



Time Domain Corporation  
Cumming Research Park  
7057 Old Madison Pike  
Huntsville, Alabama 35806

Keven Trach  
Member, Technical Staff  
[Keven.trach@timedomain.com](mailto:Keven.trach@timedomain.com)

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Ken Nichols, Steve Jones, Mike Nicolay & Steve Dayhoff  
7435 Oakland Mills Road  
FCC Laboratory  
Columbia, MD 21046-1609

Subj: Certification testing of TDC SG/TAG (Form 731 Confirmation No. EA139942)

Ken, Steve, Mike and Steve:

During our visit, we were asked how Intertek Testing Services (ITS) calculated the RMS value of the signal. Since I was unable to answer the question directly, I contacted the ITS engineer, David Schramm<sup>1</sup> to get the answer. Here is what David stated in his email to me:

At each frequency measured, I set the analyzer as follows:

- RBW: 1 MHz
- VBW: 3 MHz
- Span: 0 Hz
- Scale: Linear
- Units: dBm (the spreadsheet did not work when units were set to  $\mu$ V)
- Sweep Time: 100 msec
- Detector: Sample

The Reference Level was adjusted so that the peak emission is within the top division of the display.

The emission was already maximized for turntable azimuth and antenna height.

The easiest was to capture the trace was to use the max hold feature for 10 sweeps. Then I used the spreadsheet to dump the analyzer trace directly into a column in a worksheet. The post calculation is performed automatically and displayed in Row 8 Column G of the worksheet titled DATA. Column F converts each data point from dBm to mW. Column G squares each corresponding data point from Column F. Cell G10 takes the sum of the data in cells G11 to G411, divides that value by the number of data points, then takes the square root of that result. Cell G8 converts the RMS value of G10 back to dBm.

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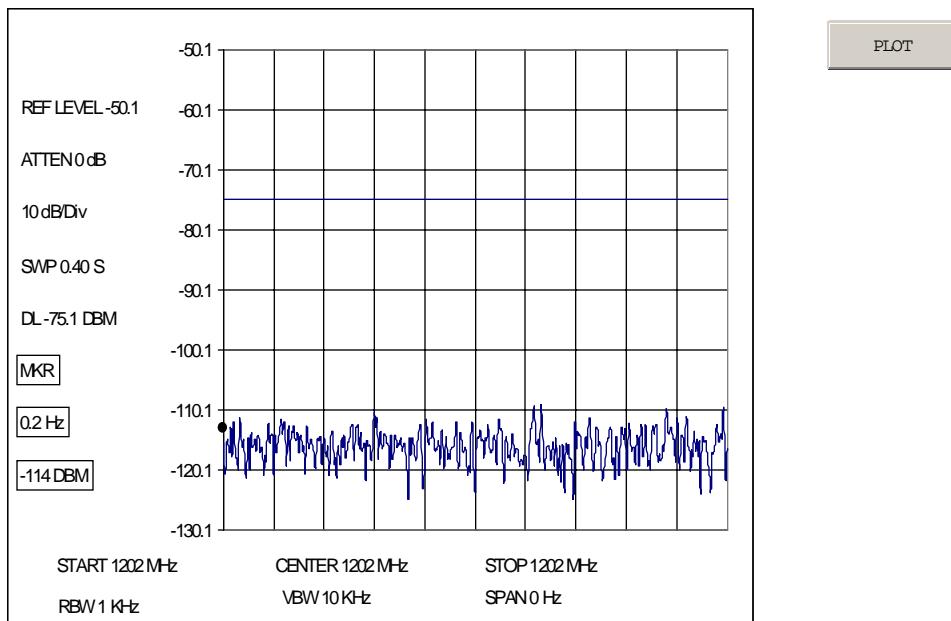
<sup>1</sup> David J. Schramm, EMC Team Leader, Intertek Testing Services, 1950 Evergreen Blvd., Suite 100, Duluth, GA 30096, 678.775.2400 main line, 678.775.2401 fax, [DSchramm@ETLSemko.com](mailto:DSchramm@ETLSemko.com)

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Embedded into this document is the spreadsheet itself. If you want to explore it, double click on it and it should open as an Excel spreadsheet. The columns and cells to which David refers are on the “DATA” sheet, the second tab.



I hope that this fully answers your question.

Yours truly,  
Keven

cc: Phil Inglis, Mike Einhorn, Paul Withington