calculatoratoz.com

unitsconverters.com

Mobile Radio Propogation Formulas

Calculators! Examples! Conversions!

Bookmark **calculatoratoz.com**, **unitsconverters.com**

Widest Coverage of Calculators and Growing - **30,000+ Calculators!**
Calculate With a Different Unit for Each Variable - **In built Unit Conversion!**
Widest Collection of Measurements and Units - **250+ Measurements!**

Feel free to SHARE this document with your friends!

Please leave your feedback here...

© calculatoratoz.com. A softusvista inc. venture!

List of 16 Mobile Radio Propogation Formulas

Mobile Radio Propogation

1) Block of N Serial Source

Open Calculator

fx $$N_s = \frac{T_d}{T}$$

ex $$6 = \frac{1800s}{300s}$$

2) Cumulative Distribution Function

Open Calculator

fx $$CDF = t_{avg} \cdot n_R$$

ex $$38.5 = 3.5s \cdot 11$$

3) Level Crossing Rate

Open Calculator

fx $$N_R = \left(\sqrt{2 \cdot \pi}\right) \cdot F_m \cdot \rho \cdot e^{-\left(\rho^2\right)}$$

ex $$13.67409 = \left(\sqrt{2 \cdot \pi}\right) \cdot 0.0551kHz \cdot 0.1 \cdot e^{-\left((0.1)^2\right)}$$

© calculatoratoz.com. A softusvista inc. venture!

4) Long Term Fading

Open Calculator

fx $$M_t = \frac{R_t}{R_{ot}}$$

ex $$2.5 = \frac{26}{10.4}$$

5) Maximum Possible S by N Ratio

Open Calculator

fx $$SN_m = SN_{out} \cdot F$$

ex $$390\text{dB} = 30\text{dB} \cdot 13\text{dB}$$

6) Mobile Radio Distance

Open Calculator

fx $$d = \left(\frac{\alpha}{C}\right)^{\frac{1}{4}}$$

ex $$2\text{m} = \left(\frac{160}{10\text{W}}\right)^{\frac{1}{4}}$$

7) Mobile Radio Signal

Open Calculator

fx $$R_t = M_t \cdot R_{ot}$$

ex $$26 = 2.5 \cdot 10.4$$

© calculatoratoz.com. A softusvista inc. venture!

8) Mobile Reciever Carrier Power

Open Calculator

fx $$C = \alpha \cdot d^{-4}$$

ex $$10W = 160 \cdot (2m)^{-4}$$

9) Multipath Fading

Open Calculator

fx $$R_{ot} = \frac{R_t}{M_t}$$

ex $$10.4 = \frac{26}{2.5}$$

10) Noise Figure

Open Calculator

fx $$F = \frac{SN_m}{SN_{out}}$$

ex $$13dB = \frac{390dB}{30dB}$$

11) Path Loss Coefficient

Open Calculator

fx $$\alpha = \frac{C}{d^{-4}}$$

ex $$160 = \frac{10W}{(2m)^{-4}}$$

12) Selective Retransmission

Open Calculator

$$R_s = \frac{N_{wd} \cdot L}{H \cdot E_n + B_{wd} \cdot E_1 \cdot N_{wd}}$$

$$0.072298 = \frac{19 \cdot 3}{9 \cdot 4 + 12 \cdot 3.3 \cdot 19}$$

13) Serial to Parallel Modulation Time Period

Open Calculator

$$T = \frac{T_d}{N_s}$$

$$300\text{s} = \frac{1800\text{s}}{6}$$

14) Short Term Fading

Open Calculator

$$R_o = R_t \cdot M_t$$

$$65 = 26 \cdot 2.5$$

15) Stop-and-Wait ARQ Technique

Open Calculator

$$R = \frac{N_{wd} \cdot L}{(H + B_{wd} \cdot N_{wd}) \cdot E_n}$$

$$0.060127 = \frac{19 \cdot 3}{(9 + 12 \cdot 19) \cdot 4}$$

16) Symbol Duration

Open Calculator

fx $$T_d = N_s \cdot T$$

ex $$1800s = 6 \cdot 300s$$

© calculatoratoz.com. A softusvista inc. venture!

Variables Used

- B_{wd} Number of Bits per Word
- C Mobile Reciever Carrier Power *(Watt)*
- CDF Cumulative Distribution Function
- d Transmitter Reciever Distance *(Meter)*
- E_1 Expected One Transmission
- E_n Expected Number of Transmission
- F Noise Figure of Amplifier *(Decibel)*
- F_m Maximum Doppler Shift *(Kilohertz)*
- H Header Bits
- L Information Bits
- M_t Long Term Fading
- n_R Normalized LCR
- N_R Level Crossing Rate
- N_s Block of N Serial Source
- N_{wd} Number of Word Message Consist
- R Stop-and-Wait ARQ Technique
- R_o Short Term Fading
- R_{ot} Multipath Fading
- R_s Selective Retransmission
- R_t Mobile Radio Signal
- SN_m Maximum Possible S/N Ratio *(Decibel)*

© calculatoratoz.com. A softusvista inc. venture!

- SN_{out} Actual S/N Ratio at Output *(Decibel)*
- T Time Period *(Second)*
- t_{avg} Average Duration of Fade *(Second)*
- T_d Symbol Duration *(Second)*
- α Path Loss Coefficient
- ρ Normalized RMS Value

Constants, Functions, Measurements used

- Constant: **pi**, 3.14159265358979323846264338327950288
  Archimedes' constant
- Constant: **e**, 2.71828182845904523536028747135266249
  Napier's constant
- Function: **sqrt**, sqrt(Number)
  Square root function
- Measurement: **Length** in Meter (m)
  Length Unit Conversion
- Measurement: **Time** in Second (s)
  Time Unit Conversion
- Measurement: **Power** in Watt (W)
  Power Unit Conversion
- Measurement: **Noise** in Decibel (dB)
  Noise Unit Conversion
- Measurement: **Frequency** in Kilohertz (kHz)
  Frequency Unit Conversion

© calculatoratoz.com. A softusvista inc. venture!

Check other formula lists

- **Cellular Concepts Formulas**
- **Data Analysis Formulas**
- **Data Transmissions and Error Analysis Formulas**
- **Frequency Reuse Concept Formulas**
- **Mobile Radio Propogation Formulas**

Feel free to SHARE this document with your friends!

PDF Available in

English Spanish French German Russian Italian Portuguese Polish Dutch

12/18/2023 | 3:30:37 PM UTC

Please leave your feedback here...

© calculatoratoz.com. A softusvista inc. venture!