



Aspects Regarding the Necessity to Admit the Forensic Expertise of the Data Resulting from Technical Surveillance

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Abstract The present paper aims to analyze the need to administer the evidence with the forensic expertise of the data resulting from the technical surveillance. Even if the criminal procedural law provides for the faithful registration in the minutes of recording the technical surveillance in case law it was found that the judicial bodies violated this obligation to substantiate the accusation. In such cases, the parties must contest in front of the judge the authenticity of these means of evidence. The means of verifying both the authenticity of the recordings and the loyalty of the record of the interception of conversations consists in conducting forensic expertise. The administration of forensic expertise implies the meeting of conditions such as the existence of facts or circumstances of the cause that require specialized knowledge in a certain field, but also the clarification of their meaning. The administration of forensic expertise of the data resulting from technical surveillance presents a probative interest since any deletion, editing, insertion of replicas or alteration of the original content of a recording can lead to a change in the meaning of a call, so it is necessary to remove it as evidence.

Keywords: forensic expertise; technical surveillance; methods of investigations

1. Legal Framework and the Necessity to Administer a Forensic Expertise on Optical Media Containing the Results of Technical Surveillance

According to the provisions of art. 138 para. 1 letter d) from Criminal proceedings code, in order to establish the factual situation or to identify the participants in the commission of some crimes, the criminal investigation body may use localization or tracking by technical means.

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The freedom of the judiciary in the administration of evidence must respect a certain balance between the need to protect the person's right to privacy and the fundamental principles of criminal proceedings, conditions under which the right to a fair trial is of paramount importance (Gradinaru, 2018).

In judicial practice, interception warrants are issued without much difficulty, in particular for "prevention of imminent danger", even if the concept of attack on national security includes only acts already committed within the meaning of art. 3 of Law no. 51/1991 on the national security of Romania.

According to the legal doctrine, the bodies with attributions on the national security line must detail, for each activity provided by the provisions of Article 14 paragraph 2, the following, the reason for which it does not resort to other evidential procedures in order to know, prevent or counteract the risks or threats to national security (Gradinaru, 2014).

The records obtained under the conditions provided by Criminal Procedure Code constitutes a means of proof as to the circumstances of the interception.

During the judicial investigation, pursuant to art. 172 from Criminal Procedure Code an examination may be required for the court to verify that data resulting from technical surveillance measures have not been altered, manipulated so that the defendants' actions receive criminal connotations.

We appreciate that audio or audio video recordings can serve as evidence in criminal proceedings if they have not been contested, or if they have been confirmed by a technical expertise (Gradinaru, 2017, p. 259).

Carrying out technical expertise on data resulting from technical surveillance is of interest in terms of evidence because any editing, deletion, insertion or other process of removing replicas or altering the original content of a record may have the effect of changing the meaning of a discussion and, in accordance with international case law, determines its removal as evidence.

A person may not be convicted on the basis of unverified evidence, provided that the European Court expressly claims that there is an *a posteriori* verification of the means of proof.

We refer in this regard to the Decision of the European Court of Human Rights of 10.12.2013 in the case Botea against Romania – application no. 40872/04 in which it was considered that the procedure was contrary to the requirements of a fair trial because "the records constituted, if not the only evidence, at least decisive evidence against the applicant, without which the assurance of his conviction would either not have been possible or its possibility would have been reduced. The Court points out that the internal courts have not only based their decision on records of

questionable authenticity, but they did not respond to the applicant's arguments that the transcripts were not submitted to him and therefore did not know their content".

At the same time, in the case *Nitulescu against Romania*, Application no. 16184/06, the Strasbourg Court held that the applicant's right to a fair trial had been infringed as "despite the importance of the records for the assessment of evidence, the authenticity of the audio tapes could never be established by the internal courts, because neither the original tapes in the possession of the R.C.A. nor was the technical equipment used for their registration ever presented in court. Therefore, no technical expertise of records could be performed.

The expertise of audio or audio video recordings is performed by presenting the magnetic media containing the audio recording to a specialist in voice analysis to determine if the recording is authentic, either it's a simple copy, or if it's a fake.

Verification of the authenticity of an audio or audio video recording cannot be performed in the absence of the original data. For these reasons, we appreciate that the criminal investigation body must keep the original data resulting from the technical surveillance in order to be able to be subsequently verified.

2. Situations in which it is Necessary to Administer the Evidence of Forensic Expertise on the Results of Technical Supervision

We will bring to the attention three situations in the practice of national courts where the resolution of the case in compliance with the rights of the defence and a fair trial of the defendant could not have taken place without the administration of a technical expertise that establish the authenticity of the audio-video recordings resulting from the technical surveillance activity.

The first situation concerns file no. 326/32/2021, pending before the Court of Appeal of Bacau, having as object bribery, the main evidence of the prosecution consisted of audio-video recordings resulting in the receipt of money by two road agents who are defendants.

The defence found that audio recordings are not simultaneous with acoustic events. Although the person caught on the recordings seems to be talking on the mobile phone, there was a gap between the mimics of the speaker's face and the audio recording.

The gap between the acoustic events and the images related to the recordings casts doubt on the veracity of the results of the technical surveillance, there being the possibility of overlapping over the video images of an audio recording that does not correspond to reality.

It was also found that the dimensions of the files recorded in the verbal processes of playback of the conversations obtained by technical supervision do not correspond to the dimensions of the files found on the optical supports attached to the case file together with referral to the court by DNA of the Territorial Service of Bacau.

The differences between the dimensions of the recordings recorded in the minutes of speech playback and those in the case file were of the order of about 200-300 bits.

An additional element that creates doubts about the authenticity of the audio-video files appears also after accessing the recordings made available to the defendant. According to the information obtained from the properties of the audio-video file, the defense was able to note that the technical characteristics, as well as meta data files, were deleted.¹

Identifying people from the audio-video recordings viewed is a particularly important aspect in terms of establishing the truth in criminal cases.

In the case we are discussing the face of the person in respect of whom the accusation claimed to have belonged to one of the defendants does not appear even once on the recordings.

Regarding the second defendant, the image of this person's profile is sequenced (either the chin, forehead, nose of this person, appears, without being able to identify frames in which the face can be fully viewed).

The possibility to observe the face and its profile is essential in identifying people, each component of the face being must be identified separately.

With regard to the first defendant this identification was impossible in relation to the fact that his face was not seen on the recordings.

With regard to the second defendant, this identification is difficult in relation to the quality of the image and the discontinuous images in which he was supposed to be found.

Identification of persons is made by static elements (age, height, body constitution, etc.) and dynamic elements (walking, gesticulation, voice and speech).

On video audio recordings there is an ambient noise that did not allow the identification of the font features² of the people captured on recordings and more than that, it cannot be determined which replicas belongs to the interlocutors.

¹ For each file stored on a computer system there is a set of metadata associated with it, which provides information about its source, its author and other important details, depending on the type of file.

² The font features are determined by the three main characteristics of the voice: the timbre, the frequency and the tonality.

The defence identified the existence of traces of interventions on audio-video recordings in the sense of editing the image by inexplicably changing colors. At the same time, there were also traces of interventions on the sound of recordings, which are not simultaneous with acoustic events.

The transcripts of the conversations due to the subject of the discussion give only assumptions of the prosecution bodies on the replies of the interlocutors meant to cover the technical deficiencies of the recordings and to substantiate an accusation that is not in line with the reality. The criminal investigation bodies have assigned replicas to interlocutors without knowing with certainty who they belong to.

For example, one of the recordings could distinguish the noise produced by the car's engine for 3-4 seconds before the driver of the car started it. This is an indication that the sound is only superimposed on the video recording, without being a faithful rendering of reality.

Moreover, it was found that certain replicas within the verbal processes of playing video audio recordings do not correspond to reality, being unable to distinguish the interlocutors replicas.

Due to the noise produced by the police vehicle, but also due to the poor quality of the audio recording, it cannot be inferred what the driver of the police vehicle claimed at the time of investigating the offending driver.

The replicas claimed to belong to one of the defendants could not be verified before the court, thus the necessity to exclude them.

In the case we are discussing, for a better execution of the justice, the case was disjoined in relation to the persons who offered bribes to the road agents, a new file being formed.

In the disjoined case, at the appeal stage, the High Court of Cassation and Justice ordered the performance of a forensic technical expertise on the optical supports containing the results of the technical supervision, having the following objectives:

- improvement of the video images from April 28, 2016, in the time interval 02:31-02:46, in which the driver is surprised outside the police station, on the left side of the vehicle with registration number MAI 0000;

identification of the driver and all his physiognomic characteristics, to determine whether the person so identified is one and the same as the defendant X;

- improving the audio recording made at the date and within the mentioned time frame and making a comparison between the voice of the driver in the recording and the voice of defendant X, and, determining whether or not that voice belongs to the latter.

The court found it pertinent and necessary in the matter to conduct a forensic expertise, both of the images and the voice of the driver from the recording on 28 April 2016, in the sense raised *ex officio* and, respectively, requested by the defendant's defender X.

Another reason why the judge in the case that was disjoined ordered a forensic expertise was that the original support containing the audio-video recordings could not be accessed.

Following the administration of the evidence with the forensic technical expertise, the I.N.E.C.'s expert concluded that the defendant in the case is not the person found on the video audio recordings.

We specify that in the disjoined case, the Court of Appeal of Bacau, in a first procedural cycle, ordered the conviction of defendant X, without the administration a a forensic technical expertise.

In the second situation under discussion, regarding the file no. 495/89/2016 of the Court of Appeal of Iasi, having as object the commission of corruption offences (bribe taking, bribery taking, deed stipulated by art. 289 Criminal Code., with reference to Article 7 letter c) of Law no. 78/2000 and art. 132 of Law no. 78/2000, with reference to art. 297 Criminal Code), an important means of proof in support of the charge consisted of telephone records between the defendant (main police officer - road office chief, subaltern and bribe).

In this case, the criminal investigation bodies confused the interlocutor in the transcripts of phone calls:

„V: Yes.

X: Hello. Good afternoon!

V: Hi!

X: NELU! You have an underling here, it stopped me from seeing that. with the belt and I have (unintelligible) „I am a relative of Nelu V... and he said, Call the Chief, I can't do it any other way.

V: Come on tell them that you called me!"

We specify that the defendant in the case under discussion did not have the first name or nickname „NELU”.

At the same time, in relation to the quality of the defendant, head of the traffic office, the possibility that the latter was sanctioned contraveniently by the subordinate was very low. Equally unpalausible was the situation in which the defendant would have called the hierarchical superior of the police agent who would have stopped

him in traffic, as the hierarchical superior was the defendant in the subject of the discussion.

Another example that the criminal investigation body has confused the interlocutors is a dialogue alleged to have taken place between the defendant and another subordinate:

"X: Vlad..."

Q: Yes, hello

X: Oh...! Mr. Iulian

I: Yeah. Kiss your hand!

X: I'm looking for you, Tudorita caused an explosion at Lipovat."

The possibility for a subordinate to contact the head of the road office, to confuse him with a person named Vlad and the superior to address the subordinate with "kiss your hand" is very small, being an unnatural dialogue, related to the position of the defendant.

In such situations, it is necessary to administer the proof with the voice speech forensic expertise to determine to whom the wrongly mentioned replicas belong in the transcripts of phone calls playback.

If it is found that the minutes in which the results of the technical surveillance activity are recorded are based on material means of proof (material support) that have been altered, and, the parties have the right to ask the court to verify this issue, based on art. 100 of the Criminal proceedings code regarding the administration of evidence and the following, of art. 172 and the following of the Criminal proceedings code, as well as based on the case law of the European Court (Gradinaru, 2019, p. 39).

In a third and final situation, in file no. 1231/118/2015 on corruption offenses (Law no. 78/2000 art. 291 par. (1) Criminal code rap. in art 6 of Lg 78/2000) pending before the Tribunal of Constanta, at the last term of the case, at the last term of the case, an expertise has been submitted that finds many flaws in the transcription of the records on file.

The expert refers to European jurisprudence, in whose optics "digital samples are fragile, susceptible to alteration, there is always the hypothetical possibility of vitiating them by additions, deletions or distortions".

The technical expert also said in the report that: for this reason any break or lack of presentation of the chain of custody creates the suspicion that the evidence has been altered or replaced. Evidence of the continuity of the chain of custody demonstrates that the evidence presented before the court is the same as that which was collected.

The expert also notes that one of the environmental conversations would have been segmented "unnecessarily and unjustifiably and the segmentations do not follow and are not the result of a logic of the dialogue or a necessity imposed by the semantic coherence of dialogue between the two interlocutors, showing also the fact that between the first and the second section is missing a piece of about 35 minutes.

At the same time, it also argues that the removal of one of these fragments raises reasonable suspicions as to the authenticity of the copies made available under the report of the origin, integrity and accuracy of those copies.

These aspects constitute substantial suspicions in the sense of the need to administer the test with the technical expertise on the optical media containing the results of the technical surveillance, in order to verify whether they are original, or contain alterations, respectively juxtaposes.

3. Situations in which the Conclusions of Forensic Technical Expertise Reports have Demonstrated that the Records Obtained from the Technical Oversight are not Authentic

In file no. 46544/3/2015, the Bucharest Tribunal has ordered the expertise of audio recordings, obtained following the implementation of the mandate of technical supervision, with the objectives of establishing the authenticity of the audio recording, improving the quality of the hearing and enhancing the intelligibility of the dialogues of interest from the two recordings in dispute (i.e. trk00001 and trk001 files).

The expert revealed that the analysis of audio signals in the trk00002.wav file highlighted traces of editing by deleting or inserting to the time samples.

Discarded editing traces were confirmed by DC analysis that the audio signal in the trk00002.wav file underwent editing operations by inserting audio fragments from other recordings.

From the overall analysis of the phase between audio signals it was found that the recording is stereo, but this recording contains inserts of at least three fragments from other recordings.

The conversations were rendered in the verbal processes of playback incorrectly, with the omission of replies on some parts of the conversation and the reformulation or truncation of other replies.

The audio signal has undergone disctructive and irreversible compressions, as at the beginning of the audio signal, on the left channel, it starts with 107 zero-level samples, while the sound signal on the right channel begins with 104 zero- level

samples. This phenomenon is characteristic of converted signals from destructive and irreversible formats (AAC, MP3, WMA s.a.).

It is not possible to ascertain whether the submissions made available (including the *trk00002.wav* file) are authentic, as they have not been made available to the expert.

The expert's conclusion was that the *trk00002.wav* audio file does not constitute an authentic or original audio recording, does not represent a digital bit-by-bit clone/duplicate of an original or genuine audio record, contains traces of re-sampling and destructive and irreversible compressions of audio signals and was created on the basis of previous recordings made with different technical equipment, in destructive audio formats, transferred to the computer, edited by audio mounting (inserts) and re-sampled at the unconventional sampling frequency of 23.4 kHz, with the aim of masking the tracks of previous compression and manipulation.

In another case, namely, in file No. 2537/117/2016, which is on the role of the Cluj Tribunal regarding corruption offences, the court ordered the conduct of a forensic technical expertise on some audio recordings in the dispute, with the objective of finding whether the recordings that are on the mobile phone brand iPhone belonging to the denouncer are authentic and identical to those found on the optical medium existing in the file, as well as whether it intervened on the records on the Optical medium, by deletion, insertion or any other means.

The expert found that out of the 36 audio files made available to him, 35 have structures compatible with the files created with Apple iPhone mobile phones and one file has the structure incompatible with an original file created with an Apple iPhone cell phone.

File no. 22 CC-05-01.m4a does not contain the date of encoding the record, but the expert concluded that this file was intervened.

During the period 2016:01:22 15:58:31 – 2016:02:25, 09:15:27 at least two iPhone mobile phones were used, one with operating system iOS 9.2 and one with iOS 9.2.1.

Therefore, two distinct phones branded iPhone 5S were used in the audio recording.

From the comparative analysis of the reporting processes it was found by the party expert that 7 of the 36 records were returned by employees of the National Anti-Corruption Directorate before these records were handed over to the criminal prosecution bodies.

From the analysis of the audio signals, expert Cătălin Grigoras noted that the file 02-12-2015.m4a contains traces of butt-splice deletion at the sample 20161370, respectively at the time meter 7 min 37.295 sec from the beginning of the recording.

The file 04-12-2015 lumiere.m4a contains two components ENF (Electric Network Frequency), representing proof that the recording has undergone analog transfer from one digital device to another, the audio signal being edited on the computer.

Audio recording from file 16-12-2015.m4a contains butt-splice deletion traces at sample 45511599, respectively at the time meter 17 min 12 sec from the beginning of recording.

Audio recording from the cc-desktop file.m4a contains butt-splice deletion traces at sample 73250700, respectively at time meter 27 min 41.013 sec from the beginning of recording.

The expert's conclusion was that the 36 audio files do not contain authentic or original audio recordings, do not represent clones/duplicates or copies of original or authoritative audio records, contain traces of computer editing by audio mounting, deletion and insertion, contains tracks of previous destructive and irreversible compression, compatible with the MP3s of some digital reporter and were created on the basis of previous recordings made with digital reporters, transferred to the computer, edited by audio montage, erasers and insertions and transferred audio analogically in.m4a format, in the memories of at least two Apple iPhone phones.

4. Conclusions

Since technical surveillance is undoubtedly an interference in the private and private life of a person, the European Court of Human Rights sanctions such a measure if it does not comply with the principles of legality, proportionality and legitimacy.

The expertise on the data resulting from technical surveillance is an effective method both for verifying the authenticity of the resulting records and for guaranteeing the right to a fair trial, in the sense of the European Court of Human Rights.

By *ferenda law* we propose that when there is a suspicion that the data resulting from the technical surveillance would not belong to the accused and this results from the verbal process of playing the calls, or from the viewing, respectively listening to the recordings, the conduct of a forensic technical expertise on the optical media containing the results of the technical oversight to be mandatory.

Such a text of law is necessary in order to prevent situations in practice in national courts in which innocent persons have been unjustly convicted, as they are not actually noticed on the records resulting from technical surveillance.

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