

M22 profile



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1. Introduction

Most Shortwave Listeners may have noted those endless Morse Broadcasts: **vvv de 4XZ 4XZ = =**. From time to time messages in several formats are transmitted, which never are confirmed - at least not in a decodable mode.

4XZ is - officially - operated by IDF (Israeli Defense Forces) Navy in Haifa. This may be questioned however, as many properties of the network are those of a Number Station. 1999 Ary Boender's *Numbers & Oddities* presented a detailed description of 4XZ in Newsletter 14. Number station group *ENIGMA 2000* called it *M22* and published in January 2003 a station's profile, but later on cancelled *M22* as a Number Station.

Major changes of the station in 2005 made me write this updated profile. I used my own database of the last years and received valuable - because old - logs of *Ary Boender*.

2. Transmitter site, frequencies and traffic load

Direction findings made by *WUN* members and myself during many years suggest the transmitters are in Israel. Other sites are not known. Because I didn't find high resolution satellite pics I only can guess about some transmitter sites. Those on Mt. Carmel are the closest to Haifa. Operational standards are of a high standard. When long messages upset the timetable, transmission speed is increased. Weather bulletins were sent faster than other messages.

For many years and until July 2005 4XZ operated two independent broadcasts. Between 2001 and 2005 the sked was:
Broadcast 1: 2800//4241//5159//8103//10046//12984 kHz
Broadcast 2: 2680//4331//6379 kHz

Besides these standard frequencies others were used for days or even months at certain times. In July 2005, after a test period, BC 1 definitively was switched off, BC 2 stayed on the air, but sometimes one of the frequencies is switched off or altered slightly for a short time.

The monthly traffic load is quite stable and evenly spaced:
Broadcast 1: was about 40 messages/day, about 1200/month
Broadcast 2: about 18 messages/day, about 550/month

The (real?) IDF Navy can be heard in a proprietary PSK Hybrid mode for example on:
7160//8780, 6775.3, 7866.3, 9253.3, 11461.3 and 13485.3 kHz

3. Message Formats

All broadcasts use the same transmission formats:

- idling with call-up
- messages in several formats
- traffic lists
- operational messages
- interrupt messages.

Format	Text	Remarks
Idling	vvv de 4XZ 4XZ = =	Repeated
Message announcement	nw QTC 1 nr 2701	New message number 1072 follows.
Repeat announcement	nw rpt nr 2701	Repeat of message number 1072 follows. Messages are at least repeated twice.
Traffic in encrypted 5-letter-groups.	= = nr 2701 xi v DN8I 009092 ED4K gr 73 = = (txt) = = nr 2701 xi v DN8I 009092 ED4K gr 73 = = (txt) = = nr 2701 xi v DN8I 009092 ED4K gr 73 = = + +	Message 1072 with repeat and ending. After 40 groups: "= = aa gr 04 = =", after 80 groups: "= = aa gr 08 = =", etc. Text is 5-letter-groups.
Traffic in Hebrew Morse code.	= = nr 7701 qc a COLC 439092 FW8I wnc = = (txt) = = nr 7701 qc a COLC 439092 FW8I wnc = = (txt) = = nr 7701 qc a COLC 439092 FW8I wnc = = + +	Message 1077 with repeat and ending, text is figure-letter-groups with punctuation. Not heard since January 2006.
Surface analysis/forecast in WMO FM46-IV	= = nr 6701 qc z WT6D 038092 KS5X wnc = = (txt) = = nr 6701 qc z WT6D 038092 KS5X wnc = = (txt) = = nr 6701 qc z WT6D 038092 KS5X wnc = = + +	Message 1076 with repeat and ending, text is 5-figure-groups. Not heard since January 2006.
Traffic list.	nr 394 fo gr 73 = = QS1Z nr 694 so gr 61 = = QS1Z nr 594 lz gr 02 = = AD3Onr 494 je gr 31 = = AD3O nr 394 fo gr 73 = = QS1Z nr 294 ue gr 22 = = UO9D nr 694 so gr 61 = = QS1Z nr 594 lz gr 02 = = AD3O nr 494 je gr 31 = = AD3O nr 194 bo gr 02 = = KL1Z nr 984 so gr 52 = = QS1Z nr 394 fo gr 73 = = QS1Z nr 294 ue gr 22 = = UO9D nr 694 so gr 61 = = QS1Z nr 594 lz gr 02 = = AD3O	The list shows the complex transmission sequence of messages and repeats.
Operational message.	RE4P RE4P QSL nr 261	RE4P should confirm message 162.
Operational message.	OW7E OW7E OW7E nr 5011 to 8011 4111 to 7111 QQL = =	QQL unknown, maybe OW7E should delete messages 1105 to 1108 and 1114 to 1117.
Interrupt message.	sri sri sri vvv de 4XZ 4XZ = = + + nw QTC 1 nr 896	Any traffic is interrupted and a new message follows. This may be due to an op error or because the new message has priority.

4. Message preambles

= = nr 2701 xi v DN8I 009092 ED4K gr 73 = = ekeke wmhit

Text	Remarks
nr 2701	Message number 1072 in reverse order. Reset the last day of the month.
xi	Purpose unknown.
v	Message identifier. a = Hebrew Morse, v = encrypted 5-letter-groups, z = weather bulletin.
DN8I	Addressee.
009092	Day and local message preparation time: 29. at 0900 in reverse order.
ED4K	Sender
73	Group count 37 in reverse order. In Hebrew Morse and weather messages replaced by "wnc".
ekeke	Normally first and last letter of sender, may be an additional check. In weather bulletins replaced by "onden".
wmhit	Second group, same as the last group.

5. M22 samples

VVV DE 4XZ 4XZ = = VVV DE 4X2 4X2 = = AR AR NW RPT NR 6701
= = NR 6701 QC Z WT6D 038092 KS5X WNC = = 65556 33388 02900 00036 = 99900 81006 33822 85022 33609 = 99922
44008 34020 33720 33824 34020 = 44012 35031 34330 34125 34120 34018 33717 33620 33522 33727 34034 34242
34540 35036 = 44016 35025 34728 34524 34323 34217 33915 33616 33321 33330 33133 33036 32030 = 44020 34812
34823 34420 34418 34013 33514 33120 33024 32727 32525 32520 32715 32909 33302 33502 34001 34405 34812 =
19191
= = NR 6701 QC Z WT6D 038092 KS5X WNC = = 65556 33388 02900 00036 = 99900 81006 33822 85022 33609 = 99922
44008 34020 33720 33824 34020 = 44012 35031 34330 34125 34120 34018 33717 33620 33522 33727 34034 34242
34540 35036 = 44016 35025 34728 34524 34323 34217 33915 33616 33321 33330 33133 33036 32030 = 44020 34812
34823 34420 34418 34013 33514 33120 33024 32727 32525 32520 32715 32909 33302 33502 34001 34405 34812=
19191
= = NR 6701 QC Z WT6D 038092 KS5X WNC = = AR AR

VVV DE 4XZ 4XZ = = VVV DE 4X2 4X2 = = AR AR NW RPT NR 7701
= = NR 7701 QC A COLC 439092 FW8I WNC = = ONDEN : HDSET BEQR 1 YT MUECIM SIWAE MISRAL ELBNEN NHTE
BSDO OTJEPO OWBAI SBGRMNIO KSOM MEBILIM AT OACIRIM OBINLAEMIIM BINOM MECUPO DIRANI EABDL KRIM ,
MBIIRET OEBLE SL SO ARENET JW ASR BCBIRET GBEOO JM GEPET SLEST OHILIM ONJDRIM EOSBEI ALHNN UNNBAEM
WEJD BKEHET JWME . MTHILO MLAKT ZIOEI GEPET OHILIM J " I ORB OWBAI ORASI , LAHR MCPR SJET TWA OEDJO
OAM GEPET ALO AN AKN GEPET OHILIM . K - 004 ACIRIM SEHIERE EMEBLIM, LGBELET JZO EOGDO EMSM ISEHRE
LBITM . 2 . HB RMDIO PIWTO AT MSPHET OILDIM ASR AKLE RMDIO WMHIT ENPGJE B - MILIEN S " H , NMCR KI OPIWEI
OINE BJBBER AISPEZ OILDIM ELPIKK , URM PEWE MSPHET SILDIDOM NPURE . 3 . MTHILT OSNO NORGE 92 BNI ADM
BTAENET DRKIM . 4 . SJR ODEL R : 84 . 4 S " H .
= = NR 7701 QC A COLC 439092 FW8I WNC = = ONDEN : HDSET BEQR 1 YT MUECIM SIWAE MISRAL ELBNEN NHTE
BSDO OTJEPO OWBAI SBGRMNIO KSOM MEBILIM AT OACIRIM OBINLAEMIIM BINOM MECUPO DIRANI EABDL KRIM ,
MBIIRET OEBLE SL SO ARENET JW ASR BCBIRET GBEOO JM GEPET SLEST OHILIM ONJDRIM EOSBEI ALHNN UNNBAEM
WEJD BKEHET JWME . MTHILO MLAKT ZIOEI GEPET OHILIM J " I ORB OWBAI ORASI , LAHR MCPR SJET TWA OEDJO
OAM GEPET ALO AN AKN GEPET OHILIM . K - 004 ACIRIM SEHIERE EMEBLIM, LGBELET JZO EOGDO EMSM ISEHRE
LBITM . 2 . HB RMDIO PIWTO AT MSPHET OILDIM ASR AKLE RMDIO WMHIT ENPGJE B - MILIEN S " H , NMCR KI OPIWEI
OINE BJBBER AISPEZ OILDIM ELPIKK , URM PEWE MSPHET SILDIDOM NPURE . 3 . MTHILT OSNO NORGE 92 BNI ADM
BTAENET DRKIM . 4 . SJR ODEL R : 84 . 4 S " H .
= = NR 7701 QC A COLC 439092 FW8I WNC = = AR AR

VVV DE 4XZ 4XZ = = VVV DE 4XZ 4XZ = = AR AR NW RPT NR 2701
= = NR 2701 XI V DN8I 009092 ED4K GR 73 = = IPIPI AZDFE GSCKX SRUDJ EAIQK SMBOW LXZXP FODKZ RNROW AFFLN
TSDMR NOAPX QLMLZ YWOGB JAXHN GYXZB YTPPX RJJSN RBAKK DNQOE ZGEOJ XCYYO HWKNO SDZYG MXLCF
MMABF NRRTSZ WDLEJ DDBTK LYDXB HMEIH KXCNA KKDYF QMOHR OYRTX PJAEL AZDFE
= = NR 2701 XI V DN8I 009092 ED4K GR 73 = = IPIPI AZDFE GSCKX HRUDJ EAIQK SMBOW LXZXP FODXZ RNROW AFFLN
TSDM NNOAPX QLMLZ YWOGB JAXHN GYXZES YTPPX RJJSN RBAKK DNGOE ZGEOJ XCYYO HWKIO EEDZYG MXLCF
MMGBF NRRZZ WDLEJ DDBTK LYDXB HMEIH KXCNA KKDYF GMOHR OYRTX PJAEL AZDFE
= = NR 2701 XI V DN8I 009092 ED4K GR 73 = = AR AR

VVV DE 4X2 4X2 = = VVV DE 4X2 4X2 = = AR AR NW RPT NR 3701
= = NR 3701 QC V ZILF 009092 ZIOU GR 73 = = NBNBN AZDFM PTASY IXWWL RIDDX DHHCA UJOPN SUDBQ BLQOD
NFGGY EQHRS FWLJU BCABO BPOFS WLXNG IEYZT ZOWEU GSWEG WFDIH YNPFB LENPY JDJHQ XMCYX GMKSF
MWMTWQ DGZQD FSOQA FGBAA DXRFF YQUMS NUFJM YNCGS CZMBH KKWOQ JFGXA LWGDW AZDFM
= = NR 3701 QC V ZILF 009092 ZIOU GR 73 = = NBNBN AZDFM PTASY IXWWL RLDDX DHHCA UJOPN SUDBQ BLQOD
NFGGY EQHRS FWLJU BCABO BPOFS WLXNG IEYZT ZOWEU GSWEG WFDIH YNPFB LENPY JDJHQ XMCYX QMKSF
MWOWQ DQZQD FSOQA FGBAA DXRFF YQUMS NUFJM YNCGS CZMBH KKWOQ JFGXA LWGDW AZDFM
= = NR 3701 QC V ZILF 009092 ZIOU GR 73 = = AR AR

VVV DE 4XZ 4XZ = = VVV DE 4XZ 4XZ = = AR AR NW RPT NR 4701
= = NR 4701 MU V SB7R 519092 WT4N GR 34 = = JXJX AZDFR RKDWW UPURU WXLMI CBHUN FWLUX FWUWZ YPHMZ
CFWNX QANOU IEIOF XIPHT HFWWO UPWMO NDDGF NTRHF CDOFN FXUOG XBJHE PXFHI HTTSJ ZEYNI FKSQZ OXRSD
TAFXL ZNGDY RGFCK FGPYQ CNBQJ SWYFL QMHZZ ADEIP OEODN FBCJC AXGRW IDNCP LFSJS UYEOP YMFPP = = AA GR
04 = = XBOYY GWDGG AZDFR
= = NR 4701 MU V SB7R 519092 WT4N GR 34 = = JXJX AZDFR RKDWW UPURU WXLMI CBHUN FWLUX FWUWZ YPHMZ
CFWNX QANOU IEIOF XIPHT HFWWO UPATMO NDDGF NTRHF CTOFN FXUOG XBJHE PXFHI HTTSJ ZEYNI FKSGZ OXRSD

TAFXL ZNGDY RGFCK FGPYQ CNBQJ SWYFL QMHZZ ADEIP OEODN FBCJC AXGRW IDNCP LFSJS UYEOP YMFPP == AA GR
04 == XBOYY GWDGG AZDFR
== NR 4701 MU V SB7R 519092 WT4N GR 34 == AR AR

VVV DE 4VZ 4XZ == VVV DE 4XZ 4XZ == AR AR NW RPT NR 5701
== NR 5701 QC V COLC 519092 WT4N GR 24 == NBNBN AZDXG IEYNA UBABT TMTBGNN SWENWR OWITT FBAEI
EEBYZN JEEHN TNHZT JZMQQ AANPY KPJYS BOYAX UQFEM GIXMK LLSII RXPAC RBCBA IPHSY ILTWDL BELXN TIMGRN
WLZLM MTFZD GRFQH TSNTY OHHIR HJYAX BZAWH ZBIIZ KIUEK GEPSA UDDUR LIATE ODSHW QEEFJ PWKHF PSPQX =
= AA GR 04 == OHUBE AZDXG
== NR 5701 QC V COLC 519092 WT4N GR 24 == NBNBN AZDXG IEYNA UBABT TMTBGNN SWENWR OWITT FBAEI
EEBYZN JEEHN TNHZT JZMQQ AANPY KPJYS BOYAX UGFEM GIXMK LLSII RXPAC RBCBA IPHSY ILTWDL BELXN TIMGRN
WLZLM MTFZD GRFGH TSNTY OHHIR HJYAX BZAWH ZBIIZ KIUEK GEPSA UDDUR LIATE ODSHW QEEFJ PWKHF PSPGX =
= AA GR 04 == OHUBE AZDXG
== NR 5701 QC V COLC 519092 WT4N GR 24 == AR AR

VVV DE 4XZ 4XZ == VVV DE 4XZ 4XZ AR AR NW QTC 1 NR 8701
== NR 8701 UK V BU4K 833192 ZILC GR 62 == ZCZC CNFYQ XKZOC RTJRG UMYXZ IJGNK LQGSM MTAOC AHLBJ HZCRF
AMIKL DFKUO DGMWI SWWKW LJBUE PRFYD MFJLA FEDDT UTARX WURYK LLNAH RBKLR KSRUS FEJGP OCKJI CNFYQ
== NR 8701 UK V BU4K 833192 ZILC GR 62 == ZCZC CNFYQ XKZOC RTJRG UMYXZ IJGNK LQGSM MTAOC AHLBJ HZCRF
AMIKI DFKUO DGMWI SWWKW LJBUE PRFYD MFJLA FEDDT UTARX WURYK LLNAH RBKLR KSRUS FEJGP OCKJI CNFYQ
== NR 8701 UK V BU4K 833192 ZILC GR 62 == AR AR

== VVV DE 4XZ 4XZ == VVV DE 4XZ 4XZ == AR AR NW QTC 1 NR 9701
== NR 9701 MU V ZI9M 543192 WTOU GR 13 == WUWUW EMLLG QFTAU AKTHA WGTDT AFYHI BUKTS WJSYR GCKOA
HGRNW YODZF KPSUB DLZKA UOQYS OMQTN DWJDP ZAULH CHCKI DTNGG DSNBA YDZPH PBJXA HFGGW IDUSD
GMKTL NOXLC KPDQP LYWUS RDHFE QAUNG EMLLG
_ = NR 9701 MU V ZI9M 543192 WTOU GR 13 == WUWUW EMLLG QFTAU AKT~:A WGTDT QFYHI BUKTS WJSYR
GCKOA HGRNW YODZF KPSUB DLZKA UOQYS OMQTN DWJDP ZAULH CHCKI DTNGG DSNBA YDZPH PBJXA HFGGW
IDUSD GMKTL NOXLC KPDQP LYWUS RDHFE QAUNG EMLLG
== NR 9701 MU V ZI9M 543192 WTOU GR 13 == AR AR

6. Morse frequencies

2680 2815 2833 2860 2919
3594 3700
4118 4310 4331 4431 4538 4584 4595 4796 4968
5000 5179 5200 5446 5500 5562
6370 6378 6379 6398 6507 6525 6607 6610 6863 6982
7000 7500
8000 8111 8216 8437 8594 8672 8726 8837 8924
9053 9320
10046 10322
11096 11153
12900 12924 12984
13892
14000 14847 14867
15306
20956

Sources:

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Logs posted by radio monitors to UDXF
CIA World Factbook