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(22) 2001 07 28

(30) 09/630,005 2000 07 31 (US)

(71)

46

(72) , 46250, , 9307
, 08536, , 934

(74)

:

(54)

, OFDM(: Orthogonal Frequency Division Multiplexing)
(training) (50, 52), FFT
(60, 62, 66) FFT
(OFDM) . OFDM FFT
FFT , SNR , OFDM , 가
M (56, 64). 가 가 OFD

- 1 (cyclic prefix) OFDM .
- 2 FFT (drift) .
- 3 OFDM (a training sequence),
- (pilot) .
- 4 5 OFDM
- .
- 6 .
- 7 .
- 8 (recursive filtering)
- .
- < >
- 50 : - 56 :
- 60 : 64 :

(OFDM : Orthogonal Frequency Division Multiplex)

LAN(WLAN) , LAN , WLAN

LAN , WLAN (enable). (,) 가

(productivity gains) 가

(health - care), , (warehousing industry) .

WLAN WLAN 가

(multicarrier) , (narrowband)

(OFDM)가 WLAN 가

OFDM (robust) .

(FDM : Frequency Division Multiplexing)

OFDM (resolution) 가 (multipath delay spread) (frequency selective fading) (tolerance), (guard interval) (ISI : Inter - Symbol Interference) OFDM ISI

OFDM (10) OFDM (14) (12) (cop y) (12) (14) (12) (14) OFDM ISI

OFDM (10) OFDM (14) OFDM (FFT : Fast Fourier Transform) (16) (12) FFT (18) (14) (16) (12) (drift) (20) FFT (1) (12) (22) 가, FFT (16) FFT (18) (rotation) 가 OFDM 가

OFDM OFDM , FFT , FFT OFDM FFT , OFDM 가 OFDM SNR 가 가

()

, 3 , OFDM (30) (30) , OFDM
 (32) ,
 (34) (36) , ETSI - BRAN HIPERLAN/2() IEEE 802.
 11a() LAN , 64 , (, 52 0
 12 0) { , ETSI " C"
 IEEE " (long) OFDM " } (36) ,
 (38) , ETSI IE
 EE (bin) (±7 ±21)

, 4 5 , FFT (40) .
 (40) , (40)
 WLAN WLAN
 (palmtop) PC (hand - held) 가
 (40) , OFDM OFDM -
 (42)(, ADC) , FFT
 ISI FFT (40)
 (42) FFT (44) , (a serial to parallel) (43) (42)
 FFT (46) . FFT (44) FFT
 (42) FFT (46) (trigger). F
 FT (44) , { , 3 (32)} - (cros
 s - correlation) (autocorrelation)
) FFT (44) (
 . (44) (coarse) FFT FFT

FFT (46) (downstream) (48) - (50)
 . (48) , OFDM 가 ()
 5)

- (50) (52) { , 3 (32)
 }
 { (52) } FFT (46)
 .
 (invert) (54) . {
 FFT (46) }.

FT (58) { 가 - IF
 (56) } . -

(60) , (60) - (60) - (64) } .
 IFFT (58) (66) { (60) (66) { (60) , FFT (62) (64)) . (index) ()가 (66) ,가
 OFDM 가 (,가
 OFDM 가 가 FFT (lock) , (main) , FFT
 FFT (62) , FFT (62)
 FFT (62) FFT(46) . ,
 FFT FFT (44) , FFT
 FFT , FFT(46) , FFT(46)
 가 (72) (48) . FFT (72) FFT(46) OFDM (72)가 (66)
 가 (66) , FFT (60) FFT(46) 가
 FFT(46) ,
 (inverter)(70) , (70) FFT(68) {
 , FFT (64) } . FFT
 , FFT FFT(46) OFDM (72)
 (72) .
 (64)(-) (56)(-) (56) 64)
 가 , ETSI IEEE , C
 , N 가 X , OFDM

$$Y = C \cdot X + N$$
 , N 가

(C') Y/X , 1/C' X/Y , OFDM
 가 (SNR)가 가 (56)
 (64) 가 가 .

(56) , (least - square) 가 .
 " " ,
 가 가 , 가

(64) , (zeroin (56)
 g out) - 가 .
 , 가 (significant) .

(56) (64) 가 , 6 7

가 8 (74) (74) 가
 (64) , WLAN 가 (74) ,
 (54) (54) FFT (76) (78)
 (54), IFFT (58), (60) (64)
 (54) ,
 , 64 52 0 가 , ETSI IEEE
 0 (54) 12 (54)
 12 (mask). (74) , 12

FT (58) , 가 - IF
 (60) (60) IFFT (58)
 (60) (64) (66)
 (60) , FFT (62) (66)

3.

1 , , .

4.

3 , , (negat
e)

5.

1 , ,
(54) ;

(66) , FFT (62),

6.

5 , 가 (56, 64) ,

7.

6 , - (64) ,

8.

6 , - (56) ,

9.

5 , (74) , .

10.

(OFDM)

OFDM (42) , OFDM (cyclic prefix) FFT
OFDM (46) ; (window) OFDM (FFT)
FFT , OFDM (72) ;

FFT (46) (72) , OFDM
, FFT ,
(60, 62, 66) ,

11.

10 , LAN , 가 ,

12.

10 , (72) FFT
, (72) .

13.

10 ,
FFT (46) , OFDM
(50, 52) ;
, (54)

14.

13 ,
(54) , (60) ;

FT (60) FFT (46) , F
FFT (62) ;
(72) , (66) ,

15.

13 , (54) , 가
(56, 64) ,

16.

15

17.

15

18.

15

(74)

(masked)

19.

(OFDM)

(FFT)

OFDM

(42) ;

OFDM

FFT

(44) ;

OFDM

(46) ;

OFDM

(72) ;

FFT

(60, 62) ;

FFT

(60, 62),

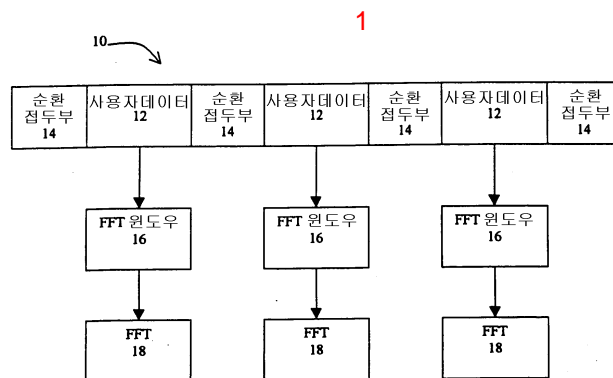
(66)

20.

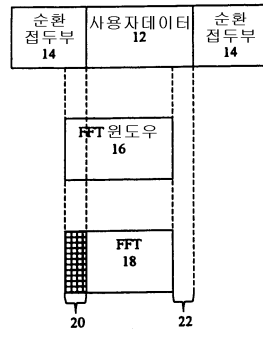
19

OFDM

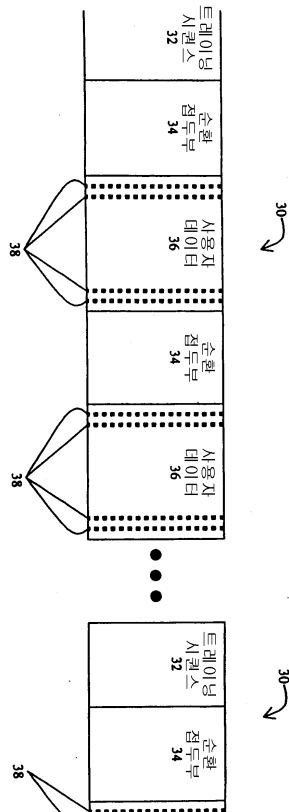
(56, 64)



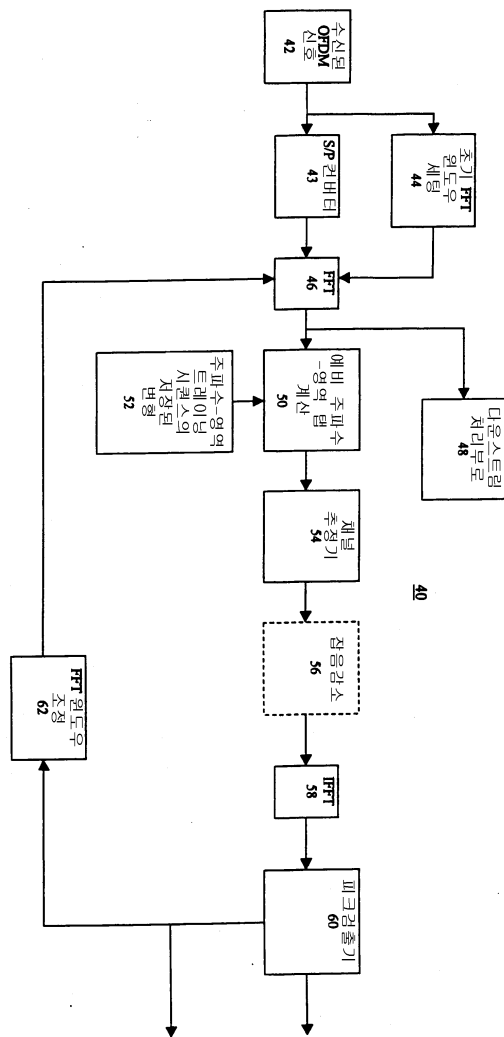
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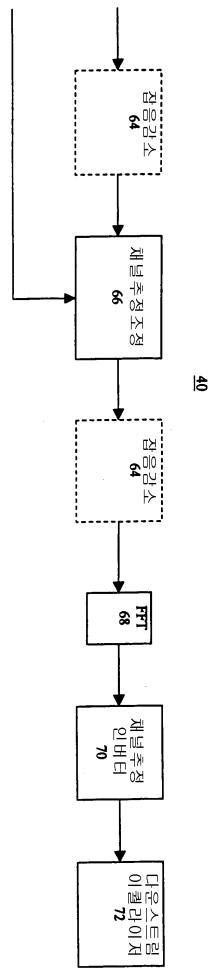
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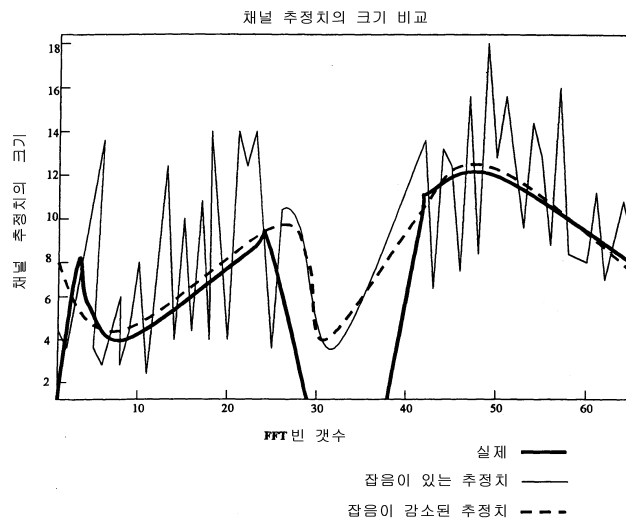
4



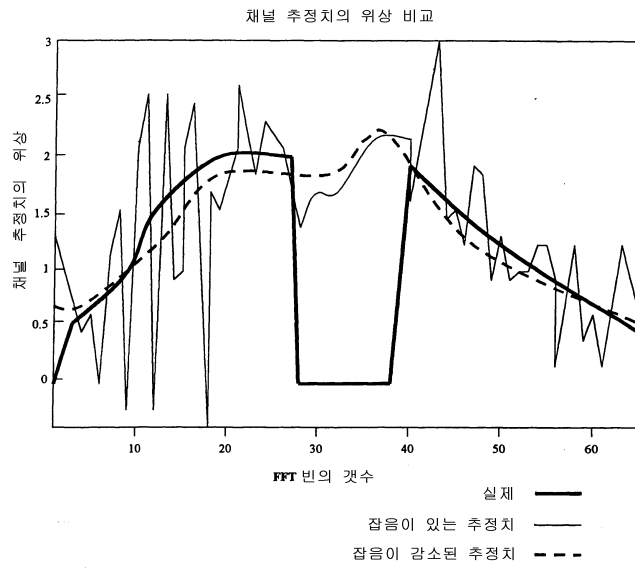
5



6



7



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