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Articles



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USA

The Distribution of Useful Frequencies in Polygraph Sensor Channels

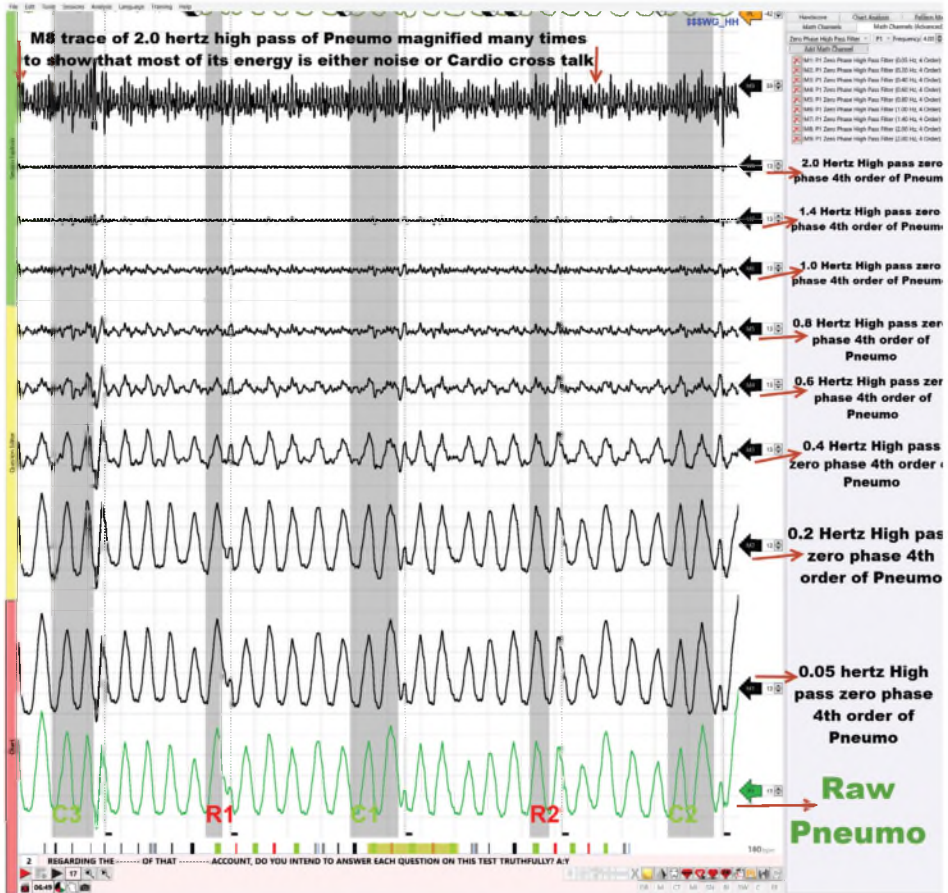
Разделение полезных частот
между различными датчиками каналов полиграфа

Key words: polygraph sensor channels, infrared plethysmo, pneumo, electrodermal, cardio

Purpose: to help other polygraph researchers better understand the distribution of energy across different frequencies in the standard six polygraph channels in common use. The channels shown will be pneumo, electrodermal (Axciton), cardio cuff pressure, movement sensor, and infrared plethysmo (Axciton). In all cases we use a zero phase high pass filter with a fourth order roll off. Unless otherwise noted, all frequency traces are kept with a constant gain to show their relative energy or strength content.

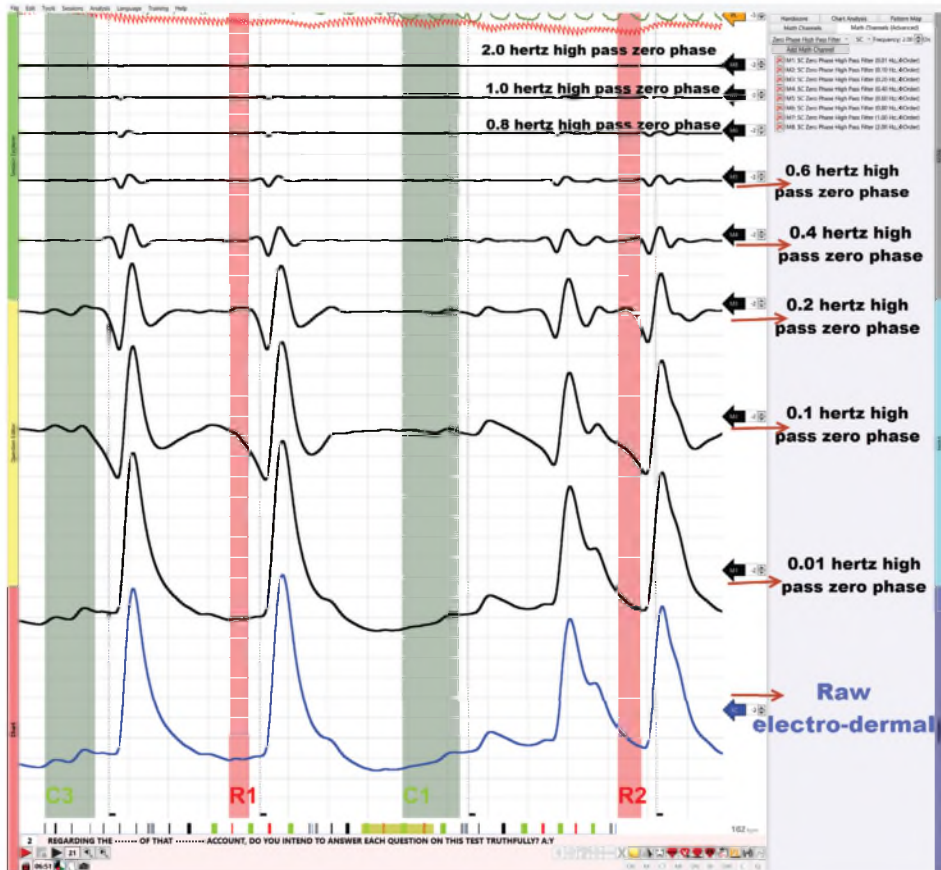
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Pneumo



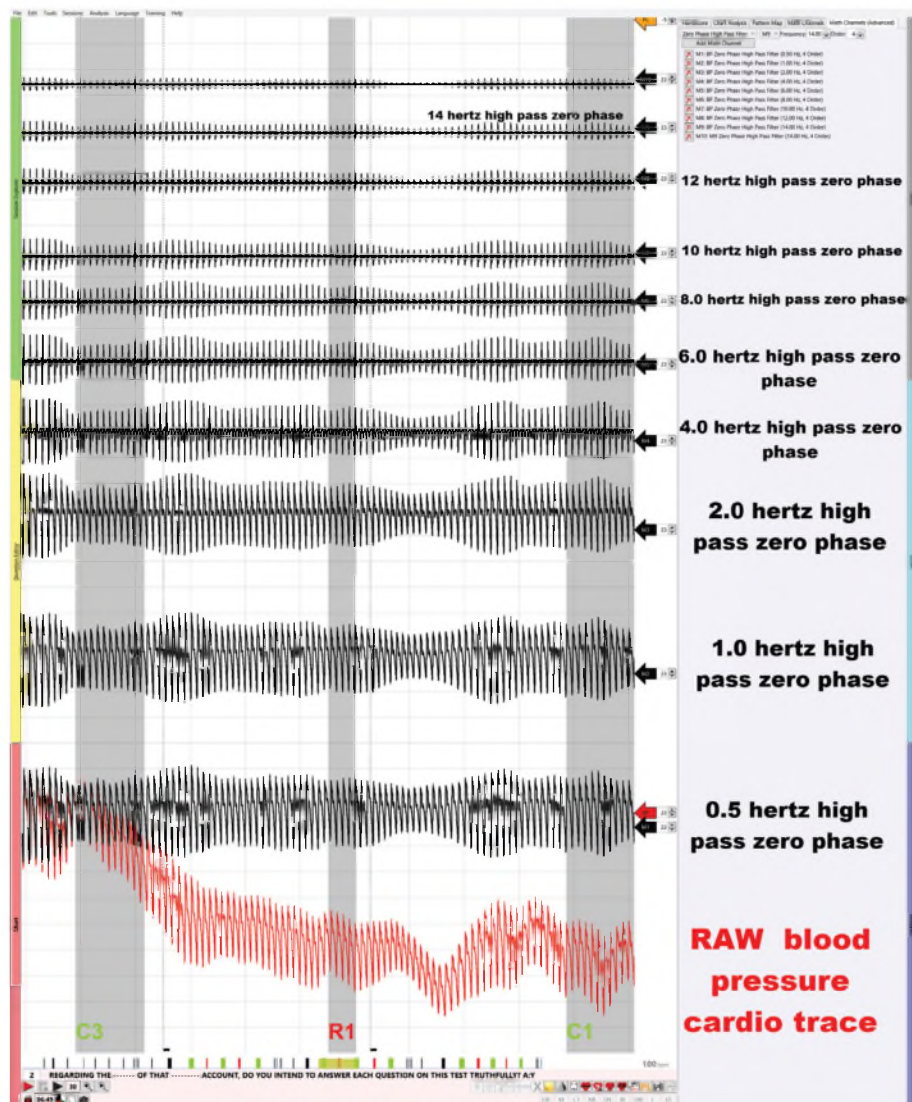
The upper usable frequencies of the pneumo channel are around $1 \div 2$ Hz. At higher frequencies, the cross talk of the cardio systolic pulse becomes the dominant form of noise. Coughing, sneezing, and upper body movement can also appear in this higher frequency range. Producing a math channel that isolates pneumo frequencies above 4 Hz is a useful way to identify upper body movement artifacts that may sometimes be difficult to see otherwise, but are helpful in noticing subtle countermeasures.

Electrodermal (Axciton)



The sweat glands response to fight or flight is relatively slow with most of its energy in frequencies below 0.5 Hz. Note: this paper does not address our research in the relation between resistive and self-potential signals.

Cardio

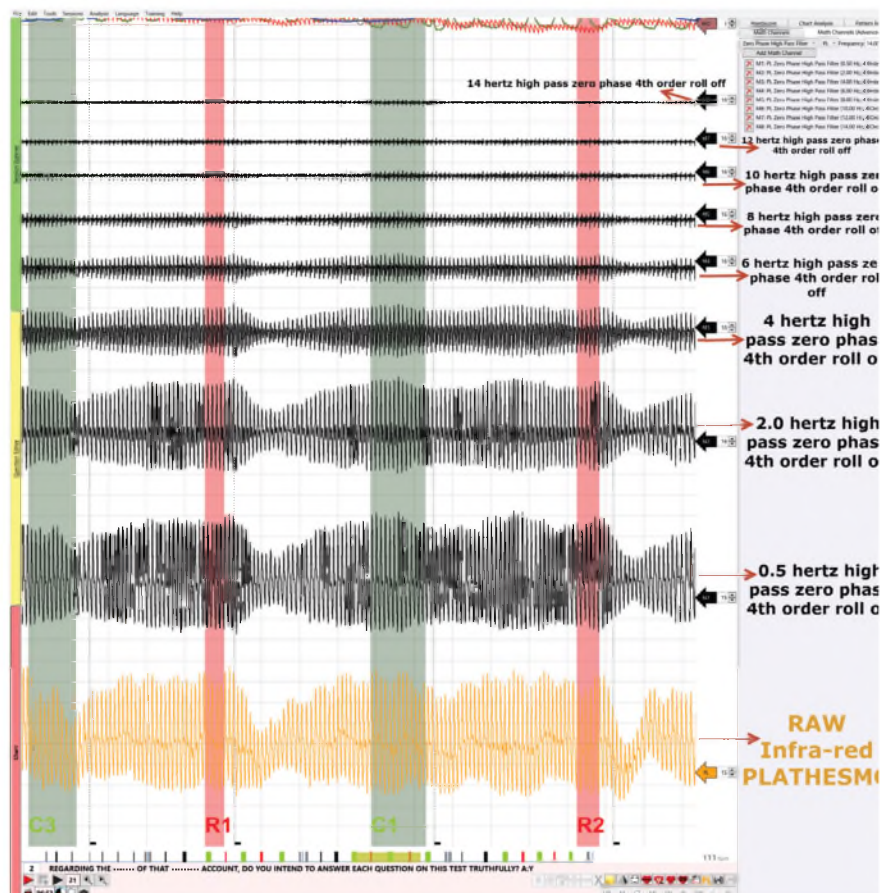


The polygraph upper arm cuff cardio covers a wide range of frequencies. The low frequency baseline below 0.5Hz is the most important for polygraph examiners in their scoring of the systolic base. But the systolic pulse component can have useful energy up to 20 Hz or higher.

Plethresmo infrared

The above plethresmo example is of a strong PLE signal that has usable energy with a good signal to noise ratio up to $8 \div 12$ Hz. Notable concerns with the PLE is that vascularization may greatly vary in subjects, depending on the “fleshiness” of their fingers, reaction to stress, cold and other factors, and these may result in a weak signal that, when sufficiently magnified to reach polygraph needs, looks erratic and ragged even at frequencies above 2 or 3 Hz. When confronted by a “ragged” PLE, it may be a good idea not to score it. In general, it is a healthy practice to apply a zero phase low pass filter of 10 Hz on the PLE, as well as a 0.5 Hz zero phase highpass filter for an improved signal to noise ratio for best scoring (i.e. a band pass of 0.5 to 10.0 Hz).

Movement



For the movement channel, frequencies of above $3\div 4$ Hz are usually dominated by cardio pulse crosstalk as the heartbeat of the subject pressed against a motion pad is recorded. Moreover, the lower frequency breathing at ca. $0.15\div 0.3$ Hz may show up in the motion pad channel.

Additional notes on frequency filters

Frequency filter design is a discipline that requires high skills as it involves many trade-off considerations. Some of them include the following:

- Frequency filters come in 3 forms: mechanical, electronic, and digital. It is the aggregate of these three filters that produces the final displayed data.
- Analog electronic filters, such as resistor capacitor combination pi filters, are often preferred at the point of sensor acquisition to protect the signal from frequencies higher than half the data sample rate. Once the analog data has been digitised, digital filters are used.
- In designing frequency filters for polygraph use, it is best to use real time zero phase filters to avoid time shifting to the left, as this could affect polygraph scoring.
- When designing digital filters it is essentially best to be aware that too high a filter roll off can cause “ringing” artefacts, and too low or slow a roll off for polygraph makes for a fuzzy filter boundary. In general a roll off of a 4th to a 6th order roll off can be used. A 4th order roll off is a good choice for the polygraph.
- Designers of filters for the polygraph should bear in mind that their digital filters behave the same way during the real time exam as they do during replay, the difference being that during the initial exam a digital algorithm can only look into the present and past but not into the future, which it can do in the replay. The best solution to solve this concern for both real time and replay trace data is to use real time zero phase filters.

It is always better to reduce sources of noise in polygraph sensors and circuitry up front, in the circuit and sensor design, rather than only to rely on a filter to clean up a dirty signal. It is so as cleaning up a clean signal is always preferred to cleaning up a dirty signal.



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Polygraph Examinations in the Secret Services of the People's Republic of Poland

Использование полиграфных исследований спецслужбами Польской Народной Республики

Key words: polygraph in Polish People Republic, polygraph in Poland, polygraph in communists countries

In the days of the Warsaw Pact, Poland, at the time officially and constitutionally the People's Republic of Poland, diverged from other members of the Warsaw Pact. Poland had individual farms throughout the time, and after 1956 the Catholic Church operated in principle without obstacles, culture developed basically without hindrance despite the official censorship, and the communist regime itself was not as oppressive as in the other states of the Eastern Bloc. The role of intelligence and counterintelligence agencies in the structure of organs of the state, as well as their organisation and competences, were, however, fundamentally similar to those in the other states of the bloc, dependent on the USSR.

Until 1990, the Polish secret services operated in the following ministries: the Ministry of Internal Affairs (civilian intelligence and counterintelligence, political police) and the Ministry of National Defence (military intelligence and counterintelligence). After

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numerous reorganizations after 1956, in the 1970s, and in the 1980s, the following civilian secret services reported to the Minister of Internal Affairs [1]

- Department I of the Ministry of Internal Affairs (civilian political and economic intelligence),
- Department II of the Ministry of Internal Affairs (civilian counterintelligence), and
- Departments III-VI of the Ministry of Internal Affairs (*Stuzba Bezpieczeństwa*: political police). In addition to the departments at the central level, there were also offices “A” (codes), “B” (observation), “C” (files, and records of investigation), “T” (investigation techniques), “W” (control of correspondence), and the Government Protection Bureau [2]

At the same time, intelligence agencies reporting to the Minister of National Defence included:

- Section II of the Polish General Staff (military intelligence; the Board of the Second General Staff of the Polish Army)
- Military Internal Service (WSW, military counterintelligence and military police, including military political police).

The structures of the Ministry of the Interior also included state police forces operating under the name of *Milicja Obywatelska* (literally: “citizen militia”).

The Department II of the Ministry of the Interior, the Security Service, the Board of the Second General Staff of the Polish Army, and the Military Internal Service of the Ministry of National Defence operated until the adoption of a number of acts including those of 6 April 1990 on the Ministry of the Interior, [3] Police, [4] and National Office for State Protection, [5], when they were terminated.

The first polygraph examinations in Poland

It was still before the Second World War that the Polish State Institute of Psychological Hygiene purchased an American polygraph (Darrow’s photo polygraph), [6] which was nonetheless only applied for investigating emotions, and was used neither for practical nor experimental studies of lie detection. [7] The device was lost when Poland fell under Nazi occupation during the war. Moreover, also before the Second World War, Polish expert literature published information on the use of polygraph in the US [8] and the experimental studies E. Seelig conducted in Germany. [9]

After 1945, polygraph received only bad press in Poland, as it was perceived “an imperialistic tool” that served “the aggravation of the atmosphere of intimidation” during

interrogations. This is how a polygraph examination was described in the first Polish criminalistics course book written by Paweł Horoszowski. [10]

Early in the 1960s, while on a Ford Foundation scholarship to the US, the same Paweł Horoszowski purchased a three-channel Stoelting polygraph (model #22500) and brought it to Poland. It was the first polygraph, considered modern at the time, that found its way to Poland. Horoszowski underwent no specialist training, nor did he publish any experimental works on polygraph examinations, yet he embarked on running such examinations to provide evidence in criminal cases. He performed first such examination on 27 June 1963 in a manslaughter case before the Regional Prosecutor's Office in Olsztyn (file II Ds. 25/63). He repeated such an examination in another criminal case in 1964; this one was investigated by the Regional Court in Lublin (file IV K 27/64). The cases were extensively discussed in both contemporary and later literature. [12]

They resulted in the first ruling of the Supreme Court on the admissibility of polygraph examinations in criminal cases (file III K 177/64). The statement, however, was fairly enigmatic [13] and subject to different interpretations, yet it remains incontrovertible that the Supreme Court did not explicitly forbid the use of such examinations in criminal cases. [14] These first attempts at using polygraph for criminal procedures resulted in broad discussion continued both in legal and forensic magazines. [15] The discussion intensified the popularity of this form of examination, and general attention was turned to issues of legal, psychological, and criminal science nature connected to sanctioning such examinations in trials. This, in turn, encouraged both legal considerations and running experimental works that among others tested the diagnostic value of such an examination. [16]

One can remark that the range of issues typical of polygraph examinations was quite well known to scientific circles, both legal and forensic, in Poland of the late 1960s and early 1970s. [17]

The first information of secret services of the Polish People's Republic on polygraph tests

Information on the possibilities of using the polygraph for the needs of secret services first arrived in Poland after the Second World War. Already in 1945 the Polish intelligence knew that the Americans used polygraph tests to interrogate German and Japanese prisoners. [18]

Already in the 1950s, interrogations of captured American spies let the intelligence and counterintelligence services of the People's Republic of Poland learn that they had been trained in intelligence centres before being sent to Poland, and there they had been examined with the use of polygraphs.

Relevant information, gathered by counterintelligence interrogating US intelligence agents captured in Poland, corroborated by the intelligence gathered in the field in the US gave a more and more detailed picture of the use of polygraph in US intelligence services. [19]

The example of W.S. working in a prisoner of war camp in Germany from 1939 to 1948 shows what loyalty tests American intelligence used on candidates for agents. [20]

Intelligence became interested in W.S. as soon as he started service in American guard companies. In 1951 he was sent from Munich for "verification tests" in an intelligence centre, where he was subjected to polygraph examinations. Such an examination was the last stage of testing the candidate's suitability to work for the intelligence. With a positive result of the examination, W.S. was taken to an American base for nine months. In this time he underwent an intensified training in diversion and espionage. [21]

From 1951 to 1955, US intelligence transported intelligence agents to Poland by submarines and aircraft. The capture of two US spies parachuted in 1952 around Koszalin [22] was a significant impulse to take interest in polygraph tests in favour of also using them by secret service of the Polish People's Republic. [23]

Personal sources of intelligence services were polygraph tested from time to time [24] to verify the credibility of their reports, to make sure whether the agents were not re-recruited while staying abroad, and to assess general agent loyalty. [25] Negative test results made the CIA discontinue cooperation with the given agent. In the days of the People's Republic, Polish Security Service was furthermore in possession of information that the American intelligence and counterintelligence agencies were as yet the only ones to use polygraph examinations on their personal sources of information routinely. At this time, Americans considered polygraph examination the last step in their validation of a specific person before embarking on cooperation. [26]

The explanations of people accused of espionage suggest that Americans were in favour of determining whether the examinees are employed or secretly collaborate with Polish intelligence and counterintelligence agencies. If only possible, such people were subjected to regular controls. The successive examinations were to discover whether the subject had not started cooperation with the Polish Security Service from the time of the previous examination, assess his loyalty, and explain certain potential details from his life. [27]

Polygraph examinations were conducted according to the Reid's Control Questions Technique with elements of Baxter's or Ferguson's technique.

The analysis of explanations shows that the Lafayette model 762-95 GA may have been used in some cases. [28] At that time, it was a new generation device.

An investigation of the explanations provided by American agents captured in Poland indicated that Lafayette polygraphs were probably used in some cases. At the time they were a new generation device. As American intelligence and counterintelligence agencies found results of polygraph examinations especially significant, Polish services had to gather all information on the subject in a continuous and coordinated manner. Polygraph experts working in Polish intelligence and counterintelligence agencies participated in these sections of interrogations of captured American agents that concerned the polygraph procedures that those agents had been subjected to before being sent to Poland. Their task was to verify the veracity of this part of evidence and to update their knowledge of polygraph examinations performed by American services, which also meant gaining information about innovation in this area. With appropriate aids, including catalogues, experts could reconstruct the course of polygraph examination in greater detail, together with the accompanying circumstances, and also fine-tune information concerning the type of device used and the examination itself. [29]

Moreover, descriptions of testing soldier behaviour during the Second World War were also known from the collection of books *The American Soldier. Combat and its Aftermath*, translated into Polish, edited by Jerzy Wiatr, and published by the Main Political Board of the Polish Army only in 1960. The publication was secret and the Polish translation was only available to Polish Army generals and officers. It also included information on polygraph examinations performed by American services during the Second World War and immediately after it.

Such information was complementary with that published in scientific and expert literature after Paweł Horoszowski brought the first polygraph to Poland and employed it in criminal procedures for the first time in Poland. [30]

Polygraph tests carried out by secret services of the People's Republic of Poland

This resulted in a decision to purchase a polygraph for the Military Internal Service (WSW) in the second half of the 1960s. A three-channel Keeler Polygraph (model 6308), [31] was purchased for the needs of the services. It functioned for 12 years, when equipment of a later generation was purchased (Stoelting and Lafayette

polygraphs) [32]. Obtaining one was not easy however. Late in the 1970s American companies did not sell polygraphs to the states “beyond the Iron Curtain”. Even access to literature was made difficult. As late as in 1976 American Polygraph Association refused a Polish subscription of *Polygraph* quarterly, explaining straightforwardly that “publications of the American Polygraph Association are not sent beyond the Iron Curtain”. The first machine for the Military Internal Service, was a Keeler Polygraph (model # 6306), which was purchased through intelligence channels in 1969. [33]

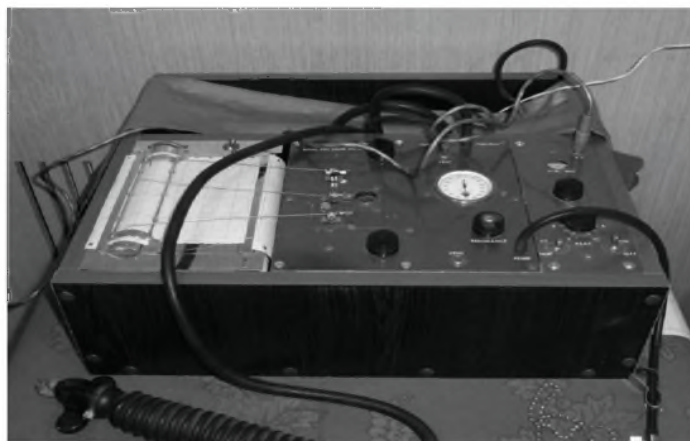


Fig. 1. Keeler Polygraph, model 6306, used since the late 1960s by the Military Internal Service (now in the collection of the Military Police).

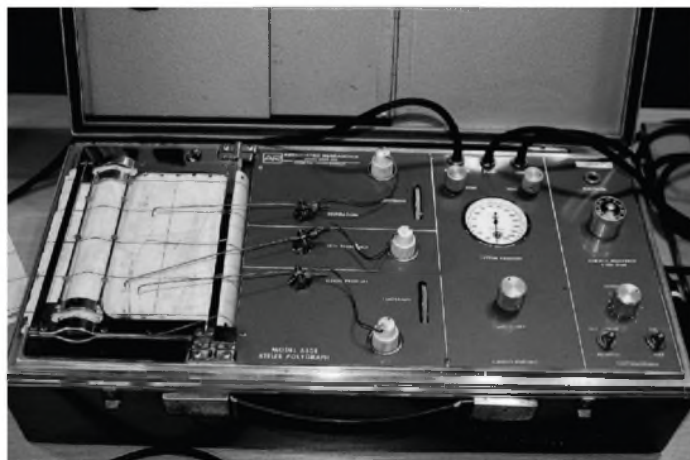


Fig. 2. Keeler Polygraph, model 6308, used since the early 1970s by the Ministry of the Interior (currently in the collection of the Central Training Centre of the Internal Security Agency in Emów).

Somewhat later, a similar method was relied on to purchase a more modern machine, a Keeler Polygraph (model #6308) for the needs of intelligence and counterintelligence of the Ministry of Internal Affairs. [34]

The Military Internal Service (WSW) conducted psychophysiological tests with the use of polygraph in a specific environment, which was an advantage. The Reid technique was most often used for the tests experts from these services performed. [35] Altogether, military experts examined 4,626 people in 943 cases in 1969–1989. [36] Literature shows that the Military Internal Service experts in polygraph testing examined 1,590 people in 274 cases in 1969–1976. This marked a rising trend in polygraph testing is visible. The number of subjects of polygraph examinations in 1969 was 85 in four cases. In 1976, 304 people were examined in 54 cases. In that period most cases concerned the misappropriation of firearms (92), followed by assassinations (76), misappropriation of military property (26), loss of classified documents (19), robbery (5), rape (2), and fire (1). [37]

In the eight years from 1969 to 1976 the Military Internal Service carried out 1,590 tests in 274 cases. They were conducted by various operational units of the Military Internal Service at the level of district authorities (in the Pomeranian, Silesian, and Warsaw military districts) and Polish Armed Forces (Polish Navy, Air Force, and Aerial Defence). It is worth noting that only one procedure was carried out for the needs of the military prosecutor's office. The examinations of the remaining 1,589 people were probably carried by specialised units for investigative and intelligence purposes. [38]

Interestingly, at that time, the executives at the Ministry of the Internal Affairs opposed the use of polygraph examinations for criminal procedures and the control its officers. [39] They were only used for investigation and intelligence procedures, including training of own agents before sending them abroad, as well as for interrogating foreign intelligence agents captured in Poland. For example, a polygraph examination was approved in a criminal case of espionage investigated by the Regional Military Court in Bydgoszcz (file SO 72/69). [40] Such examinations were also conducted after various investigation centres had gathered information about a candidate.

In 1970–1984, the Investigations Centre of the Ministry of Internal Affairs conducted 27 investigations on the power of Art. 124 of the Criminal Code (espionage) on suspected Polish citizens. Polygraph examinations were administered in five cases including six suspects. Polygraph examinations became a necessary element for intelligence and counterintelligence services to obtain information about people staying within the realm of their interest, as well as for the selection and control of people working in the services. Such examinations were also used to control the agents recruited for cooperation. [41]

Besides the uses of polygraph described above, experts of the Polish Military Internal Service used them in criminal cases conducted by the offices of military prosecutors, most of which concerned the loss or theft of weapons. [42] Such cases shared certain specific traits, as there was usually a closed circle of suspects (a small sub-unit, such as a squad or platoon), which quite naturally favoured the success of the investigation. Since the 1970s, Military Internal Service polygraphers have also been appointed as experts and have carried out polygraph tests in criminal cases conducted by General (Civil) Prosecutor's Offices and concerning the gravest crimes, usually murders. In 1970–1976, they carried out polygraph tests in 223 criminal cases, most of which were murder cases. [43] In 1969–89, military experts examined 4,626 people in 943 cases. [44]

In 1970–1975 the Citizens' Militia (Milicja Obywatelska, MO, Polish police force) used polygraph tests on 193 subjects as part of 59 cases. [45] The all concerned the gravest crimes. In the second half of the 1970s, polygraph examinations in criminal cases again began to be performed in Poland also by expert university staff. [46] The number of the procedures they administered was greater than that conducted in such cases by intelligence and counterintelligence experts.

One of the subjects examined by the Military Internal Service experts was Zdzisław Marchwicki, suspected of being a sex-motivated serial killer and popularly dubbed the region's "vampire". [47]

It should be added that the Supreme Court unambiguously recognised polygraph examinations permissible in a criminal trial, yet only "in ancillary character" in a sentence of 25 September 1976 (file: II KR 171/76), and decided that they "cannot pose an independent proof giving foundation for specific decisions". [48]

A serious lack of professional recognition for experts, which doctors and lawyers enjoyed, was characteristic of the time of People's Republic of Poland. [49]

Initially, the use of the polygraph followed emotional rather than substantive arguments. Such a position was also influenced by popular press and available literature, which in a way developed people's awareness. [51] In his short story *Electronic Subversive Ideas Detector* Stanisław Lem created a caricature representation of a machine known as Electronic Subversive Ideas Detector that was in the services of the "capitalist police" and was meant "to reveal people with communist views" and examine their loyalty. [52]

It is interesting and in fact difficult to explain why, while conducting criminal investigations, the MO police force only used the Military Internal Service (and later also university) experts and neither purchased a polygraph nor trained its own experts.

The situation changed radically after the systemic change of 1990, yet this already lies beyond the scope of this paper. Recapitulating, one needs to reiterate that Poland differed from the other countries of the Warsaw Bloc also in the application of polygraph examinations as no polygraph tests were carried out in most countries of the bloc from 1970 to 1990: in the USSR, the KGB only became interested in the polygraph in 1975, [53] and only experimental tests were done in Czechoslovakia. [54] Besides Poland, polygraph tests were applied in practice only in Yugoslavia. [55]

Concluding, it must be stated that even in the options of polygraph test use, Poland differed from the remaining countries of the Communist Bloc.

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Literature review

Look from the West...



*Tuvya Amsel, Practicing Polygraph,
best practice guide,
CreateSpace Independent
Publishing Platform, North
Charleston, 2017*

A new book on polygraph examinations has been published by the CreateSpace Independent Publishing Platform in the United States; its author is Tuvya Amsel PhD, an expert in polygraph examinations enjoying great respect in international polygraph circles. He has gained plenty of professional experience both in private and public sectors in Israel and the United States, as he has dealt with polygraph examinations for 45 years. As the subtitle suggests, the book is a guide for practitioners with precise instructions, descriptions of examination techniques, discussions of interfering with the recordings and anomalies in the curves, and information on conducting examinations on foreigners.

In its 320 pages, the book also contains a bibliography and a names index, while its eight chapters are 1. Basics of Practice, 2. Psychological Aspects in a Nutshell, 3. Test-Affecting Factors, 4. Pretest, 5. The Test, 6. Post-test, 7. Reexamination, and

8. Special Topics.

In the introduction, the author quotes Talmud: "I have learned much from my teachers, more from my colleagues (from the University), and the most from my students". The motto is to bear out that the practice of polygraph examinations cannot be replaced with theoretical knowledge only. The author believes that, other than having thorough theoretical preparation, a good polygrapher must also prove life experience and practice. The author explains that the book wraps up his experience as well as that of other polygraphers who have shared it with him.

In Chapter 1 on the fundamentals of practice, which in fact is the introduction to the book, the author describes the moral and ethical problems a polygrapher may encounter. While discussing these he makes references to the American Polygraph Association Code, describes problems that a polygrapher may face, and quotes specific examples of such cases.

In the second chapter on psychological aspects in a nutshell, the author briefly describes why and since when people lie, and what such lies concern. What he writes would perhaps not differ from any other descriptions found in literature on the subject if not for the fact that the author created a table of "symptoms of deception". It presents fairly clearly the usual reasons why people lie and verbal symptoms accompanying lying. Further in the chapter, Amsel also describes the fundamental theoretical assumptions of polygraph examinations, including the punishment theory and the conflict theory.

The successive chapter is devoted to the factors that make impact on the test. The author categorises the disruptions into external ones that may be present independently of the subject and the polygrapher, speaks of the "super damping" effect and the effect of first impression (the "Diablo effect") broadly discussed in the literature. He also discusses the ones that are wilfully caused by the examinee and include attempts at cheating (countermeasures). At the end of the chapter, the author notes a very important fact, namely the problem of fallibility or imperfection of human memory: under the impact of various factors, the human may develop an illusion of memories. This obviously may have a negative bearing on polygraph examination.

The fourth chapter devoted to the pre-test interview focuses on the problems at that stage. It lists the elements such an interview should contain, pays attention to what to focus on during the pre-test. The author also describes differences in running pre-test in case of focused control questions and ones that are to bring out guilty knowledge. In this chapter, the expert tries to answer the practitioner's questions concerning

polygraph examinations, for example, whether it is possible to examine somebody who is ill and needs to take medications, how to answer the question about what polygraph is, etc.

This chapter also features a very interesting subchapter describing means to maximise the results of a polygraph examination. In other words, it is a collection of practical guidelines concerning the manner of conducting the pre-test interview.

The subject of the test “proper” contains interesting conclusions concerning the window of reaction. The author tries to address practitioners’ problems concerning the duration of such a window, its proper start, and the time when the reaction should occur. Moreover, he points to the phenomenon of recurring reaction, that is, one that results from the subject’s second thoughts that follow the window of reaction. Furthermore, the chapter discusses the question of anomalies that can be present in each and every polygraph channel.

The following chapter focuses on the post-test and examines the elements that should be taken into consideration during the interview following the test. The author emphasises that it is important “not to burn the bridges” at the post-test stage. It is important to maintain a sense of comfort in the subject after the polygraph examination so that, should such a need occur, he or she were not afraid to undergo another procedure. The following chapter on retesting is closely connected to the issue, as it deals with the repeated examination of the same person, possible if the post-test interview had a positive conclusion. In this chapter, the author points out what to focus on at retesting.

The last chapter contains a collection of the author’s experiences that cannot be strictly classified into one of the chapters described above. Here, the author discusses the question of how to defend a polygraph examination as a method, how to prove its high diagnostic value so that it does not remain controversial. In this he compares polygraph examinations to other forensic methods, including DNA tests and fingerprint identification.

The book is certainly very useful for the practitioner. It reads like a free interview with an older, experienced expert in polygraph examinations at a polygraph seminar. In fact, it is a treasury of experience connected not as much with the methodology of practical examination but primarily with what happens during and around such a procedure. Beyond doubt, this matter is difficult to describe, as it is hardly measurable if at all perceptible. Nonetheless, it does not need any proof that the indirect factors described in the book impact not only the process of examination but also

its very result. A proof of the above can be the fact that studies have shown that an expert who runs the examination can make more precise polygramanalyses than an expert working “blindly” on the results. Even though there are rigid norms for polygram assessment in polygraph sciences, the role of the expert, his or her approach to the examination and the subject all have a significant impact on the value and efficiency of the examination.

The book should be recommended, certainly and especially, to polygraph practitioners.

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Literature review

Look from the East...



*L.G. Alekseev, F.V. Potemkin,
The Problems of Applied
Psychophysiology,
Buki Vedi, Moscow 2017,
302 pp.*

The Problems of Applied Psychophysiology is a book by famous Russian scientists Alekseev Leonid Georgievich and Potemkin Fedor Viktorovich.

Leonid Alekseev worked in a special laboratory of psychophysiological studies of the KGB (SSC) in the USSR from 1968 to 1985. He is the designer of the first Russian remote and later noncontact polygraph (1973). From 1985 to 1994, he worked as a senior researcher, and developed systems and methods for assessing professional qualities and skills of people employed in the forces, as well as the motivational components of activity and peculiarities of behaviour in extreme situations. Since 1994 he has run practical activity in non-state (i.e. private) businesses. He is the designer of Deltapolygraph.

Fedor Potemkin is a young scientist who defended a PhD thesis in laser physics in 2011. He is currently the head of the Centre of Measurement Technologies and Industrial Automation of Lomonosov State University in Moscow.

The book begins with a short critical essay on heedless copying and use of American experience by the Russian polygraph examiners with an emphasis on the fact that Russia has also developed its polygraph school, and the country has its own history of theoretical and practical achievements.

At the beginning of their work, the authors summarise the existing theories that explain the processes in the human psyche and body during psychophysiological examinations. The review includes the Conditioned Reflex Theory of I.P. Pavlov, the Theory of Activation of Barland G.H. Raskin, the Dichotomization Theory of Ben-Shakhar and Liebllich, Mosso's Theory of the Threat of Punishment, A.R. Luria's Theory of Affect, the Conflict Theory of Barland and Raskin, the Information Theory of Simonov, the Theory of Cognitive Dissonance of Festinger, the Two-Factor Theory of Emotions of Schechter and Vallins, the Theory of Heslegrave, and the Motivational Theory concerning the adaptation at the social level. The authors use the theories as a pretext to dwell on the laws governing the functioning of memory and attention, and the nature of vegetative reactions to talk generally about the phenomenon of lies within the framework of polygraph-based research.

In the main part of the book, the authors focus on the systems of evaluation of results of psychophysiological studies, and consider the expert, and the scoring and metric evaluations. These sub-sections are geared rather for specialists engaged in scientific research than for experts. The algorithm score is presented inconsistently with theoretical arguments and criticism of the approach of American specialists who seek to use regulated ways and methods.

The authors mention the countermeasures to polygraph tests and attempts to fight them, and give a brief description of the possibility of using physiological indicators to assess the significance of subjects in a free conversation, assisted by Concord and Delta-Optimahardware-software complexes.

In the main part of the book the authors also present an alternative view on the method of lie detection and offer the reader a range of unique methods including the Socio-Personal Questionnaire of Huseynov (SPQH), the Questionnaire of Social Norms and Personal Projection (SNPP), the Questionnaire of Psycho-Physiological Reliability (PPR), the Control-Oriented Method (COM), the Psycho-Semantic Differential (PSD), as well as tests for studying the psychological peculiarities of person-

ality. The authors present no data concerning studies validating and/or proving the reliability of the methods listed above .

On the whole, the authors very often focus on the technical incompetence of numerous polygraph examiners, which in their opinion of ten leads to incorrect conclusions being drawn from polygraph examinations. This is the reason why the authors focus on the technical aspects of registering vegetative reactions in many sections of this book.

And at the end of the book, the authors refer to the legality of polygraph use in the Russian Federation, and make the reader acquainted with the draft Law on the psycho-physiological testing of candidates for public offices and other persons with the use of the polygraph.

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Report Discussions, Polemics



*Report from the 10th
Interdepartmental Polygraph
Seminar Waplewo 2017*

On 23–26 October 2017 the **10th Interdepartmental Polygraph Seminar** organised by the Investigations Board of the High Command of the Polish Military Police was held in the Military Leisure Centre Rewita in Waplewo (Poland). The project gathered several dozens of representatives of civilian, military, police, and special forces as well as individuals interested in the detection of deception, representing Polish academic centres and law. The subject of papers and discussions focused around candidate examinations and tests, and expertise performed for criminal trials.

Professor Ryszard Jaworski of the University of Wrocław presented an insight into the case, in which he served as an expert witness. It concerned alleged irregularities while providing an opinion from examination of a candidate to serve at the Polish Border Guard, and had charges of corruption levelled against the expert in the background. The court asked among others about the **issues connected to the methodology of the examination** conducted in 2003, and **compliance of the expert's conduct with the procedures binding** in the Border Guard as well as the **assessment of information shared by the candidate and concerning his service-worthiness** (Were there disqualifying facts or not?). Finally, after a trial running for over a decade, the expert was considered innocent and returned to service. The expert witness found no gross irregularities in the examination conducted, while one of the main reasons for the misunderstanding was the fact that the expert was not made familiar with the content of the candidate's previous statements, attached to the personal questionnaire, as he only assessed the information obtained at the examination. As

far as the assessment of this information being potentially disqualifying goes, Professor Jaworski suggested a common-sense approach, especially should one consider the fact that the profile of an average candidate for non-armed services does not differ much from that of such candidate's potential superiors and representatives of the public elected in general elections. Moreover, the professor believes that an overly rigorous approach to the question of alcohol consumption or incidental use of cannabis, could cause staff shortages.

Angelika Rzeźniczak (trainee solicitor, and a doctoral student of the Frycz Modrzejewski Kraków University) presented **conclusions from the analysis of expert opinions** concerning polygraph tests issued in the recent years in cases before the Regional Court in Kraków. She explained a number of recurring errors committed both by the party commissioning the examinations and by the expert witnesses. It turned out that the court often finds it **a problem to phrase questions to the expert witness in a correct manner** and, for example, requires a statement whether the subject of the test "Has an emotional connection to the case". The speaker rightly noticed that such a relationship, to a certain degree, is had by any potential subject, even the prosecutor and defence counsel. Other improperly coined phrases include "Do any memory and emotional traces concerning the deed the defender is accused of exist in his nervous system?" Instead of that Rzeźniczak suggests that the questions to the expert witness are phrased e.g. in the following manner: "Does the defendant (suspect, witness) react to the critical questions concerning [e.g. the killing of John Q. Public] in the manner usually characteristic of people providing sincere or deceptive (i.e. deceiving or hiding their knowledge of the event in question) answers?". Optionally, should the examination be performed in the Guilty Knowledge Technique (GKT), a question concerning the information held by the subject and his or her connection to the given event: "Do the reactions of the defendant's organism suggest that he/she recognises details connected to the deed he is charged with?"

Attention was also turned to the practice, applied by some expert witnesses, of **forming exceedingly long and complex critical questions in the tests**, which simultaneously refer to the potential of being present in a location, committing an act, and withholding such a fact, which moreover state the place, exact date, and hour of the act. Independent of the sincerity of answers of the subject, questions thus phrased are too complicated and result in the so-called cognitive overload that in turn results in significant changes of physiological reactions in the case of both guilty and innocent individuals. Such questions can also contain inadmissible elements suggesting the answer (for example, a question whether somebody saw something that at the same time bear outs that the person was in a specific place at a specific time, which, however, is an issue that would call for a separate proof). Apart from linguistic errors,

in some cases also the **phrasing of the final conclusions** leaves plenty to be wished for, especially as far as the criteria of logical cohesion, clarity, and lack of ambiguity are concerned. Moreover, there were cases when expert witnesses did not include polygrams (charts, curves) in their documentation, which rendered the appropriate **expert control of the opinions issued difficult**.

In the context described above, the requirement that **heads of Polish courts fine tune appropriately the obligations of the expert witnesses while corroborating special information** gains critical significance. The speaker proposed that a candidate for an expert witness in polygraph examination be required to produce a professional training certificate or a recommendation issued by a recognised specialist non-governmental organisation (American Polygraph Association, Polish Society for Polygraph Examinations or Polish Polygrapher Association) or any other entity of unquestioned authority (e.g. the Polish Internal Security Agency (ABW) or the Central Forensic Laboratory of the Polish Police (CLKP)). What the Polish judiciary finds a problem are a group of private expert witnesses with dubious qualifications and the phenomenon of private businesses entrusting expert opinions to subcontractors. What also remains far from being rendered precise (besides the fairly uncommon judicature) is also the notion of “specialist institution” ensconced in the codes of law (Art. 193 §2 Criminal Procedure Code). These questions should be regulated in the new Act on expert witnesses.

Przemysław Wrzosek from the Police Academy in Szczytno delivered a paper on the **analysis of the subject’s statements during the pre-test interview** as an element supporting polygraph examination. He paid special attention to the need of including the recordings from the interview in the expert’s opinion, as, should the need be, this is the only way to make the analysis of the actual statements possible. In the any other case, be it a report from the examination or minutes, all we deal with is only flawed transcription of such utterances, which can lead to incorrect conclusions.

In his lecture, Wiesław Zyskowski of the SWPS University of Social Sciences and Humanities in Warsaw, an instructor in **investigation tactics and techniques** with plenty of experience in serving the Polish Police and trained by the FBI, made use of a short exercise and video materials from previously conducted training sessions, and presented a sample of opportunities resulting from expert **utterance and kinesics**(non-verbal communication, primarily body movements)**analysis**. Such hints can be highly useful in practical HR recruitment and investigations.

Moreover, the participants in the seminar listened to two reports from international scientific conferences held this year in distant places: Łukasz Lep of the Polish Military Police presented **an account from the conference in Astana, Kazakhstan**.

A broadside programme of polygraph examinations in police and special forces is being introduced in Kazakhstan, which results in a lively public debate. The work on an act to regulate the issue in all aspects is underway, and the standards are modelled on American ones. The only difference from the norms accepted in the Western world is lack of an option to refuse undergoing the examination without stating the reason. Such a refusal requires special conditions, such as problems of cardiologic nature and temporary problems with health.

In turn Paweł Miazga from ABW presented the most important information from the **52nd Seminar of the American Polygraph Association in Las Vegas**, where 800 experts from all over the world discussed among others the conclusions from the latest scientific studies in psychophysiological examinations, the skills of conducting interviews and formulating test questions, and analysis of the data registered by polygraphs. Plenty of attention was also devoted to the physiological processes that are important while running examinations, and also to the issue of the so-called countermeasures and procedures of quality control. As far as the thematic scope of examinations is concerned, the focus was primarily on terrorism, family violence, and sex crimes.

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For example (in references):

Reid J., Inbau F. (1966), *Truth and Deception: the Polygraph ("Lie-detector") Techniques*, Williams & Wilkins, Baltimore.

Abrams S. (1973), *Polygraph Validity and Reliability – a Review*, Journal of Forensic Sciences, 18, 4, 313.

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