Assignment 5

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

Due on 2019-03-06, 23:59 IST.

1) Which one of the following substrates should be used to provide large gain and BW of MSA for same substrate thickness?

- RT Duroid 6010 (\(\varepsilon_r = 10.2, \tan \delta = 0.0023\))
- Glass Epoxy FR-4 (\(\varepsilon_r = 4.4, \tan \delta = 0.02\))
- RT Duroid 5880 (\(\varepsilon_r = 2.2, \tan \delta = 0.0009\))
- Air (\(\varepsilon_r = 1, \tan \delta = 0\))

No, the answer is incorrect.

Score: 0

Accepted Answers:

- Air (\(\varepsilon_r = 1, \tan \delta = 0\))

Common data for Questions 2 to 6: A rectangular microstrip antenna (RMSA) is designed at 1800 MHz on a substrate having \(\varepsilon_r = 2.33, h = 1.6\) mm and \(\tan \delta = 0.0012\).

2) Width of the RMSA is:

- 8.33 cm
- 6.46 cm
- 4.17 cm
- 3.34 cm

No, the answer is incorrect.

Score: 0

Accepted Answers:

- 6.46 cm

3) The effective dielectric constant seen by the RMSA is:

- 3.15

No, the answer is incorrect.

Score: 0

Accepted Answers:

- 3.15
4) Length of the RMSA is: 2 points
   - 6.46 cm
   - 6.05 cm
   - 5.33 cm
   - 5.14 cm
   Accepted Answers: 2.26

   No, the answer is incorrect.
   Score: 0

5) For 50Ω input impedance, approximate location of the feed-point from the centre of RMSA 2 points is:
   - 0.5 cm
   - 1.0 cm
   - 1.5 cm
   - 2.0 cm

   No, the answer is incorrect.
   Score: 0

6) Approximate gain of the RMSA should be in the range: 2 points
   - 3-5 dBi
   - 5-7 dBi
   - 7-9 dBi
   - 9-11 dBi

   No, the answer is incorrect.
   Score: 0

   Accepted Answers: 5-7 dBi

7) To realize n-way power divider, circular microstrip patch should be excited in ___ mode. 2 points
   - TM_{11}
   - TM_{21}
   - TM_{01}
   - TM_{02}

   No, the answer is incorrect.
   Score: 0

   Accepted Answers: TM_{02}

Common data for Questions 8 to 10: An air suspended circular microstrip antenna is designed to resonate at 2.45 GHz as shown in Fig.1. The suspended substrate parameters are: \( \varepsilon_r = 4.4, h = 0.16 \text{ cm and } \tan \delta = 0.02, \text{ and the air-gap } \Delta = 0.6 \)
8) The equivalent dielectric constant seen by the antenna is:

- 2.83
- 2.24
- 1.86
- 1.19

No, the answer is incorrect.

Score: 0

Accepted Answers:

- 1.19

9) Approximate radius of the suspended circular MSA is:

- 3.86 cm
- 2.86 cm
- 1.92 cm
- 1.16 cm

No, the answer is incorrect.

Score: 0

Accepted Answers:

- 2.86 cm

10) Approximate gain of the antenna is in the range:

- 4-6 dBi
- 6-8 dBi
- 8-10 dBi
- 10-12 dBi

No, the answer is incorrect.

Score: 0

Accepted Answers:

- 8-10 dBi