ECLA EUROPEAN CLASSIFICATION

H01Q AERIALS (microwave radiators for near-field therepeutic treatment A61N5/04; apparatus for testing aerials or for measuring aerial characteristics G01R; waveguides H01P; radiators or aerials for microwave heating H05B6/72)

[N: **WARNING**[C2012.08]
The following IPC groups are not used in the internal ECLA classification scheme. Subject matter covered by these groups is classified in the following ECLA groups : - H01Q5/01 covered by H01Q5/00B to H01Q5/00P2 - H01Q5/02 covered by H01Q5/00B to H01Q5/00P2]
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Notes

1. This subclass covers:

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- in addition to the primary active radiating elements,
  a) secondary devices for absorbing or for modifying the
     direction or polarisation of waves radiated from aerials,
     and
  b) combinations with auxiliary devices such as earthing
     switches, lead-in devices, and lightning protectors;
- both transmitting and receiving aerials
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2. This subclass does not cover devices of the waveguide type, such as resonators or lines, not designed as radiating elements, which are covered by subclass H01P.

3. In this subclass, the following expression is used with the meaning indicated:

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- "active radiating element" covers corresponding parts of a
  receiving aerial.
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H01Q1/00 Details of, or arrangements associated with, aerials (arrangements for varying orientation of directional pattern H01Q3/00)

Notes

1. This group covers only:

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- structural details or features of aerials not dependent on
  electric operation;
- structural details or features applicable to more than one
  type of aerial or aerial element.
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2. Structural details or features described with reference to, or clearly applicable only to, aerials or aerial elements of a particular type are classified in the group appropriate to that type.

H01Q1/00C . [N: Protection against seismic waves, thermal radiation or other disturbances, e.g. nuclear explosion; Arrangements for improving the power handling capability of an aerial (cooling H01Q1/02)]

H01Q1/00D . [N: Damping of vibrations; Means for reducing wind-induced forces (damping of vibrations in general F16F)]

H01Q1/00E . [N: specially adapted for indoor communication]

H01Q1/02 . Arrangements for de-icing; Arrangements for drying-out; [N: Arrangements for cooling; Arrangements for preventing corrosion (radomes H01Q1/42)]

H01Q1/04 . Adaptation for subterranean or subaqueous use

H01Q1/06 . Means for the lighting or illuminating of aerials, e.g. for purpose of warning

H01Q1/08 . Means for collapsing aerials or parts thereof; [N: Collapsible aerials] ([N: collapsible supports H01Q1/12C]; collapsible loop aerials H01Q7/02; [N: collapsible helical aerials H01Q11/08C; collapsible reflecting surfaces H01Q15/16B, H01Q15/20]; collapsible H-aerials or Yagi aerials H01Q19/04)

H01Q1/08B . . [N: Inflatable antennas]

H01Q1/08B1 . . . [N: Balloon antennas (balloon supported antennas H01Q1/12H)]

H01Q1/08C . . [N: Pivotable antennas (mechanical movement of aerial or aerial system for changing or varying the orientation or the shape of the directional pattern H01Q3/02; adjustment of angle between two radiating elements H01Q9/12)]

H01Q1/08D . . [N: Flexible aerials; Whip aerials with a resilient base]

H01Q1/08D1 . . . [N: Extensible roll- up aerials]

H01Q1/08E . . [N: Quick-releasable antenna elements]

H01Q1/10 . . Telescopic elements

H01Q1/10B . . . [N: Latching means; ensuring extension or retraction thereof]

H01Q1/10C . . . [N: Means for locking or protecting against unauthorized extraction]

H01Q1/12 . Supports; Mounting means ([N: for the purpose of scanning H01Q3/00; mounting structure for reflecting surfaces H01Q15/14; Towers, masts, or poles E04H12/00]; supporting conductors in general H02G7/00)

H01Q1/12B . . [N: for fastening a rigid aerial element]

H01Q1/12B1 . . . [N: through a wall]

H01Q1/12B2 . . . [N: onto a wall]

H01Q1/12B3 . . . [N: on a boom (coupling of tubular pipes F16B7/04)]

H01Q1/12C . . [N: Collapsible supports; Means for erecting a rigid antenna]

H01Q1/12D . . [N: Rigid masts specially adapted for supporting an aerial]

H01Q1/12E . . [N: Means for positioning (stabilising H01Q1/18; remotely controlled positioning H01Q3/00F)]

H01Q1/12E1 . . . [N: using the received signal strength (direction finding G01S3/38; diversity H04B7/10)]

H01Q1/12E2 . . . [N: Adjusting different parts or elements of an aerial unit]

H01Q1/12G . . [N: for mounting on windscreens]

H01Q1/12G1 . . . [N: in association with heating wires or layers]

H01Q1/12G2 . . . [N: with capacitive feeding through the windscreen]

H01Q1/12H . . [N: for mounting on balloons]

H01Q1/14 . . for wire or other non-rigid radiating elements

H01Q1/16 . . . Strainers, spreaders, or spacers

H01Q1/18 . . Means for stabilising aerials on an unstable platform [N: (reducing wind-induced forces H01Q1/00D)]

H01Q1/18B . . . [N: by electronic means (electronic scanning H01Q3/26)]

H01Q1/20 . . Resilient mountings

H01Q1/22 . . by structural association with other equipment or articles [N: (portable transceivers H04B1/38P)]

H01Q1/22C . . . [N: associated with components used in interrogation type services, i.e. in systems for information exchange between an interrogator/reader and a tag/transponder, e.g. in Radio Frequency Identification (RFID) systems (G06K7/00 and G06K19/00 take precedence)] [N0707]

H01Q1/22C2 . . . . [N: used in interrogator/reader equipment] [N0707]

H01Q1/22C4 . . . . [N: used in active tags, i.e. provided with its own power source or in passive tags, i.e. deriving power from RF signal] [N0707]

H01Q1/22C6 . . . . [N: used in consumption-meter devices, e.g. electricity, gas or water meters (remote reading of utility meters G01D4/00R; transmission of measured values using a radio link in general G08C17/02)] [N0707]

H01Q1/22C8 . . . . [N: used in or for vehicle tyres (tyres in general B60C3/04)] [N0707]

H01Q1/22E . . . [N: used in level-measurement devices, e.g. for level gauge measurement (level measuring with electromagnetic waves in general G01F23/284)] [N0707]

H01Q1/22G . . . [N: used with computer equipment] [N0707]

H01Q1/22G2 . . . . [N: disposed inside the computer] [N0707]

H01Q1/22G4 . . . . [N: associated to expansion card or bus, e.g. in PCMCIA, PC cards, Wireless USB] [N0707]

H01Q1/22J . . . [N: mounted in or on the surface of a semiconductor substrate as a chip-type antenna or integrated with other components into an IC package (chip carriers for flat cards H01L23/498K)] [N0707]

H01Q1/22M . . . [N: used in bluetooth or WI-FI devices of Wireless Local Area Networks (WLAN) (H01Q1/24A takes precedence; WLAN in general H04L12/28W)] [N0707]

H01Q1/24 . . . with receiving set

H01Q1/24A . . . . [N: used in mobile communications, e.g. GSM (H01Q1/24D, H01Q1/24E take precedence)] [N9810]

H01Q1/24A1 . . . . . [N: specially adapted for hand-held use] [N9810]

H01Q1/24A1A . . . . . [N: with built-in antennas] [N9810]

H01Q1/24A1A1 . . . . . {7 dots} [N: extendable from a housing along a given path] [N9810]

H01Q1/24A1C . . . . . [N: with means for shaping the antenna pattern, e.g. in order to protect user against rf exposure] [N9810]

H01Q1/24A3 . . . . . [N: specially adapted for base stations] [N9810]

H01Q1/24D . . . . [N: with frequency mixer, e.g. for direct satellite reception or Doppler radar (active antennas H01Q23/00)]

H01Q1/24E . . . . [N: provided with an AC/DC converting device, e.g. rectennas]

H01Q1/26 . . . with electric discharge tube

H01Q1/27 . Adaptation for use in or on movable bodies (H01Q1/08, H01Q1/12, H01Q1/18 take precedence; [N: portable transceivers H04B1/38P])

H01Q1/27C . . [N: Adaptation for carrying or wearing by persons or animals]

H01Q1/27C1 . . . [N: for mounting on helmets]

H01Q1/28 . . Adaptation for use in or on aircraft, missiles, satellites, or balloons

H01Q1/28B . . . [N: Nose antennas]

H01Q1/28C . . . [N: Modifying the aerodynamic properties of the vehicle, e.g. projecting type aerials]

H01Q1/28C1 . . . . [N: Blade, stub antennas]

H01Q1/28D . . . [N: Aircraft wire antennas (means for trailing H01Q1/30)]

H01Q1/28E . . . [N: substantially flush mounted with the skin of the craft]

H01Q1/28E1 . . . . [N: integrated in a wing or a stabiliser]

H01Q1/28F . . . [N: Satellite antennas]

H01Q1/30 . . . Means for trailing aerials

H01Q1/32 . . Adaptation for use in or on road or rail vehicles (telescopic elements H01Q1/10; resilient mountings for aerials H01Q1/20)

H01Q1/32A . . . [N: characterised by the application wherein the antenna is used] [N0101]

H01Q1/32A2 . . . . [N: where the road or rail vehicle is only used as transportation means] [N0101]

H01Q1/32A4 . . . . [N: Cooperation with the rails or the road] [N0101]

H01Q1/32A6 . . . . [N: particular used as part of a sensor or in a security system, e.g. for automotive radar, navigation systems] [N0101]

H01Q1/32A6A . . . . . [N: particular used in keyless entry systems] [N0101]

H01Q1/32L . . . [N: characterised by the location of the antenna on the vehicle] [N0101]

H01Q1/32L2 . . . . [N: using the gutter of the vehicle; Means for clamping a whip aerial on the edge of a part of the vehicle] [N0101]

H01Q1/32L4 . . . . [N: using the mirror of the vehicle] [N0101]

H01Q1/32L6 . . . . [N: mounted on a horizontal surface of the vehicle, e.g. on roof, hood, trunk] [N0101]

H01Q1/32L8 . . . . [N: side-mounted antennas, e.g. bumper-mounted, door-mounted (mounted on windscreens H01Q1/12G)] [N0101]

H01Q1/32L10 . . . . [N: mounted in or on other locations inside the vehicle or vehicle body] [N0101]

H01Q1/34 . . Adaptation for use in or on ships, submarines, buoys, or torpedoes (for subaqueous use H01Q1/04; retractable loop aerials H01Q7/02)

H01Q1/36 . Structural form of radiating elements, e.g. cone, spiral, umbrella; [N: Particular materials used therewith] (H01Q1/08, H01Q1/14 take precedence)

H01Q1/36B . . [N: for broadside radiating helical antennas]

H01Q1/36C . . [N: using a particular conducting material, e.g. supraconductor]

H01Q1/36C1 . . . [N: using an ionized gas]

H01Q1/36C2 . . . [N: using carbon or carbon composite]

H01Q1/38 . . formed by a conductive layer on an insulating support ([N: patch antennas H01Q9/04B; microstrip dipole antennas H01Q9/06B; microstrip slot antenn as H01Q13/10C; transmission line microstrip antennas H01Q13/20C; manufacturing reflecting surfaces using insulating material for supporting the reflecting surface H01Q15/14B1]; conductors in general H01B5/14)

H01Q1/40 . Radiating elements coated with or embedded in protective material

H01Q1/40B . . [N: Radome integrated radiating elements]

H01Q1/42 . Housings not intimately mechanically associated with radiating elements, e.g. radome

H01Q1/42B . . [N: Means for correcting aberrations introduced by a radome]

H01Q1/42C . . [N: comprising two or more layers of dielectric material (H01Q1/42D takes precedence)]

H01Q1/42C1 . . . [N: comprising a layer of expanded material]

H01Q1/42D . . [N: comprising a metallic grid]

H01Q1/42F . . [N: Flexible radomes]

H01Q1/42G . . [N: Collapsible radomes; rotatable, tiltable radomes]

H01Q1/44 . using equipment having another main function to serve additionally as an aerial; [N: Means for giving an aerial anaesthetic aspect] (H01Q1/28 to H01Q1/34 take precedence)

H01Q1/46 . . Electric supply lines or communication lines [N: (circuits for signal transmission via power distribution lines H04B3/56)]

H01Q1/48 . Earthing means; Earth screens; Counterpoises (earthing pins H01R4/66)

H01Q1/50 . Structural association of aerials with earthing switches, lead-in devices or lightning protectors (lead-in devices H01B; lightning protectors, switches H01H)

H01Q1/52 . Means for reducing coupling between aerials; Means for reducing coupling between an aerial and another structure [N: (absorbing means H01Q17/00)]

H01Q1/52B . . [N: reducing the coupling between adjacent antennas]

H01Q1/52B1 . . . [N: between antennas of an array]

H01Q1/52B2 . . . [N: between emitting and receiving antennas (feed-through nulling for radar G01S7/03D)]

H01Q1/52C . . [N: Electromagnetic shields (anechoic chambers G01R29/10B; shielding of instruments G12B17/00, of CRT H01J29/86H, of electrical apparatus or components H05K9/00)]

H01Q1/52D . . [N: reducing the reradiation of a support structure (in a parabolic reflector antenna H01Q19/02B2)]

H01Q3/00 **Arrangements for changing or varying the orientation or the shape of the directional pattern of the waves radiated from an aerial or aerial system** [N: (means for positioning H01Q1/12E)]

H01Q3/00F . [N: using remotely controlled aerial positioning or scanning (remote control in general G08C)]

H01Q3/01 . varying the shape of the aerial or aerial system

H01Q3/02 . using mechanical movement of aerial or aerial system as a whole

H01Q3/04 . . for varying one co-ordinate of the orientation

H01Q3/06 . . . over a restricted angle

H01Q3/08 . . for varying two co-ordinates of the orientation

H01Q3/10 . . . to produce a conical or spiral scan

H01Q3/12 . using mechanical relative movement between primary active elements and secondary devices of aerials or aerial systems [N: (positioning H01Q1/12E2)]

H01Q3/14 . . for varying the relative position of primary active element and a refracting or

diffracting device

H01Q3/16 . . for varying relative position of primary active element and a reflecting device

H01Q3/18 . . . wherein the primary active element is movable and the reflecting device is fixed

H01Q3/20 . . . wherein the primary active element is fixed and the reflecting device is movable

H01Q3/22 . varying the orientation in accordance with variation of frequency of radiated wave

H01Q3/24 . varying the orientation by switching energy from one active radiating element to another, e.g. for beam switching

H01Q3/24B . . [N: Circumferential scanning]

H01Q3/24C . . [N: in the focal plane of a focussing device]

H01Q3/24D . . [N: by switching different parts of a primary active element]

H01Q3/26 . varying the relative phase or relative amplitude of energisation between two or more active radiating elements; varying the distribution of energy across a radiating aperture ([N: H01Q3/12], H01Q3/22, H01Q3/24 take precedence; [N: use of steered beams for mobile service area coverage H04Q7/36B]) [C9909]

H01Q3/26C . . [N: Array of radiating elements provided with a feedback control over the element weights, e.g. adaptive arrays (tracking G01S3/42)]

H01Q3/26C1 . . . [N: Means for null steering; Adaptive interference nulling]

H01Q3/26C1A . . . . [N: Array of identical elements]

H01Q3/26C1A1 . . . . . [N: composed of two antennas]

H01Q3/26C1B . . . . [N: Combination of a main antenna unit with an auxiliary antenna unit]

H01Q3/26C1B1 . . . . . [N: the auxiliary unit being composed of a plurality of antennas]

H01Q3/26C1B1A . . . . . [N: being secundary elements, e.g. reactively steered]

H01Q3/26C2 . . . [N: Retrodirective arrays]

H01Q3/26C3 . . . [N: Self-phasing arrays]

H01Q3/26D . . [N: Phased-array fed focussing structure]

H01Q3/26E . . [N: electrically moving the phase centre of a radiating element in the focal plane of a focussing device (switching H01Q3/24C, phased-array feeds H01Q3/26D)]

H01Q3/26F . . [N: Phased-array testing or checking devices (measuring radiation diagrams of aerials G01R29/10)]

H01Q3/26G . . [N: Optically controlled phased array (optical fibre networks H03H2/00B)]

H01Q3/26T . . [N: Time delay steered arrays]

H01Q3/26T1 . . . [N: using acoustic or magnetostatic wave devices]

H01Q3/26T2 . . . [N: using also variable phase-shifters (H01Q3/26T1 takes precedence)]

H01Q3/28 . . varying the amplitude

H01Q3/30 . . varying the [N: relative] phase [N: between the radiating elements of an array (H01Q3/26C, H01Q3/26D, H01Q3/26T, H01Q3/44 take precedence)]

H01Q3/32 . . . by mechanical means

H01Q3/34 . . . by electrical means (active lenses or reflecting arrays H01Q3/46)

H01Q3/36 . . . . with variable phase-shifters [N: (combined with time delay devices H01Q3/26T)]

H01Q3/38 . . . . . the phase-shifters being digital

H01Q3/38B . . . . . [N: Scan control logics]

H01Q3/40 . . . . with phasing matrix

H01Q3/42 . . . . using frequency-mixing [N: (H01Q3/26G takes precedence)]

H01Q3/44 . varying the electric or magnetic characteristics of reflecting, refracting, or diffracting devices associated with the radiating element

H01Q3/44B . . [N: varying the phase velocity along a leaky transmission line (frequency scanning H01Q3/22; non-resonant leaky-waveguide or transmission-line aerials H01Q13/20)]

H01Q3/44C . . [N: the radiating element being at the centre of one or more rings of auxiliary elements]

H01Q3/46 . . Active lenses or reflecting arrays

H01Q5/00 **Arrangements for simultaneous operation of aerials on two or more different wavebands,** [N: e.g. dual- or multi-band like arrangements for broad wavebands] (length of elements adjustable H01Q9/14; combinations of separate active aerial units operating in different wavebands and connected to a common feeder system H01Q21/30; [N: non-simultaneous operation of aerials with adjustable lengths or elements H01Q9/14; broad/multi-band operation in general without specific features H01Q5/00]) [C1207]

H01Q5/00B . [N: Single aerial units operating on two or more wavebands (H01Q5/02 takes precedence)]

[N: **WARNING**
[N1207]This group is no longer used for the classification of new documents as from September 1, 2011. The back log of this group is being continuously reclassified to subgroups H01Q5/00G, H01Q5/00K , H01Q5/00M and H01Q5/00P
]

H01Q5/00C . [N: Imbricated structures (H01Q5/02 takes precedence)]

[N: **WARNING**
[N1207]This group and subgroups thereof are no longer used for the classification of new documents as from September 1, 2011. The back log of these groups is being continuously reclassified to subgroups H01Q5/00G, H01Q5/00K , H01Q5/00M and H01Q5/00P
]

H01Q5/00G . [N: Characterized by having two or more different wavebands] [N1204]

[N: **WARNING**
Not complete, pending reclassification. See also H01Q5/00B and H01Q5/00C [N1208]
]

H01Q5/00G2 . . [N: RF wavebands combined with non-RF wavebands, e.g. infrared or optical] [N1204]

H01Q5/00G4 . . [N: Ultra-wide-band or pulse systems, e.g. multiple resonances systems (H01Q9/00B takes precedence)] [N1204]

H01Q5/00G6 . . [N: Achieving other properties, e.g. polarisation or beam width over two or more different wavebands] [N1204]

H01Q5/00K . [N: Arrangements or measures for achieving the different wavebands] [N1204]

[N: **WARNING**
Not complete, pending reclassification. See also H01Q5/00B and H01Q5/00C [N1208]
]

H01Q5/00K2 . . [N: Single fed radiating element, or connected radiating elements at least one of

which is fed] [N1204]

H01Q5/00K2A . . . [N: using frequency dependent circuits, e.g. capacitors, trap circuits] [N1204]

H01Q5/00K2A2 . . . . [N: within a radiating element or between connected radiating elements] [N1204]

H01Q5/00K2A4 . . . . [N: between a radiating element and ground] [N1204]

H01Q5/00K2A6 . . . . [N: at the feed, e.g. for impedance matching] [N1204]

H01Q5/00K2C . . . [N: using different modes (H01Q5/00K2A takes precedence)] [N1204]

H01Q5/00K2C2 . . . . [N: using two or more simultaneous feed points on a same radiating element or on the connected radiating elements] [N1204]

H01Q5/00K2C4 . . . . [N: using a single feed point] [N1204]

H01Q5/00K2C4A . . . . . [N: Creating different current paths, e.g. of the same type] [N1204]

H01Q5/00K2C4A2 . . . . . [N: Branching current paths of the same type] [N1204]

H01Q5/00K4 . . [N: Combination of a fed and one or more additional parasitic elements] [N1204]

H01Q5/00K4A . . . [N: At least two additional elements] [N1204]

H01Q5/00K4C . . . [N: the additional element itself having dual- or multi-band characteristics] [N1204]

H01Q5/00M . [N: Imbricated or interleaved structures; Structures otherwise combined or electro-magnetically coupled, e.g. comprising two or more non-connected fed radiating elements (same feed H01Q21/30; independent non-interacting antennas H01Q21/28)] [N1204]

[N: **WARNING**
Not complete, pending reclassification. See also H01Q5/00B and H01Q5/00C [N1208]]

H01Q5/00M2 . . [N: using two or more imbricated arrays (H01Q5/00M6A takes precedence)] [N1204]

H01Q5/00M4 . . [N: using two or more feeds in association with a same reflecting, diffracting or refracting device] [N1204]

H01Q5/00M4A . . . [N: with a coaxial arrangement of the feeds] [N1204]

H01Q5/00M6 . . [N: Combinations of dipole type aerials] [N1204]

H01Q5/00M6A . . . [N: with parasitic elements not for dual- or multi-band, e.g. imbricated Yagi aerials] [N1204]

H01Q5/00P . [N: Arrangement for broad- or multi-band operation concerning feeding or matching (H01Q9/04K2A6 takes precedence)] [N1204]

[N: **WARNING**
Not complete, pending reclassification. See also H01Q5/00B and H01Q5/00C [N1208]]

H01Q5/00P2 . . [N: For horn or waveguide antennas] [N1204]

H01Q5/01 . Resonant aerials

H01Q5/02 . . for operation of centre-fed aerials which comprise a single, or two or more collinear, substantially straight elongated active elements

H01Q7/00 **Loop aerials with a substantially uniform current distribution around the loop and having a directional radiation pattern in a plane perpendicular to the plane of the loop**

H01Q7/00B . [N: with variable reactance for tuning the antenna (tuning resonant circuits H03J)]

H01Q7/02 . Collapsible aerials; Retractable aerials

H01Q7/04 . Screened aerials (H01Q7/02, H01Q7/06 take precedence)

H01Q7/06 . with core of ferromagnetic material (H01Q7/02 takes precedence)

H01Q7/08 . . Ferrite rod or like elongated core

H01Q9/00 **Electrically-short aerials having dimensions not more than twice the operating wavelength and consisting of conductive active radiating elements** (loop aerials H01Q7/00; waveguide horns or mouths H01Q13/00; slot aerials H01Q13/00; combinations of active elements with secondary devices to give desired directional characteristic H01Q19/00; combinations of two or more active elements H01Q21/00)

H01Q9/00B . [N: for radiating non-sinusoidal waves]

H01Q9/02 . Non-resonant aerials

H01Q9/04 . Resonant aerials

H01Q9/04B . . [N: Substantially flat resonant element parallel to ground plane, e.g. patch antenna (dipole H01Q9/28B; monopole H01Q9/40)]

H01Q9/04B1 . . . [N: in a stacked or folded configuration]

H01Q9/04B2 . . . [N: with a shorting wall or a shorting pin at one end of the element (H01Q9/04B1 takes precedence)]

H01Q9/04B3 . . . [N: radiating a circular polarised wave]

H01Q9/04B3B . . . . [N: using two feed points]

H01Q9/04B4 . . . [N: with particular tuning means]

H01Q9/04B5 . . . [N: with particular feeding means (for circular polarisation H01Q9/04B3)]

H01Q9/04B5B . . . . [N: electromagnetically coupled to the feed line]

H01Q9/04B6 . . . [N: Annular ring patch]

H01Q9/04B7 . . . [N: Non-planar, stepped or wedge-shaped patch]

H01Q9/04B8 . . . [N: with means for suppressing spurious modes, e.g. cross polarisation]

H01Q9/04C . . [N: Dielectric resonator antennas]

H01Q9/04C1 . . . [N: circularly polarised]

H01Q9/06 . . Details

H01Q9/06B . . . [N: Microstrip dipole antennas (patch antenna H01Q9/04B)]

H01Q9/08 . . . Junction boxes specially adapted for supporting adjacent ends of collinear rigid elements

H01Q9/10 . . . Junction boxes specially adapted for supporting adjacent ends of divergent elements

H01Q9/12 . . . . adapted for adjustment of angle between elements

H01Q9/14 . . . Length of element or elements adjustable (telescopic elements H01Q1/10)

H01Q9/14B . . . . [N: by varying the electrical length]

H01Q9/16 . . with feed intermediate between the extremities of the aerial, e.g. centre-fed dipole (H01Q9/44 takes precedence)

H01Q9/18 . . . Vertical disposition of the aerial

H01Q9/20 . . . Two collinear substantially straight active elements; Substantially straight single active elements (H01Q9/28 takes precedence)

H01Q9/22 . . . . Rigid rod or equivalent tubular element or elements

H01Q9/24 . . . . Shunt feed arrangements to single active elements, e.g. for delta matching

H01Q9/26 . . . with folded element or elements, the folded parts being spaced apart a small fraction of operating wavelength (resonant loop aerials H01Q7/00)

H01Q9/26B . . . . [N: Open ring dipoles; Circular dipoles]

H01Q9/27 . . . . Spiral aerials

H01Q9/28 . . . Conical, cylindrical, cage, strip, gauze, or like elements having an extended radiating surface; Elements comprising two conical surfaces having collinear axes and adjacent apices and fed by two-conductor transmission lines (biconical horns H01Q13/04)

H01Q9/28B . . . . [N: Planar dipole (H01Q9/06B takes precedence; patch antenna H01Q9/04B)]

H01Q9/30 . . with feed to end of elongated active element, e.g. unipole (H01Q9/44 takes precedence)

H01Q9/32 . . . Vertical arrangement of element (H01Q9/40 takes precedence)

H01Q9/34 . . . . Mast, tower, or like self-supporting or stay-supported aerials

H01Q9/36 . . . . with top loading

H01Q9/38 . . . . with counterpoise (with counterpoise comprising elongated elements coplanar with the active element H01Q9/44)

H01Q9/40 . . . Element having extended radiating surface

H01Q9/42 . . . with folded element, the folded parts being spaced apart a small fraction of the operating wavelength

H01Q9/43 . . . . Scimitar aerials

H01Q9/44 . . with plurality of divergent straight elements, e.g. V-dipole, X-aerial; with plurality of elements having mutually inclined subtantially straight portions (turnstile aerials H01Q21/26)

H01Q9/46 . . . with rigid elements diverging from single point

H01Q11/00 **Electrically-long aerials having dimensions more than twice the shortest operating wavelength and consisting of conductive active radiating elements** (leaky waveguides aerials, slot aerials H01Q13/00; combinations of active elements with secondary devices to give desired directional characteristic H01Q19/00; aerial arrays or systems H01Q21/00)

H01Q11/02 . Non-resonant aerials, e.g. travelling-wave aerial

H01Q11/04 . . with parts bent, folded, shaped, screened, or electrically loaded to obtain desired phase relation of radiation from selected sections of the aerial (rhombic aerials, V-aerials H01Q11/06)

H01Q11/06 . . Rhombic aerials; V-aerials

H01Q11/08 . . Helical aerials

H01Q11/08B . . . [N: Tapered helical aerials, e.g. conical spiral aerials]

H01Q11/08C . . . [N: collapsible]

H01Q11/10 . . Log-periodic aerials [N: periodic aerials, e.g. length or spacing of elements according to a given law] (H01Q11/08 takes precedence)

H01Q11/10B . . . [N: using a dielectric support]

H01Q11/12 . Resonant aerials

H01Q11/14 . . with parts bent, folded, shaped, or screened, or with phasing impedances, to obtain desired phase relation of radiation from selected sections of the aerial or to obtain desired polarisation effects

H01Q11/16 . . . in which the selected sections are collinear

H01Q11/18 . . . . in which the selected sections are parallelly spaced

H01Q11/20 . . V-aerials

H01Q13/00 **Waveguide horns or mouths; Slot aerials; Leaky-waveguide aerials; Equivalent structures causing radiation along the transmission path of a guided wave** [N: multimode aerials H01Q25/04]

H01Q13/02 . Waveguide horns

H01Q13/02B . . [N: Corrugated horns (waveguide mouth antenna with corrugated flange H01Q13/06B; manufacturing details H01Q13/02H)]

H01Q13/02B1 . . . [N: Dual-depth corrugated horns]

H01Q13/02B2 . . . [N: of non-circular cross-section (H01Q13/02B1 takes precedence)]

H01Q13/02C . . [N: Horns fed by a slotted waveguide array (biconical horns H01Q13/06)]

H01Q13/02D . . [N: radiating a circularly polarised wave (H01Q13/02E1 takes precedence; polarisation converters H01Q15/24B1, in a waveguide H01P1/17)]

H01Q13/02E . . [N: Multimode horn antennas; Horns using higher mode of propagation (H01Q13/02D takes precedence; multiple beam H01Q25/04)]

H01Q13/02E1 . . . [N: Orthomode horns (Orthomode transducers H01P1/161)]

H01Q13/02F . . [N: provided with a flange or a choke]

H01Q13/02G . . [N: Ridged horns (slot-line radiating ends H01Q13/08B)]

H01Q13/02H . . [N: Apparatus or processes specially provided for manufacturing horns]

H01Q13/02H1 . . . [N: for corrugated horns]

H01Q13/04 . . Biconical horns (biconical dipoles comprising two conical surfaces having collinear axes and adjacent apices and fed by a two-conductor transmission line H01Q9/28)

H01Q13/06 . Waveguide mouths (horns H01Q13/02)

H01Q13/06B . . [N: provided with a flange or a choke]

H01Q13/08 . Radiating ends of two-conductor microwave transmission lines, e.g. of coaxial lines, of microstrip lines

H01Q13/08B . . [N: Slot-line radiating ends]

H01Q13/10 . Resonant slot aerials

H01Q13/10B . . [N: with variable reactance for tuning the antenna (tuning resonant circuits H03J)]

H01Q13/10C . . [N: Microstrip slot antennas (patch antenna elements H01Q9/04B)]

H01Q13/12 . . Longitudinally slotted cylinder aerials; Equivalent structures

H01Q13/14 . . . Skeleton cylinder aerials

H01Q13/16 . . Folded slot aerials

H01Q13/18 . . the slot being backed by, or formed in boundary wall of, a resonant cavity (longitudinally slotted cylinder H01Q13/12); [N: Open cavity antennas]

H01Q13/20 . Non-resonant leaky-waveguide or transmission-line aerials; Equivalent structures

causing radiation along the transmission path of a guided wave [N: varying the phase velocity H01Q3/44B; near-field transmission systems using leaky cable H04B5/00L]

H01Q13/20B . . [N: Leaky coaxial lines]

H01Q13/20C . . [N: Microstrip transmission line antennas]

H01Q13/22 . . Longitudinal slot in boundary wall of waveguide or transmission line [N: (H01Q13/20B takes precedence)]

H01Q13/24 . . constituted by a dielectric or ferromagnetic rod or pipe (H01Q13/28 takes precedence)

H01Q13/26 . . Surface waveguide constituted by a single conductor, e.g. strip conductor

H01Q13/28 . . comprising elements constituting electric discontinuities and spaced in direction of wave propagation, e.g. dielectric elements, conductive elements forming artificial dielectric (Yagi aerials H01Q19/30)

H01Q15/00 **Devices for reflection, refraction, diffraction, or polarisation of waves radiated from an aerial, e.g. quasi-optical devices** (variable for purpose of altering directivity H01Q3/00; arrangements of such devices for guiding waves H01P3/20; variable for purpose of modulation H03C7/02)

H01Q15/00C . [N: Devices acting selectively as reflecting surface, as diffracting or as refracting device, e.g. frequency filtering or angular spatial filtering devices (H01Q15/12, H01Q15/22, H01Q15/24 take precedence)]

H01Q15/00C2 . . [N: said selective devices working as frequency-selective reflecting surfaces, e.g. FSS, dichroic plates, surfaces being partly transmissive and reflective] [N1204]

H01Q15/00C2A . . . [N: said selective devices being reconfigurable or tunable, e.g. using switches or diodes] [N1204]

H01Q15/00C2C . . . [N: said selective devices having a stacked geometry or having multiple layers] [N1204]

H01Q15/00C2E . . . [N: used for beam splitting or combining, e.g. acting as a quasi-optical multiplexer (H01Q19/19C and H01Q19/195 take precedence)] [N1204]

H01Q15/00C2G . . . [N: using superconducting materials or magnetised substrates] [N1204]

H01Q15/00C2T . . . [N: Theoretical analysis and design methods of such selective devices] [N1204]

H01Q15/00C4 . . [N: Selective devices used as spatial filter or angular sidelobe filter] [N1204]

H01Q15/00C6 . . [N: Selective devices having photonic band gap materials or materials of which the material properties are frequency dependent, e.g. perforated substrates, high-impedance surfaces] [N1204]

H01Q15/00C6A . . . [N: said selective devices being reconfigurable, tunable or controllable, e.g. using switches] [N1204]

H01Q15/00C6C . . . [N: said selective devices having corrugations] [N1204]

H01Q15/00C6E . . . [N: said selective devices having Sievenpipers' mushroom elements] [N1204]

H01Q15/00C8 . . [N: said selective devices having materials with a synthesized negative refractive index, e.g. metamaterials or left-handed materials] [N1204]

H01Q15/00C10 . . [N: having a fractal shape] [N1204]

H01Q15/02 . Refracting or diffracting devices, e.g. lens, prism

H01Q15/04 . . comprising wave-guiding channel or channels bounded by effective conductive surfaces substantially perpendicular to the electric vector of the wave, e.g. parallel-plate waveguide lens

H01Q15/06 . . comprising plurality of wave-guiding channels of different length

H01Q15/08 . . formed of solid dielectric material

H01Q15/10 . . comprising three-dimensional array of impedance discontinuities, e.g. holes in conductive surfaces or conductive discs forming artificial dielectric (leaky-waveguide aerials H01Q13/28)

H01Q15/12 . . functioning also as polarisation filter [N: (polarisation converters H01Q15/24B)]

H01Q15/14 . Reflecting surfaces; Equivalent structures [N: (electromagnetic shields H01Q1/52C; radar-reflecting targets in general F41J2/00)]

H01Q15/14B . . [N: Apparatus or processes specially adapted for manufacturing reflecting surfaces]

H01Q15/14B1 . . . [N: using insulating material for supporting the reflecting surface]

H01Q15/14B1B . . . . [N: with a honeycomb, cellular or foamed sandwich structure]

H01Q15/14C . . [N: comprising a plurality of reflecting particles, e.g. radar chaff (missiles of the signal type provided with means for disseminating radar-reflecting chaff F42B12/70)]

H01Q15/14D . . [N: provided with means for controlling or monitoring the shape of the reflecting surface (for scanning H01Q3/01; aerials or aerial systems providing multiple beamwidths H01Q25/00D4)]

H01Q15/14E . . [N: with means for varying the reflecting properties (H01Q15/14D takes precedence)]

H01Q15/16 . . Curved in two dimensions, e.g. paraboloidal

H01Q15/16B . . . [N: Collapsible reflectors]

H01Q15/16B1 . . . . [N: composed of a plurality of rigid panels]

H01Q15/16B2 . . . . [N: inflatable]

H01Q15/16C . . . [N: composed of a plurality of rigid panels (collapsible H01Q15/16B)]

H01Q15/16C1 . . . . [N: sector shaped]

H01Q15/16C2 . . . . [N: comprising a gap between adjacent panels or group of panels, e.g. stepped reflectors]

H01Q15/16D . . . [N: Mesh reflectors mounted on a non-collapsible frame]

H01Q15/18 . . comprising plurality of mutually inclined plane surfaces, e.g. corner reflector [N: (H01Q15/16 takes precedence)]

H01Q15/20 . . . Collapsible reflectors

H01Q15/22 . . functioning also as polarisation filter [N: (in combination with polarising devices H01Q15/24)]

H01Q15/23 . Combinations of reflecting surfaces with refracting or diffracting devices

H01Q15/24 . Polarising devices; Polarisation filters (devices functioning simultaneously both as polarisation filters and as refracting or diffracting devices or as reflectors H01Q15/12, H01Q15/22)

H01Q15/24B . . [N: Polarisation converters]

H01Q15/24B1 . . . [N: converting a linear polarised wave into a circular polarised wave (guided wave H01P1/17)]

H01Q15/24B2 . . . [N: rotating the plane of polarisation of a linear polarised wave (guided wave H01P1/165)]

H01Q15/24B2B . . . . [N: using a reflecting surface, e.g. twist reflector (combination with a polarisation filter in dual reflector antennas H01Q19/195)]

H01Q17/00 **Devices for absorbing waves radiated from an aerial; Combinations of such devices with active aerial elements or systems** [N: (anechoic chambers G01R29/10B)]

H01Q17/00B . [N: for modifying the directional characteristic of an aerial]

H01Q17/00C . [N: using short elongated elements as dissipative material, e.g. metallic threads or flake-like particles]

H01Q17/00D . [N: using non-directional dissipative particles, e.g. ferrite powders (H01Q17/00E takes precedence; flake-like H01Q17/00C)]

H01Q17/00E . [N: using woven or wound filaments; impregnated nets or clothes]

H01Q17/00F . [N: with means for controlling the absorption]

H01Q17/00G . [N: with a particular shape (H01Q17/00F takes precedence)]

H01Q19/00 **Combinations of primary active aerial elements and units with secondary devices, e.g. with quasi-optical devices, for giving the aerial a desired directional characteristic** [N: (combination of horns with slotted waveguide array H01Q13/02C)]

H01Q19/00B . [N: Patch antenna using one or more coplanar parasitic elements]

H01Q19/02 . Details [N: (fastening of an element on a boom H01Q1/12B3)]

H01Q19/02B . . [N: Means for reducing undesirable effects]

H01Q19/02B1 . . . [N: for reducing the edge scattering of reflectors]

H01Q19/02B2 . . . [N: for reducing the scattering of mounting structures, e.g. of the struts]

H01Q19/02B3 . . . [N: for optimizing the matching of the primary feed, e.g. vertex plates]

H01Q19/02B4 . . . [N: for reducing the primary feed spill-over]

H01Q19/02B5 . . . [N: for compensating or reducing aperture blockage (offset feeding H01Q19/13B, H01Q19/19D)]

H01Q19/02B6 . . . [N: for reducing the cross polarisation]

H01Q19/04 . . Means for collapsing H-aerials or Yagi aerials

H01Q19/06 . using refracting or diffracting devices, e.g. lens [N: (radome H01Q1/42)]

H01Q19/06B . . [N: for focusing]

H01Q19/06B1 . . . [N: Zone plate type antennas]

H01Q19/06H . . [N: using a hologram]

H01Q19/08 . . for modifying the radiation pattern of a radiating horn in which it is located [N: (corrugated horns H01Q13/02B; producing a circular polarisation H01Q13/02D)]

H01Q19/09 . . wherein the primary active element is coated with or embedded in a dielectric or magnetic material (protective material H01Q1/40; with variable characteristics H01Q3/44)

H01Q19/10 . using reflecting surfaces

H01Q19/10B . . [N: wherein the surfaces are of convex toroïdal shape (biconical horns H01Q13/04)]

H01Q19/10C . . [N: using a substantially flat reflector for deflecting the radiated beam, e.g. periscopic antennas (periscopic fed Cassegrain antennas H01Q19/19C3; passive relays H04B7/145)]

H01Q19/10D . . [N: using two or more intersecting plane surfaces, e.g. corner reflector antennas]

H01Q19/10E . . [N: Combination of a dipole with a plane reflecting surface (H01Q19/10D takes precedence; strip line H01Q9/06B)]

H01Q19/12 . . wherein the surfaces are concave (H01Q19/18 takes precedence)

H01Q19/13 . . . the primary radiating source being a single radiating element, e.g. a dipole, a slot, a waveguide termination (H01Q19/15 takes precedence)

H01Q19/13B . . . . [N: Horn reflector antennas; Off-set feeding]

H01Q19/13C . . . . [N: Rear-feeds; Splash plate feeds]

H01Q19/13C1 . . . . . [N: cross-polarised]

H01Q19/13D . . . . [N: Parallel-plate feeds, e.g. pill-box, cheese aerials]

H01Q19/15 . . . the primary radiating source being a line source, e.g. leaky waveguide aerials

H01Q19/17 . . . the primary radiating source comprising two or more radiating elements (H01Q19/15, H01Q25/00 take precedence)

H01Q19/17B . . . . [N: arrayed along the focal line of a cylindrical focusing surface]

H01Q19/18 . . having two or more spaced reflecting surfaces ([N: surfaces of convex toroïdal shape H01Q19/10B; using a deflecting plane mirror H01Q19/10C; splash plate feeds H01Q19/13C]; producing pencil beam by two cylindrical reflectors with their focal lines orthogonally disposed H01Q19/20)

H01Q19/185 . . . wherein the surfaces are plane

H01Q19/19 . . . comprising one main concave reflecting surface associated with an auxiliary reflecting surface

H01Q19/19C . . . . [N: wherein the primary active element uses one or more deflecting surfaces, e.g. beam waveguide feeds]

H01Q19/19D . . . . [N: with dual offset reflectors]

H01Q19/19E . . . . [N: with feed supported subreflector (splash plate feeds H01Q19/13C)]

H01Q19/195 . . . . wherein a reflecting surface acts also as a polarisation filter or a polarising device

H01Q19/20 . Producing pencil beam by two cylindrical focusing devices with their focal lines orthogonally disposed

H01Q19/22 . using a secondary device in the form of a single substantially straight conductive element

H01Q19/24 . . the primary active element being centre-fed and substantially straight, e.g. H-aerial

H01Q19/26 . . the primary active element being end-fed and elongated

H01Q19/28 . using a secondary device in the form of two or more substantially straight conductive elements (log-periodic aerials H01Q11/10; constituting a reflecting surface H01Q19/10)

H01Q19/30 . . the primary active element being centre-fed and substantially straight, e.g. Yagi-aerial

H01Q19/32 . . the primary active element being end-fed and elongated

H01Q21/00 **Aerial arrays or systems** (producing a beam the orientation or the shape of the directional pattern of which can be changed or varied H01Q3/00; [N: combination of imbricated aerials or arrays operating on different wavebands H01Q5/00C]; electrically-long aerials H01Q11/00)

Note
This group includes:

- arrays comprising two or more individually energised similar active aerial units spaced apart;
- combinations of different types of active aerials or arrays;
- combinations of substantially independant non-interacting active aerials or arrays.

H01Q21/00D . [N: Particular feeding systems]
H01Q21/00D1 . . [N: Radial guide fed arrays]
H01Q21/00D2 . . [N: Space- fed arrays]
H01Q21/00D3 . . [N: Modular arrays]
H01Q21/00D4 . . [N: Parallel-plate fed arrays; Lens-fed arrays (multibeam arrays H01Q25/00D7B)]
H01Q21/00D5 . . [N: linear waveguide fed arrays]
H01Q21/00D5B . . . [N: Slotted waveguides (combination with horns H01Q13/02C)]
H01Q21/00D5B1 . . . . [N: Slotted waveguides arrays]
H01Q21/00D5B1A . . . . . [N: Conically or cylindrically arrayed]
H01Q21/00D5B2 . . . . [N: the slots being disposed around the feeding waveguide]
H01Q21/00D5C . . . [N: Dielectric waveguide fed arrays]
H01Q21/00D6 . . [N: Stripline fed arrays (H01Q21/06B3 takes precedence)]
H01Q21/00D6B . . . [N: using suspended striplines]

H01Q21/00F . [N: Apparatus or processes specially adapted for manufacturing antenna arrays (manufacturing waveguides H01P11/00)]
H01Q21/00F1 . . [N: Monolithic arrays]

H01Q21/06 . Arrays of individually energised active aerial units similarly polarised and spaced apart
H01Q21/06B . . [N: Two dimensional planar arrays]
H01Q21/06B1 . . . [N: using dipole aerials; (H01Q21/06B4, H01Q21/06B5 take precedence)]
H01Q21/06B2 . . . [N: using horn or slot aerials (slotted waveguides arrays H01Q21/00D5B1)]
H01Q21/06B3 . . . [N: Patch antenna array]
H01Q21/06B4 . . . [N: using endfire radiating aerial units transverse to the plane of the array]
H01Q21/06B5 . . . [N: using parallel coplanar travelling wave or leaky wave aerial units (H01Q21/06B3 takes precedence)]
H01Q21/08 . . the units being spaced along or adjacent to a rectilinear path [N: (waveguide fed H01Q21/00D5)]
H01Q21/10 . . . Collinear arrangements of substantially straight elongated conductive units
H01Q21/12 . . . Parallel arrangements of substantially straight elongated conductive units (travelling-wave aerials comprising transmission line loaded with transverse elements, e.g. "fishbone" aerial H01Q11/04)
H01Q21/14 . . . . Adcock aerials
H01Q21/16 . . . . . U-type
H01Q21/18 . . . . . H-type
H01Q21/20 . . the units being spaced along or adjacent to a curvilinear path [N: slotted waveguide

arrays H01Q21/00D5B1; circularly or helically slotted waveguides H01Q21/00D5B2]

H01Q21/20B . . . [N: providing an omnidirectional coverage (turnstile aerials H01Q21/26)]

H01Q21/22 . . Aerial units of the array energised non-uniformly in amplitude or phase, e.g. tapered array, binomial array

H01Q21/22B . . . [N: Finite focus antenna arrays]

H01Q21/24 . Combinations of aerial elements or aerial units polarised in different directions for transmitting or receiving circularly and elliptically polarised waves or waves linearly polarised in any direction [N: (circularly polarised patch antennas H01Q9/04B3; circularly polarised horns H01Q13/02D; cross-polarised horns H01Q13/02E1; polarisation converters H01Q15/24B; cross-polarised rear feeds H01Q19/13C1; crossed polarisation dual antenna H01Q25/00D3)]

H01Q21/24B . . [N: provided with means for varying the polarisation (polarising devices H01Q15/24; tracking by comparing linear polarisation compounds G01S3/14C; reducing depolarisation effects H04B7/00 polarisation diversity H04B7/10)]

H01Q21/26 . . Turnstile or like aerials comprising arrangements of three or more elongated elements disposed radially and symmetrically in a horizontal plane about a common centre

H01Q21/28 . Combinations of substantially independent non-interacting aerial units or systems [N: (multiple beam H01Q25/00)]

H01Q21/29 . Combinations of different interacting aerial units for giving a desired directional characteristic (H01Q25/00 takes precedence)

H01Q21/29B . . [N: one unit or more being an array of identical aerial elements (adaptive arrays H01Q3/26C)]

H01Q21/29B1 . . . [N: Multiplicative arrays]

H01Q21/30 . Combinations of separate aerial units operating in different wavebands and connected to a common feeder system

H01Q23/00 **Aerials with active circuits or circuit elements integrated within them or attached to them**

Note
Group H01Q23/00 includes only such combinations in which the type of aerial or aerial element is immaterial. Combinations with a particular type of aerial are classified in the group appropriate to that type.

H01Q25/00 **Aerials or aerial systems providing at least two radiating patterns** (arrangements for changing or varying the orientation or the shape of the directional pattern H01Q3/00)

H01Q25/00D3 . [N: Crossed polarisation dual antennas (orthomode horns H01Q13/02E1; cross-polarised rear feeds H01Q19/13C1; orthomode transducers H01P1/161)]

H01Q25/00D4 . [N: providing at least two patterns of different beamwidth; Variable beamwidth antennas]

H01Q25/00D5 . [N: providing two or four symmetrical beams for Janus application]

H01Q25/00D6 . [N: providing two patterns of opposite direction; back to back antennas (H01Q25/00D5 takes precedence)]

H01Q25/00D7 . [N: using two or more primary active elements in the focal region of a focusing device (for operation on different wavebands H01Q5/00C2)]

H01Q25/00D7B . . [N: lens fed multibeam arrays]

H01Q25/02 . providing sum and difference patterns (multimode aerials H01Q25/04)

H01Q25/04 . Multimode aerials [N: (corrugated horns H01Q13/02B)]