

Radio broadcasting in Portugal: an overview

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Luís Carvalho

- Radio enthusiast & Dxr
- WRTH contributor for Portugal
- FMLIST editor for Portugal
- Personal website about radio (mainly in Portuguese):
 - **Mundo da Rádio** - <http://www.mundodaradio.com>

E-mail: mundodaradio@gmail.com



Acronyms, abbreviations and expressions used in this presentation

- **ANACOM** (Autoridade Nacional de Comunicações) – regulatory authority for communications in Portugal, responsible for managing radio spectrum.
- **LW** – longwave broadcasting band (153-279 kHz)
- **MCR** – Média Capital Rádios
- **MW** – mediumwave broadcasting band (531-1602 kHz)
- **NDB** – Non-directional beacon
- **POR, MDR & AZR**: ITU country codes for **Portugal, Madeira & Azores**, respectively. Refs. to MDR include Madeira & Porto Santo islands.
- **Portugal** – **References to Portugal cover not only the mainland, but also Madeira and Azores archipelagos, unless otherwise stated.**
- **RCP** – Rádio Clube Português
- **RR** – Rádio Renascença
- **RTP** – Rádio e Televisão de Portugal
- **SW** – shortwave
- **Tx** – transmitter
- **VHF-FM** – FM broadcasting band (87.5 – 108 MHz)

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History of radio broadcasting in Portugal (1914-2013)

Some important events



History of radio broadcasting in Portugal: some important events

- **1914** – first radio broadcast in Portugal by Fernando Medeiros
- **1931** – “Rádio Clube da Costa do Sol” (ex CT1 DY - Rádio Parede) changed its designation to **Rádio Clube Português (RCP)**
- **1935** – **Emissora Nacional de Radiodifusão** is officially launched
- **1937** – **Rádio Renascença** starts broadcasting
- **1949** – **Rádio Altitude (Guarda)** makes its first regular broadcasts
- **1951** – **Radio Free Europe** creates **RARET** facilities at **Glória do Ribatejo** (Salvaterra de Magos), installing SW transmitters broadcasting to Central Europe.
- **1954** – **CEU (Centro Emissor Ultramarino)**, later **CEOC (Centro Emissor de Onda Curta)** [literally, Shortwave broadcasting centre] is officially open, improving transmitting conditions for **Rádio Portugal**
- **1954** – The first **VHF-FM trial broadcasts in Portugal** take place using a tx built by RCP technicians who installed it at the Philips facilities in Lisboa
- **1956** – **Emissora Nacional** installed the first 2 **VHF-FM txs** at **Lisboa** and **Lousã**
- **1970** - **Deutsche Welle (ProFunk GmbH)** installs a **shortwave transmitter site** at **Sines**.

History of radio broadcasting in Portugal: some important events

- **1974** – **Carnation Revolution** (we will talk later about the importance of radio in the coup)
- **1976** – All private stations but **Rádio Renascença**, **Rádio Alitude** and **Rádio Pólo Norte** (the latter closed down in late 1980s) are **nationalised**.
- **1976** – A new company, **Rádiodifusão Portuguesa (RDP)** is created to replace **Emissora Nacional** as the public service broadcaster
- **1979** – RDP launches a new station, **RDP - Rádio Comercial** using the MW and VHF-FM frequencies assigned to Rádio Clube Português (nationalised in 1976)
- **1987** – **Rádio Renascença** launches **RFM** using a second VHF-FM tx network
- **1988** – On 24 December, all pirate stations were silenced.
- **1989** – Private local stations (now licensed) resume broadcasts.
- **1993** – **Rádio Comercial** is privatised.
- **1994** – **Antena 3**, the third public radio, opened, covering Lisboa, Porto & Braga. Soon, it reaches the whole country except the Azores (where arrived much later).
- **1998** – During the **Expo'98** (1998 Lisbon World Exhibition), RDP makes the first **DAB (Digital Audio Broadcasting)** trials in Lisboa and Porto using 4 transmitters. DAB services were shutdown in 2011.

History of radio broadcasting in Portugal: some important events

- **2004** – **RDP (Radiodifusão Portuguesa)** is merged with the public TV - RTP (Radiotevisão Portuguesa) into a new company called **Rádio e Televisão de Portugal**.
- **2008** – **Rádio Renascença (RR)** launches **Rádio Sim**, a station targeted at listeners over 55, using MW network and a small number of VHF-FM transmitters.
- **2009** – **RDP Internacional/R. Portugal** broadcasts now on **DRM (Digital Radio Mondiale)** via **Deutsche Welle - PROFUNK GmbH (Sines)**.
- **2010** – **RR & RFM** reach **Azores & Madeira**, after installing 2 high power txs.
- **2010** – **Antena 3** reaches now the **Azores**, covering the main cities using 4 txs.
- **2011** – **RDP Internacional “suspends temporarily” SW broadcasts..**
Meanwhile, **Deutsche Welle facilities in Sines are close down** a few months later, ending with international SW broadcasting in Portugal.
- **2011** – **DAB broadcasts are shut down** due to high running costs, good coverage on VHF-FM and lack of listeners.
- **2013** – In order to reduce costs, **RR switches off temporarily some MW txs for Rádio Sim** in locations well served by VHF-FM txs.

Radio stations in Portugal



Radio stations in Portugal

- **National stations:**
 - **State-owned public broadcasting:**
 - **RTP (Rádio e Televisão de Portugal):**
 - Antena 1 (news, current affairs, culture, Portuguese music)
 - Antena 2 (serious, classical music, cultural programmes)
 - Antena 3 (mainstream & alternative pop/rock/dance music)

Radio stations in Portugal

- **National stations:**

- **Private broadcasters:**

- **r/com (Rádio Renascença) group** (commercial, religious station owned by various organisations within the Portuguese Catholic Church):
 - Rádio Renascença(*) (news, current affairs, music, religious programmes and services)
 - RFM (rock/pop music)
 - Rádio Sim(*) (oldies, programmes for an older audience)
 - **MCR (Média Capital Rádios) group (commercial):**
 - Rádio Comercial (pop/rock music)
 - Star FM (**inactive** mediumwave network)

(*) Few VHF-FM txs assigned to Rádio Renascença (RR) broadcast Rádio Sim; all MW outlets carry also the latter. Rádio Sim also uses some local stations to serve on VHF-FM a number of cities.

Radio stations in Portugal

- **Regional private & commercial stations:**
 - **Northern network (Centre & North of Portugal mainland)**
 - **TSF** (news station)
 - **Southern network (South of Portugal mainland)**
 - **M80 Rádio** (1970-1990s oldies station)

Please note that both TSF & M80 are also relayed by some local stations so that the first one (TSF) serves some cities in the south of Portugal, while M80 reaches also a number of cities in the North.

Radio stations in Portugal

- **Local stations:**
 - **About 300 active local stations on VHF-FM; 1 active MW station in Madeira** (despite the existence of few valid MW licences in the mainland & Azores assigned but not currently in use).
 - A number of stations are used for networks (eg: **Cidade FM, Smooth FM, Mega Hits** etc.)
 - **Every single station is assigned to a particular municipality.** Under certain circumstances, ANACOM allows a radio station to displace its transmitter to a adjacent municipality in order to improve coverage, usually imposing technical limitations.

RTP – Rádio e Televisão de Portugal



Photos: MW transmitter at **Boidobra (Covilhã)**, broadcasting **Antena 1** on **666 kHz 10 kW**. Observe the capacity hat at the top of the tower carrying Yagi-Uda antennas. Unlike other MW towers, the radiating antenna is not the tower itself as some people might think, but instead the 3 wires along the tower (from the top to bottom; not to be confused with the guy- wires). Courtesy of Paulo Pinto.

RTP – Rádio e Televisão de Portugal

- **Public service, state-owned broadcaster**
- Started in 4 August 1935 as **Emissora Nacional de Radiodifusão**
- **After the Carnation Revolution** (25 April 1974), the state radio changed its name to **RDP (Radiodifusão Portuguesa)**
- In 2004, the Portuguese government merged RTP (public TV) and RDP into a new holding called **RTP (Rádio e Televisão de Portugal)**

5 radio stations:

- **Antena 1** – covers virtually the whole country (inc. MDR & AZR) on VHF-FM & MW; also available via satellite in Europe & North Africa
- **Antena 2** – available only on VHF-FM; full coverage of POR, almost full coverage of AZR and a network serving most parts of MDR.
- **Antena 3** – available only on VHF-FM; like the previous 2 channels, covers virtually all the population of mainland and Madeira archipelago; serves also some Azorean islands (São Miguel, Terceira & Faial)
- **RDP África** – available in Lisboa (101.5 MHz), Coimbra (103.4) and Faro (99.1 MHz). The station covers (VHF-FM) also some parts of Portuguese-speaking countries in Africa such as Cape Verde, Mozambique, São Tomé e Príncipe and Guinea-Bissau. RDP África broadcasts also on satellite.
- **RDP Internacional** (ex **Rádio Portugal**): worldwide coverage via satellite; it is also relayed on VHF-FM in East Timor (Díli – 105.3 MHz). **RTP suspended shortwave transmissions in 2011.**

RTP transmitter network

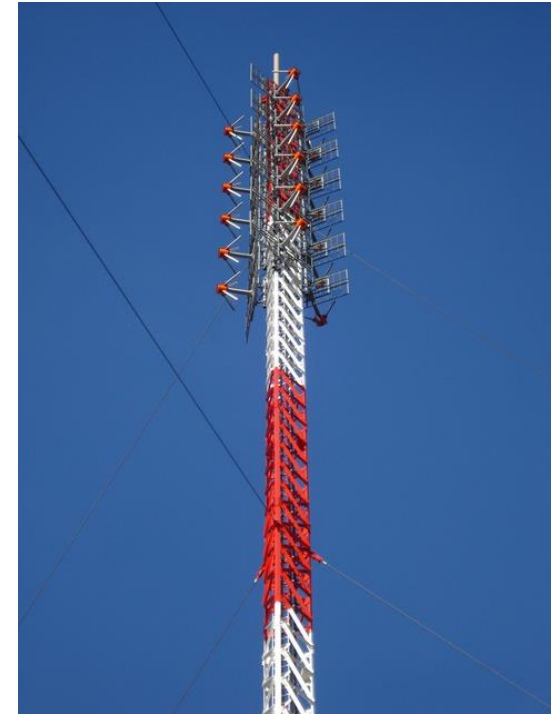
- **Antena 1:**
 - **17 MW** transmitters in **Portugal mainland** (2 inactive), plus **2** transmitters in the **Azores**.
 - **39 VHF-FM** transmitters in **Portugal**, **26 txs** in **Azores** & **15 txs** in **Madeira** (14 in the Madeira island itself, plus one tx at Porto Santo)
- **Antena 2:**
 - **36 VHF-FM txs** in **Portugal**, **19 txs** in the **Azores**, plus **6 txs** in **Madeira** archipelago.
- **Antena 3:**
 - **35 VHF-FM txs** in **Portugal mainland**, **6 txs** in **Azores** & **15 txs** in **Madeira**
- **RDP África:**
 - **3 VHF-FM txs** in **Portugal mainland**: 101.5 MHz 4 kW Monsanto (Lisboa), 103.4 MHz 1 kW Coimbra & 99.1 MHz 1 kW Faro

Take into account that the mentioned figures don't reflect the existence of a very small number of VHF-FM txs (as of August 2013 , 1 for Antena 1, 1 for Antena 2 and 2 for Antena 3) running tests under consent of ANACOM (therefore not yet licensed). Moreover, a small number of towers in POR & AZR have simultaneously antennas for MW & VHF-FM (e.g., Viseu, Portalegre, Mte. das Cruzes [Flores, Azores]).

RTP transmitter network

- **Mediumwave (MW) transmitters:**
 - **10 active 10 kW txs in Portugal mainland**, plus **5 txs with 2 kW**. In the **Azores**, RTP has **2 active txs**: one with 10 kW running at **3 kW**; the other broadcasts with **1 kW**.
 - **Tx at Miramar (Vila Nova de Gaia, near Porto) – 720 kHz 10 kW** and the tx at **Valença (666 kHz 10 kW)** are inactive.
- **VHF-FM transmitters in Portugal mainland:**
 - **High power txs (over 30 kW):**
 - **Monsanto (Lisboa)** – covers the region of **Lisboa** , some parts of the district of **Setúbal** and partially the district of **Santarém**;
 - **Monte da Virgem** (Vila Nova de Gaia – near Porto) – serves not only the region of **Porto** but also some areas of **Aveiro**, the coastal areas of **Viana do Castelo** and some parts of the district of **Braga**;
 - **Trevim (Serra da Lousã)** – covers the Center of Portugal, especially the region of **Coimbra** (including the city of Figueira da Foz), but also **Leiria**, **Aveiro**, **Viseu**, some parts of **Santarém** and **Castelo Branco**.
 - **Low & medium power txs (less than 30 kW):**
 - **1 tx running at 25 kW (Fóia – Serra de Monchique)**, **12 txs with 10 kW & 26 txs below 10 kW** (from 0.05 to 9 kW)

RTP: VHF-FM tx at Serra da Lousã (Trevim)



Pictures (except the map) courtesy of Paulo Pinto

RTP radio services broadcasting from Trevim:

87.9 MHz 34 kW – Antena 1

89.3 MHz 34 kW – Antena 2

102.2 MHz 39 kW – Antena 3

RTP: MW transmitter (C.E.N. – Castanheira do Ribatejo – 666 kHz 10 kW)

- Located in Castanheira do Ribatejo, within the municipality of Vila Franca de Xira - 36 km away from Lisboa and 129 km (straight line) from Figueira da Foz
- First broadcast : 5 February 1945
- From 1945 to 1983, Emissora Nacional (later RDP) broadcast **Programa 1** & **Programa 2** (currently **Antena 1** & **Antena 2**) using two 135 kW BBC-Brown Boveri Co. txs
- Nowadays, RTP uses a 10 kW tx broadcasting Antena 1; C.E.N. is also fitted with a spare tx (both Nautel)



Photos: Paulo Pinto

r/com - renascença comunicação multimédia (Rádio Renascença Group)



Vila Real MW transmitter for
Rádio Sim - 981 kHz 1 kW (taken
in 2008)



Gardunha transmitter (VHF-FM) :
RR – 103.4 MHz & **RFM** – 99.5 MHz
(both 10 kW); photo taken in 2010; the 2
photos courtesy of Paulo Pinto

r/com (Rádio Renascença group)

- **Rádio Renascença (RR)** is a private, commercial and religious radio station owned by the Portuguese Catholic Church.
- **RR started broadcasting officially on 1 January 1937**
- Until the 1960s, RR had only **2 MW outlets** located in **Lisboa** and **Porto**, besides one SW tx in the capital of Portugal (Lisboa).
- Between 1965 and 1971, the station installed a **VHF-FM network** of **17 transmitters** covering most parts of the country (mainland).
- On 7 November, during the transitional period known as [PREC](#), txs at Buraca (near Lisboa) were bombed by a radical left-wing political movement.
- During the late 1970s/ early 1980s, RR **instaled new MW transmitters** covering Portugal mainland.
- On 1 January 1987, a new music station owned by Rádio Renascença (**Renascença FM**, now **RFM**), entered on air, broadcasting using a second VHF-FM tx network.
- In 1998, RR group launched the third radio station, **Mega FM** (now **Mega Hits**), reaching a younger target audience.
- Ten years later, on 4 August 2008, **Rádio Sim** (aimed at listeners over 55) was launched, broadcasting on **mediumwave** and a small number of **VHF-FM transmitters** assigned to RR.

r/com transmitter network

- **Rádio Renascença:**
 - 23 VHF-FM transmitters in mainland, 1 tx in Azores & 1 tx in Madeira
- **Rádio Sim:**
 - 13 MW txs, 4 of them temporarily inactive due to cost reduction: 1 x 100 kW tx currently running with 1 kW (Muge); 1 x 20 kW (2x 10 kW) tx using only 10 kW (Vilamoura); 6 x 10 kW txs (3 inactive) & 6 x 1kW txs (1 inactive)
 - 4 VHF-FM txs in Portugal mainland, plus 5 local stations (1 with a low power relay apart from the main tx) relaying Rádio Sim (most of them owned by RR). No coverage of Madeira or Azores.
- **RFM:**
 - 28 VHF-FM txs in Portugal mainland, plus 1 tx in Azores & 1 in Madeira
- **Mega Hits:**
 - 6 local VHF-FM stations in the mainland at Lisboa, Sintra, Coimbra, Aveiro, Valongo & Braga.

Remark: besides the mentioned number of txs, RR & RFM has (August 2013) one tx under tests not yet licensed by ANACOM.

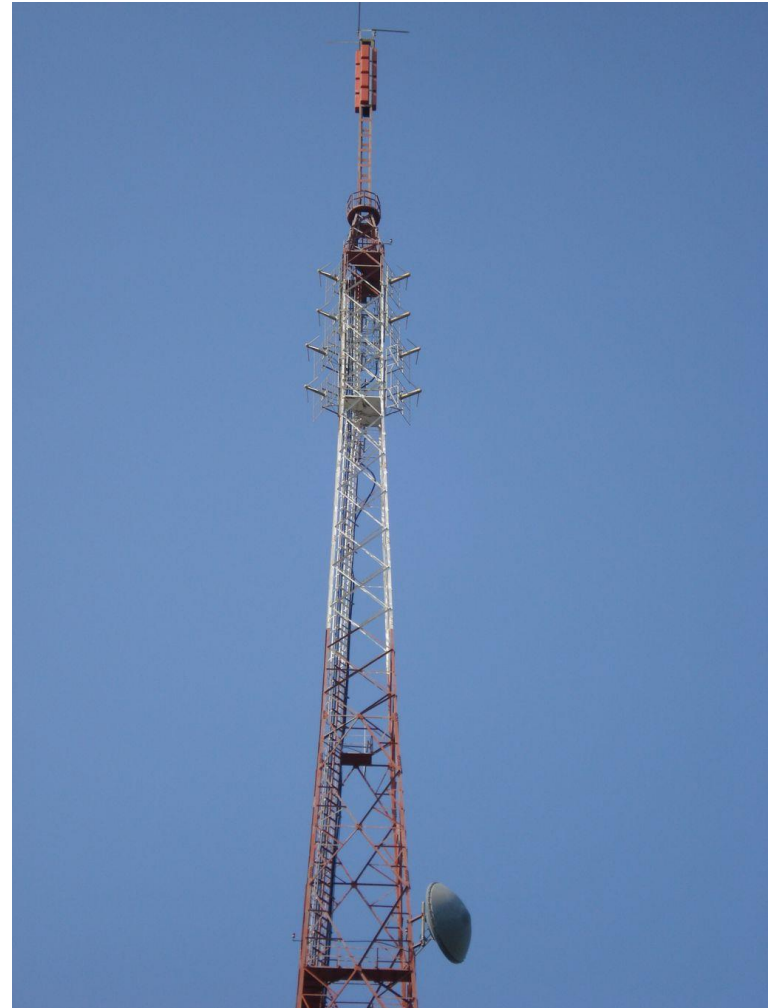
Rádio Sim – tx at Muge (MW 594 kHz)

- **The tallest structure in Portugal (265m)**
- Built in the early 1980s, like most MW transmitters for Rádio Renascença (currently Rádio Sim)
- **Main transmitter – 100 kW; back up transmitters – 2x 10 kW**; As of August 2013, R. Sim is running at **1 kW** using one of the two spare txs due to cost – cutting.
- **Muge was also fitted with a shortwave tx (100 kW)**, which has been inactive for many years.
- Photos taken in 2011 by P. Pinto.



r/com – VHF-FM transmitter at Monte da Virgem (Vila Nova de Gaia – near Porto)

- Picture taken in 2007 by Paulo Pinto, when the tower was shared with the private TV channel TVI (hence the existence of UHF antennas); as analogue TV was switched-off in 2012 and DTT in Portugal uses some towers owned by Portugal Telecom, it is expected (not confirmed) that the shown tower is now only used by radio stations.
- The tower is now (2013) shared with Rádio Comercial & Cidade FM
- **Frequencies (2013):**
 - **Rádio Renascença** – 93.7 MHz 50 kW
 - **RFM** – 104.1 MHz 50 kW
 - **Rádio Comercial** – 97.7 MHz 44 kW
 - **Cidade FM** – 107.2 MHz 0.5 kW (local station assigned to V. N. de Gaia)



MCR - Média Capital Rádios

- **Média Capital** - major media group in Portugal, which owns the private television TVI, some printed magazines and **7 radios**:

Transmitter network (all VHF-FM unless otherwise stated):

- **Rádio Comercial** (pop/rock music station)
 - National network of **22 txs** in the mainland
- **M80 Rádio** (1970-1990s music station)
 - Regional network of **7 txs** in the **South of Portugal**; **8** associated local stations broadcasting M80 in the North & Centre of the country
- **Cidade FM** – pop/hip-hop/dance music
 - **10** local stations
- **Star FM** (1950-1970s) music
 - **2 inactive mediumwave outlets** located in **Benavente (1035 kHz)** & **Avanca** (near Estarreja – **783 kHz**); nominal power: 100 kW
 - **6** local stations
- Other stations: **Vodafone FM (2 txs)**, **Best Rock FM (1 tx)** & **MFM (1 tx)** - all local stations)

TSF

- **Regional, private, commercial news station operating on VHF-FM**
- **First broadcast as pirate station in 1984**
- **Regular broadcasts** (still pirate) started on **29 February 1988**
- Like many others illegal stations, **stopped transmitting on 24 December 1988**
- A few months later, now legalised, TSF resumes broadcasts now on **89.5 MHz Lisboa**
- In 1991, TSF expands coverage to **Coimbra (98.4 MHz)** and **Porto (90.0 MHz)** using local stations.
- Two years later, **TSF replaces Radio Press in the Northern regional network**. Meanwhile, TSF group launches **XFM**, an alternative music station (which closed down in 1997).
- **Transmitter network as of August 2013 (VHF-FM):**
 - **Regional network of 13 txs between 0.1 & 50 kW**
 - **Local stations** in Lisboa (89.5), Évora (105.4), Faro (101.6), Caldas da Rainha (103.1 MHz); **Madeira** - Funchal 100.0 MHz; **Azores** - Ponta Delgada 99.4 MHz

Local stations in Portugal

- **Mediumwave (MW):**

- 1 tx in **Madeira** (Porto Emissor do Funchal – 1530 kHz); 1 inactive tx in the **mainland** (Rádio Altitude), several inactive txs in Azores (Rádio Clube de Angra, Rádio Clube Asas do Atlântico, Rádio Lajes – A Voz da Força Aérea Portuguesa) [Portuguese Air Force] & 1 active **military American station in the Azores** (**Armed Forces Radio and Television Service (AFRTS)**). All stations broadcast on VHF-FM.

- **VHF-FM:**

- Over 300 active local stations, most of them converted into networks(some were already mentioned in previous slides, such as Rádio Sim, M80 Rádio, TSF, etc).
- Transmitting power varies from 0.4 kW to 5 kW (the latter in Lisboa, Porto & Coimbra)
- Some stations have low power (50 W) relays in order to improve reception in areas not well served by the main tx.
- **Local VHF-FM stations from Figueira da Foz:**
 - Maiorca FM – 92.1 MHz 2 kW
 - Rádio Clube Foz do Mondego – 99.1 MHz 2 kW

Local stations in Portugal



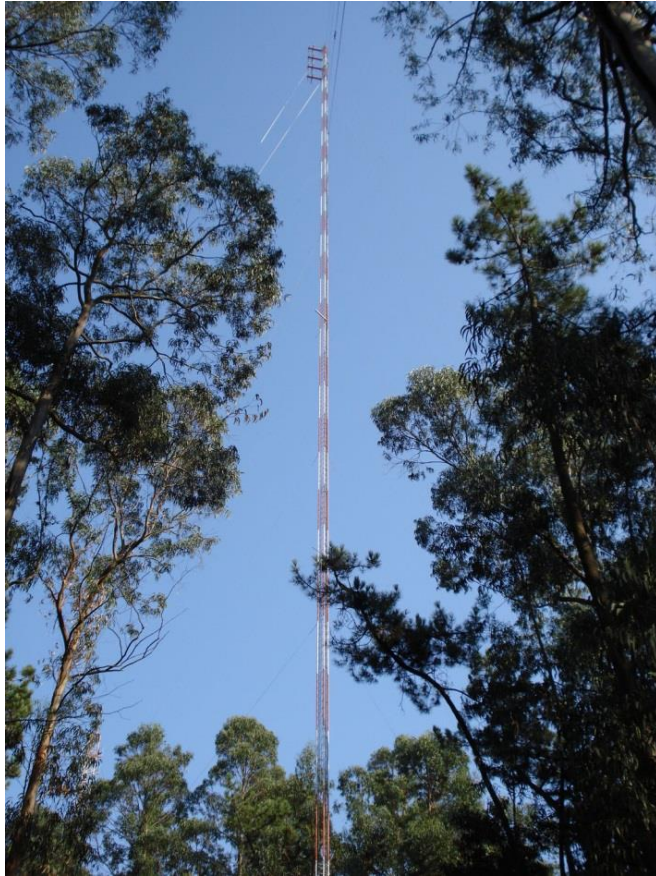
Rádio Condestável (Sertão) – main tx at Cabeço Rainha (91.3 MHz 0.5 kW)



Rádio Condestável (Sertão) – low power relay at São Macário (97.5 MHz 0.05 kW); photo courtesy of Pedro Ramalhete

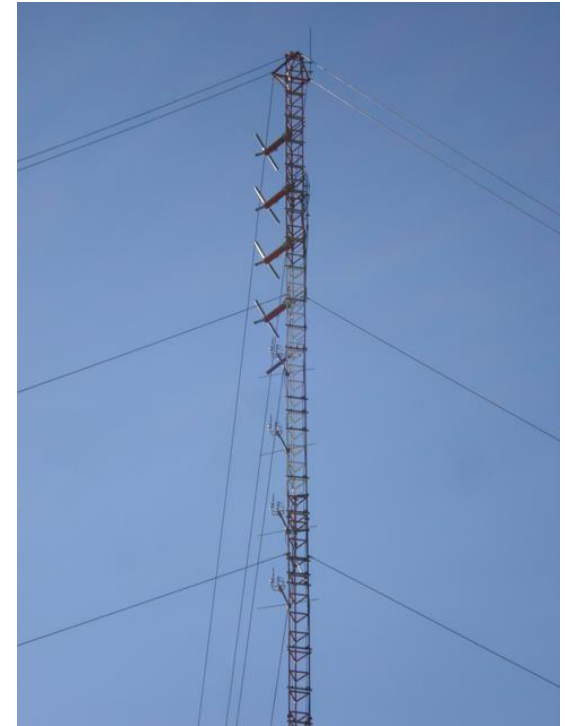


Local stations in Portugal



Two local stations from Porto with transmitter at Monte da Virgem : **Rádio Festival (94.8)** & **Rádio Nova (98.9)**, both **5 kW**. In this case, the tower is located outside the municipality for which the 2 stations were assigned (Porto); in fact, Monte da Virgem belongs to the municipality of Vila Nova de Gaia. **Photo credit:** P. Pinto.

Local stations in Portugal



A tower shared by a national radio and two local stations at **Mundão (Viseu)**: **Rádio Comercial** (94.3 MHz 0.5 kW), **Cidade FM** (102.8 MHz 2 kW) & **M80 Penalva do Castelo** (95.6 MHz 0.5 kW). Note that the transmitting antennas for M80 have reflectors (look at the 4 antennas seen in the foreground of the third image (from left to right)). Courtesy of P. Pinto.

International shortwave broadcasting in Portugal (1930s - 2011)



Photo: RARET facilities in Glória do Ribatejo (1951-1996). Image retrieved from Flickr website. **Credit:** Calouste Gulbenkian Foundation

Rádio Portugal / RDP Internacional

- First SW tx site (1935-1954): **Barcarena** (Oeiras – near Lisboa).
- **CEU (Centro Emissor Ultramarino)**, later **CEOC (Centro Emissor de Onda Curta)**, also called “São Gabriel”, was opened in 1954. The site is located near Canha – about 42 km from Lisboa (straight line).
- **RDP Internacional SW broadcasts have been suspended since June 2011** and, unfortunately, as of August 2013, the Portuguese government is not willing to reactivate the service.
- **Transmitters** (situation in 2011):
 - 1 x 300 kW TELEFUNKEN S 4005
 - 3 x 300 kW THALES TSW 2300
 - 4 x 100 kW backup transmitters
- **antennas:**
 - Curtain arrays
 - Rhombic antennas for Venezuela / Middle East + India ; txs were running at 100 kW because the antennas could not handle more power.

Rádio Portugal / RDP Internacional

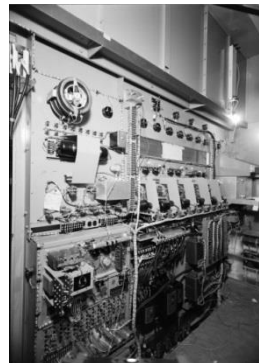


- RTP facilities at S. Gabriel. **Top:** the photo on the left shows what appears to be transmission lines connected to the SW transmitters. The picture shown on the right represents the Emissora Nacional facilities. Images retrieved from Flickr website. **Credit:** Calouste Gulbenkian Foundation. **Colour picture at the bottom:** one of the curtain arrays. Photo taken by Ricardo Taveira.

RARET / Radio Free Europe (Glória do Ribatejo / Maxoqueira)

- **Built in 1951** by the company **RARET** (*Sociedade Anónima de Rádio Retransmissão, Lda.*)
- Txs at **Glória do Ribatejo** (Salvaterra de Magos) broadcast Radio Free Europe in several Eastern European languages. RFE programmes were tuned at **Maxoqueira** (near Benavente) and sent to the offices in Lisboa so that they could be submitted for review.
- **Maxoqueira** receiving station was later converted into a second transmitting site.
- **Txs at Glória do Ribatejo:** 4 x **100 kW** (1953); many years later (1980s-1990s (?)), **500 kW** txs were installed.
- A first-person narrative in Portuguese by a (now deceased) technician can be read at http://www.aminharadio.com/radio/raret_raret .
- **RARET facilities closed down in 1996.** Some infrastructures were dismantled (the remaining facilities should be visitable). There are plans to demolish the whole area in order to build touristic attractions.

RARET / Radio Free Europe (Glória do Ribatejo / Maxoqueira)



Images retrieved from Flickr website. **Credit:** Calouste Gulbenkian Foundation

ProFunk GmbH / Deutsche Welle SW centre at Sines

- Opened officially in 1970
- Before satellite broadcasts were becoming common, DW used a receiving station at Sesimbra. The facilities were torn down in 1990.
- As DW was not using all transmitters 24 hours a day, many stations, including **Radio Canada International, Adventist World Radio, BBC, NHK** (Japan) rented the txs for some hours per day. Another remarkable example is **Rádio Renascença** (for a short period of time).
- The agreement between Portugal & Germany stated that DW should broadcast Rádio Portugal/RDP Internacional for a certain number of hours agreed between the broadcasters.
- First transmitters: 3 x 250 kW Marconi; many years later replaced with 3 x 250 kW Thomcast DRM [Digital Radio Mondiale] capable).
- All the infrastructures at Sines closed down on 30 October 2011, ending with SW broadcasts after 40 years of regular service.

ProFunk GmbH / Deutsche Welle SW centre at Sines



Picture: one of the rotatable shortwave antennas at Sines. Photo retrieved using Street View, from Google Earth software (free for non-commercial use).

Some facts & curiosities about radio broadcasting in Portugal



r/com (Rádio Renascença) studios on Rua Ivens (*Ivens Street*) in Lisboa.
Photo: Luís Carvalho

Some facts & curiosities about radio broadcasting in Portugal

Did you know that...

- The first known radio audio broadcast in Portugal took place in 1914, when Fernando Medeiros used a transmitter to say “*Está lá, ouve bem?*” (“hello, are you listening?”). The transmission was in fact listened 100 meters away (within the city of Lisboa) using a crystal radio.
- Radio played key role during the Carnation Revolution (25 April 1974), when the authoritarian regime ruled by Oliveira Salazar (1932-1968) and Marcello Caetano (1968-1974) fell, opening the way to democracy in Portugal? **Rádio Alfabeta** from **Emissores Associados de Lisboa** played the first secret signal to warn military officers; the song was “E Depois do Adeus”, by Paulo de Carvalho, which was Portugal’s entry in the 1974 Eurovision Song Contest. The second signal was the song “Grândola, Vila Morena” by Zeca Afonso, which was broadcast by **Rádio Renascença** on 25 April at 12:20 AM. RR was chosen because in 1974 it had already a nationwide VHF-FM network, so military insurgents around the country could be aware of the coup under way.

Some facts & curiosities about radio broadcasting in Portugal

Did you know that...

- **Programa 2 (Emissora Nacional)** [later Antena 2] was not only tuned (on mediumwave & VHF-FM) by Portuguese people but also enjoyed by **a number of Spanish listeners**. In those days, Spain national radio (RNE) did not have a classical music station, so Spanish enthusiasts tuned in their receivers one of the two powerful MW transmitters at **Cast.^a do Ribatejo** and **Azurara** (the latter was shut down in the 1980s) . Programa 2 quit mediumwave in 1983.
- **It is estimated that in 1988 there were between 500 and 800 pirate radios in Portugal?** On 24 December 1988, all the illegal stations had to stop broadcasting in order to apply for a licence. About 300 stations were legalised, getting back on air in 1989.
- **According to statistics (2010), 54.6% of the mainland population over 15 listen to the radio every day?** In 2005, the car was the place preferred to listen by 29.4%.
- The most listened radio station in Portugal is, as of 2013, Rádio Comercial, followed by RFM?
- **In spite of the fact that there are no longwave (LW) radio stations in Portugal, a NDB (Non-Directional radio Beacon) in Flores island (Azores) uses 270 kHz, within the internationally assigned band for broadcasting purposes?**

Bibliography / useful documentation:

- **Internet links:**
- **Spectrum regulation in Portugal**
 - ANACOM - <http://www.anacom.pt/> (in Portuguese)
- **Frequency lists of radio stations in Portugal**
 - **ANACOM database:** <http://www.anacom.pt/render.jsp?categoryId=1729>
 - **“Mundo da Rádio” database (in Portuguese):**
 - <http://www.mundoradio.com/frequencias/bd/bd.html>
 - **FMLIST** - http://www.fmlist.org/ul_login.php?sprache=en (worldwide station database)
 - **MWLIST** - http://www.mwlist.org/ul_login.php?sprache=en – FMLIST mediumwave counterpart
- **History of radio broadcasting in Portugal:**
 - **História da Rádio em Portugal** - <http://telefonია.no.sapo.pt/> (in Portuguese)
 - **A Minha Rádio** - <http://www.aminharadio.com/radio/> (in Portuguese)
 - **English wikipedia** - https://en.wikipedia.org/wiki/List_of_radio_stations_in_Portugal (links to some articles related to radio stations in the country)
 - **Portugal 1974/75: Radio and Revolution** - <http://history-is-made-at-night.blogspot.pt/2012/03/portugal-197475-radio-and-revolution.html>

Bibliography / useful documentation:

- **Old transmitter photos:**
 - **RARET (Glória do Ribatejo)** [1951-1996] – Radio Free Europe -
<https://secure.flickr.com/photos/biblarte/sets/72157613562603023/with/3269451364/>
 - <http://restosdecolecao.blogspot.pt/2011/10/raret-radio-retransmissao.html>
 - **Emissora Nacional** -
<https://secure.flickr.com/photos/biblarte/sets/72157611824253132/with/3146555193/>
- Other images retrieved from **Wikimedia Commons**
(https://commons.wikimedia.org/wiki/Main_Page) and **Flickr**
(<http://www.flickr.com>).
 - **Photo in the first slide:** Rádio Universidade de Coimbra (RUC) – studio 1.
Credit: Inês Saraiva
- **Books:**
 - **WRTH (World Radio TV Handbook)** – buy the book at
<http://www.wrth.com>

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Thank you for watching!

Or as we say in Portuguese,

Obrigado pela atenção!

- I hope that this presentation gave you a global view of radio broadcasting in Portugal. Should you have questions or comments, do not hesitate to contact me (e-mail: mundodaradio@gmail.com). Please note that most pictures used in this document (specially transmitter photos) does not belong to me. Should you be interested in contact the author(s) to ask permission to use them , please send me an e-mail.
- **Please feel free to distribute this presentation to the conference participants** and other people interested in radio broadcasting, for strictly non-commercial purposes, provided it is unmodified.

73s & good DX!

Luís Carvalho