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Ohrid, North Macedonia, June 27-29, 2019

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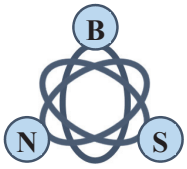

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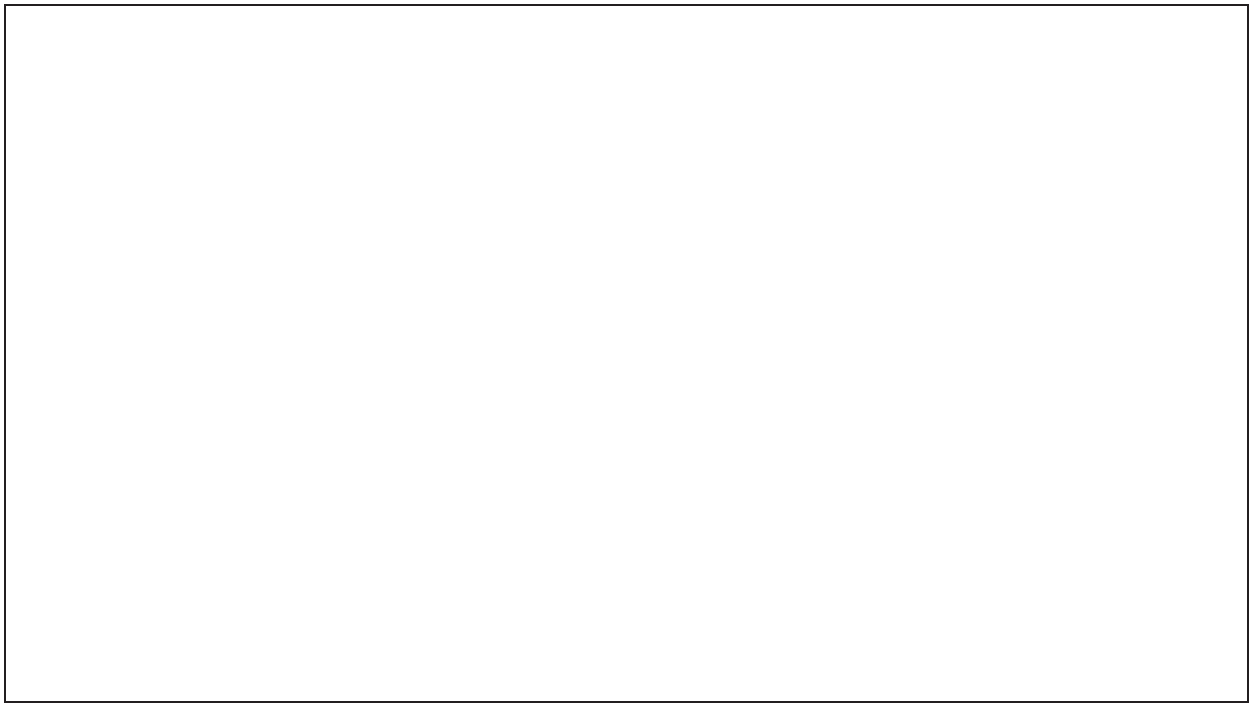

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IV. Conclusion

In the present work a versatile laboratory setup arrangement was devised and implemented, that permitted systematic performance measurements using new available wireless equipments (V-M200 access points from HP and WPC600N adapters from Linksys) for Wi-Fi (IEEE 802.11 a) in 54 Mbps WPA PTP and 4N-PTMP links. Through OSI layer 4, TCP and UDP performances were measured versus TCP packet size and UDP datagram size, respectively. TCP throughput, jitter and percentage datagram loss were measured and compared for WPA PTP and 4N-PTMP links. TCP throughput was found to increase with packet size. As for jitter, for small sized datagrams, it was found small. It increases for larger datagrams. Concerning percentage datagram loss, it was found high for small sized datagrams. For larger datagrams it diminishes. However, large UDP segments originate fragmentation at the IP datagram level, leading to higher losses. In comparison to PTP links, TCP throughput and percentage datagram loss were found to show significant performance degradations for 4N-PTMP links, where the AP experiments higher processing requirements for maintaining links between PCs. Unlike jitter and percentage datagram loss, TCP throughput has not shown significant sensitivity to WPA. The present results show that 5 GHz 802.11n gives better TCP, jitter and datagram loss performances than 802.11a.

Further performance studies are planned using several standards, equipments, topologies, security settings and noise conditions, not only in laboratory but also in outdoor environments involving, mainly, medium range links.

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Impact of noise in printing process

Svetlana Mijakovska[1], Roberto Pasic[1], Ivo Kuzmanov[1], Filip Popovski[1]

Abstract – ***In this paper are given the impact of noise in printing process. Each printing process tends to reduce the disadvantage of the core material. The basic material in the printing houses is paper. Microclimate has a strong influence on the the paper disadvantage. Also noise is factor that has great influence in printing process. We made experimental measurements on two kind of printing machine in order to get conclusions about controlling then noise in printing processes.***

Keywords – ***Printing, Paper damage, Microclimate, Noise.***

I. INTRODUCTION

During the printing process, the impact of the microclimate is importance for the reduction of the paper damage. In the microclimate we will look at internal and external temperature, brightness and humidity [1].

Traditional printing processes can be inherently very noisy [2]. Although modernization has introduced quieter processes into the industry, high noise levels and noise exposures remain a health risk; 93% of print workers assessed in this study had noise exposure estimates above the 80 dB.

Another factor that has great impact in printing process is noise. The noise is a mixture of various sounds with different number of flashes at a certain time and can be defined as an occurrence that causes negative environmental impacts. Exposure to a person under the influence of sound presents a danger to his health, both from the sounds of less intensity than from the bullies. The research showed that the noise in the man causes the trembling of the bloodstream of the middle ear, the function of the official organs decreases, with the partially or periodically shifting of the probability of probability that can lead to full-blown. The disease negatively affects both the nervous and the cardiovascular system (the blood pressure rises, it reduces the work of the heart, the lying of the pulses and the elderly creases, destroys the work of the nasal cavity, and to nonsense and tediousness and the like).

The arousal of a man can also affect the psychological state, a neurosis occurs, depression, aggression prevents him in the artificial formation, interrupts the rest - it disturbs the son and the like. Therefore, the company should be more concerned with the exposure of noise to employees to improve their work obligations. The highest source of noise in the furnaces is the machines with the mechanical parts which, when rotating, discharge various sounds, compressors, motors, the movement of paper through the machine, the air conditioning systems and ventilation and the like.

[1]Svetlana Mijakovska, Roberto Pasic, Ivo Kuzmanov and Filip Popovski are with the Faculty of Technical sciences at University of Bitola, st. Makedonska Falanga 33, Bitola 7000, Macedonia.

Table 1. Marginal time of exposure in relation to the level of noise

Daily exposure in hours	Noise level in (db)
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
1/2	110
1/4	115

II. NOISE IN PRINTING PROCESS

In the printing houses there are many sources of noise from the installation of the machines and from the ventilation and air conditioning systems. We will do the measurements and will ask for the answer as to how the noise works in increasing the quality of printing process [2].

The measurements are made with a digital measuring sound instrument Digital Sound Level Meter IEC651, the principle of which is based on OM meter and measurement resistance. It receives the volume of the sound through a graphite microphone whose resistance is changed in the presence of sound or higher sound exposure contributes to the convergence of the graphite beads into the microphone that gives greater resistance, which then turns out to be digital display.

Specifications;

- measuring range (30 - 130) db
- power supply 9 batteries
- working temperature (0 - 40) ℃
- the ability to display the maximum value
- measure two times a second
- dimensions (57 x 26 x 149) mm
- the weight is 144 grams

Machines on which the measurement is carried out are:

- Four-shot offset machine KBA Rapida 72 [5]

Figure 1. Four-shot offset machine KBA Rapida 72

- Unique offset machine Adast dominant 816 [5]

Figure 2. Unique offset machine Adast dominant 816

III. RESULTS OF MEASUREMENTS ON FOUR-SHOT OFFSET MACHINE KBA RAPIDA 72

The measurements are made on four-shot offset machine KBA Rapida 72 for lowest and largets value of noise. The results gives answer how the noise works in increasing the card.

Table 2. Measured noise is consistent with the card at KBA Rapida 72(lowest values)

Noise level in (db)	paper damage (%)
80.5	1.78
80.7	0.8
80.7	0.93
80.8	0.73
81	0.279
81.05	2.14
81.06	0.22
81.1	1.45
81.13	0.67
81.2	0.58
81.22	0.83

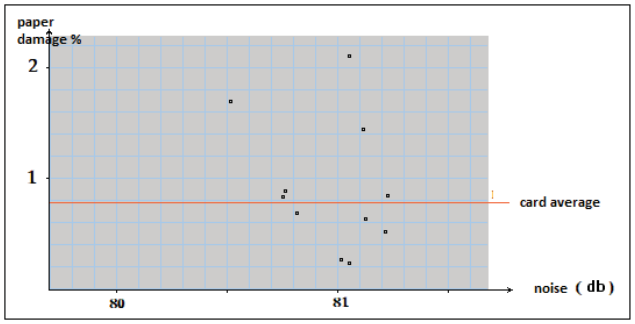

Figure 3. The graphic representation of the relation of noise from noise was the lowest value

From the measured values presented on the graph, it can be concluded that the increased measured points are located around the average line up and down and has values that are higher than the average and lower below the average, so they can not to bring to some conclusion that the lower humiliation should result in a palliation, even though we expect it.

Table 3. Measured noise is consistent with the card at KBA Rapida 72(largest values)

Noise level in (db)	paper damage (%)
83.02	0.88
83.06	0.35
83.06	0.38
83.08	0.65
83.17	0.42
83.38	0.6
83.46	0.51
83.5	0.189
83.68	0.33

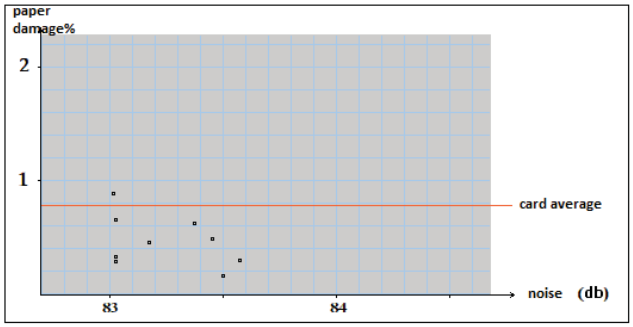

Figure 4. The graphic representation of the relation of noise from noise was the largest value

Table 3 shows the measured points at the highest noise level and the card moves below the average card, which in one way is contradictory, since we do not have high noise when waiting for a high card this is not confirmed in this case. Comparing the figure 3 and figure 4, we cannot conclude that the high noise does not carry high cards, perhaps because the noise in the magazine and in the smaller ones and in the larger values still go within the permitted limits for an average working time of 8 hours as shown in Table 1.

IV. RESULTS OF MEASUREMENTS ON UNIQUE OFFSET MACHINE ADAST DOMINANT 816

The measurements are made on unique offset machine Adast dominant 816 for lowest and largets value of noise.

Table 4. Measured noise is consistent with the card at Adast dominant 816(lowest values)

Noise level in (db)	paper damage (%)
79.08	2.96
79.86	10.28
80.02	5.6
80.1	4.07
80.15	3.6
80.38	3.06
81.37	7.2
81.45	4.06
81.55	4.31
81.57	7.75
81.67	4.05

Table 5. Measured noise is consistent with the card at Adast dominant 816(largest values)

Noise level in (db)	paper damage (%)
82.01	4.98
82.06	6.19
82.17	2.82
82.3	1.57
82.31	6.57
82.37	4.68
82.4	1.6
82.425	6.02
82.77	4.07
82.81	4.73
82.9	5.14
83.16	4.95

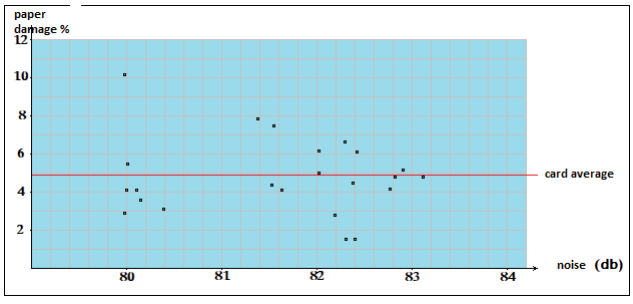

Figure 5. The graphic representation of the relation of noise from noise on Adast dominant 816

From the measurement of the noise of the Adast Dominant 816 in figure 5, we cannot conclude that the card is smaller in smaller noise than it is larger because the points in the measurements are found, due to the unexpected positions may be due to the lower noise values and the increased permissibility within the permitted limits for an average working time of 8 hours shown in Table 1.

V. USE OF HEARING PROTECTION

The printing industry is a high noise industry and it is likely that hearing protection will be needed [6]. At more modern printing houses, where technical and organisational means of reducing noise were already in place, hearing protection use was only required for activities identified as noisy, meaning it was only used when necessary. At printing houses where older machinery and technology was in use, hearing protection was relied on as the primary control measure. Using hearing protection in this way is not acceptable as a long-term solution and must not be used an alternative to controlling noise by technical and organisational means. For hearing protection to be effective it must be worn all of the time when in the noisy environment. At some printing houses it was evident that routine use of hearing protection was an accepted and integral part of the safety culture. At other printing houses, it was less clear if the safety culture supported and managed the use of hearing protection or if it was left to workers to decide if they wanted or needed hearing protection.

VI. CONCLUSION

Noise is one of factor that has a huge impact in printing processes. In both cases on different printing machines we cannot define the lowest values of noise. But we can recommended usage of hearing protection. The inherently noisy nature of the industry, even in more modern print works where quieter machinery is used, means that there is likely to be an ongoing requirement for the use of hearing protection. Although hearing protection was observed to be widely provided and used, failure to correctly fit plug-type protection was commonly observed.

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