The Radioelectric Frequencies of Rio do Tempo.

Editorial Note

I received the report published herein from a friend, an academic specialist in Physics who wishes to remain anonymous for professional reasons. The report contains a detailed analysis of the frequencies used for years for the DRV that I receive from communicators who identify themselves as 'deceased' talking from Rio do Tempo Station in the next world. The present paper provides answers to the interest and curiosity shown by me and my friend, whom I thank for his laborious research work. Notwithstanding the statement made by the communicators in answer to a question I put to them about this subject years ago, that frequencies have no significant importance in the communication process – "To modulate the waves we only need the shortwaves", I believe it is appropriate to publish this work for I consider that this is an important document in the essential gathering of information about the phenomenon.

We live in an extraordinary and fascinating age from the point of view of the development of the communication between the worlds, which is processed, in some cases, in a fluid and almost natural way supplying contacts of extremely high quality. Yet, there is rigorous, exhaustive analysis to be done, together with the compilation of all the existing information about an event of incomparable magnitude and importance in the history of humanity.

It is an urgent task for we have not even started to comprehend the phenomenon and consequently, we can not help the communicators in their efforts and work to reach "the opening of the road" for all of us, as someone said one day from Rio do Tempo Station. The author's identity and his contact information will be provided to those interested.

The forbidden emission.*

The purpose of this paper is to study the frequencies on which *Rio do Tempo* communicates with Anabela Cardoso.

Introduction

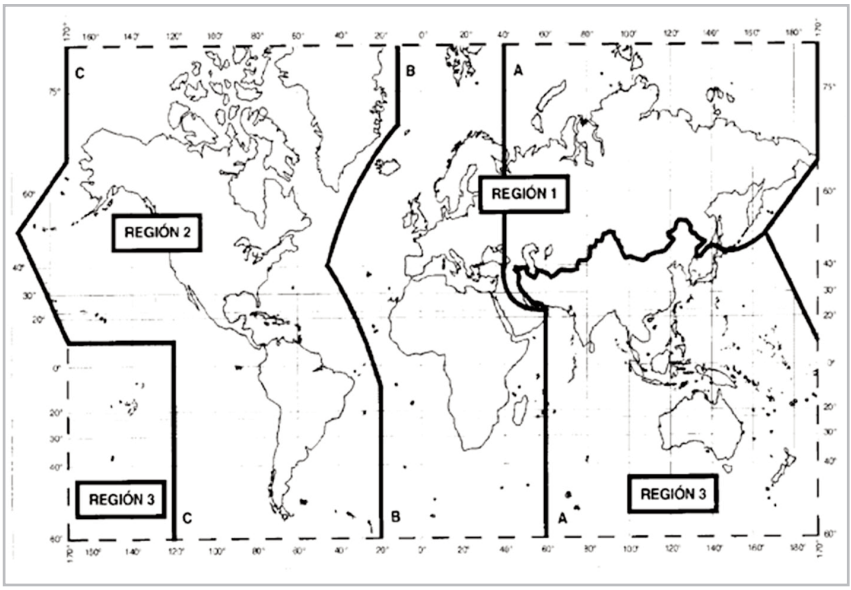
Cuadro Nacional de Atribución de Frecuencias, (CNAF).

In order to make this study we have worked with the CNAF, Spanish acronym for National Chart for Frequencies Allocation [of the Spanish State], since the reception of communications takes place in this country; said Chart is in the public domain and is available on the webpage of the Ministry of Science and Technology (http://www.mcyt.es)[1] .

This chart of frequency allocation gives us information about the bandwidth that the tuned frequency belongs to, the use given to this bandwidth in each region, the national allocation and the necessary observations following Article S5 of the Radiocommunications Ruling (RR) which complements the constitution and the agreement of the International Telecommunication Union [2].

Article S5 of the Radiocommunications Ruling establishes the division of the world into three Regions from the point of view of the allocation of the frequency bands. These Regions are shown in the next map and are described in the text following it.

1. The webpage has changed. Please see: http://www.mityc.es/telecomunicaciones/Espectro/Paginas/CNAF.aspx (N.ofT.)
2. For more info, please visit: http://en.wikipedia.org/wiki/International_Telecommunication_Union (N.ofT.)



Regions for Frequency Allocation

Region 1: Region 1 covers the area which is limited to the East by line A (lines A, B, and C are defined later on), and to the west by line B, except for the territory of the Islamic Republic of Iran which is located inside these limits. It also includes the whole of the territories of Armenia, Azerbaijan, Georgia, Kazakhstan, Mongolia, Uzbekistan, Kirghizstan, Russian Federation which is between in the northern (upper)part between lines A and C.

Region 2: Region 2 comprises the area limited to the east by line B and to the west by line C.

Region 3: Region 3 comprises the area (below the horizontal line) limited to the east by line C and to the west by line A, with the exception of the territories of Armenia, Azerbaijan, Georgia, Kazakhstan, Mongolia, Uzbekistan, Kirghizstan, Russia Federation, Tajikistan, Turkmenistan, Turkey, Ukraine and the north area of the Russian Federation. It includes also the part of the territory of the Islamic Republic of Iran located outside these limits.

The ITU

The ITU (International Telecommunication Union) is a Swedish based agency whose purpose is to organize the radioelectric emissions on an international level.

Procedure

The frequencies

The frequencies that we are going to look at in the CNAF are the ones shown next in Table 1.

Table 1

Frequency
6.500 Khz
11.178 Khz
13.250 Khz
22.545 Khz
250 Mhz

Position of Frequencies in the CNAF

We have looked up, one by one, the frequencies of Table 1 on the CNAF chart, each one of them is placed in a bandwidth; each bandwidth is shown for each of the assigned regions in Article S5 together with their corresponding radiocommunication services by region as well as the use given to it at a national level. The national uses are specified at the CNAF table by a code, this code can be interpreted with the help of Table 2.

Table 2

Code	Use
C	Common Use
E	Special use
P	Exclusive use
RX	Used by the State
R	Used by the State for Government and Public Agencies
M	Mixed use that comprises of R and P.

The explanation of radiocommunication services are shown in Table 3 below.

Table 3

Service	Detail
FIXED SERVICE:	Radiocommunication service between certain fixed points.
FIXED SERVICE VIA SATELLITE:	Radiocommunication service between terrestrial stations situated at given locations when one or more satellites are used; the given location can be a certain fixed point or any fixed point located in a certain area; in some cases, this service includes links between satellites; the satellite fixed service can also include connection links for other space radiocommunication services.

Service	Use
SERVICE BETWEEN SATELLITES:	Radiocommunication service that establishes links between artificial satellites.
SPACE OPERATIONS SERVICE:	Radiocommunication service that exclusively relates to the functioning of space vehicles, in particular to space tracking, space telemetry and space telecontrol.
MOBILE SERVICE:	Radiocommunication service between mobile stations and terrestrial stations or between mobile stations.
MOBILE SERVICE VIA SATELLITE:	Radiocommunication service between mobile terrestrial stations and one or more space stations or between space stations belonging to the service; or between mobile terrestrial stations and relayed through one or more space stations belonging to this service.
TERRESTRIAL MOBILE SERVICE:	Mobile service between base stations and mobile terrestrial stations or between mobile terrestrial stations.
TERRESTRIAL MOBILE SERVICE VIA SATELLITE:	Satellite mobile service in which the mobile terrestrial stations are located on Earth.

Service	Use
MARITIME MOBILE SERVICE:	Mobile service between coastal stations and ship stations, between ship stations, or between associated onboard communication stations; boat stations or rescue devices and distress radiobeacon stations for wreck location can also be included in this service
MARITIME MOBILE SERVICE VIA SATELLITE:	Satellite mobile service in which mobile terrestrial stations are located onboard ships; boat stations or rescue devices and distress radiobeacon stations for wreck location can also be included in this service.
HARBOUR OPERATION SERVICE:	Maritime Mobile Service at a harbour or its surroundings, between coastal stations and ship stations, or between ship stations, whose messages refer exclusively to ship operations, movements, and safety and, in case of emergency, for the safety of people.
SHIP MOVEMENT SERVICE:	Safety service, within the maritime mobile service, different from harbour operations service, between coastal stations and ship stations, or between ship stations, whose messages refer exclusively to the movement of ships.
AERONAUTICAL MOBILE SERVICE:	Mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which ship stations or rescue devices can also participate; distress radiobeacon stations for wreck location operating on designated emergency and rescue frequencies can also be included in this service.

Service	Use
AERONAUTICAL MOBILE SERVICE (R):	Aeronautical mobile service reserved to aeronautical communications, relating to the safety and regularity of flights, mainly on national or international routes for civilian aviation.
AERONAUTICAL MOBILE SERVICE (OR):	Aeronautical mobile service reserved to guarantee communications, including those relating to flight coordination, mainly out of the national and international routes for civilian aviation.
AERONAUTICAL MOBILE SERVICE VIA SATELLITE:	Mobile service through satellite in which mobile terrestrial stations are situated onboard aircraft; boat stations or rescue devices and distress radiobeacon stations for wreck location can also be included in this service.
AERONAUTICAL MOBILE SERVICE (R) VIA SATELLITE:	Aeronautical satellite mobile service reserved for aeronautical communications, relating to the safety and regularity of flights, mainly on national or international routes for civilian aviation.
AERONAUTICAL MOBILE SERVICE (OR)* VIA SATELLITE:	Aeronautical satellite mobile service reserved to guarantee communications, including those relating to flight coordination, mainly out of the national and international routes for civilian aviation.

Service	Use
BROADCASTING SERVICE:	Radiocommunication services whose emissions are assigned to be directly received by the general public. Said service include audio emissions traditional radio, television or other kinds.
SATELLITE BROADCASTING SERVICE:	Radiocommunication service in which the signals emitted or relayed by space stations are addressed to direct reception by the general public.
RADIO DETERMINATION SERVICE:	Radiocommunication service for purposes of radiodetermination.
SATELLITE RADIODETERMINATION SERVICE:	Radiocommunication service for purposes of radiodetermination that involves the use of one or more space stations.
RADIO NAVIGATION SERVICE:	Radiodetermination service for purposes of radionavigation.
SATELLITE RADIONAVIGATION SERVICE:	Radiodetermination service through satellites for purposes of radionavigation.
MARITIME RADIONAVIGATION SERVICE:	Radionavigation service aimed at ships and at their operation in safe conditions.

Service	Use
SATELLITE MARITIME RADIONAVIGATION SERVICE:	Satellite radionavigation service where terrestrial stations are located onboard ships.
AERONAUTICAL RADIONAVIGATION SERVICE:	Radionavigation service aimed at aircraft and their operation in safe conditions.
AERONAUTICAL RADIONAVIGATION SERVICE VIA SATELLITE:	Satellite radionavigation service where terrestrial stations are located onboard aircraft.
RADIO LOCATION SERVICE:	Radiodetermination service for purposes of radiolocation.
RADIOLOCATION SERVICE VIA SATELLITE:	Satellite radiodetermination service used for radiolocation purposes.
METEOROLOGICAL SUPPORT SERVICE:	Radiocommunication service aimed at observation and research used in meteorology, including hydrology.
EARTH EXPLORATION SERVICE:	Radiocommunication service between terrestrial stations and one or various space stations that can include links between space stations by which: information is obtained about the Earth's features and its natural phenomena, including data relative to the condition of the environment, by means of active or passive sensors onboard Earth satellites; analogous information is collected by means of platforms located in the air or on the surface of the Earth; said information can be distributed to terrestrial stations belonging to a common system; the polling[3] of platforms can also be included.

Service	Use
METEOROLOGY SERVICE VIA SATELLITE:	Earth exploration service through satellites for meteorological purposes.
STANDARD-FREQUENCY AND TIME SIGNALS SERVICE :	Radiocommunication service for the transmission of specified frequencies, time signals or both, of credited high precision, for scientific, technical and other purposes, aimed at general reception.
STANDARD-FREQUENCY AND TIME SIGNALS SATELLITE SERVICE:	Radiocommunication service that uses space stations located on Earth satellites for the same purpose as the standard-frequency and time signals service.
SPACE RESEARCH SERVICE:	Radiocommunication service that uses space vehicles and space objects of other kinds for scientific or technological research purposes.
HAM RADIO SERVICE:	Radiocommunication service whose purpose is individual learning, inter-communication and technical research, carried out by properly authorized amateurs, who are interested in radio engineering in an exclusively personal and non-profit making way.
SATELILITE HAM RADIO SERVICE:	Radiocommunication service that uses space stations located on Earth satellites for the same purposes of those of the ham radio service.
RADIO ASTRONOMY SERVICE:	Service that involves the use of radio astronomy.

Service	Use
RADIOSEARCH SERVICE:	One-way mobile radio communication service with selective signalling and free of voice transmission.
SAFETY/ SECURITY SERVICE:	Any radioelectric service that is operated in a permanent or temporal way to guarantee the safety of human life and the safeguard of belongings.
SPECIAL SERVICE:	Radiocommunication service not covered by previous ones, exclusively assigned to satisfy needs classified as of general interest and not open to public correspondence.

Note:

3. In this area of knowledge, the term "polling" is used to refer to the process that questions stations to test their state (N.ofT.)

to be continued

* Translated from Spanish by Yanis Arencibia Esperanza

The Forbidden Emission –Part 2*

Results

The frequencies in question (6,500 KHz; 11,178 KHz; 13,250 KHz; 22,545 KHz; and 250 MHz) have been checked following the procedure described in the previous section (ITC Journal Nº 41). The results obtained for each frequency are shown next.

6,500 KHz

In Table 4 we can see that 6,500 KHz is located in the bandwidth that spans 6,200 KHz to 6,525 KHz, this is aimed at maritime mobile service in the three world regions allocated by the RR. We will focus on the national allocation where in the three regions it covers the same service, maritime mobile. In accordance with what has been said in the procedure, the next step is to take into account the observations, in this specific case, the following:

- S5.109: Frequencies 2,187.5 KHz, 4,207.5 KHz, 6,312 KHz, 8,414.5 KHz, 12,577 KHz and 16,804.5 KHz are international distress frequencies for selective digital calls. The terms of use for these frequencies are described in article S31.

- S5.110: Frequencies at 2,174.5 KHz, 4,177.5 KHz, 6,268 KHz, 8,376.5 KHz, 12,520 KHz and 16,695 KHz are international help frequencies for narrowband direct printing telegraphy. The terms of use for these frequencies are described at article S31.

- S5.130: The terms of use of carrier frequencies of 4,125 KHz and 6,215 KHz.

- S5.132: Frequencies 4,210 KHz, 6,314 KHz, 8,416.5 KHz, 12,579 KHz, 16,806.5 KHz, 19,680.5 KHz, 22,376 KHz and 26,100.5 KHz are international frequencies for the transmission of information relative to maritime safety (MSI).

Table 4

ATTRIBUTION OF SERVICES according to RR de la UIT

5450 - 7100 kHz

Region 1	Region 2	Region 3
5450 - 5480 FIXED AERONAUTICAL MOBILE (OR) TERRESTRIAL MOBILE	**5450 - 5480** AERONAUTICAL MOBILE (R)	**5450 - 5480** FIXED AERONAUTICAL MOBILE (OR) TERRESTRIAL MOBILE
5480 - 5680	AERONAUTICAL MOBILE (R) S5.111 S5.115	
5680 - 5730	AERONAUTICAL MOBILE (OR) S5.111 S5.115	
5730 – 5900 FIXED TERRESTRIAL MOBILE	**5730 - 5900** FIXED MOBILE, except aeronautical mobile (R)	**5730 - 5900** FIXED MOBILE, except aeronautical mobile (R)
5900 - 5950	BROADCASTING SERVICE S5.134 S5.136	
5950 - 6200	BROADCASTING SERVICE	
6200 - 6525	MARITIME MOBILE S5.109 S5.110 S5.130 S5.132 S5.137	
6525 - 6685	AERONAUTICAL MOBILE (R)	
6685 - 6765	AERONAUTICAL MOBILE (OR)	
6765 - 7000	FIXED Terrestrial Mobile S5.139 S5.138	
7000 - 7100	HAM RADIO HAM RADIO BY SATELLITE S5.140 S5.141	

Table 4 continued

NATIONAL ATTRIBUTION	OBSERVATIONS	USES
5450 - 7100 kHz		
5450 - 5480 FIXED AERONAUTICAL MOBILE (OR) TERRESTRIAL MOBILE	UN - 0	M M Rx
5480 - 5680 AERONAUTICAL MÓBILE (R)	S5.111 S5.115	Rx
5680 - 5730 AERONAUTICAL MOBILE (OR)	S5.111 S5.115 UN - 0	Rx
5730 - 5900 FIXED TERRESTRIAL MOBILE	UN - 0	M M
5900 - 5950 BROADCASTING	S5.134 S5.136	Rx
5950 - 6200 BROADCASTING		Rx
6200 - 6525 MARITIME MOBILE	S5.109 S5.110 S5.130 S5.132 S5.137 UN - 0	M
6525 - 6685 AERONAUTICAL MOBILE (R)		Rx
6685 - 6765 AERONAUTICAL MOBILE (OR)	UN - 0	Rx
6765 - 7000 FIXED Terrestrial Mobile	S5.138	M M
7000 - 7100 HAM RADIO HAM RADIO BY SATELLITE		E E

Table 5

ATTRIBUTION OF SERVICES according to RR de la UIT

10003 - 13410 kHz

Region 1	Region 2	Region 3
10003 - 10005	STANDARD FREQUENCY & TIME SIGNALS Space research	
10005 - 10100	S5.111 AERONAUTICAL MOBILE (R) S5.111	
10100 - 10150	FIXED HAM RADIO	
10150 - 11175	FIXED MOBILE, except aeronautical mobile R)	
11175 - 11275	AERONAUTICAL MOBILE (OR)	
11275 - 11400	AERONAUTICAL MOBILE (R)	
11400 - 11600	FIXED	
11600 - 11650	BROADCASTING S5.134 S5.146	
11650 - 12050	BROADCASTING S5.147	
12050 - 12100	BROADCASTING S5.134 S5.146	
12100 - 12230	FIXED	
12230 - 13200	MARITIME MOBILE S5.109 S5.110 S5.132 S5.145	
13200 - 13260	AERONAUTICAL MOBILE (OR)	
13260 - 13360	AERONAUTICAL MOBILE (R)	

Table 5 continued

NATIONAL ATTRIBUTION	OBSERVATIONS	USES
10003 - 13410 kHz		
10003 - 10005 STANDARD FREQUENCY & TIME SIGNALS Space research	S5.111	R R
10005-10100 AERONAUTICAL MOBILE (R)	S5.111	Rx
10100 - 10150 FIXED Ham radio		M E
10150 - 11175 FIXED MOBILE, except aeronautical mobile R)		M M
11175 - 11275 AERONAUTICAL MOBILE (OR)	UN - 0	Rx
11275 -11400 AERONAUTICAL MOBILE (R)		Rx
11400 - 11600 FIXED		M
11600 - 11650 BROADCASTING	S5.134 S5.146	Rx
11650 - 12050 BROADCASTING	S5.147	Rx
12050 - 12100 BROADCASTING	S5.134 S5.146	Rx
12100 - 12230 FIXED	UN - 0	M

- S5.137: Exceptionally, and on condition that it will not cause interference harmful to the maritime mobile service, bands 6,200-6,213.5 KHz and 6,220.5-6,525 KHz could be used by fixed service stations communicating only within national frontiers and whose mean power does not exceed the value of 50W. When the frequencies notification is issued, the Office will be informed of these dispositions.

- UN 0: Those bands affected by this note or part of them thereof are aimed at preferential or exclusive use by the Government in the indicated services, according to the content of the National Frequency Agreement (ANAF).

From the observations presented in Table 4 for the bandwidth that we are concerned with, we must highlight S5.137 of Article S5 of the RR. Therein it is specified that the bandwidth of 6,220.5 - 6,525 KHz where our frequency is located, will be allowed the use by fixed service stations communicating solely inside national borders and whose mean power does not exceed the value of 50W.

Finally, for this frequency we only need to check the use given to the bandwidth under consideration in Table 4; we can see that it is codified as M. If we look up the meaning of M in Table 2 (opposite), we see that code M involves codes R and P, so it is used by the State for Government and Public Agencies. This is the case of the bandwidth (6,220.5-6,525 KHz) which we are interested in; if we follow observation S5.137 the author of this report understands that exclusive use applies to the remaining frequencies found in the band under study.

11,178 KHz

In Table 5 we confirm that this frequency is located in the bandwidth 11,175-11,275 KHz, which is assigned to the aeronautical mobile service (OR) in the three world regions allocated by the RR. Table 3 (see Journal nº41) shows that the service is reserved to guarantee communications, including those relating to flight coordination, mainly out of the national and international routes for civilian aviation. As in the previous case we will focus only on the

national allocation, which is the same as the international one.

Next we check the observations for this bandwidth, which are shown next:

- UN 0: Bands affected by this note or part of them are aimed at preferential or exclusive use by the State for the indicated services, according to the content of the National Frequency Agreement (ANAF).

Finally, we focus on the use at a national level, which is coded by the symbol Rx which, according to Table 2, means that its use is reserved for the State.

Code	Use
C	Common use.
E	Special use.
P	Private use.
RX	Use by the state.
R	For use by the State for Government and Public Agencies
M	Mixed use that comprises R and P.

Table 2

13,250KHz

If we examine the last two sections on the left of Table 5 we can confirm that the frequency that we are looking for is in the bandwidth 13,200-13,260 KHz which is assigned to aeronautical mobile service (OR). As we saw in Table 3, the service is reserved for assuring [aircraft] communications, including those related to flight coordination, mainly outside the national and international routes for civil aviation.

There is no national allocation for this bandwidth, there are no remarks, nor uses, therefore it is understood that this bandwidth is assigned to a single service at an international level.

Table 6

ATTRIBUTION OF SERVICES according to RR de la UIT

19800 - 23350 kHz

Región 1	Región 2	Región 3
19800 - 19990	FIXED	
19990 - 19995	STANDARD FREQUENCY & TIME SIGNALS Space research S5.111	
19995 - 20010	STANDARD FREQUENCY & TIME SIGNALS (20000 kHz) S5.111	
20010 - 21000	FIXED Mobile	
21000 - 21450	HAM RADIO HAM RADIO BY SATELLITE	
21450 - 21850	BROADCASTING	
21850 - 21870	FIXED S5.155A S5.155	
21870 - 21924	FIXED S5.155B	
21924 - 22000	AERONAUTICAL MOBILE (R)	
22000 - 22855	MÓVIL MARÍTIMO S5.132 S5.156	
22855 - 23000	FIXED S5.156	
23000 - 23200	FIXED MOBILE, except aeronautical mobile (R) S5.156	

Table 6 continued

NATIONAL ATTRIBUTION	OBSERVATONS	USES
19800 - 23350 kHz		
19800 - 19990 FIXED		M
19990 - 19995 STANDARD FREQUENCY & TIME SIGNALS Space research	S5.111	R R
19995 - 20010 STANDARD FREQUENCY & TIME SIGNALS (20000 kHz)	S5.111	R
20010 - 21000 FIXED Mobile		M M
21000 - 21450 HAM RADIO HAM RADIO BY SATELLITE		E E
21450 - 21850 BROADCASTING	RESOLUTION 8 RR	Rx
21850 - 21870 FIXED		M
21870 - 21924 FIXED	S5.155B	Rx
21924 - 22000 AERONAUTICAL MOBILE (R)		Rx
22000 - 22855 MARITIME MOBILE	S5.132 RESOLUTION 8 RR UN - 0	M

22,545 KHz

In Table 6 we can confirm that the frequency that we are looking for is located in the bandwidth 22,000-22,855 KHz which is assigned to the maritime mobile service in the three world regions allocated by the RR. This service is assigned to mobile service between coastal stations and boat stations, between boat stations, or between associated onboard communication stations; we can also consider included in this service the boat stations or distress devices and wreck location radiobeacon stations. In the same way as we have been doing until now, we will consider only the national allocation assigned to that same service as used internationally.

Inside the national allocation we focus on the remarks indicated for this bandwidth next.

- S5.132: Frequencies 4,210 KHz, 6,314 KHz, 8,416.5 KHz, 12,579 KHz, 16,806.5 KHz, 19,680.5 KHz, 22,376 KHz y 26,100.5 KHz are the international frequencies for information transmission regarding the maritime safety (MSI) (see appendix S17).

- UN 0: The bands or parts thereof affected by this note are assigned to preferential or exclusive use by the State on the services indicated, according to the content of the National Agreement on Frequencies (ANAF).

Finally it remains for us to consider the use that is given to this band. This comes with the code M, which according to Table 2 refers to codes R and P; the first is assigned to the use by the state for Government and Public Agencies and the second to private – 'exclusive use'.

250 MHz

We can locate this frequency on Table 7 in the bandwidth 235-267 MHz which is assigned to the fixed-mobile service in the three world regions by the RR. As in previous cases we will focus only on the national allocation used for that same service as used internationally.

And here we examine the remarks:

- S5.111: Carrier frequencies 2,182 KHz, 3,023 KHz, 5,680 KHz, and 8,364 KHz and frequencies 121.5 MHz, 156.8 MHz, and 243 MHz can also be used in accordance with in-force procedures for terrestrial radiocommunication services, in searching operations and rescue of manned space vehicles.

The requirements for the use of these frequencies are set in article S31. and appendix S13. The 10,003 KHz, 14,993 KHz and 19,993 KHz frequencies can also be used, although in this case the emissions must be limited to a bandwidth of 3 KHz around said frequencies.

- S5.199: Bands 121.45-121.55 MHz and 242.95-243.05 MHz are also assigned to the satellite mobile service for the reception aboard satellites of the emissions from wreck location radiobeacons transmitting on 121.5 MHz and 243 MHz (see Appendix S13).

- S5.254: Bands 235-322 MHz and 335.4-399.9 MHz can be used by the satellite mobile service, provided a permit has been granted (S9.21), and on condition that the stations used for this service do not produce harmful interference for those of other services that are or will be operated in accordance with the present Chart.

- S5.256: The frequency of 243 MHz will be used in this band by boat stations or rescue devices, as well as by the teams assigned to rescue operations (see Appendix S13).

- UN 28: The frequency band of 235-399.9 MHz is assigned to exclusive use by the State, as it appears in the ANAF, with the exception of frequencies sub-bands 380-385 MHz and 390-395 MHz which are assigned to security networks for State law enforcement bodies and emergency networks throughout the national territory.

To finish the study of this frequency we check the use given to the bandwidth this frequency is located in, which, as can be seen in Table 7, is coded as Rx that, according to Table 2, means it is for use by the State.

Table 7

ATTRIBUTION OF SERVICES according to RR de la UIT

225 - 322 MHz

Región 1	Región 2	Región 3
	225 - 235 FIXED MOBILE	
230 - 235 FIXED MOBILE S5.247 S5.251 S5.252		**230 - 235** FIXED MOBILE AERONAUTICAL RADIONAVIGATION S5.250
235 - 267 FIXED MOBILE S5.111 S5.199 S5.252 S5.254 S5.256		
267 - 272 FIXED MOBILE Space operations (Space - Earth) S5.254 5.257		
272 - 273 SPACE OPERATIONS (Space - Earth) FIXED MOBILE S5.254		
312 - 315 FIXED MOBILE Mobile through satellite (Earth - Space) S5.254 S5.255		
273 - 312 FIXED MOBILE S5.254		
315 - 322 FIXED MOBILE S5.254		

Table 7 continued

NATIONAL ATTRIBUTION	OBSERVATIONS	USES
225 - 322 MHz		
230 - 235 FIXED MOBILE	UN - 27 UN - 73 * Uses Rx y P (according to notes UN)	* *
235 - 267 FIXED MOBILE	S5.111 S5.199 S5.254 S5.256 UN - 28	Rx Rx
267 - 272 FIXED MOBILE Space operations (Space - Earth)	S5.254 S5.257 UN - 28	Rx Rx Rx
272 - 273 SPACE OPERATIONS (Space - Earth) FIXED MOBILE	S5.254 UN - 28	Rx Rx Rx
273 - 312 FIXED MOBILE	S5.254 UN - 28	Rx Rx
312 - 315 FIXED MOBILE Mobile through satellite (Earth - Space)	S5.254 S5.255 UN - 28	Rx Rx Rx
315 - 322 FIXED MOBILE	S5.254 UN - 28	Rx Rx

Conclusions

This report arises from my personal interest in Dr. Anabela Cardoso's case, as due to my ignorance of the subject I had the rather naive idea that everything could be either a fraud or a misunderstanding.

When I thought of the phenomenon, my initial, confused idea was that the voices received by Dr. Anabela Cardoso originated from the emissions of ham operators. This possibility vanished rapidly when I verified that ham operators have a limited band-width that does not comprise any of the frequencies [described in the text]. Furthermore, there was another doubt – how could the voices hear the questions put by Dr. Anabela Cardoso, and reply to her questions, when she has no radio transmitter?

My fraud hypothesis was based upon the reasoning that there was the possibility that there could be somebody in one of the rooms of the house who could hear the questions put by Dr. Anabela and transmit the replies to her questions through a radio transmitter. This reasoning collapsed quickly when I verified the frequencies that her radios were tuned to, since the use of the latter was forbidden by law to ham operators' radio emissions. Therefore, it seemed really odd that the institution in charge of the control of the radio-electric spectrum would issue somebody with an emission licence in a frequency reserved for State use, to commit a fraud.

Besides all this data there is still one more element that breaks the logic of the communication as we understand it. The first thing we study in a discipline related to communication is that in such a process there has to be an emitter, who is the person wanting to transmit the message, and a receiver, who is the person in charge of receiving it. In the case of radio communications the emission is realized in such a way that the emitter transmits in a frequency to which everybody who tunes to the emission frequency can listen. Can you imagine that in your homes the radio announcer will reply to your questions?

When the radio communication is produced as radio-listening the communication only acquires sense if the emitter sends the

message and the receiver receives it. It is totally impossible for the emitter to reply to questions put by the receiver since the receiver is technically incapable of transmitting. But this is not my only reason that makes of the direct voices an extraordinary case. Furthermore, the voices jump from one into another frequency within the values cited in Table 1 while they emit the message. This is the same as if a person listening to a radio transmission would hear a sentence of the radio announcer in a certain frequency and would have to tune into a different frequency to hear the next sentence of the same announcer.

All the above reasons make of this event an extraordinary case from the technical point of view, and they discount the possibility of fraud or misunderstanding. If we add the content of the messages to what has been said we can also reject the human origin of the transmissions unless somebody is able to prove to the contrary.

* Translated from Spanish by Yanis Arencibia Esperanza

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