# ENIGMA 2000 Active Stations and N&O ident list

Incorporating the ENIGMA Control List archive

[v1.3 September 2017]

## NUMBER STATION KNOWN FAMILIES

Direct equivalents (Morse & Voice) are separated by `/.
Other TX’s operated by the same agency, but not direct equivalents, are separated by //.
All equivalents use broadly similar formats, and often, similar schedules and frequencies.

<table>
<thead>
<tr>
<th>Family</th>
<th>&quot;Owner?&quot;</th>
<th>Members</th>
</tr>
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<tr>
<td>I</td>
<td>KGB/GRU/FSB IA-</td>
<td>E06/E17?/E20?/G06/S06/V06/M14/M24//F01//F06a//S25</td>
</tr>
<tr>
<td></td>
<td>IB-</td>
<td>E07/G07/G17?!/G19?!/S07/V07/M12//XP</td>
</tr>
<tr>
<td></td>
<td>IC-</td>
<td>M18, M21, M42, MX, S13, S14, S28, X6</td>
</tr>
<tr>
<td>II</td>
<td>CIA/NRO?</td>
<td>E05/G05/V05/E14/E21/V14</td>
</tr>
<tr>
<td>IV</td>
<td>NNN Family</td>
<td>E12/G12?/V12/V18/M0</td>
</tr>
<tr>
<td>V</td>
<td>Five Dashes</td>
<td>E13/G13</td>
</tr>
<tr>
<td>VI</td>
<td>BND/FRG</td>
<td>G14//G15//G16/E16//M15</td>
</tr>
<tr>
<td>VII</td>
<td>AIDA Family</td>
<td>S01//S02//E01#/M17#/X1</td>
</tr>
<tr>
<td>VIII</td>
<td>BVT/ST Family</td>
<td>S08/M27?//M40/M53?</td>
</tr>
<tr>
<td>IX</td>
<td>CZECH Family</td>
<td>G18?/S10/M10/M07 #M11/S10d</td>
</tr>
<tr>
<td></td>
<td>IXA-</td>
<td>S05/M06A/S15//S16/M6</td>
</tr>
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<td></td>
<td>IXB-</td>
<td>S18//S17/S19//M39?</td>
</tr>
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<td></td>
<td>IXC-</td>
<td></td>
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<tr>
<td>X</td>
<td>MI6</td>
<td>E03/E03a (Formerly E4)</td>
</tr>
<tr>
<td>XI</td>
<td>SWEDISH Rhapsody</td>
<td>G02/M04//E23</td>
</tr>
<tr>
<td>XII</td>
<td>?</td>
<td>E09/V08</td>
</tr>
<tr>
<td>XIII</td>
<td>3 NOTE ODDITY</td>
<td>G04/M29</td>
</tr>
<tr>
<td>XIV</td>
<td>M01 Family</td>
<td>S21/M45//M01/M01b//M01a//M50/S27</td>
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<td>XV</td>
<td>EDNA SEDNITZER</td>
<td>E18/G22/S04/M13</td>
</tr>
<tr>
<td>XVI</td>
<td>ROMANIAN</td>
<td>V01//M48//V17?//M63?</td>
</tr>
<tr>
<td>XVII</td>
<td>DDR</td>
<td>G03//G08/M49 G01? M41?</td>
</tr>
<tr>
<td>XVIII</td>
<td>CUBAN</td>
<td>V02/V02a/V02b/M08//V19?!//V20?//HM01</td>
</tr>
<tr>
<td>XIX</td>
<td>FRENCH</td>
<td>M51//M51a//M83?</td>
</tr>
</tbody>
</table>

# AIDA Family:- E01 & M17 may not be part of the family, only indication is frequency usage.
# IX(A) Family M11 & S10d possibly not of this family, although using the same formats.

### O INDIVIDUALS

Show no obvious signs of a "family" relationship.
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<td>XPA</td>
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<td>XPA2</td>
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<td>hybrid mode</td>
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<td>digital modes</td>
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<td>DP01</td>
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<td>FSK including F01, F06 &amp; F11</td>
<td>22, 23</td>
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<td>temporary holding assignments [900 series]</td>
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</tbody>
</table>
INTRODUCTION

This Active Station list which includes the N&O ident list updates ENIGMA Control List 25 that remained in use for five years.

The style of the ECL initially was good and easy to use; with the closure of many stations as the political ideology and needs of countries changed the mass of information became unwieldy. The outnumbered active stations were difficult to find within the list for the newcomer.

With this in mind the style of the ECL has been changed, this new order reflecting the need to consult active stations easily whilst leaving the ‘non-active’ stations in the standard ECL format.

The sections are

Active Stations

Voice stations: English, German, Slavic and Other Languages.
Morse stations: Additional info as required
Beacons: Single Letter HF Beacons applicable to Russian/E. Europe networks
Previously Withdrawn Morse: Allow identification/comparisons of these still active stations
Active Polytone stations: Additional info as required
Hybrid Modes
Digital Modes: Includes FSK
Temporary Holding Assignments: 900 series idents
N&O Current Idents

Logging Abbreviations Explained Moved from Newsletter
International Number Systems Moved from Newsletter

Inactive Stations which reflects the above listing as per ECL25

Noise Stations (or unidentified mode) as per ECL25

Log of Previous Changes made to ENIGMA 2000 Active Stations & N&O Ident List
LATEST CHANGES - September 2017

In the continuation of this document the following changes were made:

Front Cover

From ongoing study of the stations it has become clear that the transmissions designated as M42c & M42d have a number of similarities to stations in Family Ia. These stations have therefore been added to this family group. The designations have also been changed from the M42 group to the Priyom designators of F01 & F06. (See under Digital Mode Section Changes for more detail).

I KGB/GRU/FSB IA- E06/E17/E20/G06/S06/V06/M14/M24/F01/F06/F06a/S25 Stations added to Family I

III "STRICH" Family E11/G11/S11/S12/M03/G10/S26/M20/F11 Use of F11 replaces FSK POL

XIV M01 Family S21/M45/M01/M01b/M01a/M50/S27 Previously omitted in error

Contents

Page 3; New Section Added: Log of Changes made to ENIGMA 2000 Active Stations & N&O Ident List

Ident Rationale

Page 5 Added: HM - Hybrid Modes P - Some M42 FSK (Using Priyom designators)

Speech Station Changes

Page 10 Changed to:

O V26 YL Strange Chinese / English mixture. Poss Mil M95
Callsigns XSA, XSE23 (Eks-Es-Ee Lian San) or 3SG ((San-Es-Gee)
Preamble unid., TX is AM, LSB or USB (2010), unid sked, 3f grps
Heard at 06.30z & 15.33/15.53z
Update – Aug 2010 07.30, 09.00 – 10.00 & 13.00 – 14.00z
Simultrans on multiple freqs.
Freqs heard 4283, 4650, 5922, 6446, 6640, 7553, 8619, 8621, 9101, 9054, 9153, 13030, 16665kHz
...
[Remainder of definition remains unchanged]

Page 35 Changed to:

O V27 YL ^ WITHDRAWN - Chinese YL Call 3SG - Identified as V26

Morse Section Changes

Page 11 New format definition added:

XIV M01 or 194 R4, 381/30 381/30, msg 30 x 5F, ending 381/30 000 (Alternative format frequently used 2017)

Page 17 Original

IC M41 Russian Government & Intelligence Uses short zero M42

General Morse activity associated with Russian Government & Intelligence not covered by any of the other designations.
This is part of a large network using numerous different modes including many FSK variation, CROWD-36 etc. all of which have been assigned their own suffix under the FSK M42 group of stations. (See under the FSK 42 for details)

Changed to:

IC M42 Russian Government & Intelligence Uses short zero FSK 42

General Morse activity associated with Russian Government & Intelligence not covered by any of the other designations.
This is part of a large network using numerous different modes including many FSK variation, CROWD-36 etc. all of which have been assigned their own designations under the Digital Modes Section on page 23/24.
Digital Mode Section Changes

In February 2017, Ary Boender of Numbers & Oddities announced he was switching to the use of three of the Priyom designations for some transmissions designated under the historic M42 category. This group of stations uses many different modes & the use of a Morse designator is no longer accurate for the FSK modes being used. ENIGMA 2000, while still maintaining the M42 designator, which is still active, is also changing to the following Fxx designators which will allow for expansion & flexibility for the increasing use of this mode, which has become impractical under M42.

(Thanks to Ary Boender (N&O), Daniel Ekmann (Priyom & ENIGMA 2000) & Pierre Ynard (Priyom), for their expertise on these digital signals).

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FSK M42c - Assigned 01 Feb 2015  Changed to:  F01 - (Formerly FSK M42c)
FSK M42d - Assigned 01 Feb 2015  Changed to:  F06 - (Formerly FSK 42d)
FSK POL - Assigned 01 Feb 2015  Changed to:  F11 - (Formerly FSK POL)

Definitions added for F01, F06, F06a & F11

N&O and Priyom designators

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Added:  UM03 - X2M Temporary designator

IDENT RATIONALE [refers to historical and current additions]

Voice stations are classified strictly according to the language used in their transmission. E.G.:- Station NNN in German, French, English & Hungarian would have four distinct reference numbers.

In order to eliminate confusion over unknown or obscure/ambiguous languages and dialects the total number of languages has been grouped under four headings :-

E - English,  G - German,  S - Slavic,  V - All other languages

(As a group the Slavic languages are easy to aurally identify, but to the untrained ear are not easy to identify specifically. Slavic words for numbers are closely linguistically related and a listing of those used by the currently operating Slavic stations can be found in the European Languages document on the ENIGMA 2000 Website, and elsewhere)

Non-voice stations have the classifications:-

M - Morse & RTTY  P - Some M42 FSK (Using Priyom designators)  HM - Hybrid Modes  X - Other modes

Alphabetical suffixes (always written in lower case) refer to variant forms of the SAME STATION, occasionally or regularly operating within the same period as the more usual format.

Earlier formats, later superseded, of a station, retain their original designation.

Those operative over markedly different periods are assigned as separate stations.

The term variant for our assignment purposes applies only to format, not to schedule, or different voice, or musical ID's or tuning signals. The variants have many forms, some being minor and others radically different in preamble or message type.

Numerical/Alphabetical suffixes, currently only used for the M01/M45 CW stations and XPA, were introduced from 2004 to meet specific logging requirements.

M45 was given numerical suffixes in 2010.

XPA was given alphabetical suffixes in 2011

Activity Indicators

With the current rate of change in the activity status of stations these indicators should not be regarded as definitive, only a guide.

*  Denotes station/format no longer active

^  Denotes station/format possibly inactive

Omitted reference numbers have been deleted from the ENIGMA Control List

CW Stations

Figures/Letters shown in the Morse Station profiles are for illustration only.

The actual currently used content may vary considerably, but those shown have all been used in past transmissions.

Times

All times are quoted in GMT/UTC/Zulu, all information posted to ENIGMA2000 should use this structure.

The known families are shown on the front cover; those active are emboldened.
<table>
<thead>
<tr>
<th>Family</th>
<th>Ref. No.</th>
<th>Comments/&quot;nickname&quot;</th>
<th>Non-Voice Counterpart</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA</td>
<td>E06 OM</td>
<td>AM (English Man)</td>
<td>M14 / M24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Usually H+0, H+30</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Stays on UTC</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Times/freqs vary</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>seasonally, up to</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>date charts given</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>in Newsletters</td>
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<tr>
<td></td>
<td></td>
<td>High pitched start</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>tone.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Null message format:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>“nnn nnn 00000” for 4 mins.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Message format:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3f call for 4mins</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>preamble – 3f DK x2, 2/3f GC x 2.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Msg 5F grps,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ends – DK x 2, GC x 2, 00000 (fast/slow zeros)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td><strong>Note</strong> that the first 8 figs of TX has NO repeat figs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(returned to the original voice early 2001, with distinctive pronunciation of 3 &amp; 8)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(additional voice from Sept 03, with no perceived distinctive pronunciations )</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E06a OM</td>
<td>AM, 2 group commencing with 11111 stutter group</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E06b OM</td>
<td>AM, 3F ID with 5F group in call, 2 messages</td>
<td></td>
</tr>
<tr>
<td>IB</td>
<td>E07 OM</td>
<td>AM, (English Man)</td>
<td>M12// XP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H+0 or H+10, Changes time 1st Apl/Nov.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Null msg format:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>“nnn nnn nnn 000”, R2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Repeats 20 mins later, no third sending.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Msg format:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Call, 3f x 3, Number of messages, R2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Preamble 3/4f ID, 2/3f GC all x 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Msg 5f grps, repeats 20 &amp; 40 mins later</td>
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<td></td>
<td></td>
<td>Ends with 000 000.</td>
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<td></td>
<td></td>
<td>New voice early 2001. In Dec 2003 it was noted that</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>the ID was no longer always directly TX frequency related, and that no separate repeats were logged.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Ongoing study (2004 – 2005) now show that some of the ID’s are again freq related and can be the 2nd, 3rd or 4th fig of a 4fig freq or the 3rd, 4th or 5th fig of a 5 fig freq, or again not related at all.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Some TX’s noted using the E06 voice in 2010</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E07a</td>
<td>First logged 01 Jan 2009</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ID assigned 26 Feb 09. Effective 01 Mar 09</td>
<td></td>
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<td></td>
<td></td>
<td>Null msg format:-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nnn nnn nnn 000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Repeats 20 mins later.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Msg Format :-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3f call x3, number of messages(1), single 5f group all R2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pause then preamble</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3f ID, 2f GC, all x2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Msg 5f grps, repeats 20 &amp; 40 mins later</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ends with 000 000</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>E11 YL</td>
<td>AM/USB,</td>
<td>M03, F11 (Formerly FSK POL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Daily, all/any 05.00, 06.05, 06.45, 07.15, 07.55, 08.15, 08.45, 09.15, 10.30, 11.00, 12.30, 13.00, 13.30, 14.15, 16.30</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Wed 21.00z (noted Feb 06 5082kHz)</td>
<td></td>
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<td></td>
<td></td>
<td>Freqs vary regularly, up to date info given in Newsletters.</td>
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<tr>
<td></td>
<td></td>
<td>YL speaks quickly.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Null format :-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>“nnn Oblique 00” (nnn / 00) no intro, 5 min TX, ending “OUT”</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>E11a</td>
<td>With msg(s) nnn Oblique nn (nnn/mn)R5. 5Fmsg. 5f Rpt, ending “OUT” (originally END)</td>
<td></td>
</tr>
</tbody>
</table>
Assigned 08 Sept 2010
First logged 22 July 2010, 00.45z, 6804kHz, last log 05 Aug.
Null format:-
nnn Oblique nnn Oblique 00 (754/555/00) Rc3, ends “OUT”
Msg format:-
nnn Oblique nnn Oblique nn, Attention, 5f groups
ending “OUT”

AM, call "674" variant, Thurs 08.00/08.10z +-(ex Ukraine?)
Call-up for 4 Min, New msg monthly.
674, nnn(ID)x2, n (GC)x2, 5f msg ends: ID, GC, 0 0 0 0 0 (spaced)
Has used/current freqs
(7635) / 9820 / 10240 /10320 /11170 /12850/12930/14260/16780
usually very short messages.
Heard in Europe mainly during Nov – Feb inc

Claimed to be engineering test TX’s of All India Radio network.
See Issue 32 ENIGMA 2000 Newsletter and investigation document on group site.
(Original write-up from 1997)
AM, Arabic Man, (Heavily accented English)
2L+ f , (ie FD7, FD9) . YL voice also logged.
Re-logged July 05, many calls heard XN2, PN8, PS5 etc.
15040 / 17387kHz / 11620kHz, 09.00z – 15.00z at H+25, H+55 variable
Strong carrier in Europe, but mod sometimes difficult to understand.

AM(suppressed LSB) /USB, music intro (sometimes), songs by the
Egyptian singer Umm Kultum & others.
3f-2f call, 4f msg
repeat repeat repeat
msg rpt
ends 'end of message’
Daily, currently only on 9450kHz. **** see later.
Operates to a "local” time, not UTC
From late 2004 TX’s have been heard between 11.00z – 15.00z
(12.00-14.00z in winter)
From Apr 05 times noted varying +- 20min
3f-2f call, R5 = null msg.
Poor reception in Northern Europe, BC QRM.
From May 2006 being affected by VoR DRM service.
Noted with musical endings to some TX’s from April 04
There are 5 voices used for the English transmission 1 YL & 3 OM (July 2005) + [another heard during May 06]
During Jan 2007 a further schedule at 07.45 / 08.00z +- was identified.
See major article in E2k Newsletter 39, Mar 2007.

On Sat 26 May 07 a new sked found ****
07.00z 6140kHz, (6170 also reported.)
This is still current.
Testing on new Freqs heard December 2015: 9400 kHz 1015z, 9600 kHz 1035z, 1105z with Tone, carrier and song with audio breaks:
‘An Execution Of A Dead Man’ by Omar Khairat
See Newsletter 92 for detail.

AM/USB, As E25, but 3f 3f 2f 2f 2f 2f call.
(re-appeared Feb 05 after a couple of years unlogged)
Believed to be “Control” messages of some sort, remains unheard for very long periods.

Arabic language message variant, but call-up is in English.
From 01 July 07.
First heard 23 Nov 06
16270 // 10915kHz USB, 15.30z/ 20.40z, 5f grps
6840kHz used from Jan 07 at 20.45z.
9061 & 9269 also reported but unconfirmed.
Format :-
Carrier up c5 mins prior
Long 1k tuning tone followed by 5 long dashes.
Only 20 grp msgs heard.
Message, group nn, message
Into msg, with c3 sec pause after 10 grps
Message End

Suspected ‘special event’ station, now presumed closed down, but occasional listening watches are still carried out.

GERMAN

<table>
<thead>
<tr>
<th>Family</th>
<th>Ref.No.</th>
<th>Comments/&quot;nickname&quot;</th>
<th>Non-Voice Counterpart</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA</td>
<td>G06 YL</td>
<td>(see E06 for format details) AM, German Lady, ends &quot;00000&quot;</td>
<td>M14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Only five schedules known, seasonal frequency changes. Sends messages infrequently. See Newsletters for current activity.</td>
<td></td>
</tr>
<tr>
<td>IA</td>
<td>G06a YL</td>
<td>AM, Dual message variant</td>
<td></td>
</tr>
</tbody>
</table>

SLAVIC

<table>
<thead>
<tr>
<th>Family</th>
<th>Ref.No.</th>
<th>Comments/&quot;nickname&quot;</th>
<th>Non-Voice Counterpart</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA</td>
<td>S06 OM/YL</td>
<td>(see E06 for format details) AM, Russian Man, ends &quot;00000&quot; read fast or slow YL voice started Apr / May 2004. YL voice changed 27 Jul 05.</td>
<td>M14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AM, single 5f group, R4, no call, no ending. Sometimes a repeat TX at +10, +20 on another freq. Each 5f call starts with ’11’, and appear to be frequency specific. First noted during 2010.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S06a OM ^</td>
<td>AM, 55555-00000 &quot;idler&quot; format</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S06b OM</td>
<td>AM, 2 group msg commencing 11111, stutter gp. Ends “00000” (rare, once a year ?? in Oct)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S06c OM</td>
<td>AM, 3 group msg, ends “00000”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S06d OM ^</td>
<td>AM, ID + 111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S06e OM</td>
<td>AM, 2 message variant, ends “00000”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S06f OM</td>
<td>AM, 3 group msg, ends “00000”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S06(S)</td>
<td>Is assigned. Effective 14 Jan 2010.</td>
<td></td>
</tr>
</tbody>
</table>

This assignment is to clarify a confusion with S06 postings that have arisen since the introduction of the YL voice in 2004 and the perceived use of fast & slow zero endings. The way the station itself has evolved since then to its current operating style requires us to make this change.

The existing S06 ID will apply to, the current, ‘OM + fast zeros ending’ TX's
The existing a – f variants are unchanged.
The new S06(S) ID will be used for, the current, ’YL’ + slow zeros ending’ TX’s

It will be useful, for clarity, to comment on the Fast & Slow endings.
It does NOT relate to the speed with which the ending zeros themselves are spoken, or even to whether it's a male or female voice.
It relates to the RELATIVE spoken speed of the zeros compared to the spacing between the numbers in the body of the message itself.

S06 male, at the moment, voice message can be spoken either slowly or more quickly but the zeros are always spoken at the SAME speed.
S06(S) female, at the moment, voice message is spoken at only ONE speed and the zeros are always spoken at a SLOWER speed.
S11a YL AM/USB, (Cherta) M03, F11
Mon/Tue/Wed/Thu
Null msg "nnn/00"
Call nnn(ID) nn (GC) V 5f
Ends ‘FINIT/KONEC’
Freqs (mid 2010) 5815, 5855, 6280, 6877, 7840, 9371, 10210, 13908, 16388
Times 07.00, 07.30, 09.00, 09.50, 10.00, 12.30, 13.00z

IC S28 OM
Buzzer /UVB-76, 4625kHz, (Formerly XB)
AM/USB TX,
Also reported on 3824/3842. Additionally from mid 2010 +
-4585, 4625, 4666, 4705, 4745, 6995 logged
Believed Russ Mil. Emergency Mobilisation Ch marker/Nuclear warning similar to UK HANDEL system
With additional voice & data.
The traditional ‘top of the hour’ warble ceased mid 2010 after the ‘maintenance’ off air period.

S30 OM
"The Pip" with messages. (was XT)
3757 night / 5448kHz day, changing over at
c18.00z/06.00z +- ?hrs, seasonal dependant.
Freqs sometimes run // for a short time.

S32 YL
Formerly XSW,(Squeaky Wheel) voice traffic noted
during Mar 05 / Dec 05
Short Russian phrases, ie
“For 544: 384 388 290” TX last about 1 min.
Current freqs: -3829, 5474, 6991kHz, slight variations.
Noted on 15010/15040kHz Nov 05
Russ Mil. Ch marker with voice & data.

OTHER LANGUAGES

Family Ref.No. Comments/"nickname" Non-Voice Counterpart (other links in brackets)
XVIII V02a YL AM, 3 msgs of 150 grps each, diff addr . single grps M08a, HM01
Usually rptd 1hr later, first and last 2 grps usually the same, but during late 2010 msgs with a different
last group were noted and is under investigation. Initial notes in Newsletter 62.
Occasionally heard; voice used on HM01

IB V07 OM/YL^ (see E07 for call details) AM, Spanish Man, ends "000 000" M12, XP
(fem voice started early 2001)

O V13 YL AM, New Star / Star Star Radio, Taiwan, in live Mandarin Musical intro (flute) + voice preamble H-3
TX’s 23.00z – 16.00z
In Europe best 12.00/15.00z 8300kHz.
In CONUS best on 10522kHz, 06.00/12.00/13.00z
Freqs used: - 8300, 9725, 9275 ?, 10522, 11430, 13750, 15388

O V15 OM/YL AM, North Korean, given via Radio Pyongyang, martial music.

O V21 OM/YL The Babbler, Spanish. USB
Quick delivery, erratic TX’s around 13.50 – 14.40z
5637, 5688 and main freq: 6529kHz
See Newsletter 62, page 40 for an analysis

O V22 YL Chinese IL 8375kHz AM, Mon-Fri, 13.00/13.30/14.00/14.30z
4 grps. Only the QRU (null msg) format heard in Europe.
Heard in Japan, misc times, on 8375/10200/10520/16520kHz with the announcement [All listening
stations in the country x 3, This is Beijing x 2]. Repeated 5 mins. Ending “Thanks”
V24 YL AM S.Korean, 3+2f or 2+2f (eg: 710.75) M94
Folk music intro, call (3+2f) then GC,
msgs in xxxXX / xxXX / xxXXX formats.
“I will repeat that” then Call, GC, msg
Ends “That’s all thanks”
possibly related V08 as it uses similar numbering peculiarities
11.00-17.00z, usually H+00 or H+30
Now (10/2010) only using 5715, 6215, 6715kHz (rare),
6330, 6730.
6330 first noted Feb 2010.
See Newsletter 61, page 36 for an analysis of V24/M94

V25 YL Chinese, 3f +3f ID, in 8 – 23MHz range TX around East
Format "316 x3 this is 728 x3" R5, No,GC,
Asian Midnight
4F grps R2, ends "goodbye" [16.00z+-] May have ceased

V26 YL Strange Chinese / English mixture. Poss Mil
Callsigns XSA, XSE23 (Eks-Ee Lian San) or 3SG ((San-Ee-Gee)
Preamble unid., TX is AM, LSB or USB (2010), unid sked, 3f grps
Heard at 06.30z & 15.33/15.53z
Update – Aug 2010. 07.30, 09.00 – 10.00 & 13.00 – 14.00z
Simultrans on multiple freqs.
Freqs heard 4283, 4650, 5922, 6446, 6460, 7553, 8619, 8621, 9101, 9054, 9153, 13030, 16665kHz
Format :- nr 030 15 35 0927 0600
Where 030=msg nr/recipient, 15=gc, 35=unid (stays constant)
0927=date, 0600=appears to be time of origination, but can be later ?? than the TX time !!
All figs in synth Chinese however inter msg announcements and callsign letters are in “broken” English,
ie “em-es-eeg ai-gee-en, while the numbers are in Chinese !!!

V28 Assigned 01 Dec 2015 M95
YL Voice – Live announcement
Possible voice equivalent to M89. First heard November 2015.
3277kHz [±2kHz] AM, best heard in USB;Transmits between 1330 to 1340z - [10min msg txt assumed].
May use other freqs/different times: 3039/3045/3690kHz [±10kHz] around the 1330z transmission time [±10mins]
Korean language [apparently with N Korean inflections]
Message structure has more than passing similarities with that of M89
See Newsletter 92

Reserved

V30 Assigned 01 July 11 M97
North Vietnamese Station
Aka ‘The Lighthouse’
10255kHz, 16.00z
Call “ This is Hai Dang”
(Sung hai vos, Hai dang, num num, num bam)
5f grps May have ceased
Common abbreviations used for reporting:

R4 = repeated for 4 mins
5F = 5 figure single groups
5FF = 5 figure paired groups
5Ff = 5 figure triple groups
Short = short zero (sent as "t")
Long = long zero (-----)
// = parallel freq
Hand = hand sent
nnn x 3 = repeated 3 times
Cut = numbers sent in abbreviated form (numerous systems used).

<table>
<thead>
<tr>
<th>Family</th>
<th>Ref No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>XIV</td>
<td>M01</td>
<td>MCW &quot;Two Tone&quot;, hand sent, ends &quot;000&quot;, short 0.</td>
</tr>
</tbody>
</table>

194 R4, 381 381 30 30 = =, msg 30 x 5F, ending 381 381 30 30 000
or 194 R4, 381/30 381/30, msg 30 x 5F, ending 381/30 000 (Alternative format in frequent use 2017)

This station has a regular annual sked structure & from July 2004 the designators are amended to:-

- M01/1: ID 197 Jan, Feb, Nov, Dec
- M01/2: ID 463 Mar, Apr, Sept, Oct
- M01/3: ID 025 May, June, July, Aug

(See newsletters for frequencies & times)

It was thought that M01 never repeated msgs until Christmas 2012 saw two msgs repeated. Since then there have been a small number of repeated msgs recorded, & the use of sections of old M01 or M01b msgs is common.

- M01a Hand sent Short zero Normally ending 000 or 111 000.

Formerly end of month variants, day/time/freq varies... changed to random skeds in 2005. 197 197 197 58003 58003 58003 111 000 repeated several times, no message

There are many different formats in use. No strict protocol - Endings may vary. May send short sequences of 5F grps repeated often preceded or followed by 111.

May move to different nearby frequency or consist of a msg followed minutes later by repeats of some grps.

Believed 2-way link, but no frequencies for the other end of link have been found.

Example of typical transmissions:

<table>
<thead>
<tr>
<th>Format</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>463 463 50481 50481 (Repeated up to 6 times)</td>
<td>45830 BT</td>
</tr>
<tr>
<td>111 51962 51962</td>
<td>76059 10143 33461 54986 63140 89188 54026 41933 75574 66069</td>
</tr>
<tr>
<td>333 51028 51028</td>
<td>28103 46291 64537 92340 38315 47976 45107 25939 12087 28741</td>
</tr>
<tr>
<td>020 18 23</td>
<td>63216 89633 77048 01987 35555 96795 27418 26728 BT</td>
</tr>
<tr>
<td>111 999</td>
<td>45830</td>
</tr>
<tr>
<td>558 37 = 37x5F = 558 37</td>
<td>111 01987 35555 96795 27418 26728</td>
</tr>
<tr>
<td>111 51179 53005 (Repeat of groups 15 and 25)</td>
<td>111 01987 35555 96795 27418 26728</td>
</tr>
<tr>
<td>111 000</td>
<td>111 000</td>
</tr>
</tbody>
</table>

- M01b Format as M01 but using other frequencies & times (often odd times such as T+04 or T+10). The same messages can be repeated over several weeks, even multiple repeats within same day. Uses parallel freqs, hand sent.

III M03 ICW/CW slow Auto Sent CW. Short 0 E11, S11a, F11

Can appear any time, but always on a 5 min slot (i.e. H+15, H+20, H=25 etc.) Each msg is sent firstly with 5 fig paired grps, then ‘call x5’ & msg repeated with single 5 fig grps. Call is always 3 fig.

Null format: Call / 00 sent for 3 mins ending = = 000

Msg format: Call / GC sent for 3 mins, msg 5 fig paired grps. Call / GC repeated for 1 min. Rpt of msg single 5 fig grps ending = = 000
ICW/CW some MCW, 3 messages, each 150 groups  
Uses cut numbers  (ANDUWRIGMT)
Call-up:  3 x 5 figure grps repeated for 3 mins,
1st grp sent 5 times,  1st msg 150 single grps, ending AR AR AR
2nd grp sent 5 times,  2nd msg 150 single grps, ending AR AR AR
3rd grp sent 5 times,  3rd msg 150 single grps, ending AR AR AR SK
First and last 2 grps the same

<table>
<thead>
<tr>
<th>A</th>
<th>N</th>
<th>D</th>
<th>U</th>
<th>W</th>
<th>R</th>
<th>I</th>
<th>G</th>
<th>M</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>0</td>
</tr>
</tbody>
</table>

The only remaining M08 transmissions are of the M08a variant

This family has undergone much change - having experimented with many amateur radio digital modes. Much of the output consists of data bursts & M08a grps sent alternately - See HM01 for detail.

ICW/CW. Auto sent  MCW has been used in the past.  
5f, 3 or 4F DK, ends "000 000"  Uses short zero
Very active. Always appears on 10 min slots (i.e. H00, H+10, H+30 etc.), with the two most used time slots being H00 & H+30.
Always uses frequencies in the ITU Fixed Allocation segments using the full short wave spectrum.
Where msg length exceeds the time, the 2nd & 3rd transmissions will be sent approx 2 mins after the previous msg has completed transmission. Where no msg is sent there is no third transmission.
Transmissions up to 1200z the freqs go from low to high, after 1200z they go from high to low, although there are a small number of exceptions to this rule.
The call ID is sent fairly slowly at about 15 WPM for 2 minutes, but DK, GC & msgs are usually sent around 30 WPM. (Variable)
Null format: (3 fig ID sent 3 times followed by 000), repeated for 2 mins
Msg format: (3 fig ID sent 3 times followed by 1), repeated for 2mins.
    DK GC  DK GC,  msg 5 fig single grps. Ends 000 000
    ID is always 3 fig. DK can be 2 or 3 fig.
Uses regular scheds, but these change over time with new scheds appearing & old ones ceasing. Scheds appear with one transmission or more per week, though a repeat may be sent on another day, usually - but not always on the same freq / time. Scheds also often reappear yearly at the same Month / Day / Time slots.
Most of the early transmissions (0340 - 0600z) have ceased with only a few remaining.
Current comprehensive activity Charts and Predictions published in Newsletters.

MCW / ICW  Auto Sent  Short 0  
5F<3F,ends '00000' long or short
Similar to M01 - But ends 00000
Call ID always 3 fig.  DK always 3fig.  Paired groups.
Null Format: DK DK DK 00000 (Repeated for 4 mins).
Msg Format: Call-up ID repeated for 4 mins, DK DK GC GC = =,
    msg 5 fig paired grps. ending DK DK GC GC 00000
Note that the 1st/3rd Fri of month 19.00/20.00z TXs will repeat same time on Saturday if message is sent.
**Note: See also M24 - Identical format, but high-speed version (25 - 40 wpm)**
**O** M23

ICW Auto Sent Slow Morse Long Zero

Usually 5f call, some as stutter grps (can also be 2 or 3f or random letters)

00000 R3 to 20 = 30 = 33 x5f = IMI IMI =”.
Can end AR or AR AR or no ending.

Very random and infrequent. Can have long periods of no activity.

Freq use is many & varied. Usually, though not always a parallel freq is also found.

8030kHz is a commonly used frequency.

Calls can take many forms. Strings of continuous I or V, 2, 3 or 5 fig calls have been reported, some of them stutter groups. (e.g. 333).

The most common calls recently heard consist of **3 or 5 fig stutter grps**, repeated continuously in slow CW for up to 40 mins, usually daily on a regular time slot.

If all figs are EVEN a msg MAY be sent, but not always. Msgs are rare.

If all the figs are ODD, there will NEVER be a msg sent.

Calls can suddenly change to other figs, often more than once - then can change back to the original call just as easily.

When a daily sched appears to cease, it has been noted that an hourly ‘dit’ is still transmitted at the previous sched time - & often at one or more other regular times over the hour. The sched may reappear after a period of days or weeks on these ‘active’ frequencies.

Most commonly used formats;

**Null Format:** Call (Repeated for up to 40mins). Ceases with no formal ending.

**Msg Format:** Call (repeated 3 to 20 mins) = GC GC = msg 5fig single grps

= IMI IMI = GC GC = AR AR

---

**IA** M24

ICW / MCW Auto sent Uses short zero **E06, G06, S06**

5F<3F, ends ”00000” long or short

As M14 except the whole transmission is sent at high-speed. (25 - 40 WPM)

Call ID always 3 fig. DK always 3fig. Paired groups.

Null Format: DK DK DK 0 0 0 0 0 (Repeated for 4 mins).

Msg Format: Call-up ID repeated for 4 mins, DK DK GC GC = =,

msg 5 fig paired grps, ends DK DK GC GC 0 0 0 0 0

---

**XIX** M51


Mostly 5-ltr, but with some number & punctuation grps. Until mid-2015 sent 100grp msgs with headers, but has changed to continuous grps that will often continue for hours, sometimes days.

Uses apparently random frequencies across the bands, including designated amateur allocations. Can appear at any time. Uses single or parallel freqs. Frequently uses 3881//682 5kHz when not in use by the scheduled FAV22 (M51a) transmissions which will cease suddenly when a scheduled FAV22 broadcast is due

Believed to be a French military CW training net, this station has been operating since the 1960s in various forms and has previously been known to use the amateur call sign F9TM, though this has not been reported in recent years. According to HamCall.net, F9TM is licensed to the CSTEI, ‘Centre Spécialisé Des Telecommunications Et de l'informatique’.

Pre-2015 Header example - BT NR 54 J 9 10:42:37 2015 BT
M51a  Assigned. 18 August 2012.  Letter variant of M51  Single Grps  Long Zero
Regular training scheds on 3881 // 6825kHz. Uses call-sign FAV22.

Believed to be allocated to the French army at Mont-Valerien, Paris  FAV22 transmits Morse in several formats, divided into lessons for Morse code instruction and training.

Consists of 4 lessons of 5f grps (with some number grps) & French text alternately, with speeds of 420, 600, 720, 840 & 960 cps. with speed increasing over the week.
Always identifies with call-sign FAV22 both at the start & end of each transmission.

Call-up:  VVV VVV VVV DE FAV22 FAV22 FAV22 QLH 3881/6825kHz
Ending:  CQ DE FAV22 VA

O  M89  Chinese Mil., 4f. Auto / Hand sent
Uses AU34567DNT cut number format

<table>
<thead>
<tr>
<th>A</th>
<th>U</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>D</th>
<th>N</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>0</td>
</tr>
</tbody>
</table>

Some fixed stations, but many random. Mainly between 3 – 16 kHz.
Sends continuous Round Slip interrupted by msgs.

Call-signs and freqs change periodically. Known to re-use previous freqs/calls
Current call-signs in use 2SLC, 3A7D, ALSK, CV6K, FXM, SLBC, NYZ, etc. Numerous other call-signs also appear on various freqs during exercises.

Fixed stations normally uses different // day and night frequencies.
Random freqs used for operator 'chat' & 2-way comms mostly error checking grps
Will frequently use 3333, 4444, 5555, 6666kHz etc.

Sample format:  V MW3D (x3) DE 2SLC (x2) (Round slip repeated)
MSG NR 697 CK 21 871228 2353 RMKS 3002 TO 6071 K  BT BT BT 4DDA 3AUN 63U7  N7T6  TT45  T567  674N  345N  TANA  TTT7  5U43  AT4D... etc.

Some audible in Europe at times but mostly Far East.

JPL has written an excellent in-depth report on this station entitled 'M89 or the Communication Network of the Second Artillery Corps / Force' which can be downloaded from the 'Articles' section of the ENIGMA 2000 website.

O  M90  Czech Mil CW - Also uses voice (USB)
Net control station & various out stations  Simplex net

Freqs:  4133, 4193, 4852, 4861, 5098 kHz  (possibly others in use)

Traffic:  Voice communication checks, all other traffic in Morse Markers Flash messages
Messages consist of 5 letter groups

Various Formats:

Marker:  ITJA ITJA ITJA AR
Flash msg:  HRT6 de U4NP XXX NOCLEH 578 NOCLEH 578 K
Message:  ITJA (callsign of the addressee 3x) AR

Header = 072 1 10 12 0830 072 = ITJA (callsign of the addressee) = 5LG message = YPN3 (callsign of the sender) = header = callsign of the addressee = repeats message = YPN3 (callsign of the sender)

072 - addressee
1 - message nr
10 - group count
12 - day
0830 - UTC+2 (summertime)

(Definition detail courtesy of Ary Boender from Numbers & Oddities)
Chinese Mil., 3f. Auto / Hand sent Assigned 08 Sept 2010

Uses AU34567DNT cut number format;

```
<table>
<thead>
<tr>
<th>A</th>
<th>U</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>D</th>
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<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>0</td>
</tr>
</tbody>
</table>
```

Similar to M89 but uses 3f grps with different format & Tx structure varies

Uses call-signs XSV, XSV70 & XSV85 - possibly others. The call QV5B is also believed to be part of this group.

8030kHz used as main channel for XSV85. Other freqs in use vary.

**Sample Format:**

```
V V V (x2 – x6) BNEC( x2 – x5) BNEC de XSV70 XSV70
```

**NR 0974 CK 94 35 1116 0654 BT**

TA6 3U6 3AN TAU 773 357 373 4T4 NN3 435 3DT TTU 4DT 4D6 TA7 773 TAD 773 356 4A7 NN3 445 3DU 4DT 4D6 TAN 773 TUT 773 TU3 773 356 4T7... etc.

Some audible in Europe at times but mostly Far East.

---

Assigned 01 Dec 2011 Single grps Long Zero

CW sister station to North Vietnamese Voice Station V30 (aka 'The Lighthouse'). First heard November 2011.

Irregular sched on 10375kHz, 15.00z (variable)

**Sample Format:**

```
Call-up varies but a typical example;

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
SD79 KKK SD79 KKK SD79 KKK KKK
HT HT HT
SN60 SN60 SN60
(msg sent in 5f grps)
KKKKKKKKKKKKKKKKKKKKKKKKKKKK

Sometimes send two msgs. If so Second message starts with AAAAA sequence

SD is msg No. (sequential) & SN is the GC - Often sent in full as So Dien & So Nhom
The msg including the call-up is sent three times

Sometimes audible in Europe / UK but mostly Far East.
```

**Last heard on 06 & 07 May 2015 sending SD84 msg in use since Aug 2013 - May have ceased**

---

**Beacons**

<table>
<thead>
<tr>
<th>IC</th>
<th>MX</th>
<th>SLHFB’s (Single Letter HF Beacons) Solitary</th>
</tr>
</thead>
<tbody>
<tr>
<td>MXI</td>
<td>SLHFB clusters (group of beacons v.close in freq, c 0.1kHz apart)</td>
<td></td>
</tr>
<tr>
<td>MXP</td>
<td>With message, probably Russ. Naval</td>
<td></td>
</tr>
<tr>
<td>MXV</td>
<td>Irregular “V”</td>
<td></td>
</tr>
</tbody>
</table>

The above MX designators apply only to Russ/European networks, others should use the generic “SLB” term.
Previously Withdrawn ENIGMA Designations & Other Morse Stations

The stations listed in the section below are active Morse stations whose designations have in the past been withdrawn as not of interest to ENIGMA. Although these are not ‘Number Stations’ in the true sense, most of them do, however send groups of numbers in some form, & are mainly believed to be military or diplomatic stations.

There are three reasons for their inclusion here. Firstly, these are often reported to ENGMA 2000 as possible number stations, so including the details & format of these stations helps newcomers identify & eliminate these from logs. Secondly, we acknowledge that much information has previously been lost when a station is deleted from the list, & thirdly, because there is still a good deal of interest in these stations.

In particular, Ary Boender has not only kept these designations current, but has added a good deal of knowledge & detail - in the case of M32, adding sub-classifications to indicate from which service these signals belong.

**O M21**  
Russian Air Defence - Plotting station. Uses short zero.  
Continuous 14 fig msg - sent approximately every 50 secs. Various Freqs.  
Sends coordinates with a time string.  
If no coordinates are sent then the spaces are replaced with question marks.  
e.g. BT 990914nn8nnnn (where n = coordinates) or T990914??0?????  
(0914 represents example time stamp usually Moscow time UTC+4)

**O M22**  
Uses call sign 4XZ Israeli Navy Single Groups Long Zero  
Much of this Morse network was replaced by a “data modem” in early 2005 on 7160//8780kHz  
Freqs: 2680, 2860, 4331 & 6607kHz. Sends Round Slip or Msgs 24 hrs  
Mainly heard in Europe on; 4331kHz & 6607kHz  
Also heard on 10341kHz in late 2015. Other freqs may be in use.  
Round Slip Format: VVV DE 4XZ 4XZ ==  
Msg Format: Sends 5 ltr single grps Recognisable by characteristic msg headers:  
Sample Msg: NR81 3 SH V CU9W 014111  NJ3R GR02 ==  
NLNLN VUNUB YLAWN BQCEH OUWSQ UGFTO GBUHU LMHQY VBCRQ AGIZM RKFDA HWTHJ YHJCEP RUTQG BDGBS SAQAU PNRWE ZASOQ GGHAC YNWNI ==  
NR81 3 SH V CU9W 014111 NJ3R GR02 ==  
Group count should be read from right to left. (e.g. GR02 is a 20 grp msg), as should the date in the msg headers.

**O M32**  
Russian / CIS Ukrainian Military Nets Various & many freqs used.  
FAPSI (Federal Agency for Government Communications & Information)  
Uses various call sign formats consisting of 4 characters.  
Often sends list of calls with pauses between.  
e.g. WGGR DE 9JOL K  
D2T8 DE 9JOL K  
RK  
LPLK DE J6SU K
O M32a Russian Navy Traffic between Russian Coast Stations (3 ltr calls) & ships (4 ltr calls)
Coast Stations Calls (Not definitive)

RIT RIQ97
RCV RJF44
RIW RMW2
RMP
RLO

O M32b Russian Naval Aviation Traffic between Russian Navy & Aircraft

RJF94 Central Sector Station Moscow
RJC38 Northern Sector Station Murmansk
RJC48 Southern Sector Station Sevastopol
RCH64 Eastern Sector Station Vladivostok
RCB Western Sector Station Kaliningrad

Aircraft using 4 character calls e.g. XLWF XNNT

O M32c Russian Air Force REA4 Air traffic

e.g. QI4A De IWF4
SL7K DE IWF4 K

A second large net is the Tupolev Tu-95 "Bear" net. This net is used by the Tu-95 strategic bombers. The ground stations frequently send channel markers W, R, N, G, C, K, Z, L, V, Ü (mostly “W”). Most active frequencies: 5620, 5835, 8112, 8162 kHz.

XVII M41 Russian Air Defence Forces M41 belongs to the same family as M21

The format is similar to the various M21 variants but there are some differences.
The main differences are:
- The use of tactical call signs
- The use of the abbreviations WZD and ABV

WZD stands for the Russian word Wozduh ( Воздух ) which means AIR and is a radar plotting system. It is also a priority code when it is mentioned in a standard Russian military message.
ABV means “I repeat”.

Examples: This one has it all; WZD, ABV and a call sign. This is a typical plot message:-

" LF2O LF2O LF2O ar LF2O LF2O LF2O WZD 722 3002 235 499971 90 05 ABV 722 3002 235 499971"

This message is a standard military message with WZD as priority code:
"RCJG de RIW QTC 828 22 4 2240 828 = wzd =" (followed by 5 figure groups.)

IC M42 Russian Government & Intelligence Uses short zero FSK 42

General Morse activity associated with Russian Government & Intelligence not covered by any of the other designations. This is part of a large network using numerous different modes including many FSK variation, CROWD-36 etc. all of which have been assigned their own designations under the Digital Modes Section on page 23.

Example: Formats vary; Recent activity (previously given Temporary Holding ID M901)

VVV KLM KLM KLM 1/50 Sent for 2 minutes NW NW

Header consists of a 5f grp - Msg No. - GC - Date - Time

Msg numbers are sequential.* Time is UTC

e.g. 00111 023 50 20 0810 == (Msg No. 23 GC 50 Date 20th Time 0810)

50 x extremely fast single 5f grps. ==

Ends with slower QRU QRU SK SK
Acknowledgements

Designations M32a, M32b & M32c are sub-classifications that have been assigned by Ary Boender & use of these designations is courtesy of Ary Boender & the Numbers & Oddities Newsletter (N&O).

We acknowledge the help, support & cooperation of Ary Boender in compiling the above entries, who is responsible for much of the information contained particularly within the M32, M41 & M42 entries.

Ary Boender’s Numbers & Oddities -  http://www.numbersoddities.nl
ACTIVE POLYTONE STATIONS
[Including X06 et al]

(XP Family)


The Polytone transmissions are of Russian origin and are associated with the more conventional Voice & Morse stations.

XPA
[Russian Intel Multitone System MFSK-20] MI2
Major Article published in E2K Newsletter 23, July 2004, giving detailed analysis and comment. Changes freqs monthly, new freqs are posted via E2k group list. High probability of this signal being involved with an “auto receive” capable system, hence XPA. It consists of 25 tones (then amended to 20 tones Jan 06)
Station first noted on 3rd Dec 2003, by 8th Dec 2003 analysis had started.
Tones / value relationships used given below (nominal values as per update published Mar 2006 following prolonged analysis, after some anomalies were found in the original assessments)

Owing to the number of new schedules and time variations continually being discovered the current well established and robust transmission pairs are being alphabetically identified (from Jan 2011). This enables immediate identification between the monitoring team without resorting to a full schedule description – and automatically highlights any new, out of sked, transmissions.

Of these listed only XPA c and XPA e are active:

<table>
<thead>
<tr>
<th>Schedule</th>
<th>Frequency</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>XPA/a</td>
<td>Wed/Fri</td>
<td>04.00/05.00z</td>
</tr>
<tr>
<td>XPA/b</td>
<td>Mon/Wed</td>
<td>04.40/05.40z</td>
</tr>
<tr>
<td>XPA/c</td>
<td>Tue/Fri</td>
<td>06.00/07.00z</td>
</tr>
<tr>
<td>XPA/d</td>
<td>Sun/Tue</td>
<td>08.00z Sun / 14.00z Tue</td>
</tr>
<tr>
<td>XPA/e</td>
<td>Tue/Thur</td>
<td>17.30/19.00z</td>
</tr>
</tbody>
</table>

Update info : 2010
Until recently XPA operated in two modes using either USB[10bd] or MCW[20bd]. The MCW [20bd] sendings are heard only during the 20.00/21.00z skeds on Tuesdays and Fridays.
The MCW sendings mode and baud rate changed on 1st Dec 2009 to USB [10bd], putting those skeds in line with all others, and oddly gave increased signal strengths.
However those previous MCW skeds then ceased after Tue 25th May 2010.

Historically the USB mode became operational for the morning sendings on 22 Sept 2006, the evening sending remaining as AM. On 3 Oc1 2006 the numerals and some administration tones of the USB mode changed to double length duration, leading to:
Two distinctly different schedule types with both sending a train of 60 pulses at 0.5 baud prior to entering the message mode, via the complicated ‘administration’ tone sequence.
The first schedule type, so far only heard in the morning (UK), uses Upper Sideband as its transmission mode and sends the message section at 10 baud.
The second schedule type, previously heard in the evening (UK), used MCW (modulated carrier wave/AM) as its transmission mode and sent the message section at 20 baud. (Now ceased, as remarked in update above, Ed)

At least one XPA split-schedule has been discovered, transmitting the same message on two separate days at differing times and using six differing frequencies...

Transmission Structure , XPA and now discontinued XP [used as a reference for tone measurement].
Lead-in pulse train, administration tones, ident, message count, administration tones, serial number, GC, DK, message/s, ending admin tones.

Message Structure
The message/s are sent in 64 group ‘blocks’ with a 7segment single tone separator between each ‘block’.
The total number of groups sent is always 3 more than given in the GC as the SN/GC/DK are exclusive of the GC.

XPA and M12 have been noted to have interchanged some of their skeds, particularly the Tue/Fri 21.00z AM skeds, as from 16 Feb 07.

The XPA Polytone system uses a total of twenty tones. Five of which have definite machine ‘administration’ functions. Twelve are concerned as numerals [0 to 9], the space function, and character repeat. Four of the numerals are known to have other additional functions. Three tones remain “unallocated” as yet.
<table>
<thead>
<tr>
<th>Tone [Hz]</th>
<th>Function</th>
<th>Secondary Function</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>520</td>
<td>Start Low</td>
<td></td>
<td>Transmission starts on low tone</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Used with 1280 Start High</td>
</tr>
<tr>
<td>600</td>
<td>Synch Low [starts]</td>
<td></td>
<td>Used with 1120 – fig 9</td>
</tr>
<tr>
<td>680</td>
<td>Space between groups</td>
<td></td>
<td>Separates Groups or other functions; lengths vary.</td>
</tr>
<tr>
<td>720</td>
<td>End Tones</td>
<td></td>
<td>Used with 1200 Repeat tone</td>
</tr>
<tr>
<td>760</td>
<td>Fig 0 *</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>800</td>
<td>Fig 1 *</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>840</td>
<td>Fig 2 Separator Low</td>
<td></td>
<td>Seven segment: 626262</td>
</tr>
<tr>
<td>880</td>
<td>Fig 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>920</td>
<td>Fig 4 *</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>960</td>
<td>Fig 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td>Fig 6 Separator High</td>
<td></td>
<td>Seven segment: 626262</td>
</tr>
<tr>
<td>1040</td>
<td>Fig 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1080</td>
<td>Fig 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1120</td>
<td>Fig 9 Synch High</td>
<td></td>
<td>[Follows 600]</td>
</tr>
<tr>
<td>1160</td>
<td>Message start pulse</td>
<td></td>
<td>Only seen at beginning of message BUT led in by 1200 repeat pulse.</td>
</tr>
<tr>
<td>1200</td>
<td>Repeat</td>
<td></td>
<td>Follows character to be repeated</td>
</tr>
<tr>
<td>1280</td>
<td>Start High</td>
<td></td>
<td>Used with 520</td>
</tr>
</tbody>
</table>

Null Message ending seen as 10140 at null message end

**XPA2**

XPA2 is a variant of the XPA typified by the inverted lead in pulse train. Tones depicting numerals are separated by 15kHz instead of 40kHz prev seen. Like the earlier XPA transmissions a secondary schedule indicating letter is used to depict the known three active schedules.

<table>
<thead>
<tr>
<th>XPA2/m</th>
<th>Sun/Tue</th>
<th>Various time slots</th>
</tr>
</thead>
<tbody>
<tr>
<td>XPA2/p</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan - Mar</td>
<td>Mon/Wed</td>
<td>0800/0820/0840z</td>
</tr>
<tr>
<td>Apr-May</td>
<td>Sun/Fri</td>
<td>1500/1520/1540z</td>
</tr>
<tr>
<td>Jun-Aug</td>
<td>Tue/Thu</td>
<td>1900/1920/1940z</td>
</tr>
<tr>
<td>Sept-Oct</td>
<td>Sun/Fri</td>
<td>1500/1520/1540z</td>
</tr>
<tr>
<td>Nov-Dec</td>
<td>Mon/Wed</td>
<td>0800/0820/0840z</td>
</tr>
</tbody>
</table>

| XPA2/r       | Fri/Sat | Various time slots |

See current newsletter for schedule detail

First heard 3 May 2006, ceased 2 June 2006 then re-appeared Dec 06
See NL 35 July 2006 for full initial report.[P36 to 39]
Narrow bandwidth, 15Hz tonal separation.
Operates at 3 differing speeds and can be mistaken for another system, it is essential to confirm tonal values.
UNID Russ MFSK 15 tone system.
The construction of the tonal sequences clearly indicate this is another system designed for automated reception however the limited samples preclude, for the time being, the establishment of possible tonal secondary functions.
However the nature of the transmissions together with the wide range of frequencies used lead us to believe that this is probably of a “diplomatic” nature

Tone/value relationships initially established :-
1005 = space, 1035 = sync, 1050 = end, 1080 = repeat, 1235 = start
1100 = 0; 1115 = 1; 1130 = 2; 1145 = 3; 1160 = 4;
1175 = 5; 1190 = 6; 1205 = 7; 1220 = 8; 1235 = 9

(These tones still used and lately measured in AM transmissions, 09.00z intercepted October 2007 – See NL issue 43 for log)

Tones suddenly changed on 30 May 2005, becoming:-
965 = space 1025 = sync 1135 = end 1125 = repeat 1435 = start
1115 = 0 1185 = 1 1215 = 2 1245 = 3 1275 = 4
1305 = 5 1345 = 6 1375 = 7 1405 = 8 1435 = 9
[Note in both tone maps the allotted tone for the figure 9 is dual function].

As a result of the many intercepts performed in October 2007 this station is known to send in both AM and USB without change in the baud rate. The above tones encountered on 30th May 2005 can be understood to be nominal tones only for the receiver on which they were heard.

To date [12/2015] no AM tones have been received, USB now being the preferred mode for interception..

Our recent understanding of the tones utilised illustrates that the individual values depend on the characteristics of the receiver used in sideband mode. Therefore analysis of the tones is simplified by measuring the separator tones which, like XP and XPA, use the values for 2 and 6, and the first tone values of groups 1 and 2 producing that for 0, and the 2nd tone of group 2 which provides the repeat tone value [usually –15/20Hz from the 0 value].

**XPA/XPA2 tones**

December 2015: Whatever tones values are received for XPA the tones are 40Hz apart say:

<table>
<thead>
<tr>
<th>Rpt</th>
<th>1200</th>
<th>Ghost</th>
<th>n/a</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>760</td>
<td>5</td>
<td>960</td>
</tr>
<tr>
<td>1</td>
<td>800</td>
<td>6</td>
<td>1000</td>
</tr>
<tr>
<td>2</td>
<td>840</td>
<td>7</td>
<td>1040</td>
</tr>
<tr>
<td>3</td>
<td>880</td>
<td>8</td>
<td>1080</td>
</tr>
<tr>
<td>4</td>
<td>920</td>
<td>9</td>
<td>1120</td>
</tr>
</tbody>
</table>

Once you have one tone [zero is very convenient] add/subtract 200 to/from the value and you have the value of its opposite number; see 0 and 5. The Rpt tone is always 80kHz higher than that for ‘9’.

Likewise tone values received for XPA2 the tones are 15Hz apart, say:

<table>
<thead>
<tr>
<th>Rpt</th>
<th>1100</th>
<th>Ghost</th>
<th>1180</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1115</td>
<td>5</td>
<td>1195</td>
</tr>
<tr>
<td>1</td>
<td>1130</td>
<td>6</td>
<td>1210</td>
</tr>
<tr>
<td>2</td>
<td>1145</td>
<td>7</td>
<td>1225</td>
</tr>
<tr>
<td>3</td>
<td>1160</td>
<td>8</td>
<td>1240</td>
</tr>
<tr>
<td>4</td>
<td>1175</td>
<td>9</td>
<td>1255</td>
</tr>
</tbody>
</table>

As with XPA as soon as one value is ascertained the next follows on.

XPA2 differs in that the repeat value is 15Hz below zero, to accommodate this change the gap between 4 and 5 is 20kHz, giving rise to the ‘Ghost’ value, always 5kHz above the value for 4, that allows the 15kHz shift to be maintained. Interestingly, this value is +80kHz from the repeat value; this function can be seen throughout the above table.
IC X06
6 tones, repeating sequence. (Mazielska)
Russ selcall system for FAPSI* stations, many variants.
Uses basic tone mapping, as follows, to produce the figures 1 – 6, giving a possible 720 unique
combinations, but far fewer heard.
Usual format:-
A long single ‘lead in’ tone, then:-
1 = 840Hz, 2 = 870Hz, 3 = 900Hz,
4 = 930Hz, 5 = 970Hz, 6 = 1015Hz
Observed that the X06 stations have a close, but not yet fully defined, association with CROWD36
stations.
(* Note that FAPSI, per se, closed in 2002 – confirmed 2003 – but the system is still in use by other
“owners”)
[Data & CW sigs sent after the tone sequence which ceased mid 2003, turned up again on 11 May, 2006] Starting in Newsletter 58, page 10 (May 2010) the concept of ‘Alert Signals’ was introduced for some
‘repeated scale’ transmissions.
Extensive research work by the E2k ‘X06’ sub group has culminated in a significant ‘Commentary’ being
Those with a specific interest in the ‘tone’ stations should consult.

X06a
Alternating two tones in ‘ababab’ sequence.
X06b
Audibly less than 6 tones, where a tone is sequentially repeated 2 or 3 times giving an audible single
longer tone.
X06c
6 tone rising scale, stepping sequentially through the available tones.

Hybrid Mode [HMnn]

HM01
Assigned 18 Nov 2012
Hybrid Mixed-mode variant of Cuban XVII Family.
Consists of alternating SK01 & V02a repeating sequences.
See SK01 in inactive station listing.

HM02
Assigned 01 May 2015
Hybrid mixed-mode station - possibly variant of Russian Family 1
Consists of FSK transmission followed by a Morse message
Uses a single = as separator throughout the message (An unusual feature).
Morse Format Auto-sent 5 fig Single Grps Short zero Ends three long dashes
See Newsletter 88 for full details (May 2015)
Station is currently under investigation - Definition may change.

Digital Modes

DP01
Assigned 12 Apr 2014
Digital Pseudo-polytone: Linked to Russian Family I
First heard Apr 2008, with yearly reports since around the same time of year.
Recent activity in Apr 2014 around 10250kHz along with other Family I variants.
Consists of a two minute, two-tone lead-in & two digital bursts with short tone
sequences at the start & finish of each digital burst.
See Newsletter 82 for full details (May 2014)

FSK
In response to the need to assign universal identifiers to a number of digital signals,
ENIGMA 2000 are pleased to have agreed the following with Ary Boender.
This series of designations was developed by Ary from ENIGMA's deleted M42 to cover
& classify an increasing number of digital signals emanating from Russia.

FSK M42 - Assigned 01 Feb 2015
CROWD 36 (Serdolik) & other Undefined Russian Government/Intelligence Digital Modes

FSK M42a - Assigned 01 Feb 2015
GRU (Russian Military Intelligence) CW & Digital traffic

FSK 50/500 Msgs with separators every 50 grps (=50= =100= =150= etc.) Russian.
Digital Modes continued:

**F01**
Baudot 200Bd / 500Hz  
(Formerly FSK M42c)
Repeats 25-character blocks automatically for 6-8 minutes.
Example:  
\[
\begin{align*}
\text{=8251} & \quad 65380484843868036 \\
\text{=8462} & \quad 30549583192393891 \\
\text{=7853} & \quad 29392548929506269 \\
\text{=8554} & \quad 549410102838013150 \\
\text{=8635} & \quad 516060140587158102 \\
\end{align*}
\]
....
\[
\text{=99729} \quad 0608400000+++++237
\]
Null messages consist solely of:
\[
\text{=5761} \quad 00000++++++162
\]

**F06**
Proprietary FSK 200Bd/1000Hz  
(Formerly FSK 42d)
Repeats 288-bit blocks for 6-8 minutes. Each block encodes 38 digits, compressed. Messages form 5FG's.
A tiny percentage of broadcasts are double messages with one of them using the 11111 000## E06a/S06b Format, an example of which was logged in July 2017.

**F06a**
Same modem as F06, except the content is plain ASCII with file names, no compression.

**F11**
All Polish Military / Intelligence FSK 100/500, 100/620, 100/740  
(Formerly FSK POL)
Linked to E11 / M03 Family
Most common usage is 100/620 although 100/740 has recently been used.

**Proprietary FSK 100Bd/620Hz.**
Repeats a 4-digit ID five times, followed by a 5FG message.
Null messages consist of 00000 repeated ten times.
Traffic is usually preceded and followed by 88888 88888, and additionally followed by the group count as a 5FG, repeated twice.

**Acknowledgements:**
ENIGMA 2000 would like to thank Ary Boender from 'Oddities & Numbers' & Daniel Ekmann, (Priyom & ENIGMA 2000) for their assistance & knowledge in assigning & defining these stations.
Temporary Holding Assignments [900 Series]

These assignments were brought in to allow a cautious cataloguing of stations whose traits were altered but had a familiarity during what appeared as a ‘wireless tit-for-tat’ of worthless/meaningless messages transmitted to keep intercept staffers busy. Readers will note that certain frequencies were ripe with 900 series calls. Whilst these listed stations have apparently ceased ENIGMA2000 will continue with 900 IDs if and when necessary.

<table>
<thead>
<tr>
<th>Designation &amp; Description :</th>
<th>Current Status / Conclusion:</th>
</tr>
</thead>
<tbody>
<tr>
<td>M901 - Assigned 29 Jan 2014 (Station under investigation) Temporary holding ID for CW station using the call-sign KLM. Sends extremely fast single 5f grp msgs. Ends QRU QRU SK SK Only known sched on 16720kHz, 0810z.</td>
<td>WITHDRAWN Ceased transmissions 31 May 2014 after changing from a single CW Transmission to a two-way RTTY exchange. Russian diplomatic &amp; Intelligence transmissions. Identified as part of M42 family</td>
</tr>
<tr>
<td>E907b - Assigned 06 Mar 2014 (Station under investigation) Temporary holding ID for voice variant belonging to Family I. First heard Wed 05 Mar on 10250kHz. Possibly related to Russia / Ukraine conflict. Format as E07 with additional 3 fig grp in call-up e.g. 123 123 123 1 334 Voice similar -but not the same as E06. Msg uses single 5 fig grps. Ends 000 000</td>
<td>Occasionally Active -No known schedule</td>
</tr>
<tr>
<td>M912b - Assigned 13 Mar 2014 - Redefined 01 May 2014 (Station under investigation) Temporary holding ID for Morse variants of M12 on or around 10250kHz. First heard Wed 05 Mar with various variants heard since. Morse equivalent of E907b heard operating on the same freq. Formats: Various, as M12 with changes to call-ups &amp; no known scheds.</td>
<td>Occasionally Active -No known schedule</td>
</tr>
<tr>
<td>Type 1 -Additional 3 fig grp in header (e.g. 223 223 223 1 656)</td>
<td></td>
</tr>
<tr>
<td>Type 2 -Single fig call-up (e.g. 1 1 1 )</td>
<td></td>
</tr>
<tr>
<td>Type 3 -3-fig counting grps as call-up (e.g. 123 123 123 1)</td>
<td></td>
</tr>
<tr>
<td>Type 4 -Triplet group as call-up (e.g. 333 333 333 1)</td>
<td></td>
</tr>
<tr>
<td>M912c - Assigned 14 Mar 2014 (Station under investigation)</td>
<td></td>
</tr>
<tr>
<td>Temporary holding ID for Morse variant of M12. First heard Thu 13 Mar on 10250kHz at 2043z. Format as M12 but uses single figure call-up e.g. 1 (R2m)</td>
<td>This variant has been incorporated into the M912b assignment, which has been changed to include all M12 type variants heard on or around 10250kHz</td>
</tr>
<tr>
<td>S906g - Assigned 02 Apr 2014 (Station under investigation)</td>
<td></td>
</tr>
<tr>
<td>Temporary holding ID for voice variant of S06. First heard Sun 02 Mar on 11073kHz. Format as S06 with additional 5 fig grp in header e.g. 352 352 352 63524 719 40 Uses S06 voice.</td>
<td>Occasionally Active -No known schedule</td>
</tr>
<tr>
<td>Active / not active</td>
<td>Code</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------</td>
</tr>
<tr>
<td>NA</td>
<td>EV01</td>
</tr>
<tr>
<td>A</td>
<td>EV02</td>
</tr>
<tr>
<td>A</td>
<td>F01</td>
</tr>
<tr>
<td>A</td>
<td>F06</td>
</tr>
<tr>
<td>A</td>
<td>F11</td>
</tr>
<tr>
<td>A</td>
<td>M21</td>
</tr>
<tr>
<td>A</td>
<td>M32</td>
</tr>
<tr>
<td>A</td>
<td>M32a</td>
</tr>
<tr>
<td>A</td>
<td>M32b</td>
</tr>
<tr>
<td>A</td>
<td>M32c</td>
</tr>
<tr>
<td>A</td>
<td>M42</td>
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<tr>
<td>A</td>
<td>M42a</td>
</tr>
<tr>
<td>A</td>
<td>M89d</td>
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<tr>
<td>A</td>
<td>M89v</td>
</tr>
<tr>
<td>NA</td>
<td>MC01</td>
</tr>
<tr>
<td>NA</td>
<td>MC02</td>
</tr>
<tr>
<td>A</td>
<td>MC03</td>
</tr>
<tr>
<td>NA</td>
<td>MV09</td>
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<tr>
<td>NA</td>
<td>MV22</td>
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<tr>
<td>A</td>
<td>MV26</td>
</tr>
<tr>
<td>A</td>
<td>MV27</td>
</tr>
<tr>
<td>A</td>
<td>MV30</td>
</tr>
<tr>
<td>A</td>
<td>MCV03</td>
</tr>
<tr>
<td>A</td>
<td>Q26</td>
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<tr>
<td>A</td>
<td>RADv</td>
</tr>
<tr>
<td>A</td>
<td>RAv</td>
</tr>
<tr>
<td>A</td>
<td>RMv</td>
</tr>
<tr>
<td>A</td>
<td>RNAv</td>
</tr>
<tr>
<td>A</td>
<td>RNv</td>
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<tr>
<td>A</td>
<td>S3850</td>
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<td>A</td>
<td>S4525</td>
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<td>A</td>
<td>S4790</td>
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<td>A</td>
<td>S5292</td>
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<td>A</td>
<td>S5330</td>
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<td>A</td>
<td>S5426</td>
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<td>A</td>
<td>S6930</td>
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<tr>
<td>NA</td>
<td>UM01</td>
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<tr>
<td>A</td>
<td>UM02</td>
</tr>
<tr>
<td>A</td>
<td>UM03</td>
</tr>
<tr>
<td>A</td>
<td>UM10</td>
</tr>
<tr>
<td>A</td>
<td>VC01</td>
</tr>
<tr>
<td>A</td>
<td>VC02</td>
</tr>
<tr>
<td>A</td>
<td>VC03</td>
</tr>
<tr>
<td>A</td>
<td>VC04</td>
</tr>
<tr>
<td>A</td>
<td>VC05</td>
</tr>
<tr>
<td>A</td>
<td>VTN</td>
</tr>
</tbody>
</table>
Logging Abbreviations explained.

The ENIGMA 2000 Standard logging should take this form without any personalised abbreviations:

E07 10436kHz 07/06[141 1 563 102 92632 … 09526 0 0 0 0 0] 1753z Fair QRM2 QSB2 PLdn SUN

Station: E07 [Traits of stations in ENIGMA Control List]
Freq: kHz [As above 10436kHz]
Time: z [Always 24hour clock, ‘z’ states GMT/UTC]
Date: day/month [As above 7th June]

Msg detail:

Varieties with station
ID taken from 100kHz fig in freqs: 414 [freqs used in this schedule were 13468, 12141 and 10436kHz]
Msg count: 1
Dk [decode key]: 563
Gc [group count]: 102
First group of msg: 92632
Text between grps: ...
Last group: 09526 [where more than one group is stated the use of LG ahead group indicates ‘Last Group’]

Ending: 0 0 0 0 0
Time msg ends: 1753z
Received signal strength assessment: Fair
Noise QRM2
Fading to signal QSB2

Monitor: PLdn

Day heard: SUN

Unknown: unk

Repeat: R [which can be expanded to mean]:
Repeated : R5m [repeated 5 mins]; R5s [repeated 5 seconds]; R5x [Repeated 5 times]

Received signal strength assessment.

Some receivers possess ‘S’ meters that give a derived indication of signal strength caused by changes within that receiver. Calibration may, or may not be accurate and the scale, may or may not, be the same as that on other receivers. Some receivers have no meter yet produce acceptable results.

Therefore we prefer the quality of the signal to be assessed by the particular monitor.

Guidance for this can be sought from the Q code:

QSA What is the strength of my signals (or those of...)?
The strength of your signals (or those of...) is...
1) scarcely perceptible.
2) weak.
3) fairly good.
4) good.
5) very good.
[QSA1 S0 to S1; QSA2 S1 to S3; QSA3 S3 to S6; QSA4 S6 to S9; QSA4 S9 and above]
Sooner than put a numerical value we state: Very Weak, Weak, Fair, Strong or Very Strong.

Noise, Static and Fading.
Again guidance from the Q code:

Noise:

QRM Are you being interfered with?
I am being interfered with
1) nil
2) slightly
3) moderately
4) severely
5) extremely.

Note: in the sample the monitor has stated QRM2 which means ‘slight noise’; had the interference been from a broadcast station you might have read ‘BC QRM2’ and so on.
Static [Lightning and other atmospheric disturbance]:

QRN Are you troubled by static?
I am troubled by static
1) nil
2) slightly
3) moderately
4) severely
5) extremely.

Fading [Propagational disturbance]

QSB Are my signals fading?
Your signals are fading
1) nil
2) slightly
3) moderately
4) severely
5) extremely.

Note: in the sample the monitor has stated QSB2 which means ‘slight fading’ where the received signal obviously fades but the message is still intelligible.

The use of QRM1, QRN1 and QSB1 is not expected; if there is no such aberration to the signal it need not be stated.

Day Abbreviation
Self explanatory: SUN, MON, TUE, WED, THU, FRI, SAT

Mode used in transmission

Generally the mode of transmission is not stated, being available in the ENIGMA Control List. Should the expected mode change then this can be stated as: CW [Carrier Wave] MCW [Modulated Carrier Wave] ICW [Interrupted Carrier Wave] generally associated with Morse transmission; AM [Amplitude Modulation], LSB [Lower Sideband], USB [Upper Sideband] generally associated with Voice transmission.

Languages used

The ident of a station generally states the language in use, E [English], G [German], S [Slavic], V [All other languages].

Non voice stations


Ideally we would like to see logs offered in our standard format allowing the editorial staff to process the results quickly rather than having to manually re-format. Anyone submitting logs should refrain from using their own abbreviations or shortening our abbreviations eg. Su Mo Tu etc. See a correct example below which is now self explanatory:

V02a 5883kHz 0700z 06/06 [A63752 57781 31521] Fair QRN2 end unk PLdn SAT

And the incorrect version:

V2a 5883k 07:00 06/06/2009 A/63752-57781-31521 S3 PLdn SA

Additional Info:

Own station ids should not be used.

When an unidentifiable station is submitted please supply the obvious details:

Freq, Time start and end, Date, Message content, particularly preamble and message content and ending.

Language details are helpful, particularly any strange pronunciations. Other details about stations can be found in the ENIGMA Control List available from Group files.

Logging Abbreviations explained. Revised 21st December 2015
### NUMBER SYSTEMS

#### European Numbers systems:

<table>
<thead>
<tr>
<th>Language</th>
<th>zero</th>
<th>one</th>
<th>two</th>
<th>three</th>
<th>four</th>
<th>five</th>
<th>six</th>
<th>seven</th>
<th>eight</th>
<th>nine</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>zero</td>
<td>one</td>
<td>two</td>
<td>three</td>
<td>four</td>
<td>five</td>
<td>six</td>
<td>seven</td>
<td>eight</td>
<td>nine</td>
</tr>
<tr>
<td>Bulgarian</td>
<td>nul</td>
<td>edín</td>
<td>dva</td>
<td>tri</td>
<td>chétiri</td>
<td>pet</td>
<td>sédem</td>
<td>ósem</td>
<td>dévet</td>
<td></td>
</tr>
<tr>
<td>French</td>
<td>zero</td>
<td>un</td>
<td>deux</td>
<td>trois</td>
<td>quatre</td>
<td>cinq</td>
<td>six</td>
<td>sept</td>
<td>huit</td>
<td>neuf</td>
</tr>
<tr>
<td>German*</td>
<td>null</td>
<td>eins</td>
<td>zwei</td>
<td>drei</td>
<td>vier</td>
<td>fünf</td>
<td>sechs</td>
<td>sieben</td>
<td>acht</td>
<td>neun</td>
</tr>
<tr>
<td>Spanish</td>
<td>cero</td>
<td>uno</td>
<td>dos</td>
<td>tres</td>
<td>cuatro</td>
<td>cinco</td>
<td>seis</td>
<td>siee</td>
<td>ocho</td>
<td>nueve</td>
</tr>
<tr>
<td>Czech</td>
<td>nula</td>
<td>jeden</td>
<td>dva</td>
<td>tr^i</td>
<td>chýr^i</td>
<td>pét</td>
<td>shest</td>
<td>sedm</td>
<td>osm</td>
<td>devêt</td>
</tr>
<tr>
<td>Polish</td>
<td>zero</td>
<td>jeden</td>
<td>dva</td>
<td>trzy</td>
<td>cztery</td>
<td>pie,c'</td>
<td>szes'c'</td>
<td>siedem</td>
<td>osiem</td>
<td>dziewie,c'</td>
</tr>
<tr>
<td>Romanian</td>
<td>zero</td>
<td>uno</td>
<td>doi</td>
<td>trei</td>
<td>patru</td>
<td>cinci</td>
<td>s,ase</td>
<td>s,ape</td>
<td>opt</td>
<td>nouâ</td>
</tr>
<tr>
<td>Slovak*</td>
<td>nula</td>
<td>jeden</td>
<td>dva</td>
<td>tri</td>
<td>slátyri</td>
<td>pát'</td>
<td>shest'</td>
<td>sedem</td>
<td>osem</td>
<td>devât'</td>
</tr>
<tr>
<td>* West</td>
<td>nula</td>
<td>jeden</td>
<td>dva</td>
<td>try</td>
<td>slátry</td>
<td>pet</td>
<td>shest</td>
<td>sedem</td>
<td>osem</td>
<td>devat</td>
</tr>
<tr>
<td>* East</td>
<td>nula</td>
<td>jeden</td>
<td>dva</td>
<td>tri</td>
<td>slátyri</td>
<td>peje</td>
<td>shesc</td>
<td>shedzem</td>
<td>osem</td>
<td>dzevec</td>
</tr>
<tr>
<td>Serbo-Croat</td>
<td>nula</td>
<td>jédan</td>
<td>dvâ</td>
<td>trf</td>
<td>chétiri</td>
<td>pét</td>
<td>shést</td>
<td>sédam</td>
<td>ósam</td>
<td>dève:t</td>
</tr>
<tr>
<td>Slovene</td>
<td>nula</td>
<td>ena</td>
<td>dva</td>
<td>tri</td>
<td>slátrí</td>
<td>pet</td>
<td>shest</td>
<td>sedem</td>
<td>osem</td>
<td>devot</td>
</tr>
<tr>
<td>Russian</td>
<td>null</td>
<td>odín</td>
<td>dva</td>
<td>tri</td>
<td>chet'ye</td>
<td>pyat'</td>
<td>shest'</td>
<td>sem'</td>
<td>v'osem'</td>
<td>dévyat'</td>
</tr>
</tbody>
</table>

^ Some German numerals have a radio accent and totally in keeping with German armed forces The numbers in question are:

- 2 ZWEI pronounced as TSWO
- 5 FUNF pronounced as FUNUF, poss hrd as a fast TUNIS
- 9 NEUN pronounced by some as NEUGEN

#### Numeral Systems used on selected Slavic Stations [those discontinued in italics]:

<table>
<thead>
<tr>
<th>Actual Polish[S11]</th>
<th>SI1a Cherta</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 zero</td>
<td>nul</td>
</tr>
<tr>
<td>1 jedynka</td>
<td>adinka</td>
</tr>
<tr>
<td>2 dwojka</td>
<td>dvoyka</td>
</tr>
<tr>
<td>3 trójka</td>
<td>troyka</td>
</tr>
<tr>
<td>4 cztery</td>
<td>chetyorka</td>
</tr>
<tr>
<td>5 pi'ka</td>
<td>petyorka</td>
</tr>
<tr>
<td>6 szeæ</td>
<td>shest</td>
</tr>
<tr>
<td>7 siedem</td>
<td>syem</td>
</tr>
<tr>
<td>8 osiem</td>
<td>vosyem</td>
</tr>
<tr>
<td>9 dziewie,c'</td>
<td>dyevyet</td>
</tr>
</tbody>
</table>

Notes on Numeral Systems used on selected Slavic Stations:

* Nula heard as ‘nul’
^ Jeden heard as ‘Yedinar’

‘ Tri heard as ‘she’

### Arabic Numerals [E25 and V08]

<table>
<thead>
<tr>
<th>Language</th>
<th>zero</th>
<th>one</th>
<th>two</th>
<th>three</th>
<th>four</th>
<th>five</th>
<th>six</th>
<th>seven</th>
<th>eight</th>
<th>nine</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>sifr</td>
<td>wahid</td>
<td>itnien</td>
<td>talata</td>
<td>arba</td>
<td>khamsa</td>
<td>sitta</td>
<td>saba</td>
<td>tamanya</td>
<td>tissa</td>
</tr>
<tr>
<td>Arabic</td>
<td>sifr</td>
<td>wahid</td>
<td>itnien</td>
<td>talata</td>
<td>arba</td>
<td>khamsa</td>
<td>sitta</td>
<td>saba</td>
<td>tamanya</td>
<td>tissa</td>
</tr>
</tbody>
</table>

^ Actual Polish[S11]
**Chinese Number System:**

*Particular attn to Yi/Yao pse.*

<table>
<thead>
<tr>
<th>Numeral</th>
<th>Chinese</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Ling</td>
<td>Zero</td>
</tr>
<tr>
<td>1</td>
<td>Yi/Yao</td>
<td>One</td>
</tr>
<tr>
<td>2</td>
<td>Er</td>
<td>Two</td>
</tr>
<tr>
<td>3</td>
<td>San</td>
<td>Three</td>
</tr>
<tr>
<td>4</td>
<td>Si</td>
<td>Four</td>
</tr>
<tr>
<td>5</td>
<td>Wu</td>
<td>Five</td>
</tr>
<tr>
<td>6</td>
<td>Liu</td>
<td>Six</td>
</tr>
<tr>
<td>7</td>
<td>Qi</td>
<td>Seven</td>
</tr>
<tr>
<td>8</td>
<td>Ba</td>
<td>Eight</td>
</tr>
<tr>
<td>9</td>
<td>Jiu</td>
<td>Nine</td>
</tr>
<tr>
<td>10</td>
<td>Shi</td>
<td>Ten</td>
</tr>
<tr>
<td>100</td>
<td>Ba</td>
<td>One Hundred</td>
</tr>
<tr>
<td>1000</td>
<td>Wan</td>
<td>One Thousand</td>
</tr>
</tbody>
</table>

(The number four in Chinese is always unlucky, because it sounds the same as the word for death which is also pronounced 'Si' but with a different tone).

**Chinese numeral construction:**

For example:

- San Three
- San Shi Thirty. In English they are saying Three and Ten.
- San Shi Jiu Thirty Nine. In English they are saying Three, Ten and Nine.
- San Bai Three Hundred. In English they are saying Three and One Hundred.
- San Wan Three Thousand. In English they are saying Three and One Thousand.

Number systems revised: 21st December, 2015
<table>
<thead>
<tr>
<th>Family</th>
<th>Ref. No.</th>
<th>Comments/&quot;nickname&quot;</th>
<th>Non-Voice Counterpart</th>
</tr>
</thead>
<tbody>
<tr>
<td>VII</td>
<td>E01 YL</td>
<td>AM, “Ready Ready” ends “End”</td>
<td>M17</td>
</tr>
<tr>
<td>O</td>
<td>E02 OM</td>
<td>AM, Arabic Man (The Babbler)</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>E03 YL</td>
<td>USB, “Lincolnshire Poacher” intro tune, with ‘gong’ chimes TX = 200 groups of 5F figs, approx 45 mins duration</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>E03a YL</td>
<td>USB, “Cherry Ripe” intro tune, with ‘gong’ chimes TX = 200 groups of 5F figs, approx 45 mins duration</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>E04</td>
<td>DELETED, should be logged as E03a</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>E05 YL</td>
<td>USB, Counting Station (Cynthia). 3-2 grps, “end” Last heard 3 Oct 03</td>
<td></td>
</tr>
<tr>
<td>XII</td>
<td>E09 YL</td>
<td>AM, intro music from Magnetic Fields (J-M Jarre) Uses 2 different ID tunes, (possibly a schedule identifier. Ed)</td>
<td>(V08)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E10 is probably still the most prolific voice station and always gives surprises. Newsletters contain comprehensive charts of current activity.</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>E10 YL</td>
<td>AM, (more correctly H3e, some J3e (USB) reported) NATO Phonetics call. (any 3 letters eg :-ART, PCD,VLB, TMS, ) xxx2 =Null msg , xxx1 = Test, xxx3 = not yet determined</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>E10a YL</td>
<td>All variants / strings to above eg: - SYN7, VLB524X118X0115Z7, HNC-F, HNC-Z etc</td>
</tr>
<tr>
<td>III</td>
<td>E11b</td>
<td>Starts &amp; ends with stutter grps, M03c M03f S11b G11 (77777 77777), as first and last 2 msg grps. Msgs with only “in 30’s” grps, Initial msg is 5F, repeat is 5f. distinct pause every 10 grps</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E12 YL</td>
<td>NNN</td>
<td>M02 sG12 V12 V18</td>
</tr>
<tr>
<td>V</td>
<td>E13 YL</td>
<td>Five Dashes</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>E14 YL</td>
<td>4F “control”</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>E15 YL/OM</td>
<td>AM/USB, uses a pre-NATO Phonetic Alphabet (very similar to the 1948 ARRL “Adam Baker Charlie” phonetics) i.e. NAS = Nancy Adam Susan. Does not TX on Fridays. Ends AR AR (as Adam Robert) Difficult copy in Northern Europe, heavily accented. YL voice returned Mar 05 after very long absence. (Under ongoing intense investigation with numerous variants already found, their significance, if any, is not as yet fully understood. Ceased in 2006, it may return.</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>E15a</td>
<td>WITHDRAWN, may be part of an expanded E15 section at later date.</td>
<td></td>
</tr>
<tr>
<td>VI</td>
<td>E16 YL</td>
<td>USB, 2 Letter, (AK, AG, DM, MD)</td>
<td></td>
</tr>
<tr>
<td>IA</td>
<td>E17 YL</td>
<td>English Lady, ends &quot;00000“ Sends msg for first 2 weeks of month Null msg thereafter. Ending Zeros can be fast or slow.</td>
<td>M14</td>
</tr>
<tr>
<td>IA</td>
<td>E17a YL</td>
<td>AM, Dual message variant</td>
<td>M14a</td>
</tr>
<tr>
<td>IA</td>
<td>E17y YL</td>
<td>AM, &quot;398&quot; (ex Cuba)</td>
<td></td>
</tr>
<tr>
<td>XV</td>
<td>E18 YL</td>
<td>LSB, Edna Sednitzer</td>
<td>M13</td>
</tr>
<tr>
<td>O</td>
<td>E19 OM</td>
<td>Irish Man, notable accent.</td>
<td></td>
</tr>
<tr>
<td>IA</td>
<td>E20 YL/OM</td>
<td>2 Message, dual voice version of E17 / E6, or both. All could be variants of same</td>
<td>M14?</td>
</tr>
<tr>
<td>II</td>
<td>E21 YL</td>
<td>4F counting, Eng accent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E21a YL</td>
<td>American accent</td>
<td></td>
</tr>
</tbody>
</table>
XI  E23 YL/OM  AM/USB, (Swedish Rhapsody).
    Changed in 1998 to “without music intro” and using
    the E05 “Cynthia” type voice.
    Typically operates on a 3 out of 4 weekly cycle, missing out
    week 2, and starting 1st Mon of month.
    2005, Skeds are now erratic and may be heard at other times.
    Updates / skeds published in E2k Newsletters.
    Format :-
    Intro of 0 – 9 as 5f stutter grps (00000 11111 etc) all x 3, then into
    Msg of 5F grps. Ends with stutter group and “message end”

O  E24 OM  AM, "Allo! Allo!"

E26  Allocated in error and immediately WITHDRAWN

GERMAN

?XVII  G01 OM  Tyrolean music (both sections)
    G01a OM  Irregular tunes, 1st section
    G01b OM  Phrase messages, 1st section, and
             irregular tunes.

XI  G02 YL  Swedish Rhapsody
    Ceased 1997
    G02a YL  Counting Variant

XVII  G03 YL  Gongs or Chimes intro
      Ceased 23 May 1990

XIII  G04 YL  AM, (3 Note oddity), starts at any 5 min
       Intro of 3 rising tones, “Achtung Achtung”
       15th Thurs of Month,
       Started using English in 98 with the TCS voice.
       Ceased early 2005.

II  G05 YL  German Counting "Zwo"
    G05a YL  “Zwei” variant

IB  G07 YL  AM, German Lady, (Nui Noichen)
       Intro “Achtung”. Uses “noiken” for 9
       ends ’000 000 ende’. 3/4f DK, single grps
       (Inactive for a long time, resurfaced 15Mar 2002
       Inactive again 2005, may return)

XVII  G07a YL  AM, 774 type variant
     G08 YL  4 note, rising scale. Same voice as G7
             Last noted scales were “so-la-ti-do” & “do-me-so-do”
             Ceased Apr 1990
     G08a YL  Single repeated 5F group + Morse
     G08b YL  Rapid dots intro

O  G09 YL  Saxophone Piece

III  G10 YL  "Bert Kaempfert"

III  G11 YL  AM/USB, Strich
     Format generally as E11a, ending “00000 00000 ENDE”
     0 = Zerau
     2 = Zvou (very unusual pronunciation)
     Last heard 2 April 98
     Reheard Jan 07, for a short time, after almost 10 year absence.
     Returned again Sept 2007 and is still active (2010)

IV  G12 YL  NNN

V  G13 YL  5 Dashes
     G13a YL  3/2 group variant

VI  G14 YL  DFC37/DFD21, rising and falling 20 note scale.
     G14a YL  Non-phonetic variant

VI  G15 YL  Papa November, USB sent on 3// freqs
     G15a YL  PN read over musical notes

VI  G16 YL  USB, 2 Letter (AU, DB, DC, DT, EG, EL, FS, GK, NU,
             WL, OA, PZ, RD, VO)
     Network gradually reduced in the mid/end 90’s
GK the last station in this network ceased mid 1999.

?IB  G17 YL  *  German Lady, only on 5420 kHz
IX  G18 YL  *  8 note, rising and falling scale  M10?  M07?
IA  G19 OM ?? *  German Man, ends “000000”,
   same voice as “live”G1  M12?  XP?
   Possibly reactivated April 2003, under investigation,
   Unconfirmed / unreliable reports only, considered closed
O  G20 YL  *  Spruch
   G20a YL  *  One 5F group
O  G21 YL  *  Music & Morse intro
XV  G22 YL  *  LSB, Edna Sednitzer  M13 S04
   German speakers have remarked on the odd accent used.
   First Thu of month 22.00/23.00z 6748, 6682, 4832 seasonal.
   Ceased Feb/Mar 2006
O  G23 ? *  2M8, Hitler's birthday, ( 20 Apr )

SLAVIC

VII  S01 YL  *  intro Aida (Grand March)  ?M17
VII  S02 YL  *  intro Drums and Trumpets march
   Ceased June 1996
S02a YL  *  with added Bugle
S02b YL  *  “Taps / Il silencio” intro, see also X1
S02c YL  *  3F nomer, then reversed
S02d YL  *  5F Nomer
O  S03 YL  *  Unid Russ/Slavic ? words, such as
   “Adim Yadeliet Sim”, “Shest Sim Adim” “Shest Adim Vosim”
   Messages rarely sent, has ended “Nula / Nul / Zero ? x3
   Was very busy in Mar 95, May 97.
   Last confirmed log 20 Jan 98 (MoK)
   Random sked, heard 94 – 98 in 5/6 meg bands.
   Has used S&R 5680kHz slot at times.
   Has been confused with S18 / S19 (but voice very different)
XV  S04 YL/OM ^  LSB, Edna Sednitzer (reactivated Nov 99)  M13
   Ceased again Feb/Mar 2006, may return
   Poor TX, much QRM, very difficult to understand.
   Intro often sounds as “Devarta Devit Devita” (in early 2005)
   but is actually “Petarka Thurry Sednitzer” = “537” (confirmed Jan 06 after many hours of multiple
   monitoring)
   Slow delivery, unidentified Slovak dialect, phonetically using :-
   0 = Nuar  5 = Petarka
   1 = Edna  6 = Shest
   2 = Davouka (sounds voyta)  7 = Zedniter
   3 = Tri (sounds Thurry)  8 = Osem (sounds Artur)
   4 = Chetyri  9 = Devet (sounds David)
   ends “0 0 0” (Nuar Nuar Nuar, spaced)
   Second Mon/Tue each month.
   ( has also been heard 1st Mon/Tue, very rare)
3373kHz November to February 22.45z
3868kHz March to October 21.45z
IXB  S05  *  OLX (early format with null messages)  M06a
   S05a  *  Rapid dots, no c/s, formerly S15  M06a
   S05b  *  OLX, no null msg., formerly S16  M06
IB  S07 OM ^  AM, Russian Man, 3f call, 3/4f DK ends ”000 000”  M12, XP
   S07a OM ^  AM, Multiple 2 group
   S07b OM ^  AM, Multiple single group message, using same ID
   S07c OM ^  AM, 4f, non random
VIII  S08 YL  *  YT (Serbo Croat?)  M27
   Ceased end 1996
O  S09  *  Polish Counting
IXA

S10 YL * AM, Czech Lady I (piano piece, later 5 notes)  M10c
S10a YL * AM, 555 "idler" format  M10c
S10b YL * AM, 5 note intro (3 versions)  M10c
S10c YL * AM, 3F ID, with "idler"  M39 distant relative?
S10d YL ^ AM / USB, 3F ID (Bulgarian Betty, actually Czech) M10, S10, Normally Sun /Tue 20.50z – but other skeds heard Changes freqs monthly, 2 // freqs, can have one in AM other USB
S10e OM ^ AM, Slovak, 5Ff, GC x 3 in call. 4 weekly sked.  M10e

III

S11 YL * AM, (Presta)  M03/F11 (Formerly FSK POL)

S11b YL Format as E11b  M03c E11b
Mos 30’s grps, starts with stutter grp, rptd (777777) this doublet as first & last 2 grps. Ends “Konyets” First noted Wed Mar 6th 06, 09.00z, 7377kHz (freq will vary)

IXC

S12 DELETED

IC

S13 OM Russian Counting, 0-9, & occasional announcements such as UPT76 etc (only 2mins duration)

S14 As above, of very long duration. Shield58/South 96 etc (in Russian)

IXB

S15 * Rapid Dots (an early OLX) see S5a  M06a
S16 * OLX, see S5b  M06

IXC

S17 YL AM, Czech Lady "control" single 5F message  M10, S10d
S17a YL * AM, no circuit No, positioning index or GC
S17b YL * AM, 01 GC
S17c YL ^ USB, Daily 12.50z, Freqs change through year, has 2 // freqs Updated skeds are published in E2k Newsletters Call always 313 313 313 05 Preamble always 42 42 05 05 Podor Podor, single 5f gps x 10 (middle fig always 0) Podor Podor, rpt of preamble Ends Konec Konec Updates: Changed to the 555 triplet call during ? On 1 Nov 06 was heard with a single 999 call but then reverted to 555 probably on 2 Nov but definitely on 3 Nov and maintained this till Feb 07. 01 Feb 07 changed to a single freq TX with 555 call. 02 Feb 07 – the big change – brings its calls fully into line with the associated M10 & S10d stations using variable triplets. Presumed ceased June 2007.

IXC

S18 OM /YL Czech Man/Lady, 3F-5F  M39
Reactivated with YL voice 2004 after very long absence. Format: - 3F ID, 5F grp, all x 5 (xxx xxx xxxxxxx xxxxxxxxx ) x 5 ends Konec Konec no known freqs or times, pot luck.

IXC

S19 OM * Czech Man "control" 000  M39
S19a OM * 888-018 (S17c type)

O

S20 YL * Aifada

XIV

S21 YL/OM AM, Russian Lady, 3f call,  M45, M01a?
OM voice started Oct 2010, similar to S06 Format: 3f call (454/323/973 etc)R, nnn DK, nn GC, 5f msg Ends DK GC 000
Time/freq 3323//3823, 4454//4854 , 4973//5373 17.42/18.42z
Seasonal changes

IA  S25 OM  AM, Russian Man "control?" 40 min TX  
     Returned to air Sept 04 with much shorter TX's, still under investigation as very unpredictable and seldom logged,
     reheard Dec 06, Aug 07.
   S25a OM  AM, 11111 22222 format, very long TX
   S25b OM  AM, with message/s, very long TX
   S25c OM  AM, "615" single group, 14720 kHz

III  S26 YL  "Zyt! Zyt! (Hush! Hush!) Polish?

XIV  S27 YL  Czech Lady II  
     S27a YL  with message/s

IXC  S29 YL  DELETED was the S18 YL

O  S31 YL  AM, Czech, 1122 & 2136 kHz
     24hr, H+10 & +40
     made by/over a BC station

OTHER LANGUAGES

XVI  V01 OM  intro "Ciocirlia" (The Skylark, tune) Romanian
     with additional tune
     V02 & M08 Family, see also notes for M08

XVIII  V02 YL  AM, Spanish Lady, "Atencion" 1/2/3 finals
       Call 3f2f for 3 mins, single grps
       Format ceased late 1996
     V02b YL  AM, 5f 5f 4f header version of V2a
     V02c YL  AM, 3f2f call for 3 mins, gc x 6, 3 sec pause every 10th grp.
       Format started Aug 04, ceased 30 Sept 05.
       May return.
       Note, V2 stations may use USB – rare.

II  V05 YL  AM, Spanish Counting, 3/2F
     V05a  *  AM, Spanish Counting, 4f
     V06 YL  AM, Spanish Lady, ends "00000"
     V06a YL  AM, "362"

XII  V08 YL  AM, Arabic Music (Umm Kultum) or J-M Jarre, E09
      Arabic language,
      6647 & 11292 kHz, 18.00/19.00z
      First Sat of Month

O  V09 YL  AM, (Chinese I), (5738, 6278/80, 7584, 8036 kHz)

O  V10 OM  Spanish ? "Stop Schlosst"
     V10a OM  2 group idler

IV  V12 YL  NNN - French

II  V14 YL  4F "control, Spanish
          formerly M72

O  V16 YL  Chinese, 11028 kHz, 5min max TX, 15.00z (Europe)
      Reported in Australasia on 3/4/6/8 meg bands, no logs.
      Very fast speaking, each phrase ends "Oh Sic" x 2
      Poss on 13680Khz (under BC) only reported from monitor in Cambodia (1998)
      Last European log 1999 (by ML)

?XVI, ?IB  V17 OM  3F + 000, Romanian

IV  V18 YL  NNN, Hungarian

O  V19 OM  WTR21. Intro (Don't Cry for me Argentina tune)
       Spanish speaking.
       (related V20?)

O  V20 OM/YL?  Bored Man/Lazy Man, Spanish
       Slow uneven delivery
| IA | V23 YL * | French Lady, AM.  
Heard for 1 week in Aug 1999, 8124 & 11060kHz  
Format was as S06  
( related S06 E17z ?) |
|----|----------|--------------------------------------------------|
| O  | V27 YL ^ | WITHDRAWN - Chinese YL Call  
3SG - Identified as V26 |
| V29 | Reserved |
Common abbreviations used for reporting:

- R4: repeated for 4 mins
- 5f: 5 figure single groups
- 5F: 5 figure paired groups
- Short = short zero (sent as ‘t’)
- Long = long zero (- - - - -)
- nnn x 3 = repeated 3 times
- // = parallel freq
- Hand = hand sent

Cut = numbers sent in abbreviated form (numerous systems used), example :
- A = 1, N = 2, D = 3, U = 4, W = 5, R = 6, I = 7, G = 8, M = 9, T = 0. As used by Cuban M08a.

<table>
<thead>
<tr>
<th>Family</th>
<th>Ref No</th>
<th>Comments</th>
<th>Voice Counterpart</th>
</tr>
</thead>
<tbody>
<tr>
<td>XIV</td>
<td>M01c</td>
<td>Revised in Jan 2016. incorporated into M01a to include all M01 variants (excepting M01b)</td>
<td>E12, G12, V12, V18</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Previously other variants, inc short 000 ending by hand, usually only 10 groups.</td>
<td>S27</td>
</tr>
<tr>
<td>IV</td>
<td>M02</td>
<td>5730/1kHz, M01c variant, auto sent. 1st heard Sept 99</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>M03a</td>
<td>with “triplet” element, 111 or 333</td>
<td></td>
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<td></td>
<td></td>
<td>552/111(or 333)/00, R5, null message, ending = = 000</td>
<td></td>
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<tr>
<td></td>
<td>M03b</td>
<td>Msgs in 50’s grps, annual, or year on year, repeats and sent on same time/freq</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M03c</td>
<td>Msgs in 30’s with double quintuple sevens (stutter groups) as first and last 2 grps</td>
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<tr>
<td></td>
<td></td>
<td>(77777 77777), ends ‘= = 000’</td>
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<tr>
<td></td>
<td>M03d</td>
<td>Msgs over 60 grps, some with short period repeats</td>
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<tr>
<td></td>
<td>M03e</td>
<td>Msgs of (so far) 71 grps with letter R between each grp and RR</td>
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<td>Every 10 grps. Rare TX</td>
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<tr>
<td>III</td>
<td>M03f</td>
<td>First logged 22 Aug 07. ID assigned from 01 Sept 07</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Msgs of (so far) 71 grps. Structure as M03.</td>
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<tr>
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<td>Msg Format, with single quintuplet element &amp; prefixed GC</td>
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<td>886/71 = = 33333 …… 33333 00071 00071 = = 000</td>
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<tr>
<td>XI</td>
<td>M04</td>
<td>“LO LO”x3 /75977 75977, always100x5f grps long</td>
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<td>Repeats msg, ending “AR SK AR SK”</td>
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<td>Last heard Sept 2000</td>
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<td>The dates of the Russian Coup. Believed to have originated in UK</td>
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<td>6F, 000000, long zero, // freqs.</td>
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<tr>
<td>IXB</td>
<td>M06</td>
<td>OLX</td>
<td>S16</td>
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<tr>
<td></td>
<td>M06a</td>
<td>rapid dots tuning signal</td>
<td>S05, S15</td>
</tr>
<tr>
<td>IXA</td>
<td>M07</td>
<td>MCWCC, Tone sequence start &amp; end of TX (formerly rapid dashes ), 17wpm.</td>
<td>S10, M10</td>
</tr>
<tr>
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<td>749 749 749 85 85 35 35 = =, 35x 5F, ending = = 85 85 35 35 000</td>
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</tr>
<tr>
<td>XVIII</td>
<td>M08</td>
<td>ICW/CW, some MCW cut numbers, (ANDUWRIGMT)</td>
<td>V02</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“UAAMD MDUUA UAIAU” R3. “UAAMD x 5 + = = = = 150 x 5f”</td>
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<td></td>
<td>Ending AR AR AR SK SK SK</td>
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<td>Format ceased late 1996.</td>
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<tr>
<td></td>
<td>M08b</td>
<td>“de xxx” callup</td>
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<tr>
<td></td>
<td>M08c</td>
<td>ICW, cut numbers, as M08a but ending OE K</td>
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<td>First noted early 2004, believed defective TX tape, has periods of absence before restarting.</td>
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<td>Format ceased mid 2005, back in Feb 06.</td>
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<td>Not currently being heard (2010)</td>
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<tr>
<td></td>
<td>M08d</td>
<td>Format started Mon 17 July 2006, ended 22 July 2006</td>
<td></td>
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<tr>
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<td>MCW with 1000hz tone, a 2 sec pause every 10th grp, usual M08’s cut numbers, ending SK SK SK.</td>
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<td>It sent the same 20gp msg repeated 25 times !/ every day at 16/17.00z.</td>
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<td>Logged again starting April 2009</td>
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<tr>
<td></td>
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<td>Not currently being heard (2010)</td>
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</tr>
</tbody>
</table>
Last logged 13.45z, 18 June 2007
ICW, MCW, some CW.
2F DK, 5F grps, ends "000" short.  S10d, S17
17-25 wpm, freqs vary +/- 1k.
Sending speed quickens on repeat TXs
Now one of the busiest CW stations where many additional
skeds have been identified in past year, operating H24
(See Newsletters for current info.)
Regular skeds use 2 // freqs.
Other unpredictable skeds continually subject to change.
Format
555 x 3, 571 x 3 46, (R5).  571 x 3, 75 75 46 46 = = 46 x 5F.
Ending = = 75 75 46 46 0 0 0 . Czech?
Updates:
From 01 Nov 06 the call changed from 555 to a
variable triplet format, as did the S10d partner station.
M10a *
Triplet "000"
M10b *
additional groups, ends triplet "000"
M10c *
5F headers S10
M10d *
GC sent 3 times, hand keyed

ICW/MCW
Presumed ceased with M10
Formerly M10e. Hand ?, Slovak ?  S10e
Call always 111.
Was Tue/Wed 07.00z 7891kHz ??, may return.
5F ID, only 4 used, multiple msgs only 5 to 7 grps.
Format 111 45897 nn 73689 nn 53204 nn 56412 nn
From late 2004 changed to:-
Mon – Fri, 09.00z, 5019kHz, rolling 4wk sked.
Misses days out.
TX’s becoming erratic with long periods of inactivity.
2007, a further change.
A possible change of pattern was noted on 14/21 Mar 07.
The 4 msg format appears to have been reduced to 2 msgs and time/freq changed to 08.00z 7891kHz, its
original freq.

Two/Three message variant, Call nnn, 2/3, DK nnn/n , GC nn, ends 000 000
This variant has not been reported since December 2011.

No M13 family TX’s heard since 04.30z, 13 Mar 2006, presumed inactive
Note that all the M13 family changed time with GMT/BST
Freqs change monthly for all M13 family, but used year on year.
So will be +/- 1hr as the clock changes.
Known freqs will be monitored for possible return, but considered unlikely.

M10a *
Triplet "000"
M10b *
additional groups, ends triplet "000"
M10c *
5F headers S10
M10d *
GC sent 3 times, hand keyed

ICW/MCW
Presumed ceased with M10
Formerly M10e. Hand ?, Slovak ?  S10e
Call always 111.
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ICW,(rarely MCW)  E18, G22.S04
3f ID,5f msg, c 9wpm, short zero
First TX between 00.01 – 05.00z
Repeats following evening.
261, R5, =(BT) 189 22 =(BT) 22 x 5f.
repeat - ID x 12 = 189 22 = 5f msg. Ending “=(BT) 000” (short)
M13a *
Special schedule, “ID x 3, 000” R5 (R4 on the repeat)
2nd/4th Mon/Tue of month 21.00z
[ if an 03.00z TX is made the ID will be different ]
nnn nnn nnn 000, R5 (nnn changes monthly)
(Format can be confused with M12, check endings and speed)
M13b *
Long message variant, up to 70 grps. Changes ID monthly
2nd/4th Sat/Sun 21.00/22.00z (summer/winter)
Will use a type “a” call when msg is between 19 – 23 grps.
Can send 2 msgs in a month.
M13c *
Special 2 x month schedule, sent in MCW, slowly.
1st/3rd Wed/Thu 21.00/ 22.00z (variable)
M13d *
First noted March 2002. Single 5f grps.
Usually stays on 5876kHz winter, 6715kHz summer. Only 02.30z.
Preamble “nnn (R5), BT, Msg No, GC, BT”.
Long msg call “303 x 12 BT 264 86 BT”. Ending BT tt (cut ).

37
Short msg call “767 x 12 BT 265 20 BT” .. ..
Other calls & freqs used at times dual message variant, formerly Fri 19.00z S06e
Now random times, and lower GC’s. Repeats ID for 2min after 1st msg
M14b Rare, added 2nd msg hand keyed
M14c Rare, dual msg, consecutive ID’s

VI M15 * DEA47/EC3Y
M16 WITHDRAWN (8BY, French Mil)

VII M17 * 5f, sent in MCW, ends “VA” E01, (S01?)
IC M18 CW, 4f, continuous. Sends time strings UTC+4.
Reportedly located in Kazakhstan.

O M19 * MPL

III M20 * WITHDRAWN V’s, ends “== 000” (this is an M03, tuning sig)
IC M21 WITHDRAWN
Continuous, occ 14f msg, 5918/7941 / 5369 / 3246kHz.
E.g. “== 99 1116nn8nnnnn”
Russian Air Defence, plotting station.
Uses full time stamp
Many variants, time stamp in minutes only.

O M22 ^ WITHDRAWN
4XZ, Israeli Navy ??
Believed largely replaced by a “data modem” early 2005 on 7160//8780kHz

IA M24a 2nd addressee, hand keyed (high speed, as M14a)

O M25 * KKN, KRH, KWS series.
(KKN heard very rarely)

O M26 * “98” continuous version of M3

VIII M27 * BTV, 5f >BT
O M28 * HEP

XIII M29 *  VDE, 5f, ends AR, 12wpm
“VVV x 2, de VDE x 3” R5
“VVV x 2, de VDE x 3 == 73 73 37 37 8 8 1900 37x5f ending AR
M29a * no preamble or GC G04
M29b * extended preamble G04

M30 DELETED
M31 WITHDRAWN (FDC etc, French Mil)

O M32 * WITHDRAWN
FAPSI Russ. Mil. nets 4 char. c/s

XIX M33 * P8K, long zero replaced by M51

O M34 ^ 11 12345 (2F ID, no ending) long zero. M26
erratic, 15 wpm. 5f.
M35-38 DELETED

IXC ? M39 ^ ICW, MCW, slow, hand, short zeros
Inactive / unlogged for a long time, returned May 03 S18
No known skeds, a real “pot luck” station
Format :-
3Ff ID, 5Ff grps all x 5
( xxx xxx xxx yyyy yyyy yyyy yyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyy
There may be a further pause of 10 – 15 mins then another TX of same format with a different ID. Possibly part of M10 group. During Jan 2007 it was noted sending alternate grps x3 and using a 0000 ending.

M40

20WPM, short zeros, poss N.Korean
“VVV CQ 747.135″ R5.
“CQ 135 CQ135 CQ135 HR HR 18 18 = = 18x5f AR AR RPT RPT repeats above line, ending AR AR VA VA.
Last heard Oct 03

XVII

M41
WITHDRAWN
WDZ / ABV trigrams, Russ Mil tracking.

IC

M42
WITHDRAWN
FAPSI networks

O

M43 *
WITHDRAWN
6XM8/C37A networks

O

M44 *
Rare, Continuous "Roman" letters
M44a
Rare, Continuous "Cyrillic" letters (reactivated June 2004)

XIV

M45
MCW, 5F, hand keyed, paired groups H+02, ends "000", short zero
Similar format to M1 but much slower (9/12 wpm)
“074 (525, 555) x 4mins, XXX XXX XX XX = = 5Fgps. ending
= = XXX XXX XX XX 000” where XXX=DK, XX=GC.
Alternatively XXX – XXX/XX = 5F
Changing skeds.

M45/1
Nov – Feb
clg 525, freqs 3525//4025

M45/2
Mar/Apr/Sept/Oct
clg 555, freqs 4555//4955

M45/3
May - Aug
clg 074, freqs 5074//=5474
TX times are, Jan – Apr & Sept – Dec = 18.02z, May – Aug = 17.02z

O

M46 *
3F cumulative

O

M47 *
1/2/3 F cumulative (JST)

XVI

M48 *
Ciocirilia Morse?

XVII

M49 *
AAAAA, G8a Morse

XIV

M50
MCW. Hand keyed, sloppy, 5431/4641/5372kHz (related M1, S21)
INCONSISTENT FORMAT
always 50 groups ( training net ?)
appeared on 9567 / 7722kHz in Feb 06

XIV

M50a *
Hand keyed, sloppy, 5372kHz, 19.30z
20 group variant, started mid 2001.

O

M52 *
2f 6f, long zero
unpredictable, Special Forces ?
heard last 12 Feb 01

O

M53
DELETED, See M40

O

M54 *
V98T, only null message format known

O

M55
Rare,3F x 5, ends "000 000" long zero
only null message known Tue/Thu, 9254Khz, 22.00z, erratic hand, 10min TX
Example “529 x n 000, (r3), last grp 529 x n 000 000”
From 2004 being heard Tue & Fri, 13.00z, 12150kHz
Mid 2005 started using new operator with slower sending.

O

M56
f : 5Ff, long zero
unpredictable, Special Forces ?
related M52 ?
No known freqs/times, A pot-luck ? station

Note: M57 to M61 & M66
NOW ALL WITHDRAWN

O

M62
Repeating 4 digit (LNLL)
Using mixed Lets/nums.
Rarely sends msgs, then usually only c30 groups
Believed Slovak Mil. Mainly 3-5 meg.
Each msg has a UTC+2 D/T stamp

O

M63
A2A net,

O

M64 *
= 3f 3f = 11111 5F > AR

O

M65 *
5f, ends = = QRU QRU SK SK
O M67 ^ Cut numbers, 4f grps, ends "000", Turkish ?
no reports within Europe?
M67a ^ 3f 2f 7777 variant

II M68 ^ Cut numbers
E05

O M69 ^ 5f, ends AR
O M70 ^ */year, cumulative

O M71 ^ K88

II M72 ^ 4 fig, long zero
E14, V14

O M73 ^ Cut, 3 long tones > 5F
O M74 ^ ( 3f 4f 4f 4f  4f 4f )
O M75 ^ (3FF DK/GC DK/GC ) x 10
O M76 ^ 4 cha. c/s (bogus) x 3, same x 2, long zero.
Update Mar 09
complex msg structures, multiple messages, 25 wpm.
Uses ‘barred’ letters.
C/s de C/s QTC 96 23 = 23 x5f ending AR 0 (x ?)
on 3280kHz, Mar – Oct, 3820+kHz Nov – Feb.
17.50z, 05.00z winter. 16.50z, 04.00z summer
Mainly unheard in Europe from cMay - Oct
Changes c/s every day
The preamble which will contain “808” has fg as “32610” and contain the groups RRRRR 20nXX
WWWW ending NNNNN
In early 2004 the null msg format was changed to “=229XX” after the preamble.
If msg is sent then fg is 40545
End of msg will always contain “437” even if spread out in multiple gps eg “zzz43 7xxxx”

O M77 ^ P7X, around 11445kHz, 20.00/21.00/21.30z
(QRA P7X GR 06 BT) Only heard in USA
O M78 ^ unpredictable, variable format, 8140kHz
O M79 ^ 5120 kHz, under investigation
O M80 ^ “847 847 847 847”
Possibly M1a, with different call.
O M81 ^ Sent at 40 characters pm (5-10wpm), 4f groups, long zero
currently only heard in Russia, Chinese TX?

O M82 ^ “BML” North Korean Army ?
Sample format “vvv jvg jvg de bml bml qsa qtc 587” R2
Or “abv qtc nr xxx xx xxx xxx xxx xxx xxx xxx = “
Known to send “r” as separator each 10 gps
Not normally heard in Europe/USA

O M83/a/b/c ^ 4 dig. c/s, long zero, 20 f/l msg.
Poss. Slovak Mil Net, under investigation.
M83 “xxxx xxxx xxxx vvvvvvvv vvvvvvvvv vvvvvvvvv”
M83a “xxxx de xxxx QTC 2 20 02 0907”
2= serial No, 20=grp count (20 or 50),02=date,0907=time (UTC + 1)
c/s’s can be mix of letters/figures, often changed, 5f or 5l
M83b “ xxxx xxxx xxxx de xxxx xxxx xxxx ”
M83c “ NNNN or LLLL or mixed, sent continuously”
A write up by AB added to the Detailed Morse Profiles List
Oct 2003

XVIII M86 ^ DELETED now M8a
O M87 ^ MCW, cut, hand. Presumed Chinese Mil.
Mainly heard in Russia, has been heard in Northern Europe
Format:- 3f ID (rptd up to x25) 000 (short) or 333, 5f grps, ending
= = 000 or = 000 000
Null format:- nnn nnn nnn 000 000 (x7) ttt
Note that formats are inconsistent.
Oct 2003 additional format noted :-
nnn x 3 333 x 3 all R7
A detailed write up of M87 by IB added to the Detailed Morse Profiles List, Oct 2003

M88 ^ DELETED, identified as a M03 “null msg” format

M91 ^ WITHDRAWN - Jan 2016.  Same station as M90
Czech Mil, MCW & hand. Very busy
C/s changes daily. Operates 24/7 no skeds. Used 2362//2852kHz for past 3 years. Msgs 5Lgs/5Fgs or
mixed. Sometimes only 2362kHz.
Format: 64 20 09 2123 696 c/s
Where 64 = msg nr, 20 = gc (always 20), 09 = day, 2123 = UTC +1, 696 = ABCD = addressee
A detailed write up by AB/FN added to the Detailed Morse Profiles List Oct 2003

M92
Czech Mil (Network 25), possibly associated with M90
5F or 5L. Time CET varying. Works to a 10 day freq/QRA cycle.
1 to 10 msgs of 20 or 50 grps, preamble & calls by hand (poor/errors), msgs are Auto, encrypt.
Sample format:
W6QZ de KVF2 QTC 1 50 12 0805 = 743 W6QZ = 5LG = KVF2 +
Known freqs include 4900/5330, 4800, 6920/5340, 5200, 5270/5920kHz
A detailed write up by AB added to the Detailed Morse Profiles list, Oct 2003
Ed note: There are some further Chinese stations being studied.

M93
At 21.00z Tue/Thu/Fri (sometimes) on 14377kHz
Format: V’s for 45 seconds (has been heard for 2 mins), call M6 sent 4 times,
Then single 5fig grps, ending / / +
This station logged only over a period of 3 weeks on this freq but E2k informed that it regularly changes freqs, no logs received since May 04 so presumed inactive.

O
M94
Assigned 01 June 2009
MCW station sister of voice station V24
Location believed to be S.Korea
Current freqs <5715, 6330 (Oct 2010)
Heard 12.00 – 16.20z (mainly 13.00/14.00z)
Variable reception, little success in Europe.
Most reliable reports come from Western USA.

Various formats used, but typical ‘head and tail’ is:-
VVV VVV VVV CQ CQ CQ de nnnn nnnn qrv qrk qtc k
Repeated further twice
Hr Wnn (group count)
Msg
Rpt
Ends “=ar k tu va”

IC
MXII FSK mode TX
MXIII WITHDRAWN, MX covers
MXIV WITHDRAWN, MX covers

The above MX designators apply only to Russ/European networks, others should use the generic “SLB” term.

Discontinued Polytones (XP Family)

XP
[Russian Intel Multitone System 1+12]
Standard Tones (Hz +3Hz)
M78?, M12
[XP used as the nominal value for measurement of other Polytone systems]
303, 319, 335, 351, 367, 383, 399, 415, 431, 447, 463, 479, 495, 511 Hz.
Datum tone 303Hz
Tone/value relationships:
303=space, 319=end, 495=start, 511=repeat,
335=0, 351=1, 367=2, 383=3, 399=4, 415=5, 431=6, 447=7, 463=8, 479=9.

XPH
High Tones (Hz +3Hz)
Has sent at 3 differing speeds during its lifetime, (1980’s – 2003) essential that tonal values are confirmed if comparing recordings.
814, 844, 879, 914, 954, 992, 1038, M12
1089, 1143, 1202, 1234, 1271, 1304 Hz. family
Datum tone 1304Hz

41
XPL

Low Tones (Hz +3Hz)
It would appear that the low tones are the product of M12 mixing 2 non harmonically related tones, analysis is ongoing, tone pairs identified as (Hz +3Hz), tone product in parenthesis:-
150/235[80], 165/255[90], 180/245[65], 205/260[55],
215/290[75] Hz
Tone/value relationships :-
Will undergo full analysis as & when we have sufficient samples.
This station has only been positively identified three times in the past 10 years, lastly on 27 Mar 07 in Greece.

XPM

[Russian Intel Multitone System 17+1]
Mid Tones (Hz +3Hz)
450, 488, 531, 568, 611, 649*, 692, 730, 773*, 811*,
854*, 891, 934, 972, 1015, 1058*, 1096*, 1177*
*used on longer duration tones only
Tone/value relationships :-
Still under analysis.

Often confused with the Piccolo system.

Discontinued Digital Modes

SK01

Assigned 20 Jan 07, as a generic identifier.
The PSK31 TX’s allied to the Cuban M08a station
First noted on 27 Dec 06.
BPSK125 and BPSK220fec also noted during first half 2007
RDFT became the sole operating mode in late 2007
The station has a similar general structure to the M08a / V02a family but also many detail differences including the “non use” of the M08 cut numbers scheme.
Further developments occurred on a sporadic basis (2007-10) and have led to a new hybrid signal [See HM01]
## NOISE Stations or UNIDENTIFIED MODES

[Some occasionally active]

<table>
<thead>
<tr>
<th>Family</th>
<th>Ref No</th>
<th>Comments</th>
<th>Counterpart</th>
</tr>
</thead>
<tbody>
<tr>
<td>VII</td>
<td>X01</td>
<td>Bugle, no other TX</td>
<td>S02</td>
</tr>
<tr>
<td>IC</td>
<td>X06</td>
<td>See Active Polytone section.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X21</td>
<td>21 note melody, 2 variants</td>
<td></td>
</tr>
<tr>
<td>XB</td>
<td></td>
<td>Buzzer/UVB76,(UVB-76) now classified S28, usually 4625kHz AM, others used. Russ Mil, Ch marker with voice &amp; data. See S28 entry</td>
<td></td>
</tr>
<tr>
<td>XBS ^</td>
<td></td>
<td>Buzz-saw, being heard 5.1-5.8mHz and 7019 in 08/2001</td>
<td></td>
</tr>
<tr>
<td>XC</td>
<td></td>
<td>Crackle, closely spaced carriers, total b/w =&lt; 380Hz</td>
<td></td>
</tr>
<tr>
<td>XD</td>
<td></td>
<td>Fast ICW dots, 24hr, 3595kHz</td>
<td></td>
</tr>
<tr>
<td>XE ^</td>
<td></td>
<td>Echo</td>
<td></td>
</tr>
<tr>
<td>XF</td>
<td></td>
<td>Faders</td>
<td></td>
</tr>
<tr>
<td>XFR</td>
<td></td>
<td>Croaking Frog, 7380kHz 08.00z+ and 7992, 11173, 13975, 18864kHz at various times, all USB</td>
<td></td>
</tr>
<tr>
<td>XJT</td>
<td></td>
<td>The Jet, appears to use blocks of 10 freqs from 2 - 9 MHz Sig is about 3kHz wide and uncannily often TX’s on freqs known to be used by other number stations but is not considered to be a deliberate jamming of, although a nuisance. Update:- During 2010 it was noted that many of the sigs were now up to 10kHz wide and appeared to have an affinity towards E07,E10 &amp; Fam IB stations, is this a coincidence? The system is known to be ‘STANAG’, of which there are a few variations. Most TXs are encrypted</td>
<td></td>
</tr>
<tr>
<td>XM</td>
<td></td>
<td>Backward music / whales / feedback. (original entry) Generally considered to be a result of unintentional cross mixing where RF / Audio circuits are co-located as the effect is being noticed on many different circuits with different equipment, ruling out a single user or set-up as the culprit. A close association with Link-11 TX’s have been remarked upon by some monitors and this aspect is receiving further attention.2005/2006 (updated entry, July 2006) (Amid an ongoing debate with much conflicting opinion) Now considered to possibly be a form of “COMPEX” type signal as the ongoing investigation has isolated multiple voice traffic, so far unintelligible, within the signal, making it man-made rather than random, further enhancing the possibility of a LINK-11 connection. Also suspected is some form of commonality, structural rather than relational, with the XP series signals and in turn the X06 series. The XP’s &amp; Link-11 “possible” connections are very interesting as they are “conflicting signals” as regards origins. Further opinion has been given that there could be an element of “Chaos” involved.</td>
<td></td>
</tr>
<tr>
<td>XQ ^</td>
<td></td>
<td>Plaintive &quot;mew&quot;</td>
<td></td>
</tr>
<tr>
<td>XS</td>
<td></td>
<td>Saw/whine</td>
<td></td>
</tr>
<tr>
<td>XSL</td>
<td></td>
<td>Slot machine, widely heard in US, (Europe in winter months),believed Japanese PSK. Wide range of freqs(+ 2k) used including :- 2578, 2656.5, 4153, 4231.5, 4291, 5807, 6250, 6416.5, 6417, 6445, 8313, 8588, 8703. Appears to be a form of pulse modulation.</td>
<td></td>
</tr>
<tr>
<td>XSW</td>
<td></td>
<td>Now S32 Squeaky Wheel. 3829/5474/6991kHz, 15010kHz reported. See S32 entry</td>
<td></td>
</tr>
<tr>
<td>XT</td>
<td></td>
<td>Tick/pip, 24hr, Superseded by S30</td>
<td></td>
</tr>
</tbody>
</table>
XTB 1 tone, 2 buzzes. 11116kHz, early morning daily.

XT2 Pip, 22.00z + varying freqs, usually low end HF.
(early 02, Issue 9 for details)

XUP Assigned 11 Sept 2010
The Pulser
The unusual Pulsed Signal being heard primarily in the USA
Notified in NL60.

XW Workshop, heard again on 24 Jan 06 on 6250kHz, i/p 16.45z

XWP Wop Wop (wideband sig) [Ocean surface radar system]
Heard from 5600 – 9400kHz, lasts 20mins then changes freq. See Newsletter Issues 9 & 26 for more details.

XX DELETED

XXX DELETED
Log of Previous Changes made to ENIGMA 2000 Active Stations & N&O Ident List

V1.2 - February 2016

Page 2  Introduction
- Added FSK POL to Family III grouping
- Added HM01 to Family XVIII grouping
- Added M51a to Family XIV grouping

Page 3  Active Stations
- (E11) Added FSK POL to Non Voice Counterpart

Page 6
- (S11a) Added FSK POL to Non Voice Counterpart
- (V02a) Added HM01 to Non Voice Counterpart
- (V13) Added New Star to description (Opinion seems divided on the correct translation of the station name)

Page 8
- (V30) Added M97 to Non Voice Counterpart (This may now have ceased - But too early to remove yet)

Morse Section Changes

Many of the Morse definitions have been updated. Below are only the major changes to this current listing

Page 8
- (M01a) M01a is revised to incorporate M01c. It had become impossible to correctly separate the two variants & this was agreed in discussion during 2015, but not yet implemented.

Page 11
- Added M51a definition (Addition to original ECL)

Page 12
- Added M97 definition (Addition to original ECL)

Page 13
- New section consisting of previously withdrawn ENIGMA designations & other Morse stations

This section includes those stations still active, but withdrawn as not of interest to ENIGMA. The designations have survived & are still actively used by Ary (N&O) & possibly other groups or forums. This also includes some variants added by Ary

A few short paragraphs are included to explain the reasons for adding this

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