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## INTERNATIONAL SIGNALS INTELLIGENCE LAW: PROVISIONS AND HISTORY

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*A rich and extensive history of treaty provisions which constitute the public international law of signals intelligence has remained largely invisible. These provisions are primarily known only to the handful of specialists in the field who negotiate and shape the provisions in arcane venues over many generations which are then archived in inaccessible repositories. This enduring body of law goes to the most basic concepts of national sovereignty and has constituted the “rules” among nations when facilitating interconnection of networks, electronic communication transit, or radiocommunication. Since 1850, the continuing threads have underpinned the sovereign rights of national authorities worldwide to engage in lawful interception, route communications, and demand decryption. This paper assembles material collected and used over the past forty years — some of which is now becoming accessible online.*

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## INTRODUCTION

Nation-States have an unconditional sovereign right to engage in signals intelligence (Sigint) activities for broad national security and law enforcement purposes—especially for self-protection. Such activities encompass the ability to acquire, store, and analyze all telecommunications of any kind, anywhere. Increasingly today, signals intelligence includes Big Data Analytics of signals acquisitions from a massive array of sources. How this right is exercised is regarded as a “national matter” of the sovereign, and may vary significantly depending on context and balancing against other objectives decided by the nation itself.

Historically, during conflicts and in face of major threats, signals intelligence capabilities are more extensively advanced. Both of the World Wars were periods of dramatic evolution in Sigint and encryption/decryption capabilities. Today, that context also includes autonomous, highly-distributed, international terrorism and crime of non-Nation-State actors, as well as cyber security and cyber warfare—for which new, flexible, signals intelligence capabilities are critical and demonstrate their value every day. Sigint is the most significant driving force in telecommunications and computer technologies. Nation-States and their industry also compete intensively among themselves in advancing the capabilities, and any major nation that disadvantages itself, does so at its own peril, as well as that of its citizens and industry.

This unconditional sovereign right of Nation-States is found in several enduring treaty provisions—one of which traces back to the very first time nations met to develop the arrangements for joining telecommunication networks at Dresden in 1850 or radio communications in Berlin in 1903. The continued existence of these foundational provisions—being repeatedly re-instantiated as a small number of core clauses in the principal global telecommunication treaty instruments on the occasion of every gathering of Nation-State plenipotentiaries, as well as ratified almost universally by all nations over so many decades—is a substantial affirmation as to the enduring importance of these provisions.



This paper describes these Sigint provisions in public international law covering a span of 164 years—how those provisions came into being and evolved over that span of time as new technologies emerged. As shown in the figure above, the provisions exist as clauses in a continuing series of treaties drafted and adopted by a set of intergovernmental organizations under the aegis of what is now the Geneva-based International Telecommunication Union.

The provisions are treated in two groups: the generic telecommunications stoppage and secrecy exception clauses and those clauses related specifically to radio communication. The latter provisions are tailored to the unique properties of radio signals and emerged from what for several decades were separate international agreements and organizations. A Bibliography provides source material.

## I. THE TELECOMMUNICATIONS STOPPAGE AND SECRECY EXCEPTION CLAUSES

### a. *The Stoppage Clause (Arrêt des telecommunications)*

The oldest and principal enabling provision for signals intelligence is known as the *Stoppage of Telecommunications* clause—one of the eleven key clauses in the General Provisions Relating to Telecommunications section of the Constitution of the International Telecommunication Union. The Constitution—formerly known as the International Telecommunication Convention—serves as the principal international treaty instrument for all telecommunication among nations. The term “telecommunication” here has the broadest possible meaning: “any transmission, emission or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems” and is included as ¶ 1012 of the Constitution. It includes virtual overlays such as the Internet.

Although the most current version of the *Stoppage* provision was adopted at 1998 Plenipotentiary Conference (Minneapolis) as Article 34, it has a traceable continuity back to 1850. As of 10 Mar 2014, the 1998 instrument was ratified, accepted, approved (or acceded to) by 97 nations, although essentially the same provisions also appear in predecessor instruments that have been ratified by all nations. It is not apparent that any nation has expressed any reservations. Article 34 currently reads:

*181 2 Member States also reserve the right to cut off, in accordance with their national law, any other private telecommunications which may appear dangerous to the security of the State or contrary to its laws, to public order or to decency.*

The “which may appear” expression in this clause provides the basis for acquiring and analyzing telecommunications, and for the past 164 years has served as the principal basis for signals intelligence in public international law, including the regulation of encrypted communication.

At one time in the evolution of telecommunication services such as telegraphy, the source of the communication was a State or commercial telegraph office where they actually examined the communication for compliance with the *Stoppage* provision unless it was encrypted by “secret language”—the formal treaty term. It is for this reason that private (as opposed to government) use of encryption was often proscribed, and remains controlled today in most nations.

The phrase “in accordance with their national law” was added in 1998 to text that had remained unchanged since 1965 when the significant step was taken to expressly expand the provision to include all telecommunication. Prior to that

time, the clause specified the specific prevailing telecommunications services in existence—private telephone and telegraph communication. The 1965 Montreux treaty conference at which this occurred was notable because it was held at point in the development of global communications where technologies began to rapidly change: communication satellites, packet networks, data communication, facsimile, and a potentially open-ended array of new ICT services were coming into worldwide use. Indeed, the proposal from Argentina that provided the basis for this fundamental change and accepted by the 1965 Conference, stated the reason “to include all the media that figure in the definition of ‘telecommunication’ and any which may be evolved in future.” See PP-1965 proposal ARG/91(21).

Although the addition of the “national law” phrase is not explained in any detail in the record of the 1998 treaty conference, it would appear to effectively broaden the provision by underscoring that implementation of the *Stoppage* provisions are a national matter within the province of the sovereign State to pursue. A number of delegations underscored the importance of the provisions at the conference.

The *Stoppage* provisions have remained unchanged over the past three Plenipotentiary Conferences after 1998, although the country of Georgia at the 2006 ITU Plenipotentiary Conference sought to alter the provisions to avoid being adversely affected by neighboring States. That proposed change was not accepted.

The *Stoppage* provisions are inextricably linked to innumerable other global, regional, multilateral and bilateral international agreements related to signals intelligence. At the operational level, the provisions have also become a real “workhorse” for a broad array of technical activity in ITU organs and other bodies that implement the capabilities. These capabilities include everything from network traffic management and fraud mitigation to cyber security and lawful interception – and all essential from a national security perspective to maintaining and evolving existing and future national and global ICT infrastructures and services.

*b. The Secrecy Exception Clause (Secret des télécommunications, Toutefois)*

The second of the two generic signals intelligence clauses is also one of the “enduring eleven” general clauses relating to international telecommunications. It had a somewhat different origin and history than the *Stoppage* clause, although it eventually came to function as an adjunct to that clause.

From the outset of two major international telecommunication regimes – wireline in 1850 and radio in 1903—the “secrecy of international correspondence” was prominent. This was secrecy in terms of divulgence of operators to the general public, not governments. Thus in the 1850 Dresden

treaty, included an Article 5, *Maintenance of telegraphic privacy*, with the requirement that “the High Contracting Governments shall ensure that messages are not divulged to unauthorized persons, that telegraphic privacy is most strictly observed in every respect and that all telegraph personnel take an oath to that effect.” Over subsequent decades in multiple successive treaty conferences up until the two major treaty regimes were integrated in 1932, every International Telegraph Convention included the exact same text “Elles s'engagent à prendre toutes les dispositions nécessaires pour assurer le secret des correspondances et leur bonne expedition (They undertake to adopt all measures necessary to ensure the secrecy of correspondence and its safe dispatch).”

When the international radiocommunication treaty activity began in 1903, this concern clearly prominent, and reflected in the minutes of the conference:

Nevertheless, the fact must not be concealed that many obstacles exist even at the present time, to the working of the new means of communication. The secrecy of the messages transmitted, and the simultaneous working of several stations without interfering with one another, are not yet assured.

When government representatives met three years later in 1906, they explicitly incorporated by reference, the secrecy provision from the 1896 International Telegraph Convention. Indeed at the subsequent International Radiotelegraph Conference at London in 1912, Norway—with a lengthy cryptologic technology history dating back to 1800—demonstrated the first known automated, rotor-based wireless cryptographic machine, known as the Hovland, to address the secrecy challenge at the conference.

When the extensive telecommunication treaty activity began among the Allies immediately after WWI and at the seminal International Radiotelegraph Conference in Washington in 1927, the rapidly expanded public availability of radio receivers led to a special provision attempting to deal with the openness of radiocommunication.

Art. 5. Secrecy of correspondence. The contracting Governments undertake to adopt or to propose to their respective legislatures the measures necessary to prevent:

- (a) the unauthorized transmission and reception by means of radioelectric installations of correspondence of a private nature;
- (b) the divulgence of the contents, or merely of the existence, of correspondence illicitly intercepted by means of radioelectric installations ;
- (c) the unauthorized publication or use of correspondence received by means of radioelectric installations;

The formerly independent wireline and radio telecommunication communities came together at the 1932 Madrid conference to draft new integrated treaty provisions which included strong telecommunication secrecy provisions. However, Austria, Hungary, Czechoslovakia, and Yugoslavia submitted a proposal noting that States have always instituted exceptions for judicial and other government authorities to access the communications, and argued that an explicit exception to the secrecy provision was essential. In addition, the League of Nations made an intervention noting that international law enforcement conventions dealing with crime necessitated an exception. *See* Proposal 1663T, *Documents de la Conférence télégraphique internationale du Madrid - Tome I* (Madrid, 1932). The two exceptions to secrecy were joined and agreed as a key provision in the new International Telecommunication Convention.

Art. 24 Secrecy of Telecommunications [Secret des télécommunications]

§ 1. The Contracting Governments undertake to adopt all possible measures, compatible with the system of telecommunication used, to ensure the secrecy of international correspondence.

§ 2. Nevertheless, they reserve to themselves the right to communicate international correspondence to the competent authorities in order to ensure the application of their internal legislation, or the execution of international conventions to which the Governments concerned are parties.

The term “international correspondence” was left broad and undefined, and has remained so.

Quite remarkably, over the 82 years that have followed and innumerable additional treaty conferences, this exception clause providing for the delivery of telecommunications to meet the needs of law enforcement has remained unchanged with only the phrase “internal legislation” replaced with “national laws,” and is now Article 37 in the current treaty instrument.

## II. THE RADIO HARMFUL INTERFERENCE, INVESTIGATION AND MONITORING CLAUSES

The inherently open global nature of radiocommunication and its ability to cause interference among stations resulted from the outset of international collaboration in 1903 in multiple long-standing treaty provisions that have made wireless network signals intelligence part of the global intergovernmental spectrum management regime. Going far beyond just the right to examine traffic, the radio sigint provisions include provisions for policing the spectrum through mutual assistance, information sharing, and monitoring at both national and international levels. This rather aggressive implementation of radio

surveillance capabilities has been facilitated if not mandated by the existence of a broad global regulatory regime consisting of equipment certification combined with licensing of operators and station facilities.

Over the decades of international radiocommunication, a trio of treaty provisions emerged that consisted of harmful interference minimization, investigation of infringements, and an international system of continuous monitoring of radio signals. The last in this group—the radio monitoring provisions—grew out of the extensive experience with Sigint during the two World Wars, and a common interest in providing spectrum surveillance as part of the international radio regulatory regime.

a. *The Harmful Interference Clause (Brouillages préjudiciables)*

The *Harmful Interference* clause in the ITU Constitution (currently Art. 45 in the Special Provisions for Radio section), like the *Stoppage* clause, is traceable to the outset of the first intergovernmental meetings dealing with the technology, and provided the basis for Nation-States Sigint. Instead of the signals being “on the wire,” they were “in the ether.”

It was the Preliminary Conference on Wireless Telegraphy in 1903 in Berlin that Nation-States first met formally to develop the arrangements for radio facilities and networks. At the outset, the general stated objective was “to prevent, as far as possible, reciprocal interference, [and] avoid a contest of each against all.” See Herr SYDOW, Germany, Opening Comments, First Sitting, August 4, Minutes of the Preliminary Conference on Wireless Telegraphy, held at Berlin, August, 1903.

The result as the articulation of the wireline equivalent of the Stoppage Clause that was subsequently given the title “interference,” and then “harmful interference.” At the 1903 conference, the meeting articulated it as Article V, a requirement that “the working of wireless telegraph stations must be organised, as far as possible, in such a manner as not to interfere with the working of other stations.” Today, the provision is now Article 45 and it consists of three parts:

197 *1 All stations, whatever their purpose, must be established and operated in such a manner as not to cause harmful interference to the radio services or communications of other Member States or of recognized operating agencies, or of other duly authorized operating agencies which carry on a radio service, and which operate in accordance with the provisions of the Radio Regulations.*

198 *2 Each Member State undertakes to require the operating agencies which it recognizes and the other operating*

*agencies duly authorized for this purpose to observe the provisions of No. 197 above.*

199 3 *Further, the Member States recognize the necessity of taking all practicable steps to prevent the operation of electrical apparatus and installations of all kinds from causing harmful interference to the radio services or communications mentioned in No. 197 above.*

It is worth noting that when the 1903 conference reconvened in 1906, it explicitly incorporated by reference the *Stoppage Clause* from the most current wireline treaty instrument, the 1886 St. Petersburg International Telegraph Convention, and included it as an annex. It repeated the incorporation in 1912 in the London International Radiotelegraph Convention, and when the States met after World War I at Washington to produce an integrated instrument for all “electrical communications,” the *Stoppage Clause* was included in the draft convention as Article 9, and then ultimately in the International Telecommunication Convention, Madrid, 1932.

As the years passed and the challenges grew increasingly complex and the spectrum became more crowded, additional measures were needed to prevent harmful interference. The first of these was the *Infringements Clause* in 1921 and the *International Monitoring Clause* in 1947.

*b. The Infringements Clause (Contraventions)*

During the First World War, the state-of-the-art for radio as well as signals intelligence advanced dramatically. The spectrum was not only more crowded with existing and new technologies such as radar, but the radio networking, interception and encryption technologies had proven invaluable. Furthermore, there were new cooperative intelligence arrangements that were formed among the allies, and as the war came to a close, they began meeting to write new international agreements. In January 1919, the Inter-Allied Commission began meeting and the work concluded in Paris with the EU-F-GB-I Protocol of 25 August 1919. The Commission sought to integrate the separate wireline and wireless international conventions and institute new spectrum management regimes.

One of the more significant steps taken was an agreement to encourage Nation-States to engage in systematic monitoring and analysis of the radio spectrum by “government stations” coupled with a systematic process for the structured exchange of forensics. If “infringements” of the international convention or its regulations was reported to an Administration, it would then be obliged to take necessary steps to deal with the matter.

The provision was written into the draft Convention of a new International Electrical Communications Union the following year in Washington at the invitation of the Wilson Administration in conjunction with its efforts to form the League of Nations. Although that initiative failed in 1921, it was written into 1927 Washington International Radiotelegraph Convention and ultimately into the unified International Telecommunication Convention in 1932 at Madrid. It has remained essentially unchanged to this day, and is found in the current Constitution as one of eleven general provisions relating to telecommunications.

Art. 39 Notification of Infringements

190 In order to facilitate the application of the provisions of Article 6 [Execution of the Instruments of the Union] of this Constitution, Member States undertake to inform and, as appropriate, assist one another with regard to infringements of the provisions of this Constitution, of the Convention and of the Administrative Regulations.

The *Infringements* Clause never had any real use except for radio related purposes, and was significantly enhanced through the formation of the International Radio Consultative Committee (CCIR) at the 1927 Washington Conference for continuing standards making purposes. The CCIR furthered national government efforts to cooperate among themselves in the pursuit of radio station monitoring and the structured exchange of information.

The *Infringements* Clause also gave rise after the Second World War to the *International Monitoring* Clause.

c. *The International Monitoring Clause (Contrôle international des émissions)*

Although the various needs for continuous monitoring of radiocommunication go back to 1903 and the *Infringements* Clause emerged after the First World War provided a basis for action, it was not until after the Second World War that a well-structured international regime was put into place in treaty instruments for actually instantiating operational provisions for radiocommunication surveillance in a treaty instrument.

In many ways strikingly similar to the events during and following WWI, in 1947 the nations of the world came together at Atlantic City to unify and advance the international telecommunication and radio agreements, and tie the organization to the successor of the League of Nations, the U.N. The choice of Atlantic City was in significant measure due to its being near to Fort Monmouth—the home of the U.S. Army Signal Corps, which played a vital

signals intelligence role during the war. The result was an extensive set of provisions in the Radio Regulations annexed to the International Telecommunication Convention, Atlantic City, 1947, for a global International Monitoring System complete with a new juridical body to adjudicate disputes under the *Harmful Interference* and *Infringements* clauses.

An entire chapter of the in the Regulations was included on interference, including “making observations and measurements necessary for the identification of the source and the establishment of the responsibility for the interference.” A new operational arm for this activity within and among Nation-States was instituted.

#### Art. 18 International Monitoring

401 § 1. The provisions of 399 may be implemented by means of monitoring stations. Such stations may be operated by an administration or by a public or private enterprise recognized by its administration or by a common monitoring service established by two or more countries or by some international organization.

402 § 2. Administrations agree to cooperate in the establishment of an international frequency monitoring system and, to the extent practicable, in the establishment of other monitoring based on recommendations of the C.C.I.R. The stations referred to in 401 may participate in this system.

As a kind of interesting historical footnote on political correctness of the day, the French translation of the title was adjusted from “Surveillance International” to “Contrôle international des émissions.”

The *International Monitoring* Clause today exists as Article 16 of the ITU Radio Regulations adopted most recently by the Final Acts of the World Radiocommunication Conference, Geneva 2012. The Article now consists of six operational provisions.

16.1 To assist to the extent practicable in the implementation of these Regulations, in particular to help ensure efficient and economical use of the radio-frequency spectrum and to help in the prompt elimination of harmful interference, administrations agree to continue the development of monitoring facilities and, to the extent practicable, to cooperate in the continued development of the international monitoring system, taking into account the relevant ITU-R Recommendations.

16.2 The international monitoring system comprises only those monitoring stations which have been so nominated by administrations in the information sent to the Secretary-General in

accordance with Resolution ITU-R 23-1 and Recommendation ITU-R SM.1139. These stations may be operated by an administration or, in accordance with an authorization granted by the appropriate administration, by a public or private enterprise, by a common monitoring service established by two or more countries, or by an international organization.

16.3 Each administration or common monitoring service established by two or more countries, or international organizations participating in the international monitoring system, shall designate a centralizing office to which all requests for monitoring information shall be addressed and through which monitoring information will be forwarded to the Bureau or to centralizing offices of other administrations.

16.4 However, these provisions shall not affect private monitoring arrangements made for special purposes by administrations, international organizations, or public or private enterprises.

16.5 Administrations shall, as far as they consider practicable, conduct such monitoring as may be requested of them by other administrations or by the Bureau.

16.6 Administrative and procedural requirements for use and operation of the international monitoring system should be in accordance with the most recent version of Recommendation ITU-R SM.1139. (WRC-12)

The Radio *Harmful Interference, Investigation and Monitoring* Clauses have served the nations of the world well for more than a century—providing key mechanisms in nearly every nation and globally for both spectrum management in evolving radio technology and in adjudicating disputes. The same clauses have also provided the basis for the radio Sigint capabilities in every nation. Indeed, during periods of national conflict, the same monitoring facilities were used by those nations as part of their essential capabilities in the pervasive surveillance of domestic espionage and foreign intelligence.

### *III. CONCLUDING COMMENT*

The formerly relatively secret operational history of signals intelligence and associated encryption activities has become increasingly available over the past two decades through the museums and other outreach efforts by the national security agencies and centers of excellence that exist in essentially every country. What remains almost unknown, however, is the considerable associated history of international collaboration that underpins that operational history and shaped the public international law which exists today. Almost

every nation and community since the beginning of human society has engaged in extensive efforts to maintain and perfect its communication signals intelligence capabilities as both an essential component of their sovereignty as well as political and economic survival if not pursuit of excellence.

This common engagement among nations has produced a considerable body of public international law over the past 166 years that has remained relatively obscure because of its esoteric nature and the unavailability of documents that reside in specialized archives. This law and legislative history not only supports the sovereign global Sigint activities of every nation, it is a testament to a continuing wisdom among the individuals representing those nations over sixteen decades as to what is essential for national security and law enforcement. That wisdom is also more important today in a world highly dependent on effective and rapid Sigint capabilities for our individual and collective survival.

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