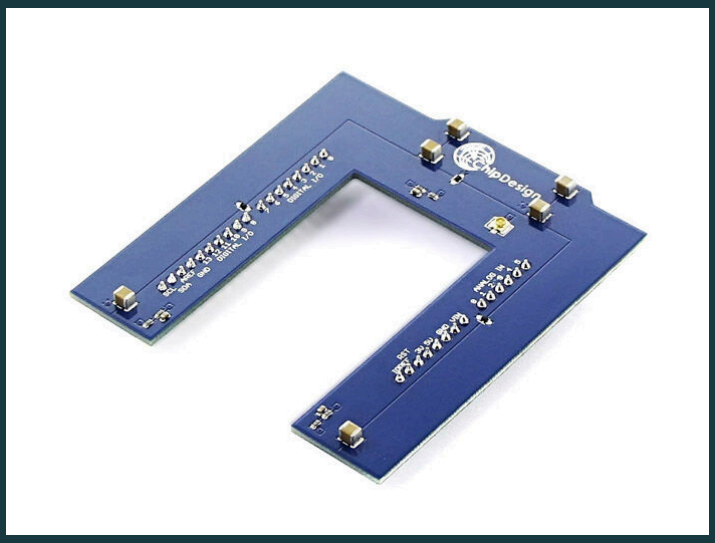
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INDUSTRIAL PRODUCT DATASHEET

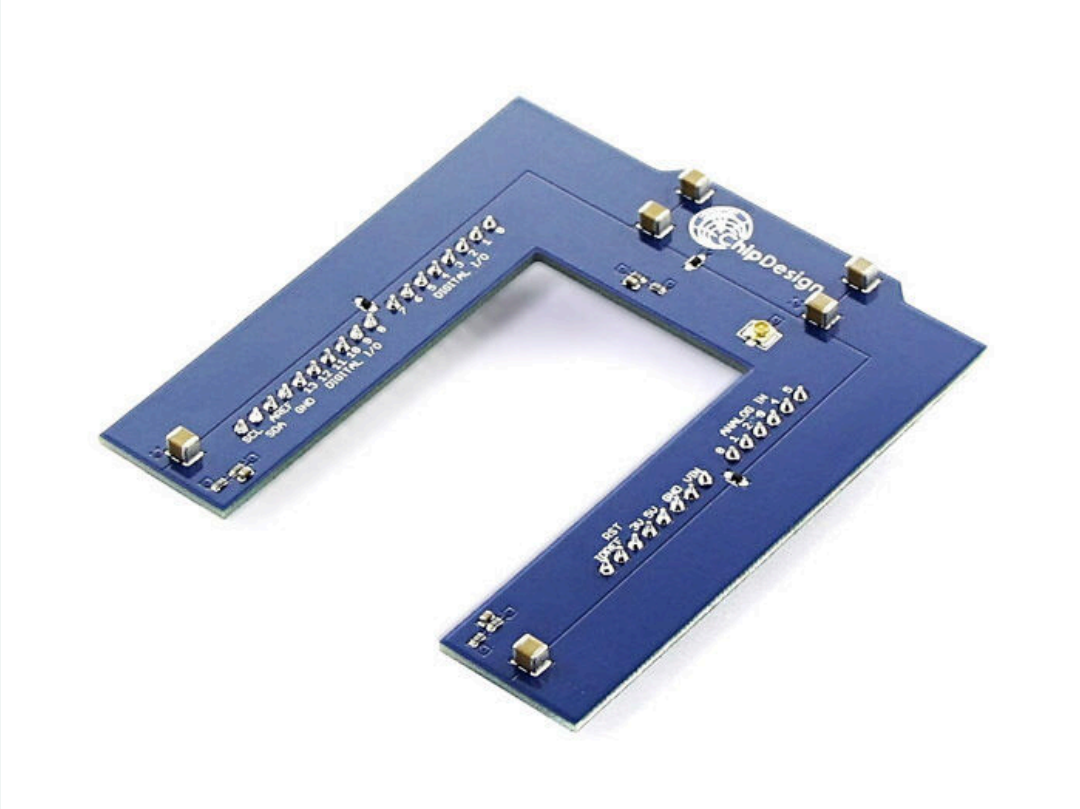
Software defined radio antenna

ChipDesign's tunable antenna for mobile devices consists of a low-profile electronically-tunable electrically-small (18.5 cm long) slot antenna, which allows for improved receiver selectivity1.

SKU	UPDATED	PRICE
113990078	2026-11-11 07:31:47	$35.00(Excl. VAT)



Overview



ChipDesign's tunable antenna for mobile devices consists of a low-profile electronically-tunable electrically-small (18.5 cm long) slot antenna, which allows for improved receiver selectivity1.

Key Features

01 **Band coverage**

02 **Well-matched (dB20(|S11|) < -10 dB, VSWR < 1.9) frequency bands are the 700 MHz, 866 MHz (ISM), 900 MHz, 1227 MHz (GPS L2), 1800 MHz, 1900 MHz, and 2100 MHz band. For the cellular bands, the full TX band, the duplex gap, and the full RX band are covered, allowing contiguous and non-contiguous intra-band CA with an instantaneous bandwidth up to 100 MHz, if applicable.**

03 **Poorly-matched (dB20(|S11|) < -6 dB, VSWR < 3) frequency bands are the 433 MHz (ISM) and 450 MHz band for the Seeed version.**

04 **The presence of the test hardware affects the return loss, as any efficient antenna is sensitive to its surrounding. Return loss measurements were done with the tunable antenna plugged into an Arduino Due and a Seeeduino Lotus micro-controller board, and the results can differ by as much as 100 MHz for the same bias settings. At the edges of the tunable frequency range - i.e. at 400 - 433 MHz and 2.45 - 2.6 GHz, differences in return loss can exist, which can not be compensated anymore by biasing the RF varactor diodes differently.**

05 **Directivity**

The full-space radiating version is recommended for IoT devices and tablets, whereas the half-space radiating version, currently under development, is recommended for smartphones in order to meet the SAR specification. A λ0/2 full-space radiator has a directivity of 1.6 dBi, whereas λ0/2 half-space radiator has a directivity of 10log10(π) ≈ 5 dBi.

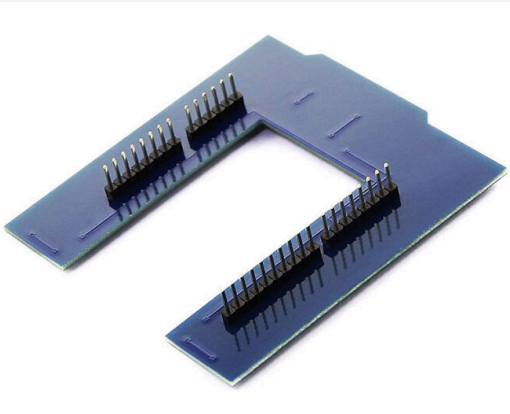
06 **Efficiency**

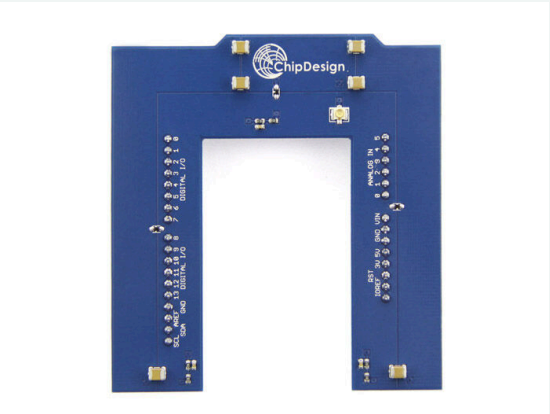
TBD. The bandwidth and efficiency of electrically-small antennas with sufficient instantaneous bandwidth are bounded by the Chu-Harrington limit.

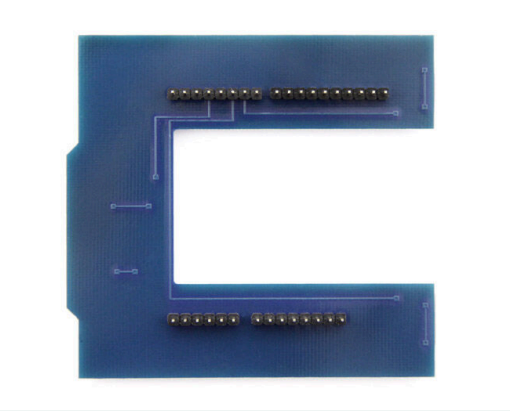
07 **Programming**

The frequency band can be programmed using three PWM outputs of Arduino micro-controller boards, such as the Arduino Due or the Seeeduino Lotus, or 5 V Arduino shield compatible mbed2 micro-controller boards, such as the u-box C027.

Product Gallery







Resource Links

- https://www.seeedstudio.com/Software-defined-radio-antenna.html

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