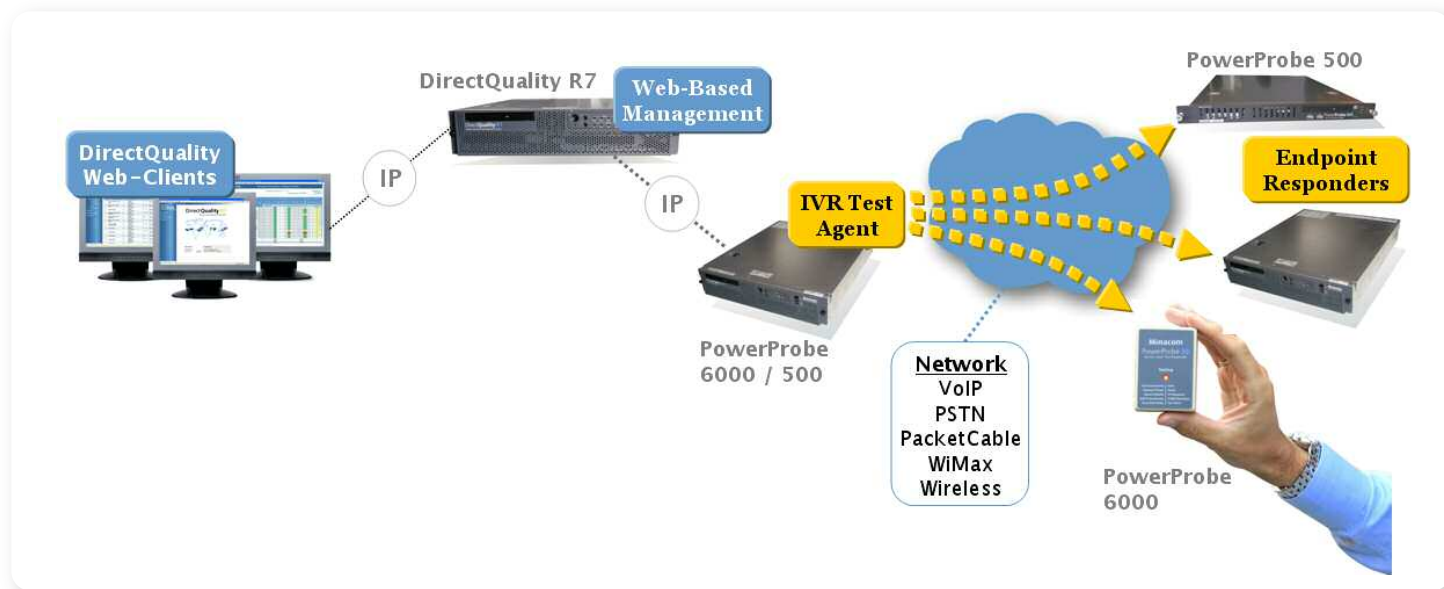


# DTMF Transparency Agent

## Active Service Assurance



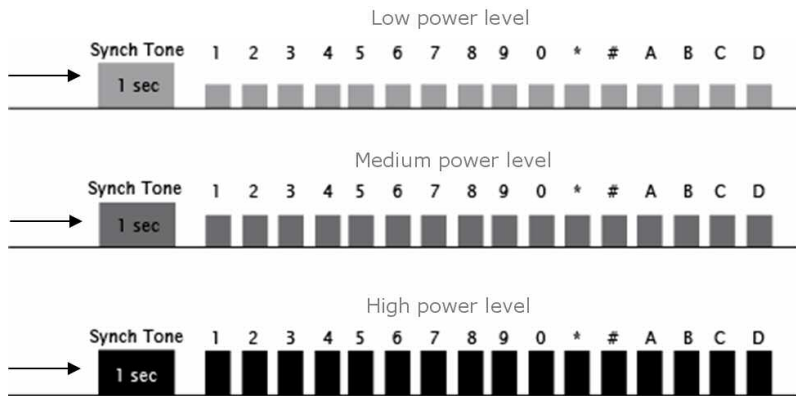
## DTMF Transparency Agent

DTMF transparency testing allows you to verify the performance of networks in transmitting and recreating DTMF tones: used for dialing, accessing voicemail systems, as well as by Interactive Voice Response (IVR) call-handling systems used by many enterprises and governments.

Determine whether DTMF distortion is occurring across any network by using DirectQuality R7 reports detailing DTMF digit detection statistics by country, city, carrier and breakout region.

### Key Features/Benefits:

- Verify PTMF transmission over any type of Network(s).
- Test with low, mid and high volume and variable duration.



Tests are repeated for 70, 100, and 150 ms tone durations

## Standard DTMF tone frequencies

| Hz  | 1209 | 1336 | 1477 | 1633 |
|-----|------|------|------|------|
| 697 | 1    | 2    | 3    | A    |
| 770 | 4    | 5    | 6    | B    |
| 852 | 7    | 8    | 9    | C    |
| 941 | *    | 0    | #    | D    |

## Test Method

The DTMF Detection test consists of sending 16 DTMF tones in a particular sequence at high, medium and low power levels from one PowerProbe 6000 to another.



Enabling Innovation

# Monitor DTMF Tone Detection Accuracy by Country, City and Carrier

## DTMF Digit Detection

Single digit (1 to 9, \*, #, A to D) detection

### Power Levels

- 5 dBm (High)
- 10 dBm (Medium)
- 20 dBm (Low)

### Tone Durations

- 75 MS
- 100 MS
- 150 MS

## RTP Statistics

- Transmit/Receive Duration
- Packets Sent/Received
- Packets Lost
- Packets Received Late
- Average Jitter
- Payload Bytes Tx/Rx

## Connectivity Performance Metrics

- Call Completion Ratio (CCR)
- Post Dial Delay (PDD)
- Dial Tone Delay (DTD)
- Call Setup Time (CST)
- Cause Information (CDC)
- Ring, Billing, Call Duration

## Tone Detection Performance

- DTMF Detection Ratio- High
- DTMF Detection Ratio - Medium
- DTMF Detection Ratio - Low
- Overall DTMF Detection Ratio

## For Further Information

Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology.

Please visit [www.tektronix.com](http://www.tektronix.com)

## Contact Tektronix:

Please visit [www.tektronix.com/communications](http://www.tektronix.com/communications)

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+1-469-330-4000  
Active Test Office:  
(514) 380-5530

Locate your nearest Tektronix representative [www.tektronix.com/contactus](http://www.tektronix.com/contactus)

| Destination    | Carrier        | DTMF Detection |                       |                       |                       | Connectivity |            |
|----------------|----------------|----------------|-----------------------|-----------------------|-----------------------|--------------|------------|
|                |                | Overall %      | High Power (-5 dBm) % | Mid Power (-10 dBm) % | Low Power (-20 dBm) % | CCR %        | PDD sec    |
| Canada         | PSTN 1         | 100            | 100                   | 100                   | 100                   | 100          | 7.7        |
|                | PSTN 2         | 68.5           | 61.4                  | 62.6                  | 81.6                  | 91.8         | 3.9        |
|                | GSM            | 55.6           | 41.7                  | 41.7                  | 83.3                  | 100          | 8.0        |
|                | VoIP           | 100            | 100                   | 100                   | 100                   | 100          | 7.8        |
|                | Vo Cabl        | 87.2           | 86.6                  | 87.5                  | 87.5                  | 100          | 2.9        |
| <b>Summary</b> |                | <b>70.2</b>    | <b>62.2</b>           | <b>63.2</b>           | <b>85.1</b>           | <b>93.4</b>  | <b>4.4</b> |
| USA            | PSTN 1         | 100            | 100                   | 100                   | 100                   | 100          | 0.3        |
|                | <b>Summary</b> | <b>100</b>     | <b>100</b>            | <b>100</b>            | <b>100</b>            | <b>100</b>   | <b>0.3</b> |

Compatible test layouts



Test the DTMF transparency of TDM, VoIP and converged Networks using 2-probe or responder based test layouts, compatible with all PowerProbe service level test probes and the innovative PowerProbe 30 VoIP responder.

The DTMF Agent also evaluates call connectivity and RTP packet transmission statistics if test calls are placed via a Tektronix' VoIP Gateway.



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