

The Martinsen
TOP OF THE DIAL
List

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**REISSUE
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THE MARTINSEN TOP OF THE DIAL LIST edition 2.

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Introduction:

In Region 1 the AM broadcast band closes at 1606.5kHz. We have waited a long time for the expansion of Region 2 allocations over the current end there of 1605kHz. But soon, probably in February 1995, the AM band in at least USA, Canada and Mexico will see an expansion to 1705kHz.

In 1990 I finished the first edition of my Top of the Dial list, with the valuable help of KAO, Kjell Arne Olsen, expecting the expansion to happen then. It was at that time the experimental station KA2XXB, 400 watts, with its anti-skywave antenna of the NAB, National Association of Broadcasters came on the air on 1660 from Beltsville, MD. This did not prove to be any success, though. At least KVGB, Great Bend, KS, 1590 have tested the band, with good results on 1620. An original experimental station was WAFE Baltimore, MD, 1630, testing out EBS alert systems! And of course there was the offshore station RNI/R Newyork International which had two tries on 1620 off Long Island.

On April 1st 1992 there was a big change in the utility allocations in this band, so since then I have found it necessary to work out a new list.

These stations are a challenge of their own, but may also serve as useful indicators and calibration tools.

***The official allocations in ITU Region 1 are:1606.5-1625kHz
Maritime Mobile / Fixed / Land Mobile;1625-1635kHz
Radiolocation;1635-1800kHz***

Maritime Mobile / Fixed / Land Mobile.

Not only utility stations use the 1600-1700 band. Let us try to explain the different types:

BS/South East and Eastern Europe Pirates:

According to Whitt and Gale, the Greek pirates have been "assigned" 1600-1615 kHz and by convention use upper sideband. The Turks and Malta have been "assigned" the remainder of the band (1615-1630kHz), and in protest, use lower sideband. Cypriot stations use the entire band, upper or lower sideband depending upon religion. (Assignment loosely translates to self-assignment by the pirates!)

Recently Greek stations have been heard (2000-2200 UTC) on frequencies such as 1611,1617,1623,1634,1647,1650,1652 and 1678kHz. There is very little available information on these stations.

I am at this point unable to confirm the existence of the traditional Greek Broadcasting stations on 1610(Fokis) and 1614/1620(Ierapetra).

Also Italian stations have been active, e.g. R.International from Verona.

Countries known in Eastern Europe are the old Soviet Union and Yugoslavia since the 70s. Still active stations from Russia and the Balkan area.

BS/Dutch Pirates:

Dutch pirates have long been active in the spectrum above 1600kHz but, since the arrival of maritime radiotelex the Dutch pirates have operated in two bands: 182/183m band (1631-1650kHz), and 185/186m band (1604-1621kHz), with the odd station going higher.

and calling frequency), and then goes on to the working channel. UK station nowadays often use a letter to identify this channel. Some of the coastal channels are used for ship-to-shore telephone calls but these operate in a duplex mode (i.e. one frequency for ship to shore and a different frequency for shore to ship). A good time to tune in is 3-10 or 33-40 minutes after the hour.

MMO/Maritime Mobile Stations:

They usually pre-announce their transmissions on 2182kHz, and then pass on to their working frequency.

The band was more interesting before regarding such stations. You could hear Irish lighthouses and British lighthouses and lightships on 1662.5, the Ekofisk basin called Rogaland R on 1660.5, which resulted in nice platform and rig loggings here. And ships and structures called Rogaland R, Haugesund, as well as Bodø R, Lødingen; Hammerfest, and Ålesund, Kristiansund on 1657.5. Ålesund, nearer to base also on 1632.5, but almost all this type of dx is gone now.

However, watch 1632.5/1647.5/1662.5 for HM Coastguard, RNLI Lifeboats and SAR(Search and Rescue operations), as when VHF cannot be used, they might be here. The lifeboats by the way often test their transmitters(50 watts) on Sunday mornings. They are known to be very friendly towards dxers. I heard Islay lifeboat as late as September this year, communicating with Clyde Coastguard on 1647.5.

The list has some entries for Scottish fishing vessels. I hold these channels to be unofficial chat frequencies, however, their usage is quite well known at the Coast and Coast guard stations. Indications are that shore company

transmitters also exist.

It is not possible to confirm the Dutch Kustwacht and Loodswesen channels of 1627.5/1642.5 and 1657.5. They were active before 1992.

COR/Cordless phones:

These are restricted to milliwatt power levels. All the same, the signals might reach at least regional "audiences"! At a certain location, a cordless phone was left on all the time, resulting in everything going on in the house being audible in the neighbouring area on 1700 kHz! The listener did not write a report, but encouraged the turning off of the "transmitter" in a very discrete way! The assigned British channels are listed, plus, the channels of illegal(in Sweden and Norway) imported phones. Cordless telephones use F3E narrowband FM.

NDB/Non-Directional Radio Beacons:

Also exists in this band, using slow morse keying. In some cases I suspect military NATO operations, as Calls of X.. are listed in ICAOs Beacon list as allocated to Germany. Also, in 1987-88, over 50 NDB signals were monitored on 1610, 1618 and 1650. Stranger still were KG2, KG3, KG4 and similar, popping up all over the place. In addition, these transmitters could jump frequency in seconds. Some of the "KN90005" type beacons known to be of US origin, also have been heard here. Private US and Canadian beacons exist, but up to date lists have not been available.

Lists should be possible to get from Herb Balfour and his Northern Observer, or the LWCA, Long Wave Radio Club of America. Herb had his OHH, Richmond Hill, ON on 1621 some years ago. Regular beacons in Latin America use this band. Cf.unid on 1700 kHz.

Favourite channels now seems to be 1636 and 1646.

Most Dutch pirates operate with erratic transmissions although some try to produce regular programme schedules. Most operate with low power though a few have powers greater than 10-200W and one or two use a kilowatt or more! A few Dutch pirates have been heard as far away as Newfoundland and traces of signals have been noted at Massachusetts, USA, coastal sites. The great expert on these operations is Derek Taylor of Preston.

Also USA, UK and Ireland pirate stations have used the band, lately unid signals from USA and Ireland on 1638, and Live Wire Radio from the UK have been present, but now activity seems low.

SPUR/Spurious signals:

Occasionally, spurious signals can be heard that are caused by malfunctioning or poorly maintained transmitters. Most commonly heard are second or third harmonics of MW stations. A few US DXers hold this type of listening as a clever way of finding new DX. Both some smaller US and Mexican operations might be heard in this way. Sometimes a transmitter site that operates several transmitters on different MW frequencies into one antenna can generate intermodulation products. Whitt notes that earlier in 1994 Vatican Radio was audible on 1692kHz with a 3rd order intermodulation product of its 1530kHz and 1611kHz transmitters.

BS/Broadcasting in North America:

The FCC are planning for new AM channels, (1610-1700kHz) spaced at 10kHz intervals. These channels will be

populated with stations using 10 kW daytime and 1 kW at night. Watch out for new AM modes, as USA Digital Radio is in the pipeline.

In the USA 1610 kHz was widely used for TIS, low power Tourist information stations (coverage generally under 10km) and it seems these are continuing. The same goes for Broadcast remotes. These are still used by smaller stations with older equipment.

TLX/Telex:

Before 1992 GKR-1, Wick R in Banff and the odd guest appearance from other British Coastals used to be on 1670.3, later 1672.0 (nominal channels 1672.0 and 1669.5) Yet earlier, they used 1615 with CW to the fishing fleet at Iceland. LGB TLX from Rogaland R used to occupy 1645, 1646 and 1647 kHz with three separate services. 1645 often heard in the USA. Now one of these is closed. And EJM Malin Head R was on 1618.0 with CW, too. The military G23A from Wilhelmshaven occupied 1680.5 also with CW.

The radio maritime service now occupies a few kHz just above the top end of the MW band for a Telex Over Radio (TOR) service. The transmissions are ARC/SITOR 100 baud telex but when no traffic is being passed a CW marker with station ID is transmitted. Radiotelex uses F1B frequency shift keying without use of modulating audio.

CRS/Coastal Stations:

Channel spacing is now 3 kHz. Communication is by USB (J3E or R3E modulation). Most stations use English often in conjunction with their local language. Content is basically navigation warnings, gale warnings, weather forecasts and traffic lists (i.e lists of ships for whom the coastal station has a message).

Each coast station usually pre-announce on 2182kHz (the international distress

RDT(/Radio Determination stations or Radio Location Stations.):

Several MF systems are now gradually being phased out, like Decca Hifix, Seafix, Cubic Argo, Geoloc and others. Racal's Hyperfix still exists to some extent, an example is the Viking chain, but on 1739.4. Signals cannot be interpreted on common radios.

DSC/Digital Selective Calling:

A Greenland network was on 1638.0 before. Now there are other allocations lower in the band. But hardly any station is on the air. System is similar to Selcall of air plane communication. Signals cannot be interpreted on common radios.

If you want to explore the frequencies over 1705 the Medium Wave Circle in England has produced a reprint called Frequency Allocations in Europe 1605-1800kHz, listing all known European allocations. Contact Steve Whitt. You might also try the latest Guide to Utility Stations by Klingenfuss.

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AM Band Expansion Shifting To Reality

GENEVA—The first step to expand the AM commercial radio band to permit more radio stations to take to the air has been taken by the allocations committee of the World Administrative Radio Conference meeting here.

The allocations committee has approved a plan to expand the AM dial from its present 1600 kHz limitation to 1665 kHz by 1987 and 1705 by 1990. The U.S. had proposed expansion of the dial to 1880 kHz, but the committee decided to reserve 1705 to 1860 for amateurs.

The next step will be for a general session of the conference to approve the committee's action. As far as the U.S. is concerned, the dial expansion will be treated like a treaty, requiring Senate hearings and approval and support of the president. If the treaty is approved, the Federal Communications Commission will act to implement the dial expansion.

The allocations committee took a go-slow approach because time is being set aside for other users of the

spectrum to move to other frequencies.

The action by the committee also included creating one additional radio channel at the bottom of the dial by extending the dial down to 525 kHz from the current 535 kHz starting point.

The question of packing stations tighter on the dial—shifting from 10 kHz to 9 kHz spacing on the AM dial and from 200 kHz to 150 or 100 kHz on the FM dial to make room for more stations was not considered by the conference here.

This subject, which is a question of particular interest in the Western Hemisphere since the rest of the world is on tighter spacings, will be considered when the Region II Conference of the International Telecommunications Union meets in Buenos Aires March 10-29.

One other reallocation the Geneva committee did approve was to expand the European FM band from 100 mhz to 108 mhz, which conforms to that used in the Americas.

Billboard 79120R via FH

WARC DECISION ANNOUNCED

A longer band for broadcasting

There will be extended by 110 kHz, according to allocations announced at the conclusion of the World Administrative Radio Conference. The extension will be implemented as follows:

525-535 kHz; i.e. one new channel with stations limited to 1 kW day and 0.25 kW night (to insure protection to existing marine communication services including the emergency channel at 500 kHz). The FCC could act to allocate this channel immediately. A consultant for the National Black Media Coalition, David Honig, announced he would petition the FCC to freeze any further applications for TIS stations in that band. The NEMC is interested in the plan because it would allow for new stations under minority ownership. Despite the low power ceiling for stations on the new channel, 530 will not be the same as our current "graveyard" channels, in which the power level is also 1/0.25 kW, because groundwave signals travel much farther at the lower frequencies than at the higher ones. For example, a 1 kW station on 530 kHz would have almost an identical coverage area as a 50 kW station on 1040 kHz, given identical ground conductivity and antenna. 0.25 kW at 530 would be roughly equivalent to 5 kW at about 1110 kHz. Thus 530 kHz will accommodate fewer stations than the graveyard channels where coverage at 1 kW is only in the 60 to 70 mile range.

1605-1665 kHz. This band will become available in 1987, after an allocations conference scheduled for 1985. The first 20 kHz will be for the exclusive use of broadcasting, the remainder will be shared with radar services, although broadcasting will have primary use of the band. This proposal is a bit better than the US had hoped for. The US plan called for equal sharing with other services in the 1605-1800 kHz. However, the US lost on efforts to add a band exclusively for broadcasting between 1805 and 1865 kHz.

1665-1805 kHz. This band will be allocated the same as the 1625-1665 kHz band but will not become available until 1990.

Finally, these allocations apply only to the Western Hemisphere.

IRCA

Den sista meningen låter verkligen intressant. Här kan vi se fram emot ett fantastiskt nytt DX-fält, speciellt under uppbyggingsperioden. Vi får verkligen hoppas att FCC, åtminstone till en del, låter sig nöja med vad man hittills uppnått och att man inte driver 9 kHz-förslaget alltför hårt på konferensen i Buenos Aires. Skulle det emellertid gå så illa att man får medhåll från övriga länder i regionen kommer man nämligen att placera stationerna på exakt de frekvenser som nu gäller i Europa/Afrika/Asien, detta för att undvika interferens i västra Amerika från stationer i östra Asien.

ARC följer givetvis händelserna och vi lovar att återkomma med förtäpande rapporter.

Mellanvägens utbyggnad

Don Bishop of the Monitoring Times USA reports that although international agreements under the 1979 World Administrative Radio Conference allocated 1610-1700 kHz for broadcasting effective 1st July 1990, their Federal Communications Commission has yet to take action. Stan Salek, a staff engineer with the National Association of Broadcasters, stated an expectation that proposals will be formulated during the next few months. The power limit for this band is 10 kW, though lower levels will be necessary to reduce mutual and cross border interferences.

\$50.00 NAB EXPERIMENT

New Antenna Designs Offer Hope For Improved AM Sound

NAB is undertaking a \$50,000 test of two new AM antenna designs which, in theory, will redirect largely useless skywave signals to improve an AM's groundwave signal and coverage area, especially at night. If the innovations work, AMs could adapt their existing antenna systems at an estimated cost of \$10-15,000.

NAB staff engineer Mike Rau says the experiment marks the first major attempt since the 1930s to improve AM antenna theory and technology. He cautioned, "No one is guaranteeing success with these antennas, but we think the prospects are good enough to spend \$50,000 of NAB's money to test them."

Within the next few weeks, NAB expects to finalize the lease of a 20 to 30-acre farm site in Loudoun County, VA near Washington, DC. A 250-foot AM tower will be built on the site, and experimental authorization will be sought from the FCC to operate with 1 kw at 1000 kHz, just above the commercial AM band.

Deflecting Skywave

The new designs to be tested were developed by Rustlin, VA consulting engineer Dick Bily, and engineer Upton Presbaldi of the Washington firm A. D. Ring & Associates. According to Rau, by adding several new horizontal and diagonal elements to an AM antenna, the designs should "take energy lost to the sky and redirect it to the ground where it will do some good."

Anticipated benefits include greatly improving the overall sound of AM stations, overcoming noise levels, extending coverage areas, and reducing nighttime skywave interference.

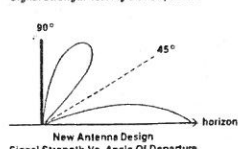
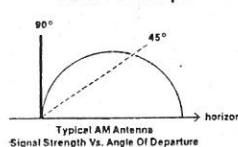
Testing Starts In Fall 1986

Rau expects the test antenna to be operational by next September, when a full year of experiments will begin. As part of the test, station engineers within 100 miles of Washington, DC will be asked to take signal strength measurements on 1000 kHz. Presuming the experiment works, NAB will include those readings in a rulemaking petition asking the FCC to approve use of the new design.

NAB President Eddie Fritts first announced the project in a speech two weeks ago to the Federal Communications Bar Association (FCBA) in Washington. "We will soon join with others to build our own AM transmitter site to experiment and test new AM antennas which will make a significant improvement in AM coverage and quality," said Fritts.

"Some have said that AM radio needs attention from the programming side," he added. "Tranquity, I think the technical aspects need our attention first."

Figure 1
Basic Concept



Compare: Signal strength at horizon; signal strength at 45°
Note: increase at horizon and decrease at 45°

Antenna Project Nears Launch

by Alex Zavislovich

Washington DC... The first leg of the NAB's anti-skywave antenna project is nearing a launch, with some due to the project estimating that a lease for the test site may be signed within the next few months.

The NAB's project will test antenna designs which are intended to limit skywave while increasing groundwave propagation of AM transmissions. Two designs are involved in the test—a tower-mounted array designed by Upton Presbaldi, a consultant for the Virginia Tech-based engineering firm of A. D. Ring & Associates, and a monopole-radiating design by Richard Bily, of Communications Engineering Services in Arlington, VA.

NAB Science and Technology VP Michael Rau acknowledged that a lease has been drafted between the NAB and property owner Howard University for the Beltsville, MD site of the antenna project.

Remaining before the lease can be signed is a survey layout attachment to the contract, which will be drafted by Kiddie Consultants, a civil engineering firm from Laurel, MD that conducted the site survey for the project several months earlier.

The Beltsville location is to be time-shared between the two antennas involved in the AM project.

Proceeding smoothly
In general, work on the project appears to be "proceeding smoothly," according to Presbaldi.

Presbaldi said in late March that a "contract was" essentially complete, with Howard University and he anticipated that a lease would be signed and site preparation would begin "within a month."

However, Rau cautioned that although the NAB was "moving as fast as it can," there are several matters beyond the association's control which could affect the project's actual starting date.

Besides the survey layout, the NAB has been working with its attorneys in preparing a building permit application for Prince Georges County, in which the Beltsville site is located. Rau said that processing time of the application by county officials could be a factor in the project's launch.

He also suggested that the starting date could be affected by how long it takes Howard University to review and sign the lease once it has been received by the institution.

Howard University had originally held some reservations about the project because of concerns that tower lights might interfere with astronomy classes the school holds at a nearby observatory.

The matter was resolved, however, by moving the intended location of the antenna to another place on the site.

Real testing
Real testing of the Presbaldi design would probably begin "two or three months" after signing of the lease, according to the antenna's inventor.

In the interim, Presbaldi said he would be preparing a budget for the experiment and would work with hardware suppliers for the longer-term items.

Perhaps the longest lead item, Presbaldi commented is the tower it will use.

At 205, the structure will be "a tower or less standard AM tower, with slightly greater strength."

The tower would require either an 18' or 24' base, he added.

Under the terms of the arrangement being negotiated with Howard University, the site would be leased for two years.

Presbaldi, however, commented he could "only fill up six months to a year" for the research.

"None of us can afford that kind of time," said Presbaldi of devoting two years to the NAB's AM antenna project.

After the testing of Presbaldi's antenna is completed the site will be used for analysis of the anti-skywave design proposed by Richard Bily.

Originally, to be tested in Loudoun County, VA, the NAB decided to use the Beltsville site with Bily because of delays in obtaining approval for the Loudoun location.

ANTENNE-EKSPERIMENTER

NAB Science & Technology Division driver for tiden eksperimenter med en antenntype som skal eliminere alt annet enn rene jordbølger. Hvis det er vellykket betyr det at rekkevidden av en sender blir langt mindre, særlig på nattetid. Dette har så langt vært et problem, f.eks. i USA med det store antallet stasjoner. På dagtid har det for det meste gått greit. Da er det vesentlig jordbølgene som høres. Men på kveld- og nattetid blir rombølgene mer påtagelige, og rekkevidden øker slik at neste stasjon på samme frekvens blir forstyrret. Dette er da også grunnen til at mange USA-stasjoner enten er pålagt å redusere effekten, eller stenge helt ved solnedgang. Lykkes man i å få bort all rombølge-utstråling kan man unngå disse problemene. I stedet blir det mindre for oss DX-ere å høre, for vi baserer oss for det meste på rombølger som reflekteres....

Fram til juli skal man teste den nye antennen på 1660 kHz med call sign K2XBB, der et sløyfebånd kontinuerlig gir ut signaturen. Hvis noen skulle høre denne er det bare å skrive til NAB i 1771 N. Street North West, Washington, DC-20036, USA. -Så slår dere beina under antenneplanene, HI.

AM Antenna Design: The New Wave?

RF Engineering
AM Antenna Design

Relaxed regulations and improved technologies are beginning to make AM's future sound better.

By Hugh Aldersey-Williams

The AM industry has been thrown into turmoil by recent moves both in technology and in regulatory areas. For its part, the FCC has outlined regulatory changes it would like to see in AM broadcasting. The changes would improve AM's competitive position with regard to FM transmission, which has been received rather more favorably in recent years.

Night and day

While the FCC has been relaxing its regulations, the NAB has been seeking to improve AM antenna technology. The principal problem that hampers the success of AM transmissions is signal interference arising from the antenna signal strength profile (Figure 1a). Existing antenna designs generate signals having two components.

The groundwave is directed from the antenna to the horizon. The stronger it is, the wider the coverage of that broadcasting station. The skywave, on the other hand, is directed more vertically, and would not matter but for the fact that its signal is reflected by the earth's ionosphere back towards the surface. This can cause selective fading—severe amplitude and phase distortion or even disappearance into noise—of one broadcast signal, as well as interference between stations with signals that are close in frequencies even though they may be hundreds of miles apart. At night, the ionosphere reflects radio waves even more strongly than it does during the day, making many AM services unusable after dark. Efforts to increase the groundwave signal strength produce a concomitant increase in the skywave, merely exacerbating the problem of interference. In a typical AM broadcast antenna system, perhaps only 10 percent of the radiated energy goes into the groundwave.

Previous attempts to devise an antenna design with a stronger groundwave but a weaker skywave have not been very successful. Larger radiating structures have been able to generate stronger groundwaves while suppressing the skywave component, but this has not been possible with short radiators (shorter than half a wavelength). Successes have been limited by the comparative expense of the antenna designs

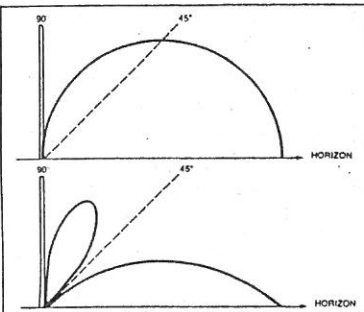


Figure 1 Signal strength versus departure angle for a typical AM antenna, b) new design antenna. Note the relative increase in signal strength at the horizon (groundwave) and the decrease at 45 degrees (skywave).

and the fact that they did not suppress the skywave signal over the full range of vertical angles necessary to cut interference to an acceptable level.

Now, the NAB has authorized the construction and testing of two new antenna designs, which represent the most promising move in the technology of the field for years. "This is a major undertaking for the associations," says NAB president Eddie Fritts, "one which we expect to have a significant impact on AM radio. The result should be a clearer, louder, better quality sound for AM."

In a field 40 miles west of Washington, DC, next month, ground will be broken for the prototypes, developed independently by two engineering consultancies. Construction of the antennas is expected to take one year, and field testing and proof of performance will take another year. Tests will be conducted on the unused 100 kHz available on AM.

The engineers responsible for the projects stress that both designs currently only exist on paper and have not yet been proven in any way. Nonetheless, theoretical predictions have been sufficiently optimistic for the NAB to give its backing. "A significant increase in AM service would result if these antennas are successful and implemented by AM broadcasters," says the NAB.

The new designs work essentially by combining a number of antennas at one location. The overall signal obtained by adding the individual signals from each antenna in the array is expected to provide more independent control over the skywave and groundwave component signals. Suitable adjustment of the component antennas could then minimize the skywave signal and simultaneously increase the horizon signal strength of the groundwave (Figure 1b).

Antenna segments

The first public announcement of a design, one of those now being investigated by the NAB, was announced at the September 1985 IEEE Annual Broadcast Symposium by Ogden Prestholdt, a retired partner of A.D. Ring and Associates. It comprises vertical, horizontal, and diagonal antenna segments. These segments are designed to be excited with carefully chosen current amplitudes and phases to obtain an overall radiation distribution with a suppressed skywave. Using separately driven diagonal as well as vertical and horizontal segments provides a selection of amplitudes and phases that has been possible with the "T" and "L" antennas tried in the past, says Prestholdt.

MOLE →

The design was conceived when it was realized that "vertical polarization isn't necessarily generated only by a vertical wire," says Prestholdt. A possible configuration of Prestholdt's design is shown in Figure 2. It comprises a typical 180 degree base-fed vertical tower with a base insulator and guy cables. At the 145 degree height, there is a center-fed horizontal antenna oriented parallel to the y-axis and supported at its ends by insulators and an auxiliary set of transparent guy cables at a 45 degree angle. Thus, each half of the antenna is 45 degrees in length. The horizontal element would be fed from a balanced feed network supported in the tower which is in turn fed by a coaxial transmission line supported inside the tower and insulated, for isolation, from it for the lower 80 degrees.

Prestholdt calculates the radiation distribution—described in a series of conic sections—from the prototype antenna by first developing a mathematical description of the total radiation from a short current element using a computer. Then, the far-field—both skywave and groundwave—is calculated by integrating the antenna current elements and their images for each antenna segment. The component due to the vertical antenna only varies with the angle of elevation and is in that direction, while the horizontal signal is a function of both elevation and bearing from the antenna and has components in both of these directions. The elevation components are found to be in time quadrature—i.e., these signals from the horizontal and vertical antennas are 90 degrees out of phase when the antenna currents are in phase. By selecting appropriate signal amplitudes the skywave component can then be minimized.

A typical configuration of two

distant antennas of the new design might reduce the RMS of the groundwave significantly from its value for conventional vertical antennas. But, Prestholdt reports, the AM transmission service radius can be approximately doubled because of the reduced level of interference between the two antennas. "It is not yet known how versatile the system will eventually be," says Prestholdt, "but it is anticipated that it will permit new stations to be added to the spectrum, for existing stations to improve their local service and to result in reduced interference to many stations."

Short radiators

The second proposed antenna comes from Richard Biby of Communications Engineering Services. It will be described in detail in a paper at the NAB conference in April. The design centers on a base-fed monopole of about a quarter of a wavelength in height. This operates over a conventional ground system comprising approximately 120 buried copper radial ground wires of the same length as the monopole. Around the base of the monopole are distributed a number of shorter (1/8 wavelength) base-fed radiating elements. These short radiators are enclosed by a circular electric screen also about 1/8 wavelength high and roughly a quarter of a wavelength from the monopole (Figure 3). Biby says that "this is not a super-gain scheme—the performance of the antenna is critically dependent on the imperfect conducting characteristic of the earth."

The screen in the layout serves to cancel the creation of a strong groundwave by the short radiators, but does not prevent them from radiating a strong skywave at angles above the horizon. Judicious

positioning of the screen and the short radiators allows the skywaves from the central monopole and from the short radiators to be closely matched in phase and amplitude. Then, adjustment of the short radiator currents can cancel the two skywaves over a range of vertical angles. The circular electric screen only has a small effect on the groundwave component from the monopole.

"This antenna design," says Biby, "should result in greatly increased groundwave signal strengths per unit of input power as compared with that obtained with conventional antenna systems." Biby's computer model of the new antenna concept allows for variation of a number of details that affect the radiation strength at vertical and horizontal angles from the antenna. These variables on the computer model include frequency, the number and dimensions of radiating elements, conductivity, and dielectric constant of the screen and the earth. Biby is able to compare results for well-established designs for verification of the model before using it to predict an optimum new antenna configuration.

For the future

Both Biby and Prestholdt are confident that their computer modeling of their antennas' performance will be verified when the antennas are up and running in early 1987. For the moment, however, they emphasize that they have only these theoretical predictions.

Nonetheless, their experiments are being followed with interest by the parties that stand to benefit. Biby and Prestholdt have been

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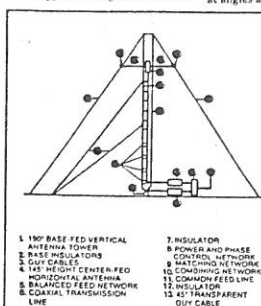


Figure 2 Design of Prestholdt's AM antenna comprising horizontal, vertical and diagonal antenna elements

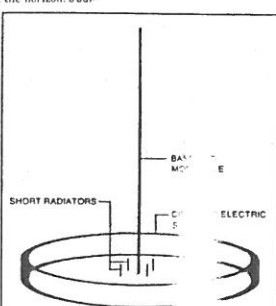


Figure 3 Design of Biby's AM antenna comprising central monopole, fc, and the circular electric screen

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List

I don't know quite how it started, but I guess the North American/Region 2 Band Expansion plans must have been important. I wanted to explore this new band of broadcasting stations from across the Atlantic when it opened, and then it became a target too to find out what QRM the new stations would meet in our part of the world.

That's why I started to collect material about the range above 1600 kHz, and to listen in there myself, as I soon discovered not much was published about that band, at least, it was difficult to find.

I also quickly understood that dxing the MF utilities in the band, had a charm and a thrill of its own, and I felt too that this field could be a field to turn and tune to while usual Transatlantic conditions were bad.

This list is an experiment. In it are material from other sources, all credited. Own listening is heavily featured. There are mostly newer entries in the list, however, I have found it necessary to include some older items in this first edition, in order to catch the fullest picture of transmissions in the band. This is the case regarding the Hyperfix entries outside of Norway, as the listing I got from one of the coastal radio stations were from 1983, and newer were hard to obtain. There is quite a lot of heavy competition between the companies marketing Radio Determination transmitters, such as Hyperfi and Argo.

Old are also some of the jamming entries in the list, such as stations in use against the offshore broadcaster Radio Nordsee International in 1970. I included these mostly for historical reasons. There are also articles in the appendix from 1972 and 1984 reflecting this fading type of transmitter.

I have also included some items from the Top End List of Craig Healy. I want to give him and that column credit for some of my interest. He is also featured in the appendix, but again, these items are of older character.

I hope that the dxer using this list will explore the band where he or she lives, and, consequently, write me about dated items and mistakes, and, of course, in a positive way use this list as a guide to what can beheard TOP OF THE DIAL.

A GUIDE TO SYMBOLS USED IN THE LIST:

BS= BROADCASTING STATIONS. Undoubtedly a much larger feature in the next edition.
BSR= BROADCAST REMOTES. These will move to higher frequencies above 1700, or close. We think they might be phased out in favour of UHF transmitters.
BTL=BOOTLEGGERS or HOBBY PIRATES. Only a few included as a reflection of the large Activity here in the 70a and partly 80s.
COR=CORDLESS PHONES. See article and ads in Norwegian press copied in the Appendix
The other frequency is often around 49 mHz.
CRS=COASTAL RADIO STATIONS. Always fixed.
CW= CONTINUOUS WAVE or TELEGRAPHY station.
HAM= RADIO AMATEUR STATION
JAM=JAMMING STATION(ANTI-UTILITY!)
MMO=MARITIME MOBILE STATION. No Air mobiles have been positively identified
NDB=NON-DIRECTIONAL RADIO BEACON

RDT= RADIO DETERMINATION STATION. Several types and manufactures here, such as Cubic's Argo system, Racal's Hyperfix and the older Decca Hi-Fix of different models. We think the latter has been phased out in Europe. The Hi-Fix type resembles the more letter "J" when listened to. All types sound like bird chatter, some would also compare the sound with the cricket!

RTY= RADIOTELETYPE station (Teleprinter) See also TLX.

TIS= TOURIST INFORMATION STATION. Will probably move frequency up the band. See own list by Wilhelm Herbst and Chris Cuomo, the latter in NRC DX-News.

TLX= RADIOTELEX STATION. Several types, GKR Wick Radio use ARC/SITOR.

When listening to utility transmissions you have to remember that it is strictly forbidden according to ITU and Ham rules to listen in to or bring further information not directed to the general public. Therefore, only frequencies and call signs must be logged.



—Staff Photo

This sign on Interstate 5 went up yesterday to announce the start of a radio service that will tell motorists about traffic at the border gates.

NEW SERVICE

Radio Tells Auto Flow At Border

The county's newest radio station went on the air yesterday, and the disc jockeys were U.S. Customs agents.

The service admits that this is a unique role for the San Ysidro agents who monitor the busiest entry gates in America.

They also say it is a role that could "revolutionize their public image."

'TAPE' JOCKEYS

The agents will actually be "tape" jockeys, recording and playing brief bulletins over a special network;

"1600 on your AM dial," they call it.

No music. No news. No talk shows. "We will offer complete, regularly changing broadcasts about conditions at the border gates," said Albert Bergesen, regional commissioner of the service in Los Angeles.

"If the lines are long or short, we can let people heading back know about them," said Bergesen. "We will get more specific whenever we can."

For instance, the station hopes to be able to tell a tourist the exact waiting time at the gates.

A sudden blockade of cars would result in an immediate change of the tapes, say the officials.

The broadcasts have a radius of three miles, depending on conditions, from the Customs headquarters.

"We hope this is enough distance, right now, to let motorists know about conditions before they get stuck in a line."

CARRY BULLETINS

The network will also carry bulletins about checkpoints at the border, special crossing information and, periodically, a set of instructions to aid in what the service calls "smooth crossings."

The tapes will be bilingual. Each broadcast will last 35 seconds.

THE SAN DIEGO UNION

Friday, August 2

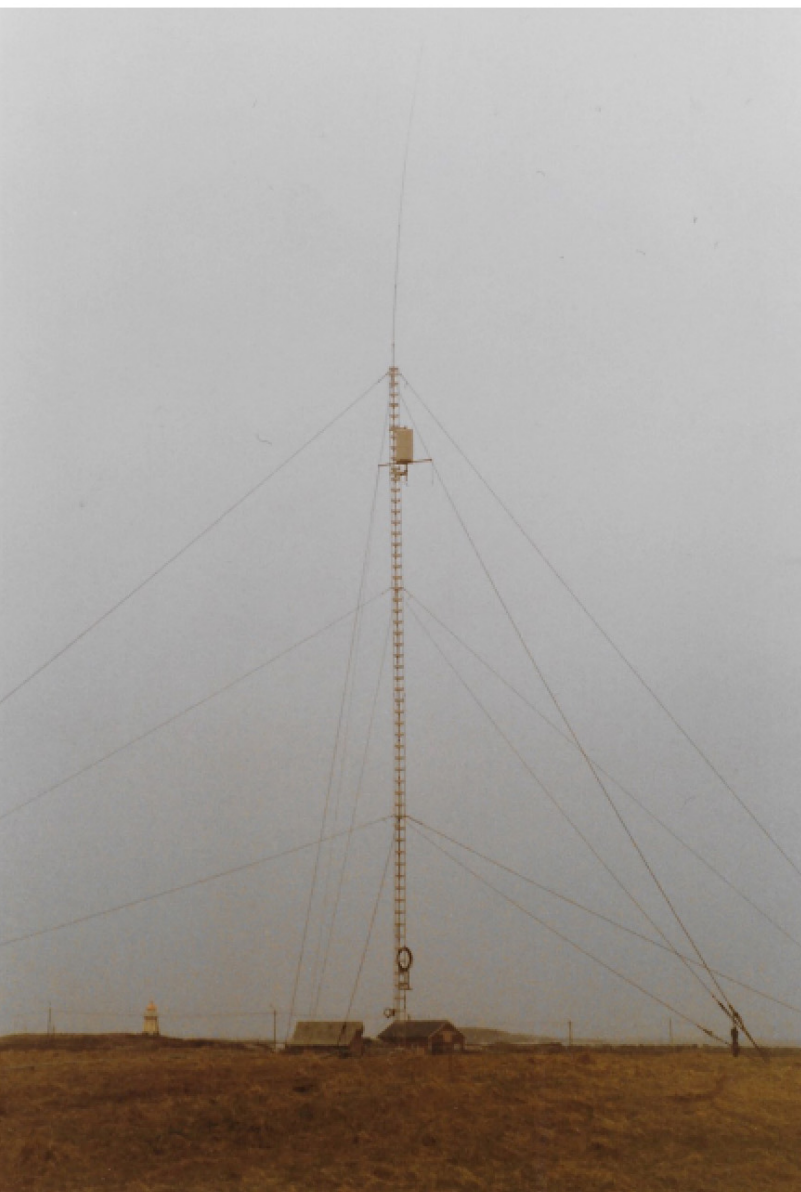
1974



TOURIST INFORMATION STATION, SAN YSIDRO, CA. NOW THE STATION IS ON 1610. WILL IT STAY THERE?

DURING WORLD WAR 2, THE NAZI GOVERNMENT OF NORWAY ISSUED THIS POSTER TO REMIND OF THE "DANGER" OF ALLIED RADIO BROADCASTS.

STILL WE ASK YOU NOT TO LISTEN IN TO TRANSMISSIONS NOT DIRECTED TO THE GENERAL PUBLIC, AND THUS USE THE POSTER AS A REMINDER OF RESTRICTIONS IN THIS AREA. FREQUENCIES, CALLS OR OTHER IDENTs MAY BE LOGGED.



CORRECTIONS AND COMMENTS WELCOME TO: Svenn Martinsen, Stativ 1, N-5340
SOLSVIK, NORWAY. Tel: 05/33-47-35
92.7.73

Many thanks to KAO, Kjell Arne Olsen, for the development of the data program utilized in the making of this list.

c1990, KAO, SM.

THE ILLUSTRATIONS ON THIS PAGE:

UPPER LEFT:

CUBIC ARGO TRANSMITTER, 1615 kHz
HUSTAD, NORWAY. 50 watts.
OWNER: NORTH SEA NAVIGATION
ONE OF THE ROMSDAL-LOFOTEN CHAIN

UPPER RIGHT:

OLD NORWEGIAN CHARITY STAMP FOR NOR-
WEGIAN LIFEBOATS. THIS COLLECTS MO-
NEY FOR RADIO TRANSMITTERS ON BOARD.
(MMO)

The Martinsen
TOP OF THE DIAL
List

THE MARTINSEN TOP OF THE DIAL LIST

SOURCES: Maritime Utility Weekly, Maritime Utility Fortnightly, NRC DX-News (Top End), IRCA DX Almanac, Racal Survey Norway, Cubic Argo Norway, North Sea Navigation (Geoteam), Statens Teleforvaltning, ITU List of Coast Stations, ITU List of Ship Stations, Geir Stokkeland, Longwave (LWCA), The Northern Messenger, WRTH Newsletter.

918.0	IRQ JAM JAMS AL-HASSAKE, SYRIA	
950.0	UNID NUMBERS-STN	
1120.5	UNID NUMBERS STN	
1232.0	GBR JAM CANEWDON, ESSEX USED AG.RNI	
	GBR JAM ROCHESTER, KENT USED AG.RNI	
1390.0	IRQ JAM JAMMER AG.R.AHWAZ	
1400.0	URS MMO INTER-SHIP FISHING VESSELS, ARCTIC WATERS	
1578.0	GBR JAM ROCHESTER, KENT USED AG.RNI	
1600.0	BS BROADCASTING STATIONS, REGION 2	
	ANT NDB NHG, PALMER STN	
1602.0	BS BROADCASTING STATIONS, REGIONS 1&3	
	COL NDB LGM, LEGUIZAMO	
1605.5	NDB VK1, UNID	
1606.0	BOL NDB SRE, SUCRE	
	CAN NDB 3A, KIMEK, NWT	
	CAN NDB M2, ROCHE POINT, NWT	
	CHL BS R TROPICAL, LAMPA	
	USA BSR BROADCAST REMOTES	
1606.5	NDB RG1, UNID	
	UNID "CARRIER?" NAVIGATION?	
	CW UNID STN	
	NDB VK4, UNID	
	CAN RDT DECCA HI-FIX 6 MARINAV	//1785,0
	GBR MMO INTER-SHIP FISHING VESSELS, SCOTLAND	UNOFFICIAL
1607.0	NDB KG2, UNID	
	NDB VK6, UNID	
	CHL BS CB161 R TROPICAL, RENCA	
1607.5	RDT PLA RIVER	
1608.5	NDB KG2, UNID	
1609.0	NDB FD2, UNID	
	NDB RK9, UNID	
1609.5	RDT UNID CUBIC ARGO, NA CONTINENT	
1610.0	NDB 9V, UNID	
	NDB KG2, UNID	
	NDB KMS, UNID	JAMMER?
	NDB KN90005, UNIDUSA ?	
	NDB RK9, UNID	
	CW UNID STN	
	NDB VK6, UNID	
	NDB VW1, UNID	
	ANG BS CARIBBEAN BEACON, THE VALLEY	
	BER BS F.PL.	500 KW
	BOL NDB TDA, TRINIDAD	
	PAK CRS ARL KARACHI NAVAL STN R	OTHER SIDE MISSING
	USA RDT DECCA HI-FIX ALASKA	
	USA BS K..., AK.	F.PL.
	USA TIS TOURIST INFO STNS	CHANGE OF FQ SOON
1610.2	USA RDT DECCA HI-FIX LOUISIANA	
1611.0	GBR BS UK PIRATE STNS	
	USA RDT DECCA HI-FIX 5 SOUTHERN STATES	
	VAT BS R.VATICANA, CITTA DEL VATICANO	
1611.3	USA RDT DECCA HI-FIX LOUISIANA	
1612.0	USA RDT DECCA HI-FIX ALASKA	

1613.0	NDB 5U12, UNID NA CONTINENT	
	GBR TLX GXZ, THURSO?	MIL.
	GUA NDB RAB,RABINAL	
1614.0	RDT CUBIC ARGO	//1779,5
	GRC BS R.STHM.ANATOLIKIS KRITIS, IERAPETRA	
1614.2	USA RDT DECCA HI-FIX 5 SOUTHERN STATES	
1615.0	RDT CUBIC ARGO	//1777,5
	NDB KG3, UNID	
	CAN NDB 3E, MACKENZIE DELTA	
	GBR CW GKR,WICK R	CW TO ICELAND,SILENT
	GUA NDB MIL, GUINCEMIL	
	NOR RDT CUBIC ARGO,SOUTH WESTERN PART SEVERAL	//1773,0
	NOR RDT CUBIC ARGO,VESTLANDET SEVERAL	//1773,0(N.S.N.)
	NOR RDT CUBIC ARGO,VESTLANDET-LOFOTEN SEVERAL	//1773,0(N.S.N.)
	NZL NDB OR,OHURA	
	PNG NDB NZ, NADZAB	
1615.5	GBR MMO INTER-SHIP SCOTTISH FISHING VS	
1616.0	NDB 5M360,UNID NA CONTINENT	
	NDB KG3, UNID	
	NDB KG4, UNID	
	NDB OWSJ, UNID	CALL LETTERS OF SHIP
	NDB SB12, UNID	
	NDB SM3, UNID	
	NDB TACTICAL BEACON	US MILITARY
	GBR MMO INTER-SHIP FISHING VESSELS, SCOTLAND	UNOFFICIAL
1616.4	USA RDT DECCA HI-FIX ALASKA	
1617.3	USA RDT DECCA HI-FIX, 3 WEST COAST STATES	
	VEN RDT DECCA HI-FIX, INC VENEZUELA	
1617.5	RDT UNID CUBIC ARGO, NA CONTINENT	
1618.0	NDB 2K, UNID	
	NDB 2N, UNID	
	NDB 6Y, UNID	
	NDB 6Z, UNID	
	NDB 8Q, UNID	
	NDB 8V, UNID	
	NDB AJ, UNID	
	NDB AZ, UNID	
	NDB B9, UNID	
	NDB BZ, UNID	B2?
	NDB D2, UNID	
	NDB DD, UNID	
	NDB DG, UNID	
	NDB DH, UNID	
	NDB EG, UNID	
	NDB FD, UNID	
	NDB FD9, UNID	
	NDB FX, UNID	
	NDB GA, UNID	
	NDB GH13, UNID	
	NDB GH14, UNID	
	NDB H9, UNID	
	NDB I8, UNID	
	NDB IW, UNID	
	NDB JF, UNID	
	NDB JP, UNID	
	NDB JV, UNID	
	NDB KA83413,UNID NA CONTINENT	
	NDB KG4, UNID	
	NDB KG6, UNID	
	NDB KH, UNID	
	NDB L3, UNID	

1618.0	NDB NW, UNID	
	NDB OC, UNID	
	NDB OD, UNID	
	NDB OR2419, UNID	
	NDB OR2419, UNID	
	NDB OZ, UNID	
	NDB P3, UNID	
	NDB PD, UNID	
	NDB PG, UNID	
	NDB PJ, UNID	
	NDB PQ, UNID	
	NDB SDT, UNID NA CONTINENT	
	NDB SJ, UNID	
	NDB SM1, UNID	
	NDB SX, UNID	
	NDB TQ, UNID	
	NDB TU, UNID	
	NDB TX, UNID	
	CW UNID STN	
	NDB UO, UNID	
	NDB UX, UNID	
	NDB VAS, UNID	
	NDB VM, UNID	
	NDB VP4, UNID	
	NDB VP6, UNID	
	NDB WG, UNID	
	NDB WIK, UNID	
	NDB WK, UNID	
	NDB WT, UNID	
	NDB XH, UNID	
	NDB XZ, UNID	
	NDB YB, UNID	
	NDB ZD1, UNID	
	NDB ZD1, UNID	
	NDB ZF2419, UNID	
	NDB ZK, UNID	
	BRA NDB COE, CACHOEIRO	
	CAN NDB 5Q, PENNY STRAIT, NWT	
	CAN NDB OH, RICHMOND HILL, ON.	
	GBR MMO INTER-SHIP FISHING VESSELS, SCOTLAND	EXP. ATT. HERB BALFOUR
	GRC BTL NIKOS, TROMEROS, SAKIS, ATHINAIOS	UNOFFICIAL
	HOL BTL R ARMADA, LEMELERVELD	MANY OTHERS HERE
1618.5	GBR MMO INTER-SHIP FISHING VESSELS, SCOTLAND	MANY OTHERS HERE
1619.0	NDB EB, UNID	UNOFFICIAL FQ
1619.5	NDB 6H, UNID	
	NDB KG2, UNID	
1619.6	RDT DECCA 2R BISCAYA	
1620.0	RDT CUBIC ARGO	
	NDB KF, UNID	//1773
	BS RADIO SHIP SARAH	
	NDB TACTICAL BEACONS	
	AUS BS 1RPH, CANBERRA, ACT	US MILITARY
	AUS BS 4RPH, BRISBANE, QLD	TO USUAL AM
	AUS BS 7RPH NEWTON, TAS	TO 1296
	BOL NDB CEP, CONCEPCION	
	ITA BS R. INTERNAZIONALE, VERONA	
	PAK CRS ARL KARACHI NAVAL STN R	
	USA NDB EUX, ALASKA (DEPT OF INTERIOR)	
1621.5	GBR MMO INTER-SHIP FISHING VESSELS, SCOTLAND	UNOFFICIAL FQ
1622.0	RDT CUBIC ARGO	//1779,2
	USA BSR BROADCAST REMOTES	

1622.5	NDB KF11, UNID	
	NDB KG2, UNID	
	NOR RACAL SURVEY HYPERFIX, N.NORWAY, ARCTIC, SEVERAL	//1782,0 (BENTECH)
1623.0	RDT CUBIC ARGO	//1776,8
	RDT CUBIC ARGO	//1780
	BRA NDB FAM, FAZENDA AMALIA	
	BRA NDB HUM, HUMAITA	
	PNG NDB GNY, ALOTAU	
1624.0	RDT CUBIC ARGO	//1773,7
	RDT CUBIC ARGO	//1782
	NDB KA83932, UNID	
	UNID GERMAN STN	
	UNID INTER-SHIP, GERMAN	
	NDB UNIDS, LETTER/NUMBERS TYPE NA CONTINENT	
	USA NDB RAQ, ALASKA (DEPT. OF INTERIOR)	
	USA NDB TACTICAL BEACON, FT. CAMPBELL, KY.	
1625.0	RDT UNID	
	RDT UNID CUBIC ARGO, NA CONTINENT	
	RDT UNID CUBIC ARGO, NA CONTINENT	
	CHL BS R EXPERIMENTAL CRISTIANA, MAIPU	
	COS NDB TIKX, SAN JOSE	
	DNK RDT DECCA HI-FIX 6 AALBORG	//1895,8
	ECU NDB PAT, PASTAZA	EX 1655
	ECU NDB ZUI ASCAZUBI	
	NOR TLX LGB TLX HEARD HERE, SPURIOUS?	
1625.5	RDT UNID	
	NOR MMO INTER-SHIP FISHING VESSELS, SUNNMØRE	UNOFFICIAL FREQ
	NOR MMO INTER-SHIP OIL INDUSTRY, EKOFISK, STATFJORD	UNOFFICIAL FQ
1626.0	CAN NDB V2, YELLOWKNIFE, NWT	
1627.0	BRA NDB NPA NOVO PARAISO	
	BRA NDB SAC SAO CARLOS	
	CAN NDB 3F AXEL HEIBERG ISL, NWT	
	GBR MMO INTER-SHIP FISHING-VESSELS, SCOTLAND	UNOFFICIAL FQ
1627.5	UNID CW-STN	
	GBR MMO LIFEBOAT CHANNEL	RARELY USED
	HOL MMO DUTCH COAST GUARD VESSELS PBVV BREEVERTEEN, VEGA ALBATROS	
	HOL MMO DUTCH LIFEBOATS	
	HOL MMO DUTCH PILOT VESSELS	
	HOL CRS PB. NEDERLANDSE KUSTWACHT, BRANDARIS	
	HOL CRS PB. NEDERLANDSE KUSTWACHT, HARLINGEN	
	HOL CRS PB. NEDERLANDSE KUSTWACHT, HOEK VAN HOLLAND	
	HOL CRS PB. NEDERLANDSE KUSTWACHT, HUISDUINEN	"KUSTWACHT KIJKDUIN"
	HOL CRS PB. NEDERLANDSE KUSTWACHT, SCHEVENINGEN	
	HOL CRS PB. NEDERLANDSE KUSTWACHT, SCHIERMONNIKOOG	
	HOL CRS PB. NEDERLANDSE KUSTWACHT, TERSCHELLING	
	HOL CRS PB. NEDERLANDSE LOODSWESEN DELFZIJL	"LOODSKONTOR"
	HOL CRS PB. NEDERLANDSE KUSTWACHT, VLISSINGEN	
	HOL CRS PB. NEDERLANDSE KUSTWACHT, IJMUIDEN	"KUSTWACHT CENTRUM"
	URS BS SPURIOUS SIG, R MOSCOW	//1143
1628.0	RDT CUBIC ARGO	//1784
	RDT UNID CUBIC ARGO, NA CONTINENT	
1629.0	RDT CUBIC ARGO	//1784,5
	RDT UNID	
	NDB XN4, UNID	
	NDB XNV, UNID	
	AUS BS 2RPH, SYDNEY, NSW	
	AUS BS 3RPH, KOORYONG, VIC	
	AUS BS VLU2V SYDNEY, NSW	TO 1179/1503

1630.0	RDT CUBIC ARGO	//1787
	NDB FZ953, UNID HAWAII	
	NDB S, UNID	
	CHL BS R DIF. EXP. EVANGÉLICA, LO PRADO	
	SEN CRS KAOLACK PORT R	
	SEN CRS KAOLACK R	
	SEN CRS ZIGUINCHOR PORT R	OTHER SIDE 2182
	SEN CRS ZIGUINCHOR R	OTHER SIDE 2182
1631.0	RDT UNID	
1632.0	RDT CUBIC ARGO	//1786,5
	RDT UNID CUBIC ARGO, NA CONTINENT	
	BOL NDB VARIABLE APOLO	MIL
	GBR MMO INTER-SHIP FISHING-VESSELS, SCOTLAND	UNOFFICIAL FQ
	PNG NDB OKT TABUBIL	
1632.5	CW UNID	
	RDT UNID	
	UNID GG-STN	
	GBR MMO LIFEBOAT CHANNEL	RARELY USED
	INT MMO SHIPS CLG LGA ÅLESUND	LGA ON 2663.
	INT MMO SHIPS CLG LGE, TROMSØ	LGE TROMSØ 2663
	JPN RDT DECCA HI-FIX JAPAN, NDA	//1813,9
	NOR MMO SHIPS CLG LGT, OSLOFJORD	LGT ON 2663
1634.5	RDT 2 UNIDS	
	MMO UNID DUTCH STN	
	GBR MMO INTER-SHIP FISHING VESSELS, SCOTLAND	UNOFFICIAL
1635.0	NDB KG6, UNID	
	NDB V276, UNID NA CONTINENT	
	CAN NDB 6Q, SAINVILLE, NWT	
	COL NDB ORI ORITO	
	ECU NDB IMC LIMONCOCHA	
	ESP BS SER R LINARES	HEARD SPORADICALLY
1636.0	RDT CUBIC ARGO	//1790,2
	USA NDB ROK ALASKA	DEPT INTERIOR
1637.0	NDB K321, UNID NA CONTINENT	
	NDB R235, UNID NA CONTINENT	
	TUN CRS 3VW1 BIZERTE PORT R	
1638.0	NDB C225, UNID NA CONTINENT	
	FRB, UNID NA CONTINENT	VARYING FQ
	NDB TACTICAL BEACONS,	US MILITARY
	RDT UNID	
	NDB XAC, UNID	
	BRA NDB LBR LABREA	
	BRA NDB TPQ TAPURUQUARA	
	GBR MMO INTER-SHIP FISHING VESSELS, SCOTLAND	UNOFFICIAL FQ
	INT MMO SHIPS CLG AMMASSALIK R	AMMASSALIK R 2250
	INT MMO SHIPS CLG OXF QAQORTOQ R, (JULIANEHÅB), SIMIUTAQ	OXF SIMIUTAQ 2129
	INT MMO SHIPS CLG OXI NUUK R	OXI, NUUK 2057
	INT MMO SHIPS CLG OXI NUUK R, MANIITSOQ	OXI, MANIITSOQ 2400
	INT MMO SHIPS CLG OXI, NUUK R PAAMUTT	OXI, PAAMUTT 2225
	INT MMO SHIPS CLG OYR AASIAAT R, (EGEDESMINDE), UMANAK	OYR ON 2265
	INT MMO SHIPS CLG OYR QEQERTARSUAQ	OYR QEQERTARSUAQ 3276
	INT MMO SHIPS CLG OYR QEQERTARSUAQ (GODHAVN)	OYR QEQERTARSUAQ 2210
	INT MMO SHIPS CLG OYR UPERNAVIK	OYR UPERNAVIK 3280
1638.5	MMO INTER-SHIP, OIL RELATED, NORWAY	
	MMO UNID INTER-SHIP USSR?	
1638.8	RDT UNID, CLOSE-SPACED CARRIERS	
1639.0	NDB XBC, UNID	
	NDB XLN, UNID	

1640.0	RDT CUBIC ARGO	//1794
	BOL NDB SUV SAN JAVIER	SJV?
	BOL NDB SUV, SAN JAVIER	
	CHL BS R LA CUMBRE, PENAAZOLÉN	
	GBR MMO INTER-SHIP FISHING VESSELS, SCOTLAND	UNOFFICIAL
	ISL CRS TFM NES(KAUPSTADIR) R	OTHER SIDE 2002
	USA NDB TACTICAL BEACON, FT.CAMPBELL,KY	
1641.0	RDT UNID	
	NDB XLN, UNID	
1642.0	CW 3-4 UNIDS, NA CONTINENT	
	NDB E369,UNID NA CONTINENT	
	NDB FXYC,UNID NA CONTINENT	
	NDB KA83338,UNID NA CONTINENT	
	NDB KA84055,UNID NA CONTINENT?	
	NDB TACTICAL BEACONS	US MILITARY
	RDT UNID CUBIC ARGO, NA CONTINENT	
	CAN NDB 5R, PENNY STRAIT, NWT	
1642.5	HOL C/M SAME ENTRIES AS ON 1627,5	
1643.0	NDB KA85038,UNID NA CONTINENT?	
	NDB L339,UNID NA CONTINENT?	
	ITA CRS IQA AUGUSTA P.T.R.	OTHER SIDE MISSING
	USA NDB TACTICAL BEACON, FT.HOOD,TX	
1643.4	SAB RDT DECCA HI-FIX 6, SHELL	//1826,0
1644.0	NDB KA83952,UNID NA CONTINENT?	
	NDB TACTICAL BEACONS	US MILITARY
	JPN CRS JFS HACHINOHE	SEE ADDENDA
1645.0	RDT UNID CUBIC ARGO, NA CONTINENT	
	CAN NDB 3H, MACKENZIE DELTA,NWT	
	ECU NDB TLC TULCAN	
	ECU NDB YPI YAUPI	
	GBR CW GKB,PORTISHEAD R	RARELY USED
	NOR TLX LGB ROGALAND R, GANDDAL	
	USA NDB FFD, ALASKA(DEPT OF INTERIOR)	
1646.0	NOR TLX LGB ROGALAND R, GANDDAL	HEARD IN USA
	USA BSR BROADCAST REMOTES	
1646.1	BRU RDT DECCA HI-FIX,SHELL	
1646.5	RDT CUBIC ARGO	//1795
1647.0	NDB TB23E, UNID	
	NDB TB28, UNID	
	BRD MMO GERMAN LIGHTSHIPS	
	BRD MMO LIFEBOAT CHANNEL	RARELY USED
	GBR C/M BRITISH PILOT STNS/VESSELS	SEE ADDENDA
	GBR CRS HM COAST GUARD STNS	SEE ADDENDA
	GBR MMO RNLI LIFEBOATS	SEE ADDENDA
	GBR MMO TRINITY HOUSE LIGHTSHIPS	SEE ADDENDA.NOW VHF?
	IRL MMO IRISH LIFEBOATS	
	NOR TLX LGB ROGALAND R, GANDDAL	
1647.5	NDB FD2, UNID	
	NDB FN1, UNID	
1648.0	USA NDB TACTICAL BEACON, FT.HOOD,TX	
1649.0	MMO INTER-SHIP FISHING VESSELS SCOTLAND	UNOFFICIAL
1649.5	BEL CRS OSA ANIWERPEN R	OTHER SIDE 1649,5
	BEL CRS OST OOSTENDE R	OTHER SIDE MISSING
1650.0	NDB 3M, UNID	
	NDB 3M, UNID	
	NDB 6X, UNID	
	NDB 7Q, UNID	
	NDB 7Z, UNID	
	NDB AB, UNID	
	NDB F5, UNID	
	NDB GB, UNID	

1650.0	NDB GT, UNID	
	NDB H8, UNID	
	NDB KP, UNID	
	NDB KQ, UNID	
	NDB LD, UNID	
	NDB NQ, UNID	
	UNID RUSSIAN STNS, INTER-SHIP?	
	NDB UW, UNID	
	NDB VD, UNID	
	NDB WQ, UNID	
	NDB WZ, UNID	
	NDB XP, UNID	
	NDB XZ, UNID	
	NDB ZB, UNID	
	ALG CRS ORAN-CAP FALCON PHARES ET BALISES R	OTHER SIDE MISSING
	ALG CRS SHIKDA PHARES ET BALISES R	OTHER SIDE MISSING
	BRA NDB SOT, REYES	EX RY, 1550
	BUL CRS LZL, BOURGAS R	
	IND CRS VWA 1 RAMNAGAR PORT R	OTHER SIDE 1650
	ISL CRS TFA REYKJAVIK R	OTHER SIDE 2002
	SWE CRS SAH HARNØSAND R	OTHER SIDE 2216
	TGO CRS 5VA, LOME R	
1651.0	RDT UNID	
	USA NDB TACTICAL BEACON, FT. BRAGG, NC	
1652.0	NDB KA85047, UNID NA CONTINENT?	
	NDB M313, UNID NA CONTINENT	
1652.5	CW UNID	
	BEL CRS OSA ANTIWERPEN R	OTHER SIDE 1652,5
	BEL CRS OST OOSTENDE R	OTHER SIDE MISSING
1655.0	BRD MMO GERMAN LIFEBOATS	HEARD 0530, 0730
	BRD CRS SAR-STN, SYLT	
	BRD CRS SAR-STN, BORKUM	
	BRD CRS SAR-STN, HELGOLAND	
	BRD CRS SAR-STN, KIEL	
	ECU NDB LOJ LOJA	
	ECU NDB RIO RIOBAMBA	
	PNG NDB BLB, BOOTLESS BAY	
1655.8	USA RDT TELEDYNE, CHESAPEAKE BAY	
1656.0	AUS BS TAFE R, GOLD COAST	
	USA NDB BUV, FORT RUCKER, AL	
	USA NDB TACTICAL BEACON, FT. HOOD, TX	
1657.5	NDB AL, UNID	
	NDB MZ, UNID	
	NDB MZ, UNID	
	CW UNID USSR STN	
	HOL C/M SAME ENTRIES AS 1627,5	
	INT MMO SHIPS CLG LGA, KRISTIANSUND.	LGA, KRISTIANSUND 2695
	INT MMO SHIPS CLG LGI HAMMERFEST R	LGI ON 2695
	INT MMO SHIPS CLG LGP, LØDINGEN	LGP LØDINGEN 2695
	INT MMO SHIPS CLG LGQ, HAUGESUND	LGQ HAUGESUND 2695
1658.0	NDB SM2, UNID	
	NDB VJ1, UNID	
	GBR MMO INTER-SHIP FISHING-VESSELS, SCOTLAND	UNOFFICIAL FQ
1658.5	NDB E, UNID	
1659.0	NDB KZ422, UNID	
1660.0	NDB TACTICAL BEACONS	US MILITARY
	BS UNID ARABIC STN	
	BOL NDB SNG, SAN IGNACIO DE VELASCO	EX 1710
	JPN CRS FISHING FLEET COMMUNICATION	SEE ADDENDA
	USA RDT DECCA HI-FIX, GREAT LAKES	
	USA BS K2XXB BELTSVILLE, MD	EXPERIMENTAL NAB-TX

1660.5	UNID SCOTTISH STN	
	INT MMO SHIPS CLG LGQ ROGALAND FROM EKOFISK BASIN	OIL INDUSTRY EXCLUS.
1662.0	NIC NDB PZA, PUERTO CANEZAS	
	PNG NDB KUB, KUBUNA	EX XB,238,1728.
1662.5	COR CORDLESS PHONE, SUNNMØRE	
	NDB KG2,UNID	
	CW UNID	
	RDT UNID	
	BRD MMO LIFEBOAT CHANNEL	RARELY USED
	GBR C/M CF.GBR ENTR. 1647.YORKS,HUMBERS.LFBS TEST W HCG	SUN 1030-1130
	GBR CRS GUERNSEY HARBOUR R	
	GBR CRS ST PETER PORT R GUERNSEY,CHANNEL ISLANDS	OTHER SIDE 2381
	IRL CRS CIL, BAILLY LIGHTHOUSE, CO DUBLIN	0805,1105,1605
	IRL CRS CIL, INISHTRAKULL LH	
	IRL CRS CIL, KISH LIGHTHOUSE,CO DUBLIN	
	IRL CRS CIL, MEW ISLAND LIGHTHOUSE	
	IRL CRS CIL, ROANCARRIG LH	
	IRL CRS CIL, ROCKABILL LH, CO DUBLIN	
	IRL CRS CIL, TORY ISLAND LH	
	IRL CRS CIL, TUSKAR ROCK LH,CO WEXFORD	
1663.0	NDB TJ1, UNID	
1663.5	AZR CRS CUG SAO MIGUEL R	OTHER SIDE MISSING
	MDR CRS CUB, FUNCHAL R	
1664.0	NDB TACTICAL BEACONS	US MILITARY
1665.0	NDB I1, UNID	
	NDB KG2, UNID	
	COR ROYCE FREEDOM PHONE IV	MOBILE 49,830
	NDB XP1, UNID	
	BRA NDB CRB CABO NORTE	
	BRD MMO PILOT VESSELS EMS,WESTEREMS,WESER,EMS P.VSL	HEARD 0730,1725
	CAN NDB 6G, ARCTIC RED RIVER, NWT	
	COL NDB CIO CICUCO	
	ECU NDB IAG, LAGO AGRIO	EX 1730
	ECU NDB RIO RIOBAMBA	
	INT MMO CALIBRATION CHANNEL FOR DAN	
	INT MMO SHIPS CLG ITTOQQORTOORMITT R (SCORESBYSOUND)	ITTOQQORTOORMITT2225
	INT MMO SHIPS CLG OXF QAQORTIQ R, IKERASSASSUAQ	IKERASSASSUAQ 2265
	INT MMO SHIPS CLG OXI, NUUK R	OTHER SIDE MISSING
	USA COR CORDLESS PHONES	
1667.0	ITA CRS ICB GENOVA R	OTHER SIDE MISSING
1667.5	NDB KG2,UNID	
	MMO UNID INTER-SHIP USSR	
	NDB XP1,UNID	
	GBR MMO INTER-SHIP FISHING-VESSELS, SCOTLAND	UNOFFICIAL FQ
1668.0	BRA NDB CCI CUCUI	
	BRA NDB CCI, CUCUI	EX 1680
	BRA NDB FCR FAZENDA CRISTALIND	
1669.0	COR CORDLESS PHONE, EASTERN NORWAY	
	USA NDB AGQ, FT.RUCKER,AL	
1669.5	GBR TLX GKR-1 WICK R (NOM FQ 1671,2)	OTHER SIDE 2509
1670.0	COR ALCOM EMPIRE 041	MOBILE 49,825
	COR COR PROSONIC CP-29W	MOBILE 49,830
	COR SANYO CLT-30	MOBILE 49,830
	COR SANYO CLT-35	MOBILE 49,830
	UNID KOREAN?	
	TLX WINA-4, UNID	MIL?
	BRA NDB PAH PRAINHA	
	CAN NDB 6T, FT-GOOD HOPE,NWT	
	CAN NDB 6T, FT.GOOD HOPE, NWT	
	CAN NDB N2, CAPE GRASSY,NWT	
	COL NDB CZU COROZAL	

1670.0	COS NDB TIPM, PALMAR NZL NDB FU, FLATBUSH	EX 358
1670.3	GBR TLX GKR-1 WICK R (NOM FQ 1672,0) GBR TLX GND-1 NORTH FORELAND R GBR TLX GNK-1 NORWICK R, SHETLAND ISLES	OTHER SIDE 2495,1 STAND-IN FOR GKR-1? STAND-IN FOR GKR-1 SEE ADDENDA
1670.5	JPN WEA SHIPPING WEATHER STNS	
1672.0	COR CORDLESS PHONES, CANADA NDB TACTICAL BEACONS	US MILITARY
1672.1	USA RDT DECCA HI-FIX 6 TEXAS, LOUISIANA	
1673.0	RDT UNID CUBIC ARGO, NA CONTINENT FRA CRS FFU "B" FRA CRS FFU BREST-LE-CONQUET R FRA CRS FFU SUD-BRETAGNE ISL CRS TFT HORNAFJÖRDUR R	OTHER SIDE MISSING OTHER SIDE MISSING OTHER SIDE MISSING OTHER SIDE MISSING HARMONIC, FROM 837
1674.0	FRA BS NANCY	
1675.0	NDB FO4, UNID RDT ONI/SPOT? COR SANYO CLT-35A ECU NDB ESM ESMERALDAS ITA CRS IQH NAPOLI R JPN CRS JHU NEMURO	1675-1687 MOBILE 49,800 OTHER SIDE MISSING
1676.0	CAN NDB 8P, PRINCE GUSTAV, NWT PNG NDB TSL, TSILI TSILI USA NDB TACTICAL BEACON, FORT BRAGG, NC	
1677.0	NDB ZW, UNID	
1678.0	CW UNID ESP CRS EAC TARIFA R GBR MMO INTER-SHIP FISHING-VESSELS, SCOTLAND	OTHER SIDE 2049 UNOFFICIAL FQ
1679.0	RDT UNID CUBIC ARGO, NA CONTINENT	
1680.0	NDB TACTICAL BEACONS BRA NDB CCI CUCUI EGY CRS SUK KOSSEIR R GRC CRS SVN ATHINAI R ITA CRS VENEZIA P.T.R.	OTHER SIDE MISSING OTHER SIDE MISSING OTHER SIDE MISSING
1680.5	RTY UNID RITY STN BRD CW G23A, WILHELMSHAVEN	
1680.7	USA RDT DECCA HI-FIX 6 TEXAS, LOUISIANA	NAVY
1682.0	RDT UNID CUBIC ARGO, NA CONTINENT BRA NDB QQ QUEBEC	
1683.5	RDT UNID CW UNID	
1684.0	NDB TACTICAL BEACONS	US MILITARY
1685.0	COR BI-PHONE TP 125 COL NDB MER, MERCADERES ECU NDB MAC MACARA	MOBILE 49,825
1687.0	NDB FO4, UNID NDB TJ4, UNID DNK CRS OXZ LYNGBY R DNK CRS OXZ LYNGBY R FRA CRS FFO ST.NAZAIRE R NOR MMO INTER-SHIP, FISHING-VESSELS, SCOTLAND USA NDB TACTICAL BEACON, FT.HOOD, TX	OTHER SIDE 2069 OTHER SIDE 2049 OTHER SIDE MISSING UNOFFICIAL FQ
1688.0	NDB TACTICAL BEACONS RDT UNID BRA NDB BCS BENJAMIN CONSTANT BRA NDB ERP EIRUNEPE CAN NDB 90, SIMPSON LAKE, NWT	US MILITARY
1689.0	PNG NDB MH, MOUNT HAGEN	EX 257,1737

1690.0	COR BI-PHONE TP 125	MOBILE 49,830
	COR MURAPHONE MP-400, MP-401	MOBILE 49,830
	COR NOYX TODAYS DELUXE	MOBILE 49,830
	NDB TACTICAL BEACONS	US MILITARY
	ESP CRS EAV CABO DE LA NAO R	OTHER SIDE 2013
	TWN CRS KAOHSIUNG FISHERY BS	"K.YUYEH TIENTAI"
	USA NDB BBT FT RUCKER,AL	MIL
1690.9	NOR CRS LGQ ROGALAND R, HAUGESUND	OTHER SIDE 2537,9
1691.5	ESP CRS CILLERO, LUGO R(CCR R)	OTHER SIDE MISSING
1692.0	COR COBRA CP-100 B	MOBILE 49,800
	IND RDT DECCA HI-FIX 6 INDIAN NAVY, HYDROGR.	//1880
	PNG NDB KIU, KIUNGA	EX 227,1710
1693.0	JPN CRS FISHING COMMUNICATION STNS	SEE ADDENDA
1694.0	RDT UNID	
	FRA CRS FFB BOULOGNE-SUR-MER R	OTHER SIDE MISSING
	NOR CRS LGA ÅLESUND R KRISTIANSUND	OTHER SIDE 2541
	NOR CRS LGA,ÅLESUND R KRISTIANSUND	OTHER SIDE 2049
	NOR CRS LGP BODØ R	OTHER SIDE 2541
	SPI CRS LGS SVALBARD R ISFJORD	OTHER SIDE 2049/2541
	USA NDB TACTICAL BEACON FT.BRAGG,NC	
1695.0	COR ROYCE FREEDOM PHONE IV	MOBILE 49,845
	COR TADY TH-100 BR	MOBILE 49,830
	COL NDB TBU TIBU	
	USA COR CORDLESS PHONES	
1696.0	NDB BK7, UNID	
	GRC CRS SVK KERKYRA R	OTHER SIDE MISSING
1697.5	JPN CRS FISHING COMMUNICATION STNS	SEE ADDENDA
1698.0	ESP CRS EAF FINISTERRE R	OTHER SIDE 2046
	USA NDB TACTICAL BEACON, FT.BRAGG,NC	
1699.0	JPN CRS FISHING COMMUNICATION STNS	SEE ADDENDA
1700.0	COR AMAZ-A-PHONE AP 700	MOBILE 49.800
	COR AMBIANCE	MOBILE 49.800
	COR AURORA AS-3600	MOBILE 49.000
	COR BI-PHONE BP400B	MOBILE 49,800 5300HZ
	COR BI-PHONE BP400B	MOBILE 49,800 6000HZ
	COR CORDLESS FREEDOM PHONE	MOBILE 49,900
	COR CORDLESS PHONE, SUNNMØRE	
	COR DYNASCAN CP-15S	MOBILE 49,900
	COR DYNASCAN CP-200S	MOBILE 49,000
	COR DYNASCAN CP100S	MOBILE 49,000
	COR ELECTRA CO. FF-1500	MOBILE 49,000
	COR ELECTRA CO. FF-3000	MOBILE 49,000
	COR ELECTRA CO. FF-500	MOBILE 49,000
	COR EXTEND-A-PHONE	MOBILE 49,000
	COR EXTEND-A-PHONE	MOBILE 49,800 6000HZ
	COR EXTEND-A-PHONE 1500	MOBILE 49,800 4500HZ
	COR EXTRAFONE EF-200E	MOBILE 49,000
	COR FRACOM ROVAFONE 600-RDS	MOBILE 49,800
	COR FRACOM ROVAFONE 600-TTS	MOBILE 49,000
	COR FRACOM ROVAFONE ROVETTE	MOBILE 49,000
	COR FREEDOM PHONE 3500	MOBILE 49,000
	COR FREEDOM PHONE IV FF-3000 ROYCE	MOBILE 49,845
	COR GPT GPTC-7	MOBILE 49,800 4500HZ
	COR JAROX BX 701 HX 701	MOBILE 49,000
	COR JUNIOR PHONE	MOBILE 49,900
	COR KP 7100	MOBILE 49,000
	COR MASTER PACER PHONE,MOD 8510	MOBILE 49,850 750HZ
	COR NISSHO NONCORD NC-1000	MOBILE 49,800
	RDT ONI/SPOT?	MOBILE 49,845
	COR ORCHID AF-600H	1700-1710
	COR ORCHID RF-1000	MOBILE 49,000
		MOBILE 49,000

1700.0	COR PATHCOM INC. 8502,8510	MOBILE 49,000
	COR PATHCOM INC. 8504, 8512	MOBILE 49,000
	COR PATHCOM INC.8400	MOBILE 49,000
	COR PATHCOM INC.8501, 8511	MOBILE 49,000
	COR RADIO SHACK DUOFONE ET-300	MOBILE 49,800
	COR RADIO SHACK DUOFONE ET-500	MOBILE 49,800
	COR RADIO SHACK ET-300	MOBILE 49,000
	COR RADIO SHACK ET-310	MOBILE 49,000
	COR SANYO CLIT-35	MOBILE 49,845
	COR SANYO CLIT-35A	MOBILE 49,845
	COR SUPER STAR SX 360	MOBILE 49,000
	COR TEDY	MOBILE 49,800
	COR TELEPET DE LUX	MOBILE 49,800
	COR TM-4003 EMP	MOBILE 49,800
	MMO UNID EE-STN	
	UNID INUIT LANG. STN	
	COR UNIDEN EX-4000B	MOBILE 49,000
	COR UNIVERSIAL TEL-3000	MOBILE 49,000
	COR WEBCOR ZIP-518	MOBILE 49,845
	COR WEBCOR ZIP-585	MOBILE 49,820
	AFS CRS CAPE AGULHAS R	OTHER SIDE 1700
	AFS CRS CAPE COLUMBINE R	OTHER SIDE 1700
	AFS CRS PORT ELIZABETH R	OTHER SIDE MISSING
	AFS CRS ZSA EAST LONDON R	OTHER SIDE 1700
	CHN RDT DECCA HI-FIX, RAN/2: SHANGHAI W.B.	
	ECU NDB MAS MACAS	
	ECU NDB OLM OLMEDO	
	ESP CRS CHIPIONA R	OTHER SIDE 2013
	NMB CRS ZSL20 LUDERITZ R	OTHER SIDE 2049
	TWN WEA KEELUNG FISHERY&WEATHER BS	"K.YUYEH TIENTAI"
	URS BS UNID CC SCE	
1700.5	RDT UNID	
1701.0	NDB SF7, UNID	
	DNK CRS OXP SKAGEN R	OTHER SIDE 1988
	DNK CRS OXP SKAGEN R	OTHER SIDE 2049
	DNK CRS OXP SKAGEN R AGGERSUND	OTHER SIDE 1988
	IND RDT DECCA HI-FIX 6, INDIAN NAVY, HYDROGR.	//1890,0
1701.5	CRS CORDLESS PHONES, FRANA	
1702.0	CAN RDT DECCA MINIFIX, CDC 1/2-S.W.VANCOUVER ISLAND	
	JPN CRS FISHING COMMUNICATION STNS	SEE ADDENDA
	JPN CRS FISHING COMMUNICATION STNS	SEE ADDENDA
1702.5	CRS CORDLESS PHONE, BUD	
1703.0	CAN RDT DECCA MINIFIX CDC3, LAKE HURON	
1703.5	NOR RDT DECCA HI-FIX, NORWAY HYDROGR.	//1892,8
1704.0	CAN RDT CDC4, COMDEV	
	ESP CRS MACHICHACO R	OTHER SIDE 2046
	HON NDB TNT, TEGUCIGALPA	
1704.6	NOR RDT DECCA SEA-FIX, NORWAY POLAR INSTITUTE	//1894,0
1705.0	COR COSMO TR 3008	MOBILE 49,845
	COR EXTENSION 6000	MOBILE 49,845
	NDB KT7, UNID	
	NDB NK7, UNID	
	COR PINE GP-2000	MOBILE 49,845
	COR PROSONIC CP-29W	MOBILE 49,845
	COR SOUNDIC T-168	MOBILE 49,885
	RDT UNID CUBIC ARGO, NA CONTINENT	
	BEL CRS OSA ANIWERPEN R	OTHER SIDE MISSING
	BEL CRS OST OOSTENDE R	OTHER SIDE MISSING
	CAN RDT DECCA MINIFIX CDC5, COMDEV	
	ITA CRS PALERMO P.T.R.	OTHER SIDE 2023
	NOR RDT GEOLOC, (GEOTEAM) 5 LOCS, NORTHERN NORWAY, ARCTIC	600KHZ BANDWIDTH

1705.0	USA RDT RACAL SURVEY HYPERFIX ALASKA, 3 W.COAST STATES	//1752,0
1705.5	CHN RDT DECCA HI-FIX 6 SHANGHAI W.B.	//1895,0
1706.0	RDT UNID	
	CAN RDT DECCA MINIFIX CDC 6, COMDEV	
	GBR CRS GLD LANDS END R	OTHER SIDE 2049
	USA RDT DECCA HI-FIX, US CORP OF ENG, DETROIT, MI	
1707.0	CAN RDT DECCA MINI-FIX CDC7, COMDEV	
	ESP CRS SADA, CORUNA R	OTHER SIDE MISSING
1708.0	NDB DR7, UNID	
	NDB SFB, UNID	
	NDB TACTICAL BEACONS	US MILITARY
	BEL CRS OOSTENDE LODSWESEN R	
	BEL CRS OSA ANIWERPEN R	OTHER SIDE MISSING
	BEL CRS OST OOSTENDE R	OTHER SIDE MISSING
	BEL CRS VLISSINGEN LODSWESEN R	
	BEL CRS ZEEBRUGGE LODSWESEN R	
	BRA NDB BDA BOCA DO ACRE	
	BRA NDB CUA CARAUARI	
	CAN RDT DECCA MINIFIX, CDC8	
	COL NDB ATM ALTAMIRA	
	DEN RDT DECCA SEA-FIX	NAVY
	ECU NDB CUE CUENCA	
	FAR CRS OXJ THORSHAVN R	OTHER SIDE 2097
	ISR CRS 4XT2 GENOSAR R	OTHER SIDE MISSING
	ISR CRS 4XT3 TIBERIAS R	OTHER SIDE MISSING
	ISR CRS 4XT4 EIN-GEV R	OTHER SIDE MISSING
1708.2	CAN RDT RACAL HYPERFIX, ENVIRONMENT CANADA, FOX BASIN	//1898,0
1709.0	USA RDT RACAL SURVEY HYPERFIX GULF OF MEXICO, US E.COAST	//1765,0
1709.5	FNL CRS OFA HELSINKI R	OTHER SIDE MISSING
	USA RDT DECCA HI-FIX, CORP OF ENG., DETROIT, MI	
1709.6	USA RDT RACAL SURVEY HYPERFIX ALASKA, 3 W.COAST STATES	//1755,0
1710.0	COR BI-PHONE TP 125	MOBILE 49,855
	NDB FF3, UNID	
	COR SONY SPP-11	MOBILE 49,875
	COR SUPER RANGE SR 128	MOBILE 49,845
	COR SUPER RANGE SR 133M	MOBILE 49,845
	COR YOKO	MOBILE 49,845
	COR ZETA 820	MOBILE 49,845
	AFS CRS SEE AFS ENTRIES ON 1700	OTHER SIDE 1710
	BOL NDB SNG, SAN ANTONIO DE VELASCO	
	CAN RDT DECCA HI-FIX, ENVIRONMENT CANADA	//1900,0
	CAN NDB P2, DRAKE POINT, NWT	
	GBR RDT DECCA HI-FIX 6 DECCA COLLEGE	//1900,0
	NMB CRS ZSL21 IUDERTTZ R	OTHER SIDE 2049
1710.2	RDT DECCA SEA-FIX DSSEA	
1710.3	ARG RDT DECCA SEA-FIX, ARGENTINE PW	
1710.7	IRL RDT DECCA HI-FIX, BANTRY	
	IRL RDT DECCA HI-FIX, KERRY,	//1910,2
	IRL RDT DECCA HI-FIX, WATERFORD	
	IRL RDT DECCA HI-FIX, WEXFORD	
1710.8	IND RDT DECCA HI-FIX 6, INDIAN NAVY	//1900,8
1710.9	SAR RDT DECCA HI-FIX 6, SARAWAK, SHELL	//1901,0
1711.0	NDB TACTICAL BEACONS	US MILITARY
1711.2	EGY RDT EGYPT, BITTER LAKE, ARAMCO	
1711.5	RTY UNID RTTY-STN	
1711.8	RDT DECCA HI-FIX 6, ESSO-PETRONAS 80,	//1902,0
1712.0	NDB TACTICAL BEACONS	US MILITARY
1712.5	CHL RDT DECCA SEA-FIX, CHILE, NAVY HYDROGR.	
1712.7	ITA RDT TRIESTE	//1903,0
1713.0	DNK CRS OXB BLAAVAND R	OTHER SIDE 2059
	USA NDB TACTICAL BEACON, FT.HOOD, TX	

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1713.6	MAL RDT RACAL SURVEY HYPERFIX,	//1904,0
1714.0	RDT UNID CUBIC ARGO, NA CONTINENT	
	USA RDT RACAL SURVEY HYPERFIX GULF OF MEXICO, E.COAST	//1764,8
1714.1	AUS RDT RACAL SURVEY HYPERFIX, AUSTRALIA	//1904,5
1714.5	AUS RDT DECCA HI-FIX 6, AUSTRALIA NATIONAL MAPPING	//1905,0
	USA RDT RACAL SURVEY HYPERFIX, GULF OF MEXICO, E.COAST	//1765,2
1715.0	BRA NDB IS, JAGUARI	
	BRA NDB PP, CARAPINI	
	ECU NDB BAN, BANOS	
	GBR CRS GLV ANGLESEY R	OTHER SIDE 2049
	ISL CRS TFV VESTMANNAEYJAR R	OTHER SIDE 2484
	ITA CRS CROTONE P.T.R.	OTHER SIDE MISSING
	USA RDT RACAL SURVEY HYPERFIX, GULF OF MEXICO, E.COAST	//1765,5
	USA NDB TACTICAL BEACON, FT.HOOD, TX	
1715.5	USA RDT RACAL SURVEY HYPERFIX, GULF OF MEXICO, E.COAST	//1766,0
1716.0	NDB TACTICAL BEACONS	US MILITARY
	RDT UNID CUBIC ARGO, NA CONTINENT	
	RDT UNID CUBIC ARGO,NA CONTINENT	
	CHL RDT DECCA SEA-FIX, CHILE ENAP,	
	DDR CRS Y5M RUGEN R	OTHER SIDE MISSING
	USA RDT RACAL SURVEY HYPERFIX, GULF OF MEXICO, E.COAST	//1766,4
1717.0	USA NDB ODE. FT.RUCKER, AL	
1718.5	GBR RDT RACAL SURVEY HYPERFIX, MOD, WEST ORKNEY	//1898,4
1718.6	GBR RDT DECCA SEA-FIX, DECCA COLLEGE	
	NIG RDT DECCA HI-FIX, NIGERIA-WAS	//1909,6
1719.0	DDR CRS Y5M RUGEN R	OTHER SIDE 2550
	INS RDT RACAL SURVEY HYPERFIX, INDONESIAN NAVY	//1910,0
1720.0	NDB TACTICAL BEACONS	US MILITARY
	AUS BS VLU2V, KENSINGTON RELAY	
	CIS CRS TENERIFE R	OTHER SIDE 2049
	DUB RDT RACAL SURVEY HYPERFIX, DUBAI	//1809,0
1721.0	RDT UNID	
	UNID GG-STN	
	BRD MMO UNID	
1721.5	RDT UNID CUBIC ARGO, NA CONTINENT	
1722.0	RDT UNID	
	FRA CRS FFO ST.NAZAIRE R	OTHER SIDE MISSING
	ITA CRS IDC CAGLIARI R	OTHER SIDE 2023
	JMN CRS IMJ JAN MAYEN R	OTHER SIDE 2442
	JPN CRS FISHING COMMUNICATION STNS	SEE ADDENDA
	NOR CRS LGA,ÅLESUND R ÅLESUND	OTHER SIDE 2049
	NOR CRS LGI HAMMERFEST R	OTHER SIDE 2442
	NOR CRS LGI,HAMMERFEST R	OTHER SIDE 2049
	NOS CRS LGA ÅLESUND R	OTHER SIDE 2442
1723.5	GBR RDT DECCA HI-FIX 6 R.N.SCOTLAND 80	//1915,0
	MAL RDT DECCA HI-FIX 6, ROYAL MALAYSIAN NAVY	//1915,0
1725.0	RDT UNID	
	RDT UNID CUBIC ARGO, NA CONTINENT	
	JPN CRS FISHING COMMUNICATION STNS	SEE ADDENDA
	JPN CRS FISHING COMMUNICATION STNS	SEE ADDENDA
	USA COR CORDLESS PHONES	
	USA RDT RACAL SURVEY HYPERFIX E.COAST	//1780,0
1725.1	GBR RDT DECCA SEA-FIX(NEW SYS?) LEATHERHEAD(NEW MALDEN?)	
1725.3	CAN RDT DECCA HI-FIX, DECCA MARINE	//1919,0
	GBR RDT DECCA HI-FIX 6, R.N. SCOTLAND 80,	//1917,0
	MAL RDT DECCA HI-FIX 6 ROYAL MALAYSIAN NAVY	//1917,0
1726.0	CW UNID NA CONTINENT?	
	ARS CRS HZH JEDDAH R	OTHER SIDE MISSING
	GBR CRS GUD JERSEY R	OTHER SIDE 2381
	USA NDB TACTICAL BEACON, FORT BRAGG, NC	

1727.0	SIR RDT DECCA SEA-FIX, SIERRA LEONE	
	USA RDT RACAL SURVEY HYPERFIX, E.COAST	
1728.0	CAN NDB QZ, DESBARATS STRAITS, NWT	
	IND RDT DECCA HI-FIX 6 INDIAN HYDROGR.,	//1920,0
1728.5	RDT UNID CUBIC ARGO, NA CONTINENT	
	JPN CRS FISHING COMMUNICATION STNS	SEE ADDENDA
1729.0	NOR CRS LGQ ROGALAND R	OTHER SIDE 2449
	NOR CRS LGV VARDØ R	OTHER SIDE 2049/2449
	NOR CRS LGV,VARDØ R	OTHER SIDE 2049
1730.0	COR AUDIOVOX AT-11	MOBILE 49,860
	COR AUDIOVOX AT-11	MOBILE 49,860
	COR BI-PHONE TP-125	MOBILE 49,860
	COR BROKSONIC	MOBILE 49,860
	COR JAROX 77	MOBILE 49,860
	COR PACER PHONE MOD 8502, MOD 8513	MOBILE 49,860
	COR SANYO TH-1015	MOBILE 49,830
	COR SANYO TH-1015 S	MOBILE 49,830
	COR UNIDEN EX-3000 B	MOBILE 49,860
	ECU NDB IAG, LAGO AGRIO	
	ESP CRS ARRECIFE R	OTHER SIDE 2013
	ESP CRS EAB BARCELONA R	OTHER SIDE MISSING
	NOR RDT DECCA HI-FIX 6, TROMS	//1923,0
1732.0	NDB TACTICAL BEACONS	US MILITARY
1734.2	URS CRS UGK3 KALININGRAD R	
1735.0	COR ALCOM EXCEED 058	MOBILE 49,860
	COR ALCOM EXCEED 058	MOBILE 49,860
	COR ALL-PHONE 2000	MOBILE 49,860
	COR CORDLESS PHONES	
	COR MURAPHONE MP-610	MOBILE 49,830
	COR SANYO CLT-20	MOBILE 49,860
	COR SANYO CLT-35	MOBILE 49,860
	COR SPEAKEASY MCE-700	MOBILE 49,870
	COR TODAYS DE LUXE 61233	MOBILE 49,875
	RDT UNID	
	RTY UNID RTTY,STN, NA CONTINENT	
	RTY UNID, NA CONTINENT?	
	ALG CRS 7TO ORAN R	OTHER SIDE MISSING
1736.0	NDB TACTICAL BEACONS	US MILITARY
	RDT UNID	
	IND RDT DECCA HI-FIX 6 INDIAN NAVY, HYDROGR.,	//1928,8
	NOR CRS LGE HARSTAD R	OTHER SIDE 2456
	NOR CRS LGH,HARSTAD R	OTHER SIDE 2049
	NOR LGT TJØME R	OTHER SIDE 2049/2456
	SPI CRS LGS SVALBARD R ISFJORD	OTHER SIDE 2456
1737.0	ITA CRS TRAPANI P.T.R.	OTHER SIDE 2023
1738.0	COR FREEDOM PHONE 2500	MOBILE 49,860
	NDB TACTICAL BEACONS	US MILITARY
1738.5	JPN CRS FISHING COMMUNICATION STNS	SEE ADDENDA
1739.0	NDB TACTICAL BEACONS	US MILITARY
1739.4	NOR RDT RACAL SURVEY HYPERFIX VIKING SEVERAL	//1901,5
1740.0	NDB SS, UNID	
	COR TAI FONG TF-820	MOBILE 49,825
	BRA NDB LJ, SAO JOSE DOS CAMPOS	
	BRA NDB PP, PORTO VELHO	
	CAN NDB 6K, CRANSWICK RIVER,NWT	
	ESP CRS EAB BAGUR R	ON 1730?OTHER SIDE M
1740.6	GBR RDT DECCA HI-FIX 6, R.N. IRISH SEA,	//1934,0
	MAL RDT DECCA HI-FIX 6 ROYAL MALAYSIAN NAVY	//1934,0
	NIG RDT DECCA HI-FIX NIGERIA,WAS	
1742.0	GRC CRS SVH IRAKLION KRITIS R	OTHER SIDE MISSING

1743.0	RDT UNID	
	HOL TLX PBI, NETHERLANDS CG?	
	MRC CRS CND3 SAFT R	
	NOR CRS LFO ØRLANDET R	OTHER SIDE MISSING
	NOR CRS LGI HAMMERFEST R, HONNINGSVÅG	OTHER SIDE 2463
	NOR CRS LGN BERGEN R	OTHER SIDE 2463
	TUN CRS 3VW LA GOULETTE PORT R	OTHER SIDE 2463
	TUN CRS 3VW1 BIZERTE PROT R	
	TUN CRS 3VW2 SFAX PORT T	
	TUN CRS 3VW3 SOUSSE PORT R	
	TUN CRS 3VW4 GABES PORT R	
1743.5	BRD RDT DECCA HI-FIX 6, GERMANY JUIST	//1897,6
1744.0	NDB TACTICAL BEACONS	US MILITARY
	CAN NDB 7L, MACKENZIE ISLAND, NWT	
1744.2	GBR RDT DECCA HI-FIX 6, R.N. HYDROGR. IN CHANNEL	//1938,0
	MAL RDT DECCA HI-FIX 6, ROYAL MALAYSIAN NAVY	//1938,0
1745.0	COR SUPER STAR SX-505	MOBILE 49,845
	ECU NDB CAN, CANAR	
	IND RDT DECCA HI-FIX INDIA G.S.I.	
	KOR CRS 6MA MOSULPO F R	
1746.0	RDT UNID DECCA HI-FIX, NA CONT.	
	JPN CRS FISHING COMMUNICATION ST NS	SEE ADDENDA
	JPN CRS FISHING COMMUNICATION STNS	SEE ADDENDA
1746.3	BRD RDT DECCA HI-FIX 6, GERMANY BWB	//1896,5
1746.8	N/D RDT RACAL SURVEY HYPERFIX NOR-DAN SEVERAL	//1899,0
1746.9	GBR RDT DECCA HI-FIX 6, RN EAST SHETLANDS 79,	//1984,1
1747.0	RDT UNID DECCA HI-FIX, NA CONT.	
	USA RDT DECCA HI-FIX, 3 W.COAST STATES	
1748.0	RDT UNID DECCA HI-FIX, NA CONT.	
	ESP CRS CORUNA R	OTHER SIDE 2049
	USA NDB TACTICAL BEACON, FORT BRAGG, NC	
1748.2	GBR RDT RACAL SURVEY HYPERFIX DOWSING SN. N.SEA	//1900,2,
1749.6	GBR RDT RACAL SURVEY HYPERFIX FORTH	//1897,9
	GBR RDT RACAL SURVEY HYPERFIX, N.NORTH SEA	//1901,5
1750.0	COR A-PHONE TP-125	MOBILE 49,890
	COR KEY-PHONE KP-9100 DX	MOBILE 49,890
	COR MINI-8 CTS-700M	MOBILE 49,860
	RDT UNID CUBIC ARGO, NA CONTINENT	
	AFS CRS SEE AFS ENTRIES ON 1700	OTHER SIDE 2002
	BUL CRS LZV VARNA R	
	CIS CRS LAS PALMAS R	OTHER SIDE 2049
	COL NDB PLIT, PLATO	
	NMB CRS ZSL22 LUDERITZ R	OTHER SIDE 2049
	NOR CRS LGE HARSTAD R, TROMSØ	OTHER SIDE 2470
	NOR CRS LGH, HARSTAD R TROMSØ	OTHER SIDE 2049
	NOR CRS LGZ FARSUND R	OTHER SIDE 2470
	NOR CRS LGZ, FARSUND R	OTHER SIDE 2049
	USA RDT RACAL SURVEY HYPERFIX ALASKA, W.COAST	//1797,0
1752.0	GBR RDT RACAL SURVEY HYPERFIX SHELL, CHANNEL	//1902,8
	USA RDT RACAL SURVEY HYPERFIX ALASKA, W.COAST	//1705,0
1752.5	COR WEBCOR ZIP-575	MOBILE 49,8761
1753.0	COR ALPHA CT-85	MOBILE 49,877
1753.9	RDT RACAL SURVEY HYPERFIX EXTENSION, SEVERAL	//?
	GBR RDT RACAL SURVEY HYPERFIX CROMARTY SEVERAL	//?
	NOR CRS LGL FLORØ R	OTHER SIDE 2572,9
1754.0	ESP CRS BERMEO R	OTHER SIDE MISSING
1754.6	GBR RDT RACAL SURVEY HYPERFIX, CROMARTY(OLD FQ?)	//1899,8

1755.0	COR EZ-PHONE PACE 8510	MOBILE 49,875
	COR SUPERFONE CT-600	MOBILE 49,860
	COR WALK-AROUND PHONE TF-820	MOBILE 49,876
	AFS RDT DECCA HI-FIX 6, S.AFRICAN NAVY,	//1950,0
	CUB RDT DECCA SEA-FIX, CUBA	
	OCE CRS FJA MAHINA R	OTHER SIDE MISSING
	USA RDT RACAL SURVEY HYPERFIX ALASKA, W.COAST	//1709,6
1755.2	RDT DECCA HI-FIX 6, PLA ESTUARY	//1899,5
1757.0	NOR LGL FLORØ R	OTHER SIDE 2576
	NOR CRS LGD ØRLANDET R, RØRVIK	OTHER SIDE 2576
	NOR CRS LGD,ØRLANDET R, RØRVIK	OTHER SIDE 2049
	NOR CRS LJB BJØRNØYA R	OTHER SIDE 2576
	POL CRS SPO SZCZECIN R	
1757.5	ESP CRS EAS CABO PENAS R	OTHER SIDE 2013
1758.0	NDB KT23, UNID	
1759.0	RDT UNID CUBIC ARGO, NA CONTINENT	
1760.0	COR FREEDOM PHONE 550	MOBILE 49,975
	COR SANYO CLT-35	MOBILE 49,875
	COR SANYO TH-150	MOBILE 49,875
	COR WEBCOR ZIP-518	MOBILE 49,875
	TUR CRS TAF SAMSUN R	OTHER SIDE 2182
	TUR CRS TAN 6,SAMSUN R	
1762.5	RDT UNID CUBIC ARGO,NA CONTINENT	
	RDT UNID, 30 PIPS A MIN NA CONTINENT	
1763.8	COR WADER CP-3500	MOBILE 49,6822
1763.9	RDT UNID CUBIC ARGO,NA CONTINENT	
1764.4	BRA RDT DECCA SEA-FIX BRAZIL	
1764.8	USA RDT RACAL SURVEY HYPERFIX GULF OF MEXICO, E.COAST	//1714,0
1764.9	RDT UNID CUBIC ARGO, NA CONTINENT	
1765.0	COR EXTENSION 6000	MOBILE 49,860
	COR PROSONIC CP-29W	MOBILE 49,875
	AFS CRS SEE AFS ENTRIES ON 1700	OTHER SIDE 2009
	AFS CRS ZSC 30 CAPE TOWN R	OTHER SIDE MISSING
	AFS CRS ZSD 32 DURBAN R	OTHER SIDE MISSING
	AFS CRS ZSQ 27 PORT ELIZABETH R	OTHER SIDE MISSING
	NMB CRS ZSL23 IUDERITZ R	OTHER SIDE 2049
1765.2	USA RDT RACAL SURVEY HYPERFIX GULF OF MEXICO,E.COAST,	//1714,5
1765.4	USA RDT DECCA HI-FIX, GULF OF MEXICO, E.COAST	
1765.5	RDT UNID CUBIC ARGO, NA CONTINENT	
	USA RDT RACAL SURVEY HYPERFIX, GULF OF MEXICO	//1715,0
1765.6	USA RDT RACAL SURVEY HYPERFIX, GULF OF MEXICO, E.COAST	//1709,0
1766.0	USA RDT RACAL SURVEY HYPERFIX GULF OF MEXICO	//1715,5
1766.4	USA RDT RACAL SURVEY HYPERFIX GULF OF MEXICO	//1716,0
1767.0	RDT UNID	
	NZL RDT DECCA HI-FIX 6 ROYAL NEW ZEALAND NAVY	
1768.0	RTY UNID RITY-STN, NA CONTINENT	
	RTY UNID, NA CONTINENT?	
1768.5	RDT ONI/SPOT?	
	RDT ONI/SPOT?	1768,5-1777,5
	JPN CRS FISHING COMMUNICATION STNS	SEE ADDENDA
1770.0	COR ABA HRP-9000	MOBILE 49.860
	COR UNIDEN MINI 2600	MOBILE 49,890
1771.0	COR BI-PHONE TP-125	MOBILE 49,860
	RDT UNID CUBIC ARGO, NA CONTINENT	
	FRA CRS FFB BOULOGNE-SUR-MER R	OTHER SIDE MISSING
	ITA CRS IPB BARI R	OTHER SIDE MISSING
	SWE CRS SDJ STOCKHOLM R (ALSO NDB) STAVSNÅS	OTHER SIDE 2477
	TUN CRS 3VM,MAHDIA R	
1772.0	COR DUOFONE ET-330	MOBILE 49,890
	JPN CRS FISHING COMMUNICATIUN STNS	

1773.0	RDT CUBIC ARGO	//1615,0
	RDT CUBIC ARGO	//1620,0
	PAK RDT DECCA HI-FIX 6, PAKISTAN	//1970,0
1773.7	RDT CUBIC ARGO	//1624,0
1775.0	COR EMP 4003	MOBILE 49,855
	RDT UNID CUBIC ARGO,NA CONTINENT	
	RTY UNID, NA CONTINENT?	
	JPN CRS FISHING COMMUNICATION STNS	SEE ADDENDA
	JPN CRS FISHING COMMUNICATION STNS	SEE ADDENDA
1776.8	RDT CUBIC ARGO	//1623,0
1777.0	COR EMP 4003	MOBILE 49,860
	RDT SERIES OF REL.CARRIERS,400 KHZ APART,UNIDS	NA CONTINENT
1777.5	RDT CUBIC ARGO	//1615,0
1778.0	RDT UNID	
	FAR CRS OXJ THORSHAVN R	OTHER SIDE 2069
	FAR CRS OXJ THORSHAVN R	OTHER SIDE 2049
	SWE CRS SDJ STOCKHOLM R GISLOVSHAMMAR	OTHER SIDE 1974
1778.5	JPN CRS FISHING COMMUNICATION STNS	SEE ADDENDA
1779.2	RDT CUBIC ARGO	//1622,0
1779.5	RDT CUBIC ARGO	//1614,0
	RDT UNID CUBIC ARGO,NA CONTINENT	
1780.0	RDT CUBIC ARGO	
	RDT DECCA HI-FIX BISCAYA	//1623,0
	COR SILWARE SL-300A	
	ARS CRS HZG DAMMAM R	MOBILE 49,892
	CNR CRS GOMERA R	OTHER SIDE 1956,6
	USA RDT RACAL SURVEY HYPERFIX, E.COAST	
1782.0	RDT CUBIC ARGO	//1725,0
	RDT ONI/SPOT?	//1624,0
	RDT UNID CUBIC ARGO,NA CONTINENT	1782-1797
	JPN CRS FISHING COMMUNICATION STNS	SEE ADDENDA
	NOR RDT RACAL SURVEY HYPERFIX,N.NORWAY &ARCTIC(BENTECH)	//1622,5, SEVERAL
1783.0	RDT UNIDS, LONG AND SHORT 30 PIP A MIN.OCC.1 SEC.	PULSE, NA CONTINENT
1784.0	RDT CUBIC ARGO	//1628,
1784.5	RDT CUBIC ARGO	//1629,0
1785.0	CAN RDT DECCA HI-FIX 6, CANADA MARINAV,	//1606,5
	CHN RDT DECCA HI-FIX, RAN/2:SHANGHAI W.B.	
	JPN CRS FISHING COMMUNICATION STNS	SEE ADDENDA
	SWE CRS SAG GÖTEBORG R	OTHER SIDE 2037
1786.5	RDT CUBIC ARGO	//1632,0
	RDT UNID	
1787.0	RDT CUBIC ARGO	//1630,0
1788.0	CAN RDT DECCA MINI-FIX, CCC LAKE WINNIPEG, MB	
1788.5	JPN CRS FISHING COMMUNICATION STNS	SEE ADDENDA
1790.0	COR SANYO TH 2000M	MOBILE 49,890
1790.1	SWE RDT DECCA HI-FIX 6 SWEDEN DEMO 6	//1989,0
1790.2	RDT CUBIC ARGO	//1636,0
1792.0	UNID ATC STN? BRITISH ACCENT,NA CONTINENT?	
	ALG CRS 7TA ALGER R	OTHER SIDE MISSING
	GBR CRS ST.PETER PORT R GUERNSEY,CHANNEL ISLANDS	SE REM.1662,5 G.HBR?
1793.0	COR GOID SX-007	MOBILE 49,887
1794.0	CUBIC ARGO	//1640,0
	RUM RDT DECCA HI-FIX 6	//1919,0
1795.0	RDT CUBIC ARGO	//1646,5
	COR TELEPET R-622H	MOBILE 49,890
	COR TELEPET R-622H	MOBILE 49,890
1796.0	BDR CRS DAN NORDDEICH R	OTHER SIDE 2488
1797.0	USA RDT RACAL SURVEY HYPERFIX ALASKA, WEST COAST	//1750,0
1799.0	BDR CRS DAN NORDDEICH R	OTHER SIDE 2491

1800.0	COR ALCOM EMPIRE	MOBILE 49,900 4500HZ
	RDT DECCA HI-FIX, RAN 1/3	
	COR PROSONIC CP-29W	MOBILE 49,890
	COR SANYO CLT-35 A	MOBILE 49,890
	RDT UNID	
	ESP CRS AYAMONTE R(A.COFRIADA R)	OTHER SIDE MISSING
	ESP CRS CEDEIRA, LA CORUNA R(CCR R)	OTHER SIDE MISSING
1802.0	COR SANYO 5A	MOBILE 49,890
1802.5	RDT DECCA HI-FIX 6, A.C.O.	//1998,5
1803.0	NDB O3VE, UNID	
	NOR CRS LGI,HAMMERFEST R, SKJERVØY	OTHER SIDE 2406
	NOR CRS LGI,HAMMERFEST R, SKJERVØY	OTHER SIDE 2049
1806.0	FRA CRS FFU "B"	OTHER SIDE MISSING
	FRA CRS FFU BREST-LE CONQUET R	OTHER SIDE MISSING
	FRA CRS FFU SUD-BRETAGNE	OTHER SIDE MISSING
	ITA CRS PORTO TORRES P.T.R.	OTHER SIDE 2023
1807.0	RDT UNID	
1809.0	RDT UNID	
	DUB RDT RACAL SURVEY HYPERFIX, DUBAI	//1720,0
1810.0	HAM R. AMATEURS 1810-1840 CW NORWAY ONLY 1820-1850	1840-1850 CW&PHONE
	ESP CRS BURELA, LUGO R(B.COFRIADA R)	OTHER SIDE MISSING
	GBR CRS ST.PETER PORT R GUERNSEY,CHANNEL ISLANDS	SEE REMARKS ON1662,5
1810.5	RDT ONI/SPOT?	1810,5-1820,5
1810.9	MAL RDT DECCA HI-FIX 6 ROYAL MALAYSIAN NAVY	
1811.4	GBR CRS GUERNSEY HARBOUR R	
1813.0	DJI CRS JIBUTI R	OTHER SIDE MISSING
	DNK CRS OXB BLAAVAND R	OTHER SIDE 2049
	DNK CRS OXB BLAAVAND R	OTHER SIDE 2076
	DNK CRS OXB BLAAVAND R BOVBJERG	OTHER SIDE 2076
	GUI CRS 3XC4 CONACRY R	OTHER SIDE MISSING
	GUI CRS 3XO6 KAMSAR R	OTHER SIDE MISSING
	SEN CRS 6VA DAKAR R	
1813.9	JPN RDT DECCA HI-FIX, JAPAN, NDA	//1632,5
1814.0	FIN RDT DECCA SEA-FIX, FINLAND HYDRO	
1815.0	JPN RDT DECCA HI-FIX, JAPAN, MOT NAGOYA	
1815.5	JPN RDT DECCA HI-FIX JAPAN, MOT SAKAIDE, KOBE 1	
1816.0	JPN RDT DECCA HI-FIX JAPAN, MOT OSAKA KOBE 2	
1817.0	BEL CRS OST OOSTENDE R	
1818.0	POL CRS SPC GDYNIA R	
1820.0	BEL CRS OST OOSTENDE R	
	FRA CRS FFC ARCACHON R	
	GRC CRS SVX CHIOS R	
1823.2	SWE RDT DECCA SEA-FIX, SWEDEN RB SN1	//1900,4
1824.0	GBR TLX GNK, NORWICK R?	
	GRC CRS SVX CHIOS R	
1825.0	CRS HZG,	OTHER SIDE 2002
1826.0	SAB RDT DECCA HI-FIX 6, SHELL	
	SAR RDT DECCA HI-FIX, SARAWAK, SHELL	
1827.0	IRL CRS EJK VALENTIA R	OTHER SIDE 2049
1828.0	RDT UNID	
1829.0	GBR TLX GND-1	SPUR?
	SAB RDT DECCA HI-FIX, ARABIAN OIL,SABAH SHELL	
1830.5	BRD CW G23A WILHELMSHAVEN	NAVY
	BRD CW G23B WILHELMSHAVEN	NAVY
1831.0	BEL CW OSN41, OOSTENDE	BELGIAN NAVY
1832.0	RDT DECCA HI-FIX, ARABIAN OIL	
1832.5	RDT DECCA HI-FIX, ARABIAN OIL	
1833.5	RDT DECCA HI-FIX 3,ARABOIL	
1834.0	FRA CRS TKM,GRASSE R	
	GBR CRS GNI, NITON R VENINOR, IOW	
	GBR CRS GNI,NITON R	OTHER SIDE 2049

1835.0	GHA CRS 9GA,TAKORADI R	
1838.0	HAM R AMATEURS, 1838-1842 RTTY	
	GBR CRS GCC CULLERCOATS R	
1840.0	ESP CRS SANTONA, SANTANDER R	
1841.0	GBR CRS GLD LANDS END R	
	GBR CRS GLD, LANDS END R	
	IRL CRS EJM MALIN HEAD R	OTHER SIDE 2049
1845.0	RDT DECCA HI-FIX, ARABIAN OIL	OTHER SIDE 2049
1848.0	GBR CRS GNF NORTH FORELAND R	
	GBR CRS GNF,NORTH FORELAND R	
	ITA CRS ICP,TRAPANI R	OTHER SIDE 2049
1849.0	EGY CRS SUK KOSSEIR R	
	QAT CRS A7D.DOHA R	
1850.0	NDB UEU, CUBA?	
	NIG RDT DECCA HI-FIX 6 NIGERIAN NAVY	
	NOR RDT FOSEN	//2000,0
	TUR CRS TAM7,CANAKKALE R	//1995,0
	TUR CRS TAN, IZMIR R	
2126.0	NDB GP, UNID	
2962.0	NDB FL, UNID	

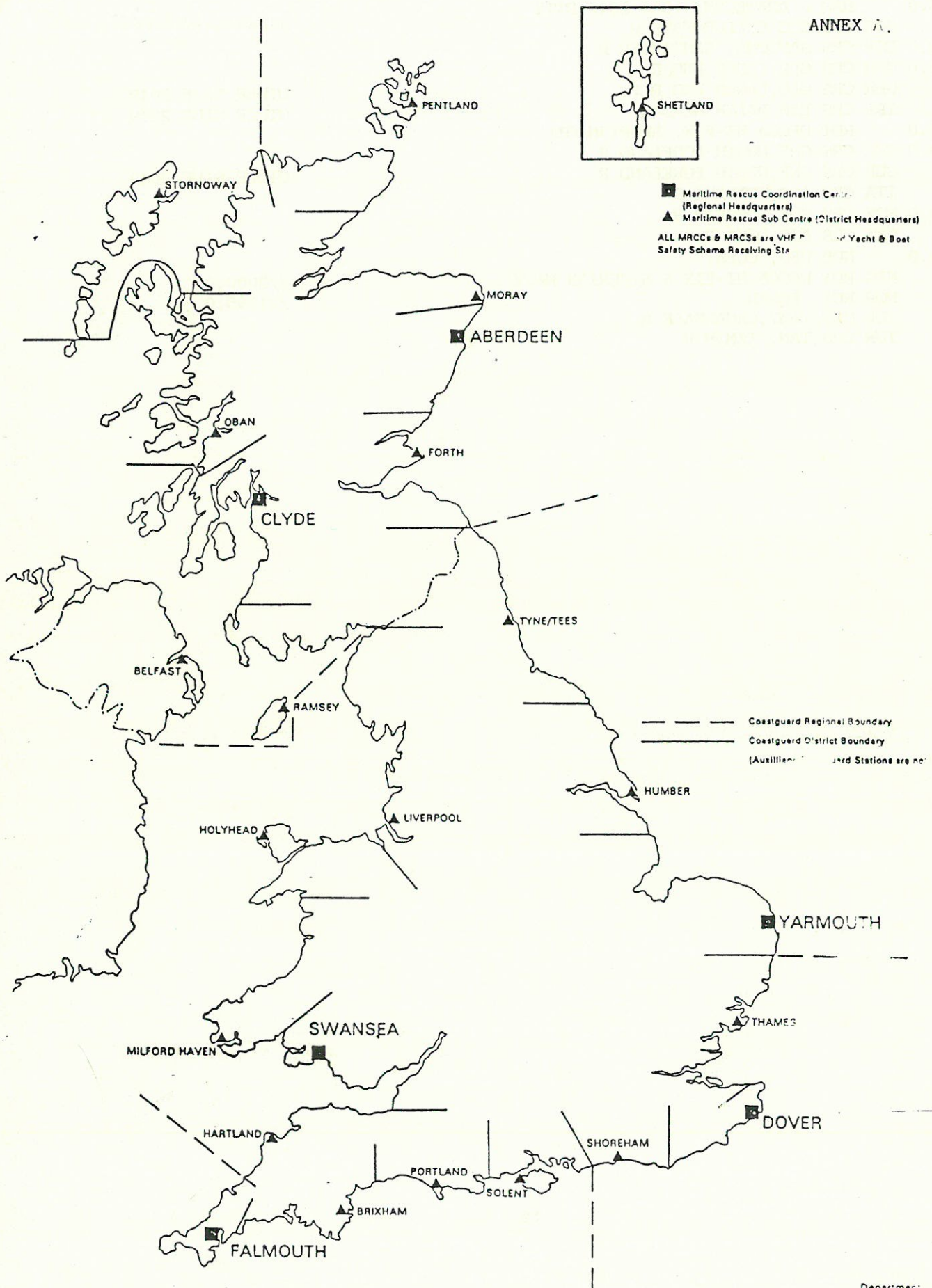
GBR CRS GLD, LANDS END R
 OTHER SIDE 2049
 IRL CRS EJM MALIN HEAD R
 OTHER SIDE 2049
 1845.0 RDT DECCA HI-FIX, ARABIAN OIL
 1848.0 GBR CRS GNF NORTH FORELAND R
 GBR CRS GNF, NORTH FORELAND R
 OTHER SIDE 2049
 ITA CRS ICP, TRAPANI R
 1849.0 EGY CRS SUK KOSSEIR R
 QAT CRS A7D. DOHA R
 1850.0 NDB UEU, CUBA?
 NIG RDT DECCA HI-FIX 6 NIGERIAN NAVY
 //2000,0
 NOR RDT FOSEN
 //1995,0
 TUR CRS TAN, IZMIR R
 TUR CRS TAM7, CANAKKALE R

ADDENDA:

1618,0 IRL CW EJM Malin Head R
 OTHER SIDE 1623,0.
 1639,0a GBR CW Walton Coastguard(Silent)
 1651,5 URS Moscow Meteo(0230 wx)
 1675,0 UNID(MIL?)airborne stn comm. with base?
 Lots of coded,unitelligible numbers.
 1747,0 BRD DHN37 Grengel Meteo,D 1728-0820 wx

HM COASTGUARD - REGIONAL & DISTRICT ORGANISATION

ANNEX A.



Department
RPHP3 Drawing C11
Revised July 1984



Department of Transport
HM Coastguard
Maritime Rescue Coordination Centre Swansea
Tutt Head Mumbles Swansea SA3 4ZL
Telephone: Swansea (0792) 367761 Telex: 48202

Svenn Martinsen
Pastor
Box 160
N 6430 Bud
Norway

Your reference

Our reference

Date 7 March 1990

Dear Sir,

With regards to your letter dated February 14th, referring to a radio intercept on 2182 on January 16th 1990, regrettably, we have no record of the transmission you quote to us, but as it was not involved in distress work, we would not normally keep a record of a test message. However, I can assure you that the 'Arthur George' was not one of the Lifeboats in our area, and was most probably some vessel just checking its equipment, after a new installation or prior to sailing.

2. HM Coastguard MF facilities are in general used to supplement the Distress coverage provided by the British Commercial Coast Radio Stations on the International Distress Frequencies 2182 Khz and 500 Khz, though some MRCC's and MRSC's have specific responsibilities. Other MF frequencies used by HM Coastguard are:

2226 Khz Intership frequency used by fishing vessels. Certain MRCC's have transmission facilities, all MRCC's and MRSC's have reception facilities

3023 Khz Normally used for communication with long range helicopters and aircraft

5680 Khz SSB Used by HM Coastguard as for 3023 Khz

1627.5 Mhz
1632.5 Mhz Lifeboat working frequencies.
1647.5 Mhz
1662.5 Mhz

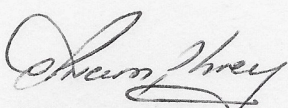
3. Lifeboats do not test MF with us at any pre-arranged time, though normally when on service.

4. The equipment we use here at Swansea Coastguard is a SKANTI TRP 8253S transceiver, which is a general purpose HF SSB transmitting receiving system designed for marine applications. It offers semi-duplex and simplex operation in the Marine bands. The transmitter gives free or programmable frequency selection from 1606.5 khz to 30 Mhz. The receiver covers the range 10 Khz to 30 Mhz.

The operating modes: USB: J3E upper sideband, suppressed carrier.
R3E: Upper sideband, reduced carrier.
AM: H3E upper sideband, full carrier.
LSB: J3E lower sideband, suppressed carrier.

Output power from the Transceiver unit into 50 ohms Full: approx 250 W PEP
Medium: approx 60 W PEP

I hope the above is of interest to you, and I enclose a leaflet about the Coastguard Service, so that you will know a little about our service, should you hear one of our stations, on the air.


C.P. Humphrey

Location of lifeboat stations

✚ = Location of A, B, C and D class lifeboat stations during the summer only

• = Location of A, B, C and D class lifeboat stations all year round



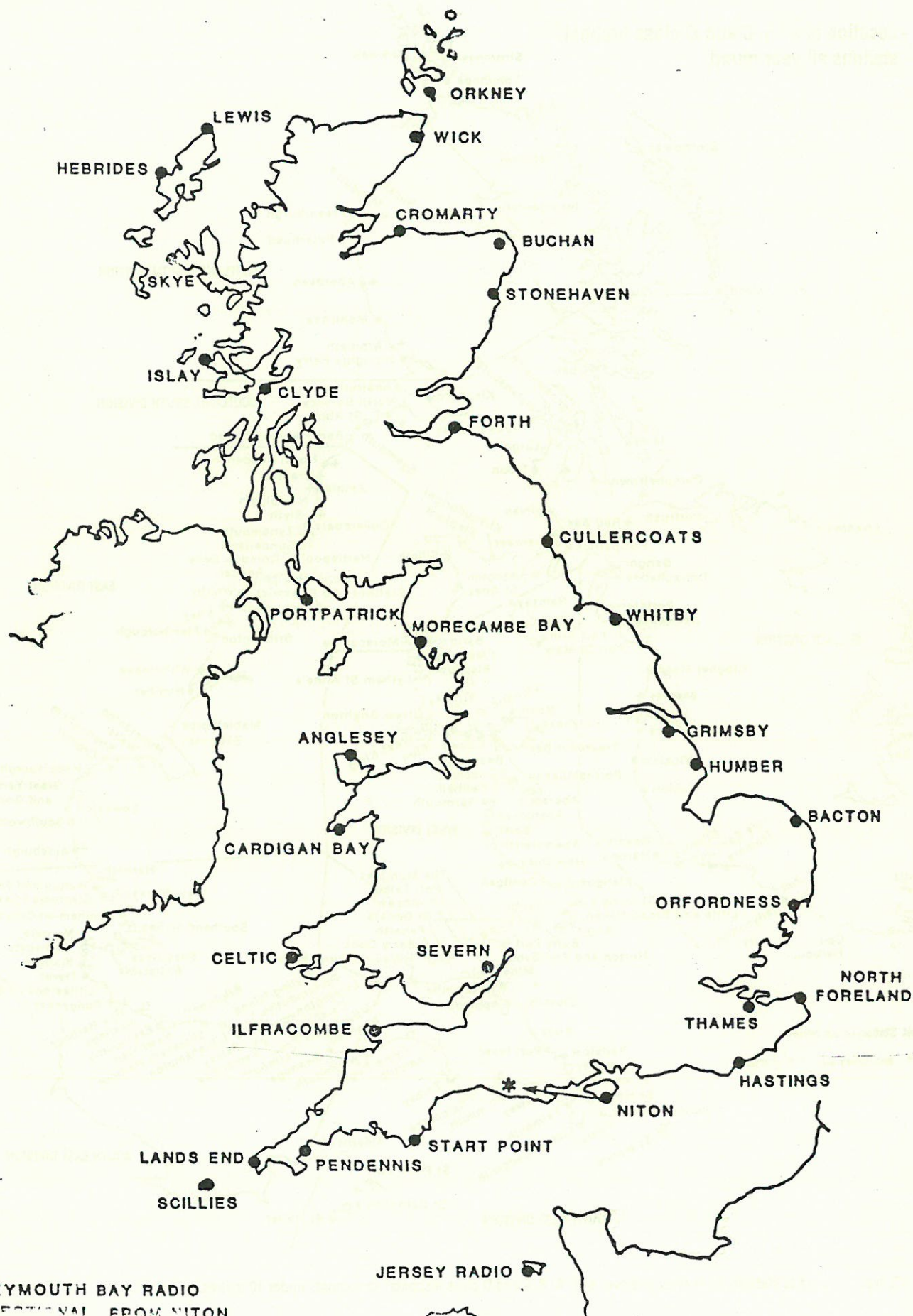
ANNEX B



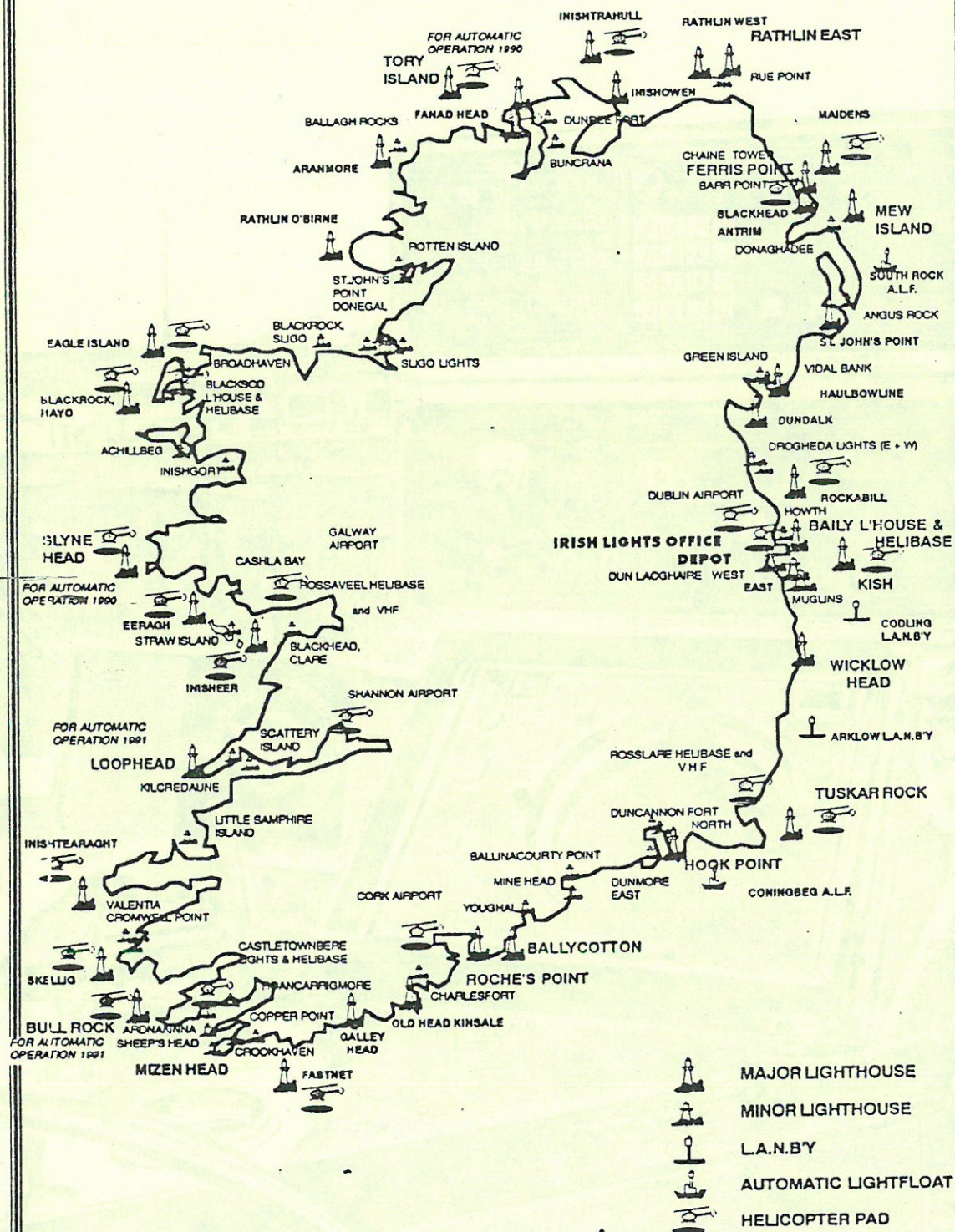
"Lifeboat" refers to lifeboats 10 metres and over and "A, B, C and D class lifeboats" to lifeboats under 10 metres.

POSITION TELECOM INTERNATIONAL SHORT RANGE AND MEDIUM-RANGE COAST STATIONS IN THE UNITED KINGDOM

ANNEX D



COMMISSIONERS OF IRISH LIGHTS LIGHTHOUSES, LIGHTFLOATS, L.A.N.B.Y'S & HELICOPTER PADS



GEOLOC 1705 kHz(operated by Geoteam)

Transmitters: Ringvassøy
Sennalandet
Kongsfjordfjell
Bjørnøya

CUBIC ARGO 1615 and 1773 kHz(operated by North Sea Navigation)

Vestlandet-Lofoten chain transmitters:

Utvær
Svinøy
Hustad (does not operate on 1773)
Halten
Slettringen
Sklinna
Trøna
Skomvær

South-West Norway chain transmitters:

Utvær
Kinn
Fedje
Fugløy
Karmøy
Brusand
Lista

RACAL SURVEY HYPERFIX 1622,5 and 1782 kHz(operated by Bentech,Tromsø)

Northern Norway-Arctic chain:

Grøtøy
Fruholmen
Sørvær
Grimsholmen
Nordkapp
Mobile/Finnmark
Bjørnøya

RACAL SURVEY HYPERFIX 1739,4 and 1901,5 kHz(operated by Racal Survey,Bergen)

Viking chain:

Florø(Kalvåg?)
Toftøy
Utsira
Shetland

RACAL SURVEY HYPERFIX 1746,8, and 1899 kHz(operated by Racal Survey,Bergen)

Nor-Dan chain:

Obrestad
Lista
Agger
Bjergeborg

RACAL SURVEY HYPERFIX 1753,9 and kHz(operated by Racal Survey, New Malden)

Cromarty chain:

Sumburgh
Orkney
N.Aberdeen
Firth of Forth

RACAL SURVEY HYPERFIX 1753,9 kHz(operated by Racal Survey,

Extension chain::

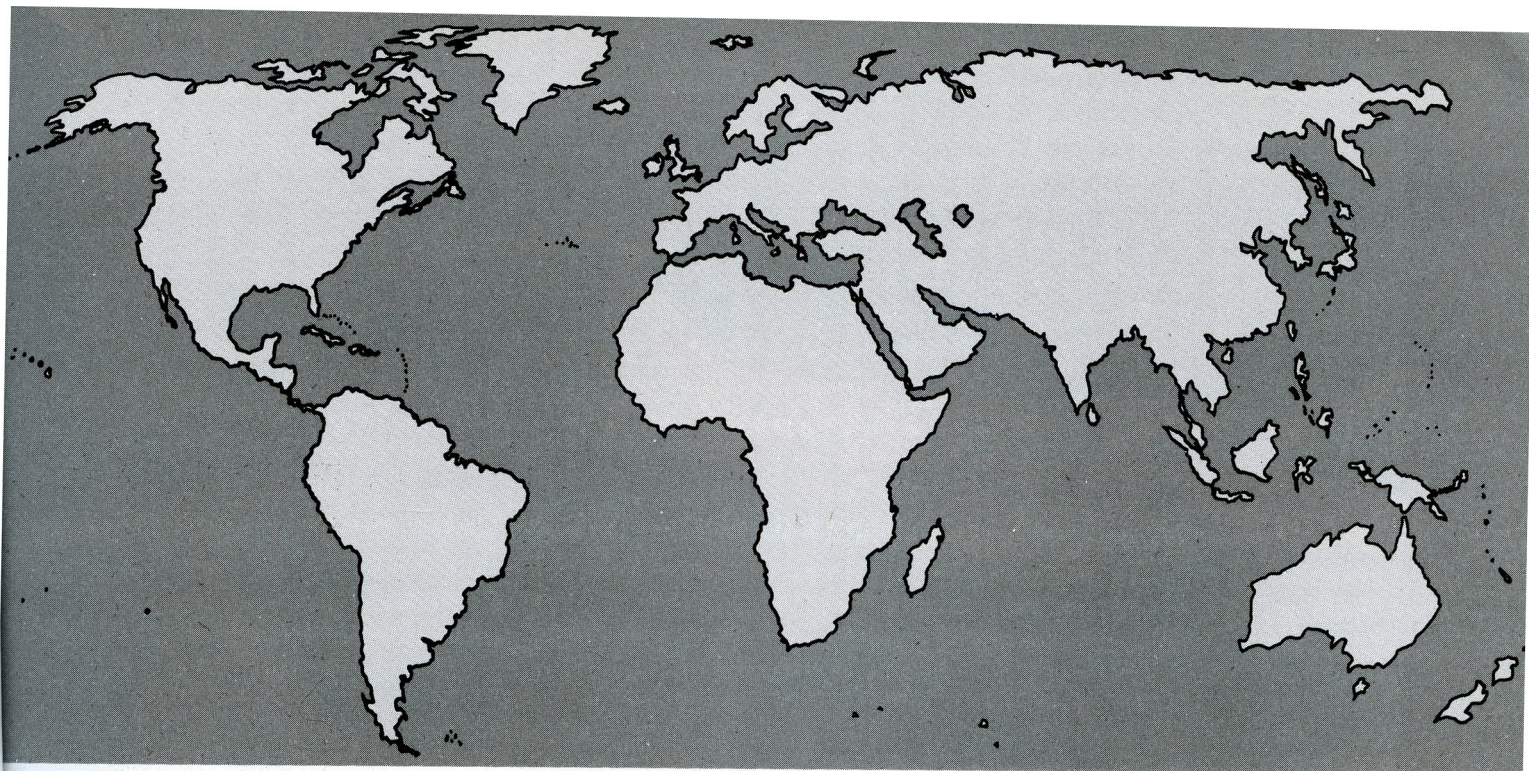
Esbjerg
Great Yarmouth
West German North Sea Coast
Dutch Coast

North Sea Navigation A/S

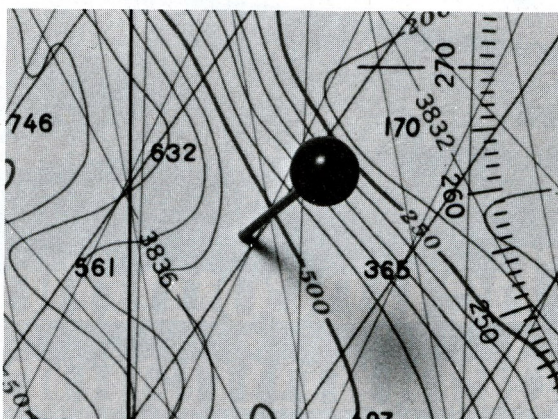
Postal address:
P.O.Box 231
1322 Høvik, Norway

Telephone: 47 2 59 26 44
Telefax: 47 2 59 22 10
Mobitel.: 094 39 480
Telex: 79200





Tell us where in the world you want to be...



ARGO puts you right on the money.

ARGO. The long-range surveying tool now being specified for offshore operations worldwide:

Because improving profitability depends upon improving productivity, while reinforcing accuracy. And on both counts, the optimized ARGO DM-54 system developed by Cubic leads the way. Anywhere. Anytime.

Because ARGO pinpoint positioning can continue around the clock, boosting the number of survey miles logged per 24-hour day. Significantly.

Because only ARGO offers multi-range, multi-user configurations. Operate range-range or hyperbolic mode from the same fixed stations.

Because ARGO system design is flexible — totally adaptable to changing needs. Expand by adding more mobile or shore stations to your network.

Because ARGO's field-proven. In the most rugged oceanographic, hydrographic, oil industry and other surveying operations. From the North Atlantic to the Indian Ocean... the Gulf of Mexico to the North Sea,

offshore professionals report ARGO can outperform any other radio positioning capability going today.

Now, because you can't afford to keep running around in circles, make a point of sending the coupon to Cubic today.

- ☐ Please rush data on ARGO DM-54 positioning capabilities.
- ☐ Contact us for immediate consultation.

Name _____

Title _____

Attach coupon to business letterhead and return to:
Cubic Western Data, 5650 Kearny Mesa Road,
P.O. Box 80787, San Diego, CA 92138, USA. Or call
(714) 268-3100 TWX: 910-335-1550 Cable: CUBIC

NAV 12/78



CUBIC WESTERN DATA
a member of the Cubic Corporation family of companies



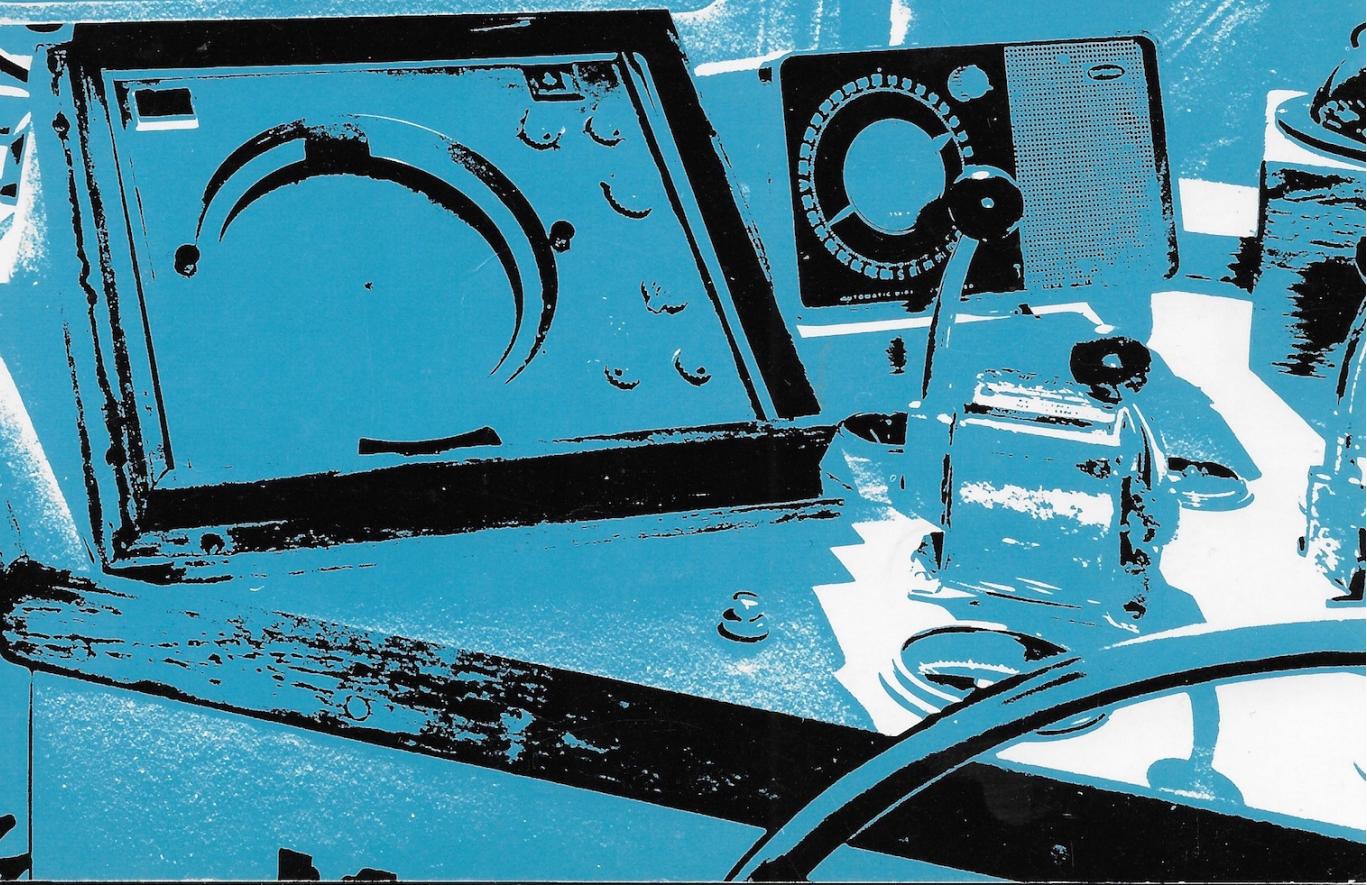
CUBIC WESTERN DATA

A member of the Cubic Corporation family of companies

ARGO DM-54

Long-Range Offshore Positioning System

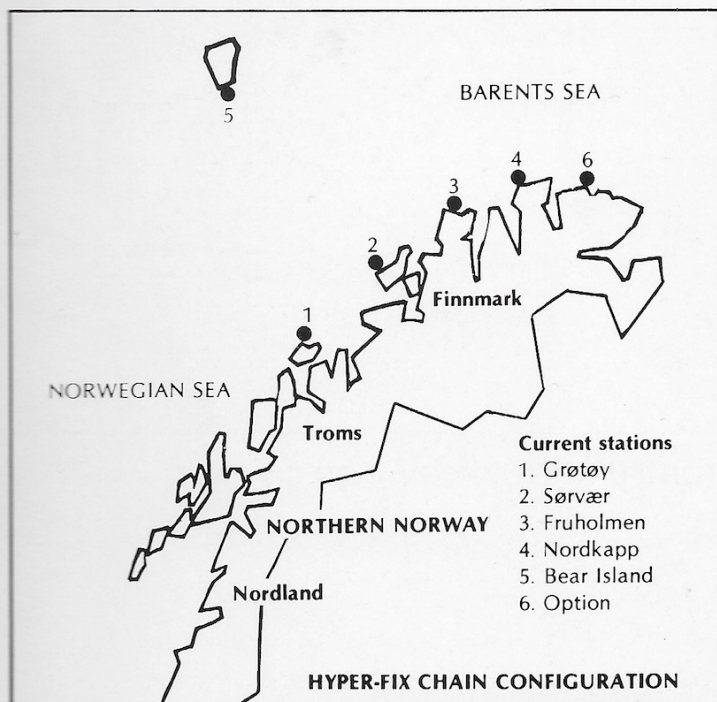
System Description





BENTECH

Survey — Hyper-Fix



Hyper-Fix, the most advanced 2MHz positioning system, is used on a permanent or temporary basis to provide precise positioning for:

- Offshore oil and gas operations.
- Seismic and Site surveys.
- Oceanography.
- Hydrography.
- Dredging.
- Military.
- Aerial survey (helicopter and fixed wing)

Hyper-fix features:

- Frequency range 1.6 - 3.4 MHz.
- Range up to 700 km by day.
- High system resolution 0.001 lanes.
Display resolution 0.01 lanes, equivalent to less than 1 m on the baseline.
- High stability under extreme interference conditions.
- Continuous ambiguity resolution.
- Range-range and hyperbolic operation.
- Multi purpose receiver/controller (all units interchangeable).
- Dual frequency operation and microprocessor control.
- Low power consumption, lightweight equipment.



A/S GEOTEAM

Hoffsjef Løvenskiolds vei 31 c

P.O.Box 52, Øvre Ullern

0311 Oslo 3

Norway

Tel. (02) 52 24 00

Telefax (02) 52 34 38

Telex 78489 gt n

Racal Survey Limited

Burlington House,
118 Burlington Road,
New Malden,
Surrey KT3 4NR,
England.

Telephone: 01-942 2464 / 2488

Telex: 8811392

Fax: 01-942 0835

DEN UKJENTE TV-TERRORIST

HUN VENTER PÅ AT HAN SKAL RINGE. HAN VENTER PÅ AT HUN SKAL TA TELEFONEN.

Har du en morsom telefon fra utlandet? En sånn som ser ut som en banan, eller en ølboks eller noe annet festlig?

Jo goyalere, jo dårligere, er det fristende å si. For sannheten er at mange av de billige telefonene folk kjøper i utlandet er mere leketøy enn kommunikasjonsutstyr.

For det første er mange av pirattelefonene tilpasset andre telenett enn det norske. Det kan bety at din agurk ikke registrerer at noen prøver å ringe til deg. Den ringer rett og slett ikke.

For det andre står ofte lydkvaliteten i stil med utseendet. Ølbokstelefonen låter gjerne som en ølboks, hvordan en agurk låter vet vi ikke, og du kan kanskje gjette hvordan kjæresten vil høres ut i en Donald- eller Mikke Mus-telefon?

Det tredje problemet er at en del av disse telefonene ikke alltid bryter samtalen ordentlig når du legger

på. Det kan bety at tellerskrittene fortsetter å løpe en stund etterpå, eller mer vanlig: Den som ringer opp en pirattelefon får bare opptattsignal.

Vi i Statens teleforvaltning har blant annet til oppgave å kontrollere og typegodkjenne alt telefonutstyr som kobles til det norske telenettet. Nettopp for å unngå slike problemer som er beskrevet ovenfor. Ikke bare for telenettets egen skyld, men for din og de andre brukernes. Bruker du telefoner som er merket med vårt godkjenningssmerke, er du trygg.



**STATENS
TELEFORVALTNING**

Vil du vite mer om Statens teleforvaltning, om typegodkjenning av telefoner og radioutstyr, så ta kontakt med vår informasjonstjeneste på tlf. 0...55 55 30

TV-signalene. Det pappa kanskje burde vite er at det er ulovlig å importere den slags leketøy til Norge uten typegodkjenning. Nettopp fordi slike saker ofte benyttes frekvenser som her hjemme er forbeholdt helt andre og viktigere oppgaver. Statens teleforvaltning har blant annet til oppgave å kontrollere og godkjenne radioutstyr. Slik at unødvendige og ofte farlige forstyrrelser av viktige signaler kan unngås. Vi har også ansvaret for å typegodkjenne alt utstyr (telefoner osv.) som kobles til telenettet her i landet. Fordi dårlig eller feiltilpasset utstyr – såkalte pirattelefoner – kan gi en rekke uønskede konsekvenser, som først og fremst rammer

Han fjernet Dynastiet fra TV-skjermen lenge før NRK kom på Portveien. Han har skapt forviklinger midt i både Smørøyet og Portveien. Ikke engang tippekamper eller værmeldinger får være i fred når han bestemmer seg for å slå til. På det aller mest uventede og ubeleilige går han til aksjon. Stripper ruller over TV-skjermen, lyden skraper og skurrer. Har han en heldig dag, klarer han å fjerne bildet totalt. Og det eneste han gjør er å leke med den radiostyrte bilen pappa hadde med hjem fra utlandet. Hverken han eller pappa kunne jo vite at radiosenderen som styrer bilen sender ut signalene sine på samme frekvens som



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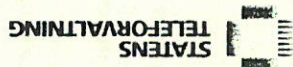


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Har du en morsom telefon fra utlandet? En sånn som ser ut som en banan, eller en ølboks eller noe annet festlig? Jo gøyere, jo dårligere, er det fristende å si. For sannheten er at mange av de billige telefonene folk kjøper i utlandet er mere leketøy enn kommunikasjonsutstyr. For det første er mange av pirattelefonene tilpasset andre telenett enn det norske. Det kan bety at din agurk ikke registrerer at noen prøver å ringe til deg. Den ringer rett og slett ikke. For det andre står ofte lydkvaliteten i stil med utseendet. Ølbokstelefonen låter gjerne som en ølboks, hvordan en agurk låter vet vi ikke, og du kan kanskje gjette hvordan kjæresten vil høres ut i en Donald- eller Milke-Mus-telefon? Det tredje problemet er at en del av disse telefonene ikke alltid bryter samtalen ordentlig når du legger

Trådløs telefon skaper TV-trøbbel

33 TEKST: TOR ARNE FANGHOL
FOTO: ORJAN DEISZ

Ulovlig trådløs telefon er et problem i Bergen. Telefonene forstyrrer TV-signalene slik at bildet får striper eller faller bort hos TV-seere når naboen bruker en slik telefon.

— Vi tar to-tre personer som har slike telefoner hver kveld vi kontrollerer. Vi tror at nesten hver femte husstand i Bergen har en slik trådløs telefon.

Det sier inspektør Anders Lyngstad i frekvenskontrollen i Bergen teledistrikt til Bergens Tidende. Besittelse av en slik ulovlig telefon kan medføre bot på 1.000 kroner.

Trådløse telefoner er slike som har en radioforbindelse mellom telefonrøret og telefonapparatet. Det gjør at du fritt kan bevege deg rundt i huset med telefonrøret.

Inn på TV-kanaler

— Vi får mange klager fra folk som får store forstyrrelser på fjernsynsapparatet. Dette skyldes i mange tilfeller bruk av ulovlige telefoner. Problemet er at signalet mellom telefonrør og apparat går på samme frekvens som TV-senderne som dekker Bergens-området, fortsetter Anders Lyngstad.

Det samme gjør seg gjeldende også med radio. Men der blir problemet omvendt.

— Telefonene som ikke er godkjent av Televerket går på fre-

kvenser som er vanlige radiosignaler. Det gjør at folk kan avlytte slike telefoner med en FM-radio når de er i bruk, forteller inspektør Anders Lyngstad.

Uvitende syndere

Televerkets mann er den som kontrollerer og leter seg fram til de som har ulovlige telefoner i Bergen. Han påpeker at det er mange uvitende som har kjøpt en slik telefon på ferie eller forretningsreise i utlandet.

— Mange tror at alle telefoner er lovlige i Norge etter at flere enn Televerket fikk lov å selge telefonapparater. Men det er fortsatt typegodkjenning av apparatene. Derfor er det mange som ikke vet at de har en ulovlig telefon. Det finnes imidlertid flere utgaver av trådløse telefoner som er typegodkjent av Statens Teleforvaltning. Disse selges av radioforretninger og Televerket, forteller Lyngstad.

Beslaglegger flere

— Hvordan finner Televerket fram til dem som har slike telefoner?

— Vi kjører rundt i de områdene hvor vi har fått klager på TV-forstyrrelser. Og vi tar også tilfeldige kontroller. Vi oppfanger signaler fra snorløse telefoner. For å finne hvor telefonen ligger peiler vi, eller bruker opplysninger i de samtaler vi hører for å finne fram til rette vedkommende.

Vi tar deretter med oss telefonen for kontroll. Den sendes til Statens Teleforvaltning som vurderer og anmelder ulovlige forhold til politiet, forklarer Anders Lyngstad.

De kveldene de er ute på kontroll finner de to-tre ulovlige snorløse telefonapparater. I 1988 ble det beslaglagt 25 telefoner i Bergen. Televerket mener at dette bare er en forsvinnende liten del av det antallet ulovlige trådløse telefoner som finnes. Kontrollkapasiteten er for liten.

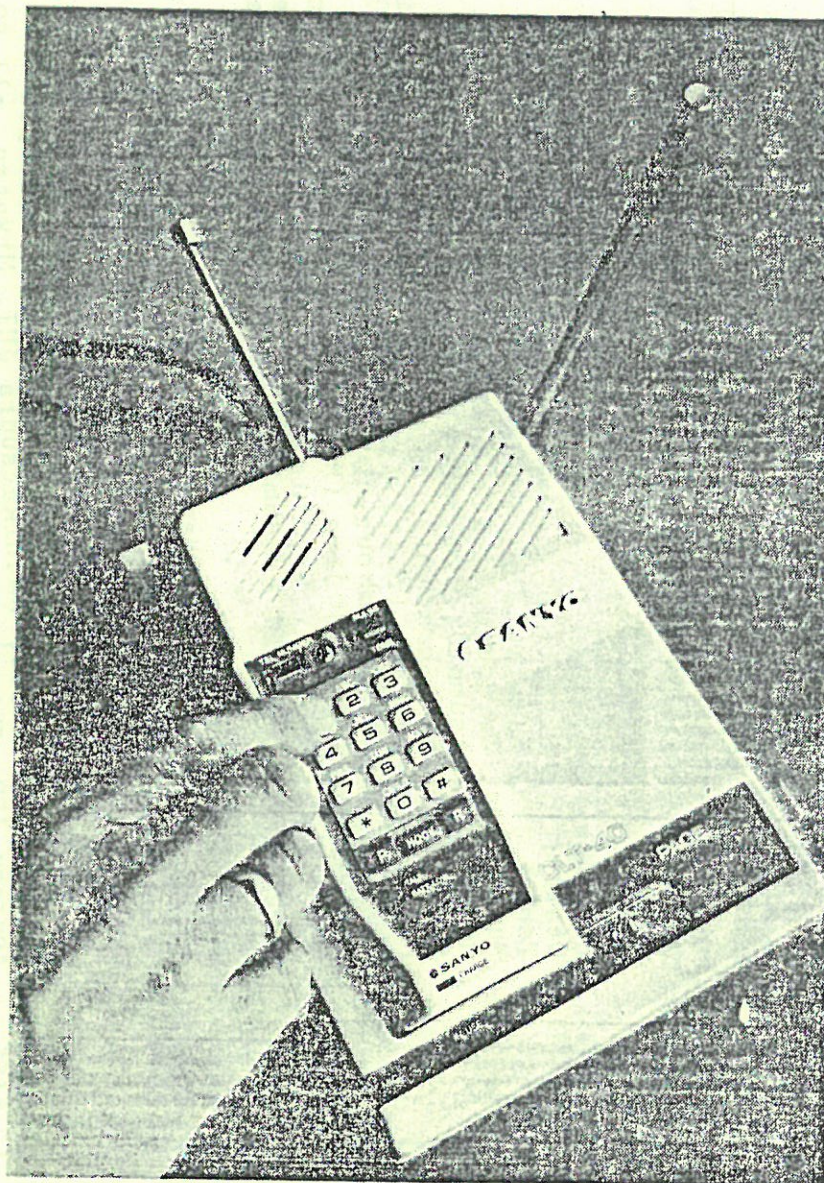
Økonomisk risiko

Det innebærer også en økonomisk risiko å innføre og bruke en slik ulovlig trådløs telefon. For det første kan tollvesenet beslaglegge apparatet ved innførsel. Et apparat koster på Kanariøyene om lag 700 kroner.

Blir du tatt er det 1.000 kroner i bot bare for å ha en slik telefon. Det er også en risiko for at telefonen kan påføre eieren ufrivillige store telefonregninger. Andre med lignende telefoner kan nemlig stjele tellerskritt fra din telefon.

— En person som har en trådløs telefon kan ta med sitt eget telefonrør og bevege seg bort i andre bydeler. Den utenforstående personen kan komme inn på apparat der telefonrøret er adskilt fra telefonapparatet.

Dermed kan han ringe ut og påføre andre en solid telefonregning, forteller Anders Lyngstad. Han opplyser at omfanget av snorløse telefoner har tatt seg kraftig opp de siste årene. Kontrollkapasiteten til Televerket er begrenset, men han mener folk som eier slike apparater også bør være klar over den økonomiske risiko det innebærer ved at andre kan stjele tellerskritt eller lytte på telefonsamtalen din.



Televerket mener hver femte husstand i Bergen har en slik ulovlig snorløs telefon.

INTRODUCTION OF THE STATIONS IN THE RANGE 1600-1800kHz

<u>kHz</u>	<u>Station Information</u>
1644	Hachinohe JFS, 50w
1660	Otaru JHO, Hakodate JHD, Nemuro JHU, Hidaka, Ogi JFD, Tohata JFW, Karatsu JHS, Fukuoka JFO, all 500w
1670.5	Kushirokou, Erimomisaki (Erimo), Esanmisaki (Esan), Matsumae (Matsumae), Yagishirijima (Yagishiri), Shakotanmisaki (Shakotan), Tappizaki (Tappi), Ohmazaki (Ohma), Shiriyazaki (Shiriya), Todogasaki (Todogasaki), Kinkazan (Kinka), Inubouzaki (Inubou), Nojimasaki (Nojimasaki), Hachijojima (Hachijojima), Irouzaki (Irou), Hegurajima (Hegura), Hagimishima (Hagimishima), Takobana, (Takobana), Wakamiya (Wakamiya), Mishima (Kamitsushima) all 50w
1675	Nemuro JHU, 50w
1693	Niigata JHF, Ogi JFD, Obama, all 50w
1697.5	Choshi JHC, Nakaminato JHA, Misaki JFC, all 500w
1699	Nemuro JHU, Atsugishi, Kushiro JFZ, Hiroo, Hidaka, Muroran, Esashi, Iwanai, Yoichi, Otaru JHO, Rumoi, Wakkanai JFY, Esashi (different station from former), Monbetsu JHZ, Abashiri JHW, Hakodate JHD, all 50w
1702	Kasumi JFI, Tanabe, Nachikatsuura JHI, Miyatsu, all 50w
1722	Aburazu JFP, Shimanoura, Ushibuka, Usuki JHG, Kagoshima, all 50w
1725	Ajigasawa, Miyako JHT, both 50w
1728.5	Kuji, Katsuura, Misaki JFC, Odawara, Chikura, all 50w
1738.5	Sakata, Ajigasawa, Aomori JHM, Hachinohe JFS, Oga, Ishinomaki JFU, Shiogama JHQ, Iwaki JFW, Ohnata, all 50w
1746	Kamaishi JFT, Ohfunato JHP, both 50w
1768.5	Shimonoseki JFK, Senzaki, Karo, Hamada, all 50w
1772	Iwanai, Esashi, both 50w
1775	Tachiura, Karatsu JHS, Fukuoka JFO, Narao, all 50w
1778.5	Muki JFB, Tsuda, Fukaura, Tosashimizu JHL, Hassai JHE, all 50w
1782	Hamada, Karo, Senzaki, all 50w
1785	Aomori JHM, Ohhata, both 50w
1788.5	Fukuoka JFO, Karatsu JHS, Tachiura, Nomo. Kamoise, all 50w

- NB: 1. Stations on 1670.5kHz are shipping weather ones, and others are coastal stations.
 2. Coastal stations are for the telecommunication with the fishery ships.
 3. Three alphabets stand for the call sign. Stations which do not have call sign are called with "place name" plus "gyogyo". The word "gyogyo" means "fishery".
 4. Words in parentheses are call designations.
 5. Verifications are cards or letters.

forwarded by Pete Taylor

Compiled by Yoshinori Kato
 Typed by Toshihiko Oka

THE FAR EAST RADIO CLUB

UNIVERSITY RADIO ESSEX is on 998 and we have some programme details sent along by Michael Nash. Sked is from 08.00 to 09.30 and 17.00 to midnight, with the morning period at the weekends being replaced by one from 12.00 to 14.00 hours. The morning slot contains time checks, various records and university announcements plus DJ's "to wake you up and get you to your lecture". News broadcasts are made and the musical programme goes from "bop" through more specialised type groups, e.g. Van der Graff Generator, Country and Western, and so into the Classic from Baroque to the contemporary classics. Political programming listed included a documentary on the U.R.E. Anti-internment Rally and a speech by Jimmy Reid of the Upper Clyde Shipbuilders "work-in" chief. There are also Christian Union programmes plus programmes of Jazz, as apart from the "pop" programme vein. All in all, a comprehensive musical set-up.

JAMMING. The following notes are presented for the information and interest of our members and have been prepared by Gordon Darling and Ken Brownless. Jamming countries are as follows. In EUROPE Albania jams Russian programmes from the U.S.S.R. Czechoslovakia and East Germany (for these see later note). Portugal jams A Voz de Liberdade from Algiers while Spain jams R. Euzkadi and R. Espana Independiente and the U.S.S.R. (see later note). In ASIA, we have jammers in China, North and South Vietnam, North and South Korea, Taiwan, and Gai Phong, all jamming programmes with "opposing ideologies". India did jam R. Pakistan and Pakistan did jam R. Bangladesh from Dacca and Karachi. CUBA jams programmes from U.S. stations in Spanish and BOLIVIA jams "freedom stations" from Bolivia's hinterland. Now we have a list of Jammers heard in Europe.

kHz	Country	Jammer	Type	Notes on Jamming
1394	Albania	Russia	1	When in Russian.
719	R.F.E.W. Germany	E. Germany	2	
854	RIAS Berlin	"	2	Rumania on same channel.
989 x	RIAS Berlin	E. Germany	2	
1295	BBC E/S U.K.	Czechoslovakia	3	When in Czech and Slovak.
1525	China	Russia	1	
701)	BBC Masirah	"	1	
1410)	Is.	"	1	Jammer 5 kHz down.
1178	Okinawa	China	1)	
1140	Phillipines	China and/or N. Vietnam	1)	Jammers not heard in U.K.
1190	HLXX South Korea	Russia and/or China	1	
1270	VUNC South Korea	China and/or N. Korea	1	x The RIAS jammers on 989 ceased after the implementa- tion of the Geneva Plan, Nov. 23rd, 1978. Later, the trans-
750)				
900)	Taiwan	China	1	
1200)				
1580	Thailand	China	1	Jammer 5 kHz down.

mitters were used on 1485/1584/1602(RDDR1)

Jammer Types. 1 = Sound like electric motor. 2 = High pitched wobbling note.
3 = Medium pitched wobbling note.

The following Europeans do not seem to be jammed because of shared channels as

shown in brackets. RIAS on 737 (Poland), VOA Munich on 173 and 1196 plus Deutschlandfunk on 548 and 1538 (U.S.S.R.), and Deutschlandfunk on 755 (Rumania). There appears to be some form of Jammer on 1133 but location and purpose are unknown. All Taiwan signals to China are jammed. C.I.A. portable transmitters are used for jamming by South Vietnam and Cambodia (Voice of the National Front of Kampuchea) plus Gai Phong. These were also used in Guatemala and during the "Bay of Pigs" time of crisis. The majority of jammers are operated by the Communist countries with the aim of preventing their listeners from hearing views from countries which are not in line with the "official" views. The fact that these jammers prevent people in other countries from hearing such programmes is COMPLETELY IMMATERIAL to those operating the jammers.

④

TOP END

Craig Healy
66 Cove Street
Pawtucket, RI 02861

1600-1800 KHz Range Times are GMT Deadline: Last Sat. of Month

●October 1984...Conditions seem to be improving. Now if the noise will go away, we'll have it made. Now, on to the loggings:

1610 ANGUILLA 0434 9/09 Caribbean Beacon, poor. (Chituck)
1617 ??? 0437 9/09 pulsating beacon. (Chituck)
1617.5 ??? 0904-0905 9/24 Cubic Argo, good. (Healy)
1619 ??? 0100 9/08 pulsating carrier. (Chituck)
1627 ??? 0104 9/08 pulsating carrier. Also 0439 9/09 (Chituck)
1637 ??? 0345-0355 9/18 KA81184 poor-fair w/ cont. ID (Healy)
1641 ??? 0358,0403 9/18 KA83795 poor-fair (Healy)
1644 ??? 0411,0416,0420 9/18 KA83797 poor-fair. (Healy)
1645 ??? 0915 9/24 Cubic Argo, fair. (Healy)
1646.7 ??? 0917 9/24 Cubic Argo, good. (Healy)
1647 ??? 0109 9/08 pulsating beacon. Also 0443 9/09 (Chituck)
1660 ??? 0112 9/08 pulsating beacon. (Chituck)
1671 ??? 0117 9/08 pulsating beacon. (Chituck)
1672 ??? 0446 9/09 pulsating beacon. (Chituck)
1682 ??? 0922 9/24 Cubic Argo, fair. (Healy)
1683 ??? 0119 9/08 pulsating beacon. Also 0448 9/09 (Chituck)
1694 ??? 0449 9/09 Carrier w/ long tone, short tone fading in/out (Chituck)
1715 ??? 0120 9/08 ITT or IM beacon. ETI on 0454 9/09 (Chituck)
1716 ??? 0923 9/24 Cubic Argo, fair. (Healy)
1746 ??? 0122 9/08 a long tone every 2 secs. (Chituck)
1746 ??? 0448 9/09 D with long tone in between. (Chituck)
1747 ??? 0925 9/24 Decca HiFix, good. (Healy)
1748 ??? 0925 9/24 Decca HiFix, good. (Healy)
1749 ??? 0123 9/08 pulsating beacon. Also 0501 9/09 (Chituck)
1750 ??? 0926 9/24 Cubic Argo, fair. (Healy)
1751 ??? 0152 9/04 RTTY station, fair. (Chituck)
1754 ??? 0926 9/24 Cubic Argo, poor. (Healy)
1759 ??? 0926 9/24 Cubic argo, fair. (Healy)
1759 ??? 0124 9/08 pulsating beacon. (Chituck)
1764 ??? 0126 9/08 Possibly the SEI cricket as logged by GT last spring (Chi)
1765 ??? 0927 9/24 Cubic Argo, fair. (Healy)
1767.5 ??? 0928 9/24 Cubic Argo, fair. (Healy)
1783 ??? 0505 9/09 T beacon. (Chituck)
1790 ??? 0931 9/24 Cubic Argo, fair. (Healy)
1791 ??? 0136 9/08 E beacon. Also 0505 9/09 (Chituck)

Credits:

Bruce Chituck Patuxent River, MD Radio, Antenna (Didn't say what kind)
me Pawtucket, RI modified Drake R7A, longwire, regenerative tuner

Sinclair Bennett of Christchurch, New Zealand sent a nice letter recently. He included these addresses to send your verification requests.

For all Papua New Guinea beacons:

Department of Transport & Civil Aviation
Box 2457
Konedobu
Papua New Guinea

And for OR-1615 in New Zealand:

Supervising Technician
Civil Aviation Division
New Plymouth Airport
New Plymouth
New Zealand

Sinclair, in turn, is looking for addresses for LAG in Ecuador, and MER in Colombia. He is also trying to get a Spanish language report form letter. Many of the more technical words referring to beacons are not in his Spanish dictionaries. I'll be glad to forward any info that is available.

Harry Helms wrote a very nice article for the October issue of Popular Communications. It was a nice summary of things to be found in this part of the radio spectrum. I am somewhat saddened by the failure to mention the fine publications that much of this information is found every month. I am not looking for a free plug for the column as much as a message that there are places where this, and more, is available on an interactive basis. 'Til later.

THE NRC DX-NEWS COLUMN THAT SPARKED OFF INTEREST

FLUTTER JAMMING ON MEDIUM WAVE

by Adrian M. Peterson
Director AWR-Asia
DX Host - Radio Monitors Intl.

During this recent northern winter season, which is now drawing to a close, I have been concentrating on MW DXing. The season has been quite good here in my area of the tropics, due largely to better MW propagation at this present stage in the 11 year sunspot cycle. I have been concentrating mainly on logging and QSLing all of the Indian stations on MW (and this project is almost completed). However, during these periods of MW DXing, I have noted a series of jammers throughout the MW band. When I began to check these jammers, I noted that they were obviously located in the Middle East, because of propagation conditions. At first, I thought that these jammers were located in both Iran and Iraq because two different styles of jamming are radiated by the jamming transmitters. One is a flutter with a LF tone and the other is a flutter with a HF tone. However, further investigation revealed the fact that all of the jammers are located in Iraq (at least the ones that we can hear over here in India), and there are a few similar emanations on SW.

My observations have been made at Poona and Goa in India, and similar observations have been made by Jose Jacob down in Kerala, in South India.

All of these MW jammers are emitting a fast flutter sound, with a very clear audio modulation. Some jammers are radiating a LF flutter, while others are emitting a HF flutter. The speed of the flutter is generally the same for most of the jamming transmitters, though one in particular has a totally different speed. I endeavoured to find out if these jammers were independently programmed or programmed in relay. Monitoring observations indicate that most (if not all) of these jamming transmitters are programmed independently, unless there happens to be a small cluster of transmitters located together, which are programmed from a single audio source.

The power output of these MW jamming transmitters, I would suggest, is in the range of 10 kW - 100 kW. This observation is based on known power output of other MW stations, distances involved, and propagation conditions. A total of 12 MW channels with jammers have been noted over here, though it is suggested that there could be up to as many more which we can not hear in India. Because the quality of the radiated signal is good, it is suggested that the jamming transmitters are standby transmitters already in location at existing MW transmitting installations in Iraq. These jammer transmitters have been noted on channels which are occupied by high power MW stations in Iran, Syria, Israel, USSR, and Kuwait.

Similar observations regarding flutter jamming have been made on SW channels, though only 3 turned out to be from transmitters in Iraq.

The best observation was made on 765-7 kHz, soon after our sunset. The Iranian station was heard in GOA at a surprisingly good level, all over the semi-local Indian. Half an hour later when the Iranian station faded, up came the Iraq jammer. The Indian station was under the Iranian, and later at times mixed with the Iraq jammer.

Following is a list of the MW flutter jammers as observed in India, together with similar SW jamming, with a couple of extra thrown in for good measure.

540 Noted by Jose Jacob in Kerala. The 100 kW Iranian station listed on this channel is located at Mashad, in the NE corner of Iran, well away from Iraq. Is this jammer then directed against the huge 1500 kW transmitter operated by Radio Kuwait? This station carries Kuwait's main external program in Arabic.

558 This channel is allocated to Cheshlagh, Iran, with 1 megawatt, and it carries External Service program in Arabic.

666 The only powerful MW station listed on this channel is Syria, 100 kW at Damascus. Over here in India, no programming was heard, only a jammer.

720 This jammer was noted by Jose Jacob in Kerala, but not heard further north at my locations. Apparently jamming Iran, Taybad 400 kW, which is listed in the WRTVH as carrying Iran's External Service in Arabic.

738 Low level programming was noted on this channel, underneath the jamming, which was quite clear. The super-power station on this channel is Israel, 1200 kW at Tel Aviv, which carries the D program in Arabic. No clear identification of the main station on this channel was obtained, but it is probable that we also are hearing Israel underneath at a low level over here.

767 This jammer is slightly off frequency. The 1200 kW Iranian transmitter at Chahbahar is radiating on 765 kHz, and we can hear its programming over here. The jammer on 767 overlaps onto 765, and may be in Iraq, this 2 kHz separation makes no difference, or perhaps even produces a noisy heterodyne. The signal from Iran 765, was heard in Goa at an excellent level, above the Indian semi-local at 1330. At 1400, Iran had faded, leaving the Iraqi jammer and the Indian station.

783 The high powered station on this channel is Tartus 600 kW in Syria, but this is not heard here, only the jammer. Monitoring observations indicate that two jammers operate on this channel, one with a LF tone and the other HF. These are heard at a very low level here.

828 This jammer is apparently aimed against the Syrian station 60 kW, located at Deir-El-Zawr. Noted in Kerala as well as further north.

963 This jammer is apparently intended to cover programming from the Iranian station, 20 kW at Birjand. This flutter jammer has a much faster cycle than the others.

972 From observations over here, it seems as though 2 jammers are attacking a high powered station on this channel, one is a flutter jammer, and the other is a HF tone, with a very slow frequency flutter, both apparently in Iraq. No high power MW stations are listed for the ME countries in the WRTVH, but I do hear programming on this channel from a Russian station. Nikolayev and Dushanbe are listed, but it is also possible that another unlisted Russian station is broadcasting into ME areas on this channel.

The signals from some MW Russian stations do penetrate well into tropical areas. On one occasion 2 hours after sunrise some 10 years ago, I heard 3 Russian stations on MW channels, while tuning across the band on a car radio in the shadow side of a mountain range in Sri Lanka. On another national passenger plane, flying directly over

the Persian Gulf. I was hunting for Aramco radio on MW, but heard only a Russian station on the channel.

690 Although no Iranian station is heard here, his Iraqi jammer is obviously aimed against the Iranian External Service in Arabic, Sniraz 400 kW.

1555 This is a very interesting channel, because it was used some 15 years ago by the 1 kW United States AFRTS station in Teheran. With great difficulty I have heard this outlet while in Kabul, Afghanistan. It was also difficult to hear at a good level even in Teheran. This station was subsequently donated to Iran, and the power output was upgraded to 10 kW; and later again, the location was changed to Ardabil, 200 miles from Iraq.

However, currently no high powered stations anywhere near the area are listed in WRTVH. Has a high-powered stations come up on this channel? or is Iraq jamming memory only?

3915 While checking across the bands, a jammer was noted on this channel is passing. However, it turned out to be a Russian jammer aimed against the BBC Kranji.

3990 A jammer also noted on this channel, but this is a Russian against Radio Free Europe.

4200 A Russian jammer to cover Radio Beijing.

4850 What is the purpose of this tone jammer? It is a Radio Tashkent Home Service channel.

11743-5 The same Iraqi style flutter jammer is noted on occasions on this channel. Is it to cover a Russian station?

12015 Apparently Iraq is jamming Radio Pakistan's Arabic Service to the Middle East. Iran, Pakistan and Turkey have traditionally held very friendly ties, even to this issuing of parallel sets of postage stamps.

15084 This is a traditional Iranian out-of-band channel for the external service. The flutter jammer is noted consistently on this channel, even when the Iranian station is off the air. This jammer seems to carry two jamming signals. No heterodyne is noted, so apparently the upper and lower side-bands are independently programmed with different jamming signals.

Jamming Japan Information received from V.M. Parikh. The said info was published in the Times of India dt. 19th Feb '84.

South Korea geared itself toward off a cultural invasion as Japan's first broadcasting satellite - Yuri - took off on a flawless launch last month. Far from dissolving international frontiers, the satellite seems to be strengthening there.

Yuri will be beaming programmes put out by the staid - Japanese State Broadcasting Corporation - NHK. Unlike racier TV channels, NHK, steers clear of bare breasts, steamy movies and porno bar shots. Instead it focusses on song contests and quiz shows, operas and concerts, baseball, Samurai movies and Sumo wrestling.

Seoul believes these latter elements will pollute South Korea's national culture. As a former part of the Japanese empire, South Korea was forced to adopt Japanese customs and culture at the expense of its own and the nation is particularly sensitive to the question of cultural imperialism.

To prevent its citizens from tuning in to NHK, the South Korean government has banned the production and import of frequency converters, parabola dishes and specially adapted TV sets. Also, Seoul will send out radio waves to jam reception in certain areas. This ban will last till South Korea's own satellite is up in the air by 1988 for the Seoul Olympics.

But the rich and the determined cannot be stopped. Already, Japan has hiked up its mass production of signal converters and parabolic antenna in anticipation of the satellite boom and well-off South Korean families are purchasing both items for \$ 400.

FLUTTER JAMMING - UPDATER

by Adrian M. Peterson

DX Host - "Radio Monitors Intl.

Although propagation conditions on MW have deteriorated with the arrival of hot weather and longer days in India, a total of 14 flutter jammers are now audible. These unusual MW jammers are believed to be located in Iraq, and are apparently for the purpose of jamming broadcasts from nearby countries mainly Iran. It is quite possible that Iran is now jamming Iraq on two channels.

Here in India, these flutter jammers are best heard now in the time period 1600-1900 UTC. Most of them are at a very low level, except the one on 1276 which comes in loud and clear. The Iranian outlet covered by this jammer is a 200 kW unit on 1278, at Kermanshah, close to the Iraqi border.

Interestingly, most of the flutter jammers heard now are at the high frequency end of the MW band, whereas in January most of the flutter jammers were noted at the low end of the MW band. It is probable that all of these jammers have been on the air all of this time, but changes in propagation conditions have brought about this cluster observation.

The two regular channels on SW which were noted previously with flutter jammers are 11745 and 15084. These channels are still intermittently jammed.

Seven of the flutter jammers heard previously are not now audible; five were noted earlier and are still on the air; and eight currently on the air were not audible two months ago. This makes a total of 20 MW channels observed with flutter jammers.

Comments regarding changes since the previous article was written are as follow :

693 There is a 600 kW station at Basra in Iraq on this channel. Is Iran now jamming Iraqi stations with the tone of jammer ?

783 and 828. No flutter jammers observed now on these channels, but previously it was thought that these were to cover two stations in Syria. Has Iraq stopped jamming Syria ?

981 100 kW Iranian station at Kermanshah.

1035 10 kW at Yazd in Iran, but Iraq has a 1000 kW at Babylon. May be Iran is now jamming Iraq on this channel also.

1062 10 kW at Kermanshah near Iraq

1160 10 kW at Abadan in Iran

1276 100 kW Iranian at Kermanshah on 1278

1296 Does this jammer cover the Iranian station 20 kW Bushchr on 1300?

1350 10 kW at Bander - Abbas, Iran on the edge of the Persian Gulf.

Asian DX Review, mars 1984 via BT

TIS/HAR STATIONS

Chris Cuomo
670 Third Avenue, Verona, PA 15147-1349

This list is based on information from the TIS/HAR GUIDE (c) 1986 by Wilhelm Herbst and used by permission. Additional information came from DDXD-W, DDXD-L, and Musings from DX News, Volume 55, Issues 1-27. This list does not claim complete accuracy. PLEASE SEND ANY CORRECTIONS TO ME SO THAT I CAN UPDATE MR. HERBST AND ALL OTHER NRC MEMBERS AS WELL.

ABBREVIATIONS

AP - Airport	dot- Department of Transportation
IAP - International Airport	I - Interstate
m.p. Milepost	US-- U.S. Highway
NF - National Forest	SR-- State Route
NLS - National Lakeshore	/ - Intersection (junction)
NM - National Monument	g - general tourist info (lodging, etc.)
NRA - National Recreation Area	h - historical information
NWR - National Wildlife Refuge	p - parking information
PD - Police Department	r - road information
r.a. Rest Area	s - public safety
SP - State Park	w - weather

530 KHS	Tucson IAP, AZ	p	10 Watts
KNDL447	Anaheim, CA Harbor PD	tps	10
WNFG219	Burbank AP, CA	r	10
WNCH749	California dot I-80 east of Truckee, CA	r	10
KNEU564	California dot SR-50 east of Pollock Pines, CA	r	10
KNCN250	California dot SR-30/SR-330 San Bernardino, CA	r	10
KNEC995	California dot I-5/SR-55 Santa Ana, CA	p	10
KNE984	Los Angeles IAP, CA	p	10
WY2301	Los Angeles IAP, CA	ghr	10
WNAG556	Coronado PD, CA	grs	10
KPB748	Sequoia & Kings Canyon NP - Three Rivers, CA	FE	10
KAF711	Rocky Mtn NP - Grand Lake, CO	FE	10
KAF712	Rocky Mtn NP - Fall River Pass, CO	r	2
KNDI798	Stapleton IAP - Denver, CO	r	10
KNDC748	Vail, CO	r	10
KNDC749	Vail, CO	r	10
KNDC750	Vail, CO	p	10
WED944	Georgia dot I-75/I-285 Smyrna, GA	r	10
WED945	Georgia dot I-95/US-84 Brunswick, GA	r	10
WED946	Georgia dot I-95/SR-99 Brunswick, GA	r	10
WED947	Georgia dot I-20/I-285 Decatur, GA	r	10
WED948	Georgia dot I-75/I-285 Forest Park, GA	r	10
WYG263	Georgia dot I-20/SR-70 Cobb County, GA	vt	10
KQC212	Chicago, IL	gs	10
KNC2773	Wayne-Bossier NP - Bedford, IN	r	10
KJLX865	Maryland dot I-270/Shady Grove Rd. - Rockville, MD	r	10
	Maryland dot - Statewide Temporary (See note 2)		
	Iron Range Resources & Reclamation (IRRM) - Eveleth, MN	h	10
	IRRM - Chisholm, MN	h	10
	IRRM - Calumet, MN	h	10
	IRRM - Grand Rapids, MN	h	.01
	IRRM - Chisholm, MN	h	.01
	IRRM - Calumet, MN	h	.01
	IRRM - Virginia, MN	h	.01
	IRRM - Hibbing, MN	h	.01
	IRRM - Nashauk, MN	h	.01
	IRRM - Grand Rapids, MN	p	10
KHM885	Minneapolis-St. Paul IAP - St. Paul, MN	r	10
WDR816	Minnesota dot I-35W between 66th and 77th Sts - Minneapolis	w	1
WDM42	NOAA - Sugar Loaf Mountain, MD	sp	10
	NAS Convention - Las Vegas, NV	p	10
WDFP23	Newark IAP - Newark, NJ	p	10
KHFD436	Roxbury, NJ	r	10
KNA4585	John F. Kennedy IAP - New York City, NY	r	10
WSB887	New York Port Authority - World Trade Center - New York, NY	h	10
KPB833	Columbus, OH		
	Dayton, OH - Hamvention	s	10
WYZ271	Gatlinburg Information R. - Gatlinburg, TN	s	10
WYZ273	Gatlinburg Information R. - Pigeon Forge, TN	st	10
WYZ274	Gatlinburg Information R. - I-40/SR-66		

1230 TIS AB BANFF NAT. PARK (CASTLE JUNCTION) - Noted in July with Parks Canada loop tape with park info, message in FF. (JR-AB)
TIS AB JASPER NAT. PARK (ICEFIELDS PARKWAY) - Noted in July with Parks Canada message in French. (JR-AB)
TIS BC FIELD - 7/25 1920 not noted while riding through the area or when I got off the train & walked around with the radio. (TRH-BC)
TIS BC REVELSTOKE - 7/25 1601 not noted while riding through the area. Off for good? (TRH-BC)
CJAV BC PORT ALBERNI - 7/22 2110 fair over CKGO with lengthy sports report, local ads, ID/slogan: "Information for the Alberni Valley, we're here 24 hours a day, CJAV 12-40 AM, CJAV cable 104.1." CHR & oldies music. (TRH-BC1)
CKGO BC HOPE - 7/23 1538 poor, simulcasting CKWK-1270 with AdGen music, long ad strings, & mention of CKWK's switch to AM stereo. Midday, over 120 miles away. (TRH-BC2)
1260 WBYV IL BELLEVILLE - 8/20 2000 over pest KVSP. (DA-CO)
KCXY OR MCMINNVILLE - 7/23 2313 fair, mixing with local CBPZ. Dick Bartley's Rock & Roll Oldies Show, local ads & pre-recorded ID/slogan tapes. Logged from the car ferry a few km NE of Swartz Bay with ICF-2010 & internal loop. (TRH-BC2)
KMYR SD WINNER - 8/20 2006 on top with 146 watt night power? (DA-CO)
CBPZ BC SWARTZ BAY - 7/23 1850 TIS station first noted with fair to good signals about 35 km north of Victoria--really gets out. Long tape loop of weather information interrupted by local public address announcements from the Swartz Bay auto ferry-dock. Only heard 1 full ID in about 2 hours. (TRH-BC2)
1300 KPWO CA MENDOCINO - 7/19 2341 fair under KPFS with Oakland A's baseball. Surprised to hear them--where was KESI?? (TRH-OR3)
1330 KLOM CA LOMPOC - 7/18 1600 not noted while passing through the area. Apparently still silent. (TRH-CA)
1340 KHRH OR HOOD RIVER - 7/21 1749 fair sigs with C&W music, lots of local ads & Mutual Net features. An example of the favorable reception conditions at Mt. Rainier, as this station was not audible from several other sites closer to Hood River. (TRH-WA2)
KLKI WA ANADORTES - 7/21 1749 fair, level with KHRH with ads, Mutual net features, weather & ID. Slogans "The lucky one" & "AM 13." Nice midday catch at over 140 miles. (TRH-WA2)
1390 KZVR CO DENVER - 8/15 1942 "2 Rock 1390." (DA-CO) (AM Switch shows this as KIRZ1--NH)
1430 KYKN OR KEIZER - 7/21 1711 good over KESN with C&W, local ads, lots of DJ chatter. Nice midday catch. (TRH-WA2) (KESN-1470?--NH)
KLO UT OGDEN - 8/20 2205 over local KEZW & KRGI. (DA-CO)
1490 KVAC WA FORKS - 7/25 1010-1015 poor, fighting heavy interference from CKOO-1. CBS News & ads. I understand this station is rather rarely heard. (TRH-BC3)
TIS AB BANFF - 7/25 2350 very good sigs. Brand new format: tape loops are dramatizations of people at the turn of the century being taken on a HORSE & BUGGY TOUR of the park, with a "guide" telling them about all the wildlife. French affil. on 1230 was synchronized WORD FOR WORD with the English transmission! (TRH-AB)
TIS AB BANFF NAT. PARK (CASTLE JUNCTION) - Noted in July with Parks Canada message in English. (JR-AB)
TIS AB JASPER NAT. PARK (ICEFIELDS PARKWAY) - Noted in July with Parks Canada message in English. (JR-AB)
CPWB BC CAMPBELL RIVER - 7/22 2127 poor with oldies simulcasting CPKP-1440. Live remote reports from "Classic Cruisin' Nite" at local A&W drive-in. Slogan "Coast Radio." (TRH-BC1)
TIS BC FIELD - 7/25 1920 not noted while riding through the area or when I got off the train & walked around with the radio. (TRH-BC)
TIS BC REVELSTOKE - 7/25 1601 not noted while riding through the area. Off for good? (TRH-BC)
1510 KTIM CA SAN RAFAEL - 7/18 2315-2330 fair-good, noted still using local BBD format (and a GOOD one it is--much broader than the satellite services) and these calls. No new wave or country music noted. Sad to hear this one will be changing calls/formats again. (TRH-CA)
8/21 2030 over local KKKO. Help! Not in NRC Log. (DA-CO) (This is KZZI west Jordan, UT--the station with the Nazi show! Somehow it got left out of the Log and updates I thru 5....--NH)
KGA WA SPOKANE - 2100 over local KIKO for state #28. (DA-CO)(Date?--NH)

10

1520 KJSM WA SEQUIM - 7/23 1940 not noted from nearby Victoria, BC. Only KSGO. (TRH-BC2)
1550 WSER MD ELKTON - 8/14 2000 local ads. (DA-CO)
KKJO MO ST. JOSEPH - 8/15 2200 ID o/u KQWB. (DA-CO)
KSVY WA OPPORTUNITY - 8/4 1255 open carrier, 1301 novice DJ with full. data s/on, had equipment problems, played 1960's rock oldies. Noted previous day with oldies & big-band music at various times, off at 0100, so still on minimum operating schedule. (BH-WA2)
1560 KQYY MO JOPLIN - 8/15 1920 "KYSN FM" ID. (DA-CO)
1580 KZIA NH ALBUQUERQUE - 8/15 2000 ID o/u KNIX & KDAY. (DA-CO)
1610 TIS OR CRATER LAKE - 7/19 1615 excellent signal for at least a 5 mile radius, with park info tape loop about 2 minutes long. Suspect 10 watts. (TRH-OR1)
TIS OR THE DALLES - 7/20 2100 no TIS noted here while passing through town. (TRH-OR2)
KOD762 WA MT. RAINIER NAT. PARK (Nisqually Entrance) - 7/21 2206 this is the only active TIS at Mt. Rainier. Female voice with tape loop of very general park info. Note correct calls. (TRH-WA2)
KNHA519 WA NACHES - 7/21 1320 Wenatchee Nat. Forest new station noted with fair signals in Yakima, very good through Naches on US 12. Info on highway construction & general tips for campers and motorists in the Wenatchee Nat. Forest. 95% sure of calls--may be KHA519. (TRH-WA1)
8/4 1840 TIS is active again, joint operation by two agencies. Brief construction advisory by lady from Wash. Dept. of Transportation, call sounded like KHA519. Then man with "Welcome to Wenatchee National Forest," closures from fire danger, tips on fire safety, definite KHA519 calls, two messages run about 18 minutes. Widely heard in the Northwest in the early 1980's so watch for it again. (BH-WA3)
KOD773 WA OLYMPIC NAT. PARK - 7/23 1900 surprised to hear this one on the car rx 35 km north of Victoria. Fair midday signal with female voice tape loop detailing today's events. (TRH-BC2)
7/26 0740 also noted from Alberta this morning with similar programming. (TRH-AB)
KNHE983 WA YAKIMA - 7/21 1220 not noted all morning. Doubt this station exists. (TRH-WA1)
MIDNIGHT TO MIDDAY
550 KUSA MO ST. LOUIS - 8/21 0000 Interstate Radio Network o/u KPYR and KCI. (DA-CO)
580 KJMM AZ TUCSON - 8/17 1150 still off the air. (TRH-A2)
600 KSJB ND JAMESTOWN - 8/21 ID and country western Countdown o/pests KROD & WMT. (DA-CO) (Time?--NH)
620 KMNS IA SIOUX CITY - 8/22 0405 over CKCK, pests KNFT & KTAH off. (DA)
740 KISZ CO CORTEZ - 0/4 local KSSS & KTRH. (DA-CO) (Date & time?--NH)
870 KRCL NV LAUGHLIN - 7/23 0100 booming in, dominating channel with Oakland A's baseball (to add to their nightly tape-delay coverage of the Padres & Dodgers!). ID/slogan "6-70 AM, KRCL Laughlin-Las Vegas, Your Sports Authority." Surprised to find them on top. (TRH-BC1)
940 KPFE CA FRESNO - 7/23 0305 fair, has added Interstate Radio Network truckers show at night. Local IDs noted at times. (TRH-BC1)
980 KPWE CA LOS ANGELES - 8/14 0430 o/u CKRM. ID and news. (DA-CO)
1090 KLMJ OR UMATILLA - 7/21 0955-1100 still here, not on 1100 kHz yet. Rellig. programs, USA net news. Fair sig., subject to noise when fading. (TRH-WA1)
1140 KPRW OK OKLAHOMA CITY - 8/14 0520 "Power 1140 KPRW." (DA-CO)
1210 KEBR CA ROCKLIN-SACRAMENTO - 7/19 0313 has moved here from FM with Family Radio satellite programming. Good signal at night through northern CA. (TRH-CA)
1230 KDOV OR TALENT - 7/21 0000 & again at 0916 recheck with usual relig. programming & IDs. Surprised that this one was the dominant station with so many others closer. (TRH-WA1)
KOZI WA CHELAN - 7/24 0250 weak, faded up quickly for the ID & then gone. Tried several times for a report on the one. (TRH-BC1)
1310 KCRE CA CRESCENT CITY - 7/22 0822 poor-fair with AdGen music, ads, promo for their Sunday afternoon program "Remember When" (30's, 40's & 50's music). Simulcasting FM 94.3. (TRH-WA3)
1350 KSRO CA SANTA ROSA - 7/21 0930 fair-good w/KRLC with ID & news. (TRH-WA1)
KMAN KS MANHATTAN - 8/14 0510 o/KIDN with Manhattan weather. (DA-CO)
1360 KLFF AZ GLANDALE - 8/14 0440 weather & ID. (DA-CO)

KID771 Great Smokey Mts. NP - Deep Creek Campground, NC grs 10
 Beaumont Fire Dept. - Beaumont, TX
 KNFJ244 Texas dot? I-10 Beaumont, TX r
 KNFV940 Dallas - Ft. Worth IAP, TX sp 10
 Norfolk IAP, VA
 KNAV735 Virginia dot I-95/SR-234 - Dumfries, VA r 10
 KNAV736 Virginia dot I-95/US-1 - Fredericksburg, VA r 10
 KNJR837 Virginia dot I-64/SR-173 - Newport News, VA r 10
 KNJR838 Virginia dot SR-168/SR-168 bypass - Chesapeake, VA r 10
 KNJR839 Virginia dot I-64/SR-258 - Hampton, VA r 10
 KNJR840 Virginia dot I-64/Providence Rd. - Virginia Beach, VA r 10
 KNJR841 Virginia dot SR-44/Kentucky Ave. - Virginia Beach, VA r 10
 WNAN682 Virginia dot 609 Naval Base Rd. - Norfolk, VA r 10
 WQC883 Virginia dot I-95/SR-54 - Ashland, VA r 10
 WQC884 Virginia dot I-95/SR-207 - Camels Church, VA r 10
 WQC885 Virginia dot I-64/US-360 - Richmond, VA r 10
 KOQ206 Gifford Pinchot NF - Yale, WA grs 10
 KOD88 Gifford Pinchot NF - Randle, WA grs 10
 WNAN648 Tacoma Dome - I-5/Tacoma Rd. - Fife, WA sp 10
 KNCL518 Sea-Tac IAP - Seattle, WA p
 WNHC788 Washington dot - SR-520 - Seattle, WA r 10
 KNEZ392 Washington dot - I-405/SR-520 - Bellvue, WA r 10
 KNEZ393 Washington dot - I-90/NE 150th St. - Bellvue, WA r 10
 KNEZ390 Washington dot - I-5/NE 45th St. - Seattle, WA r 10
 KNEZ391 Washington dot - I-5/Spokane St. - Seattle, WA r 10
 C High Level, AB 400/250
 CJFT Ft. Erie, ON CHR 250
 KA2XUC ???????? (Pinzone Communications Experimental) ? 100

810 KHZ

Walt Disney World - Epcot Ctr Dr. Entrance - Lake Buena Vista, FL gps .1

900 KHZ

Walt Disney World - Epcot Ctr Dr. Exit - Lake Buena Vista, FL gps .1

1030 KHZ

Walt Disney World - North/South Rd Entrance-Lake Buena Vista, FL gps .1

1150 KHZ

CFOT Ontario Travel Information Service - Sarnia, ON grw 10

1200 KHZ

Walt Disney World-North/South Rd Exit - Lake Buena Vista, FL grs .1
 Busch Gardens Amusement Park - Williamsburg, VA p .1

1230 KHZ

CBFG1 Banff NP (French) - East Gate Entrance, AB grs 30
 CBFG Banff NP (French) - Townsite, AB grs 30
 Banff NP (French) - Castle Junction, AB grs 30
 Banff NP (French) - Saskatchewan Crossing, AB grs 30
 Jasper NP (English) - Columbia Icefield, AB grs 30
 Jasper NP (English) - Athabasca Falls, AB grs 30
 Jasper NP (English) - Maligne Canyon, AB grs 30
 CBFF Rocky Mtn House NP - Rocky Mountain House, AB grs 5
 CBFD1 Mt. Revelstoke/Glacier NPs - West Entrance Roger Pass, BC grs 5
 CB.. Yoho NP - Field, BC grs 20

1240 KHZ

CBPJ Waterton Lakes NP - Cameron Lake, AB grs 30

1260 KHZ

CBFJ1 Waterton Lakes NP - Blakiston Falls, AB grs 30

1300 KHZ

Buffalo River SP, MN w .1

1490 KHZ

CBPH Banff NP (English) - East Gate Entrance, AB grs 30
 CBPH2 Banff NP (English) - Townsite, AB grs 30
 CBPH1 Banff NP (English) - Castle Junction, AB grs 30
 Banff NP (English) - Saskatchewan Crossing, AB grs 30
 Jasper NP (French) - Columbia Icefield, AB grs 30
 Jasper NP (French) - Athabasca Falls, AB grs 30
 Jasper NP (French) - Maligne Canyon, AB grs 30
 CBPI Waterton Lakes NP - Cameron Lake, AB grs 30
 CB.. Yoho NP - Field, BC grs 20
 CBPL British Columbia dot - Allison Pass, BC r
 CBPM British Columbia dot - Chetwynd, BC r
 CBPN British Columbia dot - Horseshoe Bay, BC r

CBPO British Columbia dot - Squamish, BC r
 CBPC1 Mt. Revelstoke/Glacier NPs (English) West Entrance, BC grs 20

1540 KHZ

CB.. Elk Island NP - Ft. Saskatchewan, AB (English) grs 20

1570 KHZ

Iowa dot r.a. 13 eastbound I-80 - Davenport, IA w .1
 Iowa dot r.a. 14 westbound I-80 - Davenport, IA w .1
 Iowa dot r.a. 16 northbound I-29 - Sioux City, IA w .1
 Iowa dot r.a. 18 northbound I-35 - Des Moines, IA w .1
 Iowa dot r.a. 21 eastbound I-80 - Des Moines, IA w .1
 Iowa dot r.a. 29 southbound I-80 - Council Bluffs, IA w .1
 Iowa dot r.a. 30 northbound I-80 - Council Bluffs, IA w .1
 Iowa dot r.a. 34 northbound I-35 - Leon, IA w .1
 Iowa dot r.a. 35 southbound I-29 - Council Bluffs, IA w .1
 Iowa dot r.a. 36 northbound I-29 - Council Bluffs, IA w .1
 Iowa dot r.a. 38 northbound I-35 - Mason City, IA w .1

1580 KHZ

Iowa dot r.a. 15 southbound I-29 - Sioux City, IA w .1
 Iowa dot r.a. 17 southbound I-35 - Des Moines, IA w .1
 Iowa dot r.a. 22 westbound I-80 - Des Moines, IA w .1
 Iowa dot r.a. 37 southbound I-35 - Mason City, IA w .1

1610 KHZ

KOE700 Denali NP - Riley Creek Information Center, AK grs 10
 KGD49 Conconino NF - Eldon, AZ grs 10
 KOP737 Grand Canyon NP - South Rim, AZ grs 10
 KOP738 Grand Canyon NP - Desert View, AZ grs 10
 KGD50 Kaibab NP - Jacob Lake, AZ grs 10
 WKK790 Sky Harbor IAP - Phoenix, AZ p 8
 Wapnocca MWR - Turrell, AR grs 10
 Barstow Desert Museum - Barstow, CA grs 10
 KGB528 Cleveland NF - Laguna, CA grs 10
 KGD44 Cleveland NF - Palmdale Mountain, CA grs 10
 KNIP553 Foothill College - Los Altos, CA grs 10
 KPB749 Point Reyes National Seashore - Point Reyes, CA grs 10
 FFB795 Redwood NP - Elk Prairie, CA grs 10
 KHA523 Sequoia NF - Kerrville, CA grs 10
 KHA524 Sequoia NF - Democrat, CA grs 10
 KMP824 Sierra NF - Mountain Rest, CA grs 10
 US Customs Service (English & Spanish) - San Ysidro, CA grs 10
 KAF721 Black Canyon of the Gunnison NM - East Portal, CO grs 10
 Colorado dot - I-70 Glenwood Canyon, CO r
 KNHE... Winter Park, CO grs 10
 KAF720 Curecanti NRA - Elk Creek, CO grs 10
 Mesa Verde NP - Mes Verde, CO grs 10
 KAF713 Rocky Mtn NP - Beaver Meadows, CO grs 10
 KIE780 Everglades NP - Pine Island, FL grs 9
 Ft. Lauderdale/Hollywood AP - Ft. Lauderdale, FL grs 10
 John F. Kennedy Space Center - Cape Canaveral, FL grs 10
 WY2235 Tampa IAP - Tampa, FL p 9
 KWA712 Hawaii Volcanoes NP - Kilauea, HI grs 10
 KSB834 Boise NF - Idaho City, ID grs 5
 KNAV733 Raft River, ID grs 10
 Register Rock SP - Register Rock, ID grs 10
 KMB395 Brookfield Zoo - Brookfield, IL grs 10
 KTH441 Illinois dot - US-41/SR-22 - Northfield, IL r 1
 KMB824 Illinois dot - Kennedy Expwy./Edens Expwy. - Chicago, IL r 1
 KNAP828 Illinois dot - I-90, 94/I-290 - (The Loop) - Chicago, IL r 1
 KNIG425 Illinois dot - I-290 - Hillside, IL r 1
 KNIG426 Illinois dot - I-290 - Itasca, IL r 1
 KNLJ419 Brown County SP, IN grs 10
 KSAY1610 Sylorville Lake Reservoir - Johnston, IA grs 10
 KFB759 Acadia NP - Trenton, ME grs 10
 KFB760 Acadia NP - Hulls Cove, ME grs 10
 WNAL786 Maryland dot - US-50 Kent Narrows Bridge - Annapolis, MD grs 10
 KNJX865 Maryland dot - Statewide temporary (See note 2) r 10
 Detroit, MI NOAA Weather w
 Noxbee NWR, MS grs 10
 KAC775 Ozark Nat'l Scenic Riverways - Salem, MO grs 10
 KAC776 Ozark Nat'l Scenic Riverways - Country Store, MO grs 10
 KAC778 Ozark Nat'l Scenic Riverways - Van Buren, MO grs 10
 KAC779 Ozark Nat'l Scenic Riverways - Buck Hollow, MO grs 10
 KNEH463 Branson, MO grs 10
 KNFA366 Independence, MO grs 10
 KID776 Custer Battlefield NM - Custer Battlefield, MT grs 10

Gallatin NF - Bozeman, MT gs 10
Gallatin NF - Beaver Creek, MT gs 10
Gallatin NF - Targhee Pass, MT gs 10
Gallatin NF - Livingston, MT gs 10
Gallatin NF - Boulder River, MT gs 10
Gallatin NF - Cooke City, MT gs 10
Gallatin NF - Gardiner, MT gs 10
Gallatin NF - Gallatin Canyon, MT gs 10
Gallatin NF - Hylt Canyon, MT gs 10
Gallatin NF - Emigrant, MT gs 10
Gallatin NF - TMN Campground, MT gs 10
Gallatin NF - Yellowstone River Valley, MT gs 10
Glacier NP - West Glacier, MT grs 10
Glacier NP - St. Mary's Entrance Station, MT grs 10
Glacier NP - Logan Pass, MT grs 10
Glacier NP - Goat Lick, MT grs 10
Glacier NP - Elk Winter Range, MT grs 10
Glacier NP - Visitor Center, MT grs 10
Montana dot - I-90/Harrison Ave. - Butte, MT r 10
Montana dot - I-90 northbound r.a. - Jefferson City, MT r 10
National Bison Range - Moiese, MT g 10
Yellowstone NP - Northeast Entrance, MT grs 10
Yellowstone NP - West Entrance, MT grs 10
Yellowstone NP - North Entrance, MT grs 10
Nevada dot US-50/CA-89 - Tahoe Valley, CA r 10
Nevada dot - Tahoe Vista, CA r 10
Nevada dot - Reno, NV r 10
White Mts NF - Conway, NH grs 10
Carlsbad Caverns NP - White's City, NM g 10
Twining Water & Sanitation District - Taos, NM g 10
White Sands NM - White Sands Visitor Center, NM gh 10
Raleigh-Durham AP - Morrisville, NC p 10
Cleveland Hopkins IAP - Cleveland, OH p 10
Greater Cincinnati AP - Boone County, KY p 10
Union County AP - Marysville, OH hprg 10
Tulsa, OK
Crater Lake NP, OR g
Port of the Dalles, OR g 10
Siunslaw NF - Glenada, OR g 10
Siunslaw NF - North Bend, OR g 10
Siunslaw NF - Reedsport, OR g 10
Siunslaw NF - Winchester HL, OR g 10
Allegheny NF - Kinzua Point, PA g 10
Ft. Necessity National Battlefield - Ft. Necessity, PA grsh 10
Valley Forge SP - Valley Forge, PA g h 10
Gettysburg Nat'l Military Park - Gettysburg, PA gh 10
Gatlinburg Information R. - I-40/SR-66 - Gatlinburg, TN g 10
Great Smokey Mts NP - Newfound Gap, NC grs .1
Great Smokey Mts NP - Oconaluftee Visitor Center, NC grs 10
Great Smokey Mts NP - Clingmans Dome, NC grs 10
Great Smokey Mts NP - Cades Cove, TN grs 10
Great Smokey Mts NP - Sugarlands Visitor Center, TN grs 10
Great Smokey Mts NP - Townsend Entrance, TN grs 10
Great Smokey Mts NP - Elkmont Entrance, TN grs 10
Great Smokey Mts NP - Cosby, TN grs 10
Great Smokey Mts NP - Twin Creeks, TN grs 5
Great Smokey Mts NP - Greenbrier, TN grs 10
Great Smokey Mts NP - Chataloochie, TN grs .1
Great Smokey Mts NP - Smokemont Campground, TN grs .1
Memphis IAP, TN p 10
Guadalupe Mts NP, TX
Houston IAP - Houston, TX
San Antonio IAP, TX p 9.3
William F. Hobby AP - Houston, TX p 10
Bryce Canyon NP - Bryce Canyon, UT gs 10
Capitol Reef NP - Torrey, UT gs 10
Zion NP - Watchman, UT gs 10
Appomattox, VA h 10
Chincoteague NWR, VA g
Shenandoah NP - Luray, VA grs 10
Virginia dot - I-95/County Route-637 - Quantico Marine Base, VA r 10
Colonial Nat'l Historical Park - Jamestown, VA h 10
Chief Joseph Dam Project - Bridgeport, WA gh 10
Yakima, WA
Olympic NP, WA gs
Mt. Ranier NP - Tahoma Woods/ Ashford, WA grsw 10
Mt. Ranier NP - Longmire, WA grsw 10
Mt. Ranier NP - Nisqually Entrance Station, WA grsw 10

WNAH648 Tacoma Dome - S 56th St./I-5 - Tacoma, WA gp 10
KNFG751 Mt. St. Helen's Dept. of Emergency - Tourtle, WA s 10
WXP989 Washington dot - m.p. 84.75 of I-90 - Cle Elum, WA rw 10
KNEF687 Washington dot - I-90 - Ellensburg, WA rw 10
WQX206 Washington dot - I-90 - Snoqualmie Pass, WA rw 10
WXP988 Washington dot - m.p. 31.19 of I-90 - North Bend, WA rw 10
KNHD261 Washington dot - 15th Ave./Cherry St. - Olympia, WA r 10
KNHD261 Washington dot - I-5/SR-510 - Lacey, WA r 10
KNHD261 Washington dot - US-101/Evergreen College Pkwy - Olympia, WA r 10
KNHD261 Washington dot - I-5/93rd Ave. SW - Tumwater, WA r 10
KNHD261 Washington dot - US-101/Uncas Rd. - Uncas, WA r 10
KNHD262 Harper's Ferry Historic Park - Harpers Ferry, WV gh 8
Apostle Islands NLS - Basswood, WI g 10
Apostle Islands NLS - Stockton, WI g 10
Apostle Islands NLS - Devils Islands, WI g 10
KAC629 Horicon NWR - Leroy Twp., WI g 10
KHA520 Nicolet NF - Lakewood, WI gs 10
KOP735 Devils Tower NM - Devils Tower, WY ghs 10
KOC745 Ft. Laramie Nat'l Historic Site - Ft. Laramie, WY grs 10
WXM37 NOAA weather Radio - Cheyenne, WY w
KOP711 Yellowstone NP - South Entrance, WY grs 10
KOP712 Yellowstone NP - Tower Junction, WY grs 10
KOP713 Yellowstone NP - Old Faithful, WY grs 10
KOP714 Yellowstone NP - Madison Junction, WY grs 10
KOP715 Yellowstone NP - Midway Geyser Basin, WY grs 5
KOP716 Yellowstone NP - Biscuit Basin, WY grs 5
KOP717 Yellowstone NP - Steamboat Point, WY grs 5
KOP718 Yellowstone NP - Fishing Bridge Campground, WY grs 5
KOP719 Yellowstone NP - Fountain Flats, WY grs 5
KOP720 Yellowstone NP - Canyon Campground, WY grs 5
KOP722 Yellowstone NP - Bridge Bay Campground, WY grs 5
KOP724 Yellowstone NP - Mammoth Headquarters, WY grs 5
KOP725 Yellowstone NP - Lamar Valley, WY grs 10
KOP726 Yellowstone NP - Norris Geyser Basin, WY grs 5
KOP727 Yellowstone NP - Moose Exhibit, WY grs 5
KOP729 Yellowstone NP - Hayden Valley, WY grs 5
KOD711 Yellowstone NP - Mt. Washburn Parking Lot, WY grsp 5
KOD712 Yellowstone NP - Firehole Lake Drive, WY grs 5
KOD713 Yellowstone NP - Artist Point, WY grs 5
KOD714 Yellowstone NP - Artist Point Pots, WY grs 5
KOD707 Yellowstone NP - East Entrance, WY grs 10
KOD710 Yellowstone NP - Indian Creek Campground, WY grs 5

FREQUENCY UNKNOWN OR UNDETERMINED

Waterton Lakes NP, AB 30
North Carolina dot - I-26 Welcome Center - Polk. County, NC w .1
NC dot - I-40 Welcome Center - Haywood County, NC w .1
NC dot - I-77 Welcome Center - Surry County, NC w .1
NC dot - I-85 Welcome Center - Cleveland County, NC w .1

NOTES

- 1Frequency listed is 529 KHZ. See DDXD-E V55 I-14
2Maryland Department of Transportation has received FCC approval to set up temporary TIS stations anywhere in the state on either TIS frequency under the call sign KNJX865.
3Relays local NOAA weather station. WXM42 relays 162.475 in Hagerstown, MD.
4See AM SWITCH V55 I-26.
5Gives parking info and then a sung jingle. ("Busch Gardens, Busch Gardens. Come to Busch Gardens and come to life!") Is there a similar operation at Busch Gardens in Tampa, FL?
6Relays local NOAA Weather station. It would be greatly appreciated if you could send me the call signs of the stations relayed. (see note 3)
7In Canada, Departments of Transportation are officially called Departments of Highways.
8These stations are oddly enough in California! No typos here.
Special thanks to Wilhelm Herbst who allowed the NRC to use info from his book to make this list. Without his help, this list would never be. Thanks also to my good friend, Mark Schon who allowed me to use his IBM Electric Typewriter to type this list.
Corrections that you send in, I hope to have published in TIS UPDATES in V56 I-2, and V-56 I-11. Till next time 73s and good DX!

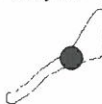
Chris Cuomo

MF-KANALPLAN

Bjørnøya Radio



Jan Mayen Radio



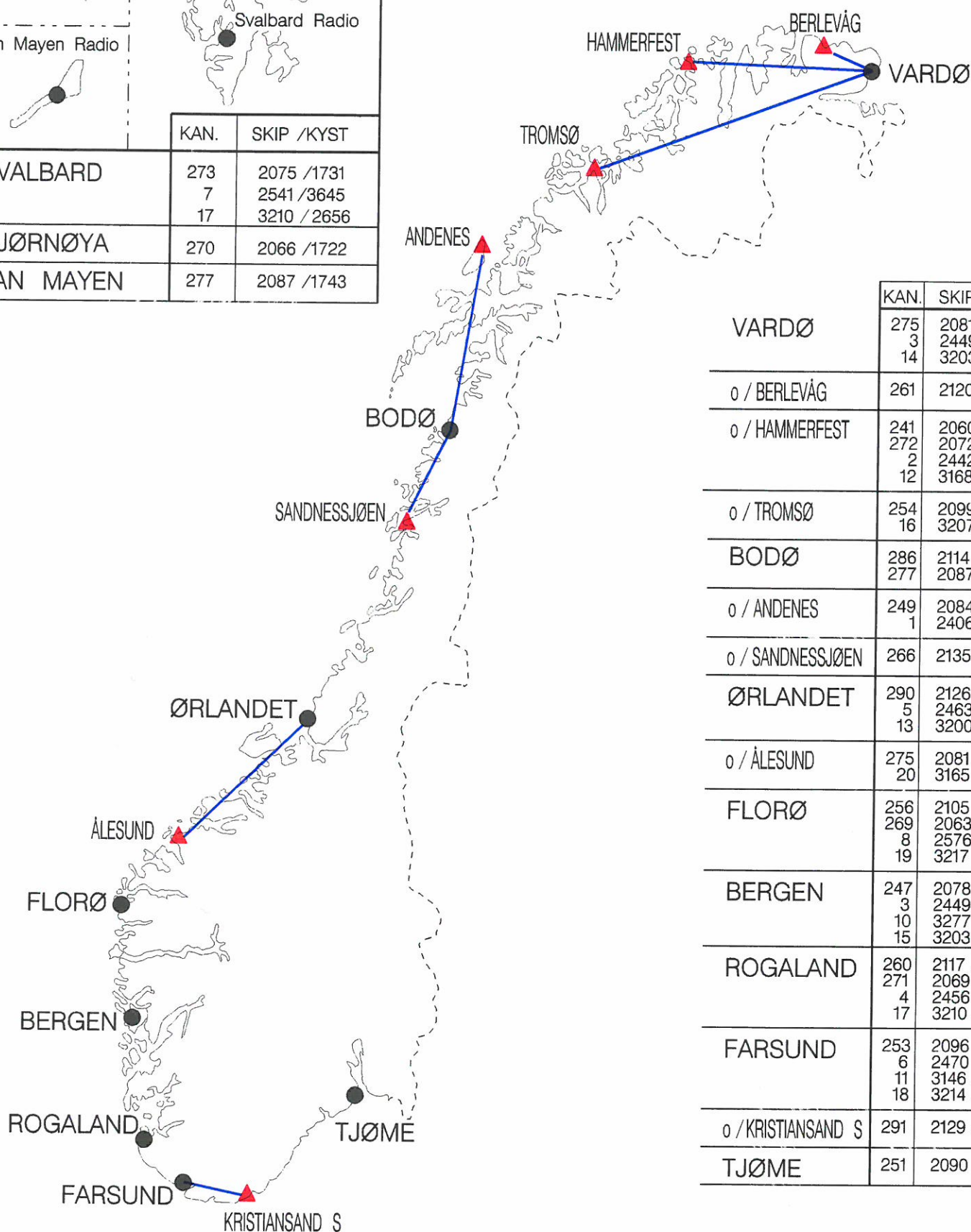
Svalbard Radio



	KAN.	SKIP /KYST
SVALBARD	273 7 17	2075 /1731 2541 /3645 3210 /2656
BJØRNØYA	270	2066 /1722
JAN MAYEN	277	2087 /1743

● BETJENT KYSTSTASJON

▲ FJERNSTYRT ANLEGG



	KAN.	SKIP /KYST
VARDØ	275 3 14	2081 /1737 2449 / 3631 3203 /2642
o / BERLEVÅG	261	2120 /1695
o / HAMMERFEST	241 272 2 12	2060 /1635 2072 /1728 2442 /3652 3168 /2695
o / TROMSØ	254 16	2099 /1674 3207 /2663
BODØ	286 277	2114 /1770 2087 /1743
o / ANDENES	249 1	2084 /1659 2406 /1803
o / SANDNESSJØEN	266	2135 /1710
ØRLANDET	290 5 13	2126 /1782 2463 /3628 3200 /2635
o / ÅLESUND	275 20	2081 /1737 3165 /2646
FLORØ	256 269 8 19	2105 /1680 2063 /1719 2576 /3645 3217 /2649
BERGEN	247 3 10 15	2078 /1653 2449 /3631 3277 /2667 3203 /2670
ROGALAND	260 271 4 17	2117 /1692 2069 /1725 2456 /3638 3210 /2656
FARSUND	253 6 11 18	2096 /1671 2470 /3642 3146 /2642 3214 /2639
o / KRISTIANSAND S	291	2129 /1785
TJØME	251	2090 /1665

VED ANROP ANGI ALLTID KANAL.

ROCALAND 1692=Bore

21: 1930 2653

22:	1964	2878
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ALLE MF-ANLEGG HAR 2182kHz

Alle betjente stasjoner
har døgntjeneste

TELEDIREKTORATET , Mars 1992

A14142

VHF KANALPLAN FOR SØR-NORGE



Utgitt av Bjørgvin teledistrikt

SAMTALER FRA SKIP

- VIKTIG -

Bruk arbeidskanal ved oppkall av kyststasjon og oppgi kanalnummer.

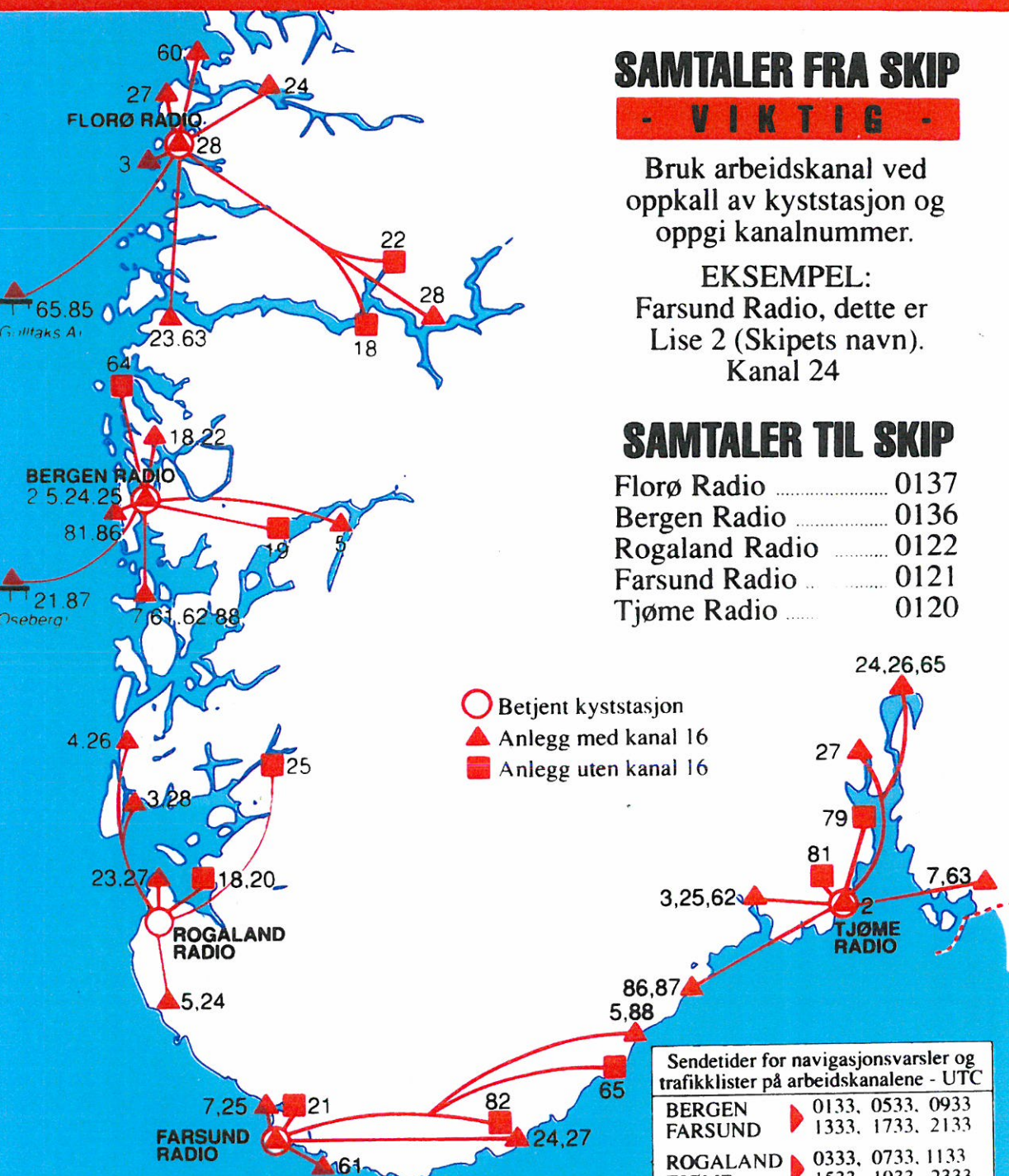
EKSEMPEL:

Farsund Radio, dette er
Lise 2 (Skipets navn).
Kanal 24

SAMTALER TIL SKIP

Florø Radio 0137
Bergen Radio 0136
Rogaland Radio 0122
Farsund Radio .. 0121
Tjøme Radio 0120

- Betjent kyststasjon
- ▲ Anlegg med kanal 16
- Anlegg uten kanal 16

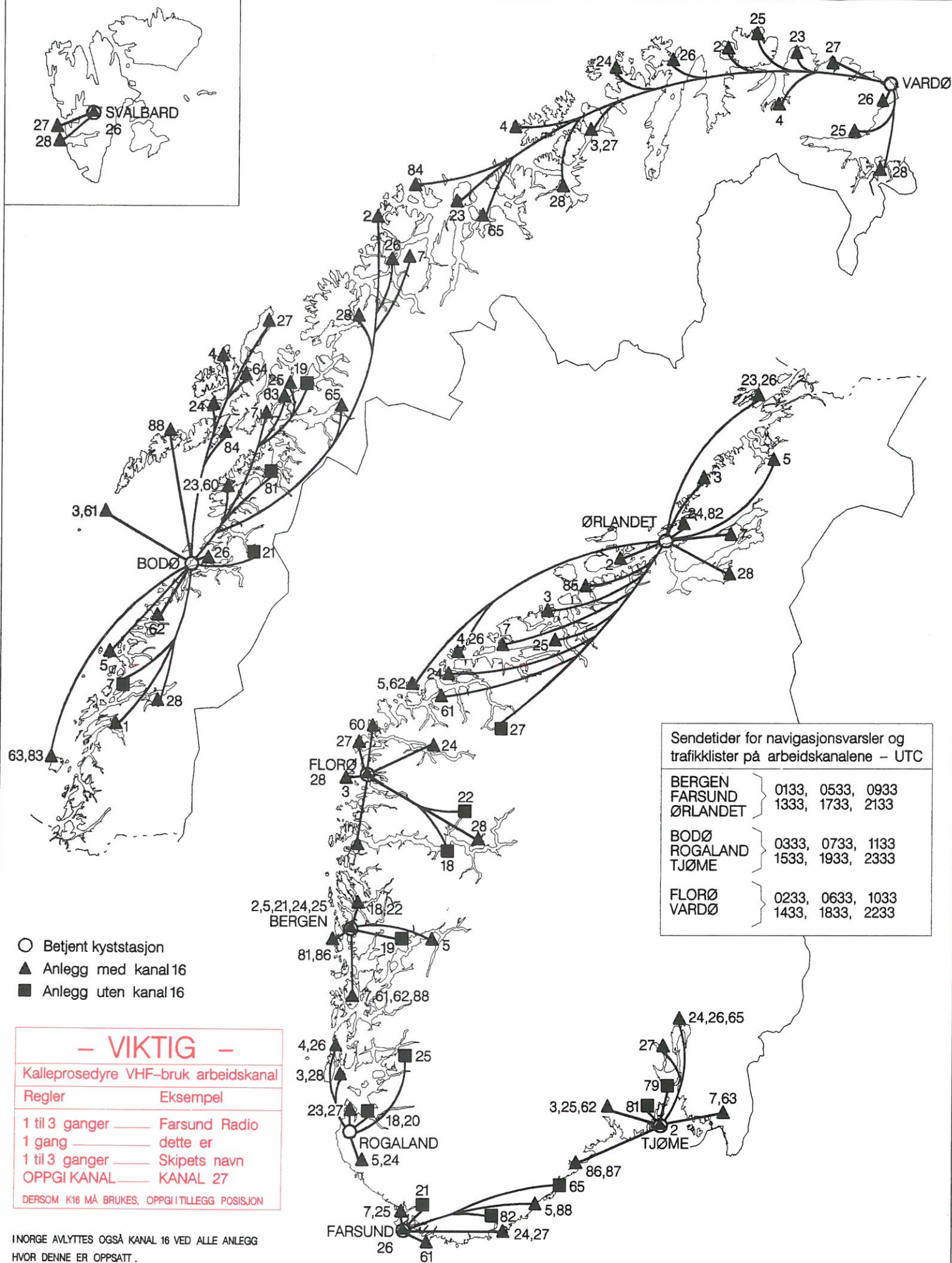


HUSK LYTTETPLIKTEN! LYTT PÅ KANAL 16

Revidert juni, 1991

Sendetider for navigasjonsvarsler og trafikklistor på arbeidskanalene - UTC

BERGEN	▶ 0133, 0533, 0933
FARSUND	▶ 1333, 1733, 2133
ROGALAND	▶ 0333, 0733, 1133
TJØME	▶ 1533, 1933, 2333
FLORØ	▶ 0233, 0633, 1033
	▶ 1433, 1833, 2233



- VIKTIG -

Kalleprosedyre VHF-bruk arbeidskanal

Regler Eksempel

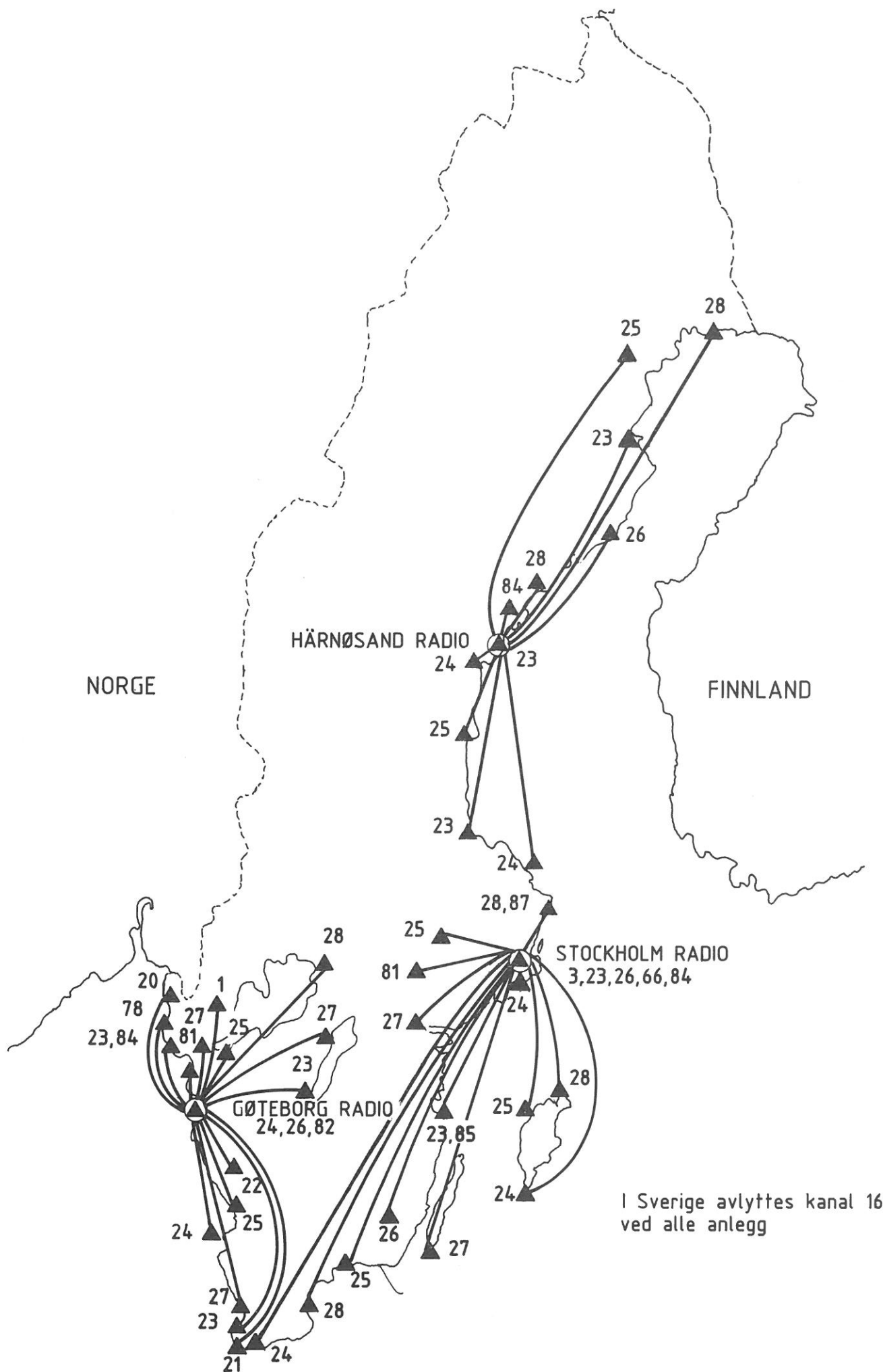
1 til 3 ganger — Farsund Radio
 1 gang — dette er
 1 til 3 ganger — Skipets navn
 OPPGI KANAL — KANAL 27

DERSOM K16 MÅ BRUKES, OPPGITILLEGG POSISJON

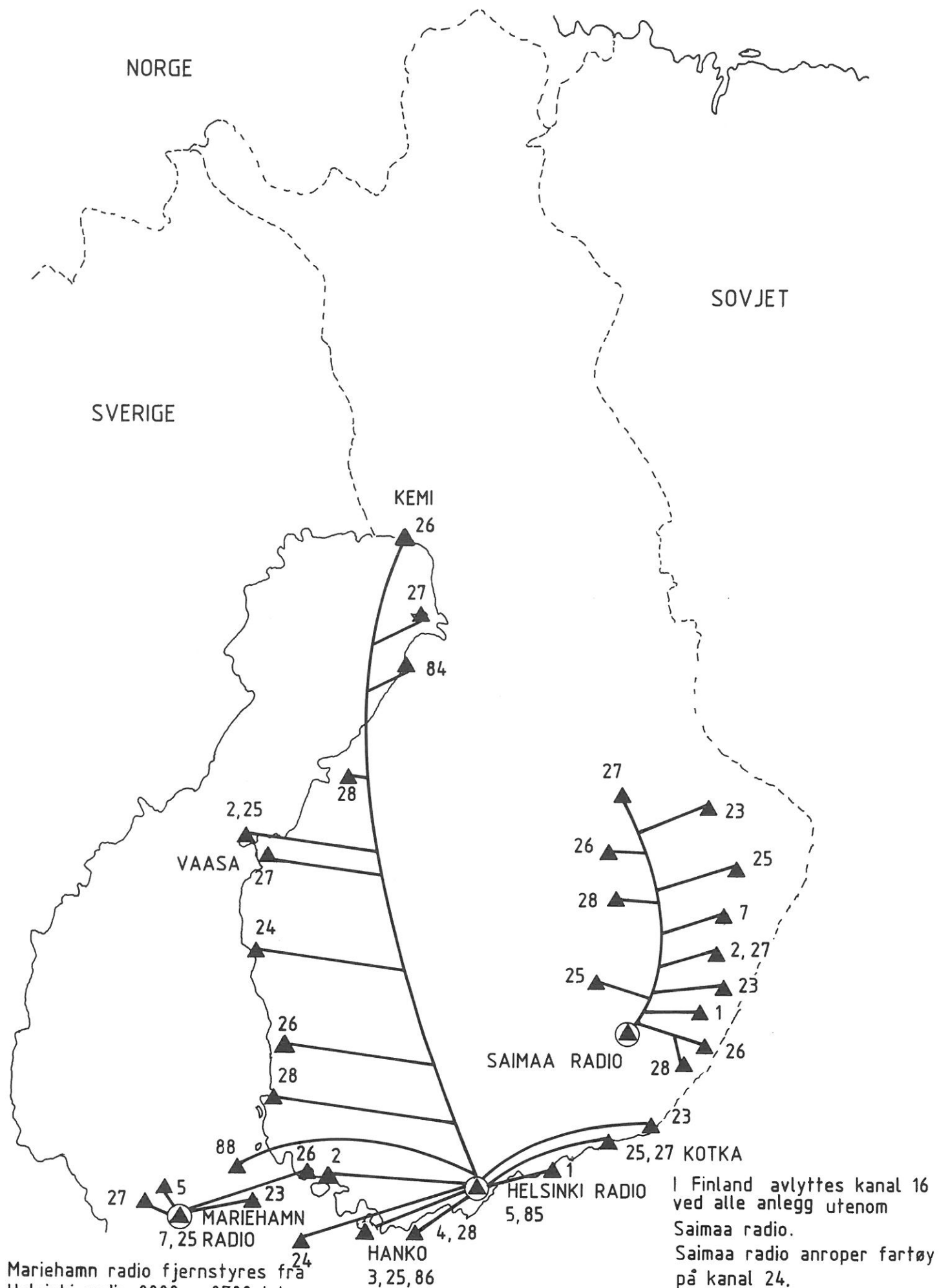
INORGE AVLYTTES OGSÅ KANAL 16 VED ALLE ANLEGG
 HVOR DENNE ER OPPSATT.

VED ANROP TIL FJERNSTYRT VHF - ANLEGG MÅ KALLINGEN
 INNEHOLDE KANALNUMMER FOR DET FJERNSTYRTE ANLEGG,
 f. eks. "BODØ RADIO - AGA, KANAL 25, OVER"

VHF KANALPLAN FOR SVERIGE

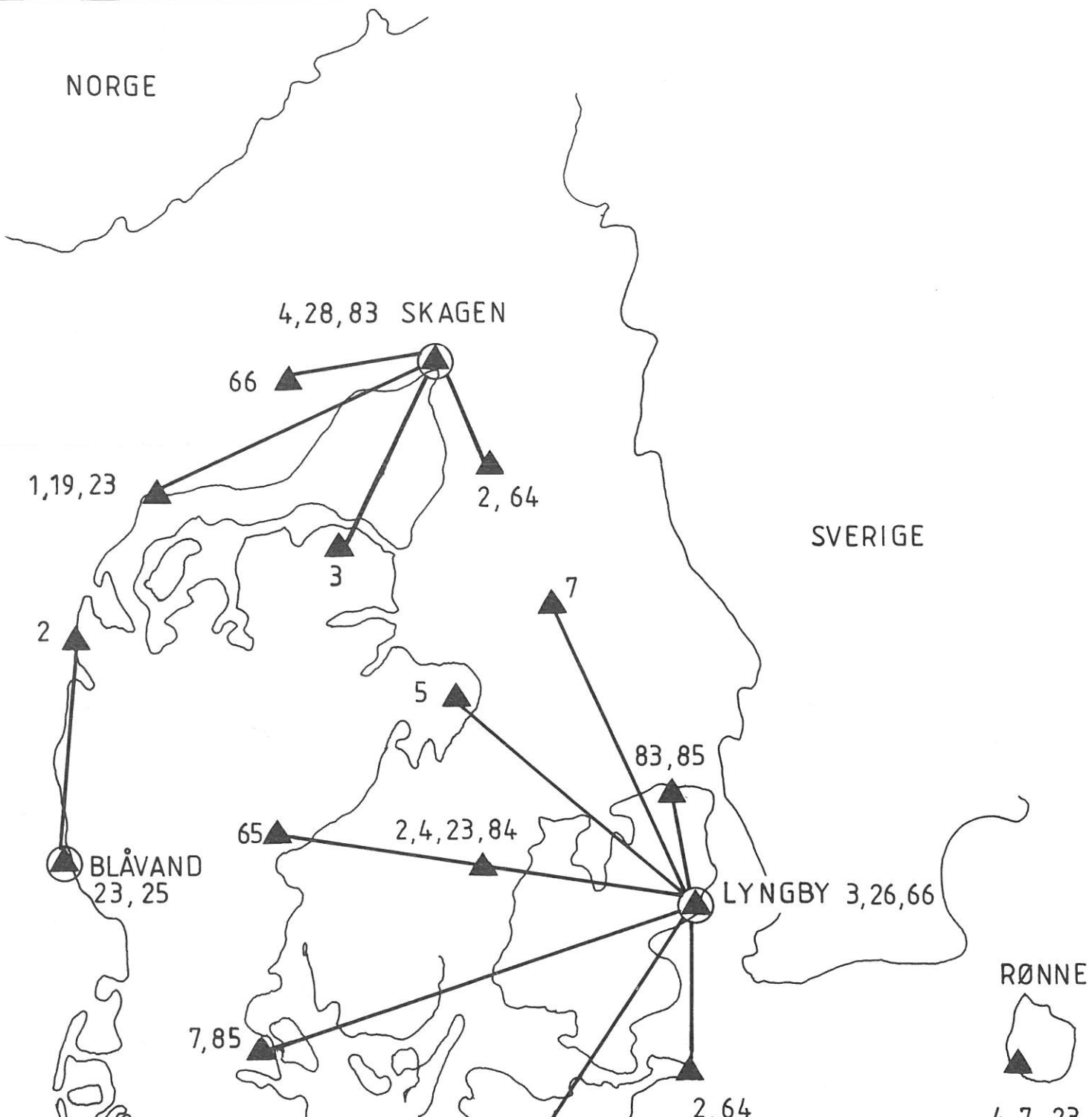


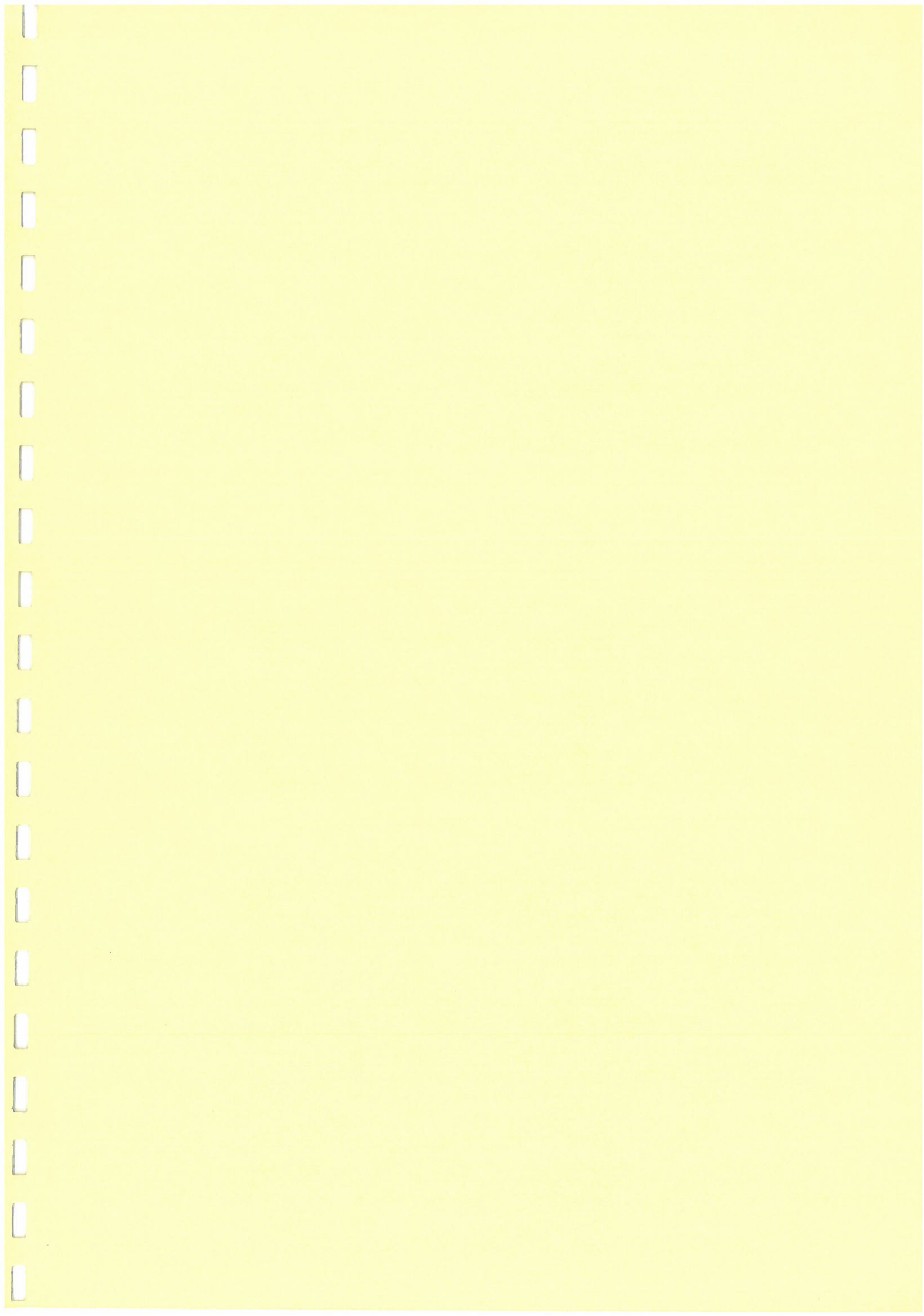
VHF KANALPLAN FOR FINLAND



Mariehamn radio fjernstyres fra
Helsinki radio 0000 - 0700 lok-
al tid.

VHF KANALPLAN FOR DANMARK





The Martinsen TOP OF THE DIAL LIST

Utdrag, se försättsbladet för kommentar.

kHz	Country	Station type	Call and name
1606.5	G	MMO	Unofficial inter-ship Scottish fishing
1606.5 - 1621 kHz			Narrow Band Direct Printing(NBDP)
1607.0	ASC	TLX	Ascension R
1607.0			Unused channel
1607.5			Unused channel
1608.0	HOL	TLX	PCH86 Scheveningen R
1608.5			Unused channel
1609.0	G	TLX	GNF North Foreland R
1609.5	NOR		LGF-2 LGB TLX Rogaland R, Bore
1609.5	G	TLX	GPk Portpatrick R
1610.0			Unused channel
1610.0		BS	Region 2 broadcast Channel
1610.0	ANG	BS	Caribbean Beacon
1610.5			Unused channel
1611.0	CVA	BS	Vatican R
1611.0	GRC	BS	Unid.
1611.5	NOR	TLX	LGF-3 LGB TLX Rogaland R, Bore
1611.5	G	TLX	GLD3 Lands End R
1612.0	G	TLX	GHD2 Hebrides R
1612.0	D	TLX	DHS Rügen R
1612.5	G	TLX	GKRI Wick R
1613.0	G	TLX	GPk Portpatrick R
1613.0	GIB	TLX	Gibraltar R
1613.0	SHN	TLX	ZHH St Helena R
1613.0	DNK	TLX	OXZ Lyngby R
1613.0	GRC	BS	R Opto
1613.5			Unused channel
1614.0	G	TLX	GNKI Norwick R
1614.5	G	TLX	GKR2 Wick R
1615.0	G	TLX	GCCI Cullercoats R
1615.5	HOL	TLX	PCH87 Scheveningen R
1615.5	G	MMO	Unofficial inter-ship Scottish fishing
1616.0			Unused channel
1616.0	G	MMO	Unofficial inter-ship Scottish fishing
1616.5			Unused channel
1616.5	G	MMO	Unofficial inter-ship Scottish fishing
1617.0	G	TLX	GNDI Stonehaven R
1617.0	GRC	BS	Unid.
1617.5			Unused channel
1618.0			Unused channel
1618.0		NDB	Unids, 1987
1618.0		NDB	X., unids
1618.5			Unused channel
1619.0	JOR	TLX	JYO Aqaba R
1619.5	HOL	TLX	PCH85 Scheveningen R
1620.0			Unused channel
1620.0		BS	Region 2 broadcast Channel
1620.0	I	BS	R Internazionale, Verona
1620.5			Unused channel
1621 - 1625 kHz			Digital Selective Calling (DSC)
1621.0	G	DSC	UK (Irish Sea)
1621.0	ISL	DSC	Iceland
1621.5	G	DSC	UK (Channel)
1621.5	G	MMO	Unofficial inter-ship Scottish fishing
1622.0			Unused channel
1622.0	F	DSC	France (Channel)
1622.5	ARS	DSC	Dammam R
1622.5	D	DSC	Germany
1623.0	G	DSC	UK (North Sea)
1623.0	ASC	DSC	Ascension R
1623.0	GIB	DSC	Gibraltar R
1623.0	SHN	DSC	ZHH St Helena R
1623.0			Unid.
1623.0	GRC	BS	Unid.
1623.5	HOL	DSC	Netherlands
1623.5	POL	DSC	Poland
1624.0	BEL	DSC	Belgium
1624.0	E	DSC	Mediterranean
1624.5	DNK	DSC	OXB Blaavand R
1624.5	DNK	DSC	OXK Skagen R
1624.5	FRI	DSC	OXJ Torshavn R
1624.5	F	DSC	France (Atlantic)

The Martinsen
TOP OF THE DIAL
List

The Martinsen
TOP OF THE DIAL
List

The Martinsen
TOP OF THE DIAL
List

The Martinsen
TOP OF THE DIAL
List