The CCIR, the standards and the TV sets' market in France (1948-1985)

"As long as the International Radio Consultative Committee (CCIR[1]) is a technical organization, its recommendations must necessarily be based on technical reflections". Leslie Hayes, temporary manager of the CCIR, concluded his speech during the opening session of the Vienna CCIR meeting in 1965 by these words. He found it useful to remind members of the technical role of the CCIR. Indeed from 1948, when black and white television standards were discussed during a meeting in Stockholm to 1966 when color TV standards were debated in Oslo, the technical role of the CCIR was often called into question.

This radio communications' division of the ITU (International Telecommunications Union) aimed at stimulating standardization in radio communications and television. It attempted to integrate a total communications system, especially by adopting compatible television standards. Many parts of the world looked to it for guidance. But setting one standard instead of another is not only a technical question. Choosing one standard rather than another is choosing one national firm to the detriment of another. And once the standard is adopted, it is virtually impossible to change. Even if adopting a unified standard could help creating a unified market of television sets, the domination of a company and its licenses for over a decade was at stake. Agreement on standards is also one of the most important nontariff devices to facilitate international trade, or restrict it, to strengthen cooperative alliance or prevent it. The effectiveness of tariff protection is still debated. The American economist, Paul David, has re-examined the effectiveness of tariff protection of Ante –Bellum cotton textile industry[2]. He was led to doubt about this effectiveness. According to him, protection could have been provided effectively by the much cheaper method of establishing pilot firms. But it seems to have been of great importance for television standards. International standard setting became also political since there were political representatives, who could vote for one standard, i.e. for one nation. The CCIR thus played a major part in the TV sets' market.

This paper tries to understand how a unified standard of television was chosen by the CCIR, which nations were favored and what were the consequences for the French TV sets' market. The period covered spans from 1948 to the beginning of the 1980s -a period when the French nation was building the European Economic Community and at the same time asserting the superiority of state over the economic entities, a period where a mass market of black and white and color TV sets was born. The paper will deal with three points.

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[1] Comité Consultatif International des Radiocommunications

[2] See P. David, "Learning by doing and tariff protection. A Reconsideration of the Case of the Ante –Bellum United States' Cotton Industry", *Journal of Economic History*, XXX (September 1970), p. 521-601.

In a spirit of international cooperation, the CCIR tried to promote unified technical standards for black and white as well as color television. But it failed in its mission. Europe was divided in three black and white television standards and two color television standards.

As members of the CCIR could only act in an advisory capacity, they failed to compel all countries to adopt the standards they set for black and white as well as for color television. There were technical experts as well as politicians and representatives of manufacturers among the delegations. Firms owning the technical patent rights of the systems wanted to promote their standard. The representatives heading the delegations were often politicians. Their primary loyalty was to their domestic industrial and political interests.

As a result, there was a split in the European TV sets' market. Regardless of the CCIR's decisions, the French TV sets' market was isolated. But the French choice was not a complete failure. French set makers encountered difficulties to export their sets. But they were protected. They were able to maintain their position in the domestic market. West German firms had to pay license fees for there were SECAM's patent in the PAL system. West Germany had done opposite choices. German firms were dominating the European market during the sixties. But they collapsed at the end of the 1970s, when Japanese firms showed up. The CCIR thus played a controversial role.

I. The International Radio Consultative Committee: from utopia to failure

One of the most important duties of the International Radio Consultative Committee was to find a consensus among its members to set international standards. Unfortunately, it failed establishing common standards both in black and white and color television.

1. An ambitious objective: setting international standards

The idea of the International Radio Consultative Committee was born during the First World War. Victorious powers had to deal with radio communication problems. There was a "need for a formal, continuing, intergovernmental body to study and make recommendations on international radio matters"[3]. Such a committee was created just after the war. It was suggested that it should become a distinct organ within a proposed overall Universal Electrical Communications Union. But it was demised in 1922. An International Radio Consultative Committee was finally created by the Washington Conference of the International Radiotelegraph Union in 1927. According to George A. Codding "one the main arguments for setting up the CCIR was to undertake studies and present conclusions to the next conference, thus eliminating a part of the burden of exhaustive technical

[3] G.A. Codding, A. M. Rukowski, *The International Telecommunication Union in a Changing World*, Artech House Publishers, 1982, p.86.

studies that had been necessary during the Conference time"[4]. Technical and related questions were submitted to it by participating administrations or private enterprises. The CCIR was renewed after World War II. After the Atlantic City Plenipotentiary Conference of the International Telecommunications Union in 1947, it still had operational questions and had to issue recommendations on them. However its scope had broadened. It did not only include radio communications but also television[5]. Issuing recommendations on television standards naturally became one of its tasks.

According to the president of the CCIR during the Stockholm meeting in July 1948, which was made to discuss television standards, these recommendations had to be issued in a "spirit of cooperation". His comments made it clear that to find a common standard in black and white television they had to work on technical grounds: "I have confidence that we will be been willing to take part in this task, thus providing our contribution like scientists and engineers, to a peaceful solution of the future problems of the radio electric technique" [6]. It was said during the Plenipotentiary Conference of Geneva in 1951, that setting common television standards was a way to facilitate the exchange of programs as well as to coordinate the design of the television sets for "television is neither technically nor economically the business of only one of our countries of Europe. Its technical and industrial development on the one hand and the development of its exploitation on the other hand require such a sum of intellectual and financial efforts which they impose the conjugation of the forces of our old Europe"[7]. CCIR was also meant as a way to unite European countries. The historian Jérôme Bourdon recalls that as of the beginnings of the debates on the European building, diplomats and especially men of television believed that this media could create a European "community" [8]. The creation of the European Broadcasting Union at the beginning of the fifties, which was to collaborate with the CCIR, registered accordingly. As of the years 1950, it was question of European harmonization within the CCIR. It was in that spirit that in 1962, the Ad –hoc Group of the European Broadcasting Union of which the initial goal was to recommend a system of single television color and help the CCIR in its task was created [9].

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[4] *Ibid.*

[5] R. Crane, *The Politics of International Standards, France and the Color TV War*, Norwood, Ablex Publishing Corporation, 1979, p.24.

[6] *Conférence de Stockholm du CCIR, Procès –Verbal de la 8e séance*, 1948, p.870. Archives du CCIR.

[7] *Conférence de Genève du CCIR, Rapport de la 4e séance*, 18 juin 1951, Annexe I, déclaration de la délégation belge. Archives du CCIR.

[8] "Unhappy engineers of the European soul. The EBU and the woes of paneuropean television", *The International Gazette of Communication* (to be published, 2007)

[9] « Note sur le choix d'un système unique européen de couleur », 26 avril 1966, archives du syndicat des ingénieurs de la télévision française, in J. Bourdon, *Histoire de la télévision sous de Gaulle*, Paris, Anthropos/INA, 1990, p.225.

The wish to promote unified standards within a technical organization among technical experts was renewed as far as color television standards. At the opening session of the CCIR meeting in Vienna, the managing director of the stations and telegraphs of Austria made the following comments:" I form the wish that you agree on a single system so that it is possible to carry out the international exchange of the programs without expensive additional equipment. You would thus render great services to million men, not only today, but also in a distant future"[10]. The "creative myth of the independence of the experts and their institutions, measuring heights of technician rationality, the risks of the company and the international policy"[11] are clearly evoked through this speech. Despite these high hopes, the CCIR failed in its mission.

2. The split of black and white Europe

After World War II, there were several standards that had been set before and during the war. It was during the thirties that regular but experimental services of television were set in Europe. France began with a 180 lines per picture[12] standard. It started to emit in 455 lines in 1937, while Germany chose the 441 lines and the Great Britain the 405 lines. In 1941, the United States had decided for the 525 lines. In France, during the war, the emissions were in 441 lines, the German standard. In 1945, TV programs started to be broadcast in an experimental way then regular. Great Britain and United States decided to change their minds on standards. New standards had been created and were proposed. At the CCIR Conference in Stockholm in July 1948, the 625 lines standard was for the first time submitted to the members. This standard had been studied around 1946 by a Soviet engineer. He had transformed the American 525 lines[13]. The Dutch firm, Philips, was supporting this standard because it was close to the American standard. The only difference lied in the frequency of the current[14]. The American market was of much importance to it. France was defending the 819 lines which originated from the French firm Radio Industrie and the French inventor Henri de France. Great Britain was lobbying for its prewar 405 lines. It was then decided in Stockholm to study each system thoroughly so as to be able to issue technical recommendations on one standard. The CCIR set a new appointment in London in May 1950. In between, there were experiments on each system. A questionnaire was given to the members of the CCIR in 1949. They

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[10] *Séance d'ouverture de la réunion de Vienne*, 29 mars 1965, Document XI/69, p.5. Archives du CCIR.

[11] L. Laborie, *La France, l'Europe et l'ordre international des communications (1865 -1959)*, thèse de doctorat d'histoire sous la direction de Pascal Griset, université Paris IV, 2006, p.661.

[12] The number of lines determines the smoothness of the image.

[13] A. Fickers, "*Politique de la grandeur" versus "Made in Germany", Politische Kulturgeschichte der Technik am Beispiel der PAL-SECAM –Kontroverse*, dissertation, University Aachen, 2002, p.85.

[14] The frequency of image follows that of the electrical current; the distribution of the electric power is carried out at 60 periods in America and Japan, in 50 periods in quasi - totality of the rest of the world.

had to tell which system they would choose. In London, the camp supporting the 625 lines was majority. Great Britain and France stood more or less alone with their standards.

In London, the conclusions were clear: "the 11th Study Group[15] recognizes the impossibility of arriving at a unanimous agreement on some of the questions which were on its agenda given the existence in many countries of public services of television using different standards and the great number of sets in service"[16]. To save semblance of unity, the engineer of the Swiss stations, Dr Gerber, formed a sub-commission which was to meet in Geneva from the 24 to July 28, 1950 to obtain the uniformity of the standards of the 625 lines systems in the spirit of the European Rome Treaty of 1957. Belgium, Denmark, Italy, Netherlands, Sweden, Switzerland were members of this sub-commission. Things didn't change with the Plenary Assembly in Geneva in May 1951. There were no countries supporting France except Belgium and Luxembourg. Four different standards were present in Europe for in some countries that had chosen the 625 lines the frequency of the sound was different. The Belgian situation was a non –sense. There were in one country four different standards: two 819 lines standard (French and Walloon), two 625 lines standards (Dutch and Flemish). However in Geneva, the question of color television was mentioned. It was on the point of introduction in the United States. France maintained that as "the advent of color television was inevitable and close" the choice of the 819 lines was the right one for it was easy to convert to color television[17]. But the "advent of color television" was not so close. It took a long time till it has been introduced. Despite 11 years of debates and studies, the result was a split in Europe between the German standard PAL and the French standard SECAM.

3. A bipolar Europe in PAL/SECAM

The question of color television was for the first time seriously discussed in 1955 at the Brussels CCIR meeting. It was already about a common standard. Most of the members thought this standard was to be the American one, the NTSC (National Television System Committee) which had been adopted in the United States in 1953[18]. However France was going on its own way. The French inventor Henri de France was trying to improve the American system. During the next meeting in Warsaw in August 1956, the same countries that were part of the sub-commission Gerber decided that NTSC should be taken as basis for a common color television standard. During the same year, the French system of SECAM (Séquentiel à Couleur Mémoire) was patented by Henri de France.

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[15] This group was in charge of television standards.

[16] *Rapport du rapporteur final de la 11e Commission d'études*, Genève, 1951, annexe II « rapport final de la réunion de Londres du CCIR, 8-12 mai 1950, p.138. Archives du CCIR.

[17] *Rapport de la 3e séance*, Genève, 15 juin 1951, annexe I, déclaration de la délégation française. Archives du CCIR.

[18] A. Fickers, *op. cit.*, p.88.

He had found a powerful firm, CSF, to support and promote his new television system[19]. The general manager of the CSF, Maurice Ponte, wanted to promote the SECAM at the international level as an European alternative to the American NTSC. He arranged the formation of a new company, the CFT, to handle the SECAM patent. In the CCIR meeting of Moscow in 1958, Henri de France demonstrated his system for the first time. But it was not until the meeting of the Ad-hoc Commission of the European Broadcasting Union in Bad Kreutznach in West Germany in June 1962 that, thanks to the "benevolent neutrality" of the West German delegation, the SECAM was viewed as a possible alternative to the NTSC as a European color television standard. Meanwhile, Dr Walter Bruch researcher for the German firm Telefunken, which was a powerful firm in TV sets market, was developing his own color television system. As Telefunken and CSF had cross-licensing agreements, he had made several visits to the CFT laboratories and had seen several times the SECAM. CFT had made demonstrations in front of Telefunken's delegates. While Telefunken seemed to be interested in SECAM, Walter Bruch was looking further into its research so as to improve both NTSC and SECAM. He was able to present the PAL (Phase Alternative Line) as of November 1962 as a new European alternative. There were now three systems (PAL, SECAM, NTSC).

Members of the 11th Study Group were to issue recommendations in the Vienna meeting in March –April 1965. During almost two years of work of the Ad –hoc Commission, there were almost 200 research reports which stuck to the detail of the three systems. Six countries were strongly implied in the work of the commission (France, West Germany, Great Britain, Italy, Netherlands, Switzerland). Two days before the meeting, France and the USSR made agreed public a Franco-Soviet agreement announcing that these two countries agree to cooperate with the adoption of a system of television based on the SECAM. In Vienna, Germans and Americans counteracted by creating a common standard, the QAM (Quadrature Amplitude Modulation). As a result, on the 6th of April 1965, there were 22 delegations which voted for the SECAM, mostly coming from Eastern European countries, 12 for the PAL and 6 for the NTSC. Three didn't deliver their opinion. Becayse they didn't come to a common agreement, the last hope lied in the Oslo Plenary Assembly of the CCIR in July 1966. In Oslo, a new standard, the NIR (or SECAM IV), was proposed by France and the USSR. It was closer in technology to PAL and NTSC. It was presented as a solution of unity. But only "small" countries like Belgium were supporting it. Even France did not want to promote SECAM IV. West Germany and United Kingdom said it was still at laboratory stages while they wanted to introduce color television as early as in autumn 1967. Everything had already been

[19] For details see P. Fridenson, "Selling the innovation: French and German Color TV Devices in the 1960s", *Business and Economic History*, Second Session, Volume Twenty, 1991, p.62 -68.

decided before. At this conference, 15 delegates voted for SECAM III b, a later French development of SECAM, 12 for PAL, 6 abstained or had no preference while 3 voted for SECAM IV[20].

As the American political scientist Rhonda Crane summarizes it, "eleven years of strenuous international efforts in testing and debating the technical merits of color TV systems failed to lead to a single standard. The result was that Europe, already divided by incompatible monochrome systems, was fragmented further by color TV"[21].

II. A consultative committee overshadowed by the economic and political implications

Behind the failure of the CCIR laid the internal structure of this organization. The International Radio Consultative Committee could only act in an advisory capacity while its members were not only national technical experts but also representatives of national ministries as well as national firms. Therefore technical issues of the CCIR were soon overshadowed by the economic and political implications of its decisions as far standards were concerned.

1. A limited scope

After the War, the Atlantic City Plenipotentiary Conference[22] brought the CCIR into permanent relationship with International Telecommunications Union. It became a permanent organ. Geneva was its seat[23]. According to the president of the 8th Commission in Stockholm in July 1948, it was a way to cure "the absence of method" and "increase the output of the committee" by a more solid structure[24]. The committee had to work through a structure of a plenary assembly and study groups – which were more numerous and specialized after 1948- with a director appointed by the appropriate Plenary Assembly. The CCIR met in Plenary Assembly every three years to review the work done preceding these sessions. The resolutions were then either dropped or approved as final acts. According to the engineer of French television, Louis Goussot, it was necessary to distinguish the questions which were attached to programs of studies of the opinions which had to a certain extent the force of law. There were also reports which only enumerate the characteristics of the

[20] R. Crane, *op. cit*., p.76.

[21] *Ibid*., p.12

[22] L. Goussot, *Compte rendu des travaux des réunions intérimaires des commissions d'études du CCIR,* Genève septembre –octobre 1969, ORTF, service des études, 15 novembre 1969, p. 4. Documentation Inathèque.

[23] A.C. Codding et alii, *op. cit.*, p.87.

[24] *Procès –Verbal de la deuxième séance des chefs de délégation*, 23 juillet 1948, Documents de l'Assemblée plénière de Stockholm, volume II, p.819. Archives du CCIR.

different systems. But even if CCIR was able to study and define the best system, this organization did not have the international charter to impose either a system or the amount of royalties to be charged for using it. They could only recommend one system. They had no authority to compel any country to adopt the system[25]. The Member States were not bound by its directives. There was no supranational structure[26]. It was only a technical and consultative organization. The CCIR was emulated "by a multitude of international organizations having overlapping responsibilities in establishing those standards", especially national ones[27]. There were problems of logistical nature like differences in languages which raised costs, time allotted for drawing up recommendations and the financing of participants[28].

The CCIR was also dependent upon its various members. The participation in the work of the CCIR as members was open to the administrations of all the members of the ITU and to private agencies which had been approved by a member country. The participation in an advisory capacity was also open to "international organizations and regional telecommunication organizations" and "scientific and industrial organization which were engaged in the study of telecommunication problems"[29]. Delegations in the CCIR were members and associate members of the International Telecommunication Union which did not include every country. Until 1953, West Germany was not a member of the CCIR as well as Japan and Korea[30]. Delegation did not have the same number of delegates either. They did not have the same influence in the decisions. There were 43 members in the German delegation at the CCIR conference of Oslo whereas there was only one for the Senegal and none for some countries which were represented by others[31]. Representatives to the CCIR were generally national, technical broadcasting experts. There were also representatives of the Ministries for Foreign Affairs and Information, who were more like politicians. They were often heading the delegation of their country[32]. A priori the technical experts of telecommunications were apolitical. But as Léonard Laborie argues: "the experts of the administrations of the stations and telecommunications have a complex identity. They are initially attached to the State (…) and the public monopoly in the name of the concept which is forged, that they forge of the public utility. Their action dealt with national sovereignty, with the defense of the national interests. In the same

[25] R. Crane, *op. cit.*, p.9.

[26] A. Fickers, *op. cit.*, p.82.

[27] R. Crane, *op. cit.*, p.20.

[28] *Ibid*., p.9 -10.

[29] A.C. Codding et alii, *op. cit.*, p.94.

[30] L. Laborie, *op. cit.*, p.1531.

[31] *XI*[e] *Assemblée plénière du CCIR*, volume VI, Oslo, 1966, liste des participants. Archives du CCIR.

[32] R. Crane, *op. cit*., p.9.

time they have a great honesty with regard to the international institutions"[33]. And because the CCIR was connected to the United Nations, even if loosely, it underwent "the sudden starts of this political arena"[34]. The American firm RCA, the French firm CSF or the German firm Telefunken were then members of the delegations. They were more interested in promoting their standards than finding a consensus. Therefore even if committees were formed "with as broad a geographical and political representation as possible", even if they included "representatives of different nations to prevent the interest of one country from dominating the others"[35], it was not always possible to maintain as impartial and apolitical an atmosphere as possible. As Rhonda Crane comments, "the success in adopting compatible standards is contingent upon the ability of members to submerge insular outlooks"[36]. It was not so easy to do so, for there were first and foremost industrial and economic interests.

2. Behind the standards, the market

The standards of television set the design features to broadcast and receive TV programs. The selection of a technical standard for television is then of great importance for it determines the features of Television market for a long period of time. A television set is a durable good. The lifespan of a television set oscillates around ten years over the period. A park of television sets develops which has precise design features. They can't be changed. Otherwise the park becomes useless and obsolete. It can deprive certain people who would not have invested in a television set of the new standard of their television programs. Once TV standards have been adopted by a nation, it is then expensive to change them. A nation whose system is selected as the European standard could gain large economic revenues and for a long time. It is particularly true for the firm supporting it. Production costs can be lowered by increasing the economies of scale. Export opportunities can be broadened. There are also royalties and license fees at stake. Therefore it is more interesting to promote one's own standard.

According to Stéphane Mallein, an engineer of the French public television, one of the French delegates in the CCIR meetings during the fifties, the difficulties encountered in choosing a black and white standard were due to economic interests: "These difficulties came from the extent of the economic interests concerned, each country hoping, while persuading the others to adopt its

[33] L. Laborie, *op. cit.*, p.742.

[34] *Ibid*., p.661.

[35] R. Crane, *op. cit.*, p.9.

[36] *Ibid*., p.10.

standard, thus to conquer a broad market for its national exports"[37]. These economic interests were also clearly expressed in the color case. It was not so easy for Walter Bruch to convince German industry as well as his own firm to adopt the PAL. They were much more interested in the American NTSC which had already been tested under normal conditions of operating. They feared that the fees could be too high because they were to pay at the same time for the PAL and the NTSC which the PAL took as a starting point. To gain West German industry's approval, he had to promise that the fees were to be low: 0,3% of the net price of the invoice. He had convinced them it could be the European solution. But behind the possibility of a valuable source of income derived from the export markets and mass production, he had ensured that the price by part did not exceed more than 5 DM compared to the American television sets. West German industry decided to support PAL in 1964. Meanwhile Telefunken negotiated with Philips so as to get the license for the color cathode ray tubes. By this agreement, it managed to switch Netherlands from NTSC to PAL, for Philips was an influential firm[38]. West German industry was well renowned for its technique. According to the German historian, Andreas Fickers, "the support of German industry, leader of the market of the television sets in Europe to the PAL is not an argument to underestimate in the meetings of the CCIR"[39]. Economic and industrial interests were also at stake as far as France is concerned. According to the American political scientist Rhonda Crane, the purpose was "to develop a color TV industry and to create an export market"[40] . The French adopted also a protectionist attitude both for black and white and color television. The 819 lines standard and the SECAM were both the work of Henri de France. He had good relations within the political power but he had especially the advantage of being French. Both standards were made to protect the French market of TV sets. Wladimir Porché, director of the French broadcasting system during the fifties, cleared this point up. The "French standard must constitute during a certain time a "technical bolt" more effective than a customs rate"[41]. SECAM was also made to protect the domestic television industry. Philippe Olivier, technical adviser from Alain Peyrefitte, Minister for Information, pointed out in 1965: "the output of West Germany as regards television sets is higher than the needs for West Germany. The prices of production in Germany are lower by 25 to 30% at the prices of production of the same materials in France. Under these conditions if Germany and France adopt the same system, the French industry will be in direct competition without contingent

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[37] S. Mallein, *Rapport sur les travaux de la 11e Commission d'études à la VIe Assemblée plénière du CCIR de Genève* (1951), Paris, 24 octobre 1951 in Archives Nationales 87014/art 14, cité in A. Fickers, *op. cit*., p.88.

[38] A. Fickers, *op. cit.*, p.176.

[39] *Ibid*., p.185.

[40] R. Crane, *op. cit*., p.2.

[41] « La bataille autour du 819 lignes », *Bulletin du Comité d'Histoire de la Télévision* n°5, décembre 1982, p.52

protection or customs with West German industry[42], whereas for the moment or several years still French industry is not competitive"[43].

But SECAM was more than a nontariff barrier. The French authorities supported and financed the development of the SECAM on a national and international scale. They even conquered themselves the external markets.

3. Behind the standards, the politics of grandeur

According to Alain Peyrefitte, the French Minister of Information, the SECAM was "much more than the SECAM, like the nuclear force or the Harmony (...) a proof that the challenge could be taken up"[44]. The stake of these choices was also political. Léonard Laborie points out the fact that since a link was made between the International Telecommunication Union and the United Nations, the cold war was able to penetrate in the technical arenas[45]. During the Stockholm CCIR Conference in July 1948, the USSR and its satellites of the East were showing reserve. Contrary to the others countries, they did not want to choose for one system or another believing it was too early to choose. Moreover according to them, political opinions of the director and vice - director of the CCIR (from West European countries) could not miss influencing the work of the CCIR[46]. Therefore even a technical choice could be intended as a political signal. In the case of the 819 lines, there was also a political background. In 1948, the French standard of black and white television had the greatest number of lines of the world, 819 against 525 in the United States. An image is all the more fine as the number of lines is high therefore French newspapers call French television "the best of the world". It was a way to promote the French technique on the international scene. It was a way to celebrate the French excellence. It was a kind of "politics of grandeur". But as far as SECAM was concerned, the political meaning was more intense. According to Rhonda Crane, "one of the most important factors leading to the development of a color TV industry [in France] was the outcome of the computer debacle, l'Affaire Bull. The compagnie des Machines Bull was after IBM the largest computer manufacturer in Western Europe. The French had pinned great hopes in it. Bull was not able to hold its own against IBM"[47]. Bull wanted to form an alliance with IBM's American competitor, General Electric but the French government initially rejected

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[42] The Common Market exists since 1958.

[43] « Note pour le Ministre de l'Information », Alain Peyrefitte, 26 février 1965, Archives du Ministère des Affaires Etrangères cité in A. Fickers, *op. cit.*, p.217.

[44] A. Peyrefitte, *Le Mal français* in *De la France*, Paris, éditions Omnibus, 1996, p.29.

[45] L. Laborie, *op. cit.*, p.932.

[46] *Procès Verbal de la 2e séance des chefs de délégation*, Stockholm, 23 juillet 1948. Archives du CCIR.

[47] R. Crane, *op. cit.*, p.42 -43.

General Electric's bind in 1962. In 1964, the French government reversed its position and agreed to an arrangement between Bull and General Electric. It was the demise of Bull as independent French Company. There were a series of recommendations for the development of an independent electronics industry in France[48]. The SECAM answered these criteria. From now on the « Supreme Effort Contra A-merica » had to fight against the "Never Twice the Same Color"[49]. Even before Bull's demise, the French Minister of Information, Alain Peyrefitte, had tried to convince his German counterpart, Gunther von Hase, to support the SECAM for political reasons: they had signed a Franco-German treaty of friendship in January 1963. He failed. As the President of the French Republic, Charles de Gaulle, had refused the entry of England in the Common Market and as England had privileged links with the United States, Great Britain refused to support the SECAM[50]. According to Rhonda Crane, the choice of the USSR was "bold and desperate"[51]. The maneuver is clearly explained by Philippe Olivier, the technical adviser from Alain Peyrefitte, Minister for Information: "It was initially a question of binding the USSR to the process of SECAM what would cause in the second time to make move in their turn the countries of the socialist camp among which East Germany whose choice would involve in the third time that of the Federal German Republic thus devoting in the fourth time the collapse or at least the disintegration of the camp of the PAL and in any case the final elimination of the NTSC"[52]. The third and fourth maneuvers failed. But by adopting this strategy, the question of color television became a political one at a time when relations between the USSR and the United -States were tense. In Vienna, "when one nation votes in favor of another nation's standards, the vote may be interpreted as a signal against a third nation (…). Many of the votes were intended as political signals. These include national political strategy, national technical needs, public opinion, estimates of the value of the services, economic status, balance of payments, the costs of not agreeing, history and experience"[53]. Finally SECAM was mostly supported by former French colonies, the USSR and Eastern European countries.

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[48] *Ibid*., p.44.

[49] *Ibid*., p.53.

[50] According to Léonard Laborie, it is true for all the sector of the posts and telecommunications: "the history of the French policy of co-operation in the field of the posts and telecommunications goes with the problems of the history of contemporary Europe" cited in L. Laborie, *op. cit*., p.41.

[51] R. Crane, *op. cit.*, p.60.

[52] « Note sur la télévision en couleurs », 2 septembre 1965, archives du Ministère des Affaires Etrangères cité in A. Fickers, *op. cit.*, p.346.

[53] R. Crane, *op. cit.*, p.8.

As a result, France was isolated in Western Europe, where the most profitable markets stood. France had mostly proceeded regardless of the decisions of the CCIR, especially in the case of color television. Yet it was partly profitable for its markets.

III. The split in the European market: power or brittleness?

The CCIR did not manage to unite the European market under one technical standard. Maybe this division of Europe so much dreaded benefited to the industry of television in France. It did not seem to have been so profitable for the French consumer. Contrary to France, the Federal Republic of Germany adopted the same standards as the rest of Western Europe both for black and white and color television. If German industry played a leading role in the European market of television sets, it collapsed at the end of the seventies.

1. An effective "technical bolt" for the French industry

From the French perspective the advantage of installing incompatible standards seem to have been greater. The French industry of television was protected by standards that were national. Although they increased, imports of black and white TV sets were only 9% of the overall consumption of television sets in France in 1970. This figure was 25% in 1976. The imports of color TV sets only represented 6% of the overall consumption of television sets in France in 1970, 19% in 1976. According to Patrick Fridenson, "the French fared particularly well with the SECAM patents: 500 millions francs for an investment of 100 millions francs in research. This amount was also related to the success of the PAL device, since it incorporated many SECAM patents"[54]. During the period, French manufacturers were dominating their market. In 1969, the French group Thomson had a 23,8% market share while la Radiotechnique, the French subsidiary of Philips, had a 25% share. Schneider and Continental Edison which were also French firms had a 15% market share each[55]. In 1984, according to the manufacturers' trade union, whereas Japanese had invaded the other European markets, "the French industry of the television sets remains largely dominating on its own market"[56].

Standards were a nontariff barrier. The narrowness of the French market may explain their effectiveness, for "a country wanting to export in France is obliged to manufacture a small series of

[54] P. Fridenson, « Selling… », *art. cit*., p.66.

[55] Statistiques DAFSA.

[56] SIMAVELEC, *L'électronique grand public, 1993 -1994*, Paris, SIMAVELEC, 1994, p. 13. Documentation Inathèque.

stations" [57] which was expensive. Had those standards not existed, some firms would have disappeared. The French subsidiary of Philips, La Radiotechnique faced "the possibility of being shut down [by Philips' group] for major economies of scale in production. If differences in national technical standards existed between color TV systems, La Radiotechnique could justify its existence by manufacturing for the French standard"[58]. However the greatest part of the television set, the cathode ray tube, was American. Japanese cathode ray tubes appeared at the end of the 1970s. They equipped also French TV sets. There were other manners of circumventing the obstacle by investing locally. The West German firm Grundig, did it in Creutzwald in Moselle in 1971. Until then, French firms were manufacturing for West German ones. In 1975, "the implementation of integrated circuits and the fall in costs of components enabled the French subsidiary of Philips to produce color TV sets which could taker either PAL or SECAM pictures and were compatible"[59] French standards did not only protect French industry, they were also profitable for it. According to Andreas Fickers[60], CFT as well as Telefunken had interest to prevent the European unification: they could get license fees. With the difference of the organizations of television, which are constrained by the differences in standards, industry could offer more apparatuses to the different standards on the market. It was the televiewer who paid.

2. The slow development of French TV sets' market

The French standards have partly been responsible for delaying the development of the TV sets' market. France was still broadcasting in 441 lines when the 819 lines were chosen. And some televiewers had purchased 441 lines sets. Because other countries chose 625 lines, its exchanges of sets but also of programs were limited. It has lessened the economies of scale that were possible for mass production, and the number of potential suppliers. Export markets were limited to markets which were using the same standards, which meant a few: Belgium, Luxembourg, Vatican and former French colonies. Total French exports including inside the European Economic Community represented in value only 3,4% of exports of the bloc Federal German Republic, France, Italy, Belgium, Luxembourg, Netherlands, Denmark, Ireland and United Kingdom in 1964. In 1982, at the end of our period, France accounted for yet only 2,1% of exports of television sets of this same whole of countries[61]. On this date, they were primarily exports of color television sets. Even if

[57] *Rapport du service des études financières du Crédit Lyonnais*, 7 juin 1971, archives du Crédit Lyonnais, DEEF 79413/1.

[58] R. Crane, *op. cit.*, p.48.

[59] P. Fridenson, "Selling…", *art. cit.*, p.67

[60] A. Fickers, *op. cit.*, p.344.

[61] Statistiques DAFSA.

SECAM color TV markets seemed to be potentially larger than those of the 819 lines for they were including in particular the USSR and all the East European countries, they were not very lucrative. The USSR and the East European countries were manufacturing by themselves. They did not pay any license fee. It was not only the standards' fault. But they played an important role. The French standards had obliged the French industrialists to create specific production lines for the external markets, which was expensive[62]. To produce sets and transmitters in 819 lines costed a lot of money. A set in 819 lines was 25 to 30% more expensive than a 625 lines set[63]. This standard was occupying such a frequency band that it was necessary to create a second chain on a lower standard which complicated the manufacture of the sets. The lifespan of a television set being of ten years, it obliged French public broadcasters to preserve the first chain which emitted in 819 lines and in black and white until 1975, to duplicate it then. It delayed the development of color television programs. A study of February 1973 on the various aspects of color television ensures that under equal technical and tax conditions equal the French color television set was more competitive. But the 819 lines would involve an increase of approximately 10% of the cost[64]. As a result, the French firms, which were also slow to merge, were not very competitive on the European markets. Their prices were among the highest in the European markets. In 1967, the retail price of television sets in the specialized stores and the department stores of the European Economic Community measured in average prices of the national products was at index 180 in France against 120 in Italy and 100 in Federal German Republic[65]. Even if standards were not the only responsible for such high retail prices and even if there were various lines of goods, prices in a mass market were much higher in France than in Federal German Republic.

Contrary to France, West Germany industry, which has made quite different choices for its standards, appeared to be for a long time a leading industry in European TV sets' markets. But it didn't last.

3. On the side of unified Western Europe: The Federal German Republic

The Federal German Republic had made choices exactly opposite of those of France as regards standards. It was not one of the CCIR members until 1953. West Germany was represented in

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[62] DAFSA, *Radio télévision*, Paris, DAFSA, 1970, p.43.

[63] Estimations d'Yvon Delbord, ingénieur au C.N.E.T., in « les raisons du choix du 819 lignes, conférence à la Société des Radioélectriciens du 10 mars 1949», *La télévision française*, mai 1949, p.35.

[64] M. Meurin, *Les différents aspects du développement de la télévision couleur*, Paris, INA, 1973, p.19. Documentation Inathèque.

[65] Office statistique des Communautés Européennes, extrait du *Bulletin général de statistiques* n°4/1967 et calcul de l'Institut IFO, in Commission des Communautés européennes, *Répercussions du Marché Commun dans le secteur des biens de consommation électrotechniques, principaux résultats d'une étude empirique*, Bruxelles, OCDE, 1970, p.32.

Stockholm and Geneva by the command of the Allies. It chose the 625 lines as black and white standard. Germany formed part of the Gerber sub-commission charged to unify the design features of the 625 lines. Germany already had, before the war, an exporting tradition and a powerful radio industry. In the same way, it has widely developed its exports of television sets after the war. During the sixties, German exports represented about a third of European exports in television sets. Meanwhile France's share was around 20%[66]. Germany remained the largest European exporter from 1963 to 1967. It carried out more half of its exports in Europe[67]. The share of its exports passed from 15% of the German production in 1963 to 18% in 1967. It was easier for it to export, for its products could be manufactured for the largest part of Western European countries which were more lucrative markets for black and white television sets than those of former French colonies or Luxembourg. This share may be underestimated for there are also German plants in other countries, especially in Italy. Contrary to France, West Germany had a large domestic market as well as external markets which it has actively prospected. According to a statistical survey, "this complement of the external markets contributed, by the lengthening of the series, to get to the German industrialists substantial economies of scale"[68]. In 1958, the German production of black and white television sets was nearly five times higher than the French production, 1,5 times more at the end of 1960s[69].

Things were going quite differently for color television. Even if West German television industry was more competitive than the French one, it was less competitive than the Japanese one. After having conquered the market of the United States, the Japanese industrialists decided to redeploy on another profitable market which had developed later: the European market. It included primarily West European countries which had a purchasing power much more interesting and higher than those of East European countries, Japanese industrialists targeted PAL markets. As early as in 1971, a French magazine, *L'Industrie Electronique*, announced that Japan which until now was manufacturing its television sets in the American standard, the NTSC, had decided to manufacture also in PAL. However there was a problem for the license, which was protecting the PAL markets. The owner of PAL patents, AEG –Telefunken, did not want to give Japanese manufacturers the license. Only Hitachi had a contract. In May 1972, Matsushita got the license. But it was forced to limit its sales in Europe. Sony had the PAL license in 1973 subject to the respect of a numerus clausus of the Japanese imports in Federal German Republic. To circumvent this regulation, Japan

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[66] DAFSA, *Radio …, op. cit.*, p.2. This share is calculated from the bloc Italy, United Kingdom, France, West Germany, Belgium, , Luxembourg, Netherlands, Denmark et South Irland.

[67] Statistiques DAFSA.

[68] DAFSA, *La production de récepteurs de télévision en Europe*, Paris, DAFSA, 1975, p.39.

[69] *Ibid*.

decided to establish plants in England which were not under quota regulation and which were already manufacturing in PAL. The European industry and particularly the German industry did not manage to compete with the Japanese. Color TV sets were twice more expensive to manufacture in West Germany than in Japan. The majority of the German firms had very heavy losses due in particular to the price war, and the surplus production capacity of color television sets[70]. According to Patrick Fridenson, "the excess of competition weakened the (…) numerous remaining players", which were more numerous than French ones[71]. One after the other the German firms were repurchased by their foreign competitors in the 1980s. The Telefunken's television department became part of the French Thomson group in 1983. It is true that European markets were for a time partly protected by PAL licenses. But when PAL patents rights were over in 1982 and as there were large and profitable markets, Japanese manufacturers started to gain larger and larger market shares. As a result, West German industry disappeared in the middle of the eighties.

In charge with standardizing the televisual communications on the technical level, the CCIR did not succeed in its task. By adopting the 625 lines standard and the PAL, a large part of the European countries were united. But England and France chose a different black and white standard while the 625 lines standards did not have the same technical features in all the countries that had adopted it. France, the USSR and East European countries adopted the SECAM. As a technical organization, the CCIR was only able to make recommendations. The members of the CCIR were not compelled to follow its recommendations. As an intergovernmental organization, it gathered technical experts, politicians and industrialists. They had sometimes different interests. They were not necessarily looking for the best technical system but they stood for their own interest. They were looking for the best economical and political solutions. In the long run it should be wondered whether the impossibility of the CCIR to achieve its task of standardization did not benefit temporarily to the country which was partially freed from its rules: France. It was almost the only European country at the end of our period to have maintained a national industry of television sets. The failure of the CCIR indicates also the difficulty for a technical organization with restricted capacities, to act, since political but especially economic and industrial stakes are concerned. Europeans, Japanese and Americans did not manage either during the eighties to get along on a common standard on television high definition. They had to choose between a Japanese standard and a European standard, which was not really supported by the two major European firms, Thomson and Philips.

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[70] *Projets de Thomson –Brandt dans l'électronique grand public*, 9 avril 1980, p.11. CAC Fontainebleau, Archives du Ministère de l'Industrie, Versement 19840416, art. 22.

[71] P. Fridenson, « Selling… », *art. cit.*, p.66