



**RTV** | RADIO  
TELEVIZIJA  
VOJVODINE



14. Taktons



2013  
BILTEN  
N<sup>o</sup>1



## Uvodna reč generalnog direktora Radio-televizije Vojvodine

Radio-televizija Vojvodine, organizovanjem 14. Taktonsa – međunarodnog festivala, odnosno takmičenja tonskih snimaka – nastavlja saradnju s javnim servisima, kako država bivše Jugoslavije, tako i šireg regiona.

Radio-televizija Vojvodine sa svim javnim servisima u regionu ima mnogo toga zajedničkog, što je samo još veći izazov, ali i veća odgovornost, a najpre – veća mogućnost za napredovanje i praćenje najvećih svetskih dostignuća u proizvodnji zvuka. Ovo je naročito značajno i zbog činjenice da je digitalizacija zvuka, i na televiziji i na radiju, u svetu poodmakla, pa je Taktons za nas uvek još jedna prilika za bogaćenje novim znanjima i iskustvima, naročito ton-majstora u toj oblasti.

Javni servisi su tradicionalno okrenuti pretežno sopstvenoj produkciji, i zbog same prirode posla, ali i zbog toga što su tokom vremena izgradili visoke profesionalne standarde. Zbog toga nije čudno što spadaju među najuglednije institucije u svojim zemljama. Ton-majstori su nezamenjivi deo tih profesionalnih timova jer su, po prirodi posla, u samom centru kreiranja medijskog sadržaja.

Posebno smo zadovoljni što Međunarodna konferencija iz oblasti akustike i audio-tehnike, koju zajedno organizujemo s Fakultetom tehničkih nauka, ima oko 30 naučnih i stručnih radova i respektabilne učesnike iz čak 11 zemalja. Nadamo se da ćemo shodno tome ponovo biti dobar domaćin Taktonsa, pokazujući time ne samo da svi zajedno moramo pratiti promene u svetskom razvoju akustike i audio-tehnike, nego da i mi – predstavnici javnih servisa regiona – svi zajedno moramo pokretati nove profesionalne standarde u ovoj oblasti.

*generalni direktor Radio-televizije Vojvodine*  
Srđan Mihajlović



## Radio Television of Vojvodina General Manager's introductory speech

RUV „Radio Television Vojvodina“, by organizing the 14th TAKTONS, International Competition of Sound Recordings, continues cooperation with the Public Broadcasting Services from the ex Yugoslavia and wider region.

RUV RTV has much in common with all the PBS's in the region which makes the challenge even greater, the same like responsibility, but mostly raises facilities for development and following up to the most recent achievements in sound production worldwide. This is of an utmost significance for us because digitalization of radio and TV sound is far underway: That way TAKTONS offers us one more possibility to enrich our knowledge and experience, especially sound technicians.

Public broadcasters are traditionally facing its own production because of the nature of work but also because by time, the high level of professionalism is achieved. It is not strange bearing this fact in mind that those services became one of the most respectful in their own countries. The sound technicians are irreplaceable professional team members being in the spot of media content design.

We are especially pleased to host respectful participants from 11 countries with about 30 scientific and experts work in the 2nd International Acoustics and Audio Engineering Conference together with FTN. Accordingly, we do hope to be a good host for TAKTONS again, showing not only our mutual willingness of following up with changes in development of Acoustics and Audio techniques worldwide, but also readiness of PBM representatives to raise up the standards in this branch.

*General Manager Radio Television of Vojvodina*  
Srđan Mihajlović

Na inicijativu ton-majstora Radio Novog Sada, prvi Taktons je održan 1983. godine. Inicijator i domaćin svih dosadašnjih takmičenja jeste Radio Novi Sad, odnosno Radiodifuzna ustanova Vojvodine.

Taktons je tradicionalno bijenalno međunarodno takmičenje radijskih i televizijskih tonskih snimaka javnih medijskih servisa.

Po rečima organizatora: „Cilj takmičenja je da se stekne uvid u kreativna ostvarenja na polju snimanja zvuka u protekle dve godine i obezbedi profesionalno vrednovanje tehničkog kvaliteta zvučnih zapisa na osnovu unapred, jedinstveno definisanih, subjektivnih i objektivnih parametara“.

## DOBRO DOŠLI NA 14. TAKTONS!

Ove godine od 13. do 16. novembra godine Taktons će okupiti audio-stručnjake iz devet zemalja (10 javnih servisa), a u konkurenciji za nagrade nalazi se 114 radijskih i 20 TV snimaka, raspoređenih u 20 kategorija.

U sredu 6. novembra 2013. na konferenciji za novinare u Studiju „M“ Radio Novog Sada, najavljen je 14. Taktons .

SREĆNO!

The first TAKTONS is organised in 1983, on the initiative of the sound technicians of Radio Novi Sad. Initiator and the host of all the previous TAKTONS festivals is Radio Novi Sad, as to Public Broadcasting Service of Vojvodina.

TAKTONS is a traditional international and biannual competition of radio and television sound recordings made in public broadcasting services.

According to the organizers: “The aim of the competition is to get an insight into the achievements in sound recording during the past two years and give professional evaluation of technical quality of the sound recordings based on ahead set, uniquely defined partial and impartial parameters”.

## WELCOME TO 14th TAKTONS

Between 13. and 16<sup>th</sup> of November this year, TAKTONS will gather audio experts from nine countries and ten Public Services. The awards commission announced 114 radio and 20 television recordings to be in competition, divided into 20 categories.

The 14th Taktons festival is announced to be held on the Press Conference on Wednesday, 6th of November 2013, in Radio Novi Sad Studio „M“.

GOOD LUCK!



novinarka Radio Novog Sada Jasna Kurteš Plavljaniin, koordinator Taktonsa Aleksandar Marković, izvršni direktor Taktonsa Arpad Osnović i prof. Vlado Delić (FTN Novi Sad)

Radio Novi Sad's journalist Jasna Kurtes Plavljaniin, Taktons Coordinator Aleksandar Markovic, Executive Manager of Taktons Arpad Osnovic, prof. Vlado Delic (Faculty of Technical Sciences, Novi Sad)

## Intervju: inženjer Arpad Osnović, izvršni direktor Taktonsa

*Koliko je Taktons prilika da se stekne uvid u rad drugih RTV u regionu kada je u pitanju zvuk i njegova obrada?*

Taktons je uvek najbolja prilika za razmenu iskustava kako bi ton-majstori i dizajneri zvuka doveli svoj rad do savršenstva, a u tome im najbolje pomažu komisije sastavljene od najboljih svetskih stručnjaka. U ovoj oblasti, svakako, prednjače oni iz Zapadne Evrope.

*Poznato je da Taktons svake druge godine prikaže mnogo dobrih produkcijskih tvorevina, a šta je to što je novina na ovom organizovanom sada?*

Na ovogodišnjoj manifestaciji, pored tradicionalne izložbe profesionalne audio i video-opreme u Sudiju „M“ Radio Novog Sada, na kojoj će na čak 18 štandova najpoznatiji strani i domaći proizvođači i distributeri predstaviti audio i video-opremu, biće prikazan i prvi kratkometražni film u produkciji Taktonsa. Kako bi „lanac proizvodnje“ dobrog tona u svim javnim medijskim kućama zemalja učesnica Taktonsa bio nastavljen i unapređen – doprinos će dati prezentacije radova najboljih naučnika u ovoj oblasti, i to na drugoj Međunarodnoj konferenciji o akustici i audio-tehnici koja će kao deo 14. Taktonsa, biti održana na novosadskom Fakultetu tehničkih nauka.

*Značaj Taktonsa nije samo u profesionalnom usavršavanju dizajnera zvuka nego i u umetničkim sadržajima koji prate manifestaciju i svakako daju nemerljiv doprinos prezentaciji – kako reditelja, scenarista, tako i umetnika i uopšte svih medijskih poslenika...*

U čast Taktonsa 16. novembra u Studiju „M“ koncert će održati Orkestar Aleksandra Dujina, kao i ansambl harmonika „Meškarke“ iz Araca, a istog dana je i proglašenje pobednika u takmičenju profesionalnih snimatelja zvuka. Podsetimo se još jednom, jer to nije mala stvar – učestvuj u predstavnici medijskih javnih servisa Hrvatske, Slovenije, Crne Gore, BJR Makedonije, Bosne i Hercegovine, Slovačke, Rumunije, Mađarske, Srbije, a u konkurenciji je 114 radijskih i 11 televizijskih snimaka. Novina je da se ove godine na Taktonsu primenjuju standardi Evropske radiodifuzne unije (EBU) R 128, a to znači da će svi snimci biti na istom nivou glasnosti.

„Na ovogodišnjem 14. Taktonsu, ne samo što nije smanjena produkcija prispelih radova nego je čak i povećana, a na ovom međunarodnom festivalu obrade zvuka u regionalnim javnim servisima, zemlje učesnice sve više pokazuju koliko su svesne naučnih dostignuća i značaja prihvatanja evropskih standarda u ovoj oblasti“, kaže za Bilten izvršni direktor Taktonsa, inženjer Arpad Osnović.

Jasna Kurteš Plavljanić

## Interview: engineer Arpad Osnović, TAKTONS Executive Manager

*How much is TAKTONS the possibility to gain insight in performance of other PBS in the region concerning acoustics and sound processing?*

Taktons is always the best opportunity for exchange of experiences in order sound masters and designers bring their work to perfection, and to get the best help from Commission made up of the world's finest experts. The European experts are leading in this area.

*It is well-known that TAKTONS presents every two years a number of good production creations, what will be the novelty this time?*

Beside of traditional exhibition of professional audio and sound equipment at Studio M of Radio Novi Sad, with 18 stands, where most prominent foreign and domestic producers and distributors will present their sound and video equipment, the first short film produced by TAKTONS will be broadcasted too.

In order to continue and enhance the „production chain“ of excellent soundness of all the PBS TAKTONS participants, best scientists contributions will be submitted through presentations during 2nd International Acoustics and Audio Engineering Conference, as part of TAKTONS, on FTN, Novi Sad.

*The importance of Taktons lies not only at professional trainings of the sound designers but at art contents that accompanied the event and certainly provides an invaluable contribution to the presentation - as director, writer, artist, and generally all media professionals.*

In honor of TAKTONS, Aleksandar Dujin Orchestra will be performing a concert such as accordion orchestra from Aradac „Meškarke“ on 16th of November, on the same day, when announcement of the winners in the competition professional sound will be done. Just for the record, once again, the participants are representatives of Public Media Services from Hungary, Croatia, Slovenia, Montenegro, FJR Macedonia, BiH, Slovakia, and Romania, Republic of Srpska and Serbia, in competition with the 114 radio reports and 11 television footages. The novelty is that this year the TAKTONS applied the standards of the European Broadcasting Union (EBU) R 128, which means that all recordings will be at the same level of loudness.

The audio sound production of nominated contest material for 14th TAKTONS is not only decreased but on the contrary. Participating countries are increasingly showing how much are they aware of scientific developments and the importance of acceptance of European standards in this area and this International festival of audio-sound processing of regional public services which TAKTONS is – says for the Newsletter executive manager of TAKTONS Engineer Mr. Arpad Osnovic.

Jasna Kurteš Plavljanić

## Intervju: prof. dr Vlado Delić, Fakultet tehničkih nauka



*Šta nam novo na ovogodišnjem Taktonsu donosi ovo svetsko udruženje i zbog čega su prezentacije istraživačkih radova u oblasti audio-tehnike i obrade zvuka značajne za učesnike Taktonsa?*

Pre svega, zahvaljujući novosadskom Fakultetu tehničkih nauka, u međunarodnom udruženju AES postoji „srpska sekcija“ koju čine naši audio-inženjeri i ton-majstori iz elektronskih medija, ali i stručnjaci koji se bave akustikom i zvučnim tehnologijama. Od ove godine, a to će se videti i na 14. Taktonsu, sve više pratimo evropska dostignuća u ovoj oblasti, tako da snimci – od sada pa nadalje – moraju da „uvažavaju“ evropske standarde.

*Da li je baš zbog toga, a u skladu sa željom da se znanje stalno unapređuje, udruženje AES i naučna konferencija koja se u okviru Taktonsa održava na Fakultetu tehničkih nauka, uz Radio-televiziju Vojvodine najvažniji akter u organizaciji Taktonsa?*

Svakako, jer naši stručnjaci koji čine srpsku sekciju ovog udruženja najviše doprinose toliko značajnom apostrofiranju naučnog, a ne samo takmičarskog segmenta Taktonsa. Evropski standardi moraju se primenjivati u struci, a ove godine jedna od novina na naučno-stručnoj konferenciji biće isticanje govorne tehnologije u elektronskim medijima. Posebno je značajno što je i naša studentkinja Sonja Krstić članica srpske sekcije međunarodnog udruženja audio-inženjera, čije je sedište u Njujorku. To doprinosi da nimalo ne zaostajemo u onome što će, u naučnom smislu, i na ovom Taktonsu prezentovati stranci.

„Za podizanje nivoa znanja u oblasti akustike i audio-tehnike na Taktonsu nemerljiv značaj imaju stručnjaci Fakulteta tehničkih nauka Univerziteta u Novom Sadu, ali, pre svega gosti – predstavnici svetskog, jedinstvenog profesionalnog, udruženja audio-inženjera AES-a (Audio Engineering Society)“, kaže za Bilten prof.dr Vlado Delić.

Jasna Kurteš Plavljanin

## Interview: prof. PhD Vlado Delić, Faculty of Technical Sciences

What brings new the world Association on Taktons this year? Why are the presentations of research papers in the field of audio signal processing techniques significant to the participants on Taktons?

Primarily, thanks to Faculty of Technical Sciences (FTN) of Novi Sad there is a Serbian section in the AES international organization. The section consists of audio engineers and sound technicians from electronic media but also experts in acoustics and sound technologies. Since this year we are following more and more up with European achievements in this field. Therefore, the recordings from now on, must respect European standards.

*Is this fact on AES as well as the 2nd Scientific Conference to be held on TAKTONS, are the reasons that they become the most important partner in TAKTONS organization, beside RUV RTV?*

Of course, our experts being part of Serbian section of AES, mostly contributes to the promotion of scientific aspect of TAKTONS, alongside of competition. European standards must be implemented in the profession, and this year one of the news in 2<sup>nd</sup> Scientific and Experts Conference will be emphasis the verbal technology in electronic media. We believe that is of great importance that our student Sonja Krstić is member of AES Serbian section in the New York City Headquarters. That means we do not fall behind in scientific sense, of what will be presented by foreigner partners on the coming TAKTONS.

“Immeasurable importance of the FTN experts of University of Novi Sad is in raising the level of knowledge in the field of acoustics and audio technology on Taktons but first of all the guests, representatives of the world, a unique professional, associations of audio engineers AES, a (Audio Engineering Society)“, says professor PhD Vlado Delić for ours Newsletter.

Jasna Kurteš Plavljanin



TAKTONS 2013.  
dipl. inž. MARTIN ŽVELC  
rukovodilac Medioteka  
Radio-televizija Slovenije

## PRVI PUT STANDARD EVROPSKE RADIODIFUZNE UNIJE (EBU R 128) NA TAKTONSU

### SVI SNIMCI NA ISTOM NIVOU GLASNOSTI

Svi koji gledaju televiziju znaju da su reklame glasnije od drugih segmenata programa. Tada gledaoci misle da su za to krivi tamo neki ton-majstori, koji bi mogli, uz pomoć nekih instrumenata, to da regulišu. Međutim, stari instrumenti koji se sada koriste, pokazuju da su reklame na istom nivou glasnosti kao i drugi delovi programa. Naime, dosadašnji instrumenti mere električni nivo zvuka, i po tim pokazateljima nema odstupanja u glasnosti. Novi instrumenti, bazirani na kompjuterskoj tehnologiji, pokazuju pravu vrednost, ono što mi čujemo. To je sada novi standard, nazvan EBU R 128, i on važi u Evropi. Prvi put ćemo taj standard primeniti na ovogodišnjem Taktonsu, jer samo kada su na istom nivou glasnoće, možemo upoređivati snimke i ocenjivati njihov kvalitet.

### U AMERICI JE ZAKONOM REGULISAN NIVO GLASNOSTI RADIJSKIH I TELEVIZIJSKIH PROGRAMA

Predsednik SAD Barak Obama potpisao je 2010. godine zakon kojim se sve tamošnje radijske i televizijske kuće obavezuju na to da će sve reklame i oglasi biti na istom nivou glasnosti kao i ostali delovi programa. Istraživanjima koja su obavile različite institucije i univerziteti došlo se do toga da ono što mi čujemo stvarno bude glasnost snimka. Standard koji se primenjuje u Americi malo se razlikuje od evropskog, ali se svodi na isto – glasnost mora biti ista za sve segmente programa.

### ZEMLJE ZAPADNE EVROPE VEĆ PRIMENJUJU STANDARD EBU R 128

Nemačka, Francuska, Italija i još neke zemlje Zapadne Evrope već su prešle na taj način, mi kažemo, normalizacije – jer normalizujemo sve na isti nivo. Efekat je odličan, ali to ipak ima i svoju cenu. Na primer, Švajcarska je potrošila u tu svrhu milion evra, ali su „pokrili“ sve televizijske i radijske kuće. Kod nas, na Radio-televiziji Slovenije, za radio i televiziju od Lendave do Kopra, očekujemo da ćemo to uraditi za 200 hiljada evra. Nadali smo se da će to biti već ovog oktobra, ali mislim da će se to, ipak, desiti za pola godine. Raspisali smo tender za instrumente i softverske programe. To je standard koji, kao deo Evropske radiodifuzne unije, moramo poštovati. Na primer, često razmenjujemo emisije s Austrijskim nacionalnim javnim servisom (ORF), i oni se naravno bune ako im pošaljemo snimke koji nisu po tom standardu. Mislim da će vremenom i instrumenti i programi za taj standard biti jeftiniji i da će se primenjivati u celoj Evropi. To je nešto što već poštuju zemlje Zapadne Evrope. I u ovom delu Evrope, ovde na Taktonsu, primenićemo taj standard. Normalizovaćemo nivoe, pa ćemo lakše ocenjivati koji snimak je bolji, a koji lošiji.

## STANDARD GLASNOSTI I ZA RADIO I ZA TELEVIZIJU

Ideja jeste došla iz televizijskog sveta, ali to treba da važi i za radio, posebno kod nas u Sloveniji, jer često radio snima zvuk, recimo koncerte i muzičke emisije, pa taj zvuk emituje i televizija. Potrebno je da svi zajedno radimo na toj standardizaciji. Mada, postoji problem što, kao ovde kod vas, radio još uvek radi na analognom predajniku, a televizija je kod nas potpuno digitalizovana, pa je time i puno više potrebe za primenom tog standarda i za radio i za televiziju.

### DALJINSKI SAMO ZA MENJANJE PROGRAMA – BEZ UTIŠAVANJA DOK TRAJU REKLAME-

Mislim da će uskoro svi koji emituju radijske i televizijske programe poštovati ovaj standard. Tada više nećemo morati da koristimo daljinski upravljač kako bismo nešto utišali ili pojačali. Javni servisi će to ranije prihvatiti, jer smo deo Evrope i Evropske radiodifuzne unije, a verujem da će nam se pridružiti i privatne stanice. Svi će želeti bolji kvalitet jer ovaj novi standard utiče i na kvalitet samog zvuka. Po glasnosti, programi će biti izjednačeni. Želeo bih da ako, recimo, vi u Novom Sadu gledate ili slušate program Radio-televizije Vojvodine, pa „prebacite“ na Er-Te-EI (RTL), sve bude na istom nivou glasnosti, da svi poštuju novi standard.

Mirjana Damjanović Vučković



TAKTONS 2013  
MARTIN ZVELC, B.Sc.  
Head of Medioteka  
Radio-Television of Slovenia

## FOR THE FIRST TIME THE EUROPEAN BROADCASTING UNION STANDARD (EBU 128) AT TAKTONS

### ALL RECORDINGS AT THE SAME LEVEL OF LOUDNESS

Those who watch television know that advertisements are louder than other segments of the program. At such times, the watchers put the blame for that on some audio engineers who could with some instruments, regulate that. However, old instruments that are presently in use show the advertisements have the same level of loudness as the other parts of the program. Namely, the contemporary instruments measure the electrical level of sound, and by those parameters there is no deflection in loudness. The new instruments based on computer technology show the actual value – i.e. what we really hear. That is the new standard named EBUR 128, and it is effective in Europe. For the first time, this standard is going to be applied at this year's Taktons, because only when they are at the same level of loudness recordings may be compared and their quality evaluated.

### IN THE U.S.A. LAW REGULATES LEVEL OF LOUDNESS OF RADIO AND TELEVISION PROGRAMS

The President of the U.S.A. Mr. Barak Obama signed in 2010 the Law according to which radio and TV broadcasters are to get advertisements to the same level of loudness of the rest of the program segments. The standard applied in the States differs a little from the European one, but in the end it all comes to the same – loudness has to be the same with all of the program segments.

### WESTERN EUROPEAN COUNTRIES ARE ALREADY APPLYING EBU R 128 STANDARD

Germany, France, Italy and some other Western European countries have already turned to this way, which we call normalization – because we normalize everything at the same level. The effect is excellent; however, it has its price. For example, for this purpose Switzerland spent one million Euros and covered all of the radio and TV broadcasters. With us in Radio-Television of Slovenia from Lendava to Koper, we expect to do that for 200 thousand Euros. We had hoped it to be by this October, but I think it is going to happen in half-a-year' time. We have announced a tender for instruments and software programs. This is a standard, which as a part of European Broadcasting Union, we have to obey. For example, very often we exchange shows with Austrian National Public Service (ORF), and they, of course, protest if we send them recordings that are not compliant to the standard. I think that in time the instruments and the programs, both, for this standard will grow cheaper and will be applied in whole of Europe. This is something that is obeyed already in countries of Western Europe. In this part of Europe, as well, here at Taktons, we are going to apply this standard. We will normalize the levels and will more easily judge which of the recordings is better.

### THE LOUDNESS STANDARD FOR RADIO AND TELEVISION BOTH

The idea did come from the world of television, but the rule should apply to radio, as well, especially with us in Slovenia, because very often radio crew record the audio, like concerts and musical shows, and the television broadcasts the television, also. It is necessary for us to work together on this standardization. However, there is a problem, such as the one here with you, radio is still operating via analogue transmitter, while television is completely digitalized with us, so there is much more need for application of the standard for both the radio and television.

### REMOTE CONTROLLER ONLY FOR PROGRAM SEARCH –WITHOUT SILENCING WHILE ADVERTISEMENTS ARE ON

I think that very soon, all of those who are broadcasting radio or television programs will obey this standard. Then we will no longer use remote controllers to silence a program. Public service will accept that sooner because we are a part of Europe and European Broadcasting Union, and I believe the private stations will join us. Everyone will go for better quality because this new standard affects the sound quality itself. As for loudness, the programs will be equalized. I wish, for example, that you here in Novi Sad watch or listen to the programs of Radio-Television of Vojvodina and then switch to RTL, and that everything is at the same level of loudness, and everyone obeys the new standard.

Mirjana Damjanovic Vuckovic







## SYSTEM DESIGN

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System design je kompanija specijalizovana za savetovanje (consulting) i prodaju profesionalne audio-video-light i prateće opreme u radiodifuznoj (broadcast) tehnologiji i scenskom dizajnu. Ove godine na Taktonsu akcentat je na digitalnim mikserima DiGiCo, koji su namenjeni kako za živu i studijsku produkciju, tako i za produkciju u radio-difuziji. DiGiCo mikseri se razlikuju od svih ostalih, pre svega zbog svoje pouzdanosti koju dobijaju zahvaljujući efikasnim – moćnim i brzim procesorima, prvim (i još uvek najsveobuhvatnijim) ekranima TFT LCD osetljivim na dodir, kao i zbog jednostavne upotrebe – pioniri su u korišćenju brzine smplovanja audio-signala od 96KX3 i mogućnosti multipliciranog smplovanja. Osnovni koraci u radu s ovom miksetom, kod tehničara sa vrlo malo profesionalnog iskustva, savladavaju se za manje od dva sata ([www.digico.biz](http://www.digico.biz)).

Na Taktonsu će prvi put u Srbiji biti predstavljena i kompanija „Barix“ ([www.barix.com](http://www.barix.com)), lider u proizvodnji pouzdanih, inovativnih i jeftinih rešenja za prenos audio-signala (transmisiju i monitoring) putem inetnet aplikacija, što je trenutno i najaktuelnije u radio-difuziji.

System design posebno prezentuje „Crestron“ ([www.crestron.com](http://www.crestron.com)), vodeću kompaniju u podršci sistemima kontrole i automatizacije, kao i „Kindermann“, kompaniju koja u svojoj gami proizvoda nudi sve ono što olakšava poslovanje i obezbeđuje njegovu efikasnost, brzinu, bolju organizaciju: projektore i platna, konferencijske uređaje i sisteme, namenski nameštaj, pultove i govornice, displeje za monitoring i navigaciju itd. ([www.kindermann.com](http://www.kindermann.com)). Takođe, izložiće i profesionalne zvučne kutije renomiranog engleskog proizvođača „Martin Audio Ltd“ ([www.martin-audio.com](http://www.martin-audio.com)), koje su poznate ne samo po glasnoći, specifičnoj pokrivenosti i ispunjenju prostora zvukom, već pre svega po tome što su prvi i jedini na tržištu sa zvučnim kutijama koje se mogu apsolutno kontrolisati i usmeravati, te su postale najpoželjniji proizvod u urbanim sredinama i zaštitni znak vodećih evropskih festivala („Glastonbury“, „Pinkpop“...).

Za System Design  
Mirjana Kovačević

System Design (SD) is a specialized company for consulting and sale of professional audio-video light and broadcast technology as well as stage design. This year we emphasize digital mixing console DIGICO on TAKTONS which are intended for live and studio production as well as for radio broadcasting production. DIGICO console are differing from all the others first of all, because of its reliability which they receive through effective- powerful and fast processors, first (and still the most comprehensive) use of multiple TFT LCD touch screens, a pioneer in the use of a 96kHz sample rate, and the first to run multiple sample rates simultaneously. Basic steps in work on this console, especially for inexperienced sound technicians, could be mastered in a few hours. ([www.digico.biz](http://www.digico.biz)).

The company BARIX ([www.barix.com](http://www.barix.com)) will be presented on TAKTONS for the first time leader in production reliable, innovative and cheap solutions for audio signal transmission and monitoring performed by internet applications which is presently the latest in radio broadcasting.

System Design is specially presenting a leading provider of control and automation systems and Kindermann company which offers in its range of products everything which facilitates business and secure efficiency, fastness and better organization; projectors and screens, conference equipment and systems, custom furniture, desks and booths, display for monitoring and navigation etc. ([www.kindermann.com](http://www.kindermann.com)). Also, a professional renowned loudspeakers will be exhibited by English manufacturer „Martin Audio Ltd“ ([www.martin-audio.com](http://www.martin-audio.com)), which are well known not only in volume, specific coverage and meeting space sounds, but primarily for being the first and only one on the market with a sound box that can be absolutely controlled and directed, and have become the preferred product in urban areas and trademark leading European festivals („Glastonbury“, „Pinkpop“...).

For System Design  
Mirjana Kovačević





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# JBL



Na ovogodišnjem Taktonsu predstavimo pet setova za studijsko i snimanje živih nastupa, koji svojim različitim postavkama mogu biti izuzetno korisni za sve one kojima je snimanje u opisu posla. Bez obzira na to da li snimanju pristupaju kao amateri, poluprofesionalci ili profesionalci, svi zainteresovani će imati priliku da se upoznaju s našim rešenjima i pronađu ono što bi moglo zadovoljiti njihove potrebe.

Takođe, našu smo izloženu opremu uključili, povezali i omogućili Vama da radite na njoj kao što biste to radili u Vašem svakodnevnom poslu.

## Studio Berar Projekt na Taktonsu 2013.

Studio Berar Projekt vam ove godine pruža priliku da vidite i čujete dvosistemske studijske monitore JBL M2 Master Reference.

Osnovne karakteristike ove nove generacije referentnih studijskih monitora jesu frekventivni opseg od 20Hz – 40KHz, minimalno izobličenje, zvučni pritisak do 123dB u cilju ispunjavanja visokih zahteva današnje muzičke, filmske i radiodifuzne produkcije.

Tehnologija "Image Control Waveguide" omogućava impresivnu zvučnu sliku zahvaljujući ravnomernoj usmerenosti zvučnog talasa. Ne postoje klasični sweet spot-ovi ni po horizontalnoj, ni po vertikalnoj osi, već je zvuk ujednačen u većem delu prostorije, a prelaz između basa i visokotonca na 800Hz jeste neprimetan.

Bas-zvučnik 15-inčni 2216Nd Differential Drive, s duplim neodimijumskim magnetima i dvostrukim namotajima, omogućava da sistem JBL M2 proizvede impresivan zvuk na niskim frekvencijama koji se spušta do 20 Hz. Zahvaljujući niskom termalnom koeficijentu korišćene žice, novi JBL-ov dizajn namotaja omogućava da parametri drajvera ostanu stabilniji i pri velikoj izlaznoj snazi, uz minimalno izobličenje.

Novi D2 kompresioni visokotonac s dvostrukom prstenastom membranom i duplim namotajima rezultat je izazova pred kojim su se inženjeri iz JBL-a našli: proširiti gornju granicu frekvencijskog odziva, uz istovremeno veoma visok nivo zvučnog pritiska i veoma nisko izobličenje. Dve su ključne stvari u ovom rešenju. Prva je korišćenje prstenaste membrane umesto tradicionalnih kupolastih, dok je druga spajanje dva drajvera u jedan. Ova konstrukcija omogućila je znatno niže nivoe nelinearnog izobličenja, uz odziv do čak 40kHz.

JBL LSR 3 Serija su prvi manji studijski monitori koji koriste novu tehnologiju JBL „Image Control Waveguide“, predstavljenu na referentnim monitorima JBL M2. Ona obezbeđuje izuzetnu zvučnu sliku koja, iako vrlo široka, ima očuvan fokus. Njihov razvoj je takođe utemeljen na već poznatoj JBL-ovoj tehnologiji "Linear Spatial Reference Design", čiji razvojni protokol uključuje 72 različita merenja. LSR 3 Serija ima balansirane audio ulaze (XLR i TRS), dok fino podešavanje niskih i visokih frekvencija pomoću prekidača LE Trim i HF Trim (-2dB, 0, +2dB) omogućava prilagođavanje zvuka akustici prostorije. Izbor ulazne osetljivosti (-10 dB/+4dB) obezbeđuje kompatibilnost sa različitim izvorima audio signala, dok je patentirani dizajn bass reflekt porta SlipStream (TM) razvijen tako da omogući dublji bas na svim nivoima glasnoće, odziv na još nižim frekvencijama i smanjenje izobličenja. Uz sve to, cena im je neverovatno pristupačna.

za Studio BerarProjekt  
Ina Poljak

At this year's TAKTONS, Studio Berar Projekt team will present a total of five studio and live performance recording sets, all with a potential to be very useful to the recording professionals. Regardless of whether they are amateurs, semi-professionals or professionals, all interested parties will have an opportunity to learn about our solutions and also find those that could satisfy their own needs.

We will also have our equipment set up and connected, so that you can try it out as if you were doing your daily work.

### Studio Berar Projekt at TAKTONS 2013

This year Studio Berar Projekt offers you an opportunity to see and hear the powerful JBL M2 Master Reference 2-Way Monitors.

The main characteristics of the new generation of Master Reference are frequency response of 20Hz to 40kHz, and an extraordinary 123 dB maximum SPL to meet the demanding music, cinema and broadcast production requirements for a respectful dynamic range.

„Image Control Waveguide“ technology allows impressive imaging, thanks to the uniform waveguide geometry. This enables neutral frequency response, not just on-axis, but off-axis in the vertical and horizontal planes, all the way down to the M2's 800Hz crossover point.

2-Way System loudspeakers are breathtaking in their appearance, build quality and that which is the most important – the sound. Thanks to 15" 2216Nd Differential Drive Woofer with dual neodymium magnets and two voice coils, M2 system produces impressive low frequency output down to 20Hz. Featuring a low thermal coefficient of resistance wire, this new JBL voice coil design allows the woofer parameters to remain more stable at high output levels, with lower distortion.

The new D2 Dual Driver's design with two annular low-mass polymer diaphragms and two separate coils is a result of the attempt to overcome the challenges which JBL's engineers were facing: to extend the high frequency response level, but with very low distortion and very high output. Central to this innovative solution are two key developments. First was the use of an annular diaphragm, not subject to the break up modes of a conventional dome diaphragm and the second was the merging of two drivers into a single, compact transducer with a single acoustic output. The result is a high frequency transducer that produces smoother, extended high frequency response to 40kHz and significantly lower levels of nonlinear distortion.

JBL LSR 3 Series are the first smaller studio monitors based on JBL's „Image Control Waveguide“ technology, which has also been applied to aforementioned M2 Reference Monitors. It delivers exceptional audio imaging which, although quite spread, maintains its focus. Their development was also based on familiar JBL's „Linear Spatial Reference Design“ technology, whose developmental protocol included 72 different measurements. LSR 3 Series has balanced audio inputs (XLR and TRS), while fine tuning of high and low frequencies via LE Trim and HF Trim switches (-2dB, 0, +2dB) enables the sound to conform to the room's acoustics. Selectable sensitivity switch (-10 dB/+4dB) allows compatibility with different audio inputs, while patented SlipStream (TM) design of the bass reflect port is meant to ensure deeper bass on all volume levels, response on even lower frequencies and distraction reduction. Besides, these monitors are very affordable.

Studio Berar Projekt successfully cooperates with many brands in the field of professional audio and lighting solutions, as well as video projection and LED equipment, trussing systems and stage constructions, including consumer HiFi audio equipment. We will be with you from the moment of making conceptual audio, lighting and/or video design, acoustic calculations up to the completion of the entire project, including commissioning, user training and complete after-sales support.

For Studio Berar Projekt  
Ina Poljak





## AVC GROUP

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AVC Group svojim nastupom na Taktonsu 2013. prati potrebe i razvoj radio i TV emitera, ne samo na teritoriji Srbije, već i celokupne regije. Vođeni tom idejom, izabrali smo i deo opreme, prikazane na štandu AVC Group-a. Od zastupničkog programa, koji pokriva celokupan lanac produkcije i emitovanja, ovaj put smo se usredsredili na četiri proizvođača: STUDER, s novinama u okviru proizvodnog programa digitalnih audio-miksera i prateće opreme; GENELEC, s aktivnim studijskim monitorima koji su postali referentni za kontrolu zvuka u radio i TV produkciji; ENCO, sa sistemima za automatizaciju reprodukcije radijskog programa, uz integraciju sa sistemima STUDER; CUBE-TEC, sa sistemom digitalizacije, arhiviranja i restauracije audio i video-snimaka. Od pratećih aktivnosti organizovali smo popularna predavanja, zakazana za četvrtak, 14. novembra u Studiju „M“:

- u 12:10, Archive Workgroup Solution for Radio - Digitization, Restoration, Preparation, gosp. Tom Lorentz, menadžer QUBE-TEC-a,

- u 15:15, Genelec Smart Active Monitors – The Essence of Calibration, gosp. Christophe Anet, menadžer za obrazovanje i obuku u GENELEC-u

- u 16:25, Studer - Seamless and Flexible Broadcast Integration, gosp. Ingo Hahn, menadžer proizvodne linije STUDER-a.

Izdvojili bismo i četiri jednočasovne radionice (četvrtak 14. novembra od 11:00 i 13:30 i petak 15. novembra od 11:00 i 14:30) Genelec Smart Active Monitors – Calibration and Room Acoustics koje vodi gosp. Christophe Anet, menadžer za obrazovanje i obuku u GENELEC-u.

Na samom štandu biće organizovani susreti i s predstavnicima AVC Group-a, gde se mogu razmotriti i svi aspekti saradnje, ne samo u okviru isporuke opreme, već i kada se radi o kompletnim sistemima integracije, po čemu je AVC Group poznat ne samo u regionu nego i daleko van njega.

Bora Radojević  
menadžer prodaje i projekta AVC Group-a

AVC Group's presence on TAKTONS 2013 is following the needs and development of Radio and TV broadcasters not only in Serbia but also in the overall region. Following that idea we chose part of the equipment presented on the AVC Group stand. Out of the total representative program covering the whole chain from production to broadcasting, we focused this year on four manufacturers: STUDER, with news within the portfolio of digital mixing consoles and accessories; GENELEC, with active studio monitors that become the reference for sound control in radio and TV production; ENCO systems for Play automation software for radio program integration with STUDER systems; CUBE-TEC systems for digitalization, archiving and restoration of audio and video recordings. As of supporting activities, we organized popular lectures on Thursday 14.11. in Studio M:

- at 12:10AM, Archive Workgroup Solution for Radio - Digitization, Restoration, Preparation, Mr. Tom Lorentz, QUBE-TEC Manager

- at 3:15PM, Genelec Smart Active Monitors – The Essence of Calibration, Mr. Christophe Anet, GENELEC Education and Training Manager

- at 4:25PM, Studer - Seamless and Flexible Broadcast Integration, Mr. Ingo Hahn, STUDER production line manager

In addition, we would like to emphasize 4 one-hour workshops (Thursday November 14th at 11:00AM and 1:30PM, Friday 15th at 11:00AM and 2:30PM) Genelec Smart Active Monitors – Calibration and Room Acoustics moderated by Mr. Christophe Anet, GENELEC Education and Training Manager.

There will be organized meetings with AVC Group representatives where will be possible to talk about potential cooperation not only in equipment delivery but also in complete system integration where AVC Group is well known not only in the region but wider.

Bora Radojević  
AVC Group Sales and Project Manager



<b>Sreda, 13.11.2013.</b>	
<i>Radio Studio „M“</i> S-1 Govorni snimci-Igrana radio drama	09:00
Otvaranje izložbe- u holu studija „M“	10:00
<i>Radio Studio „M“</i> C-2 Ozbiljna muzika-kamerni orkestri,veliki sastavi,horovi i orkestri - bez publike	13:02
Svečano otvaranje, Studio „M“	18:00
Koktel za goste TAKTONS-a	19:00
<b>Četvrtak, 14.11.2013.</b>	
<b>Druga međunarodna konferencija iz oblasti akustike i audio-tehnike Novi Sad, Srbija, 13.-16. novembar 2013. FAKULTET TEHNIČKIH NAUKA, NOVI SAD, Trg Dositej Obradović br.6</b>	
<i>Radio Studio „M“</i> C1 Ozbiljna muzika-solistička, mali sastavi (8+1) - bez publike	08:00
<i>Radio</i> F-1 Narodna, etno i world-mali sastavi i ansambli (8+1) - bez publike	09:13
F-2 Narodna, etno i world-veliki sastavi i orkestri - bez publike	10:21
P-2 Pop , rok, dzez ...veliki sastavi i orkestri - bez publike	11:15
<i>Predavanje studio „M“</i> Predlog radne grupe arhivatora za radio digitalizaciju,restauraciju i konzervaciju Gosp.Tom Lorentz, Direktor QUBE-TEC	12:20
<i>Radio Studio „M“</i> F-3 Narodna, etno i world-mali sastavi i ansambli (8+1)- javno izvodjenje sa publikom	13:33
<i>TV Studio „M“</i> L-2 Javna izvođenja - ostale vrste muzike	14:33
<i>Predavanje studio „M“</i> Genelec samomerni aktivni monitori-sustina kalibriranja gosp. Christophe Anet, GENELEC Education and Training Manager	15:35
<i>Predavanje studio „M“</i> Studer-bežični i fleksibilni emisioni sistem gosp. Ingo Hahn,STUDER product Manager	16:45
<i>Radio Studio „M“</i> P-3 Pop , rok, dzez ...mali sastavi (8+1) - javno izvodjenje sa publikom	17:55
C-3Ozbiljna muzika-solistička, mali sastavi (8+1)-javno izvodjenje sa publikom	19:28

<b>Wednesday, November, the 13th</b>	
<i>RADIO Studio „M“</i> S1 Speech recordings Radio drama	9 a.m.
Opening of the EXHIBITION OF PROFESSIONAL AUDIO EQUIPMENT	10 a.m.
C2 Classical music - chamber orchestras, big groups, choirs and orchestras without audience	1.02 p.m.
OPENING CEREMONY OF TAKTONS, INTERNATIONAL COMPETITION OF AUDIO RECORDINGS, STUDIO „ M „ RADIO NOVI SAD	6 p.m.
Reception for TAKTONS for TAKTONS's guests	7 p.m.
<b>THE EXHIBITION IS OPENED</b>	<b>10a.m.</b> <b>6p.m.</b>
<b>Thursday, November, the 14th</b>	
<b>The 2<sup>nd</sup> International Acoustics and Audio Engineering Conference Novi Sad, Serbia, November 13th-16th, 2013 6, Dositej Obradovic Squer</b>	
<i>RADIO Studio „M“</i> C1 Classical music - soloists, small groups (8+1),– without audience	8 a.m.
F-1 Folk, ethno and world-small groups and ensembles (8+1) – without audience	9.13 a.m.
F-2 Narodna, etno i world-veliki sastavi i orkestri - bez publike	10:21
F-2 Folk, ethno and world - big groups and orchestras – without audience	10.21 a.m.
<i>P-2 Pop, Rock, Jazz ...big bands and orchestras – without audience</i>	11.15 a.m.
<i>LECTURE Studio „M“</i> Archive Workgroup Solution for Radio-Digitization, Restoration, Preparation Tom Lorentz, QUBE-TEC Manager	12.20 a.m.
<i>RADIO Studio „M“</i> F3 Folk, ethno and world - small groups and ensembles (8+1) – public performance with audience	1.33 p.m.
TV L-2 Live Performances - other kinds music	2.33 p.m.
<i>LECTURE Studio „M“</i> Genelec Smart Active Monitors-The Essence of Calibration Christophe Anet, GENELEC Education and Training Manager	3.35 p.m.
<i>LECTURE Studio „M“</i> Studer-Seamless and Flexible Broadcast Integration Ingo Hahn, STUDER product Manager	4.45 p.m.
<i>RADIO Studio "M"</i> P-3 Pop, Rock, Jazz ... small bands (8+1) –public performance with audience	5.55 p.m.

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