2.1 Diffraction on a planar absorbing object

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

Fresnel diffraction describes a wave phenomenon caused by …

Possible answers for question 1:

- … planar perfectly electrically conductive obstacle between transmitter and receiver.
- … planar perfectly absorbing obstacle between transmitter and receiver.
- … cylindrical dielectric obstacle between transmitter and receiver.
- I won't answer this question

Question 2

Applying Huygens principle to the solution of Fresnel diffraction …

Possible answers for question 2:

- … surface currents on the obstacle, which is induced by the incident wave, is computed as the source of the secondary wave.
- … does not produce the solution of the problem.
- … each elementary surface over the obstacle, which is illuminated by the incident wave,becomes the source of the secondary wave.
- I won't answer this question

Question 3

Inserting an obstacle between the transmitter and the receiver …

Possible answers for question 3:

- … field intensity at the receiver can never be higher compared to the situation without any obstacle.
- … field intensity at the receiver can be even higher compared to the situation without any obstacle.
- … does not significantly influences wave propagation.
- I won't answer this question

Question 4

Field intensity at the receiver depends on …

Possible answers for question 4:

- … the distance between the top of the obstacle and the join between the transmitter and the receiver.
- … electromagnetic parameters of the obstacle.
- … frequency of the electromagnetic wave.
- I won't answer this question

Question 5

In the practical life, Fresnel diffraction …

Possible answers for question 5:

- … can be used when modeling transversally long and longitudinally narrow obstacles.
- … can be used when modeling wave propagation through walls of buildings.
- … cannot be used.
- I won't answer this question

Question 6

When the top of the obstacle touches the join between the transmitter and the receiver …

Possible answers for question 6:

- … field intensity at the receiver is the same compared to the intensity without any obstacle.
- … field intensity at the receiver is higher compared to the intensity without any obstacle.
- … field intensity at the receiver is one half compared to the intensity without any obstacle.
- I won't answer this question

Question 7

The first Fresnel zone is given by the circle on the plane, which is perpendicular to the join between the transmitter and the receiver.

Possible answers for question 7:

- The distance transmitter - circumference of the circle - receiver is half wavelength longer compared to the distance transmitter - receiver.
- Radius of the circle equals to the distance between the transmitter and the receiver.
- The distance transmitter - circumference of the circle - receiver is one wavelength longer compared to the distance transmitter - receiver.
- I won't answer this question

Question 8

When all the even (odd) Fresnel zones are covered …

Possible answers for question 8:

- … zero field intensity can appear at the receiver.
- … theoretically infinite field intensity can appear at the receiver.
- … nothing can be said about the field intensity at the receiver.
- I won't answer this question

Question 9

Fresnel integrals can be evaluated …

Possible answers for question 9:

- … analytically.
- … cannot be evaluated due strong singularities.
- … numerically.
- I won't answer this question

Question 10

When explaining Fresnel diffraction, we assume the propagation of …

Possible answers for question 10:

- … a planar wave.
- … a spherical wave.
- … cylindrical wave.
- I won't answer this question

see result