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.

4/00 Services specially adapted for wireless communication networks; Facilities therefor

NOTES
1. This group covers mobile application services or application service signalling for communication over wireless networks.
2. This group focuses on application services specially adapted for wireless networks or adjusted to the wireless environment.
3. In this group, the first place priority rule is not applied, i.e. the common rule is applied.

4/02 Services making use of location information

WARNING
Group H04W 4/02 is incomplete pending reclassification of documents from groups H04W 4/04, H04W 4/043, and H04W 4/046.
Group H04W 4/02 is also impacted by reclassification into groups H04W 4/024 and H04W 4/029.
All groups listed in this Warning should be considered in order to perform a complete search.

4/021 . . Services related to particular areas, e.g. point of interest [POI] services, venue services or geofences

WARNING
Groups H04W 4/04, H04W 4/043, H04W 4/046 and H04W 4/021 should be considered in order to perform a complete search.

4/022 . . [with dynamic range variability]

WARNING
Groups H04W 4/04, H04W 4/043, H04W 4/046 and H04W 4/022 should be considered in order to perform a complete search.
4/023 [using mutual or relative location information between multiple location based services [LBS] targets or of distance thresholds]

**WARNING**

Group **H04W 4/023** is incomplete pending reclassification of documents from groups **H04W 4/04, H04W 4/043 and H04W 4/046**.

Groups **H04W 4/04, H04W 4/043, H04W 4/046** and **H04W 4/023** should be considered in order to perform a complete search.

4/024 Guidance services

**WARNING**

Group **H04W 4/024** is incomplete pending reclassification of documents from groups **H04W 4/02, H04W 4/04, H04W 4/043** and **H04W 4/046**.

Groups **H04W 4/02, H04W 4/04, H04W 4/043, H04W 4/046** and **H04W 4/024** should be considered in order to perform a complete search.

4/025 [using location based information parameters]

**WARNING**

Group **H04W 4/025** is incomplete pending reclassification of documents from groups **H04W 4/04, H04W 4/043 and H04W 4/046**.

Groups **H04W 4/04, H04W 4/043, H04W 4/046** and **H04W 4/025** should be considered in order to perform a complete search.

4/026 [using orientation information, e.g. compass]

**WARNING**

Group **H04W 4/026** is incomplete pending reclassification of documents from groups **H04W 4/04, H04W 4/043 and H04W 4/046**.

Groups **H04W 4/04, H04W 4/043, H04W 4/046** and **H04W 4/026** should be considered in order to perform a complete search.

4/027 [using movement velocity, acceleration information]

**WARNING**

Group **H04W 4/027** is incomplete pending reclassification of documents from groups **H04W 4/04, H04W 4/043 and H04W 4/046**.

Groups **H04W 4/04, H04W 4/043, H04W 4/046** and **H04W 4/027** should be considered in order to perform a complete search.

4/029 Location-based management or tracking services

**WARNING**

Group **H04W 4/029** is incomplete pending reclassification of documents from groups **H04W 4/02, H04W 4/04, H04W 4/043 and H04W 4/046**.

Groups **H04W 4/02, H04W 4/04, H04W 4/043, H04W 4/046** and **H04W 4/029** should be considered in order to perform a complete search.

4/044 [using association of physical positions and logical data] in a dedicated environment, e.g. buildings or vehicles

**WARNING**

Group **H04W 4/04** is no longer used for the classification of documents as of February 1, 2018. The content of this group is being reclassified into groups **H04W 4/02 – H04W 4/029** and **H04W 4/30 – H04W 4/48**.

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

4/043 [using ambient awareness, e.g. involving buildings using floor or room numbers]

**WARNING**

Group **H04W 4/043** is no longer used for the classification of documents as of February 1, 2018. The content of this group is being reclassified into groups **H04W 4/02 – H04W 4/029** and **H04W 4/33**.

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

4/046 [involving vehicles, e.g. floating traffic data [FTD] or vehicle traffic prediction]

**WARNING**

Group **H04W 4/046** is no longer used for the classification of documents as of February 1, 2018. The content of this group is being reclassified into groups **H04W 4/02 – H04W 4/029** and **H04W 4/40 – H04W 4/48**.

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

4/06 Selective distribution of broadcast services, e.g. multimedia broadcast multicast service [MBMS]; Services to user groups; One-way selective calling services

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
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

Services signaling; Auxiliary data signalling, i.e. transmitting data via a non-traffic channel

WARNING
Group H04W 4/20 is impacted by reclassification into groups H04W 4/21 and H04W 4/23.
Groups H04W 4/20, H04W 4/21, and H04W 4/23 should be considered in order to perform a complete search.

WARNING
Group H04W 4/21 is incomplete pending reclassification of documents from group H04W 4/20.
Groups H04W 4/20 and H04W 4/21 should be considered in order to perform a complete search.

WARNING
Group H04W 4/30 is incomplete pending reclassification of documents from group H04W 4/04.
Groups H04W 4/04 and H04W 4/30 should be considered in order to perform a complete search.

for converged personal network application service interworking, e.g. OMA converged personal network services [CPNS]

for social networking applications

for mobile advertising

Accounting or billing

Services specially adapted for particular environments, situations or purposes

for communication between vehicles and infrastructures, e.g. vehicle-to-cloud [V2C] or vehicle-to-home [V2H]

for vehicle-to-vehicle communication [V2V]
4/48 . . . for in-vehicle communication

**WARNING**

Group H04W 4/48 is incomplete pending reclassification of documents from groups H04W 4/04 and H04W 4/046.

Groups H04W 4/04, H04W 4/046 and H04W 4/48 should be considered in order to perform a complete search.

4/50 . Service provisioning or reconfiguring
4/60 . Subscription-based services using application servers or record carriers, e.g. SIM application toolkits
4/70 . Services for machine-to-machine communication [M2M] or machine type communication [MTC]
4/80 . Services using short range communication, e.g. near-field communication [NFC], radio-frequency identification [RFID] or low energy communication
4/90 . Services for handling of emergency or hazardous situations, e.g. earthquake and tsunami warning systems [ETWS]

8/00 **Network data management**

8/005 . [Discovery of network devices, e.g. terminals]
8/02 . 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 . . . Registration at HLR or HSS [Home Subscriber Server]
8/06 . Registration at serving network Location Register, VLR or user mobility server
8/065 . . . . [involving selection of the user mobility server]
8/08 . . . Mobility data transfer
8/082 . . . . [for traffic bypassing of mobility servers, e.g. location registers, home PLMNs or home agents]
8/085 . . . . [involving hierarchical organized mobility servers, e.g. hierarchical mobile IP [HMIP]]
8/087 . . . . [for preserving data network PoA address despite hand-offs]
8/10 . . . between location register and external networks
8/12 . . . between location registers or mobility servers
8/14 . . . between corresponding nodes
8/16 . . . selectively restricting mobility [data] tracking
8/18 . . Processing of user or subscriber data, e.g. subscribed services, user preferences or user profiles; Transfer of user or subscriber data
8/183 . . . [Processing at user equipment or user record carrier]
8/186 . . . [Processing of subscriber group data]
8/20 . . . Transfer of user or subscriber data
8/205 . . . . [Transfer to or from user equipment or user record carrier]
8/22 . . Processing or transfer of terminal data, e.g. status or physical capabilities
8/24 . . Transfer of terminal data
8/245 . . . [from a network towards a terminal]
8/26 . Network addressing or numbering for mobility support
8/265 . . . [for initial activation of new user]

8/28 . . Number portability { ; Network address portability}
8/30 . . Network data restoration; {Network data reliability; Network data fault tolerance}

12/00 **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}**

**WARNING**


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

12/001 . [Protecting confidentiality, e.g. by encryption or ciphering]

**WARNING**


All groups listed in this warning should be considered in order to perform a complete search.
H04W

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.

12/003 . . {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.

12/0005 . . {involving three or more devices, e.g. group pairing}

**WARNING**

Group H04W 12/0005 is incomplete pending reclassification of documents from group H04W 12/00.

Groups H04W 12/00 and H04W 12/0005 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 behaviometrics]

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 12/0007 is incomplete pending reclassification of documents from group H04W 12/00.

Groups H04W 12/00, H04W 12/002, and H04W 12/0007 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 12/0009 is incomplete pending reclassification of documents from group H04W 12/00.

Groups H04W 12/00 and H04W 12/0009 should be considered in order to perform a complete search.

12/007 . . . [Protecting privacy or anonymity, e.g. protecting personally identifiable information [PII]]

**WARNING**

Group H04W 12/007 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.

12/004 . . . [Key management, e.g. by generic bootstrapping architecture [GBA]]

**WARNING**


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 impacted by reclassification to groups H04W 12/00 and H04W 12/04.

Groups H04W 12/00, H04W 12/0401, H04W 12/0403, H04W 12/04031 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 impacted by reclassification to 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 impacted by reclassification to 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 impacted by reclassification to 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 12/0407 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, and 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.

12/08  . 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 . Integrity

**WARNING**

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.

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

12/1002 . . {Route integrity, e.g. using trusted paths}

**WARNING**

Group H04W 12/1002 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/10.

Groups H04W 12/00, H04W 12/10, and H04W 12/1002 should be considered in order to perform a complete search.

12/1004 . . {Location integrity, e.g. secure geo-tagging or trusted cell tagging}

**WARNING**

Group H04W 12/1004 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/10.

Groups H04W 12/00, H04W 12/10, and H04W 12/1004 should be considered in order to perform a complete search.

12/1006 . . {Packet or message integrity}

**WARNING**

Group H04W 12/1006 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/10.

Groups H04W 12/00, H04W 12/10, and H04W 12/1006 should be considered in order to perform a complete search.

12/1008 . . {Source integrity}

**WARNING**

Group H04W 12/1008 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/10.

Groups H04W 12/00, H04W 12/10, and H04W 12/1008 should be considered in order to perform a complete search.

12/12 . Fraud detection (or prevention)

**WARNING**

Group H04W 12/12 is incomplete pending reclassification of documents from group H04W 12/00.

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.

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

12/1201 . . {Wireless intrusion detection system [WIDS]; Wireless intrusion prevention system [WIPS]}

**WARNING**

Group H04W 12/1201 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/12.

Groups H04W 12/00, H04W 12/12, and H04W 12/1201 should be considered in order to perform a complete search.

12/1202 . . {Protecting against rogue devices}

**WARNING**

Group H04W 12/1202 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/12.

Groups H04W 12/00, H04W 12/12, and H04W 12/1202 should be considered in order to perform a complete search.

12/1204 . . {Countermeasures against attacks}

**WARNING**

Group H04W 12/1204 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/12.

Groups H04W 12/00, H04W 12/12, and H04W 12/1204 should be considered in order to perform a complete search.

12/1205 . . {Protecting against power exhaustion attacks, e.g. power depletion, starvation attack or sleep deprivation attack}

**WARNING**

Group H04W 12/1205 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/12.

Groups H04W 12/00, H04W 12/12, and H04W 12/1205 should be considered in order to perform a complete search.

12/1206 . . {Anti-theft arrangements, e.g. protecting against device theft, subscriber identity module [SIM] cloning or machine-to-machine [M2M] displacement}

**WARNING**

Group H04W 12/1206 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/12.

Groups H04W 12/00, H04W 12/12, and H04W 12/1206 should be considered in order to perform a complete search.

12/1208 . . {Anti-malware arrangements, e.g. protecting against SMS fraud or mobile malware}

**WARNING**

Group H04W 12/1208 is incomplete pending reclassification of documents from groups H04W 12/00 and H04W 12/12.

Groups H04W 12/00, H04W 12/12, and H04W 12/1208 should be considered in order to perform a complete search.
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
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
28/0205  .  {at the air interface (dynamic wireless traffic scheduling H04W 72/12)}
28/021  .  {in wireless networks with changing topologies, e.g. ad-hoc networks (self-organizing networks H04W 84/18)}
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)}
28/0221  .  {power availability or consumption}
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)}
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}

28/0247  .  {based on conditions of the access network or the infrastructure network (central resource management H04W 28/16)}
28/0252  .  {per individual bearer or channel (dynamic wireless traffic scheduling H04W 72/12)}
28/0257  .  {the individual bearer or channel having a maximum bit rate or a bit rate guarantee}
28/0263  .  {involving mapping traffic to individual bearers or channels, e.g. traffic flow template [TFT]}
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)}
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)}
28/0278  .  {using buffer status reports (dynamic wireless traffic scheduling definition H04W 72/1205)}
28/0284  .  {detecting congestion or overload during communication (monitoring arrangements H04L 43/00)}
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)}
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
28/085  .  {among bearers or channels}
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
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 36/0005 and H04W 36/0009 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 36/0005 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, 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.
WARNING
Group H04W 36/0083 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.

WARNING
Group H04W 36/0085 is incomplete pending reclassification of documents from group H04W 36/0085.
Groups H04W 36/0083 and H04W 36/0085 should be considered in order to perform a complete search.

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.

WARNING
Group H04W 36/125 is incomplete pending reclassification of documents from group H04W 36/12.
Groups H04W 36/12 and H04W 36/125 should be considered in order to perform a complete search.

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.

WARNING
Group H04W 36/30 is impacted by reclassification into groups H04W 36/305 and H04W 36/0079.
Groups H04W 36/30, H04W 36/305 and H04W 36/0079 should be considered in order to perform a complete search.

WARNING
Group H04W 36/30 is impacted by reclassification into groups H04W 36/305 and H04W 36/0079.
Groups H04W 36/30, H04W 36/305 and H04W 36/0079 should be considered in order to perform a complete search.

WARNING
Group H04W 36/30 is impacted by reclassification into groups H04W 36/305 and H04W 36/0079.
Groups H04W 36/30, H04W 36/305 and H04W 36/0079 should be considered in order to perform a complete search.

WARNING
Group H04W 36/30 is impacted by reclassification into groups H04W 36/305 and H04W 36/0079.
Groups H04W 36/30, H04W 36/305 and H04W 36/0079 should be considered in order to perform a complete search.

WARNING
Group H04W 36/30 is impacted by reclassification into groups H04W 36/305 and H04W 36/0079.
Groups H04W 36/30, H04W 36/305 and H04W 36/0079 should be considered in order to perform a complete search.

WARNING
Group H04W 36/30 is impacted by reclassification into groups H04W 36/305 and H04W 36/0079.
Groups H04W 36/30, H04W 36/305 and H04W 36/0079 should be considered in order to perform a complete search.

WARNING
Group H04W 36/30 is impacted by reclassification into groups H04W 36/305 and H04W 36/0079.
Groups H04W 36/30, H04W 36/305 and H04W 36/0079 should be considered in order to perform a complete search.

WARNING
Group H04W 36/30 is impacted by reclassification into groups H04W 36/305 and H04W 36/0079.
Groups H04W 36/30, H04W 36/305 and H04W 36/0079 should be considered in order to perform a complete search.

WARNING
Group H04W 36/30 is impacted by reclassification into groups H04W 36/305 and H04W 36/0079.
Groups H04W 36/30, H04W 36/305 and H04W 36/0079 should be considered in order to perform a complete search.

WARNING
Group H04W 36/30 is impacted by reclassification into groups H04W 36/305 and H04W 36/0079.
Groups H04W 36/30, H04W 36/305 and H04W 36/0079 should be considered in order to perform a complete search.

WARNING
Group H04W 36/30 is impacted by reclassification into groups H04W 36/305 and H04W 36/0079.
Groups H04W 36/30, H04W 36/305 and H04W 36/0079 should be considered in order to perform a complete search.

WARNING
Group H04W 36/30 is impacted by reclassification into groups H04W 36/305 and H04W 36/0079.
Groups H04W 36/30, H04W 36/305 and H04W 36/0079 should be considered in order to perform a complete search.

WARNING
Group H04W 36/30 is impacted by reclassification into groups H04W 36/305 and H04W 36/0079.
Groups H04W 36/30, H04W 36/305 and H04W 36/0079 should be considered in order to perform a complete search.

WARNING
Group H04W 36/30 is impacted by reclassification into groups H04W 36/305 and H04W 36/0079.
Groups H04W 36/30, H04W 36/305 and H04W 36/0079 should be considered in order to perform a complete search.

WARNING
Group H04W 36/30 is impacted by reclassification into groups H04W 36/305 and H04W 36/0079.
Groups H04W 36/30, H04W 36/305 and H04W 36/0079 should be considered in order to perform a complete search.

WARNING
Group H04W 36/30 is impacted by reclassification into groups H04W 36/305 and H04W 36/0079.
Groups H04W 36/30, H04W 36/305 and H04W 36/0079 should be considered in order to perform a complete search.
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
40/125 . . . {using a measured number of retransmissions as a link metric}
40/14 . . . based on stability
40/16 . . . based on interference
40/18 . . . based on predicted events
40/20 . . . based on geographic position or location
40/205 . . . {using topographical information, e.g. hills, high rise buildings}
40/22 . . . using selective relay for reaching a BTS [Base Transceiver Station] or an access point
40/24 . . . Connectivity information management, e.g. connectivity discovery or connectivity update
40/242 . . . {aging of topology database entries}
40/244 . . . {using a network of reference devices, e.g. beaconing}
40/246 . . . {Connectivity information discovery}
40/248 . . . {Connectivity information update}
40/26 . . . for hybrid routing by combining proactive and reactive routing
40/28 . . . for reactive routing
40/30 . . . for proactive routing
40/32 . . . for defining a routing cluster membership
40/34 . . . Modification of an existing route
40/36 . . . due to handover
40/38 . . . 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 . . . Access restriction performed under specific conditions
48/04 . . . based on user or terminal location or mobility data, e.g. moving direction, speed
48/06 . . . based on traffic conditions
48/08 . . . Access restriction or access information delivery, e.g. discovery data delivery (signalling during connection H04W 76/00)
48/10 . . . using broadcasted information
48/12 . . . using downlink control channel
48/14 . . . using user query [or user detection]
48/16 . . . Discovering, processing access restriction or access information
48/17 . . . {Selecting a data network PoA [Point of Attachment]}
48/18 . . . Selecting a network or a communication service
48/20 . . . Selecting an access point

52/00 Power management, e.g. TPC [Transmission Power Control], power saving or power classes
52/02 . . . Power saving arrangements {in wired systems H04L 12/12; signaling of mobile application services, e.g. low battery notifications H04W 4/20}
52/0203 . . . {in the radio access network or backbone network of wireless communication networks}
52/0206 . . . {in access points, e.g. base stations (access point devices per se H04W 88/08)}

52/0209 . . . {in terminal devices (terminal devices per se H04W 88/02)}
52/0212 . . . {managed by the network, e.g. network or access point is master and terminal is slave}
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}
52/0225 . . . {using monitoring of external events, e.g. the presence of a signal}
52/0229 . . . {where the received signal is a wanted signal}
52/0232 . . . {according to average transmission signal activity}
52/0235 . . . {where the received signal is a power saving command}
52/0238 . . . {where the received signal is an unwanted signal, e.g. interference or idle signal}
52/0241 . . . {where no transmission is received, e.g. out of range of the transmitter}
52/0245 . . . {according to signal strength}
52/0248 . . . {dependent on the time of the day, e.g. according to expected transmission activity}
52/0251 . . . {using monitoring of local events, e.g. events related to user activity}
52/0254 . . . {detecting a user operation or a tactile contact or a motion of the device}
52/0258 . . . {controlling an operation mode according to history or models of usage information, e.g. activity schedule or time of day}
52/0261 . . . {managing power supply demand, e.g. depending on battery level}
52/0264 . . . {by selectively disabling software applications}
52/0267 . . . {by controlling user interface components}
52/027 . . . {by controlling a display operation or backlight unit}
52/0274 . . . {by switching on or off the equipment or parts thereof}
52/0277 . . . {according to available power supply, e.g. switching off when a low battery condition is detected}
52/028 . . . {switching on or off only a part of the equipment circuit blocks}
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}
52/0287 . . . {changing the clock frequency of a controller in the equipment}
52/029 . . . {reducing the clock frequency of the controller}
52/0293 . . . {having a sub-controller with a low clock frequency switching on and off a main controller with a high clock frequency}
52/0296 . . . {switching to a backup power supply}
52/04 . . . TPC
52/06 . . . TPC algorithms
52/08 . . . Closed loop power control
52/10 . . . Open loop power control
52/12 . . . Outer and inner loops
52/125 . . . {cascaded outer loop power control}
52/14 . . . Separate analysis of uplink or downlink
52/143 . . . . [Downlink power control]
52/146 . . . . [Uplink power control]
52/16 . . . . Deriving transmission power values from another channel
52/18 . . . . TPC being performed according to specific parameters
52/20 . . . . using error rate
52/22 . . . . taking into account previous information or commands
52/221 . . . . [using past power control commands]
52/223 . . . . [predicting future states of the transmission]
52/225 . . . . [Calculation of statistics, e.g. average, variance]
52/226 . . . . [using past references to control power, e.g. look-up-table]
52/228 . . . . [using past power values or information]
52/24 . . . . using SIR [Signal to Interference Ratio] or other wireless path parameters
52/241 . . . . [taking into account channel quality metrics, e.g. SIR, SNR, CIR, Eb/Io]
52/242 . . . . [taking into account path loss]
52/243 . . . . [taking into account interferences]
52/244 . . . . [Interferences in heterogeneous networks, e.g. among macro and femto or pico cells or other sector / system interference [OSI]]
52/245 . . . . [taking into account received signal strength]
52/246 . . . . [where the output power of a terminal is based on a path parameter calculated in said terminal]
52/247 . . . . [where the output power of a terminal is based on a path parameter sent by another terminal]
52/248 . . . . [where transmission power control commands are generated based on a path parameter]
52/26 . . . . using transmission rate or quality of service QoS [Quality of Service]
52/262 . . . . [taking into account adaptive modulation and coding [AMC] scheme (AMC per se H04L 1/00)]]
52/265 . . . . [taking into account the quality of service QoS]
52/267 . . . . [taking into account the information rate]
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]
52/282 . . . . [taking into account the speed of the mobile]
52/283 . . . . [Power depending on the position of the mobile]
52/285 . . . . [taking into account the mobility of the user]
52/286 . . . . [during data packet transmission, e.g. high speed packet access [HSPA]]
52/287 . . . . [when the channel is in stand-by]
52/288 . . . . [taking into account the usage mode, e.g. hands-free, data transmission, telephone]
52/30 . . . . using constraints in the total amount of available transmission power
52/32 . . . . TPC of broadcast or control channels
52/322 . . . . [Power control of broadcast channels]
52/325 . . . . [Power control of control or pilot channels]
52/327 . . . . [Power control of multicast channels]
52/34 . . . . TPC management, i.e. sharing limited amount of power among users or channels or data types, e.g. cell loading
52/343 . . . . [taking into account loading or congestion level]
52/346 . . . . [distributing total power among users or channels]
52/36 . . . . with a discrete range or set of values, e.g. step size, ramping or offsets
52/362 . . . . [Aspects of the step size]
52/365 . . . . [Power headroom reporting]
52/367 . . . . [Power values between minimum and maximum limits, e.g. dynamic range]
52/38 . . . . TPC being performed in particular situations
52/383 . . . . [power control in peer-to-peer links]
52/386 . . . . [centralized, e.g. when the radio network controller or equivalent takes part in the power control]
52/40 . . . . during macro-diversity or soft handoff
52/42 . . . . in systems with time, space, frequency or polarisation diversity
52/44 . . . . in connection with interruption of transmission
52/46 . . . . in multi hop networks, e.g. wireless relay networks
52/48 . . . . during retransmission after error or non-acknowledgment
52/50 . . . . at the moment of starting communication in a multiple access environment
52/52 . . . . using AGC [Automatic Gain Control] circuits or amplifiers
52/54 . . . . Signalisation aspects of the TPC commands, e.g. frame structure
52/545 . . . . [modifying TPC bits in special situations]
52/56 . . . . Detection of errors of TPC bits
52/58 . . . . Format of the TPC bits
52/60 . . . . using different transmission rates for TPC commands

56/00 Synchronisation arrangements
56/0005 . . . . [synchronizing of arrival of multiple uplinks]
56/001 . . . . [Synchronization between nodes]
56/0015 . . . . [one node acting as a reference for the others]
56/002 . . . . [Mutual synchronization]
56/0025 . . . . [synchronizing potentially movable access points]
56/003 . . . . [Arrangements to increase tolerance to errors in transmission or reception timing]
56/0035 . . . . [detecting errors in frequency or phase]
56/004 . . . . [compensating for timing error of reception due to propagation delay]
56/0045 . . . . [compensating for timing error by altering transmission time]
56/005 . . . . [compensating for timing error by adjustment in the receiver]
56/0055 . . . . [determining timing error of reception due to propagation delay]
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]
64/00 Locating users or terminals (or network equipment) for network management purposes, e.g. mobility management
64/003 [locating network equipment]
64/006 [with additional information processing, e.g. for direction or speed determination]

68/00 User notification, e.g. alerting and paging, for incoming communication, change of service or the like
68/005 [Transmission of information for alerting of incoming communication]
68/02 Arrangements for increasing efficiency of notification or paging channel
68/025 [Indirect paging]
68/04 multi-step notification using statistical or historical mobility data
68/06 using multi-step notification by changing the notification area
68/08 using multi-step notification by increasing the notification area
68/10 using simulcast notification
68/12 Inter-network notification

72/00 Local resource management, e.g. wireless traffic scheduling or selection or allocation of wireless resources

NOTE
In this group, local priority rules supersede the first-place priority rule (FPPR) applying throughout H04W.

72/005 [Resource management for broadcast services]
72/02 Selection of wireless resources by user or terminal
72/04 Wireless resource allocation
72/0406 [involving control information exchange between nodes]
72/0413 [in uplink direction of a wireless link, i.e. towards network]
72/042 [in downlink direction of a wireless link, i.e. towards terminal]
72/0426 [between access points]
72/0433 [between access point and access point controlling device]
72/044 [where an allocation plan is defined based on the type of the allocated resource]
72/0446 [the resource being a slot, sub-slot or frame]
72/0453 [the resource being a frequency, carrier or frequency band]
72/046 [the resource being in the space domain, e.g. beams]
### 76/00 Connection management

**NOTE**
In this 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])
- **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** Master-slave {selection or change} 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
adapted for operation in multiple networks, e.g. multi-mode access points
Access point controller devices
Backbone network devices
Gateway arrangements
Service support devices; Network management devices

[Transcoding devices; Rate adaptation devices]
[Network node acting on behalf of another network entity, e.g. proxy]
[Messaging devices, e.g. message centre]
[Selective call encoders for paging networks, e.g. paging centre devices]
[using digital or pulse address codes]
[using frequency address codes]

Interfaces specially adapted for wireless communication networks
Inter-networking arrangements
Interfaces between hierarchically different network devices
[between access point and backbone network device]
between gateways and public network devices
between user and terminal device
between terminal device and access point, i.e. wireless air interface
between access points and access point controllers
between access point controllers and backbone network device
Interfaces between hierarchically similar devices
between terminal devices
between access points
between access point controllers
between backbone network devices

Subject matter not provided for in other groups of this subclass