

【調査報告】

European Communication Network of Nagoya Wireless Telegraph Yosami Radio Transmitting Station

対欧無線電信局依佐美送信所の通信網

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This paper is to clarify the communication network between Nagoya Wireless Telegraph Yosami Radio Transmitting Station and Europe during 1929–37. The Yosami Radio Transmitting Station was built in Yosami *mura* (village), in the southern suburbs of Kariya, Aichi, Japan, in 1929. It ceased communications in 1993, and the station buildings were demolished in 2006. The station, noted for its eight 250-m guyed antenna iron towers (1928–97), has attracted industrial heritage interest since the 1980s. The Memorial Museum of the Yosami Transmitting Station was opened in 2007 by the City of Kariya at the southwest corner of the site, and the station was entered on the IEEE Milestone list of the Institute of Electrical and Electronics Engineers in 2009. However, the extent of its communication network with European countries has not yet been noted. This paper sets out details of the transmitting and receiving stations in the six countries of Poland, Germany, the United Kingdom, France, Switzerland, and Italy with whom the Yokkaichi (formerly Kaizo) Receiving Station (1928–38) and the Yosami Transmitting Station, both controlled from the Nagoya Wireless Telegraph Station, were in communication in the years 1929–1937, obtained from contemporary documents, information from overseas researchers, and direct site visits undertaken by the author and Shoji Ishida in Germany in 2010 and in the United Kingdom and France in 2018.

本稿は対欧無線電信局送信所として1929年に当時の依佐美村（現刈谷市南部）に開局し、1993年に通信機能を停止、2006年に解体された依佐美送信所の1929–37年の対欧通信網を明らかにするものである。高さ250mの8基の鉄塔（1928–97）で知られた依佐美送信所は1980年代以降産業遺産として関心が持たれ、2007年に刈谷市によって旧送信所南西隣地に「依佐美送信所記念館」を建設され、2009年に同送信所は「IEEEマイルストーン」を受賞したが、具体的な対欧通信網は明らかにされてこなかった。本稿では建設当時の歴史資料、海外研究者情報、および2010年と2018年の石田正治とのドイツ・イギリス・フランスのレンタカーによる現地調査により、1929–1937年に欧無線電信局依佐美送信所・四日市（海蔵）受信所（1928–38）と受送信を行ったポーランド・ドイツ・イギリス・フランス・スイス・イタリア6カ国の受信所・送信所の所在地をつまびらかにする。

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Yosami Radio Transmitting Station, operated by Nagoya Wireless Telegraph Station

The IEEE Milestone plaque inaugurated in May 2009 at the Yosami Radio Transmitting Station was the ninth to be awarded in Japan, followed in October of the same year by a tenth plaque, very nearby, for the “Development of Ferrite Materials and Their Applications, 1930–1945.” The Yosami plaque, which provides a good introduction to the transmitting station site, reads:

“Yosami Radio Transmitting Station, 1929

In April 1929, the Yosami Station established the first wireless communications between Japan and Europe with a long wave operating at 17.442 kHz. An inductor-type high-frequency alternator provided output power at 500 kW. The antenna system used eight towers, each 250 m high. The facilities were used for communicating with submarines by the Imperial Japanese Navy from 1941 to 1945 and by the United States Navy from 1950 to 1993.”

The century-long history of Yosami may be divided into eight periods, and this paper deals with the second of these, the period of radio communications with Europe during the years 1929–1937, as shown in Table 1.

Table 1. Periods of Use of Yosami Radio Transmitting Station, by the author

	Dates	Period	Notable developments
1	1922–1929	Planning/under construction	Tallest in East Asia
2	1929–1937	Radio communications with Europe	Wireless communications with Europe
3	1938–1940	Kokusai Denki-Tsushin Co.	From VLF to short-wave, for Asia
4	1941–1945	Japanese Navy	“Climb Mount Niitaka 1208” for WWII
5	1945–1950	Transmissions suspended	Young people climbing the towers
6	1950–1994	U.S. Navy	U.S. Navy station for submarines
7	1994–2006	Returned from U.S. Navy control	Industrial heritage
8	2007–	Floral Garden Yosami	IEEE Milestone 2009

As shown in Figure 1, wireless communications from Europe were picked up by the Kaizo (海蔵) Radio Receiving station (renamed Yokkaichi [四日市] Radio Receiving Station in 1930), built in Kaizo *mura*, now part of Yokkaichi, Mie, in 1928, and its transmitting station at Yosami (依佐美), in the suburbs of Kariya (刈谷), Aichi. The two stations were on opposite shores of Ise Bay opening onto the Pacific, and were controlled from the central station located at Nagoya (名古屋) Postal Office (now Sakae Post Office), which opened in 1928 at Sakae 3-chome, Naka-ku, Nagoya. (Note in what follows that at the time, these names were written horizontally right-to-left: 蔵海←, 市日四←, 美佐依←, 谷刈←, and 屋古名←.) Communications were exchanged (in order of first transmission from Yosami) with Poland, Germany, the United Kingdom, France, Switzerland, and Italy, for both diplomatic

and commercial purposes, including in connection with the London Naval Conference on Disarmament in 1930 (Kokusai, 1949, p. 13). In 1937, responsibility for communications with Switzerland and Italy was transferred from the Nagoya to the Tokyo Wireless Telegraph Station with its Oyama Transmitting Station in Tochigi, 70 km north of Tokyo, while responsibility for Poland, Germany, France, and the United Kingdom moved to the Osaka Wireless Telegraph Station while keeping the functions of Yosami as its transmitter.

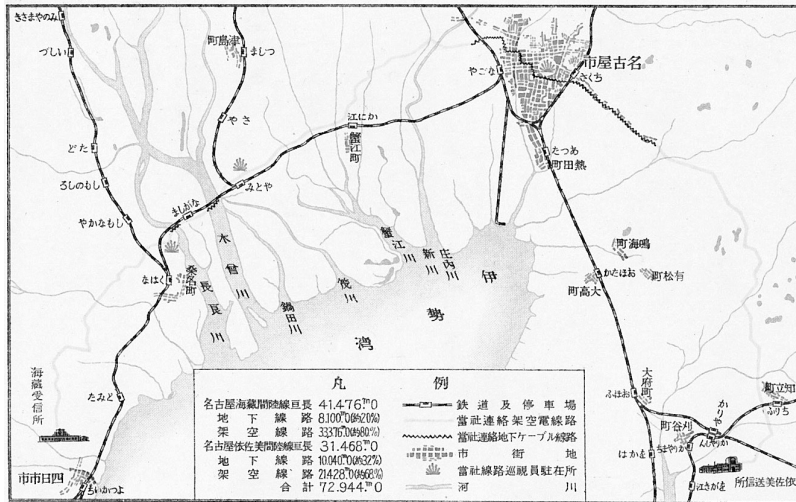


Figure 1. Picture postcard of Wireless Telegraph communications with Europe (Japan, Mar. 1928), showing the Kaizo Receiving Station, north of Yokkaichi, lower left; Nagoya Wireless Telegraph Station with logo, in Nagoya, upper right; and Yosami Transmitting Station, south of Kariya, lower right.

A wire network connected the Nagoya Wireless Telegraph Station (established 1928) with the Kaizo Receiving Station by means of a 41 km line in 1928, and with Yosami Radio Transmitting Station by means of a 31 km line in 1929, as shown in Figure 1. Yosami initially employed very low frequency (VLF) waves at 17.442 kHz or around, with a wave length of 17,200 m. These were mainly replaced by short waves in the early 1930s, except in the middle hours of the day in winter.

European cities receiving radio communications from the Nagoya Wireless Telegraph Station, in 1929–1937, are shown in Figure 2.

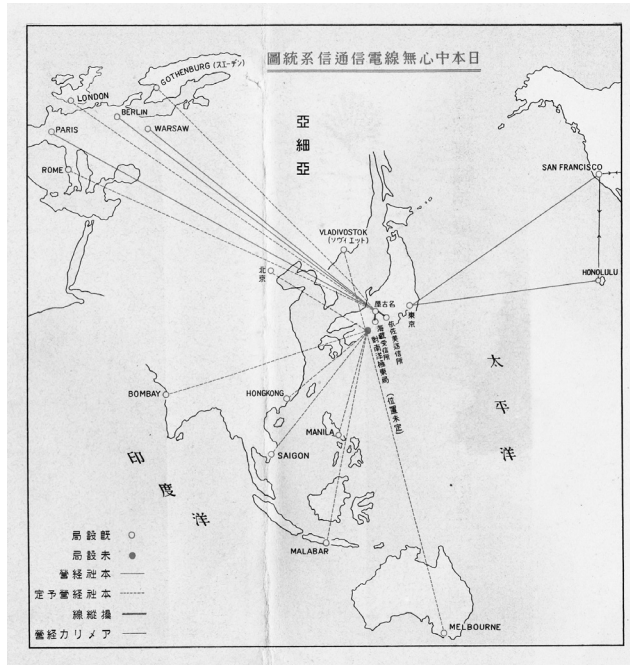


Figure 2. Wireless (Radio) Communications Network centered on Japan (Japan, c.1929a). Nagoya, at this stage, is connected through Kaizo and Yosami with Warsaw, Berlin, and Paris (solid lines), while further connections (broken lines) are projected with London, Rome, and, apparently, Gothenburg (Göteborg) in Sweden, in replacement for Geneva, Switzerland.

*How your radiograms go in and out between Japan and Europe
 (As an illustration, the Japan-Germany circuit is given as an example)*

(圖明說路系信通線無間歐日るたりとに例を間獨日)

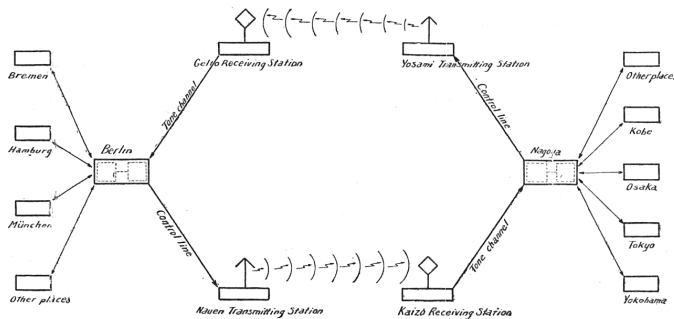


Figure 3. Radio Communications between Japan and Europe, taking Nagoya and Berlin as an example (Japan, c.1929). “Gelto” in Germany is a spelling error for Geltow.

Further, Figure 3 shows the radio communications system with a European partner country, taking transmissions with Berlin, Germany as an example. It is to be noted that each destination city has receiving, transmitting, and central stations sited some dozen or more kilometers apart to avoid wave interferences between the reception and transmission signals.

VLF signals of around 17 kHz with wave lengths of 17 km were initially employed with Poland, Germany, the United Kingdom, and France in the late 1920s, to be replaced around 1930 chiefly by short waves with occasional uses of VLF, while communications with Switzerland and Italy used short waves from the start (*Denpa*, 1951, 5: 159).

While the stations transmitting to Nagoya Wireless Telegraph Station were previously identified in Imajo (Oct. 1937) with the exception of Babice, as shown in Table 2, center column, the receiving stations of Grodzisk Mazowiecki, Geltow, Somerton, and Villecresnes have been found by matching plausible alphabet names to the Japanese *katakana* spellings given in Japan (c. 1929) and Japan (c. 1930), far right column.

In addition to the familiar locations Warsaw and Dorchester, the less known places Grodzisk Mazowiecki, Nauen, Geltow, Somerton, Sainte-Assise, Villecresnes, Prangins, and Torrenova had to be located and specified. This was achieved through research, advice from co-researchers, and actual visits to transmitting and receiving station sites in Germany (2010) and then in the United Kingdom and France (2018), undertaken by the author with co-researcher Shoji Ishida, lecturer at Nagoya Institute of Technology.

Table 2. European Radio Stations Transmitting to Yokkaichi and Receiving from Yosami

No.	Wireless Telegraph Station		Transmitting Station to Yokkaichi (Imajo, Oct. 1937)		Receiving Station from Yosami		
	Country	Central station	First communication	Location	First communication (Tokai, 1962)	Location (by matching plausible alphabet name)	
1	Poland	Warszawa [Warsaw]	9.24.1928	Warszawa [Babice (Lotysz, 11.23.2010)]	4.15.1929	Grodzisk Mazowiecki	<Jap. グロディスク (Japan, c. 1929)
2	Germany	Berlin	9.24.1928	Nauen	4.22.1929	Geltow	<- <i>Gelto</i> in a diagram; Jap. ゲルトウ (Japan, c. 1929)
3	United Kingdom	London	4.24.1929	Dorchester	1.26.1930	Somerton	<Jap. ソマートン (Japan, c. 1930)
4	France	Paris	9.24.1928	S. Assise [Sainte-Assise]	3.1.1930	Villecresnes	<Jap. ヴィルクレーン (Japan, c. 1929)
5	Switzerland	Genève [Geneva]	2.3.1932	Prangins	2.2.1932	Unspecified	n.a.
6	Italy	Roma [Rome]	6.1.1934	Torrenova	6.1.1934	Unspecified	n.a.

Poland: Babice and Grodzisk Mazowiecki

Stowarzyszenie (1974, p. 134) indicates that the Polish transatlantic station started direct communications with countries in North, Central and South America “via Radio-Warszawa” on October 4, 1923, through a transmitting station located in Babice near Warsaw, and a

receiving one in Grodzisk, with its operation office in Fredry Street, Warsaw. Stanisław (1972 p. 31) further specifies:

... the transatlantic station in Babice was launched, another receiving station was put into operation—in Grodzisk Mazowiecki near Warsaw and Central Operating Office was at 10 Fredry Street.

Transatlantic ([https](https://www.transatlantic.com); translated) gives the specifications of the Babice transmitter as 10 masts (towers), truss steel, riveted, 126.5 m, 2 multi-tuner transmitting; transmitters 2 x 200 kW Alexanderson (USA), Radio Corporation of America; power supply 500 kW generator; frequencies 16.4 kHz and 14.29 kHz; and call signs AXL and AXO. Babice is 13 km W, and Grodzisk Mazowiecki 30 km SW of Warsaw, respectively.

Transatlantycka ([http](http://www.transatlantycka.com); translated) further notes that on January 16, 1945, the Nazis blew up all masts and destroyed technical buildings of Radio Babice. After the war, the constructions were cut up and taken away to an unknown direction. Radio Babice was one of the largest installations of its kind in the world.

The early date of radio communications in Poland was due to an enthusiastic offer from the country at that time (Denpa, 1951, 5: 159), and transmissions to Warsaw via Grodzisk were relayed to “other European countries” (Kokusai, 1935, pp. 4–5. Communication Network, as of 1930). This view is endorsed by a record that a Polish envoy, recently identified as Zdzisław Okęcki (1874–1940; stationed in Tokyo, 1928–1930) by Lotysz (2018), visited Yosami from Tokyo with his wife via Kariya Station and was welcomed by local people as early as April 26, 1929.

Germany: Nauen and Geltow



Figure 4.
Nauen Transmitting Station, built 1918
(Author, 8.9.2010)

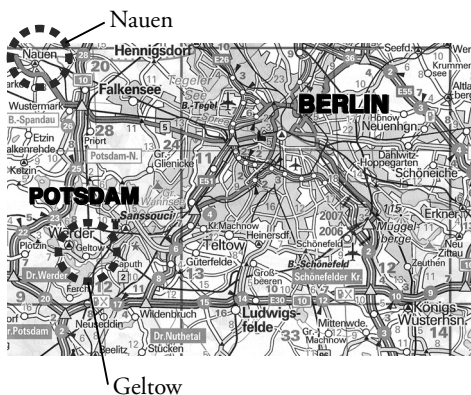


Figure 5.
Berlin, Nauen, far upper left, and Geltow, lower left, Potsdam south (Hallwag, 2009)

Nauen, 45 km WNW of Berlin, is a town in Brandenburg, Germany, known for the

Nauen Transmitting Station, built by Telefunken in 1906. The building had been used by Thomcast Communications for shortwave broadcasts from rotating transmitters since 1995, and is currently used by Media Broadcast. The station is located 5 km NNE of the town hall. The author visited with co-researcher Shoji Ishida on August 9, 2010.

An umbrella antenna was supported by a steel lattice mast 100 m high, the height was increased to 200 m in 1911, and to one 260 m and two 120 m masts in 1914. A 25 kW quenched spark transmitter was employed. The station survived World War II, but its mechanisms were dismantled and the masts were blown up by Soviet occupation forces in 1945–47 (Nauen, [https](https://www.nauen.de)). On the third weekend of September, the station building is open to the public.

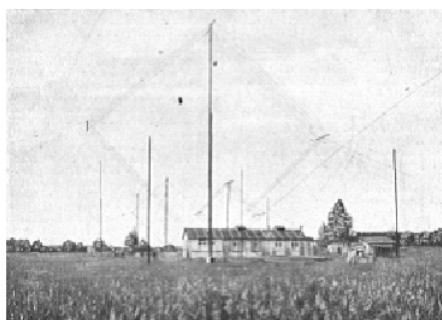


Figure 6.
Geltow Receiving Station with Frame Antenna
(Telefunken, 1919)



Figure 7.
Geltow Receiving Station, current appearance
(Shoji Ishida, 12.3.2014)

The site of the receiving station at Geltow was harder to locate. While “Gelto” (sic) could be identified from its approximate spelling and its Japanese *katakana* rendering (Japan, c. 1929) as *Geltow*, a small community in Schwielowsee in the district of Potsdam-Mittelmark, 40 km SW of Berlin, and 25 km S of Nauen, and while an old photo (Figure 6) could be found at Königs Wusterhausen Radio Museum, 30 km SW of Berlin, the exact site was not discovered on the 2010 visit. Ishida found it on a second attempt in 2014 as shown in Figure 7.

United Kingdom: Dorchester and Somerton

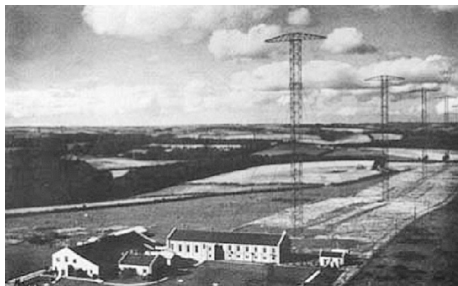


Figure 8.

An aerial view of Dorchester Transmitting Station, c.1937/38 (South, <https>)



Figure 9.

Dorchester Transmitting Station's original buildings (Author, 8.17.2018)

Dorchester, Dorset, England, 180 km WSW of London, was visited from Waterloo, London via Dorchester South Station, on August 17, 2018. The Dorchester Transmitting Station was located in Bridport Rd, on the B3150 road going to Honiton.

Dorchester was one of the original Marconi Beam Stations and opened in 1927 with a first service to New York, followed by services to Japan by the end of 1928 (Alancordwell, <http>). Some ten masts 87 m high were spaced at 195 m intervals and the width of the beam aerials was about 152 m. Comparing this with Table 2, “Japan” here may be understood as Yokkaichi, or else the receiving functions were switched to Yokkaichi in 1929 from Osaka (*Denpa*, 1951, 5: 158). Dorchester had Franklin beam antennas and was equipped with SWB-1 transmitters. By 1970 the overseas services had been replaced by satellite links, and Dorchester was closed in 1978 (Alancordwell, <http>). The tower on the site now is not original but is a mobile phone mast built by BT Cellnet in the 1980s. A few original buildings are still used by a typesetting company Advantage Digital Print (Figure 9), and the counterpart of Futaba Elementary School, located just north of the Yosami station site, is Damers First School, 2 km east of the station in Dorchester.

It is recorded (Kokusai, 1949) that it was through Dorchester on February 9, 1930, that Reijiro Wakatsuki [1866–1949], Plenipotentiary to the London Naval Conference on Disarmament, made an address that was received at Yokkaichi.



Figure 10.
Remains of Somerton Receiving Station, property of South Western Electricity Plc. (Author, 8.18.2018)



Figure 11.
Front gate of Somerton Receiving Station, with "Somerton Wireless" (Author, 8.18.2018)

Somerton, Somerset, England, 180 km WSW of London and 45 km NNW of Dorchester, was visited by rented car from Gloucester, Gloucestershire, on the following day. It was harder to locate, but after trying many turns and asking local people, who seemed to be puzzled that anyone should want to visit the derelict site, it was finally reached in a field off a road called Watts Quarry Lane (Figure 10). It was exciting to see the plate for "Somerton Wireless" still fixed to the locked front gate (Figure 11). The site is the property of South Western Electricity Plc. but there is now a notice "For Hire" on a concrete block. The buildings are still in place.

Somerton Receiving Station was built in 1927 as part of a Marconi shortwave beam system, paired with the transmitting station at Dorchester (Alancordwell, [http](http://)). Thus Yosami must have communicated with Somerton using short waves. The Franklin beam antennas existed until 1960, but the last overseas routes had ceased by 1977 and the maritime radio service closed in 2000 (Alancordwell, [http](http://)).

France: Sainte-Assise and Villecresnes

Figure 12. General view of Sainte-Assise Transmitting Station, with ten towers (Author, 8.25.2018)



Figure 13. An aerial view of Sainte-Assise Transmitting Station showing its rectangular layout (STATION, <http>)

Sainte-Assise Transmitting Station, built in 1922, had four high frequency alternators, two of 250 kW antennas for 20.4 kHz, and two of 500 kW antennas for 15 kHz (STATION, <http>). Sainte-Assise, 45 km SE of Paris, on the Seine 3 km W of Melun, was visited by rented car from Paris on August 25, 2018. The general view of Sainte-Assise (Figure 12), and its rectangular layout (Figure 13), with ten (originally 16) towers 250 m high, is highly reminiscent of how Yosami, with eight towers of height 250 m (Figure 16), is remembered by people who lived in and around Kariya in the years 1928–1997. Since 1998, Sainte-Assise has been operated by the French Navy to communicate with their submarine forces while underwater, exactly as at Yosami. No photos were allowed close up to the Navy base.



Figure 14.
Postcard of Villescresnes Receiving Station, c. 1925 (STATION, [http](http://tseradiofil.com/sainte_assise.htm))



Figure 15.
Villescresnes Receiving Station building, now used as a Leisure Center, east next to bus stop *Radio* and in *Rue de la Radio* (Author, 8.25.2018)

Villescresnes, a Paris commune, 20 km SE of central Paris was visited on the same day as Sainte-Assise, 25 km further SSE. It took a considerable time to locate, and the two researchers almost lost hope. Local people, including the staff at the commune office, were simply surprised to hear that two people had come 9,000 km to see a forgotten century old site in the commune. But one aged lady remembered the bus stop *Radio*. The researchers drove there and found the building on *Rue de la Radio* (Figure 15) that they already knew from an old post card of c. 1925 (Figure 14).

Villescresnes Receiving Station was built in c. 1925 by Compagnie Générale de TSF (Télégraphie Sans Fil) with six receiver masts (STATION, [http](http://tseradiofil.com/sainte_assise.htm)).

Switzerland: Prangins and Bern

The Bernradio Transmitting Station, located at Prangins, in Nyon on Lake Geneva, 20 km N of Geneva, and its receiving station, in Riedern, close to Bern, were built in 1922 (Stations, [http](http://tseradiofil.com/sainte_assise.htm)). Some details are given in Table 3. Short waves, not VLF, were employed (*Denpa*, 1951, 5: 159).

Italy: Torrenova and Acilia

Torrenova Transmitting Station in the 16th zone of Rome, with a capacity of 500 kW, was built in c. 1925 for long-distance longwave telegraphy services by Italo Radio, and was destroyed by the Germans in 1943. Its central tower was surrounded by five towers; all were 200 meters in height. It was powered by a Telefunken alternator of frequency 7 KHz, tripled. The facility was created as part of the German war compensation account. The station was abandoned in 1974. (STAZIONE, [http](http://tseradiofil.com/sainte_assise.htm)). The use of the Telefunken alternator and tripler, and the funding through German war compensation are parallel with Yosami. The receiving station was at Acilia (STAZIONE, [http](http://tseradiofil.com/sainte_assise.htm)), 20 km from the center of Rome and about half way between Rome and Ostia. Short waves were used (*Denpa*, 1951, 5: 159).

Table 3. European Communication Network of Nagoya Wireless Telegraph Yosami

No.	Wireless Telegraph Station					Transmitting Station			
	Country	Central station	Date opened	Operator	Operated	Location	Description	Period transmitted to Yokkaichi	Current status
0	Japan	Sakae 3-chome, Naka-ku, Nagoya	1928, 5.5 (Ministry, 1940)	Nagoya Wireless Telegraph Bureau	1929, 4.15–93, 8.1	Yosami Village (1906–55), suburbs of Kariya; current Kariya, Aichi, 25 km SSE of Nagoya	Telefunken, AEG; 17.442 kHz, JND; 250 m x 8 (Japan, c. 1928)	n.a.	Denki Kogyo solar panels; Yosami Museum 2007, IEEE Milestone 2009
1	Poland	10 Fredry Street, Warsaw	1923	Ministry of Posts and Telegraphs (Transatlantic, https)	1923, 10.4–1945, 1.16	Babice, 13 km W of Warsaw [Warzawa (Imajo, Oct. 1937)]	16.42/14.29 kHz, 127 m x 10, 2 x 200 kW Alexanderson system (Shin-Aichi, 1.15.1929)	1928–1937 VLF/Short waves	Mast foundations, coils, watchtowers, building ruins preserved (Lotysz, 2010)
2	Germany	Berlin	1906	The Telefunken company; Tranradio (Denpa, 1951, 5: 158)	1906–45/47	Nauen, 45 km WNW of Berlin	50; var. 100–260 m, 80,000 mA, Telefunken	1928–1937 VLF/Short waves	Media Broadcast with the original building of 1918 (the Ramsloh naval radio station, 1982–; Wilhelmshaven)
3	United Kingdom	London	1927	Marconi Wireless Telegraph Company	1927, 12.16–1978, 4	Dorchester, 180 km WSW of London; Bridport Road	SWB-1 transmitters, 4–20 MHz, 87 m x 10+, "services to Japan ... by the end of 1928" (Alancordwell, http); 2 km W of Damers First School	1928–1937 VLF/Short waves	Typesetting company Advantage Digital Print, with the original bldgs.
4	France	Central Bd Haussmann office, Paris (STATION, http)	1925	Compagnie Générale de TSF (Télégraphie Sans Fil); Radio France (Denpa, 1951, 5: 158)	1922–1998?	Sainte-Assise, 45 km SE of Paris, on the Seine; 3 km W of Melun (16 km NNW of Château de Fontainebleau)	ten (originally 16) towers of 250 m high, high frequency alternators, two of 250 kW antennas for 20.4 kHz and two of 500 kW antennas for 15 kHz (STATION, http)	1928–1937 VLF/Short waves	French Navy Radio station, with ten 250 m masts, similar to the Yosami arrangement
5	Switzerland	Geneva	1922	Bernradio (Stations, http)	1922–? (Stations, http)	Prangins, in Nyon on Lake Geneva, 20 km N of Geneva	Civilian radio station with an international network with worldwide HF coverage (Stations, http)	1928–1937 Short waves	Prangins (Imajo, Oct. 1937)
6	Italy	Rome	1934	Italo Radio (STAZIONE, http)	c. 1925 (STAZIONE, http)	Torrenova, the 16th zone of Rome (or, Coltano (Shin-Aichi, 1.15.1929), Pisa, 250 km NW of Rome)	20 m x (1+5) (STAZIONE, http)	1928–1937 Short waves	Abandoned in 1974, with the introduction of the new HF station at Torvaianica (STAZIONE, http); North of Torrenova Station (Ishida, 2016) ?
cf.	Sweden	Göteborg (Gothenburg)	1923	Swedish Parliament	1924/25–present	Grimeton; 70 km SSE of Göteborg, E of Varburg	SAQ, 16.7 then 17.2 kHz, 200 kW; 127 m x 6 with an interval of 380 m, Alexanderson, GE, communicated to Radio Central, Long Island; After 1938, short waves	1928?–1937? VLF	UNESCO World Cultural Heritage Grimeton-Varburg, 2004

Radio Transmitting Station 1929–1937

Years operated	Receiving Station			Nagoya Wireless Telegraph Station			Research conducted	
	Location	Description	Period transmitted from Yosami	Current status	Date of two-way communication (Tokai, 1962)(Ministry, 1940)	Angle from Yosami		Distance from Yosami (Japan, c. 1930)
1928, 5.5–1938, 11	Kaizo Village (1889–1930), suburbs of Yokkaichi, Mie, 35 km SW of Nagoya; 35 km W of Yosami	AEG; 60 m x 2 VLF double goniometers; 60 m x 3 VLF loop; 85 m x 2 for short beams (Japan, c. 1928)	n.a.	Housing in Nishi-Akuragawa, Yokkaichi, 1 km NW from Akuragawa station on the Kintetsu Line	Yosami Radio Transmitting Station was employed by Japanese Navy in 1941–45, and by U.S. Navy in 1952–93, for communication to submarines.			1990–; <i>Report on Yosami Radio Transmitting Station</i> , 1999
1923–1945/56	Grodzisk Mazowiecki, 30 km SW of Warsaw	Beverage antenna system (Stanislaw, 1972 p. 31)	1929–1937 VLF/Short waves	Concierge building, trees, the perimeter border preserved (Lotysz, 2010)	1929, 4.15	328 degrees	8,500 km	n.a.
n.a.	Geltow, Schwielowsee in Potsdam-Mittelmark district, 40 km SW of Berlin; 25 km S of Nauen	n.a.	1929–1937 VLF/Short waves	Original building inhabited, discovered by Shoji Ishida	1929, 4.22 [1929, 4.15] (Japan, 1937, pp. 15–16)	332 degrees	8,860 km	2010, 8. 9, with Shoji Ishida
1927–77 (overseas)/2000	Somerton, Watts Quarry Ln; 180 km WSW of London; 45 km NNW of Dorchester	Franklin beam antennas; mast and guy bases for a very large radius around the station (Alancordwell, http)	1930–1937 VLF/Short waves	South Western Electricity Plc “For Hire” with original bldgs., “Somerton Wireless”	1930, 1. 26	338 degrees	9,520 km	2018, 8. 17, 18, with Shoji Ishida
c. 1925–?	Villecresnes; 20 km SE of Paris; 25 km NNW of Sainte-Assise	six+ receivers in service (STATION, http)	1929/30–1937 VLF/Short waves	Centre de Loisirs, Mairie de Villecresnes, with the original bldg.	1930, 3.1 [1929, 4.15] (Japan, 1937, pp. 15–16)	336 degrees	9,670 km	2018, 8.25, with Shoji Ishida
1922?– (Stations, http)	Riedern, close to Berne	n.a.	1932–1937 Short waves	n.a.	1932, 2. 2	330 degrees	9,300 km (the author)	n.a.
c. 1925 (STAZIONE, http)	Acilia, neighborhood of Rome; about half way between Rome and Ostia	n.a.	1934–1937 Short waves	n.a.	1934, 6.1	325 degrees	9,170 km (the author)	n.a.
1924–48	Kungsbacka; 25 km SSE of Göteborg; 45 km NNW of Grimeton	9 m towers, antenna 13 km (by Signpost in Swedish)	1930s? VLF	Signpost with an original building inhabited	1930s? n.a.	336 degrees	8,060 km (the author)	2010, 8.17, with Shoji Ishida
					The communication with Nagoya Wireless Telegraph Station is not confirmed.			

Sweden: Grimeton/Varburg and Kungsbacka

The UNESCO World Cultural Heritage Grimeton-Varburg Transmitting Station, 70 km SSE of Goteborg, and the Kungsbacka Receiving Station site, 25 km SSE of Göteborg, were visited in 2010, and details are entered in Table 3. Though communications with Goteborg appear to be projected in early Japanese maps (Japan, c. 1928; Japan, c.1929a [Figure 2]), no actual exchanges with Nagoya are documented, not even in the “Communication Network as of 1930” (Kokusai, 1935, pp. 4–5). Signals may have been relayed via Warsaw, London, or Paris.

Conclusion

Findings and discussions concerning the communication network linking Yosami and Yokkaichi with Poland, Germany, the United Kingdom, France, Switzerland, and Italy, as well as arguably Sweden, in the years 1929–37 are summarized in Table 3. They confirm that Yosami was indeed “the birthplace of radio telecommunication with Europe” as recorded by Shizuo Honda (1898–1999) on the stone monument set up in 1989 at the corner of the Yosami station.

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Figure 16. An aerial view of Yosami Transmitting Station, c. 1987 (Denki, 1997, p. 43)

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