RTDC_T4_PRUEBA_DE_CASA_2022

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Parte 1 de 1 - / 9.0 Puntos

Preguntas 1 de 10

1.0 Puntos

In a coherent optical communication system the power of the local oscillator is:

- A. Of the same order of magnitude than that of the signal coming from the link.
- B. Much smaller than that of the signal coming from the link.
- C. Much smaller than that of the signal coming from the link.
- D. Much bigger than that of the signal coming from the link.

Preguntas 2 de 10

0.5 Puntos

If the state of polarization of the signal from the fiber link of a coherent system is linearly polarized then the the state of polarization of the local oscillator can be circular.

- Verdadero
- Falso

Preguntas 3 de 10

1.0 Puntos

Select two correct statements about homodyne systems with no phase diversity detection.

- [x] A. The frequency of the local oscillator and the transmitter laser must be equal
- [ ] B. The attainable signal to noise ratio at the receiver under same operation conditions (average signal power, bandwidth and quantum efficiency) is half of that attainable with a heterodyne detection.
- [x] C. They do not allow I-Q modulation
- [ ] D. None of the above

Preguntas 4 de 10

1.0 Puntos

Select the correct strategy to combat polarization mismatch effect in coherent systems

- A. Use a phase diversity receiver
- B. Use balanced detection
- C. Use homodyne detection
- D. Use a 2x2 MIMO algorithm in the receiver DSP

Preguntas 5 de 10

0.5 Puntos

The balanced detector used in coherent detection cancels the effect of thermal noise because it substracts the contributions of both detection branches

- Verdadero
- Falso

Preguntas 6 de 10

1.0 Puntos

Regarding modern coherent optical communication systems choose two correct statements:

- [ ] A. Detection employs heterodyne approach with only one polarization being selected and balanced detection to demodulate both in-phase and quadrature components after a 90° hybrid
- [x] B. Detection employs homodyne approach with the two polarizations being selected by of polarization diversity balanced detection to suppress RIN and phase diversity demodulate both in-phase and quadrature components
- [x] C. The detected signal is composed of independent in-phase and quadrature components for both polarizations. A total of four data streams.
- [ ] D. The detected signal is composed of independent in-phase and quadrature components for one polarization. A total of two data streams.

Preguntas 7 de 10

1.0 Puntos

Regarding modern optical coherent communication systems choose two correct statements:

- [x] A. The dominant noise source is the beat noise between the local oscillator and the optical noise field.
- [ ] B. The dominant contribution to the optical noise field is the double Raman scattering.
- [ ] C. The dominant noise source is the beat noise between the signal and the optical noise field.
- [x] D. The dominant contribution to the optical noise field is the amplified spontaneous emission.

Preguntas 8 de 10

1.0 Puntos

When solving the Generalized Nonlinear Schrödinger equation the Kerr term takes into account the effect of all nonlinearities (instantaneous and non instantaneous)

- Verdadero
- Falso

Preguntas 9 de 10

1.0 Puntos

The most limiting factor of those listed below for the capacity in WDM coherent optical communication systems is:

- A. The signal-signal intrachannel nonlinearity.
- B. The signal-signal interchannel nonlinearity.
- C. The signal-noise intrachannel nonlinearity.
- D. The noise-noise intrachannel nonlinearity.

Preguntas 10 de 10

1.0 Puntos

Choose from the list below the functions carried by the electronic DSP stage in modern coherent systems

- [x] A. Group velocity dispersion compensation
- [ ] B. Phase diversity detection
- [x] C. Polarization mode dispersion compensation
- [ ] D. Radiofrequency downconversion