Museo Tecnico Navale della Spezia

Associazione Rover Joe

A.R.M.I.
Associazione Radioamatori Marinai Italiani

A.R.I.
Associazione Radioamatori Italiani

ENIGMA RELOADED

INTERNATIONAL EVENT

3RD EDITION – FROM SEPTEMBER 17 TH TO OCTOBER 1 ST, 2016

Introduction

The Enigma Event was born in 2014, originated from an idea jointly developed by the Marine Museum of La Spezia, Italy, and the Cultural Association "Rover Joe" (Fidenza, PR, Italy), as an international event linked to an Encryption exhibition organized in conjunction with another cultural event, the "European Researchers Night".
A consistent support in the organization of the Enigma event was given by A.R.I., the Italian Radio Amateur Association .
The event was also supported by other Italian and foreign associations and cultural institutions, and widely followed in terms of international participation and interest.

The main idea behind the Enigma event is to involve people all over the world, and specifically young people, in focusing their attention on the the importance of the scientific research in general and specifically on cryptography, as drivers of most of the crucial events at the end of World War II, even considering their impact both on history and on the present world's life.
The tool chosen to make this event happen is Radio, operated by international amateur radio stations.

Project and implementation

Coordination and guidance :

Technical Naval Museum of La Spezia

Organization:

Technical Naval Museum of La Spezia - Italy

Cultural Association Rover Joe – Fidenza (PR) - Italy

A.R.I. - Italian Amateur Radio Association

A.R.M.I. – Military Marine Amateur Radio Association

Presentation

The main goal of the Enigma Event is to promote as much radioamateur's activity as possible all over the world, celebrating the history of the Enigma cipher machine and its crucial role in the outcome of World War II, and spreading the knowledge of those key people who contributed to its decryption.

The organizers encourage the participation of the maximum number of active radioamateur stations in the world, and promote the organization of conferences, seminars and cultural activities to achieve the objectives of the event.

As "Activator Stations" are ment those radio stations, installed by the organizers and combined with a real Enigma machine, wich will have been registered as such on the official event website : www.enigma-reloaded.it (List A) as described below.

The Enigma Event 2016 will take place in two steps :

Step 1 : From 17 th to 30 th September 2016, an amateur radio contest in "clear" (e.g. : with exchanged messages in plain text) will take place, during which the Activator Stations will make known the event taking place on October 1 st;

Step 2 :On October 1 st, the Activator Stations and the other participating amateur stations, having applied as such and registered themselves on the official event website www.enigma-reloaded.it (list B), will exchange each other messages in CW mode (Morse Telegraphy), previously encyphred by a real or emulated Enigma machine.

As in the past editions, and in compliance with the Code of Electronic Communications ruling the amateur radio, namely Article. 134 of the Legislative Decree n. 259/2003 and following amendments, due notice and public evidence of the message will be given in advance on the official event's website : www.enigma-reloaded.it.

In this way the content of the encoded message and the setting of the encyphering Enigma machine will be public and known, resulting in a transmitted message being "pseudo encrypted", that is in clarified code, and therefore perfectly intelligible to anyone listening on the air simply accessing to any Enigma emulator available on the Internet.

The list of the Internet Websites where the Enigma emulating softwares and the relevant instructions for use can be downloaded will also be published.
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A permission request for the current year to the Ministry of Economic Development. according to the Code of Electronic Communications is currently being submitted.

List of the attachments :

Attachment 1 : Organizational procedures

Attachment 2 : Enigma Award regulation and release of the participation certificates

Attachment 3 : Enigma machine settings

Attachment 4 : General information about the "European Researchers Night"

ATTACHMENTS :

ATTACHMENT 1

Organizational Procedures

The official event website is www.enigma-reloaded.it, where all relevant information related to the event and the final score ranking will be published.

The Technical Naval Museum will play the role of general coordination and guidance of all co-organizers, will lead the organization and the realization of the event, and will host an amateur radio station in its structure.

The Cultural Association "Rover Joe" will define the settings of the cipher machine, and will supply a real Enigma machine for the station located at the Maritime Technical Museum.

The ARI Fidenza Radio Club will define the amateur radio procedures and will manage the official event's website, acting as collector of all the relevant information.

All other participating groups will collaborate in the promotion and management of the event, in close cooperation with the Technical Naval Museum for the general aspects and with ARI Fidenza Radio Club as the amateur radio activities concerns.

A.R.M.I. will be responsible for the score calculations and for the ranking list, as well as for realizing the graphic diploma's layout.

The participation diplomas will be sent electronically to all participants upon request.

To the he top three winners of each category, a special certificate will be sent electronically.

Italian and foreign Amateur radio stations who apply for being registered as "Activator stations" will ensure the activation of their radio stations from September 17 th to September 30 rd 2016, in order to allow to the participants getting their scores for the final ranking (see Annex 2).

On October 01 st, the final event's day, the exchange of messages in telegraphy mode (CW) will take place between the Activator Stations and the participating amateur radio

stations officially subscribed on the official website www.enigma-reloaded.it. (List B)

The body of the messages to be exchanged will consist of :

Name of the official event's website, followed by the phrase "European Researchers Night" and the acronym of the rotors and riflessors used (A, B or other).

An encrypted text will follow, beginning with the word in plain text "start" in capital letters, followed by the coded text "EVENT ENIGMA 2016 - INTERNATIONAL - THIRD EDITION ITALY", followed by 55 characters, grouped in 11 groups of five letters each in mode PARIS, and ending with the word in "end" in plain text, as in the following example :
www.enigma-reloaded.it - European Researchers' Night - xyz rotors
 - refl , ENIGMA EVENT 2016 - INTERNATIONAL - THIRD EDITION ITALY
where the only part in clarified code will be the one written in upper case in the example given above.

The event of October 1st will end with a greeting and thanking message in plain text, sent by the organizers to all participants and listening stations.

The organizers warmly invite all involved parties and institutions to give public evidence of the event directly to their contacts and reference sites, during the whole duration period of the event.

All Activator Stations are invited to organize seminars, conferences and public lectures on the Enigma machine, its history and encryption, indicating on the official website the locations where they will take place.

ATTACHMENT 2

"ENIGMA AWARD" REGULATION

DATES

The Enigma Award will start on Saturday September 17 th at 07.00 UTC, and will end on friday, September 30 th at 23:59 UTC, in conjunction with the EUROPEAN NIGHT OF RESEARCHERS. The complete program is available online at www.enigma-reloaded.it

PARTICIPATION

All amateur radio stations in the world can participate, with the goal of collecting as many QSO as possible with Activator Stations, following the rules explained in this document.

The official list of Activators Stations (List A) will be published on www.enigma-reloaded.it site by August 31 st, 2016.

The only participation Diploma categories are : OM category and SWL category, each having its own independent score ranking.

Activator Stations will not compete for the ranking, but will receive a special participation certificate.

As previously defined, each Activator Station requires the presence of an original Enigma

machine (not necessarily functioning).

By the time of the registration application of the Activator Stations (List A), the name of the museum or cultural group hosting the machine associated with the radio station should be specified.

For amateur collectors or private owners, the province where the station is located will be considered as sufficient information.

Any additional detail, if any, will be welcome, but is not requested.

On October 01 st, last Event's day, the Activator's Stations will call one by one the stations equipped with one emulated / virtual machine listed in List B on the official website www.enigma-reloaded.it, and will exchange encoded messages.

QSO RULES

QSOs are allowed on all HF bands 10-12-15-17-20-30-40-80-160 meters, in SSB, CW, RTTY, SSTV, PSK31 mode only.

QSO via repeaters, transponders or other similar ways are NOT allowed and will NOT be accepted as valid.

The QSO will be valid once exchanged the conventional RST report.

Each Activator Station can be connected only once per day for each emission mode and for each band, throughout the whole contest.

Use of spots using Packet Cluster is allowed, but "self spotting" by the Activator Stations is NOT allowed.

POINTS FOR QSO / HRD AND MULTIPLIERS

Each QSO with activators stations worth 1 point. The individual callsigns of the activator stations count as multipliers.

Example of scoring: 10 QSOs with IO4ENG, 25 QSOs with II2ENG, 7 QSO with SP0ENIGMA: Total points / QSO 42, multipliers 3,then 126 points in total.

SCORES

To obtain the diploma, OM and SWL participants must reach the following minimum score:

Italian and other European stations: 16 x (n. of Activator Stations) points;

DX stations: 8 x (n. of Activator Stations) points;

SCORE RANKING AND AWARDS

The final results will be published after the end of the event on the website www.enigma-reloaded.it.

The first three stations classified in the OM and SWL categories will receive a special

certificate via email.

Each station having achieved the minimum score (see above) will receive the Enigma Award via email.
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The decisions of the judging Committee will be are final and undisputable.

All participants not complying with the rules stated in this document will be disqualified.

HOW TO SEND LOGS

The logs must be sent by email within October 30 th, 2016 to the following address:

award@enigma-reloaded.it

The log must be sent using the electronic log downloadable from www.enigma-reloaded.it site under "Enigma Award Log", in download area.

FINAL REMARKS

Anything not specifically mentioned in this Regulation and its amendments, as well as any additional information will be published on the official web site www.enigma-reloaded.it, to which as any request for additional information should be addressed.

As general ruling system, the common practice, customs and conventions usually adopted within the amateur radio competitions are assumed

ATTACHMENT 3

ENIGMA MACHINE SETTINGS

The purpose of this note is to define the mode of use of the Enigma machines on the final event's day.

This note has been written taking into account the most common machine types hosted in museums and owned by privates, as well as the emulators available on the net.
It is also considered the case of by hand coding and decoding of the messages, without using any real or emulated cipher machine.

With only rare ecceptions, most of the original machines owned by institutions or privates belong to the types I, M3 and M4, which were designed and built to allow communication compatibility between the German Army and its supporting groups.
These machines are typically equipped with 3 or 4 rotors, and are mutually compatible.

Each station participating to the Enigma final day will be host an amateur radio station and equipped with a real or emulated Enigma machine.

For the reasons explained in the following, it is recommended to operate with the availability of a computer having access to Internet.

A simplified setting compared to the original procedure followed by the German Army will

be adopted.

The initial rotor positioning code (Grundstellung) will be the same for all machines , as well as the date of the Enigma Event : Third edition 2016, namely 03 – 20 – 16 for numeric rotors, and C – T – P in the case of alphabetic rotors (according to the date format in use in Italy, see photo 1).

photo 1

Real Enigma machine

In the encoding procedure the rotors will be positioned in ascending numerical order from left to right, (for example : II, IV, V or I, III, IV, ...), see photo 2.

The rotors will be previously pre set by acting on the "Ringstellung" ring, bringing the characters "01" or "A" of the alphanumeric ring (depending on the machine type) to the position corresponding to the eagle's symbol on the outer ring.

Photo 2

After closing the door, rotate the rotor rings in such a way to read, from the left to the right, the values 09,20,16,or I - T- P (photo 1, Grundstellung).

In machines equipped with four rotors, set the first rotor on the on "01" or "A".

Do not connect any electric wire to the pins (Stecker), present only in military type machines.

Composition of the encoded message

The letters obtained as a result of the encoding of a plaintext message will be transmitted in groups of letters in PARIS mode (also called "AGREED" = coded message consists of five - letter groups).

ENCODING AND DECODING

If the rotors on the receiving machine are identical to those of the transmitting one, the machine setting to be used in order to convert the encoded message into plain text, is exactly the one described above.

As already explained in this document, the messages originated by the transmitting stations will be encoded with the available rotors, whose number will be reported as plain text in each message, as well as the reflector (ETW) type : (A, B etc.).

For decoding messages with a real Enigme machine, if the transmitter and receiver machines are not equipped with the same rotors, one among the many Enigma emulators available on the internet can be used.

Useful technical information about the Enigma rotors details, as well as instructions about how to manually decode the messages, even by means of paper based simulators, will be available on the Internet : for the latter, please refer to "Paper Enigma".

ATTACHMENT 4 - General information about the "European Researchers Night"

Research Executive Agency

P3-Marie Curie Reintegration Grants and Researchers' Night

HORIZON 2020
Call H2020-MSCA-NIGHT-2014 (Researchers' night 2014 - 2015)

PRESENTATION NOTE

What is the European Researchers' night all about?

European Researcher's' night, as from its first edition in 2006, is a Marie Sklodowska-Curie (MSCA) action, under the Horizon 2020 specific programme "Excellent science"; it consists of a pan-European event taking place on the last Friday night of September. For the first time, proposals for the European Researchers' nights should cover 2 successive years, i.e.2014 and 2015.In other words, they will cover two events, respectively taking place on Friday 26 September 2014 and 25 September 2015.Proposals covering one single year may also be considered.

Its **objective**, as described in the Work Programme for 2014-2015, consists of:
"*Bringing the researchers closer to the general public and increasing awareness of the research and innovation activities with a view to supporting the public recognition of researchers, creating an understanding of the impact of researchers' work on daily life and encouraging young people to embark on scientific careers*".

Several main features result from such definition:

 "Bringing the researchers closer to the general public"
o Focus on the researchers themselves, appearing as well as professionals and as human beings;
o Activities addressing all components of the public at large, whichever the age and social or scientific background;

 "Increasing awareness of the research and innovation activities with a view to supporting the public recognition of researchers, creating an understanding of the impact of researchers' work on daily life "
o Presentation and explanation of the research's results, whichever the topic, from fundamental to applied/industrial research;
o Clear illustration of such results through examples that can "hit" the visitors and show the influence on their daily lives;
o Illustration of the potential influence of research works on territory planning, health policies, urban management, environmental choices…, e.g. of the interaction between research and strategic orientations for the management of territories;
o Illustration of the possible transfer of research results into industrial processes or products, also pointing out the research's contribution to economic growth, employment and technological progress;

 "Encouraging young people to embark on scientific careers"
o Activities addressing young people, in particular when about choosing a career orientation;
o Direct witnesses by researchers, pointing out the fascination of their job as well as the possibility of combining job and private life;
o Illustration of the various possibilities offered to scientists, both in academic and industrial circles;

Which messages to convey?

It's up to the applicants identifying the mottos of their event, based on the specificities of their activities, geographical territory, specific public components addressed…. Nevertheless, some examples can be provided, based on the experiences conducted under Framework Programme 7:

o Researchers are amongst us (= researchers are ordinary people with an extraordinary job, one can be a researcher and have a balanced life);
o Research is fascinating and fun;
o Your life would be much more difficult without research (pointing out the impact on daily lives);
o Research is a challenging and interesting career orientation…

Which kind of activities to plan?

General features

Whichever the type of activities and their internal combination, whichever the type of partners/sponsors involved in the action, the researchers have to be the focus as well as the "motors" of the activities; in other terms, it must remain clear that the purpose of the action consists of promoting researchers and research careers towards the general public. Promoting specific companies, institutions, political orientations should be totally excluded.

o Range of activities likely to attract/entertain all components of the public at large;
o Activities addressing the visitors whichever their level of scientific background;
o "Edutaining" activities (since having to compete with more traditional Friday night activities);
o Activities linked to research work and results, to researchers' hobbies, to visitors' daily lives and interaction with research…;
o Whichever the activities, researchers have to play an essential role and be as much as possible in constant interaction with the audience;

Examples based on previous experiences
o Hands-on experiments, with help/accompaniment of researchers;
o Science demos and shows;
o Display of science films, comments and debates;
o Simulations, presentation of prototypes;
o Games, quizzes, competitions with researchers (whichever topic: scientific, sport, cooking, music, dance, painting…);
o Rallies based on enigmas, solved with assistance of specialised researchers;
o Researchers' dating;
o Live digging (archaeology);
o Crime investigation;

Most effective activities have proven to be those:
o Directly and actively involving the audience;
o Linked to "hot" topics (likely mobilising the attention of any visitor as being very close to their concerns);
o Linked to popular characters or formats (TV shows, TV programmes, and popular characters, magic…)

What kind of target audience?

o As referred to above, public at large in all its components;
o Focus on pupils and students with regard to the promotion of research careers;

How pointing out the action's European dimension?

o Whichever the acronym chosen for the action, it will have to be preceded or **followed by the mention "European Researchers 'night**" (police and format to be determined and circulated by REA on due time) and the European flag;
o Each project will have to set up **at least one "European corner",** meeting point where people can at least get information on European programmes and support in favour of research and researchers, policies, achievements and breakthroughs;
o **Each** European corner will **have to offer**:
o A European flag;
o A European Researchers' Night roll-up, complying with the following requirements:
   - Placed at the event's entrance;
   - Complying with the following content and format requirements:
     200 X 85cm and the mentions "European Researchers' Night", "Marie Sklodowska-Curie: an inspiration to follow", as well as an image to be provided by the European Commission;
o Promotional material bearing the mention "This European Researchers' Night project is funded by the

European Commission under the Marie Sklodowska-Curie actions"

o Direct computer link with European websites (list to be provided by REA on due time) and promotional videos;

o Permanence of Marie Curie fellows/ researchers having ebneftied from a European support witnessing their concrete experience (nationals having carried out research abroad or foreign fellows carrying out research on national territory) and also taking part in the activities organised outside the European Corner;

o Demonstration about at least one research project supported at EU level and involving the area;

o Interactive activities such as games, competitions, quizzes, related to Europe, European programmes and namely research at European level.

Further information

o Guide for applicants;

o Frequently asked questions about European Researchers' night;

o Colette Renier, Colette.renier@ec.europa.eu.