

Our Service Rates

The Syntech Analogue Coverage Service is provided on an all-inclusive, fixed-cost basis. The extent and scope of each survey is planned with the client in advance to calculate the total number of days' surveying required. Our charges are based on a fixed set-up cost plus a survey day-rate. Charges are all-inclusive and cover the actual surveying, the analysis of the data and the production of the report and colour coverage maps.

Additional analysis of the data, such as making a comparison to the Airwave coverage, is charged on a similar all-inclusive day-rate basis.

Syntech also offers a complimentary Service to validate Airwave coverage. A separate brochure is available on request.



Syntech

SYSTEMS ♦ LTD

- ◆ Benchmarks your existing analogue radio schemes
- ◆ Measures speech quality and signal strength
- ◆ Results are directly comparable with those for Airwave Service
- ◆ Provides a base-line for business benefits and Airwave acceptance
- ◆ Cost effective, fixed-price, all-inclusive service: includes drive-testing, analysis & reporting



The Equipment

Gemini™ is a fully-functional radio survey tool which measures coverage in terms of perceived speech quality. Gemini™ uses the ITU approved PESQ algorithm to quantify received speech quality against the ITU Mean Opinion Score (MOS) scale. This measure of speech quality can be used in its own right to determine whether the system is acceptable (for example, any sample achieving a score of less than 2.0 is undesirable). The results can also be compared directly to the speech quality measured on the Airwave system, thus any differences between them can be quantified.

Libra™ uses a calibrated Chase receiver to provide high accuracy signal strength measurements. Multiple frequencies can be measured simultaneously. Each signal strength measurement is recorded with a time and position stamp so that it can be correlated with other data (eg speech quality, coverage predictions).

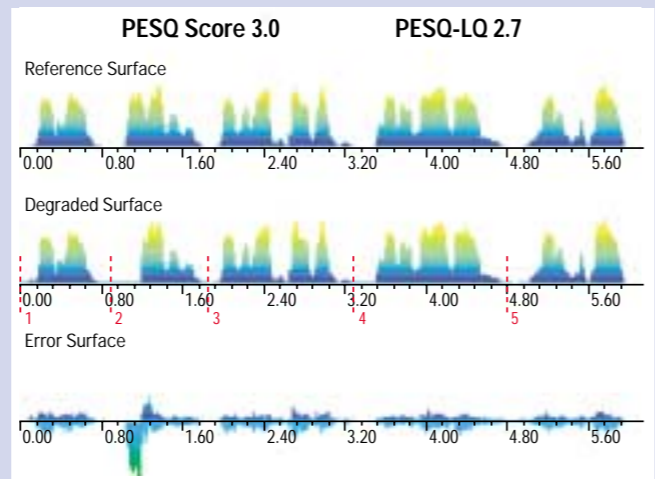
The Algorithm

The PESQ algorithm is an open, internationally recognised standard which has been approved by the ITU (ITU-T Rec.P.862) for the measurement of speech quality. It works over any telecommunications network and hence represents a truly open standard for determining the quality of any radio service. PESQ works by sending a known speech sample (the "Reference" sample) across the network and recording the sample at the receiving terminal (the "Degraded" sample). The two are then compared and any differences are analysed to determine the speech quality. In tests, PESQ has repeatedly demonstrated that it produces equivalent scores to human listening panels.

What's Required?

Since the Coverage Validation Service measures the quality of service as experienced by the user (ie what they receive through their radio infrastructure), it can be applied to any radio scheme, such as MPT 1327 or quasi-sync systems. Both UHF and VHF bands are covered and the service can even be used with MASC encryption.

All that is required from the user is the use of at least two standard radio terminals which operate on the radio scheme and the exclusive use of a single radio channel for the duration of the survey. Note that the channel under test must be operated in talk-through mode for the duration of the survey.



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Measuring Existing Analogue Schemes

With the adoption of the mmO₂ Airwave service, many existing analogue UHF and VHF radio schemes will be replaced. One of the main requirements of users is that the new Airwave service will be equal to or better than the systems it replaces, not just in terms of the coverage provided, but in the quality of service that is delivered.

Most user organisations already have a thorough understanding of the coverage of their existing radio schemes and can compare it to the coverage delivered by Airwave. However, in terms of measuring the quality of the service that is delivered, it has not been possible to make an absolute, quantitative comparison between the new service and the old schemes it replaces. Until now, that is.

Syntech Systems Ltd, in conjunction with radio survey specialist, RSI Ltd, provides a full coverage measurement service for analogue radio schemes, measuring the quality of service as well as the received signal strength. Our service is all-inclusive, covering set-up, configuration, surveying and reporting, to give you a cost-effective, simple solution for measuring your existing analogue coverage.



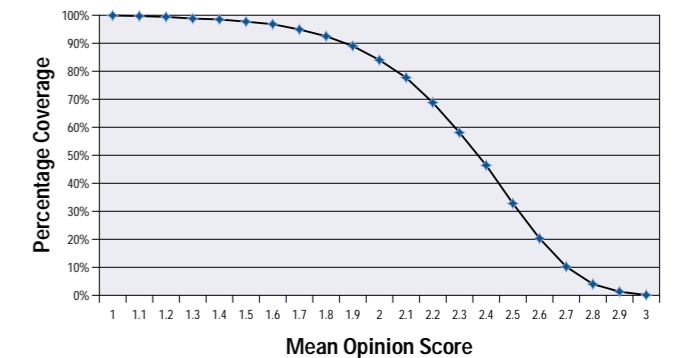
Surveying with Gemini™ and Libra™

Syntech uses the Gemini™ coverage measurement tool, developed by RSI Ltd to measure the speech quality of the system under test. To measure signal strength, RSI's Libra™ tool is used, which is based on an industry-standard Chase RF receiver.

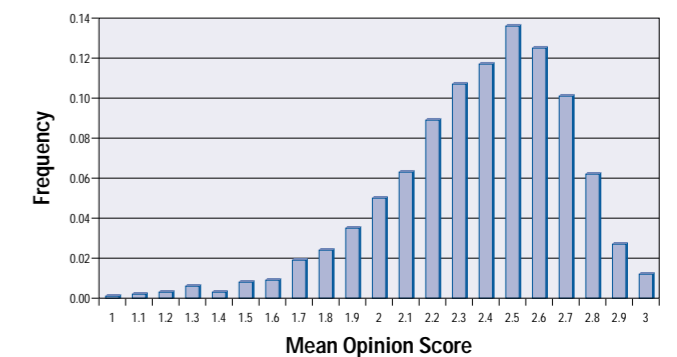
As well as providing the survey equipment, RSI also plan and manage the logistics of the drive test, drawing on their years of experience in the radio survey field. Surveys themselves are undertaken by fully trained engineers, using a nationwide fleet of suitably-equipped survey vehicles.

The Results

The output from each survey demonstrates the extent of the coverage provided and the reliability of the quality of service.



The survey is analysed to determine the percentage of the area covered against different quality thresholds. This can then be compared directly to the Airwave coverage for that area. Just as importantly, the "spread" of the quality is also determined, showing the average and maximum and minimum quality achieved. Any coverage anomalies ("black spots") are also identified.



An analysis of the signal strength measurements is also included, together with a correlation curve showing signal strength against speech quality.



A full written report is provided, including colour maps of each area surveyed. The report gives:

- ♦ the speech quality at each location
- ♦ the received signal strength
- ♦ any coverage anomalies or black spots

The Syntech Service

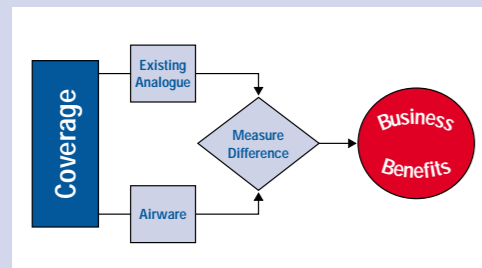
Syntech offer three levels of service:

RANDOM SAMPLE SURVEY: a representative sample of the area (eg all major roads and a percentage of minor roads) is surveyed, providing a snap shot of the percentage and quality of coverage provided. This can then be compared to a similar survey of the Airwave service or to Airwave's own coverage validation survey to demonstrate the difference in coverage between the old and new systems. A typical survey takes two to three weeks, depending on the size of the area to be driven, the level of detail required and the percentage of the area to be sampled.

KEY AREA SURVEY: This is designed to check specific coverage areas where there is a concern about either the existing level of coverage or the anticipated levels of Airwave coverage. For example, you may enjoy excellent city centre coverage with your existing UHF schemes and wish to quantify this to ensure that Airwave offers as good as or better service in these key areas.

QUALITY SURVEY: the aim of the quality survey is to provide a statistically valid sample of the overall quality of service provided by the existing schemes, but without sampling the whole coverage area. This can then be compared to the overall quality of service provided by Airwave, demonstrating the average difference in quality between the two services. A typical survey takes up to a week.

As well as measuring the quality of service, Syntech also measures the received signal strength at each location. This can be compared to historic field measurements or to predictions of the coverage.



Why Test Existing Schemes?

There are several reasons why you might want to quantify the performance of your existing analogue radio schemes.

The first is to provide concrete evidence for your organisation of the state of the existing system. This provides a benchmark against which you can compare the Airwave service when it becomes operational. You can then be certain whether Airwave has improved the service for your users and can quantify any difference.

The second is to provide this reference benchmark for use in your negotiations with Airwave prior to the service being accepted. By knowing exactly what quality of service is provided by your existing schemes, you can ensure that you receive at least as good a service from Airwave.

Finally, the tests will provide evidence in support of proving the business benefits of Airwave. Improvements in service quality can be directly related to a reduction in the number of repeated messages, leading to a reduction in airtime usage and a more efficient and safer working environment for your users.