



Recommendation WG 2.89.017

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**COMPARISON OF OHLOSS CALCULATIONS**  
**vs.**  
**FIELD MEASUREMENTS**  
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Source: Working Group 2

RECOMMENDATION

Subject Area: OHLOSS

Title: Comparison of OHLOSS Calculations vs. Field Measurements

Synopsis

Field measurements are occasionally used to supplement computerized OHLOSS analyses. This recommendation addresses the discrepancies that typically exist between computed and measured values of OHLOSS, and cautions against simple application of the measured values. In addition, the recommendation notes the general inapplicability of field measurements to confirm short-term OHLOSS.

Background

Calculated over-the-horizon loss values are based on a best-fit curve drawn through a compilation of median values of measured data for a specific climate type over a given transhorizon radio path. Adjustments are made for the availability (% of time) and service probability (confidence factor).

Typically, field measurement conducted for resolving potential interference cases are made over a relatively short period of time. These measurements only represent a snapshot of the full excursion of OHLOSS values. Variation of temperature, humidity, time of day, and seasons of the year all will influence the value measured. Unless a measurement is made for an extended period of time, the long-term power fading effects may not be adequately represented and the "snapshot" may yield values either higher or lower than those predicted by any program.

Also, the path profile used in calculating OHLOSS is based on ground elevation data and, by convention, does not generally include trees or man-made structures. The measured values are obtained from a signal which traverses the actual terrain and obstacle.

1. NBS Tech Note 101 (with specified modifications) is endorsed as the basis for loss predictions, and further validation of those models is considered beyond the scope of the NSMA. It is an accepted fact that statistical error will always be present, and an appropriate allowance should be made via a 95% confidence factor adjustment.
2. The NSMA leaves open the door to consider other source documents besides Tech Note 101 for possible inclusion in the computation procedure in the future.
3. Valid field measurements can reasonably be used in lieu of computer prediction for long-term loss only. However, it is understood that the measurement must be taken over a sufficiently long period of time to discount possible abnormal short-term fluctuations. The statistical nature of both the prediction and the measurement should be considered when resolving any discrepancies between the two. All measurements must include information related to the seasons, time of day, weather conditions, etc. Long term statistics generally applied to day time (noon) measurement made in clear weather. Consult other NSMA documents for the correct recommendation for making measurements.

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