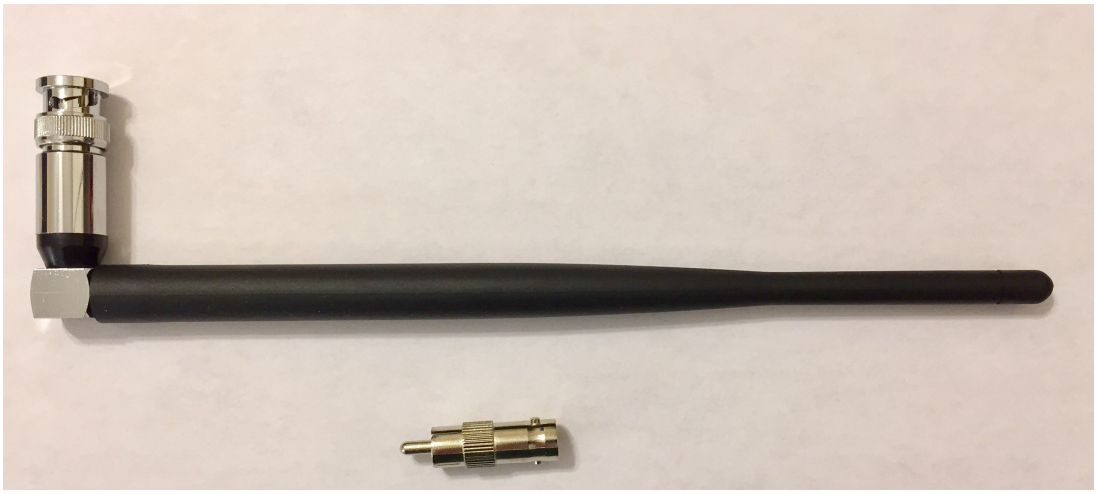
Evaluation

EDM FM Part 15 Transmitter Antenna

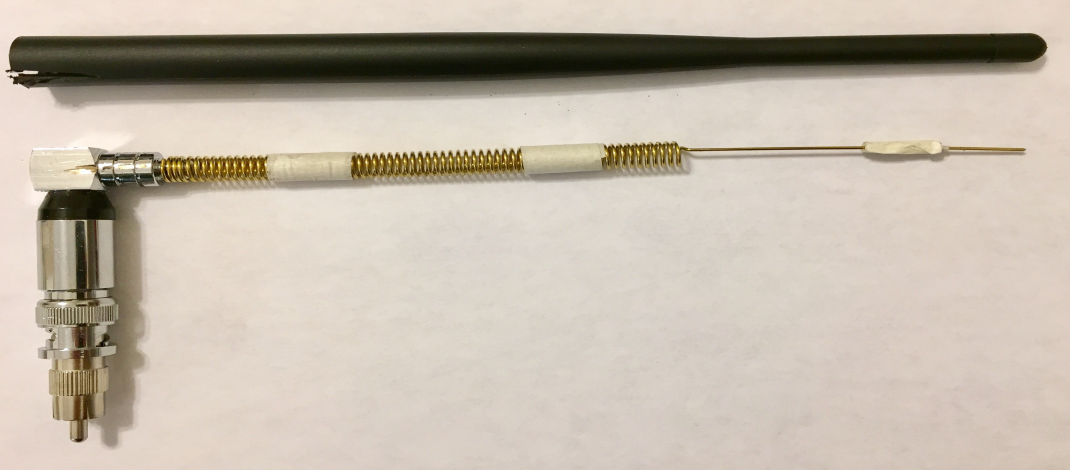
When purchasing an EDM FM transmitter you receive a “wire test antenna” which is exactly that, a pice of wire soldered to the center pin of an RCA plug. The documentation for the transmitter addresses nothing in reference to an antenna. I imagine many would simply opt to add on the $12 rubber duck style antenna – although It's mentioned that it's for “short distance use”. Although I haven't been able to field test this antenna yet, my money is on it causing the transmitter to output over USA Part 15 legal levels, as my earlier field tests put this transmitter just under the legal limit when set to it's lowest power output. (I believe it was 240 uV/m at 3 meters, the legal limit being 250 uV/m) when I tested it with a simple stiff wire antenna 10” in length (the same size as the whip antenna on a C. Crane FM Transmitter 2). I would imagine this coiled wire antenna inside this rubber duck will be a much better match, and thus more efficient, putting more signal into the air.

The antenna is a “rubber duck” style that is 8 ¼ inches long from the cube metal base to the tip. The metal cube base is part of the antenna itself. The antenna is equipped with a BNC connector and ships with a BNC to RCA plug adapter to facilitate plugging into the RCA socket on the EDM transmitters.



The shield side of the connector gets connected to nothing except the case of your transmitter, and thus your station ground if your transmitter happens to be grounded. The pivot at the point where the antenna connects to the connector is quite stiff and should prevent the antenna from falling over when attached to the back of a transmitter.

Inside the rubber case is a nicely coiled stiff wire antenna element. The white parts on the antenna in the photo are nothing more than pieces of tape that I imagine keep the wire from wiggling inside the rubber cover. The antenna seems to be quite well built.



When connected to an MFJ 259B antenna analyzer this antenna resonates at about 103 MHz. I say "about" as the frequency changes with my proximity to the analyzer. I moved away from the testing desk to take readings to minimize the effect of me being near the analyzer. As the case of the analyzer (in this case) or the case of your transmitter becomes the other side of the antenna the amount of metal connected changes the resonant frequency. I added two more adapters to the connector which added more metal to the connection and also moved the antenna 2 inches further from the case, and the frequency dropped to about 101 MHz. By adding a 20" piece of wire clipped on to the case or the outside of the antenna at the connector, the frequency drops further dramatically. Any changes in surrounding metal objects, metal mass connected, etc makes a big change in most efficient frequency. Again, if you were to go to the effort to tweak the resonant frequency as best as you can with a counterpoise wire, etc I'm certain this transmitter (even set at the lowest power setting – see transmitter review) would make the output well over the USA legal limit.

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