広帯域移動アクセスシステム(CSMA)

BROADBAND MOBILE ACCESS COMMUNICATION SYSTEM (CSMA)

標　準　規　格

ARIB STANDARD

ARIB STD-T71　7.0版

2000年12月14日　策　　定
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一般社団法人　電　波　産　業　会
Association of Radio Industries and Businesses

本書の記述方法について

◆第 1 章から第 11 章までは、規定と規格を記述している。

◆第 12 章には規格に対する測定法を記述している。

◆第 13 章には、用語を記述している。

◆本標準規格の無線設備に関する技術的条件などについては関連規則を付記している。

カッコ内の法令略語は、次による。
法：電波法
省令：本書では、平成１２年以前は郵政省令、平成１３年以降は総務省令
告示：本書では、平成１２年以前は郵政省令告示、平成１３年以降は総務省告示
施行：電波法施行規則
設備：無線設備規則
技適：特定無線設備の技術基準適合証明等に関する規則
端末：端末設備等規則
端末技適：端末機器の技術基準適合認定等に関する規則

まえがき

一般社団法人電波産業会は、無線機器製造者、電気通信事業者、放送機器製造者、放送事業者及び利用者の参加を得て、各種の電波利用システムに関する無線設備の標準的な仕様等の基本的な要件を「標準規格」として策定している。

「標準規格」は、周波数の有効利用及び他の利用者との混信の回避を図る目的から定められる国の技術基準と、併せて無線設備、放送設備の適性品質、互換性の確保等、無線機器製造者、電気通信事業者、放送機器製造者、放送事業者及び利用者の利便を図る目的から策定される民間の任意基準を取りまとめて策定される民間の規格である。

本標準規格は、「広帯域移動アクセスシステム（CSMA: Carrier Sense Multiple Access）」について策定されたもので、策定段階における公正性及び透明性を確保するため、内外無差別に広く無線機器製造者、電気通信事業者、放送機器製造者、放送事業者及び利用者の利害関係者の参加を得た当会の規格会議の総意により策定されたものである。

本標準規格で規定する無線設備は、5,250MHz～5,350MHz、5,470MHz～5730MHz、若しくは5,925MHz～6,425MHz の電波を使用する小電力データ通信システム、4,900MHz～5,000MHz の電波を使用する 5GHz 帯無線アクセスシステム、及び 5,150MHz～5,250MHz の電波を使用する5.2GHz 帯高出力データ通信システムに用いられるものである。

本標準規格が、無線機器製造者、電気通信事業者、放送機器製造者、放送事業者及び利用者に積極的に活用されることを希望する。

注意：

本標準規格では、本標準規格に係る必須の工業所有権に関して特別の記述は行われていないが、当該必須の工業所有権の権利所有者は、「本標準規格に係る工業所有権である別表 1 及び別表 2 に掲げる権利は、別表 1 及び別表 2 に掲げる者の保有するところのものであるが、本標準規格を使用する者に対し、別表 1 の場合には一切の権利主張をせず、無条件で当該別表 1 に掲げる権利の実施を許諾し、別表 2 の場合には適切な条件の下に、非排他的かつ無差別に当該別表 2 に掲げる権利の実施を許諾する。ただし、本標準規格を使用する者が本標準規格で規定する内容の全部又は一部が対象となる必須の工業所有権を所有し、かつ、その権利を主張した場合、その者についてはこの限りではない。」旨表明している。

なお、詳細については、当会ホームページ（https://www.arib.or.jp/）の IPR ポリシーに掲載の「標準規格に係る工業所有権の取扱に関する基本指針」を参照のこと。

別表 1　（第一号選択）

（なし）

別表 2　（第二号選択）

特許出願人	発明の名称	出願番号等	備考
日本電気株式会社 *5.0	可変変調通信方法	特許第 2776094 号	日本
QUALCOMM Incorporated *5.0	Method and apparatus for transmitting data in a time division duplex system	JP2004-534456	JP; US7,027,523; US7,333,560; US7,729,444; US20100074152; BR; CN; EP; HK; KR; TW
QUALCOMM Incorporated *5.0	Coding scheme for a wireless communication system	JP2004-535694	US6,961,388; US20050276344; BR; CN; EP; HK; KR; TW
QUALCOMM Incorporated *5.0	Method and apparatus for utilizing channel state information in a wireless communication system	JP4593878	JP; US6,771,706; US7,590,182; US7,949,060; US7,411,929; BE; BR; CN; DE; EP; ES; FI; FR; GB; HK; IE; IT; KR; LU; NL; SE; TW
QUALCOMM Incorporated *5.0	Rate selection for an OFDM system	JP4335680	JP; US7,012,883; US20060087972; BR; CN; EP; HK; KR; TW
QUALCOMM Incorporated *5.0	MIMO WLAN System	JP2006-504335	US20040082356; US20080285488; US20080285669; US20080285670; AU; BE; BG; BR; CA; CN; CZ; DE; EP; ES; FI; FR; GB; HK; HU; ID; IE; IL; IN; IT; KR; MX; NL; RO; RU; SE; TW; UA
QUALCOMM Incorporated *5.0	Channel estimation and spatial processing for TDD MIMO systems	JP2006-504341	JP; US7,151,809; US7,653,142; AU; BR; CA; CN; EP; HK; ID; IL; IN; KR; MX; RU; TW; UA
QUALCOMM Incorporated *5.0	Multicarrier transmission using a plurality of symbol lengths	JP2006-504367	JP; US20040081131; AU; BR; CA; CN; EP; HK; ID; IL; IN; KR; MX; RU; TW; UA

QUALCOMM Incorporated *5.0	Mimo system with multiple spatial multiplexing modes	JP2006-504339	JP; US20040136349; US20100119001; US20080267098; US20080267138; AU; BE; BG; BR; CA; CN; CZ; DE; EP; ES; FI; FR; GB; HK; HU; ID; IE; IL; IN; IT; KR; MX; NL; RO; RU; SE; TW; UA
QUALCOMM Incorporated *5.0	Method, apparatus, and system for medium access control	JP2007-509531	JP; US20050135403; BE; BG; CA; CN; CZ; DE; EP; ES; FI; FR; GB; HK; HU; IE; IN; IT; KR; NL; PL; RO; SE; TW
QUALCOMM Incorporated *5.0	High speed media access control and direct link protocol	JP2007-522692	JP; JP; US20050135295; AU; BR; CA; CN; EP; HK; IL; IN; KR; MX; PH; SG; TW; VN
QUALCOMM Incorporated *5.0	High speed media access control	JP4490432	JP; JP; US20050135284; CA; CN; EP; HK; IN; KR; TW
QUALCOMM Incorporated *5.0	Continuous beamforming for a MIMO-OFDM system	JP4643632	JP; US20050265275; US20090290657; CA; CN; EP; HK; IN; KR; MY; TW
QUALCOMM Incorporated *5.0	Enhanced block acknowledgement	JP4733137	JP; US7,882,412; US20110154144; AU; BR; CN; DE; EP; FR; GB; HK; IL; IN; KR; MX; PH; RU; TW
QUALCOMM Incorporated *5.0	Scheduling with reverse direction grant in wireless communication systems	JP2009-508448	JP; US20070058605; BR; CA; CN; EP; HK; IN; KR; RU; SG; TW
QUALCOMM Incorporated *5.0	Derivation and feedback of a transmit steering matrix	JP2009-538578	US20070268181; BR; CA; CN; EP; IN; KR; RU; SG
QUALCOMM Incorporated *5.0	Method and system for providing beamforming feedback in wireless communication systems	JP2009-543471	US20070298742; BR; CA; CN; EP; HK; IN; KR; RU; SG; SG; TW
QUALCOMM Incorporated *5.0	Pilot Tones In a Multi-Transmit OFDM System Usable to Capture Transmitter Diversity Benefits	JP2008-07924	US7,372,913; US7,792,208; CN; EP; HK; TW

QUALCOMM Incorporated *5.0	Wireless messaging preambles allowing for beamforming and legacy device coexistence	JP4695150	US7,599,333; CN; EP; IN; KR
QUALCOMM Incorporated *5.0	Block ACK protocols for wireless packet network	JP2008-533826	JP; US7,631,240; CN; EP; IN; KR
QUALCOMM Incorporated *5.0	Efficient wireless transmission opportunity handoff	JP2008-533933	JP; US7,639,658; US20100061342; CN; EP; IN; KR
QUALCOMM Incorporated *5.0	Rate selection for an OFDM system	JP4308009	US7,020,073; BR; CN; EP; HK; KR; TW
QUALCOMM Incorporated *5.0	Apparatus and Method for Reducing Message Collision Between Mobile Stations Simultaneously Accessing a Base Station in a CDMA Cellular Communications System	JP3152353	US5,544,196; US6,615,050; US6,985,728; US20060121897; US7,734,260; US7,426,391; AT; AU; BE; BG; BR; CA; CH; CN; DE; DK; EP; ES; FI; FR; GB; GR; HK; HU; IE; IL; IT; KP; KR; MX; NL; PT; RU; SE; SK; ZA
QUALCOMM Incorporated *6.0	A comprehensive confirmation form has been submitted with regard to ARIB STD-T71.		
QUALCOMM Incorporated *5.0	Diversity transmission modes for MIMO OFDM communication systems	JP5080628	US7,095,709; US7,990,841; AU; BR; CA; CN; EP; HK; ID; IL; IN; KR; MX; NO; RU; SG; TW
QUALCOMM Incorporated *5.0	Pilots for MIMO communication systems	JP4657918	US7,986,742; US20110235744; JP; AT; BE; BR; CA; CH; CN; DE; DK; EP; ES; FI; FR; GB; GR; HK; HU; ID; IE; IL; IN; IT; KR; MX; NL; NO; PL; PT; RO; RU; SE; TW; UA
QUALCOMM Incorporated *5.0	Transmit diversity processing for a multi-antenna communication system	JP4739952	US7,002,900; US20060039275; US20100208841; JP; AU; BR; CA; CN; DE; EP; GB; HK; ID; IL; IN; KR; MX; RU; TW; UA

QUALCOMM Incorporated *5.0	Broadcast transmission with spatial spreading in a multi-antenna communication system	JP4668925	US7,302,009; US7,899,131; US7,907,689; CA; CN; DE; EP; ES; FI; FR; GB; HK; IN; IT; KR; NL; SE; TW
QUALCOMM Incorporated *5.0	Steering diversity for an OFDM-based multi-antenna communication system	JP2007-538823	US8,285,226; JP; AU; BR; CA; CN; EP; HK; IL; IN; KR; MX; MY; PH; RU; TW; VN
QUALCOMM Incorporated *5.0	Spatial spreading with space-time and space-frequency transmit diversity schemes for a wireless communication system	JP4564060	US7,894,548; AR; CA; CN; EP; HK; IN; KR; TH; TW
QUALCOMM Incorporated *5.0	Multiple frequency band operation in wireless networks	JP4625086	US7,983,298; US8,462,709; US20110299417; JP; AR; BR; CA; CN; DE; EP; ES; FR; GB; HK; IL; IN; IT; KR; MX; MY; PH; RU; SG; TW; VN
QUALCOMM Incorporated *5.0	Advanced MIMO interleaving	JP2008-505558	US7,570,697; US20090323850; JP; AU; CA; CN; EP; IL; IN; KR; PH; SG; VN
QUALCOMM Incorporated *5.0	Transmit diversity method and system	JP3917375	US6,754,286; AU; BE; CA; CH; CN; DE; EP; ES; FR; GB; IT; NL; NO; SE
QUALCOMM Incorporated *5.0	Wireless channel calibration	JP2012-525084	US20100271992; BR; CN; DE; EP; ES; FR; GB; IN; IT; KR; TW
QUALCOMM Incorporated *5.0	Interleaver and deinterleaver for use in a diversity transmission communication system	JP4574866	US6,356,528; US7,158,498; US20070077886; AU; BR; CA; CN; DE; EP; ES; FI; FR; GB; HK; ID; IL; IN; IT; KR; MX; NL; NO; RU; SE; SG; UA
QUALCOMM Incorporated *5.0	Method and apparatus for processing data for transmission in a multi-channel communication system using selective channel inversion	JP2009-165126	US6,751,187; JP; BR; CN; DE; EP; FR; GB; HK; IT; KR; TW

QUALCOMM Incorporated *5.0	Transmitter Directed Code Division Multiple Access System Using Multi-Users Diversity to Maximize Throughput While Equitably Providing Access to Users	JP2006-516871	US7,155,246; US8,050,198; JP; AU; BR; CA; CN; DE; EP; ES; FI; FR; GB; HK; ID; IE; IN; IT; KR; MX; NL; NO; RU; SG; TW; UA
QUALCOMM Incorporated *6.0	Preamble extensions for communications	JP2012-500575	US20100046656; US14/038,184; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Systems and methods for parallel communication with legacy WLAN receivers	JP2011-528536	US20100014448; JP; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Methods and apparatus for reverse link acknowledgement in a wireless local area network (WLAN)	JP2011-518495	US20090252100; JP; CN; EP; HK; IN; KR
QUALCOMM Incorporated *6.0	Method and apparatus for extended reverse direction grant in a wireless local area network (WLAN)	JP2012-516662	US20090252110; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Methods and apparatus for delayed block acknowledgement in a wireless local area network (WLAN)	JP2011-518500	US20090252143; CN; EP; IN; KR; TW
QUALCOMM Incorporated *6.0	Acknowledgement resource allocation and scheduling for WLANs	JP2012-523771	US20100260114; CN; EP; HK; IN; KR
QUALCOMM Incorporated *6.0	Constructing very high throughput long training field sequences	JP2012-533931	US8,385,443; US20130242963; AE; BR; CA; CN; EP; HK; ID; IN; KR; MX; MY; RU; TW; VN; ZA
QUALCOMM Incorporated *6.0	Enhancements to the MU-MIMO VHT preamble to enable transmission mode detection	JP2013-502173	US20110188482; BR; CN; EP; HK; IN; KR; TW
QUALCOMM Incorporated *6.0	IEEE802.11AC preambles supporting legacy devices	JP2013-503566	US20110051705; CN; EP; HK; IN; KR; TW
QUALCOMM Incorporated *6.0	Physical layer signaling of control parameters for multiple radio access technologies	JP2013-504980	US20110063991; BR; CA; CN; EP; HK; ID; IN; KR; PH; RU; TH; TW; UA; VN; ZA
QUALCOMM Incorporated *6.0	Mixed mode preamble design for signaling number of streams per client	JP2013-510516	US8,325,644; BR; CN; EP; IN; KR; TW
QUALCOMM Incorporated *6.0	Enabling phase tracking for a communication device	JP2013-513340	US20110134899; CN; EP; IN; KR; TW

QUALCOMM Incorporated *6.0	Efficient group definition and overloading for multiuser MIMO transmissions	JP2013-529011	US20120039266; BR; CA; CN; EP; HK; ID; IL; IN; KR; MY; PH; RU; TH; VN; ZA
QUALCOMM Incorporated *6.0	Collision detection and backoff window adaptation for multiuser MIMO transmission	JP2013-530605	US20120106371; BR; CA; CN; EP; HK; ID; IN; KR; RU; TH; UA; ZA
QUALCOMM Incorporated *6.0	Channel state information (CSI) feedback protocol for multiuser multiple input, multiple output (MU-MIMO)	JP2013-535879	US20120176921; BR; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Efficient group ID management for wireless local area networks (WLANS)	JP2013-528329	US20120120931; US20130070748; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Avoiding spectral lines on pilot tones in IEEE 802.11AC by avoiding R matrix of all ones	JP2013-534089	US20110299382; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Format of VHT-SIG-B and service fields in IEEE 802.11AC	JP2013-534085	US20110299468; BR; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Using a field format on a communication device	JP2013-535144	US20110305296; AE; BR; CA; CN; EP; HK; ID; IN; KR; PH; RU; TH; TW; VN; ZA
QUALCOMM Incorporated *6.0	Guard interval signaling for data symbol number determination	JP2013-527284	US20120054587; BR; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Method and apparatus for ordering sub-fields of VHT-SIG-A and VIT-SIG-B fields	JP2013-537746	US20120020261; BR; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Protocol for channel state information feedback	JP2013-535914	US20120177018; AU; BR; CA; CN; EP; HK; ID; IN; KR; PH; RU; TH; VN; ZA
QUALCOMM Incorporated *6.0	VHT-SIG-B field in null data packets (NDPs)	JP2013-535923	US20120033614; BR; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Signaling for extended MPDU, A-MPDU and A-MSDU frame formats	JP2013-540381	US20120201196; AE; BR; CA; CN; EP; HK; ID; IN; KR; PH; RU; TH; TW; UA; VN; ZA
QUALCOMM Incorporated *6.0	Constructing very high throughput signal (VHT-SIG) fields for reduced peak-to-average power ratio (PAPR)	JP2013-539629	US20120039198; AE; BR; CA; CN; EP; HK; ID; IL; IN; KR; MY; PH; RU; TH; VN; ZA

QUALCOMM Incorporated *6.0	Managing acknowledgement messages from multiple destinations for multiuser MIMO transmissions	JP2013-56655	US20120213308; AE; BR; CA; CN; EP; HK; ID; IN; KR; MY; RU; TH; ZA
QUALCOMM Incorporated *6.0	Sounding feedback schemes for very high throughput wireless systems	JP2013-528287	US20120058735; AU; BR; CA; CN; EP; HK; ID; IN; KR; PH; RU; TH; TW; ZA
QUALCOMM Incorporated *6.0	Request to send (RTS) and clear to send (CTS) for multichannel operations	JP2013-530325	US20120243485; BR; CA; CN; EP; HK; ID; IL; IN; KR; MY; PH; RU; TW; VN; ZA
QUALCOMM Incorporated *6.0	Legacy-compatible control frames	JP2013-531782	US20120250617; AE; BR; CA; CN; EP; ID; IN; KR; PH; RU; TH; TW; ZA
QUALCOMM Incorporated *6.0	Mapping of modulated symbols to tones and spatial streams	JP2013-532953	US20120327868; CN; EP; IN
QUALCOMM Incorporated *6.0	Channel state information feedback frame format and feedback rules for very high throughput wireless systems	JP2013-536785	US20120275376; CN; EP; IN
QUALCOMM Incorporated *6.0	Beamforming feedback format	JP2013-537824	US20120281620; BR; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Physical layer power save facility	JP2013-538847	US20120287850; AE; BR; CA; CN; EP; ID; IN; KR; MY; PH; RU; TH; ZA
QUALCOMM Incorporated *6.0	Physical layer power save facility with random offset	JP2013-540019	US20120300684; AE; BR; CA; CN; EP; ID; IN; KR; RU; TH; ZA
QUALCOMM Incorporated *6.0	Signaling to protect advanced receiver performance in wireless local area networks (LANS)	JP2013-543287	US20120140842; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Method and apparatus for supporting modulation-coding scheme set in very high throughput wireless systems	US20120155447**	JP; AE; BR; CA; CN; EP; ID; IN; KR; RU; SG; ZA
QUALCOMM Incorporated *6.0	Single stream phase tracking during channel estimation in a very high throughput wireless MIMO communication system	JP2013-536656	US8,494,075; US13/947,653; AE; AU; BR; CA; CN; EP; HK; ID; IL; IN; KR; MY; PH; RU; SG; TH; UA; VN; ZA

QUALCOMM Incorporated *6.0	System and method for transmitting a low density parity check signal	JP2013-529363	US20120069830; AU; BR; CA; CN; EP; HK; ID; IL; IN; KR; MX; MY; PH; RU; SG; TH; UA; VN; ZA
QUALCOMM Incorporated *6.0	Selecting frequency bands for transmitting data packets	JP2013-529365	US20120069804; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Method and apparatus supporting improved wide bandwidth transmissions	US20120224612**	JP; BR; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Method and apparatus for coding and interleaving for very high throughput wireless communications	JP2013-531723	US8,514,976; US13/956,254; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Preamble extensions	JP2012-533230	US20100290449; JP; CN; EP; IN; KR; TW
QUALCOMM Incorporated *6.0	Multi-resolution beamforming based on codebooks in MIMO systems	JP5248672	US8,351,521; US20130107977; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Scheduling algorithms for cooperative beamforming based on resource quality indication	JP2012-517152	US20100195527; CN; EP; IN; KR; TW
QUALCOMM Incorporated *6.0	Method and apparatus for constructing very high throughput long training field sequences	JP2013-526139	US20110194544; AR; BR; CA; CN; EP; HK; ID; IN; KR; MX; MY; PH; RU; TH; TW; ZA
QUALCOMM Incorporated *6.0	Protocol to support adaptive station-dependent channel state information feedback rate in multi-user communication systems	JP2013-505645	US20110235533; BR; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Protection mechanisms for multi-user MIMO transmissions	JP2013-524644	US20120087316; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Systems and methods for communication of channel state information	JP2013-531886	US20120250618; BR; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Systems and methods for communication of channel state information	JP2013-531887	US20120250543; AE; AU; BR; CA; CN; EP; ID; IN; KR; MX; PH; RU; TH; ZA
QUALCOMM Incorporated *6.0	Systems and methods for communication of channel state information	JP2013-531889	US20120257605; CN; EP; IN; KR
QUALCOMM Incorporated *6.0	Systems and methods for communication of channel state information	JP2013-531891	US20120257567; CN; EP; IN; KR

QUALCOMM Incorporated *6.0	Systems, methods and apparatus for determining control field and modulation coding scheme information	JP2013-540398	US20120250796; CN; EP; IN; KR; TW
QUALCOMM Incorporated *6.0	Systems, methods and apparatus for determining control field and modulation coding scheme information	JP2013-531882	US20120250668; CN; EP; IN; KR

注：

*5.0: ARIB STD-T71 5.0 版に対し有効

*6.0: ARIB STD-T71 6.0 版に対し有効

** ：The deadline for filing of a Japan counterpart of this patent application has not yet passed. Therefore, a Japanese counterpart may still be filed or granted in Japan.

参考　　（第二号選択）

特許出願人	発明の名称	出願番号等	備考
QUALCOMM Incorporated *5.0	Wireless LAN protocol stack	US20050135416	US20090323646; TW
QUALCOMM Incorporated *5.0	Channel Estimation for OFDM Communication Systems Including IEEE 802.11A and Extended Rate Systems	US7,453,793	
QUALCOMM Incorporated *5.0	Modified preamble structure for IEEE 802.11a extensions to allow for coexistence and interoperability between 802.11a devices and higher data rate, MIMO or otherwise extended devices	US7,916,803	US13/073,701
QUALCOMM Incorporated *5.0	Method and Apparatus for Utilizing Channel State Information in a Wireless Communication System	US7,006,848	US7,072,413; US7,649,954; BR; CN; DE; EP; FI; FR; GB; HK; IT; KR; NL; SE; TW
QUALCOMM Incorporated *5.0	Modified preamble structure for IEEE 802.11A extensions to allow for coexistence and interoperability between 802.11A devices and higher data rate, MIMO or otherwise extended devices	US7,599,332	US20100061402
QUALCOMM Incorporated *5.0	Distributed hierarchical scheduling in an ad hoc network	US7,818,018	US20110223952; US7,676,236
QUALCOMM Incorporated *5.0	Method for performing contention-based access for real-time application and medium access control hierarchy module	US7,233,603	KR
QUALCOMM Incorporated *5.0	Method of ciphering data transmission, and cellular radio system	US6,535,979	
QUALCOMM Incorporated *6.0	Signaling methods for MMSE precoding with eigenmode selection	US8,363,587	
QUALCOMM Incorporated *6.0	Constructing very high throughput short training field sequences	US20110013583	
QUALCOMM Incorporated *6.0	Methods and apparatus of frequency interleaving for 80 MHz transmissions	US20120063429	
QUALCOMM Incorporated *6.0	Content optimization of a physical layer preamble	US12/869,563	
QUALCOMM Incorporated *6.0	Method and apparatus for constructing very high throughput short training field sequences	US20110194545	

QUALCOMM Incorporated *6.0	Protection mechanisms for multi-user MIMO transmissions	US20120076081	

注：
*5.0: ARIB STD-T71 5.0 版に対し有効
*6.0: ARIB STD-T71 6.0 版に対し有効

別表　（第二号選択）

特許出願人	発明の名称	出願番号等	備考
QUALCOMM Incorporated *5.0	Multi-channel binding in data transmission	JP4726800	US7,620,028; US13/231,733; CN; EP; KR
QUALCOMM Incorporated *6.0	Diversity transmission modes for MIMO OFDM communication systems	JP5080628	US7,990,841; US7,095,709; AU;BR;CA;CN;EP; HK;ID;IL;IN;KR;MX;NO;RU;SG;TW
QUALCOMM Incorporated *6.0	Pilots for MIMO communication systems	JP4657918	US7,986,742; US20110235744; AT;BE;BR;CA;CH; CN;DE;DK;EP;ES; FI;FR;GB;GR;HK; HU;ID;IE;IL;IN;IT; JP;KR;MX;NL;NO; PL;PT;RO;RU;SE; TW;UA
QUALCOMM Incorporated *6.0	Transmit diversity processing for a multi-antenna communication system	JP4739952	US20060039275; US7,002,900; US20100208841; AU;BR;CA;CN;DE; EP;GB;HK;ID;IL;IN;JP;KR;MX;RU;TW;UA
QUALCOMM Incorporated *6.0	High speed media access control and direct link protocol	JP5226214	US8,233,462; US20120263137; US20130230038; AU;BR;CA;CN;DE; EP;ES;FR;GB;HK;IL;IN;IT;JP;KR;MX; NL;PH;SG;TW;VN
QUALCOMM Incorporated *6.0	Broadcast transmission with spatial spreading in a multi-antenna communication system	JP4668925	US7,907,689; US7,899,131; US7,302,009; AT;BE;CA;CH;CN; DE;DK;EP;ES;FI;FR;GB;GR;HK;HU;IE;IN;IT;KR;NL;PL; PT;RO;SE;TW
QUALCOMM Incorporated *6.0	Steering diversity for an OFDM-based multi-antenna communication system	JP2007-538823	US8,285,226; AU;BR;CA;CN;EP; HK;IL;IN;JP;KR;MX;MY;PH;RU;TW;VN

QUALCOMM Incorporated *6.0	Spatial spreading with space-time and space-frequency transmit diversity schemes for a wireless communication system	JP4564060	US7,894,548; AR;CA;CN;EP;HK; IN;KR;TH;TW
QUALCOMM Incorporated *6.0	Method and system for providing beamforming feedback in wireless communication systems	JP2012-199943	US8,787,841; US8,665,795; CN;EP;HK;IN;JP; KR;RU;SG;TW
QUALCOMM Incorporated *6.0	Pilot Tones In a Multi-Transmit OFDM System Usable to Capture Transmitter Diversity Benefits	JP4891239	US7,792,208; US7,372,913; CN;EP;TW
QUALCOMM Incorporated *6.0	Wireless messaging preambles allowing for beamforming and legacy device coexistence	JP4695150	US7,599,333; CN;EP;IN;KR
QUALCOMM Incorporated *6.0	Transmit diversity method and system	JP3917375	US6,754,286; AU;BE;CA;CH;CN; DE;EP;ES;FR;GB;I T;NL;NO;SE
QUALCOMM Incorporated *6.0	Channel and bandwidth switch procedures for wireless networks	JP2014-530973	US20130070701; CN;EP;IN;KR
QUALCOMM Incorporated *6.0	Rate selection for frames in wireless devices	JP2014-539014	US8,761,234; CN;EP;IN;KR
QUALCOMM Incorporated *6.0	Systems and methods for communication of supported modulation coding schemes using HT and VHT capabilities elements	WO2014003802 *	US20140003330
QUALCOMM Incorporated *6.0	Modified preamble structure for IEEE 802.11a extensions to allow for coexistence and interoperability between 802.11a devices and higher data rate, MIMO or otherwise extended devices	US7,916,803	US8,611,457; US20130070747
QUALCOMM Incorporated *6.0	Method and Apparatus for Processing Data for Transmission in a Multi-Channel Communication System Using Selective Channel Inversion	US7,072,413	US7,649,954; BR;CN;DE;EP;FI;F R;GB;HK;IT;KR;N L;SE;TW
QUALCOMM Incorporated *6.0	Modified preamble structure for IEEE 802.11A extensions to allow for coexistence and interoperability between 802.11A devices and higher data rate, MIMO or otherwise extended devices	US7,599,332	US8,743,837

注：
*5.0: ARIB STD-T71 5.0 版に対し有効
*6.0: ARIB STD-T71 6.0 版に対し有効

別表 2　　（第二号選択）

特許出願人	発明の名称	出願番号等	備考
日本電信電話株式会社 *7.0	無線パケット通信方法および無線パケット通信装置	4126058	JP 他出願国 US, CN, KR, CA, EP
日本電信電話株式会社 *7.0	無線パケット通信方法および無線パケット通信装置	4054039	JP 他出願国 US, CN, KR, CA, EP
日本電信電話株式会社 *7.0	無線パケット通信方法および無線パケット通信装置	3993214	JP 他出願国 US, CN, KR, CA, EP
日本電信電話株式会社 *7.0	OFDM 信号送信装置および OFDM 信号受信装置	3590008	JP 他出願国 US, CN, KR, CA, EP
日本電信電話株式会社 *7.0	マルチキャリア無線通信システムおよびマルチキャリア変調回路	4112397	JP
日本電信電話株式会社 *7.0	無線 LAN 省電力制御方法および無線基地局装置並びに無線端末装置	4579946	JP
日本電信電話株式会社 *7.0	無線通信装置及びコンピュータ読み取り可能な記憶媒体	3434784	JP
日本電信電話株式会社 *7.0	無線 LAN 省電力制御方法および無線基地局装置並びに無線端末装置	4579947	JP
日本電信電話株式会社 *7.0	無線信号送信方法、及び無線装置	6067592	JP 他出願国 US, CN, KR, EP
日本電信電話株式会社 *7.0	無線通信システム、無線通信方法、無線 LAN 基地局装置および無線 LAN 端末装置	6469834	JP 他出願国 US, CN, KR, EP, IN
日本電信電話株式会社 *7.0	無線通信システム、無線通信方法および無線 LAN 基地局装置	6644861	JP
日本電信電話株式会社 *7.0	無線通信システム、無線通信方法および無線 LAN 基地局装置	6644862	JP
日本電信電話株式会社 *7.0	無線通信システムおよび無線通信方法	6474903	JP 他出願国 US, CN, KR, EP, IN
日本電信電話株式会社 *7.0	無線通信システムおよび無線通信方法	6769977	JP 他出願国 US, CN, KR, EP, IN

注：
*7.0: ARIB STD-T71 7.0 版に対し有効

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