator:
- Geo-location methods are not accurate and cannot reach to a result in most cases, *sorry for the problem, your case is not detectable!*



Repetitive Other Cases

- from August 8th 2009 up to now, repetitive interferences have been sent on almost all satellites on which IRIB has a channel, many of them are not documented for various reasons like short duration, non-presence of an comprehensive monitoring system in all locations especially those not physically possible in Iranian territory. Important and detected cases were all reported to operator and some hot cases where also reported to BR. For example, the following is the list of hot issues reported to BR and the appropriate operator (**RRB13-1/DELAYED/2-E**)
- in some cases, IRIB channels were dropped due to the interference (the last one dropped last week)

Repetitive Other Cases



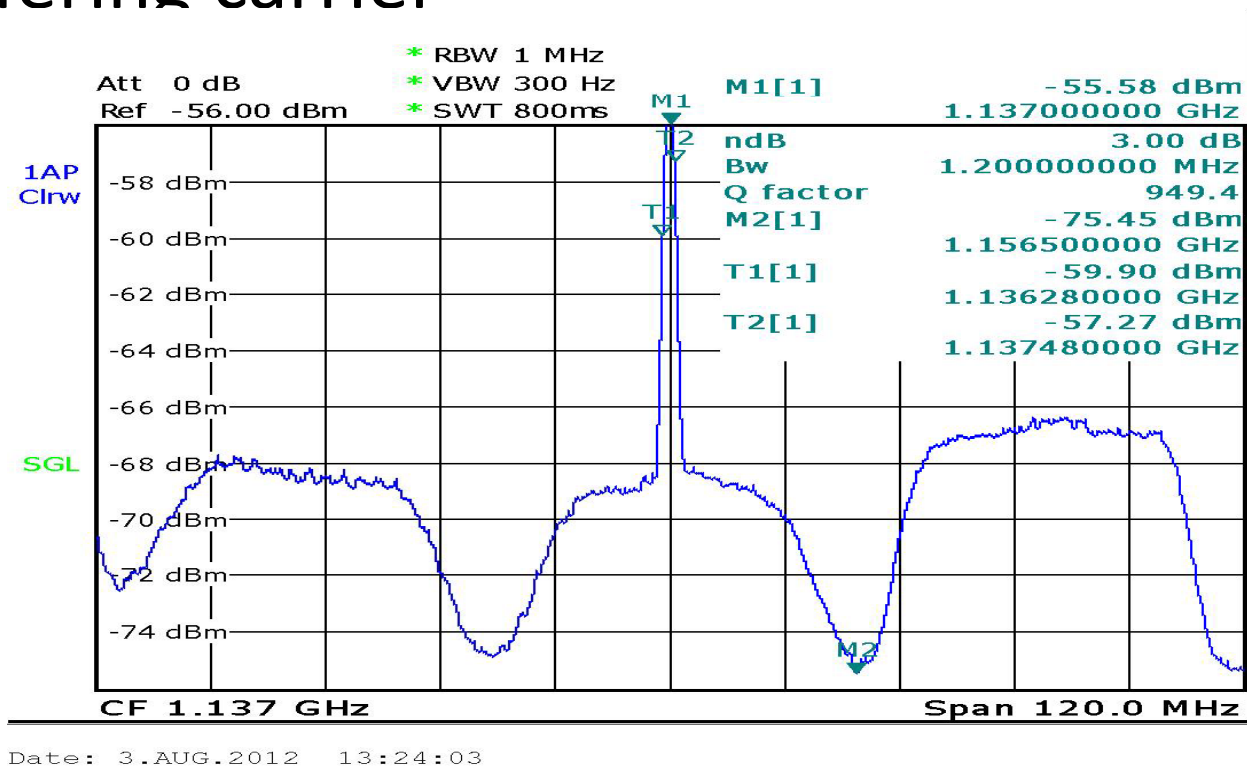
Table 1: Summary of letters on the claimed interferences, sent to the France/Eutelsat and to the BR

No.	Reference number of Iranian letter to ANFR and BR	Date of letters
1	104/3-70828	08 August 2009
2	104/3-70518	15 June 2009
3	104/71657	13 January 2010
4	104/71678	16 January 2010
5	104/71788	17 February 2010
6	104/71805	22 February 2010
7	104/70103	26 April 2010
8	104/70241	22 May 2010
10	104/70373	22 June 2010
11	104/70570	14 August 2010
12	104/71361	19 February 2011
13	104/71805	22 February 2010
14	104/71431	02 March 2011
15	104/70100	11 May 2011
16	104/3/70129	01 June 2011
17	104/3/70226	16 July 2011
18	104/3/70230	20 July 2011
19	104/3/ 70267	09 August 2011
20	104/3/70356	19 September 2011
21	104/3/70642	16 January 2012
22	104/3/70662	01 February 2012
23	104/3/70671	08 February 2012
24	104/3/70027	11 April 2012
25	104/70049	30 April 2012
26	104/3/70181	15 July 2012
27	104/70222	04 August 2012
28	104/3/70398	07 October 2012
29	104/3/70447	21 October 2012
30	104/3/70468	30 October 2012
31	104/3/70447	07 November 2012
32	104/3/70493	10 November 2012
33	104/3/70267	20 February 2013

Repetitive Other Cases

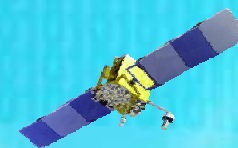


- IRIB bouquet on Hotbird , big detectable Interfering carrier





Some Statistics



DATE	GMT Start Time	GMT End Time	TEHRAN Start Time	TEHRAN End Time	Duration minutes
7 September 2012	10:05	11:03	14:35	15:27	52
7 September 2012	11:12	11:17	15:42	15:47	5
7 September 2012	11:19	11:21	15:49	15:51	2
7 September 2012	14:21	14:25	18:51	18:55	4
7 September 2012	15:07	15:13	19:37	19:43	6
7 September 2012	15:13	15:22	19:43	19:52	9
6 September 2012	10:05	10:10	14:35	14:40	5
6 September 2012	10:35	10:42	15:05	15:12	7
5 September 2012	10:47	10:52	15:17	15:22	5
25 sep 2012	10:11	10:58	13:41	13:28	47
28 sep 2012	10:05	10:20	13:35	13:50	15

Some Statistics and Conclusions



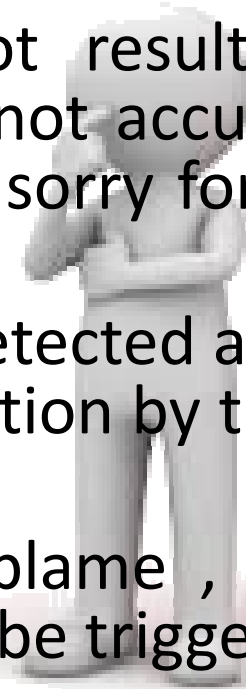
- everyday, same time: Program (content) oriented
- everyday, same time: deliberate
- Both short time , long time: Program (content) oriented
- The duration is long enough for any action and analysis (geo-locatable)

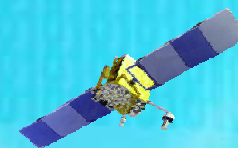
DATE	GMT Start TIME	GMT End TIME	Duration Minutes
16 Jan. 2012	10:14	10:20	6
16 Jan. 2012	10:20	10:30	10
16 Jan. 2012	13:40	13:45	5
17 Jan. 2012	10:00	11:00	60
18 Jan. 2012	10:00	11:00	60
19 Jan. 2012	10:20	10:50	30
20 Jan. 2012	10:00	11:00	60



Repetitive Other Cases

- No broadcaster has been dropped from satellite like IRIB
 - Cases Concluded by the operator:
 - a) Geo-location methods did not result in a source location as these methods are not accurate and can't reach to a result in most cases, sorry for the problem, your case is not detectable!
 - b) In few cases the sources were detected and eliminated, no need to name the Administration by the operator as the case is closed successfully!
- ITU action:** IRIB had no one to blame , so it can't fill Appendix 10 forms, nothing can be triggered in ITU!





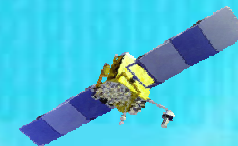
Repetitive Other Cases

- **Summary:**

IRIB was a victim of repetitive jamming cases from 2009 up to now, the jamming is still existing on some satellites and has resulted in a total channel removal by the operator to save the other channels on the same bouquet, but not a single case has been Geo-Located and announced to IRIB due to the imminent deficiencies of Geo-locating methods!

- **Main Question:** Are the Geo-location methods effective?
- **Answer:** The answer, at least for IRIB case is no!

Second Question

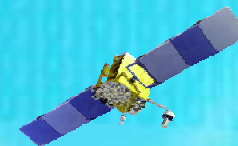


Second Question:

- Is this the same case for everybody?

- a) If you look into the documents sent to various organizations including ITU, you will see that the in many of them it is tried to accuse certain Administrations, contrary to the above-mentioned report, in these documents Geo-locating methods are no longer non-working and are technically reliable as they are referred to in ITU related handbook!

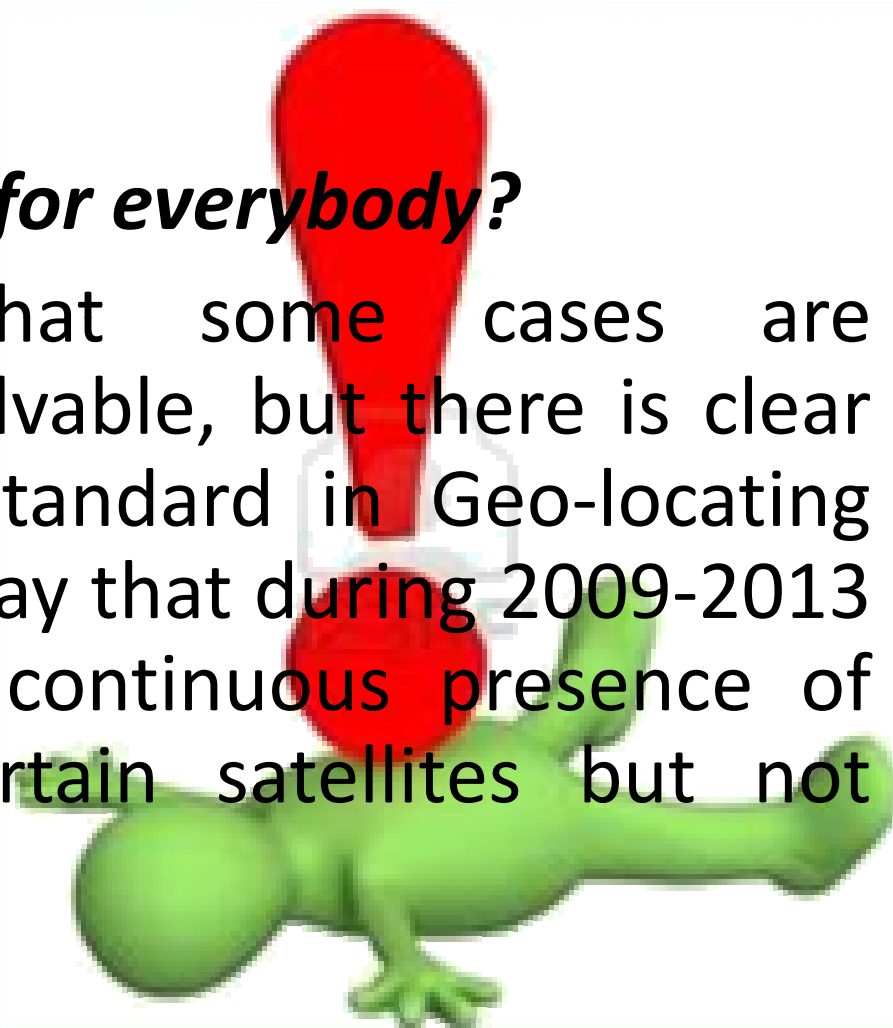
Second Question



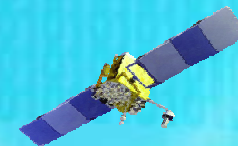
Second Question:

- Is this the same case for everybody?

b) Notwithstanding that some cases are technically not resolvable, but there is clear notion of double standard in Geo-locating issue! How can we say that during 2009-2013 period, there is a continuous presence of interference on certain satellites but not detected at all!



The Role of Content

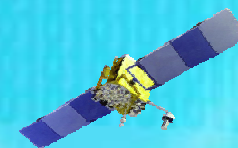


Interferences in most cases are content oriented

Reasons for using Interference for protesting the content:

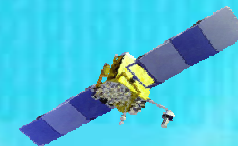
1. Hardliners misuse interference as their preferred method to protest the content. It is due to lack of an international independent authority who regulate content standards and to pursue objections about content related issues.
2. Interference could be an indirect consequence of this fact that, ITU declares itself as a technical entity that can't deal with non technical issues like content objection
3. Unfortunately there is no entity which can act on content issues under auspices of present international community.

The Role of Content



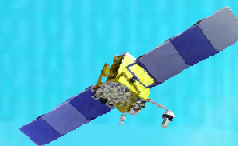
4. Satellite operators/providers include their domestic law(law of the country of their headquarter/residence)into the commercial contracts as governing law, so they impose their domestic law to their customers.
5. The result is:If you want to use my satellite communication facilities, you must obey the laws of my country particularly on the content regulation & standards , which varies from one country to another; otherwise provision of the satellite service to you will be switched off!
6. This is against the principles of equitable access of spectrum, freedom of speech, free fellow of information , extraterritorial application of national laws etc.
7. The international satellite operators/providers companies which are using common heritages of the spectrum and orbit resources, are forced to engage into political roles of the countries in which their headquarters/office of administration or land facilities are located.

The Role of Content



8. In absence of an international binding instrument on content requirements/standards, unresolved disputes on content standards will never end.
9. Few Administrations or Regional organizations that Satellite operators/providers companies are located under their jurisdiction, has entitled themselves eligible to globally monitor, judge and make decision on the content related issues exclusively based on their national/regional standards and requirements.
10. Regulation and content Requirements/Standards of the countries of under footprint of reception is ignored by either law of the countries owning the satellite and/or countries, which have jurisdiction over satellite operators/providers companies.
11. In this situation, principles of impartiality, non-discriminatory and secured continuity and access to satellite communication services by satellite operators/providers are threatened.

The Role of Content



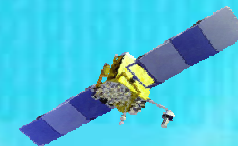
Summary:

The above-mentioned issues are the roots of the challenges of the 21st century in the world satellite communication

What shall we do?

- a) Inference is a global challenge/problem. All the globe are affected by inference. Victims of inference are not limited to satellite communication companies or service providers.
- b) Combating with the inference must be non-discriminatory, non-selective ; and political wills and interests should not be intervened in this fights.
- c) Access to Geo-locate services and all other technical facilities/equipments should be provided and guaranteed for all countries. Otherwise, all countries would not be able to assist during identification of inference sources.
- d) Satellite communication service companies, service providers/operators should be obliged to detect source of inference and inform details to ITU, beneficiaries who are affected by inference and their Administration. They should act professionally, non-discriminatory and be impartial.

The Role of Content



Summary:

The above-mentioned issues are the roots of the challenges of the 21st century in the world satellite communication

What shall we do?

- e) There is a need to urge Administrations to use their utmost efforts to stop the current double standard behavior of satellite operators against the interference phenomena which will certainly lead to intensification of the present situation.
- f) To resolve the content related issues and disparities, adoption of an international binding instrument should be sought. To adopt this new binding international instrument; existing UN resolutions and other conventions already adopted in UN and its subsidiaries should be taken into account. The moral, cultural values, believes of nations particularly countries of reception should be respected.
- g) This can stop certain people from judging and acting against programs which are not in line with their will.