1. INTERFERENCE SIGNAL TRANSMISSION (E.G., JAMMING)

2.01 AUDIENCE SURVEY OR PROGRAM DISTRIBUTION USE ACCOUNTING

3. WIRELESS DISTRIBUTION SYSTEM

3.01 Receiver for satellite broadcast
3.02 Remote control of distribution
3.03 With subscriber selection or switching
3.04 Two-way
3.05 Combined with diverse art device (e.g., audio/sound or entertainment system)

4.00 HAVING SINGLE-CHANNEL TELEPHONE CARRIER
4.01 Including call signaling (e.g., ringing, off-hook, dialing)
4.02 Over power line

4.03 RADIOTELEPHONE SYSTEM
4.04.1 Emergency or alarm communication
4.04.2 Location monitoring
4.05 Usage measurement
4.06 Billing
4.07 At subscriber unit
4.08 At remote station
4.09 Rental
4.10 Security or fraud prevention
4.11 Privacy, lock-out, or authentication
4.12.1 Message storage or retrieval
4.12.2 Having message notification
4.13 Voice mail
4.14.1 Special service
4.14.2 User location independent information retrieval
4.14.3 Based on request (e.g., news, weather, etc.)
4.14.4 Format conversion (e.g., text, audio, etc.)
4.15 Caller identification
4.16 Call conferencing
4.17 Call diversion
4.18 Programming control
4.19 Remote programming control
4.20 Control of another apparatus
4.21 Out-of-range indication
4.22.1 Zoned or cellular telephone system
4.23 Diagnostic testing, malfunction indication, or electrical condition measurement
4.24 System equipment
4.25 Subscriber equipment

426.1 Including other radio communication system (e.g., cordless telephone, paging, trunking, etc.)
426.2 Wireless service for fixed premises equipment (e.g., Wireless Local Loop (WLL) Telco emulator, etc.)

427 Space satellite
428 Switching or routing
429 Cell projection
430 Ground station control
431 Airborne or aircraft
432.1 Roaming
432.2 System format conversion
432.3 Service profile
433 Home location registration (HLR) or visitor location registration (VLR) detail
434 Control or access channel scanning
435.1 Registration
435.2 System selection
435.3 Based on priority
436 Handoff
437 Mobile assisted or initiated
438 Serving site initiated
439 Handoff initiated by another source (e.g., target, user initiated, mobile switching center (MSC), or mobile telephone switching office (MTSO), etc.)
440 Based upon unit location
441 Based upon unit velocity
442 Soft handoff
443 Overlapping cells
444 Between macro and micro cells
445 Call routing (e.g., to prevent backhaul, routing efficiency, least cost, or alternate routing)
446 Including cell planning or layout
447 Frequency reuse scheme
448 Co-located systems
449 Hierarchical cell structure
450 Channel allocation
451 Hybrid allocation
452.1 Dynamic allocation
452.2 Based on service quality (e.g., bandwidth, etc.)
453 Load balancing

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CLASS 455 TELECOMMUNICATIONS

...Spectrum sharing for different type of system (e.g., point-to-point microwave, television, etc.)
...Channel seizing
...Location monitoring
...Based on request signal
...Position based personal service
...Quiet or transmission prevention mode
...At system equipment (i.e., base station)
...At remote station (i.e., mobile station)
...Location display
...Specific paging technique
...Meet-me system
...Auto-dialing
...Including personal numbering system (i.e., intelligent network for subscriber tracking or follow-me subscriber feature)
...Including private cordless extension system
...Multi-users
...Channel selection or allocation
...Including public cordless extension system
...Auxiliary data signaling (e.g., short message service (SMS))

CARRIER WAVE REPEATER OR RELAY SYSTEM (I.E., RETRANSMISSION OF SAME INFORMATION)

Failure compensation (e.g., spare channel)
Monitoring
...Fading compensation
...Portable or mobile repeater
...Space satellite
...With plural repeater or relay systems
...With synchronizing of satellites or system
...With antenna feed network or multiple antenna switching
...Power control
...With transmission line
...Two separate way transmission
...Simultaneous using plural repeaters at each location
...Plural modulated carriers

With delay or recording
...Common antenna
...With frequency conversion
...With demodulator
...Plural conversion stages
...Frequency or phase modulation
.Transmitter/receiver feedback compensation
...Directive antenna

USE OR ACCESS BLOCKING (E.G., LOCKING SWITCH)

...Earth or water medium
...Near field (i.e., inductive or capacitive coupling)
...Short range RF communication
...To output device
...With modification of frequencies of analog signal passed (e.g., pre-emphasis and de-emphasis)
...With stated modulation index
...Via subcarrier
...Suppressed carrier wave system
...Single or vestigial sideband system
...Inverted sideband
...Plural transmitters or receivers (i.e., more than two stations)
...Noise, distortion, or singing reduction
...Synchronized stations
...Simulcast system
...Fading compensation
...Due to weather
...Rayleigh or multipath fading
...Central station (e.g., master, etc.)
...Having console
...Channel allocation
...Plural requests (e.g., retries)
...Control channel/voice channel conversion
...Based on priority
...Ranking (e.g., based on signal strength, etc.)
...Having storage detail
...Control channel monitoring (i.e., paging or access channel signaling) for system access

...Channel seizing

...To or from mobile station

....Talk group forming (e.g., dynamic regrouping, talk group assignment)

....On-site or multi-site trunking

....Emergency dispatch or response

....Transmission power control technique

....Using radiating transmission line

....Multiple base stations

.....Base station selection

...Plural receivers tuned to common frequency

..Break-in or priority override

..Lockout or busy-idle signaling

.Single message via plural carrier wave transmission

.Different phases of same frequency carrier

.Single message via plural modulation of single carrier

.Optimum frequency selection

Distortion, noise, or other interference prevention, reduction, or compensation

System with hierarchical coverage areas

.Frequency switching

.Directional antenna

 Plasma source or barrier

....Anti-multipath

.Having diverse art device

.Having measuring, testing, or monitoring of system or part of system

...Using a chamber (e.g., room testing or audio surveillance, etc.)

Noise, distortion, or unwanted signal detection (e.g., quality control, etc.)

...Using a test signal

...Of a microwave link or system

...Phase measuring (e.g., group delay, propagation effect, etc.)

..With indication (e.g., visual or voice signalling, etc.)

.With control signal

.Transmitter controlled by signal feedback from receiver

..Plural tones

..Difference frequency

..Receiver control signal originates at message transmitter

....Frequency control

...For compression and expansion of message signal (i.e., companding)

TRANSMITTER AND RECEIVER AT SAME STATION (E.G., TRANSCEIVER)

..Convertible (e.g., to diverse art device)

..Cordless/corded conversion

..Synthesizer

..With frequency stabilization (e.g., automatic frequency control)

..With tuning

..With transmitter-receiver switching or interaction prevention

..Automatic (e.g., voice operated)

....With distributed parameter coupling

....Waveguide

....Common antenna

..Single antenna switched between transmitter and receiver

..With a common signal processing stage

..Transmitter oscillator used as detector

..Transmitter oscillator used as local oscillator

..Transceiver controlling a separate transceiver or receiver

..Operable on more than one system

..Radiotelephone having plural transceivers (e.g., for analog and digital, trunking and cellular, etc.)
CLASS 455 TELECOMMUNICATIONS

554.1 ..Remote private branch exchange (PBX) with wireless link to landline
554.2 ..Equipment detail for providing wireless link to fixed equipment (e.g., WLL, Telco emulator, etc.)
555 ..Wireless private branch exchange (PBX) (i.e., wireless link to extension unit)
556.1 ..Integrated with other device
556.2 ...Personal digital assistant
557 ...Interface attached device (e.g., interface with modem, facsimile, computer, etc.)
558 ...Card control element
559 ...Smart cable
560 ...Switching unit detail (e.g., mobile telephone switching office (MTSO), base station controller (BSC), etc.)
561 ..Base station detail
562.1 ...Having specific antenna arrangement
563 ...Auto-dialing or repertory dialing (e.g., using bar code, etc.)
564 ...Restrictive dialing circuitry
565 ...Having display
566 ...Call alerting
567 ...Hands-free or loudspeaking arrangement
569.1 ...In vehicle
569.2 ...Including distributed parameter structure
570 ...Noise suppression or echo cancellation
571 ...Power booster
572 ...Power supply
573 ...Battery charging
574 ...Power conservation
575.1 ...Housing or support
575.2 ...Headgear
575.3 ...Foldable type
575.4 ...Slidable type
575.5 ...Antenna shielding
575.6 ...Attached or connected to user
575.7 ...Having specific antenna arrangement
575.8 ...Protective cover
575.9 ...In vehicle
90.1 ...Having particular application (e.g., avalanche victim assistance) of a transceiver

90.2 ...Having particular configuration (e.g., C.B., or walkie-talkie) of a transceiver
90.3 ...Having particular housing or support of a transceiver

TRANSMITTER
94 ...Remote control of a transmitter
95 ...Convertible to different type (e.g., AM to FM)
96 ...Alternator
97 ...Mobile or portable
98 ...With antenna ejection or external support
99 ...With aircraft, satellite, or projectile
100 ...Body attached or connected
101 ...Diversity
102 ...Plural modulation
103 ...Plural separate transmitters or channels
104 ...Carrier and sidebands separately transmitted
105 ...Common frequency
106 ...Modulation by absorption, shielding, or reflecting
107 ...With variation of antenna impedance or dimension for modulation
108 ...Amplitude modulation
109 ...Vestigial or single sideband or suppressed carrier
110 ...Angle modulation
111 ...Including distributed parameter structure
112 ...With frequency multiplication or division
113 ...With frequency control
114.1 ...Having harmonic radiation suppression
114.2 ...Noise or interference elimination
114.3 ...Predistortion (e.g., for power amplifier)
115.1 ...Measuring, testing, or monitoring of transmitter
115.2 ...Using a test signal
115.3 ...Signal strength
115.4 ...Having meter or indicator
116 ...Carrier amplitude control (e.g., voice operated on/off)
.With electrical protection of transmitter circuit or operator
.Frequency conversion
.Carrier frequency stabilization
.Including tuning
...In antenna circuit
...With saturable reactor
...Automatically controlled
...Distributed parameter device
...Automatic adjustment of tuning
...With feedback of modulated output signal
.Power control, power supply, or bias voltage supply
.Gain control
...Plural amplifier stages
...Dual mode (e.g., analog and digital)
.Power conservation
...With casing or housing
...With coupled antenna
.RECEIVER OR ANALOG MODULATED SIGNAL FREQUENCY CONVERTER
.Frequency conversion between signal source (e.g., wave collector) and receiver
...Plural receivers
...With output selecting
...By signal strength
...By signal quality (e.g., signal to noise ratio)
...With control (e.g., automatic gain control, automatic frequency control, etc.)
...With output combining
...With control (e.g., automatic gain control)
...Frequency or phase control
...Selectively actuated or controlled
...Including common stage (e.g., local oscillator)
.Convertible to different type (e.g., AM to FM)
...With distinct signal path for each type
...With dual purpose amplifying or other stage
.Panoramic display
...Plural separate paths or plural oscillators
...Particular local oscillator control
With oscilloscope sweep signal derivation or control
.Plural output (e.g., plural speakers) (not stereo)
.Signal selection based on frequency (e.g., tuning)
.Remote control of channel or station selection
.Wireless link (sonic, RF, or infrared)
.Remote oscillator tuned
...Plural electronic devices controlled
...Of or combined with vehicle receiver
...Mechanical
...With wired link
...With indication of frequency, channel, or selector condition (e.g., tuning aid)
...Scanning display
...By meter
...Audible indicator
...Analogue frequency indication (e.g., dial)
...With light indication or bar type
...Channel index indication
...With electronic digital indication
......Using a counter
...With multiple display functions
......Non-numeric display (e.g., call letters)
......Variable light indication
......Plural lamps
......Plural tuning modes (e.g., manual and scanning, etc.)
...Frequency scanning
...With processor control
......Using signal strength or quality
......Motor activated
......Reversible motor (e.g., end-stop control)
......With automatic frequency control
......Processor controlled (AFC)
......With frequency synthesizer
......With channel skipping selection
......With priority channel selection
......With dual sweeping

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168.1 ...Multiband
169.1 ...With particular variable voltage or current tuning
169.2 ...With varactor diode
170.1 ...With mechanical or electromechanical selection
171.1 ...Time actuated
172.1 ...Including a motor
173.1 ...With automatic frequency control of fine tuning
174.1 ...With muting (e.g., silent tuning)
175.1 ...With carrier wave preset
176.1 ...Combined with band selection
177.1 ...Combined with other control (e.g., bandwidth, volume, gain, etc.)
178.1 ...With plurality of tunable circuits
179.1 ...Channel or station selection
180.1 ...Combined with band selection
180.2 ...UHF and VHF
180.3 ...With phase locked loop (PLL) tuning
180.4 ...Varactor tuned (e.g., varactor diode)
181.1 ...Time controlled
182.1 ...With frequency control
182.2 ...Automatic (AFC)
182.3 ...Fine tuning
183.1 ...With frequency synthesizer
183.2 ...Processor controlled
184.1 ...With comparing desired and existing tuning conditions
185.1 ...With channel information storage
186.1 ...With memory control or programming
186.2 ...Having a keyboard
187.1 ...Separate tuned circuits for each channel or station
188.1 ...Band selection
188.2 ...UHF and VHF
189.1 ...With plural separate mixer or converter circuits
190.1 ...With frequency conversion
191.1 ...With plurality of tuned circuits
191.2 ...Varactor tuned
191.3 ...With switching between stages
192.1 ...With frequency control
192.2 ...Automatic (AFC)
192.3 ...Fine tuning
193.1 ...With antenna circuit tuning
193.2 ...With plural resonant circuits
193.3 ...Including varactor diode
194.1 ...With muting (e.g., silent tuning)
194.2 ...Amplifier controlled
195.1 ...Variable voltage or current tuning
196.1 ...Including variation of local oscillator frequency
197.1 ...By simultaneous control with signal selection
197.2 ...Variable capacitor tuned
198.1 ...Including distributed parameter control device
199.1 ...Discrete frequency types (e.g., channel switching)
200.1 ...With other control (e.g., volume, gain, bandwidth, etc.)
201 ...Exalted carrier
202 ...Suppressed carrier
203 ...Carrier and single sideband
204 ...Vestigial sideband
205 ...Frequency or phase modulation
206 ...Responsive to one of overlapping signals
207 ...With plural conversion
208 ...With synchronized or controlled local oscillator
209 ...Plural local oscillators or mixers
210 ...With carrier amplitude modulation elimination (e.g., specified limiter)
211 ...Combined with other function
212 ...With squelch or other audio output silencing
213 ...Using specified filter
214 ...With particular discriminator or detector
215 ...Superregenerative
216 ...With particular frequency division or multiplication
217 ...With protection circuit for receiver circuit
218 ...Squelch
219 ...With automatic gain or volume control
220 ...Adjustable
221 ...Audio responsive
222 ...Noise controlled
223 ...Short duration (noise blankers)
Separate broadband detector channel

Plural paths

Measuring or testing of receiver

Signal strength

Signal-to-noise ratio

With meter or indicator

Responsive to an input signal of particular predetermined frequency

Responsive to specified modulation (e.g., call alarm, Conelrad)

Responsive to carrier absence or presence

Local control of receiver operation

Applied at or for specific intervals or periods of time

Gain control

With diverse control (tone, etc.)

Automatic

Processor controlled

Forward acting

Variable conversion efficiency (variable oscillator amplitude, etc.)

Responsive to locally injected pilot

Responsive to vehicle speed

Nonlinear automatic gain control

Variable automatic gain control loop gain

Different gain stages

Delayed

Different delay for different signal stages or thresholds

Radio frequency stage only delayed

Dual time constant

Automatic gain control signal derived from information signal

Plural stages controlled

Responsive to plural inputs

Separate automatic gain control signals

Constant or controlled input impedance

Variable attenuator type

Automatic gain control to improve strong signal handling
455 - 8  CLASS 455 TELECOMMUNICATIONS

278.1 ...Combined with noise or interference elimination
279.1 ....Plural antenna currents entering single transformer
280 ....With coupling to a stage of the receiver
281 ...Having distributed parameters
282 ....Transmission line
283 ...Undesired signal or noise control (e.g., antistatic)
284 ....Balancing or cancelling
285 ....With image frequency suppression
286 ....Wave filter, coil, or wave trap
287 ....Shunt or bypass
288 ....Particular composition (e.g., of cell or element)
289 ...With coupling varying, regulating, or control
290 ...Including passive tuned circuit
291 ...Using active device (e.g., as preamplifier or reactance)
292 ...Transformer or other passive inductance
293 ...Specified stage (e.g., mixer, amplifier, or demodulator)
294 ....With particular electron tube structure
295 ...Modulation distortion or cross talk correction or elimination
296 ...Noise or interference elimination
297 ...In vehicle
298 ...Originating in power supply
299 ...Filter or rectification in power supply energized by fluctuating or a.c. source
300 ...By shielding
301 ...Plural or compartmented shielding structure
302 ...Image frequency suppression
303 ...Using plural separate signal paths
304 ...Phase shift in at least one path
305 ...With balancing or neutralizing
306 ...Filter in at least one path
307 ...With specific filter structure
308 ...With amplitude limiter
309 ...In demodulator or low frequency (audio amplifier circuit)
310 ...Internally generated noise or oscillations
311 ...In radio frequency amplifier, intermediate frequency amplifier or converter circuit
312 ...In demodulator or low frequency (e.g., audio frequency)
313 ...Frequency modifying or conversion
314 ...Plural separate successive conversions
315 ...With plural separate local oscillators
316 ...With frequency stabilization for at least one local oscillator
317 ...Unwanted oscillation or radiation prevention
318 ...With specified local oscillator structure or coupling
319 ...With particular coupling
320 ....Lumped impedance
321 ...In a single envelope or with common active element (e.g., autodyne)
322 ...Plural common electrode
323 ...Particular frequency conversion structure or circuitry
324 ...Homodyne (i.e., zero beat or synchrony reception)
325 ...Including distributed electrical parameter structure
326 ...With balanced mixer
327 ......Stripline
328 ......Hollow waveguide
329 ....Electron beam tube
330 ....With nonlinear impedance (e.g., diode)
331 ...Crystal or electron tube diode
332 ...Push-pull
333 ...Transistor or integrated circuit
334 ...With particular receiver circuit
335 ...Plural diverse function tube or stage (performs plural functions alternately or concurrently)
336 ...Superregenerative detector or discriminator
337 ...Discriminator or demodulator
338 ...Coupling or decoupling between stages
339 ...Band pass filter
340 ...Variably tunable or adjustable
341 ...Amplifier

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CLASS 455 TELECOMMUNICATIONS

FOREIGN ART COLLECTIONS

FOR 000 CLASS-RELATED FOREIGN DOCUMENTS

Any foreign patents or non-patent literature from subclasses that have been reclassified have been transferred directly to FOR Collections listed below. These Collections contain ONLY foreign patents or non-patent literature. The parenthetical references in the Collection titles refer to the abolished subclasses from which these Collections were derived.

FOR 106 PLURAL TRANSMITTERS OR RECEIVERS
(I.E., MORE THAN TWO STATIONS) (455/49.1)

FOR 107 Noise, distortion, or singing reduction (455/50.1)

FOR 108 Synchronized stations (455/51.1)

FOR 109 Simulcast system (455/51.2)

FOR 110 Fading compensation (455/52.1)

FOR 111 Due to weather attenuation (455/52.2)

FOR 112 Rayleigh or multipath fading (455/52.3)

FOR 113 With central station (e.g., master, etc.) (455/53.1)

FOR 114 To or from mobile station (455/54.1)

FOR 115 With service request and response (455/54.2)

FOR 116 Using radiating transmission line (455/55.1)

FOR 117 Multiple base stations (455/56.1)

FOR 118 Plural receivers tuned to common frequency (455/57.1)

FOR 119 Break-in or priority override (455/58.1)

FOR 120 Lockout or busy-idle signalling (455/58.2)

FOR 121 PORTABLE OR MOBILE TRANSCEIVER (455/89)

FOR 200 HAVING SINGLE CHANNEL TELEPHONE CARRIER (379/64)

FOR 201 Including call signalling (e.g., ringing, off-hook, dialing) (379/65)

FOR 202 Over power line (379/66)

FOR 203 EXCLUSIVE ASSIGNED CHANNEL (455/34.1)

FOR 204 SEIZED CHANNEL (455/34.2)

FOR 205 RADIO TELEPHONE SYSTEM OR EQUIPMENT DETAIL (379/58)

FOR 206 Zoned or cellular (379/59, 455/33.1)

FOR 207 Hand-off control (379/60, 455/33.2)

FOR 208 Using plural antennas (455/33.3)

FOR 209 Having overlapping zones (455/33.4)

FOR 210 Including cordless extension set (i.e., having single subscriber line access) (379/61)

FOR 211 Having privacy or lockout (e.g., identity verification) (379/62)

FOR 212 Including supervisory or control signalling (379/63)
FOR 213 AUDIENCE SURVEY OR PROGRAM DISTRIBUTION USE ACCOUNTING (455/2)
FOR 214 DISTRIBUTION SYSTEM (E.G., PLURAL CABLES, ETC.) (455/3.1)
FOR 215 .Receiver for satellite broadcast (455/3.2)
FOR 216 .Combined with power distribution network (455/3.3)
FOR 217 .Remote control of distribution (455/4.1)
FOR 218 .With subscriber selection or switching (455/4.2)
FOR 219 . Two-way (455/5.1)
FOR 220 .Common antenna or cable (455/6.1)
FOR 221 .With specific cable converter (455/6.2)
FOR 222 .Combined with diverse art device (e.g., audio/sound or entertainment systems) (455/6.3)
FOR 223 .Near field (e.g., inductive or capacitive coupling) (455/41)
FOR 224 .Distortion, noise, or other interference prevention, reduction, or compensation (455/63)
FOR 225 .With diverse art device (455/66)
FOR 226 .With measuring, testing, or monitoring of system or part (455/67.1)
FOR 227 .Using a chamber (e.g., room testing or audio surveillance, etc.) (455/67.2)
FOR 228 .Noise, distortion or unwanted signal detection (e.g., quality control, etc.) (455/67.3)
FOR 229 .Using a test signal (455/67.4)
FOR 230 .Of a microwave link or system (455/67.5)
FOR 231 .Phase measuring (e.g., group delay propagation effects, etc.) (455/67.6)
FOR 232 .Housing or support (455/90)
FOR 233 .With harmonic radiation suppression (455/114)
FOR 234 .Measuring, testing, or monitoring of transmitter (455/115)
FOR 235 .Power or bias voltage supply (455/127)
FOR 236 .With particular power or bias supply (includes battery saving means and includes self-powered) (455/343)
FOR 237 .Emergency or alarm communication (455/404)
FOR 238 .Message storage or retrieval (455/412)
FOR 239 .Special service (455/414)
FOR 240 .Zoned or cellular telephone system (455/422)
FOR 241 .Including other radio communication system (e.g., cordless telephone, paging, trunking, etc.) (455/426)
FOR 242 .Roaming (455/432)
FOR 243 .Registration (455/435)
FOR 244 .Dynamic allocation (455/452)
FOR 245 .Location monitoring (455/456)
FOR 246 .Radiotelephone equipment detail (455/550)
FOR 247 .Operable on more than one system (455/552)
FOR 248 .Dual mode telephone (i.e., analog and digital) (455/553)
FOR 249 .Remote private branch exchange (PBX) with wireless link to landline (455/554)
FOR 250 .Integrated with other device (e.g., electronic notebook, personal digital assistant, etc.) (455/556)
FOR 251 .Having specific antenna arrangement (455/562)
FOR 252 .Headgear (455/568)
FOR 253 .Hands-free or loudspeaking arrangement (455/569)
FOR 254 .Portable or mobile (455/575)