



BUSINESS AREA: SPATIAL SERVICES

Case Study

Digital Radio Network Signal Strength Analysis

Telstra has built a new digital radio network for one of its customers and had developed models of the digital radio network which predicted the signal strength and strongest signal site across the entire network.

Once the network of towers had been commissioned, Telstra looked to confirm through field tests, that the delivered signal strength matched or exceed the service delivery standards predicted by their internal modelling. Telstra undertook network testing by continuously sampling the signal strength while driving a predefined route which had been developed by Spatial Vision. Spatial Vision then analysed the data to determine areas of below expected signal strength.

Customer Profile

www.telstra.com.au

Company

Telstra

Location

Victoria and Queensland

Industry

Telecommunications

Product

Digital Radio Network Signal Strength Analysis

Solution

We developed a sampling route then the data was plotted against grid cells and tiles so that they could compare actual results against Telstra internal modelling results.

Benefits

- Streamlined process to identify digital radio network signal strength issues
- Confirmation, backed up by data and third party analysis, that Telstra is meeting its contractual obligations. proposed activity

“...this had not been done in this format previously and as such is a world first”

Christian Kelly
Design Manager, Telstra



The Issue

Telstra has built a new digital radio network for one of its customers and had developed models of the digital radio network which predicted the signal strength and strongest signal site across the entire network. Telstra needed to ensure that the actual digital radio network signal strength was actually in line with their contractual service delivery standards.

The Solution

Spatial Vision has worked with Telstra to test the signal strength of a digital radio network the telecom provider constructed for a client. Utilising various spatial technologies, Spatial Vision developed a route for Telstra to drive along, continually sampling the signal strength and recording the test's data.

This data was then sent to Spatial Vision in the form of Microsoft Access files, which contained numerous pieces of data attached to the location of each signal strength reading Telstra had performed. Primarily, Spatial Vision dealt with two pieces of data, the Bit Error Rate (BER) and the Received Signal Strength Indication (RSSI).

RSSI is, as its name implies, a measure of the signal strength that Telstra received in at any point, while the BER represents the number of errors the test received due to transmission noise.

Having divided the route into 200m x 200m grid cells, Spatial Vision then compared the BER and a RSSI value taken from the area and compared it against Telstra's internal model for determining expected signal strength. Telstra required Spatial Vision to randomly select the RSSI value from those taken within the area, after Spatial Vision discarded the best one.

Spatial Vision then provided Telstra of the number of these 200m² cells which had met their projections, allowing Telstra to remedy areas with a high rate of bit errors or below the expected signal strength.

The Benefits

- ✔ Spatial Vision was able to develop a process that streamline the identification the digital radio network signal strength
- ✔ Confirmation that Telstra's contractual obligations had been met

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