This protocol provides suggested imaging parameters for research studies that want to approximate the imaging methods used in the ADNI study using 14.0 M4 HDx software at 3T, but do not have access to an MP-RAGE pulse sequence. For more details see the document: "Use of ADNI MRI Methods for Non-ADNI Studies".

Accept the "First Operating Mode" pop-up in Series 1. Consult the scanner's user's manual to understand this choice and its implications.

\*The head portion of the 16-channel head-neck-spine (HNS) can be used instead of the 8-channel brain coil for the entire study, if desired.

Important Note added 8/2010: The recommended 3T ADNI-related IR-FSPGR parameters have been changed in this version of the document to match those used in the ADNI-GO study.

The revised parameters are highlighed in yellow. The revised parameters give improved gray-white contrast.

We recommend that any new studies use the revised parameters. We do NOT recommend changing parameters midway through any longitudinal study, however.

SERIES	1. 3 plane loc.	scan plane	3-plane	matrix/nex	256 / 128 / 1
coil	8hrbrain*	mode	(Whole Body gradient)	fov (cm)	26
etl	Onibrain	SAT	(Whole Body gradient)	slice/space	5/5
scan time	:13	- 371		autoshim	On
scarr time	.13			autosiiiii	OII
comments	Use 8-channel brain co	   *		MAAAA	
		•			
SERIES coil	2. Calibration Scan. 8hrbrain*	scan plane	axial (Whole Body gradient)	matrix/nex fov (cm)	default
tl	Onbran	SAT	(Whole Body gradient)	slice/space	6/0 43 slices
น can time	:13	JA1		autoshim	off
Jan ume	.13			autostiiti	UII
omments	(Although 14.0 M4 does	not support PU	to cover brain completely. RE for 3T, this acquisition cassing in case PURE become		
omments	(Although 14.0 M4 does	not support PU	RE for 3T, this acquisition o		n future releases.)
	(Although 14.0 M4 does is recommended for ret	s not support PU rospective proce	RE for 3T, this acquisition of ssing in case PURE become IMAGING PARAMETERS		
ERIES	(Although 14.0 M4 does is recommended for ret	not support PU	RE for 3T, this acquisition of ssing in case PURE become IMAGING PARAMETERS Sag	es compatible i  matrix/nex	n future releases.)  ACQUISITION TIMING [256 / 256 / 1
ERIES	(Although 14.0 M4 does is recommended for ret	s not support PU rospective proce scan plane mode	RE for 3T, this acquisition of ssing in case PURE become IMAGING PARAMETERS	es compatible i matrix/nex phase fov	n future releases.)  ACQUISITION TIMING
EERIES oil	(Although 14.0 M4 does is recommended for ret 3. Sag IR-FSPGR 8hrbrain*	s not support PU rospective proce scan plane mode pulse seq	RE for 3T, this acquisition of ssing in case PURE become simple of the s	matrix/nex phase fov locs/pause	ACQUISITION TIMING 256 / 256 / 1
ERIES oil echos	(Although 14.0 M4 does is recommended for ret  3. Sag IR-FSPGR 8hrbrain*  SCAN TIMING 1	s not support PU rospective proce scan plane mode pulse seq image opts.	RE for 3T, this acquisition of ssing in case PURE become simple in case PUR	matrix/nex phase fov locs/pause freq. direct.	n future releases.)  ACQUISITION TIMING [256 / 256 / 1
ERIES oil echos	(Although 14.0 M4 does is recommended for ret	s not support PU rospective proce scan plane mode pulse seq	RE for 3T, this acquisition of ssing in case PURE become simple in case PUR	matrix/nex phase fov locs/pause freq. direct. fc direct	ACQUISITION TIMING 256 / 256 / 1
SERIES oil sechos	(Although 14.0 M4 does is recommended for ret	s not support PU rospective proce scan plane mode pulse seq image opts.	RE for 3T, this acquisition of ssing in case PURE become simple in case PUR	matrix/nex phase fov locs/pause freq. direct. fc direct phase corr	ACQUISITION TIMING 256 / 256 / 1 1.00 S/I
SERIES oil echos e Prep time ip angle	(Although 14.0 M4 does is recommended for ret	s not support PU rospective proce scan plane mode pulse seq image opts. psd name	RE for 3T, this acquisition of ssing in case PURE become simple in case PUR	matrix/nex phase fov locs/pause freq. direct. fc direct	ACQUISITION TIMING 256 / 256 / 1
SERIES oil sechos e Prep time ip angle ttl	(Although 14.0 M4 does is recommended for ret	s not support PU rospective proce scan plane mode pulse seq image opts.	RE for 3T, this acquisition of essing in case PURE become six in case PURE bec	matrix/nex phase fov locs/pause freq. direct. fc direct phase corr autoshim	ACQUISITION TIMING 256 / 256 / 1 1.00 S/I On SCANNING RANGE
SERIES coil #echos te Prep time flip angle etl bw1/bw2 scan time	(Although 14.0 M4 does is recommended for ret	s not support PU rospective proce scan plane mode pulse seq image opts. psd name	RE for 3T, this acquisition of ssing in case PURE become simple in case PUR	matrix/nex phase fov locs/pause freq. direct. fc direct phase corr	ACQUISITION TIMII  256 / 256 / 1  1.00  S/I

## 3T ADNI-Related GE 14.0M4 Software, TwinSpeed Gradient and 8-channel Brain Coil

CEDIEC	AID FEDCD	l coon plane	IMAGING PARAMETERS	matrix/nex	256 / 256 / 1
SERIES	4.IR-FSPGR-repeat	scan plane	Sag	phase fov	<mark>1.00</mark>
coil	8hrbrain*	mode	3D (ZOOM gradient)	locs/pause	
	SCAN TIMING	pulse seq	SPGR	freq. direct.	S/I
#echos	1	image opts.	EDR, IrPrep, Fast	fc direct	
te	min full	psd name	efgre3d_cs	phase corr	
Prep time	400		ADDITIONAL PARAMETERS	autoshim	Auto
flip angle	<mark>[11</mark> ]		Image acq. delay = 0		SCANNING RANGE
etl		User CVs	Turbo mode = 1	fov	26
bw1/bw2	31.25		Slice resolution = 100%	slice/space	1.2mm 200 locs/slab
scan time	8:54				
		J		,i	I
				-	
commonte	Proceribo como imago lo	cations as sorio	es 2, unless adjustment is ne	andad (a.g. ta.c	correct for wron)
comments	Remind the patient to hol			eded (e.g. to t	correct for wrap).
	Tremina the patient to not	u 3011 101 1113 30	San.		
	NOTE: Bo sure to select	the "Cony FOV	/, Thickness, Spacing" butt	on for the grap	hic procerintion
	Otherwise, if you copy the	e slice locations	s from series 2, the number	of slices might	be reduced.
SERIES	5. Sag B1 Cal PA	scan plane	Sag	matrix/nex	128 / 128 / 1
coil	8hrbrain*	mode	3D (ZOOM gradient)	phase fov	
00	SCAN TIMING	_		1 *	
// l	SCAIN THINING	pulse seq	GRE	locs/pause	0/1
#echos	1	image opts.	EDR, Fast	freq. direct.	S/I
te	min full	psd name		fc direct	
tr			ADDITIONAL PARAMETERS	Auto Shim	On
flip angle	2		Image acq. delay=0		SCANNING RANGE
etl	00.5	User CVs	turbo Mode =1	fov	30
bw1/bw2	62.5		slice resolution = 100%	slice/space	2.5mm locs/slab=96
scan time	:36				
comments	Cover skin to skin. Series	s 5 and 6 are us	sed for B1-correction, if PUR	(E is not availa	ble.
0=01=0		ı .		1	[400./400./4
SERIES	6. Sag B1 Cal PA	scan plane	Sag	matrix/nex	128 / 128 / 1
coil	BODY	mode	3D (ZOOM gradient)	phase fov	
	SCAN TIMING	pulse seq	GRE	locs/pause	
#echos	1 , ,	image opts.	EDR, Fast	freq. direct.	S/I
te	min full	psd name		fc direct	0"
tr			ADDITIONAL PARAMETERS	Auto Shim	Off
flip angle	2	11	Image acq. Delay=0	1	SCANNING RANGE
etl		User CVs	Turbo Mode =1	fov	30
bw1/bw2	62.5		Slice resolution = 100%	slice/space	2.5mm locs/slab=96
scan time	:36	J			
					. 5 . 6 . 11
comments			Shrbrain* coil plugged in, but	accept change	to Body Coil
	(In other words, select "A	. <b>pply</b> "). Same ii	mage locations as series 5.		

(Continued on next page)

## 3T ADNI-Related GE 14.0M4 Software, TwinSpeed Gradient and 8-channel Brain Coil

			IMAGING PARAMETERS		ACQUISITION TIMING
SERIES	7. Ax PD/T2 FSE	scan plane	Ax	matrix/nex	256 / 256 / 1
coil	8hrbrain*	mode	2D (ZOOM gradient)	phase fov	0.9
	SCAN TIMING	pulse seq	FSE-XL	acqs/pause	0
#echoes	2	image opts.	EDR, Fast	freq. direct.	A/P
te	min full / TE2=97.2	psd name		fc direct	
TR	3000		ADDITIONAL PARAMETERS	Autoshim	Off
flip angle				phase corr	
etl	16	User CVs	blurring cancellation=0		SCANNING RANGE
bw1/bw2	20.83		Enh. fine line suppr.=0	fov	24
scan time	4:49			slice/space	48 loc, 3mm interleaved
comments	Accept change back to 8	-channel brain*	coil. (In other words, select	"Apply").	
	Prescribe 48 slices to cov	/er head.			

Series 7 is the final patient series.

Follow the ADNI instructions to complete the phantom scans.