



10.0 FREQUENCY STABILITY - PART 2.1055a (Temperature)

The frequency stability was measured from -30° to +50° centigrade at intervals of 10° centigrade throughout the range. Prior to each frequency measurement, the equipment was left alone for a sufficient period of time (approximately 30 minutes or more) to allow the components of the Highway Information System DRTXM2 Transmitter oscillator circuitry to stabilize. The following information was taken:

FREQUENCY STABILITY FOR TEMPERATURE VARIATION IN MHZ:

-30°	1.610045
-20°	1.61004
-10°	1.61004
0°	1.61004
+10°	1.61004
+20°	1.61003
+30°	1.61003
+40°	1.610015
+50°	1.61002

Worst Case Variance:

3 Hz

As stated in Part 90.242 (b)(2) the Frequency Tolerance of 100 Hz shall be maintained. Per Frank Coperich of the FCC this takes precedence over Section 90.213.

Frequency Tolerance: = **100 Hz**

Margin: = **97.00 Hz**

This is well within the specified limits.



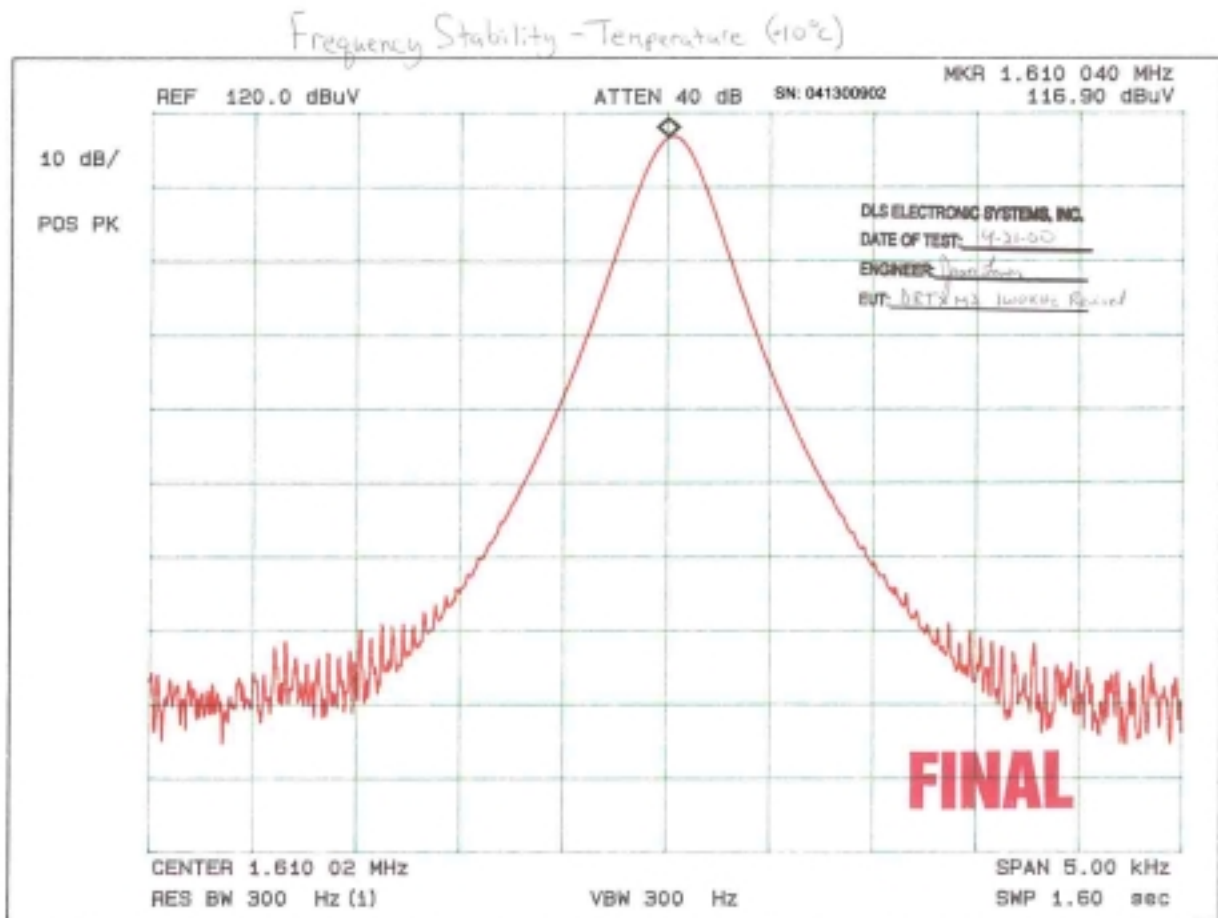
EMC Test Services
1250 Peterson Drive, Wheeling, Illinois 60090, USA

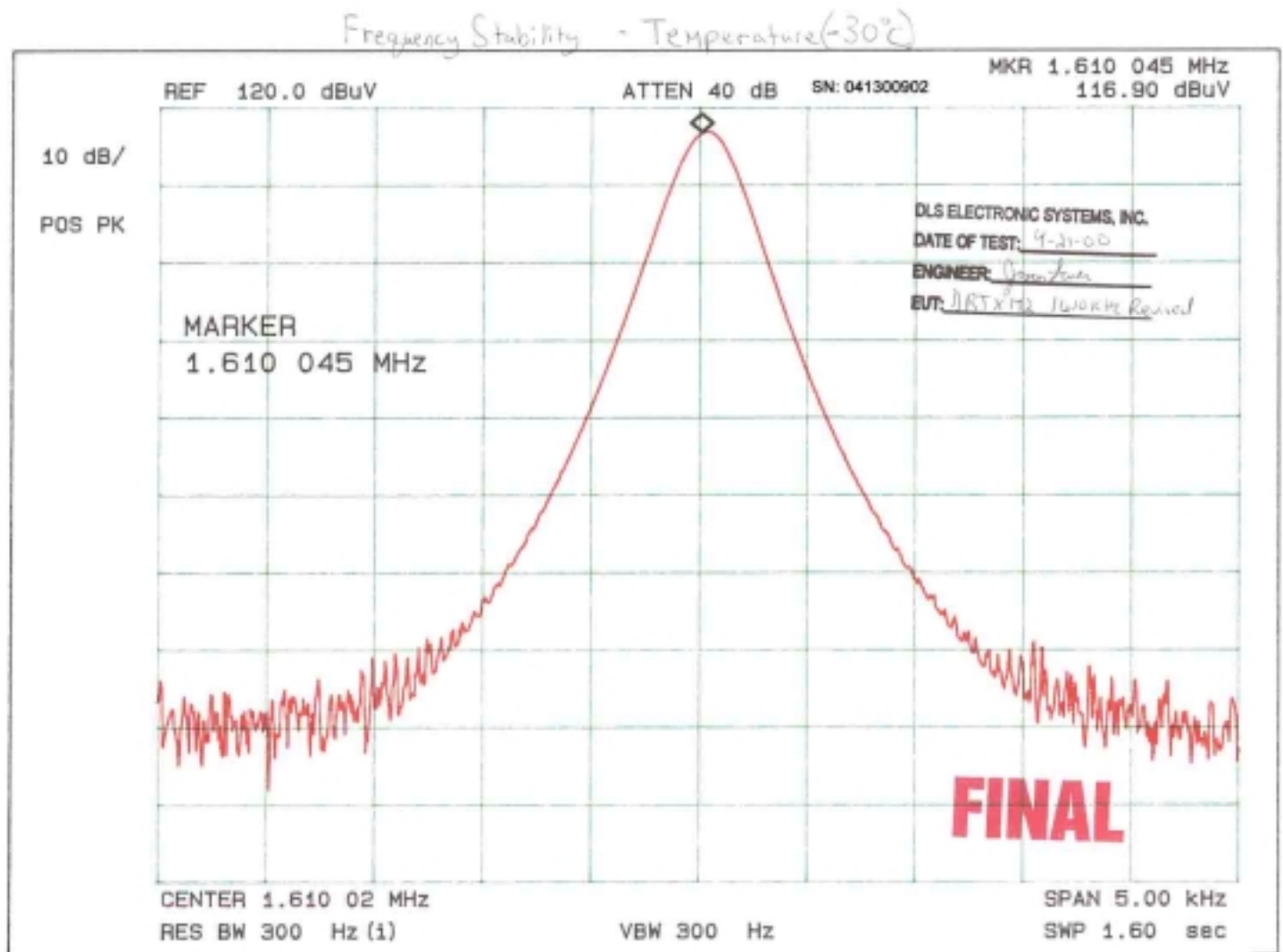
Report No. 8180
05/26/00

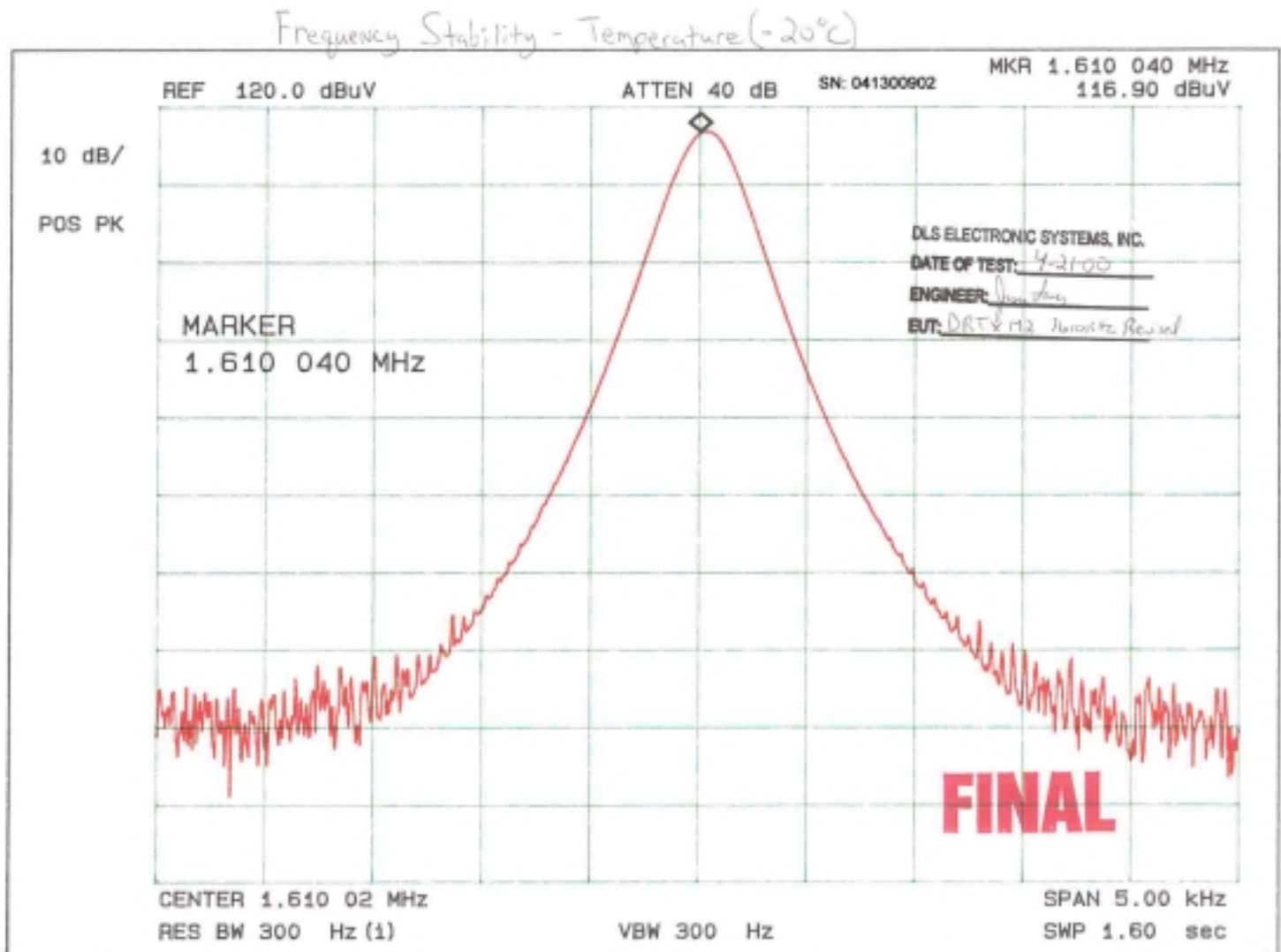
GRAPHS TAKEN FOR FREQUENCY

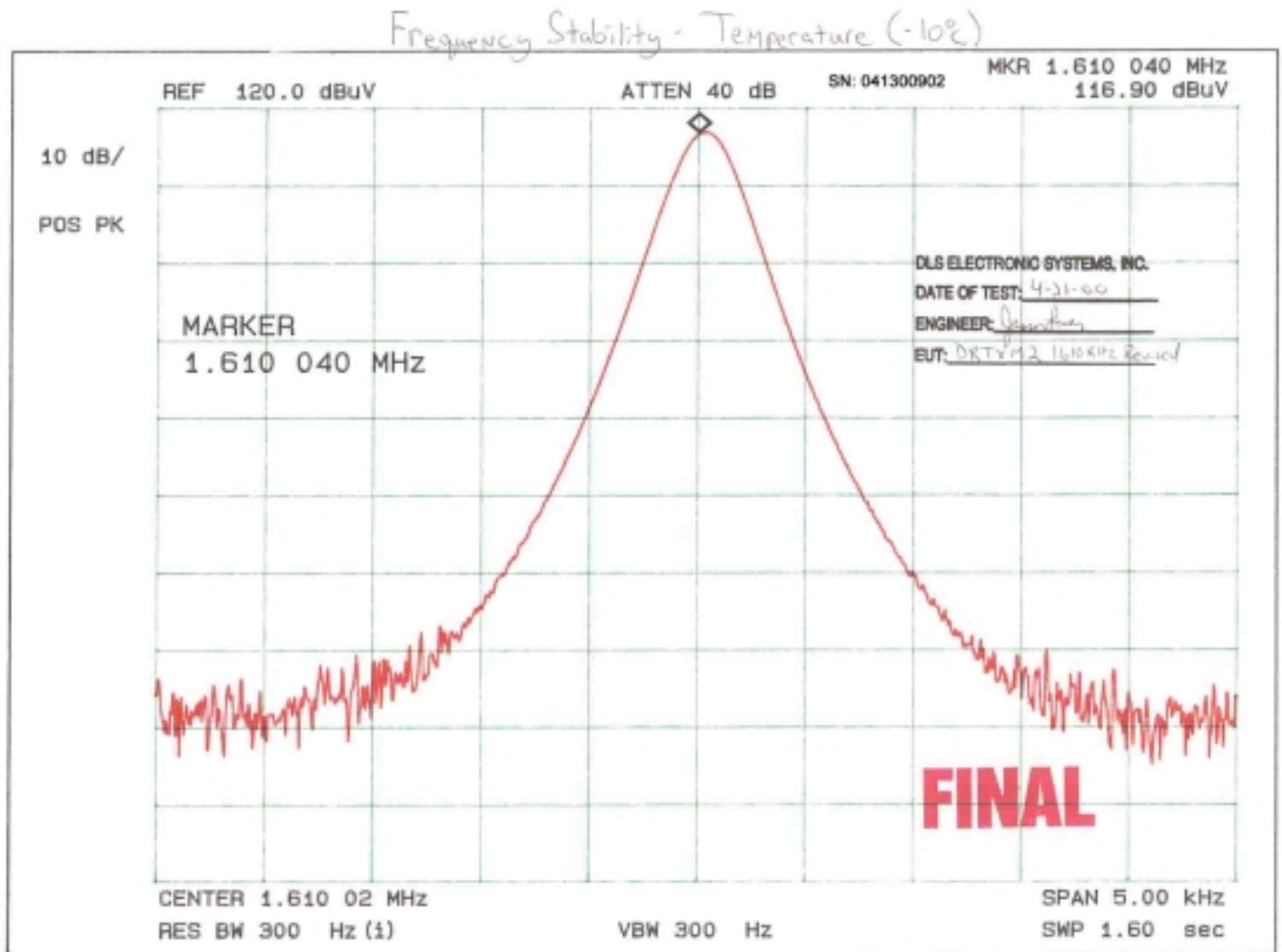
STABILITY WHEN VARYING THE TEMPERATURE

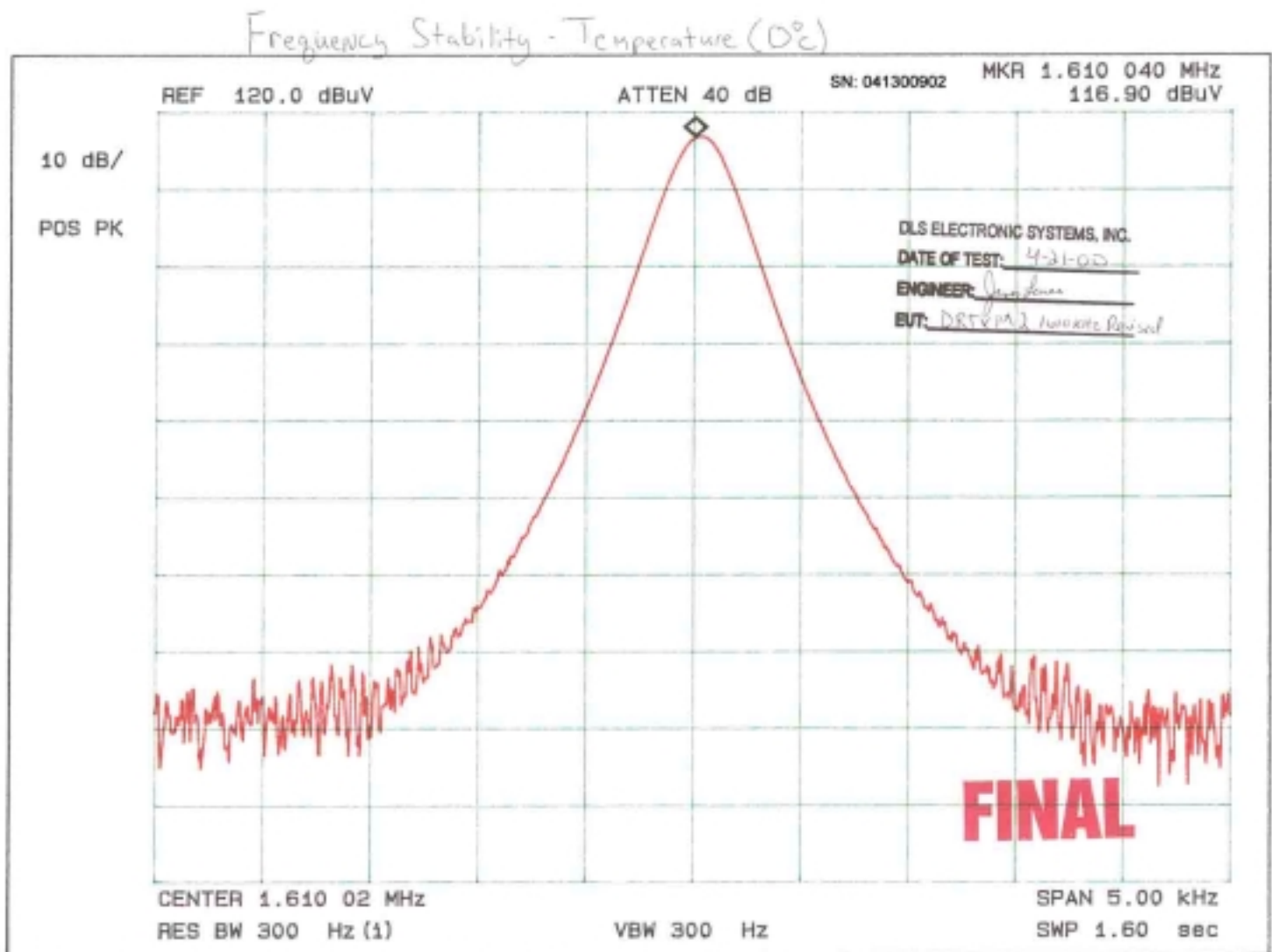
PART 2.1055A

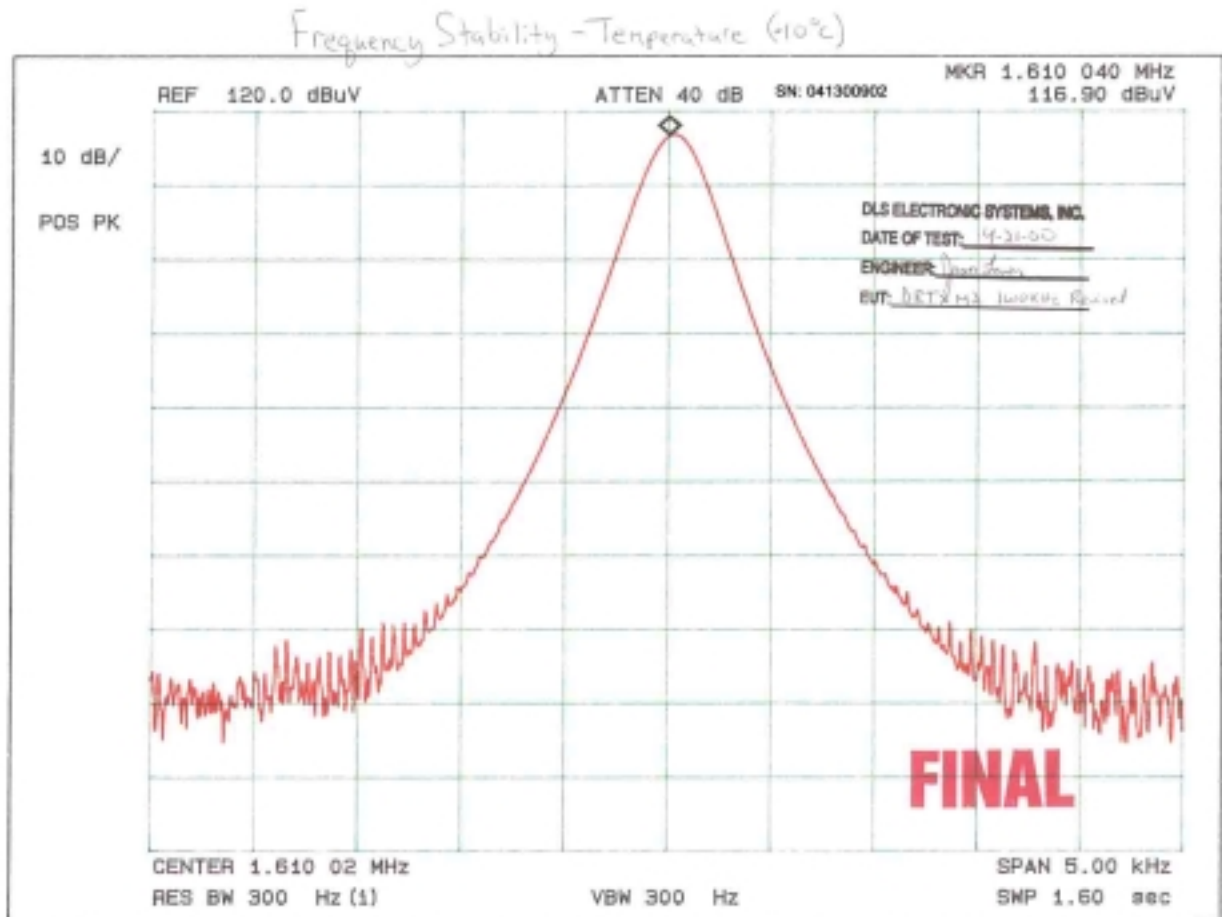


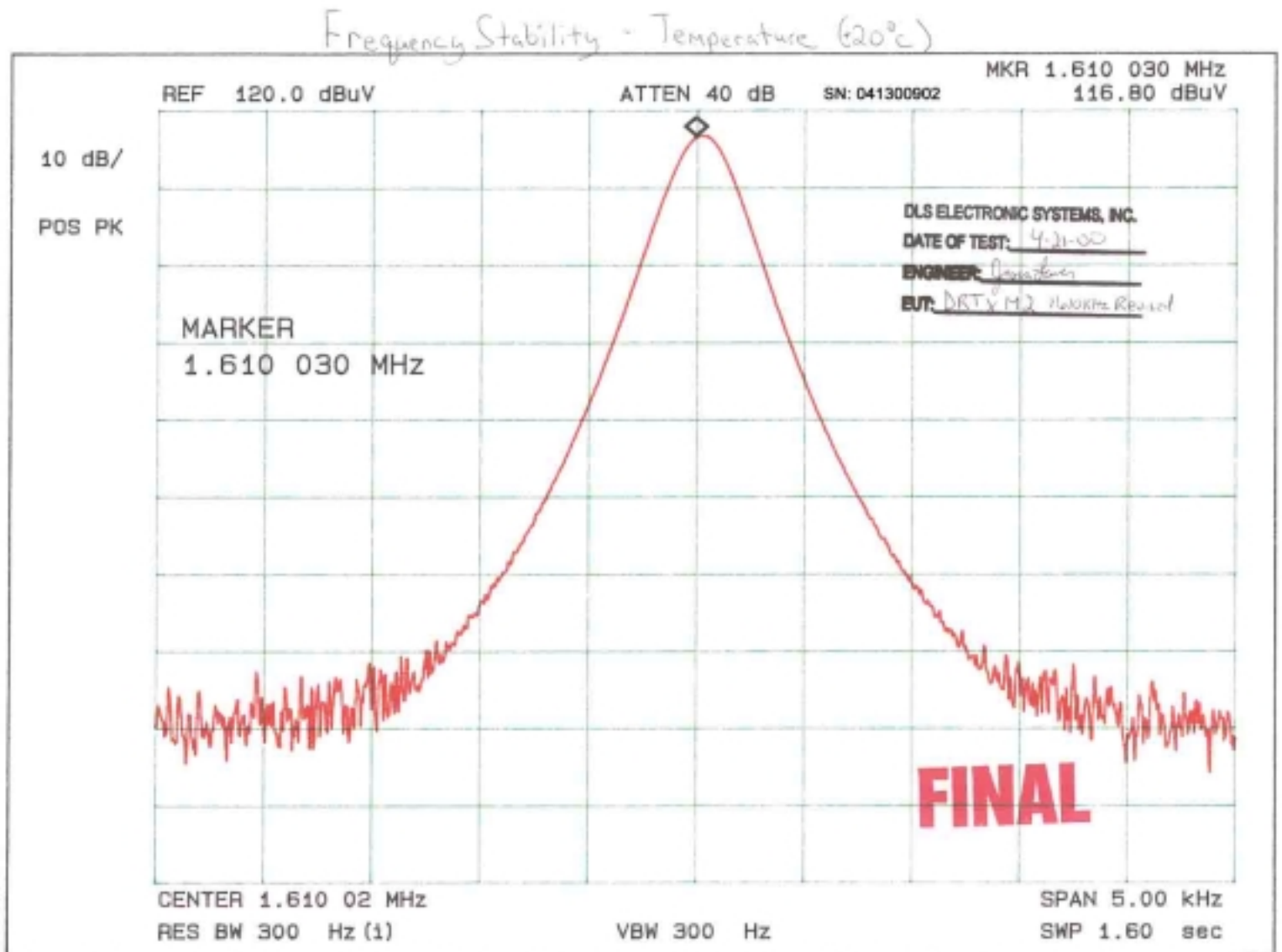


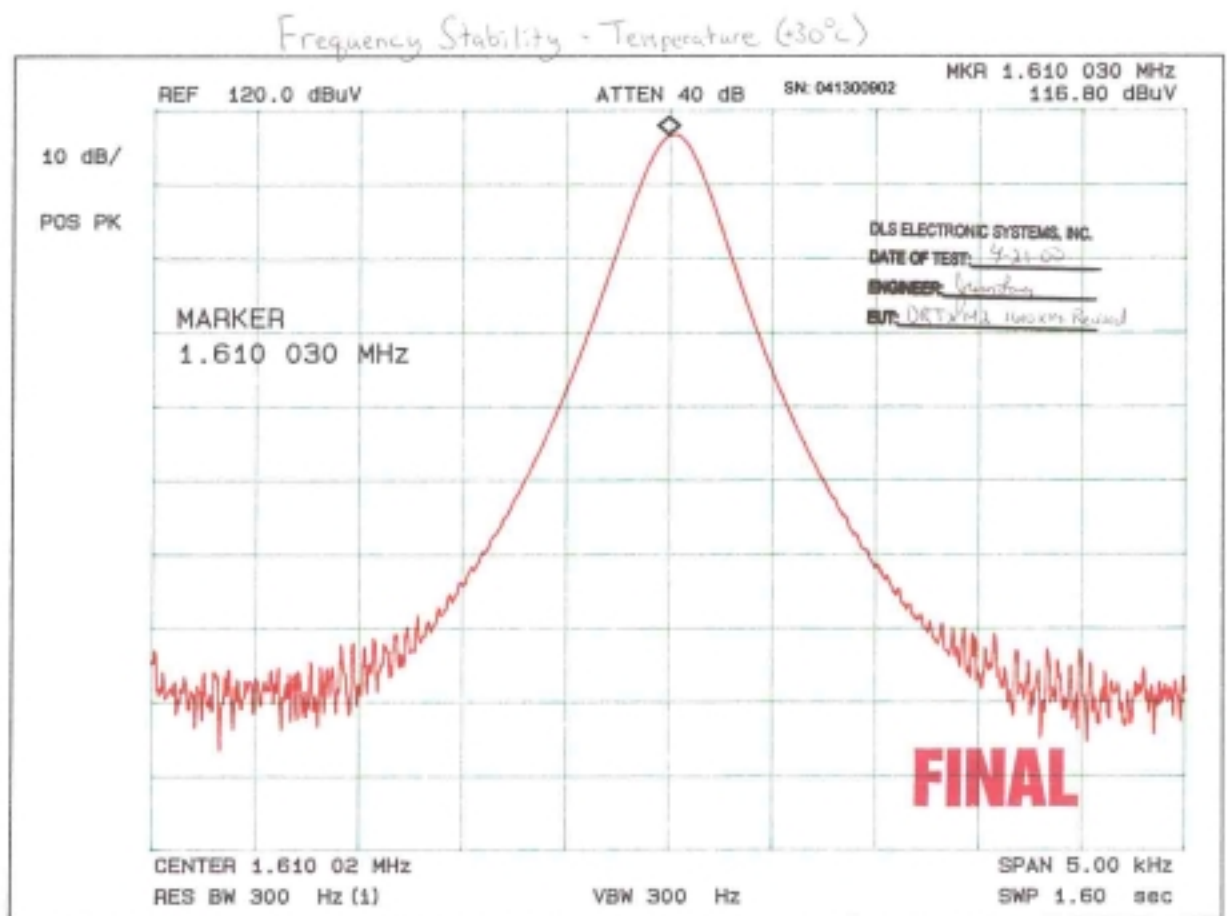


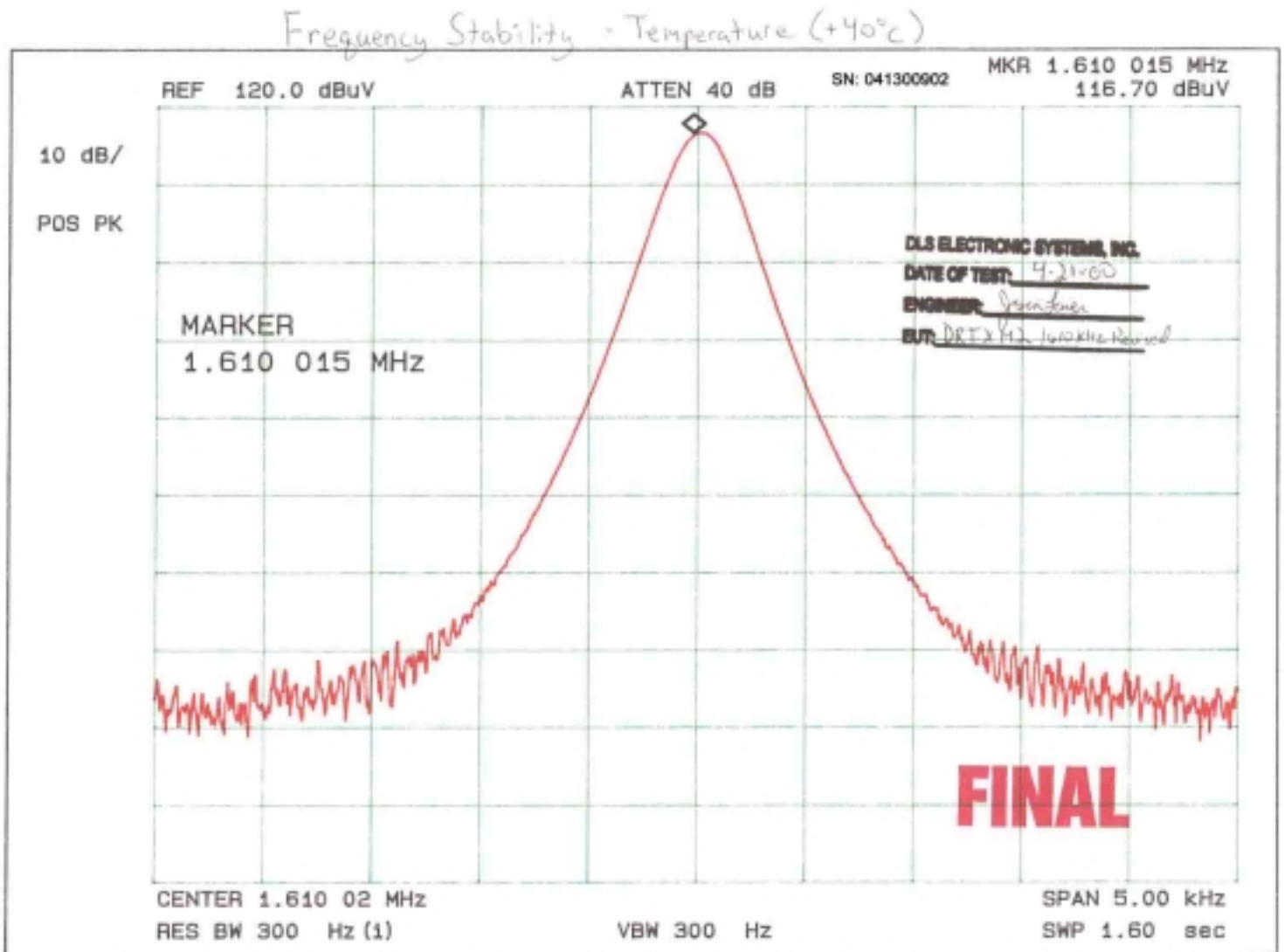




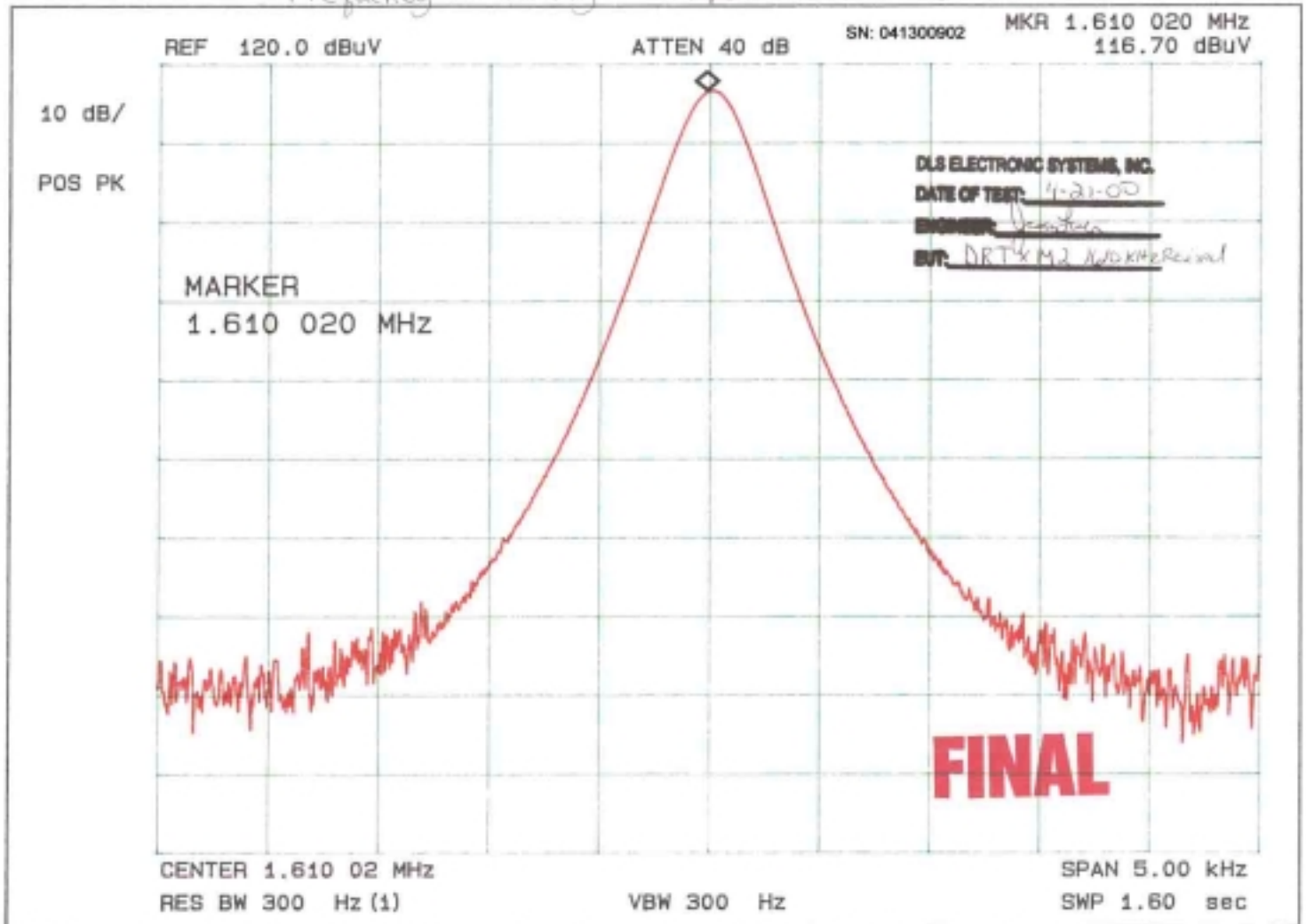








Frequency Stability - Temperature (+50°C)





11.0 FREQUENCY STABILITY - PART 2.1055 (d)(1) **(Voltage)**

The frequency stability of Highway Information System DRTXM2 Transmitter was measured by varying the primary supply voltage from 85% to 115% of nominal value.

FREQUENCY STABILITY FOR VOLTAGE VARIATION:

From 100% to 85% = 2 Hz

From 100% to 115% = 1 Hz

.



EMC Test Services
1250 Peterson Drive, Wheeling, Illinois 60090, USA

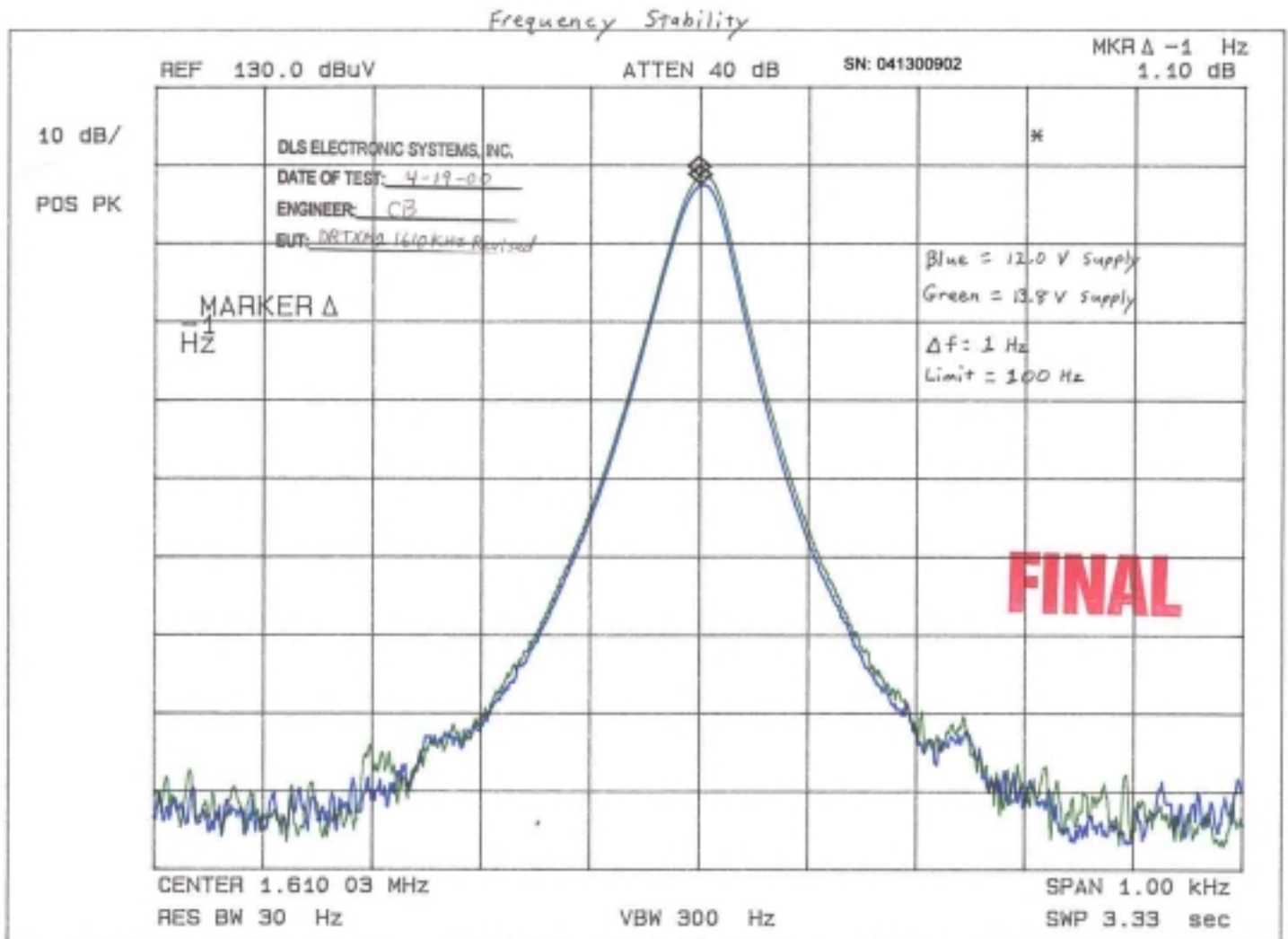
Report No. 8180
05/26/00

GRAPHS TAKEN FOR FREQUENCY

STABILITY WHEN VARYING THE

PRIMARY SUPPLY VOLTAGE

PART 2.1055d





12.0 PHOTO INFORMATION AND TEST SET-UP

The test set-up can be seen on the accompanying photo page.

Item 0 Highway Information System DRTXM2 Transmitter
FCC ID#: NA SN: 2810

Item 1

Item 2

Item 3

Item 4

Item 5

Item 6

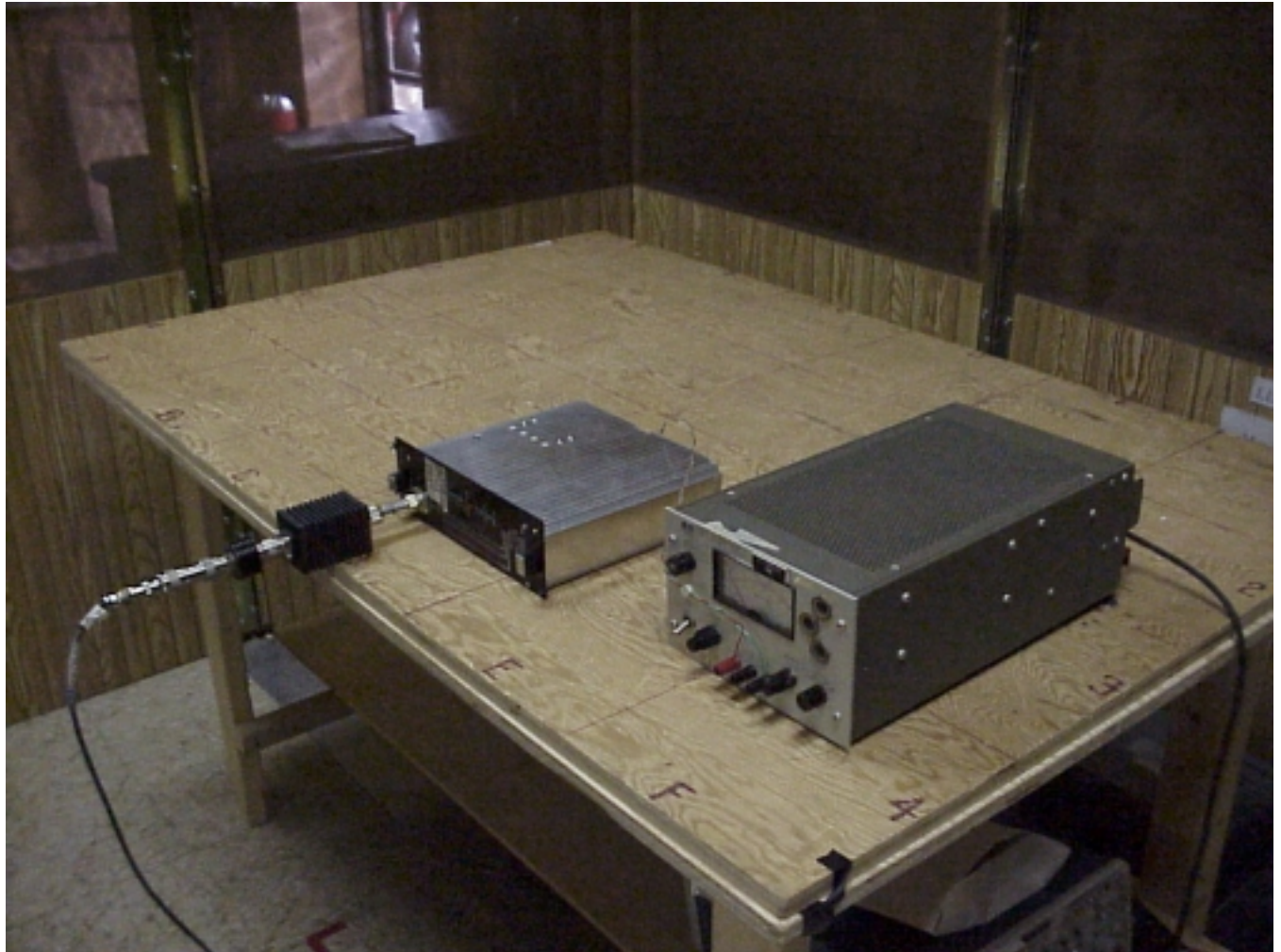
Item 7

Item 8

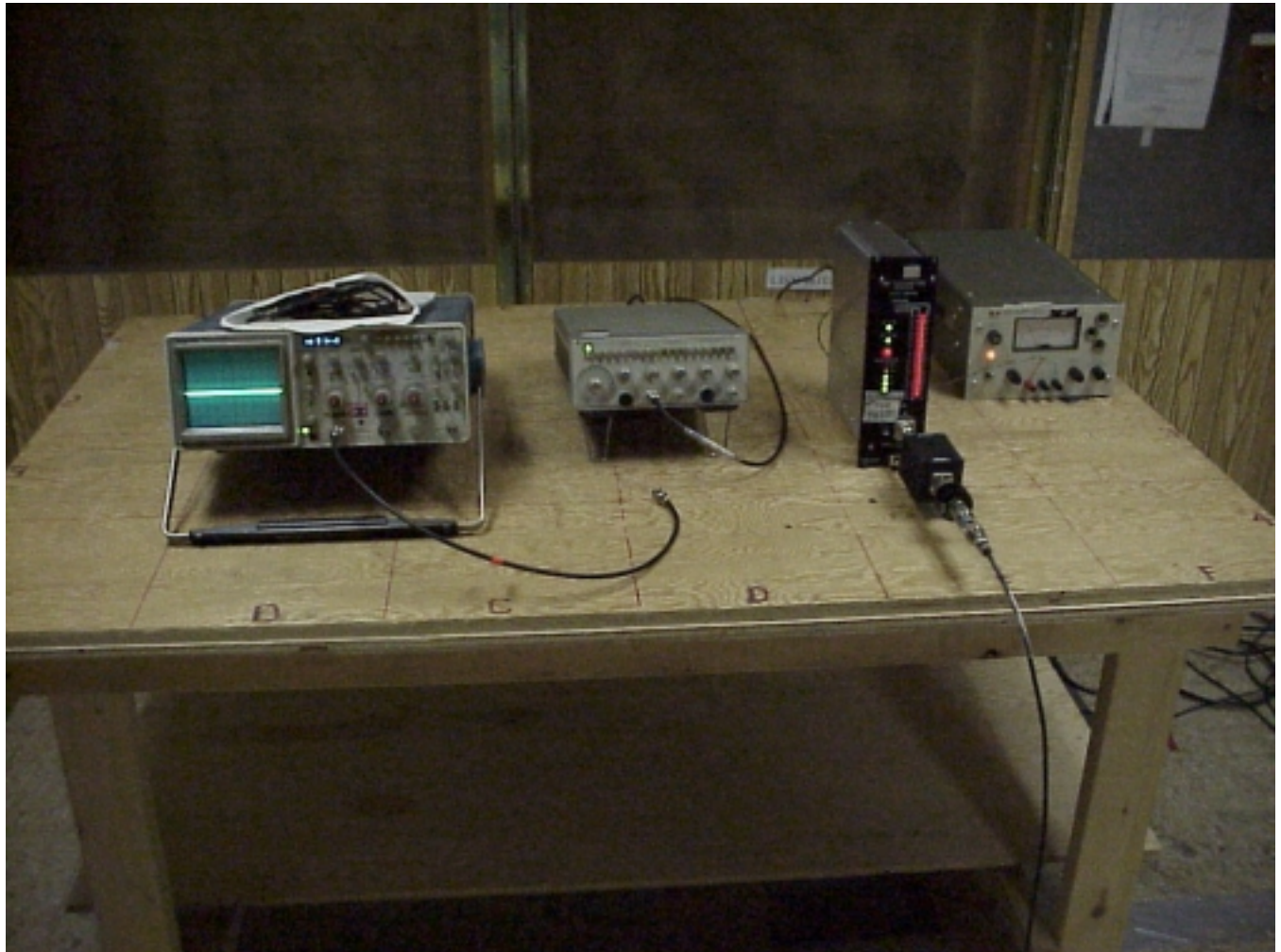
Item 9

Item 10

13.0 PHOTOS TAKEN DURING TESTING.



13.0 PHOTOS TAKEN DURING TESTING





14.0 CHANGE INFORMATION

The following changes were implemented during the testing and must be incorporated into the production units to ensure compliance.

Change 1. Turned rotary switch to reduce output power from 11.77 watts to 8.93 watts.

Change 2.

Change 3.

Change 4.

Change 5.



EMC Test Services
1250 Peterson Drive, Wheeling, Illinois 60090, USA

Report No. 8180
05/26/00

14.0 CHANGE INFORMATION (CON'T)

Change 6.

Change 7.

Change 8.

Change 9.

Change 10.

NOTE:

Tested without the rack that it is normally installed in.

The responsibility of implementing the changes listed in this report is accepted or I certify that no changes were made

by _____
Signature Title

for _____
Company Name Date



15.0 RESULTS OF TESTS

The emission test results can be seen on pages at the end of this report. Data sheets indicating the emission measurements can also be found with this report.

16.0 CONCLUSION

It was found that the Highway Information System DRTXM2 Transmitters (all four transmitters, two with the old RF filter design, S/N 041300902 & 051900907 two with the new RF filter design) meets the requirements for conducted spurious emissions as specified in the FCC "Rules and Regulations", Part 90, Private Land Mobile Services, Subpart J, Sections 90.205 to 90.210 & 90.242 for Travelers' Information Stations, operating in the 530 kHz to 1700 kHz Frequency Band.

The 530 kHz and 1610 kHz transmitters with the new RF filter design (SN: 041300902 &) significantly reduces the conducted spurious emissions relative to the performance of the 1610 kHz transmitter with the old filter design (SN: 022699786).

This test report relates only to the items tested and contains the following number of pages:

Text: 29 pages

Data Summary: 2 pages

Charts: 27 pages



TABLE 1 - EQUIPMENT LIST

Test Equipment	Manufacturer/Description	Model Number	Serial Number	Frequency Range	Cal Due Date
*Spectrum Analyzer	Hewlett/ Packard	8566B	2240A 02041	25 Hz –22 GHz	10/00
Quasi-Peak Adapter	Hewlett/ Packard	85650A	2043A 00121	10 kHz – 1 GHz	10/00
***Spectrum Analyzer	Hewlett/ Packard	8591A	3009A 00700	9 kHz- 1.8 GHz	3/01

*Firmware Version 29.9.86 Software Version 85864C Rev A

**Firmware Version 14.1.85 Software Version 85864C Rev A

***Firmware Version 5.1.3 Software Version 82301-12029 Rev C



EMC Test Services
1250 Peterson Drive, Wheeling, Illinois 60090, USA

Report No. 8180
05/26/00

APPENDIX A

CONDUCTED EMISSION GRAPHS TAKEN FOR

SPURIOUS EMISSION MEASUREMENTS MADE

AT THE ANTENNA TERMINALS

OLD FILTER DESIGN

