4.4 Microstrip dipole

Quiz

Answer these questions to get feedback on how well you understand the course. Only one of the answers is correct. You don't have to answer every question. If you don't know the answer you can just leave it blank (default option: "I won't answer this question") and this won't affect your score. Answering **correctly** will **add 2 points** to your score but on the other hand you'll **lose 1 point** if your answer is **wrong**. The questions are divided in groups of five questions.

Press **See result** after you have finished answering.

Displaying questions **1**..**10** of **10**:

Question 1

Microstrip dipole etched on a microwave substrate …

Possible answers for question 1:
- ⦾ … behaves the same way as a wire dipole completed by a plane reflector in vacuum.
- ⦾ … exhibits rather complicated behavior due to the wave reflections on the boundary of the dielectric substrate and the vacuum.
- ⦾ … behaves the same way as a wire dipole completed by a plane reflector in free space, which permittivity equals to the arithmetic average of the permittivity of vacuum and the permittivity of the substrate.
- ⦿ I won't answer this question

Question 2

Green functions describe how …

Possible answers for question 2:
- ⦾ … currents contribute to vector potential and charges contribute to scalar potential.
- ⦾ … current distribution on the antenna influences the directivity pattern.
- ⦾ … current distribution contributes to input impedance of the antenna.
- ⦿ I won't answer this question

Question 3

Dyadic Green function …

Possible answers for question 3:
- ⦾ … and Green function are two names for the same thing.
- ⦾ … is 3 x 3 matrix of functions relating contributions of current density components to vector potential components.
- ⦾ … is 3 x 3 matrix of functions for anisotropic non-linear substrates only.
- ⦿ I won't answer this question

Question 4

Continuity theorem …

Possible answers for question 4:
- ⦾ … relates charges and currents on the dipole.
- ⦾ … expresses the fact that electromagnetic wave is continuously radiated by the antenna.
- ⦾ … explains the continuity of current distribution.
- ⦿ I won't answer this question

Question 5

If the frequency of the microstrip dipole antenna decreases, the phase interval of the current distribution of the microstrip dipole antenna …

Question 6

If the heigth of the substrate (of the microstrip dipole antenna) is decreased below its default value 10 [in the applet on layer E], then the module of the current distribution of the microstrip dipole …

Possible answers for question 6:

○ … decreases too.

○ … increases.

○ … is not much affected.

◉ I won't answer this question

Question 7

At the ends of a half-wave dipole the …

Possible answers for question 7:

○ … voltage and current are both high.

○ … voltage is high and current is low.

○ … voltage is low and current is high.

◉ I won't answer this question

Question 8

A circular microstrip antenna element has a radius of 60 mm with $\varepsilon_r = 2.0$ and thickness t = 2.0 mm. The lowest mode giving a maximum in the radiation pattern in the broadside direction (normal to the plane of the disc) has a frequency f_r of …

Possible answers for question 8:

○ … 1.003 GHz.

○ … 1.036 GHz.

○ … 1.069 GHz.

◉ I won't answer this question

Question 9

In the design described in the above question, the patch is excited by a 50Ω coaxial probe feed at a point along a radial line where the calculated R_{in} = 50Ω. The inner conductor of the coaxial feed has a radius of 1 mm. The required capacitive element C in series with the probe to make the antenna resonant is approximately …

Possible answers for question 9:

○ … 15.37 pF.

○ … 100.31 pF.

○ … non of the above.

◉ I won't answer this question

Question 10

The microstrip antenna is in resonance when the length of the microstrip element equals to …

Possible answers for question 10:

- ⊙ … the double of the wavelength on the widened transmission line.
- ⊙ … the wavelength on the widened transmission line.
- ⊙ … the half of the wavelength on the widened transmission line.
- ⦿ I won't answer this question

[see result]