

CPC COOPERATIVE PATENT CLASSIFICATION

H ELECTRICITY

(NOTE omitted)

H04 ELECTRIC COMMUNICATION TECHNIQUE

(NOTE omitted)

H04W WIRELESS COMMUNICATION NETWORKS (broadcast communication [H04H](#); communication systems using wireless links for non-selective communication, e.g. wireless extensions [H04M 1/72](#))

NOTES

1. This subclass covers :
 - communication networks for selectively establishing one or a plurality of wireless communication links between a desired number of users or between users and network equipment, for the purpose of transferring information via these wireless communication links;
 - networks deploying an infrastructure for mobility management of wireless users connected thereto, e.g. cellular networks, WLAN [Wireless Local Area Network], wireless access networks, e.g. WLL [Wireless Local Loop] or self-organising wireless communication networks, e.g. ad hoc networks;
 - planning or deployment specially adapted for the above-mentioned wireless networks;
 - services or facilities specially adapted for the above-mentioned wireless networks;
 - arrangements or techniques specially adapted for the operation of the above-mentioned wireless networks.
2. This subclass does not cover :
 - communication systems using wireless extensions, i.e. wireless links without selective communication, e.g. cordless telephones, which are covered by group [H04M 1/72](#);
 - broadcast communication, which is covered by subclass [H04H](#).

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

4/00	Services specially adapted for wireless communication networks; Facilities therefor	4/08	• . User group management
		4/10	• . Push-to-Talk [PTT] or Push-On-Call services
		4/12	• Messaging; Mailboxes; Announcements
		4/14	• . Short messaging services, e.g. short message services [SMS] or unstructured supplementary service data [USSD]
		4/16	• Communication-related supplementary services, e.g. call-transfer or call-hold
		4/18	• Information format or content conversion, e.g. adaptation by the network of the transmitted or received information for the purpose of wireless delivery to users or terminals
4/02	• Services making use of location information		
4/021	• . Services related to particular areas, e.g. point of interest [POI] services, venue services or geofences	4/185	• . {by embedding added-value information into content, e.g. geo-tagging}
4/022	• . . {with dynamic range variability}	4/20	• Services signaling; Auxiliary data signalling, i.e. transmitting data via a non-traffic channel
4/023	• . {using mutual or relative location information between multiple location based services [LBS] targets or of distance thresholds}	4/203	• . {for converged personal network application service interworking, e.g. OMA converged personal network services [CPNS]}
4/024	• . Guidance services		
4/025	• . {using location based information parameters}	4/21	• . for social networking applications
4/026	• . . {using orientation information, e.g. compass}	4/23	• . for mobile advertising
4/027	• . . {using movement velocity, acceleration information}		
4/029	• . Location-based management or tracking services		
4/06	• Selective distribution of broadcast services, e.g. multimedia broadcast multicast service [MBMS]; Services to user groups; One-way selective calling services		

4/24	<ul style="list-style-type: none"> Accounting or billing <p>WARNING</p> <p>Group H04W 4/24 is incomplete pending reclassification of documents from group G06Q 50/40.</p> <p>Groups G06Q 50/40 and H04W 4/24 should be considered in order to perform a complete search.</p>	8/183	<ul style="list-style-type: none"> . . {Processing at user equipment or user record carrier}
4/30	<ul style="list-style-type: none"> Services specially adapted for particular environments, situations or purposes 	8/186	<ul style="list-style-type: none"> . . {Processing of subscriber group data}
4/33	<ul style="list-style-type: none"> . . for indoor environments, e.g. buildings 	8/20	<ul style="list-style-type: none"> . . Transfer of user or subscriber data
4/35	<ul style="list-style-type: none"> . . for the management of goods or merchandise 	8/205	<ul style="list-style-type: none"> . . . {Transfer to or from user equipment or user record carrier}
4/38	<ul style="list-style-type: none"> . . for collecting sensor information 	8/22	<ul style="list-style-type: none"> . Processing or transfer of terminal data, e.g. status or physical capabilities
4/40	<ul style="list-style-type: none"> . . for vehicles, e.g. vehicle-to-pedestrians [V2P] 	8/24	<ul style="list-style-type: none"> . . Transfer of terminal data
4/42	<ul style="list-style-type: none"> . . . for mass transport vehicles, e.g. buses, trains or aircraft 	8/245	<ul style="list-style-type: none"> . . . {from a network towards a terminal}
4/44	<ul style="list-style-type: none"> . . . for communication between vehicles and infrastructures, e.g. vehicle-to-cloud [V2C] or vehicle-to-home [V2H] 	8/26	<ul style="list-style-type: none"> . Network addressing or numbering for mobility support
4/46	<ul style="list-style-type: none"> . . . for vehicle-to-vehicle communication [V2V] 	8/265	<ul style="list-style-type: none"> . . {for initial activation of new user}
4/48	<ul style="list-style-type: none"> . . . for in-vehicle communication 	8/28	<ul style="list-style-type: none"> . . Number portability {; Network address portability}
4/50	<ul style="list-style-type: none"> Service provisioning or reconfiguring 	8/30	<ul style="list-style-type: none"> . Network data restoration; {Network data reliability; Network data fault tolerance}
4/60	<ul style="list-style-type: none"> Subscription-based services using application servers or record carriers, e.g. SIM application toolkits 	12/00	Security arrangements; Authentication; Protecting privacy or anonymity
4/70	<ul style="list-style-type: none"> Services for machine-to-machine communication [M2M] or machine type communication [MTC] 	12/009	<ul style="list-style-type: none"> . {specially adapted for networks, e.g. wireless sensor networks, ad-hoc networks, RFID networks or cloud networks}
4/80	<ul style="list-style-type: none"> Services using short range communication, e.g. near-field communication [NFC], radio-frequency identification [RFID] or low energy communication 	12/02	<ul style="list-style-type: none"> . Protecting privacy or anonymity, e.g. protecting personally identifiable information [PII]
4/90	<ul style="list-style-type: none"> Services for handling of emergency or hazardous situations, e.g. earthquake and tsunami warning systems [ETWS] 	12/03	<ul style="list-style-type: none"> . Protecting confidentiality, e.g. by encryption
8/00	Network data management	12/033	<ul style="list-style-type: none"> . . of the user plane, e.g. user's traffic
8/005	<ul style="list-style-type: none"> . {Discovery of network devices, e.g. terminals} 	12/037	<ul style="list-style-type: none"> . . of the control plane, e.g. signalling traffic
8/02	<ul style="list-style-type: none"> . Processing of mobility data, e.g. registration information at HLR [Home Location Register] or VLR [Visitor Location Register]; Transfer of mobility data, e.g. between HLR, VLR or external networks 	12/04	<ul style="list-style-type: none"> . Key management, e.g. using generic bootstrapping architecture [GBA]
8/04	<ul style="list-style-type: none"> . . Registration at HLR or HSS [Home Subscriber Server] 	12/041	<ul style="list-style-type: none"> . . Key generation or derivation
8/06	<ul style="list-style-type: none"> . . Registration at serving network Location Register, VLR or user mobility server 	12/043	<ul style="list-style-type: none"> . . using a trusted network node as an anchor
8/065	<ul style="list-style-type: none"> . . . {involving selection of the user mobility server} 	12/0431	<ul style="list-style-type: none"> . . . Key distribution or pre-distribution; Key agreement
8/08	<ul style="list-style-type: none"> . . Mobility data transfer 	12/0433	<ul style="list-style-type: none"> . . . Key management protocols
8/082	<ul style="list-style-type: none"> . . . {for traffic bypassing of mobility servers, e.g. location registers, home PLMNs or home agents} 	12/047	<ul style="list-style-type: none"> . . without using a trusted network node as an anchor
8/085	<ul style="list-style-type: none"> . . . {involving hierarchical organized mobility servers, e.g. hierarchical mobile IP [HMIP]} 	12/0471	<ul style="list-style-type: none"> . . . Key exchange
8/087	<ul style="list-style-type: none"> . . . {for preserving data network PoA address despite hand-offs} 	12/06	<ul style="list-style-type: none"> . Authentication
8/10	<ul style="list-style-type: none"> . . . between location register and external networks 	12/062	<ul style="list-style-type: none"> . . Pre-authentication
8/12	<ul style="list-style-type: none"> . . . between location registers or mobility servers 	12/065	<ul style="list-style-type: none"> . . Continuous authentication
8/14	<ul style="list-style-type: none"> . . . between corresponding nodes 	12/068	<ul style="list-style-type: none"> . . {using credential vaults, e.g. password manager applications or one time password [OTP] applications}
8/16	<ul style="list-style-type: none"> . . . selectively restricting mobility {data} tracking 	12/069	<ul style="list-style-type: none"> . . using certificates or pre-shared keys
8/18	<ul style="list-style-type: none"> . Processing of user or subscriber data, e.g. subscribed services, user preferences or user profiles; Transfer of user or subscriber data 	12/08	<ul style="list-style-type: none"> . Access security
		12/082	<ul style="list-style-type: none"> . . using revocation of authorisation
		12/084	<ul style="list-style-type: none"> . . using delegated authorisation, e.g. open authorisation [OAuth] protocol
		12/086	<ul style="list-style-type: none"> . . using security domains
		12/088	<ul style="list-style-type: none"> . . using filters or firewalls
		12/10	<ul style="list-style-type: none"> . Integrity
		12/102	<ul style="list-style-type: none"> . . Route integrity, e.g. using trusted paths
		12/104	<ul style="list-style-type: none"> . . Location integrity, e.g. secure geotagging
		12/106	<ul style="list-style-type: none"> . . Packet or message integrity
		12/108	<ul style="list-style-type: none"> . . Source integrity
		12/12	<ul style="list-style-type: none"> . Detection or prevention of fraud
		12/121	<ul style="list-style-type: none"> . . Wireless intrusion detection systems [WIDS]; Wireless intrusion prevention systems [WIPS]
		12/122	<ul style="list-style-type: none"> . . . Counter-measures against attacks; Protection against rogue devices
		12/125	<ul style="list-style-type: none"> . . Protection against power exhaustion attacks
		12/126	<ul style="list-style-type: none"> . . Anti-theft arrangements, e.g. protection against subscriber identity module [SIM] cloning

12/128	. . Anti-malware arrangements, e.g. protection against SMS fraud or mobile malware	16/26	. . Cell enhancers {or enhancement}, e.g. for tunnels, building shadow
12/30	. Security of mobile devices; Security of mobile applications	16/28	. . using beam steering
12/33	. . using wearable devices, e.g. using a smartwatch or smart-glasses	16/30	. . Special cell shapes, e.g. doughnuts or ring cells
12/35	. . {Protecting application or service provisioning, e.g. securing SIM application provisioning}	16/32	. . Hierarchical cell structures
12/37	. . Managing security policies for mobile devices or for controlling mobile applications	24/00	Supervisory, monitoring or testing arrangements
12/40	. Security arrangements using identity modules	24/02	. Arrangements for optimising operational condition
12/42	. . using virtual identity modules	24/04	. Arrangements for maintaining operational condition
12/43	. . using shared identity modules, e.g. SIM sharing	24/06	. Testing, {supervising or monitoring} using simulated traffic
12/45	. . using multiple identity modules	24/08	. Testing, {supervising or monitoring} using real traffic
12/47	. . using near field communication [NFC] or radio frequency identification [RFID] modules	24/10	. Scheduling measurement reports {; Arrangements for measurement reports}
12/48	. . using secure binding, e.g. securely binding identity modules to devices, services or applications	28/00	Network traffic management; Network resource management
12/50	. Secure pairing of devices	28/02	. Traffic management, e.g. flow control or congestion control
12/55	. . involving three or more devices, e.g. group pairing	28/0205	. . {at the air interface (dynamic wireless traffic scheduling H04W 72/12)}
12/60	. Context-dependent security	28/021	. . {in wireless networks with changing topologies, e.g. ad-hoc networks (self-organizing networks H04W 84/18)}
12/61	. . Time-dependent	28/0215	. . {based on user or device properties, e.g. MTC-capable devices (services for machine-to-machine communication [M2M] or machine type communication [MTC] H04W 4/70; wireless resource selection or allocation plan definition based on terminal or device properties H04W 72/51)}
12/63	. . Location-dependent; Proximity-dependent	28/0221	. . . {power availability or consumption}
12/64	. . . using geofenced areas	28/0226	. . {based on location or mobility (handoff or reselection H04W 36/00; mobile application services making use of the location of users or terminals H04W 4/02)}
12/65	. . Environment-dependent, e.g. using captured environmental data	28/0231	. . {based on communication conditions (dynamic wireless traffic scheduling definition based on channel quality criteria H04W 72/54)}
12/66	. . {Trust-dependent, e.g. using trust scores or trust relationships}	28/0236	. . . {radio quality, e.g. interference, losses or delay}
12/67	. . Risk-dependent, e.g. selecting a security level depending on risk profiles	28/0242	. . . {Determining whether packet losses are due to overload or to deterioration of radio communication conditions}
12/68	. . Gesture-dependent or behaviour-dependent	28/0247	. . {based on conditions of the access network or the infrastructure network (central resource management H04W 28/16)}
12/69	. . Identity-dependent	28/0252	. . {per individual bearer or channel (dynamic wireless traffic scheduling H04W 72/12)}
12/71	. . . Hardware identity	28/0257	. . . {the individual bearer or channel having a maximum bit rate or a bit rate guarantee}
12/72	. . . Subscriber identity	28/0263	. . . {involving mapping traffic to individual bearers or channels, e.g. traffic flow template [TFT]}
12/73	. . . Access point logical identity	28/0268	. . {using specific QoS parameters for wireless networks, e.g. QoS class identifier [QCI] or guaranteed bit rate [GBR] (negotiating SLA or negotiating QoS H04W 28/24)}
12/75	. . . Temporary identity	28/0273	. . {adapting protocols for flow control or congestion control to wireless environment, e.g. adapting transmission control protocol [TCP] (wireless network protocols or protocol adaptations to wireless operation, e.g. wireless application protocol H04W 80/00)}
12/76	. . . Group identity		
12/77	. . . Graphical identity		
12/79	. . . Radio fingerprint		
12/80	. Arrangements enabling lawful interception [LI]		
16/00	Network planning, e.g. coverage or traffic planning tools; Network deployment, e.g. resource partitioning or cells structures		
16/02	. Resource partitioning among network components, e.g. reuse partitioning		
16/04	. . Traffic adaptive resource partitioning		
16/06	. . Hybrid resource partitioning, e.g. channel borrowing		
16/08	. . . Load shedding arrangements		
16/10	. . Dynamic resource partitioning		
16/12	. . Fixed resource partitioning		
16/14	. Spectrum sharing arrangements {between different networks}		
16/16	. . for PBS [Private Base Station] arrangements		
16/18	. Network planning tools		
16/20	. . for indoor coverage or short range network deployment		
16/22	. Traffic simulation tools or models		
16/225	. . {for indoor or short range network}		
16/24	. Cell structures		

- 28/0278 . . {using buffer status reports (dynamic wireless traffic scheduling definition [H04W 72/12](#))}
- 28/0284 . . {detecting congestion or overload during communication (monitoring arrangements [H04L 43/00](#))}
- 28/0289 . . {Congestion control (load shedding arrangements in network planning [H04W 16/08](#); performing reselection for handling the traffic [H04W 36/22](#); wireless traffic scheduling [H04W 72/12](#))}
- 28/0294 . . {forcing collision (non-scheduled or contention based wireless access channel [H04W 74/08](#))}
- 28/04 . . Error control

NOTE

When classifying in this group, classification is also made in the appropriate groups under [H04L 1/00](#).

- 28/06 . . Optimizing {the usage of the radio link}, e.g. header compression, information sizing {, discarding information (system modifying transmission characteristic according to link quality by modifying frame length [H04L 1/0007](#); dynamic adaptation of the packet size for flow control or congestion control [H04L 47/365](#))}
- 28/065 . . . {using assembly or disassembly of packets}
- 28/08 . . Load balancing or load distribution (transferring a connection for handling the traffic [H04W 36/22](#); wireless traffic scheduling [H04W 72/12](#))
- 28/082 . . . among bearers or channels
- 28/0827 . . . {Triggering entity}
- 28/0831 {Core entity}
- 28/0835 {Access entity, e.g. eNB}
- 28/0838 {User device}
- 28/084 . . . among network function virtualisation [NFV] entities; among edge computing entities, e.g. multi-access edge computing
- 28/0846 . . . {between network providers, e.g. operators (selecting a network or a communication service [H04W 40/18](#))}
- 28/0858 . . . {among entities in the uplink}
- 28/086 . . . among access entities
- 28/0861 {between base stations}
- 28/0862 {of same hierarchy level}
- 28/0864 {of different hierarchy levels, e.g. Master Evolved Node B [MeNB] or Secondary Evolved node B [SeNB]}
- 28/0865 {of different Radio Access Technologies [RATs], e.g. LTE® or Wi-Fi®}
- 28/0866 {between wireless and wire-based access points, e.g. via LTE and via DSL connected access points}
- 28/0867 . . . {among entities in the downlink}
- 28/0875 . . . {to or through Device to Device [D2D] links, e.g. direct-mode links}
- 28/088 . . . among core entities
- 28/0883 . . . {between entities in ad-hoc networks}
- 28/0892 {between different intermediate nodes}
- 28/09 . . . {Management thereof}
- 28/0908 {based on time, e.g. for a critical period only}
- 28/0917 {based on the energy state of entities}
- 28/0925 {using policies}
- 28/0933 {based on load-splitting ratios}

- 28/0942 {based on measured or predicted load of entities- or links}
- 28/095 {based on usage history, e.g. usage history of devices}
- 28/0958 {based on metrics or performance parameters}
- 28/0967 {Quality of Service [QoS] parameters}
- 28/0975 {for reducing delays}
- 28/0983 {for optimizing bandwidth or throughput}
- 28/0992 {based on the type of application}
- 28/10 . . Flow control {between communication endpoints}
- 28/12 . . . using signalling between network elements
- 28/14 . . . using intermediate storage
- 28/16 . . Central resource management; Negotiation of resources or communication parameters, e.g. negotiating bandwidth or QoS [Quality of Service]
- 28/18 . . Negotiating wireless communication parameters
- 28/20 . . . Negotiating bandwidth
- 28/22 . . . Negotiating communication rate
- 28/24 . . Negotiating SLA [Service Level Agreement]; Negotiating QoS [Quality of Service]
- 28/26 . . Resource reservation

36/00 Hand-off or reselection arrangements**NOTE**

In this group, local priority rules supersede the first-place priority rule (FPPR) applying throughout [H04W](#)

- 36/0005 . . {Control or signalling for completing the hand-off}
- 36/0007 . . {for multicast or broadcast services, e.g. MBMS (multicast or broadcast application services [H04W 4/06](#); resource management for broadcast services [H04W 72/30](#); connection management for selective distribution or broadcast [H04W 76/40](#))}
- 36/0009 . . {for a plurality of users or terminals, e.g. group communication or moving wireless networks (user group management [H04W 4/08](#); processing of subscriber group data [H04W 8/186](#))}
- 36/0011 . . {for data sessions of end-to-end connection}
- 36/0016 . . . {Hand-off preparation specially adapted for end-to-end data sessions}
- 36/0019 . . . {adapted for mobile IP [MIP]}
- 36/0022 . . . {for transferring data sessions between adjacent core network technologies}
- 36/00222 {between different packet switched [PS] network technologies, e.g. transferring data sessions between LTE and WLAN or LTE and 5G}
- 36/00224 {between packet switched [PS] and circuit switched [CS] network technologies, e.g. circuit switched fallback [CSFB]}
- 36/00226 {wherein the core network technologies comprise IP multimedia system [IMS], e.g. single radio voice call continuity [SRVCC]}
- 36/0027 . . . {for a plurality of data sessions of end-to-end connections, e.g. multi-call or multi-bearer end-to-end data connections}
- 36/0033 . . . {with transfer of context information}
- 36/0038 {of security context information}

36/0044	. . . . {of quality context information}	36/083	. . {wherein at least one of the access points is a moving node}
36/005	. . {involving radio access media independent information, e.g. MIH [Media independent Hand-off]}	36/085	. . {involving beams of access points}
36/0055	. . {Transmission or use of information for re-establishing the radio link}	36/087	. . {between radio units of access points}
36/0058	. . . {Transmission of hand-off measurement information, e.g. measurement reports}	36/10	. Reselecting an access point controller
36/0061	. . . {of neighbour cell information}	36/12	. Reselecting a serving backbone network switching or routing node
36/0064	. . . {of control information between different access points}	36/125	. . {involving different types of service backbones}
36/0066	. . . {of control information between different types of networks in order to establish a new radio link in the target network}	36/13	. {Cell handover without a predetermined boundary, e.g. virtual cells}
36/0069	. . . {in case of dual connectivity, e.g. decoupled uplink/downlink}	36/14	. Reselecting a network or an air interface
36/00692	. . . . {using simultaneous multiple data streams, e.g. cooperative multipoint [CoMP], carrier aggregation [CA] or multiple input multiple output [MIMO] (allocation of physical resources in CoMP or in CA H04L 5/0035)}	36/142	. . {over the same radio air interface technology}
36/00695	. . . . {using split of the control plane or user plane}	36/144	. . {over a different radio air interface technology}
36/00698	. . . . {using different RATs}	36/1443	. . . {between licensed networks}
36/0072	. . . {of resource information of target access point}	36/1446	. . . {wherein at least one of the networks is unlicensed}
36/00725	. . . . {Random access channel [RACH]-less handover}	36/16	. Performing reselection for specific purposes
36/0077	. . . {of access information of target access point}	36/165	. . {for reducing network power consumption (H04W 36/18 - H04W 36/22 take precedence)}
36/0079	. . . {in case of hand-off failure or rejection}	36/18	. . for allowing seamless reselection, e.g. soft reselection
36/0083	. . {Determination of parameters used for hand-off, e.g. generation or modification of neighbour cell lists}	36/185	. . . {using make before break}
36/00833	. . . {Handover statistics}	36/20	. . for optimising the interference level
36/00835	. . . {Determination of neighbour cell lists}	36/22	. . for handling the traffic
36/008355	. . . . {Determination of target cell based on user equipment [UE] properties, e.g. UE service capabilities}	36/24	. Reselection being triggered by specific parameters
36/008357	. . . . {Determination of target cell based on access point [AP] properties, e.g. AP service capabilities}	36/247	. . {by using coverage extension}
36/00837	. . . {Determination of triggering parameters for hand-off}	36/249	. . {according to timing information}
36/008375	. . . . {based on historical data}	36/26	. . by agreed or negotiated communication parameters
36/00838	. . . {Resource reservation for handover}	36/28	. . . involving a plurality of connections, e.g. multi-call or multi-bearer connections
36/0085	. . . {Hand-off measurements}	36/30	. . by measured or perceived connection quality data
36/0088	. . . . {Scheduling hand-off measurements}	36/302	. . . {due to low signal strength}
36/0094	. . . . {Definition of hand-off measurement parameters}	36/304	. . . {due to measured or perceived resources with higher communication quality}
36/02	. Buffering or recovering information during reselection (; Modification of the traffic flow during hand-off)	36/305	. . . {Handover due to radio link failure (control signalling for hand-off failure H04W 36/0079)}
36/023	. . {Buffering or recovering information during reselection}	36/32	. . by location or mobility data, e.g. speed data
36/0235	. . . {by transmitting sequence numbers, e.g. SN status transfer}	36/322	. . . {by location data}
36/026	. . {Multicasting of data during hand-off}	36/324	. . . {by mobility data, e.g. speed data}
36/03	. {Reselecting a link using a direct mode connection}	36/326	. . . {by proximity to another entity}
36/033	. . {in pre-organised networks}	36/328	. . . {by altitude}
36/035	. . {in self-organising networks}	36/34	. Reselection control
36/037	. . {by reducing handover delay, e.g. latency}	36/36	. . by user or terminal equipment
36/04	. Reselecting a cell layer in multi-layered cells	36/362	. . . {Conditional handover}
36/06	. Reselecting a communication resource in the serving access point	36/365	. . . {by manual user interaction}
36/08	. Reselecting an access point	36/38	. . by fixed network equipment
		36/385	. . . {of the core network}
		40/00	Communication routing or communication path finding
		40/005	. {Routing actions in the presence of nodes in sleep or doze mode}
		40/02	. Communication route or path selection, e.g. power-based or shortest path routing
		40/023	. . {Limited or focused flooding to selected areas of a network}
		40/026	. . {Route selection considering the moving speed of individual devices}
		40/04	. . based on wireless node resources
		40/06	. . . based on characteristics of available antennas
		40/08	. . . based on transmission power
		40/10	. . . based on available power or energy

40/12	. . based on transmission quality or channel quality	52/0225	. . . {using monitoring of external events, e.g. the presence of a signal}
40/125	. . . {using a measured number of retransmissions as a link metric}	52/0229	. . . . {where the received signal is a wanted signal}
40/14	. . . based on stability	52/0232	. . . . . {according to average transmission signal activity}
40/16	. . . based on interference	52/0235	. . . . . {where the received signal is a power saving command}
40/18	. . based on predicted events	52/0238	. . . . . {where the received signal is an unwanted signal, e.g. interference or idle signal}
40/20	. . based on geographic position or location	52/0241	. . . . . {where no transmission is received, e.g. out of range of the transmitter}
40/205	. . . {using topographical information, e.g. hills, high rise buildings}	52/0245	. . . . . {according to signal strength}
40/22	. . using selective relaying for reaching a BTS [Base Transceiver Station] or an access point	52/0248	. . . . . {dependent on the time of the day, e.g. according to expected transmission activity}
40/24	. Connectivity information management, e.g. connectivity discovery or connectivity update	52/0251	. . . . {using monitoring of local events, e.g. events related to user activity}
40/242	. . {aging of topology database entries}	52/0254	. . . . . {detecting a user operation or a tactile contact or a motion of the device}
40/244	. . {using a network of reference devices, e.g. beaconing}	52/0258	. . . . . {controlling an operation mode according to history or models of usage information, e.g. activity schedule or time of day}
40/246	. . {Connectivity information discovery}	52/0261	. . . . {managing power supply demand, e.g. depending on battery level}
40/248	. . {Connectivity information update}	52/0264	. . . . . {by selectively disabling software applications}
40/26	. . for hybrid routing by combining proactive and reactive routing	52/0267	. . . . . {by controlling user interface components}
40/28	. . for reactive routing	52/027	. . . . . {by controlling a display operation or backlight unit}
40/30	. . for proactive routing	52/0274	. . . . . {by switching on or off the equipment or parts thereof}
40/32	. . for defining a routing cluster membership	52/0277	. . . . . {according to available power supply, e.g. switching off when a low battery condition is detected}
40/34	. Modification of an existing route	52/028	. . . . . {switching on or off only a part of the equipment circuit blocks}
40/36	. . due to handover	52/0283	. . . . . {with sequential power up or power down of successive circuit blocks, e.g. switching on the local oscillator before RF or mixer stages}
40/38	. . adapting due to varying relative distances between nodes	52/0287	. . . . . {changing the clock frequency of a controller in the equipment}
48/00	Access restriction (access security to prevent unauthorised access H04W 12/08); Network selection; Access point selection	52/029	. . . . . {reducing the clock frequency of the controller}
48/02	. Access restriction performed under specific conditions	52/0293	. . . . . {having a sub-controller with a low clock frequency switching on and off a main controller with a high clock frequency}
48/04	. . based on user or terminal location or mobility data, e.g. moving direction, speed	52/0296	. . . . . {switching to a backup power supply}
48/06	. . based on traffic conditions	52/04	. Transmission power control [TPC]
48/08	. Access restriction or access information delivery, e.g. discovery data delivery (signalling during connection H04W 76/00)	52/06	. . TPC algorithms
48/10	. . using broadcasted information	52/08	. . . Closed loop power control
48/12	. . using downlink control channel	52/10	. . . Open loop power control
48/14	. . using user query {or user detection}	52/12	. . . Outer and inner loops
48/16	. Discovering, processing access restriction or access information	52/125	. . . . . {cascaded outer loop power control}
48/17	. {Selecting a data network PoA [Point of Attachment]}	52/14	. . . Separate analysis of uplink or downlink
48/18	. Selecting a network or a communication service	52/143	. . . . . {Downlink power control}
48/20	. Selecting an access point	52/146	. . . . . {Uplink power control}
52/00	Power management {, e.g. Transmission Power Control [TPC] or power classes}	52/16	. . . Deriving transmission power values from another channel
52/02	. Power saving arrangements	52/18	. . TPC being performed according to specific parameters
52/0203	. . {in the radio access network or backbone network of wireless communication networks}	52/20	. . . using error rate
52/0206	. . . {in access points, e.g. base stations}	52/22	. . . taking into account previous information or commands
52/0209	. . {in terminal devices}		
52/0212	. . . {managed by the network, e.g. network or access point is leader and terminal is follower}		
52/0216	. . . . {using a pre-established activity schedule, e.g. traffic indication frame}		
52/0219	. . . . {where the power saving management affects multiple terminals}		
52/0222	. . . . {in packet switched networks}		

52/221	. . . . {using past power control commands}	52/362	. . . . {Aspects of the step size}
52/223	. . . . {predicting future states of the transmission}	52/365	. . . . {Power headroom reporting}
52/225	. . . . {Calculation of statistics, e.g. average or variance}	52/367	. . . . {Power values between minimum and maximum limits, e.g. dynamic range}
52/226	. . . . {using past references to control power, e.g. look-up-table}	52/38	. . TPC being performed in particular situations
52/228	. . . . {using past power values or information}	52/383	. . . {power control in peer-to-peer links}
52/24	. . . using SIR [Signal to Interference Ratio] or other wireless path parameters	52/386	. . . {centralized, e.g. when the radio network controller or equivalent takes part in the power control}
52/241	. . . . {taking into account channel quality metrics, e.g. SIR, SNR, CIR or Eb/lo}	52/40	. . . during macro-diversity or soft handoff
52/242	. . . . {taking into account path loss}	52/42	. . . in systems with time, space, frequency or polarisation diversity
52/243	. . . . {taking into account interferences}	52/44	. . . in connection with interruption of transmission
52/244	. . . . . {Interferences in heterogeneous networks, e.g. among macro and femto or pico cells or other sector / system interference [OSI]}	52/46	. . . in multi-hop networks, e.g. wireless relay networks
52/245	. . . . {taking into account received signal strength}	52/48	. . . during retransmission after error or non-acknowledgment
52/246	. . . . {where the output power of a terminal is based on a path parameter calculated in said terminal}	52/50	. . . at the moment of starting communication in a multiple access environment
52/247	. . . . {where the output power of a terminal is based on a path parameter sent by another terminal}	52/52	. . using AGC [Automatic Gain Control] circuits or amplifiers
52/248	. . . . {where transmission power control commands are generated based on a path parameter}	52/54	. . Signalisation aspects of the TPC commands, e.g. frame structure
52/26	. . . using transmission rate or quality of service QoS [Quality of Service]	52/545	. . . {modifying TPC bits in special situations}
52/262	. . . . {taking into account adaptive modulation and coding [AMC] scheme}	52/56	. . . Detection of errors of TPC bits
52/265	. . . . {taking into account the quality of service QoS}	52/58	. . . Format of the TPC bits
52/267	. . . . {taking into account the information rate}	52/60	. . . using different transmission rates for TPC commands
52/28	. . . using user profile, e.g. mobile speed, priority or network state, e.g. standby, idle or non-transmission		
52/281	. . . . {taking into account user or data type priority}	56/00	Synchronisation arrangements
52/282	. . . . {taking into account the speed of the mobile}	56/0005	. {synchronizing of arrival of multiple uplinks}
52/283	. . . . {Power depending on the position of the mobile}	56/001	. {Synchronization between nodes}
52/285	. . . . {taking into account the mobility of the user}	56/0015	. . {one node acting as a reference for the others}
52/286	. . . . {during data packet transmission, e.g. high speed packet access [HSPA]}	56/002	. . {Mutual synchronization}
52/287	. . . . {when the channel is in stand-by}	56/0025	. . {synchronizing potentially movable access points}
52/288	. . . . {taking into account the usage mode, e.g. hands-free, data transmission or telephone}	56/003	. {Arrangements to increase tolerance to errors in transmission or reception timing}
52/30	. . using constraints in the total amount of available transmission power	56/0035	. {detecting errors in frequency or phase}
52/32	. . . TPC of broadcast or control channels	56/004	. {compensating for timing error of reception due to propagation delay}
52/322	. . . . {Power control of broadcast channels}	56/0045	. . {compensating for timing error by altering transmission time}
52/325	. . . . {Power control of control or pilot channels}	56/005	. . {compensating for timing error by adjustment in the receiver}
52/327	. . . . {Power control of multicast channels}	56/0055	. {determining timing error of reception due to propagation delay}
52/34	. . . TPC management, i.e. sharing limited amount of power among users or channels or data types, e.g. cell loading	56/006	. . {using known positions of transmitter and receiver}
52/343	. . . . {taking into account loading or congestion level}	56/0065	. . {using measurement of signal travel time}
52/346	. . . . {distributing total power among users or channels}	56/007	. . . {Open loop measurement}
52/36	. . . with a discrete range or set of values, e.g. step size, ramping or offsets	56/0075	. . . . {based on arrival time vs. expected arrival time}
		56/008	. . . . . {detecting arrival of signal based on received raw signal}
		56/0085	. . . . . {detecting a given structure in the signal}
		56/009	. . . {Closed loop measurements}
		56/0095	. . {estimated based on signal strength}

60/00	Affiliation to network, e.g. registration; Terminating affiliation with the network, e.g. de-registration	64/003	. {locating network equipment}
	WARNING	64/006	. {with additional information processing, e.g. for direction or speed determination}
	Group H04W 60/00 is impacted by reclassification into groups H04W 60/001 and H04W 60/002 . Groups H04W 60/00 , H04W 60/001 and H04W 60/002 should be considered in order to perform a complete search.	68/00	User notification, e.g. alerting and paging, for incoming communication, change of service or the like
60/001	. {Registration rejection or failure}	68/005	. {Transmission of information for alerting of incoming communication}
	WARNING	68/02	. Arrangements for increasing efficiency of notification or paging channel
	Group H04W 60/001 is incomplete pending reclassification of documents from groups H04W 60/00 , H04W 60/005 , H04W 60/02 and H04W 60/04 . All groups listed in this Warning should be considered in order to perform a complete search.	68/025	. . {Indirect paging}
		68/04	. multi-step notification using statistical or historical mobility data
60/002	. {Registration for requesting network slices}	68/06	. using multi-step notification by changing the notification area
	WARNING	68/08	. using multi-step notification by increasing the notification area
	Group H04W 60/002 is incomplete pending reclassification of documents from groups H04W 60/00 , H04W 60/005 , H04W 60/02 and H04W 60/04 . All groups listed in this Warning should be considered in order to perform a complete search.	68/10	. using simulcast notification
		68/12	. Inter-network notification
		72/00	Local resource management
		72/02	. Selection of wireless resources by user or terminal
			WARNING
			Group H04W 72/02 is impacted by reclassification into group H04W 72/40 . Groups H04W 72/02 and H04W 72/40 should be considered in order to perform a complete search.
60/005	. {Multiple registrations, e.g. multihoming}	72/04	. Wireless resource allocation
	WARNING		WARNING
	Group H04W 60/005 is impacted by reclassification into groups H04W 60/001 and H04W 60/002 . Groups H04W 60/005 , H04W 60/001 and H04W 60/002 should be considered in order to perform a complete search.		Group H04W 72/04 is impacted by reclassification into groups H04W 72/11 , H04W 72/115 and H04W 72/40 . All groups listed in this Warning should be considered in order to perform a complete search.
60/02	. by periodical registration	72/044	. . based on the type of the allocated resource
	WARNING		WARNING
	Group H04W 60/02 is impacted by reclassification into groups H04W 60/001 and H04W 60/002 . Groups H04W 60/02 , H04W 60/001 and H04W 60/002 should be considered in order to perform a complete search.		Group H04W 72/044 is impacted by reclassification into group H04W 72/0457 . Groups H04W 72/044 and H04W 72/0457 should be considered in order to perform a complete search.
60/04	. using triggered events	72/0446	. . . Resources in time domain, e.g. slots or frames
	WARNING	72/0453	. . . Resources in frequency domain, e.g. a carrier in FDMA
	Group H04W 60/04 is impacted by reclassification into groups H04W 60/001 and H04W 60/002 . Groups H04W 60/04 , H04W 60/001 and H04W 60/002 should be considered in order to perform a complete search.	72/0457	. . . Variable allocation of band or rate
			WARNING
60/06	. De-registration or detaching		Group H04W 72/0457 is incomplete pending reclassification of documents from group H04W 72/044 . Groups H04W 72/044 and H04W 72/0457 should be considered in order to perform a complete search.
64/00	Locating users or terminals {or network equipment} for network management purposes, e.g. mobility management	72/046	. . . {the resource being in the space domain, e.g. beams}
		72/0466	. . . {the resource being a scrambling code}
		72/0473	. . . {the resource being transmission power}

72/11	<ul style="list-style-type: none"> • . Semi-persistent scheduling <p><u>WARNING</u></p> <p>Group H04W 72/11 is incomplete pending reclassification of documents from group H04W 72/04.</p> <p>Groups H04W 72/04 and H04W 72/11 should be considered in order to perform a complete search.</p>	72/231	<ul style="list-style-type: none"> • . . the control data signalling from the layers above the physical layer, e.g. RRC or MAC-CE signalling <p><u>WARNING</u></p> <p>Group H04W 72/231 is incomplete pending reclassification of documents from group H04W 72/23.</p> <p>Groups H04W 72/23 and H04W 72/231 should be considered in order to perform a complete search.</p>
72/115	<ul style="list-style-type: none"> • . Grant-free or autonomous transmission <p><u>WARNING</u></p> <p>Group H04W 72/115 is incomplete pending reclassification of documents from group H04W 72/04.</p> <p>Groups H04W 72/04 and H04W 72/115 should be considered in order to perform a complete search.</p>	72/232	<ul style="list-style-type: none"> • . . the control data signalling from the physical layer, e.g. DCI signalling <p><u>WARNING</u></p> <p>Group H04W 72/232 is incomplete pending reclassification of documents from group H04W 72/23.</p> <p>Groups H04W 72/23 and H04W 72/232 should be considered in order to perform a complete search.</p>
72/12	<ul style="list-style-type: none"> • Wireless traffic scheduling <p><u>WARNING</u></p> <p>Group H04W 72/12 is impacted by reclassification into groups H04W 72/40, H04W 72/50, H04W 72/51 and H04W 72/512.</p> <p>All groups listed in this Warning should be considered in order to perform a complete search.</p>	72/25	<ul style="list-style-type: none"> • . between terminals via a wireless link, e.g. sidelink <p><u>WARNING</u></p> <p>Group H04W 72/25 is incomplete pending reclassification of documents from group H04W 72/20.</p> <p>Groups H04W 72/20 and H04W 72/25 should be considered in order to perform a complete search.</p>
72/121	<ul style="list-style-type: none"> • . for groups of terminals or users 	72/27	<ul style="list-style-type: none"> • . between access points <p><u>WARNING</u></p> <p>Group H04W 72/27 is incomplete pending reclassification of documents from group H04W 72/20.</p> <p>Groups H04W 72/20 and H04W 72/27 should be considered in order to perform a complete search.</p>
72/1215	<ul style="list-style-type: none"> • . {for collaboration of different radio technologies} 	72/29	<ul style="list-style-type: none"> • . between an access point and the access point controlling device <p><u>WARNING</u></p> <p>Group H04W 72/29 is incomplete pending reclassification of documents from group H04W 72/20.</p> <p>Groups H04W 72/20 and H04W 72/29 should be considered in order to perform a complete search.</p>
72/1221	<ul style="list-style-type: none"> • . {based on age of data to be sent} 	72/30	<ul style="list-style-type: none"> • Resource management for broadcast services
72/1263	<ul style="list-style-type: none"> • . Mapping of traffic onto schedule, e.g. scheduled allocation or multiplexing of flows 	72/40	<ul style="list-style-type: none"> • Resource management for direct mode communication, e.g. D2D or sidelink <p><u>WARNING</u></p> <p>Group H04W 72/40 is incomplete pending reclassification of documents from groups H04W 72/02, H04W 72/04 and H04W 72/12.</p> <p>All groups listed in this Warning should be considered in order to perform a complete search.</p>
72/1268	<ul style="list-style-type: none"> • . . of uplink data flows 		
72/1273	<ul style="list-style-type: none"> • . . of downlink data flows 		
72/20	<ul style="list-style-type: none"> • Control channels or signalling for resource management <p><u>WARNING</u></p> <p>Group H04W 72/20 is impacted by reclassification into groups H04W 72/25, H04W 72/27 and H04W 72/29.</p> <p>All groups listed in this Warning should be considered in order to perform a complete search.</p>		
72/21	<ul style="list-style-type: none"> • . in the uplink direction of a wireless link, i.e. towards the network 		
72/23	<ul style="list-style-type: none"> • . in the downlink direction of a wireless link, i.e. towards a terminal <p><u>WARNING</u></p> <p>Group H04W 72/23 is impacted by reclassification into groups H04W 72/231 and H04W 72/232.</p> <p>Groups H04W 72/23, H04W 72/231 and H04W 72/232 should be considered in order to perform a complete search.</p>		

72/50	<ul style="list-style-type: none"> Allocation or scheduling criteria for wireless resources <p>WARNING</p> <p>Group H04W 72/50 is incomplete pending reclassification of documents from group H04W 72/12.</p> <p>Groups H04W 72/12 and H04W 72/50 should be considered in order to perform a complete search.</p>	72/566	<ul style="list-style-type: none"> of the information or information source or recipient <p>WARNING</p> <p>Group H04W 72/566 is incomplete pending reclassification of documents from group H04W 72/56.</p> <p>Groups H04W 72/56 and H04W 72/566 should be considered in order to perform a complete search.</p>
72/51	<ul style="list-style-type: none"> based on terminal or device properties <p>WARNING</p> <p>Group H04W 72/51 is incomplete pending reclassification of documents from group H04W 72/12.</p> <p>Group H04W 72/51 is also impacted by reclassification into group H04W 72/512.</p> <p>Groups H04W 72/12, H04W 72/51 and H04W 72/512 should be considered in order to perform a complete search.</p>	72/569	<ul style="list-style-type: none"> {of the traffic information}
72/512	<ul style="list-style-type: none"> for low-latency requirements, e.g. URLLC <p>WARNING</p> <p>Group H04W 72/512 is incomplete pending reclassification of documents from groups H04W 72/12 and H04W 72/51.</p> <p>Groups H04W 72/12, H04W 72/51 and H04W 72/512 should be considered in order to perform a complete search.</p>	74/00	Wireless channel access
72/52	<ul style="list-style-type: none"> based on load 	74/002	<ul style="list-style-type: none"> {Transmission of channel access control information}
72/53	<ul style="list-style-type: none"> based on regulatory allocation policies 	74/004	<ul style="list-style-type: none"> {in the uplink, i.e. towards network}
72/535	<ul style="list-style-type: none"> {based on resource usage policies} 	74/006	<ul style="list-style-type: none"> {in the downlink, i.e. towards the terminal}
72/54	<ul style="list-style-type: none"> based on quality criteria <p>WARNING</p> <p>Group H04W 72/54 is impacted by reclassification into group H04W 72/541.</p> <p>Groups H04W 72/54 and H04W 72/541 should be considered in order to perform a complete search.</p>	74/02	<ul style="list-style-type: none"> Hybrid access
72/541	<ul style="list-style-type: none"> using the level of interference <p>WARNING</p> <p>Group H04W 72/541 is incomplete pending reclassification of documents from group H04W 72/54.</p> <p>Groups H04W 72/54 and H04W 72/541 should be considered in order to perform a complete search.</p>	74/04	<ul style="list-style-type: none"> Scheduled access (hybrid access H04W 74/02)
72/542	<ul style="list-style-type: none"> using measured or perceived quality 	74/06	<ul style="list-style-type: none"> using polling
72/543	<ul style="list-style-type: none"> based on requested quality, e.g. QoS 	74/08	<ul style="list-style-type: none"> Non-scheduled access, e.g. ALOHA (hybrid access H04W 74/02)
72/56	<ul style="list-style-type: none"> based on priority criteria <p>WARNING</p> <p>Group H04W 72/56 is impacted by reclassification into group H04W 72/566.</p> <p>Groups H04W 72/56 and H04W 72/566 should be considered in order to perform a complete search.</p>	74/0808	<ul style="list-style-type: none"> using carrier sensing, e.g. carrier sense multiple access [CSMA]
72/563	<ul style="list-style-type: none"> of the wireless resources 	74/0816	<ul style="list-style-type: none"> with collision avoidance
		74/0825	<ul style="list-style-type: none"> {with collision detection}
		74/0833	<ul style="list-style-type: none"> Random access procedures, e.g. with 4-step access <p>WARNING</p> <p>Group H04W 74/0833 is impacted by reclassification into groups H04W 74/0836 and H04W 74/0838.</p> <p>Groups H04W 74/0833, H04W 74/0836 and H04W 74/0838 should be considered in order to perform a complete search.</p>
		74/0836	<ul style="list-style-type: none"> with 2-step access <p>WARNING</p> <p>Group H04W 74/0836 is incomplete pending reclassification of documents from group H04W 74/0833.</p> <p>Groups H04W 74/0833 and H04W 74/0836 should be considered in order to perform a complete search.</p>
		74/0838	<ul style="list-style-type: none"> using contention-free random access [CFRA] <p>WARNING</p> <p>Group H04W 74/0838 is incomplete pending reclassification of documents from group H04W 74/0833.</p> <p>Groups H04W 74/0833 and H04W 74/0838 should be considered in order to perform a complete search.</p>
		74/0841	<ul style="list-style-type: none"> {with collision treatment}
		74/085	<ul style="list-style-type: none"> {collision avoidance}
		74/0858	<ul style="list-style-type: none"> {collision detection}
		74/0866	<ul style="list-style-type: none"> {using a dedicated channel for access}
		74/0875	<ul style="list-style-type: none"> {with assigned priorities based access}
		74/0883	<ul style="list-style-type: none"> {for un-synchronized access}
		74/0891	<ul style="list-style-type: none"> {for synchronized access}

76/00 Connection management

- 76/10 . Connection setup
- 76/11 . . Allocation or use of connection identifiers
- 76/12 . . Setup of transport tunnels
- 76/14 . . Direct-mode setup
- 76/15 . . Setup of multiple wireless link connections
- 76/16 . . . Involving different core network technologies, e.g. a packet-switched [PS] bearer in combination with a circuit-switched [CS] bearer
- 76/18 . . Management of setup rejection or failure
- 76/19 . . Connection re-establishment
- 76/20 . Manipulation of established connections
- 76/22 . . Manipulation of transport tunnels
- 76/23 . . Manipulation of direct-mode connections
- 76/25 . . Maintenance of established connections
- 76/27 . . Transitions between radio resource control [RRC] states
- 76/28 . . Discontinuous transmission [DTX]; Discontinuous reception [DRX]
- 76/30 . Connection release
- 76/32 . . Release of transport tunnels
- 76/34 . . Selective release of ongoing connections
- 76/36 . . . for reassigning the resources associated with the released connections
- 76/38 . . triggered by timers
- 76/40 . for selective distribution or broadcast
- 76/45 . . for Push-to-Talk [PTT] or Push-to-Talk over cellular [PoC] services
- 76/50 . for emergency connections

80/00 Wireless network protocols or protocol adaptations to wireless operation

- 80/02 . Data link layer protocols
- 80/04 . Network layer protocols, e.g. mobile IP [Internet Protocol]
- 80/045 . . {involving different protocol versions, e.g. MIPv4 and MIPv6}
- 80/06 . Transport layer protocols, e.g. TCP [Transport Control Protocol] over wireless {(transmission control protocol/Internet protocol [TCP/IP] or user datagram protocol [UDP] H04L 69/16)}
- 80/08 . Upper layer protocols {(network arrangements or communication protocols for networked applications H04L 67/00)}
- 80/085 . . {involving different upper layer protocol versions, e.g. LCS - SUPL or WSN-SOA-WSDP}
- 80/10 . . adapted for {application} session management, e.g. SIP [Session Initiation Protocol] {(connection management H04W 76/00; arrangements for session management H04L 67/14)}
- 80/12 . . Application layer protocols, e.g. WAP [Wireless Application Protocol]

84/00 Network topologies**NOTE**

In this group, local priority rules supersede the first-place priority rule (FPPR) applying throughout [H04W](#)

- 84/005 . {Moving wireless networks}

- 84/02 . Hierarchically pre-organised networks, e.g. paging networks, cellular networks, WLAN [Wireless Local Area Network] or WLL [Wireless Local Loop]
- 84/022 . . {One-way selective calling networks, e.g. wide area paging}
- 84/025 . . . {with acknowledge back capability}
- 84/027 . . . {providing paging services}
- 84/04 . . Large scale networks; Deep hierarchical networks
- 84/042 . . . {Public Land Mobile systems, e.g. cellular systems}
- 84/045 {using private Base Stations, e.g. femto Base Stations, home Node B}
- 84/047 {using dedicated repeater stations}
- 84/06 . . . Airborne or Satellite Networks (space-based or airborne stations [H04B 7/185](#))
- 84/08 . . . Trunked mobile radio systems
- 84/10 . . Small scale networks; Flat hierarchical networks
- 84/105 . . . {PBS [Private Base Station] network ([H04W 84/12](#) - [H04W 84/16](#) take precedence)}
- 84/12 . . . WLAN [Wireless Local Area Networks]
- 84/14 . . . WLL [Wireless Local Loop]; RLL [Radio Local Loop]
- 84/16 . . . WPBX [Wireless Private Branch Exchange]
- 84/18 . Self-organising networks, e.g. ad-hoc networks or sensor networks
- 84/20 . . Leader-follower arrangements
- 84/22 . . with access to wired networks

88/00 Devices specially adapted for wireless communication networks, e.g. terminals, base stations or access point devices

- 88/005 . {Data network PoA devices}
- 88/02 . Terminal devices
- 88/021 . . {adapted for Wireless Local Loop operation}
- 88/022 . . {Selective call receivers}
- 88/023 . . . {with message or information receiving capability}
- 88/025 . . . {Selective call decoders}
- 88/026 {using digital address codes}
- 88/027 {using frequency address codes}
- 88/028 {using pulse address codes}
- 88/04 . . adapted for relaying to or from another terminal or user
- 88/06 . . adapted for operation in multiple networks {or having at least two operational modes}, e.g. multi-mode terminals
- 88/08 . Access point devices
- 88/085 . . {Access point devices with remote components}
- 88/10 . . adapted for operation in multiple networks, e.g. multi-mode access points
- 88/12 . Access point controller devices
- 88/14 . Backbone network devices
- 88/16 . Gateway arrangements
- 88/18 . Service support devices; Network management devices
- 88/181 . . {Transcoding devices; Rate adaptation devices}
- 88/182 . . {Network node acting on behalf of an other network entity, e.g. proxy}
- 88/184 . . {Messaging devices, e.g. message centre}
- 88/185 . . {Selective call encoders for paging networks, e.g. paging centre devices}
- 88/187 . . . {using digital or pulse address codes}

- 88/188 . . . {using frequency address codes}
- 92/00 Interfaces specially adapted for wireless communication networks**
- 92/02 . Inter-networking arrangements
- 92/04 . Interfaces between hierarchically different network devices
- 92/045 . . {between access point and backbone network device}
- 92/06 . . between gateways and public network devices
- 92/08 . . between user and terminal device
- 92/10 . . between terminal device and access point, i.e. wireless air interface
- 92/12 . . between access points and access point controllers
- 92/14 . . between access point controllers and backbone network device
- 92/16 . Interfaces between hierarchically similar devices
- 92/18 . . between terminal devices
- 92/20 . . between access points
- 92/22 . . between access point controllers
- 92/24 . . between backbone network devices
- 99/00 Subject matter not provided for in other groups of this subclass**