SATELLITE JAMMING IN IRAN: A WAR OVER AIRWAVES

A Small Media report revealing the importance of satellite television in Iran and explaining how the authorities are limiting access to it.
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Satellite Jamming in Iran: A War Over Airwaves
Satellite jamming is a problematic and pervasive reality in Iran, a country where, for the vast majority of inhabitants, satellite television is the only access point to information and entertainment not regulated by the authorities.

“Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.”

Article 19 of the Universal Declaration of Human Rights.
There are at least 120 Persian-language satellite TV channels broadcasting into Iran from the diaspora, incomparable with the use of satellite TV in any other diasporic community in the world. For the Iranian government, these channels are ‘proof’ of the West’s engagement in a soft war against their rule. Satellite jamming is a key point of contention, not only between Iran and international broadcasting authorities, but also within Iran’s ruling establishment. Although Iranian officials have not assumed responsibility for satellite jamming, this report provides evidence showing that they are, at the very least, complicit in such actions.

In this report, we outline the importance of satellite technology in Iran through first-hand testimony and reveal how provocative these broadcasts from abroad are for the Iranian government. This report breaks down the discussion on satellite jamming and its effects into eight sections, answering the following questions:

- Why is satellite technology important in the Islamic Republic of Iran?
- How long has jamming been occurring?
- When, how and where does jamming take place? How much does it cost?
- What laws affect satellite broadcasting and the ownership of satellite technology in Iran?
- How do broadcasters and viewers feel about jamming?
- Does satellite jamming have medical side effects?
- How has the international community responded? And what is the role of satellite providers?
- What can be done to stop jamming or minimise its effects in the future?
Throughout this report, we emphasise the issues raised by those who have been directly affected by satellite jamming or are directly involved in the fight for freedom of information. Small Media conducted numerous interviews and solicited responses from a number of Internet forums in order to obtain the information presented here.

Through a case study of Iran and a discussion on how jamming affects a geographically specific group of people, this report represents a unique contribution to the field of knowledge on satellite jamming.

Satellite jamming is a form of censorship akin to Internet censorship, whereby the Iranian government prohibits access to and inhibits the free flow of information. Referred to as ‘intentional interference’ in technical literature, satellite jamming is a violation of Article 15 of the Radio Regulations of the International Telecommunications Union.

Small Media believes that satellite jamming should receive a similar level of attention as the issue of Internet censorship in Iran, and we hope that advocates and policy-makers will pick up the issues discussed and the recommendations made here in their push towards a more free and open flow of information.
Satellite Jamming in Iran: A War Over Airwaves
INTRODUCTION
In 2011, the International Campaign for Human Rights in Iran, Small Media, and international satellite broadcasters met to consult about the ongoing, persistent and repressive jamming of Persian-language satellite channels, which had been localised and found to be originating from inside Iran’s borders.

This report provides a point of continuation for the issues raised during these consultations, bringing them into the public sphere and seeking support in developing a public protest against satellite jamming in Iran. With this report, Small Media intends to: demonstrate the importance of satellite television as a tool for the promotion of democracy, free speech and freedom of information in the context of Iran; examine how disruptive satellite jamming has been; discuss how and why the Iranian government engages in satellite jamming; and make recommendations for the prevention of frequency jamming in the future.

The jamming of Persian-language satellite channels has been ongoing since 2003. Infrequent bouts of pressure from the international community have achieved limited success. Alongside international organisations like the International Union (ITU), the governments of the UK, US, France and the European Union have condemned the Iranian government for not acting on the issue of satellite jamming. Despite these condemnations, the jamming of satellite TV channels has continued. At the time of publishing, the sudden devaluation of the Iranian Rial in October 2012 had spurred another intense period of jamming, with the broadcasts of both BBC and the VOA being disrupted.
As a result of increasing pressure from the international sanctions imposed on Iran, Eutelsat dropped 19 state-owned Iranian channels from its Hotbird satellite in October 2012. Intelsat has reportedly followed suit. These decisions will have a significant impact on the ability of the Iranian government to broadcast its channels internationally. However, it is highly unlikely that these moves will result in the reduction of incidences of jamming; such moves could provoke an increase of jamming in retaliation, which would further isolate the Iranian people.
Satellite Jamming in Iran: A War Over Airwaves
WHAT IS THE IMPORTANCE OF SATELLITE TELEVISION IN THE ISLAMIC REPUBLIC OF IRAN?

// This section outlines why satellite television is so vital for both the authorities and citizens of Iran. Here, we explain why the Iranian authorities have such contempt for satellite channels broadcast from abroad and we highlight some of the key statements issued about this medium. We also describe why satellite television, one of the few points of access to uncensored information, is so important for the Iranian public.
In a closed society like Iran, where the government maintains a tight grip over the media and all modes of communication, satellite television broadcasts from outside the country carry particular significance for both the authorities and the Iranian public. The Iranian government sees satellite channels as a Western front in the ‘soft war’ being waged against their rule, a ‘weapon’ intent on undermining the country’s religious and cultural beliefs. Steven Barraclough writes,

As described by Ayatollah Khamenei, the country’s constitutional leader, Iranian broadcasting ... is ‘the mouthpiece of the Islamic system’. Its duty is to stand at the ‘forefront’ against ‘a well-organised and obvious offensive [which] has been launched by [the] enemies of Islam against divine principles with an aim of promoting secularism, undisciplined behavior and corruption among the people’.

In an interview with the conservative news agency Alef News in 2011, the Head of Iran’s National Security Forces Esmaeil Ahmadi Moghadam reinforced this point with specific reference to Voice of America and the BBC:

VOA and the BBC are the intelligence arms of America and the CIA ... collaborating with these channels is not just cooperating with a media organisation, it is working in cooperation with the intelligence services of the enemy and any cooperation with them will be monitored by the Ministry of Intelligence and the National Security Forces of Iran.

Conversely, many Iranians see these channels as means of entertainment, a place to acquire new information and keep up-to-date with the world. In a socio-political context where all officially sanctioned television is produced by the government and thus keeps in lockstep with their worldview, many Iranian viewers are eager for variety.
In an article for the online magazine *The Power of Culture*, photojournalist and blogger Kamran Ashtari argued,

*People want contact with the outside world, want to hear world news, want to watch films. Not only America’s latest hits and French classics, but also uncensored Iranian films. Not only because they are fed up with censorship and propaganda: the state television is really very boring.*

This is why, despite tough talk and legislation, satellite dishes continue to proliferate across Iranian cities, urban areas, and villages. Although Iranian officials claim to have attracted the majority of the country’s viewers to state TV and radio programmes, they also admit that Persian channels broadcasting from abroad have become challenging competition. A recent poll, undertaken by Iran’s state media, revealed that 50% of the population own satellite dishes and the average household spends 125 minutes a day watching satellite broadcasts. Farid Haerinejad, Radio Zamaneh’s editor-in-chief at the time of interview, advised Small Media,

*Satellite broadcasting is very important in the Iranian context. The general Iranian audience is still more comfortable receiving information distributed through classic mediums such as TV and Radio. The World Wide Web, because of heavy filtering, is largely inaccessible to those who cannot or do not know how to bypass the filtering. Those who can’t circumvent the government’s censorship are typically middle-aged and elderly Iranians … TV and radio are still very popular and people can access broadcast signals even in remote areas via a satellite dish. When the Iranian government attacks and jams satellite signals, this crucial medium of connection is lost.*
Leticia King, Director of Public Affairs at the Broadcasting Board of Governors, reinforced this point:

Our research shows that television viewing is ubiquitous in Iran. More than 98% of Iranians watch television weekly. More than a quarter of the population (26.4%) say they have access to a satellite dish at home and more than 32% of Iranians say they’ve watched satellite TV in the past week.5

Conservative media also regularly deride satellite channels in their reporting, and the police and security forces routinely confiscate satellite dishes from private residences. However, while the situation is notably severe, it is important to keep in mind that the restrictions placed on people in Iran are constantly in flux depending on the political situation. In May 2010, less than a year after the disputed presidential elections and the resultant establishment of the Green Movement,6 Mohammad Esmaeil Kowsari, a member of the Parliament National Security Commission, publicly praised the act of satellite jamming, as he considered it a representation of the power and capability of the Iranian state:

Satellite [technology], by its very nature, is a great tool for communication, but only if it is utilised with an appropriate aim and for collecting information. If the ‘master of all satellite channels’ uses satellite to destroy other nations, promote immorality in societies, and feed the youth of a nation with information that makes them forget their identity and roots, I have to confess that satellite’s disadvantages are more than its advantages. … We should not look at satellite jamming as a negative phenomenon. In my belief, jamming is a power in our hands … We do not have any problem with the scientific shows, but if a satellite channel increases insecurity within Iran, then we will use all our power, including the use of satellite jamming, to stop such channels from making our youngsters immoral.7
In contrast, on 24 May 2010 at the Expediency and Discernment Council’s conference “Reviewing and Revealing the Hidden Targets of Persian Satellite Channels” on 24 May 2010, Sadegh Ziba Kalam posited that the governmental problem with Persian-language satellite channels is a semantic one:

The problem originates from the word ‘enemy’, which is what we call satellite channels such as BBC and VOA. This mentality comes from a historical, ideological and political opinion rooted in conspiracy theory. We have to ask ourselves, are the BBC or VOA really affecting events or are they actually reporting the real happenings in Iran … Looking only at the political effects of these satellite channels stops us from seeing their social and cultural importance. This is why Seda va Sima [IRIB] is less successful in attracting viewers than these satellite channels.8

Sadegh Ziba Kalam is a liberal academic and supporter of former president Hashemi Rafsanjani.
Satellite Jamming in Iran: A War Over Airwaves
HISTORICAL OVERVIEW OF SATELLITE JAMMING

// In this section, we provide a historical perspective on satellite jamming within the Iranian context. This historical account is followed by a brief explanation of the state monopoly over all types of telecommunications, even within the framework of professed privatisation.
Satellite Jamming in Iran: A War Over Airwaves

Satellite jamming is referred to as ‘intentional interference’ in technical literature. The first frequency jamming attacks on Persian-language satellite channels occurred in 2003. Telecommunications engineer and satellite jamming expert Mahmoud Tadjallimehr advised Small Media that the source of this jamming was traced to Havana, Cuba, and that the rogue frequencies were aimed at the Telstar 12 satellite, which was broadcasting Persian-language television programming from California:

Although jamming from Cuban soil eventually ceased, similar activity from Bulgaria and then Libya started in 2005/2006. International pressure eventually brought this to a halt and satellite jamming against Persian-language programming now emanates exclusively from Iranian territory. Experts argue that Iran used other geographic locations as the base for early instances of jamming for technical reasons. For example, the Telstar 12 satellite, which was initially jammed from Cuba, is very difficult to reach from Iranian territory.

Satellite jamming helps the Iranian government maintain a stranglehold over the flow of information and communication inside the country. Article 44 of the Iranian Constitution states that while the Islamic Republic of Iran is to consist of three sectors – state, cooperative and private – radio, television, post, telegraph and telephone services shall be owned and administered by the state.
In recent years there has been a shift towards the privatisation of certain aspects of the communications industry, but the Iranian government retains a near complete monopoly. In Persian, the specific word used to describe this façade of privatisation is khoosoolati, which is a portmanteau of the words khoosoosi (private) and dowlati (governmental).

Ali Akbar Mousavi Khoeini, a former Iranian MP who served as the Deputy Head of the Parliamentary Telecommunications Committee, advised Small Media,

We see that they [the Iranian government] are extremely innovative when it comes to retaining their monopoly over the telecommunications industry. They use companies that are related to Sepah or the Ministry of Intelligence. The government does not own these companies but they [the companies] support the governmental organisations and ideology … and when a company has the support of the military its power is immense. The small companies operating in this market simply cannot compete with these huge companies.

In addition, the Iranian authorities are vested with the power to appoint the head of radio and television. Article 175 of the Iranian constitution declares, “The freedom of expression and dissemination of thoughts in the Radio and Television of the Islamic Republic of Iran must be guaranteed in keeping with the Islamic criteria and the best interests of the country”. Introductory phrases accompanying the constitution state,

The mass-communication media, radio and television, must serve the diffusion of Islamic culture in pursuit of the evolutionary course of the Islamic Revolution. To this end, the media should be used as a forum for healthy encounter of different ideas, but they must strictly refrain from diffusion and propagation of destructive and anti-Islamic practices.
Satellite Jamming in Iran: A War Over Airwaves
What is satellite jamming, how does it work, how much does it cost?

This section gives a brief overview of the technical aspects of satellite jamming, explaining the difference between ‘orbital’ jamming and the more localised and targeted ‘terrestrial’ jamming. This section also demonstrates how easy and inexpensive it is to acquire satellite jamming equipment.
Satellite Jamming in Iran: A War Over Airwaves
Satellite jamming is a tool used to censor free speech and prohibit access to information. The term ‘satellite jamming’ refers to instances of deliberate interference for the express purpose of preventing access to specific content. The equipment required for frequency jamming is standard and easy to acquire, albeit relatively expensive to rollout and maintain on a large scale.

Of the two forms of satellite jamming, ‘orbital’ and ‘terrestrial’, both are frequently used in Iran to prevent access to specific Persian-language news, information and entertainment channels broadcast on satellite radio and television from abroad. Interference is targeted and schematic. Mr Tadjallimehr continued,

_They always claim to try to block frequencies for cultural reasons, to protect the people from the western cultural invasion and so on. But the evidence shows that they are jamming political and informational channels._

"
Satellite Jamming in Iran: A War Over Airwaves

What is satellite jamming, how does it work, how much does it cost?

**ORBITAL JAMMING**

// Orbital jamming involves the perpetrator beaming contradictory signals directly towards a satellite via a rogue uplink station. When these jamming signals are sent, frequencies become mixed with each other and the targeted channel’s feed is completely overridden for everyone, everywhere. In addition, as satellite capacity operates in groups of channels, when one channel is jammed, all others in the same group are also affected. As Mahmoud Tadjallimehr explained, “Orbital jamming causes censorship not only to the receivers in Iran, but everywhere … Orbital jamming is global censorship.”

Satellites receive information for broadcast from uplink stations owned by television stations or networks and then redistribute these across a ‘footprint’ of satellite dishes on the ground.

The geographical scope of a satellite’s footprint depends on its position in the sky.

A satellite’s footprint can cover multiple continents. If a frequency on one of these satellites experiences orbital jamming, then that frequency is disrupted for all viewers, not just those who live near where the jamming originates. For example, if BBC Persian suffers an orbital jamming attack, access for European viewers tuned into the same frequency from the same satellite will also be disrupted. In addition, bandwidths are divided into frequencies, and because each analogue frequency can host a handful of digital channels, neighbouring channels can also be affected by jamming.
Rogue Uplink Station In Iran

Satellite

Foreign Broadcasting Station

Broadcaster Frequency

Jamming Frequency

Jammed TV Signal

Rogue Uplink Station In Iran
Satellite Jamming in Iran: A War Over Airwaves

TERRESTRIAL JAMMING

Terrestrial jamming takes place in a specific location and involves equipment that is easy to purchase, use and conceal. Rather than targeting the satellite itself, as is the case in orbital jamming, terrestrial jamming involves transmitting rogue frequencies in the direction of local consumer-level satellite dishes. The contradictory frequencies are area-specific, interfering only with the frequency emanating from the satellite in a specific location. Small, portable terrestrial jammers have a range of 3-5 kilometres in urban, built-up areas. In rural areas, their range can increase to up to 20 kilometres.

Terrestrial jammers can also interfere with radio frequencies, potentially compromising radio communications between the police, hospitals and the military. Hence, terrestrial jamming tends to take place in the evenings, when prime-time television is aired, and the most viewers are tuned in. Most consumers are unaware of whether they are experiencing terrestrial or orbital jamming. As Tadjallimehr explained,

It is important to note that for terrestrial jamming to work, the source of the jamming must be more powerful than the sent frequencies.

BBC and VOA were sometimes completely jammed for long periods of time, and sometimes even Farsi 1, the entertainment channel, was jammed. But, as a consumer in Iran, you cannot tell whether you are unable to watch a channel because it is terrestrially jammed or because it is orbitally jammed. The end result is the same.
In Persian, the word for jamming is ‘Parazit’, which is also the word for parasite. Portable terrestrial jammers have a range of 3-5 kilometres in urban areas and can be concealed on buildings or mobilised on vehicles.
Satellite Jamming in Iran: A War Over Airwaves

HOW EASY IS IT TO JAM A FREQUENCY?

From a technological perspective, satellite jamming is easy. In 2003, Iran jammed satellite frequencies from Cuba because they couldn’t reach the satellite from Iran at that time. Now they can reach it from the western part of Iran. It is easy, it’s not that expensive. It is not that complicated, and it uses standard equipment.14

Iran now has the technical capability to jam satellite frequencies from within the country, using equipment based either in the west of Iran or in Iraqi Kurdistan. The technology required for satellite jamming is fairly standard. For example, Iran’s banks, as well as many other industries in the country, use ‘send and receive’ satellite technology, which costs between 20,000-50,000 USD, for their communications infrastructure. This technology operates well across Iran’s rugged and vast terrain because it does not rely on cabled networks. Thus, the technology required to undertake orbital jamming from within Iran’s borders is ubiquitous.

In an effort to test how easy it would be to obtain the equipment necessary to undertake terrestrial jamming in Iran, Small Media approached Wonderland Technology Co., Ltd. (WLT) and requested a price quote for both the equipment and delivery to Iran. For a compact, well-disguised, and weather-proof antenna that creates frozen video, mosaics or noise on the receiver’s screen over a radius of 5km, WLT quoted 6,500 USD, advising Small Media that a significant discount would apply if we were to purchase more jammers.
When asked how difficult it would be to operate the unit, WLT replied,

It is very easy to operate the jammer. You just need to mount the jammer on the top of the building and then connect to a 220V 50Hz power supply. It will work. Usually it can jam 3-5km, but in an open area it will jam much further (more than 20km). So when we decide how many jammers we will use, it is up to how big of an area it is.\textsuperscript{15}

\hspace{1em} Mousavi Khoeini stated that undertaking a comprehensive satellite jamming programme is both risky and expensive. He also advised Small Media that the Iranian Telecommunications Ministry is not liable for frequency jamming. The issue of satellite jamming was discussed in the 6th Iranian Parliament, as it is unlawful to jam frequencies and the government needed to address the issue. However, this discussion seems to be little more than a face saving exercise. As Khoeini stated,

\hspace{1em} You need to have a direct line of sight to people’s houses and you need to do this in all of the big cities with big populations ... but for the Iranian regime, which prioritises withholding information from its people, it is possible to use the revenue from oil sales to do so. We’ve observed satellite jamming inside Iran. We know the locations and have found that military powers are directly involved.\textsuperscript{16}
Satellite Jamming in Iran:
A War Over Airwaves
SATELLITE OWNERSHIP AND JAMMING LEGISLATION IN THE ISLAMIC REPUBLIC OF IRAN

This section outlines legislation that bans the private ownership of satellite dishes in the Islamic Republic of Iran. By looking at the current legislation through a historical lens, this section also shows how this particular piece of legislation has been a site for contestation between conservatives and reformists for almost 20 years.
On 4 March 2011 Mardomak published an article delineating the long-standing legislation that renders the private ownership of satellite dishes illegal in the Islamic Republic. However, despite their illegality, privately owned satellite dishes are prevalent across Iran.

The legislation banning private ownership of satellite technology came into effect in 1994. The key clauses of the legislation are as follows:

- Article 2 states that the Interior Ministry is responsible for collaborating with the police and basij forces to confiscate satellite equipment;
- Article 8 stipulates that importers and distributors of this equipment will be fined between 10,000,000,000 IRR (£561-£5,610);
- Article 9 specifies that persons caught using this equipment will be fined between 1,000,000 IRR (£60-£180);
- Article 10 states that the Ministry of Culture and Islamic Guidance is responsible for collaborating with the Ministry of Post and Telecommunications and other related organisations in order to keep the country safe from ‘cultural attacks’ emanating from satellites.

Although the Iranian government has banned domestic use of satellite dishes, it develops its own programming for broadcast via satellite. Press TV, which has been steeped in controversy since airing the forced confessions of Maziar Bahari and other prominent journalists, is owned by the Iranian authorities. The push to develop more satellite television channels for domestic and international consumption even further highlights this inconsistency in policy.
In 2010 Ayatollah Naser Makarem Shirazi stated,

**Zionists have monopolised the media industry and promoted immorality in the world. Therefore, we need to attempt to compete with them inside and outside Iran, as many Iranians follow this mainstream media via satellite and are getting brainwashed. Hawza [conservative news agency] has to increase its media activities by establishing satellite television stations.**

From the outset, the legislation banning private ownership of satellite dishes has highlighted divisions within Iran’s ruling establishment. As Steve Barraclough noted in his study on the prohibition of satellite television in Iran,

*The controversy [around whether or not to ban satellite dishes] quickly became an expression of the rivalry between Iran’s two main factions, with the conservatives demanding a ban, and the moderates arguing for the dish’s legality. Even the leaders of both tendencies entered the debate, albeit tentatively, with President Rafsanjani emphasizing that the appropriate response to the growth of satellites was a renewed effort on the part of the government’s cultural agencies to promote Islamic values. Conversely, Ayatollah Khamenei stressed the need to resist the ‘prospect of whole nations’ mentalities and attitudes being shaped by a few broadcasting centres’.*

This debate has continued, and the lines separating the reformists from the conservatives on this particular issue have only been further reinforced. For example, in 2001 the reformists sitting in the 6th Majles (Parliament) pushed for legislation allowing a more general opening up of the media atmosphere and for the controlled use of satellite dishes.
The proposed amendment would have authorised any “real and legal” entity with proof of a “reasonable purpose” for owning a satellite dish to do so, with the expressed intent of cutting down on residents’ illegal activities. However, within the context of this proposed law, “reasonable purposes” was not defined. The term itself, and thus the application of the law, was open to interpretation. In the end, the Guardian Council rejected the proposed amendment.

The 7th Majles also debated the issue of satellite dishes, this time with MP arguments taking a slightly different tone. Pragmatic conservatives proposed establishing government-approved local cable providers, thus allowing citizens to watch “appropriate channels and programmes”. The Majles rejected this proposal and, in response, the head of the Islamic Republic of Iran Broadcasting (IRIB) started promoting a new satellite receiver, which would only receive channels approved by the government.
Satellite Jamming in Iran: A War Over Airwaves
HOW DISRUPTIVE IS SATELLITE JAMMING FOR BROADCASTERS AND AUDIENCES?

In this section, we outline the knock-on effects of satellite jamming for broadcasters and viewers alike. Questions about the financial and logistical impacts of jamming for 4 major Persian-language broadcasters – BBC Persian TV, VOA Persian News Network, Rangarang and Radio Zamaneh – are answered here, followed by a collection of reactions from viewers. Information on broadcasters was gathered via interview and viewer reactions were collated from social media.
In this section we present case studies of a representative selection of high profile Persian-language broadcasters targeting audiences inside Iran and providing diverse content including entertainment, news and politics. Some of these are owned or supported by foreign governments and some are privately owned. All broadcasters surveyed here have experienced satellite jamming and spoke in interviews with us of the resultant financial, logistical and human costs.

**BBC Persian TV**

BBC Persian Television was launched on 14 January 2009 and airs programmes covering a variety of subjects: current affairs, documentaries, culture, science, business, arts and entertainment. The service is aimed at Persian speakers not only in Iran, but also Afghanistan, Uzbekistan, and Tajikistan.

BBC Persian has been jammed numerous times since its inception, as the channel occupies a central position in the government’s rhetoric about a covert ‘soft-war’. Small Media conducted an interview with Nigel Fry, BBC Global News’ Head of Distribution, asking about instances of jamming and how the BBC has coped. Fry stated: “*Jamming tends to occur for programmes where viewers’ opinions on a particular matter are taken up by BBC, and also when the programmes are open to viewer comments.*”²²
Fry explained that the BBC has a monitoring system, which detects orbital jamming. However, in cases of terrestrial jamming, the BBC is only aware if their viewers inform them. Fry also emphasised the costs incurred by jamming:

*It is quite costly in terms of people’s time and efforts to deal with the jamming and the effects of jamming. Originally, the operational staff had to be focused on working with the satellite company to mitigate the effects. Now, there are the people who are employed by the company to do this, so it is not additional work for them [the operational staff]. But, if the jamming continues or the channel needs to be taken off the air for this reason, then my colleagues and I have to work intensely with satellite operators and service providers to see what we can do to re-establish that [the service]. So, it is taking a lot of time and effort.*

BBC Persian has worked to raise awareness around the issue of satellite jamming at the international level, and was a part of the push to change the regulations at the International Telecommunications Union (discussed below). Nigel Fry also spoke with Small Media about what BBC Persian is trying to do to secure their future:

*We are continuing to work with interested parties on what can be done to counter jamming. Nothing can be done to actually stop the jamming, so we know that changes to regulations will only have limited effect. But, there are technologies available that can counter jamming to some extent. Coming out of the ITU [February 2012], we announced that we are focusing ourselves on how we can go forward ... whether they [the media industry] are able to bring new technology to satellites and receivers that will make it more difficult for jamming to happen.*
VOICE OF AMERICA PERSIAN NEWS NETWORK (VOAPNN)

VOAPNN is the Persian-language broadcast of the Voice of America, the official external broadcast institution of the US federal government. VOA’s radio broadcasts to Iran began in the early 1940’s, and it has had a sustained presence ever since, with a few intermittent breaks. VOA’s service was originally called Farsi Service, but changed its name and scope to PNN in 2001. VOAPNN broadcasts 24 hours a day through television, radio and the Internet. According to the US State Department, “[VOAPNN] has the largest combined radio and television audience of all international broadcasters to Iran.”

VOAPNN has been subject to numerous instances of jamming, as they too are accused of participating in the ‘soft-war’ against the Iranian government. In a personal exchange between Small Media and the VOA, the Director of Public Affairs at the Broadcasting Board of Governors, Letitia King, stated,

In human terms, we recognize the media environment in Iran is not free. Our audience values the reliable news and information that we provide to such a degree that they are willing to violate the prohibition against having a dish and use web censorship circumvention tools in order to access our content online.

In terms of transmissions, we face an ongoing game of cat and mouse where we seek alternatives and try to react or counteract jamming of our signals. The most recent jamming has intermittently disrupted satellite signals across Europe and the Middle East. When you consider the time spent on finding other options, contacting audiences and affiliates, the potential loss of audiences not just in Iran, but other markets that depend on those satellites for content from VOA and other BBG networks, the costs are considerable.
King further explained what VOA is doing to counteract jamming: “We are working in partnership with other international broadcasters to raise awareness of the problem of jamming and condemn the violation of international regulations.”

**RADIO ZAMANEH**
Radio Zamaneh, a radio station broadcasting original Persian content, began satellite broadcasting in September 2006. In 2009, the Iranian government blacklisted Zamaneh for allegedly stoking the unrest that followed the disputed presidential elections. Zamaneh has also experienced a great deal of satellite jamming. In an interview with Small Media, Radio Zamaneh’s Farid Haerinejad issued an official statement about satellite jamming:

When we were first jammed, the content that was broadcasting was mostly related to the crackdown on protesters, news and reports on human rights abuses, the arrests of key political players, the killings of civilians, news relating to the Green Movement, political statements, etc … This was a critical time for broadcasting … Because the opposition movement lacked media support inside Iran, dissident networks like RZ were among a handful of progressive media outlets that were covering news and analysis surrounding the post-election events. RZ was jammed for 6 months, off and on. Also, on critical dates when protests were expected to take place after that initial 6-month period, the government attempted to jam the new frequencies we had adopted in order to bypass the initial jamming. This jamming affected all media outlets broadcasting via satellite.
Along with the associated financial consequences, Radio Zamaneh’s ability to reach its audience has been severely affected by jamming. Haerinejad stated,

"We’ve changed our frequency more than twice and we had to change our broadcasting frequency permanently not too long ago ... The jamming of our signals interferes severely with our ability to reach our target audience ... From the number of phone calls and emails we receive from our audience in Iran when jamming takes place, we’ve realised just how severe the jamming has been, and how widespread. Changing frequency costs a great deal of money but it is especially costly in terms of associated damages. We lose a great number of our audience each time we change frequency. In addition, our ability to reach our audience to inform them of frequency changes is hindered."

Radio Zamaneh argues that, as a small organisation, there is little it can do to counter satellite jamming; Zamaneh’s only option is to change frequency, which is costly and has limited effectiveness. Zamaneh needs support from policy makers, researchers, technology experts, and the international community to apply pressure to the Iranian government. Haerinejad continued,

"The research and development of technologies to bypass jamming can certainly help. We do not have enough funding to invest in such research and in anti-jamming technical capabilities. If the jamming keeps occurring, then even changing our frequency will be useless. International pressure, bargaining for technological embargos on Iran, diplomatic pressure, subsidizing satellite broadcasting services for Iranian dissident groups and asking providers for more cooperation in an event of signal filtering, investing in research and development of alternative methods of satellite broadcasting that cannot be jammed and retaliating mechanisms of jamming Iranian state controlled satellite broadcasting in return can help our plight."
Established in 1989 and famous for its call-in shows, Rangarang is one of the longest running Persian satellite channels. Rangarang offers 24-hour Persian programming, focusing mainly on news and politics, to the more than 80 million Persian speaking people living in its coverage area, which spans North America, Europe and the Middle East.

Rangarang’s provider Milano Teleport has verified that Rangarang has been jammed at least three times over the past two years. These incidences of jamming have had a huge impact on Rangarang’s ability to operate. In an interview with Small Media, channel director Davar Veiseh explained,

Relocation to another satellite is not a practical solution, as doing so “engenders the loss of a vast majority of the viewers.” In addition, frequency jamming has a knock-on economic effect; a decrease in audience size results in fewer contributors, sponsors and advertisers. In Rangarang’s case, frequency jamming causes as much as $250,000 worth of damage annually, excluding the hidden costs involved in staff time being diverted to manage service resumption.

Satellite jamming frustrates viewers and broadcasters alike. On average, Rangarang’s call-in shows receive more than 600 calls per day. Veiseh said, “In Rangarang’s case, viewer frustration manifests in phone calls from viewers who can no longer acquire the channel’s downlink. They want to know how they can continue to watch.”
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VIEWERS

// Entertainment network Manoto agreed to post a specific question about jamming to their Internet forum, which has more than 130,000 registered users, in order to help us gauge how viewers feel when it occurs. 54 forum users responded via their website. In addition, on 3 May 2011, BBC Persian published a brief comment about the banning of satellite dishes in Iran, asking for feedback. Below is a selection of comments from these two forums, which illustrate the frustrations caused by satellite jamming and show the large amount of speculation about why, how and at the hands of whom jamming is occurring.

One Manoto viewer, based in central Tehran and going by the handle Arian 1984, hypothesised as to why some channels get jammed and others remain untouched:

I don’t think it’s important whether the channel is showing a political show. What matters is whether or not these satellite channels talk about the Supreme Leader. This is the red line. When debates about the Supreme Leader are shown on a satellite channel, that is when the jamming begins. This is the consequence of our own mistakes, and, apparently, the price we must pay for attaining democracy.32

Viewer Irani – from Saari, the largest city in the Mazandaran province – thought Manoto was being jammed because of the 9th Parliamentary election (March 2012), and hoped that a ‘normal’ service would resume afterwards:

We experienced jamming a few days before the parliamentary election on all three satellites, and thought that this was due to the election and would end afterwards. However, we are still experiencing satellite jamming even though the election is over.
In response to a question about specific shows it was thought triggered jamming, Fable God Father replied, “These days, I experience jamming mostly when news or political shows are on. I think whoever is doing this jamming is afraid of people freely obtaining information and knowledge. I have no feelings anymore; I am numb.”

Some viewers expressed feelings of desperation, and posited ways that broadcasters could avoid being jammed, going so far as to recommend that broadcasters air pro-government shows. For example, K1.gh said, “If you show 2 or 3 programmes in favour of the regime during the day, then the problem of jamming will be solved.”

With regards to private ownership of satellite dishes, viewer Azadey, who claimed to be a satellite installer, highlighted the hypocrisy of confiscating satellite equipment:

Whatever they [the government] say is harmful to the society appears to not be harmful for them and their families. They all have satellite dishes in their houses, yet they think it is not appropriate for people to have this equipment … without satellite dishes, the situation would be disastrous for the people of Iran.

Other viewers expressed anger towards the government, and thought that the continuation of these practices was only fuelling this anger amongst the Iranian people. Soheila T stated, “All these attempts by the authorities to restrict broadcasting will only add to the hatred people have towards the regime; it will actually contribute to their overthrow.”
Some viewers responded to the recent regulation imposed by the ITU (discussed below), but had little hope that it would have any effect on their situation. Shervin.mm, for example, said, “It is not believable that the IR will let information circulate freely and openly. If they did so, then a lot of information about their corruption would be unearthed.” Yaar Dabestani agreed with Shervin.mm, echoing the sentiments of Soheila T:

There are many international regulations upon which the Iranian government is obliged to act, but, in reality, they do not act according [to their international obligations]. All of this censoring and jamming is because the regime is afraid. There is no way the Islamic Republic will allow any small opportunity for freedom of information in Iran! The regime’s only supporters are those who are fanatical and praise the dictatorship. The regime knows that if they allow society to open up, it will eventually lead to their overthrow.
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Without definitive proof, many claim that satellite jamming is having adverse medical effects on the Iranian people. As the Iranian authorities have never divulged the exact strength of the frequencies used to jam signals, there is no way to answer whether such claims have any factual basis. In this section, we present claims both for and against, and explain why finding an answer is so difficult.
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As orbital jamming involves interfering directly with the satellite in space, terrestrial jamming would be the only interference that could have potential health effects, as it involves sending frequencies to earth-based targets.

In an effort to understand the possible risks to Iran’s population from terrestrial jamming, Small Media contacted the World Health Organisation (WHO), the International Committee on Non-Ionising Radiation Protection (ICNIRP), the Health Physics Society (HPS) and the Health Protection Agency (HPA). Unfortunately, our requests for comment went largely unanswered. We received one comment from a WHO representative, who stated that, without knowing the exact strength of jamming frequencies, it would be impossible to draw any conclusions.

Anecdotal evidence claims that some Iranians are feeling the effects of jamming. As an article published in the reformist newspaper Mardom Salari in 2009 stated,

// There has been much discussion over whether terrestrial satellite jamming in Iran has had adverse, unintended medical effects on the population. While there are studies on the health effects of exposure to electromagnetic fields, it is impossible to say with certainty whether Iran’s population is at risk, as details on the strength of jamming frequencies are unobtainable.40

While no officials are responding to questions posed about satellite jamming, civilians are suffering from the negative health impacts caused by jamming: dizziness, chronic deafness, different kinds of cancer such as skin cancer, blood cancer, and marrow cancer. These interfering signals can also impact human hormones and lead to infertility for both men and women.41
This article illustrated the contradiction between the various official statements that have been made about the health implications of satellite jamming. They reported that Iran’s Health Minister had stated the jamming of television and radio broadcasting has no negative medical impact on human beings, which is in contradiction with Iran’s Parliamentary health committee, who believed dizziness and mental and nervous disorders to be common side effects of jamming.42

In an article published by the Iranian Labour News Agency (ILNA) in June 2012, Masoumeh Ebtekar – the Head Tehran’s City Council Environment Committee and a professor of immunology at Tarbiat Moalem University – argued that jamming does have potential health effects, but highlighted that nobody is acknowledging or acting on this danger:

*The origin of many complications and physical illnesses could be these waves [rogue frequencies] ... As we witness an increase in various diseases of unknown origin, we can say with utmost certainty that radiation can cause immune system dysfunction ... In a society where such resolutions are not taken seriously, we will bear witness to problems in the future ... This issue of harmful radiation, compounded with air pollution, will be listed among the causes of many diseases ... In times where the rest of the world are holding on tight to environmental issues, they’ve been abandoned in ours ... Experts say that the ‘cancer tsunami’ is coming and the cause could be radiation, air pollution or stress ... Our goal is not to reduce or prohibit radio and telecommunications, our goal is to bring order and to establish standards for these activities.*43
In contrast, Fars News Agency, which has close ties to the military forces in Iran, published a lengthy denial. Fars contended that international interest in alleged side effects only came about after the 2009 disputed presidential election; in other words, claims that satellite jamming is harmful are merely a political ploy or "psychological warfare" by the West. Fars asserted that Iran’s Atomic Agency is in charge of setting the standards and controlling the frequencies, which always fell in the 9-100 MHz range, well below the harmful threshold.

Fars then took the argument further, and accused the West, specifically the United States, of jamming government-owned channels Press TV, ALALAM, Sahar, and Jam-e Jam because they were reporting on the uprising in Bahrain. The report concluded that if it were true that jamming was causing harmful health effects, then many countries – such as China, Israel, South Korea, North Korea, the United States, Libya and the UK – would be the targets of international regulations. Fars News’ report argued that the fact Iran is being singled out shows the political nature of these accusations.44
INTERNATIONAL RESPONSES AND THE ROLE OF SATELLITE PROVIDERS

In this section, we highlight official international responses to satellite jamming in Iran. These include European Union pronouncements and condemnations by the International Telecommunication Union (ITU), the UN specialised agency for information and communications technology. Subsequently, we look at the role of satellite providers, specifically Eutelsat and Intelsat, in the push to put an end to satellite jamming in Iran.
The Iranian government has been cautioned numerous times by international regulating bodies, all of which have ordered them to find the source of satellite interference and work towards preventing its reoccurrence. However, the Iranian authorities have yet to make any visible efforts to comply with these warnings.

Four recent actions from the international community came in 2010 and 2012. In February 2010, the EU called on the Iranian authorities to put an end to electronic interference and to cease both the jamming of satellite broadcasting and Internet censorship. However, the EU statement did not outline any punitive actions should Iran refuse to stop jamming, and the Iranian authorities have taken no action.

In January 2012, the Broadcasting Board of Governors (BBG) adopted a resolution condemning Iranian-based jamming of satellite broadcasts. The resolution states:

WHEREAS, the BBG strongly supports the United States Government’s position that interference with free media and the flow of information and ideas constitutes a threat to human rights and freedom and to the principles stated in Article 19 of the Universal Declaration of Human Rights.

THEREFORE, be it resolved that the Broadcasting Board of Governors condemns the purposeful interference of satellite communications, and calls upon assembled delegates at the World Radiocommunication Conference, as well as those in the satellite industry – including satellite operators and brokers – to repudiate this illegal behavior.
Following on the condemnation by the BBG, at the World Radiocommunication Conference in February 2012, the ITU condemned satellite jamming as being “contrary to Article 19 of the Universal Declaration of Human Rights” and passed an amendment to Article 15 of the Radio Regulations, which called on all governments to take “necessary action” to end the jamming of satellite broadcasts from within their borders. Article 15 now reads,

If an administration has information of an infringement of the Constitution, the Convention or the Radio Regulations (in particular Article 45 of the Constitution and No. 15.1 of the Radio Regulations) committed by a station under its jurisdiction, the administration shall ascertain the facts and take the necessary actions.47

Although previous ITU regulations also forbade any member states from jamming signals, they had no effect on the jamming of frequencies from within Iran. Ali Akbar Mousavi Khoeini, a former Iranian MP who served as the Deputy Head of the Parliamentary Telecommunications Committee, said of the new regulation, “This is the first meaningful action taken by the ITU and the UN to make legal provisions to counter censorship of satellite programs within various countries”.48

In October, the Iranian Rial lost 80% of its value, falling to its lowest level ever against the US Dollar. In early October 2012, the Rial went into free fall and Iranians briefly took to the streets to protest the falling currency exchange rates. During this time, there was a noted increase in the jamming of Persian-language satellite broadcasts, specifically Radio Farda (RFE/RL’s Persian-language service), VOA Persian News Network, and BBC Persian TV.
The BBG and Eutelsat, whose satellite hosts these channels, responded with outrage and called on international regulating authorities to take swift action. As Richard Lobo, the International Broadcasting Bureau’s Director, stated,

*The jamming of news delivered by satellite into Iran is an outrage, a deplorable violation of well-established international agreements. Freedom of information is a universal human right as well as an essential component for the health of any nation.*

### 8.1 The Role of Satellite Providers

Eutelsat and Intelsat, based in France and Luxembourg (Intelsat’s head office is in Washington, D.C.) respectively, are the main satellite providers for Persian-language channels broadcast from outside Iran (Eutelsat) and state-run channels (both). These networks have the power to decipher exactly where satellite jamming is emanating from; they can pinpoint the location of jamming frequencies.

Eutelsat, which suffers frequent jamming attacks on the Persian-language channels broadcasting from outside Iran, also has a provision of service contract to broadcast Iran’s Press TV, which itself is embroiled in controversy and is known for its frequent failures to report. In addition, Eutelsat also hosts a number of Islamic Republic of Iran Broadcasting (IRIB) channels, including IRIB Quran and the two largest national TV channels. These Iranian channels have never suffered frequency jamming. On 21 January 2012, Eutelsat stopped carrying the broadcasts of Copenhagen-based Kurdish TV station Roj.
Roj had been fined by a Danish court for allegedly supporting the Kurdistan Workers Party (PKK), but the Danish court did not revoke Roj’s broadcasting licence. Press TV, on the other hand, continued to be broadcast by Eutelsat for a number of months after its licence was revoked by the British regulator Ofcom for breaching the Communications Act,

From China to Iran and Saudi Arabia, Eutelsat has already shown its lack of regard for freedom of information. Now it is helping to promote an ‘anti-terrorist’ rhetoric with broader political implications. This is a favourite argument that repressive regimes use to justify their media freedom violations.... Is the French government, a shareholder in Eutelsat, ready to take responsibility for this decision?51

On 17 November 2011, a resolution was adopted by the European Parliament in which they recommended Eutelsat take IRIB’s signal off their satellite. Point 13 of this resolution states,

The European Parliament condemns Iran for illegally jamming BBC Persian Service and Deutsche Welle TV signals from the Hotbird and the Eutelsat W3A satellites, and calls on Eutelsat to stop providing services to Iranian state TV stations as long as Iran continues to use Eutelsat services to block independent TV programmes.52

Tadjallimehr commented on this point:

The phrasing is strange. Iran is not using Eutelsat’s technology to jam the signals. Iran is not using their infrastructure; they have their own. In order for this recommendation to become binding, we need to push for it to get through the European Commission. They can push the French Government, who has the power to actually act. They did it in the Libyan case and they can do it again. This is the right way to react, and it needs to be done right now.53
In the most recent spate of jamming following Iran’s currency crisis in October 2012, Eutelsat took a strong position. On 4 October, a press release was issued calling for the intervention of international regulating authorities:

_Eutelsat Communications today made a new appeal to international regulating authorities to urgently intervene in order to put an end to repeated jamming of satellite signals from Iran. This new appeal follows significant deliberate interference from Iran since October 3 of international networks, including BBC Persian, The Voice of America’s Persian service and Radio Free Europe/Radio Liberty’s Radio Farda that broadcast via Eutelsat satellites ... Today’s complaint by Eutelsat officially asks the ANFR, France’s national frequency agency, to renew its objection to jamming to the ITU so that it can be addressed as a priority._

// Prior to March 2012, the only sanction that affected Iran’s ability to use and abuse satellite technology was the US sanction preventing any financial relationship between its citizens and Iran in any capacity. Under a broadly defined ‘humanitarian’ exemption, the US Treasury has granted nearly 10,000 special licences allowing companies to do business with blacklisted countries. This system has been maintained over the past three presidential administrations.

The licence application that Instelsat Global Service Corporation submitted, which was approved, was so heavily redacted by OFAC that it is impossible to know exactly what activities were authorised by the licence.
The licence approved by the treasury allowed Intelsat to respond to a tender for the provision of a public and international telecommunications service to Iran, on the grounds that such a licence would be consistent with the US goal of promoting a free flow of information into and out of Iran. Intelsat’s satellites, which carry IRIB stations but not foreign-based Persian-language channels, have not been subject to jamming.

On 24 March 2012, the European Union imposed a new round of sanctions on Iran, which included a sanction on Zarghami Ezzatollah, the Head of IRIB, for the airing of “forced confessions of detainees and a series of ‘show trials’ in August 2009 and December 2011.” 55 Due to the sanctioning of IRIB, and as a result of the French broadcasting regulator’s upholding a ruling that demanded the removal of the IRIB channel Sahar 1 for its airing of anti-Semitic content, Eutelsat cut off service for all IRIB channels hosted on its Hotbird satellite – 9 television channels and 10 radio stations – on 15 October 2012. Eutelsat is planning to remove IRIB stations from its other satellites in the future. 56

Why it took sanctions and a ruling on the content of Sahar 1 for Eutelsat to end their contracts with IRIB is not clear. Eutelsat has the technology to locate jamming frequencies and, from 2009, had lobbied the ITU with regards to jamming from Iran.
In addition, the press has been reporting on the questionable and controversial content broadcast by IRIB channels for an extended period of time. As Hadi Ghaemi, the director of the Iran Campaign for Human Rights stated,

*The most important aspect of this decision is to recognize that IRIB is an integral arm of the Iranian intelligence and security services. There was no justification for providing services.*

On 22 October 2012 Press TV reported that Intelsat had followed suit and dropped a number of IRIB channels from its satellites. As this claim directly contradicted what Intelsat had insisted only four days prior, that they had no obligation to drop Iranian channels, Small Media contacted Intelsat directly for comment. James Bates, Media Communications Manager, responded to our query yet provided no definitive answer as to whether Intelsat continues to broadcast IRIB stations:

*Our business [Intelsat] is a dynamic one, in which the customers’ requirements and our available capacity are constantly changing, and thus the start and stop of services on our satellites is routine. We don’t discuss specific customer arrangements, so unfortunately I cannot speak to current or future plans.*
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RECOMMENDATIONS
This report has established that the jamming of Persian-language satellite TV channels is endemic in Iran, and is having adverse effects on both broadcasters and viewers alike. In Iran, satellite television is one of the few sources of news, entertainment, and commentary not controlled by the country’s authorities; it is, therefore, an important source for Iranians, many of whom desire opinions, information, and entertainment beyond what is provided by the state-run media.

In the realm of satellite services, I’m happy to say that malign, intentional interference is a rare thing. ITU did note one recent instance of a country attempting to block a satellite TV broadcast it did not approve of. But this is essentially a political issue, not a technical one, and can only therefore be resolved with a political solution.

In 2009, before the contested political elections in Iran, and thus before satellite jamming became a prominent and visible issue, Dr Hamadoun I. Touré, ITU Secretary General declared the above. The recommendations we make here are, for the most part, long-term strategies. As Touré suggests, the most direct propositions are political in nature. However, the fact that the Iranian government restricts satellite usage and access to satellite channels within the country, while simultaneously using the same technology to propagate its views beyond Iran’s border, has not gone unnoticed. Governments and policy makers need to put energy into finding strategies and solutions for stopping or minimising the effects of satellite jamming.
Small Media calls on advocates, policy-makers and the international community to:

- Support the ITU in its capacity to approve tough regulations, such as the one passed in February 2012 and possibly suspending Iran’s membership of ITU;
- Authorise the ITU to monitor and locate jamming signals, as well as name, apply pressure to, and report countries aiding deliberate interference to the UN Secretary General;
- Enable the World Health Organisation to determine the actual frequency emissions emanating from terrestrial jamming in Iran, and the associated health risks to the civilian population;
- Adopt resolutions that not only condemn, but also outline punitive measures should jamming continue;
- Demand that Eutelsat, Intelsat and other providers hosting jammed frequencies either stop providing services to Iranian state TV stations or, at the very least, couple IRIB frequencies with those that are commonly blocked so long as Iran continues to jam frequencies;
- Impose penalties on multinational companies who sell interception, localisation and jamming equipment to Iran;
- Hold foreign governments that provide Iran with jamming equipment accountable to their international obligations under the Radio Regulations, the Universal Declaration of Human Rights, and any further regulations imposed by the ITU;
- Fund the development of technologies to bypass jamming and invest in the research and development of alternative methods of satellite broadcasting that cannot be jammed.
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FOOTNOTES
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