

(19)
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(22) 2001 09 25

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1535

(71) 53188 3000

(72) 가 4 7 - 127
가 4 7 - 127

(74)
:

(54) , ,

, , 2 RF 가 , , 2 RF RF
, 2 RF , RF RF

1

1

2 ,
 3 1 1 ,
 4 1 2 ,
 5 1 2 ,
 6 .

100 : 102 :
 106 : 108 : RF
 300 : 500 :
 130 : 140 : RF
 150 : 160 :
 170 : 180 :
 190 :

,
 (preparation) RF() , RF ,
 (navigator echo) , , RF
 RF (imaging echo) RF
 , ,
 (MRI) , , ,
 , 가 , ,
 , ,
 가 , RF , RF , 가 ,
 , RF , 가 ,

RF FID(Free induction decay)

RF

RF 가

RF

RF

uration) , (spatial pre - sat (chemical saturation)가

n Recovery) (magnetization transfer) , IR(Inversio (inversion) ,

6

가

2

TR()

(t2) , (t1) , , RF 가 , (t3) 가 (t4) ,

(t5) (t6)

RF

(t7)

가 가

(t8)

RF 가 (t9)

RF (t10)

(view)

가

()

R)

, RF

(T

가 , 가 , (TR) 가

가

(1)

RF

RF , RF , 2

RF 2

RF RF , 2 RF , 2

가

가

1

1 (102), (106) RF((100)) (108) (100) (300) (cradle)(500) (

(102) (100) (102)

(300) " " (102)

(106) 가 (106) 3 3

3 3 가

RF (108) RF (300) RF (108)

RF (108) ()

(106) (130) (130) (106) 3 3

()

RF (108)	(108)	RF	(140)	,	(300)	.	RF	(140)	RF		RF
RF	(108)		(150)			.		(150)	RF	(108)	
	2가	,	,			.		,			가
40)	(130), RF	(140)	(150)	(160)	(160)	.	(160)	RF	(160)	RF	(1
	(130), RF	(140)	(150)	(160)	(160)	.	(160)	()		
	(160)				(160)	.	(160)				
	(150)	(170)	(170)	(150)	(170)	.	(170)				(
170)	(170)				(170)	.	(170)				
	(100),	(130), RF	(140),	(150),	(160)	.	(160)				(
170)						.					
	(170)	(150)				.					
(170)	2		2	2	(300)	.	(170)	(150)		()
	. 2	k-			(170)	.	(170)	(150)			
60)	(170)	(160)	(170)	(160)	RF	.	(170)	(160)			(1
		(160)				.					
	(170)	(180)	(190)	(180)		.	(170)	(180)			
		(190)				.					
	(180)	(170)	(190)	(170)		.	(180)	(170)			
(190)		,	(190)			.					
	(180)	(190)				.					
2						.					

2 (100') 1 (100')

(100') 1 (102'), (106') RF (108')

(102')

(300) (500)

() (100')

(102')

(100')

(300) (102')

2') (106')

가

(106') 3

() (106') 3

RF (108') (300) RF RF

RF (108') ()

(100'), (130), RF (140), (150), (160) (

170)

3 1 2

(Gr), (1) RF (Gp) (MR) (2), (3), (4) (5) (Gs),

(t)

90 (Gs)가 가

(Gr) (Gp) (rephase) (MR) (dephase) (MR)

가 RF TE()

(MR) (MR) (Gp)가

(MR) (150) 0 " (rewind)" (Gp)가

Grc)가 가 " (crusher)"

64 - 256 (Gp)

, 64 - 256 k -

3 (170) (170)

2 (300)

4 1 2 (1) RF (Gp) (t) (MR) (2), (3), (4) (5) (Gs), (Gr),

, 90 (Gs)가 가

(MR), , FID (150)

3 (Grd)가 가 (Grd) 3 (Grc)가 가 가

(Gr) 가 가 , RF

, 3 4 RF 가

5(a) RF 가

s3) , 2 (TR) , (s1) RF 가 (s4) RF (s2) (

4 가 가 , RF

(100)(100'), (130), RF (140)

(150)

RF (100)(100'), (130) RF (140)

, RF (s5) 가 (s7) RF (s6) (s7) 3 가

(100)(100'), (130), RF (140)

(150)

RF (100)(100'), (130) RF (140)

2

64 - 512

, 1

가

가

5(b)

(s9)

(s10)

(170)

(170)

(160)

(160)

(160)

RF

6

(TR)

가

가

가

(57)

1.

(object)

(preparation)

RF

, RF

RF

RF

RF

(magnetic resonance

signal acquiring method)

RF

, 2

RF

RF

, 2

RF

2.

1 ,

(spatial pre - saturation)

3.

1 ,

4.

1 ,

(magnetization transfer)

5.

1 ,

(inversion)

6.

(static magnetic field),
magnetic field)

(gradient magnetic field)

(high frequency ma

RF , ,

RF , ,

RF

RF , ,

가
가 , 2 RF , , 가
RF , 2 가
RF

7.

6 ,

8.

6 ,

9.

6 ,

10.

6 ,

11.

, RF RF , RF , RF RF
, , , RF 가 RF
, , , RF , 2
RF RF ,

RF , 2
RF

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12.

11 ,

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13.

11 ,

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14.

11 ,

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15.

11 ,

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16.

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RF

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RF

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RF

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RF

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가

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가 2

RF

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가

가 2

RF

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17.

16

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18.

16

,

19.

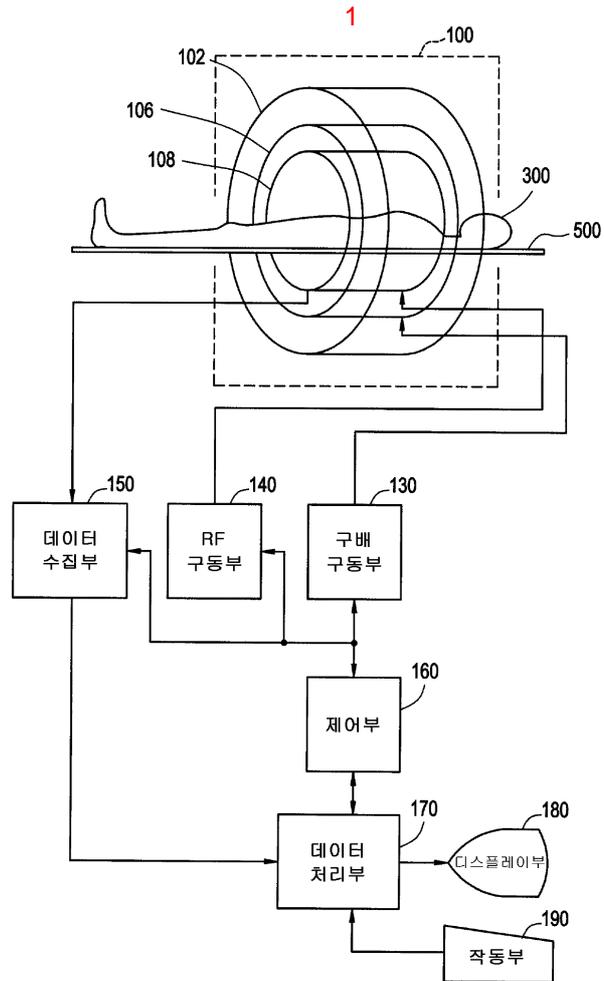
16

,

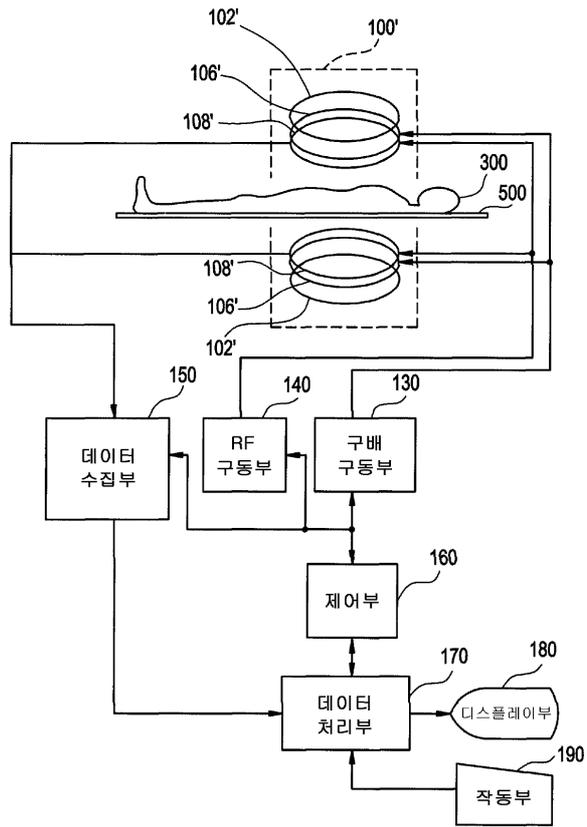
20.

16

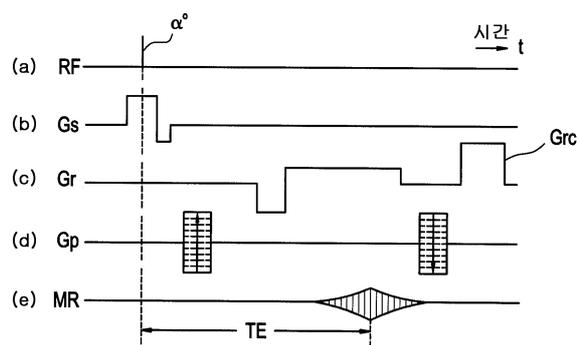
,



2



3



6

- (a) RF 여기/
에코 수집
- (b) 네비게이터
에코 계산

