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MEDAV GmbH · Gräfenberger Str. 32-34 · D-91080 Uttenreuth

Demodulation and Decoding of Radio Signals

Seminar “Demodulation and Decoding of Radio Signals” at MEDAV, Ilmenau , November 15 - 18, 2010

Dear Sir or Madam,

our seminar addresses users of analysis systems who analyse unknown radio signals. Focus of the seminar is to identify unknown radio signals within a wideband signal, to segment them, and to analyse the corresponding narrowband signals for their modulation type, followed by demodulation and decoding.

Practical work on recorded radio signals of the HF/VUHF range is emphasised. The seminar will be completed by contributions about signal theory of different modulation types. We attach great importance to analysis of modern transmission methods, e.g.: OFDM, CODAN, PACTOR, CLOVER, QAM, STANAG.

The participants obtain a temporary installation of the analyser software for the duration of the seminar and will conduct the modulation type analysis more and more autonomously, supported by our specialists. Thereafter, chances and limitations of automatic classifiers are introduced. Basic knowledge about selected modern demodulation and decoding methods is imparted.



Topics

1. Overview of Radio Signal Acquisition

We focus on the acquisition of emissions in HF/VUHF range and discuss the advantages and disadvantages of wideband and narrowband acquisition systems. The way of analysis from wideband to narrowband signals is practically shown using the analysis tool CCI-Offline.

2. Introduction of the OC-6040 Analysis Tool

Analysis techniques are introduced to the participants by practical examples, mainly with recorded signals. Therefore, it is important to obtain a short introduction into the analysis system OC-6040, which is the basis for the pending analyses.

The participants need to have a notebook available with the following features minimum: 2.5 GHz, 1 GB RAM, 10 GByte free disk space, DVD drive, two free USB ports for dongles, Windows XP or Vista. MEDAV specialists or the participants themselves install the required software on their notebooks.

3. Interactive Analysis und Classification

The workflow of modulation type analysis is introduced and solidified by analysis of different signals. Numerous analysis techniques are available to do this, for example: the identification of instantaneous values. The advantageous use of automatic classifiers are shown and tested.

4. Demodulators and Decoders

From the variety of different, common modulation and coding methods, some selected are discussed in detail, for example: CODAN, PACTOR. This seminar section is completed by short contributions about signal theory.

5. OFDM Analysis

OFDM analysis is a focus of the seminar. A compact theoretic contribution about this modulation is presented.

6. Unknown Signals

At the end of the seminar, unknown signals are given to the participants for analysis. **Alternatively, customers can bring own signals for analysis, which are then analysed together with the MEDAV specialists.**



Instructors

All instructors are skilled MEDAV engineers. Not only the trainer but also specialists are available to support small subgroups.

To stimulate discussions on individual ways and ideas also in small groups, working dinners for the groups are arranged.

The presentations are held in English language.

Agenda

Date	Time	Topic
Mon 11/15/10	1:00 p.m.	Arrival of the participants, snack
	2:00-2:15	Welcome and introduction of participants
	2:15-3:45	Overview of radio signal acquisition Narrowband and wideband analysis
	3:45-4:15	Break
	4:15-6:00	Installation and introduction of OC-6040 signal analyser
	7:00	Working dinner
Tue 11/16/10	08:30-12:00 a.m.	Interactive analysis and classification
	12:00-1:30	Lunch
	1:30-5:00	Interactive analysis and classification
	7:00	Working dinner
Wen 11/17/10	08:30-12:00 a.m.	Demodulators and decoders
	12:00-1:30	Lunch
	1:30-5:00	OFDM analysis
	7:00	Working dinner
Thu 11/18/10	08:30-12:00 a.m .	Analysis of unknown signals
	12:00-1:00	Lunch
	1:30	End

Location of the seminar is:

MEDAV GmbH, Betriebsstätte Ilmenau
 Homburger Platz 3
 D-98693 Ilmenau



Participation Fees

Following fees incur:

- **€1.750 net** incurs for each first participant of a company or office
- **€1.550 net** for any further participant

The following services are included:

- Seminar participation, catering included.
- Copies of the presentations as file (PDF), if desired as handout (b/w).
- Temporary installation of the analysis software on a notebook of the participant, plus DVD with the signal samples used during the seminar.
- Participation in lunch and working dinners (meals and drinks included).

Payment is due on receipt of invoice. There is no liability in performing the event. Paid fees are reimbursed only in case the seminar takes not place.

We would be glad if you decide to participate in the seminar. Do not hesitate to ask if there are any questions. Find more information about our competences in radio surveillance systems on our website www.medav.de, follow the link under the keyword RMS.

Kind regards

MEDAV GmbH

Horst Jonuscheit

Sales & Business Development



Fax Reply by

Mr./Mrs. _____

Company _____

Fax to: MEDAV GmbH, Frau Endres. Fax: **+49 - 9131-583-11**

The following persons bindingly sign up for the seminar

Demodulation & Decoding of Radio Signals

No.	Participant (first and family name)	Price
1		€ 1.750 net
2		€ 1.550 net
3		€ 1.550 net

Contents, conditions and services apply as described in this announcement letter.

Location, Date

(Seal, signature)

PS: Find recommended hotels under www.medav.de – keyword Location/Hotels. We already reserved rooms at different hotels for this seminar.