



IARU Monitoring System Region 1

Monthly Newsletter 3 - March 2020

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News and Info's

First of all, for our monitoring team and all our colleagues, I want to express my sincere hope that Corona COVID-19 virus has not touched you or your loved ones, as it literally changes many aspects of our lives. I hope you are all healthy and safe.

One can say that the only positive aspect of the situation is that our frequencies are currently much more used than usual, certainly the best way to defend it, according to the motto "use it or lose it". Perhaps it also helps that our frequencies are somewhat avoided by intruders?

Nevertheless, we noticed many intruders again in March. Mostly the same situation as in the previous months. Especially in the 40m band long lasting F1B (RTTY) emissions could be found daily e.g. on 7051, 7054 and 7122 kHz. Also the Contayner OTHR-B radar was seen on several bands and almost every day, a constant big annoyance.

In my February report I referred to the article of Tony Roper about Contayner OTHR radar. In the meantime, he published more information's which you can find here:

<https://planesandstuff.wordpress.com/2020/03/23/more-konteyner/>

I have some doubts about it. I guess we'll just have to wait and see what happens. So it remains to be proven whether this new information from TASS is correct or not? Only some TDoA will show if we can find and confirm such a new radar site.

In addition, "OSINT" (OSINT = open source intelligence = data collected from publicly available sources) can also help us to gain more insights. Modern search engines often enable amazing results, but also often only stolen copy/ paste text or simply fake news. Don't believe everything!

Have a great month and stay safe!
Peter Jost, HB9CET, IARUMS R1 Coordinator a.I.

Detailed reports of national coordinators

Abbreviations used

aka = also known as | **BC** = Broadcast | **BD** = Baud, (or also Burst duration) | **BRI** = Burst repetition interval | **BW** = Bandwidth | **ca** = approximate | **DF** = Direction finding (radio location) | **MUX** = multiplex | **OTHR** = over the horizon radar | **FMCW** = frequency modulated | continuous wave | **FMOP** = frequency modulated on pulse | **PRC** = **CHN** = People's Republic of China | **SH** = Shift (Hz) | **sps** = sweeps per second | **TDoA** = Time difference of arrival | **ui / unid** = unidentified | **vd** = various dates | **vt** = various times |

DARC; Daniel, DL3RTL + Tom, DF5JL

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
3505.00	2010	16	03		unid	J3E-L			Greek fishery?
3548.00	1755	15	03	RUS	unid	F1B	50	200	CIS36-50 russ. Navy, shared band
3590.00	2007	24	03		unid	J3E-L			Greek fishery?
3731.00	2055	13	03		CLA	J3E-L			Unid clandestine radio affecting Russian-Ukrainan conflict
7051.00	2008	04	04	RUS	RDL	F1B	50	200	CIS 36-50, Sevastopol – RUS navy
7005.00	1635	12	03	INS	unid	J3E-L			Talk, males, Indonesian
7055.00	1430	04	04		CLA	J3E-L			Unid clandestine radio affecting Russian-Ukrainan conflict, often
7080.00	1723	20	03	RUS	unid	F1B	50	200	RUS CIS 36-50 russ. Navy
7100.00	2040	16	03	RUS	29B6	FMOP	40		'Kontayner' OTH Radar
7104.00	2018	17	03	RUS	29B6	FMOP	10		'Kontayner' OTH Radar
7110.50	2020	16	03	RUS	29B6	FMOP	40		'Kontayner' OTH Radar

DARC; Daniel, DL3RTL + Tom, DF5JL

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
7122.00	0824	23	03	RUS	RDL	F1B	50	200	CIS36-50, Severomorsk, RUS Navy
7158.00	1624	20	03		unid	F1B	50	200	
10114.75	0715 0855	20 23	03	RUS	unid	F1B	200	1000	Intel/Diplo, shared band
10121.00	1955	01	04	RUS	29B6	FMOP	40		OTHR Kontayner
14003.20	0623	24	03		unid	A1A			Dots, channel marker?
18107.00	1025	15	13	RUS	unid	F1B	50	200	CIS36-50, RUS Navy

IRTS; Michael, EI3GYB

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
7055	1425	02	03	RUS/ UKR		LSB			Ukrainian-Russian radio war with plenty of the usual MX, NX and shouting of propaganda slogans. Very strong signals. Often during the month. Most daylight hours.
7139.5	1430	02	03			F1B			Massive signal
7123	1435	02	03			F1B			Medium signal
7180	0915	03	03			F1B			Big signal
7140	1130	03	03			F1B			Medium strength signal
7189	0115	06	03			FMOP			Radar from 7189 to 7203 kHz. Very strong and persistent.
7000	1610	07	03	INS		LSB			Indonesian village radio. Very loud male voices chatting.
7123	1630	07	03			F1B			Strong signal.
7010	1800	08	03	INS		LSB			More Indonesian village radio. Plenty of male voices chatting. Monster signals.
7123	1550	11	03			F1B			Strong signal
7055	1730	11	03			AMOP			Radar from 7055 to 7070 kHz. All frequencies unusable.
7005	1640	12	03	INS		LSB			Another day of Indonesian village radio. Again strong signals.
7083	1910	12	03			AMOP			Radar from 7083 to 7111 kHz.
6992	2230	12	03			AMOP			Radar from 6992 to 7008 kHz.
7178	1955	14	03			AMOP			Radar from 7178 to 7190 kHz.
7190	2210	14	03			AMOP			Radar from 7190 to 7204 kHz.
7164	1215	16	03			F1B			Medium strength signal.
7122	1720	16	03			AMOP			Radar from 7122 to 7135 kHz Huge signals. All frequencies blocked.
7102	2200	20	03			AMOP			Radar from 7102 to 7115 KHz. Very strong.
7081	2050	22	03			F1B			Strong signal.
7123	1620	25	03			F1B			Strong
7005	1625	25	03	INS		LSB			Another day with the village radio of Indonesia. Plenty of talk.
7180	1955	25	03			AMOP			Radar from 7180 to 7193 kHz. Very strong
7123	1420	30	03			F1B			Strong signal
14000	1425	30	03	CHN	CRI	AM			China Radio International with a rebroadcasting of "Easy FM". Either a mixing product or some harmonic of

IRTS; Michael, EI3GYB

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
									their transmissions on other frequencies. Also heard on the 31th of March at 1435 until s/off at 1500z.
14039	1440	31	03			FMOP			Radar from 14039 to 14052 kHz. Persistent and strong.

MRASZ; Laci, HA7PL

kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
3510.0	1747	9	03			A1A			dashes
3525.5	2042	14	03			F1B		200	
3541.0	1739	10	03			F1B		250	
3546.4	1752	9	03			F1B		250	
3546.4	1736	10	03			F1B		200	
3581.8	1740	9	03			PSK8A	2400	2400	Stanag-4285
3581.8	1740	10	03			PSK8A	2400	2400	Stanag-4285
3581.8	1724	12	03			PSK8A	2400	2400	Stanag-4285
3581.8	1653	31	03			PSK8A	2400	2400	Stanag-4285
3600.0	1758	10	03			A3E			french language, for long time
3600.5	1723	12	03			F1B		250	
3602.0	1742	10	03			A3E			french language
3798.7	1754	9	03			A1A			dashes
6995.0	1727	12	03			OTHR			6984 -7006 kHz
7000.0	1510	29	03			LSB			chating italian amateurs, (IU8JVB)
7034.0	1827	21	03			A1A			dashes, deliberate dist. to HA3NU
7053.0	1728	12	03			LSB			Russian language
7054.0	1728	12	03			F1B		200	
7055.0	1511	7	03						chaos
7055.0	0850	14	03			LSB			music + singing
7055.0	0758	15	03			LSB			chaos
7055.0	1350	24	03			LSB			chaos
7055.0	1238	31	03			LSB			chaos
7080.0	1729	12	03			F1B		200	
7122.0	1729	12	03			F1B		200	
7122.0	1718	13	03			F1B		200	
7122.0	1424	25	03			F1B		200	
7125.0	0820	15	03			USB			russian language, 5L, russian names
7125.0	0821	15	03			USB			russian numbers, at the end: "PRIJOM"
7178.5	0801	20	03			A1A			"93 93 MARTENSIT 43602920 K"
7178.5	0808	20	03			A1A			„XXX XXX 8S1Q (2) 06678...6889 2927 K“
7189.0	1744	10	03			OTHR			7180 -7198 kHz
10102.0	0803	15	03			A1A			"592 XXX XXX LR43 ...PROWERKA 592 K"
13999.5	1445	29	03			A3E			unidentified
14100.9	1450	29	03			USB			"EB5A" used freq!
14150.0	0940	31	03			OTHR			14140 – 14150 kHz
14173.0	1303	31	03			A1A			„OT 10 T...“
14188.0	0943	15	03			OTHR			14180 -14196 kHz

PZK; Marek, SP3AMO + Miro,SP5GNI									
kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
1861.0	2029	31	03			PSK		1k2	S9+5 dB
1861.5	1809	11	03			UI		1k2	[S9+5] ant Dipole 160m
1897.0	2034	31	03	GER		UI		1k2	S9
1897.5	1813	11	03	GER		UI		1k2	[S9+5] ant Dipole 160m
3500.2	0654	4	03			J3E-U			French language [S1]
3524	1426	27	3			F1B		250	
3526.7	2050	11	03			F1B	50	200	[S9] 21.51 UTC CL
3526.7	2015	15	03			F1B	50	200	
3548.0	1930	13	03			F1B	50	200	[S9+5 dB]
3550.0	1805	11	03			PSK		900	5x120Hz [S9]
3550.0	2038	25	03			FSK			S9
3552	847	25	3			PSK-4		2k9	OFDM60 pilot 3553.8 S9
3558.5	2000	15	03			PSK			5x120Hz [S9]
3559.5	958	18	3			PSK-4		2k9	OFDM60 pilot 3560.8 S9 (1850 still on)
3560.0	1925	18	03			FSK/F1B			[S9] sp 40 Hz
3577.7	1920	18	03			F1B	50	200	1922 UTC QRT [S9]
3578.0	1850	18	3			F1B		200	S9 + 20 dB
3581.8	vt	vd	3			MSK		2k8	
3590.0	2019	31	03	GER	Unlis	J3E-LSB			In German. no callsigns
3591	1342	16	3			PSK-4		2k9	OFDM60 pilot 3592.3 S9 + 10dB
3596	1603	14	3			UI		7k	Comlex profile from 3593 to 3600
3598.0	2037	25	03			PSK			S9+5dB
3675.0	1723	14	03	GER	Unlis	J3E-USB			In German. no callsigns
3729.6	1505	11	3			UI		2k4	
3735	911	31	3			FMOP		20k	OTHR bursts
3736	1713	23	3			F1B		500	S9 + 20 dB
3740	917	31	3			FMOP		10k	OTHR bursts very strong
3744.5	2035	25	03			FSK			S9
3750	1010	10	3			PSK-4		2k9	OFDM60 + 3751.3 pilot and many lines below S9 +10
3767	1047	18	3			PSK-4		2k9	OFDM60 pilot 3767 S7
5362	1525	31	3			PSK-4		2k9	OFDM60 pilot 5363.3 S9
7000.5	2120	7	03			J3E			[S0+] French language ???
7005.0	1608	12	03			J3E-L			Indonesia
7005.0	1515	16	03			J3E-L			Indonesia [S3]
7005.0	2145	23	03			J3E-L			S1. R2/3 Greek/Italian ??
7008.0	1744	12	03			FMOP		20k	OTHR [6988.0 - 7008.0 kHz] [S9]
7010.0	1633	11	03			J3E-LSB			S0+ R2/3/ QSB /a southern language/
7013.0	1318	2	03			FMOP		15k	OTHR [7013.0 - 7028.0 kHz] [S5/7]
7019.8	1217	1	03			F1B	50	200	13.48 UTC QRT
7050.7	vt	vd	03			F1B	50	200	
7051.0	2016	31	03			F1B	50	200	S7
7054.0	1809	18	03			UI	50	200	S1 - Multitone 18.50 UTC F1B 50BD/200 Hz
7056	858	25	3	RUS	MIL	A3J		3k5	USB Spelling letters and numbers in Russian. later 5 tones transmitted

PZK; Marek, SP3AMO + Miro,SP5GNI									
kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
7060	1717	23	3			FMOP		10k	OTHR shortly
7060.7	1950	19	03			FMOP		25k	OTHR [7043.0 - 7068.0 kHz] [S9+10 dB] sp 40
7072	852	25	3			PSK-4		2k9	OFDM60 pilot 7073.3 S9 +10
7078	1007	18	3			PSK-4		2k9	OFDM60 pilot 7079.3 S9 + 10
7079.0	2045	11	03			FMOP		17k	OTHR 7079.0 - 7096.0 kHz
7085.0	2045	16	03			FMOP		31k	OTHR [7085.0 - 7116.0 kHz] [S9+10 dB]
7086	1718	23	3			FMOP		10k	OTHR shortly
7122	vt	vd	3			F1B		200	
7122.0	vt	vd	03			F1B/A2A/ FSK	50	200	Changeable Mode
7155	vt	vd	3		RUS/UKR	A3J			Russian-Ukrainian mess - speeches. music. songs. etc. Very typical here.
7158	1030	4	3		RUS/UKR	A3J			Russian-Ukrainian mess - speeches. music. songs. etc. Not so often as at 7155
7162	1214	16	3			F1B		260	
7175.7	0700	4	03			F1B	50	200	[S7/9]
7177	1850	7	3			FMOP		14k	OTHR burst very strong
7178.6	1822	3	03			PSK		1k7	7 x 120Hz [bw] [S7]
7178.6	1830	3	03			MFSK		1k7	Multi lines sp 40Hz Changeable Mode
7194	1202	16	03			FMOP		12k	Middle frequency slowly drifting up and down
7194.5	1140	1	03			FMOP		10k	OTHR short bursts
10120.8	1016	3	03			UI		250	[S+0]
10146	1015	10	03			PSK-4		2k9	OFDM60 + 10147.3 pilot and many lines below visible S7
14092.5	1612	5	03			MSK		2k6	2 strong lines 14093.3 and 14093.5 and weaker 14091.3
14093.4	1132	11	03			F1B		200	4 seconds blocks
14102.4	908	25	03			F1B		200	Pulsing different lengths
14110.4	1020	10	03			F1B		200	different shifts observed; ended 1022
14110.4	907	25	03			F1B		800	
14133.0	0907	3	03			FMOP		15k	OTHR [14133.0 - 14148.0 kHz] [S7]
14138	1446	1	3			FMOP		16k	OTHR strong
14180	1234	1	3			FMOP		60k	14150 - 14210 wide. not very strong
14199.4	vt	vd	3			MSK		250	3-5 lines visible
14247.0	847	7	3			FMOP		10k	about 5 second burst 40 second break
21005.7	1002	4	03			PSK	31	11	UI - MultiPSK not decoding
21065.7	1150	26	03			PSK		75	S1 - sp 75 Hz
21113.0	0942	11	03			NON		220 [sp]	S0+

REF; Francis. F5MIU									
kHz	UTC	DD	MM	ITU	IDENT	MODE	Baud	SH / BW	DETAILS
14188	0854	2	3			FMCW		15kHz	OTH Radar pulsed 25ms,S4
14144	0845	12	3			FMCW		10kHz	OTH Radar pulsed 20ms,S5 intermittent
14100	0840	17	3			Data		3kHz	Data channel all hour long same as

REF; Francis, F5MIU									
kHz	UTC	DD	MM	ITU	IDENT	MODE	Baud	SH /BW	DETAILS
									DRM unable to decode Same as report 27/2/20 every morning
14100	0925	18	3			Data		3kHz	Data channel all hour long OFDM60 PSK-4 every morning
14100	0852	19	3			Data		3kHz	Data channel all hour long OFDM60 PSK-4 every morning
14025	0852	19	3			FMCW		10kHz	OTH Radar pulsed 20ms,S5 intermittent

RSK; Kamweti, 5Z4BV									
kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH/ BW	DETAILS
7040	v.t.	nr.dly	3		?	J3E-u			Vernacular/Kiswahili QSO
7104	1505	2	3		?	J3E-u			Vernacular QSO
7120	a.m./p.m.	occ.	3	SOM	Radio Hargeisa	A3E			Commercial broadcast
7130	v.t.	occ.	3	KEN	?	PSK		3000	STANAG 4285
7140	a.m./p.m.	dly.	3	ERI	VOBM 1	A3E			Commercial broadcast; Voice of the Broad Masses of Eritrea 1
7140	v.t.	occ.	3		?	J3E-u			Vernacular/French QSO
7150	v.t.	dly.	3	KEN	?	MFSK		2000 Hz	2G ALE
7175	v.t.	nr.dly	3		?	PSK		3000 Hz	STANAG 4285
7180	v.t.	occ.	3	ERI	VOBM 2	A3E			Commercial broadcast; Voice of the Broad Masses of Eritrea 2
14090	1055	24	3	RUS	?	FMOP	40 sps	10 kHz	Russian Kontayner OTHR
14142	1055	11	3		?	J3E-u			Vernacular/Indian QSO
14180	v.t.	20	3	RUS	?	FMOP	2.7	30 kHz	Russian Kontayner OTHR
14182	1445	20	3	IND	?	J3E-L			Vernacular/Indian QSO

RSGB; Richard, G4DYA									
kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
7038.496 7038.500 7038.504	ady	dly	03	CZE	OK0EU	A1A			For info: QRP propagation beacons. CW idents offset at +40 Hz.
7051.0	2031 2208 2212 2039 2232	07 12 16 19 23	03			F1B		200	
7056.0	2037	19	03	RUS		P0N	40	14K0E	Container OTH radar
7078.0	0938	18	03			J7D		2K70E	USB 7076.0 / CIS-12
7112.0	0929 1428	14 20	03			J7D		2K70E	USB 7110.0 / CIS-12
7114.0	2102	30	03			F1B		200	
7122.0 7122.0	1150 0926 1532 0943 1024	01 02 04 05 07	03	RUS	RDL	F1A/ F1B	50	200	Ident in F1A

RSGB; Richard, G4DYA									
kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
	2033 1544 0806 0802 0821 0826 0929 1427 0906 1331 2009	07 08 09 10 12 13 18 20 24 25 31							
7138.0	0927 0849	02 03	03			F1B		250	
7140.02	1533	04	03	ERI	VOBM1	A3E			BC
7158.0	1454	20	03			F1B		250	
7179.0	0844	03	03			J7D		2K70E	USB 7177.0 / CIS-12
7182.0	2229	23	03	RUS		P0N	40	14K0E	Container OTH radar
7198.0	1536	04	03			J7D		2K70E	USB 7196.0 / CIS-12
10100.8	ady	dly	03	D	DDK9	F1B	50	450	For info: Primary user: WX broadcast
14008.0	0945 1035 0901 1103	01 16 17 26	03			F1B		250	
14047.0	1006	27	03	RUS		P0N	40	18K0E	Container OTH radar
14101.9	0904	17	03			J7D		2K80E	USB 14100.0 / CIS-60
14108.0	1009	27	03	RUS		P0N	40	18K0E	Container OTH radar
14246.0	1016	27	03	CHN		P0N	66.7	9K0E	Foghorn OTH radar bursts

SRAL; Pekka, OH2BLU									
kHz	UTC	DD	MM	ITU	IDENT	MODE	BD	SH/BW	DETAILS
7 MHz	1630-0530	*	3	RUS	Kontainer	FMOP	40sps	13k0E	Days: 5. 6. 13. 16. 19. 20. 22. 23. 24, (WebSDR 21d)
7 MHz	0615-1645	*	3	CHN	UiOTHR	FMOP	10sps	10k0E	Days: 1. 2. 3. 4. 8. 11. 13. 15. 16. 20.
7 MHz	'0630	10	3	CHN	UiOTHR	FMOP	10sps	160kE	
7 MHz	1320-1430	5	3	CHN	UiOTHR	FMOP	20sps	160kE	
7001.0	0900-1311/	26 27	3	RUS	UiMUX	J7D	120	2k60E	112 OFDM
7006.0	0900-1000	29	3	RUS	UiPTR	F1B		250H	
7011.0	'0845	18	3		UiCW	A1A			5BL
7015.0	0900-1400	*	3	RUS	UiPTR	F1B		200H	Days: 10. 11. 12.
7015.0	1440	31	3	RUS	UiMUX	J7D	120	2k60E	
7020.1	1410-1455/	15	3		UiCarr	N0N			
7021.7	0600-0640	9	3	RUS	UiMUX	J7D	120	2k60E	No pilot
7030.0	1130-1200	16	3	RUS	UiPTR	F1B		250H	

SRAL; Pekka, OH2BLU									
kHz	UTC	DD	MM	ITU	IDENT	MODE	BD	SH/BW	DETAILS
7039.3	1000-1500	*	3	RUS	K	A1A			Beacon, days: 16. - 20.
7039.4	1000-1500	18	3	RUS	M	A1A			Beacon
7040.0	1400-1910	24	3	RUS	UiMUX	J7D	120	2k60E	
7041.0	1430-1445	16	3	RUS	LJTN	A1A			Calls 8YF4
7051.0	0545-0605/	30 31	3	RUS	UiPTR	F1B		200H	
7054.0	1030-1730	*	3	RUS	UiPTR	F1B		200H	Days: 12. 13. 16. 17. 19. 28.
7057.0	1140	25	3	RUS	UiMUX	J7D	120	2k60E	
7066.0	1440-1545/	17	3	RUS	UiCW	A1A			5BL
7068.0	0650-1325	19 26	3	RUS	UiMUX	J7D	120	2k60E	
7080.0	1700-1725	19	3	RUS	UiPTR	F1B		200H	
7094.0	1330-1530	14	3	RUS	UiPTR	F1B		200H	
7099.0	0600-0620	18	3	RUS	JJIF	A1A			5BL, 5F
7112.0	1000-1450/	*	3	RUS	UiMUX	J7D	120	2k60E	Days: 14. 20. 27.
7114.0	0815-0910	13	3	RUS	UiMUX	J7D	120	2k60E	
7114.0	0530-0600	31	3	RUS	UiPTR	F1B		200H	
7122.0	0600-1930	dly	3	RUS	RDL	F1B/A		200H	5F
7128.0	0630	12	3	RUS	UiMUX	J7D	120	2k60E	No pilot
7132.0	0730-0930	6	3	RUS	UiMUX	J7D	120	2k60E	
7138.0	0630-1430	2 3	3	RUS	UiPTR	F1B		250H	
7140,0	0530-0645	*	3	ERI	VoBME	A3E		9k0	*) Days: 1. - 20. 26. 27. 30. 31.
7140,0	1400-1840/	*	3	ERI	VoBME	A3E		9k0	*) Days: 1. - 20. 26. 27. 30. 31.
7142.0	1130-1330	4 27	3	RUS	UiPTR	F1B/ NON		250H	
7155.0	1840-1900/	7	3		UiBC	A3E		9k0	
7158.0	0615-1535	16 20	3	RUS	UiPTR	F1B/ NON		250H	
7160.0	0840-1000	18	3	RUS	RBL88	A1A			5F
7160.0	0615-0830	*	3	RUS	UiMUX	J7D	120	2k60E	*) Days: 2. 21. 25.
7178.0	1045-1230	14 18	3	RUS	UiMUX	J7D	120	2k60E	*)
7179.0	0530-1900	*	3	RUS	UiMUX	J7D	120	2k60E	*)Days: 2. 3. 26.
7180.0	0530-	31	3	ERI	VoBME	A3E		9k0	

SRAL; Pekka, OH2BLU									
kHz	UTC	DD	MM	ITU	IDENT	MODE	BD	SH/BW	DETAILS
7180.0	1800-1835	30	3	ERI	VoBME	A3E		9k0	
7198.0	1430-1450	17	3	RUS	UiMUX	J7D	120	2k60E	
7200.0	0630-0637	10	3	RUS	UiPTR	F1B		200H	
10 MHz	0430-1430	*	3	RUS	Kontainer	FMOP	40sps	13k0E	*)Days: 5. 8. 16. (WebSDR 11d)
14 MHz	0600-0930	*	3	CHN	UiOTHR	FMOP	67sps	10k0E	*)Days: 2. 3. 9. 18. 23. 26. bursts of c. 5 sec, cycle c. 50 sec
14 MHz	0820-1400	*	3	RUS	Kontainer	FMOP	40sps	15k0E	*)Days: 2. 11. 13. 15. 29. 30. 31. (WebSDR 19d)
14 MHz	0630-0900	*	3	CHN	UiOTHR	FMCW	10sps	50k0E	*)Days: 2. 7. 17.
14 MHz	0800-0910	14	3	RUS	Kontainer	FMOP	50sps	16kE	
14008.0	1110	15	3		UiPTR	F1B/N0N		200H	
14012.0	1000-1025	26	3		UiCarr	N0N			
14055.0	0645	6	3	RUS	UiPTR	F1B		250H	
14221.0	0530-0605	*	3	KAZ	UiPTR	F1B		200H	*)Days: 23. 30. 31.
14253.0	0645	23	3		UiPTR	F1B		250H	
14324.0	1120	17	3	RUS	UiPTR	F1B		200H	
18 MHz	0700-0715	7	3	CYP	UiOTHR	FMCW	25/50s ps	20k0	(WebSDR 11d)
21 MHz	1100-1115	7 31	3	CYP	UiOTHR	FMCW	25/50s ps	20k0	(WebSDR 10d)

URE; Gaspar, EA6AMM									
kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
5352.7	1945	03	03			N1N			Modulated carrier. Long-lasting.
5365	0600	02	03			FMOP	12,34	8KE	OTHR bursts. Burst ca. 2.5 sec. QSY.
7006	0037	17	03			FMOP	40	12KE	OTHR Contayner. Long-lasting.
7011	0712	19	03			F1B		250Hz	
7013.5	0055	17	03			J7D			MIL-188-141A-ALE
7051	VT	VD	03			F1B			
7070	2053	08	03			FMOP	10	10KE	OTHR sweeps QSY
7080	1705	01	03			F1B		200 Hz	
7122	VT	VD	03			F1B		200 Hz	
7138	0545	02	03			F1B		200 Hz	
7140	0052	17	03			FMOP	10	10KE	OTHR sweeps. QSY.
7178.8	19:21	03	03			J7D		2K6E	CIS-12 aka AT3004-D
10101	1938	03	03			J3E-U			Unid people talking
14185	0813	16	03			FMOP	50	10KE	OTHR Bursts. Also on 14232 kHz. Burst ca. 5 sec.
14192	0744	09	03			FMOP	40	12KE	OTHR Contayner. Long-lasting
14222	1804	19	03			J3E-U			Spanish fishery
14253	0739	02	03			F1B		250 Hz	

URE; Gaspar, EA6AMM									
kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
14253	0750	09	03			F1B		200 Hz	
14310	0847	09	03			FMOP	40	10KE	OTHR bursts. Burst ca. 5 sec.
14335	0817	16	03			FMOP	10	10KE	OTHR sweeps.

USKA; Peter, HB9CET									
kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
6998.0	1725	12	03			FMOP	40 sps	ca 12k	OTHR; partially in 40m band
6999.0	1655	12	03			J3E-U		2k1	unident language; maybe village radio; partially in 40m band
6999.0 USB	1001 0900	26 27	03			OFDM112	22.22 Bd	ca 3k	Tone Spacing 25.65Hz; Pilottone at ca 3300Hz
7000.0	2142	11	03			FMXX	47 sps	ca 10k	OTHR; partially in 40m band
7000.0	2146	12	03			FMOP	40 sps	ca 12k	OTHR; partially in 40m band
7000.0	0820	24	03			J3E-U			maybe French patois
7007.0	1703	12	03			FMOP	40 sps	ca 12k	OTHR
7015.0	2158	03	03			F1B	50	200	often
7015.0	1439	31	03			J7D	12x120	2k7	PSK-2; CIS12 aka AT3004D
7020.0	1322	01	03			F1B	75	250	
7034.0	1701	12	03			FMOP	40 sps	ca 12k	OTHR
7040.0	1252	24	03			J7D	12x120	2k7	PSK-2; CIS12 aka AT3004D
7049.0	1031	25	03			OFDM60 PSK-4	29.63	ca 2k8	Tone Spacing 44.44Hz; Pilottone at ca 3300Hz
7050.0	1146	31	03			J3E-L		ca 2k90E	music, singing; statements daily
7051.0	2241	03	03			F1B	50	200	almost daily
7054.0	1329	18	03			F1B	50	200	often
7054.0	1335	18	03			F1A		200	
7055.0	1404	18	03			J3E-L		ca 2k90E	music, singing; statements daily
7056.0	2138	19	03			FMOP	40 sps	12k0E	OTHR; Contayner 29B6
7063.0	1255	13	03			F1B	75	250	
7063.5	0725	31	03			PSK-8	2400	2400	STANAG 4285 used for jamming
7065.0	0726	31	03			J3E-L		ca3k	music / voice, jammed by STANAG 4285
7070.0	2150	12	03		288	MFSK8	125	1750	ALE, MIL 188-141A; To:204
7078.0	0933	18	03			J7D	12x120	2k7	PSK-2; CIS12 aka AT3004D
7080.0	1719	07	03			F1B	50	200	
7080.0	1732	18	03			F1B	50	250	
7087.0	2130	11	03			FMOP	40 sps	ca 12k	OTHR; Contayner 29B6
7094.0	1743	14	03			F1B	50	200	
7104.8	2256	31	03		var	F1B	100	170	* CODAN Selcall
7107.8	2255	31	03		var	F1B	100	170	* CODAN Selcall
7108.0	2152	03	03			FMOP	40 sps	ca 12k0E	OTHR; Contayner 29B6
7108.0	1649	26	03			OFDMxx PSK-4	29.63	ca 2k80E	Tone Spacing 44.44Hz; Pilottone at ca 3300Hz
7111.0	1710 0754	14 29	03			F1B	50	250	often
7113.0	2300	15	03			FMOP	40 sps	ca 12k	OTHR; Contayner 29B6
7119.0	1754	21	03			FMOP	40 sps	ca 12k	OTHR; Contayner 29B6
7122.0	2332	05	03		RDL	F1B	50	200	CIS 50-50 almost daily
7122.0	1339	18	03		RDL	F1A		200	figures and letters almost daily
7125.8	2253	31	03		var	F1B	100	170	* CODAN Selcall
7134.0	1337	13	03			F1B	50	200	often
7137.8	2250	31	03		var	F1B	100	170	* CODAN Selcall

USKA; Peter, HB9CET									
kHz	UTC	DD	MM	ITU	IDENT	MODE	BD / sps	SH / BW	DETAILS
7138.0	0817	02	03			F1B	50	250	often
7140.0	1726	07	03	ERI	VOBM	A3E		~ 9k	BC daily
7143.8	2257	31	03		<i>var</i>	<i>F1B</i>	<i>100</i>	<i>170</i>	* CODAN Selcall
7146.8	2242	31	03		<i>var</i>	<i>F1B</i>	<i>100</i>	<i>170</i>	* CODAN Selcall
7149.5	1343	18	03			J7D	12x120	2k7	PSK-2; CIS12 aka AT3004D
7150.0	2249	27	03		102	MFSK8	125	1750	ALE, MIL 188-141A
7153.0	1647	06	03			FMOP	40 sps	ca 12k	OTHR; Contayner 29B6
7176.0	1719	14	03			F1B	50	250	
7178.0	1203	05	03			J7D	12x120	2k7	PSK-2; CIS12 aka AT3004D often
7178.0	2217	13	03			FMOP	40 sps	ca 12k	OTHR; Contayner 29B6
7179.0	1533	03	03			J7D	12x120	2k7	PSK-2; CIS12 aka AT3004D often
7181.0	1306	13	03		38#fE	MFSK8	125	1750	ALE, MIL 188-141A; To:204
7197.0	1740 vt	18 vd	03	TUR	348013 various	MFSK8	125	1750	ALE, MIL 188-141A; Emergency Network
7198.0	0949	24	03			J7D	12x120	2k7	PSK-2; CIS12 aka AT3004D
10127.0	1728	26	03			FMOP	40 sps	ca 12k	OTHR; Contayner 29B6
14000.0	1411	25	03			J3E-U			unid, maybe Asian language
14000.0	1433	25	03	CHN		A3E		ca 10k	English; China Radio International
14005.878	1018	24	03			N0N			Long lasting carrier
14008.0	1101	25	03			F1B	50	250	often
14047.0	1452	31	03			FMOP	40 sps	ca 12k	OTHR; Contayner 29B6
14095.0	1043	24	03			FMOP	40 sps	ca 18k	OTHR; Contayner?
14102.0	0757 0942	17 18	03			OFDM60 PSK-4	29.63	ca 2k80E	Tone Spacing 44.44Hz; Pilottone
14105.0	1339	30	03			FMOP	40 sps	ca 12k	OTHR; Contayner 29B6
14108.0	1127	08	03			FMOP	40 sps	ca 12k	OTHR; Contayner 29B6
14108.0	1031	27	03			FMOP	40 sps	ca 18k	OTHR; Contayner 29B6
14122.0	0840	31	03			FMOP	40 sps	ca 12k	OTHR; Contayner 29B6
14125.0	0927	24	03			FMXX	50 sps	ca 10k	OTHR
14130.0	1051	10	03			FMOP	40 sps	ca 12k	OTHR; Contayner 29B6
14179.0	0701	20	03			FMOP	40 sps	ca 12k	OTHR; Contayner 29B6
14300.0	0933	24	03		554	MFSK8	125	1750	ALE, MIL 188-141A; To: 314
14300.0	0937	24	03			J3E-U		ca 2k10E	unid language. "MIL Style"
14300.0	0938	24	03			OFDMxx		ca 2k7	reference tone at ca 400Hz
14323.4	0942	24	03			F1B	600	600	ARQ; QSB often
18107.0	0928	30	03			F1B	36 + 50	200	CIS 36-50 often
21438.0	0955	27	03		RCV	A1A			TDoA: Area of Sevastopol daily

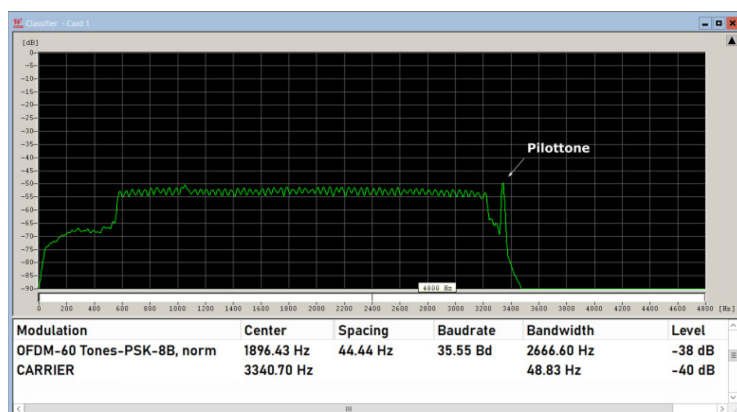
*) CODAN Selcall, aka CCIR 493-4 Selcall, aka Australian Selcall. There exists a 4-digit and 6-digit Identification version. The system is often used by Australian amateurs, unfortunately without transmitting the Ham Callsign e.g. in CW. Therefore these signals are reported as suspected Intruders, because we cannot verify only with the ID#

VERON; Ruud, PG1R									
kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
3527.0	2024	3	3	CIS	UiPTR	F1B			Revs/Ptr
3544.0	2041	5	3		UiPTR	F1B			Ptr
3548.0	1900	1	3	CIS	UiPTR	F1B			Revs
3548.0	1906	1	3	RUS	RDL	A1A			RDL 70289 82248 K
3548.0	1908	1	3	RUS	RDL	A1A			RDL 20181 93151 K
3548.0	1915	1	3	RUS	RDL	A1A			RDL 91838 49590 K
3552.0	2050	10	3	CIS	LDBO	A1A			LDBO QTC 667 26 10 2340 667 = 533 = 5BL
3608.0	2028	3	3	CIS	UiPTR	F1B			Carrier/Revs/Ptr

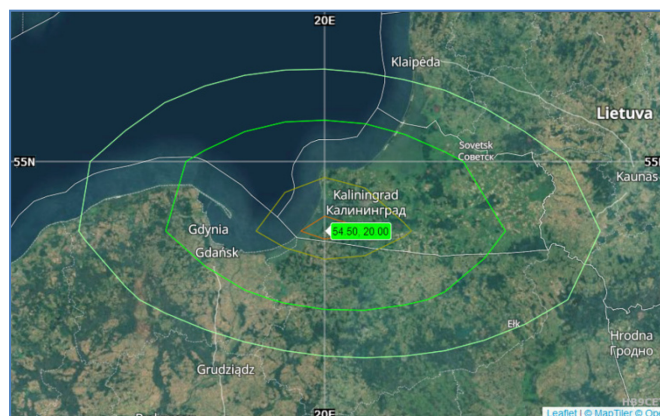
VERON; Ruud, PG1R									
kHz	UTC	DD	MM	ITU	IDENT	MODE	BD /sps	SH / BW	DETAILS
3677.0	2004	31	3		UiPTR	F1B			Ptr
3716.0	2046	5	3	CIS	UiCW	A1A			137 32 000 5F (words twice)
3765.0	2158	28	3		UiPtr	F1B		250	Bad modulation; unstable frequency.
3797.0	2010	31	3	RUS	RCV	A1A			RKZ de RCV QTC 935 42 31 935 = SML = chtormowoe preduprevdenie
7002.0	2015	12	3		OTHR	FMCW			Radar loc 55N 46 E
7015.0	1002	2	3	RUS	RIT	A1A			RLO de RIT QTC 925 34 2 1257 925 = Radioprognoz 02010 63003 5F
7022.0	1547	11	3		UiPtr	F1B			Idle S8
7032.7	1431	19	3		UiCW	A1A			Continuous rapid dots
7050.0	1531	11	3		UiBC	LSB			Political talk R.Oussian
7051.0	vt	vd	3	RUS	UiPtr	J3E-L		200	S5-S8
7051.0	2043	10	3		UiPTR	F1B			Ptr
7055.0	1442	5	3	UKR	UiBC	J3E-L			Chaos; S6
7055.0	1038	7	3		UiBC	LSB			Political talks Russian
7055.0	1639	13	3		UiPtr	F1B		200	Ptr
7055.0	1530	21	3	UKR	UiBC	J3E-L			2 TX same frequency; slogans; S9
7059.0	1545	11	3		UiBC	LSB			Male voice shouting
7080.0	1935	16	3		UiPtr	F1B		200	Ptr
7080.0	1902	25	3		UiPtr	F1B		200	Ptr
7088.0	1655	4	3		UiBC	LSB			political statements Russian
7103.0	1952	16	3		OTHR	FMCW			radar
7113.0	1420	20	3		UiMux	12MPSK			55N 18 E Baltic-UA2 area
7122.0	0833	5	3		UiPtr	F1B			Ptr
7122.0	0847	6	3	RUS	UiPtr	F1B			Ptr idle
7122.0	1005	11	3	CIS	UiPTR	F1B			Revs/Ptr
7122.0	1012	11	3	RUS	RDL	F1A			RDL 25847 62731 K
7122.0	1013	11	3	RUS	RDL	F1A			RDL 40992 53101 K
7122.0	1533	11	3		UiPtr	F1B			Ptr qrt 15.34
7122.0	1836	17	3		UiPtr	F1B		200	Ptr
7122.0	1111	18	3		UiPtr	F1B		200	Ptr
7122.0	1912	25	3	RUS	UiPtr	F1B		200	62N 25N nr OH-border
7123.0	1944	23	3	RUS	UiPtr	F1B		200	F1A RDL 00624 53896
7145.0	1631	13	3	RUS	OTHR	FMCW			Radar loc 55N 46 E
10116.0	1438	5	3		UiMux			2K0E	
14000.0	1027	15	3		UiCAR	NON			Carrier UA2 area 55N 20 E
14005.0	1106	24	3		UiCAR	NON			Long period
14008.0	1056	16	3	RUS	UiCAR	NON			Carrier qrt 10.57
14008.0	1006	26	3	RUS	UiPtr	F1B		250	Idle
14008.0	1041	29	3	CIS	UiPTR	F1B			Carrier/Revs/Ptr
14110.0	0945	30	3		OTHR	FMOP			Radar nr/or UA2 area
14119.0	1409	31	3	RUS	OTHR	FMOP			Loc 55N 25 E
14183.0	1450	24	3		OTHR	FMOP			Radar
14187.0	1414	2	3		OTHR	FMCW			Radar

Analysis of an OFDM Signal

The Russian OFDM High Data Rate modem consists of a whole family with different numbers of tones and modulations. Versions with 45/60/93, 112 or 128 tones are known. A pilot tone at approx. 3300 Hz is typical for all these variants (as also known e.g. from CIS12). So far, we mainly found the OFDM 60 tone variant in different versions in the amateur radio bands. There is a variant with a tone spacing of 44.44Hz, and channels modulated with 2-PSK, 4-PSK or 8-PSK, the Baud rates are mostly 30 and 35.55Bd. Recently we also found an OFDM 112 tone variant with 25.6 Hz tone spacing and 22.22 Bd.



Analysis of an OFDM60 signal with W-Code software



Radiolocating with KIWI SDR TDoA network

Many thanks to Wavecom Elektronik AG in Bülach / Switzerland for the valuable support without which many analyses would not have been possible.

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