



Israeli "Numbers" - A New 20-Meter Mystery

Last month, we mentioned that the frequency of 14000 kilohertz (kHz) was something of a bad neighborhood. All manner of utility weirdness turns up there.

14000 is, of course, the extreme lower limit of the internationally allocated, 20-meter amateur radio band. Hams really shouldn't transmit that low, since the regulations require that all of their signals remain inside the band.

That, of course, doesn't stop the people who are using the frequency without authorization. Even though this is one of the most conspicuous places in the whole non-broadcast radio spectrum, it has attracted a pretty motley crew over the years.

❖ The E10 Enigma

ENIGMA 2000, as most know, is the 21st-century online incarnation of the older European Numbers Information Gathering and Monitoring Association. Its newsletters are truly authoritative, not to mention extremely comprehensive. Its mailing list attracts some pretty sharp people. Finally, it maintains the Enigma Control List (ECL), which is the standard means of bringing order from the "numbers" chaos heard on the bands.

The ECL is the canonic list of all those funny little identifiers one sees whenever these stations are discussed. These really are incredibly useful. In the case of Israel's E10, the "E" stands for "English," and the 10 is simply the 10th station so classified.

The Enigma Control List is always available on this column's web site. It and the newsletter are also at www.apul64.dsl.pipex.com/enigma2000/.

❖ Basic E10 Review

E10 is also called the Phonetic Alphabet Station, from its truly weird format. A "female" computer voice gives three-letter identifiers and 5-letter-group messages using standard military phonetics in English. There are also a few procedural signals, such as "Group," "Message," "Repeat," and "End of message."

"Her" accent is kind of bizarre, and, since the transmissions are spliced from digitized words, it is always the same. "Oscar" (O) rhymes with "NASCAR." "November" (N) rhymes with "beer." And so on.

E10 is possibly the most

active numbers network in existence, though the Cubans give them a very close run for it. The origin is as well known as anything ever gets in the numbers scene. It's definitely coming from the Israeli intelligence apparatus. The best known agency here is the famous Mossad, but there are other possibilities.

As if this wasn't distinctive enough, the signals are usually in a mode classified as R3E by the international bodies that standardize such things. In the case of E10, this means single-sideband, reduced-carrier emission, with only the upper sideband being transmitted. R3E has the advantage of sounding clear in either amplitude modulation (AM) or upper sideband (USB) receiver modes. In fact, it's hard to tell from AM, except that if one checks the lower sideband, it isn't there.

❖ 20-Meter Mystery

Last month, this column noted that a mysterious carrier was heard whenever the 14000 kHz frequency had propagation. Israel was suspected. Your editor couldn't hear this on the United States West Coast, but the Web-SDR in the Netherlands picked it up nicely.

SDR stands for Software-Defined Radio, which is precisely what this is. It converts and digitizes several radio bands of interest to hams, and lets World Wide Web users tune through them with a Java application. It's reached at websdr.ewi.utwente.nl:8901/.

While the SDR's Internet stream isn't as stable as a signal from one's own radio, the fading and phase distortion were still clearly caused by ionospheric propagation. The carrier was not locally generated.

Sure enough, at 0700 Coordinated Universal Time (UTC), up popped "Alpha Romeo Tango" (ART), with a callup and message. About a week later, "Yankee Hotel Foxtrot" (YHF) was heard at 0730, also with a message. Further, "Mike L" of ENIGMA has heard "Papa Charlie Delta" (PCD) there.

The carrier definitely appears associated with these transmissions. It does not change at all for them. Is it a channel marker?

All of this is extremely significant due to E10's use of tight message slots, some lasting years. Identifiers tend to be associated with specific frequencies. It's always interesting to hear two, let alone three, on the same frequency.

Further, ART, YHF, and PCD are among the most active ones. The only others in the high-traffic group are EZI and ULX. If these ever turn up on 14000 we will really have something noteworthy.

No one knows what makes this frequency so special. It might be a common channel of some sort. Perhaps it's for testing.

❖ Other E10 Frequencies

As long as we're doing E10, let's hit their latest frequencies as of early 2010.

ART: 2456, 3415, 4165, 5435, and 6986 kHz, AM or R3E.

EZI: 4270, 6840, 7690, 9130, 11565, 13533, and 15980.

PCD: 2515, 3150, 4270, 5170, 6498, 8805, 9130, and 14000.

ULX: 2743, 3270, 4880, 5230, 5820, 6270, 6298, 7760, and 14000.

YHF: 2844, 3840, 4560, 5820, 6370, 7918, 9202, 10648, and 14000.

"New" identifiers are HNC (once on 4114 kHz, in January), and TMS (once on 6428, last year).

Lastly, the old identifiers of CIO, FDU, KPA, MIW, SYN, and VLB have not been heard since 2007. One is reluctant to drop them, because past E10 identifiers have sometimes come back after years.

We thank the ENIGMA 2000 group and a whole lot of other people for their dedicated watch on E10.



❖ Bye Bye Loran-C

By the time anyone reads these words, the United States will have already commenced an orderly shutdown of its entire Loran-C navigation system. Some stations in this expensive and far-flung network were expected to leave the air as early as 2000 UTC on February 8.

Since many Loran "chains" (transmitter networks) are jointly operated with Canada, their coast guard quickly announced its own shutdown. By October, all Loran in North America should be gone.

This news came quite suddenly, with a terse publication by the US Coast Guard in the January 7, 2010 Federal Register. They said simply that not many people used it, and that it had been slated for elimination by Congressional budgeting unless any Federal agency considered it indispensable. Obviously, in this age of Global Positioning System (GPS), none did.

This all seems like a no-brainer. However,



as with so many other government decisions, it's not that simple. Let's consider some history.

Loran stands for Long Range Navigation. Its rather crude Loran-A mode dates to World War II. This blasted megawatts of synchronized radio pulses to a waiting oceanic world over frequencies of 1750, 1850, 1900, and 1950 kilohertz (kHz). Its wartime allocation effectively wiped out most of the 160-meter amateur radio band for around 20 years. The hams didn't get all of it back until the 1960s, when the world had finally finished its transition to the present system, called Loran-C. This uses equally staggering pulsed power levels on 100 kHz.

Some 50 years later, Loran-C is obviously an obsolete technology. Were reality as simple as the situation described in the Coast Guard's notice and subsequent explanations, there'd be no excuse to keep it going another second. But it isn't.

One can find all manner of references to an ongoing upgrade of Loran-C to a new mode called eLoran (for "enhanced Loran"). This mode was

said to be everything Loran-C wasn't. It incorporated many improvements that worked alongside GPS, improving the performance and reliability of both systems.

Depending on whom you wish to believe, the United States has already spent somewhere between zero and 150 million dollars of our money on eLoran, with most informed sources favoring that second number. Private corporations were certainly under the impression that something was happening, as they spent a bundle developing new products. These were just coming onto the market.

Money talks, and in this case it's most likely saying goodbye. One is inclined to think that it's all been wasted. Worse, we are certainly back to square one on implementation of a badly needed terrestrial complement to GPS. Many agencies consider this essential.

For now, anyway, some other countries, such as the UK, are pressing on with eLoran. We'll see how this plays out. May you have fair winds and following seas until next month.

ABBREVIATIONS USED IN THIS COLUMN

AFB.....	Air Force Base
ALE.....	Automatic Link Establishment
ARQ.....	Automatic Repeat reQuest (teleprinting).
ATC.....	Air Traffic Control
CAMSLANT.....	Communications Area Master Station, Atlantic
CAMPAC.....	Communications Area Master Station, Pacific
CIS.....	Commonwealth of Independent States
Coquelet-8.....	Old 8-tone French teleprinting system
CW.....	On-off keyed "Continuous Wave" Morse telegraphy
DSC.....	Digital Selective Calling
EAM.....	Emergency Action Message
FAX.....	Radiofacsimile
FEMA.....	US Federal Emergency Management Agency
FSK.....	Frequency-Shift Keying
HFDL.....	High-Frequency Data Link
HF-GCS.....	High-Frequency Global Communication System
LDOC.....	Long-Distance Operational Control
LSB.....	Lower Sideband
MARS.....	US Military Auxiliary Radio System
MX.....	Generic for Russian single-letter beacons/ markers
NS/EP.....	National Security/Emergency Preparedness
RTTY.....	Radio Teletype
SECURE.....	State Emergency Capability Using Radio Effectively
Selcal.....	Selective Calling
SITOR-A/B.....	Simplex Telex Over Radio, mode A or B
STANAG.....	Standardization Agreement
STANAG 4285.....	Military 8-state data mode
UK.....	United Kingdom
Unid.....	Unidentified
US.....	United States
USAF.....	US Air Force
USCG.....	US Coast Guard
Volmet.....	Scheduled aviation "Flying Weather" broadcast
XO6.....	Old Russian "Mazielka" audio tone calling

All transmissions are USB (upper sideband) unless otherwise indicated. All frequencies are in kHz (kilohertz) and all times are UTC (Coordinated Universal Time). "Numbers" stations have their ENIGMA (European Numbers Information Gathering and Monitoring Association) designators in ().

474.0	"P"-Kaliningrad Naval Radio, Russia, CW channel marker (MX), switching to FSK Morse for coded message in 90 5-number groups, at 1930 (MPJ-UK).
2187.5	002734419-Astrakhan Radio, Russia, DSC call to 002734423, Makhachkala Radio, at 1914 (PPA-Netherlands). SPS-Witowo Radio, Poland, DSC all-ships call to announce voice information broadcast on 2720, at 1934 (MPJ-UK).
2289.0	CHGOIL120-Telecom company NS/EP station, Chicago, IL; with CLEVOH128, Cleveland, OH; ALE at 1311 (Jack Metcalfe-KY).
2326.0	SEMOHQ-NY State Emergency Management, WPHM 628, ALE sounding at 1202 (MDMonitor-MD).
2761.0	OSU-Oostende Radio, Belgium, live male reading information, at 2234 (MPJ-UK).
2872.0	Gander-Gander Radio, Canada, working KLM686, a Boeing 747, at 0455 (PPA-Netherlands).
2962.0	New York Radio, NY, position from Delta 126, then handed aircraft to 5598 for Santa Maria, at 0345 (Allan Stern-FL).
2971.0	Shanwick, position from Speedbird 216 (British Airways), at 0340 (Stern-FL).
3016.0	Santa Maria-Santa Maria Aeradio, Azores, selcal checks and positions with various aircraft, at 0301 (Stern-FL).
3167.0	"P"-Russian channel marker (MX), Kaliningrad, CW at 2256 (MPJ-UK).
3170.0	SPFDIL248-NS/EP station, Springfield, IL, ALE sounding at 1415 (Jack Metcalfe-KY).
3187.0	P4NX-CIS military, daily changing tactical call, calling 5SAB, CW at 2225 (MPJ-UK).
3315.0	AFA3AJ-USAF MARS, VA, Northeast Area Net with AFA2NC (NY) and AFF3WV (WV), at 0108 (Mark Cleary-SC).

3320.5	NNN0GBS-US Navy/ Marine Corps MARS, SC, South Carolina Net at 0121 (Cleary-SC).
3390.0	NNN0BKH-US Navy /Marine Corps MARS, Region 4 NC Net at 2317 (Cleary-SC).
3413.0	Shannon Volmet, Ireland, formatted aviation weather at 0528 (Stern-FL).
3446.0	Unid-Two males conversing in Japanese, at 0109 (Prez-MD).
3455.0	New York, position from Cactus 740 (USAir), gave secondary frequency of 2887, at 0332 (Stern-FL).
3485.0	New York Volmet, Terminal Aerodrome Forecasts at 0544 (Stern-FL).
3494.0	San Francisco-Aeronautical Radio, Inc., LDOC traffic at 0209 (Stern-FL).
3831.0	ZLST-German Customs, Cuxhaven, working ZHEL, Customs Cruiser Helgoland, ALE and data modem, at 0006 (MPJ-UK).
3890.0	UWS3-Kiev Radio, Ukraine, CW traffic list and weather for river traffic, at 2035 (27Jan10) (MPJ-UK).
4002.9	AAM4TN-US Army MARS, TN, Region 4 Tennessee net with AAT4BH (TN), others, LSB at 0106 (Cleary-SC).
4020.0	UZC2-Ukrainian government/ military, FSK Morse operator chatter with UTN7, then into 50-baud mark/ space reversals, at 2000 (ALF-Germany). UZC2, with reversals, then working UTN7 in FSK Morse, at 2200 (MPJ-UK).
4149.0	WBN6511-Crowley Maritime tug Gauntlet, checking in with "WPE Jacksonville," FL, at 1359 (Cleary-SC).
4209.5	XSX-Chi-lung Radio, Taiwan, SITOR-B Navtex at 1835 (PPA-Netherlands).
4295.0	FUE-French Navy, Brest, working unknown vessel in STANAG 4285, at 1714 (MPJ-UK).
4362.0	BARBARISI-Italian Financial Police, working GAETA (both city names), ALE at 1944 (MPJ-UK).
4372.0	"8-R-P"-Unknown military trigraph call, no joy calling "H-4-E" at 0215 (Cleary-SC).
4464.5	AFF6LA-USAF MARS, voice net at 0113 (Jack Metcalfe-KY).
4469.0	Florida CAP 44-FL Civil Air Patrol Net, at 1232 (Cleary-SC).
4585.0	Kitty Hawk 30-NC Civil Air Patrol net with 28, 154, and Southeast CAP 43, at 1304 (Cleary-SC).
4721.0	CRO-USAF, Croughton, UK, calling PLA, Lajes Field, Azores, ALE at 1941 (MPJ-UK).
4730.0	NOJ-USCG, Kodiak, AK, calling J12 (an MH-60J), ALE at 0220 (Cleary-SC).
4872.0	HE4-Polish Military, ALE and female voices in Polish, working AM3 and other three-figure calls, at 1102 (ALF-Germany).
4886.5	T01185-Unknown US military, also on 5236.5, ALE sounding at 2251 (Metcalfe-KY).
5001.1	4XZ-Israeli Navy, Haifa, CW marker at 0250 (PPA-Netherlands).
5065.0	9MV-Royal Malaysian Navy, Johor Bahru, CW drill messages to various addresses at 1644 (MPJ-UK).
5153.7	"D"-Russian military CW cluster beacon (MX), Odessa, parallel 8494.7 and 10871.7, at 1844 (MPJ-UK).
5153.8	"P"-MX, Kaliningrad, parallel 8494.8, CW at 1844 (MPJ-UK).
5192.0	MA1NC-Manchester, NH Emergency Operations Center, ALE sounding at 1335 (MDMonitor-MD).
5321.0	132-Moroccan civil defense, working 101 in ALE, at 2050 (MPJ-UK).
5517.0	Mogadishu-Regional air traffic control, Somalia, working unknown flight at 0045 (Prez-MD).
5520.0	New York, position from Canjet 870, then handed off to Miami, at 0302 (Stern-FL).
5536.0	Holloway-Ethiopian Airlines LDOC, Addis Ababa, taking estimated arrival time of Ethiopian 500, at 0408 (PPA-Netherlands).
5544.0	F.OHGV-Royal Jordanian A320, HFDL log-on with Muharraaq, at 1939 (MPJ-UK).
5550.0	New York, position from NATO 03 (North Atlantic Treaty Organization, military E-3), sent aircraft to 3455, at 0016 (Stern-FL).
5575.0	Unid-Aviation weather in Romanian, CW at 0658 (ALF-Germany).
5598.0	New York, position from Delta 108, sent aircraft to 2899 for Gander, at 0305 (Stern-FL).
5616.0	Gander, selcal check HP-DQ with Air France B747 F-GITH, at 0218 (Stern-FL).
5658.0	Lahore-ATC, Pakistan, working China 17 at 0225 (PPA-Netherlands).
5696.0	Rescue 2117-USCG aircraft landing in Nassau, Bahamas, securing guard with CAMSLANT at 1359 (Cleary-SC).
5702.0	JNRSR-USAF secure data net gateway, Salinas, PR, ALE sounding at 0436 (PPA-Netherlands).
5708.0	483081-USAF Air Mobility Command KC-10A tanker, ALE-initiated patch via Hickam to Tanker Airlift Control Center, at 0500 (Cleary-SC).
5718.0	KLAUSUR-Possible Austrian military, LSB ALE link checks and 110A data modem with STUDENT and NEBEL, at 1110 (ALF-Germany).
5725.0	"2-S-G"-German military players in a multi-national military exercise, doing data link orderwire with "8-T-K" and "5-O-T," at 0323 (ALF-Germany).
5746.0	RNM2-Russian military, reversals and FSK Morse calling REA, daily schedule at 0549 (ALF-Germany).