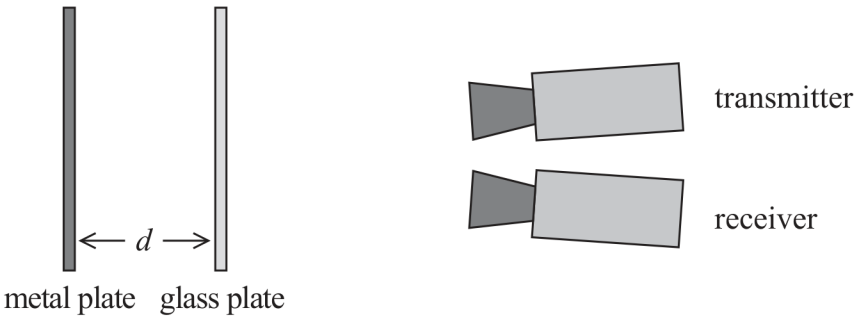
2 A student investigated the reflection of microwaves from a metal plate and a glass plate.

The metal plate reflects microwaves and the glass plate partially reflects microwaves.

A plan view of the apparatus is shown.



The metal plate, the transmitter and the receiver were kept in fixed positions.

The value of d was varied by moving the glass plate.

(a) As d varied, the intensity of the microwaves detected by the receiver varied.

Explain why.

(3)

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(b) The student recorded values of d when the receiver showed a maximum value of intensity.

He recorded d for a sequence of five maxima.

Maxima	1	2	3	4	5
d / cm	9.9	11.1	12.7	13.9	15.4

(i) Determine the wavelength of the microwaves being transmitted.

(3)

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Wavelength = ...

(ii) Calculate the frequency of the microwaves being transmitted.

(2)

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Frequency = ...

(Total for Question 2 = 8 marks)