BESA®
Epilepsy 2.0

Spikes, seizures and more...

February 2016
Features
BESA Epilepsy 2.0
Features - Many different EEG data formats

✓ Many different EEG data formats
✓ Automated spike detection
✓ Automated clustering / hyperclustering
✓ Automated seizure detection New
✓ EEG review / EEG report New
✓ Spike review / spike report
✓ Seizure review / EEG report New

Alpha-Trace, BESA, Coherence/ITMed, Compumedics, EBNNeuro, EDF+, EGI MFF, Grass-Telefactor (TwinRef), Micromed, Nicolet Nervus, Nihon Kohden, Stellate Harmonie, XLTEK

Manage all datasets in one patient list
BESA Epilepsy 2.0
Features - Automated spike detection

- Many different EEG data formats
- Automated spike detection
- Automated clustering / hyperclustering
- Automated seizure detection \(^{\text{New}}\)
- EEG review / EEG report \(^{\text{New}}\)
- Spike review / spike report
- Seizure review / EEG report \(^{\text{New}}\)

Automated detection using 29 regional brain sources
High sensitivity – also for spikes in fissures!
Automated detection takes maximum 3h on a 24h EEG
BESA Epilepsy 2.0
Features - Automated clustering / hyperclustering

✓ Many different EEG data formats
✓ Automated spike detection
✓ Automated clustering / hyperclustering
✓ Automated seizure detection \( ^{\text{New}} \)
✓ EEG review / EEG report \( ^{\text{New}} \)
✓ Spike review / spike report
✓ Seizure review / EEG report \( ^{\text{New}} \)

“Fast evaluation of interictal spikes in long-term EEG by hyper-clustering”

Find more details in Epilepsia, 2012 Jul;53(7):1196–1204
BESA Epilepsy 2.0
Features - Automated seizure detection

✓ Many different EEG data formats
✓ Automated spike detection
✓ Automated clustering / hyperclustering
✓ Automated seizure detection
✓ EEG review / EEG report
✓ Spike review / spike report
✓ Seizure review / EEG report

"Automatic seizure detection in long-term scalp EEG using an adaptive thresholding technique: a validation study for clinical routine".

Find more details in Clinical Neurophysiology, 2014 Jul;125(7):1346-52

Algorithm has been developed at the Epilepsy Center, Department of Neurology, Universitätsklinikum Erlangen. Seizure detection takes maximum 5min on a 24h EEG
BESA Epilepsy 2.0
Features - EEG review / EEG report

✓ Many different EEG data formats
✓ Automated spike detection
✓ Automated clustering / hyperclustering
✓ Automated seizure detection New
✓ EEG review / EEG report New
✓ Spike review / spike report
✓ Seizure review / EEG report New

Report is generated automatically during EEG, spike and seizure review.

Add EEG images manually by 1-click

Print your final report or store it as PDF
**BESA Epilepsy 2.0**

**Features - Spike review / spike report**

- ✓ Many different EEG data formats
- ✓ Automated spike detection
- ✓ Automated clustering / hyperclustering
- ✓ Automated seizure detection <sup>New</sup>
- ✓ EEG review / EEG report <sup>New</sup>
- ✓ Spike review / spike report
- ✓ Seizure review / EEG report <sup>New</sup>

You decide for each hypercluster: epileptiform or not

Spend only 5 minutes a day to evaluate a 24h EEG

Use optimized montages and filters
BESA Epilepsy 2.0
Features - Seizure review / EEG report

✓ Many different EEG data formats
✓ Automated spike detection
✓ Automated clustering / hyperclustering
✓ Automated seizure detection
✓ EEG review / EEG report
✓ Spike review / spike report
✓ Seizure review / EEG report

Quick navigation from seizure to seizure
Mark the seizure onset by 1-click
Finally add your clinical significance
BESA Epilepsy 2.0
Features - Summary

✓ Many different EEG data formats
✓ Automated spike detection
✓ Automated clustering / hyperclustering
✓ Automated seizure detection New
✓ EEG review / EEG report New
✓ Spike review / spike report
✓ Seizure review / EEG report New

Available from March 2016
Licenses
4 different license schemes are available

<table>
<thead>
<tr>
<th>Feature</th>
<th>Review license</th>
<th>Spike license</th>
<th>Seizure license</th>
<th>Complete license</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automated spike detection</td>
<td>X</td>
<td>✓</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Automated clustering</td>
<td>X</td>
<td>✓</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Automated hyperclustering</td>
<td>X</td>
<td>✓</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Automated seizure detection</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>EEG review / EEG report</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Spike review / Spike report</td>
<td>X</td>
<td>✓</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Seizure review / EEG report</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
All the 4 licensing schemes are available as Clinical Edition or Research Edition depending on your field of application and your country.

Clinical Edition

- Used in the following clinical settings
  - Long-term epilepsy monitoring units, using EEG or video-EEG
  - EEG departments in neurological and psychiatric hospitals
  - Neurological and psychiatric practices that perform EEG examinations

- Surgical decisions must not be based on the evaluation results of BESA Epilepsy Clinical Edition alone. All clinical decisions must be based on combining and comparing these results with all available clinical findings, including standard EEG or video-EEG evaluation, neuropsychological examinations, and independent imaging methods.

Research Edition

- Used exclusively in the field of scientific research and not for commercial and curative purposes
- May not be used directly or indirectly for medical diagnosis and/or treatment of humans
Program types
One product = 2 program types

**BESA Epilepsy 2.0 Detection**
- Technician – start detections
- Monitoring room, best on the PC of the acquisition
- Analyze the EEG

**BESA Epilepsy 2.0 Review**
- Technician – may prepare report
- Physician – do evaluation or finalize report
- EEG reading room, monitoring room, physician desk
- Review/evaluate the EEG
### Program types and related features

<table>
<thead>
<tr>
<th>Feature</th>
<th>BESA Epilepsy 2.0 Detection</th>
<th>BESA Epilepsy 2.0 Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automated spike detection</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>Automated clustering</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>Automated hyperclustering</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>Automated seizure detection</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>EEG review / EEG report</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Spike review / Spike report</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Seizure review / EEG report</td>
<td>X</td>
<td>✓</td>
</tr>
</tbody>
</table>
Certification and System Requirements
The CE marking certifies that this product fulfills the basic requirements of the Medical Devices Directive *MDD 93/42/EEC*.

The number 0197 represents the identification number of the Notified Body which carried out testing and certification.

**System requirements**

Operating system: Windows® 8.1  
Windows® 7  

CPU: Minimum 1 GHz  

RAM: Minimum 1 GB  

Display resolution: Minimum 1024x768 pixels  

Graphics card: OpenGL 1.1 with 16 MB RAM or more