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RADAR AND CONTROLLED MISSILES

PARIS AREA

Reported By
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Team Leader

CIOS Targets Item 1
Radar

COMBINED INTELLIGENCE OBJECTIVES SUB-COMMITTEE
G-2 Division, SHAEF (Rear) APO 413

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SUMMARY OF TECHNICAL FINDINGS

General Description of Results.

The primary objective of the CIPC Radar and Guided Missiles Team in the inspection of Target Paris was to obtain evidence about German Research and Development in Radar and guided Missiles. The method used was to confer with engineers of the French Radio Companies and to inspect the work they had done for the Germans to attempt to learn the information they and their companies had gleaned from the Germans in either direct or indirect association. About 30 targets were investigated but relatively little new information was obtained.

In the totality of the factories inspected, numerous German Radio, Radar, DF, and similar equipment were to be found, some at a late stage in production, others partially produced and still others existing only as a prototype for French manufacture. In general this equipment was neither new nor highly interesting to technical and scientific intelligence teams. A great number of these sets, although new to French manufacturing had been produced and used much earlier by the Germans. No significant radical changes in design or any diminution of the quality of the German gear was noted.

From all that our team could learn, the Germans did not reveal their researches in the fields of Radar and Guided Missiles to the French. Principal information obtained by the French from the Germans was manufacturing detail concerning the equipment that they, the Germans, wanted the French to manufacture. Naturally there was considerable interchange on the latter.

The German scientists, technicians, and military men showed considerable interest in French research in UHF and Microwave as well as subjects like television which are closely akin to Radar. The French firms which did not want to collaborate with the Germans used devious means to conceal partly or completely the results of their own research.

It is very interesting and highly important to note that the greatest amount of information our teams obtained concerning German researches came from the Companies which showed us the results of their own research in the micro-wave region. This is to be expected since the Germans saw this same research and asked questions which could not help but reveal some of their own knowledge. Companies which preferred not to reveal their own research were not very profitable targets as far as scientific intelligence is concerned.

Information on German Developments.

Guided Missiles.

In the field of Guided Missiles, the Germans pretty much excluded French Industry. This is not at all unusual since this has always been a more secret subject than radar which itself is not revealed to French industry.

Radar Sets.

In the field of operating Radar Sets, nothing new was obtained.

UHF and Microwave Systems.

In the fields of UHF and Microwave system it is noteworthy that there is ample evidence gained here of more researches on wavelengths down to 50 cm. On wavelengths from 50 to 20 centimeters there is some evidence of an extension of longer wave technique to cover this difficult region.

In the microwave field there is ample evidence that the German research group has now turned to development. Actually there is no good evidence for production except in the field of search receivers in the 5 to 15 cm region (See L.M.T., Kriegsmarine Extension reports).

UHF and Microwave Components.

Crystal Detectors. Samples and information about German crystals used from 50 to 10 cm have been obtained. It is evident from these that German crystal work is not up to British and American standards. Unquestionably German crystal detector development received a considerable impetus when they found from radar sets on allied crashed aircraft that we used crystal detectors in the 10 cm region. From the mechanical design of the German crystals, it looks as if they copied some of our work. (See L.M.T. report)

Valves. Our teams found a few examples of new techniques in German valves but nothing spectacular. A coaxial type tube with metal to ceramic seals was perhaps the most significant. (See Compteur report). Different methods of mounting tube elements were occasionally seen.

Klystrons. No detailed German work on Klystrons was uncovered but French engineers assured us that the Germans were developing them.

Magnetrons. No German magnetron work was revealed it was learned that there is a group of German scientists working on their developments.

Appraisal of German UHF and Microwave Work

Summarising the information and impressions gained concerning German UHF and microwave research and development, it is evident that their engineering is good. However, the German apparently never realized that microwave equipment was operationally possible until as shown by the Allies. It is common knowledge among French Engineers that the Allies have radar working in the centimeter region. Now unquestionably the Germans are developing operational gear in the centimeter region yet there is no very good evidence of the quality.

Estimated German Knowledge of Allied Developments.

There was no significant information gained in Paris to the effect that the Germans had any more knowledge of Allied Radar developments than one would expect from the fact that they have captured large numbers of our X and S band sets from aircraft.

The French Radio Industry

Extensive information on the French Radio Industry was obtained from M.Giboin, who has acted as Co-ordinator of the French Radio Industry from the French Ministry of Supply, both now and during the occupation. As co-ordinator he determined not only the nature of the contracts but to some extent the nature of the research carried out by each firm.

M.Giboin also supplied information on the German restrictions on radio. The French were prohibited, under severe penalties from manufacturing transmitters and receivers without knowledge of the Germans. The Germans forbade all radio teaching on high frequencies in Northern France during the occupation.

M.Giboin further supplied information on the complete organization of the French Industrial Production. The text of M.Giboin's remarks on the French Radio Industry follows:

1. General information.

Excluding consideration of manufacturers special radio measuring equipment, as they form a special branch group 13 of COCLEC (electrical measuring instruments) the radio industry makes up three groups of COCLEC (Comité d'Organisation de la Construction Electrique) numbers 18, 23, and 24.

Group 18: Amateur equipment and individual components
(Primarily broadcast receivers and public address systems.)

Group 23: Professional equipment.

Group 24: Tubes (transmitting, receiving, and special electronic tubes).

This division is a recent one made for administrative rather than technical reasons; for three years the whole French radio industry was administered by a single professional group. From a technical viewpoint, this industry is a single one; nevertheless specialization of firms for manufacture of various items has made the subdivision an easy one.

Group 18 consists of 1500 firms of all sizes, some few large ones, mostly medium sized ones, many very small shops type enterprises and over 500 individual entrepreneurs. About 150 firms mostly of medium size are specialized component manufacturers, each one normally making only a single type of part: loud speakers, variable condensers, coils, potentiometers, resistors, etc. Other firms manufacture broadcast receivers or amplifiers from parts either brought from other firms or manufactured by themselves.

Group 23 consists of over 100 firms including the largest ones in the radio industry and also some small firms and even a few individual entrepreneurs. Included also in this group are some operating concerns which run radio communications services. The manufacturer's principal and sometimes only client is the Government (departments) or public services.

Group 24 includes six receiving tube manufacturers, 8 transmitting tube manufacturers, and a few manufacturers of special electronic tubes or separate parts for tubes. There are fewer than 50 enterprises in all in this group.

In all these three groups employ about 17,000 people and do business of real financial importance amounting to about one fourth of that done by the electrical manufacturing industry as a whole.

As a general comment on this branch of industry one may say that it consists of far too many enterprises resulting in

dispersal of facilities and excessive competition. This is less true of group 24 (professional equipment) than in the other groups. As a matter of fact the largest concerns in group 24 have quite important research laboratories and offices for study.

2. Situation of the Radio Industry during the German Occupation

The occupying authorities attempted to get all French industry for their war ends and therefore to prevent satisfaction of purely civilian needs.

To achieve their ends they forbade manufacture of various products closed down certain types of enterprises and moved worker personnel about. On the French side the effort was, on the contrary to keep as much activity to satisfy French civilian or apparently civilian both public and private, as possible.

The primary interest of the occupying power was production. Factories were classified as Rüstungsbetrieb (Factory attached to armament factories) V Betrieb (priority factories) and other enterprises. The first were administered by armament inspectors, the second by economic occupation authorities, and those not belonging to either Rüstung or V categories were obliged to shut down.

Generally speaking, German firms were given control of the French firms and were to flood them with orders. In the professional radio equipment industry these firms were: Telefunken, Lorenz, Opta. (i.e. formerly Loewe), Siemens and Elektro Spezial (i.e. Phillips). In spite of all their efforts, the occupants were unable to exact a toll of more than about 70% of the productive capacity put at their disposal.

With regard to facilities for study and research, the Germans were hardly interested. They confined themselves to asking without insisting very much that most of the engineers connected with these activities be transferred to production. Of course there was a maximum amount of inertia opposing these requests. Never were the Germans kept up on details of studies which were continued, and even less of the results.

Nevertheless the few efforts made by the Germans to pass on research problems to French industry, were met with extreme reluctance. The only instance worthy of mention in the radio industry is the company des "Compteurs" (at Montrouge) which did such spectacular television research for Telefunken that the Laboratory was given considerable freedom of action.

Of course the presence of the Germans was quite annoying insofar as research for French benefit was concerned, particularly when the experiments required radiation. Thus, in general such research was done in unoccupied zones until

November 1942, and the freedom which existed until then has subsequently disappeared. It must also be conceded that there has often been prevarication and such time lost, but nevertheless there has been real progress on some problems.

3. The CCTI

Formed in November 1940 at Vichy, the CCTI (Committee for Coordination of ...erial Telecommunications) was set up to coordinate the needs and research of the various French agencies. It is this committee which supervised research done by the radio industry and has been most useful in forestalling duplication and excessive dispersal of effort. This committee is not only continuing but will be called on to expand its work. It is well to bear in mind that CCTI is competent to deal with all of the field of telecommunications including both wire and radio communications. Material in the wire field falls under groups 19 and 20 of COCELEC. Group 19 covers electric wire and cable while group 20 covers telephone and telegraph material.

4. Role and Work of the Ministry of Industrial Production.

Basically responsible for the organization of the professions, the Ministry of Industrial Production has tried through the Committees of professional organization to persuade both the industrialists and their clients to use the methods in each branch of their production which are best adapted to the realization of the final aim. Insofar as telecommunications equipment for the French is concerned the work of the Ministry is easy inasmuch as the clients are all grouped together in the CCTI. The German client however to a large extent worked against the committee as he often acted in a fashion contrary to the wishes of the French Ministry. Thus he gave orders to enterprises which the French would have felt it desirable to have go out of business, and on the other hand tried to put out of business some concerns which the French considered worthwhile. This client was very reluctant to permit interference on the part of the Ministry and the Committee of organization.

The efforts of the Ministry of Industrial Production have the double object of concentration of effort and of specialization.

Concentration to be primarily directed toward a reduction in the number of enterprises in order that their research and production facilities may be increased (which is not to say that trusts are to be favored) and implies primarily regulation and coordination of competition.

Specialization is a method of encouraging technical progress.

5. Detailed information of manufacture of professional radio equipment.

The list given below list the principal manufacturers of this type of equipment and give some details about them.

In order to give an idea of the productive capacity of the various firms, the list cites the number of employees and the value of business done in France. It is very difficult to give this information accurately: The figures may vary widely depending primarily on the nature of the orders received by the factories. In addition to permanent staff (research, study, executives, and specialized skilled labor) the concerns always have quite an amount of transient labor. As far as the money value of work is concerned, this is obviously different for manufacture of prototypes and quantity production.

Moreover one must remember that serious delays are inevitable in starting up production whether it be large scale production (because of the tooling up problem) or small scale production of varied units (hand work).

One of the characteristics of French industry which is made up of many small enterprises which are in general ill adapted to large scale production is its flexibility for the production of small varied equipment.

This list does not include individual workers nor does it include those enterprises which should preferably not have been included in the branch under consideration as for instance those which are in it a result of German orders and whose normal activity was in the field of amateur equipment (Ora Grandin of Radio LL, etc.)

Considering the number of concerns in the list (20) one may say there are too many.

1. **Atelier de Montage électrique (AME)**. 54 rue du Théâtre, Paris XVeme. A small concern employing about twenty people and specializing in receivers and radio goniometers.

Directors and Technical people MM YAKOWLEFF & MALLET - productive capacity, 2 million francs.

2. **BRONZAVIA SA**. 207 Bd de Saint Denis, Courbevoie (Seine). An important concern with various activities all connected with radio and optical aspects of aviation, accessories, carburetors and propulsion motors this firm employs a total of over 2000 persons. It manufactures airborne transmitters and receivers for the SARAM 310 aircraft. Its research establishment is separate

and is called SARAM, 9 rue Fontaine a ASNIERES (Seine); the chief technician is Mr. MERLE.

During the German occupation, BRONZAVIA was supervised by two provisional administrators from the ASKANIA-WERKE of Berlin. The director of BRONZAVIA is Mr. TOURNIER.

Bronzavia's production capacity for SARAM type of material is over 200 million francs, but it would be difficult to give an estimate for other types of material.

3. **CIRMA.** 64 Rue Perronet, NEUILLY (Seine). A very small firm employing about ten people and specializing in the manufacture of small portable transmitter-receivers operating in the meter range.

Production capacity is less than 1 million francs.

4. **Compagnie pour la Fabrication des Compteurs et Matériels d'usine a Gaz (abbreviated CdC)**. Office and factory, 12 place des Etats Unis, Montrouge

This company, while existing primarily as a public utility has a separate department which manufactures cathode ray tubes and iconoscopes, television units (video frequency units) and measuring instrument (calibrated signal generators etc.) This department has an important research branch which is working on some very special problems. As far as television is concerned CdC has an agreement with SFR, each company specializing in different phases of the problem.

The two companies have set up a subsidiary which is their commercial agent, the Compagnie Française de Television: its Director is M.Weygand.

The general director of CdC is M.Chomon and his assistant is M.Leduc. Among the technicians one may mention MM.BARTRELEMY, DAVID, ZAIGLINE, MANDEL.

The employees number 200 and no figure can be evaluated for the amount of business done.

5. **La Construction Radioelectrique.** (Formerly Peyrouse & Benesech), 12 Chemin des Vignes, Pantin (Seine). A small firm specializing in low power transmitter-receiver assemblies operating on meter and decimeter wavelengths, power supply and audio frequency equipment. The director is M.Pierre Gantet. Employees number 50, and business of 5 million francs is done.

6. **Compagnie Generale de TSF.** 79 Bd Hausman, PARIS (IXème).

This is the parent and holding company of the Group Girardeau, and operates some services of common benefit to the group. It operates research laboratories employing over 150 people but does no manufacturing itself.

7. **Les Laboratoires Radioelectriques.** Office: 22 rue de l'Oasis, Puteaux, (Seine), Shops: Clermont-Ferrand (Puy-de-Dome).

A concern specializing in the manufacture of fixed station transmitters for airfields of power between 500 watts and 10 kW for short and medium wavelengths. It has recently fitted out a quartz crystal department, a measuring instruments department (precision crystal controlled frequency meter) and an electronic tube department. It is also getting set up to manufacture receivers.

The director M.NIKIS was arrested and deported to Germany in June 1944 together with several of his colleagues. His successor is M.DUCHANGE.

Personnel numbers 350.

Value of Business done: 50 million francs.

8. **Le Materiel Telephonique Company (L.M.T.)**. Office and factory: 46 quai de Boulogne, Boulogne-Billancourt (Seine). Laboratory: 46 Avenue de Breteuil, PARIS (VIIème) and Lyon.

Total number of employees: over 4000.

In addition to radio equipment of all kinds, radio tubes and various other types of tubes, this company manufactures telephone equipment (its primary activity), electric cable, refrigerators, and fire fighting equipment.

It is part of International Standard Electric (whose directing individual is COL. SOSTHENES BEHN) which is tied up to the I.T.T. and A.T.T. groups.

The French concerns Cie General de Constructions Telephonique and Les Teleimprimeurs belong to these same American groups.

The director of L.M.T. is M.Roussel. Among the engineers one may note MM.RABUTEAU, SAPHORES, CLAVIER, TOURNIER.

The company's total business amounts to 300 million francs, about a third of which is radio business.

9. **LOTH (Societe Industrielle Procedes Loth, abbreviated SIPL)**. Offices: 11, rue Edouard Nortier, Neuilly s/Seine (Seine). Factory of Planquivon at ATHIS de l'Orne (Orne).

Until 1938 SIPL was a research establishment and builder of prototypes. Since 1933 it has set up its factory of the Orne to mass-produce airborne radio equipment (under SARAM license, see Bronzavia). During the war of 1939-40 the personnel has increased to about 600 with a business of about 100 million francs per year.

This company has the benefit of technical assistance from Philips. The general director is M.HAREL.

Personnel: 500 people.

Production capacity does not appear to exceed 50 million francs.

10. **METOX.** Office: 124 rue Reaumur, FARIS (11eme). Shops: 104 bis rue Pelleport, Paris (XXème)

Prior to 1940 this company imported American goods to France, but since then has begun to manufacture, specializing in commercial receivers (on medium, short, and ultra short waves) and in special equipment.

Director: M.CHAUCHAT Technical Director: M.CORRIEZ

Personnel: 40

Business done: 5 million francs.

11. Societe RADIO-AIR. Offices: 134 Bd. Hausmann, Paris. Factories: 72 rue Chauveau, NEUILLY s/Seine (Seine), and at BRIONNE (Eure). The recording studios are at the office address.

A firm specializing in airborne equipment including radio-navigation, and in recording equipment.

General Director: M.Bonnafous

Personnel: 150

Business: 10 million francs.

During the German occupation this firm was controlled by FRIESEKE & HOPFNER of Potsdam.

12. **Societe LA RADIO-INDUSTRIE (abbreviated R.I.).** Office: 25 rue du De Finlay, Paris (XVème). Shops moved to Lyon. *is one of the French radio businesses sly its financial situation has been d res. As cleaning this up appears to be the Ministry of Production hopes this business. Its current staff is negligible*

Director: M.de XXXX

Technician: M. (television specialist)

RBV shops, 13 Passage des Tourelles, Paris Associated with R.I. for financial reasons manufacture cathode ray tubes and iconoscopes. to the same fate as R.I. Moreover the yet ready.

SOCIETE LA RADIO TECHNIQUE, 21 Rue Carnot

This is the company of the GIRARDEAU
Specialized in amateur equipment and receivers
only manufacturing commercial receivers
interest of S.F.R.

IR. Office ; 3 rue Lord Byron, PARIS,
Murat, PARIS (XIIème) and 27 rue Nelaton

This company has expanded greatly in
worthy of this expansion. It is part of
as is the Ateliers J.Carpentiere which
with.

specialty is in metric length waves but
activity into the radio field as a whole
search on transmitting tubes.

Personnel: 800 Business 100 million francs.

Director: M. RIALAN

Technicians: MM. DELBORD, GAMET, GLOEZ.

Director: M. VIDREQUIN.

AM (See BRONZAVIA)

13. Societe Francaise Radio Electrique (S.F.R.).

Boulevard Hausman, PARIS (VIIIème). Factories: L
Seine) and Cholet (Maine-et-Loire) and

1 personnel numbers over 3000. This company
all kinds of professional equipment and
se. It belongs to a group of related c
by Mr. Girardeau. Its director is Col
technicians one may note: Messrs. BETHENOT
GRIVET, GUTTON, WARNECKE, WILLEM.

Personnel exceeds 3000

Business is 300 million francs.

17. Societe Française de Telecommunication (S.F.T.). Pau

A fairly new company (1941) which specializes in quartz and
its applications. This company has so far restricted itself to
research but little production capacity.

General Director: BONORAT. Technician: M. BEREDZKY.

Personnel: 60

Business: to estimate.

18. Societe Industrielle Radio-Electrique (S.I.R.).

Business office and Workshops: 31 rue Censier, Paris (Vème) -
also Workshops at Brioude (Haute Loire).

This company was established in order to manufacture airborne telephone equipment and to this end had put in a factory at Bleneau (Yonne) (laryngophone and associated equipment). It also built broadcast receivers and only recently came into the professional radio equipment, measuring instruments for electronic and receiver work. It does not appear desirable for it to remain in this field and a merger with other enterprises must be considered.

Maximum number of personnel during the war of 1939-40 on airborne telephone equipment: 400 people

Director: XXXXX

19. **Societe Independant de T.S.F. (S.I.F.)**. Office and Factory: 168 route de Montrouge MALAKOFF (Seine).

This company manufactures all kinds of electronic equipment and transmitting and associated types of tubes.

Since 1936 it has been controlled by the Girardeau groupe.
Director: M.BELMARE, Technicians: COLAS, GAUX.

Personnel: 700

Business: 600 million francs of which 20 million are in the tube business.

20. **Compagnie Française Thompson Houston (T.H.)**. Office: 173 Bd. Hausmann, PARIS (VIIIème). Factory for transmitting and television at Asnieres (Seine), factory for small parts and broadcast receivers (trademark DUCRETET) at rue de Nanteuil, Paris (XVème). The total personnel on commercial and amateur radio equipment exceeds 2000 people.

This company has besides its radio business, various activities in electrical and mechanical manufacturing. It is related to the American G.E. Co., and has had technical help from E.M.I. in the television field.

Its General Director is M.BOREAU. Among the technicians one may mention MM. DELVAUX, PODLIASKY, MATRICON, SOLLIMA.

Personnel in commercial radio: 500

Business up to 100 million francs.

Cirma

84, rue Perronet a Neuilly (Seine)
5 September 1944

1. Sources of Information.

(a) Persons interviewed

On arrival the premises were locked. With assistance from the local mayor's office entrance was gained to the plant which had ceased all operations a few days before. Sources of information included the representative from the Mayor's office, people living near the plant, a worker who called the plant by phone and M.Giboin, Co-ordinator of French Radio Production.

(b) Facilities and Equipment inspected

The manufacturing facilities were very small and makeshift in nature. Twenty five to thirty five persons were employed in the construction of low powered portable transmitter receivers. Two types were inspected. These revealed nothing new.

2. Information obtained

(a) Organization and Affiliates

M.Mingnet, former director of the concern is an alleged collaborationist and profiteer and it is believed he fled in April or May. At this time a M.Cloutrier also a collaborationist took over control and operated the concern.

(b) German Sponsored Equipment

Production was on a very small scale. There were about 28 complete or nearly complete transmitter-receivers of very simple design. Operation was in the region of power supply of 6 volts D.C., and 120/240 volts A.C. The workman There were no signs of research-work. Among several pieces of equipment was a General Radio 724 A wavemeter mc range. The shop also contained working machines which made pairs of equipment and also what appears to be pair parts for tanks.

(c) Independant French Activity

None

Summary of Significant Findings

technical information disc` value. A carbon copy of a letter 1944 and indicating continued the enemy was discovered and tt

Conclusions and Comments.

This firm obviously collaborated with Germany and furnished them small inferior, low power field comm equipment.

Members of Inspecting Party

Dr. E.W. Thatcher O.S.R.D.

Lt. F.L. Sherman U.S. NAVY

**Compagnie pour la Fabrication des Compteurs
et Materiel d'Usines a Gaz**

Short Title: Compagnie Compteurs.

Address: 12, Place des Etats-Unie,
Montrouge (Seine), Paris 7.
C.I.P.C. Target No. 1/76
30 August 1944.
31 August 1944.

1. Sources of Information.

(a) Persons Interviewed

President Directeur General	
President Managing Director	M.E. Chamon
Director (Commercial Department)	M.M. Heeley
Director: (Television)	M.Le Due
Director: (Technical Department)	M.Hines
Research - Television, Electricity	M.Le Due
Gas, Water, etc	
Senior Research worker in Television	M.Bartheiemy.
Secrtaire General	M.Boyer
Others not Interviewed were:	
Laboratories: .(Chemical Department)	M.M.Thomas
Laboratories: (Physical Department)	M.Dubosc

(b) Facilities and Equipment Inspected.

This company has considerable research and development in the field of television. We inspected briefly the laboratories where this work was in progress.

2. Information obtained

(a) Organization and Affiliates

This company has associated firms, but these are not concerned with radio or television apparatus.

(b) German Sponsored Activity

The Germans purchased a large number of the standard articles produced by this firm but sponsored no new activity except in the field of television. The standard products of this company include a great variety of articles for use in electrical, radio, gas and water industries, such as water, gas, and electrical meters of all types, transformers, switches etc. All members of the party agreed that the information about units of equipment of this type which the Germans purchased would not give much detail about their German military purpose.

The television research of this company was sponsored by German Industry: in particular Telefunken. Such a fact led the inspecting party to question their research engineers very carefully about the type of research and development being done. It turned out that most of the development was for standard television receivers. The German government had an order for a large number of these commercial receivers to be used in hospitals rest homes and for industrial purposes. The company manufactures all of the electronic circuits, iconoscopes, and cathode ray tube other than the RF portions of these television sets. The Germans had the information about this television development, but none of it was particularly unusual. The German engineers visiting this factory never revealed much about their own work on radar, although engineers of Compagnie des Compteurs attempted to learn about it from them. Compagnie des Compteur manufactured about 1000 LB-1 two inch cathode ray tubes for the German Air Force. A sample was obtained.

In their research laboratory they were doing experiments in the two meter region using a Telefunken LS 1000, a new tube. Later we obtained the technical data and an X-ray of this coaxial type tube from S.F.R. The data on this tube is:

Tension de chauffage	12.6 V
Courant de chauffage	4.2 A
Capacité grille-plaque	17 μ f
grille-cathode	40 μ f
plaque cathode	0.4 μ f
Pente	40 mA/V (Up equals 600 V (Ip equals 0.3 A)

Coefficient d'amplification: u equals 40
 Puissance dissipée a la plaque: 1000 watts
 Puissance dissipée a la grille: 20 watts
 Tension de plaque max. 1500 V
 Tension de plaque crête. 3000 V
 Courant de plaque max. 1 A
 Air de refroidissement:

Np equals 500 750 1000 watts
 V equals 600 1100 1700 litres min.

Telegraphie	150 mc
Up equals	1500 V
Ip	1 A
Ego equals	60 V
Ig equals	150 V max
Igo equals	0.25 A

Np equals 1000 W
Ng equals 40 W
Refr. 800 litres/min.

Pour une Rp de 300 - 500 ohms
(ampli à bande large)

UA equals 1100 V
Ip equals 1.5 A.

(c) Independent French activity

The French works of this firm was not investigated except in a general way. It is believed that their television research is of high quality. Particularly interesting is the fact that they have a working 1000 line system. They also made Orthicon tubes.

3. Summary of significant finding

The only significant finding was the LS 1000 which is an air cooled 1 kW tube using porcelain-metal seals (no glass), data on which is given below. A drawing of this tube is attached.

4. Conclusions and comments.

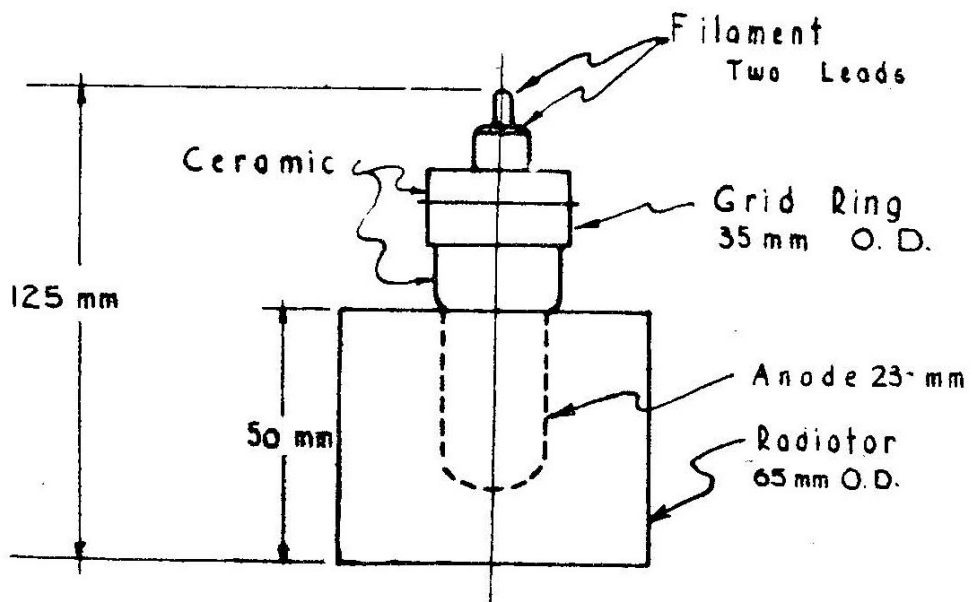
Television work of this firm should be of interest to any organization concerned with French manufactures.

5. Members of Inspecting Party

Lt. J.T. Thomson	Admiralty
Lt. T.J. Nagel	U.S.N.R.
Dr. H.G. Stever	O.S.R.D. (Reporting)

TELEFUNKEN
L S 1000

CERAMIC-METAL SEAL TRIODE



Ecole Superieur d'Electricite

8 - 14, Avenue Pierre-Larcousse.

C.I.P.C. Target No. 1/98

31 August 1944

1. Sources of information

(a) Persons Interviewed

M.Bedoura Sous-Directeur

M.Jouvion Secretaire-General.

(b) No detailed inspection of the premises was considered necessary.

(c) No equipment inspection was considered necessary.

2. Information obtained

(a) Organization and Affiliates

This Ecole would appear to be the senior Technical College for students of electrical engineering in this area.

(b) German Sponsored Activity

The Ecole was ignored by the Germans until 1943, when it was asked to form the section de Radio electricite de l'Ecole Superieure d'Electricite at 48 bis Rue de Cuire, Lyon, (in unoccupied France) for radio training. This project appears to have collapsed when the Germans took over full control of Southern France.

(c) French activity

Some training appears to have continued during the occupation, but on a reduced scale as a result of the difficulty of obtaining equipment.

3. Significant findings

None

4. Conclusions and comments

The Ecole is equipped with measuring equipment for audio and radio frequencies, and possesses an extensive library. Should these facilities be of service to the Allies, full co-operation is offered. There is however, nothing of interest to the present mission.

5. Members of Inspecting Party

Mr. L.L. Farkas O.S.R.D.

Major W.T. Williams War Office (Reporting)

Eiffel Tower Television Transmitter

1. Sources of Information

(a) Persons Interviewed

M.Guy of the LMT laboratories

M.Jean Jacques Mueller Television Engineer, LMT

Television, S.A.D.I.R.

(b) Facilities visited

The television transmitter in the Eiffel Tower.
A German Signal establishment at N° 1 Charles Floquet.

2. Information obtained.

(a) The Eiffel Tower Television Transmitter

This is a 30 Kw product of L.M.T. It is operated by the Germans using the original French Radio Operators. The Germans had added another coaxial line input from N°1 Charles Floquet. In this building only German Military personnel were permitted. At various times, usually about 20 minutes before the passage of Allied Bombers nearby, peculiar signals were sent from this building to modulate the television transmitter.

(b) No. 1 Charles Floquet

Jamming equipment employing four LS 180 tubes in push-pull parallel was found at No. 1 Charles Floquet. The frequency range was about 30 to 100 mc Also found were considerable stores of standard radio parts and components.

(c) Papers found

At N° 1 Charles Floquet there were found various papers, mostly which were of no interest. Items included such things as a list of people to whom passes to the tower were issued.

3. Significant Findings

In the presence of Allied Aircraft the Germans sent out some very irregular and peculiar signals on 6.52 meters. These consisted of a mixture of three types of signals put on in irregular sequence with a period of ten seconds to two minutes devoted to each. The three types of signals were:

(a) Regular pulses, frequency 130, pulse length one microsecond.

(b) A mixture of pulses, some of which were variable in phase.

(c) Complex signal including two sine waves of different frequencies.

4. Conclusions and comments

It is concluded that the enemy used the signal establishment at N° 1 Charles Floquet for at least the following purposes:-

(a) Film televising and perhaps a small amount of direct studio pick-up.

(b) As a jamming station for our airborne equipment.

(c) For producing peculiar transmissions over the Eiffel Tower Television Station in some way connected with their air warning system.

5. Members of Inspecting Party

Major. N.D. Crane	U.S.
Capt. E.M. Reilly	U.S. (Reporting)
Capt. J.T. Mullin	U.S.

Etablissement Ch.Aufiere

C.I.P.C. Target No. 1/75

1 Sept 1944

1. Sources of Information

- (a) Persons interviewed.
M.Aufiers who visited the force headquarters.
- (b) Facilities inspected
The Etab. Ch. Aufiers was not visited.
- (c) Equipment Inspected
None.

2. Information obtained

- (a) Organization and Affiliates
The Company has no known connections with other French firms.
- (b) German Sponsored Activities
 - (1) Manufacture of an A.A. predictor of French design, in manufacture before the war, modified for use with German guns.
 - (2) Equipment of German design (Siemens) notably:-
 - (a) A Small predictor
 - (b) A "receiving system".
- (c) Independent French Activity.
None revealed.

3. Significant Findings

None. This plant was not a target of primary interest to this group.

4. Members of Inspecting Party

Dr. E.W. Thatcher	O.S.R.D. (Reporting)
Major W.T. Williams	War Office.

Establishment Ora-Grandin

96 Rue des Entrepreneurs

31 Aug 44

1 Sep 44

This mother company of Girardeau group controlling the following organizations:-

Three "Societies d'exploitation"

- (a) La Compagnie Radio France
- (b) La Compagnie Radio Orient
- (c) La Compagnie Radio Maritime

Four "Societes de construction"

- (d) Societe Francaise Radioelectrique
- (e) Societe Independante de T.S.F.
- (f) Radio Technique
- (g) Radio Cinema

Of these, (d), (e) and (f) are relevant to this mission and have been the subject of separate technical reports.

3. Significant Findings

None

4. Conclusions and Comments

None, other than that the manufacturing companies of this system collaborated with the Germans on production.

5. Members of Inspecting Party

Mr. L.L. Farkes

O.S.R.D.

Major W.T. Williams

War Office (Reporting)

German Radar School

Groupe Scolaire Ferdinand Buisson

Ville de Chaville

Grande rue Serre

2 Septembre 1944

1. Sources of Information

(a) Discovery

A Würzburg parabolic antenna was seen by one of the members of the C.I.P.C. Radar team in a large building while driving through Chaville, a district on the outskirts of Paris. There had been no previous Intelligence reports on this school.

(b) Inspection

A thorough search was made of this building which had formerly been a public school. It consisted of a two storey modern brick steel reinforced structure with living accommodations, having four floors at each end.

2. Information obtained

(a) This building had obviously been used for training radar operation and for mechanics.

(b) Equipment Found

In this building and in the courtyard behind were many pieces of German radar equipment including Würzburg, Freya, and ground IFF. The Germans had attempted to smash thoroughly all the apparatus which was left behind and had used grenades and high explosives in several places, causing the floors to collapse. Large display racks were found which had held complete radar assemblies, showing the unit interconnections. Several rooms were fitted as lecture rooms with study aids showing valve base connections. On the roof were mounted three antennae one each of Würzburg, Freya and IFF, all fed from the demonstration set ups below by feeders. In the courtyard behind were assemblies for eight Freyas antennas, many IFF antennas and also tower assemblies for elevating Freya antennas. Also in a shed in this courtyard were three badly damaged motor-generators sets for Freya equipment.

3. Summary Significant Findings

As far as could be determined no new developments were to be obtained from this installation. Several pieces of enemy radar equipment were collected but only to supplement supplies of gear known to be meager. Included in this was a tube tester made specifically for testing all the tubes used in the Würzburg equipment.

4. Conclusion and Comments

Contrary to former beliefs, the Germans had not only undertaken to set up a school on radar outside Germany but had done so in Paris, taking no pains to prohibit surveillance of the antennas and equipment from the public.

5. Members of Inspecting Party

Capt. E.M. Reilly	U.S. Army (Reporting)
Capt. J.T. Mullin	U.S. Army
Mr. G. Mc Gough	O.S.R.D.
Lt. F.L. Sherman	U.S. Navy
Dr. E.K. Thatcher	O.S.R.D.

German Submarine Stores

Cormeilles-en-Parisis

Northwest of Paris

31 August 1944

2 September 1944

1. Sources of Information

Inspection of Naval Submarine Stores housed in a large four story building and underground storage facilities. Examination of electronic equipment, stocks of spares for electrical apparatus and test equipment. The visits were made

in company with the 30th Royal Marine Assault Unit who had already removed some equipment.

2. Information obtained

The Arsenal previously occupied by the French was taken over by the German Navy for use as material supply and distribution depot serving submarine operating bases in France, dealing in optical, electrical control torpedoes, torpedo control, mechanical and navigational supplies. In general electronic equipment alone was singled out for destruction before German evacuation. Major units of submarine "DF" and "probable" recording underwater sound equipment were obtained in-fair condition, by the 30th Assault Unit for shipment to Admiralty, Whitehall, London, for redistribution and subsequent report. These equipment appeared to be of conventional design. Tubes found in large quantities were ordinary low frequency receiver types and some high power thyratrons which could be used in submarine electrical control apparatus or underwater sound. Electrical test equipment found was of simple design suitable for only the simplest voltage and current measurements. Electrical cables were all of rubber or similar dielectric not suitable for use above 50 mc.

No radar or spares for radar were located.

3. Summary of Significant Findings

In spite of the large amount of equipment inspected nothing of outstanding technical importance was noted.

It was of interest to note the excellent workmanship of equipment inspected and the liberal use of metals.

4. Conclusions and Comments

The submarine stores obviously did not serve radar or communications requirements.

Jaeger

2 Rue Bairdin,
Levallois Perret.

6 Sept 1944.

1. Sources of Information

(a) Persons interviewed

M. M. Doubjou Chief Engineer, Radio Dept.

(b) Facilities Inspected

The activities of Jaeger in the radio field have not been extensive but a combined model shop and laboratory was inspected, Utilizing the large shop facilities of Jaeger, a concern which specializes normally in the manufacture of speedometers and other panel instruments, the radio department is enabled to produce very well finished components and assemblies.

A small ceramics section of the laboratory produces all ceramics used in Jaeger equipment. It is significant that even sockets for tubes such as RCA 813 are made of ceramic in this laboratory.

(c) Equipment inspected

Jaeger has not been very active during the war. No work was done for the Germans in the radio or radar fields. The equipments inspected were essentially copies of Bendix Multi-channel transmitters and receivers. An ingenious control panel for installation with such equipment in French aircraft was de-signed and built before the war and was seen in the laboratory. This equipment was installed in Se 200 French aircraft and also in the Latecoere 631 flying boat.

2. Information obtained

(a) Organization and Affiliates

The Jaeger radio department is a part of the Jaeger plant located at 2 Rue Bairdin, Levallois, Pierret. There are two other plants in Paris.

(b) German Sponsored Activities

None

(c) Independent French Activities

None were revealed

3. Summary of Significant Findings

Nothing of sign of significance to the mission of the C.I.P.C. teams was found

Laboratoire Central des Industries Electriques

14, Rue de Steel. C.I.P.C. Target No. 1/97

30 Aug 1944

5 Sep 1944

1. Sources of Information

(a) Persons interviewed.

M.Saterre	Directeur
M. de la Gorce	Sous-Directeur
M.Jouault	Directeur-Honoraire
M.Bellenot	Ingenieur de Rayon-X et Secretaire-General.

(b) Facilities inspected

No inspection of plant or equipment was carried out.

2. Information obtained

(a) Organization and Affiliates

The Laboratory acts as a national organization for the testing of commercial equipment: its works seem comparable with the U.S. Bureau of Standards or the

British N.P.L. Its X-ray laboratory is situated in L'Ecole Superieur d'Electricite.

(b) German Sponsored Activities

They claim to have done no direct work for the Germans, having acted in their normal consulting capacity on a few occasions only. This has involved the following:- the check of the operation of a siren on 25 c/s; the determination of the output of an alternator; and the release of the results of some of their own work on coronas.

(c) French Activities

The Loratoire appears to have fulfilled its normal functions to only a restricted extent, since they have carried out no testing of German equipments during the occupation. They have made for another organization believed to be the (Societe Independente de T.S.F.) some X-ray photographs of some German metal valves. These have been examined by experts on the second visit and appear to be normal transmitting valves, they have however, been re-photographed for later examination.

3. Significant Findings

None, with the possible exception of the valve photographs mentioned above.

4. Conclusions and comments

The facilities available at the Laboratoire are more or less those that would be expected at such an organisation, and they may be of value to Allied production at a later date.

5. Members of Inspecting Parties

30 August 1944	Mr. L.L. FARKAS	O.S.R.D.
	Major W.T. William	War Office (Reporting)
5 Sept 1944	Dr. E.W. Thatcher	O.S.R.D.
	Lt. E.N. Rowland	Admiralty

Laboratoire Radio Electrique

22 Rue dal Oasis, Puteaux.

5 Sept 1944

1. Sources of Information

(a) Persons Interviewed

M.Boucher

M.Berline

(b) Facilities Inspected

The main facility of this organization being the three factories at Clermont-Ferrand, no detailed inspection of these premises was carried out.

2. Information obtained

(a) Organization and Affiliates

The laboratory acts, in effect, as the headquarters office of the Laboratoire Radio-Electrique Clermont-Ferrand with premises at

43, Rue des Jacobine
3, Rue Barbier-Daubree
70, Rue Lamartine.

These are not, of course, at present accessible. The Laboratory is affiliated with Baird Television.

(b) German sponsored Activity

- (I) Production of transmitting valves (c. 15 metres) to Telefunken designs.
- (II) Built 1-kW (16-120 m) transmitters; delivery was effected approx. 6 months ago; 5 to the Luftwaffe, 10 to the Wehrmacht.
- (III) Received (understood not delivered) order for 9 telegraph transmitters ($\frac{1}{2}$ kW, 15-60m).

XX

The organisation has and apparently produced in small quantity a certain amount of very high-grade measuring equipment (frequency standards, apparatus for the measurement of temperature coefficient, etc. M.Berline also states that when formerly employed with SFR he was working on a 16 cm split-anode magnetron delivering 3 kW peak power under pulsed conditions. The corresponding local oscillator of the receiver was a Barkhausen oscillator with tuned grid (Pierret tube).

3. Significant Finding

Nil, except in so far as M.Berline's statement has been corroborated by S.F.R.

4. Conclusions and comments

Of considerable interest from the aspect of production of measuring equipment, but of no interest to this mission. (M.Berline's early work is not relevant to this present work for the Laboratoire.)

5. Members of Inspecting Party

Capt. J.Mallin U.S. Army
Major W.T. William War Office (Reporting)

Cie des Lampes

Office - 22 Rue de Lisbonne
Factories - 14 Rue de la Garenne, Courbevoie
57 Rue Pasteur, Puteaux

1. Sources of Information

(a) Persons Interviewed

The office was visited first by Dr. Thatcher and Major William.

The office and factories were visited in XXXXXXXX by Dr. Thatcher,

Major William and Lt. Thomson.

Personnel

Directeur	X. Wartz
Sous-Directeur	XXXXXXXXXX
Ingenieur en chef	M. Dacarsin ??
Ingenieur Adjont	M. Nanet
Directeur XXXXXX	XXXXXXXXXX

(b) Facilities inspected

The factories were inspected, including the attached description of work done for the Germans.

(c) Equipment inspected

The firm's representative said that no equipment was made there.

2. Information obtained

(a) Organization and Affiliates

The factories made valves and lamps and C.R.T.

There was no close connection with any other French firm.

(b) German Sponsored Activity

Principaux tubes d'emission commandes ou livrés sur commandes allemandes :-

5Y35	- Pentode emission 50 W - Commande de 5.300 dont environ 3.500 livrés
5Y15	- Pentode emission 15 W - Commande de 3.000 soldée
5X75	- Pentode emission 100 W - Commande de 1,000 dont 800 livrés
RS337	- Pentode emission allemande de 100 W Commande de 3,400 dont 155 livrés.
SD6	- Pentode emission specifiquement allemande - Tres urgentes - Priorite de fabrication - Commande de 3.000 - Livraison ... 2 Echantillons
LS50	- Pentode emission 50 W Commande de 15,000 Livrés 0
RG 62-01	Redresseur - Commande de 20,000 - Livraison 0
Tubes divers courant	- 2.X.M.400-2.X.M. 600-3W 350.C 4.T.100 - e.W.600 - 3 W.7500.E-3.W 20 KE. 3.W.75.K.E. - 3.W.100. K.E.

Reception

REN 904 (ou A 4.410)

en commande: 655.00 dont ... 541.000 livrés.

RV12P2000-Pentode Réception

Commande de 100.000 Livraison.....0

RL2,4P3 - Pentode Réception

Commande de 30.000 Livraison.....0

ECH3 - EEF 2 - EF 9 - CY 2 - CBL 6 - EBL 1

(c) Independent French Activity

Research is being carried on. It was stated that the Germans did not show any particular interest.

3. Significant Findings

Only one tube of any importance was found. This was the SD 6 of which a crated sample with rating-sheet was obtained. The SD 6 is a high voltage diode in a large like envelope. It is really one of the Gema UHF triodes (such as is used in the Kriegsmarine 600 mc radar set) with the grid left out. The sample and data obtained were turned over to Dr. Griffith at D.S.R. It was stated that only two samples of this were delivered to the Germans.

4. Conclusions and Comments

Like many-other French valve firms, the developmental side is concerned with tungsten seals in hard glass for very short wave lengths. Triodes and diodes of the modified "Door knob" type are being investigated. One experimental sample with many tungsten wire connections through a glass base was obviously intended for an operation in a concentric line. The technique is clumsy. If there were any new techniques they were not disclosed. The main factory was destroyed by Allied Bombing in September and December 1943 and operations have been resumed on a reduced scale.

5. Members of Inspection Party

Major W.T. Williams	War Office	(Reporting)
Dr. E.W. Thatcher	O.S.R.D.	
Lt. J. Thompson	Admiralty	

LOTH

(Societe Industrielle Procedes Loth, Abbreviated S.I.P.L.)
19 Rue Edouard Mortier
Neuilly Sur Seine
6 Sept. 1944

1. Sources of Information

- (a) Persons interviewed
M. Morbier Directeur general
- (b) Inspection of facilities and equipment
None

2. Information obtained

- (a) Nature of Establishment
Loth (SIPL) is a small manufacturing establishment having Branches as follows:-
 - Paris Branch - 120 Employees
 - Flers Branch - 600 Employees
 - Brive Branch - 200 Employees.
- (b) German Sponsored Activities
None directly. The firm was however a subcontractor to

other companies making equipment for the Germans.

Major orders included:

For Phillips - Holland - Radio telephone transmitters,
20-200 meter.

For Saram - Paris - 160 watt airport communications
equipment 40-1500 meters.

For Sadir - Paris - Receivers, 4-7 meters.

Total activity as a subcontractor was about 100 million
francs of communications and equipment for French and
Dutch Firms holding prime contracts.

(c) Independent French Activities

The firm claimed that they were developing 1 meter
transceivers in secret without German participation.

3. Significant Findings

No new technical developments were encountered.

Most of the work was of standard pre-occupation design.

4. Conclusions and Comments

It was note that the person interrogated seemed reluctant
to give information. This may have been because of a lack
of understanding of the mission or because of translation
difficulties.

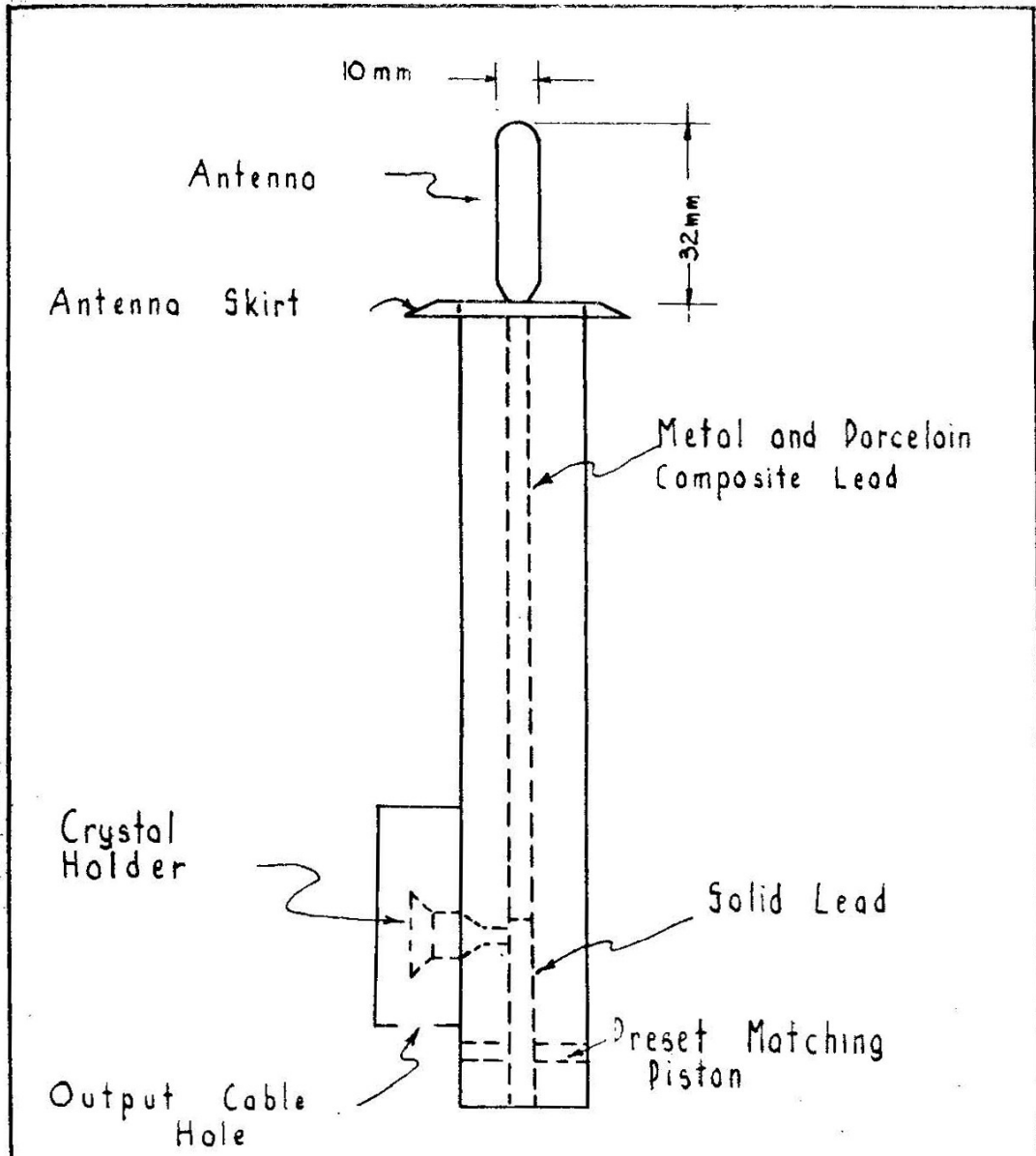
5. Members of Inspecting Party

Dr. E.W. Thatcher

O.S.R.D.

Lt. F.D. Sherman

U.S. Navy (Reporting)



BROADBAND CM - WAVE ANTENNA FOUND AT
 KRIEGSMARINE EXTENSION 124 Bd. Maurice Barres
 PARIS 2 SEPT. 44

Le Matériel Téléphonique

C.I.P.C. Target No. 1/95

Laboratories

46, Avenue de Breteuil

Factory

46, quai de Boulogne, Boulogne Billancourt

1 September 1944

4 September 1944

1. Sources of Information

(a) Persons Interviewed

After meeting Col. Behn who placed all L.M.T. facilities at the disposal of C.I.P.C. the technical information was mainly given by M.Rabutneau, Chief Engineer and M.Clavier, in charge of U.H.F. work. M.Muller who deals with transmitters was present but no one questioned him M.Clavier's assistants Altousky and Goudet were also present.

(b) Facilities Inspected

The laboratories used by M.Clavier's group were inspected with the exception of the valve laboratory. However valves made by the experimental group were examined.

(c) Equipment inspected

Centimetre wave equipment was examined.

2. Information obtained

(a) Organization and Affiliates

The L.M.T. organization and affiliations are well-known. The firm is associated with Bell Labs in U.S.A. Standard Telephone and Cables in U.K. and Lorentz in Germany.

(b) German Sponsored Activities

Contracts were accepted from the Germans for

(a) 1 kw medium wave transmitters

(b) 60 kw transportable transmitters on 9-10 metres.

(c) Search receivers on 5-15 cm.

Of these-no samples of (b) or (c) had been delivered.

The contract for (c) was placed early in 1942.

A sample of the British valve CV 67 was shown to L.M.T.

by the Germans in November 1942. L.M.T. attempted to copy this. Their copies were shown to C.I.P.C.

3. Independent French Activities

Independent development has been energetically pursued by the Hyper-wave group of L.M.T. under the direction of M.Clavier, assisted by M.Coudet, valve engineer and M.Altousky, circuit engineer. On the valve side positive grid tubes and velocity modulated tubes have been developed, the latter containing samples of reflection tubes and two resonator klystrons. Diodes suitable for 10 cm operation have also been developed, but crystal detectors have remained experimental only. On the circuit side a Q-meter for cm waves has been developed with which measurements were made on German cables and wave guides. The latter are made by the German firm Vacha.

4. Summary of Significant Findings

The significant findings are difficult to list. First the existence of 10 cm apparatus which had been shown to the Germans is significant in itself. The particular valve made by L.M.T. were on 10 cm wavelength Aperture Coupled Klystron 30 watts output C.W. air-cooled on 10 cm wavelength Aperture Coupled Klystron 100 watts output C.W. water-cooled. The efficiency is about 9%. Power is measured by a bolometer, without correction for glass losses.

On 5 cm wavelengths a water-cooled Klystron gave 25 watts output C.C. These valves are similar to British CS2, but are only electronically tunable over about 1%-2%. Frequency modulation has been attempted. On 10cm wavelength and about that wavelength, reflection oscillators, copies electronically of the CV 67 but with experimental tuning systems. One of these was similar to the Great Baddow long range tuning oscillator which uses a tunable rectangular wave guide resonator. The 10 cm diode is a remarkable achievement. made with a three-wire punch in hard glass and tungsten, the two outer wires are connected to opposite ends of the straight filament. The middle lead connects with the short cylindrical anode, the spacing being very small indeed, less than 10 thousandths of an inch. Clavier's assistant claims that this diode is about 10 dB up in signal noise on the German crystal, a sample of which was obtained.

On the general subject of crystal noise (the Germans use crystals at 50cm) Clavier had some interesting German results. Taking noise factor as akT ,

for 50cm a equals 10-25

for 20cm a about 100

for 10cm a greater than 200 and less than 2000,

the best figure mentioned being 200. Johnson noise is a equals 4 on same scale, so a equals 200 is 50/1 or 17 dB above theoretical. This does not include noise of 1st I.F. German crystal is artificial silicon. This is in large scale production. M.Clavier also mentioned that the Germans use triodes down to 25 cm.

M.Clavier gave the following names of important German cm wave experts.

Telefunken - Rothe and Meinke

Pintsch - Weisefloch

University of Graz - Borgnis

Lorenz - Herriger and Doering (U.H.F.)

Air Ministry - Kretzmann.

He also mentioned that the Germans had taken out many French and Belgian patents during the war. Records have been kept by L.M.T. and can be obtained from M.Rabuteaux.

The search receiver made in L.M.T. Laboratories had the following specification:-

It covers 10-15 cm, using two Local Oscillators. The first covers 10-12.4 cm and the second 12-15 cm. Both are position grid tubes, stabilized by means of tunable resonators, and working off stabilized power packs. The output voltage is developed between the ends of the grid. The band width is 1 mc, but the Germans asked for 8 mc. The receiver can discriminate between two stations $\frac{1}{2}$ mc, It is double super-heterodyne, the first I.F. being 1 SMc and the second 9 mc. The first converter is the L.M.T diode.

M.Clavier measured the attenuation constant of a German flexible cylindrical wave guide, cut-off 12 cm. The measurements were made at about 10 cm. Theoretical figure was 17 dB/kilometer; the measured value 250 dB/kilometer. The measurements were made using the H.wave and the Clavier Q-meter.

The party obtained from L.M.T. a copy of an article from "Hochfrequenztechnik and Elektroakustik" of June 1943 describing the 'Pintsch tube Type HB 14, eines Resotanks'. This article will be turned over to Lt. Com. Mayer, U.S.N.R. Readiness Division, London, England who has encountered this tube in a German decimeter communication set found near Cherbourg.

L.M.T. also showed parts of a 20 cm Heil tube which used a double sheet electron beam passing thru the center of a half wave length concentric line resonator.

5. Conclusions and Comments.

It must be concluded that the Germans are well advanced in cm wave technique, but it seems probable that the possibility of using it operationally has only come up recently. In the case of L.M.T. the best work has been done on measurements, and the most interesting valve is the diode. There is no evidence of new technique.

6. Members of Inspecting Party

1 September 1944.	Dr. G. Stever	O.S.R.D.
	Dr. K.R, Spangenberg	O.S.R.D
	Capt. E. Reilley	U.S. Army
	Lt. T.J. Nagel	U.S. Navy
	Lt. E.N. Rowland	Admiralty
	Lt. V. Thomson	Admiralty (Reporting)
4 September 1944.	Dr. G. Stever	O.S.R.D.
	Dr. K.R. Spangenberg	O.S.R.D.
	F/Lt. Fishwick	Admiralty
	Mr. G. McCouch	O.S.R.D.
	Lt. T.J. Nagel	U.S. Navy
	Lt. J. Thomson	Admiralty

* Pulse decimeter radio link 4 ways "Moritz"

Metox

18 Rue de Pellefort
104 bus Rue de Pellefort
124 Rue Reamur
1 September 1944.

1. Sources of Information

- (a) Persons interviewed
M.Cauchot Director
M.Coriez Tech Director.

2. Information obtained

- (a) German Sponsored Activities
Production for Germans: for Luftwaffe made 50 types R203, 2-3m receivers made 1100 type R600, 106-230 mc receivers at rate of 60 per month for Navy. Samples of these sets, which embody no new techniques, have been received by A.T.I. teams and sent to the R.A.E. Farnborough.
- (b) Independent French Activity
No evidence of any research for Germans.

3. Significant Findings

None

4. Conclusions and Comments

None

5. Members of Inspection Party

Major W. Knee War Office (Reporting)
Capt. A.T. Kingston War Office

Meudon Observatory

6 September 1944

1. Sources of Information

From discussions between Dr. B.A. Goudsmit of Alsos and Mr. Lyot, the Director of Meudon Observatory, it was learned that a German radio station located in the Observatory grounds was believed to be used for ionosphere investigations. M.Lyot stated that the Germans were interested in sun spot activity and magnetic storms, and believed that they produced correlations between these and ionosphere disturbances for use in predictions of ionosphere characteristics.

(a) Information obtained

The Meudon Observatory site was visited and the German radio building was found on the grounds in a considerably damaged state. The only piece of equipment found which could be associated with ionosphere investigation was the metal screen and collar for a cathode ray tube of about 14" diameter. However, the

French guard who accompanied the party described an antenna system which was constructed in 1932 but replaced in 1944 by the present antenna which could conceivably be used for ionosphere investigation.

The present antenna was considerably damaged but from the pole tower and matching unit, it appears that it was the broad band type of Benito transmitter doublet antenna with three elements pointing about 20° from the vertical upward and three similar antennas pointing downwards. This antenna was fed by the same type of armored coaxial cable as the broad band Benito transmitter antenna, the cable terminating in remains of four-channel equipment similar to Benito. Reticence in identifying the equipment as operational Benito is caused by the failure to find any equipment in the vicinity which resembled the Benito receiving gear. Interrogation of the natives also failed to produce such information. A second pole tower some ten meters shorter than the first was reported to have an antenna similar to the above but smaller. This tower stood about 20 meters from the first. However, no evidence of attachment of any antenna could be found on the second pole tower, and no cable could be found on it or leading to it. This second tower was one of the four poles of the earlier antenna system, the other three of which had been felled.

3. Significant Findings

None from the standpoint of new developments or techniques. The antenna marching unit, cathode ray tube screen and collar, and various considerably damaged pieces from the ground equipment are being forwarded to R.A.E. Farnborough, Attn: Mr. Supper.

4. Conclusions and Comments

The Radio equipment found at Meudon Observatory may be used for ionosphere investigations at the high limiting frequencies but it is believed that the receiving station would have to be some thousand miles away from the transmitter as no reflection of waves of acute incidence would occur at the frequencies employed. However, the equipment could be used for another type of investigation but the absence of receiving or display gear leaves this speculation somewhat obscure.

5. Members of the Inspecting Party

Dr. K.R. Spangenberg
Capt. T. Drysdale (Reporting)

OTALU

110 Bd. Richard Lenoir
31 Aug 1944.

1. Sources of Information

Visit to plant. Discussion with M.Henri Poulain.

2. Information obtained

The firm specializes in aluminum work. Demonstrations were given of a method of welding aluminum with a portable acetylene blowpipe. There was obtained the description of an electrical welding method using two 6 volt car batteries. Full details on the above items are being transmitted to the War Office and to the U.S. Signal Corps, Base Section.

3. Significant Findings

None

4. Members of Inspecting Party

Major W. Knee	War Office
Capt. A.T. Kingston	War Office

RADIO TECHNIQUE

51, Rue de Carnot, Suresnes, Paris

31 August 1944.

6 September 1944.

1. Sources of Information.

(a) Persons Interviewed

M.Damelet	Director General
M.Aubemel	Director of Radio Development
M.Nozieres	Director of Valve Development

(b) Facilities Inspected

Only a cursory inspection of the laboratory facilities was made. The plant has a good factory and seems well equipped for production. Not much of the plant was shown.

1. Information obtained.

(a) Organization and Affiliates

Radio Technique is one of four manufacturing concerns controlled by the Cie. General de Telephone Sans Fils and employs about 4000 people. Radio Technique has manufacturing contracts with Telefunken and Philips and a financial relation with the latter; half of its shares being held by Philips Eclairage at Radio Cie.

(b) German Sponsored Activities

Valve development was carried under German supervision. They had also manufactured standard German valves.

Production as follows:

A receiver designated EB12. They received in late 1941 an order for 25,000 of which they had completed 16,000 by June 1944. A second similar order was later cancelled.

Produced part of a receiver designated as the Köln Gerät (Fu52b-2). Five out of the six component units were made here. It had 2 high frequency mixer, Oscillator and 3 I.F. stages. The I.F. was one mc and a crystal B.F.O. was included. The assembly took place at the Sachsen Werke-Dresden and the orders totaled 7000. Production had begun at 350 per month of each block and 6500 had been delivered.

Recently Radio Technique received an order to produce the following Telefunken developed Radar Components, parts of a FuGe64:

Seeschlange - This had a frequency wobbler and the valves were LG1. It contained I.F. strips.

Wiesel - I.F. amplifiers of about 25 mc.

Serieu - Pulse Amplifiers and strobe producer.

Seeigel - Pulse generator. The circuits seem to have provision for antijamming. This unit was also to be manufactured in Vienna at the rate of 500 per month by Horni, Ericson-Schiek, and Angelen.

(c) Independent French Activity

Manufactured a communications receiver somewhat comparable to the best American makes. Frequency range was 3 to 600 meters. At wavelengths greater than 10 meters the sensitivity is better than 0.1 microvolt and below 10 meters better than 2 microvolts. The receiver was perhaps for sale to Germany.

3. Significant Findings

There were no significant findings from the stand point of new developments or techniques. The extensive German production and the tie with Philips and Telefunken is perhaps sufficient.

The Company had recently tooled up to make Fug 16ZY receivers at the rate of 800 per month until 12,000 had been made.

L.M.T. had received a similar order for 6000 and a further 8000 were to be produced at Hilversum.

The following list of German Technical personnel may be of interest:

Phillips - Mr. Larsen.

Telefunken - Mr. Vogt (a technician) of Department DB2/FR.

Mr. Voth (a technician)

Mr. Fentzke (a technician)

Dr. Schultz - Head of T.F.N. in France.

Mr. Hasse - representative at Cologne

Mr. Guinner - Berlin Director

Mr. Rissener - main director Lorenz
Mr. Weiczbrek - a Czech engineer who
did much work for Lorenz.

4. Conclusions and comments

The company was apparently a heavy producer for the Germans and is probably in possession of much more information than was revealed.

5. Members of Inspecting Party

Lt. J. Thompson	Admiralty
Lt. Nagel	U.S. Navy
Mr. G. Mc Couch	O.S.R.D. R.A.F.
F/Lt. Fishwick	R.A.F. (Reporting)

Sadir - Carpentier

101 Bd Murat,
Paris - 16ème.
29 August 1944
30 August 1944

1. Sources of Information

(a) Persons Interviewed

M.G. Roy Sales manager
M.Y. Delbord Manager in charge of Research and
television laboratories.
M.T. Mahe Assistant Sales Manager.

(b) Facilities inspected

The administrative and sales office of Sadir are located in Paris at 101 Bld Murat and at this same location are included the research laboratories and prototypes department, drawing room and workshops.

This address was visited on several occasions by members of the C.I.P.C. Radar and Guided Missiles teams. Manufacturing is done principally at 27, Rue Nelaton, Puteaux.

It was found that the Paris plant of Sadir is well equipped in a very modern building, partly shared with the Edgar Brandt organization. The facilities appear to have been well laid out in order to further efficient production of prototypes and carrying on of research. A department which has been designing and constructing quality signal generators and test equipment was found to be well equipped for the purpose, as attested by the appearance of and tolerance claimed for the products. The ceramics and tubes laboratories appear to be among the best equipped for research in electronics yet found by C.I.P.C. personnel.

2) Equipment inspected

While the premises visited are essentially devoted to research there were some single samples and prototypes of Sadir products available for inspection. These are listed below.

1. 5 kW transmitter. This was a transmitter ordered by the Germans to be built without oscillator and early driver stages, only the last driver and final being included in the equipment. A small number were completed. It was revealed that while the peak current in the final stage might attain 16 amperes the transmitter was not suitable for pulse work, due to the time constants of circuit elements.

2. 120 Watt 30-34.8 mc transmitter. This is a rather compact transmitter made for Luftwaffe. It was observed that it contains tubes of the series employed in aircraft and ground radar, that is, the RV12P2000 and LS50 types to the exclusion of all others. This transmitter bears the designation "Leitstrahlsender 120 W AS 3".

3. R-87 series Receivers. This series of receivers which have been made to cover the range of frequencies from 1 to 3, 2½ to 4½, 4½ to 8, and 8 to 13 meters all follow the same general design specifications, but differ only in their high frequency stages and oscillators. Various services of the German forces have used it, the Luftwaffe being the principal user although the Kriegsmarine also employed the receivers. The latter service was the only one interested in the 8 to 13 meter set but lost interest in this project. Sadir has actually made the sets work down to 80 cm but the Germans never used any of such receivers although they wanted them. They were told that they were unsatisfactory

4. EBL 3F Receivers. SADIR has recently assembled this receiver, a well-known airborne beam approach set having automatic tuning facilities for thirty four stations. An order for 5000 to be made in one year was placed by the Germans. In the spring of this year work ceased because supplies of vital components were not being received from Germany. Supply was never resumed and the greater part of the order remains undelivered.

5. Pulse Signal Generator. The Germans requested SADIR to produce a pulse generator having a PRF variable from 10 cycles to 10 kc and an adjustable pulse length, continuously variable from 0.5 to 5 microseconds. A fixed value of 50 microseconds was also required. An adjustable voltage output of 1 to 100 volts at 2000 ohms was specified. SADIR purposely produced this generator after long delays but with characteristics such that it would not fill the requirements. Whereas an order for a considerable quantity had been

previously placed by the Germans, this was at length cancelled after delivery of the first instrument.

6. 100W FM & AM transmitter. 50 of these units were delivered in 1943. They employ single dial frequency control and a Collins Antenna Coupler and cover the range from 4.8 to 12 meters. While very compact they have a few "difficulties" inherently attendant with such compact design.

7. FM Broadcast Training. A-broadcast transmitter of conventional design was inspected. None but the prototype have been built and it was finished at the start of the war.

8. Modified-R-87 receivers for FM. The Germans were greatly interested in obtaining some high frequency receivers for FM operation. Modification units were produced for the R-87 receiver and while unfinished, a party of Germans arrived ne day with grenades and machine guns to take the material in its incomplete stages and finish the job elsewhere. They removed a total of 26 modified receivers.

9. Some interesting tubes were inspected, products of SADIR's own laboratory. Glass to metal seals seemed to be highly developed and considerably worthy of fuller investigation at a later date.

2. Information obtained.

(a) Organization and Affiliates

Sadir was founded in 1932 and after development joined with the Ateliers J. Carpentier Company, a measuring instrument manufacturer to become "Societe Anonyms des Industries Radioelectriques et des Ateliers J. Carpentier" retaining the desirably brief title of "Sadir" as a trade name for the radio organization in general. The Carpentier branch still makes measuring instruments. Sadir has, in the past, made radio equipment for transmitting, receiving, direction finding and navigation, for Air Force, Navy, communications, Public Services and Broadcasting. It has done considerable work in television as well. There are about 800 employees in the offices and two plants, at 101 Bld Murat in Paris and 27 Rue Nelaton in Puteaux. The Carpentier branch has two plants. One is situated at 46 Rue Arago in Puteaux and the other at Nantes (Loire Inferieure). These plants make measuring and control instruments, submarine listening and periscope equipment, telegraphic equipment and tele-measuring devices. Offices of the Carpentier managing staff are located at 3 Rue Lord Byron, Paris.

The Board of Directors of the Societe is composed as follows:

M. E.Rialan	President and General Manager
M. C.Galvaing	Administrative Manager
M. M.Vidrequin	General Manager of Sadir Department
M. G.Roy	Sales Manager
M. P.Garnet	Technical Manager
M. Y.Delbord	Manager in charge of Research and television laboratories.
M. R.Culot	Murat works manager
M. R.Jourdan	Puteaux works manager

The Societe is an affiliate of the Edgar Brandt holding company.

(b) German Sponsored Activities

A detailed description of the various projects engaged in during German occupation is listed above under "Equipment Inspected." In addition Sadir was asked to produce 200 airborne television transmitters in 1941. The design was to be the same as the airborne British EMI set flown before the war in England. Complete plans are held by Sadir but no work was done on the project. A request for design and construction of a 200 Watt FM transmitter was submitted by the Germans. This was to cover the band 36.5-48.5 mc. 25 kc deviation was desired. This was a fairly recent request and no work was completed.

(c) Independent French Activities

SADIR was apparently not watched as closely as some other organizations by the Germans. A Capt. Kemper of no particular technical ability, who held the title of "Controller" spent about half his time at the plant on Bld Murat. As a result SADIR was able to carry on considerable research. Details of accomplishments of the laboratories have not been probed since the mission of C.I.P.C., has to date concerned itself particularly with seeking information concerning German activities and any utilization of new French ideas by the Germans. This company was able to carry on enough secret work to lend assistance to the F.F.I. by building and operating underground transmitting equipment for use before the liberation.

3. Summary of Significant Findings.

A tube having a molybdenum-glass seal of interesting properties was seen. This tube had several molybdenum leads about 3/16" in diameter sealed through the glass.

A very small and nicely finished bead had been formed, considering the relatively enormous dimensions of the leads and small size of the tube, roughly 2.½" diameter of doorknob shape. Nothing else of particularly noteworthy significance was seen at SADIR.

Among German personnel who have been associated with SADIR are the followings:

<u>Name</u>	<u>Office (German)</u>	<u>Capacity-Specialty</u>
Hournung (Dr.)	515 & 525	High Frequency
Goldmann (2 Bros.)	Lorenz Co	Antennas
Kist	Lorenz Co	Antennas
Grossman	Lorenz Co	Antennas
Wenzel, von	Stabs (LC4 Air Ministry)	F.M. transmitter
Henfelder	GL4	Supervision
Capt Kemper	Gl4	Plant Supervision (Controller)
Loewe	D4	POL Gestapo
	D4	ZOI
	D4	ZOT

4. Conclusions and Comment

The association with SADIR has been most productive in establishing proper contacts with people of importance in the radio industry. The personnel of the Board of Directors and heads of various laboratories have been most eager to assist the members of the C.I.P.C. teams investigating radar, radio and guided missiles. This has led to the contact with M.Giboin head of the radio branch of the Ministry of Supply in France. Any opportunity to assist SADIR in the future in getting into production might further the bond of friendship and mutual welfare of both the Signal Corps and the SADIR organization. It would seem possible, for example, to place with such firms who are equipped as this one contracts for production of high precision radio test equipment. SADIR appears to be as well informed as any other organization visited, with respect to the relative state of the art. There are no outstanding findings as a result of visit to SADIR.

5. Members of the Inspecting Parties.

Dr. H.G. Stever	O.S.R.D.	
Lt. T.J. Nagel	U.S. Navy	
Lt. E.N. Rowland	Admiralty	
Capt. J.T. Mullin	U.S. Army	(Reporting)
Capt. E.M. Reilley	U.S. Army	
Lt. J. Thomson	Admiralty	
Major W.T. Williams	War Office	
Lt. F.L. Sherman	U.S. Navy	
Mr. U. McCouch	O.S.R.D.	
Fl/Lt. W. Fishwick	Royal Air Force	

**Société d'Applications Radio-Electriques a L'Aéronautique et la
Marine (S.A.R.A.M)**

9 - 11 Rue H.G. Fontaine, Asnières (Seine)

5 September 1944.

1. Sources of Information.

(a) Persons interviewed

M.Merles Directeur

(b) Facilities Inspected

A brief tour of the factory was carried out under the direction of M.Merles.

(c) Equipment Inspected

Equipment in the testing rooms and laboratories was inspected briefly.

2. Information obtained

(a) Organization and Affiliates

This Societe is a member of the Bronzavia group, with headquarters at 207, Boulevard St. Denis a Courbevoie. It is connected in turn with a subsidiary concern, "SAPHYR", producing, in particular, iron-dust elements of various types.

(b) German Sponsored Activity

This firm produced before the war transmitter-receivers for aircraft. The Germans have required the continuation of these designs, but have used them in ships and cars. They have manufactured no new German designs.

(c) Independent French Activity

The firm has developed a few items of measuring equipment for their own use.

3. Significant findings

None

4. Conclusions and comments

A promising concern from the production aspect, but there is no evidence of knowledge of information of interest to this mission.

5. Members of inspecting party.

Capt. J. Mullin U.S. Army

Maj. W.T.Williams War Office (Reporting)

Societe Francaise Radio-Electrique

Head Office - 79, Boulevard Hausmann

Factory and Laboratories - 55 Rue Greffuhle
Levallois-Perret, Paris VIIIème.

C.I.P.C. Target No. 1/19a

31 August 1944

5 September 1944

6 September 1944

1. Sources of Information

(a) Persons interviewed

At the head office, the Director, M.Rebotier and the Chief Engineer, M.Benoit were contacted at the Research Lab, M.Poute, Director of Research and Dr. Grivet, research worker, were contacted.

(b) Equipment and Facilities inspected.

At the factory some of laboratory was inspected. Also a few standard German tubes and three German radio sets manufactured by S.F.R. were inspected.

2. Information obtained

(a) Organization and Affiliates

Societe Francaise Radioelectrique, along with Radio Technique, Societe Independent de T.S.F and Radio Cinema make up the research, development, and manufacturing companies controlled by the holding company, Compagnie Generale de Telegraphie Sans Fils. Their products are exploited by the three companies, La Compagnie Radio France, La Compagnie Radio Orient, and La Compagnie Radio Maritime.

These companies have exchanged agreements with R.C.A, Marconi, and Telefunken. Their research and development was supposedly controlled by Telefunken during the occupation, although they claim that there was none of the peacetime exchange of information between Telefunken and S.F.R.

(b) German Sponsored Activities.

The Information we received from S.F.R. as well as from the other organizations of Compagnie Generale de T.S.F. was remarkably devoid of interest from the research point of view. We obtained from the headquarters a document which lists the characteristics of the sets which they manufactured for the Germans. This document is to be turned over to C.I.P.C. We saw examples of AS P 59, Dora D-2, Theodor, all of which are described in the accompanying document. Samples of the various equipments can be obtained if desired. Mr.Poute showed us samples of a few very ordinary German valves and gave us the characteristics of the following German Air Force valves: LS50, LG3, RL2T2, LV1, LS180, LS30, RV2P800, LG1, and RG12D300.

S.F.R. was asked to make 10000 LS50s per month.

They didn't. S.F.R. was asked to make 07S1 cathode ray tubes. Germans have good ceramic work done at Hessische Company in Helmsdorf. Samples of an apparatus containing relays and miniature components were produced along with working drawings and circuit diagrams. The units were

found to be part of a ground receiver of wide frequency coverage. The working drawings and circuits showed the units as being parts of receiver Fu E 52-6-2 (Köln). From the circuit diagram it was seen that the relay performed a simply function of switching from a set of fixed resistors to variable values in an oscillator circuit.

(c) Independent French Activities.

The company showed no inclination to show any of their research and development for purely non-German purposes, and we didn't press the point.

3. Summary of Significant Findings.

No significant research developments were uncovered. It is very surprising that all of the engineers of this company did not uncover something of interest in German research, especially if one considers the close tie with Telefunken, which does most of Germany's short wave works. We did obtain the following names of personnel in Telefunken and the German Air Ministry:

TELEFUNKEN-BERLIN

Dr. General	Dr. Mye
Dr. Technique	Dr. Zickermann
Directeur	Dr. Nat
Directeur Commercial	Dr. Granitza
Technicien de fabrication	Woff Wiegand, Dusing A.Kuntze

MINISTERE de l'AIR ALLEMAND

BERLIN Docteur Hentschell
Docteur Krause
Docteur Kretzmann

PARIS Ingenieur Uhlemann
Ingenieur Lenecka
Ingenieur Rosenbaum

Almost certainly if this company were willing to reveal their own researches or tubes we would learn of some German research work which they had picked up from Telefunken engineers.

4. Conclusions and Comments

This company was very obviously in very close collaboration with Telefunken. It is strongly suspected that they knew a great deal about German developments but they revealed almost nothing. The company should be thoroughly investigated by some Intelligence Agency.

5. Members of Inspecting Party

1st Visit to the Head Office on 31 August 1944 by
Mr. L.L. Farkas O.S.R.D.
Major Y.T. Williams R.E.M.E.

2nd Visit to the Factory and Laboratoire on 5 September 1944 by

Dr. S.A. Goudsmit ALSOS Mission
Dr. K.R. Spangenberg O.S.R.D.
Lt. J. Thomson Admiralty
Lt. T.J. Nagel U.S. Navy
Dr. H.G. Stever O.S.R.D. (Reporting)

3rd Visit to the Head Office on 6 September 1944 by
Capt. J.T. Mullin U.S. Army
Capt. E.M. Reilly U.S. Army

Societe Independant de T.S.F.

170 Rue de Montagne - Malakoff.
5 September 1944.

1. Sources of Information

(a) Persons Interviewed

M. Belmere Director General
M. Carrick Draftsman who acted as interpreter.

(b) Facilities inspected

None

(c) Equipment inspected

None

2. Information obtained

(a) German Sponsored Activities

Under German occupation the following types of equipment were built to German models and specifications.

(a) Airplane transmitter 50-70 watt (773 delivered)

(b) Airplane receiver 2000 ordered (130 delivered)

Both (a) and (b) were stated to cover two bands 50-100 meters and 500 to 1000 meters.

(c) Traffic" receiver 15-50 meters

(d) Power amplifiers 6-10 kW 25-100 meters (10 delivered)

(b) Independent French Activity

Before the war the firm was engaged in fitting trucks with radio transmitter and receivers and radio direction finders for the French forces. The firm also manufactures tubes on a small scale. All are conventional (pre 1939) types.

3. Significant Findings

None

4. Conclusions and Comments

The director claimed complete ignorance of German developments and activity in the radio field. Nothing new or unusual had come to their attention in their contacts with the enemy. No technical information of value was obtained.

5. Members of Inspecting Party

Dr. E.W. Thatcher	O.S.R.D (Reporting)
Lt. E.N. Rowland	Admiralty

Societe Industrielle Radioelectrique

31 Rue Censier, Paris 5.

5 September 1944.

1. Sources of Information

(a) Persons interviewed

M.Sene	Manager
M.Bardy	Technical Manager
M.Marion	Commercial Manager
M.Jouan	Production Manager

(b) Facilities Inspected

Factory at above address. Mainly an assembly plant.

(c) Equipment Inspected

Electronic voltmeters, C.R. Oscilloscopes and other conventional laboratory equipment. Also panoramic receivers covering 0.25 to 4 mc and 4 mc to 30 mc. Laryngophones.

2. Information obtained

(a) Organization and Affiliates

Firm has other factories located at Bleneau (ave de la Gare) and at Brioude (13 Ave Victor Hugo) and an office at 22 Bvd. de la Pastille (Paris 12).

(b) German Sponsored Activity

The Germans asked for laboratory equipment and especially the panoramic receiver, but the firm had avoided supplying it. They had sent only one panoramic receiver to Berlin and had not been paid for it.

(c) Independent French Activity

The firm had developed the laryngophone for internal communication in aeroplanes for the French Air Ministry before the war.

3. Significant Findings.

None

4. Conclusions and Comments.

The firm has no knowledge of German activities and has not done any important research on its own. It has, however, a useful capacity for producing signal generators and similar laboratory measuring apparatus.

5. Members of Inspecting Party

Dr. E. W. Thatcher	O.S.R.D. (Reporting)
Lt. E. N. Rowland	Admiralty

Societe Parisienne Pour L'Industrie

85 Blvd Hausmann - Paris

2 September 1944

1. Sources of Information

- (a) Persons Interviewed
M. Deglaire and associates
- (b) Facilities and Equipment examined
None

2. Information obtained

- (a) German Sponsored Activity
The Societe was consulted by the Germans in connection the installation of Giant Wurzburg station. No contracts were held. The Team recovered reproduction of construction drawings dated 15 April 1943 submitted to firm by Germans. It was generally believed that Constructions Metalliques de Strasbourg were the main contractors for Wurzburg installation.
- (b) Independent French Activity
Company engaged in installation of heavy electrical equipment, transformers, substations power lines, electric railway lines, cables for telephone and telegraph also gas, gasoline and water pipe lines.

3. Significant Findings.

None relative to C.I.P.C. Interests.

4. Conclusions and Comments

The team feels that this firm was very willing to help but cannot provide any further information of significance in the radar field.

5. Members of Inspecting Party

Lt. E.N. Rowland	Admiralty
Lt. F.L. Sherman	U.S. Navy
Lt. E. Riley	U.S. Army
Dr. E.W. Thatcher	O.S.R.D. (Reporting)

Societe Radio Air

Paris Business Office 134 Blvd Hausmann

Factory - 72 rue Chanveau, Neuilly S/Seine. Tel MAE 59-84
5 September 1944.

1. Sources of Information

(a) Persons Interviewed

M.Cosnard, Director of Production and M.Vignaud, Technical Director were interviewed. They were most cooperative and it is assumed that they gave the team all the information requested. The factory and small laboratory employ about 150 persons. Aircraft communications and navigational equipment of conventional French and German design were inspected.

2. Information obtained.

(a) Organization and Affiliates

Strictly a manufacturing company.

(b) German Sponsored Activity

During German occupation the company was operated by the Firm of Frieske and Hopfner of Groesbeerenstr 105-121 Potsdam - Babelsberg. Their main production was on aircraft transmitter 4.5-7.5 meters and receiver 4-8 meters their type RE 537. This equipment was previously used by the French Air Force. Five to six thousand of these equipments were delivered to the Germans on a French "Reparations" contract. The company has been called upon by the Germans to service and modify these equipments for 5.5 to 8.5 meters. The company has been producing for the last eighteen months a blind landing equipment of conventional German design type VR-11. A quantity of 500-600 have been delivered.

(c) Independent French Activity.

None was revealed.

3. Summary of Significant Findings.

During the occupation, Radio-Air was operated by the Germans as a minor source of aircraft communications and navigational equipment. No development or research work was carried on nor do they have the facilities for such work. Material produced was of conventional or obsolete design.

4. Conclusions and Comments

No technical information of value was obtained.

5. Members of Inspecting Party

Dr. E.W. Thatcher

O.S.R.D.

Lt. F.L. Sherman

U.S. Navy (Reporting)

Cie. Francaise Thompson-Houston

10, Rue Nanteuil.

C.I.P.C. Target 1/96

31 August 1944

1. Sources of information.

(a) Persons interviewed

M.Marmin Sous-Directeur

M.Cope Ingenieur

(b) Facilities Inspected

A brief description of the factory was carried out under the guidance of the representatives interviewed.

(c) Equipment Inspected

A number of items of equipment, produced for the Germans were examined.

2. Information obtained.

(a) Organization and Affiliates.

This is one of a number of factories of this organization in the Paris area: time did not permit other branches to be visited, but there was no reason to suppose that these would be of greater interest than this.

(b) German Sponsored Equipment.

A variety of items of telephone and public-address system units were in production to German orders.

(c) Independent French Activity

None.

3. Summary of Significant Findings.

Nothing of obvious interest was seen. The firm claims and the present condition of their benches supports this, that they have been making only telephone and public-address systems, and units (amplifiers etc.) for these. They state that they have carried out no radio work of any description. A large number of nearly complete chassis are available, without valves: valves are added after the sets have left the factory, which holds only a set of Telefunken valves for testing.

4. Conclusions and Comments

Though of considerable promise from a production aspect, this factory appears to possess no features of interest to the present mission.

5. Members of Inspecting Party

Mr. L.L. Farkas O.S.R.D.

Major W.T. Williams War Office (Reporting)

4. Conclusions & Comments.

This firm has no knowledge of new developments in the radio field. It might be useful if it was contacted by British Westinghouse on the subject of selenium rectifiers.

5. Members of Inspecting, Party

Mr. Farkas	O.S.R.D.
Dr. H.G. Stever	O.S.R.D.
Lt. T.J. Nagel	U.S.Navy
Lt. E.N. Rowland	Admiralty (Reporting)