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Memorandum

To: Les Ward
From: Bob Sykes
cc: Flay Blalock

Ref: job# 05-6287 – Frequency stability testing
Date: Oct 25, 2005

Purpose

To evaluate the frequency stability of the RFID system under AC line voltage variation of 85-115% of 120VAC.

Equipment under test

Gilbarco M06074A001 Antenna; M06100A001 Light/MicroReader assembly; T20606-G3 TRIND card cage assembly.

Conclusions

The RFID system output frequency did not vary with changes in AC line voltage.

Procedure

The RFID system was tested in a shielded chamber. An initial measurement was taken at each AC line voltage. It was then soaked at each AC line voltage for at least 30 minutes prior to recording a second measurement.

Results

The fundamental output signal frequency did not vary by a measurable amount (<200 Hz) with respect to the line voltage 85-115% of nominal.

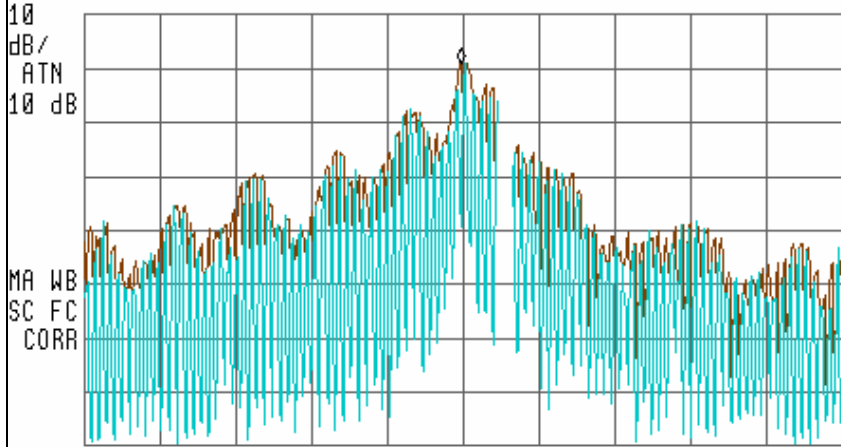
Equipment Used

TC455R05300/TC455R05700 H.P. 8546A EMI Receiver System calibration due July 8, 2006
TC306M17200 Fluke 87 Multi-meter s/n 65830536 cal. due Jan. 13, 2006
TC455V08800 Staco E1010VA Power Source Variac Calibration not required

10:43:06 OCT 17, 2005

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 134.15 kHz
80.78 dB μ V

LOG REF 90.0 dB μ V



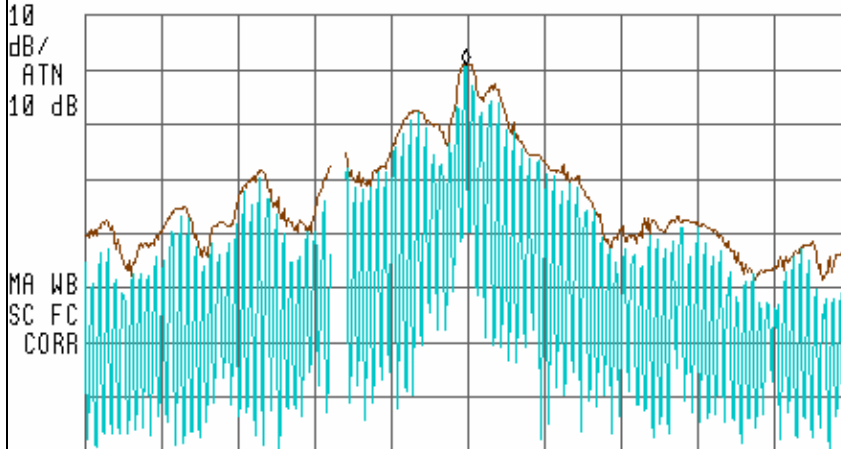
CENTER 134.18 kHz SPAN 10.00 kHz
#IF BW 200 Hz AVG BW 300 Hz #SWP 20.0 sec

Initial condition 120VAC - T=0

11:11:04 OCT 17, 2005

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 134.15 kHz
80.87 dB μ V

LOG REF 90.0 dB μ V



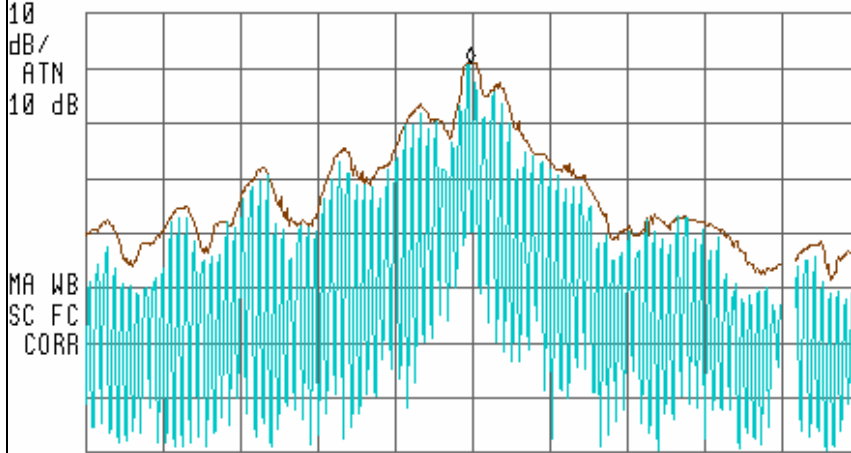
CENTER 134.18 kHz SPAN 10.00 kHz
#IF BW 200 Hz AVG BW 300 Hz #SWP 20.0 sec

Initial condition 120VAC - T=28 minutes

11:48:17 OCT 17, 2005

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 134.15 kHz
80.87 dB μ V

LOG REF 90.0 dB μ V



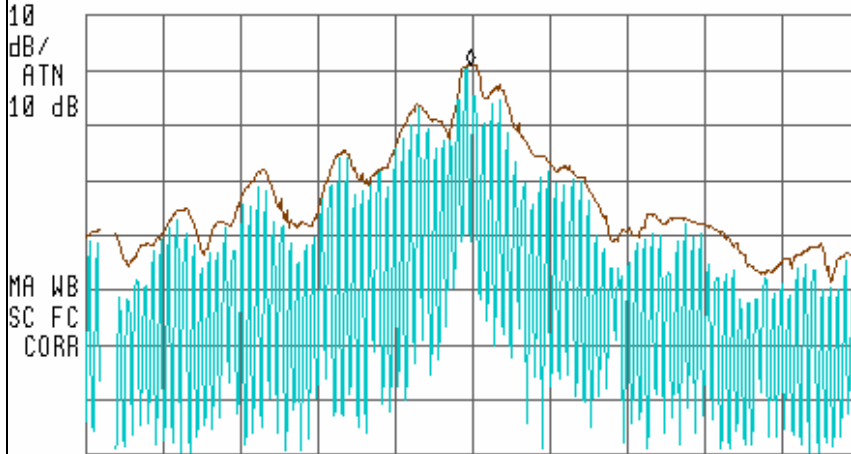
CENTER 134.10 kHz SPAN 10.00 kHz
#IF BW 200 Hz AVG BW 300 Hz #SWP 20.0 sec

Low line condition 102VAC - T=0 minutes

14:24:22 OCT 17, 2005

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 134.15 kHz
80.87 dB μ V

LOG REF 90.0 dB μ V



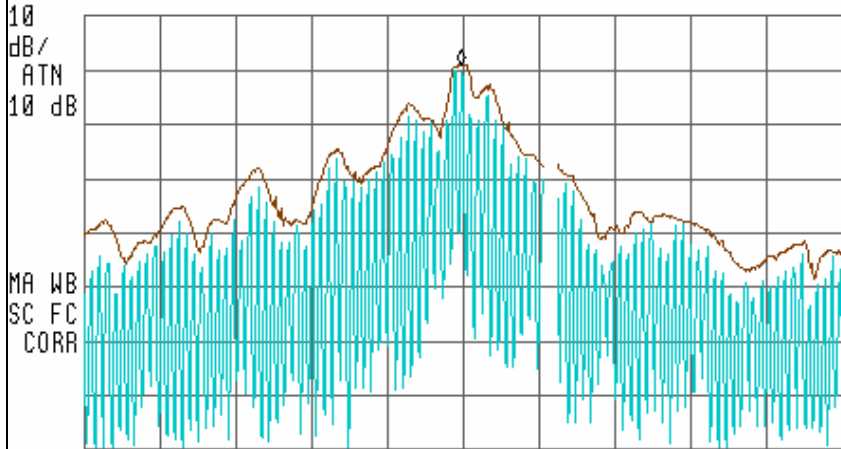
CENTER 134.10 kHz SPAN 10.00 kHz
#IF BW 200 Hz AVG BW 300 Hz #SWP 20.0 sec

Low line condition 102VAC - T=156 minutes

15:11:30 OCT 17, 2005

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 134.15 kHz
80.87 dB μ V

LOG REF 90.0 dB μ V



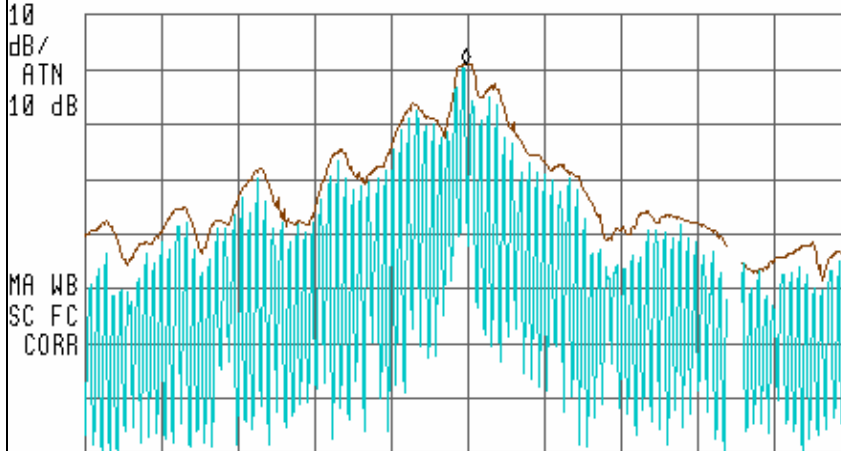
CENTER 134.10 kHz SPAN 10.00 kHz
#IF BW 200 Hz AVG BW 300 Hz #SWP 20.0 sec

High line condition 138 VAC - T=0 minutes

15:52:58 OCT 17, 2005

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 134.15 kHz
80.87 dB μ V

LOG REF 90.0 dB μ V



CENTER 134.10 kHz SPAN 10.00 kHz
#IF BW 200 Hz AVG BW 300 Hz #SWP 20.0 sec

High line condition 138 VAC - T=41 minutes