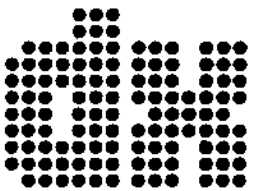


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magazine



WORLD WIDE DX CLUB



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Hello again,

Welcome to the annual summer double issue of our DX MAGAZINE. Like in the past years you will find our normal monthly sections, several articles and in addition our annual "List of Members". I'm very sorry that this issue will reach you rather late. Unfortunately the EDXC Conference, a business trip to Britain and personal engagements prevented that this summer issue could be issued in time.

The 11th **CEPT Conference** will be held in Nice/France from October 22nd to 24th. Have a look at the conference pages <<http://www.ero.dk/conference>> on their web site, where you will find general information on the conference, the programme and conference registration and hotel reservation forms. A series of pre-conference workshops, included in the conference fee, will be offered to delegates. The workshops will provide an opportunity for detailed expert discussion of particular subjects. They will be held the day before the conference, Tuesday, October 21st, from 14.00-18.00 hours. **(ERO NEWSFLASH)**

Kürzlich im vth Verlag erschienen ist der neue Titel **Aktivantennen und Preselektoren im Selbstbau** (Empfangsverbesserungen für Funkamateure und Kurzwellenhörer) von Hans Nussbaum, DJ1UGA. Auf 116 Seiten mit 179 Abbildungen beschreibt der Autor ausführlich die Theorie und Selbstbaupraxis für die verschiedensten Arten von Aktivantennen für Innen- und Außenbetrieb. Ebenso ausführlich wird der Selbstbau der verschiedenen Arten von passiven und aktiven Preselektoren beschrieben. Dieses nützliche Buch ist für € 12,80 erhältlich von: Verlag für Technik und Handwerk GmbH, Postfach 22 74, D-76492 Baden-Baden, Telefon 07221-5087-0, Fax 07221-5087-52, Internet <<http://www.vth.de>> (Bestell-Nr.: 411 0090) oder im Buchhandel (ISBN 3-88180-390-4).

And with this best wishes and good DX until October from

NEWS ABOUT BROADCASTING (+other) STATIONS
Dr. Juergen Kubiak · Goltzstr. 19 · D-10781 Berlin · GERMANY

AUSTRALIA: The *Aboriginal Resource and Development Services Inc.* (ARDS) has commenced transmissions on shortwave from a transmitter at Humpty Doo, near Darwin, in Australia's Northern Territory. This is sending a signal across north-east Arnhem Land on 5050 kHz. ARDS says that over the next two months it will be fine tuning the broadcasting system, designed to serve the Yolngu people of north-east Arnhem Land in

their own language in a culturally-friendly listening environment. The Radio Service will use a concept developed in Africa called "Radio Browsing". This is where listeners can ring the studio to ask for information they want to hear over the radio. Radio staff research the information via the web and/or other sources and develop a programme to put to air. It also allows listeners to be directly involved in the development of programmes. A Yolngu person within the region and a radio announcer/interpreter can have a discussion with a doctor in Darwin about diabetes using a three-way telephone connection. This discussion would all be recorded and then later broadcast via the radio service. Radio Browsing allows people to stay in their own homes and access all sorts of information, all in their own language. According to ARDS, the Yolngu suffer from one of the highest death rates in Australia, they have lost almost all of their traditional economic enterprises to English-speaking Australians, and they suffer extremely high levels of unemployment. They are losing control of their communities, substance abuse and suicides are on the rise, and education and training are failing. ARDS says that a radio service is the only way it can effectively deliver the information and community education necessary for the Yolngu people to regain control over their own lives. More information on the station can be found on the ARDS Web site <<http://www.ards.com.au/>>.

(© Radio Netherlands Media Network 7 August 2003, via JKB)

CONGO (Democratic Republic of): Alimasi Mayanga, director of *Radiotélévision Nationale Congolaise* (RTNC) in Kisangani, Democratic Republic of Congo, seems to have given in to several days of threats from the former rebel group Congolese Rally for Democracy (RCD/Goma). Mayanga had cancelled several programmes that focused on RCD/Goma without the authorisation of the pro-RCD governor of Eastern province. On 5 August the governor, Floribert Asiane, threatened Mayanga with dismissal and ordered RTNC Kisangani to immediately resume broadcasts of all programmes dedicated to RCD/Goma. "You must be very careful, the RCD still calls the shots in Kisangani," the vice-governor is reported to have said. These verbal warnings were followed by a series of anonymous telephone threats. RTNC Kisangani has now resumed all the programmes that had been cancelled. (© Radio Netherlands Media Network 7 August 2003, via JKB)

JAPAN: Middle East & Africa Division of "NHK World Radio Japan", the overseas broadcasting service of Japan Broadcasting Corporation is broadcasting a summer special programme, "Konnichiwa! On the Net & Radio" on August 31. The programme will be aired in four languages: Arabic, French, Persian and Swahili. We invite all of our listeners to take part in this special occasion. You can hear this special programme both on the shortwave and on the Internet. We broadcast live on air on the shortwave, and the audio file will be uploaded on the Internet immediately after the broadcast. Thus, you can hear us with the slightest time-lag. We now open our special Home Page in our Website. For further information, please check the following URL: <www.nhk.or.jp/nhkworld/sp>. Why don't you add our special QSLs to your verification cards collection? Four language sections: Arabic, Persian, Swahili and French, will issue their own QSL cards on the special programme. Thus, you will have a chance to receive four different designs of the QSL cards if you send your reception reports after listening to all four language broadcasts. Reception Reports to: Arabic / Swahili / Persian / French Service, Radio Japan, NHK, Tokyo 150-8001, Japan. Fax number is: 81-3-3481-8222. E-mail addresses: <Arabic@intl.nhk.or.jp>, <france@intl.nhk.or.jp>, <Persian@intl.nhk.or.jp>, <Swahili@intl.nhk.or.jp>.

(Middle East & Africa Division, NHK via WDXC-HQ, 2003 August 06)

KOREA (North & South): North Korea will end *propaganda broadcasts* aimed at South Korea from September. An official at the policy division of Seoul's Unification Ministry told Reuters news agency that North Korea announced its decision in a TV broadcast. "It appears that they are taking the initiative on this move and thereby urging us to do the same," he said. For decades, North Korean TV and radio have broadcast scathingly critical propaganda about the capitalist South, at times accusing leaders of being greedy womanisers and the South Korean people of suffering under US oppression. The South also broadcasts to the North, but Seoul says the content is mostly information about the South rather than criticism about the North. The Unification Ministry official said North and South Korea had promised to stop critical propaganda broadcasts during the summit meeting in 2000 between North Korean leader Kim Jong-il and former South Korean president Kim Dae-jung. Pyongyang raised this issue again during recent ministerial talks, and both sides agreed to discuss this in detail at working-level committees, the official

said. The two sides remain technically at war since the 1950-53 Korean War ended without a peace treaty. (© Radio Netherlands Media Network 30 July 2003 via JKB).

MEXICO: According to the Web site of the Mexican opposition group Zapatista Army of National Liberation <<http://www.fzln.org.mx>>, a shortwave station will begin broadcasting shortly. In an English language press statement, the group says inter alia: "The famous (in the mountains of the Mexican southeast) and slippery (on the dial) *"Radio Insurgente. Voice of the EZLN"* will soon begin operating on short wave, in its galactic transmission. The Sup will have a special one-hour musical program, and it will be transmitted, by law, at dawn. No, the Sup will not sing, but he will be presenting musical pieces accompanied by stories and tales. We're not sure about the "Durito DJ" program, because the beetle is has his back up, and he hasn't signed a contract (he wants a daily 24 hour program)." An Associated Press report dated 30 July quoted a spokesman for the organisation as saying that that the frequency will be around 5800 kHz, and that broadcasts will begin on 9 August. No exact time has been announced, but the above statement indicates that broadcasts will be on the air in the early morning. However, the EZLN has been warned by the Secretariat of Communications and Transport (SCT) that it cannot operate outside the law. In an interview with the newspaper El Sol de México, a representative of the Secretariat said that if the station operates without a licence it will seize the equipment and fine the organisation. But the Secretariat admits that it will be difficult to locate the transmitter. In fact, "Radio Insurgente has already been operating for two years on FM in Chiapas using several FM transmitters at different locations. Broadcasts are on the air between 0600 and 1800 local time in several indigenous languages as well as Spanish. The majority of the staff are female.

(© Radio Netherlands Media Network 4 August 2003, via JKB)

MISCELLANEOUS: *Spanish shortwave broadcasts* A03 review: Seguidamente ofrecemos los esquemas en nuestro idioma publicados en las ediciones anteriores, vigentes desde el 30/03/2003 al 26/10/2003, salvo aclaracion:

ARMENIA:	1200-2400	17680	Sudamerica [N]
La Voz de Armenia	1300-1400	21550	Mexico, Centroamerica
HORA UTC	KHZ		
0230-0245	9965		Sudamerica [S]
BULGARIA:	CHINA, REP:Radio Internacional de China:		
Radio Bulgaria:	HORA UTC	DESTINO	KHZ
HORA UTC	KHZ	DESTINO	
0100-0200	9500, 11600	Sudamerica	
0100-0200	9700	Centroamerica	
0600-0630	15700, 17700	Europa	
1100-1130	15600, 17600	Europa	
1630-1700	15700, 17500	Europa	
2100-2200	11800, 13800	Europa	
2300-2400	9500, 11600	Sudamerica	
CANADA:	2100-2157	Espana	9640, 11775
Radio Canada Internacional:	2200-2257	Espana	9640, 11690, 11775
HORA UTC	KHZ		
2230-2300	11920, 15170, 17880		
0030-0100	9590, 15170, 15305		
CHECA, REP:	2300-2357	America	11650, 11880
Radio Praga:	0000-0057	America	5990, 11880, 15120, 17720
HORA UTC	KHZ	DESTINO	
0730-0757	9880, 11600	Espana	
1400-1427	11990, 13580	Espana	
1800-1827	5930, 13580	Espana	
1900-1927	5930, 13580	Espana	
2030-2057	5930, 11600	Espana	
2130-2157	11600, 13580	Europa	
2300-2327	9440, 11615	Sudamerica	
0030-0057	7345, 9440	Sudamerica	
0200-0227	6200, 7345	Centroamerica	
0200-0227	7385 (*)	Centroamerica	
CHILE:	0300-0357	America	9560, 9665
Voz Cristiana:	COREA, REP.:		
HORA UTC	KHZ	DESTINO	
0000-1200	15375	Sudamerica [N]	
1100-1300	11935	Mexico, Centroamerica	
1200-2200	9635	Sudamerica [S]	
	Radio Corea Internacional:		
	HORA UTC	KHZ	DESTINO
	0100-0200	11810	Asia
	0700-0800	13670	Europa
	1000-1100	9640	Europa
	1000-1100	9580, 11715	Sudamerica
	2000-2100	15575	Europa
	CROACIA:		
	La Voz de Croacia (Hrvatska Radio):		
	HORA UTC	KHZ	DESTINO
	2300-0100	9925	Argentina
	(Incluye segmentos en espanol de 10 min. dentro de la pxn en Croata)		
	CUBA:		
	Radio Habana Cuba		
	HORA UTC	KHZ	
	0000-0100	9820	
	0000-0500	5965, 9505, 11705, 11760, 11970, 15230	
	0200-0500	9550	
	1100-1300	11705	
	1100-1400	6000	
	1100-1500	11760	
	1200-1400	9550, 15250	
	1400-1800	6140, 9505, 9820, 11705, 11875	
	2100-2300	11705, 11760, 13680, 15230	

2200-2400 6000, 11875

ECUADOR:

HCJB La Voz de los Andes:

HORA UTC	KHZ	DESTINO
0100-0500	9525	Mexico
0600-0630	9655	Europa
1030-1100	21455	Europa/Pacifico [S]
1030-0500	690	Ecuador
1100-0500	6050	America [S]
1100-1300	11960	Cuba
1100-1500	15140	America [S]
1300-1500	11960	Mexico
1430-1530	21455	Europa/Pacifico [S]
2030-2130	15590	Europa
2100-2300	15140	America [S]
2030-2400	21455	Europa/Pacifico [S]
2300-0100	15140	America [N/S]

EGIPTO:

Radio El Cairo:

HORA UTC	KHZ	DESTINO
0045-0200	11780	Norteamerica
0045-0200	11755	Centroamerica
0045-0200	11790	Sudamerica

ESLOVAQUIA:

Radio Eslovaquia Internacional:

HORA UTC	KHZ
0230-0300	6190, 9440, 11990
1430-1500	6055, 7345, 11600
2000-2030	6055, 7345, 11650

ESTADOS UNIDOS:

La Voz de America:

HORA UTC	KHZ
0100-0200	9560, 9735, 9885, 11815, 13760
1130-1200	9535, 11925, 13790
1200-1230	7370, 11890, 11925, 13770, 15360, 15390, 17875

ESTADOS UNIDOS:

WYFR Family Radio:

HORA UTC	KHZ
0000-0200	5985, 11855
0100-0200	15255, 17750
0200-0245	15440
0200-0300	11740
0300-0345	15255
0300-0445	5985, 11855
0304-0400	9715
0500-0600	9715, 9985
0700-0745	7520
0800-1000	9550
0800-1100	11855
1000-1045	6175
1000-1400	6085
1100-1200	9355, 9550
1100-1300	11970
1100-1400	9605
1200-1400	7355
1200-1500	15130
1300-1500	11865
1700-1845	21670
2100-2200	11565
2200-2300	5985, 11855
2300-0100	15215
2304-0100	17845

ESTADOS UNIDOS:

WEWN (Worldwide Catholic Radio):

HORA UTC	KHZ
0000-0800	7425, 13615
0800-1200	7425, 11875
1200-1400	9355, 15745
1400-2200	11530, 15745
2200-2400	9355, 13615

FRANCIA:

Radio Francia Internacional

HORA UTC	KHZ
1000-1030	9830
1200-1230	15515, 17860
1800-1830	17630, 21645
2100-2130	17630, 21645
0100-0130	9800, 11665

GRECIA:

La Voz de Grecia:

HORA UTC	KHZ	DESTINO
1430-1500	12105	Europa

HOLANDA:

Radio Nederland:

HORA UTC	KHZ	DESTINO
0130-0325	6165	Centroamerica
0130-0325	9845	Mexico y Caribe
1100-1125	15450	Sudamerica
1130-1157	6165	Sudamerica [NO]
1130-1157	9715	Sudamerica [NO]
1200-1225	6165	Centroamerica y Caribe
1200-1225	9715	Centroamerica
2230-0125	9895	Sudamerica [N] y Caribe
2230-0125	15315	Sudamerica [S]
2230-2325	11720	Sudamerica [N]
2325-0025	11720	Sudamerica

HUNGRIA:

Radio Budapest:

HORA UTC	KHZ	DESTINO
0330-0358	3975	Europa
0330-0358	6025	Sudamerica
2130-2158	6025	Europa
2130-2158	11685	Sudamerica

INDONESIA:

La Voz de Indonesia:

HORA UTC	KHZ
0030-0100	9525, 11785
1730-1800	15150

IRAN:

La Voz de la Republica Islamica de Iran:

HORA UTC	KHZ
0030-0130	9515, 9655, 11610
0130-0230	9515, 9655, 11610
0230-0330	13730
0530-0630	17590, 17785
2030-2130	11765, 13755

ISRAEL:

Kol Israel:

HORA UTC	KHZ
1600-1625*	15640, 17525, 17545 (Sab)
1700-1715	15640, 17545
1945-1200	11605, 15615, 15640, 17545

(*) Espanol y ladino

ITALIA:

RAI Internacional:

HORA UTC	KHZ	DESTINO
2110-2130	6130, 7290	Europa
0055-0115	9840, 12030	Sudamerica
0315-0335	9675, 11800	Norteamerica
0315-0335	9840, 12030	Sudamerica

JAPON:

NHK Radio Japon:

HORA UTC	KHZ	DESTINO
0400-0430	9660	Sudamerica
0500-0530	11895	Centroamerica
0500-0530	11915	Europa
1000-1030	9710, 15590	Sudamerica
1000-1030	12030	Centroamerica
1820-1840	11970	Europa

RUMANIA:

Radio Rumania Internacional:

HORA UTC	KHZ	DESTINO
0000-0100	9530, 11730	Caribe

0000-0100	15340, 17815	Argentina	HORA UTC	KHZ	DESTINO
0300-0400	9570, 11970	Mexico	2100-2200	9955	Europa
0300-0400	11725, 15245	Argentina	2300-2400	17805, 15130	Sudamerica [E]
1800-1900	15380, 17745	Espana	0200-0300	15215, 17845	Sudamerica [O]
2200-2300	11730, 15380	Espana	0400-0500	11740	Centroamerica
RUSIA:			0600-0700	5950	Norteamerica [O]
La Voz de Rusia:			TURQUIA:		
Para Espana:			La Voz de Turquía		
HORA UTC	KHZ		HORA UTC	KHZ	
2030-2100	7440, 9480a, 11630b		1630-1700	15150	
Para Centroamerica:			VATICANO:		
HORA UTC	KHZ		Radio Vaticana:		
0000-0100	7180b, 9665a, 9830, 11750		HORA UTC	DESTINO	KHZ
0100-0200	9830		0100-0145	America	7305, 9605, 11910
Para Sudamerica:			0145-0230	America	7305, 9605, 11910
HORA UTC	KHZ		0315-0400	America	7305, 9605
0000-0100	7330, 9450a, 9470b, 9480, 9830, 9860, 9890b, 9965, 11510, 12010b,		0800-0810	Europa	5890 (Lun a Fri)
12060			1130-1200	America	21850
0100-0200	7330, 9450a, 9470b, 9830, 9860, 9890b, 9945, 9965, 11510, 12010a		1300-1315	Europa	9645, 11740
Nota:			1900-1930	Africa	9660, 11625
(a) Vigente hasta el 06/09/2003			2010-2030	Europa	4005, 5890, 7250, 9645
(b) A partir del 07/09/2003			VIETNAM:		
SIRIA:			La Voz de Vietnam:		
Radio Damasco:			HORA UTC	KHZ	DESTINO
HORA UTC	KHZ		0300-0330	6175	America
2315-0030	12085, 13610		1100-1130	11630, 13740	Africa
TAIWAN:			2000-2030	11630, 13740	Africa
CBS, Radio Taipei Internacional:			YUGOSLAVIA:		
			Radio Yugoslavia:		
			HORA UTC	KHZ	DESTINO
			1900-1930	7200	Espana
			2300-2330	9680	Sudamerica [O]

(Marcelo A. Cornachioni in CONEXION #214, 8 June 2003)

BROADCASTS TOWARDS IRAN:

International broadcasts

5860 R Farda, Washington via Un. Arab Emirates 1900-2100 Farsi // 11670 11985
6195 BBC, London via United Kingdom 1400-1500 1600-1700 Farsi // 15155 15380
7115 AIR, Delhi 1615-1730 Farsi // 9910
7140 China R International, Beijing 1800-1900 Farsi // 9670 15595
7165 BBC, London via Cyprus 0200-0300 Farsi // 11750 11865
7245 R Tajikistan, Dushanbé 0200-0300 0415-0500 1500-1600 1715-1800 Farsi
7280 VOA, Washington via Greece 1700-1900 Farsi // 9680
7285 R Tashkent International, Uzbekistan 1630-1700 Farsi // 9715
7305 Voice of Russia, Moscow 1400-1600 Farsi // 9360 12015
7550 R Pakistan, Islamabad 1715-1800 Farsi
9360 Voice of Russia, Moscow 1400-1600 Farsi // 7305 12015
9435 R Farda, Washington via Greece 1400-1700 Farsi // 13680 17670 17750
9510 R Farda, Washington via Greece 0400-0830 Farsi // 9795 15185 15290 17835
9570 China R International, Beijing 1500-1530 Farsi // 11700
9615 R Farda, Washington via Germany 0030-0200 Farsi // 9795 9805
9650 FEBA Radio via Armavir, Russia 1530-1630 Farsi, ex 9495
9670 China R International, Beijing 1800-1900 Farsi // 7140 15595
9680 VOA, Washington via Greece 1700-1900 Farsi // 7280
9715 R Tashkent International, Uzbekistan 1630-1700 1830-1900 Farsi // 7285
9750 R Kuwait, Kuwait 0800-1000 Farsi
9775 R Farda, Washington via Greece 0200-0400 Farsi // 9795 9805
9795 R Farda, Washington via Germany 0030-0600 Farsi // 9510 9615 9775 9805 15185
9805 R Farda, Washington via Morocco 0030-0400 Farsi // 9615 9775 9795
9835 VOA, Washington via Morocco 0300-0400 Farsi // 11985
9875 BBC, London via United Kingdom 0200-0400 Farsi // 11750 11865 13645
9910 AIR, Delhi 1615-1730 Farsi // 7115
9960 Trans World R via Albania 1630-1745 Farsi // 12100

9960 R Farda, Washington via Sri Lanka 2000-2130 Farsi // 5860 11960 11985
 11605 Kol Israel, Jerusalem 1400-1530 Farsi // 13850 15640
 11670 R Farda, Washington via Greece 1900-2000 Farsi // 5860 11985
 11700 China R International, Beijing 1500-1530 Farsi // 9570
 11705 R Farda, Washington via Germany 1700-1900 Farsi // 11845
 11745 BSKSA, Riyadh 1400-1600 Farsi
 11750 BBC, London via Oman 0200-0300 Farsi // 11865
 11750 BBC, London via Cyprus 0300-0400 Farsi // 13645
 11795 Voice of Turkey, Ankara 0830-0930 Farsi // 17705
 11815 VOA, Washington via Sri Lanka 1900-2000 Farsi // 12030
 11845 R Farda, Washington via Sri Lanka 1700-1900 Farsi // 11705
 11865 BBC, London via Cyprus 0200-0300 Farsi // 11750
 11960 R Farda, Washington via Thailand 2000-2130 Farsi // 5860 9960 11985
 11965 Adventist World R via Moosbrunn, Austria 0330-0400 Farsi
 11985 VOA, Washington via Morocco 0300-0400 Farsi // 9835
 11985 R Farda, Washington via Germany 1900-2130 Farsi // 5860 9960 11670 11960
 12015 Voice of Russia, Moscow 1400-1600 Farsi // 7305 9360
 12030 VOA, Washington via Germany 1900-2000 Farsi // 11815
 12040 VOA, Washington via Germany 0400-0500 Kurdish
 12100 Trans World R via Albania 1630-1745 Farsi // 9960
 13610 BBC, London via Thailand 1600-2000 Farsi // 15380 15470
 13645 BBC, London via Cyprus 0300-0400 Farsi // 11750
 13680 R Farda, Washington via Greece 0800-1400 Farsi // 21530, jammed
 13680 R Farda, Washington via Germany 1400-1700 Farsi // 9435 17670 17750, jammed
 13850 Kol Israel, Jerusalem 1400-1500 (Fr,Sa - 1530) Farsi // 11605 15640
 15155 BBC, London via Thailand 1400-1500 Farsi // 6195 17800
 15185 R Farda, Washington via Greece 0400-0600 Farsi // 9510 9795 15290
 15230 Deutsche Welle, Bonn via Germany 0900-0930 Farsi // 17820
 15245 Deutsche Welle, Bonn via Germany 1230-1300 Farsi // 17545
 15290 R Farda, Washington via Greece 0400-0830 Farsi // 9510 9795 15185 17835
 15380 BBC, London via Singapore 1600-2000 Farsi // 6195 13610 15470
 15420 BBC, London via Oman 1000-1100 Farsi // 17870 21515
 15470 BBC, London via Singapore 1600-2000 Farsi // 6195 13610 15380
 15480 R Cairo, Egypt 1330-1530 Farsi
 15545 VOA, Washington via Greece 1600-1700 Kurdish // 17765
 15595 China R International, Beijing via Russia 1800-1830 Farsi // 7140 9670
 15640 Kol Israel, Jerusalem 1400-1530 (Fr,Sa -1500) Farsi // 11605 13850
 15715 IBRA via Germany 1430-1500 1600-1630 Farsi
 15775 Voice of Hope via Germany 1500-1530 (Sa 1515-1600) Farsi
 17545 Deutsche Welle, Bonn via Russia 1230-1300 Farsi // 15245, jammed
 17670 R Farda, Washington via United Kingdom 1600-1700 Farsi // 9435 13680
 17705 Voice of Turkey, Ankara 0830-0930 Farsi // 11795
 17750 R Farda, Washington via United Kingdom 1400-1600 Farsi // 9435 13680
 17765 VOA, Washington via Morocco 1600-1700 Kurdish // 15545
 17800 BBC, London via Cyprus 1400-1500 Farsi // 6195 15155
 17820 Adventist World R via Moosbrunn, Austria 1630-1700 Farsi
 17820 Deutsche Welle, Bonn via Russia 0900-0930 Farsi // 15230
 17835 R Farda, Washington via Greece 0600-0730 Farsi // 9510 15290
 17835 R Farda, Washington via Morocco 0730-0830 Farsi // 9510 15290
 17845 AIR, Delhi 0400-0430 Farsi
 17870 BBC, London via Cyprus 1000-1100 Farsi // 15420 21515
 21515 BBC, London via United Kingdom 1000-1100 Farsi // 15420 17870
 21530 R Farda, Washington via Sri Lanka 0800-1400 Farsi // 13680, alternative to 21650.

Clandestine broadcasts towards Iran by political opposition groups.

- 3880 Voice of Iranian Revolution, possibly via Kazakhstan 0230-0330 1430-1530 Kurdish. ID: ``Dangi shurashi
 Iranya Kurdistana``. S/on: ``The Internationale``. Produced by the Kurdish Communist Party of Iran
 (Komalah) (to Iran) // 4380v, d 3875,7-3880,8. Not reported since Feb. 2003
- 3880 Voice of the Communist Party of Iran, possibly via Kazakhstan 0400-0500 1630-1730 Farsi // 4380v, ID:
 ``Seda-ye Hezb-e Komunist-e Irana``, ``Radyo Komalah``. Opens and closes with ``The Internationale``.
 Produced by the Kurdish Communist Party of Iran (Komalah) (to Iran), d 3870 - 3890.2

- 3930 Voice of Komala 0225-0300 1555-1700v Kurdish, ID: ``Eira dengi Komala, dengi azadi e socializmu`` (Voice of Komala, Voice of Freedom and Socialism``). 0300-0330 1700v-1730v Farsi, ID: ``Radio Komala`` and ``In seda-ye Radio Payama, Radio Payam-seda-ye parezgaran-e azadi Kordestana, sada-ye amnestizi y irbayda Iran, seda-ye azadi e socializmu.`` (To Iran) // 4610v. Produced by a faction separated from Komalah, ck 3900. Not daily, d 3925-3935. Jammed. Not reported since April 2003.
- 3975 Voice of Iranian Kurdistan, Al-Sulaymaniyah, No. Iraq 0200-0400 1330-1500 Kurdish, ID: ``Aira dangi Kurdistan Irana``, 0400-0430 1500-1530 Farsi ID: ``Seda-ye Kordestan-e Iran``, (to Iran). Produced by the Democratic Party of Iranian Kurdistan, Canada. Ex 3985. Not reported since 27 March 2003
- 4380 Voice of Iranian Revolution, possibly via Kazakhstan 0230-0330 1430-1530 Kurdish // 3880 (ID + details), (to Iran), d 4370-4380,8
- 4380 Voice of the Communist Party of Iran, possibly via Kazakhstan 0400-0500 1630-1730 Farsi // 3880 (ID + details); d 4365,6 - 4380,8. Not reported since March 2003
- 4610 Voice of Komala 0225-0300 1555-1700v Kurdish, 0300-0330 1700-1730v Farsi // 3930v(ID) 6810, (to Iran). Not daily; d 4600-4625. Jammed. Not reported since April 03
- 4650 Voice of Mojahed 0127-0535 1058-1135 1327-1732 Farsi, ID: ``Sedy-ye Mojahed, seda-ye Mojahedine Khalq Iran``, ``Inja Radio Seda-ye Mojahed ast`` (= This is Radio Voice of the Crusader). Jumping in steps of 5 kHz to avoid jammer, d 4620- 4690 // 5350v 5650v 6450v 6750v 6950v 7050v 8250v 8350v 8600v 8850v and 9250v. Was off the air Apr-May 2003, but is now back from unknown site.
- 5350 Voice of Mojahed 0127-0535 1058-1135 1327-1732 Farsi, ck 4650v (ID + details), d 5270-5380 5650 Voice of Mojahed 0127-0535 1058-1135 1327-1732 Farsi, ck 4650v (ID + details), d 5630-5680
- 5900 Voice of Iraqi People, Iraqi Kurdistan 0300-0430 1630-1900v A // 3900v (ID), to Iraq, d 5883-5905
- 6450 Voice of Mojahed 0127-0535 1058-1135 1327-1732 Farsi,ck 4650v (ID + details),d 6420 - 6480
- 6750 Voice of Mojahed 0127-0535 1327-1732 Farsi, ck 4650v (ID + details), d 6720 - 6790
- 6950 Voice of Mojahed 0127-0535 1058-1135 1327-1732 Farsi, ck 4650v (ID + details), d 6920 - 6990
- 7050 Voice of Mojahed 0127-0535 1058-1135 1327-1732 Farsi, ck 4650v (ID + details), d 7020 - 7080
- 7460 R Payam-e Doost, via Maiac, Moldova or Kazakhstan 0230-0315 Farsi (Baha'i religion) to Iran. Produced by Payam-e Doost (Message from a friend), Great Falls, Virginia, USA.
- 7480 R Payam-e Doost, via Maiac, Moldova 1800-1830 Farsi (Baha'i religion), to Iran, ck 7460
- 7525 R Yaran (Friends), via Kvitsøy, Norway W 1800-2100 Farsi to Iran, ID: ``Radio Yaran – AFN``. Satellite audio. Anti-Iran Government. Produced by American Farsi Netlink, CA, USA Broker: Merlin. Replaced by 15740 and 15650. Not reported since May 2003
- 7560 Mesopotamian Radio & TV, Arbil, Iraq, via Samara, Russia Tu/We/Fr 1700-1800 Kurdish dialects, ID: ``Denge Radio Televisione Mezopotamia`` plus humming woman (to Iraq). Also ID` is in English, Arabic and Farsi. Broker: TDP
- 7560 Voice of Komala, via Kvitsøy, Norway Su 1700-1730 Kurdish, ID: ``Eira dengi Komala, Eira dengi Komala, dengi Komala... dengi azadi... dengi (revat) kommunisti..``, 1730-1757 Farsi, ID: ``In seda-ye Komala, In seda-ye Komala, Seda-ye Komalei, Seda-ye... Kommunisti Kurdistan.`` , to Iran. Broker: TDP, ck 3930
- 8250 Voice of Mojahed 0127-0535 1058-1135 1327-1732 Farsi, ck 4650(ID + details), d 8220- 8280
- 8350 Voice of Mojahed 0127-0535 1058-1135 1327-1732 Farsi, ck 4650(ID + details), d 8320- 8380
- 8600 Voice of Mojahed 0127-0535 1058-1135 1327-1732 Farsi, ck 4650(ID + details), d 8570- 8630
- 8850 Voice of Mojahed 0127-0535 1058-1135 1327-1732 Farsi, ck 4650(ID + details), d 8820- 8880
- 9250 Voice of Mojahed 0127-0535 1058-1135 1327-1732 Farsi, ck 4650(ID + details), d 9220- 9280
- 9375 Voice of Southern Azerbaijan, via Israel (?) [reported in DXLD as via Azerbaijan] Th 1530-1555v Azeri, ID: ``Danisir cenub Azerbaican Radiosu``, to the Azeri population in NW Iran; last log 08 May 2003
- 11530 Voice of Mesopotamia, Arbil, Iraq, via Maiac, Moldova 0800-1600 Kurdish dialects: Kurmanji/Zazaki/ Sorani to Iraq, ID: ``Denge Mezopotamya``. Alt fq 15415 15620, ck 15675. Produced by Kurdistan Workers Party (PKK) and backed by Syria. Broker: TDP
- 13800 R International, via Maiac, Moldova Apr-Oct: W 1630-1715 Farsi, ID: ``Radio International Hezbe Komunist-e Khargar-e Iran``, ``Radio Anternacional-e``. Produced by the Worker Communist Party of Iran (WCP). Nov-Mar on 7490. Broker: Merlin
- 15675 Voice of Mesopotamia, Arbil, Iraq, via Kvitsøy, Norway 0400-0800 Kurdish dialects: Kurmanji/Zazaki/Sorani (to Iraq), ck 11530(ID). Broker: TDP
- 17525 R Voice of Iran, via Issoudun, France (or Maiac, Moldova) 1530-1730 Farsi, ID: ``Radio Seda-ye Iran``. Produced by KRISI, USA. Ex 11575 17510; jammed

(Anker Petersen, Denmark, DSWCI, 2003 July 5, DXLD #3-120)

UGANDA: According to the latest newsletter of international Christian broadcaster *High Adventure Ministries*, plans to set up a shortwave station in Liberia have been abandoned due the political situation there. The organisation says it has received permission from the Ugandan government to set up the station in Uganda instead. This will enable High Adventure Ministries to resume shortwave broadcasts to the Middle East. Three years ago, the organisation was forced out of its station on the Israeli/Lebanese border, which had been operating for 30 years, when Israeli troops who had been protecting the area were pulled out. (© Radio Netherlands Media Network 16 July 2003, via JKB)

USA: The US-based *International Broadcasting Corporation* (IBCS) today declared its confidence in the future of shortwave by announcing its intent to raise \$4 million to \$5 million to help successfully implement its business plan. Two weeks ago, the IBC Radio Network announced that it has acquired large blocks of airtime at the weekends on Miami shortwave station WRMI. IBCS says this is simply the beginning, as it believes there is a resurgence in the popularity of shortwave. "Shortwave has not yet been fully exploited

commercially," says Daryn Fleming, CEO of IBC. "The future of shortwave is digital; the first experiments are already underway [sic]. With the introduction of digital shortwave, the quality of sound will improve to FM quality. We believe that this quality, coupled with the huge distances a shortwave signal can travel (IBC Radio Network recently received shortwave reception reports from as far away as Nigeria) provides a very significant market that must be exploited. Furthermore, free radio services on an international medium like shortwave provide an opportunity to capture a large market of listeners that will not pay for services offered by satellite radio broadcasters." (© Radio Netherlands Media Network 29 July 2003, via JKB)

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 RNMN R. Netherlands Media Network ©.
 WDXC-HQ WDXC Headquarter, Michael Bethge - Germany.

Abbreviations:

<i>Target:</i>	<i>Target Prefix:</i>
ITU country code or	N North
Af Africa	E East
Am America	S South
As Asia	W West
Eu Europe	C Central
ME Middle East	
FSU Former Soviet Union	

Languages:	Other common abbreviations:
Ar Arabic	bc broadcast
Ch Chinese	lsb Lower Side Band Mode
Du Dutch	nd non-directional
E, En English	px program
F French	sce(d),
G, Ge German	sked schedule
Gr Greek	ssb Single Sideband Mode
I Italian	tx(er) transmitter
J Japanese	usb Upper Side Band Mode
K Korean	mm/dd/yy Date (month/day/year)
P Portuguese	dd.mm.yy (day.month.year)
R Russian	
Sp Spanish	
Turk Turkish	

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List of English, French and Spanish shortwave broadcasts

English, French and Spanish shortwave broadcasts sorted by time. Credits to Eike Bierwirth, Leipzig (Germany), who compiled a comprehensive shortwave broadcasting-schedule list of stations on the air in various languages. Based on this data I filtered all English, French and Spanish transmissions:

English:

Start/End	Day	ITU Station	To	Frequencies (tx)	0000	0100	135	USA	WSHB	Christian Science	Lam	9430
0000	0015	CBG	Nat. Radio of Cambodia	SEA 11940	0000	0100	0100	USA	WYFR	Family Radio	CAN	6065
0000	0015	J	NHK Radio Japan	SEA 13650 17810							As*	9505
0000	0027	CZE	Radio Prague	NAm 7345 9440							SAM	15130
0000	0030	AUS	Radio Australia	Oc 9660b 12080b 17580 17795	0000	0200		USA	Dr. Gene Scott		Eu	5030/CTR
				SEA 15415 21725							Af	5030/CTR 138445(WWCR 2)
				FE 15240							FE	13815(KAIJ)
				SAs 17715d							NAM	6090/AIA 6150/CTR
0000	0030	G	BBC (SE Asia)	SEA 3915/SNG 6195/SNG							NAM	13815(KAIJ)
				9740/SNG 15360/SNG							CAM	5030/CTR 7380/CTR
				FE 11945/J 15280/THA							Car	690/AIA 1610/AIA
				17615/THA							SAM	5030/CTR 6090/AIA
0000	0030	LAO	Lao National Radio	SEA 7145							SAM	6150/CTR 9725/CTR
0000	0030	THA	Radio Thailand	256 9570 / 9870	0000	0400		USA	KIHR		FE	17510
0000	0030	Mo-Sa	YUG Radio Yugoslavia	NAM 9580	0000	0500		USA	WINB	Red Lion	CAM	12160
				WEU 9580	0000	0600		USA	WEWN		NAM	5825
0000	0057	CAN	Radio Canada Internat.	EAs 9640/KOR 15205/CHN-x							Af	5825
0000	0100	D	Deutsche Welle	SAs 1548/CLN 7130/CLN							Eu	5825
				9505/CLN 9825w							NAM	7385
0000	0100	E	Radio Ext. de Espana	Am 15385	0000	0900	Tu-Sa	USA	WRMI	Radio Miami Int.	NAM	7385
0000	0100	G	BBC (Americas)	Car 5975/ATG	0000	1000		USA	WHRI	South Bend	CAM	7315
				CAM 11835/USA-o	0000	1200		USA	WWCR	3	ENA	5070
				SAM 9825/ASC 12095s	0000	2400		CAN	CFRX	Toronto	NAM	6070
0000	0100	Su	BBC (News)	SAs 5970/OMA 11955/THA	0000	2400		CAN	CFVP	CaJgary (CKMX Px)	NAM	6030
				15310/THA 17790/SNG	0000	2400		CTR	Radio for Peace Int.		CAM	7445
				ME 9410/CYP	0000	2400		MLA	RTV	Malaysia	MLA	7295
0000	0100	Su-Fr	BBC (South Asia)	SAs 5970/OMA 9410/CYP 11955/THA	0000	2400		NZL	ZLXA	Reading Sce	NZL	1602 3935
				15310/THA 17790/SNG	0000	2400		USA	WBOH	Newport, NC	NAM	5920
0000	0100	J	NHK Radio Japan	NAM 6145	0000	2400		USA	WJIE	Upton, KY	NAM	7490 13595
0000	0100	UKR	Radio Ukraine Intern.	ENA 12040m	0000	2400		USA	WTJC	Newport, NC	NAM	9370
0000	0100	USA	Voice of America (As)	SEA 1575/THA 11760/PHL	0030	0045		G	FEBA	Radio	PAK	9465/AUT
				SAs 7215/PHL-x 9770/PHL	0030	0100		CLA	V.o.National	Salvation	KOR	1053 3480 4400
				15185/PHL-x	0030	0100		G	BBC	(SE Asia)	SEA	6195/SNG 9740/SNG 15360/SNG
				CHN 15290/PHL							FE	15280/THA
				J 17820/PHL	0030	0100		G	BBC	- Learning English	SAS	9580/SNG
				AUS 17740/PHL							FE	17615/THA
				ME 1593\$/KWT	0030	0100		LTU	Radio	Vilnius	NAM	11690
0000	0100	Tu-Sa	USA Voice of America (Am)	Car 5995g 6130g 7405g 9455g	0030	0100		THA	Radio	Thailand	6	15395
0000	0100	We	USA WSHB Christian Science	9775g 11695g 13790d	0030	0100		USA	Adventist	World Radio	SAS	9720/UAE 9810/UAE
0000	0100	Fr-Mo	USA WSHB Christian Science	ENA 7535	0030	0130		IRN	IRIB		NAM	9590 11920
				ENA 7535	0030	0200		AUS	Radio	Australia	Oc	9660b 12080b 17580 17795

SEA 15415 17750 21725
FE 15240
SAs 17775d(-0130)
SAs 6005 9770 15745
IND 4760 4775 4820 4920
4940 5010 5050
NAM 9675 11800
NAM 6200 7345
NAM 9590
SAs 9435j
NAM 5930
CAM 6190
SAM 9440
Car 5995g 6130g 7405g
9455g 9775g 13790d
As 7190 9715
NAM 6175/CAN
ENA 9580/CUB 9790/CAN
WNA 9790/CAN
NAM 9755 15170 15305
G BBC
CAM 11835/USA-o
SAM 9825/ASC 12095s
SEA 6195/SNG 15360/SNG
FE 15280/THA
SAs 9410/CYP 11955/OMA
15310/THA 17790/SNG
NAM 9525 11785
SEA 11860/SNG 17810
As 15325 17845
SAM 17835
Oc 17685
ME 11880 17560
4405 6195 7140 9345
11735 13760 15180
NAM 9665/MDA 9725a 11825/CVA
12000p 17595p
ME 7115/CLN 9635/GRC 11705/CLN
11820/GRC
SAs 11725/THA 13650/THA
17740/PHL 17820/PHL
NAM 7535
CAN 6065
As* 9505
NAM 7555
CAM 9975
NAM 6000 9820
ENA 3210
USA KTBN Salt Lake City
NAM 7505
ENA 9870
AUT Radio Austria Internat.

0030 0430 CLN Sri Lanka BC
0035 0040 IND AIR (Nx from Delhi)
0055 0115 I RAI International
0100 0127 CZE Radio Prague
0100 0128 HNG Radio Budapest
0100 0130 Su D Radio Santec
0100 0130 SVK Radio Slovakia Int.
0100 0130 Tu-Sa USA Voice of America (Am)
0100 0130 UZB Radio Tashkent
0100 0130 VTN Voice of Vietnam
0100 0157 CHN China Radio Internat.
0100 0200 CAN Radio Canada Internat.
0100 0200 G BBC
0100 0200 G BBC (SE Asia)
0100 0200 G BBC (South Asia)
0100 0200 INS Voice of Indonesia
0100 0200 J NHK Radio Japan
0100 0200 KRE Voice of Korea
0100 0200 RUS Voice of Russia
0100 0200 USA Voice of America (As)
0100 0200 USA WSHB Christian Science
0100 0200 USA WYFR Family Radio
0100 0230 USA KJES
0100 0300 USA KVOH High Adventure
0100 0500 CUB Radio Habana Cuba
0100 0900 USA WMCR 1
0100 1500 USA KTBN Salt Lake City
0105 0130 SuMo AUT Radio Austria Internat.

SEA 15415 17750 21725
IRL Radiotelevis Eireann CAM 6155/G-r
S Radio Sweden As 9435
USA Voice of America Car 7405g 9775g 13740d
USA Voice of America (Am) Car 5995g 6130g 9455g
IRN IRIB NAM 9590 11920
AUS HCJB Australia SAS 15420
AUT Radio Austria Internat. ENA 9870
CVA Radio Vaticana SAS 9650 12055
ALB Radio Tirana NAM 6115 7160
AUT Radio Austria Internat. ENA 9870
BLR Radio Minsk Eu 5970 7210
BLR Radio Minsk Eu 5970 7210
Wales Radio Internat. NAM 9795r
USA Adventist World Radio As 9820/AUT
USA Bible Voice SAS 17540/UZB
USA Bible Voice SAS 11805
CAN Radio Canada Internat. IND 15510/CHN-x 17860/CHN-x
ARG R.Argentina al Exterior Am 11710
BRM Radio Myanmar SEA 576 7185
BUL Radio Bulgaria NAM 9400 11900
G BBC (Americas) Car 5975/ATG
CAM 11835/USA-o
SAM 9825/ASC 12095s
Eu 9410s
RUS 6195r 9410/CYP
EAF 9750/SEY
ME 11760/CYP
FE 15280/THA
SEA 15360/SNG
SAs 11955/OMA 15310/THA
17790/SNG
NAM 9535 15575
J 11810
3560 11845 15230
NAM 9510 11940
J 15105 17720
NAM 9665/MDA 9725a
12000p 17595p
SEA 6150
SEA 6150 ("All Hits all day")
NAM 5950/USA-o 9680/USA-o
PHL 11875
SEA 15320
FE 15465
FE 1115/CLN 9635/GRC 11705/CLN
11820/GRC
SAs 11725/THA 13650/THA
17740/PHL 17820/PHL
WNA 7535

0115 0130 Tu-Sa AUT Radio Austria Internat. ENA 9870
0130 0200 IRL Radiotelevis Eireann CAM 6155/G-r
0130 0200 S Radio Sweden As 9435
0130 0200 Tu-Sa USA Voice of America Car 7405g 9775g 13740d
0130 0200 Tu-Sa USA Voice of America (Am) Car 5995g 6130g 9455g
0130 0230 IRN IRIB NAM 9590 11920
0130 0330 AUS HCJB Australia SAS 15420
0135 0200 SuMo AUT Radio Austria Internat. ENA 9870
0140 0200 CVA Radio Vaticana SAS 9650 12055
0145 0200 Tu-Su ALB Radio Tirana NAM 6115 7160
0145 0200 Tu-Sa AUT Radio Austria Internat. ENA 9870
0200 0230 Fr-Mo BLR Radio Minsk Eu 5970 7210
0200 0230 We BLR Radio Minsk Eu 5970 7210
0200 0230 Sa G Wales Radio Internat. NAM 9795r
0200 0230 USA Adventist World Radio As 9820/AUT
0200 0230 Sa USA Bible Voice SAS 17540/UZB
0200 0230 SaSu USA Bible Voice SAS 11805
0200 0257 CAN Radio Canada Internat. IND 15510/CHN-x 17860/CHN-x
0200 0300 Tu-Sa ARG R.Argentina al Exterior Am 11710
0200 0300 BRM Radio Myanmar SEA 576 7185
0200 0300 BUL Radio Bulgaria NAM 9400 11900
0200 0300 G BBC (Americas) Car 5975/ATG
CAM 11835/USA-o
SAM 9825/ASC 12095s
Eu 9410s
RUS 6195r 9410/CYP
EAF 9750/SEY
ME 11760/CYP
FE 15280/THA
SEA 15360/SNG
SAs 11955/OMA 15310/THA
17790/SNG
NAM 9535 15575
J 11810
3560 11845 15230
NAM 9510 11940
J 15105 17720
NAM 9665/MDA 9725a
12000p 17595p
SEA 6150
SEA 6150 ("All Hits all day")
NAM 5950/USA-o 9680/USA-o
PHL 11875
SEA 15320
FE 15465
FE 1115/CLN 9635/GRC 11705/CLN
11820/GRC
SAs 11725/THA 13650/THA
17740/PHL 17820/PHL
WNA 7535

0200	0300	0300	Th	USA WSHB Christian Science	MEX 9430	0300	0400	G	BBC	(South Asia)	SAS	21660/THA
0200	0300	0300	USA WYFR Family Radio	CAN 6065	Car 5985 11855	0300	0400	G	BBC	(South Asia)	SAS	15310/OMA 17790/THA
				SAM 15255				G	BBC	(West Africa)	WAF	7120/AFS 7160/ASC
				As* 9505				G	BBC Digital		NAM	11955/CAN
0200	0330		EGY Radio Cairo	NAM 11780Z		0300	0400	J	NHK Radio Japan		CAM	17825
0200	0330		PHL Radio Filipinas	As 11885 15120 15270		0300	0400	KRE	Voice of Korea		Oc	21610
0200	0400		AUS Radio Australia	Oc 9660b 12080b 15515 17580		0300	0400	OMA	Radio Oman		EAF	15355t
				SEA 15415 17750 21725		0300	0400	RUS	Voice of Russia		Eu	603/D 1548/MDA
				FE 15240							NAM	9665/MDA 11720m 11750a
0200	0400		USA Dr. Gene Scott	Eu 5030/CTR								12000p 17565ka 17650p
				AF 5030/CTR 5935 (WWCR 2)							SEA	6150
				FE 5755 (KAIJ)							Eu	9650 11655
				NAM 6090/AIA 6150/CTR		0300	0400	SNG	Gold 90.5 FM		NAM	9650 11655
				5755 (KAIJ)							As	7270
				CAM 5030/CTR 7380/CTR							AF	7270
				Car 690/AIA 1610/AIA		0300	0400	TWN	Radio Taiwan Internat.		NAM	5950/USA-o 9680/USA-o
				5030/CTR 6090/AIA							PHL	11875
				SAM 6150/CTR 9725/CTR							SEA	15320
0230	0258		HNG Radio Budapest	NAM 9570							TWN	15125
0230	0300	Tu-Su	ALB Radio Tirana	NAM 6115 7160		0300	0400	TWN	Radio Taiwan Internat.		UKR	12040m
0230	0300	S	Radio Sweden	NAM 9495/CAN		0300	0400	USA	Voice of America (Af)		WAF	1530/STP 9575g 9885/BOT
0230	0300		VTN Voice of Vietnam	NAM 6175/CAN								11835/BOT
0230	1000		CLN Sri Lanka BC	SAS 6130							EAF	6080/STP 7290/STP 7340#/BOT
0240	2200		ZMB Zambia NBC Radio 2	SAF 6165							EAF	6080/STP 7290/STP 7340#/BOT
0245	0300		G BBC - Learning English	EAF 9610/SEY							SAF	909/BOT 6080/STP 7105/ASC
0250	0315		CVA Radio Vaticana	NAM 7305 9605								7290/STP
0300	0305		IND AIR (Nx from Shillong)	IND 4970 4990 5050 7150		0300	0400	USA	WYFR Family Radio		CAN	6065
0300	0315		HRV Voice of Croatia	WNA 9925/D-j							As*	9505
				SAM 9925/D-j							SAM	11740
0300	0327		CZE Radio Prague	NAM 7345 9870		0300	0400	USA	WYFR Family Radio		INS	6175
0300	0330		AFS Channel Africa	EAF 6035							As	9750
0300	0330		BEL Radio Vlaanderen Int.	Am 15565/ATN		0300	0700	MLA	Voice of Islam		AUS	15295
0300	0330		CVA Radio Vaticana	EAF 9660							Eu	9465
0300	0330	Tu-Su	MEX XERMX R Mexico Int.	Am 9705 11770		0300	0900	USA	WMLK Bethel		ENA	7395
0300	0330		THA Radio Thailand	38 15395							ME	11600 15620
0300	0357		CHN China Radio Internat.	ENA 9690/E							NAM	9495/CAN
				WNA 9690/E 9790		0300	0400	USA	WRNO New Orleans		NAM	12005 13675 15400 17890
0300	0400		G BBC (Americas)	Car 5975/ATG							CAS	15160/UAE
0300	0400		G BBC (Ea/So Africa)	CAM 11835/USA-d		0300	0400	USA	Adventist World Radio		CAM	6175/CAN
				SAF 3255/AFS 6005/ASC 6190/AFS							As	1161 7245
				EAF 9750/SEY 12035/CYP							As	4976 5027
				15420\$/SEY							SAF	3356 4820 7255
0300	0400		G BBC (Middle East)	WAS 11760/CYP		0345	0400	TJK	Radio Tajikistan		Eu	9435 15640
				RUS 12095/CYP		0345	0600	UGA	Radio Uganda		NAM	9435 15640
				ME 15575/OMA		0400	0410	BOT	Radio Botswana		SAF	3356 4820 7255
0300	0400		G BBC (News)	Eu 6195r 9410s		0400	0415	ISR	KoI Israel		Eu	9435 15640
				RUS 9410r							NAM	9435 15640
0300	0400		G BBC (SE Asia)	SEA 15360/THA							SAM	17600
				FE 15280/THA 17760/THA		0400	0430	AFS	Channel Africa		AUS	17600
											SAF	5955

0900	0930 Su	G	BBC	(News)	WAF 21745	1000	1100	G	BBC	(SE Asia)	FE	17760/THA 21660#/THA
0900	0930 Mo	USA	Adventist World Radio		SAS 17790/OMA	SEA	6195/SNG 6195/THA				SEA	6195/SNG 6195/THA
0900	1000 12456	CVA	Radio Vaticana		NZL 1602/NZL 3935/NZL							9740/SNG 15360#/SNG
0900	1000	G	BBC	(Americas)	CEu 585 5890							9605/J
0900	1000	G	BBC	(Europe)	SAM 15190/ASC							(SE Asia)
0900	1000	G	BBC	(Europe)	Eu 12095w							(South Asia)
0900	1000	G	BBC	(Middle East)	WEu 15485s							(West Africa)
0900	1000	G	BBC	(Middle East)	WAS 15575/CYP							WAF 15400/ASC 17830/ASC
					ME 11760/OMA							Eu 9760r
					RUS 15565r 17640w							GUM KSDA Adventist World R.
					Eu 17640s							FE 11560
0900	1000 Sa	G	BBC	(News)	SEA 6195/SNG 6195/THA 9740/SNG							AUS 13695b 15020a 17510 17895
					FE 9605/J							CLN 1053 7270c 15260
0900	1000	G	BBC	(SE Asia)	SEA 15360/SNG 17760/SNG							FE 13695b 15020a 15410k 17800
					FE 21660/THA							SEA 9695
0900	1000 Su-Fr	G	BBC	(SE Asia)	SEA 6195/SNG 6195/THA 9740/SNG							As 15590
					FE 9605/J							Oc 21755
0900	1000	G	BBC	(South Asia)	SAS 15310/THA 17790/OMA							Eu 17585/UAE
0900	1000	G	BBC	(West Africa)	WAF 15400/ASC 17830/ASC							3560 9335 11710 11735 13650
0900	1000 Mo-Sa	SNG	Class 95 FM		SEA 6150 ("CarTunes")							SEA 6150
0900	1000 Tu,Th	USA	WSHB Christian Science		ME 9860							SEA 6150
0900	1000	USA	WSHB Christian Science		Eu 9860							SEA 6150
0900	1000	USA	WWCR 1		ENA 9475							SEA 6150
0900	1057	CHN	China Radio Internat.		Oc 15250j 17690j							Car 5745g 7370g 9590g
0900	1300	AUS	Voice International		CHN 13685							SAS 13620/MRA 15240/CLN
0900	1300	D	Deutsche Welle (DRM)		Eu 15440/POR							15425/PHL - x
0900	1700	GHA	Ghana BC Radio 2		WAF 6130							As 9770d
0930	1000	GRC	Voice of Greece		Eu 12105a 15630a							ENA 6095
0930	1100	AUS	Radio Australia		Oc 9580							Sam 9455
0930	1130	HOL	Radio Nederland		SEA 11880 17750 21820							CHN 11780/RUS
					AUS 9785/ATN 12065/RUS-p							CAN 5950
					FE 12065/RUS-p 13710/RUS-i							BHU 6035
					SEA 13710/RUS-i							Eu 5030/CTR
1000	1030	D	Deutsche Welle		EAS 17615/CLN 17715/CLN							Af 5030/CTR 5935 (WWCR 2)
1000	1030 Sa	G	BBC	(News)	FE 9605/J							CAS 17765/RUS-s
1000	1030	GUM	KSDA Adventist World R.		SEA 11930							SAS 17765/RUS-s
1000	1030	HRV	Voice of Croatia		Eu 1134							FE 5755(KAIJ)
1000	1030	IRL	Radiotelevis Eireann		AUS 15280/SNG							NAM 5755(KAIJ) 6150/CTR
1000	1030	MNG	Voice of Mongolia		FE 12085							11775/AIA
1000	1030	VTN	Voice of Vietnam		SEA 1242 9840 12020							CAM 5030/CTR 7880/CTR
1000	1100	AFS	Radio Veritas S.Africa		SAF 7240							Car 690/AIA 1610/AIA
1000	1100	D	Deutsche Welle Digital		Eu 6140j							5030/CTR 11775/AIA
1000	1100	G	BBC	(Americas)	Car 6195/ATG							SAM 6150/CTR 9725/CTR
1000	1100 SaSu	G	BBC	(Americas)	SAM 15190/ASC							CAM 9495
1000	1100	G	BBC	(Europe)	Eu 12095w							NAM 7520
					WEu 15485s							Eu 7320r
1000	1100	G	BBC	(Middle East)	WAS 15575/CYP							NAM 9850
					ME 11760/OMA							FE 9930
					RUS 15565r 17640w							SAS 4940
					Eu 17640s							NAM 690 1610 11775
1000	1100	G	BBC	(Middle East)	WAS 15575/CYP							ENA 15825
					ME 11760/OMA							CAM 13570
					RUS 15565r 17640w							RUS 11680/CYP 13750r
					Eu 17640s							15325/CYP 17695/D-L
												Eu 15640 17525 17545

1200	1300	G	BBC	(South Asia)	SAs	15310/THA 17790/OMA
1200	1300	G	BBC	(West Africa)	WAF	17830/ASC
1200	1300	POL	Radio Polonia		Eu	9525 11820
1200	1300	TWN	Radio Taiwan Internat.		FE	7130
1200	1300	USA	Brother Stair		Eu	6110/D-j
1200	1300	USA	Voice of America	(As)	SAs	9760/PHL 13610/MRA 15240/CLN 15425/PHL-x
					SEA	1143#/PHL 6160/PHL 15425/PHL-x
					FE	981/MNG 15160/PHL
					J	9760/PHL
					AUS	9645/THA
1200	1300	USA	WSHB Christian Science		AUS	9585/RUS-ka
1200	1300	USA	WSHB Christian Science		ENA	9430
1200	1300	USA	WSHB Christian Science		LAm	11670
1200	1400	D	Deutsche Welle Digital		Eu	9655w
1200	1500	Mo-Fr	CAN Radio Canada Internat.		Car	9515 13655 17800
1200	1700	USA	Dr. Gene Scott		Af	13845 (WWCR 2)
					CAs	17765/RUS-s
					SAs	17765/RUS-s
					FE	13815 (KAIJ)
					NAm	11775/AIA 13750/CTR 13815 (KAIJ)
					CAm	11870/CTR
					Car	690/AIA 1610/AIA 11775/AIA
					SAm	9725/CTR
1200	2000	Su	G	Laser Radio	Eu	9520/LVA
1200	2200	USA	WRRB		CAN	9320
					NEU	9320
					Eu	12170
					ME	12170
1200	2300	USA	WRMI Radio Miami Int.		NAm	15725
1200	2400	USA	WWCR 3		ENA	12160
1205	1230	SaSu	AUT Radio Austria Internat.		Eu	6155 13730
					As	21780
					AUS	21780
1215	1230	Mo-Fr	AUT Radio Austria Internat.		As	21780
					AUS	21780
1215	1330	EGY	Radio Cairo		SAs	17775z
1230	1235	IND	AIR (Nx from Delhi)		IND	3390 4760 4800 4820 4850 4860d 4895 4920
1230	1245	G	BBC - Learning English		WAF	15105w 17780/ASC 21640/ASC
1230	1300	BGD	Radio Bangladesh		SAs	7185 9550
					SEA	7185 9550
1230	1300	G	BBC	(Americas)	SAm	15190/ATG
					Car	6195/ATG 15190/ATG
1230	1300	G	Wales Radio Internat.		AUS	17845r
1230	1300	GUM	KSDA Adventist World R.		FE	11980
1230	1300	S	Radio Sweden		As	13580 15750

1230	1300	S	Radio Sweden		NAm	17840
1230	1300	THA	Radio Thailand		SEA	9840 12020
1230	1300	VTN	Voice of Vietnam		Eu	17830
1230	1330	TUR	Voice of Turkey		AUS	17595
					As	17595
1230	1330	USA	Gospel for Asia		SAs	15590/UAE
1230	1530	CLN	Sri Lanka BC		SAs	6005 9770 15745
1230	1700	AUS	HCJB Australia		SAs	15390
1235	1300	SaSu	AUT Radio Austria Internat.		Eu	6155 13730
					As	21780
					AUS	21780
1245	1300	Mo-Fr	AUT Radio Austria Internat.		Eu	6155 13730
					As	21780
					AUS	21780
1245	1300	G	FEBA Radio		ME	15530/RUS-a
1245	1300	USA	WYFR Family Radio		CAN	13695
					MEX	17750
1300	1315	Mo-Fr	USA Voice of Hope		CHN	13590/RUS-n
1300	1330	CZE	Radio Prague		NEU	13580
					SAs	21745
1300	1330	USA	Adventist World Radio		CAs	17740/UAE
1300	1357	CHN	China Radio Internat.		ENA	1120-/USA 7405j 9570/CUB 13650/CAN
					SEA	1341 11980k 15180x
					Oc	11760k 11900k
					As	7405j
1300	1400	ALS	KNLS Alaska		As	11870
1300	1400	AUS	Radio Australia		Oc	5995b 6020 9580 11650
					SEA	11660 21820
1300	1400	G	BBC	(Americas)	SAm	15190/ATG
					Car	6195/ATG 15190/ATG
1300	1400	G	BBC	(Ea/So Africa)	Saf	6190/AFS 11940/AFS 21470/ASC
					EAF	15420/SEY 17885/SEY
1300	1400	G	BBC	(Europe)	Eu	12095w
					WEU	15485s
1300	1400	G	BBC	(Middle East)	ME	11760/OMA 15575/CYP
					RUS	15565r 17640w
1300	1400	G	BBC	(SE Asia)	Eu	17640s
					SEA	6195/SNG 9740/SNG
					FE	17760/THA
1300	1400	G	BBC	(South Asia)	SAs	15310/THA 17790/OMA
1300	1400	G	BBC	(West Africa)	WAF	17830/ASC
1300	1400	KOR	Radio Korea Internat.		SEA	9570 13670
1300	1400	KRE	Voice of Korea		9335	11710 13760 15245
1300	1400	USA	Voice of America	(As)	SAs	9760/PHL 15425/PHL-x
					SEA	5955/PHL 15425/PHL-x
					FE	981/MNG 15160/PHL
					J	9760/PHL
					AUS	9645/THA

1500	1530	EAF	11860/SEY 15420/SEY 21660/CYP	USA	WHRI South Bend	NAM 13760 WEU 13760
1500	1530	MEX	XERIMX R Mexico Int.	USA	KTBN Salt Lake City	NAM 15590
1500	1530	MNG	Voice of Mongolia	AUT	Radio Austria Internat.	WNA 15515/CAN
1500	1530	VTN	Voice of Vietnam	AUT	Radio Austria Internat.	WNA 15515/CAN
1500	1557	CAN	Radio Canada Internat.	AUT	Radio Austria Internat.	WNA 15515/CAN
1500	1557	CHN	China Radio Internat.	USA	Bible Voice	ME 15680/D-j
		SAS	7160u 9785j	BGD	Radio Bangladesh	SAS 4880 15520
1500	1600	AF	13685/MLI 15125/MLI	G	BBC - Learning English	SAS 11685/SNG 15540/SNG
		SAM	15190/ATG	G	BBC - Learning English	SAS 12065/UBZ 13765 15235
		Car	15190/ATG	CVA	Radio Vaticana	SAS 12065/UBZ 13765 15235
1500	1600	Eu	12095w	G	BBC (Ea/So Africa)	SAF 6190/AFS 11940/AFS 21470/ASC
		WEU	15485s	EAF	21660/CYP	EAF 21660/CYP
1500	1600	G	BBC (Middle East)	GEO	Radio Georgia	ME 6180
1500	1600	G	BBC (SE Asia)	S	IBRA Radio	ME 15715/D-j
1500	1600	G	BBC (South Asia)	USA	Waymarks Ministries	ME 15650/D-j
1500	1600	G	BBC (West Africa)	IRN	IRIB	SAS 7245 9635 11775
1500	1600	G	FEBA Radio	USA	Bible Voice	SEA 9635 11775
1500	1600	J	NHK Radio Japan	AUT	Radio Austria Internat.	WNA 15515/CAN
		KRE	Voice of Korea	AUT	Radio Austria Internat.	WNA 15515/CAN
1500	1600	NMB	Namibian BC 1	PAK	Radio Pakistan	ME 11570 15065
1500	1600	NMB	Namibian BC 2	CZE	Radio Prague	EAF 15725 17720
1500	1600	RUS	Voice of Russia	WEU	5930	WEU 5930
		As	972\$ 4940/TJK 4965/TJK	EAF	21745	EAF 21745
		As	972\$ 7315i 7390v 11500/CHN-x	SAF	9525	SAF 9525
1500	1600	SNG	Perfect 10 98.7 FM	Eu	5960	Eu 5960
1500	1600	USA	KJES	CAS	11630 13740	CAS 11630 13740
1500	1600	USA	Voice of America (As)	Eu	13675 15395 17865 21605	Eu 13675 15395 17865 21605
		SEA	1575/THA	NAF	13630	NAF 13630
		SAS	6160/PHL 9590/PHL 9760/PHL	AF	9570x 11900b	AF 9570x 11900b
		CHN	9845/PHL 12040/PHL	SAS	1548/CLN 6170/CLN	SAS 1548/CLN 6170/CLN
		AUS	15550/THA		7225/CLN 17595w	7225/CLN 17595w
		SAS	7125/THA	Eu	6140j	Eu 6140j
		CHN	15160/PHL	EAF	7165 9560	EAF 7165 9560
		Eu	1197\$/D 15205/G-w	NAF	11615	NAF 11615
		CIS	9700/D-h 15255/GRC	WAF	15160/AFS	WAF 15160/AFS
		CAN	11830	CAF	9730/AFS 17850	CAF 9730/AFS 17850
		MEX	17750	EAF	9735/AFS 15605 17605	EAF 9735/AFS 15605 17605
		SAS	15520/UAE	ME	15605	ME 15605
		Oc	5995 9580 11650	SAM	15190/ATG	SAM 15190/ATG
		SEA	9475 11660	Car	15190/ATG	Car 15190/ATG
		FE	6080	SAF	6190/AFS 11940/AFS 21470/ASC	SAF 6190/AFS 11940/AFS 21470/ASC
		SAS	13665	EAF	15420\$/SEY	EAF 15420\$/SEY
1500	1700	AUS	Voice International	G	BBC (Americas)	SAM 15190/ATG
		USA	WBCQ	G	BBC (Europe)	Eu 12095w
1500	2200	ZMB	Christian Voice	G	BBC (Middle East)	WEU 9410/CYP 15485s
1500	2300	USA	WHRA	G	BBC (SE Asia)	RUS 15565r
		AF	17650	G	BBC (South Asia)	SEA 3915/SNG 6195/SNG 7160/SNG

1600	1700	G	BBC	(West Africa)	WAF	15310/THA 17790/OMA	15310/THA 17790/OMA	6130	6200	7385	9490
1600	1700	GRC	Voice of Greece	(Greece)	Eu	15400/ASC 17630/ASC	15400/ASC 17630/ASC	UKR	9530/CYP	11735/D-L	13645r
1600	1700	GUM	KSDA Adventist World R.		NAm	17705/USA-d	17705/USA-d	SAS	11975	17630/UAE	
1600	1700	KOR	Radio Korea Internat.		SAs	11560 15215 15235	11560 15215 15235	WEU	5920	6055	7345
1600	1700	KRE	Voice of Korea		ME	9515 9870	9515 9870	CAS	1242		
1600	1700	RUS	Voice of Russia		As	5975	5975	SAF	9755a	15255	
1600	1700	TWN	Radio Taiwan Internat.		Eu	1494	1494	As	1161	7245	
1600	1700	USA	Brother Stair		ME	648 7350n 11985se 12055s	648 7350n 11985se 12055s	OC	6095		
1600	1700	USA	Voice of America (Af)		SAs	11550	11550	WEU	5930		
1600	1700	USA	Voice of America (As)		Eu	6110/D-j	6110/D-j	CAF	17485		
1600	1700	USA	Voice of America (Eu)		WAF	1530/STP 15580/BOT	1530/STP 15580/BOT	WAF	15265		
1600	1700	USA	Voice of America (As)		EAF	9830/STP 9850/STP	9830/STP 9850/STP	EAF	15605	17605	
1600	1700	USA	Voice of America (Eu)		SAF	15225/ASC 15410/STP	15225/ASC 15410/STP	ME	15605		
1600	1700	USA	Voice of America (As)		SAs	13600/THA	13600/THA	15420/AFS	21470/ASC		
1600	1700	USA	Voice of America (As)		NAF	12080/BOT	12080/BOT	EAF	6005/SEY	9630/SEY	
1600	1700	USA	Voice of America (As)		EAF	17895/MRC	17895/MRC	Af	9570x	9695u	
1600	1700	USA	Voice of America (Eu)		SEA	1143/PHL 6160/PHL 9760/PHL	1143/PHL 6160/PHL 9760/PHL	11910j	11920x		
1600	1700	USA	Voice of America (Eu)		SAs	7125/THA	7125/THA	OC	5995	9580	9815 11880
1600	1700	USA	WSHB Christian Science		Eu	15205/G-w	15205/G-w	SEA	9475		
1600	1700	USA	WYFR Family Radio		CIS	9700/D-h 15255/GRC	9700/D-h 15255/GRC	FE	6080		
1600	1800	D	Deutsche Welle Digital		EAF	18910	18910	Eu	6195s	9410/CYP	
1600	1900	AFS	Radio Veritas S.Africa		CAN	11830	11830	WEU	6195r	15485s	
1600	1900	CLA	SW Radio Africa		MEX	17750	17750	RUS	12095w	15565r	
1600	2200	USA	WMLK Bethel		Eu	18980 21455	18980 21455	SEA	3915/SNG	7160/SNG	
1600	2200	USA	WEWN		Af	21525	21525	SAs	5975/THA	9510/SNG	15310/THA
1600	2300	BEN	ORTV du Benin		SAs	15520/UAE	15520/UAE	WAF	15400/ASC	17830/ASC	
1600	2300	BEN	ORTB Radio Parakou		Eu	7125w	7125w	NAM	9505		
1600	2300	NIG	FRCN Lagos		SAF	3280	3280	Eu	11970		
1600	2300	USA	WRNO New Orleans		ZWE	4880	4880	Af	15355		
1610	1625	USA	Trans World Radio		Eu	9465	9465	Eu	5995	7285	
1615	1630	CVA	Radio Vaticana		NAM	13615	13615	NEU	9510	11820	
1615	1630	G	BBC	(Ea/So Africa)	WAF	7210.2	7210.2	WEU	11940	15380	
1615	1700	G	BBC	(Ea/So Africa)	WAF	5025 7190	5025 7190	EAF	11510/ARM	11985se	
1630	1645	ISR	KoI Israel		WAF	3326 4990	3326 4990	Eu	9775se	9890s	
1630	1650	TKM	Turkmen Radio		ENA	7395 15420	7395 15420	ME	1251		
1630	1700	CHN	PBS Xizang		ME	864/ARM 5855/ARM	864/ARM 5855/ARM	As	1251	1269/CHN	7315i
					Eu	585 1530 4005 5890	585 1530 4005 5890	Eu	1494	9480m	11675a
					ME	7250 9645	7250 9645	SAS	11550		
					ME	15595	15595	ME	15680/D-j	15750/D-j	
					EAF	15420/SEY	15420/SEY	Eu	1557/LTU		
					EAF	11860/SEY	11860/SEY	WAF	15580/BOT		
					Saf	21490/AFS	21490/AFS	EAF	9850/STP	15410/MRC	
					Eu	15640 17545	15640 17545	Saf	9850/STP		
					NAM	15640 17545	15640 17545	SEA	6160/PHL	9645/CLN	
					CAs	4930	4930	SAs	7125/THA		
					CHN	4905 4920 5240 6110	4905 4920 5240 6110	AUS	7170/PHL		

1820	1825	LBY	Voice of Africa	AF	15205/F 15660/F 17635/F 17695/F	1900	2000	KRE	Voice of Korea	Eu	11710 13760 15245
1830	1840	RWA	Radio Rwanda	CAF	6055	1900	2000	MLT	Voice of Mediterranean	Eu	12060/RUS-m
1830	1845	S	IBRA Radio	EAF	15695/D-j	1900	2000	RUS	Voice of Russia	Eu	1386 7440m 9775se 9890s 11675a 12070se
1830	1845	USA	Bible Voice	EEU	5970/D-j	1900	2000	THA	Radio Thailand	Eu	7155
1830	1857	USA	Radio Prague	CEU	1071 1233 1287	1900	2000	USA	Bible Voice	ME	13710/D-w
1830	1900	CZE	Radio Prague	CEU	1071 1233 1287	1900	2000	USA	Brother Stair	Eu	1386/LTU
1830	1900	G	BBC (Ea/So Africa)	SAF	3255/AFS 6190/AFS 15420/AFS 21470/ASC	1900	2000	USA	KJES	Car	15385
1830	1900	GEO	Radio Georgia	EAF	6005/SEY 9630/SEY	1900	2000	USA	Voice of America (Af)	WAF	4950/STP 15445g 15580/BOT
1830	1900	GRC	Voice of Greece	NEU	11760	1900	2000	EAF	9850/STP 11975/STP 13670/BOT	EAF	9850/STP 11975/STP 13670/BOT
1830	1900	IRL	Radiotelevis Eireann	Eu	666 792 12105	1900	2000	SAF	909/BOT 9850/STP 17895/MRC	SAF	909/BOT 9850/STP 17895/MRC
1830	1900	SVK	Radio Slovakia Int.	AF	21630/ASC	1900	2000	ME	7260/GRC 9680/THA 13635/CLN	ME	7260/GRC 9680/THA 13635/CLN
1830	1900	USA	Adventist World Radio	WEU	5920 6055 7345	1900	2000	USA	Voice of America (As)	Eu	1197#/D
1830	1900	YUG	Radio Yugoslavia	AF	9520/AFS	1900	2000	USA	Voice of America (As)	AUS	9525/PHL 11770/PHL
1830	1930	TUR	Voice of Turkey	WEU	6100	1900	2000	USA	Voice of America (As)	SAS	15180/PHL-x
1830	2025	HOL	Radio Nederland	Eu	9785	1900	2000	USA	Voice of America (As)	FE	9550/D-L 11780/D-b 15235/PHL
1835	1850	CGO	RTV Congolaise	WAF	9895 11655 13700 17605/ATN 21590/ATN	1900	2000	USA	Voice of America (Eu)	SEE	9760/MRC
1845	1900	MLI	RTV du Mali	EAF	7120/MDG	1900	2000	USA	WSHB Christian Science	ME	6160/GRC 9770/GRC
1845	1900	USA	Bible Voice	CAF	4765	1900	2000	USA	WSHB Christian Science	Eu	15665
1851	2215	NZL	Radio New Zealand Int.	WEU	7210s 9520	1900	2000	USA	WSHB Christian Science	Saf	18910
1900	1915	USA	Bible Voice	WAF	4783 4835 5995	1900	2000	USA	WYFR Family Radio	Eu	17750 18980
1900	1925	ISR	Kol Israel	EEU	5970/D-w	1900	2000	G	BBC (Ea/So Africa)	Saf	3230/AFS
1900	1928	HNG	Radio Budapest	Oc	15160	1900	2100	G	BBC (Ea/So Africa)	Saf	3255/AFS 6190/AFS 12095/ASC
1900	1930	D	Radio Sante	CAF	13725/D-j	1900	0400	NMB	Namibian BC 1	EAF	6005/SEY 9630/SEY
1900	1930	USA	Bible Voice	Eu	11605 15615 17545	1900	0400	NMB	Namibian BC 2	NMB	6060
1900	1930	VTN	Voice of Vietnam	AF	15640	1900	0500	NMB	Namibian BC 2	NMB	6060
1900	1957	CHN	China Radio Internat.	NAM	11605 15615 17545	1900	0600	USA	WBCQ	NAM	9335
1900	2000	AFS	South African Radio L.	Eu	3975 6025 11720	1900	1100	SLM	Solomon Islands B.C.	SLM	5020
1900	2000	AUS	Radio Australia	ME	15565j	1905	1940	SOM	Radio Hargeysa	EAF	7530
1900	2000	G	BBC (Europe)	EEU	5970/D-w	1915	1930	G	BBC - Learning English	WAF	15105/ASC 17885/ASC
1900	2000	CLN	Sri Lanka Broadcast C.	Eu	11630 13740	1915	1930	USA	Bible Voice	CAF	13725/D-j
1900	2000	D	Deutsche Welle	WAF	9440b 13790k	1920	1925	LBV	Voice of Africa	AF	15205/F 15315/F
1900	2000	G	BBC (Europe)	SAF	3215	1930	1945	CGO	RTV Congolaise	CAF	4765 / 5985
1900	2000	G	BBC (Europe)	Oc	7240 9580 9815 11880	1930	2000	BEL	Radio Vlaanderen Int.	Eu	1512 9925/RUS-a
1900	2000	G	BBC (Europe)	SEA	9500	1930	2000	BLR	Radio Minsk	Eu	1170 7105 7210
1900	2000	G	BBC (Europe)	FE	6080	1930	2000	S	Radio Sweden	Eu	1179 6065
1900	2000	G	BBC (Europe)	Eu	6010/G-s	1930	2000	USA	Adventist World Radio	Eu	7130/SVK
1900	2000	G	BBC (Europe)	EAF	6180/RWA 7225/RWA	1930	2000	USA	Bible Voice	CAF	13725/D-j
1900	2000	G	BBC (Europe)	11965/CLN 13590W 15390/RWA	1930	2030	IRN	IRIB	WEU	11860	
1900	2000	G	BBC (Europe)	Eu	9410/CYP	1930	2030	CEU	11670 11860	CEU	11670 11860
1900	2000	G	BBC (Europe)	WEU	6195r	1930	2030	EAF	9800 11750	EAF	9800 11750
1900	2000	G	BBC (Europe)	NEU	6195/CYP	1930	2030	SAF	9800 11750	SAF	9800 11750
1900	2000	G	BBC (Europe)	ME	15310/THA	1930	2030	WAF	13645/D-j	WAF	13645/D-j
1900	2000	G	BBC (Europe)	WAF	15400/ASC 17830/ASC	1930	2030	EAF	13795	EAF	13795
1900	2000	KOR	Radio Korea Internat.	WAF	5400/ASC 17830/ASC	1930	2030	CAF	11815/D-j 15220/GUF	CAF	11815/D-j 15220/GUF
1900	2000	KOR	Radio Korea Internat.	Eu	7275	1930	2030	SAF	11815/D-j 15220/GUF	SAF	11815/D-j 15220/GUF
1900	2000	As	5975	As	5975	1930	2200	PNG	NBC Port Moresby	PNG	4890

2205	2230	I	RAI International	FE	11895		
2216	0505	NZL	Radio New Zealand Int.	Oc	17675		
2230	2257	CZE	Radio Prague	NAm	11600	13580	
2230	2300	BEL	Radio Vlaanderen Int.	Am	15565	/ATN	
2230	2300	S	Radio Sweden DIGITAL	ENA	9795	/CAN	
2230	2400	CAN	Radio Canada Internat.	USA	6140	9590	15455
2230	2400	Fr,Sa	USA Voice of America (As)	SEA	1575	/THA	
2230	0730	AUS	Australian Broadc.Co.	AUS	4835	4910	5025
2245	0045	IND	All India Radio	SEA	9705p	11620	13605b
				FE	9950k	11620b	13605b
2245	1800	USA	KIMF	NAm	5835	(p)lan	
2300	2330	AUS	Radio Australia	Oc	9660b	12080b	17715
					17795	21740	
2300	2330	USA	Voice of America (As)	SEA	13620	15230	
				FE	7190	/THA	7200/THA 9545/PHL
					11925	/THA	13775/THA
2300	2330	USA	Voice of America (As)	ME	1593	/KWT	
				AUS	9705	/THA	11760/PHL 17740/PHL
				SEA	1575	/THA	(Fr,Sa) 7215/PHL-x
				SAs	15185	/PHL-x	
				CHN	15290	/PHL	
				J	17820	/PHL	
2300	2350	CHN	PBS Xizang	CHN	4820	5935	6050
2300	2357	CHN	China Radio Internat.	NAm	13680	/CAN	
				Car	5990	/CUB	
				G	558	/G	(London)
2300	2400	BUL	Radio Bulgaria	NAm	9400	11900	
2300	2400	CUB	Radio Habana Cuba	NAm	9550		
2300	2400	D	Deutsche Welle	SEA	9890	/CLN	17860/RUS-v
2300	2400	G	BBC (Americas)	SAm	12095	/ASC	
				Car	5975	/ATG	
2300	2400	G	BBC (SE Asia)	SEA	3915	/SNG	6195/SNG
					9740	/SNG	11955/THA
				FE	5965	/THA	6195/SNG 9580\$/KOR
					11945	/J	15280/THA
2300	2400	G	BBC DIGITAL	ENA	9795	/CAN	
2300	2400	ROU	Radio Romania Int.	NAm	11740	15105	
				WEU	9570	11775	

French:

Start End Day	ITU Station	To	Frequencies (tx)
0000 0030	CUB Radio Habana Cuba	Am	9550
0000 0030	F Radio France Internat.	IND	11660
		FE	15535/RUS-n
0000 0100Th	USA WSHB Christian Science	SEA	11660 15535/RUS-n 17710/J
0000 0100	USA WYFR Family Radio	ENA	7535
0000 2400	ZAI Radio Okapi	SAm	15255
		ZAI	6030 9550 11690

2300	2400	Mo-Fr	USA WRMI Radio Miami Int.	NAm	7385		
2300	2400	We,Su	USA WSHB Christian Science	WAF	13770		
2300	2400		USA WYFR Family Radio	Car	5985	11855	
				SAm	15255	17750	
2300	0030		EGY Radio Cairo	ENA	11725z		
2300	0030		USA Gospel for Asia	SAs	11905	/D-w	
				SEA	11905	/D-w	
2300	0100	SaSu	USA WWBS	NAm	11910		
2300	0200		SNG News Radio 93.8	SEA	6150		
2300	0300		USA WRNO New Orleans	ENA	7355		
2305	2320	Mo-Fr	UN United Nations Radio	SAF	6165	/ZMB	
2305	2330	SuMo	AUT Radio Austria Internat.	LAm	9870		
2315	2330	Tu-Sa	AUT Radio Austria Internat.	LAm	9870		
2330	2400		AUS Radio Australia	Oc	9660b	12080b	17715
					17795	21740	
				SEA	11695	13620	15230
				FE	15415		
2330	2400		LTU Radio Vilnius	NAm	9875		
2330	2400		SUI Swiss Radio Internat.	SAm	9885	11905	/GUF
2330	2400	Sa	USA Adventist World Radio	NAm	15725	(WRMI)	
2330	2400		USA Voice of America (As)	FE	7190	/THA	7200/THA 9545/PHL
					11925	/THA	13725/MRA
					13775	/THA	
				SAs	7260	/PHL	13725/MRA
				SEA	11805	/PHL	15205/PHL-x
				AUS	7225	/THA	
2330	2400		USA Voice of America (As)	AUS	9705	/THA	11760/PHL 17740/PHL
				SEA	1575	/THA	(Fr,Sa) 7215/PHL-x
					9770	/PHL	15305/PHL
				SAs	15185	/PHL-x	
				CHN	15290	/PHL	
				J	17820	/PHL	
				Eu	9840	12020	
2330	2400		VTN Voice of Vietnam	Eu	9840	12020	
2330	0030		HOL Radio Nederland Digital	NAm	15525	/ATN	
2330	0030		USA Voice of America (Eu)	ME	1593	/KWT	
2330	0125		HOL Radio Nederland	ENA	6165	/ATN	9845/ATN
2335	2400	SuMo	AUT Radio Austria Internat.	LAm	9870		
2345	2400	Tu-Sa	AUT Radio Austria Internat.	LAm	9870		

0015	0030		CBG Nat.Radio of Cambodia	SEA	11940		
0030	0100		CUB Radio Habana Cuba	Am	11760		
0030	0100	F	Radio France Internat.	IND	11660		
				FE	15535	/RUS-n	
				SEA	15535	/RUS-n	
0100	0200		BUL Radio Bulgaria	NAm	9400	11900	
0100	0200	F	Radio France Internat.	IND	17710	/CHN-B	
0100	0200		KRE Voice of Korea		3560	11845	15230

0615	0628	ROU Radio Romania Int.	WEu	9690	11840	11940	15270					CAF 17850	21580
0615	0630	CVA Radio Vaticana	Eu	585	1530	4005	5890 7250					EAF 17620	21620
						9645	11740					Eu	11670
			ME	15595								CAF 21770	
0630	0700	F Radio France Internat.	NAF	11700								SAF 21770	
			WAF	11665/ASC	11700	15315						SAM	9625 11970
			EAF	17800	21620							Eu	9605/I
			Eu	9805								ENA	6095
0630	0700	J NHK Radio Japan	Eu	11915								CAF	21565/D-j
0630	0730	IRN IRIB	Eu	17590	17780							CAF	21565/D-j
			AF	21645								CEu	1071 1233 1287
0700	0730	G BBC	WAF	15105/ASC								NAF	11845 15300
			CAF	17695/AFS								WAF	15300 17620
0700	0730	GEO Radio Georgia	CEu	11910								CAF	17850 21580
0700	0730Sa-Th	USA Adventist World Radio	AF	15160/D-j								EAF	17620 21620
0700	0800	F Radio France Internat.	NAF	11700	15315	17620						FE	11890/J
			CAF	15170/AFS	17850	21580						SEA	15215/J
			Eu	11670								SAM	11970
0700	0800	TWN Radio Taiwan Internat.	Eu	9355/USA-o								CAF	21565/D-j
0700	080013567	USA WSHB Christian Science	WAF	9450								WEu	11700 15700
0700	1600	GAB Afrique No.1	AF	9580	17630							CAN	9505
0800	0827	CZE Radio Prague	WEu	9880	11600							Car	5990 9515 15305
0800	0830	USA Adventist World Radio	AF	17780/AUT								CEu	585 5890
0800	0845	USA WYFR Family Radio	AF	11530								NAF	11845 15300
0800	0900	F Radio France Internat.	NAF	11845	15300	15315						WAF	15300 17620
			WAF	15300	15315	17620						CAF	17720/AFS 21580
			CAF	21580								EAF	17620 21620
			Eu	11670								NAO	6175
0800	0900	KOR Radio Korea Internat.	Eu	9640								FE	11890/J
0800	0900Fr	USA WSHB Christian Science	Eu	9860								SEA	11600/CHN-B 15215/J
0800	0900Fr	USA WSHB Christian Science	AUS	9845								NAM	17570
0800	1000	ARS BSKSA	WAF	21600								CAM	13640/GUF 15515/GUF
0900	1000	F Radio France Internat.	NAF	11845	15300								21645\$
			WAF	15300	17620								3560 9335 11710 11735 13650
			CAF	21580								WEu	15250 17805
			EAF	17620	21620							NAF	15380 17745
			Eu	11670								ENA	6095
0900	2100	RWA Radio Rwanda	CAF	6055								Car	5990 9515 15305
1000	1015	ISR Kol Israel	Eu	15640	17525	17545						NAF	11845 15300
			NAM	15640	17545							WAF	15300 17620
			CAM	17525								CAF	17720/AFS 21580
			AUS	17525								NAF	15105W
1000	1030	F Radio France Internat.	NAF	11845	15300							WAF	17780/ASC 21640/ASC
			WAF	15300	17620							AF	13790/POR 15410/RWA
													17650W 17770W 21665/RWA

Spanish:

Start	End	Day	ITU Station	To	Frequencies (tx)	0030	0045	Su	0057	0100	0100	Mo	0130	0130	0200	0115	0130	0200	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325
0000	0015	Mo	CVA Radio Vaticana	LAm	9955/USA	0030	0045	Su	0057	0100	0100		0130	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	0030	Su	CLA Conversando e.Cubanos	CUB	9955/USA	0030	0057			0030	0100		0030	0100	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	0057		CHN China Radio Internat.	LAm	5990/CUB 11880x 15120/CUB 17720x	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	0100		CUB Radio Habana Cuba	Am	5965 6000 9505 9600 9820 11760 15230	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	0100		E Radio Ext. de Espana	NAm	9535	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	0100		EQA HCJB Quito	CAm	9535 15160	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	0100		KRE Voice of Korea	SAm	6020/CTR 9620 11680 15160	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	0100		ROU Radio Romania Int.	SAm	690 6050 15140	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	0100		RUS Voice of Russia	NAm	15140	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	0100		USA WSHB Christian Science	CAm	9665/MDA 9830a 11750a	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	0100		USA WSHB Christian Science	SAm	7330m 9450m 9830a 9665/MDA 11510/TJK 12010se	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	0100		USA WYFR Family Radio	Car	5985 11855	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	0115		G BBC	SAm	15215 17845	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	0130		USA Gospel for Asia	ENa	7535	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	0200	Su,Mo	USA WRMI Radio Miami Int.	LAm	9955	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	0300		PRU Radio Chasqui	PRU	5980	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	0300		URG Radio Banda Oriental	URG	6155	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	0300		USA Radio Marti	CUB	6030g 7365g 11775g 15330d	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	0500		GTM Radio Cultural	CAm	3300 5955	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	0800		USA WEWN	LAm	7425 13615	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	1100		CHL Voz Cristiana	SAm	6070 15375	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	1200		CLM La Voz de tu Conciencia	CLM	1530 6010	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	1400		MEX Nucleo Radio Mil	CAm	1000 6010	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	2400		CHL Radio Esperanza, Temuco	SAm	6089.95	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	2400		CHL R Parinacota, Putre	SAm	6010	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	2400		CLM La Voz del Llano	CLM	6115	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	2400		MEX Radio UNAM	MEX	9600	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	2400		PRG Radio America	SAm	1480 9905 15185	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	2400		PRU Radio Melodia, Arequipa	PRU	1220 5996	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0000	2400		URG SODRE	SAm	1050 6125 9620	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	
0025	0125		HOL Radio NetherLand	SAm	9895 15315/ATN	0030	0100			0030	0100		0030	0130	0200	0115	0130	0200	0200	0200	0200	0300	0500	0500	0115	0130	0200	0230	0325	

Car 9895

CUB 9955/USA

CAM 7345

SAM 9440

CAM 9590 15170 15305

LAm 9525 11785

CUB 9955/USA

CAM 9515 11610

SAM 9515 9655

CAM 11755z

NAm 11780z

SAM 11790a

LAm 9840 12030

CAM 9800/GUF 11665/GUF

SAM 7305 9605 11910

Eu 1260

LAm 17720x

SAM 9500 11600

CAM 9700

CUB 9955/USA

NAm 6055 9535

CAM 9535 15160

SAM 6020/CTR 9620 11680 15160

SAM 11810

CAM 9830a

SAM 7330m 9830a

9945/TJK 9965/ARM

11510/TJK 12010se

LAm 9560d 9735d 9885g

11815d 13760d

LAm 9430

Car 5985 11855

SAM 15255 17750

Am 6060 15345

LAm 5965 9495 9505

9600 11760 15120 15230

MEX 9525

SAM 690 6050

CAM 5875s 6110/ATG

SAM 5875r 6110/ATG 6110/ASC

9525/ASC 11765/ASC

CUB 9955/USA

CAM 9560 9810

CAM 6165/ATN 9845/ATN

0145	0230	CVA	Radio Vaticana	SAM	7305	9605	11910						LAM	9840	12030
0150	0200	Mo-Fr D	Radio Santec	CAM	9830/RUS-a								CAM	7305	9605
				SAM	7330/RUS-m	9450/RUS-m							Eu	3975	6025
					9830/RUS-a	9860/RUS-m							Am	9705	11770
					9945/TJK	9965/ARM							CAM	5995/USA-d	6110/ATG
					11510/TJK	12010/RUS-se								7325s	9515/USA-d
0200	0227	CZE	Radio Prague	CAM	6200								SAM	5995/USA-d	6110/ATG
				SAM	7345									9515/USA-d	
0200	0245	USA	WYFR Family Radio	SAM	11740								SAM	9660	
				MEX	15440								Car	5985	11855
0200	0257	CHN	China Radio Internat.	LAM	13685/GUF	17720x							NAM	6055	6125/CTR
0200	0300	E	Radio Ext. de Espana	NAM	6055	6125/CTR	9535						CAM	3350/CTR	9535
				CAM	3350/CTR	9535	15160						SAM	9620	15160
				SAM	6020/CTR	9620	15160						CAM	11740/USA-o	
0200	0300	KRE	Voice of Korea		11735	13760	15180						CUB	6030g	7405g
0200	0300	TWN	Radio Taiwan Internat.	SAM	11825/USA-o	15215/USA-o							Am	9705	11770
					17845								BOL	5952.5	
0200	0300	USA	WSHB Christian Science	WNA	7535								Eu	11915	
0200	0300	Fr-We	WSHB Christian Science	MEX	9430								CAM	11895	
0200	0400	CUB	Radio Rebelde	LAM	6120.9								NAM	6055	6125/CTR
0200	1300	PRU	Radio Union	PRU	6115								CAM	3350/CTR	
0230	0245	ARM	Voice of Armenia	LAM	9965								Eu	5985	9710
0230	0300	HRV	Voice of Croatia	ENA	9925/D-j								ME	11890	
				SAM	9925/D-j								Eu	9985	
0230	0300	SVK	Radio Slovakia Int.	CAM	6190								BOL	6135	
				SAM	9440	11990							CAF	6250	
0230	0330	IRN	IRIB	LAM	13730								Eu	17590	17785
0245	0300	USA	WYFR Family Radio	SAM	11740								SEU	15700	17700
0300	0330	Mo	MEX XERIMX R Mexico Int.	Am	9705	11770							Eu	9655	
0300	0330	VTN	Voice of Vietnam	CAM	6175/CAN								Eu	5985	9710
0300	0345	G	BBC	CAM	5995/USA-d	6110/ATG	7325r						ME	11890	
					7325s	9515/USA-d							WNA	5950/USA-o	
				SAM	5995/USA-d	6110/ATG							CUB	6030g	7405g
					9515/USA-d								CAM	6195	
0300	0357	CHN	China Radio Internat.	LAM	9560/CAN								CLM	5975	
0300	0400	E	Radio Ext. de Espana	NAM	6055	6125/CTR	9535						Eu	7520	
				CAM	3350/CTR	9535	15160						AUS	17770	21610
				SAM	6020/CTR	9620	15160						Eu	12035	13720
				SAM	11725	15245							Eu	13670	
				CAM	9570	11970							CAM	9600	
0300	0400	ROU	Radio Romania Int.	CUB	6030g	7365g	7405g	11775g					CUB	5980d	6030g
				Car	5985	11855							SEU	9880	11600
				MEX	11855								CEU	585	5890
				SAM	15255@								SAM	21570	
0315	0335	I	RAI International	NAM	9675	11800							AUS	17770	21610

1400	1500 Su	E	Radio Ext. de Espana	NAm 17595 CAm 21700 SAm 21570 21700 Af 15385 Eu 15585 ME 21610 NAm 17850/CTR SAM 9765 21700 SAM 11815/CTR 21570 21700	Af 17755 Eu 15585 ME 21610 NAm 17850/CTR CAM 9765 21700
1400	1500	USA	WYFR Family Radio	ME 21610 NAm 17595 CAm 21700 SAm 11815/CTR 21570 21700 SAM 11865 MEX 15130	CAM 11655 CAM 9705 11770 SEU 15700 17500 Eu 15150 Eu 15640 17545 NAm 17545
1400	1600 Su	CUB	RHC Alo Presidente	LAm 11875 13680 13750 17750	LAm 15640
1400	1700	USA	Radio Marti	CUB 11845g 11930g 13630g 13820g	Af 17755
1400	1900	BOL	Radio La Plata	BOL 9717	Eu 7275
1400	2200	CHL	Voz Cristiana	SAm 9635 17680	CAM 21700
1400	2200	USA	WEWN	LAm 11530 15745	SAM 17715 21700
1430	1500	GRC	Voice of Greece	Eu 666 792 12105	Af 17755
1430	1500	MEX	XERMX R Mexico Int.	CAM 9705 11770	Eu 7275 9665
1430	1500	SVK	Radio Slovakia Int.	WEU 6055 7345 11600 SAM 11600	NAm 17850/CTR CAM 9765 21700
1430	1530	EQA	HCJB Quito	ESP 21455	SAM 11815/CTR 17715 21700
1500	1600 Mo-Sa	E	Radio Ext. de Espana	Af 15385 17755 Eu 15585 ME 21610 NAm 17850/CTR CAm 9765 21700 SAm 11815/CTR 21570 21700 SAM 690 6050	3560 9975 11735 CUB 9565g 11930g 13630g 13820g Eu 21670 Eu 9525 / 11785 / 15150 SEU 5930 13580 CAM 17630/GUF 21645/GUF Af 17755 Eu 7275 9665(SaSu) NAm 17850/CTR CAM 9765 SAM 11815/CTR 17715 13760 15245 E 15380 17745 CUB 9565g 11930g 13630g 13820g
1500	2030	EQA	HCJB Quito	SAM 690 6050	ANT 15476
1630	1700 135	MEX	XERMX R Mexico Int.	CAM 9705 11770	Am 6060 11710 15345
1600	1700 Mo-Fr	E	Radio Ext. de Espana	Af 15385 17755 Eu 15585 ME 21610 CAm 21700 SAm 21570 21700 Af 15385 17755 Eu 15585 ME 21610 NAm 17850/CTR SAM 9765 21700 SAM 11815/CTR 21570 21700	PRU 1500 6045 Eu 11970 CLM 810 5958 SEU 5930 13580 SEU 7200 CAF 9660 WAF 11625
1600	1700 Sa	E	Radio Ext. de Espana	ME 21610 NAm 17850/CTR CAm 9765 21700 SAM 11815/CTR 21570 21700	Am 6060 11710 15345 PRU 1500 6045 Eu 11970 CLM 810 5958 SEU 5930 13580 SEU 7200 CAF 9660 WAF 11625

2300	2357	CHN	China Radio Internat.	11650x	11880x
2300	2400	Mo-Fr	ARG R.Argentina al Exterior	Am	6060 11710
				Eu	15345
2300	2400		BUL Radio Bulgaria	SEu	9500 11600
2300	2400	Sa	CLA Foro Militar Cubano	CUB	9955/USA
2300	2400	Su	CLA Radio Revista Lux	CUB	9955/USA
2300	2400		E Radio Ext. de Espana	NAM	9535
				CAM	9535 15160
				SAM	9620 11680 15160
				SAM	690 6050 15140
				NAM	15140
				ESP	21455
2300	2400		TWN Radio Taiwan Internat.	SAM	9690/USA-o 11720/USA-o
					15130 17805
2300	2400		USA Radio Marti	CUB	6030g 7365g 13820d 15330d
2300	2400	SaSu	USA WRMI Radio Miami Int.	LAM	9955
2300	2400	Tu,Fr	USA WSHB Christian Science	WAF	13770
2300	2400		USA WSHB Christian Science	SAM	15285
2300	2400		USA WYFR Family Radio	SAM	15215 17845
2300	0100	Mo-Fr	CUB Radio Habana Cuba	CAM	6000 11875
2300	0200		PRU Radio Tropical	PRU	6419
2300	0400		DOM Radio Amanecer	Car	6025
2300	1205		MEX Radio Educacion	CAM	6185
2325	0025		HOL Radio Nederland	SAM	9895 11720 15315/ATN
				Car	9895
2330	2340		HRV Voice of Croatia	Eu	1125 1134
2335	0140		PRU Radio Frecuencia	PRU	5700

NAM	15110	17850/CTR
CAM	9765	
SAM	11815/CTR	
NAF	7270	
Eu	7275	
NAM	15110	17850/CTR
CAM	9765	
SAM	11815/CTR	
	13760	15245
E	11730	15380
CUB	6030g	11930g 13820d 15330d
WEU	13770	
B	15285	
Car	5985	11855
SAM	6070	17680
LAM	9355	13615
SAM	6188	
Am	6060	15345
BOL	5927	
PRU	5940	
PRU	6141	
PRU	4975	9675
CAM	11920	15170 17880
SAM	9895	11720 11720/ATN
		15315/ATN
Car	9895	
CAM	9705	11770
SAM	9440	11615
SAM	9680	

Multilingual E, F, Sp & other language programs:

Start End	Day	ITU Station	Lang	To	Frequencies (tx)
0200	0900	Su,Mo	USA	WRMI	Radio Miami Int. E,S NAM 7385
0245	0300	Sa	USA	Bible Voice	E,F SAs 17540/UZB
0500	0100		MRC	Medi 1	F/A Af 171 9575
0600	0700		CLA	Nat.R.of Sahara AD Rep.	A,S NAF 1550 7460
0600	0800		MLI	RTV du Mali	F/A WAF 4783 4835 5995
0800	1200	SaSu	I	IRRS Milano	E,D Eu 13840
0800	1800		MLI	RTV du Mali	F/A WAF 4783 7285 9635 11960
0900	1200	Fr-Mo	USA	WRMI	Radio Miami Int. E,S LAM 9955

0900	1200	We	USA	WRMI	Radio Miami Int. E,S LAM 9955
1800	0100		MTN	ORTV	Mauritanie A,F WAF 4845
1800	2200		BOT	Radio	Botswana TS,E SAF 3356 4820
1800	2400		MLI	RTV du Mali	F,A WAF 4783 4835 5995
1815	1830	Tu	USA	Bible Voice	E,F EEU 5970/D-j
2000	2400		CLA	Nat.R.of Sahara AD Rep.	A,S NAF 1550 7460

Days: 1=MONDAY ... 5=FRIDAY ... 7=SUNDAY ; alt = alternative.
 update: Aug 4, 2003, filtered for English, French & Spanish transmissions by JKB

(Eike Bierwirth's shortwave broadcasting-schedule list - last



DX LOGBOOK

Logs around the clock

by Ashok Kumar Bose, Apt. #421, 3420 Morning Star Drive, Mississauga, ON, L4T 1X9, Canada
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TROPICAL BANDS

Frequ.	UTC	SIO	ITU	Radio Station	Language	Programme Details	Date	Rep.
3205.0	0809	222	B	Radio Riberao Preto	Portugese	News program "Jornal Federal"	1408	NE
3240.0	0257	222	SWA	TWR, Swaziland	Vernaculars	English ID and Religious program	0408	RAD
3255.0	0335	221	AFS	BBC, Meyerton	English	Report on Liberia	0908	RAD
3320.0	0245	222	AFS	Radio Sonder Grense	English	Pop vocals, News	0408	RAD
3359.0	0240	433	CTR	REE via relay	Spanish	Latin vocals with ID and News	1308	RAD
3375.1	0308	232	B	Radio Clube Dourdas	Portugese	Px "Civilizacao da Amor" ID	1408	NE
3965.0	1900	555	D	ADDX via Juleich	Various	RMRC - EDXC Conference	1708	WB
4052.5	0317	221	GTM	Radio Verdad	Spanish	Instrumental music followed by ID	0908	RAD
4716.8	0059	232	BOL	Radio Yura Yura, Potosi	Spanish	Musical program followed by ID	1108	NE
4746.8	2242	232	PRU	Radio Huanta 2000, Huanta	Quechua	Musical program, ID	1308	NE
4770.0	2235	222	NIG	Radio Nigeria, Kaduna	Vernacular	Comments, Musical program	1308	NE
4790.0	0046	232	IND	All India Radio, Chennai	Tamil	Musical program	1208	NE
4796.6	2341	232	BOL	Radio Mallku, Uyuni, Potosi	Spanish	Anns., Comments and ID	1108	NE
4826.5	0109	221	PRU	Radio Sicuani, Sicuani	Quechua	Comments, Musical program & ID	1408	NE
4856.1	2321	232	PRU	Radio La Hora, Cusco	Spanish	Sports, Comments, ID	1408	NE
4876.8	0018	232	BOL	Radio La Cruz del Sur, La Paz	Ayamara	Comments, musical program, ID	1208	NE
4919.0	0843	232	EQA	Radio Quito, Quito	Spanish	Musical program, ID	1408	NE
4930.0	0000	232	BOL	Radio San Miguel	Spanish	Comments, News program	1508	NE
4955.0	0005	332	PRU	Radio Cultural Amauta	Spanish	Musical religious program	1108	NE
4960.0	0921	232	EQA	Radio Federacion Shuar, Sucua	Spanish	Musical program, ID	1408	NE
4965.0	0206	232	PRU	Radio Santa Monica, Cusco	Quechua	Musical program, ID	1108	NE
5009.7	0239	232	PRU	Radio Altura, Cerro de Pasco	Spanish	Musical Religious program	1408	NE

SHORTWAVE BANDS

Frequ.	UTC	SIO	ITU	Radio Station	Language	Programme Details	Date	Rep.
5678.0	0150	322	PRU	Radio Illucan	Spanish	Talks and ID	0208	RAD
5952.5	0016	322	BOL	Radio Pio XII, Potosi	Ayamara	Comments by a man	1508	NE
6000.0	0145	444	CUB	Radio Habana,	English	DX Program	2707	MF
6020.0	2307	332	B	Radio Gaucha, Porto Alegre	Portugese	Soccer match program, ID	1308	NE
6020.0	0140	433	CTR	Radio Exterior de Espana	Spanish	Tour de France	2707	MF
6020.0	0240	242	IND	All India Radio, Hyderabad	English	News from India	3106	MF
6020.4	0203	211	PRU	Radio Victoria	Spanish	Religious talks and choir	0308	RAD
6050.0	0330	222	CHL	La Vcoz Cristiana	Spanish	Drug problem	1007	MF
6090.0	0202	433	B	Radio Bandeirantes	Portugese	Talk, ID, Music	0208	RAD
6090.0	0300	444	USA	WWCR	English	Century of Satellite	1007	MF
6115.0	0746	322	PRU	Radio Union	Spanish	Latin Vocals, Anns. And ID	2907	RAD

6135.1	0210	322	B	Radio Aparcida	Portugese	Religious talks,ID,Choir	0508	RAD
6165.0	0110	444	ATN	Radio Nederland	English	European Economy	2707	MF
6210.0	0255	222	ETH	Radio Fana	Amharic	ID,News	0108	RAD
6215.0	2318	232	ARG	Radio Baluarte,Puerto Iguazu	Spanish	Gospel musical program	1308	NE
7110.0	0257	222	ETH	Radio Ethopia	Amharic	ID,News	0608	RAD
9525.0	1016	222	INs	Voice of Indonesia	Thai	Vocals and talks	1108	RAD
9580.0	1850	433	GAB	Africa No. 1	French	European Pop Music	0907	MF
9600.0	1200	322	CUB	Radio Rebelde	Spanish	ID,News	3007	RAD
9695.0	2220	343	B	Radio Rio Mar	Portugese	Football match:Manaus-Santos	0507	MF
9750.0	0159	0159	SEY	BBC,World Service	English	Sign on,ID and News	0708	RAD
9780.4	0305	322	YEM	Yemen Radio & TV Corp	Arabic	Talk,ID and Drama program	1108	RAD
10330.0	0020	433	IND	All India Radio	Hindi	ID and News	2907	RAD
11640.0	0600	222	AFS	TWR,Meyerton	English	Chorus	1008	WB
11690.0	1617	444	JOR	Radio Jordan	English	ID followed by Pop Music	0208	MB
11710.0	0545	343	AFS	CAF,Meyerton	Portugese	Program to Angola	0908	WB
11755.0	2210	433	ASC	Radio Canada Intl.,	French	Canada Direct	2607	MF
11765.0	0801	322	B	Radio Tupi	Portugese	Talk and iD	2907	RAD
11765.0	0550	332	AFS	BBC,Meyerton	English	Slums Report	0908	WB
11780.0	2220	243	B	Radio Amazonia do Sul	Portugese	Event tips	2607	MF
11870.0	2035	433	AUS	HCJB	Amoy	News	0907	MF
13800.0	1630	444	MDA	Radio Anternat via Grigoripol	Persian	Program	1408	WB
15105.0	0530	332	AFS	AWR,Meyerton	English	Religious songs	0908	WB
15150.0	2028	433	INS	Voice of Indonesia	English	Music, Talks and News	1008	RAD
15170.0	0700	222	AFS	RFI,Meyerton	French	Pogram	1008	WB
15215.0	0610	222	AFS	CAF,Meyerton	Portugese	Program to Angola	0908	WB
15230.0	2350	322	USA	Radio Marti	Spanish	Hash in Cuba	0907	MF
15315.0	2210	333	ATN	Radio Nederlands	Dutch	Talk about Books	0907	MF
15345.0	2125	433	ARG	Radio Argentine Exterior	German	Staathouse	0707	MF
15345.0	0535	343	AFS	AWR,Meyerton	Ibo	Hausa Sermon	0908	WB
15390.0	1500	222	AUS	HCJB,Kunnumura	English	Religious music	1008	WB
15400.0	0540	343	AFS	BBC,Meyerton	Kirundi	Program	0908	WB
15475.0	2120	322	CHL	Voz Critiana	Portugese	Talks	2207	RAD
15620.0	1610	433	EGY	Radio Cairo	French	Program	1408	WB
15635.0	1130	332	KAZ	RFA,Almaty	Lao	Comments	0808	WB
15695.0	1140	331	TJK	RFA,Dushanbe	Tibetian	Program jammed by Chinese	0808	WB
15790.0	1650	443	NOR	Radio Sedoye Yaran via Kvitsoe	Persian	Program jammed by Iran	1408	WB
17560 .0	1640	441	AUS	Christian Voice Intl.,	Mandarin	Program with QRM from Riyadh	1408	WB
17630.0	1650	433	G	Sudan Radio Service	English	News	1208	RAD
17660.0	1650	433	G	Sudan Radio Service	English	News	1208	RAD
17755.0	0500	333	PAK	Radio Pakistan	Urdu	M-E Service	0808	WB
17830.0	2206	322	SEY	BBC World Service via Mahe relay	English	World Today	2207	RAD

Thanks a lot to our club members for your contributions:

- MB : Michael Bethge, Bad Homburg, Germany. JRC NRD-525 with 10 metres long wire.
 MF : Michael Frese, Osnabrueck, Germany. SONY ICF SW 7600G with Sony LP 1 antenna.
 MD : Malinda de Silva, Pennipitiya, Sri Lanka. Sony ICF 2001, Sangean 808A, Sony FHG70
 NE : Nicolas Eramo, Buenos Aires, Argentina. ICOM IC R-75, Kenwood R-2000, Sony ICF - 2010. Inverted 10 m metres Balun
 RAD : Richard A. D'Angelo, Wyomissing, USA. Drake R-8B with very long wires & Datong FL3

WB : Wolfgang Bueschel, Stuttgart, Germany. AOR AR7030, Sony ICF 2010, Kenwood R-1000, Drake SPR-4 with 12 metres long wire.

Dear Friends,

Welcome to the August/September issue of Logbook for 2003.

On 14th August at 16.15 Hrs EST there was a power blackout in states of New York, Ohio, Michigan and Southern Ontario due to cascade tripping of more than a hundred power plants causing complete breakdown of usual life in this region. A time when TV and internet including telephone lines were dead what stood out was the battery powered radio. It is at times like this that we realise the importance of radio and the future it holds for us to be kept informed at times of disaster.

It is a very short Logbook this month. Welcome back WB for your logs which were absent due to your recent illness.

Till next issue it's 73's from your Editor,

Ashok Kumar Bose

QSL CORNER

Editor: Richard Lemke, 60 Butterfield Crescent, St. Albert, Alberta, T8N 2W7, CANADA

Country	Station	QSL	Time	ORG	Remarks	OM
Argentina	RAE	f/d, L	15 ds	11.710	v/s, Gabriel Ivan Barrera	NE
China	R. Centre 1503	cd, L	2 weeks	15.024 UBS	v/s, Andrew Nekrasov address USA	ZL
China	Xizang PBS	cd, CC	36 ds	7.385		ZL
Kazakstan	DW	f/d cd	20 ds	17.485	v/s, Horst Scholz	NE
Pirate	Radio Marabu (GG)	e-mail	2 mnths	6.305		ZL
Poland	Radio Maryja	f/d, L	36 ds	12.010	V/s, Malgorzata Zaniewska	SC
Romania	R. Romania Int.	n/d cd				ZL
Russia	DW	f/d cd	223 ds	12.030	v/s, Horst Scholz	NE

Thanks to our Reporters:

NE = Nicholas Eramo, Buenos Aires, Argentina. ICOM IC R-75, Kenwood R-2000, Sony ICF-2010 (Welcome)

SC = Swopan Chakroborty, Kolkata, India (Welcome)

ZL = Zacharias Liangas, Greece. R75/HF 150/MVT7100/ D2935 (Welcome)

The EDXC Conference 2003

The 37th EDXC Conference 2003 hosted about 75 people from 12 different countries in romantic Koenigstein, Germany. Among listeners from overseas we counted on the participation of Toshi Ohtake (reporting about the history of Japan DX Club) Cesar Fernandez (from Mexico, organiser of next year's Mexican DX Meeting in Veracruz), Gerald and Lewis from the US crossed the Atlantic also this year to be with us taking their unique experience of DXing at every latitude.

Day by day conference coverage on the EDXC portal, <<http://www.edxc.org>> was also followed by DXers from all over the world, having a chance to be informed (just in time) about the agenda on the portal's main page and special sections. EDXC member club RMRC and all German friends have done a big effort to grant the conference success. Their special site is still on: <http://www.edxc-konferenz2003.org> in German and English.

DRM was really the main topic as we were informed about recent developments leading to the launch of effective broadcasts in this new mode. Rohde & Schwartz provided a listening shack with receiver and software dedicated to DRM. We added a new way of listening on Sunday, August 17th, thanks to ADDX as we listened to the special DRM broadcast organised for the venue.

QSL

QSL's really played an important role at the conference as they were celebrated as valuable objects of our history by Wolf Harranth, reporting about those 4 millions items collected in Vienna and scanned and put on the web in Duesseldorf by Michael Schmitz. Just have a look at the collection at <<http://www.addx.de>> and you will understand how deep and worthy is the work they're doing to preserve and making available QSL and other DX related material.

Broadcasters

Wolf Harranth (ORF) has launched a debate about the future of DXing, *Adrian Peterson* (AWR) has shown his unique collection of QSL's, many dating back to his years in Australia and India, very interesting location for European listeners. *Waldemar Kraemer* (DW) lectured about the role of listeners in frequency planning. *Frans Vossen* (RVI) participated in the Conference producing interviews for his programme (one also with Secretary General Luigi Cobisi, containing a message in Italian). From World Music Radio *Stig Hartvig Nielsen* talked about the story of the station as well as *Roger Kirk*, a well known German DJ, explained the beautiful history of private radio. Former Assistant Secretary General *Arto Mujunen* reported about IBB amount of frequencies. A real surprise came from Radio Free Asia's *Andrew Janitschek* presenting at the Conference the very first QSL card of his station.

Messages from *Vatican Radio* and *Voice of Turkey* were read by SG Luigi Cobisi. A message was also received by *Anatoly Klepov*, from the *Russian DX Club*.

The EDXC-Award

At the Gala-Dinner the Prize were awarded by Harald Gabler (RMRC) and SG Luigi Cobisi to three world known DXers:

Wolf Harranth, Austria
Anker Petersen, Denmark
Waldemar Kraemer, Germany

The prizes consisted in a handmade listening station, very nice and original, built by a member of the organising club. A quiz and a tombola granted over 200 prizes. Among them WRTH, Passport and

Shortwave Guide.

Conference Panels

FM-TV-DX (M. Hornsteiner and U. Deutscher of UKW/TV-Arbeitskreis), Tropical Bands (Anker Petersen, DSWCI). Simulcast-procedures for simulataneously analog and digital broadcast (M. Knietsch, Thales). DRM Receivers (St. Meltzer of Coding Tec.) A DRM little station (C. Laske of Fraunhofer-Institut). Frequency planning and the role of the listeners (W. Kraemer of DW). The history of German DX Clubs (Siegbert Gerhard).

A visit to the Deutsche Welle Monitoring Station

After closing the conference a visit to the Monitoring Station of the Deutsche Welle in Cologne region was possible for a group of participants. Since 1965 the station is operating as a monitor of both local and international services reaching or being aired from Germany. **(Luigi Cobisi, EDXC)**

The old good times - Tropical Bands in review

Lecture by Anker Petersen held on the 16th of August 2003
at the EDXC Conference in Königstein, Germany

Introduction

As one of the founders of the European DX Council (EDXC) it is a great pleasure for me to be here in Königstein this weekend. It is nice to see that the EDXC is still much alive after 36 years of existance. It is also nice that its many active member clubs on shift have been able each year to organize an Annual EDXC Conference where we can meet and discuss current issues. My thanks to Dr. Harald Gabler and the Rhein-Main-Radio-Club for inviting us once more to a Conference here in Germany.

To throw the theme for this Conference: DX-ing in the digital future in relief, Harald Gabler asked, if I could talk about the old good times before the digital age and give a review of the broadcasting on the Tropical Bands. I will try not to be too nostalgic, but rather look closely on the past and future development of this broadcasting.

Let me first remind you that the Tropical Bands include the 60, 90 and 120 metrebands on shortwave. The International Telecommunication Union (ITU) has allocated these bands for domestic broadcasts in principle to countries located in the Tropical Zone between the Tropic of Cancer on 23 degrees north and the Tropic of Capricorn on 23 degrees south. This is to give them a safe heaven where they are not supposed to be disturbed by strong international broadcasters.

In many developing countries, radio is still the primary medium and much more widespread than TV. In Nigeria, for instance, with a population of 130 million, today there are about 24 million radio sets, but only about 7 million TV sets. Printed newspapers play only a minor role in countries where more than 50% of the population are illiterates.

In a few countries, however, the term Tropical Zone has been subject to a wide interpretation. The former Soviet Union, for instance, declared in 1959 that it reserved the right to use the broadcasting assignment existing in the bands between 3.950 kHz and 27.500 kHz in the USSR in accordance with the needs of this country! Many of you will remember some of its many, strong stations on the 60 metreband like Kiev on 4940 and Petrozavodsk near St. Petersburg on 5065 kHz. Even Yakutsk in Siberia on 62 degrees north

was broadcasting on several frequencies. They could be heard here in Europe each winter when Yakutsk had temperatures down to minus 50 degrees Celsius, - but obviously it was their Tropical Winter.

To DX-ers, these Tropical Bands were and still are very interesting, because so many stations in exotic countries can be heard, often with good reception. About 80% of the active stations can be heard here in Europe under the right propagation conditions. I began to listen to the Tropical Stations back in 1959 when I bought a small shortwave receiver with the 60 metreband for 85 Danish Kroner which equals to 12 Euro today.

Here you see the first stations I identified - my first DX on 60 meters in March – July 1959

4800 kHz Ondas del Lago, Maracaibo, Venezuela
 4890 kHz Rádiodifusora Venezuela, Caracas, Venezuela
 4710 kHz Radio Kabul, Kabul, Afghanistan
 4865 kHz Emissor Regional dos AVores, Ponta Delgada, Azores
 4940 kHz Radio Abidjan, Abidjan, Ivory Coast
 4885 kHz Cable & Wireless, Nairobi, Kenya
 4760 kHz Radio Congo Belge, Leopoldville, Belgian Congo
 4851 kHz Rádio Clube do Huambo, Huambo, Angola
 4840 kHz Rádio Clube de MoVambique, Lourenço Marques, Moçambique

Quite nostalgic, isnt it? None of these stations exist any longer on shortwave today.

But there are still some other stations which can be heard on the Tropical Bands. That raises these questions:

How many have disappeared? Where have they gone? And when will the last stations disappear?

That is what I will try to analyze during the rest of my talk.

Since 1959, listening to the domestic broadcasting stations on the Tropical Bands has been the favourite part of my DX-hobby! Furthermore, during the past 20 years I have visited a lot of tropical countries in Central and South America, the Caribbean, Africa, Asia and the Pacific.

But my own DX-experiences are not sufficient for a thorough analysis to this forum. It has to cover the stations worldwide, monitored on a regular basis, also those which cannot be heard in Denmark due to propagation limitations.

Tropical Bands Survey and Domestic Bands Survey.

Fortunately for this analysis, the Danish Shortwave Club International can provide documentation on this broadcasting from the past 30 years. Back in 1972 another Danish DX-er, Mr. Carol Feil and I decided that the Club with its members in more than 40 countries should publish an annual list called the Tropical Bands Survey the TBS. It was a frequencylist covering all active broadcasting stations between 2.200 kHz and 5.800 kHz and their schedules. It has been published every year since 1973, edited by various members of the Club living in Denmark, Germany, the Netherlands and Argentina. Some data from these annual surveys will be used for my analysis.

In 1999, however, our publication was expanded to cover all active domestic broadcasting stations on shortwave from 2 to 30 MHz . Then it changed name to the Domestic Broadcasting Survey the DBS which I now am editing.

Let me show you small extracts from these surveys published in June 1973 and May 2003 covering the frequency spectrum 4.775 to 4.780 kHz, just for comparison:

Tropical Bands Survey 1973:

	kHz	kW	Station & Country	Transmission times in GMT
A	4775	100	Kabul, Afghanistan	HS: 1430-1730, FS: 1300-1400 Urdu, 1400-1430 E
C	4775	10	AIR Gauhati, India	1030-1215 (Gauhati B)
B	4775	1	R Los Andes, Bolivia	1000-0400
B	4775	5	R Dragao do Mar, Brazil	0900-0100
B	4775	1	Voz de Maria, Colombia	1100-0400
A	4777	100	Libreville, Gabon	0430-0630 1630-2300, prolonged Sa/Su
B	4778		R Nac. Progreso, Ecuador	r - 0436, r 0545-0555 (ex 4740)
A	4780	50	Petrozavodsk, USSR	0200-2200 M1, local 1500-1530 // 5065 Ru, Finnish
A	4780	4	Djibouti, Afar & Issas W	0300-0600 0900-2200, Su 0500-2100v
B	4780	5	Em. Reg de Menongue, AGL	1700-1900, r 2134
B	4780	1	R Atahualpa, Ecuador	1045-0435, r /1100-0520v
A	4780	1	La Voz de Carabobo, VEN	1000-0400

Domestic Broadcasting Survey 2003:

	kHz	kW	ITU Station	Schedule (UTC), remarks	Last log
B	4775	1	B R Congonhas, MG	[* Oct-Feb] 0830-0100v P. Evangelical px	JAN03
B	4775	50	IND AIR Imphal	Northeastern Sce: 0030-0215 1030-1700/1730 E/Hindi, E nx 0035 1225(local)1530, ID: "Akashvani Imphal", (= 7150). Off Mar-Oct	FEB03
A	4775	0,5	PRU R Tarma, Junín	W 1000-1400 2000-0400, Su 1100-1400 2000-0400 P, d 4774.9-4775.3	APR03
B	4775	50	SWZ TWR, Mpangela Ranch	International broadcasts: 0340-0500	MAR03
B	4777	100	GAB Rdif TV Gabonaise, Libreville	Reactivated March 2003, r 1730-1900* F	APR03
B	4780	1	GTM R Cultural Coatán, San Sebastián Coatán	1100v-1500 2200-0230v S/Chuj. Off Jan 2000-Jul 2002.	APR03
C	4780	0,3	PRU R Satélite, Santa Cruz, Cajamarca	2300-0300v S, r to be from Cutervo, ex 6726	OCT02

The key words in the policy for our publications are active stations which means that they should be up-to-date and only contain stations which have been reported heard by DX-ers during the past 12 months. All other stations are moved to an attachment of deleted stations. A few ones of these may be reactivated later on.

You see an activity Code to the left where A means Regular, B Irregular and C Sporadic, as deemed by the Editor. Furthermore the DBS has been expanded with a column to the right called Last log indicating the last month during which the station has been heard. This is a useful feature for the DX-er who tries to identify a station.

Of course the information in the DBS has to be as correct as possible. Therefore it is necessary to recheck official schedules and reports from DX-ers, because from time to time they contain typing errors, or are outdated.

The task for the editor is therefore, throughout the year until the next publication, to check the bands himself and follow the loggings from our members around the world. For each station in the list, a note is taken of the months when it has been heard. Furthermore loggings are followed in as many printed and internet DX-publications as possible. Nowadays the network of DX-ers around the world is very extensive via the internet, so a station can hardly appear on the Tropical Bands without being discovered and reported by DX-ers somewhere within a week or so.

Trends in Tropical Broadcasting

With this systematic registration of broadcasting stations on the Tropical Bands each year, it is possible to make some statistics on how many frequencies were active in each part of the world and compare these numbers.

I have selected the Tropical Bands Surveys published with 12 years intervals in 1973, 1985 and 1997, and the Domestic Broadcasting Survey from 2003. For each of these four years I have then counted the number of active Domestic Broadcasting stations between 2.200 and 5.800 kHz. This also includes the frequencyspectrum between the official bands, because some stations are broadcasting there as well. International broadcasters, Clandestine and Pirate stations are not included in these statistics.

Active domestic transmitters on 2200 – 5800 kHz

Region	1973	1985	1997	2003
Central Africa	102	76	40	26
Southern Africa		57	39	33
Middle East		9	4	1
Indian Subcontinent		62	45	45
South East Asia		40	29	21
Indonesia		171	105	65
China, Taiwan, Mongolia		119	110	75
CIS (former USSR)		61	59	47
Far East		38	28	28
Papua New Guinea		17	20	20
Australia, N.Zealand, Vanuatu		10	4	13
Central America, Mexico		21	23	24
Caribbean		29	3	3
Northwestern South America		98	41	19
Ecuador		47	33	22
Peru		78	69	78
Bolivia	35	42	25	15
Brazil		107	87	67
Southern South America		5	2	1
Total		1106	819	627

This table shows the number of active frequencies used by stations in various parts of the world for domestic broadcasting. During this period of 30 years, most of the countries have had the same, downgoing development in the use of the tropical bands for broadcasting. At the bottom line you see that the total number has steadily fallen from 1106 in 1973 to 363 - or one third - in 2003. All these numbers answer my first question: How many have disappeared?

I will now comment on some of the countries and try to answer the next question: Where have they gone?

Five months ago I visited the smallest independent nation in Africa, São Tomé e Príncipe, which is also one of the most poor countries. I saw the remains of the former tropical band transmitter of Rádio Nacional de São Tomé e Príncipe broadcasting on 4807,5 kHz with 10 kW. Some of you may even have heard it around year 1980. The transmitter was provided and maintained by Portugal when the islands still were a colony. But at the independence in 1975 the Portuguese left the islands, and because no other nation did support, the transmitter and antenna were never maintained properly. According to our Tropical Bands Surveys, the station was regularly heard until mid 1982, but only sporadically the succeeding three years. During a storm in 1985 the antenna broke down and the shortwave transmitter has been off the air since then. In March 2003, I saw the remains of the transmitter building and the broken antenna which still are there! The U.S. has leased the site and now operates the VOA Pinheira relay station from there, but also the mediumwave transmitter of Rádio Nacional on 945 kHz. I think this is typical for many of the developing countries. Because of lack of money or knowledge or both they are only able to run shortwave transmitters until these fall apart, unless they get support from abroad.

From Ghana a DX-er, Charles Wompiah, reported this spring that the transmitter of the Ghana Broadcasting Corporation Radio One, broadcasting mostly in African languages on 4915 kHz, had been off the air for two months due to a breakdown of the old valves. It came back only because valves were cannibalized from the Radio Two transmitter which broadcast daytime on 6130 kHz and at night on 3366 kHz all in English. Radio Two has not been heard since April. This is a typical example of an old shortwave transmitter installed right after the independence by a foreign contractor who no longer exists, and all

spareparts in the meantime have been used up.

Our Scottish member, George Brown, experienced something similar when he visited Radio Vanuatu in the Pacific in November 2001. They use a two channel 10 kW transmitter tuned to 4960 and 7260 kHz, normally switching frequency around local sunrise and sunset. During the visit one channel developed a fault, and the other one had to be used all the time. The other standby transmitter on 3945 kHz was out of service because of shortage of spare parts to make it operational. DBS monitoring indicate that 3945 and 4960 kHz have been off the air since then, while 7260 kHz is regularly heard.

In Ecuadorial Guinea, Chinese engineers recently have provided and installed a new transmitter for Rádio Nacional, Bata which used to be heard around 5004 kHz. Last month China also accepted to give an intensive maintenance course this autumn in Beijing on the new equipment to a number of Ecuadorial Guinea technicians. The government had bought an electric generator to keep the radio regularly supplied with energy, because the commercial power is unstable, as in most other developing countries.

In Southern Africa it is the same story. Lesotho National Broadcasting Service of 4800 kHz was off the air for some months last winter, because they were awaiting transmitter spare parts.

The two transmitters of the Namibia Broadcasting Corporation on 3270 and 3290 kHz used to be heard well here in Europe until about a year ago. Then the modulation deteriorated and the signals disappeared. In April I read in the press that the Namibian Prime Minister Theo-Ben Gurirab had told the National Assembly that a cash injection of 66 million Namibian Dollars was urgently needed to get the broadcasting back on the air.

Let me jump down to Indonesia which always has been a popular target for DX-ers. Back in 1973 it was the country in the world with most stations broadcasting on the Tropical Bands no less than 171. Many of these were private, low powered and irregular. But most of these and of the Government owned Radio Republik Indonesia stations have disappeared from the Tropical Bands, maybe because of transmitter problems, but rather because they have been replaced by Mediumwave or FM. In this vast country, today there are at least 600 mediumwave transmitters and 625 FM transmitters, but less than 20 Tropical Bands transmitters!

When I visited Guatemala in Central America last November, I noticed the same. Only seven stations still broadcast on shortwave, but the whole country is fully covered by FM-stations. In the old colonial city of Antigua, 25 kilometres west of Guatemala City, I counted no less than 90 stations on the FM-band! So in that country the need for stations on the Tropical Bands is diminishing and quickly approaching zero. Mr. Wayne Berger at Rádio Cultural has disclosed that the transmitters on 3300 and 5955 kHz are only kept on the air to please DX-ers! Another regular Guatemalan station, Rádio Kekchi on 4845 kHz which broadcasts to the Quiché speaking Indians, was off the air for four months last year, but the reason for that was a very unusual one: The transmitter site was occupied by a group of homeless squatters!

One of our Italian members, Massimo Cerveglieri, has just been on holidays in the neighbour country Honduras where he only found 4 stations active on the tropical bands. One rarely heard was HRET, Rádio Buenas Nuevas in Puerto Lempira on 4960 kHz. A few years ago they installed a solar and windpower generating system as their power supply, but that appeared to be too small to operate the 500 watt transmitter and studio equipment. Their back up diesel generator is expensive in fuel costs. Furthermore they have an increasing problem in lack of operating funds from local churches and underwriters, so they cannot pay enough to attract qualified personnel to their own staff.

In 1995, I visited the station Emisora Gran Colombia in Quito, Ecuador, together with DX-Editor Richard McVikar from HCJB. I asked what had happened to the shortwave transmitter on 4911 kHz which used to be heard in Europe. The station manager told us that the coverage by their mediumwave transmitter on 610 kHz was sufficient to reach their audience in and around Quito, so there was no longer a need for the broadcasts on 60 meters and by the way, the elderly engineer who was the only one who was able to

operate this transmitter, had died! In 1973 no less than 47 stations in Ecuador were active on the Tropical Bands. Today it is only 13, and most of these are very irregular.

The country with most stations on the Tropical Bands today is Peru with 53 frequencies in use! On the table you can see that during the past 30 years there has only been a minor decrease from 78 stations. This country is probably one of those which will stay longest on the Tropical Bands. But it must be added that many of these stations are not on the air on a daily basis and several are replaced by new stations each year.

The Japanese DX-er Takayuki Inoue Nozaki (TIN), has visited the Andes countries many times, and he reported from Bolivia 2½ years ago, that the small, privately owned commercial broadcasters on shortwave have ceased existing. This was due to the decrease in profits made by selling airtime for commercial advertisements and personal messages. New commercial broadcasting enterprises bristle on FM which replace shortwave and mediumwave. Religious organizations seem to buy up many of the old commercial AM transmitters.

The huge country of Brazil also needs shortwave to broadcast to its people in the rural and rainforest areas while FM has taken over in the more densely populated areas. But the big networks have their own satellite systems, and with those, it is no longer economically impossible to transmit programmes to small, rural FM-stations which can relay them to the surrounding area. Consequently the use of Tropical Bands is also on decline in Brazil even though around 50 stations still can be heard.

Let me close with a look at another popular DX-country, Papua New Guinea. This country is very difficult to hear in Europe, but we have members and other DX-ers in the Philippines, Japan, Australia, New Zealand and on the west coast of North America who regularly report about the broadcasting situation. On the middle of the table you can see that their number of broadcasting stations seems to be stable since they got new transmitters in the early eighties. But that is not true! These transmitters which mostly are on 90 meters, have big problems and I have made a more detailed study of loggings of their broadcasts during the past 24 months which is shown on the next table.

Loggings of Stations in Papua New Guinea, July 2001 - June 2003:

kHz	Station	2001	2002			2003	
		JASOND	JFM	AMJ	JASOND	JFM	AMJ
2410	R Enga, Wabag	JASO	JF	J JA	D	J	M
3205	R West Sepik	JASO	JFM	AMJ J	D	J	M AMJ
3220	R Morobe, Lae	SO D		J JASOND		M	M
3235	R West New Britain, Kimbe	J O	JFM	AMJ JASOND		J	AMJ
3245	R Gulf, Kerama	O	JFM	AMJ J			AMJ
3260	R Madang, Madang	J SO	M	MJ JASOND		J	M J
3275	R South. Highlands, Mendi	SO	JFM	AMJ JASOND		J	M MJ
3290	R Central, Boroko			J JA ND		J	MJ
3305	R Western, Daru	J SO D	JFM	AMJ JAS ND		J	M AMJ
3315	R Manus, Lorengau	JASON	JFM	AMJ J SOND		J	M AMJ
3325	R Bougainville, Kubu	JASO	JFM	AMJ JA ON		J	M
3335	R East Sepik, Wewak						M A J
3345	R Northern, Popondetta			JASO			
3355	R Simbu, Kundiawa			AMJ JAS			M
3365	R Milne Bay, Alotau	JASO D	M	M JAS ND			M
3375	R We. Highlands, Mt. Hagen	JASO	JFM	J JASOND			M A J
3385	R East. New Britain, Rabaul	JAS		J J D		J	
3395	R East. Highlands, Goroka			J			
3905	R New Ireland, Kavieng	JASON	JFM	AMJ JASOND			FM AMJ
4890	NBC, Port Moresby	JASOND	JFM	AMJ JASOND			JFM AMJ

On the left side you have the frequencies of each of these regional stations which all use 10 kW. At the bottom on 4890 kHz, however, is the 100 kW transmitter located in the capital Port Moresby. Each of the letters to the right indicates the first letter of a month where the particular station has been reported heard by a DX-er. On top you see that this graph goes from July 2001 until June 2003.

Some stations are very stable like the two at the bottom which have been heard nearly daily. But other stations were very irregular. In some cases I found out the reasons from press reports:

On 3245 kHz Radio Gulf in Kerema was off the air from May 2000 till October 2001 due to lack of fuel for their power generator. Obviously they have not invested in large enough fuel storage capacity to avoid such problems.

On 3260 kHz Radio Madang was closed in May and June 2001, because the electricity bill was not paid!

On 3345 kHz Radio Northern was off for 29 months until June 2002, because of a fire at the station.

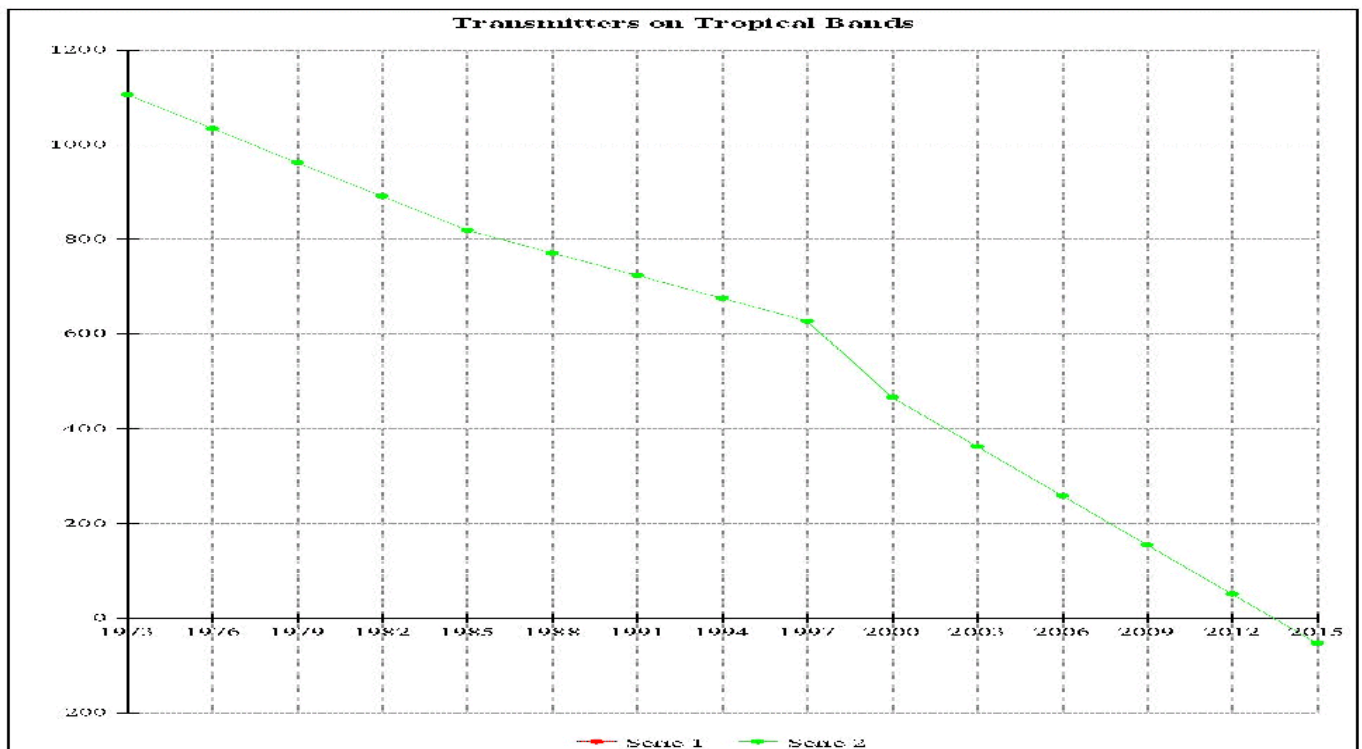
On 3355 kHz Radio Simbu was off from July 2001 till March 2002, because of transmitter repair.

On 3395 Radio Eastern Highlands has been off for 2½ years, because of financial constraints. However, the Eastern Highlands Provincial Government found money to get the station operational up to the local elections in July 2002! It is remarkable that all stations, except Radio East Sepik on 3335 kHz, were operational during the elections, but about eight of these disappeared again shortly after for some months.

The future

My final question was: When will the last stations disappear from the Tropical Bands?

From the total figures on the previous table I have made a graphic which is shown here:



You see that the curve of the total number of active transmitters is going very steadily downwards. I suppose that this trend will continue and when I prolong it beyond 2003, it will hit ZERO around year 2014. So it is my guess that after that year there will no longer be domestic broadcasting on the Tropical

Bands.

It raises two further questions:

1. What shall the Tropical Bands DX-ers do after 2014?
I will suggest DX on Mediumwaves where there still is a lot to hear.
2. Which radiostations will take over the Tropical Bands when the Domestic Broadcasters have left?
Our longtime member in Sri Lanka, Victor Goonetilleke, expects more international broadcasters, but as a dedicated radio amateur himself, he also hopes that hobby radio will be allowed on certain frequency bands. I am afraid that this Conference is not the right forum to discuss this question. Victor attended the EDXC Conferences in Stockholm, Sweden in 1984 and in Rebild, Denmark in 1995, and he asked me to forward his greetings to all of you.

To sum up:

1. Two thirds of the stations have left since 1973.
2. Because of:
 - Replacement by FM
 - Low technical standard
 - Poor economy
3. The last stations may leave by 2014.

We are approaching the end of the Era of Domestic broadcasting on the Tropical Bands!

The technical standard of a large part of the transmitters on the Tropical Bands is poor. In more developed countries they are being replaced by FM-networks and it can be feared that the trend will continue to go downwards and the stations will all have left around year 2014.

However, you can still hunt for and maybe get QSLs from 363 Domestic Broadcasting Stations on the Tropical Bands, before it is too late. Fortunately the interfering broadcast and utility stations are also disappearing. So do not give up your Tropical Bands DX-ing! It is just a matter of switching on your receiver and tune in to these frequencies at the right times!

ADVENTIST WORLD RADIO - September DX Contest - 2003



As with our previous Wavescan DX contests, the 2003 DX Contest will also run throughout the month of September. The main ingredient in our DX contest this year is a search for QSLs that are quite unique, not in design, but in what they verify. Do you have a QSL in your collection that you think no one else in the world has obtained?

The world winner for our "September DX Contest - 2003" will receive the 2003 Bronze Medallion and an autographed copy of Jerry Berg's book, "On the Shortwaves". Additional continental winners will receive a copy of their choice, either "Passport to World Band Radio 2004" or "World Radio TV Handbook 2004".

Several hundred additional awards are also available.

And now for the requirements in detail:

PART A: Only QSL in the World

Do you have a QSL that is quite unique and you believe that you are the only person in the world to have

a verification of this nature? Does your unique QSL verify an emergency broadcast, or an emergency transmitter, or a wrong frequency or a dramatic event, etc, etc? Your QSL may verify a broadcast from a station on shortwave, mediumwave, longwave, FM or utility communication, but not amateur, CB nor TV. You may list as many of these unique QSLs as you desire. You may send a color copy or black & white copy of your QSL, or you can describe the details.

PART B: How did you become a DXer?

Please tell in two or three paragraphs what led you to become interested in international radio monitoring.

PART C: Describe and send a radio postage stamp.

You may describe and send any postage stamp from any country, new or used, that features radio in some way.

PART D: Submit 3 reception reports on any AWR transmissions.

These reports can be on the reception of any AWR broadcasts on any station anywhere in the world.

PART E: Where possible, submit 3 radio cards.

These cards may be new or old QSL cards; or blank or completed QSL cards; or new or old tourist postcards that show radio in some way; or advertising postcards issued by a radio station. Not valid for this contest are amateur nor CB QSL cards.

CONTEST AWARDS:

3. The world winner in our "September DX Contest" will receive the 2003 Bronze Medallion and an autographed copy of Jerry Berg's very interesting volume, "On the Short Waves".
4. Additional continental winners will receive a copy of their choice of either "Passport to World Band Radio 2004" or "World Radio TV Handbook 2004".
5. Several hundred other awards are available from AWR, including 10 full sheets of the AWR QSL stamps, and 10 half sheets.
6. All reception reports will be verified with new AWR QSL cards endorsed for the 2003 DX contest and with the 2003 QSL stamp.

THINGS TO REMEMBER:

1. All entries must be postmarked during the month of September and received in Indianapolis before the end of October, though in special cases early entries will be accepted. Late entries will not be entered into the contest though the reception reports will be verified.
2. Where possible, please provide a strong self-addressed, business size envelope.
3. Where possible, please provide return postage, preferably in an acceptable form of international currency, though mint postage stamps or IRCs will also be appreciated.
4. The only address for contest entries is: AWR, September DX Contest, Box 29235, Indianapolis, IN 46229, USA.

RADIO TAIWAN INTERNATIONAL CELEBRATES 75TH ANNIVERSARY

On July 31st, 2003, Central Broadcasting Station's Radio Taiwan International (CBS/RTI) celebrated 75 years of broadcasting the voice of the Republic of China (ROC) to the rest of the world, spanning major historical developments from its founding in mainland China in 1928 to its present location in Taiwan today.

Founded on July 31, 1928 by the Republican government based in Nanjing, CBS followed the government to Hankou and Chongqing during the Anti-Japanese Resistance campaign, and back to Nanjing after the end of World War II.

At the end of the Chinese Civil War in 1949, CBS moved with the Kuomintang to Taiwan. CBS was known to the U.S. as the "Voice of Free China" during much of the Cold War.

The broadcasting system began relaying its news to mainland China as early as the 1950s, and was "an important entity in creating a breakthrough in the cross-strait stalemate," said CBS Chairman Lin Feng-jeng.

Lin, a former human rights lawyer who took over the position in July, said that this momentous occasion was "to celebrate the birthday of a national radio that belongs to the 21 million people of Taiwan."

President Chen Shui-bian sent a congratulatory message hoping that CBS under Lin would "continue to fulfill its duties as the media ... to monitor government policies in order to build a better Taiwan."

Although Lin has received complaints from Taiwan citizens that they cannot hear the programs, Lin pointed out that RTI does not just transmit information, but more importantly, "has taken on the mission to propel an intimate connection between Taiwan and the international community," stated Lin.

RTI fulfills President Chen's desires for Taiwan to upgrade its international status by continuing to be "the mouthpiece of democracy, liberty, human rights, and peace," said Lin.

At the 75th anniversary celebration, Lin signed three protocols of cooperation with representatives from Burkina Faso, Panama, and JPN to strengthen bilateral ties with counterpart organizations in those countries.

CBS is currently a member of several radio broadcasting organizations, including Radio Free Asia, National Association of Broadcasters (Washington, D.C.), and Association for International Broadcasting.

RTI's worldwide listeners that cross all major continents can tune in to its various news, educational, arts, and entertainment programs by shortwave radio, the Internet <<http://www.cbs.org.tw>>, and AM/FM radio.

Much of its English programs are done through SW radio.

RTI broadcasts in Mandarin, five other dialects (Taiwanese, Hakka, Cantonese, Tibetan, and Mongolian) as well as 12 other languages to its global audience: English, German, French, Russian, Spanish, Arabic, Japanese, Korean, Vietnamese, Thai, Indonesian, and Burmese.

It has daily programs that introduce the multifaceted nature of Taiwan to the rest of the world, including "Discover Taiwan," "Formosa Outlook," "Let's Learn Chinese," "News Talk," and "Taiwan Today."

(via Ulis R. Fleming, CumbreDX mailing list via DXLD)

POLISH AM WAITING FOR BUSINESS by Bernd Trutenau (Radio World)

Warsaw, Poland: The tendency of European broadcasters to abandon the long-, short- and medium wave bands in favour of FM or satellite has reached Central and Eastern Europe. In the end, many network operators have only two options: find new customers - especially among foreign broadcasters - or phase out the AM network altogether. In Poland, TP EmiTel, the terrestrial tx network branch of Polish telecom operator Telekomunikacja Polska SA (TPSA) has accepted this challenge and has opened its AM txs to new customers from Poland and abroad.

In 1990, TPSA took over the large network of long and medium wave transmitters from the Ministry of Communications, ranging from a few watts up to 2 MegaWatt. Initially, Polskie R (PR) was the only customer. But in 1997 PR decided to discontinue renting mediumwave transmitters and left this band completely on 31 January 1998. Most of the mediumwave txs came from the USSR and Czechoslovakia in the 1950s, 1960s and 1970s. Seeing no future in mediumwave broadcasting, TPSA started to scrap the old equipment; buildings were demolished and the land sold.

However, TPSA want to maintain only three large AM centres: the longwave station in Raszyn and the SW transmitting centre in Leszczyńska, both a few kilometres south of Warsaw, as well as the high-power medium wave transmitting centre in Koszecin, near Czestochowa in southern Poland.

The Raszyn station is the oldest existing transmitting site in Poland. Built in the 1930s, it reopened in 1946 after suffering damage during World War II, and it served as the main domestic transmitting centre on longwave for several decades. Since the inauguration of the new one MegaWatt longwave transmitter that PR built in Solec Kujawski in 1999, the future of the Raszyn station has become more and more uncertain. PR currently uses it for live coverage of the Sejm, the Polish parliament, on 198 kHz. Ironically, a possible closure of the longwave transmitter in Raszyn may secure the future of the station: as the location for the new main FM/TV tower for Warsaw.

At present, the landmark Palac Kultury I Nauki palace, a gift from Stalin in the very heart of Warsaw, and once the highest building in town, is the site of the local FM and TV transmissions. The location in downtown Warsaw implies restrictions for the radiated power and TP EmiTel has been seeking an alternative site for a long time.

Leszczyńska is the shortwave transmitting centre for Poland. It was built in 1950 to bc PR foreign-language progrmes (now R Polonia) to listeners across Europe. Eight 100 kW shortwave transmitters were installed in the 1950s and 1960s, KRV-100 and KRV-120 systems manufactured by Tesla in Czechoslovakia. The site includes a large number of SW antennas aimed in all major directions.

The transmitting centre in Koszecin was built in the late 1970s to provide quality reception of PR domestic progrmes to listeners in southern Poland, the centre of the mining and steel industry, a mountainous region that was difficult to cover with many low-power AM relays and some FM txs. Tesla in Czechoslovakia delivered two 750 kW medium-wave txs coupled to provide 1.5 MW of power. The station was inaugurated on 1 August 1978.

The impact of the high radiation levels on the surrounding area, however, resulted in a reduction of the emitted power. The transmitter was run at 750 kW as of 1979 and finally at 350 kW from 1992 after a protest campaign by local farmers.

In 1997, Trans World R Europe of Monte Carlo was renting a 300 kW transmitter on 1503 kHz in Tychowo in northern Poland for its programmes to Scandinavia, but this transmitter was shut down a few years later.

In 2001 and 2002, Radyjo Racyja, a Belarusian-language Polish stn was using 1080 kHz from Koszecin to reach its listeners in neighbouring Belarus. The present 350 kW installation provides good coverage of large parts of Central Europe during the hours of darkness, especially as 1080 kHz is practically a clear channel in Europe.

Radyjo Racyja also transmitted several hours daily through the shortwave facilities at Leszczyńska for listeners in Belarus from 1999 to 2002. The shortwave centre in Leszczyńska, in particular, is in need of comprehensive modernisation. To reduce operational costs, the oldest txs have already been taken out of sce and the antenna park has been downsized.

At present, PR Radio Polonia is the exclusive user of the Leszczyńska transmitters. TP EmTel is ready to begin upgrading the equipment provided that Radio Polonia provides guarantees for further usage of the

facilities for at least three years.

Radio Polonia is currently transmitting shortwave programming for European listeners in 10 languages. Mark Traczyk, the newly appointed director of the station, is considering these services as a part of Polish foreign policy and is confident an agreement can be reached with TPSA. In 2002, Radio Polonia considered renting airtime on foreign relay stations, but turned back to Polish soil. This step will most certainly contribute in preventing the final closure of the Leszczyńska station.

(Radio World, June, via British DXC-UK Communication magazine, July, via DXLD)

DRM FEEDS SOME DIGITAL NEEDS by Michael Hedges

Approximately 300 DRM proponents and international delegates to the International Telecommunication Union 2003 World Radiocommunication Conference gathered in Geneva for the flip of the digital switch in June. Digital shortwave, medium-wave/AM and long-wave broadcasts launched when DRM chairman Peter Senger cued engineers at nearby Mount Saleve in France. Senger also is director of marketing, sales and technology for Deutsche Welle.

Deliberate effort

DRM founding members Thales Broadcast & Multimedia and Telediffusion de France installed a Thales transmitter with DRM encoder/modulator on Mount Saleve, overlooking Geneva, for the launch broadcast.

International broadcasters taking part in the event included BBC World Service, Christian Vision, Deutsche Welle, Kuwait Radio, Radio Canada International, Radio France Internationale, Radio Netherlands Wereldomroep, Radio Vaticana, Sveriges Radio International, Voice of Russia and Wales Radio International.

National broadcasters DeutschlandRadio and Radio France; a local station in Nuernberg, Germany; and the Luxembourg-based RTL Group participated. Fraunhofer-Institut, Nozema, Telenor/Norkring, T-Systems Media & Broadcast and VT Merlin Communications also took part.

The idea for DRM began in 1996 when several international broadcasters and technology companies began discussions. The participants felt something had to be done to improve broadcasting below 30 MHz as many international broadcasters were scaling back or ending such transmissions due to poor audio quality compared to FM.

That mandate was set at a meeting in Guangzhou, China, in early 1998. Members of the DRM Consortium, now more than 80 broadcasters and technology companies, committed themselves to upgrading long-, medium- /AM and shortwave broadcasting below 30 MHz.

Endorsement

The ITU radio communication sector approved DRM specifications in April of 2001. The European Telecommunications Standards Institute published DRM technical specifications in September of that year. This cleared the way for broadcasters to test the system.

DRM uses aaaPlus audio coding. This format is a combination of MPEG advanced audio coding developed by Fraunhofer and a spectral band replication bandwidth extension algorithm developed by Coding Technologies.

The coder helps correct fading as propagation interference is minimized, DRM proponents say.

Savings

In a demonstration the week before the official launch at the European Broadcasting Union, transmissions from Russia, Canada, France, Portugal, the Netherlands, Germany, the United Kingdom and Kuwait were switched from analog to DRM.

Some broadcasters need to upgrade studios and facilities to take advantage of the digital framework, according to DRM proponents. Thales Broadcast Advanced Technologies Director Pierre Vasseur also said "content changes" were necessary for the full impact of DRM to be felt. However, the upgrade to DRM was quick, said Vasseur.

"From order to on-the-air in Kuwait took less than six months," Vasseur said.

The Ministry of Information of the State of Kuwait modified a 500 kW Thales shortwave transmitter at its Kabd shortwave Center for DRM operation.

An implementation bonus with DRM, proponents say, is cost savings on the transmission end. DRM transmission costs less than comparable analog broadcasting, according to the consortium. Energy cost, which can be substantial for high-power transmitters, can be cut by as much as 50 percent because, proponents say, stations can cover the same geographic area with a digital signal while using less power.

Dr. Don Messer, chairman of the DRM technical committee, said cost savings are always an issue. Messer, head of spectrum management for the International Broadcasting Bureau, said, "It helps me move things around in the budgets."

Messer said the interests of shortwave, long and medium wave broadcasters are similar. Quality is an issue for all, as consumers demand a sound at least similar to their local FM stations, he said.

Optimum frequencies

Broadcasters have neglected upgrading frequencies below 30 MHz over the past decade, according to international broadcasting observers. In many parts of the world, FM broadcasting has surpassed shortwave, long and medium wave/AM services.

Receivers for the DRM demonstrations were professional-level sets, although a software version of DRM can be downloaded from its Web site. Consumer-priced receivers are under development and slated for 2004 shipping.

DRM can integrate audio with data and text, so additional content can be displayed on DRM-capable receivers. The units will be "smart" - once a station is tuned in, the receiver finds the optimum frequency.

Messer predicts future digital receivers meant for overseas use will be multi-band, with DRM and Eureka-147 capabilities in the same receiver along with analog AM/FM.

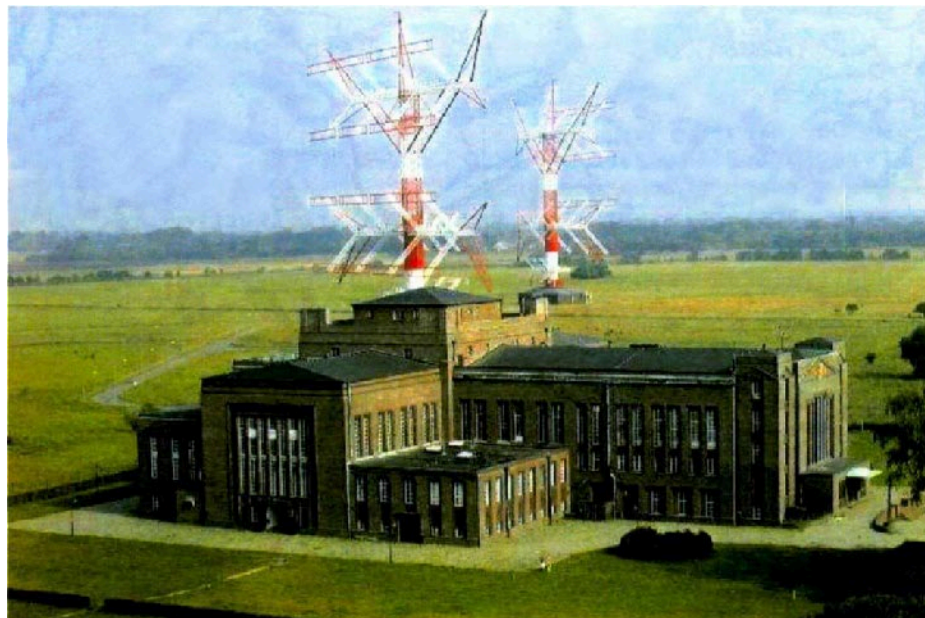
At the end of his brief remarks, just before using a cell phone to launch the inaugural broadcast, Senger asked WRC-03 delegates to work with regulators in their home countries to make DRM available.

(via Kevin, NRC FMTV via DXLD, August 6)



Herzlich Willkommen

zum Tag des offenen Denkmals am 14. September 2003



Am 14. September 2003 lädt die Rundfunksendestelle Nauen alle interessierte Besucher zum Tag des offenen Denkmals ein. In der Zeit von 10 bis 16 Uhr kann das historische Muthesius-Gebäude besichtigt werden.

In Nauen steht eines der modernsten Kurzwellen-Sendezentren Europas. Zentraler Punkt des Sendezentrums ist das 1920 eingeweihte und vom deutschen Werkbund-Architekten Herrmann Muthesius geschaffene Bauwerk. Mit der Inbetriebnahme der komplett modernisierten Kurzwellenstation Nauen 1997 wurde auch das seit 1981 unter Denkmalschutz gestellte Muthesius-Gebäude komplett saniert.

Die wechselvolle Geschichte des Muthesius-Baus sowie der Sendestation zeigen viele speziell zum diesjährigen Tag des offenen Denkmals zusammengestellte Exponate. Darunter ist eine Original-Knallfunkenstrecke von 1906 zu sehen. Des Weiteren werden fachkundige Führungen in der Leitstelle, dem Herzstück der modernen vier 500 Kilowatt Kurzwellensender durchgeführt, über die das Programm der Deutschen Welle rund um den Globus ausgestrahlt wird. Die Deutsche Welle, als langjähriger Partner der Rundfunksendestelle Nauen, wird über den Auslandsrundfunk Deutschlands via Kurzwelle, Fernsehen, Satellit und Internet berichten. Neuheiten über Ausstrahlung und Empfang der digitalen Kurzwelle runden das Angebot der Deutschen Welle ab.

Die Kinder und jugendlichen Besucher können sich über die Berufsausbildung bei der Deutschen Telekom informieren und an der Lötstation ein elektronisches Geschenk selbst anfertigen.

Weitere Informationen zur Rundfunksendestelle Nauen und der Deutschen Welle sind im Internet unter:
www.t-systems-mediabroadcast.de weiter über Button: Lösungen, Distribution Networks, Broschüre Kurzwellenrundfunk
und www.dw-world.de

DEUTSCHE WELLE

WORLDWIDE DX CLUB

WORLDWIDE DX CLUB, founded in 1966, does not claim to be the biggest or best DX club in the world. Nevertheless, it offers its members and subscribers a rather good monthly bulletin (mainly in English) entitled "DX MAGAZINE" with up-to-date information on most aspects of DX'ing at the reasonable price of € 15.60, £12.00, US\$18.70 or 16 International Reply Coupons (IRC's) per year (air mail: Europe: € 17.40, £13.00, US\$20.90 or 18 IRC's; Overseas: € 20.40, £15.50, US\$24.50 or 21 IRC's).

Since WORLDWIDE DX CLUB is the "International Department" of ARBEITSGEMEINSCHAFT DX (AGDX), the head organization of the German language DX clubs, it is able to offer its members and subscribers another DX publication in German entitled "Radio-Kurier - weltweit hören". This is jointly issued by the German DX organizations ADDX and AGDX and is available for € 40.00, £28.50, US\$48.00 or 40 IRC's per year (including air mail to countries outside Europe) or, if ordered together with "DX MAGAZINE", for € 51.00, £36.00, US\$61.20 or 51 IRC's per year (air mail: Europe: € 52.80, £37.00, US\$63.40 or 53 IRC's; Overseas: € 55.80, £39.00, US\$66.60 or 56 IRC's per year).

Both publications, "DX MAGAZINE" as well as "Radio Kurier - weltweit hören", are also available as PDF files. If you decide to receive this version, a worldwide subscription rate of € 9.00, £7.00, US\$10.80 or 9 IRC's is applicable for "DX MAGAZINE". "Radio Kurier - weltweit hören" is available for € 20.00, £15.50, US\$24.00 or 20 IRC's, both publications together for € 26.00, £20.00, US\$31.20 or 26 IRC's.

WORLDWIDE DX CLUB has currently the following special publications available:

1. "REPORTING GUIDE", published by the EUROPEAN DX COUNCIL (€ 1.00 or 1 IRC; please enclose 1 additional IRC for air mail).
2. "EDXC RADIO COUNTRIES LIST 1998", published by the EUROPEAN DX COUNCIL (€ 3.00 or 3 IRC's; please enclose 1 additional IRC for air mail).
3. "WORLD RADIO TV HANDBOOK 2003", published by WRTH Publications Limited in December 2002 (€ 26.00; extra for air mail: € 10.20).
4. "DAS OHR ZUR WELT" (Eine Einführung in den Rundfunk-Fernempfang, herausgegeben von der ARBEITSGEMEINSCHAFT DX e. V.) (€ 1.00 or 1 IRC; please enclose 1 additional IRC for air mail).
5. "EMPFÄNGER-FIBEL 1995/96" (Ratgeber für den Empfänger-Kauf, herausgegeben von der ARBEITSGEMEINSCHAFT DX e. V.) (€ 2.00 or 2 IRC's; please enclose 1 additional IRC for air mail).

These prices include postage and packing. Delivery against advance payment by International Money Order, cheque in € drawn on a German bank (otherwise please add € 5.00 for bank charges), cheque in US\$ drawn on a US bank, cash in any convertible currency, Postal Money Order or transfer to our postal giro accounts Postbank Frankfurt/Germany No. 289010605 (IBAN: DE49 5001 0060 0289 0106 05 - BIC/SWIFT-Code: PBNKDEFF) or Postbank Leeuwarden/Netherlands No. 3822840. *IRC's can only be accepted from countries, in which payments can not be made by any other means (1 IRC = € 1.00) - not for orders of World Radio TV Handbook.*

Der obige Preis enthält Porto und Verpackung. Lieferung gegen Vorauszahlung durch Überweisung, Scheck in € (gezogen auf eine deutsche Bank, sonst € 5,00 zusätzlich für Bankgebühren), Postanweisung oder Bargeld. Postbankkonten: Frankfurt am Main/BRD Nr. 289010605 [Bankleitzahl 500 100 60] und Leeuwarden/Niederlande Nr. 3822840. *IRC's werden nur aus solchen Ländern akzeptiert, in denen eine Zahlung auf einem anderen Weg nicht möglich ist - nicht für WRTH-Bestellungen..*

For further information on WORLDWIDE DX CLUB please write to: WORLDWIDE DX CLUB, Postfach 12 14, D-61282 Bad Homburg, GERMANY (e-mail: <info@wwdxc.de>), or visit us in the Internet at <<http://www.wwdxc.de>>.