

1) Family number: 65424050 (US2018316400A)

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Title: TRANSMISSION METHOD, TRANSMISSION DEVICE, RECEPTION METHOD AND RECEPTION DEVICE

Abstract: A transmission method includes generating a first precoded signal and a second precoded signal by performing a precoding process on a first baseband signal and a second baseband signal, outputting a third signal by inserting a pilot signal into the first precoded signal, outputting a fourth signal by applying a first phase change to the second precoded signal, outputting a fifth signal by inserting a pilot signal into the fourth signal, and outputting a sixth signal by applying a second phase change to the fifth signal.

Classifications:

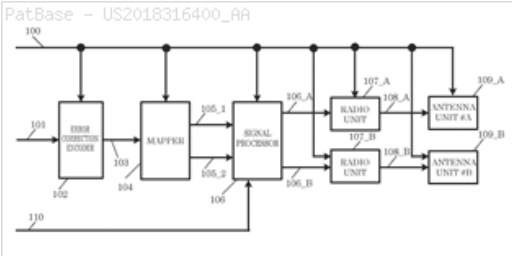
International (IPC 8-9): H04B7/04 H04B7/0413 H04B7/0456 H04B7/06 H04J11/00 H04J99/00 H04L27/26 (Advanced/Invention)

CPC: H04J11/00 H04B7/0615 H04B7/0671 H04L27/2613 H04B7/0421 H04B7/06 H04B7/04

US: 375/267

JP F-Term: 5K159

JP F-Index: H04B7/0413/400 H04B7/06/820



Family:

Publication number	Publication date	Application number	Application date
CN108352871 A	20180731	CN201680058101	20161005
EP3361657 A1	20180815	EP20160853269	20161005
EP3361657 A4	20181031	EP20160853269	20161005
JP2017061113 A1	20180809	JP20170544196T	20161005
US2018316400 AA	20181101	US20160766574	20161005
WO17061113 A1	20170413	WO2016JP04483	20161005

Priority:

JP20150199923	20151008	JP20150213030	20151029	US20150251303P	20151105
US20150266927P	20151214	JP20150246858	20151218	JP20160042282	20160304
US20160336895P	20160516	US20160356770P	20160630	JP20160164090	20160824
WO2016JP04483	20161005	US20160766574	20161005		

Probable Assignee: PANASONIC INTELLECTUAL PROPERTY CORP OF AMERICA

Assignee(s): (std): PANASONIC INTELLECTUAL PROPERTY CORP OF AMERICA ; PANASONIC IP CORP AMERICA

Assignee(s): PANASONIC INTELLECTUAL PROPERTY OF AMERICA CORP

Inventor(s): (std): MURAKAMI YUTAKA ; KIMURA TOMOHIRO ; OUCHI MIKIHIRO

Agent(s): GRUENECKER PATENT U RECHTSANWAELTE PARTG MBB; TOKUDA YOSHIKI ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY NZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

2) Family number: 45944067 (US2011249665A)

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Title: COMMUNICATION APPARATUS, MOBILE STATION, AND COMMUNICATION CONTROL METHOD

Abstract: A radio communication system including a communication apparatus can transmit signals each including same data from a transmission antenna and a transmission antenna to a mobile station. The mobile station measures a difference in receiving timing between the signal from the transmission antenna and the signal from the transmission antenna. The communication apparatus exercises control so as to change at least one of transmission timing of the signal from the transmission antenna and transmission timing of the signal from the transmission antenna according to the difference in receiving timing at the mobile station.

Classifications:

International (IPC 8-9): H04B7/02 H04B7/04 H04B7/06 H04J11/00 H04J3/06 H04J99/00 H04L27/26 H04W16/28 H04W28/16 H04W56/00 H04W72/04 H04W88/02 (Advanced/Invention); H04B7/02 H04B7/04 H04L27/26 H04W56/00 H04W88/02 (Advanced/Non-invention);

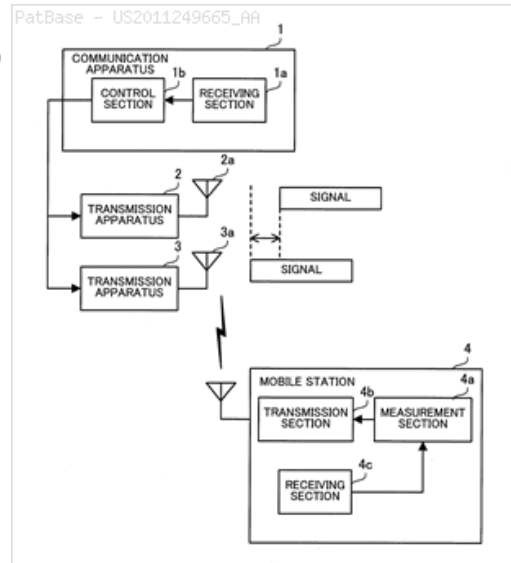
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CPC: H04B7/024 H04B7/0456 H04B7/0665 H04B7/0673 H04L27/2646 H04W56/0045 H04B7/0671 H04L25/0204

European: H04B7/06C2D H04L27/26M3C T04W56/00K2

US: 370/350 370/350P

JP F-Term: 5K004 5K022 5K059 5K067 5K067/AA21 5K067/BB21 5K067/CC02 5K067/CC04 5K067/EE02 5K067/EE10 5K067/HH22 5K067/KK03 5K159 5K159/CC02 5K159/FF05 5K159/FF13

JP F-Index: H04B7/02/Z H04B7/024 H04B7/0456/300 H04B7/06 H04B7/06/820 H04B7/06/956 H04B7/08 H04J11/00/Z H04J15/00 H04J99/00 H04L27/26/100 H04Q7/00/234 H04Q7/00/462 H04W16/28/130 H04W28/16 H04W56/00/130



Family:

Publication number	Publication date	Application number	Application date
CN102273283 A	20111207	CN200980153377	20090105
CN102273283 B	20140611	CN200980153377	20090105
EP2385733 A1	20111109	EP20090836194	20090105
EP2385733 A4	20141231	EP20090836194	20090105
JP2010076854 A1	20120621	JP20100544858T	20090105
JP5392268 B1	20140122	JP20100544858T	20090105
JP5392268 B2	20140122	JP20100544858T	20090105
KR101268699 B1	20130529	KR20117015121	20090105
KR20110091885 A	20110816	KR20117015121	20090105
US2011249665 AA	20111013	US20110167091	20110623
US8724616 BB	20140513	US20110167091	20110623
WO10076854 A1	20100708	WO2009JP50009	20090105

Priority:

WO2009JP50009 20090105 US20110167091 20110623

Probable Assignee: FUJITSU LTD

Assignee(s): (std): DATEKI TAKASHI ; FUJITSU LTD ; SEYAMA TAKASHI

Assignee(s): FUJITSU LIMITED

Inventor(s): (std): DATEKI TAKASHI ; SEYAMA TAKASHI

Agent(s): FENLON CHRISTINE LESLEY; HATTORI KIYOSHI; MYERS WOLIN LLC

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

3) Family number: 41775169 (US2010322349A)

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Title: METHOD FOR TRANSMITTING DATA USING CYCLIC DELAY DIVERSITY

Abstract: A method of transmitting data using cyclic delay in a multi-antenna system using a plurality of subcarriers is disclosed. Data is transmitted through a phase shift based precoding scheme enhanced from a related art phase shift diversity and a related art precoding scheme. A generalized cyclic delay diversity scheme is selectively applied to a phase shift based precoding scheme or a related art precoding scheme executed on a frequency domain is transferred to a time domain to be applied as a generalized cyclic delay diversity scheme. Accordingly, complexity of a receiver is reduced and communication efficiency can be enhanced.

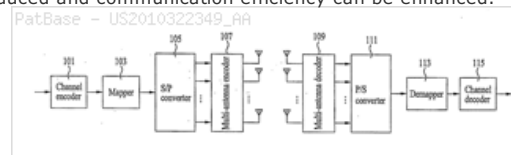
Classifications:

International (IPC 8-9): H04B7/005 H04B7/02 H04B7/04 H04B7/06 H04L1/06 H04L27/00 H04L27/26 H04L5/00 (Advanced/Invention); H04B7/04 H04B7/06 H04L27/26 (Advanced/Non-invention); H04B7/04 H04L27/26 (Core/Invention)

CPC: H04B7/0671 H04L27/2602 H04B7/068 H04L27/2675 H04L27/2697 H04B7/06 H04L27/2626

European: H04B7/06C2D H04L27/26M1

US: 375/295 375/295S 375/299 375/299P



Family:

Publication number	Publication date	Application number	Application date
CN101529777 A	20090909	CN200780039385	20071023
EP2084844 A2	20090805	EP20070833515	20071023
KR20080036499 A	20080428	KR20070034994	20070410

KR20080036508 A	20080428	KR20070069770	20070711
US2010322349 AA	20101223	US20070446565	20071023
WO08050995 A2	20080502	WO2007KR05206	20071023
WO08050995 A3	20081211	WO2007KR05206	20071023

Priority:

US20060862566P 20061023	KR20070034994 20070410	US20070940593P 20070529
KR20070069770 20070711	WO2007KR05206 20071023	US20070446565 20071023

Probable Assignee: LG ELECTRONICS

Assignee(s): (std): CHANG JAE WON ; IHM BIN CHUL ; LEE MOON IL ; LEE WOOK BONG ; KO HYUN SOO ; LG ELECTRONICS ; LG ELECTRONICS INC

Inventor(s): (std): LEE MOON IL ; LEE WOOK BONG ; CHANG JAE WON ; KO HYUN SOO ; IHM BIN CHUL ; CANG JAE WON ; WON CHANG JAE ; IL LEE MOON ; CHUL IHM BIN ; BONG LEE WOOK ; SOO KO HYUN

Agent(s): CABINET PLASSERAUD ; LEE HONG DEGERMAN KANG AND WAIMEY ; KIM YONG IN ET AL

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

4) Family number: 51295223 (US2013136208A)

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Title: SIGNAL GENERATION METHOD AND SIGNAL GENERATION DEVICE

Abstract: A transmission method simultaneously transmitting a first modulated signal and a second modulated signal at a common frequency performs precoding on both signals using a fixed precoding matrix and regularly changes the phase of at least one of the signals, thereby improving received data signal quality for a reception device.

Classifications:

International (ipc 8-9): H04B7/02 H04B7/04 H04B7/0413 H04B7/0456 H04B7/06 H04J11/00 H04J99/00 H04L25/02 H04L25/06 H04L27/00 H04L27/20 H04L27/26 H04W16/28 (Advanced/Invention); H04J99/00 H04L27/00 (Core/Invention)

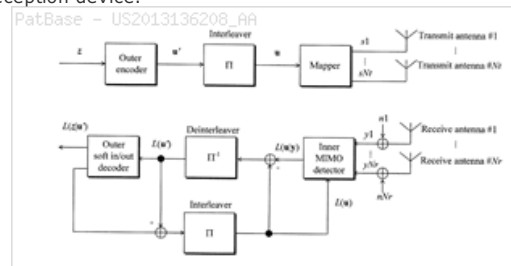
CPC: H04B7/0617 H04B7/0456 H04B7/0413 H04J15/00 H04B7/04 H04J11/00 H04B7/0697 H04L25/0224 H04L25/067

European: H04B7/04M7 H04B7/06C1B

US: 1/1 375/267 375/295 375/308 375/340

JP F-Term: 5K022 5K022/FF00 5K059 5K159 5K159/EE02 5K159/FF02 5K159/FF05 5K004 5K159/CC04 5K067 5K067/AA24 5K067/BB21 5K067/EE02 5K067/EE10 5K067/KK03

JP F-Index: H04B7/04 H04B7/0413/400 H04B7/0456/400 H04J15/00 H04J99/00 H04B7/0413/200 H04B7/0456/100 H04B7/06/950 H04B7/08/804 H04J11/00/Z H04L27/26/100 H04B7/0456/110 H04B7/0413/220 H04W16/28/130



Family:

Publication number	Publication date	Application number	Application date
CN103004119 A	20130327	CN201180035349	20111201
CN103004119 B	20160907	CN201180035349	20111201
CN106411376 A	20170215	CN201610708662	20111201
EP2651063 A1	20131016	EP20110847403	20111201
EP2651063 A4	20170712	EP20110847403	20111201
EP2651063 B1	20190619	EP20110847403	20111201
IN01000DN2013 A	20140912	IN2013DN01000	20130201
JP2012129579 A2	20120705	JP20100276447	20101210
JP2014212565 A2	20141113	JP20140137835	20140703
JP2015233316 A2	20151224	JP20150149584	20150729
JP2016178703 A2	20161006	JP20160128617	20160629
JP2017192139 A2	20171019	JP20170113367	20170608
JP2018125865 A2	20180809	JP20180041408	20180308
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JP5971574 B2	20160817	JP20150149584	20150729
JP6167439 B2	20170726	JP20160128617	20160629
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KR102004205 B1	20190729	KR20137001015	20111201
KR20130142987 A	20131230	KR20137001015	20111201
KR20190090050 A	20190731	KR20197021379	20111201
MX2013000900 A1	20130221	MX2013000900	20111201
MX337079 B	20160211	MX20140008920	20111201
MX344477 B	20161216	MX20160001831	20111201
TW201240376 A	20121001	TW20110145589	20111209
TWI569600 B	20170201	TW20110145589	20111209
US2013136208 AA	20130530	US20110810721	20111201
US2015085952 AA	20150326	US20140502447	20140930
US2016149624 AA	20160526	US20150980186	20151228
US2017180023 AA	20170622	US20170450452	20170306
US2018076862 AA	20180315	US20170805240	20171107
US2018205430 AA	20180719	US20180921807	20180315

US2019123795 AA	20190425	US20180227410	20181220
US8885769 BB	20141111	US20110810721	20111201
US9252855 BB	20160202	US20140502447	20140930
US9628158 BB	20170418	US20150980186	20151228
US9843369 BB	20171212	US20170450452	20170306
US9954588 BB	20180424	US20170805240	20171107
US10367552 BB	20190730	US20180921807	20180315
WO12077311 A1	20120614	WO2011JP06742	20111201

Priority:

JP20100276447	20101210	JP20140137835	20101210	JP20150149584	20101210
JP20160128617	20101210	JP20170113367	20101210	CN201180035349	20111201
US201110810721	20111201	WO2011JP06742	20111201	US20130810721	20130117
JP20140137835	20140703	US20140502447	20140930	JP20150149584	20150729
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JP20170113367	20170608	US20170805240	20171107	JP20180041408	20180308
US20180921807	20180315	US20180227410	20181220		

Probable Assignee: SUN PATENT TRUST

Assignee(s): (std): KIMURA TOMOHIRO ; MATSUSHITA ELECTRIC INDUSTRIAL CO LTD ; MURAKAMI YUTAKA ; OUCHI MIKIHIRO ; PANASONIC CORP ; PANASONIC INTELLECTUAL PROPERTY CORP OF AMERICA ; PANASONIC IP CORP AMERICA ; SUN PATENT TRUST

Assignee(s): PANASONIC INTELLECTUAL PROPERTY OF AMERICA PANASONIC INTELLECTUAL PROPERTY OF AMERICA CORP ; PANASONIC INTELLECTUAL PROPERTY OF AMERICA CORP

Inventor(s): (std): KIMURA TOMOHIRO ; OUCHI MIKIHIRO ; MURAKAMI YUTAKA ; MIKIHIRO OUCHI ; TOMOHIRO KIMURA ; YUTAKA MURAKAMI

Agent(s): GRUENECKER KINKELDEY STOCKMAIR AND SCHWANHAUESSER; GRUENECKER PATENT U RECHTSANWAELTE PARTG MBB; WENDEROTH LIND AND PONACK LLP; WENDEROTH LIND AND POSACK LLP; NAKAJIMA SHIRO ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

5) Family number: 43956350 (US2011092241A)

PatBase

Title: BASE STATION APPARATUS, USER EQUIPMENT TERMINAL, AND COMMUNICATION CONTROL METHOD

Abstract: A base station apparatus includes a transmit diversity setting unit configured to set a transmit diversity mode to be applied to a user equipment terminal; a reception quality calculating unit configured to determine reception quality corresponding to the transmit diversity mode based on the transmit diversity mode set by the transmit diversity setting unit; a scheduling unit configured to determine a user equipment terminal to which a radio resource is to be allocated based on the reception quality determined by the reception quality calculating unit; and a notifying unit configured to notify the user equipment terminal to which the radio resource is allocated as determined by the scheduling unit of the transmit diversity mode to be applied.

Classifications:

International (IPC 8-9): H04B7/00 H04B7/0404 H04B7/06 H04B7/155

H04W16/28 H04W72/08 (Advanced/Invention);

H04W72/04 (Advanced/Non-invention);

H04B7/04 H04W16/00 H04W72/00 (Core/Invention)

CPC: H04B7/061 H04B7/063 H04B7/0682 H04B7/0691 H04B7/0671

H04W72/085 H04B7/0404 H04B7/068 H04B7/0689 H04W72/042

European: H04B7/04A H04B7/06H1 H04W72/08D T04B7/06C2D

T04B7/06C4 T04W72/04F4

US: 370/315 370/316 370/317 370/318 370/319 455/509 455/509P

455/516 455/522 455/561 455/69 455/70

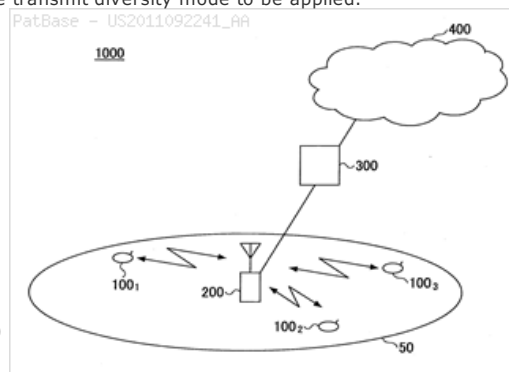
JP F-Term: 5K059 5K059/CC02 5K067 5K067/AA23 5K067/CC02 5K067/CC04 5K067/CC08 5K067/DD34 5K067/DD43 5K067/EE02 5K067/EE10 5K067/JJ11 5K067/KK01 5K067/KK03 5K159 5K159/CC02

JP F-Index: H04B7/0404 H04B7/06 H04B7/06/100 H04B7/06/670

H04B7/06/890 H04B7/06/984 H04B7/08/710 H04L1/06/060 H04L1/06/180

H04Q7/00/236 H04Q7/00/554 H04W16/28/151 H04W72/04/136

H04W72/08



Family:

Publication number	Publication date	Application number	Application date
CN102077672 A	20110525	CN200980125192	20090423
CN102077672 B	20140528	CN200980125192	20090423
EP2276305 A1	20110119	EP20090738742	20090423
EP2276305 A4	20170322	EP20090738742	20090423
JP2009272829 A2	20091119	JP20080120661	20080502
JP5154295 B2	20130227	JP20080120661	20080502
KR20110009189 A	20110127	KR20107026650	20090423
US2011092241 AA	20110421	US20090990650	20090423
US8560001 BB	20131015	US20090990650	20090423
WO09133805 A1	20091105	WO2009JP58070	20090423

Priority:

JP20080120661	20080502	WO2009JP58070	20090423
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Probable Assignee: NTT DOCOMO INC

Assignee(s): (std): KAWAI HIROYUKI ; MORIMOTO AKIHITO ; NTT DOCOMO INC ; SAWAHASHI MAMORU ; TAOKA HIDEKAZU

Inventor(s): (std): MORIMOTO AKIHITO ; TAOKA HIDEKAZU ; KAWAI HIROYUKI ; SAWAHASHI MAMORU ; AKIHITO MORIMOTO ; HIROYUKI KAWAI ; HIDEKAZU TAOKA ; MAMORU SAWAHASHI

Agent(s): HOFFMANN EITLE; OSHA LIANG LLP; ITOH TADAHIKO

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT HW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

6) Family number: 57938665 (JP2014216745A)

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Title: MIMO TRANSMISSION DEVICE, MIMO RECEPTION DEVICE, AND MIMO COMMUNICATION SYSTEM

Abstract: PROBLEM TO BE SOLVED: To correctly restore original data even if the transmission path characteristics of MIMO transmission paths are the same.SOLUTION: A phase shifter 17 of a transmission device 2-1 rotates the phases of all data signals in a second transmission system by a predetermined phase. This makes a transmission antenna Tx1 transmit a transmission signal x1 including data signals to which phase rotation processing is not applied, and a transmission antenna Tx2 transmits a transmission signal x2 including the data signals to which phase rotation processing is applied. An MLD unit 26 of a reception device sets reference points of a reception pattern by using the transmission signals x1, x2 and transmission path characteristics, and calculates the LLR of the transmission signals x1, x2 on the basis of the reference points of the reception pattern. This makes the number of the reference points of the reception pattern the same as the combination number of the transmission signals x1, x2 even if the transmission path characteristics of MIMO transmission paths are the same and allows the patterns of the transmission signals x1, x2 to be identified.

Classifications:

International (IPC 8-9): H04B7/04 H04J11/00

H04J99/00 (Advanced/Invention)

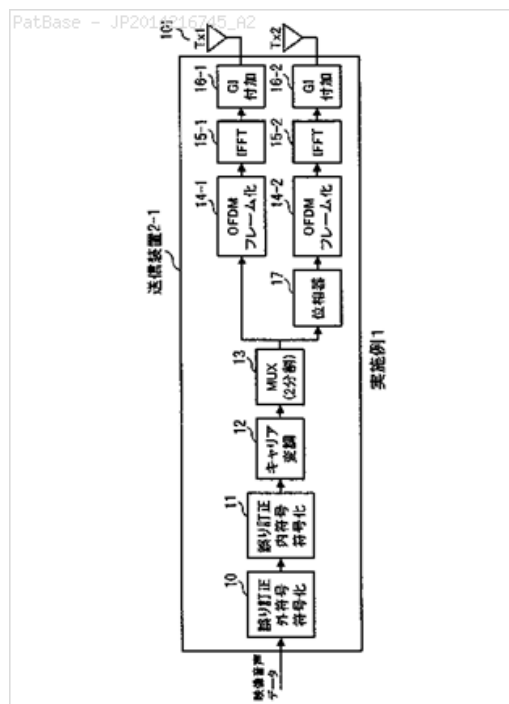
CPC: H04J15/00 H04B7/04 H04J11/00

JP F-Term: 5K004 5K022 5K159 5K159/EE02 5K159/FF13

JP F-Index: H04B7/04 H04B7/0413/230 H04B7/0413/400 H04B7/06/984

H04B7/08/802 H04J11/00/Z H04J15/00 H04J99/00 H04L27/26/110

H04L27/26/310 H04L27/26/410



Family:

Publication number	Publication date	Application number	Application date
JP2014216745 A2	20141117	JP20130091152	20130424

Priority:

JP20130091152 20130424

Probable Assignee: JAPAN BROADCASTING CORP

Assignee(s): (std): JAPAN BROADCASTING CORP

Assignee(s): NIPPON HOSO KYOKAI ; NIPPON HOSO KYOKAI NHK

Inventor(s): (std): HONDA MADOKA ; JITSUI HITOSHI ; NARISEI ZENICHI ; TAKADA MASAYUKI

7) Family number: 55204681 (US2015171937A)

© PatBase

Title: TRANSMISSION METHOD, RECEPTION METHOD, TRANSMITTER, AND RECEIVER

Abstract: When transmitting signals from a plurality of base stations (broadcasting stations), the base stations include at least a first base station having a first antenna with a first polarization and a second base station having a second antenna with a second polarization that is different from the first polarization. Then, when the first base station transmits a signal from the first antenna having the first polarization, the second base station transmits the same signal as the first antenna of the first base station from a second antenna having the second polarization, at the same time.

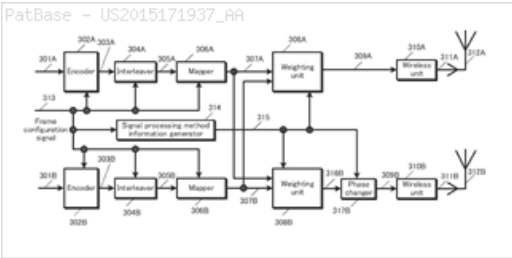
Classifications:

International (IPC 8-9): H03C3/00 H03K9/00 H04B7/02 H04B7/022

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H04B7/10 H04J11/00 H04J99/00 H04L12/18 H04L27/00

H04L5/00 (Advanced/Invention);
H04W72/00 H04W72/08 (Advanced/Non-invention)
CPC: H04B7/022 H04B7/04 H04B7/0456 H04B7/0615 H04B7/0619
H04B7/0848 H04B7/10 H04J11/00 H04L5/0032 H04L5/005 H04B7/024
H04L12/1868 H04B7/0469 H04W72/005 H04W72/08 H04B7/0413
H04B7/086 H04B7/0891
US: 1/1 370/312 375/267
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