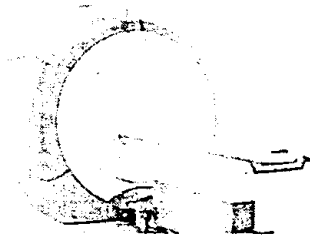


# Philips MR Competition Update: GE Signa HDx

Model: **Signa HDx 1.5T**  
 Manufacturer: GE Healthcare  
 Market launch: 2004  
 Target customers: High end customers  
 Marketing-Claim: Be capable. Be certain.  
 Philips product: Achieva HP



## Changes compared to Signa Excite HDx

New	Old
Covers, Design (Length 195 cm)	Magnet CX-K4 (unchanged since 1998)
32 RF channels	Body resonator (Gradients/RF-Body coil)
Head/neck/spine array	Table
Reconstruction unit XVRE 2-Blade	Coils and coil interface
new Software-Features (XV-Version)	Gradients and Gradient amplifiers
23" Monitor	User-Interface to a large extent
New version of parallel imaging (*GEM)	*
* Generalized Encoding Matrix reconstruction	

## Technical Specifications

Gradients	Amplitude	Slew Rate
EchoSpeed	33 mT/m	120 T/m/s
TwinSpeed	Zoom-Mode: 50 mT/m	150 T/m/s up to 35 cm FOV in Z-direction
	Whole-Body: 23 mT/m	80 T/m/s > 35 cm FOV in Z

## Reconstructor

XVRE 2-Blade-konfiguration (2.700 FFT's per second))  
 ! Fast Fourier Transformations are not equal to images !

**RF-system** 8, 16 and 32 channels

**Software:** ScanTools HDx

## Coils

- 8ch: spine, neurovascular, head, cardiac
- 8ch HD: breast, knee, lower leg
- 12ch HD: body (48cm coverage)
- 16ch HD: head/neck (16 elements) / spine (13 elements)

## Philips Achieva

long system (195 cm)  
 terrible magnet homogeneity (1.65 ppm @ 48 cm)  
 FOV only 48 cm  
 bad gradient linearity  
 no noise reduction  
 old & slow table, max. 159 kg  
 different coil interfaces (HD and normal)  
 GEM (bidirectional, speed up factor < 8)  
 complicated user interface  
 no automated scanning  
 no convincing concept for whole body imaging  
 TRICKS-XV max. 8x faster  
 neurovasc. array (uses only 8 channels)  
 body array (only 12 elements, only 12 channels)

## Philips Achieva Highlights

best patientcomfort (167 cm)  
 (0.5 ppm @ 50 cm) V-RMS  
 53 cm  
 1.4% over 53cm FOV  
 SoftTone  
 216 cm, max. 250 kg  
 FreeWave 3 MHz RF-System  
 SENSE (bidirectional up to factor 8)  
 ExamCards  
 SmartExam  
 MobiScan with high SNR QBC  
 4D TRACK 60x faster  
 16ch. neurovasc. array  
 16ch. Torso XL

(✓ = included with Achieva)

VIBRANT (✓) Propeller (✓) 3D-FIESTA (✓) FIESTA-C (✓)  
 2D-FIESTA (✓) LAVA XV (✓) Fluoro Triggering (✓)

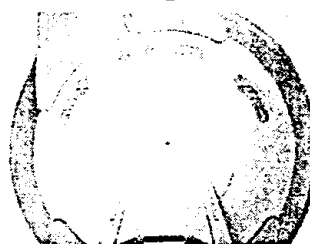
## Philips Vision 4.0

When will there be a new, compact magnet?  
 What is the future of TwinSpeed?

**PHILIPS**

# Philips MR Competition Update: GE Signa HD

**Model:** Signa HD 1.5T  
**Manufacturer:** GE Healthcare  
**Market launch:** 2004  
**Target customers:** hospitals, private centers with high demands  
**Marketing-Claim:** Speed & clinical capability  
**Philips product:** Achieva Pulsar HP, 8 or 16 ch.



## Changes compared to Signa Excite II ?

New	Old
16 channel available	magnet CX-K4 (unchanged since 1998)
HD gradient amplifier	Body resonator (gradients/RF-body coil)
only 2 technical cabinets (before 3)	table
reconstruction unit SVP 16	gradient power (amplitude & slew rate)
2 additional HD coil connectors	air-cooling of gradient amplifier
3 new HD coils (breast, knee, lower leg)	host computer
some new Software-Features, DVD support	

## Technical Specifications

Gradients	Amplitude	Slew Rate
EchoSpeed	33 mT/m	120 T/m/s
TwinSpeed	Zoom-Mode 50 mT/m	150 T/m/s
	Whole-Body 23 mT/m	80 T/m/s

up to 35 cm FOV in Z-direction  
> 35 cm FOV in Z

### Reconstructor

4ch.: SVP4 (425 FFT's)

8ch.: SVP8 (850 FFT's)

16ch.: SVP16 (1700 FFT's)

*! Fast Fourier Transformations are not equal to images !*

### RF-system

4, 8, and 16 channels

### Coils - 8ch:

spine, neurovascular, head, body, cardiac

### - 8ch HD:

breast, knee, lower leg (32 elements)

### Software:

ScanTools HD Rel. 12

## Signa HD Limitations

System design from 1998

long system (195 cm)

terrible magnet homogeneity (1,65 ppm @ 48 cm)

FOV only 48 cm

bad gradient linearity

no noise reduction

old & slow table, max. 159 kg

different coil interfaces (HD and normal)

neurovasc. & body coil use max. 8 ch.

ASSET (unidirectional up to factor 2; VIBRANT:3x)

complicated user interface

no ClickScan

no automated scanning

no convincing concept for whole body imaging

whole body diffusion no product

## Philips Achieva Highlights

new, patient friendly design

best patient comfort (167 cm)

(0,5 ppm @ 50 cm) V-RMS

53 cm

1.4% over 53cm FOV

SofTone

216 cm, max. 250 kg

FreeWave 3 MHz RF-System

NV & Torso XL coils utilize 16ch.

SENSE (bidirectional up to factor 8)

ExamCards

SameScan

SmartExam

MobiScan with high SNR QBC

DWIBS (ScanTools Pro)

Philips Features (✓ = included with Achieva)

VIBRANT (✓)

TRICKS (✓)

Propeller (✓)

3D-FIESTA (✓)

FIESTA-C (✓)

2D-FIESTA (✓)

LAVA (✓)

Fluoro Triggering (✓)

EchoPlus (✓)

Why was HDx not offered? HD is clinically limited e.g. in parallel imaging...

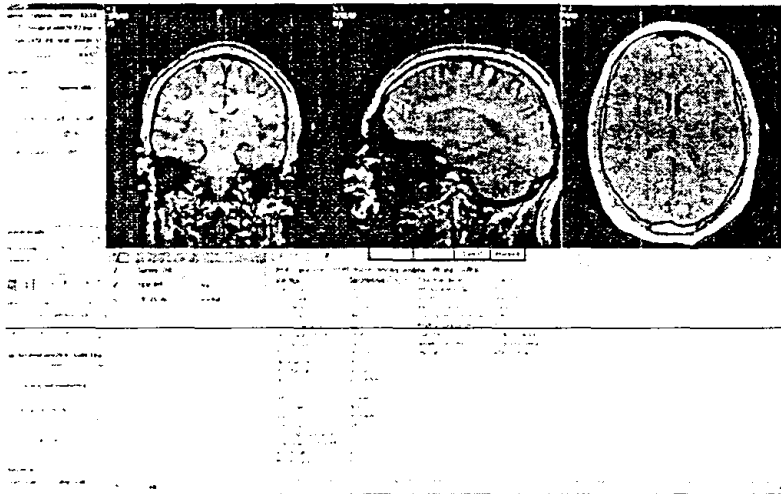
**PHILIPS**

# Competition Update: Spectroscopy reaches new levels of speed and ease of use.

With the advent of MR with IQ and SmartExam, MRI has taken a huge leap forward, but within the same software, MR Spectroscopy (MRS), has also taken a gigantic stride in both ease of use and functionality.

MRS has always been seen as a difficult technique that required a Physicist or highly trained operator to obtain consistent high quality results and the analysis required complex off-line software. Now though with the integration of Spectroscopy within ExamCards and fully automated preparation phases a spectroscopy scan can be obtained in just two steps :-

1. Select the appropriate ExamCard,
2. Plan the position of the voxel or slice(s)

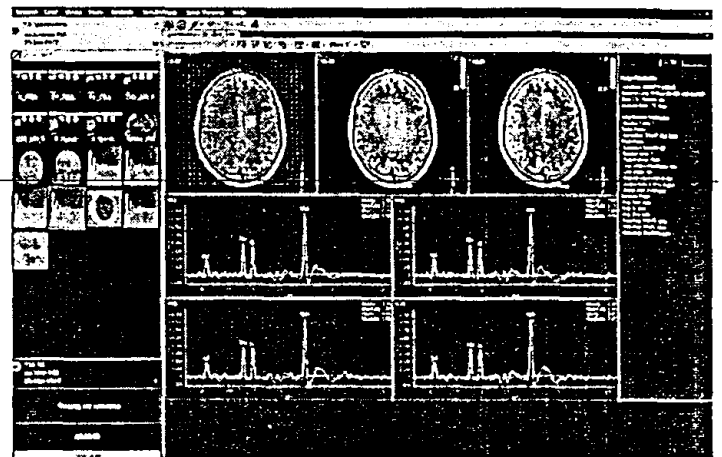
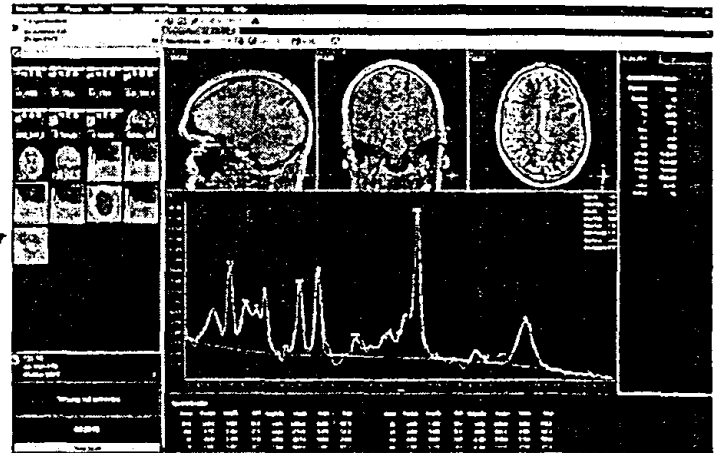


Planning a single voxel spectroscopy sequence in Examcards

The system will do all of the preparation phases required in a short time and then automatically run the sequence – simplicity itself without additional user interaction, i.e. having to analyse the preparation phases and water suppression optimization. In addition the system can store all previous preparation phases for that patient and re-use them to further reduce preparation time in subsequent scans - exactly the same as auto-prep in imaging.

To analyze the data is also a two step process :-

1. Select the Spectro data in SpectroView
2. Run the script.



Analyzing a single voxel scan (top) and a Spectroscopic imaging sequence (bottom)

So in four simple steps you have acquired and analyzed your Spectroscopy sequence – no-one else can match this speed and simplicity.

It is not just about simplicity because the Spectroscopy Specialist package is technologically advanced with every single type of sequence available on the system. Now you can choose from :-

- single voxel/multi-voxel
- CSI or TSI
- PRESS or STEAM
- 2D single slice, 2D multi-slice or 3D

# PHILIPS