**Monthly Newsletter - June 2024**

***- Video feature:*** *click on the "play" red icons in the text or in the images of the Newsletter to watch the videos*

***- IARUMS Wiki:*** *find more information, screenshots, videos and recordings of the transmission modes most used by non-amateur stations on the amateur radio bands: https://www.iaru-r1.org/spectrum/monitoring-system/iarums-wiki/*

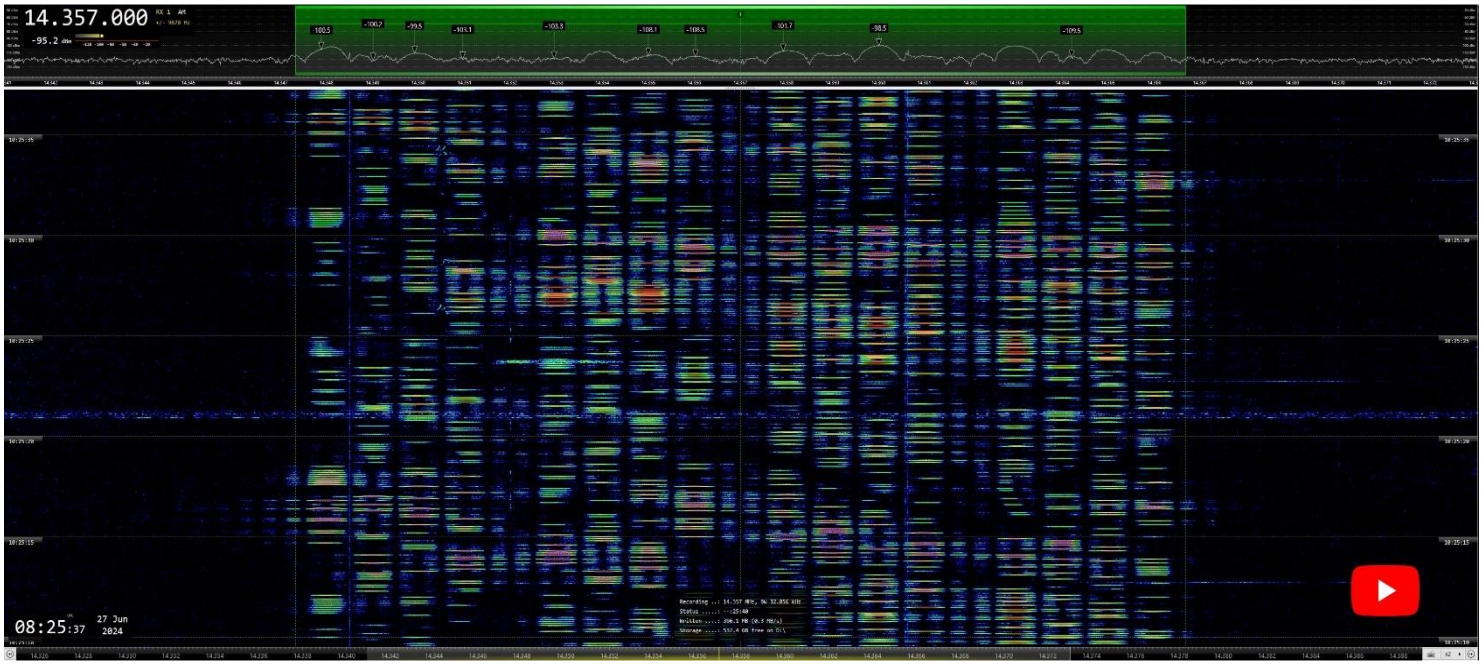
## News and Info

During the month of June, as it has happened every month for many years, we had the unfortunate experience of seeing our HF amateur radio bands invaded by a large number of non-amateur transmissions.

Invariably, the transmissions sent by over-the-horizon radars (OTHR) are those we receive in the greatest number each month. Additionally, as highlighted in the monthly reports sent by the IARU R1 member associations cooperating with the IARU Monitoring System Region 1, many transmissions in military modes are received each month too.

Lately, besides this type of transmission, and the ones sent by other intruders and pirates, we are concerned by the increasing number of receptions of other signals, whose purpose is sometimes unknow, and which, together with the transmissions we talked about above, have no place in the spectrum of our HF amateur radio bands. Below we describe some examples of this type of signals received during June 2024.

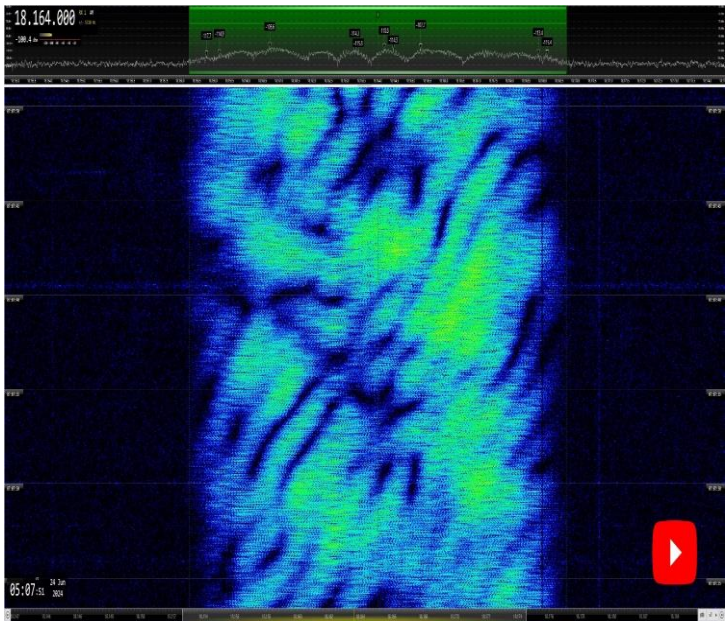
Although the center frequency of the following multi-tone transmission was out of our bands, it occupied a part of the 20-metre amateur radio band (2.5 kHz; from 14347.5 kHz to 14350 kHz). This type of transmission, received on June the 27th at 0755 UTC on 14357 kHz CF, noticed for the first time in an amateur radio HF band, is most probably part of the High-Frequency Trading (HFT) transmission tests that are being performed on the HF spectrum out of the amateur bands. Its bandwidth was 19 kHz, and it presented 4 groups of 4 channels each:



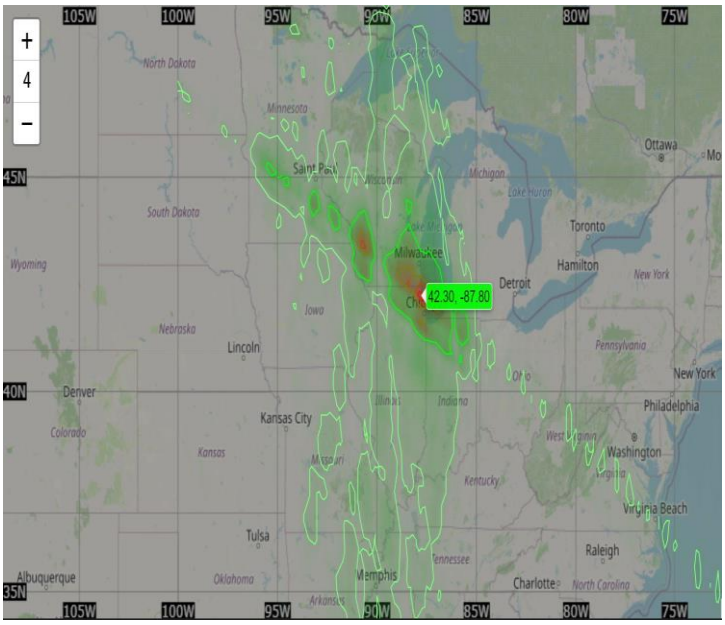

*14357 kHz CF. XXX. Partially inside the 20m band. BW = 20 kHz. High-Frequency Trading (HFT)*

**© IARU Monitoring System R1**

In the 17 m band we received during 4 days (from June the 24th to June the 27th ) a long-lasting transmission of an unknown type, whose modulation type and purpose remains unknown. Radar? Jammer? We have never received it before in the amateur bands. From the TDoA triangulations performed via the KiwiSDR net TDoA (Time Difference of Arrival) feature, both signals appeared to come from about the same zone, an area in the North East of Illinois, United States of America).

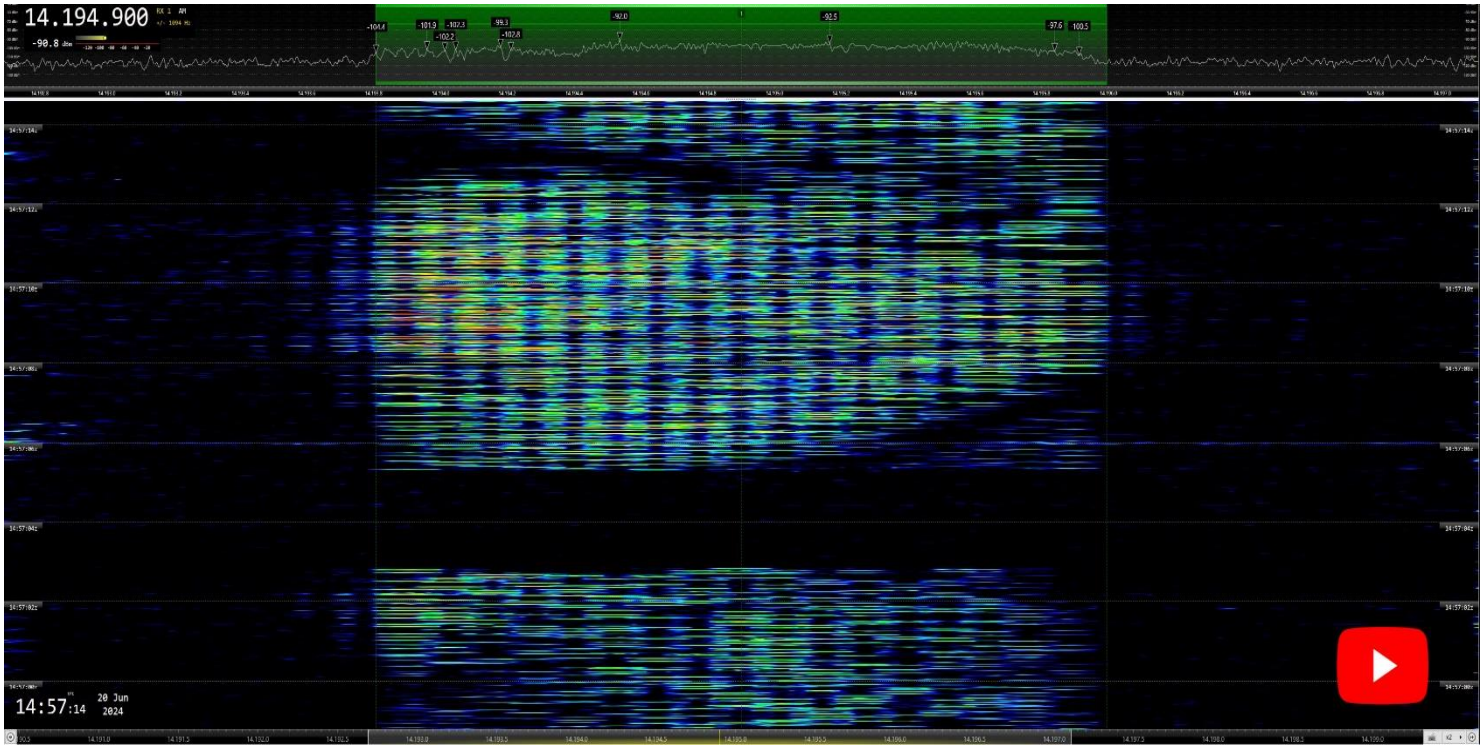



*18164 kHz CF: XXX. Long-lasting. Bandwidth = 10 kHz. 80 sps*



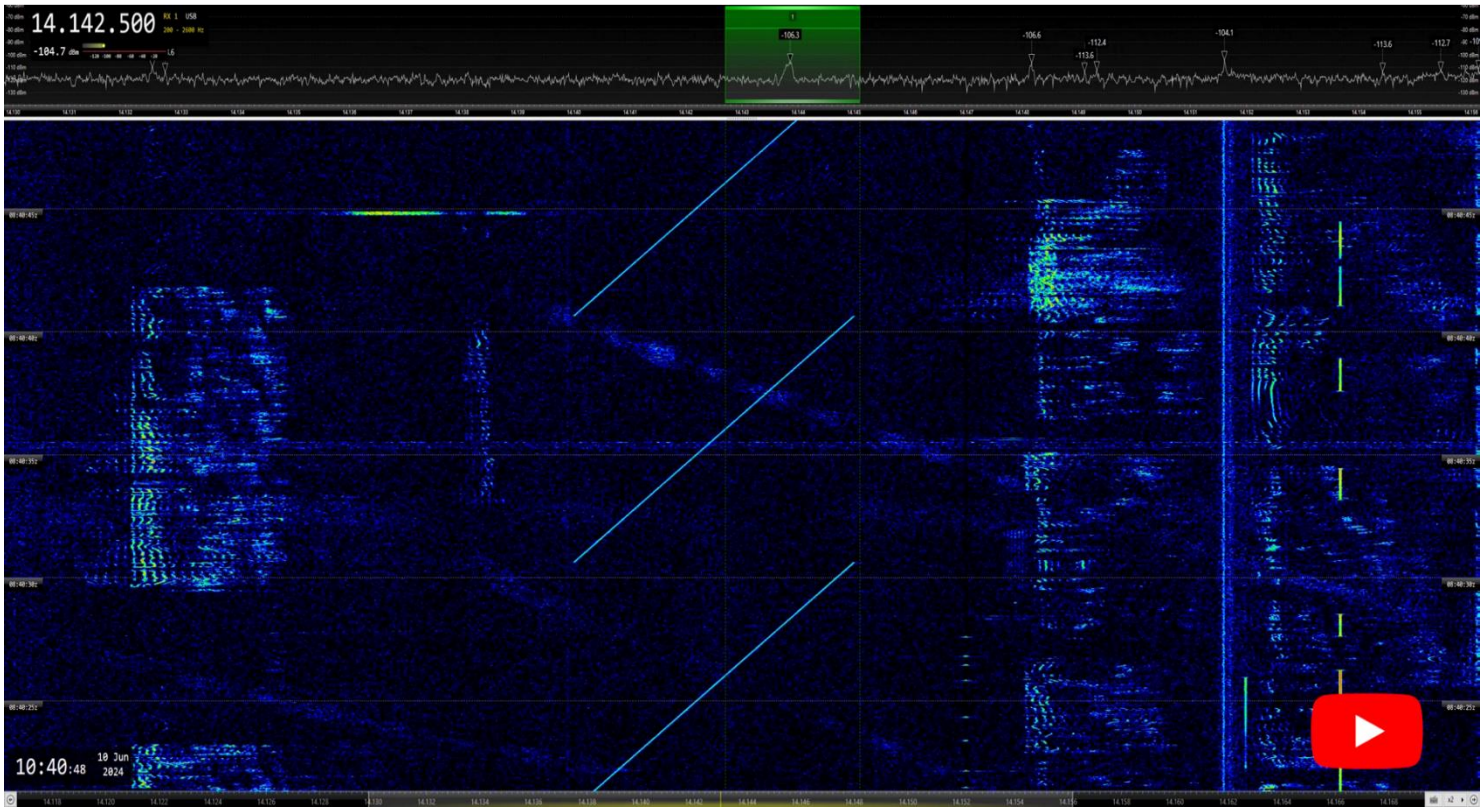

*18164 kHz CF XXX and 14357 kHz HFT TDoA*

Very rarely observed in the HF amateur radio bands, we received a (possibly CIS) transmission using MFSK-17 bursts



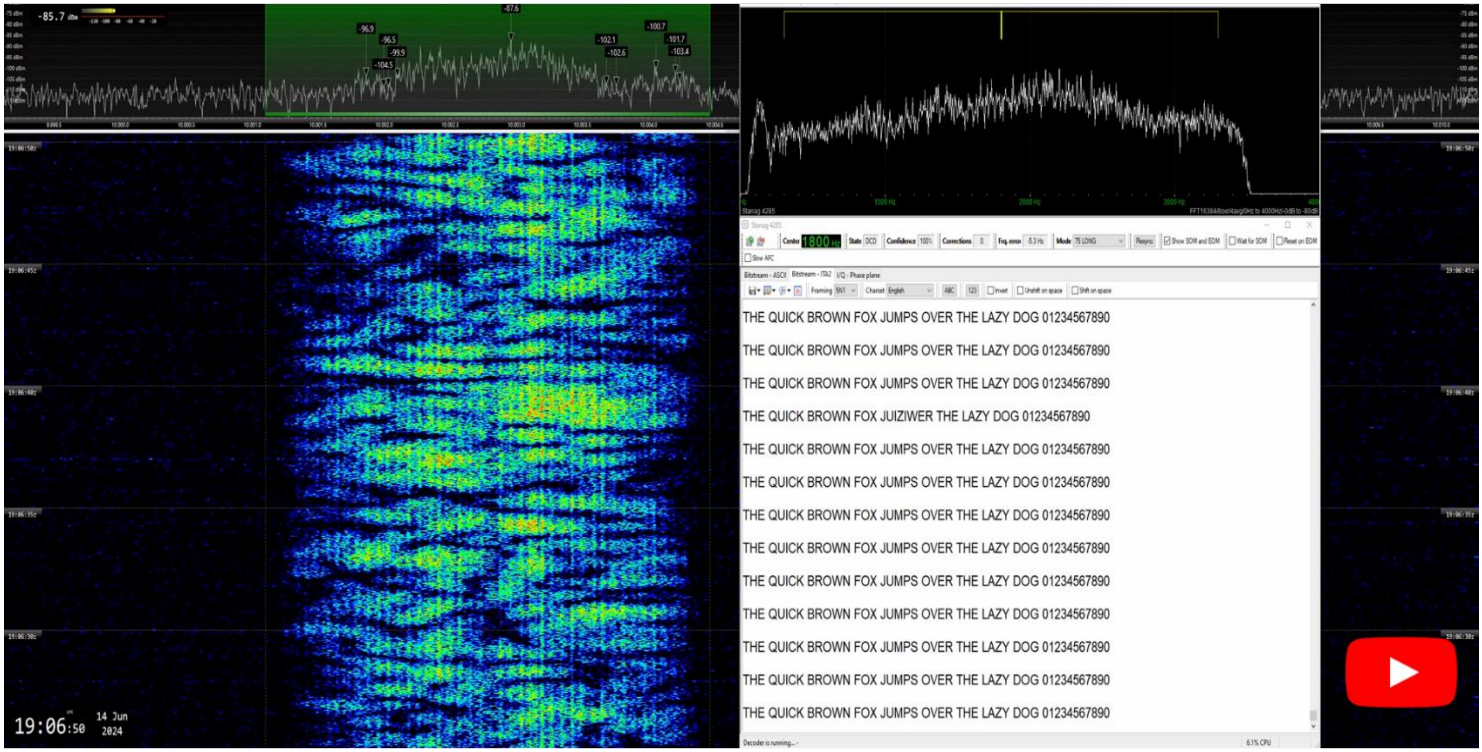

*14194.9 kHz CF: XXX MFSK-17. 17 tones. Tone spacing = 125 Hz. 125 Bd*

We received very long-lasting transmissions sending bursts of slow sweeps on 14142.5 kHz CF during 10 days in a row. They occupied 5 kHz and their sweep rate was very low, 0.1 sweeps per second (1 sweep = 10 sec). Every burst was 120 seconds long and the burst repetition interval of this signal was 120 seconds too. As it appeared, it disappeared 10 days after:



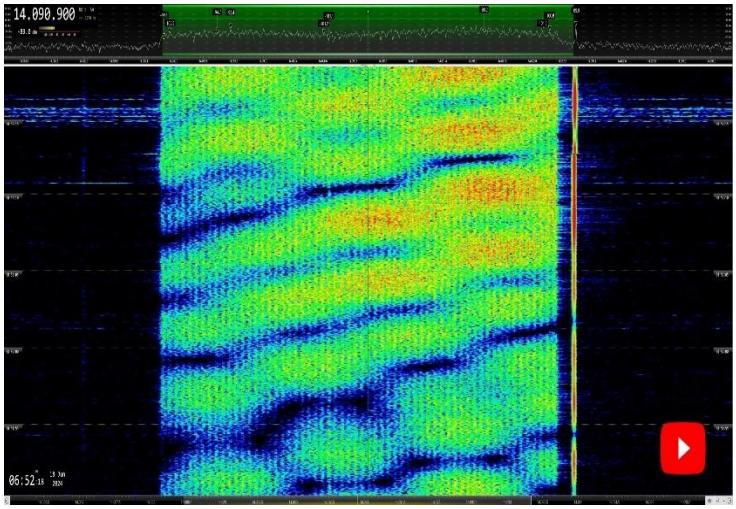

*14142.5 kHz CF: XXX. Unidentified slow-sweeping bursts.Long-lasting. BW = 5K0E. 0.1 sps. BD = 120 sec. BRI = 120 sec.*

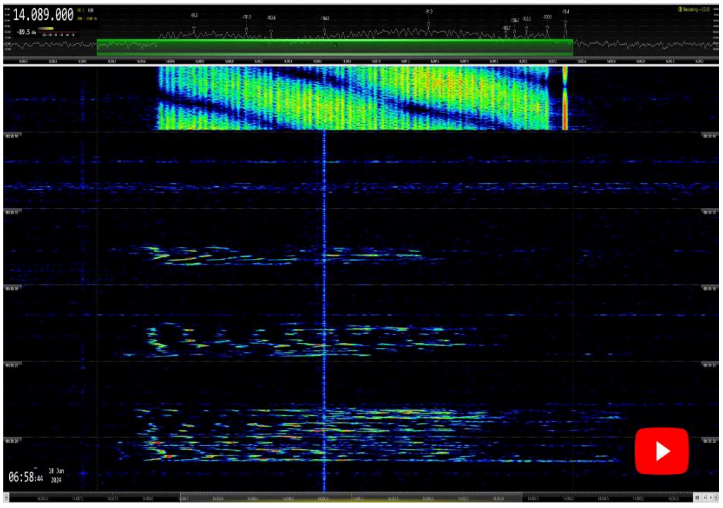
Turning now to more well-known transmissions modes, we received a very long lasting STANAG-4285 transmissions in the 15-metre band which remained at the same frequency during 4 days in a row. The peculiarity of this transmission was that throughout the whole time it remained on the air, it transmitted the same message, consisting in a sentence containing all the alphabet characters, and all the numbers, which is used for testing purposes:
"*The quick brown dog jumps over the lazy dog 01234567890*":




*21334 kHz USB: STANAG-4285. BW ca 3K0E. PSK-8. G1D. 125 Bd*

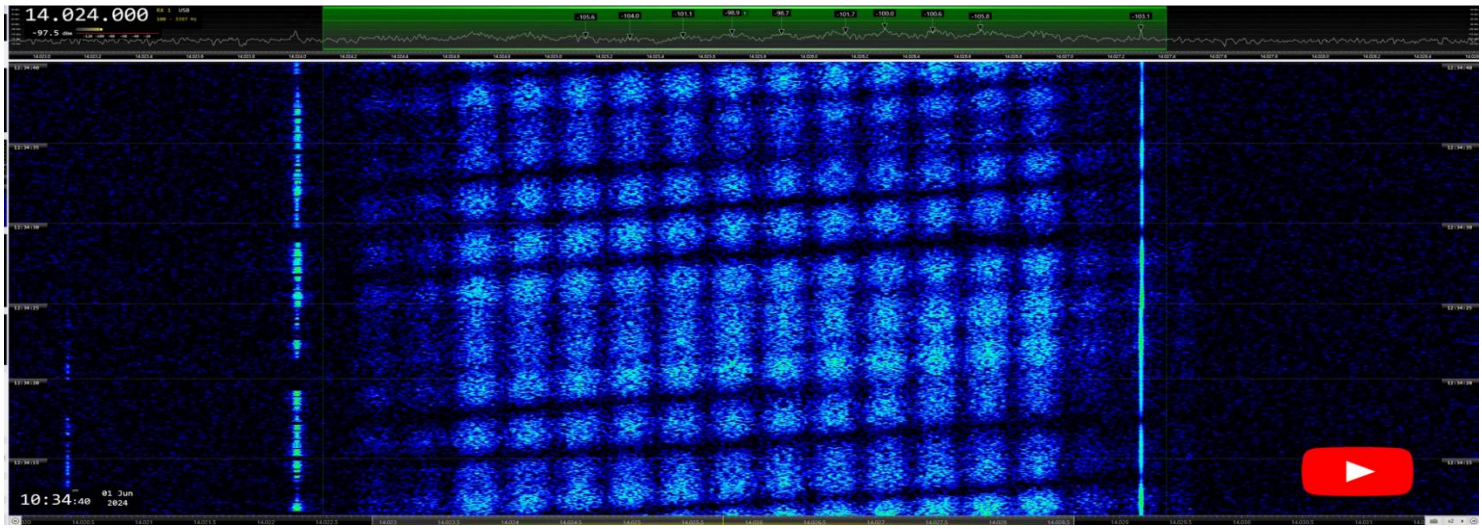
Although the following signal (A CIS-60. OFDM. BW = 2.8 kHz. 30 Bd) is well known, it is less frequent (though not unusual) to observe SSB transmissions among the CIS-60 transmissions. The bandwidth of the SSB transmissions (3K3E) is an indicator showing that these were most likely military transmissions:



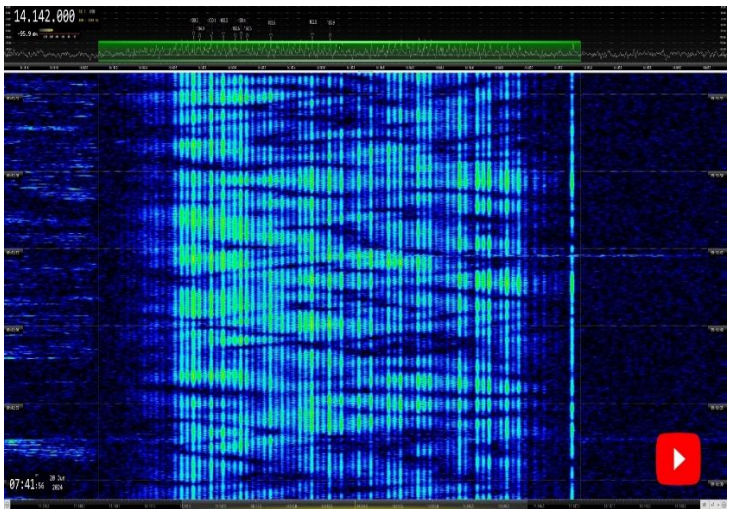




*L: 14091 kHz CF: CIS-60. OFDM. W7D. BW = 8K0E. 30 Bd / R: USB TX between CIS-60 TX. BW = 3K3E. Male voice. Slavic language. Most probably, MIL*

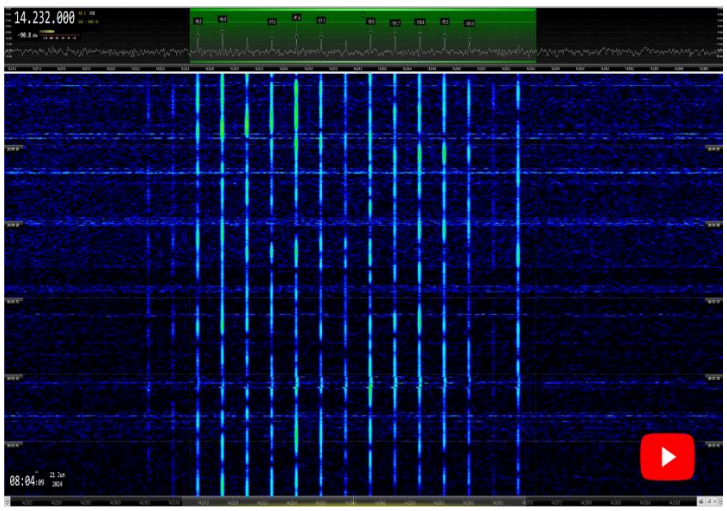
The CIS-12 is also a well-known MIL CIS mode. In the following video-recordings, all taken during June 2024, we can see different types of CIS-12 transmissions.




*14026 kHz CF: CIS-12. J7D. BW = 2K70E. 12 X 120 Bd + pilot tone ; with additional pilot tone on 14024 kHz. Traffic.*

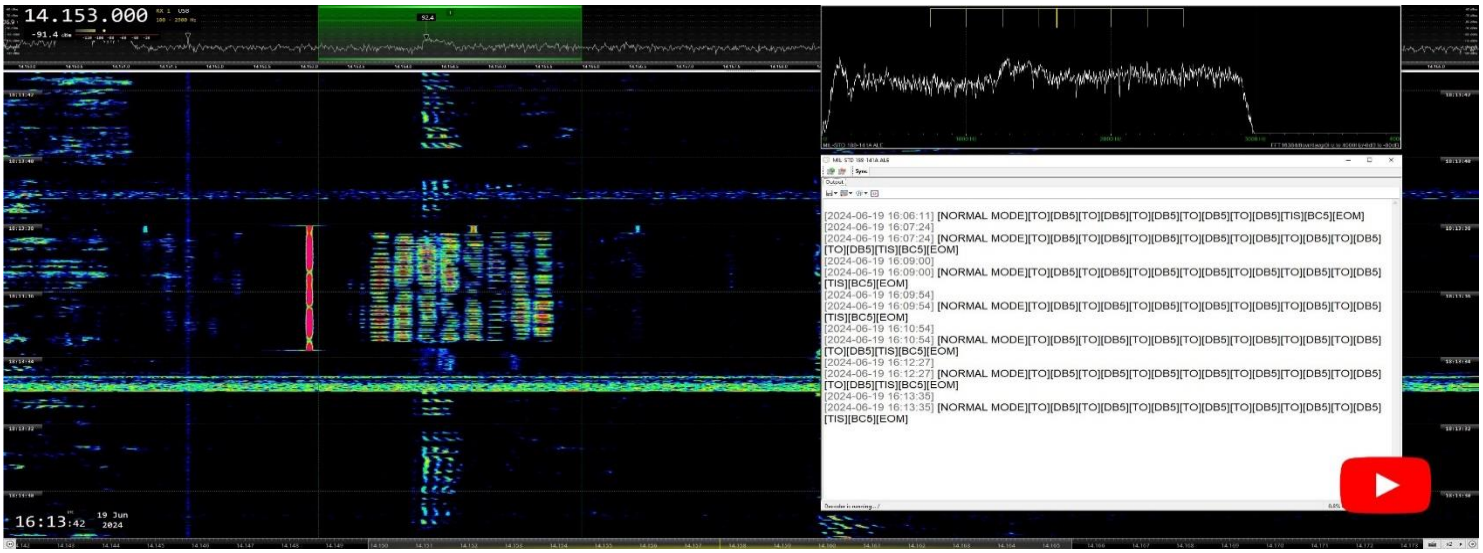



*14144 kHz CF: CIS-12. Submode Idle*

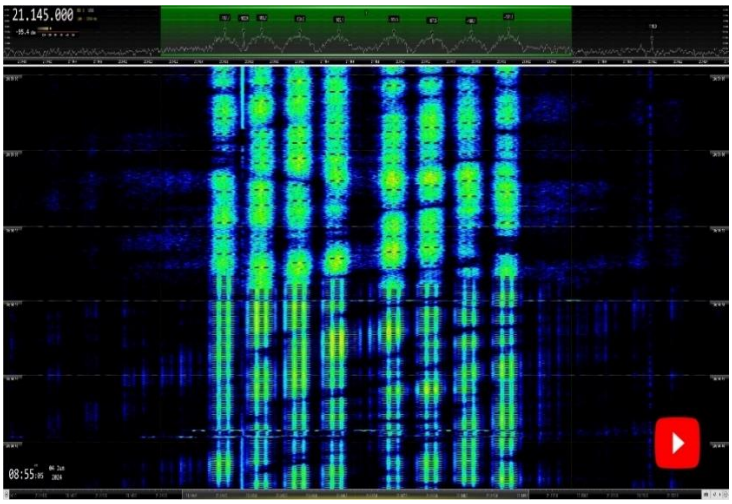


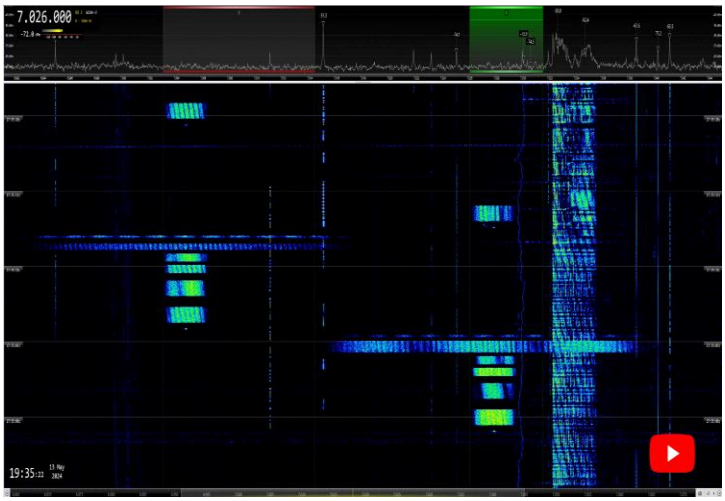

*14234 kHz CF: CIS-12. Idle*

Below, some examples of the different MIL modes which were received during June:



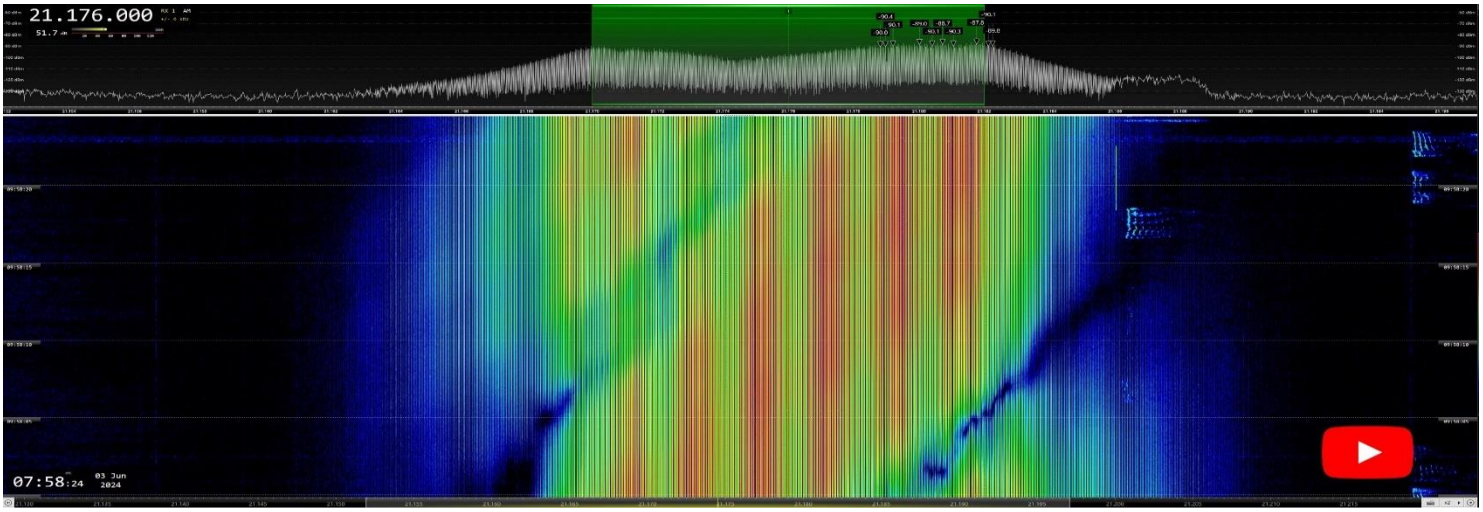

*14153 kHz USB: MIL-188-141A ALE 2G. MFSK-8. J7D. BW = 1.8 kHz. 125 Bd. With additional pilot tone on 14153 kHz*




*Left: 21145 kHz USB: CHN 4+4. PSK-4. G7D. BW = 2K40E. 75 Bd / Right: 2 x WHARQ (Wideband HF Automatic Repeat Request) transmissions on 40 m*

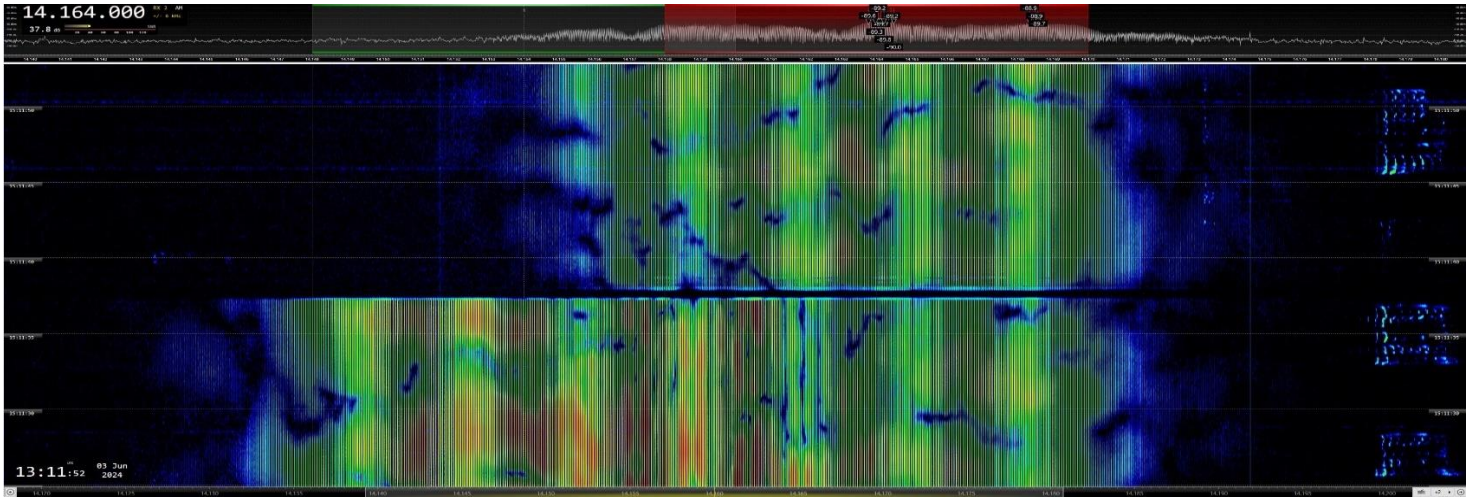
Moving on to the radar transmissions received during the month of June on the HF amateur radio bands, the most frequent and numerous (though not the only ones) were those from over-the-horizon (OTHR) radars. One of the most recurring radars of this type in our bands is the Russian OTHR Contayner (FMOP. BW = 12K0E. 40 sps




*21176 kHz CF: OTHR Contayner. RUS. Necessary BW = 12K0E. Spectral occupation circa 20 kHz. 40 sps*

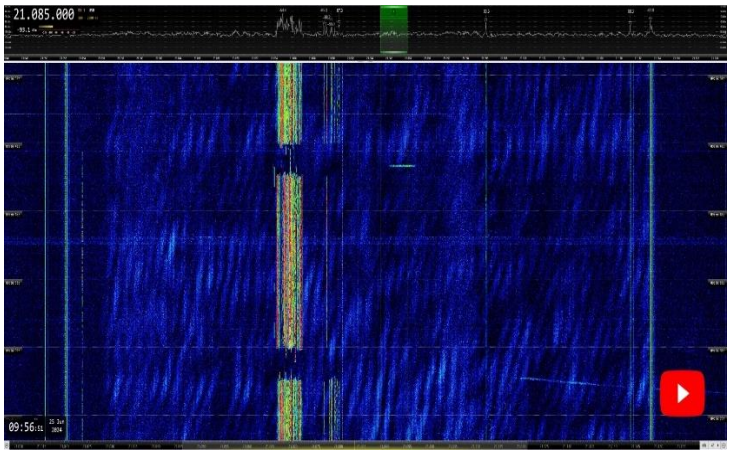
When we report the reception of its transmissions, we indicate that its bandwidth is 12 kHz. However, on most occasions, the observed bandwidth of its transmissions is significantly greater than this figure. This is because our reports specify the necessary bandwidth, while the spectral occupation of the signal is often much wider (this also occurs with other OTH radars, such as the British and Iranian ones).

On some occasions, the Russian OTHR transmits simultaneous side-by-side signals, which can appear on the waterfall display of SDR-type receivers as a single transmission with a bandwidth much larger than 12 kHz and may lead to confusion. An example of these side-by-side transmissions can be seen on the left, below: on this time, after a very short cut (less than a second long), the transmission starts again, but only one of the two transmissions remains on the air

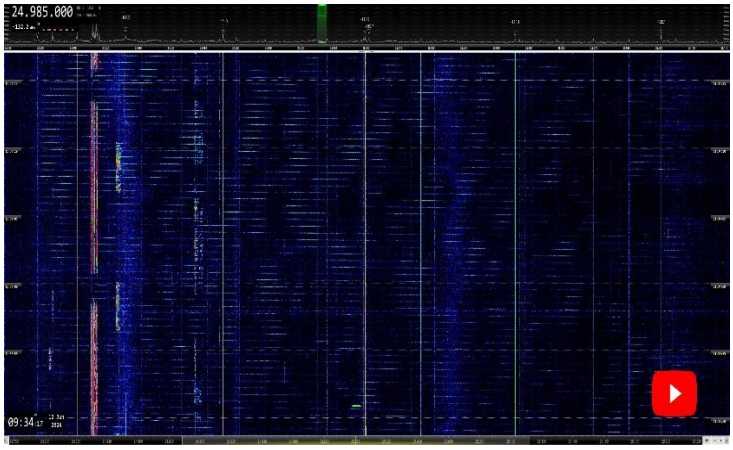



*OTHR Contayner on 20m; RUS. 40 sps. 2 transmissions side by side. BW = ( 2X)12K0E. Spectral occupation circa 29 kHz*

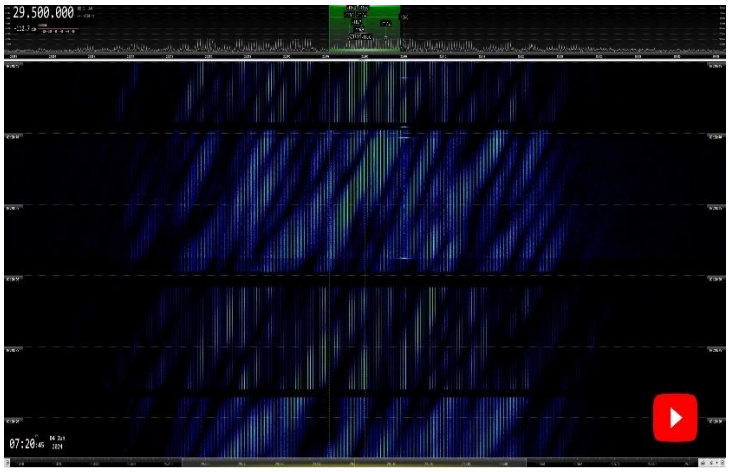
Below, some examples of radar transmissions received on the amateur radio HF bands during the month of June



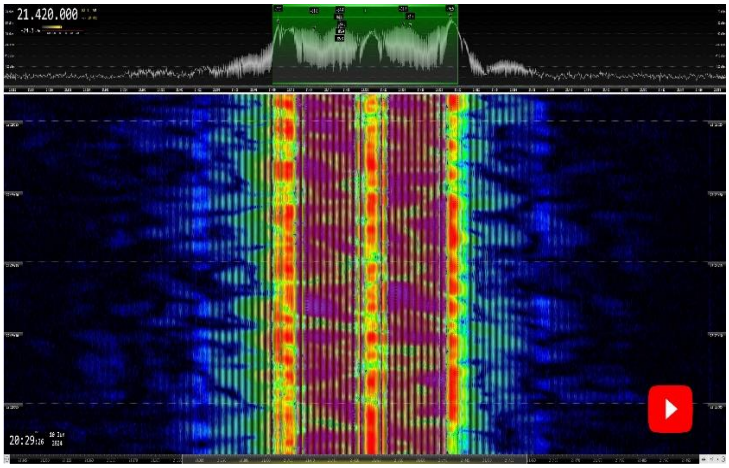

*21085 kHz CF: Unknown radar. BW = 60K0E. 50 sps*




*25000 kHz CF: CODAR-like radar. BW = 200K0E. 2 sps*

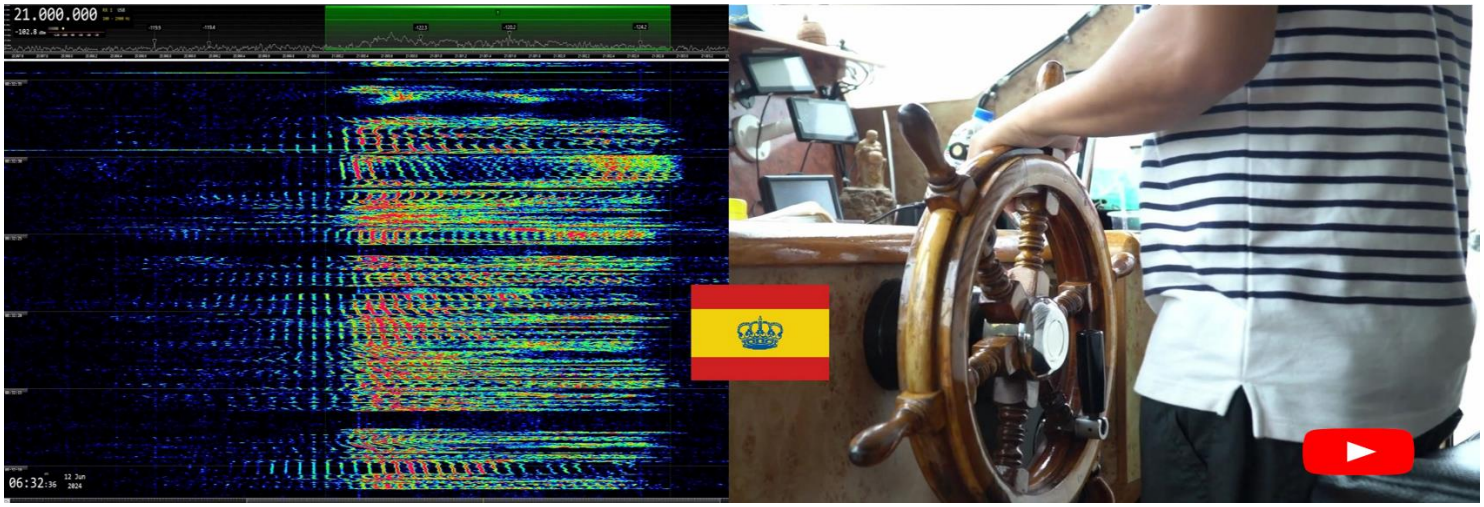



*29500 kHz CF: OTHR IRN BW = 45K0E. Alternating 150 and 313 sps bursts*

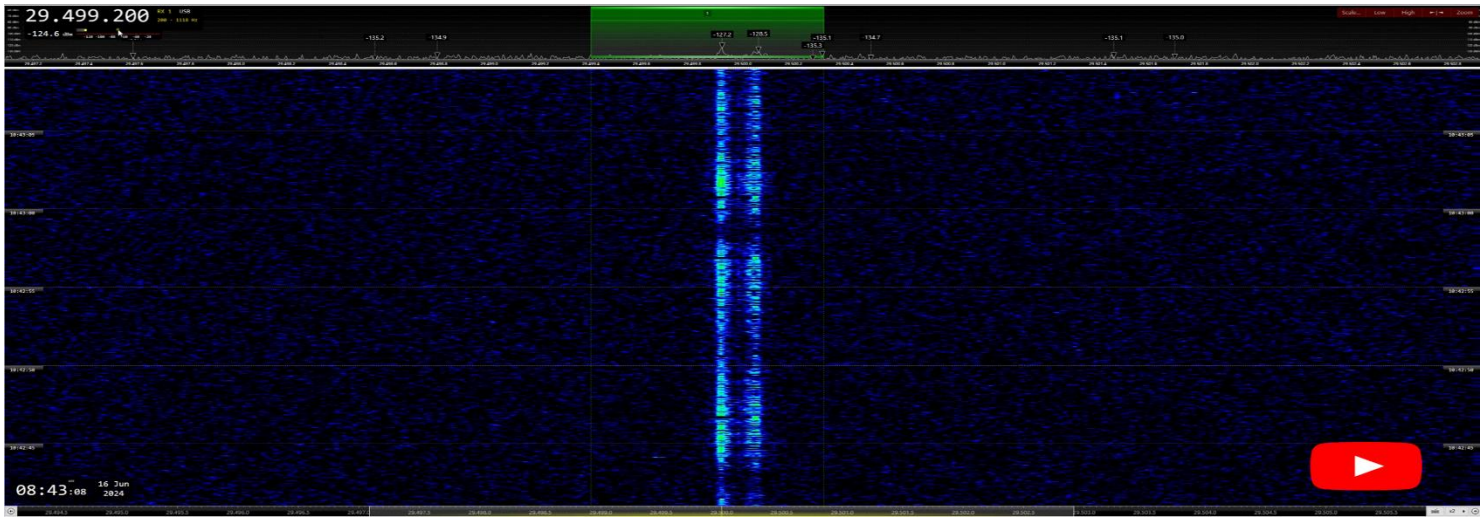



*21420 kHz CF: OTHR G (UK SBA, Cyprus). BW = 20K0E. 50 sps*

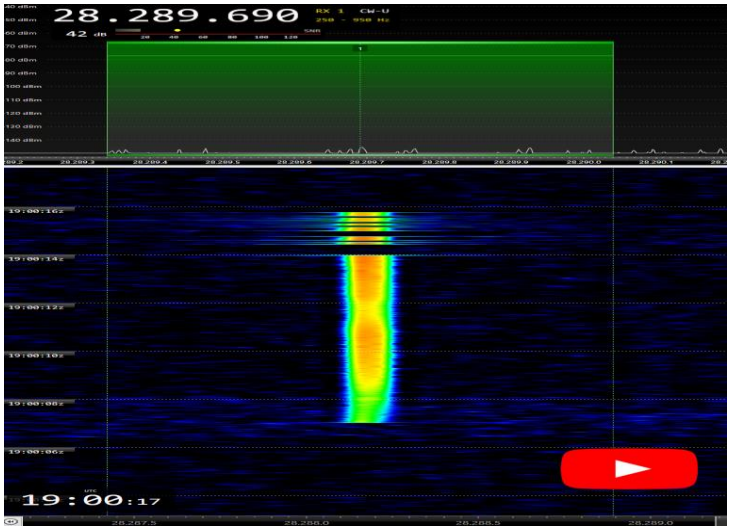
To conclude, we present some examples of other non-amateur transmissions we reported during June. The first of these examples shows one of the most recurrent intruders using SSB on the 15-metre amateur radio band: the Spanish fishers!



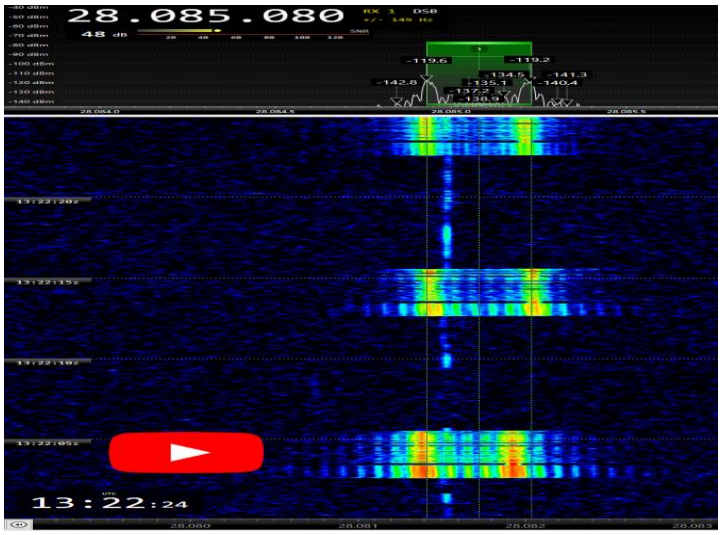

*21000 kHz USB: J3E-U. BW = 2.8 kHz. Spanish fishers.* ***For years on the same frequency, always the same operators****.*




*29500 kHz CF: Datawell Waverider buoy transmission. F1B (FSK). Shift = 140 Hz. 81.9 Bd*




*Example of an A1A (CW) fishing buoy TX on the 10-metre band*




*Example of a F1B (FSK) fishing buoy TX on 10m. SH = 300 Hz. 51 Bd*

***- Find other videos and screenshots about the transmissions received during June at the end of this Newsletter -***

# Detailed reports of national coordinators

**Abbreviations used** (as per IARUMS definitions)

**aka** = also known as **| BC** = Broadcast | **Bd** = Baud | **BD** = Burst duration) | **BRI** = Burst repetition interval. **BW** = Bandwidth | **ca** = approximate | **CHN = PRC** = People´s Republic of China | **CF** = Center frequency **DF** = Direction finding (radio location; see also TDoA) | **FMCW** = frequency modulated continuous wave **FMOP** = frequency modulated on pulse | **OTHR** = over the horizon radar | **SH** = Shift (Hz) | **sps** = sweeps per second | **TDoA** = Time difference of arrival | **ui** = **unid** = unidentified.

## DARC; Harald, DL9NDW & DARC IW Team

| kHz | UTC | DD | MM | ITU | IDENT | MODE | BD /sps | SH / BW | DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| 7001.0 | 20:39 | 11 | 06 | | | XXX | 80 | 10K0E | Jammer |
| 7005.0 | 20:42 | 11 | 06 | | | XXX | | 2K70E | Short Pulses , sounding like someone hustling in a MIC , but appears as some digital mode |
| 7005.0 | 19:53 | 12 | 06 | UKR | | XXX | 2400 | 2K40E | 2400Bd, ALE3G ( WHARQ) |
| 7020.0 | 20:14 | 13 | 06 | RUS | | F1B | 75 | 250H | F1B 75bd , not decodable |
| 7022.0 | 18:40 | 25 | 06 | RUS | | J7D | 120 | 2K60E | CIS-12, |
| 7023.0 | 17:00 | 07 | 06 | RUS | | RADAR | 40 | 12K0E | OTHR Contayner, |
| 7033.7 | 19:55 | 22 | 06 | | | XXX | | CA3K0E | carriers, starting at 7032.2 , each 100Hz with 50Hz spaced subcarrier , 50 Hz modulation |
| 7034.0 | 19:27 | 12 | 06 | | | XXX | 50 | 3K0E | Jammer |
| 7037.0 | 20:19 | 13 | 06 | RUS | | F1B | 50 | 200H | cis-50-50 |
| 7050.0 | 18:53 | 17 | 06 | | | J3E-L | | 2K70E | Music over FT4 |
| 7055.0 | 18:58 vt* | 17 vt* | 06 | | | J3E-L | | 2K70E | Radiowar, Music, Jammers : UKR vs RUS , very often again in June Varying Frequencies around 7055 |
| 7064.0 | 10:27 vt* | 14 vt* | 06 | RUS | | J7D | 120 | 2K60 | CIS-12 also on 22 18:29 |
| 7119.0 | 17:07 | 17 | 06 | RUS | | J7D | 120 | 2K6 | CIS-12 |
| 7198.0 | 19:42 | 05 | 06 | RUS | | J7D | 120 | 2K60E | CIS-12, submode idle,, |
| 10109.0 | 13:32 | 13 | 06 | RUS | | RADAR | 40 | 12K0E | OTHR Contayner |
| 10150.0 | 15:08 | 09 | 06 | RUS | | RADAR | 40 | 12K0E | OTHR Contayner, half Spread goes into 30m band |
| 14000.0 | 11:30 | 21 | 06 | E | | J3E-U | | 2K70E | Spanish language Fishermen |
| 14039.0 | 20:26 | 14 | 06 | CHN | | RADAR | 66.7 | 10K0E | OTHR Bursts |
| 14050.0 | 14:00 | 17 | 06 | | | RADAR | 1 | 80K0E | ocean surface radar |
| 14050.0 | 14:05 | 17 | 06 | RUS | | F1B | 100 | 250H | unclean signal, switched to 75bd after starting content |
| 14054.0 | 11:52 | 15 | 06 | RUS | | RADAR | 40 | 12K0E | OTHR Contayner |
| 14090.0 | 12:40 | 11 | 06 | RUS | | RADAR | 40 | 12K0E | OTHR Contayner .. In parallel with another one..much lower strength ( mixing ? ) |
| 14098 to 14350 | 13:52 vt* | 27 vd* | 06 | CHN | | RADAR | 66.7 | 10K0E | China OTHR Bursts with 42,50 or 66.7 Hz Sweep, all 10K0E wide. 40 Reports in 20M SSB Section. Often 2 or 3 occurencies with time delay |
| 14140.0 to 14230 | 14:55 vt* | 10 vd* | 06 | RUS | | RADAR | 40 | 12K0E | OTHR Contayner , often and varying center Frequencies in 20m SSB Section. 20 Reports |
| 14220.0 | 10:45 | 20 | 06 | CHN | | W7D | 44.44 | 2K40 | OFDM 39, |
| 14233.5 | 15:18 | 13 | 06 | | | F1B | 600 | 600H | DPRK-FSK-600, |
| 18070.0 | 16:56 | 03 | 06 | G | | RADAR | 50 | 20K0E | OTHR Cyprus UK SBA |

## DARC; Harald, DL9NDW & DARC IW Team

| kHz | UTC | DD | MM | ITU | IDENT | MODE | BD /sps | SH / BW | DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| 18090.0 | 17:52 | 06 | 06 | G | | RADAR | 50 | 20K0E | OTHR Cyprus UK SBA |
| 18158.0 | 15:03 | 13 | 06 | RUS | | RADAR | 40 | 12K0E | OTHR Contayner |
| 18165.0 | 09:09 | 12 | 06 | RUS | | RADAR | 40 | 12K0E | OTHR Contayner, spreading downto 18152 |
| 18165.0 | 11:48 | 15 | 06 | RUS | | RADAR | 40 | 12K0E | OTHR Contayner |
| 18165.0 | 10:36 | 18 | 06 | RUS | | RADAR | 40 | 12K0E | OTHR Contayner |
| 18170.0 | 09:32 | 20 | 06 | G | | RADAR | 50 | 20K0E | OTHR Cyprus UK SBA, spreads into band, down to 18150 |
| 18170.0 | 10:30 | 25 | 06 | G | | RADAR | 50 | 20K0E | OTHR Cyprus UK SBA, spreads 15KHz into Band |
| 21000.0 | 16:12 | 10 | 06 | | | XXX | 50 | 2K70E | Jammer |
| 21000.0 | 13:26 | 13 | 06 | E | | J3E-U | | 2K70E | Spanish (Galician) fishermen ? Bay of Biscay, |
| 21000.0 | 13:35 | 13 | 06 | ALG | | J7D | 125 | 1750H | MIL-188-141A - 125 Bd, |
| 21001.5 | 20:53 | 13 vd* | 06 | | | XXX | 50 | 2K40E | Jammer unclear location around Black Sea Area. * nearly every day in the evening time . > 10 Reports |
| | | | | | | | | | |
| 21088.0 to 21450 | 15:29 | 12 | 06 | RUS | | RADAR | 40 | 12K0E | OTHR Contayner , reported 9 times on several frequencies |
| 21103.0 to 21450 | 14:26 vt* | 10 vd* | 06 | CHN | | RADAR | 66.7 | 10K0E | China OTHR Bursts with 42,50 or 66.7 Hz Sweep, all 10K0E wide. Nearly daily, *39 Reports in 15M SSB Section. Often 2 or 3 occurencies with time delay |
| 21105.0 | 06:50 | 19 | 06 | G | | RADAR | 50 | 20K0E | OTHR Cyprus UK SBA |
| 21180.0 | 08:29 | 22 | 06 | G | | RADAR | 25 | 20K0E | OTHR Cyprus UK SBA |
| 21335.8 | 15:57 | 14 | 06 | | | G1D | 2400 | 2K4 | Stanag4285 (USB 21334.0), |
| 21335.8 | 13:41 | 15 | 06 | | | G1D | 2400 | 2K40 | Stanag-4285, |
| 21371.0 | 13:49 | 17 | 06 | G | | RADAR | 50 | 20K0E | OTHR Cyprus UK SBA |
| 21390.0 | 08:11 | 15 | 06 | G | | RADAR | 50 | 20K0E | OTHR Cyprus UK SBA |
| 21405.0 | 13:30 | 16 | 06 | G | | RADAR | 25 | 20K0E | OTHR Cyprus UK SBA, long lasting |
| 21440.0 | 17:05 | 09 | 06 | | | XXX | | 9K0E | Strange Audio Transmissions, No Sideband, Am or Fm . |
| 28055.0 | 10:18 | 20 | 06 | E | | J3E-U | | 2K4E | Spanish CB Traffic, |
| 28100.0 | 18:49 vt* | 17 vd* | 06 | IRN | | RADAR | | 46K0E | Iranian radar - 150 sps and 313 sps alternating . * Often when Band open to east. Also on 28350, 28860 , 29400 to 29500. |

## IRTS; Michael, EI3GYB

| kHz | UTC | DD | MM | ITU | IDENT | MODE | BD /sps | SH / BW | DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| 6985 | 1915 | 27 | 6 | | | RADAR | | | Radar from 6985 to 7010 kHz. Huge and persistent. |
| 7000 | 2125 | 20 | 6 | | | | | | Jammer. Medium signal, persistent. |
| 7032 | 2325 | 16 | 6 | | | USB | | | Strong carrier. Daily- as many months before.Heard daily. |
| 7050 | 1800 | 22 | 6 | RUS/ UKR | | LSB | | | Russian-Ukrainian radio war. Nearly daily all hours of daylight. Medium to strong signal. |
| 7055 | 2230 | 18 | 6 | RUS/ UKR | | LSB | | | Rebroadcasting of a Russian radio programme. Strong and persistent signals. Still on an hour later. This channel is used |

## IRTS; Michael, EI3GYB

| kHz | UTC | DD | MM | ITU | IDENT | MODE | BD /sps | SH / BW | DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | daily for Russian and Ukrainian propaganda broadcasts. |
| 7125 | 2320 | 16 | 6 | | | RADAR | | | Radar from 7125 to 7145 kHz. Huge and persistent. |
| 7162.5 | 2250 | 2 | 6 | | | PSK | | | Link 11 Clew. Strong and persistent. Also heard on 3rd,4th and 5th. Back again on the 16th. |
| 7175.5 | 2200 | 30 | 6 | | | PSK | | | Link 11 Clew. Strong and persistent. |
| 7181 | 2120 | 20 | 6 | | | F1B | | | Medium signal, persistent. |
| 14000 | 1600 | 16 | 6 | E or MM | | USB | | | Spanish fishermen. Weak signals. Also heard on the 25th. |
| 14055 | 1130 | 4 | 6 | PHL | | AM | | | Harmonic from a VOA Tinang relay broadcasting in Chinese on 11825 kHz. Stops at 1159z. Strong but distorted signal. |
| 14181 | 710 | 12 | 6 | | | RADAR | | | Radar from 14181 to 14196 kHz. Huge and persistent. Still on at 0915z. |
| 14185 | 1235 | 26 | 6 | | | RADAR | | | Radar from 14185 to 14215 kHz. Huge and persistent. |
| 14192 | 1030 | 2 | 6 | RUS | | F1B | | | Russian navy, Kaliningrad. Daily all day long with a medium to strong signal. |
| 14220 | 1035 | 2 | 6 | CHN | | RADAR | | | Chinese Foghorn from 14220 to 14230 kHz. Medium but persistent signal. |
| 14300 | 930 | 16 | 6 | | | RADAR | | | Radar from 14300 to 14315 kHz. Weak butt persistent. |
| 14330 | 1200 | 27 | 6 | CHN | | RADAR | | | Chinese Foghorn from 14330 to 14340 kHz. Medium signal. |
| 18147 | 1435 | 12 | 6 | UK | | RADAR | | | Radar form 18147 to 18180 kHz. Huge and persistent. British base on Cyprus. |
| 21001.5 | 1815 | 13 | 6 | | | | | | Jammer. Medium but persistent signal. Also heard: 18th at 1705z. 20th at 1630z. |
| 21175 | 1500 | 10 | 6 | UK | | RADAR | | | Radar from 21175 to 21190 kHz.Huge and persistent. UK base on Cyprus. |
| 21295 | 1600 | 16 | 6 | | | RADAR | | | Radar from 21295 to 21310 kHz. Weak but persistent. |
| 21438 | 1200 | 2 | 6 | UKR | | CW | | | Russian navy base, Sevastopol. Medium to strong signal. Daily all day long. |
| 29494 | 1125 | 24 | 6 | | | F1B | | | Strong and persistent signal. |

## PZK; SP3AMO, SP5GNI

| kHz | UTC | DD | MM | ITU | IDENT | MODE | BD /sps | SH / BW | DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| 7020.0 | 1920 | 19 | 06 | | | F1B | | 250 | S9+ |
| 14053.0 | vt | 15 | 06 | | | RADAR | | 14K0E | S7 |
| 14122.0 | 1600 | 17 | 06 | CHN | | RADAR | | 10K0E | 3 sec burst foghorn + 14279.0 |
| 14139.0 | 2005 | 11 | 06 | | | RADAR | | 14K0E | |
| 14146.0 | 1100 | 1 | 06 | | | RADAR | | 12K0E | |
| 14183.0 | 1230 | 30 | 06 | | | RADAR | | 14K0E | S7 |
| 14184.0 | 1730 | 14 | 06 | | | RADAR | | 10K0E | S9 and 14202,0 in parallel |
| 14190.0 | 0917 | 10 | 06 | | | RADAR | | 20K0E | S9 |
| 14191.0 | 0800 | 12 | 06 | | | RADAR | | 14K0E | S6 |
| 14193.0 | 1930 | 12 | 06 | | | RADAR | | 14K0E | S9 |
| 14200.0 | 1240 | 26 | 06 | | | RADAR | | 20K0E | S9 looks like Cyprus |

## PZK; SP3AMO, SP5GNI

| kHz | UTC | DD | MM | ITU | IDENT | MODE | BD /sps | SH / BW | DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| 14202.0 | 0930 | 19 | 06 | | | RADAR | | 20K0E | S9+ |
| 14203.0 | 1600 | 17 | 06 | | | RADAR | | 14K0E | S8 |
| 14216.0 | 1010 | 22 | 06 | | | RADAR | | 10K0E | S9 and 14181,0 in parallel |
| 14244.0 | 1500 | 10 | 06 | CHN | | RADAR | | 10K0E | 3 sec burst foghorn + 14279.0 |
| 14298.5 | 0750 | 26 | 06 | | | UI | | 1K4E | Digital |
| 14308.0 | 1422 | 20 | 06 | | | UI | | 600 | Digital |
| 14333.0 | 1555 | 19 | 06 | | | RADAR | | 10K0E | 3 sec burst foghorn |
| 18088.0 | 1725 | 14 | 06 | | | RADAR | | 10K0E | S8 |
| 18165.0 | 1145 | 15 | 06 | | | RADAR | | 12K0E | S9 looks like Cyprus |
| 18170.0 | vt | vd | 06 | | | RADAR | | 20K0E | Partially in our band |
| 21132.0 | 1120 | 12 | 06 | | | RADAR | | 12K0E | S9 looks like Cyprus |
| 21165.0 | 1055 | 17 | 06 | | | RADAR | | 20K0E | S7 |
| 21169.0 | 0815 | 17 | 06 | | | RADAR | | 12K0E | S7 |
| 21176.0 | 1350 | 1 | 06 | | | RADAR | | 12K0E | S9 looks like Cyprus |
| 21309.0 | 1725 | 14 | 06 | | | RADAR | | 10K0E | 3 sec burst foghorn |
| 21335.0 | 0920 | 14 | 06 | CHN | | RADAR | | 10K0E | 3 sec burst foghorn + 21387.0 + 21421.0 |
| 21370.0 | 1225 | 17 | 06 | | | RADAR | | 20K0E | S8 |
| 21421.0 | 0805 | 29 | 06 | | | RADAR | | 14K0E | S9 |
| 28105.0 | 1935 | 19 | 06 | | | A3A | | 6K0 | conversation unknown language |
| 28735.0 | 1105 | 14 | 06 | | | RADAR | | 20K0E | S5 |
| 28750.0 | 1130 | 26 | 06 | IRN | | RADAR | | 60K0E | |
| 29255.0 | 1445 | 14 | 06 | | | RADAR | | 20K0E | S5 |

## SRAL; Pekka, OH2BLU

| kHz | UTC | DD | MM | ITU | IDENT | MODE | BD /sps | SH / BW | DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| 7 MHz | 0945-1015 | 07 17 | 6 | RUS | | RADAR | 40 sps | 13k0E | (WebSDR 27d, 2200-0500) |
| 7000.0 | 0815-0845 | * | 6 | RUS | | J7D | 120 | 2k60E | |
| 7000.5 | 1210-1215 | 16 | 6 | RUS | RBE94 | A1A | | 40H | 5F |
| 7001.5 | 1705-1710 | 24 | 6 | | | Jam/ XXX | | 5k0E | |
| 7006.5 | 0725-0800/ | 12 | 6 | RUS | | F1B | | 250H | |
| 7010.0 | 1200-1800 | 01 22 | 6 | RUS | | J7D | 120 | 2k60E | |
| 7016.0 | 1520-1635/ | 05 | 6 | RUS | | F1B | | 250H | |
| 7019.0 | 0450-1700 | * | 6 | RUS | P8SP etc | F1B/ N0N | | 200H | *) Days: 20 .28. - 30. |
| 7020.0 | 0445-1830 | * | 6 | RUS | | F1B | | 250H | *) Days: 5. 10. - 22. |
| 7022.0 | 1045-1800 | 01 23 | 6 | RUS | | J7D | 120 | 2k60E | |
| 7025.0 | 0500-1700 | 01 - 30 | 6 | RUS | RDL | F1A/ N0N | | 200H | |
| 7032.0 | 0445-1830 | 01 - 30 | 6 | RUS | | J3E-u | | 3k60E | Non-stop Russian anthem / mx, |

## SRAL; Pekka, OH2BLU

| kHz | UTC | DD | MM | ITU | IDENT | MODE | BD /sps | SH / BW | DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| 7032.0 | 0000-2400 | 01 - 30 | 6 | RUS | | XXX | | 3k60E | Brum when no music. |
| 7034.0 | 1600-1745/ | * | 6 | RUS | | F1B | | 250H | *) Days: 4. 25. 29. |
| 7054.0 | 1710-1730 | 23 | 6 | RUS | | F1B | | 200H | |
| 7058.0 | 1415-1430 | 05 | 6 | RUS | | F1B | | 250H | |
| 7066.0 | 0000-2400 | 01 - 05 | 6 | RUS | | N0N | | | Offset -100H -> space of F1B 200H |
| 7072.0 | 1300-1400 | 06 27 | 6 | RUS | | J7D | 120 | 2k60E | |
| 7076.0 | 0710-1245 | 19 21 | 6 | RUS | | F1B | | 200H | |
| 7088.0 | 1600-1712/ | 07 | 6 | RUS | | J7D | 120 | 2k60E | |
| 7111.0 | 0740-1220 | 10 16 | 6 | RUS | | F1B | | 250H | |
| 7113.0 | 1415-1445 | 05 | 6 | RUS | | J7D | 120 | 2k60E | |
| 7114.0 | 1520-1800 | 17 | 6 | RUS | | F1B | | 250H | |
| 7116.0 | 1245-1315 | 20 | 6 | RUS | | F1B | | 200H | |
| 7121.0 | 0815-1600 | * | 6 | RUS | RLO2 RAL2 | A1A | | 40H | *) Days: 8. 9. 21. |
| 7159.0 | 0400-0800 | * | 6 | IW | | G7D | 75 | 2k40E | *) Days: 3. 4. 5. 9. LINK11 |
| 7170.0 | 0450-1800 | 29 30 | 6 | RUS | | F1B | | 200H | |
| 7179.0 | 0500-1800 | * | 6 | RUS | | F1B | | 200H | *) Days: 20. 21. 28. |
| 7186.0 | 1230-1500 | 06 20 | 6 | RUS | | J7D | 120 | 2k60E | Carries on 7184 kHz |
| 7200.0 | 1615-1630/ | 24 | 6 | RUS | | J7D | 120 | 2k60E | |
| 10 MHz | | | 6 | G | | RADAR | 50sps | 20k0 | (WebSDR 2d) |
| 10 MHz | 1315-1540 | * | 6 | RUS | | RADAR | 40sps | 13k0E | *) Days: 9. 11. 13. (WebSDR 8d) |
| 14 MHz | 0430-1830 | 01 - 30 | 6 | RUS | | RADAR | 40sps | 13k0E | (WebSDR 30d) |
| 14 MHz | 1045-1815 | * | 6 | CHN | | RADAR | 50/67sps | 10k0E | *) Days: 1. 4. - 7. 10. 11. 14. 20. -24. 27. 29. 30. 'foghorn' |
| 14002.0 | 0520-1830 | 01 - 04 | 6 | GUM | | F1B | | 800H | |
| 14008.0 | 0430-1600 | 05 - 30 | 6 | RUS | | F1B | | 250H | |
| 14026.0 | 0940-1050 | 01 | 6 | RUS | | J7D | 120 | 2k60E | |
| 14050.0 | 0945-1425/ | 17 20 | 6 | RUS | | F1B | | 250H | |
| 14108.0 | 0545-1230 | * | 6 | RUS | P4BE | A1A | 18wpm | 40H | *) Days: 1. 2. 3. 6. 8. 9. 12. 14. 16. 20. - 23. 27. 30. 5BL |
| 14116.0 | 0520-1800 | 03 04 | 6 | RUS | | F1B/ N0N | | 250H | |

## SRAL; Pekka, OH2BLU

| kHz | UTC | DD | MM | ITU | IDENT | MODE | BD /sps | SH / BW | DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| 14118.0 | 1210-1250 | 02 | 6 | RUS | | J7D | 120 | 2k60E | |
| 14142.0 | 1550-1620 | 07 | 6 | RUS | | F1B | | 250H | |
| 14160.0 | 1015-1050 | 18 | 6 | RUS | | F1B | | 250H | |
| 14192.0 | 0415-1830 | 01 - 30 | 6 | RUS | | F1B | | 200H | |
| 14292.0 | 0915 | 05 | 6 | RUS | | F1B | | 500H | |
| 14317.0 | 0515-1500 | * | 6 | RUS | NF5A | A1A | 18wpm | 40H | *) Days: 1. - 3. 6. 8. 9. 11. 12. 16. 18. 19. 21. 5BL, 5F |
| 18 MHz | 0845-1915 | * | 6 | G | | RADAR | 50 sps | 20k0 | *) Days: 3. 7. 9. 14. 19. 20. (WebSDR 10d) |
| 18 MHz | 0430-1815 | * | 6 | RUS | | RADAR | 40 sps | 13k0E | *) Days: 4. 5. 7. 9. 10. 12. -15. 18. 20. 21. - 23. 29. (WebSDR 24d) |
| 18092.0 | 0710 | 13 | 6 | CHN | | RADAR | 50 sps | 10k0 | |
| 18164.0 | 0455-1310 | 27 | 6 | | | XXX/ jam | | 10k0E | |
| 21 MHz | 0515-1630 | * | 6 | G | | RADAR | 50/25 sps | 20k0 | *) Days: 1. 13. 15. - 17. 19. 21. 22. 30. (WebSDR 10d) |
| 21 MHz | 0530-1645 | * | 6 | RUS | | RADAR | 40 sps | 13k0E | *) Days: 2. - 5. 7. - 9. 11. 12. 14. 16. 19. 20. 22. - 24. 29. (WebSDR 17d) |
| 21 MHz | 0730-1215 | 01 10 | 6 | CHN | | RADAR | 50 sps | 10k0 | (WebSDR 7d) |
| 21 MHz | 0445-1730 | * | 6 | CHN | | RADAR | 50/67sps | 10k0E | *) Days: 2. - 7. 10. 12. 14. 15. 19. 21. - 24. 'foghorn' |
| 21001.5 | 1600-1815 | 02 - 25 | 6 | | | XXX/ jam | | 3k0E | |
| 21045.0 | 1215-1345 | 24 | 6 | CHN | | RADAR | 50 sps | 70k0E | |
| 21085.0 | 0735 | 25 | 6 | CHN | | RADAR | 50 sps | 70k0E | |
| 21438.0 | /0830-1530 | 01 - 30 | 6 | RUS | RCV | A1A | 16 - 20 wpm | 40H | Navip etc. |
| 21442.0 | 1525 | 25 | 6 | | | XXX/ jam | | 9k0E | |
| 24 MHz | | | 6 | RUS | | RADAR | 40sps | 13k0E | (WebSDR 2d) |
| 28 MHz | 0615-1530 | * | | G | | RADAR | 12.5/ 25/50sps | 20k0 | *) Days: 4. 5. 13. 14. 16. 23. 24. 29. (WebSDR 7d) |
| 28 MHz | 0445-1730 | * | 6 | IRN | | RADAR | 150/ 313 | 60k0E | *) Days: 2. 5. 8. 9. 14. 19. 21. 26. 30. (WebSDR 5d) |
| 28 MHz | | | 6 | IRN | | RADAR | 310/ 870 | 80k0E | Not heard |
| 28860.0 | 0515-1800 | * | 6 | IRN | | RADAR | 150/ 313 | 60k0E | *) Days: 13. 16. 23. (WebSDR 2d) |
| 28 MHz | 0600-1800 | * | 6 | RUS | Taxi disp. | F3E | | 3k0E | *) Days: 1. 2. 4. 5. 13. 30. 20 reports |

## URE; Gaspar, EA6AMM. Team members: EA4021SWL, EB4APL (Radars activity per band, summarized)

| kHz | UTC | DD | MM | ITU | IDENT | MODE | BD /sps | SH / BW | DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| *7000.0** | vt** | vd** | 06 | RUS | | RADAR | 40 | 12K0E | OTHR Contayner. Long-lasting. 3 reports *RX on 3 different QRG on 40m |

**URE; Gaspar, EA6AMM. Team members: EA4021SWL, EB4APL** **(Radars activity per band, summarized)**

| kHz | UTC | DD | MM | ITU | IDENT | MODE | BD /sps | SH / BW | DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| 7001.0 | 19:05<br>vt* | 06<br>vd* | 06 | | | XXX | | Ca6K0E | Jammer<br>*Often |
| 7005.0 | 20:02<br>vt* | 01<br>vd* | 06 | | | XXX | | | WHARQ. Wideband HF Hybrid Automatic Repeat Request (L3Harris). Burst system. Several BW, modulation types and QRG.<br>*Also on 06, 17 and 18/06; vt |
| 7007.0 | 16:48<br>vt* | 13<br>vd* | 06 | | | XXX | | | WHARQ. Wideband HF Hybrid Automatic Repeat Request (L3Harris). Burst system. Several BW, modulation types and QRG.*Also on 15 and 24/06; vt |
| 7008.0 | 17:48 | 18 | 06 | | | F1B | 75 | 250H | |
| 7012.0 | 17:42 | 26 | 06 | | | XXX | | | WHARQ. Wideband HF Hybrid Automatic Repeat Request (L3Harris). Burst system. Several BW, modulation types and QRG |
| 7016.0 | 07:02 | 04 | 06 | | | XXX | | CAK2K80 | 7016 kHz USB: unidentified digital bursts. Various BW |
| 7020.0 | 19:06<br>vt* | 12<br>vt* | 06 | | | F1B | 75 | 250H | *Often. 10 reports |
| 7023.0 | 19:57 | 24 | 06 | | | J7D | 120 | 2K70E | CIS-12 |
| 7028.0 | 19:38<br>vt* | 05<br>vd* | 06 | | | XXX | | | WHARQ. Wideband HF Hybrid Automatic Repeat Request (L3Harris). Burst system. Several BW, modulation types and QRG.*Also on 14, 17 and 20/06; vt |
| 7032.0 | 20:03<br>vt* | 01<br>vd* | 06 | | | XXX | | CA3K0E | Jammer<br>*Very often. 15 reports |
| 7032.0 | 06:21 | 18 | 06 | | | J3E-U | | 3K20E | RUS song, looped; jammer |
| 7037.0 | 07:08 | 06 | 06 | | | XXX | | | Unidentified digital bursts. Various BW |
| 7055.5 | 18:33 | 13 | 06 | | | F1B | | 250H | |
| 7118.0 | 19:47 | 05 | 06 | | | J7D | 120 | 2K70E | CIS-12 |
| 7159.0 | 19:43<br>vt* | 05<br>vd* | 06 | | | G7D | 75 | 2K40E | 7159 kHz USB: LINK-11 CLEW. Long-lasting<br>*Also on 06/06, 0715 UTC |
| 7198.0 | 19:28 | 05 | 06 | | | J7D | | 2K70E | CIS-12 |
| 7200.0 | 16:35 | 24 | 06 | | | J7D | | 2K70E | CIS-12 |
| 10100.0* | 20:21<br>vt** | 15<br>vd** | 06 | AUS | | RADAR | 7<br>7.2 | 10K0E<br>12K0E | OTHR JORN bursts; with short intro tone<br>*RX on 4 different QRG on 30m. ** Often: 7 reports |
| 10127.0 | 19:14 | 04 | 06 | RUS | | RADAR | 40 | 12K0E | OTHR Contayner |
| 13980.0 | 17:16 | 19 | 06 | G | | RADAR | 50 | 20K0E | OTHR. UK SBA, Cyprus. Splatter to 14005 kHz |
| *14000.0** | vt** | vd** | 06 | RUS | | RADAR | 40 | 12K0E | OTHR Contayner. Long-lasting. **Almost daily. **81 reports**<br>*RX on 76 different QRG on 20m<br>* Side by side TX: 12<br>2 simultaneous TX on 20M: 17<br>3 simultaneous TX on 20m: 1<br>4 simultaneous TX on 20m: 1 |
| *14000:0** | vt* | vd* | 06 | CHN | | RADAR | 41.7<br>50<br>66.7 | 10K0E | OTHR “Foghorn” short bursts<br>*RX on 42 different QRG on 20m<br>*Almost daily. **52 reports** |
| 14000.0 USB | 09:07<br>vt* | 13<br>vd* | 06 | | | J7D | 125 | 1K80E | 14000 kHz USB: MIL-188-141A ALE 2G<br>*Also on 14/06, 1250 UTC |
| 14000.0 | 08:21 | 14 | 06 | | | XXX | | 40K0E | Jammer burst. 84 Hz |
| 14000.0 | 08:45 | 23 | 06 | | | OTHER | 2400 | 2K40E | 14000 kHz USB: ISR navy hybrid modem |

**URE; Gaspar, EA6AMM.** **Team members: EA4021SWL, EB4APL** **(Radars activity per band, summarized)**

| kHz | UTC | DD | MM | ITU | IDENT | MODE | BD /sps | SH / BW | DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| USB | vt* | vd* | | | | | | | bursts<br>*Also on 24, 25 and 26/06; vt |
| 14000.0 | 06:58 | 24 | 06 | | LZTRH Bianca | J3E-U | | 2K80E | USB. Air pilots traffic. Male and female voices. German language |
| 14000.0 | 07:49 | 26 | 06 | | | J3E-U | | | USB. Unid station talking to "Topolino". Male voice. Italian language. Long-lasting |
| 14000.3 | 13:50 | 10 | 06 | | | A1A | | | Non-amateur comms. Encrypted QTC. "RK" |
| 14001.0 | 08:24 | 14 | 06 | | | XXX | | 9K0E | Jammer burst. 84 Hz |
| 14002.0 | 08:02<br>vt* | 01<br>vd* | 06 | GUM | | F1B | 75 | 850H | Long-lasting. *Also on 02, 03 and 04/06, vt. |
| 14004.0 | 08:05 | 03 | 06 | | | F1B | | 500H | |
| 14006.0 | 07:49 | 06 | 06 | | | J7D | 120 | 2K70E | CIS-12 |
| 14007.9 | 07:31 | 22 | 06 | | | N0N | | | Carrier |
| 14008.0 | 15:51<br>vt* | 08<br>vd* | 06 | RUS | | F1B | 50 | 250H | *Very often. 15 reports |
| 14013.0 | 17:01 | 23 | 06 | | | J7D | 125 | 1K80E | 14013 kHz USB. MIL-188-141A ALE 2G |
| 14017.0<br>USB | 07:59 | 26 | 06 | | | XXX | 2000 | CA2K0E | MIL SelCall (THALES). MSK 2000 Bd and short MFSK-8 125 Bd non-standard MIL-188-141A ALE |
| 14018.0<br>USB | 08:18<br>vt* | 05<br>vd* | 06 | | | OTHER | 2000 | CA2K0E | MIL SelCall (THALES). MSK 2000 Bd and short MFSK-8 125 Bd non-standard MIL-188-141A ALE. *Also on 14/06, 0758 UTC |
| 14026.0 | 09:24<br>vt* | 01<br>vd* | 06 | | | J7D | | 2K70E | CIS-12<br>*Also on 06 and 15/06; vt |
| 14028.5 | 06:43<br>vt* | 24<br>vd* | 06 | | | F1D | 600 | 600H | DPRK-FSK 600 ARQ<br>*Also on 25/06, 0631 UTC |
| 14029.0 | 20:16 | 01 | 06 | | | XXX | | 3K0E | Digital bursts |
| 14039.0 | 09:09 | 20 | 06 | | | XXX | | CA6K0E | Unidentified signal |
| 14050.0 | 11:33 | 17 | 06 | | | N0N | | | Carriers. Spacing = 50 Hz |
| 14051.0 | 05:47 | 26 | 06 | | | XXX | | 5K0E | Unidentified continuous digital signal |
| 14052.0 | 07:07 | 17 | 06 | | | J7D | 120 | 2K70E | CIS-12 |
| 14055.0 | 16:20 | 24 | 06 | | | XXX | | CA25K0E | Unidentified continuous signal. Long-lasting |
| 14060.0<br>USB | 18:02 | 22 | 06 | | | J7D | 125 | 1K80E | MIL-188-141A ALE 2G |
| 14060.0<br>USB | 18:06 | 22 | 06 | | | J3E-U | | | Non-amateur comms between ALE 2G and CHN OFDM 39 TX. Male voice, Asian language |
| 14063.0<br>LSB | 18:03 | 22 | 06 | | | W7D | 44.44 | 2K40E | 14043 kHz LSB: CHN OFDM 39 |
| 14083.0 | 07:44<br>vt* | 11<br>vd* | 06 | | | J7D | | 2K70E | CIS-12<br>*Also on 21/06, 0835 UTC |
| 14089.0 | 06:55 | 18 | 06 | | | J3E-U | | 3K20E | Non-amateur comms between CIS-60 TXs. Male voices. Slavic language |
| 14090.9 | 06:51 | 18 | 06 | | | W7D | 30 | 2K80E | CIS-60 |
| 14098.0 | 07:43<br>vt* | 30<br>vd* | 06 | | | F1D | 600 | 600H | DPRK-FSK 600 ARQ<br>*Often: 10 reports |
| 14098.5 | 07:05 | 26 | 06 | | | G1D | 1200 | 1K20E | DPRK-PSK 1200 ARQ |
| 14108.0 | 10:07<br>vt* | 01<br>vd* | 06 | RUS | KSHK<br>STJ4<br>6TKW<br>9M5H<br>ZH3G | A1A | | | Non-amateur coms. Roll call and encrypted CW QTC. Groups of 5 letter; Cyrillic CW alphabet used<br>*Almost daily: 20 reports |

**URE; Gaspar, EA6AMM.** **Team members: EA4021SWL, EB4APL** **(Radars activity per band, summarized)**

| kHz | UTC | DD | MM | ITU | IDENT | MODE | BD /sps | SH / BW | DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | TEWM … | | | | |
| 14116.0 | 13:48 vt* | 03 vd* | 06 | | | F1B | 75 | 250H | *Also on 06/04, 0542 UTC |
| 14117.0 | 15:27 | 10 | 06 | | | XXX | 1 | 5K0E | Unknown sweeps. QSY to 14132.5 kHz CF at 1537 UTC |
| 14118.0 | 12:38 | 02 | 06 | | | J7D | | 2K70E | CIS-12 |
| 14118.5 | 08:10 | 13 | 06 | | | F1B | 600. | 600H | DPRK-FSK 600 ARQ |
| 14132.0 | 07:28 vt* | 29 vd* | 06 | | | XXX | | 4K0E | Unidentified slow sweeps. Long-lasting *Also on 30/06 |
| 14132.5 | 07:06 vt* | 11 vd* | 06 | | | XXX | 1 | 5K0E | Unidentified slow sweeps. Long-lasting. *Also on 12/06 |
| 14137.0 | 09:20 | 01 | 06 | | | A1A | | | Non-amateur CW comms |
| 14142.5 | 08:18 | 01 vt* | 06 vd* | | | XXX | 0.1 | 5K0E | Slow sweeps. BD = 120.45 sec. BRI = 119.72 sec. Sweep duration = 10 sec. 12 sweeps per burst. *Often. 10 reports |
| 14144.0 | 07:40 | 20 | 06 | | | J7D | 120 | 2K70E | CIS-12 |
| 14148.5 | 12:07 vt* | 03 vd* | 06 | | | F1B | 600 | 600H | DPRK-FSK 600 ARQ *Also on 04/06, 1209 UTC |
| 14153.0 USB | 16:07 | 19 | 06 | | BC5 DB5 | J7D | 125 | 1K80E | MIL-188-141A ALE 2G |
| 14160.0 | 17:30 | 15 | 06 | | | J3E-U | | 2K80E | Propaganda loop. UKR/RUS radiowar |
| 14160.0 | 10:46 | 18 | 06 | | | F1B | 50 | 250H | |
| 14162.0 | 12:36 | 02 | 06 | | | J7D | | 2K70E | CIS-12 |
| 14163.8 | 07:01 | 20 | 06 | | | F1B | 600 | 600H | DPRK-FSK 600 ARQ |
| 14171.0 | 06:42 | 20 | 06 | | | J7D | 120 | 2K70E | CIS-12 |
| 14191.0 | 05:23 | 14 | 06 | | | N0N | | | |
| 14191.9 | 08:11 vt* | 13 vd* | 06 | | | N0N | | | Carrier. Long-lasting. From F1B sys on 14192 kHz CF (on 12-06, 14192 kHz CF: no TX). *Often. 5 reports |
| 14192.0 | 08:01 vt* | 01 vd* | 06 | RUS | | F1B | 50 | 200H | *Almost daily. 28 reports |
| 14193.5 | 07:08 | 29 | 06 | | | F1B | 600 | 600H | DPRK-FSK 600 ARQ |
| 14194.8 | 14:55 | 20 | 06 | | | | 125 | 2K20E | CIS-MFSK 17. 125 Bd. 17 tones. Tone spacing = 125 Hz |
| 14198.0 | 07:01 vt* | 22 vd* | 06 | | | F1D | 600 | 600H | DPRK-FSK 600 ARQ *Almost daily. 22 reports |
| 14198.5 | 08:20 | 01 | 06 | | | G1D | 1200 | 1K20E | DPRK-PSK 1200 ARQ |
| 14200.0 | 18:54 | 14 | 06 | | | XXX | | 2K80E | Unidentified digital bursts |
| 14201.0 | 18:17 | 07 | 06 | | | XXX | 2400 | 3K0E | 14201 kHz USB. Unknown digital bursts |
| 14201.0 | 18:09 | 08 | 06 | | | XXX | 2400 | CA3K0E | Unidentified digital bursts |
| 14202.0 | 17:33 | 18 | 06 | | | XXX | 50 | 20K0E | Radar? |
| 14208.5 | 07:46 | 29 | 06 | | | F1D | 600 | 600H | DPRK-FSK 600 ARQ |
| 14220.5 | 08:10 | 04 | 06 | | | F1D | 600 | 600H | DPRK-FSK 600 ARQ |
| 14231.5 | 07:43 | 15 | 06 | | | F1D | 600 | 600H | DPRK-FSK 600 ARQ |
| 14234.0 | 08:01 | 21 | 06 | | | J7D | | 2K70E | CIS-12. Idle |
| 14234.0 | 06:58 | 22 | 06 | RUS | | RADAR | 40 | 12K0E | OTHR Contayner |
| 14238.0 | 19:16 | 06 | 06 | | | G7D | 75 | 2K40E | 14238 kHz USB: CHN 4+4 |
| 14242.0 | 08:59 | 06 | 06 | | | J7D | | 2K70E | CIS-12 |
| 14248.5 | 13:05 | 13 | 06 | | | F1D | 600 | 600H | DPRK-FSK 600 ARQ |

**URE; Gaspar, EA6AMM. Team members: EA4021SWL, EB4APL** **(Radars activity per band, summarized)**

| kHz | UTC | DD | MM | ITU | IDENT | MODE | BD /sps | SH / BW | DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| | vt* | vd* | | | | | | | *Also on 18/06, 1209 UTC |
| 14249.0 | 15:56 | 18 | 06 | CHN | | RADAR | 66.7 | 10K0E | OTHR short bursts |
| 14254.0 | 13:25 | 03 | 06 | | | XXX | | 20K0E | XXX. Unid signal with spurious |
| 14292.0 | 06:36<br>vt* | 03<br>vd* | 06 | | P2MM<br>HG4W<br>Y7QL<br>… | A1A | | | Mon amateur comms. Roll call. "RK". Unclean TX<br>*Often. 9 reports |
| 14294.0 | 08:16 | 19 | 06 | | | J7D | 120 | 2K70E | CIS-12 |
| 14295.0<br>USB | 16:32 | 19 | 06 | | BC5 DB5 | J7D | 125 | 1K80E | 14295 kHz USB: MIL-188-141A ALE 2G |
| 14298.5 | 07:59<br>vt* | 01<br>vd* | 06 | | | F1D | 600 | 600H | DPRK-FSK 600 ARQ<br>*Almost daily. 25 reports |
| 14307.0 | 07:46 | 29 | 06 | | | A1A | | | Non-amateur comms |
| 14308.0 | 07:19 | 06 | 06 | RUS | | F1B | 75 | 500H | Short TXs |
| 14317.0 | 08:00 | 01 | 06 | | | XXX | | 250H | XXX |
| 14317.0 | 07:22 | 02 | 06 | RUS | HZ3H<br>FCTP<br>NI5A<br>W7KL<br>… | A1A | | | Non-amateur comms. Roll call. « RK ». Encrypted CW QTC. Cyrillic CW alphabet used. * Very often. 18 reports |
| 14317.0 | 08:19 | 02 | 06 | | | XXX | | 250H | XXX. Long-lasting. |
| 14327.0 | 08:22 | 18 | 06 | | | W7D | 30 | 2K80E | CIS-60 |
| 14331.5 | 08:07<br>vt* | 03<br>vd* | 06 | | | F1D | 600 | 600H | DPRK-FSK 600 ARQ<br>*Very often. 15 reports |
| 14331.5 | 07:06 | 26 | 06 | | | G1D | 1200 | 1K20E | DPRK-PSK 1200 ARQ |
| 14333.0 | 12:16 | 14 | 06 | | | A1A | | | Non-amateur comms. Encrypted QTC . "MSG NR 75" |
| 14343.5 | 06:35 | 06 | 06 | | | F1B | 600 | 600H | DPRK-FSK 600 ARQ |
| 14348.0 | 13:47 | 21 | 06 | | | F1B | 600 | 600H | DPRK-FSK 600 ARQ |
| 14351.0 | 07:27 | 09 | 06 | CHN | | RADAR | 50 | 10K0E | OTHR. Continuous |
| 14357.0 | 07:55 | 27 | 06 | | | XXX | | 20KHZ | Unidentified multi-pulse signal. Partially inside the 20m band. 16 channels (4 groups of 4 channels). Long-lasting. Probably High Frequency Trading (HFT) |
| *18068.0** | vt** | vd** | 06 | G | | RADAR | 50 | 20K0E | OTHR G. UK SBA, Cyprus. Long-lasting.<br>**Often. 10 reports<br>*RX on 6 different QRG on 17m |
| *18068.0** | vt** | vd** | 06 | RUS | | RADAR | 40 | 12K0E | OTHR Contayner. *Very often. 18 reports<br>**RX on 13 different QRG on 17m |
| *18068.0** | vt** | vd** | | | | RADAR | 41.7<br>50<br>66.7 | 10K0E | OTHR “Foghorn” short bursts. **Very often. 18 reports<br>*RX on 15 different QRG on 17m |
| 18098.5 | 06:34 | 24 | 06 | | | F1D | 600 | 600H | DPRK-FSK 600 ARQ |
| 18164.0 | 05:09<br>vt* | 24<br>vd* | 06 | | | XXX | 80 | 10K0E | Unidentified continuous pulsed signal. Long-lasting. PW ca 2 ms. Radar? Jammer?<br>*Also on 25, 26 and 27/06 |
| *21000.0** | vt** | vd** | 06 | RUS | | RADAR | 40 | 12K0E | OTHR Contayner. Long-lasting.<br>*RX on 43 different QRG on 15m<br>*Side by side TX: 1<br>*2 simultaneous TX on 15m: 6<br>**Almost daily. **70 reports** |

**URE; Gaspar, EA6AMM.** **Team members: EA4021SWL, EB4APL** **(Radars activity per band, summarized)**

| kHz | UTC | DD | MM | ITU | IDENT | MODE | BD /sps | SH / BW | DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| *21000.0** | vt** | vd** | 06 | G | | RADAR | 25<br>50 | 20K0E | OTHR G. UK SBA; Cyprus. Long-lasting<br>*RX on 13 different QRG on 15m.<br>*2 simultaneous TX on 15m: 2<br>**Very often. **13 reports** |
| *21000.0** | vt** | vd** | 06 | CHN | | RADAR | 41.7<br>50<br>66.7<br>83.3 | 10K0E | OTHR "Foghorn" short bursts.<br>*RX on 71 different QRG on 15m<br>**Almost daily. **85 reports** |
| 21000.0 | 06:26<br>vt* | 12<br>vd* | 06 | | | J3E-U | | 2K40E | Spanish fishers. Very strong Spanish Southern accent. Same operators as always… *Also on 25/06, 1304 UTC |
| 21000.0 | 09:31 | 15 | 06 | | | XXX | | CA6K0E | Unidentified signal |
| 21001.5 | 18:12<br>vt* | 01<br>vd* | 06 | | | XXX | | 2K70E | Jammer. 84 hz<br>*Almost daily. 25 reports |
| 21008.5 | 08:04<br>vt* | 01<br>vd* | 06 | | | F1B | 600 | 600H | DPRK-FSK 600 ARQ<br>*Very often. 17 reports |
| 21041.5 | 07:14 | 30 | 06 | | | G7D | 75 | 2K50E | 21041.5 kHz USB. CHN 4+4 a.k.a PRC 4+4 |
| 21060.0 | 09:42 | 07 | 06 | | | XXX | | 6K0E | XXX. Transmission with center carrier (AM?) using different types of modulation and BWs. Seen on this same QRG during the last months |
| 21085.0 | 07:08 | 25 | 06 | | | RADAR | 50 | 60K0E | Unknown radar. QRT: 0827 UTC |
| 21108.5 | 09:53 | 30 | 06 | | | F1D | 600 | 600H | DPRK-FSK 600 ARQ |
| 21127.0 | 08:25 | 23 | 06 | | | XXX | 50 | CA20K0E | BW ca 20K0E, 50 sps. G OTHR? |
| 21145.0<br>USB | 08:39 | 04 | 06 | | | G7D | 75 | 2K40E | CHN 4+4 a.k.a PRC 4+4 |
| 21145.0<br>USB | 08:50<br>vt* | 04<br>vd* | 06 | MRC | MIRADOR2<br>N2 B1<br>NET1 | J7D | 125 | 1K80E | 21145 kHz USB: MIL-188141A ALE 2G<br>*Often. 6 reports |
| 21162.0 | 06:39 | 12 | 06 | | | XXX | 2400 | CA3K0E | Unidentified digital bursts. PSK-8 |
| 21200.0<br>USB | 06:14 | 25 | 06 | | M0H | J7D | 125 | 1K80E | MIL-188-141A ALE 2G |
| 21230.0 | 05:49 | 16 | 06 | CHN | | RADAR | 10 | 160K0E | Wideband OTHR |
| 21235.0<br>USB | 12:54 | 04 | 06 | | | G7D | 75 | 2K40E | CHN 4+4 a.ka. PRC 4+4 |
| 21245.0<br>USB | 08:34 | 05 | 06 | | | G7D | 75 | 2K40E | CHN 4+4 a.k.a PRC 4+4 |
| 21251.5<br>USB | 08:16 | 29 | 06 | | | G7D | 75 | 2K50E | CHN 4+4 a.k.a PRC 4+4 |
| 21270.0 | 06:17 | 17 | 06 | CHN | | RADAR | 10 | 160K0E | Wideband OTHR bursts |
| 21281.5<br>USB | 07:08 | 16 | 06 | | | G7D | 75 | 4K50E | CHN 4+4 a.k.a PRC 4+4 |
| 21289.0 | 07:07 | 16 | 06 | CHN | | RADAR | 10 | 160K0E | Wideband OTHR bursts |
| 21302.0 | 07:27 | 05 | 06 | CHN | | RADAR | 50 | 10K0E | OTHR. Continuous TX |
| 21334.0<br>USB | 16:46<br>vt* | 14<br>vd* | 06 | | | G1D | 2400 | 3K0E | STANAG-4285. Test message repeated all day long<br>*Also 15, 16 and 17/06 |
| 21343.0 | 07:46 | 27 | 06 | REU | | RADAR | 1600 | | Wideband OTHR bursts |
| 21345.0 | 09:09 | 02 | 06 | CHN | | RADAR | 10 | 160K0E | Wideband OTHR bursts. BD = 50 sec. BRI = 43 sec |
| 21345.0<br>USB | 08:38<br>vt* | 05<br>vd* | 06 | | | XXX | 2400 | 2K40E | 21345 kHz USB: Unidentified digital bursts<br>*Also on 18/06, 1753 UTC |

**URE; Gaspar, EA6AMM.** **Team members: EA4021SWL, EB4APL** **(Radars activity per band, summarized)**

| kHz | UTC | DD | MM | ITU | IDENT | MODE | BD /sps | SH / BW | DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| 21345.0 | 18:00 | 18 | 06 | | | J3E-U | | 2K80E | Non-amateur comms between digital bursts. Male voice. Asian language (sounds like CHN) |
| 21346.8 | 06:15 | 03 | 06 | | | XXX | | CA2K80E | Unidentified digital bursts |
| 21348.0 | 07:58 | 16 | 06 | CHN | | RADAR | 10 | 160K0E | Wideband OTHR bursts |
| 21365.0 USB | 16:51 | 14 | 06 | | | G7D | 75 | 2K50E | CHN 4+4 a.k.a PRC 4+4 |
| 21375.0 | 09:13 | 02 | 06 | CHN | | RADAR | 10 | 160K0E | Wideband OTHR bursts. BD = 50 sec. BRI = 43 sec |
| 21380.0 | 06:45 | 18 | 06 | | | XXX | | CA4K0E | 21380 kHz USB. Scrambled voice |
| 21380.0 | 07:00 | 19 | 06 | | | XXX | | CA4K0E | Voice scrambler? |
| 21393.0 USB | 09:03 | 06 | 06 | | | XXX | 2400 | 3K0E | Unknown digital bursts. PSK-8 |
| 21424.0 | 08:11 | 11 | 06 | | | F1B | 50 | 400H | |
| 21436.0 | 15:51 | 19 | 06 | CHN | | RADAR | 48 | 10K0E | OTHR short bursts. BRI = 8 sec |
| 21438.0 | 08:32 vt* | 02 vd* | 06 | RUS | RCV | A1A | | | RUS navy QTC<br>*Very often: 19 reports |
| 21442.0 USB | 06:36 | 19 | 06 | | XSS | J7D | 125 | 2K80E | MIL-188-141A ALE 2G |
| 24896.0 | 14:32 | 14 | 06 | RUS | | RADAR | 40 | 12K0E | OTHR Contayner |
| 25000.0 | 07:30 *vt | 02 vd* | 06 | | | RADAR | 2 | 200K0E | CODAR-like radar<br>*Very often: 15 reports |
| *28000.0** | vt** | vd** | 06 | IRN | | RADAR | 150<br>313 | 45K0E | OTHR. Alternating 150 and 313 sps bursts<br>28860 kHz CF long-lasting TX: 4 reports<br>Hopping: 21 reports<br>2 simultaneous TX on 10m: 5 reports<br>**Almost daily. **30 reports** |
| *28000.0** | vt** | vd** | 06 | G | | RADAR | 25<br>50 | 20K0E | OTHR G. UK SBA, Cyprus<br>*RX on 14 different QRG on 10m<br>2 simultaneous TX on 10 m: 1<br>**Very often. **17 reports** |
| 28036.5 | 19:50 | 02 | 06 | | CC | A1A | | | Fishing buoy |
| 28050.0 | 20:20 | 05 | 06 | | | F1B | 51 | 300H | Fishing buoy |
| 28051.7 | 20:21 | 05 | 06 | | | F1B | 51 | 300H | Fishing buoy |
| 28082.0 | 19:52 | 02 | 06 | | | F1B | 51 | 300H | Fishing buoy |
| 28115.6 | 20:05 | 02 | 06 | | | F1B | 50 | 300H | Fishing buoy |
| 28123.0 | 20:09 | 02 | 06 | | | A3E | | CA4K0E | CBers. Male voices. Portuguese language |
| 28149.8 | 19:53 | 02 | 06 | | EB | A1A | | | Fishing buoy |
| 28150.0 | 08:16 | 12 | 06 | I | | A3E | | CA4K50E | CBers |
| 28151.3 | 19:54 | 02 | 06 | | J? | A1A | | | Fishing buoy |
| 28200.0 | 19:56 | 02 | 06 | | | F1B | 51 | 300H | Fishing buoy |
| 28204.0 | 20:13 | 02 | 06 | | | A3E | | CA4K0E | CBers. Portuguese language |
| 28229.6 | 19:56 | 02 | 06 | | AY | A1A | | | Fishing buoy |
| 28245.0 | 20:14 | 02 | 06 | | | A3E | | | CBers. Portuguese language |
| 28245.0 | 20:18 | 02 | 06 | | | A3E | | | CBers |
| 28255.9 | 19:57 | 02 | 06 | | BQ | A1A | | | Fishing buoy |
| 28275.0 | 19:58 | 02 | 06 | | | F1B | 51 | 300H | Fishing buoy |
| 28304.5 | 19:58 | 02 | 06 | | CA | A1A | | | Fishing buoy |
| 28376.3 | 19:59 | 02 | 06 | | BQ | A1A | | | Fishing buoy |
| 28625.0 | 16:58 | 19 | 06 | | | G1D | 2400 | 2K40E | 28625 kHz USB. MIL-188-110A |

**URE; Gaspar, EA6AMM.** **Team members: EA4021SWL, EB4APL** **(Radars activity per band, summarized)**

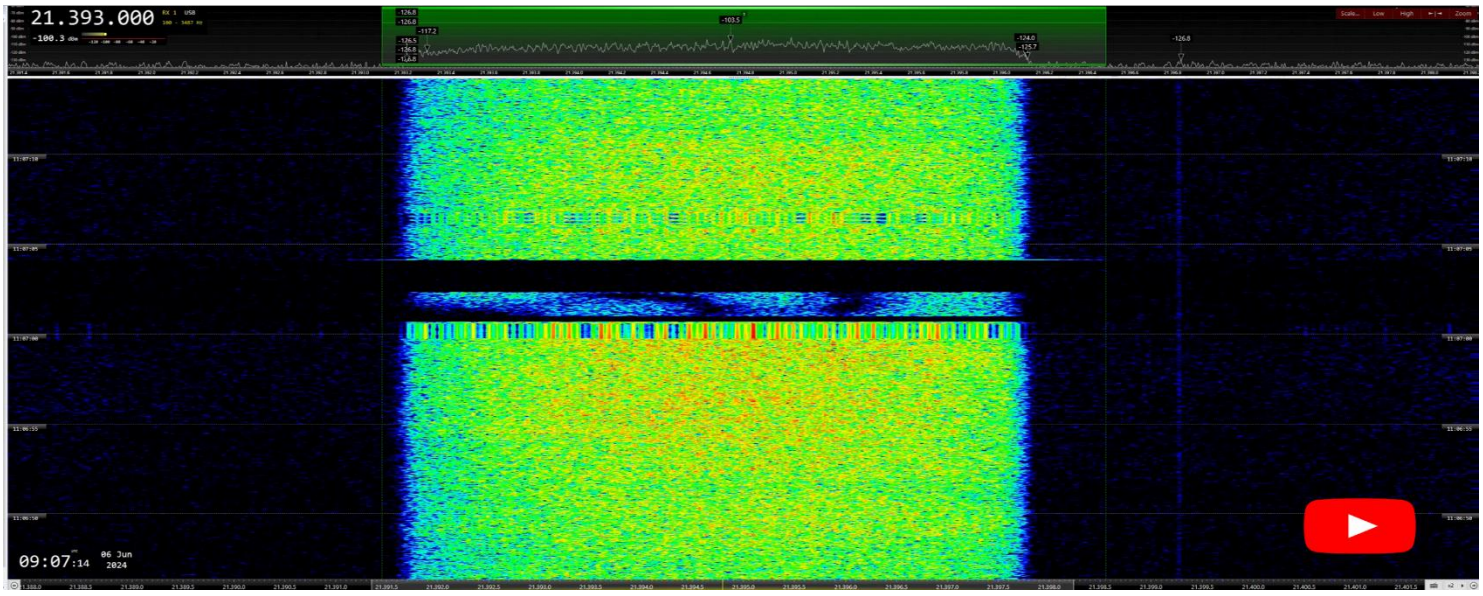
| kHz | UTC | DD | MM | ITU | IDENT | MODE | BD /sps | SH / BW | DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| 29000.0 | 08:40 | 16 | 06 | | | F1B | 81.9 | 140 | Datawell buoy |
| 29500.0 | 08:43 | 16 | 06 | | | F1B | 81.9 | 140H | Datawell buoy |
| 29534.0 | 08:46 | 07 | 06 | | | XXX | | 12K0E | Unidentified continuous signal with central carrier (AM or DSB) |

**VERON; Ruud, PG1R.** **Credits to observer Dick PA0GRU**

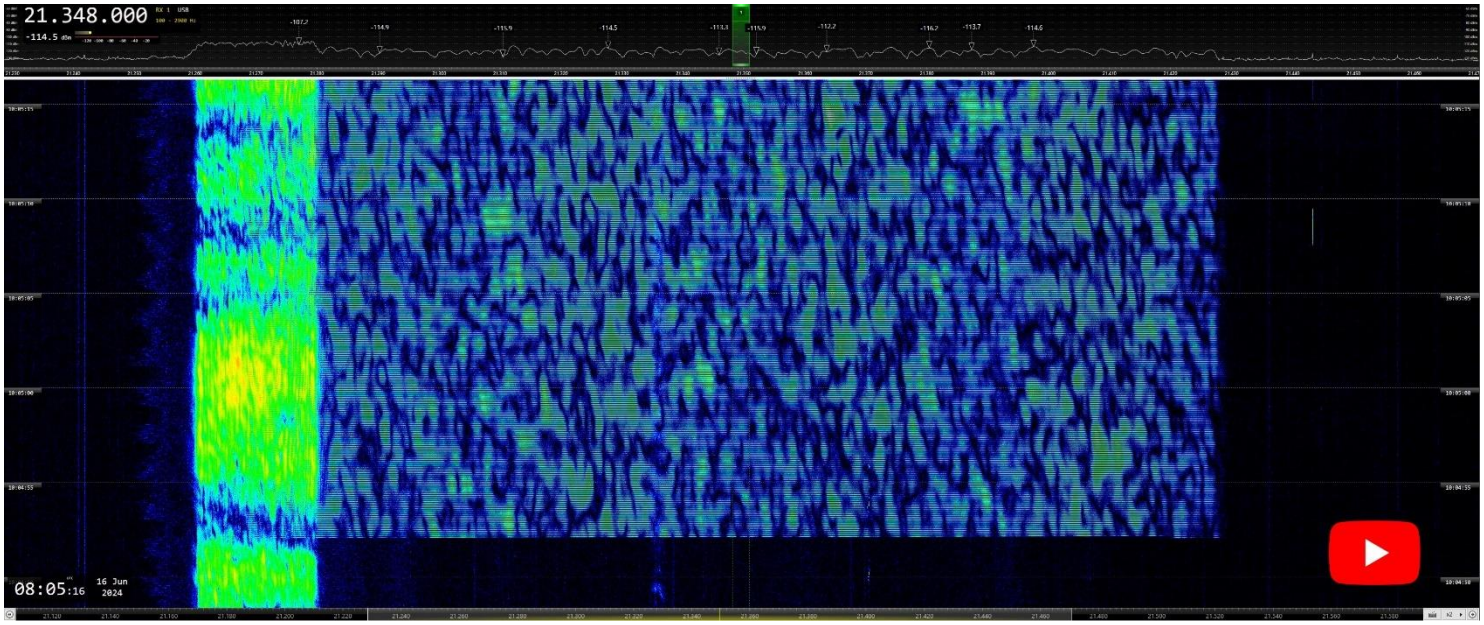
| kHz | UTC | DD | MM | ITU | IDENT | MODE | BD /sps | SH / BW | DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| 7007.0 | 1902 | 14 | 06 | | | XXX | | 2K40E | CF; digital noise bursts |
| 7022.0 | 0412 | 20 | 06 | | | F1B | | | UiPtr |
| 7032.0 | 2029 | 12 | 06 | | | XXX | 100 | 2K50E | USB; 100/50Hz hum; rapid bursts; presumably jammer |
| 7032.5 | 1854 | 01 | 06 | | | XXX | | 2K80E | CF; 100Hz hum; S7-QSB |
| 7055.0 | 1850 | 01 | 06 | UKR /RUS | | J3E-L | | 2K70E | UKR-RUS radiowar; songs; S5 |
| 7055.0 | 1844 | 23 | 06 | UKR /RUS | | J3E-L | | 3K0E | UKR-RUS radiowar; music & slogans; 2 TX same freq. ; S9+ |
| 7063.5 | 1153 | 02 | 06 | | | G1D | | 2K40E | CF; PSK-8; MIL-188-110A? |
| 7160.5 | 2013 | 01 | 06 | RUS | | J7D | | 2K70E | CF; 12 channel PSK + pilot tone |
| 14008.0 | 0511 | 07 | 06 | RUS | | F1B | | 250H | UiPtr |
| 14008.0 | 1004 | 20 | 06 | RUS | | F1B | | | UiPtr |
| 14050.0 | 1030 | 17 | 06 | | | RADAR | | | CF |
| 14108.0 | 1223 | 21 | 06 | | | A1A | | | UiCW; Mi. traffic; 5F groups |
| 14192.0 | 1024 | 02 | 06 | RUS | | F1B | | 200H | Ptr; idle |
| 14192.0 | 1334 | 22 | 06 | RUS | | F1B | | | UiPtr |
| 14317.0 | 0845 | 11 | 06 | | FCTP | A1A | | | Mil traffic 516 K |
| 18166.0 | 1331 | 02 | 06 | RUS | | RADAR | 40 | 12K0E | CF; OTHR Contayner |
| 21424.0 | 0843 | 02 | 06 | RUS | | RADAR | 40 | 12K0E | CF; OTHR Contayner |

**Contact: Gaspar, EA6AMM. IARUMS Region 1 coordinator: iarums@iaru-r1.org**

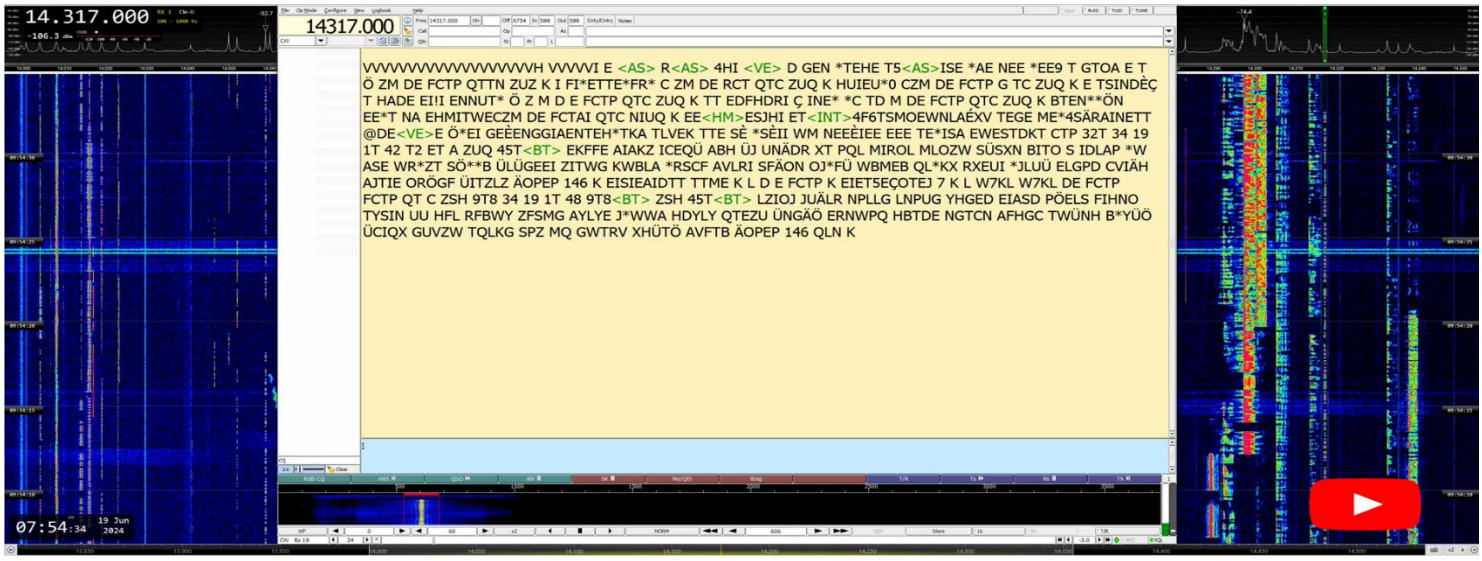
**IARUMS R1 Coordinators: https://www.iaru-r1.org/spectrum/monitoring-system/iarums-region-1-coordinators/**
**Visit our website: https://www.iaru-r1.org/about-us/committees-and-working-groups/iarums/**




*21393 kHz USB: Unidentified PSK-8 bursts. BW ca 3K0E. 2400 bd*

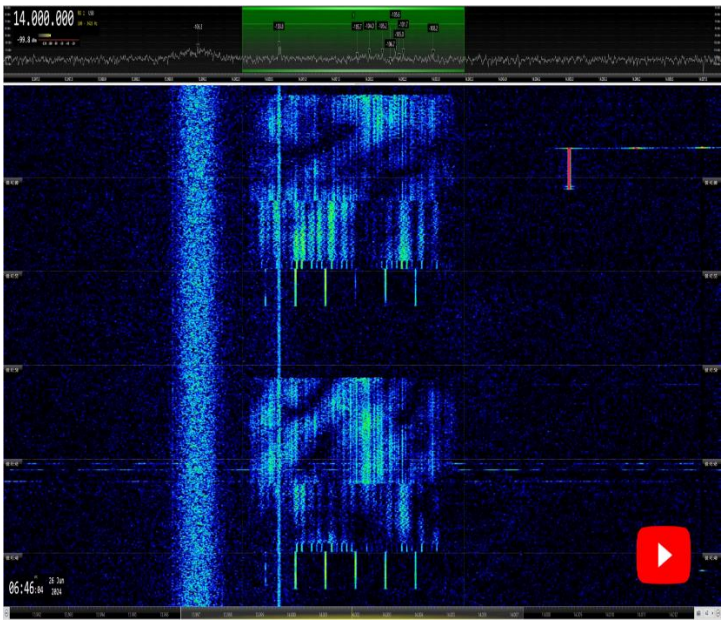



*21384 kHz CF: CHN wideband OTHR bursts. BW = 160K0E. 10 sps. On the left, at 21270, British OTHR (UK SBA, Cyprus). BW = 20K0E. 50 sps*

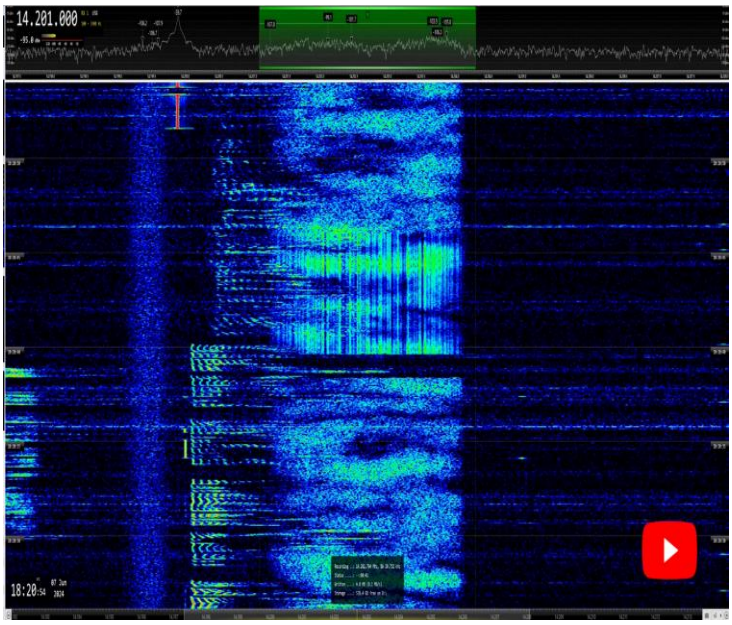



*14317 kHz. RUS MIL CW encrypted QTC.*

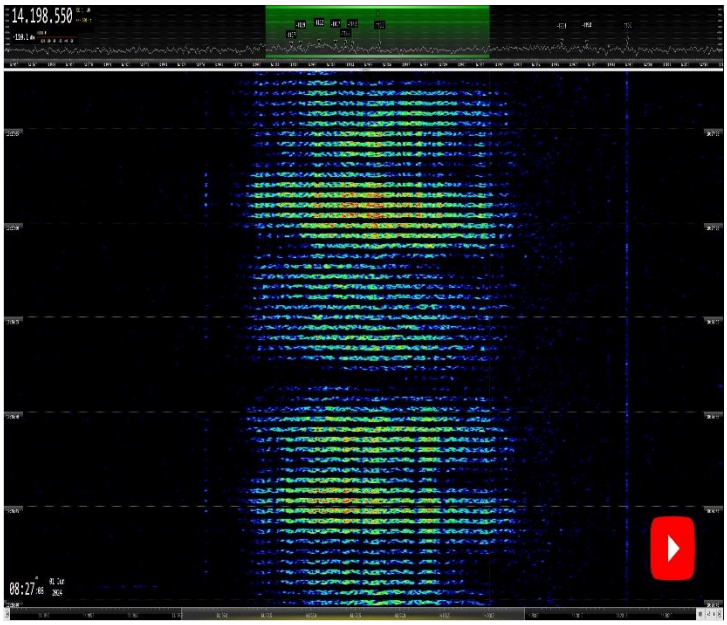
*21001.5 kHz CF: XXX. Jammer. BW = 2K70E. 84 Hz*



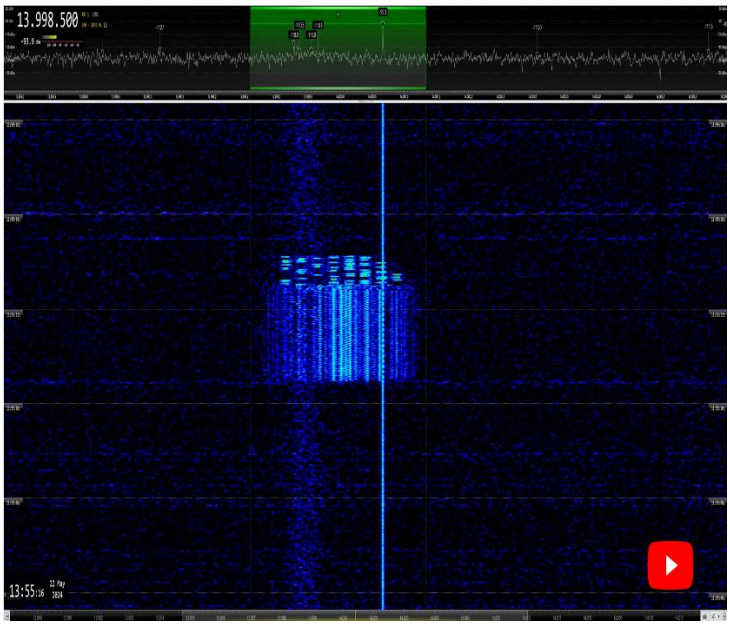

*14000 kHz USB: Israely navy hybrid modem bursts. BW ca 3K0E. 2400 Bd*




*14201 kHz USB: XXX. Unidentified digital bursts. BW ca 3K0E. 2400 Bd*




*14198.5 kHz CF: DPRK-PSK 1200. BW = 1K20E. 1200 Bd*




*Example of THALES MIL SelCall: MSK 2000 Bd and short MFSK-8 125 Bd*