Stanley Black and Decker, Inc – DCR008

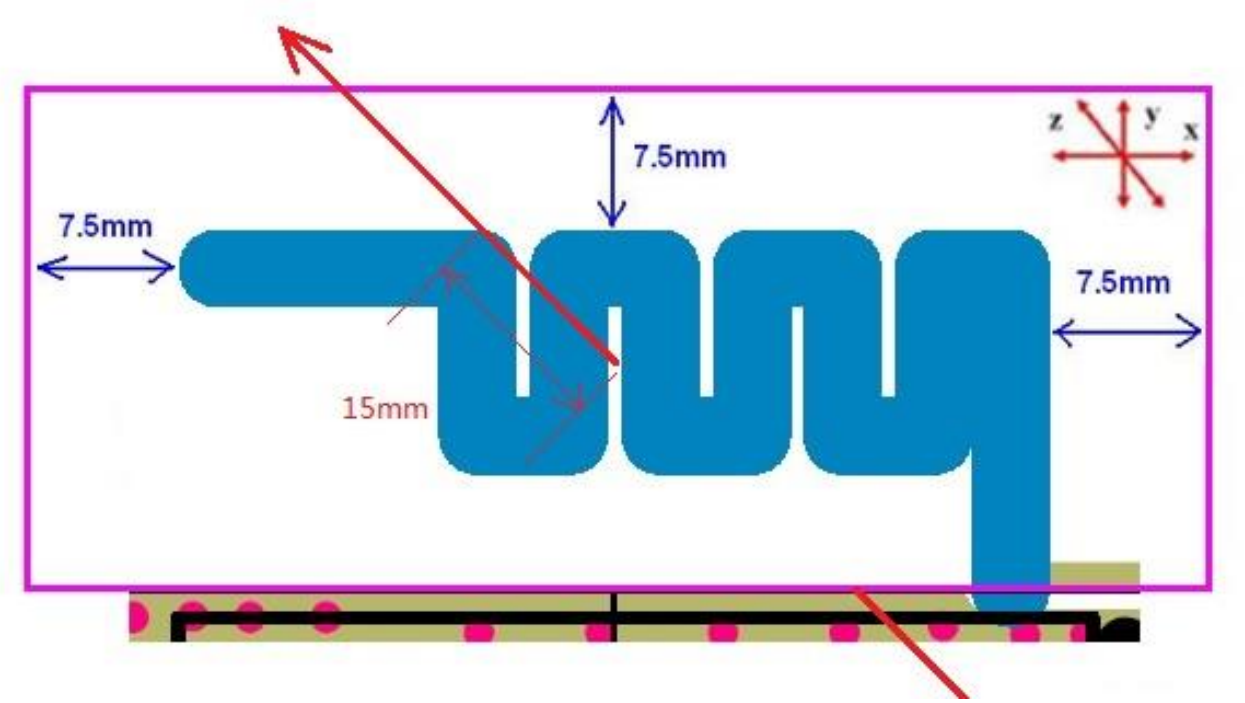
EUT Name: DCR008, Bluetooth Speaker
WL Project: #17918

FCC ID: YJ7DCR008
IC ID: 9082A-DCR009

Antenna Manufacturer: Stanley Black and Decker, Inc.

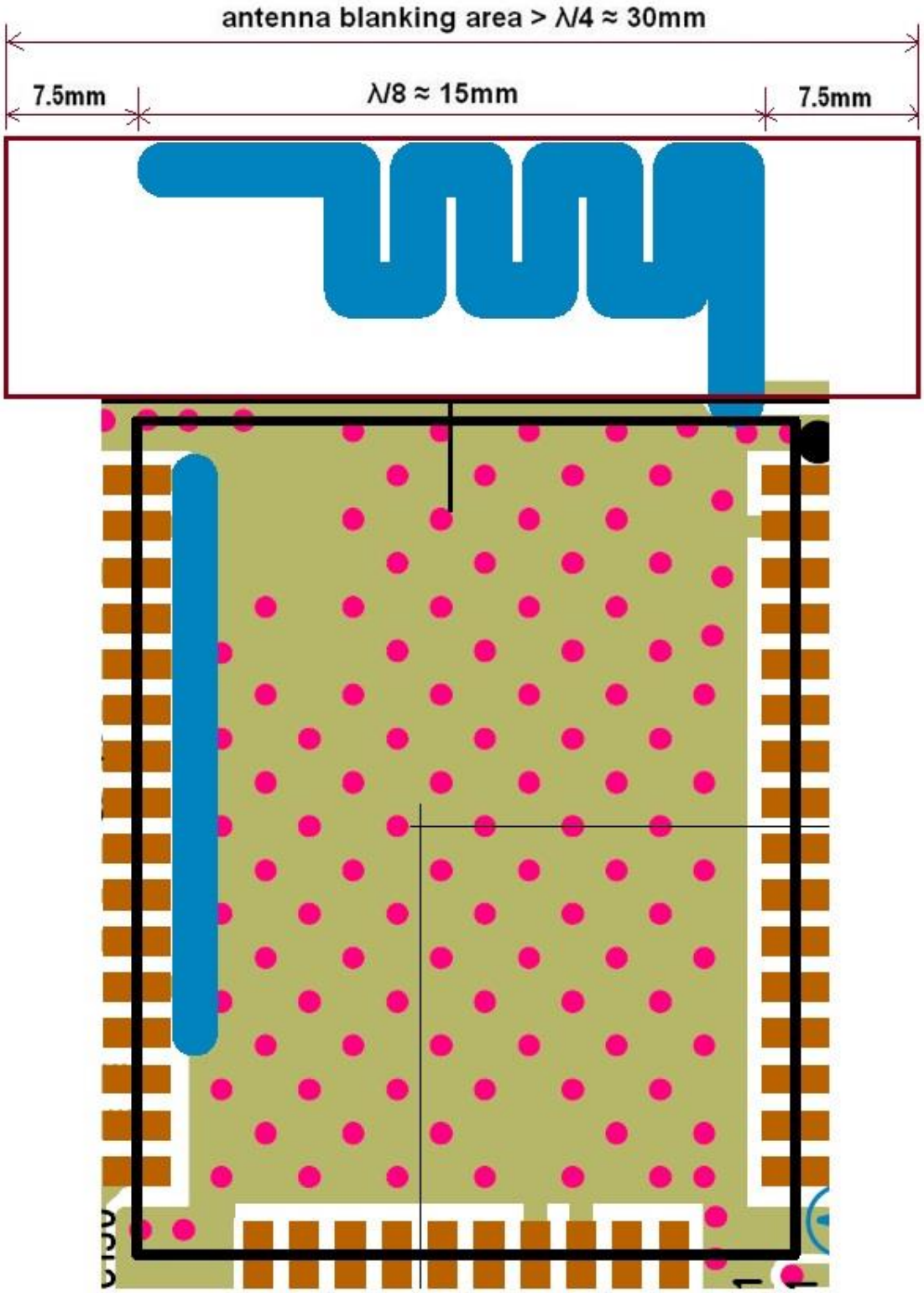
Antenna Type: PCB Trace, "Meander Line"

1. Free Zone



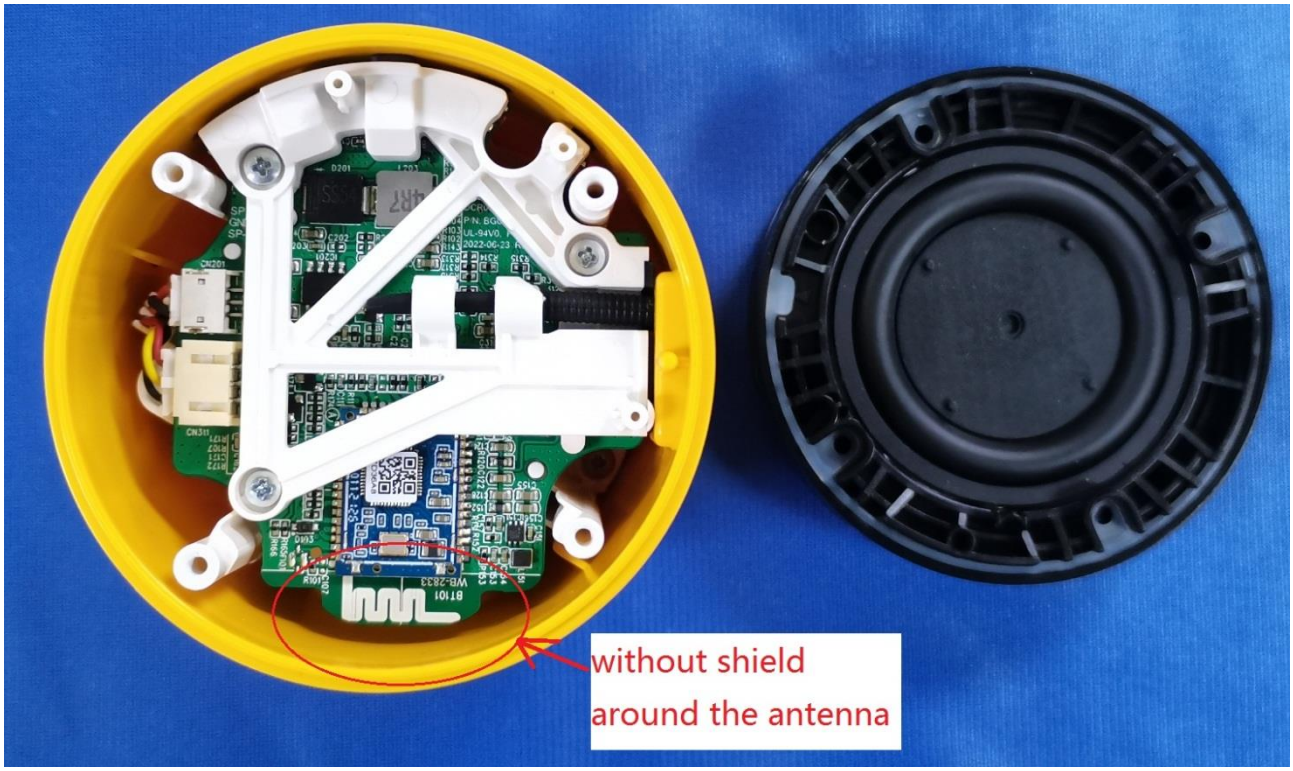
For the module with print circuit board antenna, to eliminate the influence from other components or ground, we define a clearance area around the Print circuit board antenna, please refer to above picture. It should be no metal in the antenna blanking area. Besides x-y-axis, it is also should be no metal in the Z-axis direction.

The PCB under module ANT should be blanked without extra PP.
Or optimize ANT matching circuit is needed.



λ =C/f=300000000/2437000000=300/2437=0.1231 m

2. No Shield Around the Bluetooth Antenna



3. Frequency Range & Antenna Gain

Frequency Range: 2.4 GHz – 2.4835 GHz (by design)
FHSS Carrier Frequency: 2402 MHz – 2480 MHz

Gain: Peak = -1.5 dBi (declared)
Nominal = -2.3 dBi (measured)

The antenna performance was measured during the 3m radiated emissions testing. The EUT was evaluated in three orthogonal planes for worst-case positioning that produced the highest fundamental field strength.

The nominal gain was derived from the following formulas:

$Power\_Conducted_{dBm} + Gain_{dBi} = EIRP$

$EIRP = FS_{dBuv/m} + 20LOG(D_m) – 104.7$

where,

D_m = the radiated testing measurement distance.

therefore,

$EIRP = 96.8 + 20LOG(3) – 104.7 = 1.64$ dBm

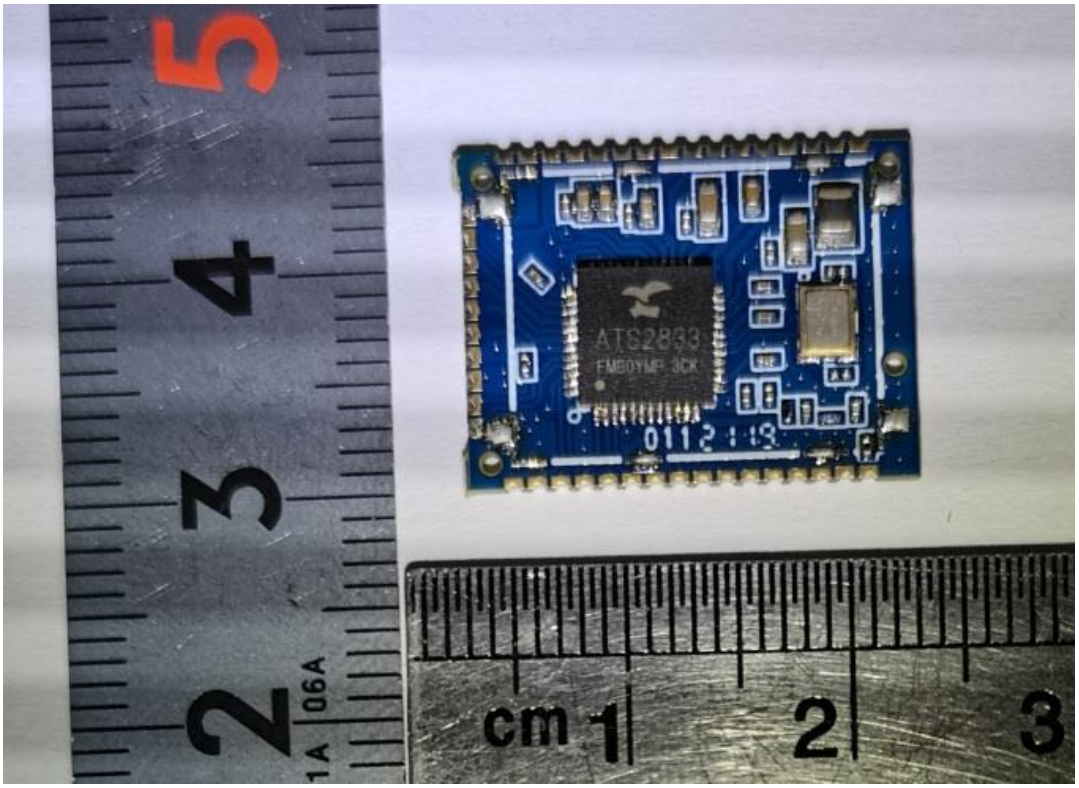
further,

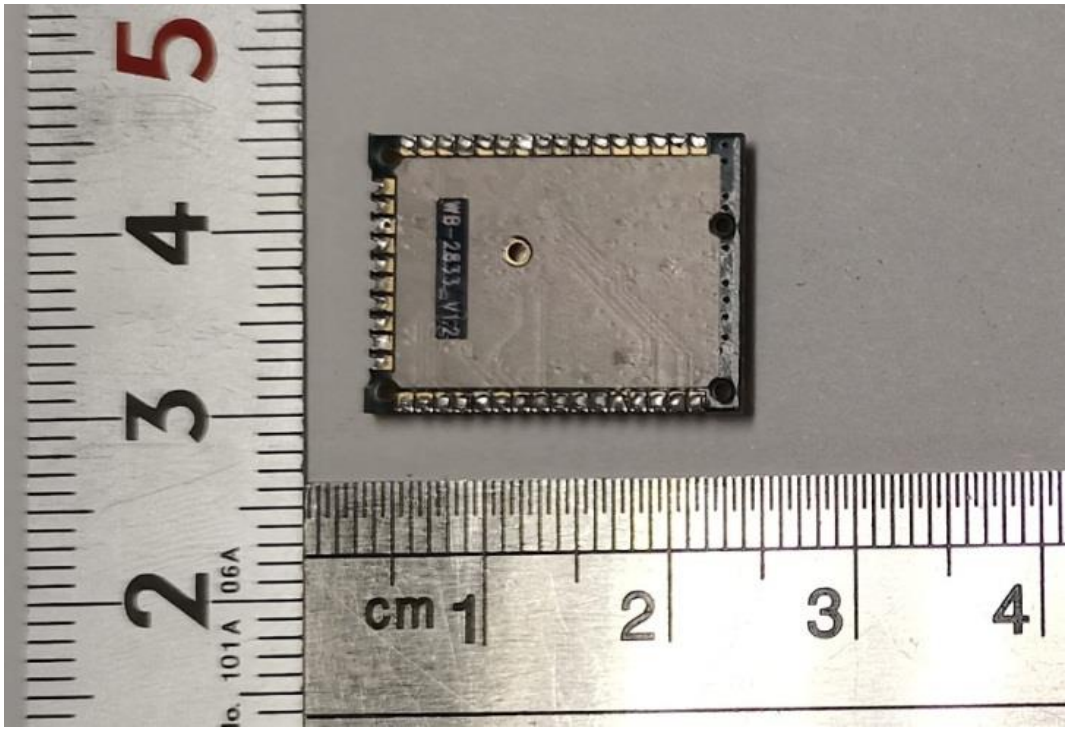
$EIRP_{dBm} – Power\_Conducted_{dBm} = Gain_{dBi}$

1.64 – 3.96 = -2.32 dBi

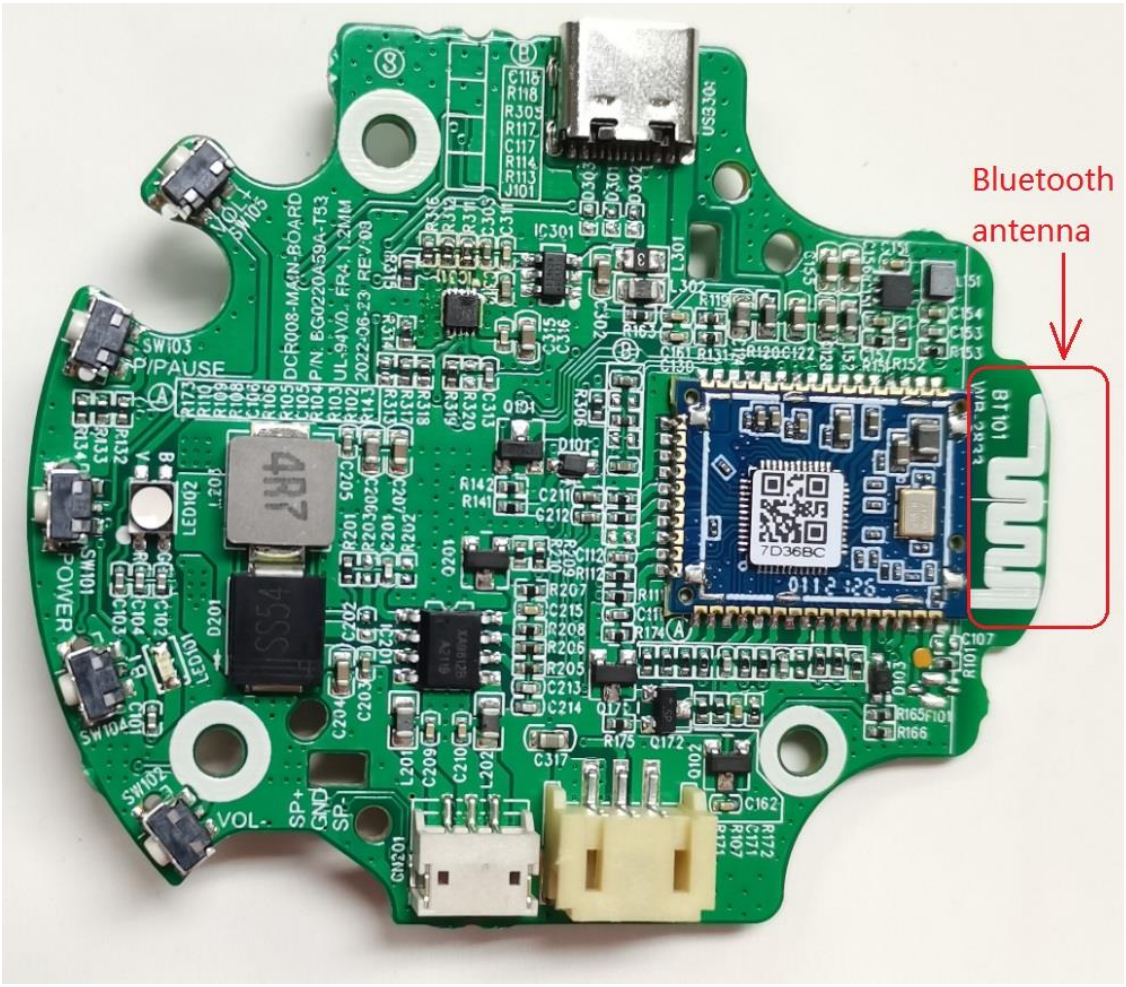
The measured nominal antenna gain is -2.32 dBi.

4. Module/Antenna Photographs





5. Antenna Position



6. Antenna Location

Rear view, the Bluetooth antenna is located under the rating label about 7mm