

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](#).
3. In this subclass, the first place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place.

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	4/06	• Selective distribution of broadcast services, e.g. multimedia broadcast multicast service [MBMS]; Services to user groups; One-way selective calling services
	NOTES		
	1. This groups covers mobile application services or application service signalling for communication over wireless networks.	4/08	• . User group management
	2. This group focuses on application services specially adapted for wireless networks or adjusted to the wireless environment	4/10	• . Push-to-Talk [PTT] or Push-On-Call services
	3. In this group, the first place priority rule is not applied, i.e. the common rule is applied.	4/12	• Messaging; Mailboxes; Announcements
4/02	• Services making use of location information	4/14	• . Short messaging services, e.g. short message services [SMS] or unstructured supplementary service data [USSD]
4/021	• . Services related to particular areas, e.g. point of interest [POI] services, venue services or geofences	4/16	• Communication-related supplementary services, e.g. call-transfer or call-hold
4/022	• . . {with dynamic range variability}	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
4/023	• . {using mutual or relative location information between multiple location based services [LBS] targets or of distance thresholds}	4/185	• . {by embedding added-value information into content, e.g. geo-tagging}
4/024	• . Guidance services	4/20	• Services signaling; Auxiliary data signalling, i.e. transmitting data via a non-traffic channel
4/025	• . {using location based information parameters}	4/203	• . {for converged personal network application service interworking, e.g. OMA converged personal network services [CPNS]}
4/026	• . . {using orientation information, e.g. compass}	4/21	• . for social networking applications
4/027	• . . {using movement velocity, acceleration information}	4/23	• . for mobile advertising
4/029	• . Location-based management or tracking services	4/24	• Accounting or billing

4/30	<ul style="list-style-type: none"> Services specially adapted for particular environments, situations or purposes 	8/26	<ul style="list-style-type: none"> Network addressing or numbering for mobility support
4/33	<ul style="list-style-type: none"> for indoor environments, e.g. buildings 	8/265	<ul style="list-style-type: none"> {for initial activation of new user}
4/35	<ul style="list-style-type: none"> for the management of goods or merchandise 	8/28	<ul style="list-style-type: none"> Number portability {; Network address portability}
4/38	<ul style="list-style-type: none"> for collecting sensor information 		
4/40	<ul style="list-style-type: none"> for vehicles, e.g. vehicle-to-pedestrians [V2P] 	8/30	<ul style="list-style-type: none"> Network data restoration; {Network data reliability; Network data fault tolerance}
4/42	<ul style="list-style-type: none"> for mass transport vehicles, e.g. buses, trains or aircraft 		
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] 	12/00	<p>Security arrangements, e.g. access security or fraud detection; Authentication, e.g. verifying user identity or authorisation; Protecting privacy or anonymity {; Protecting confidentiality; Key management; Integrity; Mobile application security; Using identity modules; Secure pairing of devices; Context aware security; Lawful interception}</p> <p>WARNING</p> <p>Group H04W 12/00 is impacted by reclassification into groups H04W 12/00, H04W 12/001, H04W 12/0013, H04W 12/0017, H04W 12/002, H04W 12/0023, H04W 12/0027, H04W 12/003, H04W 12/00305, H04W 12/004, H04W 12/00401, H04W 12/00403, H04W 12/00405, H04W 12/00407, H04W 12/00409, H04W 12/005, H04W 12/0051, H04W 12/00502, H04W 12/00503, H04W 12/00504, H04W 12/00505, H04W 12/00506, H04W 12/00508, H04W 12/0051, H04W 12/00512, H04W 12/00514, H04W 12/00516, H04W 12/00518, H04W 12/0052, H04W 12/00522, H04W 12/00524, H04W 12/007, H04W 12/009, H04W 12/0401, H04W 12/0403, H04W 12/04031, H04W 12/04033, H04W 12/0407, H04W 12/04071, H04W 12/0602, H04W 12/0605, H04W 12/0608, H04W 12/0609, H04W 12/0802, H04W 12/0804, H04W 12/0806, H04W 12/0808, H04W 12/1002, H04W 12/1004, H04W 12/1006, H04W 12/1008, H04W 12/12, H04W 12/1201, H04W 12/1202, H04W 12/1204, H04W 12/1205, H04W 12/1206, H04W 12/1208.</p> <p>All groups listed in this warning should be considered in order to perform a complete search.</p>
8/00	Network data management		
8/005	<ul style="list-style-type: none"> {Discovery of network devices, e.g. terminals} 		
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 		
8/04	<ul style="list-style-type: none"> Registration at HLR or HSS [Home Subscriber Server] 		
8/06	<ul style="list-style-type: none"> Registration at serving network Location Register, VLR or user mobility server 		
8/065	<ul style="list-style-type: none"> {involving selection of the user mobility server} 		
8/08	<ul style="list-style-type: none"> Mobility data transfer 		
8/082	<ul style="list-style-type: none"> {for traffic bypassing of mobility servers, e.g. location registers, home PLMNs or home agents} 		
8/085	<ul style="list-style-type: none"> {involving hierarchical organized mobility servers, e.g. hierarchical mobile IP [HMP]} 		
8/087	<ul style="list-style-type: none"> {for preserving data network PoA address despite hand-offs} 		
8/10	<ul style="list-style-type: none"> between location register and external networks 		
8/12	<ul style="list-style-type: none"> between location registers or mobility servers 		
8/14	<ul style="list-style-type: none"> between corresponding nodes 		
8/16	<ul style="list-style-type: none"> selectively restricting mobility {data} tracking 	12/001	<ul style="list-style-type: none"> {Protecting confidentiality, e.g. by encryption or ciphering} <p>WARNING</p> <p>Group H04W 12/001 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/02.</p> <p>Groups H04W 12/00, H04W 12/02, and H04W 12/001 should be considered in order to perform a complete search.</p>
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 		
8/183	<ul style="list-style-type: none"> {Processing at user equipment or user record carrier} 		
8/186	<ul style="list-style-type: none"> {Processing of subscriber group data} 		
8/20	<ul style="list-style-type: none"> Transfer of user or subscriber data 		
8/205	<ul style="list-style-type: none"> {Transfer to or from user equipment or user record carrier} 		
8/22	<ul style="list-style-type: none"> Processing or transfer of terminal data, e.g. status or physical capabilities 		
8/24	<ul style="list-style-type: none"> Transfer of terminal data 		
8/245	<ul style="list-style-type: none"> {from a network towards a terminal} 		

- 12/0013 . . {of user plane, e.g. user traffic}

WARNING

Group [H04W 12/0013](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/0013](#) should be considered in order to perform a complete search.

- 12/0017 . . {of control plane, e.g. signalling traffic}

WARNING

Group [H04W 12/0017](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/0017](#) should be considered in order to perform a complete search.

- 12/002 . {Mobile device security; Mobile application security}

WARNING

Group [H04W 12/002](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/002](#) should be considered in order to perform a complete search.

- 12/0023 . . {Protecting application or service provisioning, e.g. securing SIM application provisioning}

WARNING

Group [H04W 12/0023](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/0023](#) should be considered in order to perform a complete search.

- 12/0027 . . {Managing security policies for mobile device or applications control, e.g. mobile application permission management or mobile device security settings}

WARNING

Group [H04W 12/0027](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/0027](#) should be considered in order to perform a complete search.

- 12/003 . {Secure pairing of devices, e.g. bootstrapping a secure communication link between pairing terminals; Secure socializing}

WARNING

Group [H04W 12/003](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/003](#) should be considered in order to perform a complete search.

- 12/00305 . . {involving three or more devices, e.g. group pairing}

WARNING

Group [H04W 12/00305](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/00305](#) should be considered in order to perform a complete search.

- 12/004 . {using identity modules}

WARNING

Group [H04W 12/004](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/004](#) should be considered in order to perform a complete search.

- 12/00401 . . {using virtual identity modules}

WARNING

Group [H04W 12/00401](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/00401](#) should be considered in order to perform a complete search.

- 12/00403 . . {using shared identity modules, e.g. SIM sharing}

WARNING

Group [H04W 12/00403](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/00403](#) should be considered in order to perform a complete search.

- 12/00405 . . {using multiple identity modules}

WARNING

Group [H04W 12/00405](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/00405](#) should be considered in order to perform a complete search.

- 12/00407 . . {using near field communication [NFC], e.g. NFC tag, smart tag or radio frequency identification [RFID] module}

WARNING

Group [H04W 12/00407](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/00407](#) should be considered in order to perform a complete search.

- 12/00409 . . {using secure binding, e.g. securely binding identity modules to devices, services or applications}

WARNING

Group [H04W 12/00409](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/00409](#) should be considered in order to perform a complete search.

- 12/005 . . {Context aware security}

WARNING

Group [H04W 12/005](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/005](#) should be considered in order to perform a complete search.

- 12/00502 . . {Time aware}

WARNING

Group [H04W 12/00502](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/00502](#) should be considered in order to perform a complete search.

- 12/00503 . . {Location or proximity aware, e.g. using proximity to other devices}

WARNING

Group [H04W 12/00503](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/00503](#) should be considered in order to perform a complete search.

- 12/00504 . . {Ambient aware, e.g. using captured environmental data}

WARNING

Group [H04W 12/00504](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/00504](#) should be considered in order to perform a complete search.

- 12/00505 . . {Risk aware, e.g. selecting security levels depending on risk profiles}

WARNING

Group [H04W 12/00505](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/00505](#) should be considered in order to perform a complete search.

- 12/00506 . . {Trust aware, e.g. using trust scores or trust relationships}

WARNING

Group [H04W 12/00506](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/00506](#) should be considered in order to perform a complete search.

- 12/00508 . . {Gesture or behaviour aware, e.g. device movements or biometrics}

WARNING

Group [H04W 12/00508](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/00508](#) should be considered in order to perform a complete search.

- 12/0051 . . {Identity aware}

WARNING

Group [H04W 12/0051](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/0051](#) should be considered in order to perform a complete search.

- 12/00512 . . . {Hardware identity}

WARNING

Group [H04W 12/00512](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/00512](#) should be considered in order to perform a complete search.

- 12/00514 . . . {Subscriber identity}

WARNING

Group [H04W 12/00514](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/00514](#) should be considered in order to perform a complete search.

- 12/00516 . . . {Access point logical identity}

WARNING

Group [H04W 12/00516](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).

Groups [H04W 12/00](#) and [H04W 12/00516](#) should be considered in order to perform a complete search.

- 12/00518 . . . {Temporary identity}
- WARNING**
- Group [H04W 12/00518](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).
- Groups [H04W 12/00](#) and [H04W 12/00518](#) should be considered in order to perform a complete search.
- 12/0052 . . . {Group identity}
- WARNING**
- Group [H04W 12/0052](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).
- Groups [H04W 12/00](#) and [H04W 12/0052](#) should be considered in order to perform a complete search.
- 12/00522 . . . {Graphical identity}
- WARNING**
- Group [H04W 12/00522](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).
- Groups [H04W 12/00](#) and [H04W 12/00522](#) should be considered in order to perform a complete search.
- 12/00524 . . . {Radio fingerprint}
- WARNING**
- Group [H04W 12/00524](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).
- Groups [H04W 12/00](#) and [H04W 12/00524](#) should be considered in order to perform a complete search.
- 12/007 . {Lawful interception}
- WARNING**
- Group [H04W 12/007](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).
- Groups [H04W 12/00](#), [H04W 12/02](#), and [H04W 12/007](#) should be considered in order to perform a complete search.
- 12/009 . {specially adapted for networks, e.g. wireless sensor networks, ad-hoc networks, RFID networks or cloud networks}
- WARNING**
- Group [H04W 12/009](#) is incomplete pending reclassification of documents from group [H04W 12/00](#).
- Groups [H04W 12/00](#) and [H04W 12/009](#) should be considered in order to perform a complete search.
- 12/02 . Protecting privacy or anonymity {, e.g. protecting personally identifiable information [PII]}
- WARNING**
- Group [H04W 12/02](#) is impacted by reclassification into groups [H04W 12/02](#), [H04W 12/001](#), [H04W 12/007](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 12/04 . Key management {, e.g. by generic bootstrapping architecture [GBA]}
- WARNING**
- Group [H04W 12/04](#) is impacted by reclassification into groups [H04W 12/04](#), [H04W 12/0401](#), [H04W 12/0403](#), [H04W 12/04031](#), [H04W 12/04033](#), [H04W 12/0407](#), [H04W 12/04071](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 12/0401 . . {Key generation or derivation}
- WARNING**
- Group [H04W 12/0401](#) is incomplete pending reclassification of documents from groups [H04W 12/00](#) and [H04W 12/04](#).
- Groups [H04W 12/00](#), [H04W 12/04](#), and [H04W 12/0401](#) should be considered in order to perform a complete search.
- 12/0403 . . {using a trusted network node as anchor}
- WARNING**
- Group [H04W 12/0403](#) is incomplete pending reclassification of documents from groups [H04W 12/00](#) and [H04W 12/04](#).
- Groups [H04W 12/00](#), [H04W 12/04](#), and [H04W 12/0403](#) should be considered in order to perform a complete search.
- 12/04031 . . . {Key distribution, e.g. key pre-distribution or key agreement}
- WARNING**
- Group [H04W 12/04031](#) is incomplete pending reclassification of documents from groups [H04W 12/00](#) and [H04W 12/04](#).
- Groups [H04W 12/00](#), [H04W 12/04](#), and [H04W 12/04031](#) should be considered in order to perform a complete search.
- 12/04033 . . . {Key management protocols, e.g. managing shared keys, group keys, multicast keys or rekeying}
- WARNING**
- Group [H04W 12/04033](#) is incomplete pending reclassification of documents from groups [H04W 12/00](#) and [H04W 12/04](#).
- Groups [H04W 12/00](#), [H04W 12/04](#), and [H04W 12/04033](#) should be considered in order to perform a complete search.

- 12/0407 . . {without using a trusted network node as anchor}

WARNING

Group [H04W 12/0407](#) is incomplete pending reclassification of documents from groups [H04W 12/00](#) and [H04W 12/04](#).

Groups [H04W 12/00](#), [H04W 12/04](#), and [H04W 12/0407](#) should be considered in order to perform a complete search.

- 12/04071 . . . {Key exchange, e.g. between nodes}

WARNING

Group [H04W 12/04071](#) is incomplete pending reclassification of documents from groups [H04W 12/00](#) and [H04W 12/04](#).

Groups [H04W 12/00](#), [H04W 12/04](#), and [H04W 12/04071](#) should be considered in order to perform a complete search.

- 12/06 . . Authentication

WARNING

Group [H04W 12/06](#) is impacted by reclassification into groups [H04W 12/06](#), [H04W 12/0602](#), [H04W 12/0605](#), [H04W 12/0608](#), [H04W 12/0609](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 12/0602 . . {Pre-authentication}

WARNING

Group [H04W 12/0602](#) is incomplete pending reclassification of documents from groups [H04W 12/00](#) and [H04W 12/06](#).

Groups [H04W 12/00](#), [H04W 12/06](#), and [H04W 12/0602](#) should be considered in order to perform a complete search.

- 12/0605 . . {Continuous authentication}

WARNING

Group [H04W 12/0605](#) is incomplete pending reclassification of documents from groups [H04W 12/00](#) and [H04W 12/06](#).

Groups [H04W 12/00](#), [H04W 12/06](#), and [H04W 12/0605](#) should be considered in order to perform a complete search.

- 12/0608 . . {using credential vaults, e.g. password manager applications or one time password [OTP] applications}

WARNING

Group [H04W 12/0608](#) is incomplete pending reclassification of documents from groups [H04W 12/00](#) and [H04W 12/06](#).

Groups [H04W 12/00](#), [H04W 12/06](#), and [H04W 12/0608](#) should be considered in order to perform a complete search.

- 12/0609 . . {using certificates or pre-shared keys}

WARNING

Group [H04W 12/0609](#) is incomplete pending reclassification of documents from groups [H04W 12/00](#) and [H04W 12/06](#).

Groups [H04W 12/00](#), [H04W 12/06](#), and [H04W 12/0609](#) should be considered in order to perform a complete search.

- 12/08 . . Access security

WARNING

Group [H04W 12/08](#) is impacted by reclassification into groups [H04W 12/08](#), [H04W 12/0802](#), [H04W 12/0804](#), [H04W 12/0806](#), [H04W 12/0808](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 12/0802 . . {using revocation of authorisation}

WARNING

Group [H04W 12/0802](#) is incomplete pending reclassification of documents from groups [H04W 12/00](#) and [H04W 12/08](#).

Groups [H04W 12/00](#), [H04W 12/08](#), and [H04W 12/0802](#) should be considered in order to perform a complete search.

- 12/0804 . . {using delegated authorisation, e.g. Open Authorisation [OAuth] protocol, user centric management of access rights or user consent}

WARNING

Group [H04W 12/0804](#) is incomplete pending reclassification of documents from groups [H04W 12/00](#) and [H04W 12/08](#).

Groups [H04W 12/00](#), [H04W 12/08](#), and [H04W 12/0804](#) should be considered in order to perform a complete search.

- 12/0806 . . {using security domains, e.g. separating enterprise and private data domains, building machine-to-machine [M2M] domains or global platform domains}

WARNING

Group [H04W 12/0806](#) is incomplete pending reclassification of documents from groups [H04W 12/00](#) and [H04W 12/08](#).

Groups [H04W 12/00](#), [H04W 12/08](#), and [H04W 12/0806](#) should be considered in order to perform a complete search.

- 12/0808 . . {using packet filters or firewalls}

WARNING

Group [H04W 12/0808](#) is incomplete pending reclassification of documents from groups [H04W 12/00](#) and [H04W 12/08](#).

Groups [H04W 12/00](#), [H04W 12/08](#), and [H04W 12/0808](#) should be considered in order to perform a complete search.

12/10	<ul style="list-style-type: none"> Integrity <p><u>WARNING</u></p> <p>Group H04W 12/10 is impacted by reclassification into groups H04W 12/10, H04W 12/1002, H04W 12/1004, H04W 12/1006, H04W 12/1008.</p> <p>All groups listed in this Warning should be considered in order to perform a complete search.</p>	12/1201	<ul style="list-style-type: none"> <ul style="list-style-type: none"> {Wireless intrusion detection system [WIDS]; Wireless intrusion prevention system [WIPS]} <p><u>WARNING</u></p> <p>Group H04W 12/1201 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/12.</p> <p>Groups H04W 12/00, H04W 12/12, and H04W 12/1201 should be considered in order to perform a complete search.</p>
12/1002	<ul style="list-style-type: none"> <ul style="list-style-type: none"> {Route integrity, e.g. using trusted paths} <p><u>WARNING</u></p> <p>Group H04W 12/1002 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/10.</p> <p>Groups H04W 12/00, H04W 12/10, and H04W 12/1002 should be considered in order to perform a complete search.</p>	12/1202	<ul style="list-style-type: none"> <ul style="list-style-type: none"> {Protecting against rogue devices} <p><u>WARNING</u></p> <p>Group H04W 12/1202 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/12.</p> <p>Groups H04W 12/00, H04W 12/12, and H04W 12/1202 should be considered in order to perform a complete search.</p>
12/1004	<ul style="list-style-type: none"> <ul style="list-style-type: none"> {Location integrity, e.g. secure geo-tagging or trusted cell tagging} <p><u>WARNING</u></p> <p>Group H04W 12/1004 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/10.</p> <p>Groups H04W 12/00, H04W 12/10, and H04W 12/1004 should be considered in order to perform a complete search.</p>	12/1204	<ul style="list-style-type: none"> <ul style="list-style-type: none"> {Countermeasures against attacks} <p><u>WARNING</u></p> <p>Group H04W 12/1204 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/12.</p> <p>Groups H04W 12/00, H04W 12/12, and H04W 12/1204 should be considered in order to perform a complete search.</p>
12/1006	<ul style="list-style-type: none"> <ul style="list-style-type: none"> {Packet or message integrity} <p><u>WARNING</u></p> <p>Group H04W 12/1006 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/10.</p> <p>Groups H04W 12/00, H04W 12/10, and H04W 12/1006 should be considered in order to perform a complete search.</p>	12/1205	<ul style="list-style-type: none"> <ul style="list-style-type: none"> {Protecting against power exhaustion attacks, e.g. power depletion, starvation attack or sleep deprivation attack} <p><u>WARNING</u></p> <p>Group H04W 12/1205 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/12.</p> <p>Groups H04W 12/00, H04W 12/12, and H04W 12/1205 should be considered in order to perform a complete search.</p>
12/1008	<ul style="list-style-type: none"> <ul style="list-style-type: none"> {Source integrity} <p><u>WARNING</u></p> <p>Group H04W 12/1008 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/10.</p> <p>Groups H04W 12/00, H04W 12/10, and H04W 12/1008 should be considered in order to perform a complete search.</p>	12/1206	<ul style="list-style-type: none"> <ul style="list-style-type: none"> {Anti-theft arrangements, e.g. protecting against device theft, subscriber identity module [SIM] cloning or machine-to-machine [M2M] displacement} <p><u>WARNING</u></p> <p>Group H04W 12/1206 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/12.</p> <p>Groups H04W 12/00, H04W 12/12, and H04W 12/1206 should be considered in order to perform a complete search.</p>
12/12	<ul style="list-style-type: none"> Fraud detection {or prevention} <p><u>WARNING</u></p> <p>Group H04W 12/12 is incomplete pending reclassification of documents from group H04W 12/00.</p> <p>Group H04W 12/12 is also impacted by reclassification into groups H04W 12/12, H04W 12/1201, H04W 12/1202, H04W 12/1204, H04W 12/1205, H04W 12/1206, H04W 12/1208.</p> <p>All groups listed in this Warning should be considered in order to perform a complete search.</p>	12/1208	<ul style="list-style-type: none"> <ul style="list-style-type: none"> {Anti-malware arrangements, e.g. protecting against SMS fraud or mobile malware} <p><u>WARNING</u></p> <p>Group H04W 12/1208 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/12.</p> <p>Groups H04W 12/00, H04W 12/12, and H04W 12/1208 should be considered in order to perform a complete search.</p>

16/00	Network planning, e.g. coverage or traffic planning tools; Network deployment, e.g. resource partitioning or cells structures	28/0247	. . {based on conditions of the access network or the infrastructure network (central resource management H04W 28/16)}
16/02	. Resource partitioning among network components, e.g. reuse partitioning	28/0252	. . {per individual bearer or channel (dynamic wireless traffic scheduling H04W 72/12)}
16/04	. . Traffic adaptive resource partitioning	28/0257	. . . {the individual bearer or channel having a maximum bit rate or a bit rate guarantee}
16/06	. . Hybrid resource partitioning, e.g. channel borrowing	28/0263	. . . {involving mapping traffic to individual bearers or channels, e.g. traffic flow template [TFT]}
16/08	. . . Load shedding arrangements	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)}
16/10	. . Dynamic resource partitioning	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)}
16/12	. . Fixed resource partitioning	28/0278	. . {using buffer status reports (dynamic wireless traffic scheduling definition H04W 72/1205)}
16/14	. Spectrum sharing arrangements { between different networks }	28/0284	. . {detecting congestion or overload during communication (monitoring arrangements H04L 43/00)}
16/16	. . for PBS [Private Base Station] arrangements	28/0289	. . {Congestion control (performing reselection for handling the traffic H04W 36/22 ; load shedding arrangements in network planning H04W 16/08 ; dynamic wireless traffic scheduling H04W 72/12)}
16/18	. Network planning tools	28/0294	. . {forcing collision (non-scheduled or contention based wireless access channel H04W 74/08)}
16/20	. . for indoor coverage or short range network deployment	28/04	. . Error control
16/22	. Traffic simulation tools or models		NOTE
16/225	. . { for indoor or short range network }		When classifying in this group, classification is also made in the appropriate groups under H04L 1/00 .
16/24	. Cell structures		
16/26	. . Cell enhancers { or enhancement }, e.g. for tunnels, building shadow		
16/28	. . using beam steering		
16/30	. . Special cell shapes, e.g. doughnuts or ring cells		
16/32	. . Hierarchical cell structures		
24/00	Supervisory, monitoring or testing arrangements		
24/02	. Arrangements for optimising operational condition		
24/04	. Arrangements for maintaining operational condition		
24/06	. Testing, { supervising or monitoring } using simulated traffic		
24/08	. Testing, { supervising or monitoring } using real traffic		
24/10	. Scheduling measurement reports {; Arrangements for measurement reports}		
28/00	Network traffic or resource management		
28/02	. Traffic management, e.g. flow control or congestion control	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)}
28/0205	. . { at the air interface (dynamic wireless traffic scheduling H04W 72/12) }	28/065	. . . {using assembly or disassembly of packets}
28/021	. . { in wireless networks with changing topologies, e.g. ad-hoc networks (self-organizing networks H04W 84/18) }	28/08	. . Load balancing or load distribution
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 72/048)}		WARNING
28/0221	. . . {power availability or consumption}		Group H04W 28/08 is impacted by re-classification into groups H04W 28/0804 - H04W 28/0846 and groups H04W 28/0858 - H04W 28/0992 .
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)}		All groups listed in this Warning should be considered in order to perform a complete search.
28/0231	. . {based on communication conditions (dynamic wireless traffic scheduling definition based on channel quality criteria H04W 72/1226)}		
28/0236	. . . {radio quality, e.g. interference, losses or delay}		
28/0242	. . . {Determining whether packet losses are due to overload or to deterioration of radio communication conditions}		

28/0804 . . . {between access entities (reselecting a network for handling traffic [H04W 36/22](#); wireless resource allocation where an allocation plan is defined based on load [H04W 72/0486](#))}

WARNING

Groups [H04W 28/0804](#) - [H04W 28/0823](#) are incomplete pending re-classification of documents from group [H04W 28/08](#).

All groups listed in this Warning should be considered in order to perform a complete search.

28/0808 {between base stations}

28/0812 {of same hierarchy level}

28/0815 {of different hierarchy levels, e.g. Master Evolved Node B [MeNB] or Secondary Evolved node B [SeNB]}

28/0819 {of different Radio Access Technologies [RATs], e.g. LTE or WiFi}

28/0823 {between wireless and wire-based access points, e.g. via LTE and via DSL connected access points}

28/0827 . . . {Triggering entity}

WARNING

Groups [H04W 28/0827](#) – [H04W 28/0838](#) are incomplete pending re-classification of documents from group [H04W 28/08](#).

All groups listed in this Warning should be considered in order to perform a complete search.

28/0831 {Core entity}

28/0835 {Access entity, e.g. eNB}

28/0838 {User device}

28/0842 . . . {among core entities}

WARNING

Group [H04W 28/0842](#) is incomplete pending re-classification of documents from group [H04W 28/08](#).

Groups [H04W 28/08](#) and [H04W 28/0842](#) should be considered in order to perform a complete search.

28/0846 . . . {between network providers, e.g. operators (selecting a network or a communication service [H04W 40/18](#))}

WARNING

Group [H04W 28/0846](#) is incomplete pending re-classification of documents from group [H04W 28/08](#).

Groups [H04W 28/08](#) and [H04W 28/0846](#) should be considered in order to perform a complete search.

28/085 . . . {among bearers or channels}

28/0858 . . . {among entities in the uplink}

WARNING

Group [H04W 28/0858](#) is incomplete pending re-classification of documents from group [H04W 28/08](#).

Groups [H04W 28/08](#) and [H04W 28/0858](#) should be considered in order to perform a complete search.

28/0867 . . . {among entities in the downlink}

WARNING

Group [H04W 28/0867](#) is incomplete pending re-classification of documents from group [H04W 28/08](#).

Groups [H04W 28/08](#) and [H04W 28/0867](#) should be considered in order to perform a complete search.

28/0875 . . . {to or through Device to Device [D2D] links, e.g. direct-mode links}

WARNING

Group [H04W 28/0875](#) is incomplete pending re-classification of documents from group [H04W 28/08](#).

Groups [H04W 28/08](#) and [H04W 28/0875](#) should be considered in order to perform a complete search.

28/0883 . . . {between entities in ad-hoc networks}

WARNING

Groups [H04W 28/0883](#) and [H04W 28/0892](#) are incomplete pending re-classification of documents from group [H04W 28/08](#).

Groups [H04W 28/08](#), [H04W 28/0883](#) and [H04W 28/0892](#) should be considered in order to perform a complete search.

28/0892 {between different intermediate nodes}

28/09 . . . {Management thereof}

WARNING

Group [H04W 28/09](#) is incomplete pending re-classification of documents from group [H04W 28/08](#).

Groups [H04W 28/08](#) and [H04W 28/09](#) should be considered in order to perform a complete search.

28/0908 {based on time, e.g. for a critical period only}

WARNING

Group [H04W 28/0908](#) is incomplete pending re-classification of documents from group [H04W 28/08](#).

Groups [H04W 28/08](#) and [H04W 28/0908](#) should be considered in order to perform a complete search.

- 28/0917 {based on the energy state of entities}
- WARNING**
- Group [H04W 28/0917](#) is incomplete pending re-classification of documents from group [H04W 28/08](#).
- Groups [H04W 28/08](#) and [H04W 28/0917](#) should be considered in order to perform a complete search.
- 28/0925 {using policies}
- WARNING**
- Groups [H04W 28/0925](#) - [H04W 28/095](#) are incomplete pending re-classification of documents from group [H04W 28/08](#).
- Groups [H04W 28/08](#) and [H04W 28/0925](#) should be considered in order to perform a complete search.
- 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}
- WARNING**
- Groups [H04W 28/0958](#) – [H04W 28/0983](#) are incomplete pending re-classification of documents from group [H04W 28/08](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 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}
- WARNING**
- Group [H04W 28/0992](#) is incomplete pending re-classification of documents from group [H04W 28/08](#).
- Groups [H04W 28/08](#) and [H04W 28/0992](#) should be considered in order to perform a complete search.
- 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](#)

WARNING

Group [H04W 36/00](#) is impacted by reclassification into group [H04W 36/03](#).

Groups [H04W 36/00](#) and [H04W 36/03](#) should be considered in order to perform a complete search.

- 36/0005 . {Control or signalling for completing the hand-off}

WARNING

Group [H04W 36/0005](#) is impacted by reclassification into groups [H04W 36/0007](#) and [H04W 36/0009](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 36/0007 . . {for multicast or broadcast services, e.g. MBMS (multicast or broadcast application services [H04W 4/06](#); resource management for broadcast services [H04W 72/005](#); connection management for selective distribution or broadcast [H04W 76/40](#))}

WARNING

Group [H04W 36/0007](#) is incomplete pending reclassification of documents from group [H04W 36/0005](#).

Groups [H04W 36/0005](#) and [H04W 36/0007](#) should be considered in order to perform a complete search.

- 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](#))}

WARNING

Group [H04W 36/0009](#) is incomplete pending reclassification of documents from group [H04W 36/0005](#).

Groups [H04W 36/0005](#) and [H04W 36/0009](#) should be considered in order to perform a complete search.

- 36/0011 . . {for data session or connection}
- 36/0016 . . . {for hand-off preparation}
- 36/0022 . . . {for transferring sessions between adjacent core network technologies}
- 36/0027 . . . {for a plurality of sessions or connections, e.g. multi-call, multi-bearer connections}
- 36/0033 . . . {with transfer of context information}
- 36/0038 {of security context information}
- 36/0044 {of quality context information}
- 36/005 . . {involving radio access media independent information, e.g. MIH [Media independent Hand-off]}

- 36/0055 . . . {Transmission and use of information for re-establishing the radio link}

WARNING

Group [H04W 36/0055](#) is impacted by reclassification into groups [H04W 36/0058](#), [H04W 36/0069](#) and [H04W 36/0079](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 36/0058 . . . {Transmission of hand-off measurement information, e.g. measurement reports}

WARNING

Group [H04W 36/0058](#) is incomplete pending reclassification of documents from group [H04W 36/0055](#).

Groups [H04W 36/0005](#) and [H04W 36/0058](#) should be considered in order to perform a complete search.

- 36/0061 . . . {of neighbor cell information}

- 36/0066 . . . {of control information between different types of networks in order to establish a new radio link in the target network}

- 36/0069 . . . {in case of dual connectivity, e.g. CoMP, decoupled uplink/downlink or carrier aggregation (allocation of physical resources in CoMP or in carrier aggregation [H04L 5/0035](#))}

WARNING

Group [H04W 36/0069](#) is incomplete pending reclassification of documents from group [H04W 36/0055](#).

Groups [H04W 36/0055](#) and [H04W 36/0069](#) should be considered in order to perform a complete search.

- 36/0072 . . . {of resource information of target access point}

- 36/0077 . . . {of access information of target access point}

- 36/0079 . . . {in case of hand-off failure or rejection}

WARNING

Group [H04W 36/0079](#) is incomplete pending reclassification of documents from groups [H04W 36/0055](#) and [H04W 36/30](#).

Groups [H04W 36/0055](#), [H04W 36/30](#) and [H04W 36/0079](#) should be considered in order to perform a complete search.

- 36/0083 . . . {Determination of parameters used for hand-off, e.g. generation or modification of neighbour cell lists}

WARNING

Group [H04W 36/0083](#) is impacted by reclassification into groups [H04W 36/00835](#), [H04W 36/00837](#), and [H04W 36/0085](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 36/00835 . . . {Determination of the neighbour cell list}

WARNING

Group [H04W 36/00835](#) is incomplete pending reclassification of documents from group [H04W 36/0083](#).

Groups [H04W 36/0083](#) and [H04W 36/00835](#) should be considered in order to perform a complete search.

- 36/00837 . . . {Determination of triggering parameters for hand-off}

WARNING

Group [H04W 36/00837](#) is incomplete pending reclassification of documents from group [H04W 36/0083](#).

Groups [H04W 36/0083](#) and [H04W 36/00837](#) should be considered in order to perform a complete search.

- 36/0085 . . . {Hand-off measurements}

WARNING

Group [H04W 36/0085](#) is incomplete pending reclassification of documents from group [H04W 36/0083](#).

Groups [H04W 36/0083](#) and [H04W 36/0085](#) should be considered in order to perform a complete search.

- 36/0088 {Scheduling hand-off measurements}

- 36/0094 {Definition of hand-off measurement parameters}

- 36/02 . . Buffering or recovering information during reselection {; Modification of the traffic flow during hand-off}

- 36/023 . . {Buffering or recovering information during reselection}

- 36/026 . . {Multicasting of data during hand-off}

- 36/03 . {Reselecting a link using a direct mode connection}

WARNING

Group [H04W 36/03](#) is incomplete pending reclassification of documents from group [H04W 36/00](#).

Groups [H04W 36/03](#) and [H04W 36/00](#) should be considered in order to perform a complete search.

- 36/04 . . Reselecting a cell layer in multi-layered cells

- 36/06 . . Reselecting a communication resource in the serving access point

- 36/08 . . Reselecting an access point

- 36/10 . . Reselecting an access point controller

- 36/12 . . Reselecting a serving backbone network switching or routing node

WARNING

Group [H04W 36/12](#) is impacted by reclassification into group [H04W 36/125](#).

Groups [H04W 36/12](#) and [H04W 36/125](#) should be considered in order to perform a complete search.

36/125	<ul style="list-style-type: none"> . . {involving different types of service backbone} <p>WARNING</p> <p>Group H04W 36/125 is incomplete pending reclassification of documents from group H04W 36/12.</p> <p>Groups H04W 36/12 and H04W 36/125 should be considered in order to perform a complete search.</p>	40/06	<ul style="list-style-type: none"> . . . based on characteristics of available antennas
		40/08	<ul style="list-style-type: none"> . . . based on transmission power
		40/10	<ul style="list-style-type: none"> . . . based on available power or energy
		40/12	<ul style="list-style-type: none"> . . based on transmission quality or channel quality
		40/125	<ul style="list-style-type: none"> . . . {using a measured number of retransmissions as a link metric}
		40/14	<ul style="list-style-type: none"> . . . based on stability
		40/16	<ul style="list-style-type: none"> . . . based on interference
		40/18	<ul style="list-style-type: none"> . . based on predicted events
		40/20	<ul style="list-style-type: none"> . . based on geographic position or location
		40/205	<ul style="list-style-type: none"> . . . {using topographical information, e.g. hills, high rise buildings}
		40/22	<ul style="list-style-type: none"> . . using selective relaying for reaching a BTS [Base Transceiver Station] or an access point
		40/24	<ul style="list-style-type: none"> . Connectivity information management, e.g. connectivity discovery or connectivity update
		40/242	<ul style="list-style-type: none"> . . {aging of topology database entries}
		40/244	<ul style="list-style-type: none"> . . {using a network of reference devices, e.g. beaconing}
		40/246	<ul style="list-style-type: none"> . . {Connectivity information discovery}
		40/248	<ul style="list-style-type: none"> . . {Connectivity information update}
		40/26	<ul style="list-style-type: none"> . . for hybrid routing by combining proactive and reactive routing
		40/28	<ul style="list-style-type: none"> . . for reactive routing
		40/30	<ul style="list-style-type: none"> . . for proactive routing
		40/32	<ul style="list-style-type: none"> . . for defining a routing cluster membership
		40/34	<ul style="list-style-type: none"> . Modification of an existing route
		40/36	<ul style="list-style-type: none"> . . due to handover
		40/38	<ul style="list-style-type: none"> . . adapting due to varying relative distances between nodes
		48/00	Access restriction (access security to prevent unauthorised access H04W 12/08); Network selection; Access point selection
		48/02	<ul style="list-style-type: none"> . Access restriction performed under specific conditions
		48/04	<ul style="list-style-type: none"> . . based on user or terminal location or mobility data, e.g. moving direction, speed
		48/06	<ul style="list-style-type: none"> . . based on traffic conditions
		48/08	<ul style="list-style-type: none"> . Access restriction or access information delivery, e.g. discovery data delivery (signalling during connection H04W 76/00)
		48/10	<ul style="list-style-type: none"> . . using broadcasted information
		48/12	<ul style="list-style-type: none"> . . using downlink control channel
		48/14	<ul style="list-style-type: none"> . . using user query {or user detection}
		48/16	<ul style="list-style-type: none"> . Discovering, processing access restriction or access information
		48/17	<ul style="list-style-type: none"> . {Selecting a data network PoA [Point of Attachment]}
		48/18	<ul style="list-style-type: none"> . Selecting a network or a communication service
		48/20	<ul style="list-style-type: none"> . Selecting an access point
		52/00	Power management, e.g. TPC [Transmission Power Control], power saving or power classes {(gain control in transmitters or power amplifiers H03G 3/3042)}
		52/02	<ul style="list-style-type: none"> . Power saving arrangements {(in wired systems H04L 12/12; signaling of mobile application services, e.g. low battery notifications H04W 4/20)}
		52/0203	<ul style="list-style-type: none"> . . {in the radio access network or backbone network of wireless communication networks}
		52/0206	<ul style="list-style-type: none"> . . . {in access points, e.g. base stations (access point devices per se H04W 88/08)}
36/14	<ul style="list-style-type: none"> . Reselecting a network or an air interface 		
36/16	<ul style="list-style-type: none"> . Performing reselection for specific purposes 		
36/165	<ul style="list-style-type: none"> . . {for improving the overall network performance (H04W 36/18 - H04W 36/22 take precedence)} 		
36/18	<ul style="list-style-type: none"> . . for allowing seamless reselection, e.g. soft reselection 		
36/20	<ul style="list-style-type: none"> . . for optimising the interference level 		
36/22	<ul style="list-style-type: none"> . . for handling the traffic 		
36/24	<ul style="list-style-type: none"> . Reselection being triggered by specific parameters {used to improve the performance of a single terminal} 		
36/245	<ul style="list-style-type: none"> . . {by historical data} 		
36/26	<ul style="list-style-type: none"> . . by agreed or negotiated communication parameters 		
36/28	<ul style="list-style-type: none"> . . . involving a plurality of connections, e.g. multi-call, multi-bearer connections 		
36/30	<ul style="list-style-type: none"> . . by measured or perceived connection quality data <p>WARNING</p> <p>Group H04W 36/30 is impacted by reclassification into groups H04W 36/305 and H04W 36/0079</p> <p>Groups H04W 36/30, H04W 36/305 and H04W 36/0079 should be considered in order to perform a complete search.</p>		
36/305	<ul style="list-style-type: none"> . . . {Reselection due to radio link failure (control signalling for hand-off failure H04W 36/0079)} <p>WARNING</p> <p>Group H04W 36/305 is incomplete pending reclassification of documents from group H04W 36/30.</p> <p>Groups H04W 36/30 and H04W 36/305 should be considered in order to perform a complete search.</p>		
36/32	<ul style="list-style-type: none"> . . by location or mobility data, e.g. speed data 		
36/34	<ul style="list-style-type: none"> . Reselection control 		
36/36	<ul style="list-style-type: none"> . . by user or terminal equipment 		
36/365	<ul style="list-style-type: none"> . . . {by manual user interaction} 		
36/38	<ul style="list-style-type: none"> . . by fixed network equipment 		
36/385	<ul style="list-style-type: none"> . . . {of the core network} 		
40/00	Communication routing or communication path finding		
40/005	<ul style="list-style-type: none"> . {Routing actions in the presence of nodes in sleep or doze mode} 		
40/02	<ul style="list-style-type: none"> . Communication route or path selection, e.g. power-based or shortest path routing 		
40/023	<ul style="list-style-type: none"> . . {Limited or focused flooding to selected areas of a network} 		
40/026	<ul style="list-style-type: none"> . . {Route selection considering the moving speed of individual devices} 		
40/04	<ul style="list-style-type: none"> . . based on wireless node resources 		

52/0209	. . {in terminal devices (terminal devices per se H04W 88/02)}	52/143	. . . . {Downlink power control}
52/0212	. . . {managed by the network, e.g. network or access point is master and terminal is slave}	52/146	. . . . {Uplink power control}
52/0216	. . . . {using a pre-established activity schedule, e.g. traffic indication frame}	52/16	. . . Deriving transmission power values from another channel
52/0219	. . . . {where the power saving management affects multiple terminals}	52/18	. . TPC being performed according to specific parameters
52/0222	. . . . {in packet switched networks}	52/20	. . . using error rate
52/0225	. . . {using monitoring of external events, e.g. the presence of a signal}	52/22	. . . taking into account previous information or commands
52/0229	. . . . {where the received signal is a wanted signal}	52/221	. . . . {using past power control commands}
52/0232	. . . . . {according to average transmission signal activity}	52/223	. . . . {predicting future states of the transmission}
52/0235	. . . . {where the received signal is a power saving command}	52/225	. . . . {Calculation of statistics, e.g. average, variance}
52/0238	. . . . {where the received signal is an unwanted signal, e.g. interference or idle signal}	52/226	. . . . {using past references to control power, e.g. look-up-table}
52/0241	. . . . {where no transmission is received, e.g. out of range of the transmitter}	52/228	. . . . {using past power values or information}
52/0245	. . . . {according to signal strength}	52/24	. . . using SIR [Signal to Interference Ratio] or other wireless path parameters
52/0248	. . . . {dependent on the time of the day, e.g. according to expected transmission activity}	52/241	. . . . {taking into account channel quality metrics, e.g. SIR, SNR, CIR, Eb/lo}
52/0251	. . . {using monitoring of local events, e.g. events related to user activity}	52/242	. . . . {taking into account path loss}
52/0254	. . . . {detecting a user operation or a tactile contact or a motion of the device}	52/243	. . . . {taking into account interferences}
52/0258	. . . . {controlling an operation mode according to history or models of usage information, e.g. activity schedule or time of day}	52/244	. . . . . {Interferences in heterogeneous networks, e.g. among macro and femto or pico cells or other sector / system interference [OSI]}
52/0261	. . . {managing power supply demand, e.g. depending on battery level}	52/245	. . . . {taking into account received signal strength}
52/0264	. . . . {by selectively disabling software applications}	52/246	. . . . {where the output power of a terminal is based on a path parameter calculated in said terminal}
52/0267	. . . . {by controlling user interface components}	52/247	. . . . {where the output power of a terminal is based on a path parameter sent by another terminal}
52/027	. . . . . {by controlling a display operation or backlight unit}	52/248	. . . . {where transmission power control commands are generated based on a path parameter}
52/0274	. . . . {by switching on or off the equipment or parts thereof}	52/26	. . . using transmission rate or quality of service QoS [Quality of Service]
52/0277	. . . . . {according to available power supply, e.g. switching off when a low battery condition is detected}	52/262	. . . . {taking into account adaptive modulation and coding [AMC] scheme (AMC per se H04L 1/0001)}
52/028	. . . . . {switching on or off only a part of the equipment circuit blocks}	52/265	. . . . {taking into account the quality of service QoS}
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}	52/267	. . . . {taking into account the information rate}
52/0287	. . . . {changing the clock frequency of a controller in the equipment}	52/28	. . . using user profile, e.g. mobile speed, priority or network state, e.g. standby, idle or non transmission
52/029	. . . . . {reducing the clock frequency of the controller}	52/281	. . . . {taking into account user or data type priority}
52/0293	. . . . . {having a sub-controller with a low clock frequency switching on and off a main controller with a high clock frequency}	52/282	. . . . {taking into account the speed of the mobile}
52/0296	. . . . {switching to a backup power supply}	52/283	. . . . {Power depending on the position of the mobile}
52/04	. TPC	52/285	. . . . {taking into account the mobility of the user}
52/06	. . TPC algorithms	52/286	. . . . {during data packet transmission, e.g. high speed packet access [HSPA]}
52/08	. . . Closed loop power control	52/287	. . . . {when the channel is in stand-by}
52/10	. . . Open loop power control	52/288	. . . . {taking into account the usage mode, e.g. hands-free, data transmission, telephone}
52/12	. . . Outer and inner loops	52/30	. . using constraints in the total amount of available transmission power
52/125	. . . . {cascaded outer loop power control}	52/32	. . . TPC of broadcast or control channels
52/14	. . . Separate analysis of uplink or downlink	52/322	. . . . {Power control of broadcast channels}
		52/325	. . . . {Power control of control or pilot channels}

52/327	. . . . {Power control of multicast channels}	56/008	. . . . . {detecting arrival of signal based on received raw signal}
52/34	. . . TPC management, i.e. sharing limited amount of power among users or channels or data types, e.g. cell loading	56/0085	. . . . . {detecting a given structure in the signal}
52/343	. . . . {taking into account loading or congestion level}	56/009	. . . {Closed loop measurements}
52/346	. . . . {distributing total power among users or channels}	56/0095	. . {estimated based on signal strength}
52/36	. . . with a discrete range or set of values, e.g. step size, ramping or offsets	60/00	Affiliation to network, e.g. registration; Terminating affiliation with the network, e.g. de-registration
52/362	. . . . {Aspects of the step size}	60/005	. {Multiple registrations, e.g. multihoming}
52/365	. . . . {Power headroom reporting}	60/02	. by periodical registration
52/367	. . . . {Power values between minimum and maximum limits, e.g. dynamic range}	60/04	. using triggered events
52/38	. . TPC being performed in particular situations	60/06	. De-registration or detaching
52/383	. . . {power control in peer-to-peer links}	64/00	Locating users or terminals {or network equipment} for network management purposes, e.g. mobility management
52/386	. . . {centralized, e.g. when the radio network controller or equivalent takes part in the power control}	64/003	. {locating network equipment}
52/40	. . . during macro-diversity or soft handoff	64/006	. {with additional information processing, e.g. for direction or speed determination}
52/42	. . . in systems with time, space, frequency or polarisation diversity	68/00	User notification, e.g. alerting and paging, for incoming communication, change of service or the like
52/44	. . . in connection with interruption of transmission	68/005	. {Transmission of information for alerting of incoming communication}
52/46	. . . in multi hop networks, e.g. wireless relay networks	68/02	. Arrangements for increasing efficiency of notification or paging channel
52/48	. . . during retransmission after error or non-acknowledgment	68/025	. . {Indirect paging}
52/50	. . . at the moment of starting communication in a multiple access environment	68/04	. multi-step notification using statistical or historical mobility data
52/52	. . using AGC [Automatic Gain Control] circuits or amplifiers	68/06	. using multi-step notification by changing the notification area
52/54	. . Signalisation aspects of the TPC commands, e.g. frame structure	68/08	. using multi-step notification by increasing the notification area
52/545	. . . {modifying TPC bits in special situations}	68/10	. using simulcast notification
52/56	. . . Detection of errors of TPC bits	68/12	. Inter-network notification
52/58	. . . Format of the TPC bits	72/00	Local resource management, e.g. wireless traffic scheduling or selection or allocation of wireless resources
52/60	. . . using different transmission rates for TPC commands	NOTE	In this group, local priority rules supersede the first-place priority rule (FPPR) applying throughout H04W
56/00	Synchronisation arrangements	72/005	. {Resource management for broadcast services}
56/0005	. {synchronizing of arrival of multiple uplinks}	72/02	. Selection of wireless resources by user or terminal
56/001	. {Synchronization between nodes}	72/04	. Wireless resource allocation
56/0015	. . {one node acting as a reference for the others}	72/0406	. . {involving control information exchange between nodes}
56/002	. . {Mutual synchronization}	72/0413	. . . {in uplink direction of a wireless link, i.e. towards network}
56/0025	. . {synchronizing potentially movable access points}	72/042	. . . {in downlink direction of a wireless link, i.e. towards terminal}
56/003	. {Arrangements to increase tolerance to errors in transmission or reception timing}	72/0426	. . . {between access points}
56/0035	. {detecting errors in frequency or phase}	72/0433	. . . {between access point and access point controlling device}
56/004	. {compensating for timing error of reception due to propagation delay}	72/044	. . {where an allocation plan is defined based on the type of the allocated resource}
56/0045	. . {compensating for timing error by altering transmission time}	72/0446	. . . {the resource being a slot, sub-slot or frame}
56/005	. . {compensating for timing error by adjustment in the receiver}	72/0453	. . . {the resource being a frequency, carrier or frequency band}
56/0055	. {determining timing error of reception due to propagation delay}	72/046	. . . {the resource being in the space domain, e.g. beams}
56/006	. . {using known positions of transmitter and receiver}		
56/0065	. . {using measurement of signal travel time}		
56/007	. . . {Open loop measurement}		
56/0075	. . . . {based on arrival time vs. expected arrival time}		

- 72/0466 . . . {the resource being a scrambling code}
- 72/0473 . . . {the resource being transmission power}
- 72/048 . . {where an allocation plan is defined based on terminal or device properties}
- 72/0486 . . {where an allocation plan is defined based on load}
- 72/0493 . . {where an allocation plan is defined based on a resource usage policy}
- 72/06 . . {where an allocation plan is defined} based on a ranking criteria of the wireless resources
- 72/08 . . {where an allocation plan is defined} based on quality criteria
- 72/082 . . . {using the level of interference}
- 72/085 . . . {using measured or perceived quality}
- 72/087 . . . {using requested quality}
- 72/10 . . {where an allocation plan is defined} based on priority criteria
- 72/12 . . {Dynamic} Wireless traffic scheduling {; Dynamically scheduled allocation on shared channel}
- 72/1205 . . {Schedule definition, set-up or creation}
- 72/121 . . . {for groups of terminals or users}
- 72/1215 . . . {for collaboration of different radio technologies}
- 72/1221 . . . {based on age of data to be sent}
- 72/1226 . . . {based on channel quality criteria, e.g. channel state dependent scheduling}
- 72/1231 {using measured or perceived quality}
- 72/1236 {using requested quality}
- 72/1242 . . . {based on precedence or priority of the traffic information}
- 72/1247 . . . {based on priority of the information source or recipient}
- 72/1252 . . . {based on load}
- 72/1257 . . . {based on resource usage policy}
- 72/1263 . . {Schedule usage, i.e. actual mapping of traffic onto schedule; Multiplexing of flows into one or several streams; Mapping aspects; Scheduled allocation}
- 72/1268 . . . {of uplink data flows}
- 72/1273 . . . {of downlink data flows}
- 72/1278 . . {Transmission of control information for scheduling}
- 72/1284 . . . {in the uplink, i.e. from terminal to network}
- 72/1289 . . . {in the downlink, i.e. towards the terminal}
- 72/1294 {using a grant or specific channel (H04W 72/14 takes precedence)}
- 72/14 . . using a grant {or specific} channel
- 74/00 Wireless channel access, e.g. scheduled or random access**
- 74/002 . . {Transmission of channel access control information}
- 74/004 . . {in the uplink, i.e. towards network}
- 74/006 . . {in the downlink, i.e. towards the terminal}
- 74/008 . . {with additional processing of random access related information at receiving side}
- 74/02 . . Hybrid access techniques
- 74/04 . . Scheduled {or contention-free} access (H04W 74/02 takes precedence)
- 74/06 . . using polling
- 74/08 . . Non-scheduled {or contention based} access, e.g. random access, ALOHA, CSMA [Carrier Sense Multiple Access] (H04W 74/02 takes precedence)

- 74/0808 . . . {using carrier sensing, e.g. as in CSMA}
- 74/0816 {carrier sensing with collision avoidance}
- 74/0825 {carrier sensing with collision detection}
- 74/0833 . . . {using a random access procedure}
- 74/0841 {with collision treatment}
- 74/085 {collision avoidance}
- 74/0858 {collision detection}
- 74/0866 . . . {using a dedicated channel for access}
- 74/0875 {with assigned priorities based access}
- 74/0883 {for un-synchronized access}
- 74/0891 {for synchronized access}

76/00 Connection management

NOTE

In this main group, the first place priority rule is not applied, i.e. the common rule is applied.

- 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)}	88/10	. . adapted for operation in multiple networks, e.g. multi-mode access points
80/12	. . Application layer protocols, e.g. WAP [Wireless Application Protocol]	88/12	. Access point controller devices
84/00	Network topologies	88/14	. Backbone network devices
	NOTE	88/16	. Gateway arrangements
	In this group, local priority rules supersede the first-place priority rule (FPPR) applying throughout H04W	88/18	. Service support devices; Network management devices
84/005	. {Moving wireless networks}	88/181	. . {Transcoding devices; Rate adaptation devices}
84/02	. Hierarchically pre-organised networks, e.g. paging networks, cellular networks, WLAN [Wireless Local Area Network] or WLL [Wireless Local Loop]	88/182	. . {Network node acting on behalf of an other network entity, e.g. proxy}
84/022	. . {One-way selective calling networks, e.g. wide area paging}	88/184	. . {Messaging devices, e.g. message centre}
84/025	. . . {with acknowledge back capability}	88/185	. . {Selective call encoders for paging networks, e.g. paging centre devices}
84/027	. . . {providing paging services}	88/187	. . . {using digital or pulse address codes}
84/04	. . Large scale networks; Deep hierarchical networks	88/188	. . . {using frequency address codes}
84/042	. . . {Public Land Mobile systems, e.g. cellular systems}	92/00	Interfaces specially adapted for wireless communication networks
84/045	. . . . {using private Base Stations, e.g. femto Base Stations, home Node B}	92/02	. Inter-networking arrangements
84/047	. . . . {using dedicated repeater stations}	92/04	. Interfaces between hierarchically different network devices
84/06	. . . Airborne or Satellite Networks (space-based or airborne stations H04B 7/185)	92/045	. . {between access point and backbone network device}
84/08	. . . Trunked mobile radio systems	92/06	. . between gateways and public network devices
84/10	. . Small scale networks; Flat hierarchical networks	92/08	. . between user and terminal device
84/105	. . . {PBS [Private Base Station] network (H04W 84/12 - H04W 84/16 take precedence)}	92/10	. . between terminal device and access point, i.e. wireless air interface
84/12	. . . WLAN [Wireless Local Area Networks]	92/12	. . between access points and access point controllers
84/14	. . . WLL [Wireless Local Loop]; RLL [Radio Local Loop]	92/14	. . between access point controllers and backbone network device
84/16	. . . WPBX [Wireless Private Branch Exchange]	92/16	. Interfaces between hierarchically similar devices
84/18	. Self-organising networks, e.g. ad-hoc networks or sensor networks	92/18	. . between terminal devices
84/20	. . Master-slave {selection or change} arrangements	92/20	. . between access points
84/22	. . with access to wired networks	92/22	. . between access point controllers
88/00	Devices specially adapted for wireless communication networks, e.g. terminals, base stations or access point devices	92/24	. . between backbone network devices
88/005	. {Data network PoA devices}	99/00	Subject matter not provided for in other groups of this subclass
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}		