

# CPC COOPERATIVE PATENT CLASSIFICATION

## H ELECTRICITY

(NOTE omitted)

## H04 ELECTRIC COMMUNICATION TECHNIQUE

(NOTE omitted)

## H04J MULTIPLEX COMMUNICATION (transmission in general [H04B](#); peculiar to transmission of digital information [H04L 5/00](#); systems for the simultaneous or sequential transmission of more than one television signal [H04N 7/08](#); in exchanges [H04Q 11/00](#); stereophonic systems [H04S](#))

### NOTE

This subclass [covers](#)

- circuits or apparatus for combining or dividing signals for the purpose of transmitting them simultaneously or sequentially over the same transmission path;
- monitoring arrangements therefor.

### 1/00 Frequency-division multiplex systems ([H04J 14/00](#) takes precedence)

#### 1/02 . Details

- 1/04 . . Frequency-transposition arrangements  
{(modulation with carrier or side-band suppression [H03C 1/52](#), [H03C 1/60](#); single-band suppression [H04B 1/00](#), [H04B 15/00](#); telegraphic communication [H04L 27/02](#), [H04L 25/49](#); transference of modulation from one carrier to another, e.g. frequency- changing [H03D 7/00](#); demodulation or transference of modulation of modulated electromagnetic waves [H03D 9/00](#))}

- 1/045 . . . {Filters applied to frequency transposition}

- 1/05 . . . using digital techniques

- 1/06 . . Arrangements for supplying the carrier waves  
{Arrangements for supplying synchronisation signals (carrier supply [H04L 5/10](#); frequency multiplication [H03B 19/00](#), [H03B 21/00](#); mixing [H03D 7/00](#), [H03D 9/00](#); synchronisation in general [H03B](#))}

- 1/065 . . . {Synchronisation of carrier sources at the receiving station with the carrier source at the transmitting station}

- 1/08 . . Arrangements for combining channels  
{(branching filters [H01P 1/213](#), [H03H 7/46](#))}

- 1/085 . . . {Terminal station; Combined modulator and demodulator circuits}

- 1/10 . . Intermediate station arrangements, e.g. for branching, for tapping-off {(repeater circuits [H04B 3/36](#), [H04B 3/58](#); two-way amplifiers [H03F 3/62](#))}

- 1/12 . . Arrangements for reducing cross-talk between channels {(in line transmission systems [H04B 3/32](#); in cables or lines [H04B 3/26](#) - [H04B 3/30](#))}

- 1/14 . . Arrangements providing for calling or supervisory signals

- 1/16 . . Monitoring arrangements {(for transmission in general [H04B 17/00](#); for amplifiers [H03F 1/52](#), [H03F 1/523](#))}

- 1/18 . in which all the carriers are amplitude-modulated ([H04J 1/02](#) takes precedence {in telephony [H04Q 11/02](#), [H04Q 11/023](#); in stereophony [H04H](#); in telegraphy [H04L 5/06](#); in telemetry [G08C 15/02](#), [G08C 15/04](#))}

- 1/20 . in which at least one carrier is angle-modulated ([H04J 1/02](#) takes precedence; FM without multiplex [H04B 1/00](#), [H04B 14/006](#), [H04B 15/00](#); PSK [H04L 5/12](#); impulse-modulation without multiplex [H04B 14/02](#); time-division multiplexing for data transmission [H04L 5/22](#); telemetry [G08C 15/06](#) - [G08C 15/12](#); telephony [H04Q 11/00](#), [H04Q 11/04](#), [H04Q 11/0407](#))}

### 3/00 Time-division multiplex systems ([H04J 14/00](#) takes precedence; relay systems [H04B 7/14](#); selecting techniques [H04Q](#))

- 3/02 . Details (electronic switching or gating [H03K 17/00](#))

- 3/025 . . {Filter arrangements ([H04J 3/08](#) takes precedence; filters *per se* [H03H 7/00](#), [H03H 9/00](#))}

- 3/04 . . Distributors combined with modulators or demodulators {(pulse distributors in general [H03K 5/15](#); pulse counters [H03K 21/00](#) - [H03K 29/06](#); for telegraphy [H04L 5/22](#), [H04L 13/00](#) - [H04L 23/00](#), [H04L 25/45](#); for telephony [H04Q 11/04](#))}

- 3/042 . . . {Distributors with electron or gas discharge tubes}

- 3/045 . . . {Distributors with CRT}

- 3/047 . . . {Distributors with transistors or integrated circuits}

- 3/06 . . Synchronising arrangements {(for television systems [H04N 5/04](#); bit-synchronisation [H04L 7/00](#))}

- 3/0602 . . . {Systems characterised by the synchronising information used}

- 3/0605 . . . . {Special codes used as synchronising signal}

- 3/0608 . . . . . {Detectors therefor, e.g. correlators, state machines}

- 3/0611 . . . . . {PN codes ([H04J 3/0608](#) takes precedence)}

- 3/0614 . . . . {the synchronising signal being characterised by the amplitude, duration or polarity}
- 3/0617 . . . . {the synchronising signal being characterised by the frequency or phase}
- 3/062 . . . {Synchronisation of signals having the same nominal but fluctuating bit rates, e.g. using buffers (pulse-stuffing [H04J 3/07](#); asynchronous-synchronous conversion [H04L 5/24](#); speed conversion [H04L 25/05](#); speed conversion in computers [G06F 5/06](#))}
- 3/0623 . . . . {Synchronous multiplexing systems, e.g. synchronous digital hierarchy/ synchronous optical network (SDH/SONET), synchronisation with a pointer process}
- 3/0626 . . . . {plesiochronous multiplexing systems, e.g. plesiochronous digital hierarchy [PDH], jitter attenuators}
- 3/0629 . . . . {in a network, e.g. in combination with switching or multiplexing, slip buffers}
- 3/0632 . . . . {Synchronisation of packets and cells, e.g. transmission of voice via a packet network, circuit emulation service [CES] (queuing arrangements in packet switching elements [H04L 49/90](#); synchronising systems for the synchronous transmission of a pulse code modulated video signal with one or more other pulse code modulated signals [H04N 7/56](#))}
- 3/0635 . . . {Clock or time synchronisation in a network (timer in protocols [H04L 69/28](#))}
- 3/0638 . . . . {Clock or time synchronisation among nodes; Internode synchronisation (synchronization for ring networks [H04L 12/422](#); data switching networks with synchronous transmission [H04L 12/43](#))}
- 3/0641 . . . . {Change of the master or reference, e.g. take-over or failure of the master}
- 3/0644 . . . . {External master-clock}
- 3/0647 . . . . {Synchronisation among TDM nodes}
- 3/065 . . . . {using timestamps}
- 3/0652 . . . . {Synchronisation among time division multiple access [TDMA] nodes, e.g. time triggered protocol [TTP] (bus network with centralized control in which slots are of a TDMA packet structure [H04L 12/4035](#))}
- 3/0655 . . . . {using timestamps}
- 3/0658 . . . . {Clock or time synchronisation among packet nodes}
- 3/0661 . . . . {using timestamps}
- 3/0664 . . . . {unidirectional timestamps}
- 3/0667 . . . . {Bidirectional timestamps, e.g. NTP or PTP for compensation of clock drift and for compensation of propagation delays (arrangements for monitoring round trip delays in packet switching networks [H04L 43/0864](#))}
- 3/067 . . . . {Details of the timestamp structure}
- 3/0673 . . . . {using intermediate nodes, e.g. modification of a received timestamp before further transmission to the next packet node, e.g. including internal delay time or residence time into the packet}
- 3/0676 . . . . {Mutual}
- 3/0679 . . . . {by determining clock distribution path in a network}
- 3/0682 . . . . {by delay compensation, e.g. by compensation of propagation delay or variations thereof, by ranging}
- 3/0685 . . . . {Clock or time synchronisation in a node; Intranode synchronisation}
- 3/0688 . . . . {Change of the master or reference, e.g. take-over or failure of the master}
- 3/0691 . . . . {Synchronisation in a TDM node}
- 3/0694 . . . . {Synchronisation in a TDMA node, e.g. TTP}
- 3/0697 . . . . {Synchronisation in a packet node}
- 3/07 . . . using pulse stuffing for systems with different or fluctuating information rates {or bit rates}
- 3/073 . . . . {Bit stuffing, e.g. PDH}
- 3/076 . . . . {Bit and byte stuffing, e.g. SDH/PDH desynchronisers, bit-leaking}
- 3/08 . . Intermediate station arrangements, e.g. for branching, for tapping-off
- 3/085 . . . {for ring networks, e.g. SDH/SONET rings, self-healing rings, meshed SDH/SONET networks}
- 3/10 . . Arrangements for reducing cross-talk between channels
- 3/12 . . Arrangements providing for calling or supervisory signals
- 3/125 . . . {One of the channel pulses or the synchronisation pulse is also used for transmitting monitoring or supervisory signals}
- 3/14 . . Monitoring arrangements {(for SDH/SONET rings [H04J 3/085](#))}
- 3/16 . . in which the time allocation to individual channels within a transmission cycle is variable, e.g. to accommodate varying complexity of signals, to vary number of channels transmitted ([H04J 3/17](#), [H04J 3/24](#) take precedence)
- 3/1605 . . {Fixed allocated frame structures}
- 3/1611 . . . {Synchronous digital hierarchy [SDH] or SONET ([H04J 3/1664](#) takes precedence for interactions with OTN)}
- 3/1617 . . . . {carrying packets or ATM cells}
- 3/1623 . . . {Plesiochronous digital hierarchy [PDH]}
- 3/1629 . . . . {Format building algorithm}
- 3/1635 . . . . {Format conversion, e.g. CEPT/US}
- 3/1641 . . . . {Hierarchical systems}
- 3/1647 . . . . {Subrate or multislot multiplexing}
- 3/1652 . . . {Optical Transport Network [OTN]}
- 3/1658 . . . . {carrying packets or ATM cells; ([H04J 3/1664](#) takes precedence for payloads with different packet types)}
- 3/1664 . . . . {carrying hybrid payloads, e.g. different types of packets or carrying frames and packets in the payload}
- 3/167 . . . . {interaction with SDH/SONET, e.g. carrying SDH/SONET frames, interfacing with SDH/SONET ([H04J 3/1664](#) takes precedence)}
- 3/1676 . . . {Time-division multiplex with pulse-position, pulse-interval, or pulse-width modulation}
- 3/1682 . . {Allocation of channels according to the instantaneous demands of the users, e.g. concentrated multiplexers, statistical multiplexers}

- 3/1688 . . . {the demands of the users being taken into account after redundancy removal, e.g. by predictive coding, by variable sampling (reducing bandwidth of signals in general [H04B 1/66](#); in PCM-systems [H04B 14/046](#); removal of redundancy in telegraph communication [H03M 7/30](#))}
- 3/1694 . . {Allocation of channels in TDM/TDMA networks, e.g. distributed multiplexers (Passive Optical Networks [H04Q 11/0062](#))}
- 3/17 . . in which the transmission channel allotted to a first user may be taken away and re-allotted to a second user if the first user becomes inactive, e.g. TASI {(speech analysis or identification [G10L](#))}
- 3/172 . . {Digital speech interpolation, i.e. DSI}
- 3/175 . . {Speech activity or inactivity detectors (echo suppressors [H04B 3/20](#))}
- 3/177 . . {Freeze-out systems, e.g. taking away active sources from transmission}
- 3/18 . . using frequency compression and subsequent expansion of the individual signals
- 3/20 . . using resonant transfer
- 3/22 . . in which the sources have different rates or codes {(simultaneous speech and digital data or video transmission [H04M 11/06](#); see provisional also [H04J 3/16](#))}
- 3/24 . . in which the allocation is indicated by an address {the different channels being transmitted sequentially} ([H04J 3/17](#) takes precedence; in computers [G06F 12/00](#), [G06F 13/00](#) {code multiplex systems [H04J 13/00](#); selecting techniques [H04Q](#); relay systems [H04B 7/14](#)})
- 3/242 . . {the frames being of variable length}
- 3/245 . . {in which the allocation protocols between more than two stations share the same transmission medium (stations for satellite systems [H04B 7/185](#))}
- 3/247 . . {ATM or packet multiplexing}
- 3/26 . . in which the information and the address are simultaneously transmitted
- 4/00 Combined time-division and frequency-division multiplex systems** ([H04J 13/00](#) takes precedence {; data transmission [H04L 5/26](#); telemetry [G08C 15/00](#)})
- 4/005 . . {Transmultiplexing}
- 7/00 Multiplex systems in which the amplitudes or durations of the signals in individual channels are characteristic of those channels**
- 7/02 . . in which the polarity of the amplitude is characteristic
- 9/00 Multiplex systems in which each channel is represented by a different type of modulation of the carrier**
- 11/00 Orthogonal multiplex systems, {e.g. using WALSH codes}** ([H04J 13/00](#) takes precedence)
- 2011/0003 . . {Combination with other multiplexing techniques}
- 2011/0006 . . {with CDM/CDMA}
- 2011/0009 . . {with FDM/FDMA}
- 2011/0013 . . {with TDM/TDMA}
- 2011/0016 . . {with FDM/FDMA and TDM/TDMA}
- 2011/002 . . {Delay multiplexing}
- 11/0023 . . {Interference mitigation or co-ordination (traffic scheduling [H04W 72/082](#), [H04W 72/1226](#); power management [H04W 52/00](#); allocation criteria for ingress interference avoidance [H04L 5/0062](#); frequency allocation criteria for requirements on out-of-channel emissions [H04L 5/0066](#); peak power aspects in multicarrier modulation [H04L 27/2614](#); arrangements for removing intersymbol interference or baseband equalisers [H04L 25/03006](#); direct sequence spread spectrum [DSSS] systems [H04B 1/7097](#); frequency hopping [H04B 1/713](#))}
- 11/0026 . . {of multi-user interference}
- 11/003 . . . {at the transmitter (transmission to multiple receive units in multiple input multiple output [MIMO] [H04B 7/0452](#); transmit antenna weighting [H04B 7/0615](#))}
- 11/0033 . . . . {by pre-cancellation of known interference, e.g. using a matched filter, dirty paper coder or Tomlinson-Harashima precoder (correlative coding in synchronous or start-stop systems [H04L 25/497](#))}
- 11/0036 . . . {at the receiver}
- 11/004 . . . . {using regenerative subtractive interference cancellation}
- 11/0043 . . . . . {by grouping or ordering the users}
- 11/0046 . . . . . {using joint detection algorithms}
- 11/005 . . {of intercell interference}
- 11/0053 . . . {using co-ordinated multipoint transmission/reception (co-ordinated antenna or beam-forming aspects [H04B 7/022](#))}
- 11/0056 . . . {Inter-base station aspects}
- 11/0059 . . . {Out-of-cell user aspects}
- 11/0063 . . {of multipath interference, e.g. Rake receivers}
- 11/0066 . . {of narrowband interference (narrowband interference reduction [H04B 1/1036](#))}
- 11/0069 . . {Cell search, i.e. determining cell identity [cell-ID] (design of multiplexing codes [H04J 13/00](#); processing access restriction or access information [H04W 48/16](#); discovery of network devices for network data management [H04W 8/005](#); sounding signals for channel estimation [H04L 25/0226](#); structure of reference signals in multicarrier modulation systems [H04L 27/2613](#); frame, time or carrier synchronisation in multicarrier modulation systems [H04L 27/2655](#))}
- 11/0073 . . {Acquisition of primary synchronisation channel, e.g. detection of cell-ID within cell-ID group}
- 11/0076 . . {Acquisition of secondary synchronisation channel, e.g. detection of cell-ID group}
- 11/0079 . . {Acquisition of downlink reference signals, e.g. detection of cell-ID}
- 11/0083 . . {Multi-mode cell search, i.e. where several modes or systems can be used, e.g. backwards compatible, dual mode or flexible systems}
- 11/0086 . . {Search parameters, e.g. search strategy, accumulation length, range of search, thresholds (code acquisition in DSSS [H04B 1/7075](#))}
- 11/0089 . . {Search hardware arrangements, e.g. sharing of correlators to reduce complexity}
- 11/0093 . . {Neighbour cell search}
- 2011/0096 . . {Network synchronisation}

<b>13/00</b>	<b>Code division multiplex systems (for frequency hopping <a href="#">H04B 1/713</a>)</b>	14/005	. {Optical Code Multiplex}
	<b>NOTE</b>	14/007	. . {Orthogonal Optical Code Multiplex}
	When classifying in this group, any aspect of spread spectrum techniques not specific to frequency hopping, and which is considered to represent information of interest for search, may also be classified in group <a href="#">H04B 1/69</a> .	14/02	. Wavelength-division multiplex systems
13/0003	. {Code application, i.e. aspects relating to how codes are applied to form multiplexed channels}	14/0201	. . {Add-and-drop multiplexing}
13/0007	. {Code type}	14/0202	. . . {Arrangements therefor}
	<b>NOTE</b>	14/0204	. . . . {Broadcast and select arrangements, e.g. with an optical splitter at the input before adding or dropping}
	Code type information should be classified in addition to other relevant aspects. This should also be done in cases where the other relevant symbol refers to code type, e.g. <a href="#">H04J 13/14</a> , <a href="#">H04J 13/20</a> )	14/0205	. . . . {Select and combine arrangements, e.g. with an optical combiner at the output after adding or dropping}
13/0011	. . {Complementary}	14/0206	. . . . {Express channels arrangements}
13/0014	. . . {Golay}	14/0208	. . . . {Interleaved arrangements}
13/0018	. . {Chaotic}	14/0209	. . . . {Multi-stage arrangements, e.g. by cascading multiplexers or demultiplexers}
13/0022	. . {PN, e.g. Kronecker}	14/021	. . . . {Reconfigurable arrangements, e.g. reconfigurable optical add/drop multiplexers [ROADM] or tunable optical add/drop multiplexers [TOADM]}
13/0025	. . . {M-sequences}	14/0212	. . . . . {using optical switches or wavelength selective switches [WSS]}
13/0029	. . . {Gold}	14/0213	. . . . {Groups of channels or wave bands arrangements}
13/0033	. . . {Kasami}	14/0215	. . . {Architecture aspects}
2013/0037	. . {Multilevel codes}	14/0216	. . . . {Bidirectional architectures}
13/004	. . {Orthogonal}	14/0217	. . . . {Multi-degree architectures, e.g. having a connection degree greater than two}
13/0044	. . . {OVSF [orthogonal variable spreading factor]}	14/0219	. . . . {Modular or upgradable architectures}
13/0048	. . . {Walsh}	14/022	. . . . {For interconnection of WDM optical networks}
13/0051	. . . {Orthogonal gold}	14/0221	. . {Power control, e.g. to keep the total optical power constant}
13/0055	. . {ZCZ [zero correlation zone]}	14/0223	. . {Conversion to or from optical TDM}
13/0059	. . . {CAZAC [constant-amplitude and zero auto-correlation]}	14/0224	. . {Irregular wavelength spacing, e.g. to accommodate interference to all wavelengths}
13/0062	. . . . {Zadoff-Chu}	14/0226	. . {Fixed carrier allocation, e.g. according to service}
13/0066	. . . . {GCL [generalized chirp-like] sequences}	14/0227	. . {Operation, administration, maintenance or provisioning [OAMP] of WDM networks, e.g. media access, routing or wavelength allocation}
13/007	. . . {LAS, i.e. LA, LS and LAS codes}	14/0228	. . . {Wavelength allocation for communications one-to-all, e.g. broadcasting wavelengths}
13/0074	. {Code shifting or hopping}	14/023	. . . . {in WDM passive optical networks [WDM-PON]}
13/0077	. {Multicode, e.g. multiple codes assigned to one user}	14/0232	. . . . . {for downstream transmission}
2013/0081	. . {with FDM/FDMA}	14/0234	. . . . . {using multiple wavelengths}
2013/0085	. . {with TDM/TDMA}	14/0235	. . . . . {for upstream transmission}
2013/0088	. . {with FDM/FDMA and TDM/TDMA}	14/0236	. . . . . {using multiple wavelengths}
2013/0092	. . {Delay multiplexing}	14/0238	. . . . {Wavelength allocation for communications one-to-many, e.g. multicasting wavelengths}
2013/0096	. {Network synchronisation}	14/0239	. . . . {in WDM-PON sharing multiple downstream wavelengths for groups of optical network units [ONU], e.g. multicasting wavelengths}
13/10	. Code generation	14/0241	. . . . {Wavelength allocation for communications one-to-one, e.g. unicasting wavelengths}
13/102	. . {Combining codes}	14/0242	. . . . {in WDM-PON}
13/105	. . . {by extending}	14/0245	. . . . . {for downstream transmission, e.g. optical line terminal [OLT] to ONU}
13/107	. . . {by concatenation}	14/0246	. . . . . {using one wavelength per ONU}
13/12	. . Generation of orthogonal codes	14/0247	. . . . . {Sharing one wavelength for at least a group of ONUs}
13/14	. . Generation of codes with a zero correlation zone	14/0249	. . . . . {for upstream transmission, e.g. ONU-to-OLT or ONU-to-ONU}
13/16	. Code allocation		
2013/165	. . {Joint allocation of code together with frequency or time}		
13/18	. . Allocation of orthogonal codes		
13/20	. . . having an orthogonal variable spreading factor [OVSF]		
13/22	. . Allocation of codes with a zero correlation zone		
<b>14/00</b>	<b>Optical multiplex systems (optical coupling, mixing or splitting, <a href="#">per se G02B</a>)</b>		
14/002	. {Coherencemultiplexing}		

14/025	. . . . .	{using one wavelength per ONU, e.g. for transmissions from-ONU-to-OLT or from-ONU-to-ONU}	14/06	. . . . .	Polarisation multiplex systems
14/0252	. . . . .	{Sharing one wavelength for at least a group of ONUs, e.g. for transmissions from-ONU-to-OLT or from-ONU-to-ONU}	14/08	. . . . .	Time-division multiplex systems
			14/083	. . . . .	{Add and drop multiplexing}
			14/086	. . . . .	{Medium access ( <a href="#">H04J 3/16</a> takes precedence)}
2014/0253	. . . . .	{Allocation of downstream wavelengths for upstream transmission ( <a href="#">optical transmission using a single light source for multiple stations H04B 10/2587</a> )}	<b>15/00</b>		<b>{Multiplex systems not otherwise provided for}</b>
14/0254	. . . . .	{Optical medium access}	<b>2203/00</b>		<b>Aspects of optical multiplex systems other than those covered by <a href="#">H04J 14/00</a></b>
14/0256	. . . . .	{at the optical channel layer}	2203/0001	. . . . .	Provisions for broadband connections in integrated services digital network using frames of the Optical Transport Network [OTN] or using synchronous transfer mode [STM], e.g. SONET, SDH
14/0257	. . . . .	{Wavelength assignment algorithms}	2203/0003	. . . . .	Switching fabrics, e.g. transport network, control network
14/0258	. . . . .	{Wavelength identification or labelling}	2203/0005	. . . . .	Switching elements
14/026	. . . . .	{using WDM channels of different transmission rates}	2203/0007	. . . . .	Space switch details
14/0261	. . . . .	{at the optical multiplex section layer}	2203/0008	. . . . .	Time switch details
14/0263	. . . . .	{Multiplex section layer wavelength assignment algorithms}	2203/001	. . . . .	using a shared central buffer
14/0264	. . . . .	{Multiplex identification or labelling}	2203/0012	. . . . .	Switching modules and their interconnections
14/0265	. . . . .	{Multiplex arrangements in bidirectional systems, e.g. interleaved allocation of wavelengths or allocation of wavelength groups}	2203/0014	. . . . .	Clos
14/0267	. . . . .	{Optical signaling or routing ( <a href="#">routing or path finding of packets in data switching networks H04L 45/00</a> )}	2203/0016	. . . . .	Crossbar
14/0268	. . . . .	{Restoration of optical paths, e.g. p-cycles ( <a href="#">route fault recovery of packets in data switching networks H04L 45/28</a> )}	2203/0017	. . . . .	Parallel switch planes
14/0269	. . . . .	{using tables for routing ( <a href="#">organization of routing tables of packets in data switching networks H04L 45/54</a> )}	2203/0019	. . . . .	Multicast/broadcast capabilities
14/0271	. . . . .	{Impairment aware routing}	2203/0021	. . . . .	Control mechanisms
14/0272	. . . . .	{Transmission of OAMP information ( <a href="#">using a supervisory or additional signal for monitoring of optical transmission parameters in general H04B 10/077</a> )}	2203/0023	. . . . .	Routing/path finding
14/0273	. . . . .	{using optical overhead, e.g. overhead processing}	2203/0025	. . . . .	Peripheral units
14/0275	. . . . .	{using an optical service channel}	2203/0026	. . . . .	Physical details
14/0276	. . . . .	{using pilot tones}	2203/0028	. . . . .	Local loop
14/0278	. . . . .	{WDM optical network architectures}	2203/003	. . . . .	Medium of transmission, e.g. fibre, cable, radio
14/0279	. . . . .	{WDM point-to-point architectures}	2203/0032	. . . . .	Fibre
14/028	. . . . .	{WDM bus architectures}	2203/0033	. . . . .	Metallic
14/0282	. . . . .	{WDM tree architectures}	2203/0035	. . . . .	Radio
14/0283	. . . . .	{WDM ring architectures}	2203/0037	. . . . .	Satellite
14/0284	. . . . .	{WDM mesh architectures}	2203/0039	. . . . .	Topology
14/0286	. . . . .	{WDM hierarchical architectures}	2203/0041	. . . . .	Star, e.g. cross-connect, concentrator, subscriber group equipment, remote electronics
14/0287	. . . . .	{Protection in WDM systems}	2203/0042	. . . . .	Ring
14/0289	. . . . .	{Optical multiplex section protection}	2203/0044	. . . . .	Bus, e.g. DQDB
14/029	. . . . .	{Dedicated protection at the optical multiplex section (1+1)}	2203/0046	. . . . .	User Network Interface
14/0291	. . . . .	{Shared protection at the optical multiplex section (1:1, n:m)}	2203/0048	. . . . .	Network termination, e.g. NT1, NT2, PBX
14/0293	. . . . .	{Optical channel protection}	2203/005	. . . . .	Terminal equipment, e.g. codecs, synch
14/0294	. . . . .	{Dedicated protection at the optical channel (1+1)}	2203/0051	. . . . .	Network Node Interface, e.g. tandem connections, transit switching
14/0295	. . . . .	{Shared protection at the optical channel (1:1, n:m)}	2203/0053	. . . . .	Routing
14/0297	. . . . .	{Optical equipment protection}	2203/0055	. . . . .	Network design, dimensioning, topology or optimisation
14/0298	. . . . .	{with sub-carrier multiplexing [SCM]}	2203/0057	. . . . .	Operations, administration and maintenance [OAM]
14/04	. . . . .	Mode multiplex systems	2203/0058	. . . . .	Network management, e.g. Intelligent nets
			2203/006	. . . . .	Fault tolerance and recovery
			2203/0062	. . . . .	Testing
			2203/0064	. . . . .	Admission Control
			2203/0066	. . . . .	Signalling, e.g. protocols, reference model
			2203/0067	. . . . .	Resource management and allocation
			2203/0069	. . . . .	Channel allocation
			2203/0071	. . . . .	Monitoring
			2203/0073	. . . . .	Services, e.g. multimedia, GOS, QOS
			2203/0075	. . . . .	Connection-oriented
			2203/0076	. . . . .	Channel characteristics, e.g. BER, error detection, error correction, delay, jitter
			2203/0078	. . . . .	Support of N-ISDN

- 2203/008 . . . Support of video
- 2203/0082 . . . Interaction of SDH with non-ATM protocols
- 2203/0083 . . . . Support of the IP protocol
- 2203/0085 . . . . Support of Ethernet
- 2203/0087 . . . Support of voice
- 2203/0089 . . Multiplexing, e.g. coding, scrambling, SONET
- 2203/0091 . . . Time slot assignment
- 2203/0092 . . . Code Division Multiple Access [CDMA]
- 2203/0094 . . . Virtual Concatenation
- 2203/0096 . . . Serial Concatenation
- 2203/0098 . . Traffic aspects, e.g. arbitration, load balancing, smoothing, buffer management

**2211/00 Orthogonal indexing scheme relating to orthogonal multiplex systems**

- 2211/001 . using small cells within macro cells, e.g. femto, pico or microcells
- 2211/003 . within particular systems or standards
- 2211/005 . . Long term evolution [LTE]
- 2211/006 . . Single carrier frequency division multiple access [SC FDMA]
- 2211/008 . . Interleaved frequency division multiple access [IFDMA]