X06 (Mazielka) parameters, definitions and patterns

1. Tone values:

1	840hz
2	870hz
3	900hz
4	930hz
5	970hz
6	1015hz

2. "Test" definitions:

X06a	Alternating two tones e.g. 121212
X06b	Audibly less than two tones, where a tone is sequentially repeated 2 or 3 times giving an audible single longer tone e.g. 122433
X06c	6 tone rising scale e.g. 123456
X06a variant	Any others

3. "Alert" definitions

1. A signal with same tone sequence occurring within 30 minutes of the Primary and where the second frequency is a repeat of the Primary.
2. A signal with same tone sequence occurring within 30 minutes of the Primary and where a Secondary frequency is used which is different to the Primary.
3. A signal with same tone sequence occurring within 30 minutes of the Primary and where Secondary and Tertiary frequencies are used and which are different to the Primary.
4. A signal with same tone sequence occurring within 30 minutes of the Primary and where Secondary, Tertiary and Quaternary frequencies are used and which are different to the Primary.
5. A signal with same tone sequence occurring within 30 minutes of the Primary and where Secondary, Tertiary, Quaternary and Quinery frequencies are used and which are different to the Primary.
6. A signal with same tone sequence occurring within 30 minutes of the Primary and where Secondary is the same as the Primary, and Tertiary is different to either the Primary or Secondary
7. Other

4. Status (These categories were established after the report on X06 Developments dated 19th June 2011

In order to recognise the various types of transmissions the major categories of signals are as follows:

> **Match** – a transmission which matches previous transmissions using the same day, frequency, sequence and time +/- 60 minutes

Group - a transmission which matches previous transmissions using the same Day and tone sequence

Random - a transmission which exhibits no matching features

5. X06 Developments (Originally released June 2011)

It may seem that X06 reporting has been limited in the past few years but this is far from the reality. The X06 Team has been working in the background in an attempt to learn more of this series of signals.

The popularly held belief is that X06 or Mazielka is a selcall system which is used to alert stations of a forthcoming message to be sent in Crowd36 format and that the receiving station should be ready to receive a transmission. This seems an unwieldy and arcane method of communication when contemplating modern technology. However without any solid proof, it seems that we must accept this explanation for the time being until or unless a more logical alternative is found.

The reception of X06 has always been difficult because of the seemingly random pattern of transmissions in terms of both time and frequency. It was always thought that there was some kind of pattern to transmissions but a firm schedule has never been identified. A wish to pursue this possibility led to the following outline.

Objective:

The objective was to establish whether or not scheduled transmissions existed and if so to establish the basis and produce a forward schedule.

Methods and parameters:

The start-point was to examine the X06 database consisting of log entries going back to 2001 and which consisted of data sets where only a complete data set was available – date, start time, frequency and tone sequence. As a matter of record and comparison the database comprises of:

- 1738 log entries
- 98 unique tone sets from a maximum possible of 720
- 360+ unique frequencies

Year	Logs
2001	4
2002	1
2003	0
2004	4
2005	27
2006	170
2007	222
2008	405
2009	225
2010	387
2011 (to 17/6/11)	305

Fig 1- Log entries since 2001

There was already some indication that transmissions were based on a week-day pattern as follows:

First	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Second	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Third	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Fourth	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Fifth	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday

Fig 2 - Outline of Patterns

Data was tabulated into these patterns and any signals with repeat day, frequency, tone sequence and time within a 2 hour slot, were marked as possible schedules. A sample Pattern sheet is shown in Fig 3 (Note that the sample only shows part of the Excel page). The page, in this instance, shows the day selected (First Tuesday), the Tone Sequences which have occurred on that day and the frequencies and times of transmissions.

A Logging Week was organised between 21st and 28th March 2011 and was further extended until 4th April 2011. Fourteen contributors were drawn from the X06 team, plus members from Enigma2000, UDXF and Spooks groups and were located in UK, Norway, United States, Australia, Ireland, Germany and Argentina. Contributors sent in logs to the X06 Team and these were carefully logged and matched with the Patterns. These logs were invaluable in this analysis process and thanks are due to the 14 contributors who actually took the time to help.

Results:

Once the historical data had been entered there was a clear indication that schedules of sorts were in existence but that they did not cover all X06 transmissions.

During the Logging Weeks between 21st March and 4th April we recorded 58 logs of which 19 matched our potential schedules and between 5th April and 17th June a further 153 logs were recorded of which 87 matched potential schedules.

Thus we have several different sets of data:

1. 61 Tone sequences have been repeated recently to an apparent schedule
2. 22 Tone sequences exhibited random patterns
3. 13 Tone sequences with only 3 loggings or less

Note: In Fig 3 there are two entries under tone sequence 156234 at 15-16 hrs and 16-17 hrs. The entry in Red denotes a first match to the possible schedules and the entry in Blue denotes two matches to the possible schedules. However the same frequency is seen used in four time slots – is this lax operator technique or does this have some other significance? A further factor could be time changes in the sender's country.

It should be noted that the Logging Week matches only indicate 1, 2 or at the most 3 instances where tones, frequency, day and time have matched in each tone sequence – It will take several months of logging to confirm a full regular schedule in each case.

Also as logging records increase, particularly when we can record "Not heard", accuracy will improve.

Frequency in black - Predicted
Frequency in red - One match
Frequency in blue - Two matches
Frequency in green - Three matches

Main data Base | Frequency lists | Analysis Sheets | HF Sigint site | Email Group

Transmission Patterns

	First							Second							Third						
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Tone sequence	00:00 to 01:00	01:00 to 02:00	02:00 to 03:00	03:00 to 04:00	04:00 to 05:00	05:00 to 06:00	06:00 to 07:00	07:00 to 08:00	08:00 to 09:00	09:00 to 10:00	10:00 to 11:00	11:00 to 12:01	12:00 to 13:00	13:00 to 14:00	14:00 to 15:00	15:00 to 16:00	16:00 to 17:00	17:00 to 18:00	18:00 to 19:00	19:00 to 20:00	
123456											13872										
126354											14970										
131313														8300							
154263									12149 13401	12149 13401											
154632												4765							6958 9145		
156234											14871 16025		16025	14970	14871	14871	14871				
164532								10193	13506					11411 13506							
165324		6960								7411											
131313														8300							
165423									9450 11462 12157	9450											
213546											11438 12168	10283									

Fig 3 Sample Pattern Sheet

Patterns for each “Network” or tone sequence based on current logs are:

	1st	2nd	3rd	4th	5th	Total
Monday	2	2	1	1	0	6
Tuesday	2	3	2	1	0	8
Wednesday	5	4	3	3	2	17
Thursday	2	5	3	2	0	12
Friday	7	4	4	1	0	16
Saturday	0	0	1	0	0	1
Sunday	0	1	0	0	0	1
Total	18	19	14	8	2	61

Conclusions:

We can now say that there are schedules which can help us improve our knowledge of this series of signals and these will make logging a lot easier. Unfortunately there is still a degree of uncertainty in the signals in that operators do not seem to strictly observe time slots as, for example, in the XPA series, and there seems also to be a secondary or back-up frequency which is sometimes used without any apparent pattern. It may be that “primary” and “secondary” frequencies have some relevance to time slots, but without more in depth logging this feature could not be fully identified.

Clearly some of the Tone Sequences shown on the Patterns page are redundant.

Another factor which should be considered is that of sender and receiver. It seems that the X06 transmissions do not all emanate from the same source and the “Alert” series which we suggested some months ago maybe an indication of “sender” and “receiver”

The only way we can improve our knowledge of X06 is to recruit more support in terms of loggers. Since January this year we have received 305 logs from 15 loggers but 76% of the logs were made by 3 loggers! We need help and would welcome any interested parties to the X06TEAM

Any comments on this article would be welcomed by the X06 Team.

If you would like to join us and receive full details of the X06 schedules and other supporting data. Please mail Jochen or Peter at:

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or

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Notes on X06 Transmission Patterns Spreadsheet

The following may help with the use of the X06 Patterns files.

This spreadsheet has been created with Microsoft Excel 2003 and will convert to later versions. The data used is from a database comprising of transmissions logged since January 2001.

The file consists of 35 pages, each page representing 1 day.

Each page is hyper linked to other pages and hyperlinks are identified by an orange coloured font.

Row 1 is the title row.
Row 2 indicates the week number.
Row 3 indicates the week day.
Row 4 indicates the time slot.
Row 5 and beyond shows the frequency of transmission for each tone sequence.

Note: Black frequencies are those of Random, Group or Match types logged since March 2010 and Red frequencies those logged since 1st July 2013. Note that not all Random calls ave been included.

The file is unlocked so additional entries can be made to suit individual needs.