IARU Monitoring System Region 1

Monthly Newsletter - July 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/

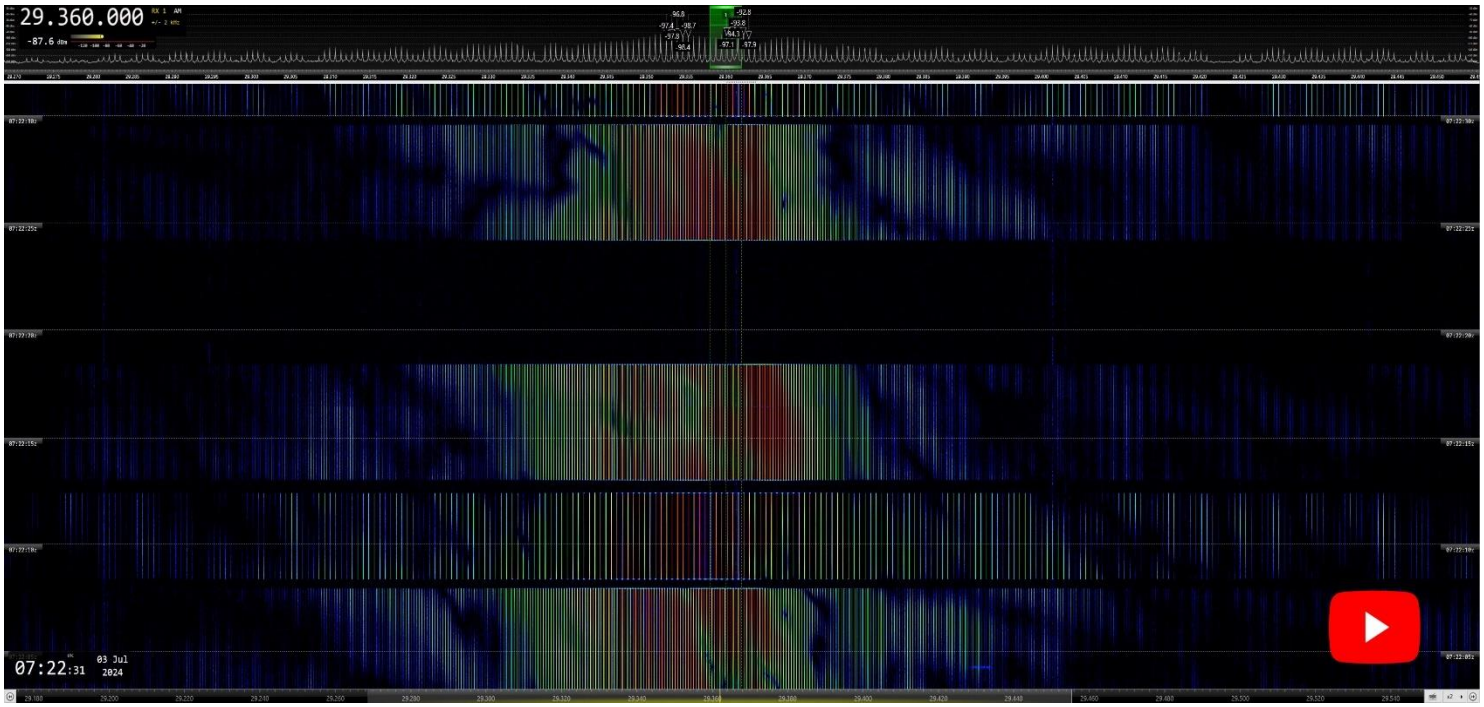
News and Info

In this issue, we will first highlight our findings related to the non-amateur transmissions within the HF bands observed during the month of July. The transmissions detailed below add to the unfortunately already large number of non-amateur transmissions that have become usual in our HF bands

It is no surprise that most of the non-amateur transmissions received on the HF amateur bands are carried out by radars, with Over The Horizon (OTH) radars being particularly notable. This type of radars is used in the military domain to detect and track targets at very long ranges, beyond the line of sight.

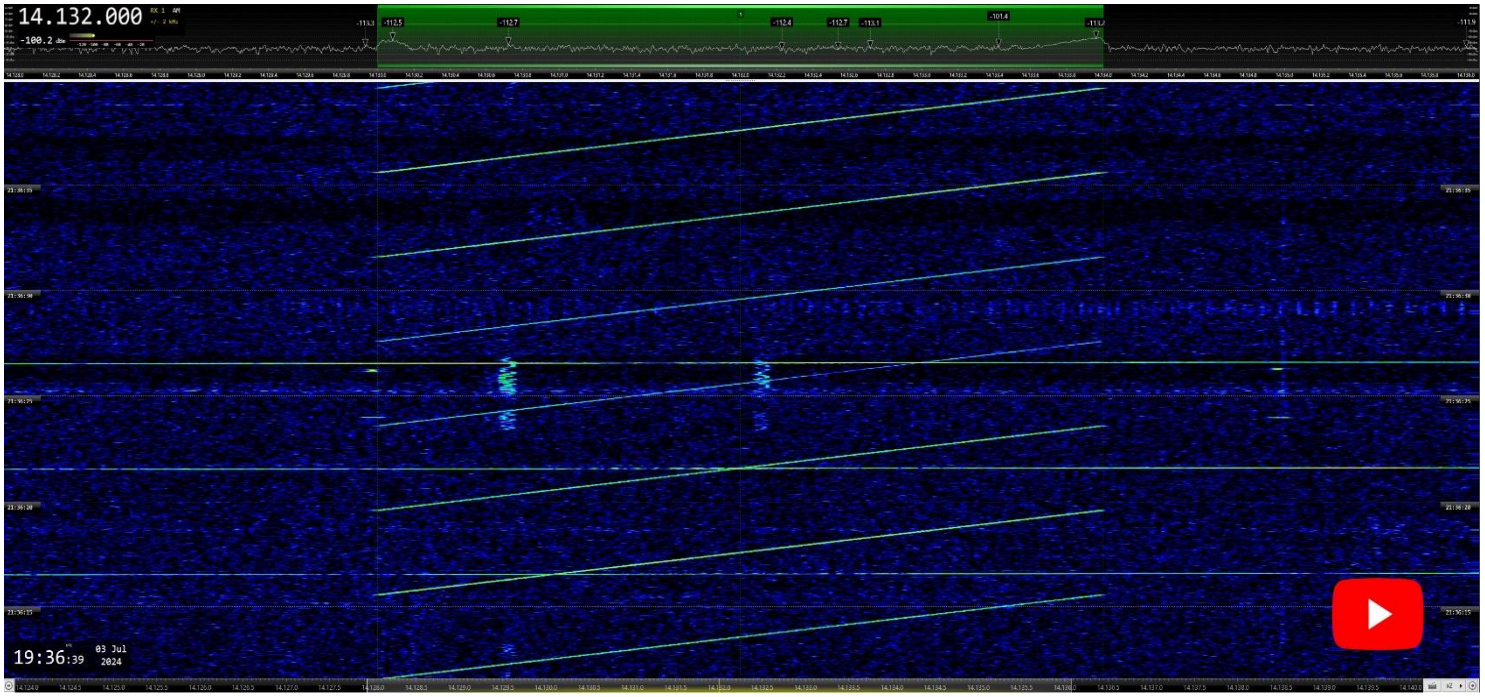
During the month of July, we observed one of these radars—specifically the Iranian OTHR, which uses a bandwidth of approximately 45 kHz and transmits bursts, alternating between one sweep rate (most usually, 150 sps) for one burst and a different sweep rate (most usually, 313 sps for the next—using a pulse repetition frequency never encountered before (695 sps), alternating 333 sps bursts with 695 sps bursts, and performing frequency hopping at a much higher speed (approximately, every 31 seconds; every 5 bursts) than usual, as shown in the video below.

This new behaviour was observed during 3 days in a row. The use of this new sweep rate was also observed later during the month (once), but the radar was then using its usual frequency hopping speed.



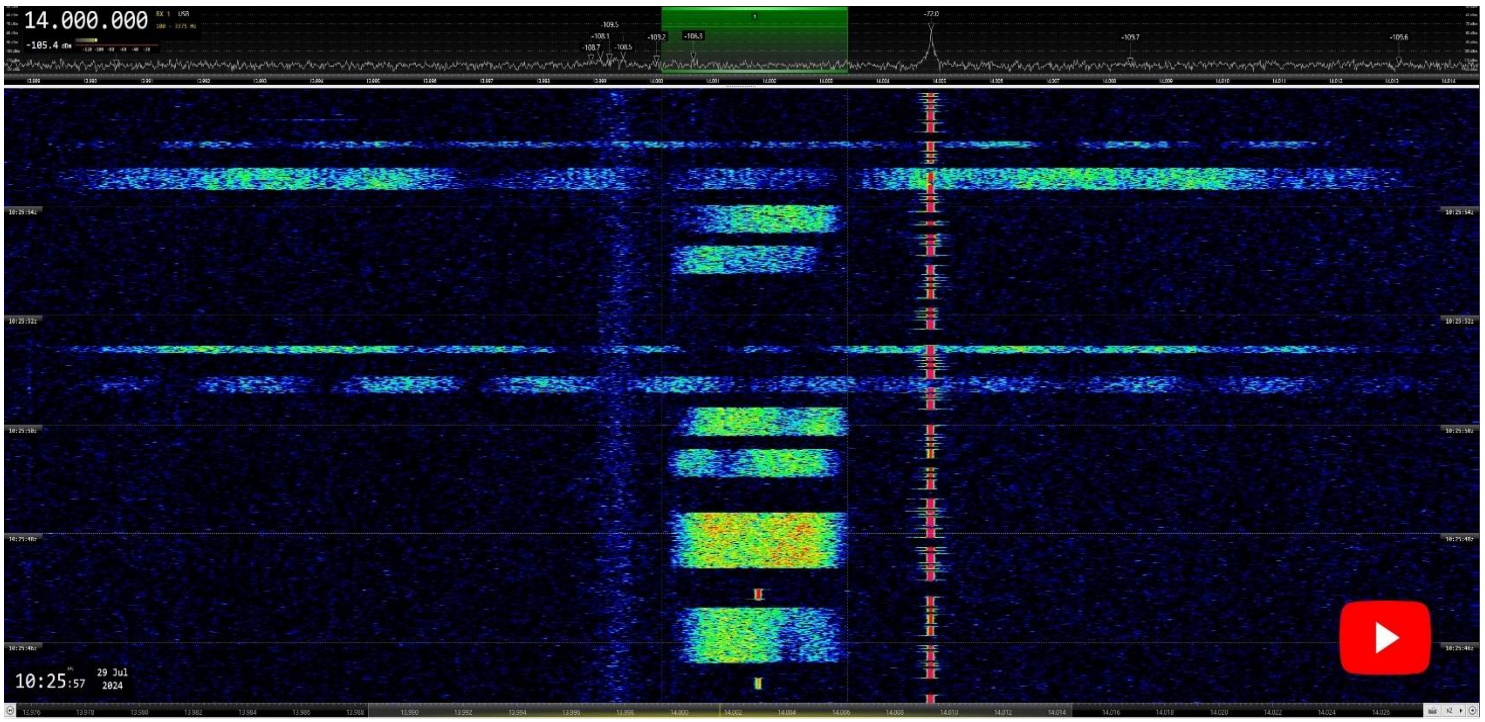
10 m: Iranian OTHR, using a new PRF (pulse repetition frequency; 695 pps) and performing frequency hopping much faster than usual

On 14132 kHz Cf we received every day, during long hours, the transmission of unknown slow sweeps (BW = 4K0E. 0.25 sps). The transmission sent bursts of these very slow sweeps every 120 seconds. Every burst was 120 seconds long. The purpose of this slow sweeping transmission remains unknown:



14132 kHz CF: Slow sweeps (bursts). BW = 4K0E. 0.25 sps. 1 sweep = 4 sec. long. BD = 120 sec. BRI = 120 sec. Very long-lasting. Daily

Receiving transmissions using the complex WHARQ military transmission mode— WHARQ: HF Hybrid Automatic Repeat Request (ARQ); L3Harris – proprietary MIL burst mode capable of using various bandwidths, different modulation modes, and intelligent frequency hopping—has been happening for some time now in the 40-meter band, and unfortunately, it is no longer a novelty. What is noteworthy, however, is receiving this type of transmission also in the 20-meter amateur radio band for the first time, as occurred on July 29 at 14000 kHz USB. In that transmission, among others, bursts with a bandwidth of 24 kHz and 19200 Bd were observed:

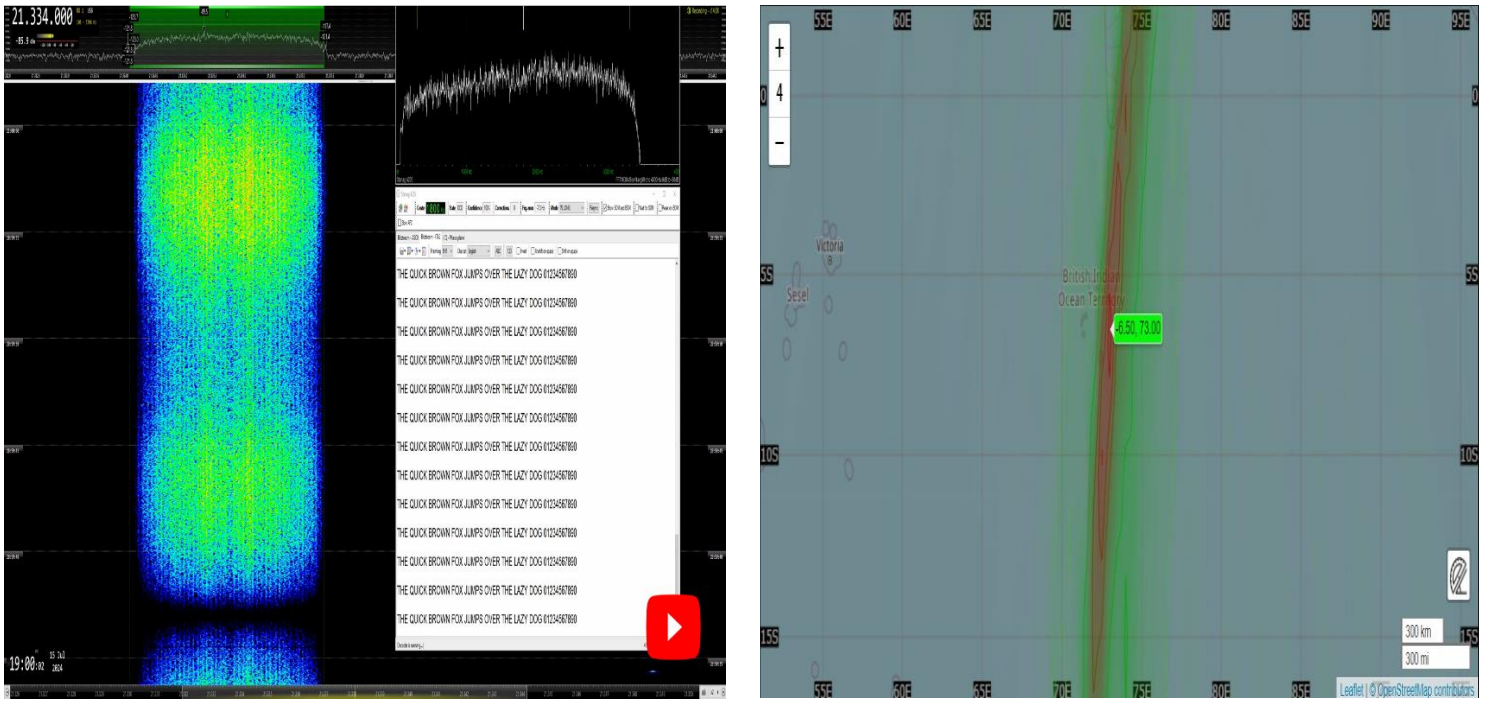


14000 kHz CF: WHARQ bursts . BW up to 24 kHz. BD up to 19200

It had been quite some time—years—since we last received the Israeli Navy station "4XZ" on the amateur HF bands. Some years ago, it was relatively common to receive it on the 40-meter band (7080 kHz). On July 24, it was received for the first time transmitting on the 10-meter band, at 28001 kHz, sending encrypted QTC using Morse code (CW; A1A) and looping the sequence "VVV VVV VVV DE 4XZXZ BT BT" to keep the frequency occupied between the different QTC it was sending. The transmission lasted several hours.

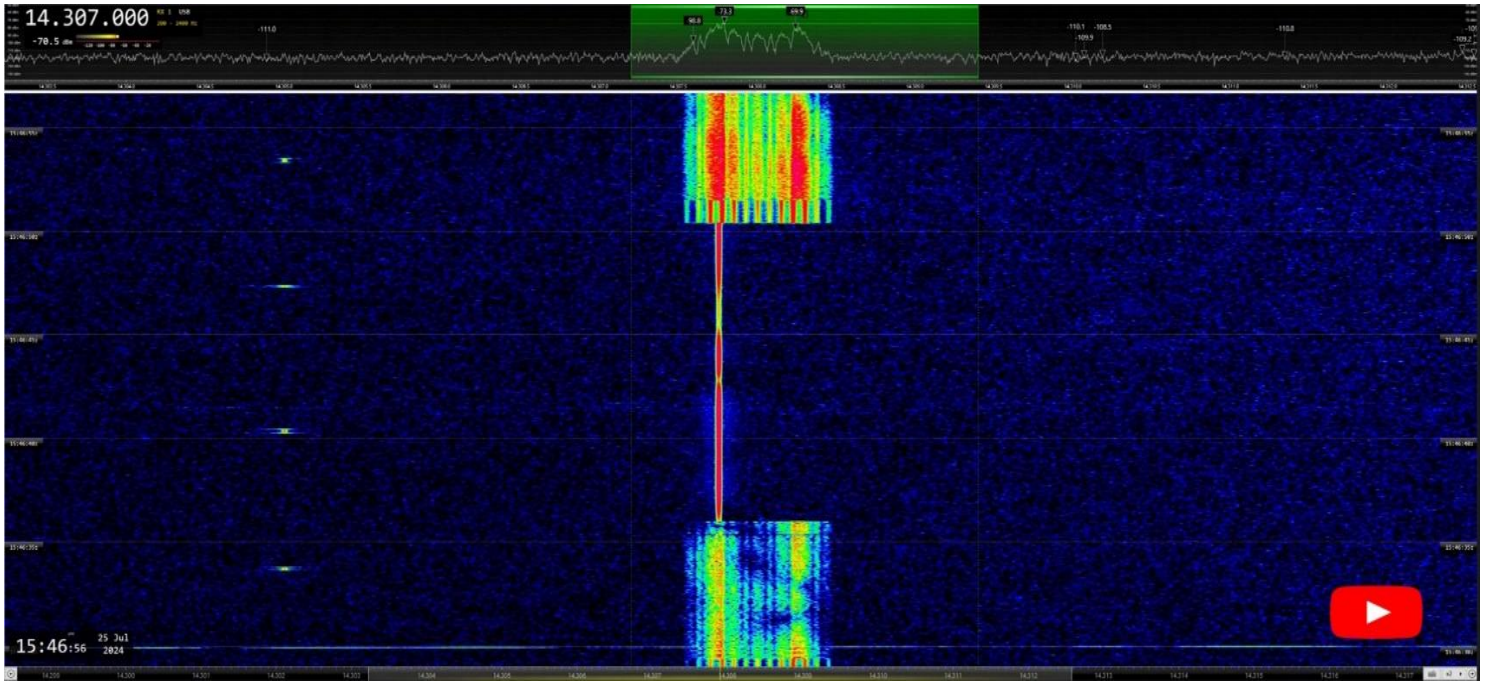
28001 kHz: ISR navy st „4XZ" sending encrypted QTC. Long-lasting

A STANAG-4285 transmission was daily observed for the last half of the month on 21334 kHz CF, transmitting all day long, sending test message. Triangulations performed with the KiwiSDR TDoa (Ttime Difference of Arrival) feature located the transmissions at Diego Garcia, Chagos Archipelago, in the British Indian Ocean Territory (ITU = BIO. We observed many microcuts during its transmissions. These microcuts were also observed during the transmission of another STANAG-4285 sent from England on 14000 kHz USB on July the 30th, also sending test message.



21334 kHz USB: STANAG-4285. Spectral occupancy ca 3 kHz. Necessary bandwidth = 2400 kHz. 2400 Bd. TDoA = Diego García, Chagos arch. (BIO)

Not usually heard on the amateur HF bands, we observed a „Chayka“ (Ча́йка = Seagull) transmission in the 20 meters band. This MIL mode uses FSK modulation (bursts; Shift = 500 Hz in this case. Bd = 150) and it is used for aircraft – ground communications:

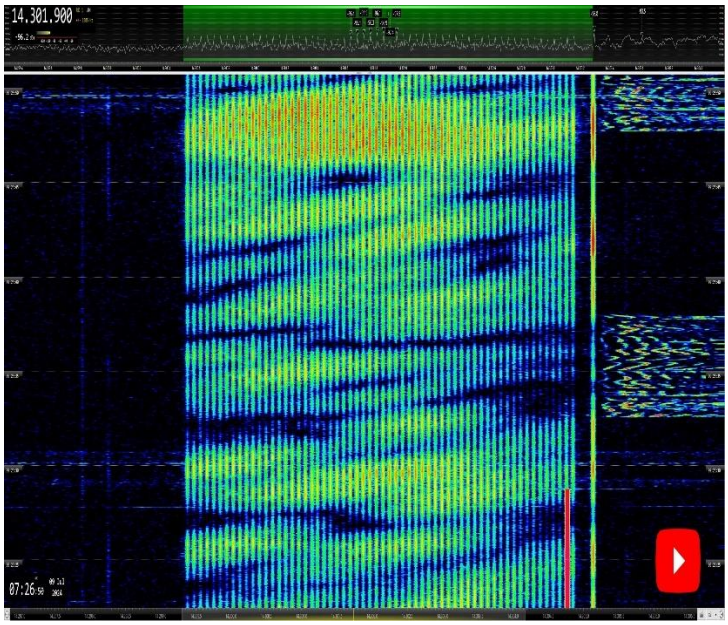


14308 kHz: F1B (FSK) bursts. Shift = 500 Hz. 150 Bd. „Chayka“

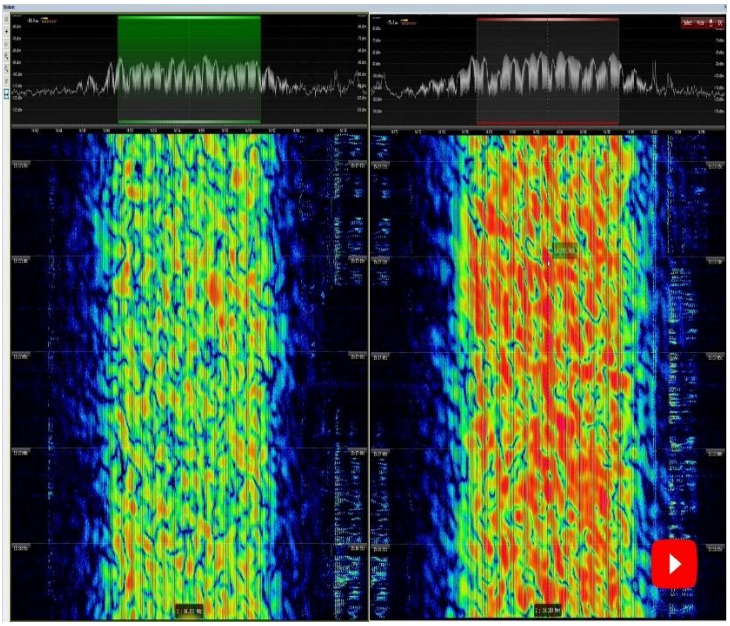
Regarding the non-amateur transmissions we usually receive each month in our bands, there were no significant variations during the month of July.

Notably, the British radar located in the Sovereign Base Area of the United Kingdom in Cyprus was received far less frequently than usual, and, in general, transmissions in military modes, with the exception of the previously mentioned WHARQ mode, were also received in fewer numbers than usual. We can't say the same about the RUS, ACHN and IRN OTH radars, which were very active.

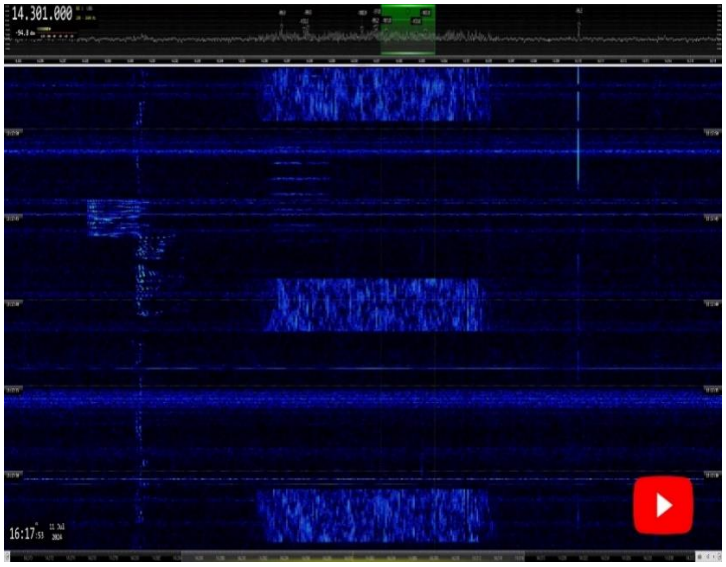
Below we show some examples of the non-amateur trasnmissions received during July 2024 in Region 1:



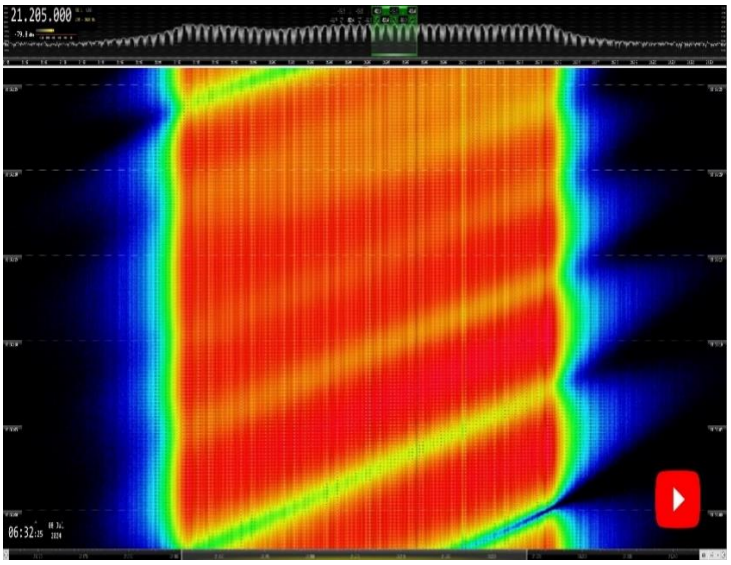
14302 kHz CF: CIS-60. OFDM. W7D. BW = 2K80E. 30 X 60 Bd + pilot tone



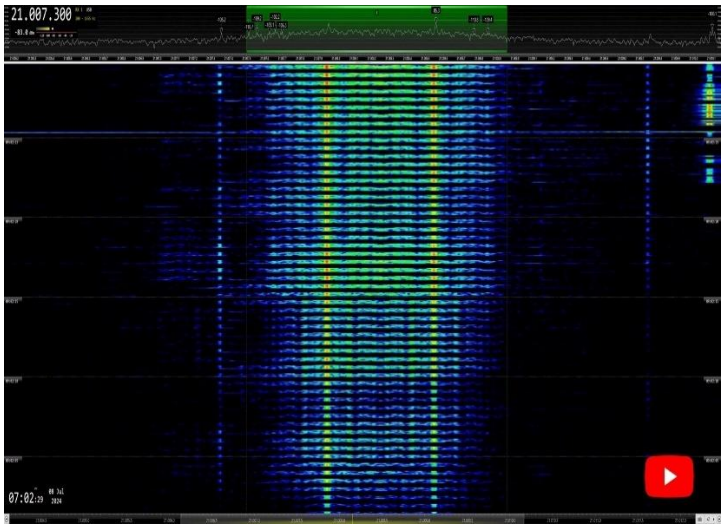
20m: 2 X OTHR Contayner simultaneous TX. RUS. BW = 12K0E. 40 sps



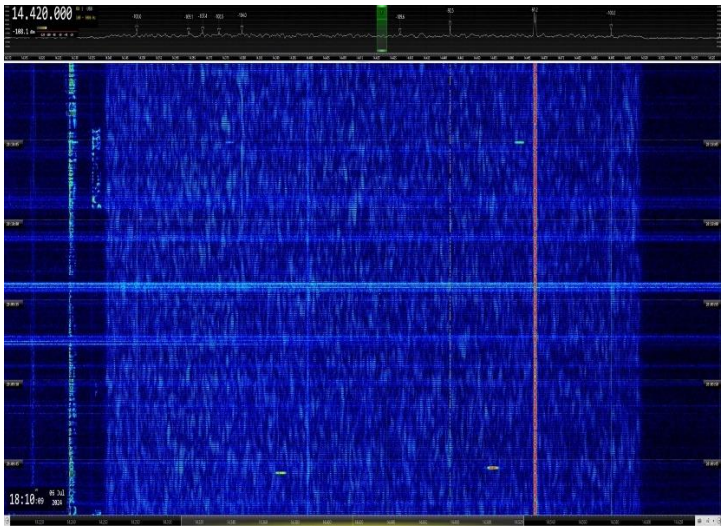
14301 kHz CF: CHN OTHR „Foghorn“ burst. BW = 10K0E. 83.3 sps



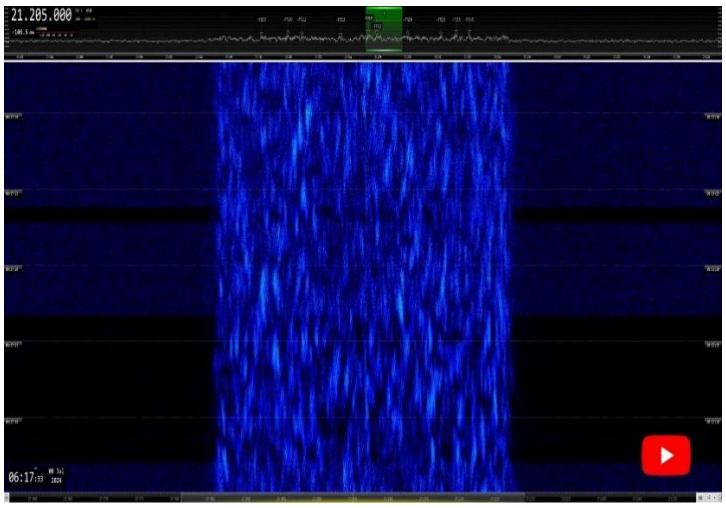
21205 kHz CF: British OTHR (UK SBA, Cyprus). BW = 20K0E. 25 sps



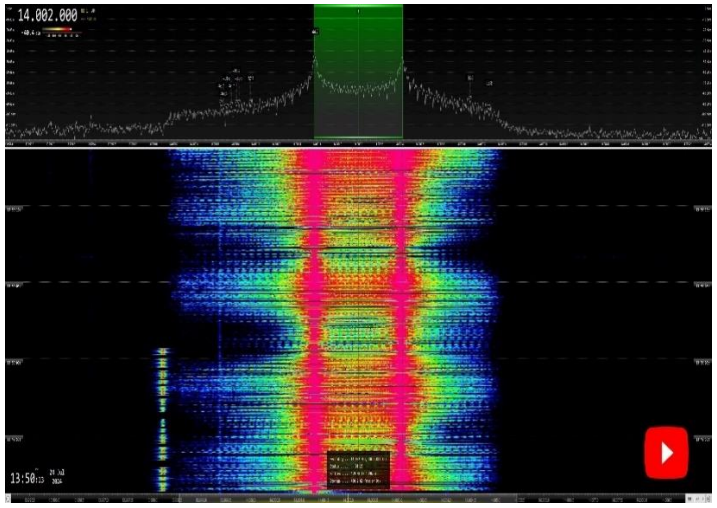
21008.3 kHz CF: DPRK FSK 600 ARQ. Sh = 600 H. 600 Bd



14420 kHz CF: CHN wideband OTHR bursts. BW = 160K0E. 10 sps



21205 kHz CF: CHN OTHR. BW = 10K0E. 50 sps



14002 kHz CF: FSK (F1B): Shift = 850 Hz. 75 Bd (STANAG 4481)

- ***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
7052.0	16:06	01	07	CHN		J7D	125	1750H	MIL-188-141A
7064.0	18:39 VT*	10	07 VD*	RUS		J7D	120	2K6	CIS-12, *also on 7070,11,18:42 7023,10,15:44 7141.0,16,15:30
7122.0	14:23	26	07	RUS		F1B	50	500H	F1B 50/500
7130.0	18:42	07	07			J7D	125	1K75	MIL-188-141A
7169.0	20:02	08	07	CHN		RADAR	66.7	10K0E	OTHR Bursts
10120.0	17:14	13	07			RADAR	87	56K0E	unid OTHR
14001.8	11:22	30	07			G1D	2400	2K40	Stanag-4285
14002.0	10:42 vdt*	22 vd*	07	GUM		F1B	75	850H	Stanag-4481 encrypted. Sicily - US MIL. *Also on 24/07, 0949 UTC
14002.0	09:49 vt*	24 vd*	07	I		F1B	75	850H	
14026.0	14:05	11	07	RUS		J7D	120	2K60E	CIS-12, idle
14042 to 14350	11:30 vt*	05 vd*	07	CHN		RADAR	66.7	10K0E	China OTHR Bursts with 42,50 or 66.7 Hz Sweep, all 10K0E wide. 64 Reports in 20M . Often 2 or 3 occurencies with time delay
14091.0	19:12	29	07	RUS		J7D			CIS-12, submode idle.
14094.0	15:59	12	07	CHN		J7D	125	1K750	MIL-188-141A
14116.0	09:00	22	07	RUS		F1B	75	250H	CIS-75 75bd 250h
14130.0 to 14230	16:05 vt*	14 vd*	06	RUS		RADAR	40	12K0E	OTHR Contayner , often and varying center Frequencies in 20m SSB Section. 22 Reports
14132.0	19:08 vt*	29 vd*	07			RADAR	0.25	4K0E	slow radar , 1 sweep/ 4 sec. Also on 30/07, 1446 UTC
14192.0	14:52	03	07	RUS		F1B	50	200H	F1B
14195.0	10:48	21	07			J7D	125	1K750	MIL-188-141A
14225.0	09:45	27	07	CHN		RADAR	10	160K0E	CHN wideband OTHR - 10 sps 160 k
18140.0	09:57	24	07	CHN		RADAR	48	10K0E	OTHR Bursts
18141.0	10:43	12	07	CHN		RADAR	50	10K0E	OTHR Bursts
21000.0	09:35	04	07	E		J3E-U		2K70E	Spanish language Fishermen, Bay of Biscay. *Also on 05/07, 1112 UTC
21000.0	09:44	16	07	MRC		J3E-U		2K70E	Fishermen
21000.0	20:05	17	07	B		J3E-U		2K70E	Brazilian language Fishermen, daily at 2200utc
21000.0	19:14	22	07	MRC		J3E-U		2K70E	Morocco Fishermen
21100.0	15:06	20	07	RUS		F1B	75	200H	Moscow
21121.5	10:56 vt*	18 vd*	07			XXX		6K0E	Jammer, QTE 100. *Also on 20/07, 1056 UTC
21130.0	08:44	22	07	G		RADAR	50	20K0E	OTHR Cyprus UK SBA
21145.0	11:07	04	07	MRC		J7D	125	1K75	MIL-188-141A

DARC; Harald, DL9NDW & DARC IW Team

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
21088.0 to 21450	15:29 vd*	12	06 vt*	RUS		RADAR	40	12K0E	
21180 to 21440	11:30 vt*	05 vd*	07	CHN		RADAR	66.7	10K0E	China OTHR Bursts with 42,50 or 66.7 Hz Sweep, all 10K0E wide. 20 Reports in 15M . Often 2 or 3 occurencies with time delay
21216.5	09:52	24	07			F1B	600	600H	DPRK-FSK 600 - 600 Bd 600 Hz
21334.0	20:11	18	07			J7D	120	2K60E	CIS-12, idle, strong qsb
21334.0	16:26 vt*	20	07 vd*			G1D	2400	2K40	Stanag-4285, qte 120 (* also 28-20.35 , 24-17:56,29-14:02, 15-18:13)
28001.0	08:44	28	07	ISR		A1A			"V V V de 4XZ" - ISR Navy Haifa
29020.0	17:49	29	07			A3E		9K0E	Radio , music and voice, seems arabian
29500.0	14:54	13	07	IRN		RADAR		46K0E	Iranian radar - 150 sps and 313 sps alternating

IRTS; Michael EI3GYB

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
3623	2205	5	7	RUS/ UKR		USB			Russian-Ukrainian radio war. Strong signals, persistent.
7000	1245	23	7			LSB			Male voices in Dutch and English. Medium signals. On and off.
7001.5	2310	1	7						Jammer. Strong and persistent. Heard several times during the month.
7015	2120	31	7			RADAR			Radar from 7015 to 7030 kHz. Huge and persistent.
7032	2315	1	7			USB			Strong carrier. Heard daily.
7050	2100	5	7	RUS/ UKR		LSB			Russian-Ukrainian radio war. Rebroadcasting of a Russian language BC programmme. Strong and persistent.
7055	1930	2	7	RUS/ UKR		LSB			Russian-Ukrainian radio war. Nearly daily all day long with always very strong signals.
7085	2115	31	7			RADAR			Radar from 7085 to 7115 kHz. Huge and persistent.
7103.5	825	3	7			F1B			Strong and persistent signal.
7192.5	2120	14	7			F1B			Strong and persistent signal.
10111	2245	28	7	E or MM		USB			Spanish fishermen. Medium signals.
10123.5	2250	28	7			USB			Fishermen chatting in a South East Asian language. Medium signals
14000	1300	18	7	E or MM		USB			Spanish fishermen. Medium signals. Heard several times during the month.
14002	1245	23	7	I		F1B			Medium signal. Persistent. US military, Sicily.
14115	1245	2	7			RADAR			Radar from 14115 to 14145 kHz. Huge and persistent.
14160	1400	24	7			RADAR			Radar from 14160 to 14200 kHz. Huge and persistent.
14161	1810	12	7	UKR/ RUS		USB			Russian-Ukrainian radio war.”Russki swinja” “Putina pederadski”. Persistent and strong signals.
14170	1820	20	7			RADAR			Radar from 14175 to 14190 kHz. Huge and persistent.
14188	1500	22	7			RADAR			Radar from 14188 to 14203 kHz. Huge and persistent.

IRTS; Michael EI3GYB

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
14192	1250	1	7	RUS		F1B			Russian navy, Kaliningrad. Daily all day long with a medium to strong signal.
14205	1005	23	7			RADAR			Radar from 14205 to 14225 kHz. Strong, on and off.
14227.5	1310	18	7			FSK			DPRK style FSK, huge signal, persistent.Embassy traffic.
14280	1510	17	7			RADAR			Radar from 14280 to 14300 kHz, huge and persistent
14285	1515	22	7	CHN		RADAR			Radar from 14285 to 14295 kHz.Chinese Foghorn. Medium signal.
14291.5	1405	24	7			F1B			Strong and persistent signal.
14330	1345	24	7	CHN		RADAR			Radar from 14330 to 14340 kHz. Chinese Foghorn.Medium signals.
14330.5	1215	18	7			FSK			DPRK style FSK. Embassy traffic. Very strong, persistent.
18135	1533	17	7	CHN		RADAR			Radar from 18135 to 18145 kHz. Chinese Foghorn. Medium signal.
18140	1300	18	7			RADAR			Radar from 18140 to 18155 kHz. Strong bursts. Persistent.
18140	830	26	7	G		RADAR			Radar from 18140 to 18170 kHz. Huge and persistent signals. UK base in Cyprus.
18150	1025	23	7	G		RADAR			Radar from 18150 to 18180 kHz. Huge and persistent signals. UK base in Cyprus.
18164	1500	3	7	G		RADAR			Radar from 18164 to 18194 kHz. Huge and persistent. UK base in Cyprus.
21000	815	3	7	E or MM		USB			Spanish fishermen. Medium to strong signals. Heard often during the month.
21155	905	17	7			RADAR			Radar from 21155 to 21175 kHz. Huge and persistent signals.
21325	1550	3	7	G		RADAR			Radar from 21325 to 21345 kHz. Huge and persistent. UK base on Cyprus.
21390	1020	9	7	G		RADAR			Radar from 21390 to 21410 kHz. Huge and persistent. UK base in Cyprus.
21415	1630	12	7			RADAR			Radar from 21415 to 21430 kHz. Weak but persistent.
21438	1600	1	7	UKR		CW			Russian navy, Sevastopol. Daily all day with a medium to strong signal.
28840	810	25	7	IRN		RADAR			Radar from 28840 to 28880 kHz. Medium signal. Persistent.Rare guest during the summer months in the West of Ireland.

PZK; SP3AMO, SP5GNI

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
14008.0	1350	13	07			F1B		250	S9+
14038.0	2130	25	07			RADAR		14K0E	S9 looks like Cyprus
14044.0	0957	29	07			RADAR		20K0E	S9
14050.0	1715	03	07			RADAR		10K0E	3 sec burst foghorn
14089.0	1545	28	07			RADAR		14K0E	S9
14128.0	1220	10	07			RADAR		10K0E	10 sec. Bursts also 14172.0
14144.0	0705	30	07			RADAR		16K0E	S6
14152.0	1035	03	07			RADAR		10K0E	5 sec burst
14184.0	1015	19	07			RADAR		10K0E	5 sec burst

PZK; SP3AMO, SP5GNI

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
14185.0	1000	05	07			RADAR		20K0E	S9+
14185.0	1740	10	07			RADAR		16K0E	S9+
14202.0	1000	27	07			RADAR		20K0E	S9+
14198.5	0707	30	07			UI		1K0E	short burst like RTTY 600
14242.0	0825	14	07	RUS		CIS-12		2K7	
14298.0	1625	04	07			RADAR		10K0E	3 sec burst foghorn
14297.2	0708 vt*	17 vd*	07			F1D		600H	DPRK-FSK 600 ARQ. *Also on 22/07, 0733 UTC
14300.0	0910	15	07			RADAR		10K0E	3 sec burst foghorn
14303.0	1330	08	07			RADAR		10K0E	3 sec burst foghorn
14305.0	1923	25	07			RADAR		10K0E	3 sec burst foghorn
14327.0	1448	04	07			RADAR		10K0E	3 sec burst foghorn
14328.0	1245	03	07			RADAR		10K0E	3 sec burst foghorn
14331.0	1740	10	07			RADAR		16K0E	S9
18160.0	0810	26	07			RADAR		14K0E	S9 looks like Cyprus
18162.0	0955	29	07			RADAR		14K0E	S9
18165.0	0730	22	07			RADAR		14K0E	Partially in our band
18168.0	0830	19	07			RADAR		14K0E	Partially in our band
21008.2	0815	19	07			UI		1K0E	short burst like RTTY 600
21130.0	vt	22	07			RADAR		20K0E	S6 long lasting
21179.0	1350	13	07			RADAR		12K0E	S8 13:53 finished
21217.0	1045	19	07			RADAR		10K0E	3 sec burst foghorn
21335.0	1540	03	07			RADAR		20K0E	S6
24967.0	0705	17	07			RADAR		12K0E	S9 looks like Cyprus
28135.0	0900	03	07			RADAR		20K0E	S5
28135.0	0905	15	05			F3E		6K0	In Russian (radio taxi) also 28175.0
28175.0	0915	03	07			A3E		6K0E	Non-amateur talk
28215.0	0915	03	07			A3E		6K0E	Non-amateur talk
29500.0	0950	29	07	IRN		RADAR		80K0E	

SRAL; Pekka, OH2BLU

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
7 MHz	1800-1830	01	7	RUS		RADAR	40 sps	13k0E	(WebSDR 26d, 2030-0400)
7001.5	0740-1340	27 28	7	RUS		J7D	120	2k60E	
7001.5	1740-1830	*	7			Jam/ XXX		5k0E	*) Days: 1. 2. 8. 9. 20. 22. 23. 26.
7006.5	-0901/	08	7	RUS		F1B		500H	
7008.0	1015-1805	*	7	RUS		F1B		250H	*) Days: 2. 5. 22. 26.
7008.5	1200-1520	09 24	7	RUS		J7D	120	2k60E	
7019.0	0000-2400	*	7	RUS		F1B/ N0N		200H	*) Days: 1. - 7. 13. 15. 16. 24.
7020.0	1635-1730/	10	7	RUS		F1B		250H	
7022.0	1520-1545/	26	7	RUS		J7D	120	2k60E	

SRAL; Pekka, OH2BLU

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
7025.0	0500-1430	*	7	RUS	RDL	F1A/B		200H	*) Days: 8. 10. 21. - 31. 5F
7032.0	0430-1830	01 - 31	7	RUS		J3E-u		3k60E	Non-stop Russian anthem / mx,
7032.0	0000-2400	01 - 31	7	RUS		XXX		3k60E	Brum when no music.
7034.0	1630-1700	05	7	RUS		F1B		250H	
7034.0	1750-1800	16 30	7	RUS		J7D	120	2k60E	
7038.8	0000-2400	*	7	RUS	P	A1A	8wpm	50H	*) Days: 1. - 6. 12. - 20. 25. - 31. drifts to -140 Hz day 4.
7058.0	1400-1000	*	7	RUS		F1B/ N0N		250H	*) Days: 5. 30. 31.
7069.0	1345-1500	09	7	RUS		J7D	120	2k60E	
7072.0	1145-1315	10	7	RUS		J7D	120	2k60E	
7102.0	0630-1615	02 03	7	RUS		F1B		200H	
7103.0	0545-1250	15	7	RUS		J7D	120	2k60E	
7112.0	0815-0955/	04 11	7	RUS		J7D	120	2k60E	
7113.0	-1056/	27	7	RUS		J7D	120	2k60E	
7114.0	0530-1800	07	7	RUS		F1B		200H	
7116.0	1230-1345	10	7	RUS	RMX RJH90	A1A		40H	
7116.0	1055-1130	27	7	RUS		F1B		200H	
7121.0	0620-1420	*	7	RUS	RAL2	A1A		40H	*) Days: 1. 10. 13. 15. 16.
7138.0	1645-1800	02	7	RUS		F1B		200H	
7140.0	0500-0725/	10	7	RUS		J7D	120	2k60E	
7159.0	0500-1630	*	7	IW		G7D	75	2k40E	*) Days: 7. 9. 11. 12 LINK11
7170.0	0450-1800	29 30	7	RUS		F1B		200H	
7179.0	0500-0615	01	7	RUS		F1B		200H	
7176.0	1240-1440	28	7	RUS		F1B		250H	
7186.0	0650-1000	*	7	RUS		J7D	120	2k60E	*) Days: 12. 17. 23. (carrier on 7184 kHz)
7195.0	1520-1815	29	7	RUS		J7D	120	2k60E	
7198.0	0745-1800	02	7	RUS		J3E-u		3k20E	“priom” brum.
7200.0	0450-1215	*	7	RUS		J7D	120	2k60E	*) Days: 2. 18. 30.
10 MHz	0630-0700	12	7	G		RADAR	50sps	20k0	(WebSDR 5d)

SRAL; Pekka, OH2BLU

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
10 MHz	1320-1515	*	7	RUS		RADAR	40sps	13k0E	*) Days: 1. 4. 10. (WebSDR 11d)
14 MHz	0400-1715	01 - 31	7	RUS		RADAR	40sps	13k0E	(WebSDR 31d)
14 MHz	0745-1815	01 - 31	7	CHN		RADAR	50/67sps	10k0E	'foghorn'
14000.0	1030-1150/	30	7			G1D		3k30E	STANAG usb
14002.0	0455-1815	*	7	I		F1B		800H	*) Days: 22. 23. 24.
14008.0	0430-1400	01 - 31	7	RUS		F1B		250H	
14026.0	1010-1625	11	7	RUS		J7D	120	2k60E	
14050.0	0930	12	7	RUS		F1B		250H	
14081.0	0830	15	7	RUS		F1B		250H	
14108.0	0430-1300	01 - 31	7	RUS	1KH8 etc	A1A	18wpm	40H	5BL
14116.0	0450	03	7	RUS		F1B		250H	
14118.0	0500-0610	13	7	RUS		J7D	120	2k60E	
14132.0	0710-1615	*	7			RADAR	0.25sps	4k0	*) Days: 11. 18. 21. 25.
14141.0	0830-1030	*	7	RUS		F1B		200H/ 500H	*) Days: 1. 15. 30.
14171.0	0930	25 26	7	RUS		J7D	120	2k60E	
14192.0	0430-1830	01 - 31	7	RUS		F1B		200H	
14292.0	0745	31	7	RUS		A1A	13wpm	40H	5BL
14294.0	0830	23	7	RUS		J7D	120	2k60E	
14302.0	1800	16	7	RUS		J7D	120	2k60E	
14317.0	0715-1445	*	7	RUS	4NNM etc	A1A	18wpm	40H	*) Days: 1. 7. 8. 9. 11. 12. 17. 5BL, 5F
18 MHz	0450-1230	*	7	G		RADAR	50 sps	20k0	*) Days: 2. 6. 8. 17. 22. 23. (WebSDR 9d)
18 MHz	0430-1815	*	7	RUS		RADAR	40 sps	13k0E	*) Days: 1. 15. 17. - 20. 26. 31. (WebSDR 14d)
18080.0	0620-0650	*	7	TWN		A3E		9k0	*) Days: 15. 16. 17. 25.
21 MHz	0450-1530	*	7	G		RADAR	50/25 sps	20k0	*) Days: 3. 8. 9. 10. 15. 16. 22. (WebSDR 9d)
21 MHz	0450-1800	*	7	RUS		RADAR	40 sps	13k0E	*) Days: 4. 6. 9. - 14. 16. - 20. 28. 29. 31. (WebSDR 14d)
21 MHz	0530-1330	*	7	CHN		RADAR	50/67sps	10k0E	*) Days: 1. 4. 5. 7. 8. 10. 16. 17. 18. 23. - 25. 29. 31. 'foghorn'
21001.5	0900-1530	*	7			XXX/ jam		7k0E	*) Days: 4. 23. 27. 30.
21121.0	0500-1530	*	7			XXX/ jam		7k0E	*) Days: 10. 18. 20. 21. 24. 29.
21334.0	0420-1805	16 - 31	7			G1D		3k3E	STANAG usb
21438.0	/0830-1600	01 - 31	7	RUS	RCV	A1A	16 - 20 wpm	40H	Navip etc.

SRAL; Pekka, OH2BLU

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
24 MHz	1450	13	7	RUS		RADAR	40sps	13k0E	(WebSDR 1d)
28 MHz	0615-1530	*	7	G		RADAR	12.5/ 25/50sps	20k0	*) Days: 4. 5. 13. 14. 16. 23. 24. 29. (WebSDR 7d)
28 MHz	0445-1730	*	7	IRN		RADAR	150/ 313	60k0E	*) Days: 2. 5. 8. 9. 14. 19. 21. 26. 30. (WebSDR 5d)
28 MHz	0530-1200	*	7	IRN		RADAR	150/ 313	60k0E	*) Days: 2. 3. 7. 13. 16. 18. 20. 29. (WebSDR 10d)
28860.0	0530-1330	25	7	IRN		RADAR	150/ 313	60k0E	(WebSDR 2d)
28 MHz	0830-1300	*	7	RUS	Taxi disp.	F3E		3k0E	*) Days: 13. 20. 27. 28. 29. 18 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**	07	RUS		RADAR	40	12K0E	OTHR Contayner 2 reports
7000.0	19:21	09	07			J3E-U		2K80E	Music. Long-lasting
7001.5	19:39 vt*	02 vd*	07			XXX		CA5K0E	Jammer. 84 Hz *17 reports. Very often
7005.0	19:16 vt*	04 vd*	07			XXX			WHARQ: Wideband HF Hybrid Automatic Repeat Request. L3Harris. Burst system. Several BW, modulation types and QRG. *Often. 8 reports
7007.0	05:26 vt*	02 vd*	07			XXX			WHARQ: Wideband HF Hybrid Automatic Repeat Request. L3Harris. Burst system. Several BW, modulation types and QRG. *Often. 11 reports
7008.0	19:25	04	07			F1B	75	250H	
7008.0	22:34	18	07			XXX			WHARQ: Wideband HF Hybrid Automatic Repeat Request (ARQ). L3Harris WHARQ. Burst system. Several BW, modulation types and QRG
7017.0	17:01	08	07			J7D		2K70E	CIS-12
7017.6	19:44	04	07			F1B	50	250H	
7018.9	17:36	04	07			N0N			Carrier. Long-lasting. Probably from 7019 kHz CF F1B system
7018.9	19:06	13	07			N0N			Carrier. Long-lasting
7022.0	05:27	09	07			J7D		2K70E	CIS-12
7023.0	20:11	10	07			J7D		2K70E	CIS-12
7025.0	06:20	31	07	RUS	RDL	F1B F1A	50	200H	
7028.0	16:55 vt*	08 vd*	07			XXX			WHARQ: Wideband HF Hybrid Automatic Repeat Request (ARQ). L3Harris. Burst system. Several BW, modulation types and QRG. *Often. 6 reports
7032.0	19:40 vt*	02 vd*	07			XXX		CA3K30E	RUS MIL song / Hum, 100 Hz. *Almost daily. 20 reports
7080.0	18:25	01	07			XXX		6K0E	Jammer. 84 Hz
7089.8	00:14	24	07			G1D	2400	2K40E	LINK-11 SLEW
7102.0	15:55	02	07			F1B	75	200H	

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

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
7114.0	15:54	07	07			F1B	50	200H	
7126.5	05:02	12	07			XXX		CA4K0E	
7138.0	16:11	02	07			F1B	50	200H	
7159.0 USB	16:51 vt*	08 vd*	07			G7D	75	2K40E	LINK-11 CLEW SSB *Also on 09/07, 0518 UTC
7176.0	16:38	28	07			F1B	75	250H	
7190.0 USB	20:04 vt*	02 vd*	07				2400	CA3K0	7190 kHz USB. ALE 3G *Also on 03, 15 and 17/07; vt
7195.0	17:13	29	07			J7D	120	2K70E	CIS-12
7198.0	16:27	02	07			XXX		CA3K0E	Unid digital signal
*10100.0**	vt**	vd**	07	AUS		RADAR	7.2 7	12K0E 10K0E	OTHR JORN bursts ** 3 reports
10128.0	14:38	01	07	RUS		RADAR	40	12K0E	OTHR Contayner
10145.0	19:44	22	07	G		RADAR	50	20K0E	OTHR. UK SBA, Cyprus
*14000.0**	vt**	vd**		RUS		RADAR	40	12K0E	OTHR Contayner. **Almost daily. **105 reports** 2 simultaneous TX on 20m: 14 3 simultaneous TX on 20m: 2
*14000.0**	vt**	vd**	07	CHN		RADAR	41.7 50 66.7 83.3	10K0E	OTHR “Foghorn” bursts **Almost daily. **101 reports**
*14000.0**	vt**	vd**	07	CHN		RADAR	10	160K0E	Wideband OTHR bursts **6 reports
*14000.0**	vt**	vd**	07	CHN		RADAR	50	10K0E	CHN OTHR. Continuous TX ** 2 reports
14000.0 USB	19:33	02	07			OTHER	2400	2K40E	ISR navy hybrid modem bursts
14000.0 USB	05:57 vt*	12 vd*	07			OTHER	2400	CA3K0E	ALE 3G bursts. Burst Waveform 5 (BW5) only. PSK-8. *Often. 8 reports
14000.0	08:07	13	07			J3E-U		2K40E	Unidentified station, female voice: "one three point null null null null six". TX slightly drifting
14000.0 USB	07:42 vt*	18 vd*	07			OTHER	2400	CA3K0E	ALE 3G. Complete link *Also on 21/07, 1209 UTC
14000.0 USB	10:25	29	07			XXX	19200	24K0E	WHARQ: Wideband HF Hybrid Automatic Repeat Request (ARQ). L3Harris. Burst system. Several BW, modulation types and QRG
14000.0 USB	10:35	30	07			G1D	2400	CA3K2E	STANAG-4285. Test tape. Long-lasting
14001.5	11:44	18	07			XXX		2K70E	Jammer. 84 Hz. Short TX
14002.0	09:29 vt*	22 vd*	07			F1B	75	850H	STANAG-4481. FSK. Long-lasting. *Also on 23 and 24/07; vt
14004.0 USB	15:19	01	07			XXX	2400	3K0E	Unidentified short digital bursts
14007.9	05:09 vt*	25 vd*	07			N0N			Carrier. From F1B sys on 14008 kHz CF *Very often
14008.0	07:36 vt*	01 vd*	07	RUS		F1B	50	250H	*Almost daily. 21 reports
14009.0 USB	16:11	14	07			G1D	125	1K80E	MIL-188-141A ALE 2G
14026.0	14:40 vt*	11 vd*	07			J7D		2K70E	CIS-12 *Also on 24/07, 1212 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
14028.5	06:31	02	07			F1B	600	600H	DPRK-FSK 600 ARQ
14031.0 USB	10:15	22	07		117	J7D	125	1K80E	MIL-188-141A ALE 2G
14046.0 LSB	16:28	09	07			G7D	60	2K40E	CHN-30 a.k.a PRC-30
14048.5	09:48	21	07			F1B	600	600H	DPRK-FSK 600 ARQ
14053.0	09:05	27	07			J7D		2K70E	CIS-12
14055.0 USB	17:31	29	07	CHN	BC5 DB5	J7D	125	1K80E	MIL-188-141A ALE 2G
14091.0	18:36	29	07			J7D		2K70E	CIS-12
14098.5	07:37 vt*	02 vd*	07			F1D	600	600H	DPRK-FSK 600 ARQ *Often. 8 reports
14100.5	09:18	15	07			XXX		CA12K0E	Unidentified bursts. Hopping
14102.0	08:18	15	07			W7D	30	2K80E	CIS-60
14103.5	06:41	12	07			F1B	600	600H	DPRK-FSK 600 ARQ
14108.0	07:24 vt*	01 vd*	07	RUS	5H4H PQX4 6SJ4 …	A1A			Non-amateur comms. Non-amateur comms. Roll call. « RK ». Encrypted QTC. *Almos daily. 21 reports
14108.0	15:49	15	07	RUS		F1B	50	250H	
14108.5	07:37	01	07			F1B	600	600H	DPRK-FSK 600 ARQ
14118.0	07:23	22	07			J7D		2K70E	CIS-12
14128.0	10:47	15	07			J7D	120	2K70E	CIS-12. With additional tone on 14126 kHz
14130.0	18:16	06	07			J3E-U		2K80E	Slavic music
14132.0	07:15 vt*	01 vd*	07			XXX	0.25	4K0E	Unidentified slow sweeping bursts. Radar? 1 Sweep = 4 sec. BD = 120 sec. BRI = 120 sec. Long-lasting. *Almost daily: 28 reports
14138.5	07:12 vt*	04 vd*	07			F1D	600	600H	DPRK-FSK 600 ARQ *Also on 16/07, 0703 UTC
14141.0	08:40 vt*	15 vd*	07			F1B	75	500H	*Also on 30 / 07, 0849 UTC
14145.5	09:58	12	07			J7D		2K70E	CIS-12
14153.0 USB	15:47	15	07		BC5 DB5	J7D	125	1K80E	MIL-188-141A ALE 2G
14162.0	05:19	24	07			J7D		2K70E	CIS-12
14169.0	04:34	31	07			F1B	50	200H	
14171.0	08:54	25	07			J7D		2K70E	CIS-12
14173.0 USB	15:43	15	07		BC5 DB5	J7D	125	1K80E	MIL-188-141A ALE 2G
14192.0	07:16 vt*	01 vd*	07	RUS		F1B	50	200H	*Almost daily. 28 reports
14198.5	07:13	01	07			G1D	1200	1K20E	DPRK-PSK 1200 ARQ
14198.5	12:06 vt*	03 vd*	07			F1D	600	600H	DPRK-FSK 600 ARQ *Very often. 16 reports
14201.0	18:17	04	07			XXX	2400	CA3K0E	Unidentified digital bursts
14205.0	16:16	14	07			A1N			Groups of dots. Long-lasting
14220.5	07:05	08	07			F1B	600	600H	DPRK-FSK 600 ARQ
14228.5	13:08 vt*	16 vd*	07			F1D	600	600H	DPRK-FSK 600 ARQ *Often. 9 reports
14235.0 USB	15:50 vt*	15 vd*	07	CHN	BC5 DB5	J7D	25	1K80E	MIL-188-141A ALE 2G *Also on 29/07, 1649 UTC
14242.0	08:19	14	07			J7D	120	2K70E	CIS-12
14261.0	19:46	16	07			J7D		2K70E	CIS-12

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

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
14262.0	06:56	12	07	CHN		RADAR	50	10K0E	OTHR. Continuous signal
14292.0	06:59	02	07	RUS	LHZ3 GIP2 TIMK NRCO …	A1A			Non-amateur comms. Unclean TX. Roll call. "RK". Encrypted QTC. Many keying mistakes. Inconsistent keying speed. *Often. 11 reports
14294.0	08:20	23	07			J7D		2K70E	CIS-12
14295.0 USB	14:07 vt*	12 vd*	07	CHN	BC5 DB5	J7D	125	1K80E	MIL-188-141A ALE 2G *Also on 19/07, 1550 UTC
14295.0	13:14	24	07			J7D	120	2K70E	CIS-12
14298.5	07:35 vt*	01 vd*	07			F1D	600	600H	DPRK-DFSK 600 ARQ *Almost daily. 21 reports
14301.9	07:13 vt*	09 vd*	07			W7D	30	2K80E	CIS-60. *Also on 10/07 0714 UTC and on 16/07, 1709 UTC
14308.0	14:57	25	07	RUS		F1B	75	500H	Bursts
14308.0	15:46	25	07	RUS		F1B	150	500H	"Chayka" bursts
14315.0 USB	18:24	16	07			J7D	125	1K80E	MIL-188-141A ALE 2G
14317.0	07:14 vt*	01 vd*	07	RUS	9NNM 7CFI …	A1A			Non-amateur comms. Roll call. « RK ». Encrypted QTC. *Often. 8 reports
14318.0	07:15 vt*	04 vd*	07			F1D	600	600	DPRK-FSK 600 ARQ *Also on 29/07, 1208 UTC
14328.5	15:12	15	07			F1B	600	600H	DPRK-FSK 600 ARQ
14331.5	07:00 vt*	02 vd*	07			F1D	600	600H	DPRK-FSK 600 ARQ *Often. 10 reports
14378.0	16:18	16	07			XXX		CA3K0E	Unidentified signal. Spurious to 14310 kHz
*18068.0**	vt**	vd**	07	RUS		RADAR	40	12K0E	OTHR Contayner **Often. 6 reports
*18068.0**	vt**	vd**	07	CHN		RADAR	41.7 50 66.7	10K0E	OTHR "Foghorn" bursts **Often. 21 reports
*18068.0**	vt**	vd**	07	G		RADAR	50	20K0E	OTHR G. UK SBA, Cyprus ** 3 reports
*21000.0**	vt**	vd**	07	RUS		RADAR	40	12K0E	OTHR Contayner *Very often. 27 reports 2 simultaneous TX on 15m: 2
*21000.0**	vt**	vd**	07	CHN		RADAR	41.7 50 66.7 83.3	10K0E	OTHR "Foghorn" short bursts **Very often. 52 reports
*21000.0**	vt**	vd**	07	G		RADAR	25 50	20K0E	OTHR G. UK SBA, Cyprus **Often. 6 reports
*21000.0**	Vt**	Vd**	07	CHN		RADAR	10	160K0E	Wideband OTHR bursts **2 reports
21000.0	14:47	11	07			XXX		5K40E	Jammer. 84 Hz
21000.0	09:08	15	07			J3E-U		2K40E	Unid stations talking. Male voices, Arabic language
21000.0	17:23	17	07			XXX		10K0E	Unidentified bursts
21000.0	07:51 vt*	18 vd*	07			XXX		5K40E	Jammer. 84 Hz *Also on 22 and 23 / 07, vt
21000.0	07:48	19	07			XXX		5K0E	Jammer. 84 Hz
21001.5	19:30	03	07			XXX		2K70E	Jammer. 84 Hz
21001.5	12:57	04	07			XXX		9K0E	Jammer. 84 Hz Bandwidth changed from 2K70E to 9K0E

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

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
21008.5	07:18 vt*	01 vd*	07			F1D	600	600H	DPRK-FSK 600 ARQ *Very often. 14 reports
21056.5	13:04	02	07			XXX		1K80E	Unidentified digital bursts
21060.0	09:12	06	07			XXX			Unknown digital bursts (different BWs and modulations) with carrier at CF (often seen during the last months on same QRG)
21065.0	06:20	08	07			XXX			Unidentified digital signals with central carrier. Different BWs and modulations
21100.0	16:19 vt	20 vd*	07			F1B	75	200H	*Also on 20 / 07, 0941 UTC
21108.5	06:27 vt*	08 vd*	07			F1B	600	600H	DPRK-FSK 600 ARQ *Also on 31/07, 0626 UTC
21119.0 USB	13:01	24	07			G7D	75	2K40E	CHN 4+4, a.k.a. PRC 4+4
21121.5	05:18 vt*	08 vd*	07			XXX		5K40E	Jammer. 84 Hz *Often. 5 reports
21121.5	08:21	29	07			XXX		7K0E	Jammer
21126.0	14:59	19	07			XXX		CA12K0E	Unidentified signal
21126.0	05:25	23	07			XXX		6K0E	
21145.0 USB	13:32 vt*	01 vd*	07	MRC	MIRADOR2 …	J7D	125	1K80E	MIL-188-141A ALE 2G *Often. 10 reports
21158.5	0630	31	07			F1D	600	600H	DPRK-FSK 600 ARQ
21216.0	08:17	18	07			F1B	600	600H	DPRK-FSK 600 ARQ
21216.5	11:48	10	07			OTHER	1200	1K20E	DPRK-PSK 1200 ARQ
21216.5	08:10	19	07			F1B	600	600H	DPRK-FSK 600 ARQ
21225.0	07:17	22	07			XXX		CA2K80E	Unidentified digital bursts
21248.5	05:40	02	07			OTHER	1200	1K20E	DPRK-PSK 1200 ARQ
21248.5	05:22	24	07			F1B	600	600H	DPRK-FSK 600 ARQ
21334.0 USB	18:47 vt*	15	07 vd*	BIO		G1D	2400	CA3K0E	21334 kHz USB. STANAG-4285. Long-lasting: 24/24H. TDoA: Diego García. Chagos. British Indian Ocean Territory. Daily since July the 15th. Test tape 24/24H. *Very often. 16 reports
21335.0 USB	06:50	16	07	BIO		G1D	2400	CA3K50E	STANAG-4285. Same as on 21334 kHz CF. QSY. Hours later, back to that QRG
21363.0	18:55	12	07	CHN		RADAR	41.7	10K0E	
21381.5 USB	11:49	09	07			G7D	75	4K0E	CHN 4+4 a.k.a PRC 4+4. Long-lasting
21401.5 USB	09:06	06	07			G7D	75	2K50E	CHN 4+4 a.k.a PRC 4+4
21415.0 USB	12:31 vt*	01 vd*	07			G7D	75	2K40E	USB. CHN 4+4 a.k.a PRC 4+4. *Also on 02/07, 1251 UTC and on 04/07, 0749 UTC
21424.0	16:31 vt*	08 vd*	07			F1B	50	400H	*Also on 20 / 07, 1631 UTC
21436.0 USB	07:48	10	07	CHN	BC5 DB5	J7D	125	1K80E	MIL-188-141A ALE 2G
21438.0	09:07 vt*	02 vd*	07	RUS	RCV	A1A			RUS navy QTC *Very often. 15 reports
21448.0	05:36	02	07			OTHER	1200	1200H	DPRK-PSK 1200 ARQ
25000.0	19:49 vt*	03 vd*	07			RADAR	2	200K0E	CODAR-like radar *Very often. 14 reports.

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

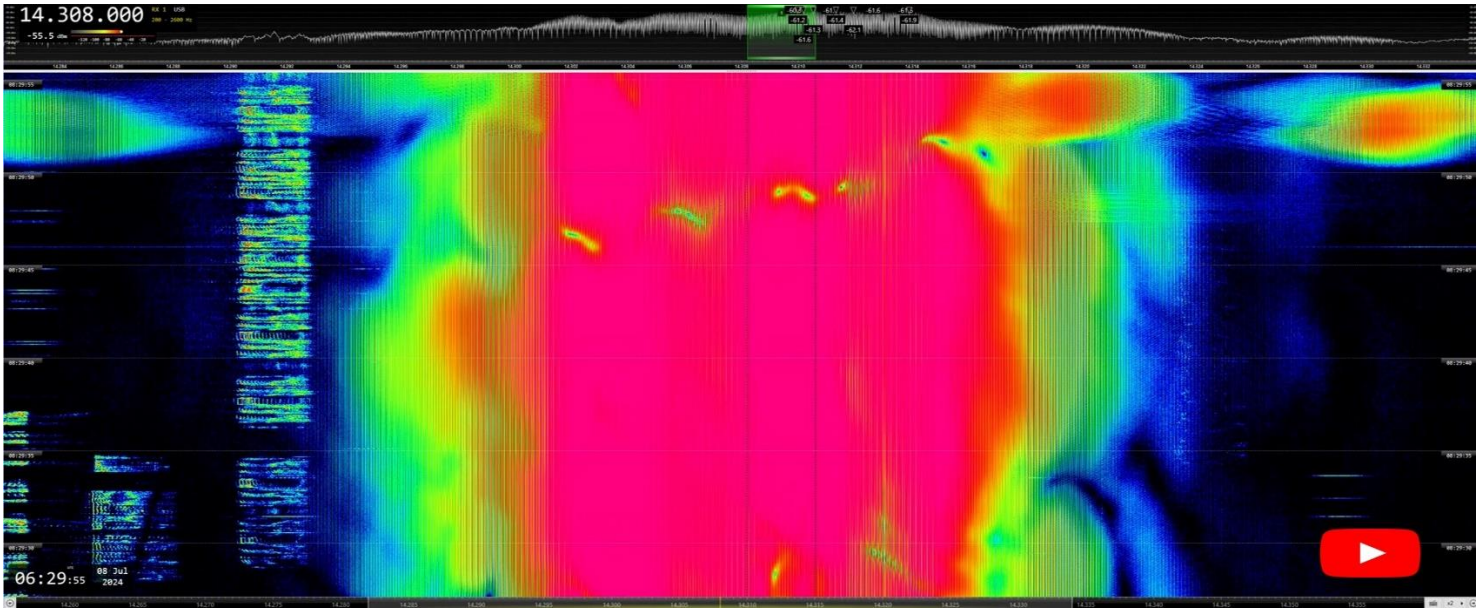
kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
27980.0	09:19 vt*	06 vd*	07	IRN		RADAR	150	45K0E	OTHR: Alternating 150 and 313 sps. Partially inside the 10m band. Long-lasting. *Also on 08/07, 0728 UTC
28000.0*	vt**	vd**	07	G		RADAR	25 50	20K0E	OTHR G. UK SBA, Cyprus **Often. 4 reports
28000.0*	vt**	vd**	07	IRN		RADAR	150 313	45K0E	OTHR. Alternating 333 and 695 sps bursts. *Hopping: ** Very Often. 17 reports Fixed on 28860 kHz CF: 1 report
28000.0*	vt**	vd**	07	IRN		RADAR	333 695	45K0E	OTHR IRN using new PRF: alternating 333 and 695 sps bursts. *Hopping much faster than usual: every 5 bursts. **4 reports
28001.2	12:30	24	07	ISR	4XZ	A1A	20		ISR navy. Encrypted QTC (groups of numbers and letters). After QTC, "VVV VVV VVV DE 4XZ 4XZ BT BT" loop. Long-lasting
28024.9	19:30	14	07		FS	A1A			Fishing buoy
28036.4	19:31	14	07		CY	A1A			Fishing buoy
28082.0	19:31	14	07			F1B	51	300H	Fishing buoy
28171.5	19:32	14	07		DU	A1A			Fishing buoy
28176.2	19:34	14	07		CN	A1A			Fishing buoy
28298.9	19:33	14	07		FR	A1A			Fishing buoy

VERON; Ruud, PG1R. Credits to observer Dick PA0GRU

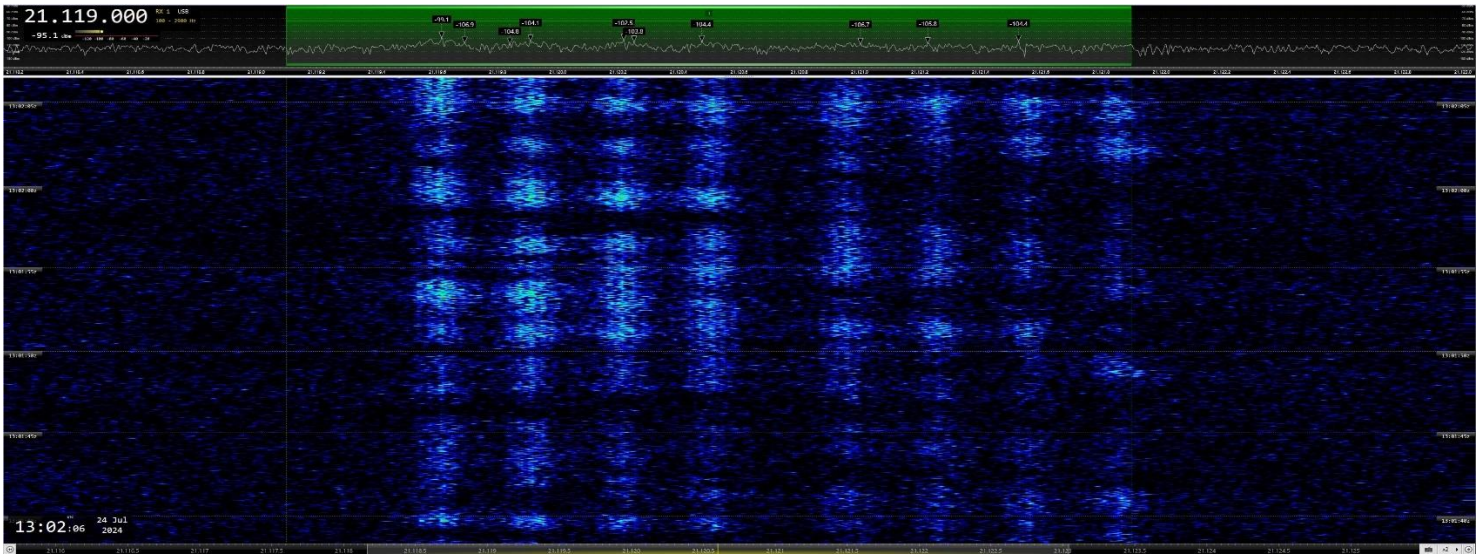
kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
6996.0	2041	16	07	RUS		RADAR	40	12K0E	CF; OTHR Contayner; partly in 40m band; splatters
7002.0	2052	18	07			XXX		5K0E	CF; unknown digital transmission
7015.0	2038	16	07	RUS		J7D		2K60E	CF; CIS-12
7032.0	2042	18	07			XXX	100	2K40E	USB freq.; 100Hz tone; probably jammer
7055.0	2036	16	07	UKR/ RUS		J3E-L		2K70E	UKR-RUS radiowar; comments; s9
14002.0	0535	24	07			F1B		500H	UiPtr
14008.0	0903	01	07	RUS		F1B		250H	Also on 11/7, 0521utc and 13/7, 0832utc
14081.0	0714	15	07	RUS		F1B		500H	TDoA: Russia
14117.0	0930	12	07			PSK			MPSK12
14141.0	1021	01	07			F1B		250H	UiPtr
14148.0	0501	18	07	RUS		RADAR		12K0E	OTHR; TDoA 36N 37E
14188.0	1256	13	07	RUS		RADAR	40	12K0E	CF; OTHR Contayner
14192.0	0931	11	07	RUS		F1B		200H	UiPtr
14192.0	0746	24	07	RUS		F1B		200H	UiPtr
14317.0	0935	12	07		7CFI	A1A			Mil tfc; 5F 81443 12039 etc etc
21182.0	1346	12	07	RUS		RADAR	40	12K0E	CF; OTHR Contayner

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

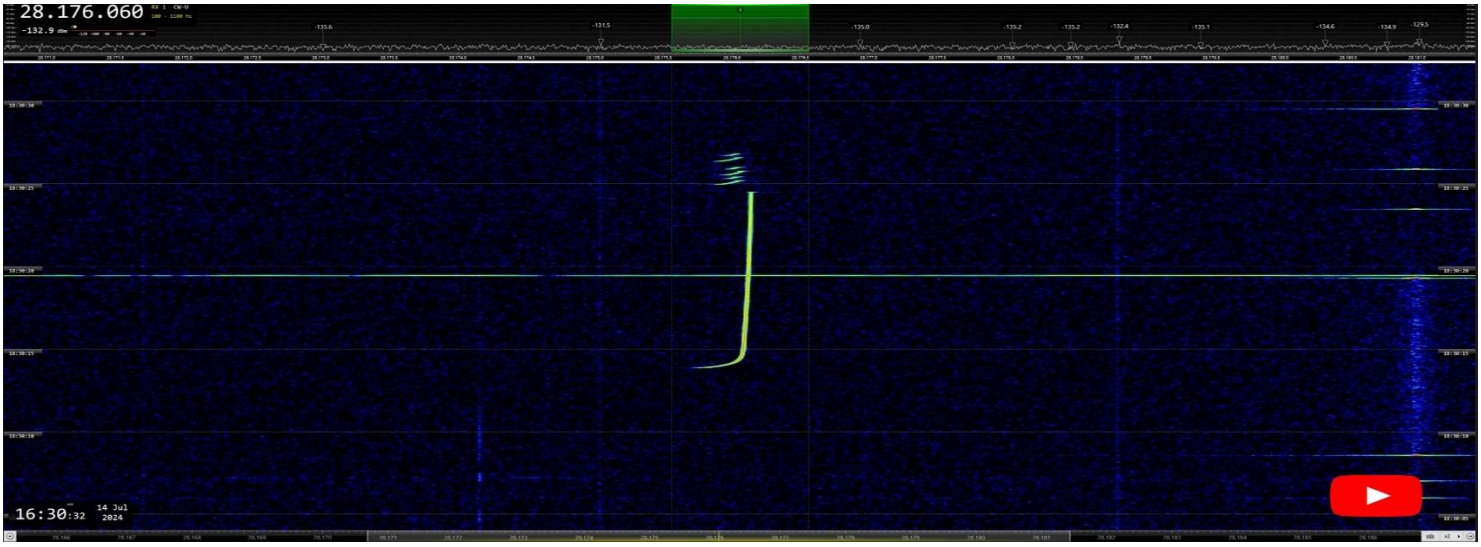
IARUMS R1 Coordinators: https://www.iaru-r1.org/spectrum/monitoring-system/iarums-region-1-coordinators/
Visit our website: https://www.iaru-r1.org/about-us/committees-and-working-groups/iarums/



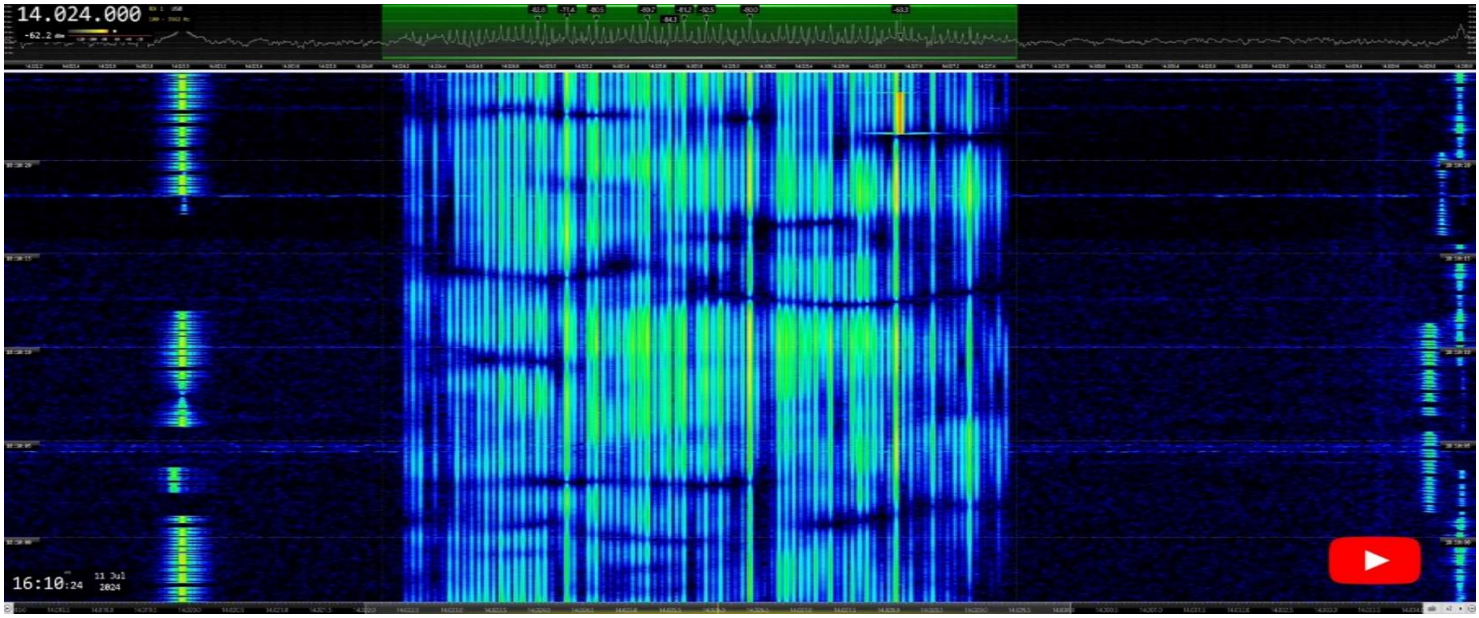
14308 kHz CF: OTHR Contayner. RUS. Necessary bandwidth: 12 kHz. 40 sps.Spectrum occupation: 30 kHz + side lobes! -60 dBm



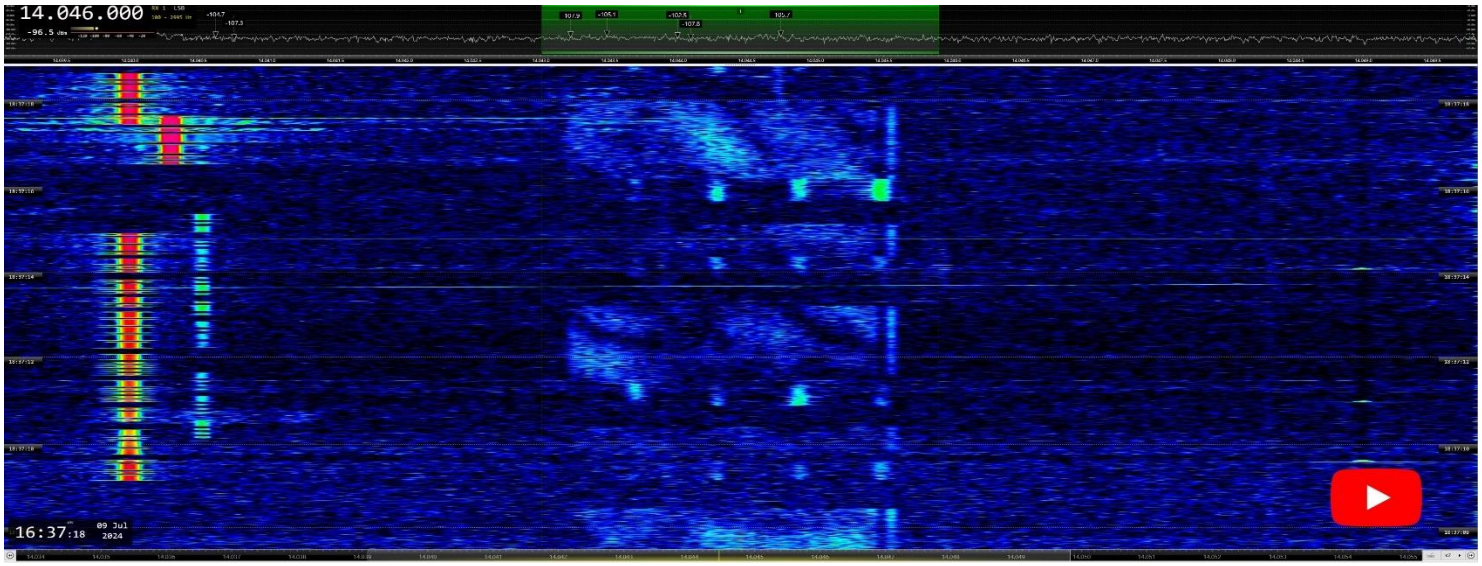
21119 kHz USB: CHN 4+4, a.k.a. PRC 4+4. PSK. G7D. BW = 2.5 kHz. 75 Bd (video = example)



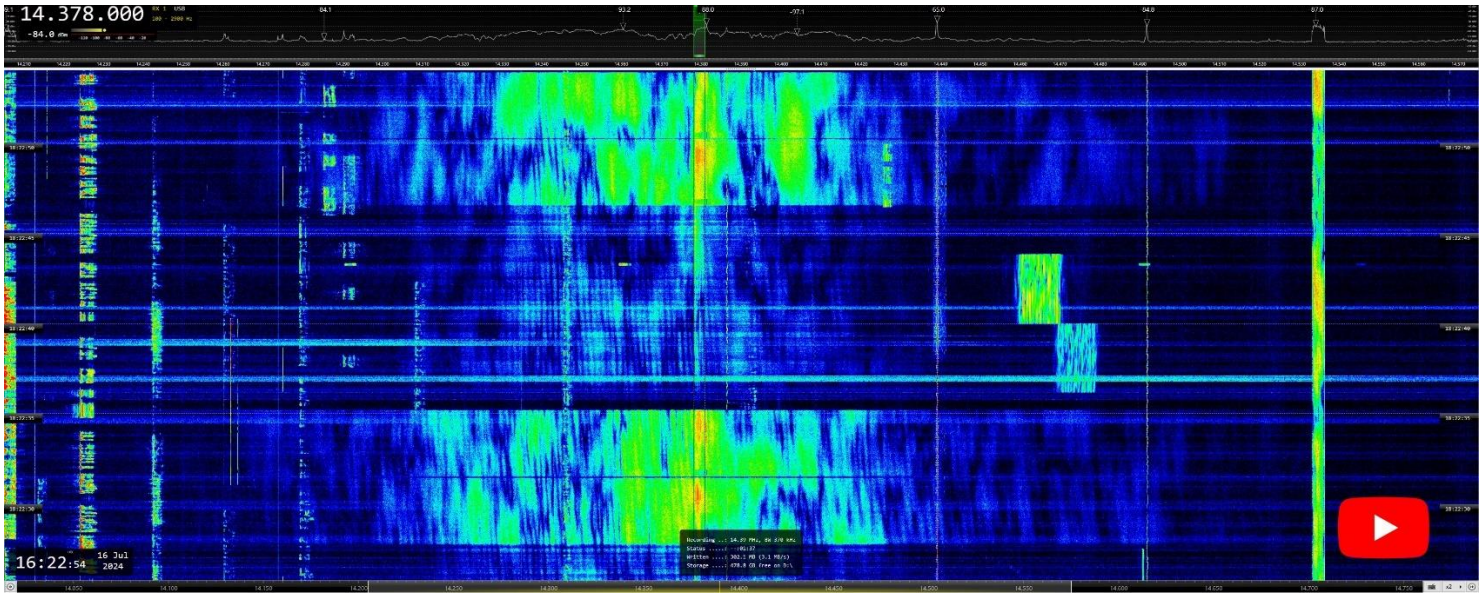
28176.06 kHz: CW (A1A). Fishing buoy. Drifting. ID = "CN"



14036 kHz CF: CIS-12, submode idle. RUS. J7D. BW = 2K70E12 X 120 Bd + pilot tone



14046 kHz LSB: CHN-30, a. k. A PRC-30. PSK. G7D. BW = 2K40E. 60 Bd



14378 kHz CF: XXX. Unidentified bursts sending splatters in the 20m bands down to 14300 kHz