

ENIGMA CONTROL LIST NUMBER 22

Very few cryptograms in the newspapers today come as easily as that one did. Sometimes we find that there are three or four possibilities for a given letter, group of letters, or words. Then we fall back on two means of attack. They are:

1. The elimination method
2. The trial and error method

The following cryptogram will illustrate both of them:

HNK YKXXWHF TGW HNK IKHLIXKBMR
BGLIBKX MAX HIIKXLLXW TGW
WHPGMKHWXG IXHIEX HY MAX PHKEW
PAH TKX LMKNZZEBGZ YHK WXFHVKTVR.

Here is our frequency table:

A ///	H /// /// ///	N ///	U -
B ////	I /// //	O -	V //
C -	J -	P ///	W /// ////
D -	K /// /// ///	Q -	X /// /// ///
E ///	L ///	R //	Y ///
F //	M ///	S -	Z ///
G /// /		T ////	

July 2006

<http://groups.yahoo.com/group/enigma2000>

ENIGMA CONTROL LIST
(making sense of the numbers scene)
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Issue 22
July 2006

INTRODUCTION

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This list supersedes all previous Control Lists. It is continually updated taking into account all known, and confirmed, information at the dates of revision.

Stations if marked "DELETED" have been identified as other stations already included on the list.

Stations if marked "WITHDRAWN" have been identified as not being "numbers stations" or having any recognisable "numbers" content.

Existing stations never change position within the context of the list and deleted ENIGMA ID's are NOT reused.

Many of the stations listed are no longer operational, although some have been known to return after long periods of inactivity, however the Control List serves as an important historical record of "numbers" activity and is the first, and only, (non-governmental ?) organised classification of Number Stations, both voice and Morse, publicly available.

Minor revisions are announced in the ENIGMA 2000 bi-monthly Newsletters and the Control List is meant to be read in conjunction with these to obtain current frequenciess and TX times.

NUMBERING RATIONALE

Voice stations are classified strictly according to the language used in their transmission. Eg :- Station NNN in German, French, English & Hungarian would have four distinct reference numbers. 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 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 group site, and elsewhere)

Non-voice stations have the classifications :-

M - Morse & RTTY X - Other modes

Alphabetical suffixes (**always 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 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 suffixes, currently only used for the M01 CW station, were introduced in 2004 to meet a specific logging requirement. Perusal of the M01 entry illustrates this.

- * Denotes station/format no longer active
- ^ Denotes station/format possibly inactive
- Omitted reference numbers have been deleted from the Control List
- CW Figures/Letters shown in Morse Station info are for illustration only, actual currently used may vary considerably, but they have been used in the past.

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 identical formats, and often, similar schedules and frequencies

Family	"Owner ?"	Members
I	KGB/GRU/FSB	IA- E06/E17?/E20?/G06/S06/V06/M14//S25 IB- E07/G07/G17?/G19?/S07/V07/M12//XP IC M18, M21, M42, MX, S13, S14, S28, X6
II	CIA/NSA?	E05/G05/V05//E14/E21/V14
III	"STRICH" Family	E11/G11/S11/S12/M3//G10/S26//M20
IV	NNN Family	E12/G12?/V12/V18//M2
V	Five Dashes	E13/G13
VI	BND/FRG	G14//G15//G16/E16//M15
VII	AIDA Family	S01//S02//E01#/M17#//X1
VIII	BVT/YT Family	S08/M27//?M40/M53?
IX	CZECH Family	IXA- G18?/S10/M10//M07 #M11/S10d IXB- S05/M06A//S15//S16/M6 IXC- S18//S17/S19//M39?
X	MI6	E03/E03a (Formerly E4)
XI	SWEDISH RHAPSODY	G02/M04//E23
XII	?	E09/V08
XIII	3 NOTE ODDITY	G04/M29
XIV	M1 Family	S21/M45//M01//M50//S27
XV	EDNA SEDNITZER	E18/G22/S04/M13
XVI	ROMANIAN	V01//M48//V17?//M63?
XVII	DDR	G03//G08/M49 G01? M41?
XVIII	CUBAN	V02/V02a/V02b/M08//V19?//V20?
XIX	FRENCH	M51?//M83?

- # 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 sign of a "family" relationship.

STATION LISTING BY LANGUAGE / MODE

YL = female voice

OM = male voice

ENGLISH

Family	Ref.No.	Comments/"nickname"	Non-Voice Counterpart (other links in brackets)
VII	E01 YL *	AM, "Ready Ready" "End"	M17
O	E02 OM*	AM, Arabic Man (The Babblers)	
X	E03 YL	USB, "Lincolnshire Poacher" intro tune.	
X	E03a YL	USB, "Cherry Ripe" intro tune.	
	E04	DELETED, should be logged as E03a	
II	E05 YL *	USB, Counting Station (Cynthia). 3-2 gps, "end" Last heard 3 Oct 03	
IA	E06 OM	AM (English Man) Usually H+0, H+30 Stays on UTC Times/freqs vary, up to date charts given in Newsletters High pitch start tone. 3f call for 4mins preamble – 3f DK x 2, 2/3f GC x 2. Mssg 5F gps, Ends – DK x 2, GC x 2, 00000 (fast/slow zeros) (back to original voice early 2001, distinctive pronunciation of 3 & 8 (additional voice from Sept 03, no distinctive pronunciations)	M14
	E06a OM	AM, 2 group commencing with 11111 stutter group	
	E06b OM	AM, 3F ID with 5F group <i>in call</i> - 2 messages	
IB	E07 OM	AM, (English Man - ends 000-000) H+0 or H+30, Changes time 1 st Apl/Nov. Null mssg format : - "nnn nnn nnn 000" R x 2mins Repeats 20 mins later, no third sending. Mssg format : - Call 3f ID x 3 Preamble 3/4f ID, 2/3f GC all x 2 Mssg 5f gps, repeats 20 & 40 mins later New voice early 2001. In Dec 2003 it was noted that the ID was no longer directly freq related and that no repeats were logged. Ongoing study (2004 – 2005) has now shown that some of the ID's are freq related and can be the 2 nd , 3 rd or 4 th fig of a 4fig freq or the 3 rd , 4 th or 5 th fig of a 5 fig freq, or again not related at all.	M12 XP
XII	E09 YL	AM, Magnetic Fields, uses 2 different ID tunes, (possibly a schedule identifier.) E10 is probably the most prolific voice station and always gives surprises.	(V08)
O	E10 YL	AM, (some USB reported) NATO Phonetics used. (CIO,VLB, EZI) Null mssg format = xxx2, Test = xxx1	
	E10a YL	AM, All variants to above eg :- SYN7, VLB524X118X0115Z7	
III	E11 YL	AM/USB, Tue/ Thu /Fri, 08.00, 08.30, 10.30, 11.00, 12.00, 13.00, 13.30z Wed 21.00z (noted Feb 06 5082kHz) Freqs vary regularly, up to date info given in Newsletters. YL speaks quickly.	M03 S11a

		Null format : -	
III	E11a	" nnn Oblique 00" (nnn / 00) no intro, 5 min TX, ending "out"	
III	E11b	With mssg(s) nnn Oblique nn (nnn/nn) Mssgs with 30's gps, starts with stutter gps (77777 77777), this double quintuplet as first and last 2 gps M03c S11b	
IV	E12 YL *	NNN	M02
V	E13 YL *	Five Dashes	
II	E14 YL *	4F "control"	
O	E15 YL/OM	AM/USB, uses a pre-NATO Phonetic Alphabet (very similar to the 1948 ARRL "Adam Baker Charlie" phonetics) ie NAS = Nancy Adam Susan. Does not TX on Fridays. Difficult copy in Northern Europe, heavily accented. YL voice returned Mar 05 after very long absence. (Under ongoing intensive investigation with numerous variants already found, their significance, if any, is not as yet fully understood. Regular updates will be made in the E2k Newsletters)	
O	E15a	WITHDRAWN, may be part of an expanded E15 section at later date.	
VI	E16 YL *	USB, 2 Letter, (AK, AG, DM, MD)	
IA	E17 YL	AM, English Lady, ends "00000" Sends mssg for first 2 weeks of month Null mssg thereafter.	M14I
	E17a YL	AM, Dual message variant	M14a
IA	E17y YL *	AM, "398" (ex Cuba)	
IA	E17z YL	AM, call "674" variant, Thurs 08.00z (ex Ukraine?)	
XV	E18 YL ^	LSB, Edna Sednitzer	M13
O	E19 OM *	Irish Man, notable accent.	
?IA	E20 YL/OM ^	2 Message, dual voice version of E17 / E6, or both. All could be variants of same	M14?
II	E21 YL *	4F counting, Eng accent	
	E21a YL *	" American accent	
O	E22 OM/YL	WITHDRAWN JAN 06 Found 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. Relogged 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.	
XI	E23 YL	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 1 st 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 gps (00000 11111 etc) all x 3, then into Mssg of 5F gps. Ends "end"	M04
O	E24 OM *	AM, "Allo! Allo!"	

- O E25 OM/YL AM/USB, Arabic music intro (sometimes), 3f-2f call, 4f mssg daily 12.40/13.40z, currently only on 9450kHz.
From late 2004 TX's have been heard between 11.00z – 15.00z
From Apl 05 times noted varying +- 20min
3f-2f call R5 = null mssg, can end with short databurst.
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
(Further variants heard from late 2004, under intensive investigation, and will be assigned further ID's in due time if required)
There are 4 voices used, 1 YL & 3 OM (July 2005) [another heard during May 06 but not known if will continue]
Analysis of errors made suggests the occasional use of lines of 4 groups rather than the usually expected 5.

- O E25a OM AM/USB, As E25, but 3f 3f 2f 2f 2f 2f call
(re-appeared Feb 05 after a couple of years unlogged but only lasted a short time, may return)

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	M04
	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" 1 st Thurs of Month, Started using English in 98 with the TCS voice. Ceased early 2005, may return	M29
II	G05 YL *	German Counting "Zwo"	
	G05a YL *	"Zwei" variant	
IA	G06 YL	(see E06 for call details) AM, German Lady, ends "00000"	M14
IA	G06a YL	AM, Dual message variant	
IB	G07 YL	AM, German Lady, (Nui Noichen) Intro "Achtung". Uses "noiken" for 9 ends "000 000 ende". 3/4f DK, single gps (Inactive for a long time, resurfaced 15Mar 2002 Inactive again 2005, may return)	M12 XP
	G07a YL *	AM, 774 type variant	
XVII	G08 YL *	4 note, rising scale. Same voice as G7 Last noted scales "so-la-ti-do" & "do-me-so-do" Ceased Apl 1990	
	G08a YL *	Single repeated 5F group + morse	M49
	G08b YL *	Rapid dots intro	
O	G09 YL *	Saxaphone Piece	
III	G10 YL *	"Bert Kaempfert"	M03
III	G11 YL *	AM/USB, Strich	M03
IV	G12 YL *	NNN	M02
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	
	G15a YL *	PN read over musical notes	
VI	G16 YL*	USB, 2 Letter (AU, DC, DT, EG, EL, FS, GK, NU, WL, OA, PZ, RD, VO)	
?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 Possibly reactivated April 2003, under investigation, Unconfirmed / unreliable reports.	M12? XP?
O	G20 YL *	Spruch	
	G20a YL *	One 5F group	
O	G21 YL *	Music & Morse intro	
XV	G22 YL ^	LSB, Edna Sednitzer German speakers have remarked on the odd accent used. First Thur of month 22.00/23.00z 6748, 6682, 4832 seasonal. Ceased Feb/Mar 2006	M13 S04
O	G23 ? *	2M8, Hitlers birthday, (20 Apl)	

IXA	S10 YL *	AM, Czech Lady I (piano piece, later 5 notes)	M10c
	S10a YL *	AM, 555 "idler" format	
	S10b YL *	AM, 5 note intro (3 versions)	M10c
	S10c YL *	AM, 3F ID, with "idler"	M39 distant relative ?
(M7)	S10d YL	AM / USB, 3F ID (Bulgarian Betty, actually Czech)	M10
		Normally Sun /Tue 20.50z – but other skeds heard	
		Changes freqs monthly, 2 // freqs, can have one in AM other USB	
		5F groups	
		Ends "Pozor Pozor, nn nn, nn nn, Konec Konec"	
		Predictions / updates are published in E2k Newsletters	
		Stays on UTC time	
	S10e OM	AM, Slovak, 5Ff, GC x 3 in call. 4 weekly sked.	M10e
		Ends "000"	
III	S11 YL *	AM, (Presta)	M03
III	S11a YL	AM/USB, (Cherta) "971/00" ends "konyets"	M03
		First & third Wed of month at 21.00z, fast speaker.	
		Freqs 3823, 4016, 4465 or 5180 / 5358kHz	
		Also heard 09.00z 6524kHz.	
III	S11b YL	Format as E11b	M03c
E11b		Mssgs with 30's gps, starts with stutter gp, rptd (77777)	
		this doublet as first & last 2 gps	
		First noted Wed Mar 6 th 06, 09.00z, 7377kHz (freq will vary)	
	S12	DELETED	
IC	S13 OM	Russian Counting & announcements,	
		UPT76 etc (only 2mins duration)	
IC	S14	As above, of very long duration.	
		Shield58/South 96 etc (in Russian)	
IXB	S15 *	Rapid Dots (an early OLX) see S5a	M06a
IXB	S16 *	OLX, see S5b	M06
IXC	S17 YL	AM, Czech Lady "control" single 5F message	
	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	
IXC	S18 OM/YL	Czech Man/Lady, 3F-5F	M39
		Reactivated with YL voice 2004 after very long absence.	
		Format : - 3Ff ID, 5Ff gp, all x 5	
		(xxx xxx xxx xxxxx xxxxx xxxxx) x 5	
		ends Konec Konec	
		no known freqs or times, pot luck.	
IXC	S19 OM *	Czech Man "control" 000	
	S19a OM *	888-018 (S17c type)	
O	S20 YL *	Aifada	
XIV	S21 YL	AM, Russian Lady, 3f call, ends 000	M45
IA	S25 OM	AM, Russian Man "control?" 40 min TX	
		Returned to air Sept 04 with much shorter TX's and still under	
		investigation	
	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 ?	M03

XIV	S27 YL *	Czech Lady II	M01c
	S27a YL *	with message/s	
IC	S28 OM	Buzzer /UZB76, 4625kHz (Formerly XB)	
IXC	S29 YL	DELETED was the S18 YL	
	S30 OM	"The Pip" with messages.	was XT
		3757 night / 5448kHz day, changing over at c18.00z +- ?hrs, seasonal dependant.	
		Freqs sometimes run // for a short time.	
O	S31 YL	AM, Czech, 1122 & 2136 kHz 24hr, H+10 & +40 made by/over a BC station	
	S32 YL	Formerly XSW, voice noted 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. Purpose unclear. Noted on 15010/15040kHz Nov 05	

OTHER LANGUAGES

XVI	V01 OM *	intro "Ciocirlia " (The Skylark, tune) Romanian	M48
	V01a OM *	with additional tune	
XVIII	V02 YL *	AM, Spanish Lady, "Attencion" 1/2/3 finals Call 3f2f for 3 mins, single gps Format ceased late 1996	M08
	V02a YL	AM, 3 mssgs of 150 gps each, diff addrs , single gps Usually rptd 1hr later, first and last 2 gps the same. Comprehensive sked charts & updates in Newsletters.	M08a
	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 gp. 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	M68
II	V05a *	AM, Spanish Counting, 4f	
IA	V06 YL ^	AM, Spanish Lady, ends "00000"	M14
IA	V06a YL *	AM,"362"	
IB	V07 OM/YL	(see E07 for call details) AM, Spanish Man, ends "000 000" (fem voice started early 2001)	M12, XP
XII	V08 YL ^	AM, Eastern Music or J.M Jarre, Arabic, 6647 & 11292 kHz, 18.00/19.00z First Sat of Month	E09
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	M02
O	V13 YL	AM, Star Star Radio, Taiwan, in live Mandarin TX's 23.00z – 16.00z In Europe best 14.00/15.00z 8300kHz. Freqs used : - 8300, 9725, 9275 ?, 11430, 13750, 15388	
II	V14 YL *	4F "control, Spanish	formerly M72
O	V15 OM/YL	AM, North Korean, given via Radio Pyongyang	
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 Sie" x 2 Poss on 13680Khz (under BC) only reported from Cambodia (1998) Last European log 1999 (by ML)	
?XVI, ?IB	V17 OM *	3F + 000, Romanian	?M12
IV	V18 YL *	NNN, Hungarian	M02
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	(related V19?)
O	V21 OM/YL?	The Babbler, Spanish Quick delivery,	
O	V22 YL	Chinese II, 8375kHz AM, Mon-Fri, 13.00/13.30/14.00/14.30z 4f gps. Only the QRU (null mssg) 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"	
IA	V23 YL *	French Lady, AM. Heard for 1 week in Aug 1999, 8124 & 11060kHz Format was as S06	(related S06 E17z ?)

V24 YL	AM. S.Korean, 3+2f or 2+2f Ends "Thats all,thanks" 12.00-17.00z, H+00 or H+30 4500, 4600, 5500, 5715, 6215 , 6715kHz rare. peculiarities	possibly related V08 as it uses similar numbering
V25 YL	Chinese, 3f +3f ID, in 8 - 23mHz range Format "316 x3 this is 728 x3" R5, No,GC, 4F gps R2, ends "goodbye" Strange Chinese / English. Poss Mil	TX around East Asian Midnight [16.00z+-]
V26 YL	Callsigns XSA or XSE23 (Eks-Es-Ee Lian San) Preamble unid., TX is LSB , unid sked, 3f gps Heard at 06.30z & 15.33/15.53z Freqs heard 5922, 6446, 8619, 8621, 9101, 13030, 16665kHz Format :- nr 030 15 35 0927 0600 Where 030=mssg 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 mssg announcements and callsign letters are in "broken" English, ie "em-es-eeg ai-gee-en, while the numbers are in Chinese !!!	
V27 YL	Another strange Chinese/English station, similar to V26 Callsign 3SG (San-Es-Gee) TX is LSB , unid sked, 3f gps. Freqs heard 4650, 6460kHz	

MORSE STATIONS (including known format examples, see header notes)

Common abbreviations used for reporting : - (full abbreviation list available on our group site)

R4=repeated for 4 mins 5f=5 figure single groups 5F=5 figure paired groups
 5Ff=5 figure triple 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 :-

T= 0, A= 1, N= 2, D= 3, U= 4, W= 5, R= 6, I=7, G= 8, M= 9. As used by Cuban M08a.

Family	Ref No	Comments	Voice Counterpart (Other links in Brackets)
XIV	M01	"Two Tone" MCW, hand, ends "000",short. 194 R4, 381 381 40 40 = =, mssg 40 x 5F, ending 381 381 40 40 000 This station has an annual "per months" sked structure and the designators are amended to :- (from July 2004) M01/1 Skeds ID197 Jan, Feb, Nov, Dec M01/2 Skeds ID463 Mar, Apl, Sept, Oct M01/3 Skeds ID025 May, June, July, Aug Messages never repeated.	
	M01a	Formerly end of month variants, day/time/freq varies. Now changed to random skeds, (2005). 197 197 197 58003 58003 repeated several times, no message	
	M01b	as M01 but with the same message repeated over several weeks, // freqs, hand sent.	
	M01c	other variants, inc short 000 ending by hand.S27 usually only 10 groups.	
	M01d	5730/1kHz, M01c variant, auto sent. 1st heard Sept 99	
IV	M02	* Ends <u>AR</u> , long zero	E12, G12, V12, V18
III	M03	Usually ICW with a few in MCW at about 17 wpm except call 503 which is at a slow 5 wpm. Each mssg is sent firstly with double 5 fig gps then "call x 6" and mssg repeated with single 5 fig gps. Null format E11, G1, G10, S11, 044/00 R5, null message, ending = = 000 S12, S26 Mssg format 044/nn (R5), = = nn x 5F, ending = = 000	
III	M03a	* with "triplet" element, 111 or 333 552/111(or 333)/00, R5, null message, ending = = 000 Last heard May 2000	
III	M03b	Mssgs in 50's gps, annual, or year on year, repeats and sent on same Time/freq	
III	M03c	Mssgs in 30's with double quintuple sevens as first and last 2 gps (77777 77777) Sometimes repeats the same mssg in the same week but not at any other time	
III	M03d	Mssgs over 60 gps, some with short period repeats	
III	M03e	Mssgs of (so far) 71 gps with letter R between each gp and RR every 10gps. Rare TX	
XI	M04	* "LO LO"x3 /75977 75977, always 100x5f gps long G02 (E23) Repeats mssg, ending "AR SK AR SK" Last heard Sept 2000	
O	M05	* MCW auto. "The Two Day Wonder" only heard on 5/6 Oct 1993. The dates of the Russian Coup. Believed to have originated in UK 6F, 000000, long zero, // freqs.	
IXB	M06	* OLX	S16
	M06a	* rapid dots tuning signal	S05, S15

IXA	M07	^	MCW, Tone sequence start & end of TX (formerly rapid dashes), 17wpm. 749 749 749 85 85 35 35 = =, 35x 5F, ending = = 85 85 35 35 000	S10, M10
XVIII	M08	*	ICW, cut numbers, (ANDUWRIGMT) "UAAMD MDUUA UAIAU" R3. "UAAMD x 5 + = = = 150 x 5f" Ending AR AR AR SK SK SK Format ceased late 1996.	V02
	M08a		ICW, 3 messages, each 150 groups Sends AR AR AR MDUUA after 1 st mssg Sends AR AR AR UAIAU after 2 nd mssg Ends AR AR AR BT BT BT Usually rpt 1hr later, first and last 2 gps the same	V02a
	M08b	^	"de xxx" callup	
	M08c		ICW, cut numbers, as M08a but ending OE K First noted early 2004, believed defective TX tape, has periods of absence before restarting. Format ceased mid 2005, back in Feb 06.	
IXA	M10		ICW, MCW, some CW. 2F DK, 5F gps, ends "000" short. 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. Numerous daily skeds from 06.00 – 22.00z Regular skeds use 2 // freqs. Other unpredictable skeds H24, 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?	S10d
	M10a	^	Triplet "000"	
	M10b	^	additional groups, ends triplet "000"	
	M10c		5F headers	S10
	M10d	^	GC sent 3 times, hand keyed	
	M11		Formerly M10e. Slovak ? Call always 111. Was Tue/Wed 07.00z 7891kHz ??, may return. 5f ID, only 4 used, multiple mssg's only 5 to 7 gps. 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.	S10e

IA	M14		MCW / ICW / MCW CC 5F<3F,ends "00000" long or short 560, R4. 245 245 161 161 == 161 x 5F == ending 245 245 161 161 00000 E06, G06, V06, S06 E17?
	M14a		dual message variant, Fri 19.00z Repeats ID for 2min after 1 st mssg S06e
	M14b		Rare, added 2nd msg hand keyed
	M14c		Rare, dual msg, <u>consecutive</u> ID's
VI	M15	*	DEA47/EC3Y
	M16		WITHDRAWN (8BY, French Mil)
VII	M17	*	5f, sent in MCW, ends "VA" E01, (S01?)
IC	M18		4f, continuous. Sends time strings UTC+4. Reportedly located in Kazakstan.
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. Eg :- " = 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
O	M23		ICW, usually 5f call, some as stutter gps (can also be 2 or 3f or letter I for 45secs or random letters) 00000 R3 to 20 = 30 = 33 x5f = IMI IMI =" Current "expected" calls (July 2006) are :- 555 (majority) & 951, 111 & 741 are rare. All R10. No mssgs being sent, only nulls. can end AR or AR AR or no ending has long periods of no activity. Additional freqs / times noted in 2006 although the daily 14.30 / 16.30z TXs on 14450 / 5670kHz can be widely heard, with a very variable signal MANY VARIANTS, some very strange.
IA	M24		ICW / MCW. Ends 0 0 0 0 0, spaced out (high speed version M14) Format as M14 but different ending
	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 > <u>BT</u>
O	M28	*	HEP
XIII	M29	*	VDE, 5f, ends <u>AR</u> , 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. erratic, 15 wpm. 5f. M26

	M35-38		DELETED	
IXC ?	M39		Inactive / unlogged for a long time, returned May 03 No known skeds, a real "pot luck" station Format :- 3Ff ID, 5Ff gps all x 5 (xxx xxx xxx yyyyy yyyyy) x 5 Pause, period of dashes then Same ID, different 5f gp. No ending, uses short zero 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.	S18 ?
	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		5F, hand keyed, H+50, ends "000", short zero Similar format to M1 but much slower (9/12 wpm) "074 x 4mins, XXX XXX XX XX = = 5f gps sent twice ending XXX XXX XX XX 000" where XXX=DK, XX=GC.	S21
O	M46 ^		3F cumulative	
O	M47 ^		1/2/3 F cumulative (JST)	
XVI	M48 *		Ciocirlia morse?	V01
XVII	M49 *		AAAAA, G8a morse	G08a
XIV	M50		Hand keyed, sloppy, 5431/4641/5372kHz INCONSISTENT FORMAT always 50 groups (training net ??) appeared on 9567 / 7722kHz in Feb 06	(related M1, S21)
XIV	M50a ^		Hand keyed, sloppy, 5372kHz, 19.30z 20 group variant, started mid 2001.	
XIX	M51		Believed Fr Mil CW training net, many freqs. Related to FAV22 6825//3881 100 x 5 let groups, ends B*T Call unknown, header is mssg serial No/first let. of month/date/time (1hr ahead of utc) " = NR J 9 10:42:37 = 100 x 5let complex schedule, has ended "579 x 60" ??	
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, long zero, 10min TX Example "529 x n 000, (r3), last gp 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 ? No known freqs/times, A pot-luck ? station NOW ALL WITHDRAWN	related M52 ?
Note: M57 to M61 & M66			
O	M62	Repeating 4 digit (nnnn) Rarely sends mssgs. Believed Slovak Mil. Mainly 3-5 meg.	
O	M63	A2A net,	
O	M64	* = 3f 3f = 11111 5F > <u>AR</u>	
O	M65	* 5f, ends = = QRU QRU <u>SK SK</u>	
O	M67	^ Cut numbers, 4f gps, ends "000", Turkish ? no reports within Europe?	
	M67a	^ 3f 2f 7777 variant	
II	M68	^ Cut numbers	E05
O	M69	^ 5f, ends <u>AR</u>	
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. complex msg structures. 25 wpm. Uses accented letters. "c/s c/s QTC 96 23 = 23 x5f ending AR 0 (x ?) on 3280kHz, Mar – Oct, 3819kHz Nov – Feb. Changes c/s every day The preamble which will contain "808" has fg as "26310" In early 2004 the null mssg format was changed to "=229XX" after the preamble. If mssg is sent then fg is 40545 End of mssg 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	
	M79	^ 5120 kHz, under investigation	
O	M80	^ "847 847 847 97333 97333" 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 jvg de bml bml qsa qtc 587" R2 Or "abv qtc nr xxx xx xx xxxx xxxx xxx xxx = " Known to send "r" as separator each 10 gps Not normally heard in Europe/USA	

O	M83/a/b/c	<p>4 dig. c/s, long zero, 20 f/l msg. Poss. Slovak Mil Net, under investigation. M83 "xxxx xxxx xxxx vvvvvvvvvv vvvvvvvvvv vvvvvvvvvv" M83a "xxxx de xxxx QTC 2 20 02 0907" 2= serial No, 20=gp cnt (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 detailed write up by AB added to the Detailed Morse Profiles List Oct 2003</p>
XVIII	M86 M87	<p>DELETED now M8a 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 gps, 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</p>
	M88 M89	<p>DELETED, identified as a M03 "null mssg" format Chinese Mil., 4f. Auto No fixed skeds/freqs. Mainly between 3 – 10 meg Best known is the L9CC family including L9CC, CP17, LA5S, NH8T, MW3D, 2SLC, BFR7, 4XML etc Sample formats :- V CP17 CP17 CP17 DE L9CC LNCC V MW3D MW3D MW3D DE 2SLC 2SLC A detailed write up by AB added to the Detailed Morse Profiles list, Oct 2003</p>
	M90	<p>Czech Mil, MCW & hand. Very busy Control stations CH8N, S8BD, U4NP. Operates 24/7 Format:- 28 21 25 0720 = 178 TR2F = mssg = CH8N K Where 28 = mssg nr, 21 = gc (always 20), 25 = day, 0720 = UTC +1 (W +2), 178 TR2F = addressee. A detailed write up by AB/FN added to the Detailed Morse Profiles List Oct 2003</p>
	M91	<p>Czech Mil, MCW & hand. Very busy C/s changes daily. Operates 24/7 no skeds. Used 2362//2852kHz for past 3 years. Mssgs 5Lgs/5Fgs or mixed. Sometimes only 2362kHz. Format:- 64 20 09 2123 696 c/s Where 64 = mssg 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</p>

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 mssgs of 20 or 50 gps, 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 a further 15 – 20 Chinese stations being studied
 and may be added to the list at a later date.

M93 First logged Apl 2004, Auto at 15wpm, long zero.
 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 gps, 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

IC	MX MXI MXII MXIII MXIV MXP MXV	SLHFB's (Single Letter HF Beacons) Solitary SLHFB clusters (group of beacons v.close in freq, abt 0.1kHz apart) FSK mode TX WITHDRAWN, MX covers WITHDRAWN, MX covers With message, probably Russ. Naval Irregular "V"
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The above MX designators apply only to Russ/E.European networks,
 others should use the generic "SLB" term.

NOISE STATIONS (or unidentified mode)

Family	Ref No	Comments	Counterpart
VII	X01	^ Bugle, no other TX	S02
IC	X06	6 tones, repeating. (Mazielka) Russ selcall system for FAPSI stations, many variants. Uses basic tone mapping.	
	X21	21 note melody, 2 variants	
	XB	Buzzer/UZB76, now classified S28, 4625kHz	S28
	XBS	^ Buzz-saw, being heard 5.1-5.8mHz and 7019 in 08/2001	
	XC	Crackle	
	XD	Fast ICW dots, 24hr, 3595kHz	
	XE	^ Echo	
	XF	Faders	
	XFR	Croaking Frog, 7380kHz 08.00z+- and 7992, 11173, 13975, 18864kHz at various times, all USB	
	XJT	The Jet, appears to use blocks of 10 freqs from 2 - 9 mHz.. Sig is about 3k 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.	
	XM	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) Now determined to probably be a form of "COMPEX" type signal as the ongoing investigation has isolated a male voice, 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 & Link-11 "possible" connections are very interesting as they are "conflicting signals" as regards origins.	

Polytones

The Polytone stations are currently undergoing intensive audio analysis and these are subject to continuing revision as we find that different recordings of the same TX give differing analysis results. [Slight RX'er miss-tunes and/or different analysis progs etc]? See discussion in Newsletter 10, May 2001 and articles in Newsletter 16, May 2003 & Newsletter 23, July 2004 for further info.

The Polytone transmissions are of Russian origin and are associated with the more conventional Voice & Morse stations. The particular family relationships are identified from the decoded polytone message structures and transmission schedule similarities.

- XP [Russian Intel Multitone System 1+12]
Standard Tones (Hz +-3Hz) M78?
[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.
- XPA [Russian Intel Multitone System MFSK-20]
Major Article published in E2K Newsletter 23, July 2004, giving detailed analysis and comment.
Skeds Tue/Fri 07.00/20/40z & 21.00/20/40z
Changes freqs monthly, new freqs posted via group list.
Probability of this signal being involved with an "auto receive" system, hence XPA, and 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 (nominal values as per update published Mar 2006 following prolonged analysis after some anomalies found in original assessments)

XPA [Known to be MFSK-20 Russian Intelligence Multitone System].

The XPA Polytone system uses a total of twenty tones, of which five 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.

<u>Tone [Hz]</u>	<u>Function</u>	<u>Secondary Function</u>	<u>Remark</u>
520	Start Low		Transmission starts on low tone Used with 1280 Start High
600	Synch Low [starts]		Used with 1120 – fig 9
680	Space between groups		Separates Groups or other functions; lengths vary.
720	End Tones		Used with 1200 Repeat tone
760	Fig 0	*	*
800	Fig 1	*	*
840	Fig 2	Separator Low	Seven segment: 626262
880	Fig 3		
920	Fig 4	*	*
960	Fig 5		
1000	Fig 6	Separator High	Seven segment: 626262
1040	Fig 7		
1080	Fig 8		
1120	Fig 9	Synch High	[Follows 600]
1160	Message start pulse		Only seen at beginning of message BUT led in by 1200 repeat pulse.
1200	Repeat		Follows character to be repeated
1280	Start High		Used with 520

Null Message ending seen as 10140 at null message end

XPA 2 First heard 3 May 2006, last heard 2 June 2006
 See NL 35 July 2006 for full initial report.[P36 to 39]
 Narrow bandwidth, 15Hz tonal separation.
 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.

Tone/value relationships initially established :-
 1005 = space, 1035 = sync, 1050 = end, 1080 = repeat, 1235 = start
 1100 = 01115 =1 1130 = 21145 = 31160 = 4
 1175 = 51190 = 61205 = 71220 = 81235 = 9

Tones suddenly changed on 30 May 2005, becoming :-
 965 = space 1025 = sync 1135 = end 1125 = repeat
 1435 = start
 1115 = 01185 = 11215 = 21245 = 31275 = 4
 1305 = 51345 = 61375 = 71405 = 81435 = 9
 [Note in both tone maps the allotted tone for the figure 9 is dual function].

One wonders whether this sudden change, which over doubles the bandwidth, was as the result of receiving difficulties or the introduction of another variant, then suspended. Unless the signal returns for further analysis we may never know.

XPH High Tones (Hz +-3Hz)
 814, 844, 879,914, 954, 992, 1038, M12
 1089, 1143, 1202, 1234, 1271, 1304 Hz. family
 Datum tone 1304Hz
 Tone/value relationships :-
 1304=space, 1271=separator, 992=repeat, 1234=0, 814=1, 844=2,
 879=3, 914=4, 954=5, 1038=6, 1089=7, 1143=8, 1202=9.

XPL Low Tones (Hz +-3Hz)
 It would appear that the low tones are the product of M12
 mixing 2 non harmonically related tones, analysis family
 not yet completed but tone pairs identified (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 :-
 Still under analysis.

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.

XQ	Plaintive "mew"
XS	Saw/whine
XSL	Slot machine, widely heard in US, (Europe in winter months),believed Japanese PSK. Wide range of freqs 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.
XSW	Now S32 Squeaky Wheel. 3829/5474/6991kHz, 15010kHz reported. See S32 entry
XT	Tick/pip, 24hr, Superseded by S30
XTB	1 tone, 2 buzzes. 11116kHz, early morning daily.
XT2	Pip, 22.00z + varying freqs, usually low (early 02, Issue 9 for details)
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 Issues 9 & 26 for more details.
XX	DELETED
XXX	DELETED

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Associated documents
Nomenclature and Abbreviations
Current active stations "Hitch-hikers Guide"
Short Form, Morse Stations Profile List
Detailed, Morse Stations Profile List
European Languages Listing
 (includes Arabic used by E25 & V08)
 Slavic tracker Charts