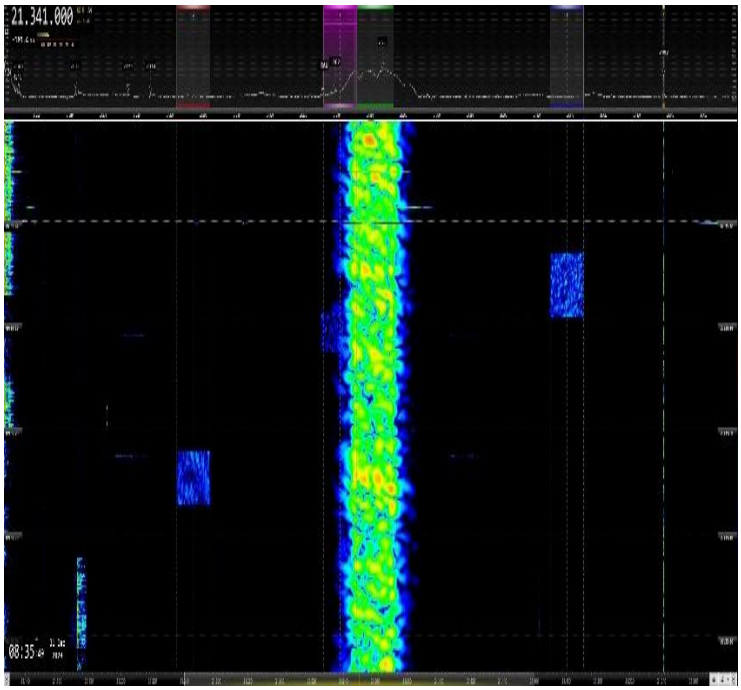
IARU Monitoring System Region 1

Monthly Newsletter - December 2023

The IARU Monitoring System

The IARU Monitoring System (IARUMS) is a worldwide service authorized by the IARU Administrative Council. It is served by many dedicated volunteers.

The primary objective of the IARU Monitoring System is the search, classification, identification and initiation of steps leading to the removal from amateur bands of radio signals sent by ***non-amateur stations*** causing harmful interference to the amateur services, contrary to ITU International Telecommunications Union and national radio regulations.



Several intrusions on the 15 meters band

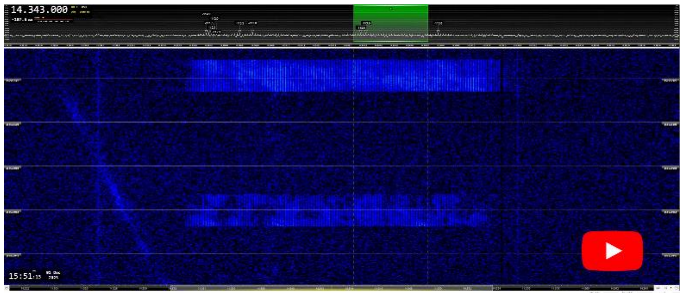
Thanks to the altruistic work of all the volunteers participating in it, the IARU Monitoring System Region 1 reports every month the intrusions received in the amateur radio bands, and manages to make some intruders disappear from them.

As the amount of all kind of intruders in the Amateur Radio bands is always growing, the role of the IARUMS is becoming more and more important.
That's why, to keep working in keeping our most important asset – the amateur radio spectrum – free of intruders, and in order to keep our volunteer force growing, we encourage all the Region 1 member societies to appoint an IARU Monitoring System Coordinator and to create groups of volunteers that watch the intruders transmissions and send reports to cooperate with the Monitoring System Region 1.

We can help your member society in this task.

New feature!

From this issue of the IARU Monitoring System Region 1 Newsletter onwards, when the necessary conditions are met, some videos about the discussed signals recorded during the issue's month will be published in it. To watch them, please click on the ▶ icon found in the text of the Newsletter, and/or in the images in which it appears, like on the two following examples on the right:



(...) A CIS F1B transmission was received on 14116 kHz CF ▶

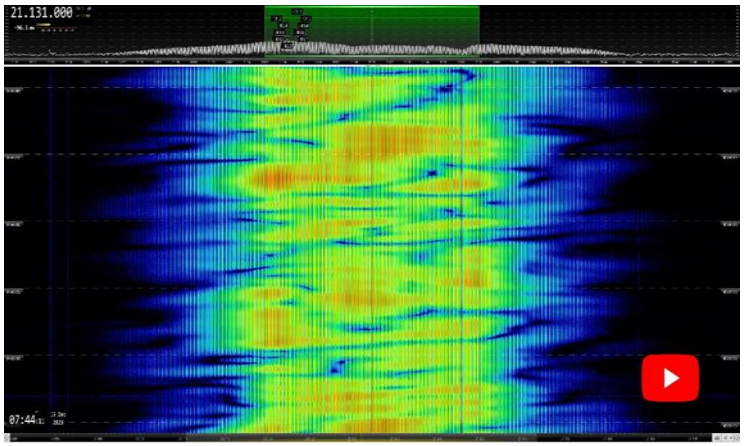
News and info

Unfortunately, during the last month of the year 2023, we received the intrusions that are, regrettably, typical in our HF amateur radio bands.

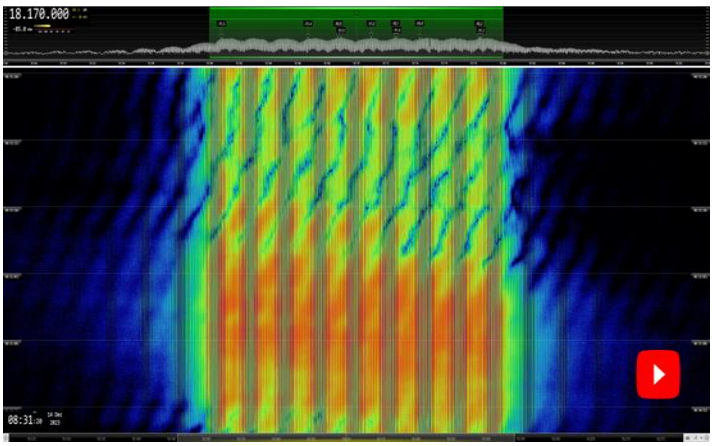
Over the Horizon Radars (OTHR)

Their annoying long-lasting transmissions were the most reported intrusions during December 2023. We received transmissions of the following OTHR:

- OTHR Contayner: RUS. FMOP. BW = 12K0E. 40 sps. Mostly received on 40, 20 and 15 m, but also on 30, 17 and 12 m.
- British OTHR. G (UK SBA, Cyprus). Most of the times it uses a bandwidth of 20 kHz and= 20K0E, with a sweep rate of 50 sps, or 25 sps . During December 2023, it was frequently observed transmitting in the 10 m band, but also on the 15, 17 and 30 m.
  It was also observed using a bandwidth of 40 kHz and 12.5 sps.

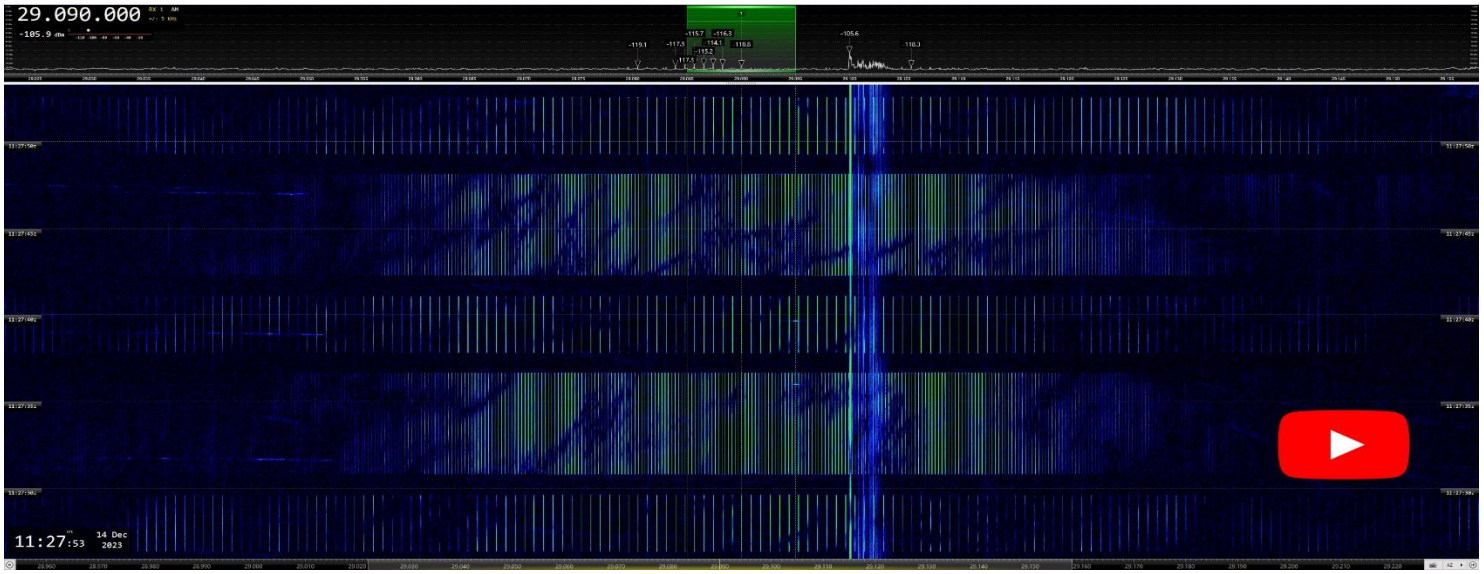


21131 kHz CF: OTHR Contayner. RUS. FMOP. BW = 12K0E. 40 sps



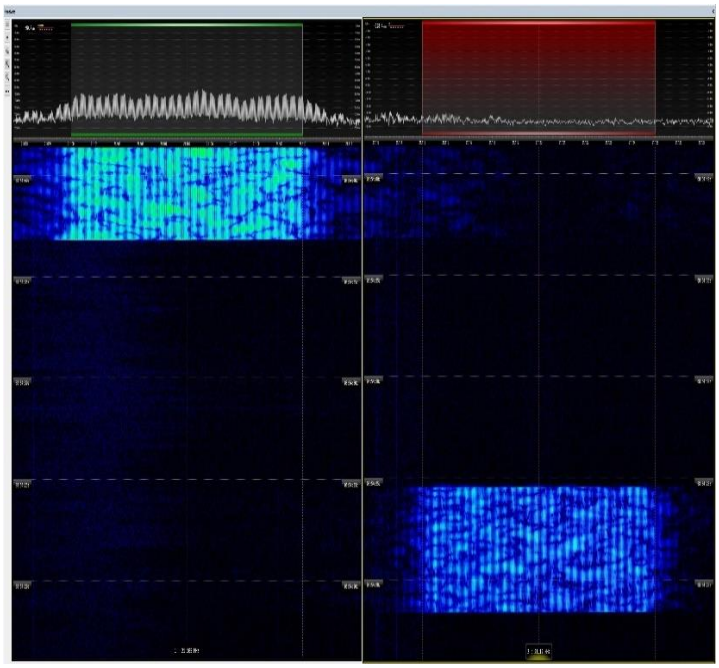
British OTHR. G (UK SBA; Cyrpus). FMCW. BW = 20K0E. 50 sps

- Iranian OTHR. IRN. AMOP. BW = 45K0E, transmitting bursts on the 10 m band, using different sweep rates:
  - Alternating 150 sps and 313 sps bursts
  - Alternating 226 sps and 333 sps bursts
  - Alternating 307 sps and 870 sps bursts

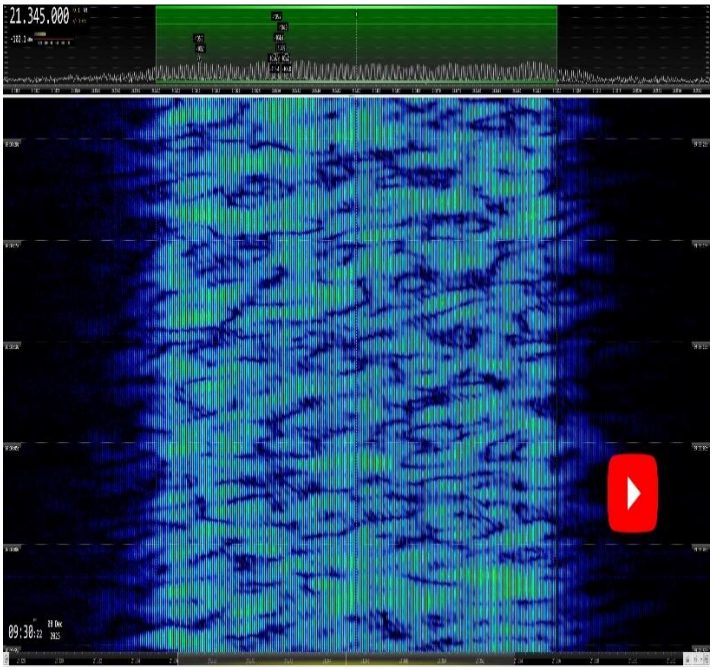


29090 kHz CF: OTHR IRN. AMOP. BW = 45K0E. Alternating 307 sps and 870 sps bursts

- Diverse CHN OTHR, like:
    - Wideband OTHR. FMCW. BW = 160K0E. 10 sps
    - OTHR, BW = 10K0E, 50 sps
    - *"Foghorn",* which we nickname like this, because of the characteristic sound they produce when they transmit the short bursts they send. Their transmissions were reported on the 40, 20, 17, 15 and 12 m bands. BW = 10K0E. They use different sweep rates. The most usual are 66.66 sps or 50 sps, but they also use 41.7 sps or 83.3 sps.

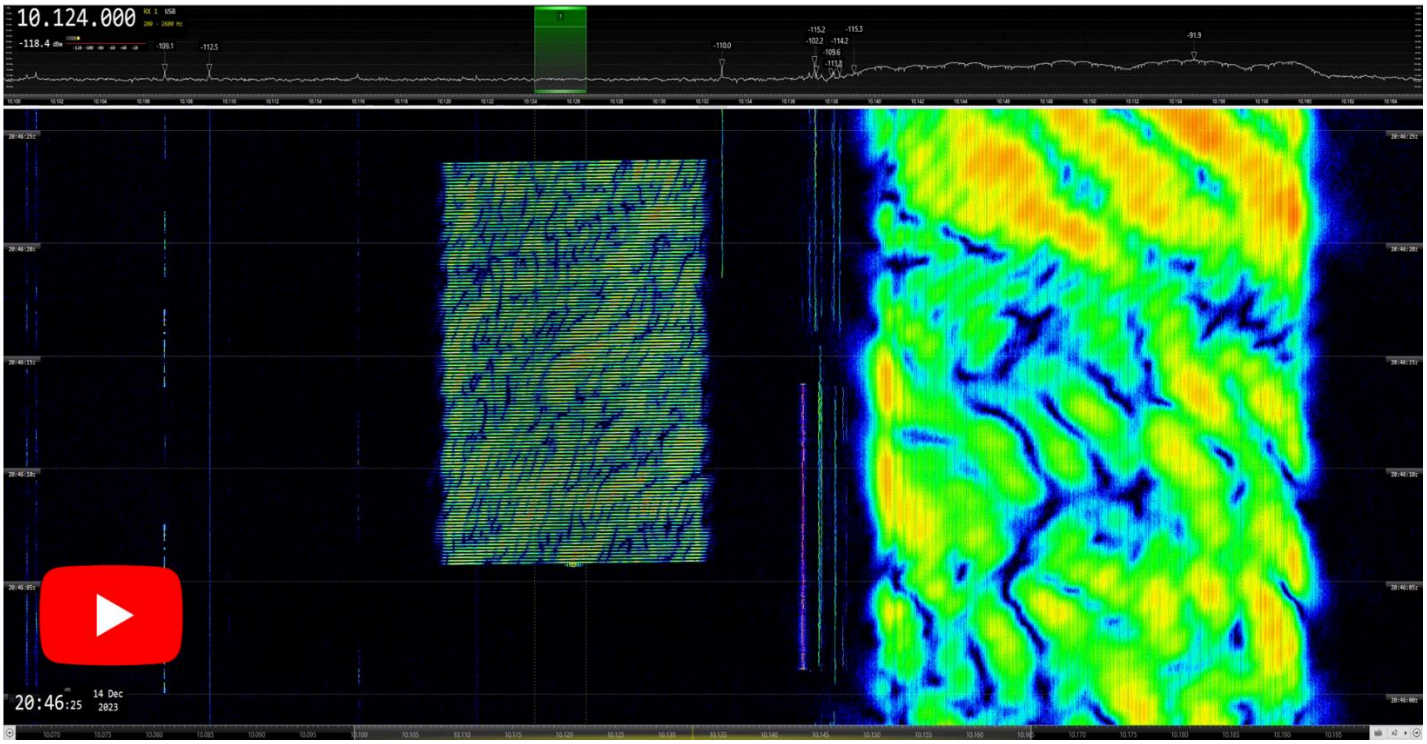


2 X OTHR CHN „Foghorn" bursts on 15 m. FMCW. BW = 10K0E. 41.7 sps



21345 kHz CF. CHN OTHR. FMCW. BW = 10K0E. 50 sps. Long-lasting

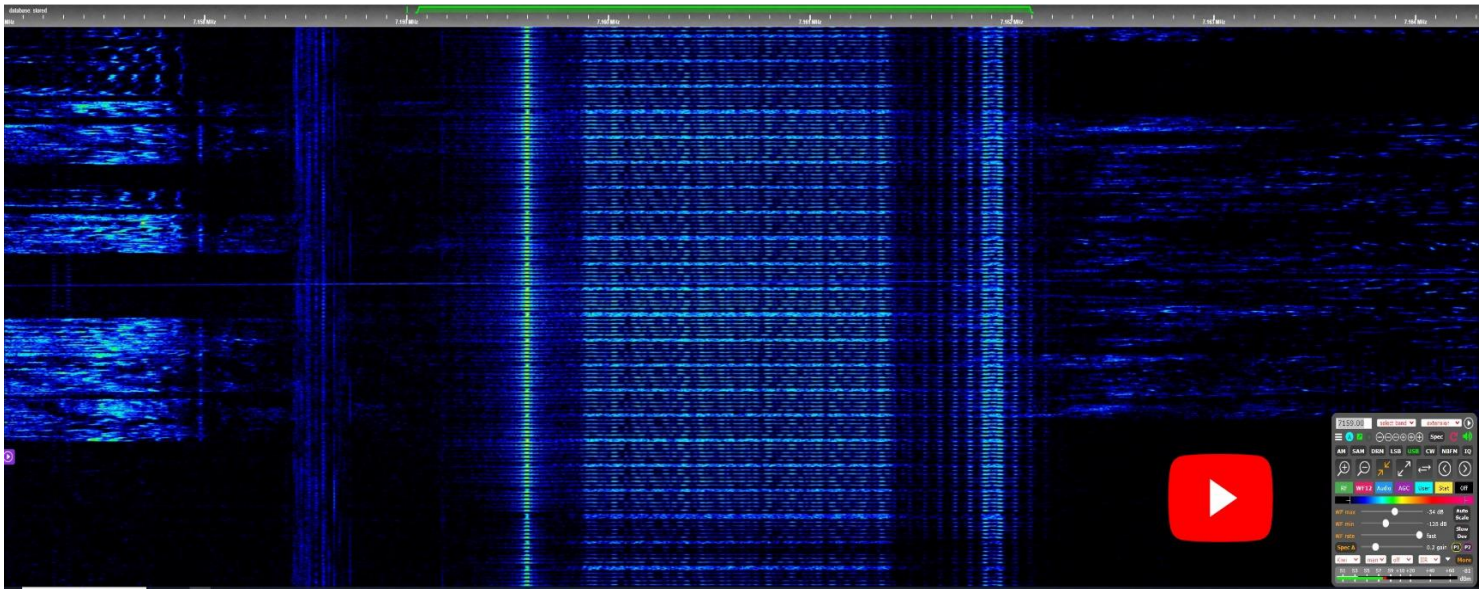
- OTHR JORN (Jindalee Operational Radar Network). AUS. BW = 10K0E. 7 sps. Bursts with short intro tone.



10124 kHz CF: OTHR JORN. Bursts with short intro tone. FMCW. BW = 10K0E. On the right, on 10150 kHz CF, OTHR PLUTO. G (UK SBA, Cyprus). FMCW. BW = 20K0E. 50 sps. Partially inside the 30 m band

MIL modes

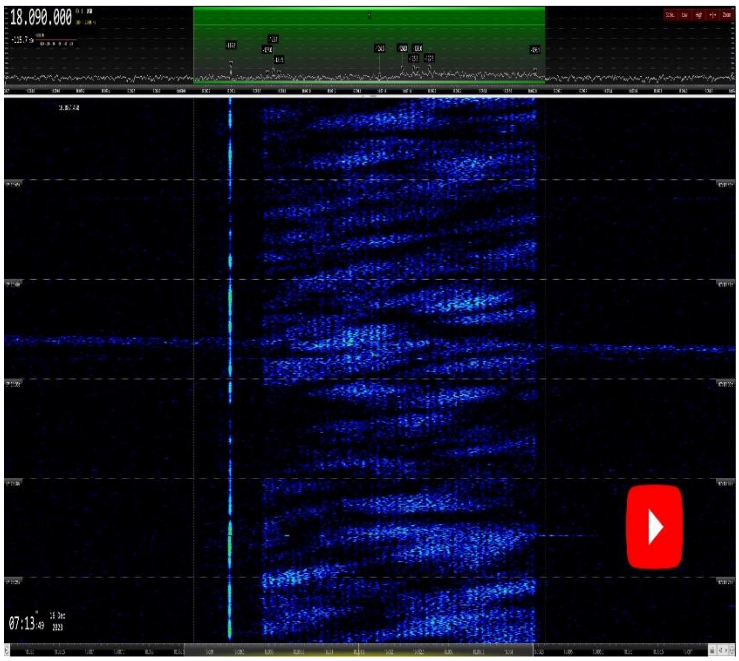
We frequently observed transmissions using LINK 11 CLEW SSB mode (G7D. BW = 2K40E. 75 Bd) on 7159 kHz USB. Many transmissions on different CIS ## F1B (FSK) modes using several shifts and baud rates were observed, mostly on the 40 and 20 m bands. Some of them were received almost daily, like the one on 14192 kHz CF (RUS. Shift = 200 Hz. 50 Bd) sending long-lasting transmissions, or the one on 7054 kHz CF (RUS. Shift = 200 Hz. 50 Bd).



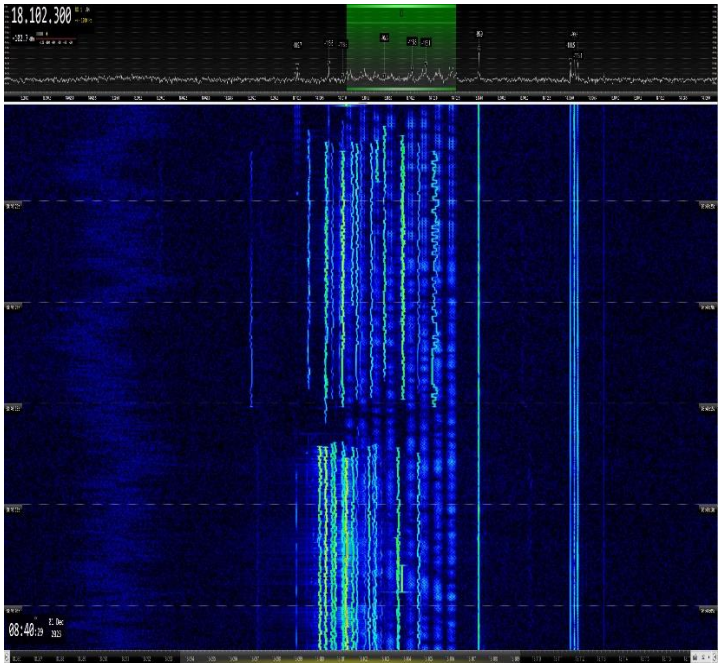
7159 kHz USB: LINK 11 CLEW SSB.G7D. PSK. BW = 2K40E. 75 Bd. RX via KiwiSDR

We also frequently observed the well-known MIL-188-141A ALE transmissions (J7D. MFSK, BW = 1.8 kHz. 8 x 125 Bd) from a Moroccan net on 21145 kHz VFO, and CIS-12 transmissions (J7D. BW = 2K70E. 12 x 120 Bd + pilot line). Several MIL-188-110A transmissions (G1D. PSK-8. BW = 2.4 kHz. 2400 Bd) were also reported on the 15 and 20 m bands.

We received some OFDM transmissions; on 20 m (like a CIS-60. RUS. BW = 2K80E. 60 x 30 Bd + pilot tone) and on 17 m (like the CHN OFDM 39: W7D. BW = 2K40E. 39 x 44.44 Bd + pilot tone). Transmissions sent on CHN MIL modes were also received, mostly on the 40, 15 and 17 m bands, like CNH-30 (G7D. PSK. BW = 2K50E; 30 x 60 Bd + pilot tone) and CHN 4+4 (G7D. PSK. BW = 2K40E. 8 x 75 Bd).

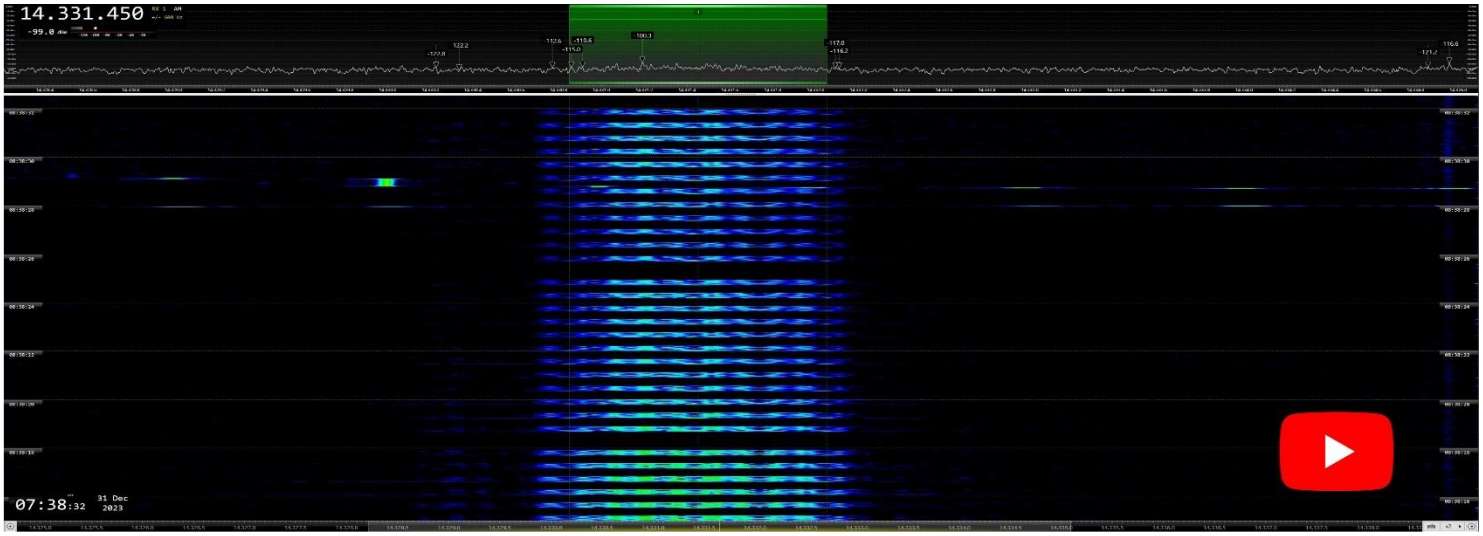


18090 kHz CF: CHN OFDM 39. W7D. BW = 2K40E. 39 x 44.44 Bd

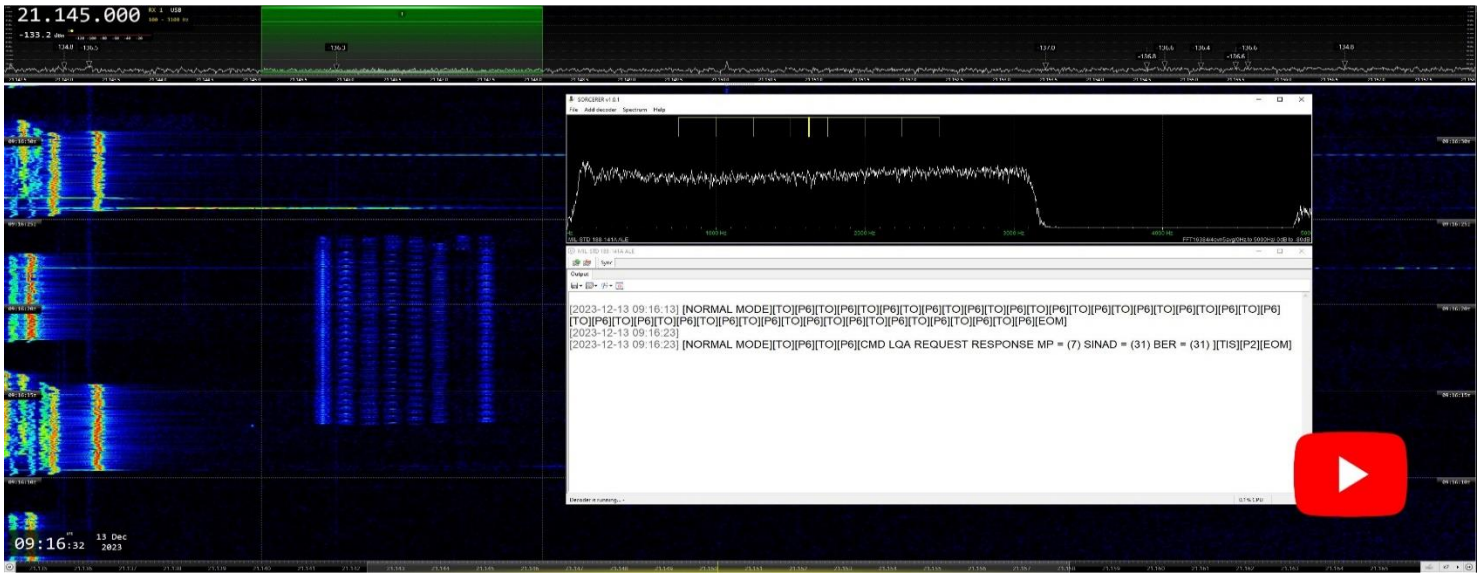


18102.3 kHz CF: Camouflaged among the FT-8 signals, a CHN 4+4 TX

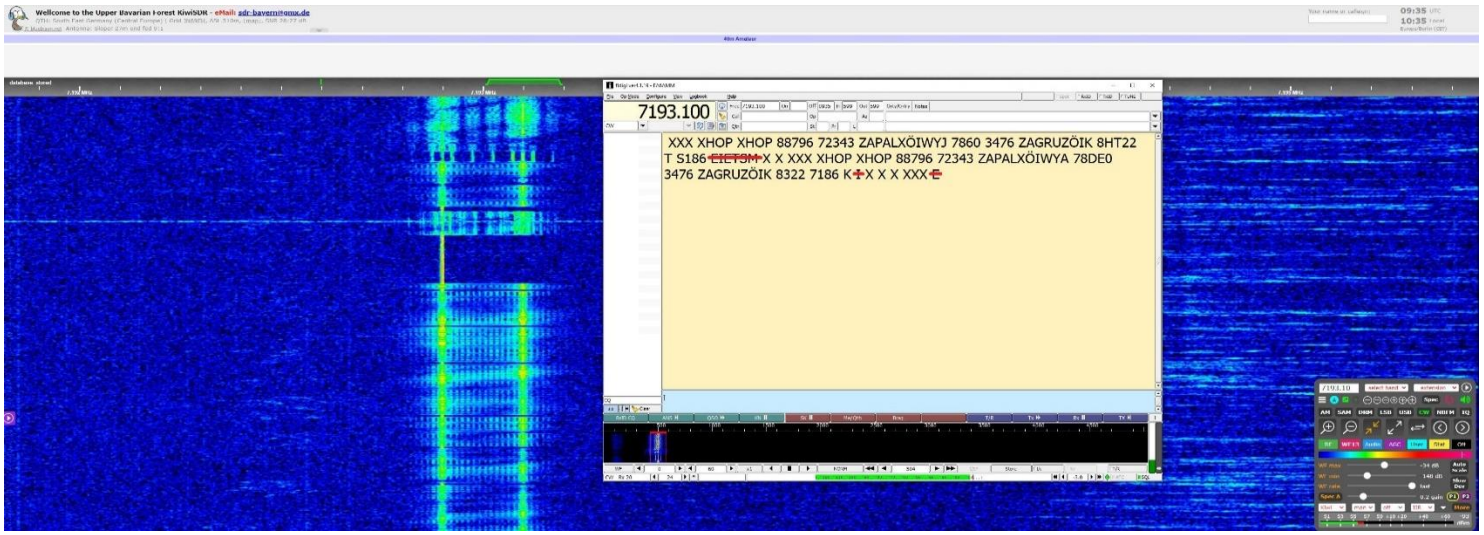
FSK 600 ARQ (F1D. BW = 600 Hz. 600 Bd) transmissions were also very often copied, mostly on the 20 meters band (most usual QRG: 14098.5 kHz CF, 14198.5 kHz CF and 14298.5 kHz CF), but also on the 15 m band. Some DPRK PSK 1200 ARQ transmissions (G1D. BW = 1K20E) were also received on this band.
A Tactical Data Link was received on the 40 m band (QRG: 7051.7 kHz CF. BW = 1K20E)



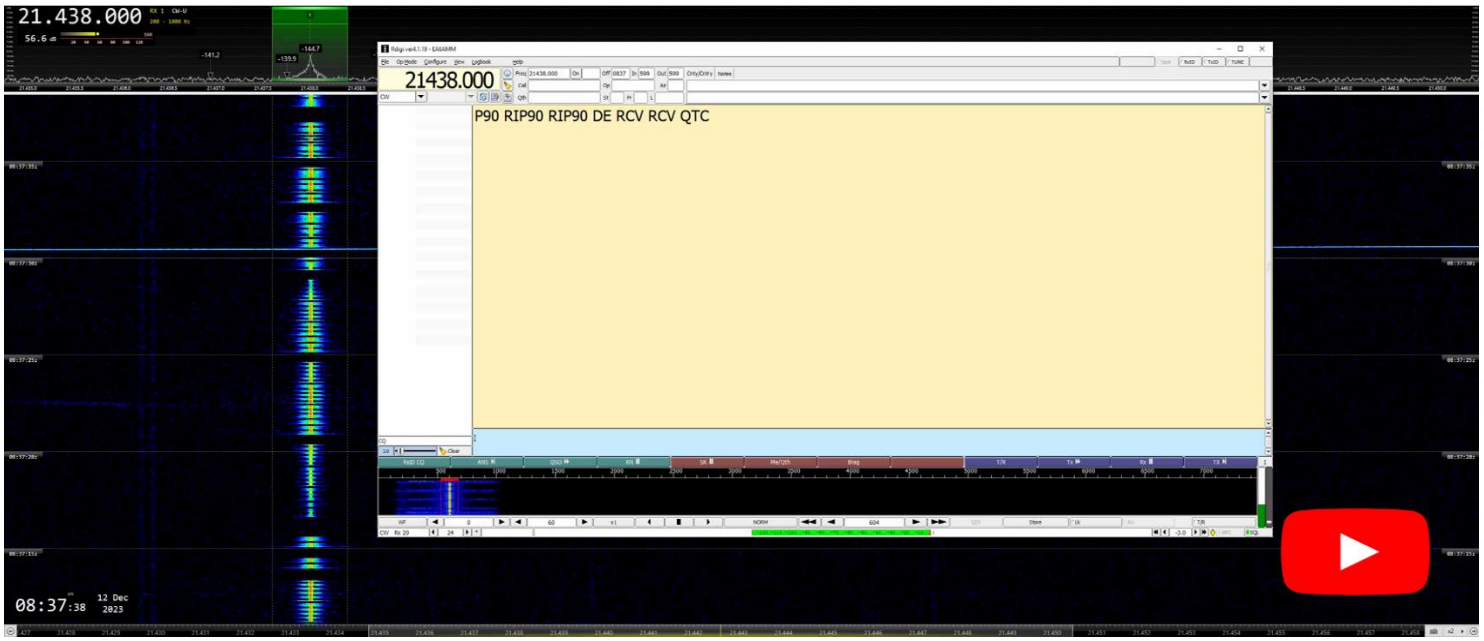
DPRK PSK 1200 ARQ. G1D. PSK. BW = 1K20E



21145 kHz USB: MIL-148-141A ALE. MFSK. J7D. BW = 1K75E. 8 x 125 Bd. ITU MRC.



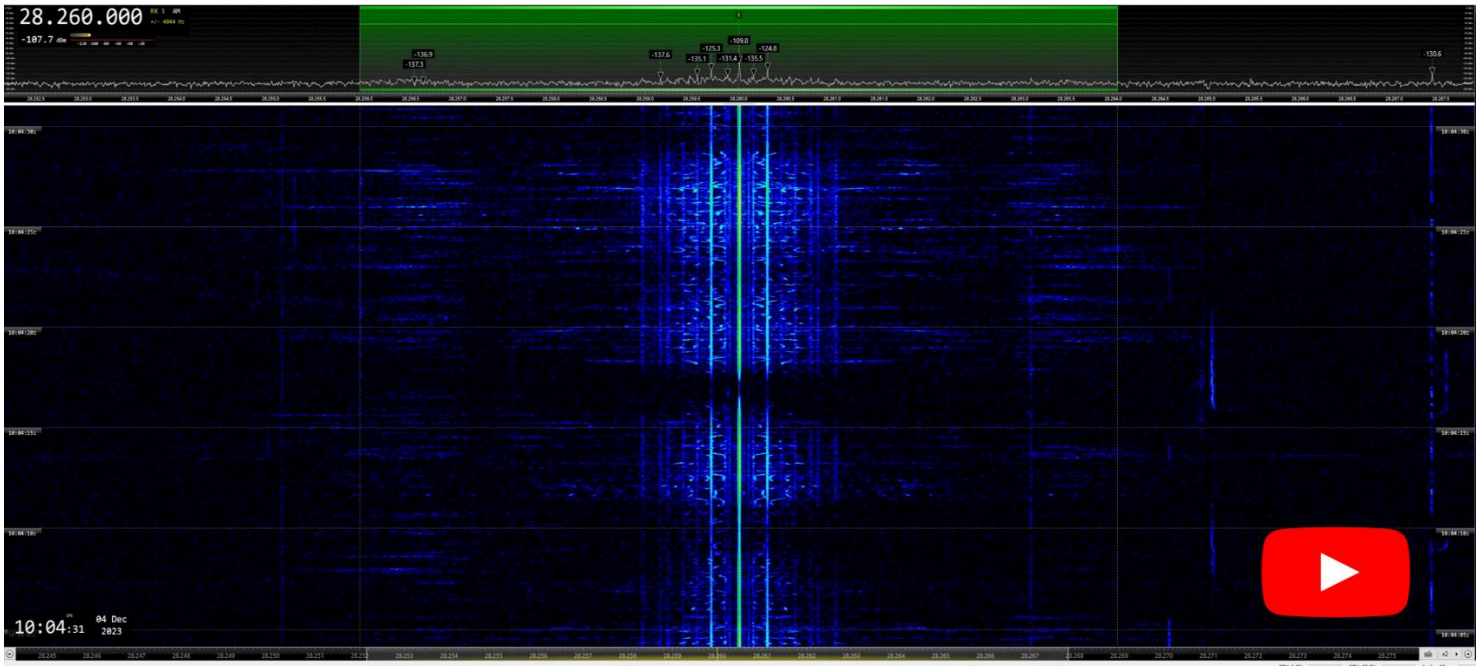
7193 kHz CF. F1B + F1A. CIS 36-50. SH = 200 Hz. 50Bd. RUS. ID: „RDL“. Via KiwiSDR



21438 kHz. A1A (CW). ST ID: „RCV“ RUS navy QTC. Received almost daily during December 2023; for years now

Broadcasting

Intermodulation products from the station “KTWR” (A3E / AM. 9900 kHz CF) were daily heard on 10124 kHz CF, 10126 kHz CF and 10134 kHz CF.
On the 10 meters band, an unknown station was often observed on 28260 kHz CF (A3E – AM)



28260 kHz CF: A3E. BC. Unknown station. Often. Probably, an harmonic or intermodulation product

During December 2023, we also received in this band pirate stations, CBers, non-amateur short traffic on F3E - FM (supposed to be RUS taxi), fisher buoys and Datawell buoys.

- ***Find other screenshots and videos about the intrusions received during November 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, (or also 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 | **Radar** = if exact mode unknown **SH** = Shift (Hz) | **sps** = sweeps per second | **TDoA** = Time difference of arrival | **ui** = **unid** = unidentified.

DARC; Daniel, DL3RTL. Credit to monitors: DL2SCH, Jürgen; DL8LAQ, Norbert; F4FPR, Benjamin; LX3MST, Michel; DE2TRF, Torsten; DB3TA, Alex

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
7025,0	1915	11	12	RUS		F1B	50	200	CIS-36-50
7025,0	1848	12	12	RUS		F1B	50	200	CIS-36-50
7029,0	1905	11	12	RUS		FMOP	40	12k	OTHR Contayner
7048,0	1608	25	12	RUS		FMOP	40	12k	OTHR Contayner
7057,5	1314	23	12					3k5	unid
7062,0	1526	23	12	RUS		FMOP	40	12k	OTHR Contayner
7065,0	1648	22	12	RUS		FMOP	40	12k	OTHR Contayner
7096,0	1745	02	12	RUS		FMOP	40	12k	OTHR Contayner
7096,0	1626	19	12	RUS		FMOP	40	12k	OTHR Contayner
7098,0	1822	12	12	CHN		FMCW	66,67	10k	OTHR 3,8s bursts
7127,0	1705	08	12	RUS		FMOP	40	12k	OTHR Contayner
7128,0	1805	02	12	RUS		FMOP	40	12k	OTHR Contayner
7136,0	1636	11	12	RUS		FMOP	40	12k	OTHR Contayner
7159,5	1650	08	12			DQPSK		2k5	LINK11 CLEW
7160,8	vt	vd	12			PSK		2k4	LINK11 SLEW
7162,0	1930	12	12	RUS		FMOP	40	12k	OTHR Contayner
7178,0	1822	12	12	CHN		FMCW	50	10k	OTHR 5,1s bursts
7190,0	1822	12	12	CHN		FMCW	50	10k	OTHR 5,1s bursts
7191,0	1656	19	12	RUS		FMOP	40	12k	OTHR Contayner
10124,0	vt	dly	12	GUM	KTWR	(A3E)		2k to 10k	daily - Intermodulation of KTWR Guam 9900KHz
10126,0	vt	dly	12	GUM	KTWR Guam	(A3E)		approx. 2k	daily - Intermodulation of KTWR Guam 9900KHz
10134,0	vt	dly	12	GUM	KTWR Guam	(A3E)		approx. 3k	daily - Intermodulation of KTWR Guam 9910KHz
14025,8	1137	28	12	RUS		PSK		2k7	CIS-12
14051,0	0905	28	12	CHN		FMCW	50	10k	OTHR 5,1s bursts
14053,0	0905	28	12	CHN		FMCW	50	10k	OTHR 5,1s bursts
14199,0	1314	26	12					3k	unid
14200,0	0923	28	12	RUS		FMOP	40	12k	OTHR Contayner
14205,0	1245	26	12	RUS		FMOP	40	12k	OTHR Contayner
14211,0	0925	28	12	RUS		FMOP	40	12k	OTHR Contayner
14269,0	0905	28	12	CHN		FMCW	66,67	10k	OTHR 3,8s bursts
14346,0	1349	28	12	RUS		FMOP	40	12k	OTHR Contayner
18139,0	0754	29	12	RUS		FMOP	40	12k	OTHR Contayner
18170,0	1125	29	12	G		FMCW	50	20k	OTHR Pluto Cyprus
21000,0	1032	13	12			J3E-U		3k	spanish speaking fisher in intercom
21020,0	1536	02	12	G		FMCW	50	20k	OTHR Pluto Cyprus

DARC; Daniel, DL3RTL. Credit to monitors: DL2SCH, Jürgen; DL8LAQ, Norbert; F4FPR, Benjamin; LX3MST, Michel; DE2TRF, Torsten; DB3TA, Alex

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
21146,0	0828	17	12	CHN		FMCW	66,67	10k	OTHR 3,8s bursts
21205,0	1459	02	12	G		FMCW	25	20k	OTHR Pluto Cyprus
21275,0	0831	16	12	CHN		FMCW	66,67	10k	OTHR 3,8s bursts
21315,0	0837	28	12	CHN		FMCW	66,67	10k	OTHR 3,8s bursts
21317,0	0828	17	12	CHN		FMCW	66,67	10k	OTHR 3,8s bursts
21395,0	0836	28	12	G		FMCW	50	20k	OTHR Pluto Cyprus
21396,0	0850	10	12	CHN		FMCW	50	10k	OTHR 5,1s bursts
21406,0	0827	17	12	RUS		FMOP	40	12k	OTHR Contayner
21423,0	0827	17	12	RUS		FMOP	40	12k	OTHR Contayner
21438,0	vt	vd	12	RUS		A1A			RUS NVY Sevastopol; RIP90 / RBE86
24974,0	0826	17	12	CHN		FMCW	50	10k	OTHR 5,1s bursts
28200,0	1217	31	12	G		FMCW	50	20k	OTHR Pluto Cyprus
28860,0	vt	vd	12	IRN			150/313	45k	Iranian OTHR 9,98/7,19s bursts
29300,0	0820	17	12	IRN			150/313	45k	Iranian OTHR 9,98/7,19s bursts
29320,0	1215	29	12					80k	unid, drifting multi-tones
29400,0	1213	28	12	IRN			150/313	45k	Iranian OTHR 9,98/7,19s bursts
29550,0	1217	23	12	IRN				45k	Iranian OTHR
29610,0	1223	02	12	G		FMCW	50	20k	OTHR Pluto Cyprus

IRTS; Michael, EI3GYB

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
3608	1645	17	12	UKR/ RUS		LSB			Russian-Ukrainian radio war. Total chaos.
7000	1415	30	12			LSB			Male voices in Italian. Weak to medium signals.
7000	1830	15	12			USB			Male voices in Japanese. Strong.
7000	1630	5	12			RADAR			Radar from 7000 to 7015 kHz. Strong and persistent.
7050	1215	14	12	UKR/ RUS		LSB			Russian-Ukrainian radio war. Medium signals. Usual chaos.
7055	1330	20	12	UKR/ RUS		LSB			Russian-Ukrainian radio war. Medium signals. Persistent.
7103	1640	17	12			RADAR			Radar from 7103 to 7116 kHz. Very strong and persistent.
7105	1840	2	12			RADAR			Radar from 7105 to 7120 kHz. Strong and persistent.
7115	1700	8	12			RADAR			Radar from 7115 to 7145 kHz. Strong and persistent.
7143	1930	22	12			RADAR			Radar from 7143 to 7158 kHz. Medium signals.
7161.5	1720	7	12			PSK			Link 11-Clew. Strong and persistent. Also heard on the 12th, 13th and 14th.
7178	140	25	12			RADAR			Radar from 7178 to 7193 kHz. Very strong and persistent.
7189	1950	27	12			RADAR			Radar from 7189 to 7204 kHz. Strong and persistent.
7194	1040	10	12			F1B			Weak signals. Again heard on the 19th at 940z.
14000	1710	23	12	B		USB			Brazilian pirates chatting. Weak signals.
14191	935	14	12	RUS		F1B			Russian navy, Kaliningrad. All days all hours

IRTS; Michael, EI3GYB

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
									of daylight. Strong.
18150	1335	22	12			F1B			Weak. In and out.
18153	1040	16	12	G		RADAR			Radar from 18153 to 18183 kHz. Strong and persistent. UK SBA, Cyprus
18163	1230	28	12	G		RADAR			Radar from 18163 to 18178 kHz. Very strong and persistent. UK SBA, Cyprus
21000	1630	5	12	E or MM		USB			Spanish fishermen chatting. Very loud. Still on an hour later.
21365	1520	2	12	G		RADAR			Radar from 21365 to 21385 kHz. Very strong and persistent. UK SBA, Cyprus
21415	1525	2	12	G		RADAR			Radar from 21415 to 21430 kHz. Very strong and persistent. UK SBA, Cyprus
21438	1530	2	12	UKR		CW			Russian navy, Sevastopol. Medium signals, daily all day long.
24955	1130	9	12	B		USB			Brazilian Cbers. Roger beeps. Echo stuff. Medium signals.
28150	1320	20	12	I		AM			Italian Cbers. Echos and roger beeps. Male voices. Strong.
28407	1415	23	12			USB			Rapid constant on and off of a carrier. Speed about 2 carriers per second. Very strong. Goes on for about 30 minutes.
28435	1105	28	12			AM			Continuous carrier. Medium signal.
28555	1215	21	12			RADAR			Radar from 28555 to 28575 kHz. Huge and persistent.
28800	950	13	12	IRN		RADAR			Radar from 28800 to 28900 kHz. Medium signal.
28830	1155	17	12	IRN		RADAR			Radar from 28830 to 28890 kHz. Medium but persistent signal.
29040	1205	14	12	IRN		RADAR			Radar from 29040 to 29140 kHz. Strong and persistent.
29100	1316	20	12			FM			Carrier. Medium signal. Deep QSB. Heard also 22nd and 23rd.
29225	1630	17	12			FM			SE Asian fishermen. In and out. Medium signals.
29425	1005	16	12	IRN		RADAR			Radar from 29425 to 29478 kHz. Strong and persistent.
29449	1220	28	12			F1B			Weak but persistent signal.

PZK; SP3AMO, SP5GNI

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
7002.5	0905	13	12			UI		8K0E	S9+10dB 9:08 finished
7008.0	1250	09	12			F1B		200H	599++
7029.0	1610	11	12			RADAR		10K0E	S9
7136.0	1610	11	12			RADAR		25K0E	S9 +20dB
7161.8	1313	19	12			UI		2K5E	many spectral lines with a pilot at 7159.6
7193.0	1253	09	12			N0N			599++
7193.0	1215	15	12			F1B		200H	
7193.0	0930	16	12			N0N			
14052.0	0915	31	12			Radar	50	10K0E	Bursts
14110.0	0912	31	12			Radar	66	10K0E	Bursts
14134.0	1425	25	12			J2E-U		2K9	S5+20dB religious speach in Russian

PZK; SP3AMO, SP5GNI

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
14156.0	0940	11	12			RADAR		10K0E	5 sec burst
14184.5	1257	20	12			RADAR		10K0E	5 sec burst
14200.0	0835	19	12			RADAR		16K0E	S9
14200.0	0827	19	12			Radar	40	12K0E	599++
14200.0	1252	26	12			Radar	40	12K0E	599++
14212.0	1040	13	12			RADAR		10K0E	3 sec burst foghorn
14229.0	0855	13	12			RADAR		10K0E	5 sec burst
14258.0	0805	11	12			RADAR		10K0E	5 sec burst
14258.0	0850	11	12			F1B		250	S9
14260.0	1015	23	12			RADAR		10K0E	5 sec burst strong
14298.0	1105	11	12			RADAR		10K0E	3 sec burst foghorn
14300.0	1010	23	12			RADAR		10K0E	3 sec burst also at a few freq's
14308.0	1135	28	12			RADAR		10K0E	3 sec burst
14310.0	0834	18	12			Radar	50	10K0E	Bursts
14330.0	0912	31	12			Radar	66	10K0E	Bursts
14339.0	1040	26	12			RADAR		10K0E	3 sec burst
14347.0	1215	27	12			RADAR		12k0E	S9+
18171.0	0754	20	12			Radar	40	12K0E	
18169.4	0845	11	12			UI		3K0	S7
21155.0	1140	28	12			RADAR		12K0E	S8 10 sec. Long
21159.0	1114	19	12			RADAR		10K0E	5 sec burst
21203.4	0928	15	12			UI		2K8E	S7
21280.0	1255	26	12			Radar	3	10K0E	
21294.0	0810	11	12			RADAR		10K0E	3 sec burst foghorn
21305.0	0833	19	12			Radar	66	10K0E	Bursts
21327.0	0757	20	12			Radar	50	10K0E	Bursts
21347.0	0820	09	12			RADAR		10K0E	3 sec burst foghorn + 21341.0
21350.0	1210	31	12			RADAR		20K0E	Very strong
21350.0	0917	31	12			Radar	40	12K0E	599++
21351.0	1038	31	12			RADAR		14K0E	
21372.0	0832	19	12			Radar	66	10K0E	Bursts
21373.0	0800	19	12			RADAR		10K0E	3 sec burst foghorn + 21305.0
21377.0	0910	21	12			Radar	50	10K0E	Bursts
21380.0	1305	19	12			RADAR		20K0E	S9+10
21438.0	0838	30	12		RDL	A1A		20 wpm	599++
28140.0	1155	26	12			RADAR		20K0E	S5
28155.0	1300	20	12			A3E		6K0E	conversation is Spanish
28206.0	1313	29	12			A3E		6K0E	conversation is Spanish and 28203.5
28260.0	1015	17	12			F3E		8K0E	radio in unknown language (like Chineese)
28320.0	0843	11	12			RADAR		20K0E	S6
28860.0	vt	vd	12	IRN		RADAR		45K0E	
29090.0	1140	14	12			Radar	300/870	46K0E	599++
29100.0	0800	19	12	IRN		RADAR		60K0E	
29210.0	1000	23	12			RADAR		40K0E	S7 (not IRN type)
29300.0	vt	vd	12			Radar	150/300	46K0E	
29350.0	0837	18	12			Radar	300/870	46K0E	
29450.0	0955	14	12	IRN		RADAR		100K0E	S9

PZK; SP3AMO, SP5GNI

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
29600.0	1251	15	12			Radar	300/870	46K0E	599++
29610.0	0953	15	12			RADAR		20K0E	S6

RSGB; Vaughan, M0VRR

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
7197	1749	01	12			SSB			2 male voices in conversation. This was not an amateur conversation, rather a studio-based dialogue.
14215	1152	04	12			SSB			Random looping audio Eurospain
7160	0858	13	12			LSB			Suspect it could be those commercial stations in the EU that are allowed to transmit 10kw close to our 40m band edges
29500	1039	26	12	IRN		RADAR	150.2	45K0E	P0N 150.2 / 313.0 pps
28140	1040	26	12	G		RADAR	25	20K0E	FMCW, UK SBA, Cyprus
14192	1043	26	12			F1B	50	200	

SRAL; Pekka, OH2BLU

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
7 MHz	1500-0700	*	12	RUS		RADAR	40 sps	13k0E	*) Days: 1. - 5. 10. 11. 14. 16. 19. 20. 22. 23. 25. 28. 29. (WebSDR 28d)
7 MHz	1430-1915	*	12	CHN		RADAR	66 sps	10k0	*) Days: 8. 9. 11. 16. 17. 25. 31. “foghorn”
7000.0	1230-1930	01 - 31	12			A3E		4k0E	Weak modulation, Chinese?
7008.0	0550-1700	*	12	RUS		F1B		250H	*) Days: 2. 3. 7. 9. 11. 20. 25.
7010.0	1010-1830	09 18	12	RUS		J7D	120	2k60E	
7014.0	1040-1105	*	12	RUS		F1B		250H	
7016.0	1015-1200	*	12	RUS		J7D	120	2k60E	*) Days: 5. 16. 18. 26. 28.
7019.0	0830-1540	21	12	RUS		F1B		200H	
7025.0	0700-1930	01-27	12	RUS		F1B/A	17 wpm	200H	5F
7030.0	0540-1325	*	12	RUS		F1B		250H	*) Days: 11. 20. 27.
7032.0	0500-1330	01 - 31	12	RUS		J3E-u		3k50	Non-stop Russian anthem / mx, spur to 7000.0 & 7064.5 & 7101.7
7032.0	0000-2400	01 - 31	12	RUS		J3E-u		2k50	Brum (50 Hz), when no music, begins after 1 sec, when mx off.
7032.0	0830-0945	04	12	RUS		J7D	120	2k60E	
7036.0	1655-1915	05 28	12	RUS		F1B		250H	
7041.0	0600-0800	12	12			jam		7k50E	
7051.7	0545-1440	21 28	12	RUS		XXX		1k2E	TDL

SRAL; Pekka, OH2BLU

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
7054.0	1100-1900	02 - 31	12	RUS		F1B		250H	
7066.0	0540-1900	*	12	RUS		F1B/ N0N		200H	*) Days: 29. 30. 31.
7098.0	1250-1400	19 30	12	RUS		F1B/ N0N		250H	
7111.0	1300-1350/	02	12	RUS		F1B		250H	
7112.0	0830-1350/	*	12	RUS		J7D	120	2k60E	
7127.0	0710-0820/	19	12	RUS		F1B/ N0N		250H	
7147.0	1230-1250/	26	12	RUS		J7D	120	2k60E	
7154.0	1100-1900	25	12	RUS		F1B		200H	
7159.0	0545-1915	*	12	IW		G7D		2k30E	*) Days: 7. - 15. 19. 20. LINK11, mostly usb
7160.0	0825	19	12	RUS	RBL88	A1A		40H	Calls RXP60
7174.0	0450-1405	10 12	12			jam		7k50E	
7192.0	0720-0900	*	12	RUS		J7D	120	2k60E	*) Days: 2. 12. 20.
7193.0	0745-1500	*	12	RUS	RDL	F1B/A/ N0N	16 wpm	200H	*) Days: 5. - 11. 15. - 20.
7196.0	0810-1555/	22	12	RUS		F1B		200H	
7198.0	1250-1645	15 21	12	RUS		J7D	120	2k60E	
10 MHz	1700-1730	02	12	G		RADAR	50/25sps	20k0	(WebSDR 2d)
10 MHz	0600-1710	04 14	12	RUS		RADAR	40sps	13k0E	(WebSDR 4d)
10124A	1500-1600	01 - 31	12	GUM	KTWR	xxx		5k0E	// 9900 kHz, chirpy spurious
10134A	1100-1500	01 - 31	12	GUM	KTWR	xxx		5k0E	// 9910 kHz, chirpy spurious, also DRM (as on scedule)
14 MHz	0600-1730	*	12	RUS		RADAR	40sps	13k0E	*) Days: 1. 4. 8. 10. 15. 17. 19. 25. 26. 28. 30. (WebSDR 16d)
14 MHz	0800-1430	*	12	CHN		RADAR	50/67sps	10k0E	*) Days: 1. 7. 11. 12. 13. 20. - 23. 25. 26. 28. 31. 'foghorn'
14001.0	0715-1425	07 13	12	RUS		J7D	120	2k60E	
14002.0	0740-0945	21	12	GUM		F1B		850H	
14004.0	0920	29	12	RUS		F1B		500H	
14026.0	1035	28	12	RUS		J7D	120	2k60E	
14116.0	1010-1030/	14	12	RUS		F1B		250H	
14192.0	0530-1330	01 - 31	12	RUS		F1B		200H	
14258.0	0805	04	12	RUS		F1B		500H	
14270.0	0750-1100	*	12	CHN		RADAR	50 sps	10k0E	*) Days: 4. 20. 25.
14308.0	0750-	*	12	RUS		F1B/ N0N		500H	*) Days: 4. 23. 26. 28. 29.

SRAL; Pekka, OH2BLU

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
	1200								
18 MHz	0600-1400	01 28	12	G		RADAR	50/25 sps	20k0	(WebSDR 4d)
18 MHz	0700-1230	*	12	RUS		RADAR	40 sps	13k0E	*) Days: 3. 4. 5. 7. 19. 20. 23. (WebSDR 18d)
21 MHz	0545-1415	*	12	G		RADAR	50/25 sps	20k0	*) Days: 9. 13. 15. 16. 21. 22. 23. 27. 28. 29. 31. (WebSDR 12d)
21 MHz	0640-1500	*	12	RUS		RADAR	40 sps	13k0E	*) Days: 2. 3. 4. 15. 16. 17. 31. (WebSDR 10d)
21 MHz	0800-1000	01 02	12	CHN		RADAR	50 sps	10k0	(WebSDR 13d)
21 MHz	0615-0930	*	12	CHN		RADAR	50/67sps	10k0E	*) Days: 3. 5. - 29. 31. 'foghorn'
21438.0	/0830-1600	01 - 31	12	RUS	RCV	A1A	16 - 20 wpm	40H	Navip etc.
28 MHz	0600-1500	*	12	G		RADAR	12.5/ 25/50sps	20k0	*) Days: 1. - 5. 8. 9. 14. 15. 17. 19. 20. 21. 23. 26. 28. 30. (WebSDR 16d)
28 MHz	0630-1330	*	12	IRN		RADAR	150/ 313	60k0E	*) Days: 1. - 4. 10. 11. 13. 16. 18. 19. 23. 25. 31. (WebSDR 21d)
28 MHz	0600-1300	*	12	IRN		RADAR	310/ 870	80k0E	*) Days: 6. 12. - 15. 20. 21. (WebSDR 5d)
28860.0	0530-1400	*	12	IRN		RADAR	150/ 313	60k0E	*) Days: 1. - 6. 8. - 13. 16. - 27. 30. 31. (WebSDR 22d)
28 MHz	0700-1230	*	12	RUS	Taxi disp.	F3E		3k0E	*) Days: 2. - 5. 7. 8. 17. 20. - 27. 64 reports

URE; Gaspar, EA6AMM

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
6992.0	18:30	03	12	RUS		RADAR	40	12K0E	OTHR Contayner. Splatter to 7002 kHz
6995.0	16:05	05	12	RUS		RADAR	40	12K0E	OTHR Contayner
7005.0	17:43	22	12			XXX		CA20K0E	XXX. Same as on 7170 kHz CF
7006.0	16:48	05	12	RUS		RADAR	40	12K0E	OTHR Contayner
7010.0	17:45	17	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
7014.0	10:15	15	12			F1B	75	250H	
7018.0	16:11	05	12	RUS		RADAR	40	12K0E	OTHR Contayner
7023.0	19:50	05	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
7025.0	13:53 vt*	01 vd*	12	RUS	RDL	F1B F1A	50	200H	*Very often. 17 reports
7027.0	19:08	02	12			F1B	50	250H	
7030.0	08:12	20	12			F1B	50	250H	Unclean
7031.0	17:47	17	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
7032.0	09:25	04	12			J7D	120	2K70E	CIS-12
7032.0	21:17	04	12	RUS		RADAR	40	12K0E	OTHR Contayner
7034.0	16:50	07	12	RUS		RADAR	40	12K0E	OTHR Contayner
7036.0	17:03 vt*	11 vd*	12			F1B	50	250H	*Also on 16/12, 1917 UTC and 17/12, 1916 UTC
7051.7	07:15	21	12			XXX		1K20E	TDL (Tactical Data Link)
7054.0	17:21 vt*	02 vd*	12	RUS		F1B	50	200H	*Often. 15 reports
7057.5	07:02	02	12			F1B	50	200H	

URE; Gaspar, EA6AMM

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
7063.0	19:11	02	12			F1B	50	250H	
7085.0	17:19	20	12	RUS		RADAR	40	12K0E	OTHR Contayner
7096.0	17:42	02	12	RUS		RADAR	40	12K0E	OTHR Contayner
7105.0	17:31 vt*	06 vd*	12	CHN		RADAR	66.7	10K0E	OTHR short bursts *Also on 20/12, 0000 UTC
7107.0	18:04	19	12	RUS		RADAR	40	12K0E	OTHR Contayner
7111.0	18:52	01	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
7111.0	18:53 vt*	02 vd*	12	RUS		RADAR	40	12K0E	OTHR Contayner *Also on 04/12, 1847 UTC
7111.0	18:50	30	12			G7D	60	2K50E	7111 kHz LSB: CHN-30
7112.0	17:17	20	12			J7D	120	2K70E	CIS-12
7114.0	19:34	02	12	RUS		RADAR	40	12K0E	OTHR Contayner
7117.0	18:52	01	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
7118.0	17:15	04	12	RUS		RADAR	40	12K0E	OTHR Contayner. *Also on 7162 kHz CF. *2 simultaneous TX on 40m*
7122.0	18:54	01	12	CHN		RADAR	48	10K0E	OTHR short bursts
7128.0	17:59	02	12	RUS		RADAR	40	12K0E	OTHR Contayner. *Also on 7096 kHz CF. *2 simultaneous TX on 40m*
7128.0	17:59	05	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
7130.0	21:19	04	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
7132.0	18:55	01	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
7134.0	18:05	19	12	RUS		F1B	50	250H	
7136.0	17:01	11	12	RUS		RADAR	40	12K0E	OTHR Contayner
7138.0	17:40	17	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
7140.0	21:10	02	12	RUS		RADAR	40	12K0E	OTHR Contayner
7140.0	17:43	21	12	RUS		RADAR	40	12K0E	OTHR Contayner
7147.0 LSB	18:50	30	12			G7D	60	2K50E	CHN-30
7155.0 LSB	18:02	19	12			G7D	60	2K50E	CHN-30
7156.0 LSB	17:37	17	12			G7D	60	2K50E	CHN-30
7159.0 USB	16:15 vt*	08 vd*	12			G7D	75	2K40E	LINK-11 CLEW SSB. *Often. 9 reports
7162.0	17:16	04	12	RUS		RADAR	40	12K0E	OTHR Contayner
7169.5 USB	19:22 vt*	16 vd*	12			G7D	75	2K40E	CHN 4+4 *Also on 17/12, 1931 UTC
7170.0 LSB	17:19	02	12			G7D	60	2K50E	CHN-30
7170.0	17:27	22	12			XXX		CA20K0E	XXX. Unknown continuous signal
7171.0 LSB	18:21 vt*	03 vd*	12			G7D	60	1K50E	CHN-30 *Also on 04, 05, 06 and 08/12; vt
7185.0 USB	07:40	16	12		S59 S57	J7D	125	1K75E	MIL-188-141A ALE
7187.0	17:30	22	12	RUS		RADAR	40	12K0E	OTHR Contayner
7192.0	07:22	12	12			J7D	120	2K70E	CIS-12
7192.9	08:23 vt*	06 vd*	12			N0N			Carrier from F1B system on 7193 kHz CF *Also on 08, 09, and 10/12; vt
7193.0	08:22 vt*	06 vd*	12	RUS	RDL	F1B F1A	50	200H	*Also on 08, 10, 11 and 20/12; vt
7194.0	13:49	01	12			F1B	50	200H	

URE; Gaspar, EA6AMM

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
7196.0 LSB	17:35 vt*	17 vd*	12			G7D	60	2K50E	CHN-30 *Also on 19/12, 1759 UTC and 22/12, 1733 UTC
7198.0 LSB	17:28 Vt*	06 vd*	12			G7D	60	2K50E	CHN-30 *Also on 16/12, 1920 UTC
10124.0	20:06 vt*	14 vd*	12	AUS		RADAR	7	10K0E	OTHR JORN bursts with short intro tone *Also on 17, 21 and 30/12; vt
10125.0	20:07	12	12	AUS		RADAR	v sps*	10K0E	OTHR JORN. Bursts with short intro tone. *Different sps per bursts (not 7 sps)
10148.0	20:06 vt*	02 vd*	12	AUS		RADAR	7	12K0E	OTHR JORN bursts with short intro tone *Also on 16/12 2002 UTC and on 17/12 1832 UTC
10150.0	17:11	07	12	AUS		RADAR	7	12K0E	OHR JORN bursts. With short intro tone
10150.0	19:42	14	12	G		RADAR	25	20K0E	OTHR. UK SBA, Cyprus
14000.0 USB	13:53	05	12			XXX		CA2K80E	XXX. Unidentified digital bursts
14000.0 USB	14:28	07	12			J7D	125	1K75E	MIL-188-141A ALE
14002.0	09:31	21	12	GUM		F1B	50	850H	
14039.0	09:36	09	12	CHN		RADAR	50	10K0E	OTHR short bursts
14046.0	09:57	22	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
14055.0	09:32	08	12	CHN		RADAR	50	10K0E	OTHR short bursts
14059.0	09:12 vt*	12 vd*	12	CHN		RADAR	50	10K0E	OTHR short bursts *Also on 18/12, 0836 UTC
14061.0	10:15	03	12	CHN		RADAR	50	10K0E	OTHR short bursts
14068.5	07:51	19	12			F1D	600	600H	DPRK-FSK 600 ARQ
14098.0	08:58	23	12			F1D	600	600H	DPRK-FSK 600 ARQ
14098.5	07:38 vt*	02 vd*	12			F1D	600	600H	DPRK-FSK 600 ARQ *Often. 11 reports
14101.0	13:46	01	12	RUS		RADAR	40	12K0E	OTHR Contayner
14113.0	08:47	02	12			F1D	600	600H	DPRK-FSK 600 ARQ
14113.0	07:52	13	12	CHN		RADAR	50	10K0E	OTHR short bursts
14113.4	06:51	02	12			F1D	600	600H	DPRK-FSK 600 ARQ
14116.0	09:34	14	12			F1D	50	250H	
14141.0	14:10	08	12	RUS		RADAR	40	12K0E	OTHR Contayner
14144.0	09:04	30	12	CHN		RADAR	50	10K0E	OTHR short bursts
14149.0	14:54	16	12	RUS		RADAR	40	12K0E	OTHR Contayner
14150.0	09:18	23	12	CHN		RADAR	50	10K0E	OTHR short bursts
14151.0	13:31	10	12	RUS		RADAR	40	12K0E	OTHR Contayner
14152.0	09:28	07	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
14162.0 USB	12:51	03	12			J3E-U		2K80E	USB. UKR/RUS “radiowar”. Several QSY to: 14160 kH, 14172 kHz…
14163.0	14:37	09	12	RUS		RADAR	440	12K0E	OTHR Contayner
14165.0	09:24	09	12	CHN		RADAR	50	10K0E	OTHR short bursts
14169.0	09:33	08	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
14169.0	07:29 vt*	11 vd*	12			F1B	50	200H	*Also on 12/12, 0701 UTC
14169.0	14:08	12	12	RUS		RADAR	40	12K0E	OTHR Contayner
14169.1	07:44	11	12			N0N			Carrier from F1B sys on 14169 kHz CF
14177.0	13:57	18	12	RUS		RADAR	40	12K0E	OTHR Contayner
14185.0	09:03	23	12	CHN		RADAR	50	10K0E	OTHR short bursts

URE; Gaspar, EA6AMM

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
14186.0	06:05	30	12	RUS		RADAR	40	12K0E	OTHR Contayner
14189.5	12:10	05	12			F1D	600	600H	DPRK-FSK 600 ARQ
14191.9	07:36	01	12	RUS		N0N			Carrier. From F1B 14192 kHz CF system
14192.0	07:59 vt*	01 vd*	12	RUS		F1B	50	200H	*Daily. Very long-lasting
14198.5	07:14	02	12			G1D		1K20E	DPRK-PSK 1200 ARQ
14198.5	07:01 vt*	11 vd*	12			F1D	600	600H	DPRK-FSK 600 ARQ *Also on 12, 23 and 30 / 12; vt
14200.0	11:18	14	12			J7D	120	2K70E	CIS-12
14200.0	11:20	18	12	RUS		RADAR	40	12K0E	OTHR Contayner
14200.0	08:22	19	12	RUS		RADAR	40	12K0E	OTHR Contayner
14220.5	08:19	30	12			F1D	600	600H	DPRK-FSK 600 ARQ
14225.0	07:08	12	12			J7D	125	1K75E	MIL-188-141A ALE
14228.5	07:34	06	12			F1D	600	600H	DPRK-FSK 600 ARQ *Also on 08; 11, 12 and 15 / 12; vt
14241.0	09:28	10	12	CHN		RADAR	10	160K0E	Wideband OTHR
14243.0	09:02	30	12	CHN		RADAR	50	10K0E	OTHR short bursts
14244.6	07:11	02	12			W7D	44.44	2K40E	OFDM 39 CHN
14245.0	09:32	04	12	CHN		RADAR	42	50	OTHR short bursts
14245.0	09:15	23	12	CHN		RADAR	50	10K0E	OTHR short bursts
14249.0	09:08	14	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
14250.0	09:40	08	12	CHN		RADAR	50	10K0E	OTHR short bursts
14258.0	08:04 vt*	04 vd*	12			F1B	50	500H	*Also on 06, 11 and 18 / 12; vt
14259.0	09:47	14	12			J3E-U		3K0E	J3E-U. Non amateur comms between CIS-60 transmissions. Slavic language, male voice
14261.0	09:26	14	12			W7D	30	2K80E	CIS-60
14267.0	09:56	01	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
14270.0	07:20	04	12	CHN		RADAR	50	10K0E	OTHR
14286.0	10:29	07	12	CHN		RADAR	50	10K0E	OTHR short bursts
14297.0	14:12	04	12	RUS		RADAR	40	12K0E	OTHR Contayner
14298.0	08:01	01	12			F1D	600	600H	DPRK-FSK 600 ARQ
14298.0	11:31	11	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
14298.5	08:36	01	12			G1D		1K20E	DPRK-PSK 1200 ARQ
14298.5	12:39 vt*	02 vd*	12			F1D	600	600H	DPRK-FSK 600 ARQ *Almost daily. 20 reports
14306.0	09:12	12	12	CHN		RADAR	47.6	10K0E	OTHR short bursts
14307.8	09:01	23	12			N0N			Carrier from F1B system on 14308 kHz CF
14308.0	08:01 vt*	04 vd*	12			F1B	75	500H	*Also on 23/12 0804 UTC
14310.0	08:38	18	12	CHN		RADAR	50	10K0E	OTHR short bursts
14314.5 USB	06:48	02	12			XXX	80	2K40E	Unidentified digital bursts
14315.0	09:43	13	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
14318.5	08:28	30	12			F1D	600	600H	DPRK-FSK 600 ARQ
14325.0	09:15	23	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
14331.5	07:34 vt*	30 vd*	12			F1D	600	600H	DPRK-FSK 600 ARQ *Also on 31/12, 0728 UTC
14331.5	07:30	31	12			G1D		1K20E	DPRK-PSK 1200 ARQ

URE; Gaspar, EA6AMM

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
14343.0	09:55	01	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
14343.0	15:48	01	12	CHN		RADAR	83.3	10K0E	OTHR short bursts. 1 burst every 6 sec
14343.0	09:19	09	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
14345.0	10:08	06	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
14345.0	10:30	07	12	CHN		RADAR	50	10K0E	OTHR short bursts
14345.0	10:10	20	12	RUS		RADAR	40	12K0E	OTHR Contayner
18060.0	07:38	01	12	G		RADAR	50	20K0E	OTHR. UK SBA, Cyprus
18070.0	08:39	10	12	CHN		RADAR	50	10K0E	OTHR short bursts
18080.0	07:16	04	12	RUS		RADAR	40	12K0E	OTHR Contayner
18090.0 USB	07:16	16	12			W7D	44.44	2K40E	CHN OFDM 39
18102.3	08:41	01	12			G7D	75	2K40E	CHN 4+4
18105.7	08:34	02	12			G7D	75	2K40E	CHN 4+4
18114.0	07:40	12	12	RUS		RADAR	40	12K0E	OTHR Contayner
18121.0	08:50	06	12	CHN		RADAR	50	10K0E	OTHR short bursts
18128.0	08:40	10	12	CHN		RADAR	50	10K0E	OTHR short bursts
18134.0	09:51	08	12	CHN		RADAR	50	10K0E	OTHR short bursts
18142.0	07:25	18	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
18152.0	07:36	08	12	RUS		RADAR	40	12K0E	OTHR Contayner
18154.0	08:46	09	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
18154.0	08:06	20	12	RUS		RADAR	40	12K0E	OTHR Contayner
18159.0	09:07	15	12	RUS		RADAR	40	12K0E	OTHR Contayner
18165.0	07:05	30	12	G		RADAR	50	20K0E	OTHR. UK SBA, Cyprus
18168.0	12:38	02	12	RUS		RADAR	40	12K0E	OTHR Contayner
18169.0	08:39	03	12	RUS		RADAR	40	12K0E	OTHR Contayner
18170.0	12:02	05	12	RUS		RADAR	40	12K0E	OTHR Contayner
18170.0	08:32	14	12	G		RADAR	50	20K0E	OTHR. UK SBA, Cyprus
18172.0	07:38	16	12	RUS		RADAR	40	12K0E	OTHR Contayner
18174.0	13:22	02	12	RUS		RADAR	40	12K0E	OTHR Contayner
21000.0	13:23 vt*	03 vd*	12			J3E-U		2K40E	Unid sts. Female and male voices. Language seems Arabic. *Also on 16/12, 0750 UTC
21000.0	08:11 vt*	04 vd*	12			J3E-U		2K40E	Spanish fishers. Strong Southern Spanish accent. Same operators as always. *Also on 06/12, 0948 UTC and 22/12, 0858 UTC
21008.3	07:23	06	12			F1D	600	600H	DPRK-FSK 600 ARQ
21010.0	14:00	02	12	G		RADAR	50	20K0E	OTHR. UK SBA, Cyprus
21030.8	09:03	22	12			J3E-U		2K40E	Unid sts. Male voices, Arabic language. Engine sound. Most probably, fishers
21036.0	09:29	21	12	CHN		RADAR	50	10K0E	OTHR short bursts
21061.5 USB	09:12	30	12			G7D	75	2K40E	CHN 4+4
21101.0	07:24	06	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21101.0	09:20	23	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
21104.0	07:46	18	12	CHN		RADAR	50	10K0E	OTHR short bursts
21105.0	08:47	01	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
21108.5	08:55 vt*	10 vd*	12			F1D	600	600H	DPRK-FSK 600 ARQ *Also on 12/12, 0714 UTC and 19/12, 0810 UTC
21110.0	08:05	12	12	CHN		RADAR	50	10K0E	OTHR short bursts

URE; Gaspar, EA6AMM

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
21116.0	07:59	07	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21116.0	08:31	12	12	CHN		RADAR	50	10K0E	OTHR short bursts
21120.0	08:52	01	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
21123.0	08:16	13	12	CHN		RADAR	42	10K0E	OTHR. Alternating 150 and 313 sps bursts. *Also on 28860 kHz CF. *2 simultaneous TX on 10m*
21131.0	07:39	15	12	RUS		RADAR	40	12K0E	OTHR Contayner
21138.0 USB	07:29	09	12			G1D	2400	2K40E	MIL-188-110A
21145.0 USB	08:50 vt*	01 vd*	12	MRC	P2, P4, A1, E7, P6, P53, MIRADOR2	J7D	125	1K75E	MIL-188-141A ALE *Often. 9 reports
21146.0	07:17	17	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21148.0	06:55	11	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21149.3	07:25	02	12			F1D	600	600H	DPRK-FSK 600 ARQ
21160.0	07:23	02	12	RUS		RADAR	40	12K0E	OTHR Contayner
21162.0	07:15	17	12	RUS		RADAR	40	12K0E	OTHR Contayner
21164.0	08:18	14	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21167.0	08:50	22	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21170.0	09:44	04	12	RUS		RADAR	40	12K0E	OTHR Contayner
21171.0	09:07	01	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
21171.0	12:37	02	12	RUS		RADAR	40	12K0E	OTHR Contayner
21174.0	09:51	21	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
21176.0	11:48	13	12	RUS		RADAR	40	12K0E	OTHR Contayner
21180.0	07:38	08	12	CHN		RADAR	48	10K0E	OTHR short bursts
21182.0	06:55	11	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21185.0	07:15	12	12	CHN		RADAR	50	10K0E	OTHR short bursts
21201.0	07:28	06	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21203.0	07:12	22	12	CHN		RADAR	50	10K0E	OTHR
21205.0	14:48	02	12	G		RADAR	25	20K0E	OTHR. UK SBA, Cyprus
21208.3	07:22	06	12			F1D	600	600H	DPRK-FSK 600 ARQ
21240.0	09:54	22	12	G		RADAR	50	20K0E	OTHR. UK SBA, Cyprus
21242.0	07:36	14	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21248.5	07:29	02	12			F1D	600	600H	DPRK-FSK 600 ARQ
21265.0	08:58	20	12	G		RADAR	50	20K0E	OTHR. UK SBA, Cyprus
21268.0	07:23	11	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21270.0	07:05	31	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21275.0	08:33	16	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21282.0	08:20	19	12	CHN		RADAR	50	10K0E	OTHR short bursts
21285.0	08:39	20	12	CHN		RADAR	50	10K0E	OTHR short bursts
21285.0	08:15	22	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21287.0	09:08	23	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
21288.0	07:57	13	12	CHN		RADAR	42	10K0E	OTHR short bursts
21294.0	07:17	11	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21296.0	08:20	07	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21299.0	07:25	09	12	CHN		RADAR	50	10K0E	OTHR short bursts
21305.0	08:11	19	12	CHN		RADAR	66.7	10K0E	OTHR short bursts

URE; Gaspar, EA6AMM

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
21308.0	07:47	18	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21317.0	08:43	06	12	CHN		RADAR	50	10K0E	OTHR short bursts
21317.0	07:21	17	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21326.0	07:37	14	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21327.0	07:49	20	12	CHN		RADAR	50	10K0E	OTHR short bursts
21329.0	09:11	01	12	CHN		RADAR	41.7		OTHR short bursts
21329.0	09:28	21	12	CHN		RADAR	50	10K0E	OTHR
21330.0	08:02	22	12	G		RADAR	50	20K0E	OTHR. UK SBA, Cyprus
21333.0	07:38	14	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
21335.0	08:35	07	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21341.0	07:58	09	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21341.0	08:30	30	12	CHN		RADAR	50	10K0E	OTHR
21345.0 USB	09:42 vt*	03 vd*	12			G1D	2400	2K40E	MIL-188-110A. PSK8A *Also on 04/12, 0907 UTC
21345.0	09:24	08	12	CHN		RADAR	50	10K0E	OTHR
21345.0	07:07	22	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21347.0	07:58	09	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21349.0	08:02	03	12	CHN		RADAR	66.7	10K0R	OTHR short bursts
21351.0	07:10	22	12	CHN		RADAR	50	10K0E	OTHR short bursts
21351.0	07:52	31	12	RUS		RADAR	40	12K0E	OTHR Contayner
21352.0	07:30	30	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21355.0	09:50	21	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
21362.0	07:17	11	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21363.0	07:26	02	12	CHN		RADAR	42	10K0E	OTHR short bursts
21363.0	07:41	08	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21364.0	07:26	06	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
21366.0	09:27	08	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21368.0	07:59	13	12	CHN		RADAR	50	10K0E	OTHR short bursts
21368.0	08:54	16	12	CHN		RADAR	50	10K0E	OTHR short bursts
21372.0	08:44	01	12	CHN		RADAR	50	10K0E	OTHR
21372.0	08:23	09	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
21373.0	08:09	19	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21374.0	07:54	16	12	CHN		RADAR	50	10K0E	OTHR short bursts
21375.0	07:41	14	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21376.0	08:17	22	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21377.0	09:37	21	12	CHN		RADAR	50	10K0E	OTHR short bursts
21379.0	09:55	30	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21380.0	07:18	15	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
21387.0	08:31	09	12	CHN		RADAR	41.7	10K0E	OTHR short bursts
21388.0	07:20	16	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21389.0	08:36	07	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21395.0 USB	10:55 vt*	03 vd*	12	CHN	BN3, AN1	J7D	125	1K75E	MIL-188-141A ALE 2G + robust *Also on 04/12, 0725 UTC
21396.0	08:56	10	12	CHN		RADAR	50	10K0E	OTHR short bursts
21403.0	09:28	08	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21406.0	07:18	17	12	RUS		RADAR	40	123K0E	OTHR Contayner. *Also on 21162 kHz CF. *2 simultaneous TX on 15m*
21408.0	07:16	15	12	CHN		RADAR	50	10K0E	OTHR

URE; Gaspar, EA6AMM

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
21408.0	09:55	16	12	RUS		RADAR	40	12K0E	OTHR Contayner
21408.0	07:45	18	12	CHN		RADAR	50	10K0E	OTHR short bursts
21410.0	07:41	16	12	RUS		RADAR	40	12K0E	OTHR Contayner
21422.0	07:27	06	12	CHN		RADAR	66.7	10K0E	OTHR short bursts
21422.0	08:27	15	12	RUS		RADAR	40	12K0E	OTHR Contayner. *Also on 21131 kHz CF. *2 simultaneous TX om 15m*
21423.0	08:33	17	12	RUS		RADAR	40	12K0E	OTHR Contayner. *Also on 21423 kHz CF. *2 simultaneous TX on 15m*
21425.0	09:06	04	12	RUS		RADAR	40	12K0E	OTHR Contayner
21438.0	08:48 vt*	01 vd*	12	RUS	RCV	A1A			RUS navy QTC *Almost daily. 21 reports
21440.0	08:24	09	12	CHN		RADAR	50	10K0E	OTHR short bursts
24878.0	13:41	01	12	RUS		RADAR	40	12K0E	OTHR Contayner
24887.0	07:44	01	12	RUS		RADAR	40	12K0E	OTHR Contayner
24890.0	07:30	04	12	CHN		RADAR	50	10K0E	OTHR short bursts
24895.0	07:44	06	12	CHN		RADAR	50	10K0E	OTHR short bursts
24974.0	07:24	17	12	CHN		RADAR	50	10K0E	OTHR short bursts
24975.0	07:18	12	12	CHN		RADAR	50	10K0E	OTHR short bursts
24988.0	07:50	14	12	RUS		RADAR	40	12K0E	OTHR Contayner
28135.0	08:29 vt*	01 vd*	12			F3E			Non amateur comms. Female voice. Slavic language. Short traffic. *Often
28135.0	08:37 vt*	09 vd*	12			F3E			Non amateur comms. Female voice. Slavic language. Short traffic. *Often
28145.0	09:01	11	12	G		RADAR	25	20K0E	OTHR. UK SBA, Cyprus
28150.0	08:32 vt*	01 vd*	12			F3E			Non amateur comms. Female voice. Slavic language. Short traffic. *Often
28155.0	08:29 vt*	01 vd*	12			F3E			Non amateur comms. Female voice. Slavic language. Short traffic. *Often
28170.0	08:14	01	12	G		RADAR	50	20K0E	OTHR. UK SBA, Cyprus. *Also on 28525 kHz CF. *2 simultaneous TX on 10m*
28175.0	07:51	04	12			F3E			CBers
28195.0	08:29 vt*	01 vd*	12			F3E			Non amateur comms. Female voice. Slavic language. Short traffic. *Often
28215.0	08:43 vt*	09 vd*	12			F3E			Non amateur comms. Female voice. Slavic language. Short traffic. *Often
28225.0	08:30 vt*	01 vd*	12			F3E			Non amateur comms. Female voice. Slavic language. Short traffic. *Often
28245.0	08:30 vt*	01 vd*	12			F3E			Non amateur comms. Female voice. Slavic language. Short traffic. *Often
28260.0	09:53	04	12			N0N			Carrier
28260.0	10:00 vt*	04 vd*	12			A3E		10K0E	A3E. BC. Asian language. Most probably, harmonic or intermodulation. *Often
28265.0	08:31 vt*	01 vd*	12			F3E			Non amateur comms. Female voice. Slavic language. Short traffic. *Often
28275.0	07:54 vt*	04 vd*	12			F3E			Non amateur comms. Female voice. Slavic language. Short traffic. *Often
28275.0	08:39 vt*	09 vd*	12			F3E			Non amateur comms. Female voice. Slavic language. Short traffic. *Often
28290.0	08:02	15	12	G		RADAR		50	OTHR. UK SBA, Cyprus. *Also on 28610 kHz CF. *2 simultaneous TX on 10m*
28360.0	10:53	20	12	IRN		RADAR	307	45K0E	OTHR IRN. Alternating 307 and 870 sps bursts. *Also on 28860 kHz CF (150-313 sps). *2 simultaneous TX on 10m*

URE; Gaspar, EA6AMM

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
28370.0	08:13	04	12	G		RADAR	25 50	20K0E	OTHR. UK SBA, Cyprus. At 0814 UTC, sweep rate change from 25 sps to 50 sps.
28385.0	09:19	04	12	G		RADAR	50	20K0E	OTHR. UK SBA, Cyprus
28400.0	07:27	11	12	G		RADAR	25	20K0E	OTHR. UK SBA, Cyprus
28450.0	13:39	01	12	IRN		RADAR	150	45K0E	OTHR. Alternating 150 and 313 sps bursts. *Also on 28860 kHz CF. *2 simultaneous TX on 10m*
28525.0	07:51	01	12	G		RADAR	25	20K0E	OTHR. UK SBA, Cyprus
28605.0	07:35	09	12	G		RADAR	25	20K0E	OTHR. UK SBA, Cyprus
28610.0	08:03	15	12	G		RADAR	50	20K0E	OTHR. UK SBA, Cyprus
28740.0	07:38	09	12	G		RADAR	25	20K0E	OTHR. UK SBA, Cyprus
28830.0	09:10	15	12	G		RADAR	50	20K0E	OTHR. UK SBA, Cyprus
28860.0	07:54 vt*	01 vd*	12	IRN		RADAR	150	45K0E	OTHR. Alternating 150 and 313 sps bursts *Almost daily. 22 reports
28950.0	08:04	19	12	IRN		RADAR	150	45K0E	OTHR. Alternating 150 and 313 sps bursts. *Also on 28860 kHz CF. *2 simultaneous TX on 10m*
29090.0	11:23	14	12	IRN		RADAR	307	45K0E	OTHR. Alternating 307 and 870 bursts
29100.0	09:00 vt*	01 vd*	12			N0N			Carrier. Strong. Very long-lasting *Daily
29130.0	11:54	13	12	IRN		RADAR	307	45K0E	OTHR. Alternating 307 and 870 sps bursts. *Also on 28860 kHz CF (150 / 313 sps). *2 simultaneous TX on 10m*
29200.0	09:11	03	12	IRN		RADAR	333	45K0E	OTHR. 333 sps bursts only. *Also on 28860 kHz CF (150 / 313 sps). *2 simultaneous TX on 10m*
29200.0	09:14	03	12	IRN		RADAR	870	45K0E	OTHR. 870 sps bursts only. *Also on 28860 kHz CF (150 / 313 sps). *2 simultaneous TX on 10m*
29210.0	08:38	14	12	G		RADAR	25	20K0E	OTHR. UK SBA, Cyprus
29300.0	08:06	13	12	IRN		RADAR	150	45K0E	OTHR. Alternating 150 and 313 sps bursts. *Also on 28860 kHz CF. *2 simultaneous TX on 10m*
29350.0	08:05	02	12	IRN		RADAR	226	150	OTHR. Alternating 226 and 333 sps bursts. Jumping. *Also on 28860 kHz CF (150 / 313 sps). *2 simultaneous TX on 10m*
29350.0	09:03	03	12	IRN		RADAR	226	45K0E	OTHR. Alternating 226 and 333 sps bursts. Jumping. *Also on 28860 kHz CF (150 / 313 sps). *2 simultaneous TX om 10m*
29350.0	08:45	10	12	IRN		RADAR	150	45K0E	OTHR. Alternating 150 and 313 sps bursts
29350.0	07:33	18	12	IRN		RADAR	150	45K0E	OTHR. Alternating 150 and 313 sps bursts. *Also on 28860 kHz CF. *2 simultaneous TX on 10m*
29350.0	09:26	20	12	IRN		RADAR	150	45K0E	OTHR. Alternating 150 and 313 sps bursts
29450.0	07:45	16	12	IRN		RADAR	150	45K0E	OTHR. Alternating 150 and 313 sps bursts. *Also on 28860 kHz CF. *2 simultaneous TX on 10m*
29460.0	10:10	15	12	IRN		RADAR	307	45K0E	OTHR. Alternating 307 and 870 sps bursts
29485.0	08:31	15	12	G		RADAR	50	20K0E	OTHR. UK SBA, Cyprus
29500.0	07:55	01	12	IRN		RADAR	150	45K0E	OTHR. Alternating 150 and 313 sps bursts. *Also on 28860 kHz CF. 2 simultaneous TX on 10m
29550.0	09:20	04	12	IRN		RADAR	150	45K0E	OTHR. Alternating 150 and 313 sps bursts. Jumping. *Also on 28860 kHz CF. *2*

URE; Gaspar, EA6AMM

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
									simultaneous TX on 10m. Often. 7 reports
29550.0	09:12	23	12	IRN		RADAR	150	45K0E	OTHR. Alternating 150 and 313 sps bursts. Jumping. *Also on 28860 kHz CF. *2 simultaneous TX on 10m*
29570.0	07:50	03	12	G		RADAR	50	20K0E	OTHR. UK SBA, Cyprus
29610.0	10:11	15	12	G		RADAR	25	20K0E	OTHR. UK SBA, Cyprus
29645.0	08:57	23	12	G		RADAR	50	20K0E	OTHR. UK SBA, Cyprus

USKA; Peter, HB9CET

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
7000.0	1636 1513	06 14	12			A3E			unid BC, very weak and fading daily
7000.0	1436	14	12			J7D	12x 120 Bd	2k70E	CIS12; PSK.4B, additional carrier at 6698.0 kHz
7025.0	1642 1001	06 21	12			F1B	50 Bd	200H	FSK almost daily
7025.0	1450	14	12			F1A		200H	CW-FSK
7032.0	0935	04	12			J7D	12x 120 Bd	2k70E	CIS12; 12 tones + pilottone only
7032.0 **USB**	0956	27	12			J3E-U		ca 2k0E	Russian chants
7051.70	0949	21	12			X	X	1k20E	unid signal
7054.0	1635 1349	06 21	12			F1B	50 Bd	200H	FSK; daily, since very long time
7055.0 **LSB**	1354 0951	08 27	12			J3E-L		ca 3k0E	RUS-UKR Radio War; almost daily Voice and Music
7087.0	1412	08	12			F1B	150 Bd	500H	FSK
7088.0	2145	23	12			FMOP	40 sps	12k0E	OTHR: Contayner
7089.8	1005	27	12			G1D PSK8	2400 Bd	2k40E	LINK11 **SLEW** often (7088.0 USB)
7111.0 **LSB**	1503	14	12			PSK-4	30x 60 Bd	2k50E	CHN30 (PRC30); Burst system; Pre-amble 4x PSK4 60Bd, spacing 600Hz; Pilot tone at 450Hz
7119.0	0941	21	12			J7D	12x 120 Bd	2k70E	CIS12; weak
7127.0	2139	23	12			FMCW	83 sps	10k0E	OTHR, Bursts
7134.0	1941	23	12			F1B	50 Bd	250H	FSK
7150.0 **USB**	2132	23	12		various ID's	J7D MFSK8	125	1750	ALE MIL 188-141A; weak; often
7155.0 **LSB**	0945	21	12			PSK-4	30x 60 Bd	2k50E	CHN30 (PRC30); Burst system; often Pilot tone at 450Hz very weak
7159.0 **USB**	1345 1443	08 14	12			G7D QPSK	75 Bd	ca 2k50E	LINK11 **C**LEW SSB mode; 16 tones spacing 110Hz often
7171.0 **LSB**	1711 1508	06 14	12			PSK-4	30x 60 Bd	2k50E	CHN30 (PRC30); Burst system; Pilot tone at 450Hz; daily
7178.0	0944	04	12			J7D	12x 120 Bd	2k70E	CIS12
7193.0	1356	08	12			F1B	50 Bd	200H	FSK often
7196.0 **LSB**	1536 1351	19 21	12			PSK-4	30x 60 Bd	2k50E	CHN30 (PRC30); Burst system; Pilot tone at 450Hz often
7198.0	1705	06	12			PSK-4	30x	2k50E	CHN30 (PRC30); Burst system;

USKA; Peter, HB9CET

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS	
LSB							60 Bd		Pilot tone at 450Hz	
14002.0	0934	21	12			F1B	50 Bd	850H	FSK, weak, strong QSB	often
14141.0	1430	08	12			FMOP	40 sps	12k0E	OTHR: Contayner	
14192.0	1004	21	12			F1B	50 Bd	200H	FSK	daily
14236.0	0935	26	12			FMCW	50 Bd	10k0E	OTHR; short bursts only	
18063.0	0915	21	12			FMOP	40 sps	12k0E	OTHR: Contayner	
18121.0	0921	21	12			OTHR	X	10k0E	OTHR	
21145.0 **USB**	1029	21	12		various	MFSK-8 J7D	8x 125 Bd	1k75	ALE MIL188-141A	
21162.0	1027	21	12			OTHR	42 sps	10k0E	OTHR	
21170.0	0948	04	12			FMOP	40 sps	12k0E	OTHR: Contayner	
21329.0	0929	21	12	G		FMCW	50 sps	10k0E	OTHR	
21438.0	0921	04	12	RUS	RCV	A1A		10H	Area of Sevastopol; since years	daily
28100.125	1025	07	12			F1B	51 Bd	300H	GPS Fishing buoy, short bursts	daily
28385.0	0932	04	12	G		FMCW	50 sps	20k0E	OTHR: UK base Cyprus	
28808.0	1003 1051	07 21	12			F1B	50 Bd	500H	FSK; ^{2}nd of 14404/BW 250Hz	
28860.0	1001 1029	07 21	12	IRN			150 + 313 sps	ca 45k	OTHR; Bursts; long lasting, sweep rate alternating	almost daily

VERON; Ruud, PG1R. Credits to observers: Dick, PA0GRU

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
7025.0	1445	11	12	RUS		F1B		200H	UiPtr
7054.0	1447	16	12	RUS		F1B		200H	Printer; S4
7055.0	1450	16	12	UKR/ RUS		J3E		2K70E	Male voice; UKR-RUS radiowar; S6
7060.0	1517	10	12	RUS		RADAR	40	12K0E	CF; OTHR Contayner
7106.0	1800	19	12	RUS		RADAR	40	12K0E	CF; OTHR Contayner
14116.0	0956	14	12			F1B		250H	UiPtr
14192.0	1012	11	12	RUS		F1B		200H	UiPtr
14307.0	1040	28	12			F1B		500H	UiPtr
21145.0	0834	20	12			J7D		1K8E	MFSK-8
28142.0	1038	26	12	G		RADAR	25	20K0E	CF; OTHR UK AB Cyprus

Contact: Gaspar Miró, EA6AMM, iarums@iaru-r1.org

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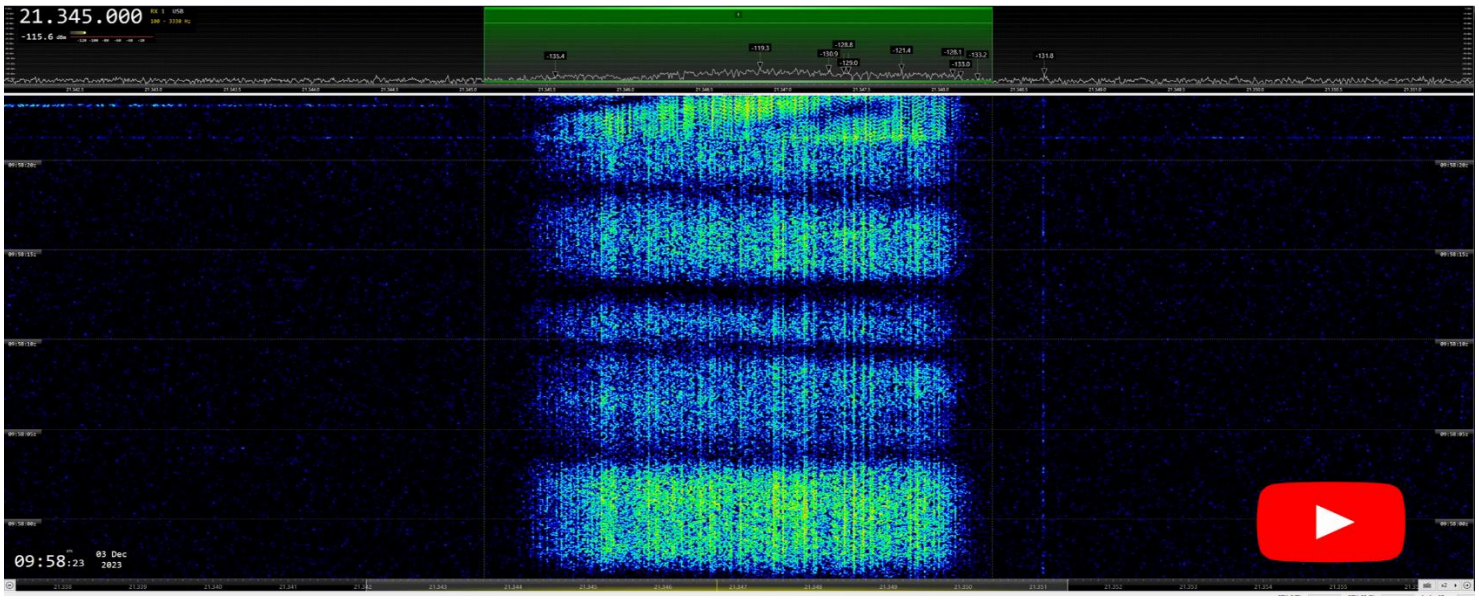
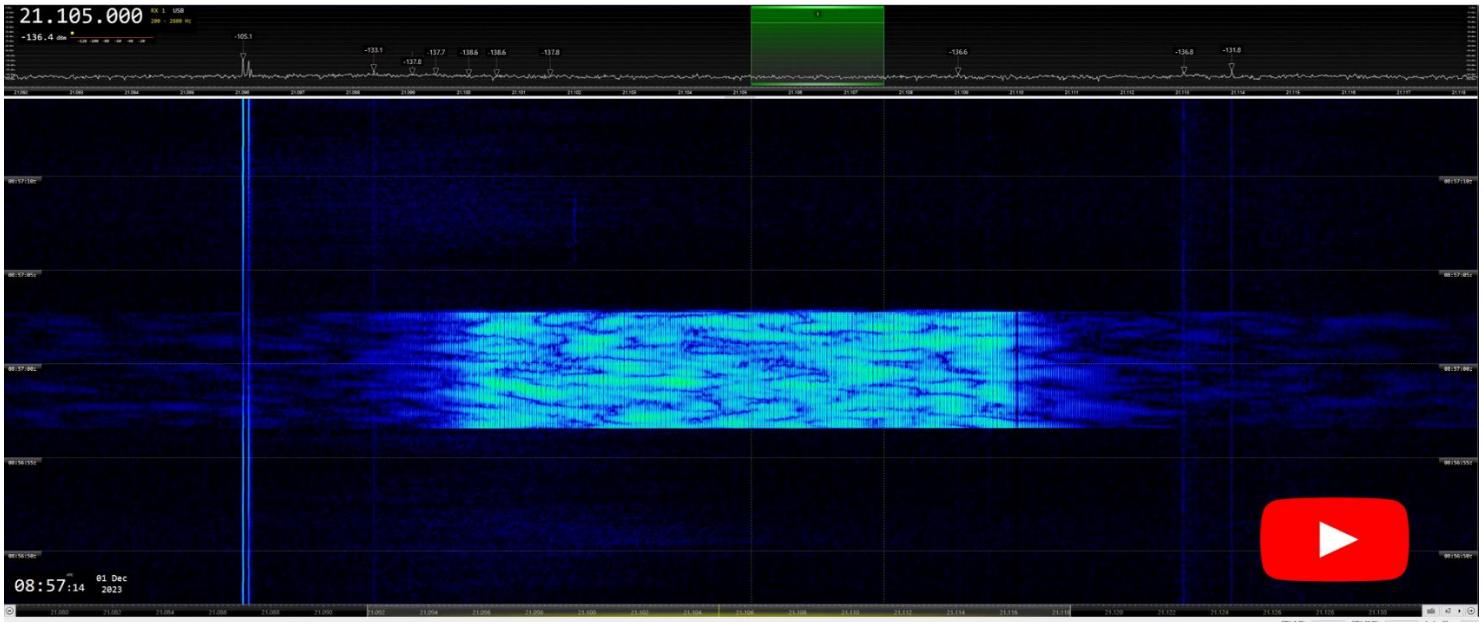
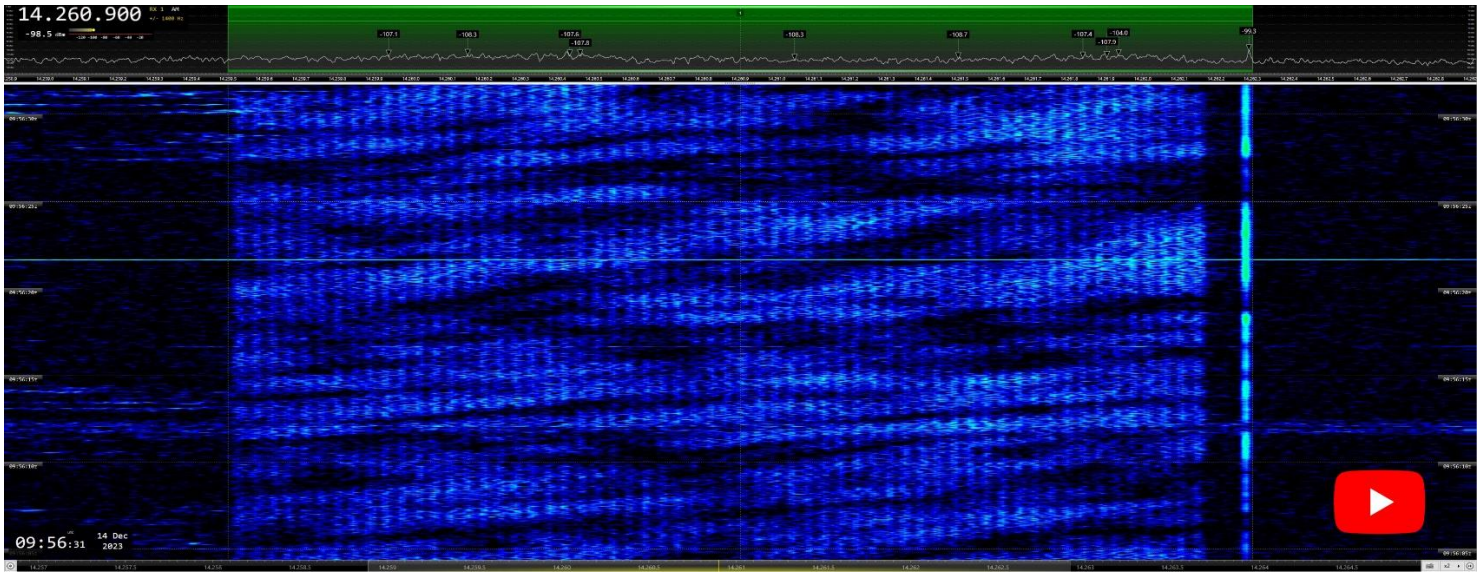


21345 kHz USB: MIL-188-110A. PSK. G1D. BW = 2K40E. 2400 Bd



21105 kHz CF: CHN OTHR „Foghorn“. Short bursts. FMCW. BW = 10K0E. 41.7 sps



14261 kHz CF: CIS-60. Also known as RUS High Data Rate modem. OFDM. W7D. BW = 2K80E. 60 x 30 Bd