



ER Diagram Description:

A path represents a radio communications path with references to both the transmit and receiver locations and antennas. There is also a path_type_desc attribute that tells the type of path. A path can be uniquely identified using its unique_system_identifier. This identifier is used by the FCC to uniquely identify each license. A path has at most two associated locations, and at most two associated antennas.

A licensee represents an entity that holds a license. The licensee is identified by their licensee_id and has attributes name, email, street_address, city, and state. A licensee can own multiple paths, and each path must have a single licensee associated with it.

The location table represents a location of transmission and/or a location of reception for a path. Each entry can be identified using the associated path and location number. It has attributes location_address, location_city, location_county, and location_state.

The antenna represents the type of antenna and frequency for antennas used within a path. Each entry can be identified from its associated path and an antenna number. It has attributes antenna_type_code and frequency_assigned.

The coordinate uses a unique id to identify a set of latitude and longitude coordinates. For both latitude and longitude, we have attributes for degrees, minutes, and seconds. A location must be associated with a coordinate, and a coordinate can be associated with 0 or many locations.

Relational Schema:

License(unique_system_identifier: VARCHAR(10) [PK], name: VARCHAR(100), email: VARCHAR(100), street_address: VARCHAR(255), city: VARCHAR(100), state: VARCHAR(20))

Path(path_number: INT [PK], unique_system_identifier: VARCHAR(10) [foreign key to License.unique_system_identifier][PK], transmit_location: INT, receiver_location: INT, transmit_antenna: INT, receiver_antenna: INT, path_type_desc: VARCHAR(255))

Location(location_number: INT [PK], unique_system_identifier: VARCHAR(10) [foreign key to License.unique_system_identifier][PK], location_address: VARCHAR(255), location_city: VARCHAR(100), location_county: VARCHAR(100), location_state: VARCHAR(100), coordinate_id: INT [foreign key to Coordinate.id])

Antenna(antenna_number: INT [PK], unique_system_identifier: VARCHAR(10) [foreign key to License.unique_system_identifier][PK], beamwidth: numeric(4,1), gain: numeric(4,1), height_above_avg_terrain: numeric(5,1), height_to_tip: numeric(5,1), antenna_action_performed: char(1))

Coordinate(id: INT [PK], lat_degrees: INT, lat_minutes: INT, lat_seconds: INT, long_degrees: INT, long_minutes: INT, long_seconds: INT)