FCC PART 18

MEASUREMENT AND TEST REPORT

For

Inno light(Shanghai) Int.Co.,Ltd

No.90 QingAn Road, QingPu Zhen Shanghai China

FCC ID: SBZINNOF12027

July 20, 2004

This Report Concerns:	**Equipment Type:**
☒ Original Report	Luminary, Compact Fluorescent Lamp with integral Ballast

Test Engineer:	Sam Lin
Report Number	RSH04062904
Test Date:	July 15, 2004
Reviewed By:	Chris Zeng
Prepared By:	Bay Area Compliance Lab Corp. ShenZhen Suite C, 41-D Electronics Science & Technology Building, No. 2070 Shennanzhong Rd ShenZhen, Guandong 518031, P.R. China Tel: 86-755- 83296449 Fax: 86-755- 83273756

Note: The test report is specially limited to the above company and the product model only. It may not be duplicated without prior written consent of Bay Area Compliance Laboratory Corporation. This report **must not** be used by the client to claim product certification, approval, or endorsement by NVLAP, or any agency of the US Government.

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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The *Inno light(Shanghai) Int.Co.,Ltd*'s model *INNO-F12-027L , INNO-F12-025L , INNO-F11-020L , INNO-F11-015L , INNO-T12-027L , INNO-T12-025L , INNO-T12-020L or the "EUT" as referred to in this report is a Luminary, Compact Fluorescent Lamp with integral Ballast which meas*ures approximately 12.0cm L x 11.0cm W x 11.0cm H, rated input voltage: AC 120 V/60Hz.

** The test data gathered are from production sample, serial number: 040654, provided by the manufacturer.*

Objective

The following test report is prepared on behalf of *Inno light(Shanghai) Int.Co.,Ltd* in accordance with Part 2, Subpart J, and Part 18, Subparts A, B, and C of the Federal Communication Commissions rules and regulations.

The objective is to determine compliance with FCC rules.

Related Submittal(s)/Grant(s)

No Related Submittals.

Test Methodology

All measurements contained in this report were conducted with MP-5, FCC Methods of Measurements of Radio Noise Emissions from ISM Equipment, February 1986. All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 Meters.

Test Facility

Test site at Bay Area Compliance Laboratory Corporation has been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports has been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11 and December 10, 1997 and Article 8 of the VCCI regulations on December 25, 1997. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2001 and FCC MP-5.

The Federal Communications Commission and Voluntary Control Council for Interference has the reports on file and is listed under FCC file 31040/SIT 1300F2 and VCCI Registration No.: C-1298 and R-1234. The test site has been approved by the FCC and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

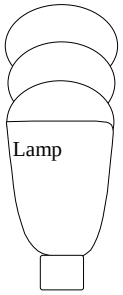
Justification

The EUT was tested under the normal operating conditions stated in the instructions by the manufacturer

Equipment Modifications

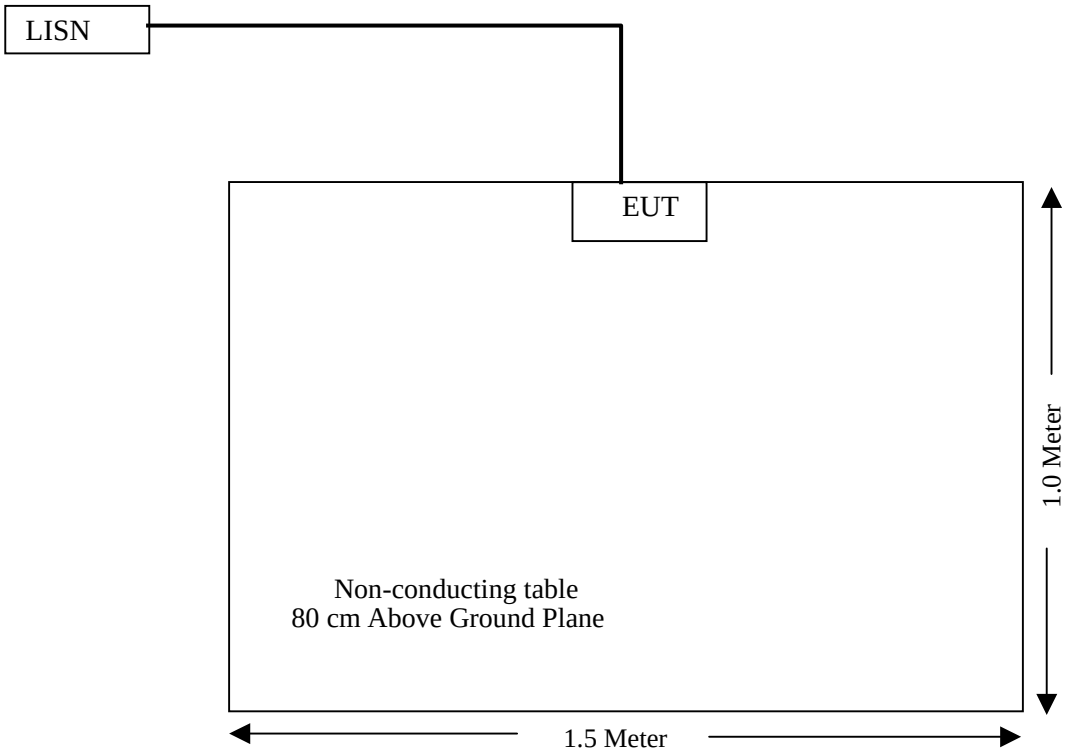
The EUT samples provided were reported by the manufacturer to be unmodified production samples

Configuration of Test System



EUT

Test Setup Block Diagram



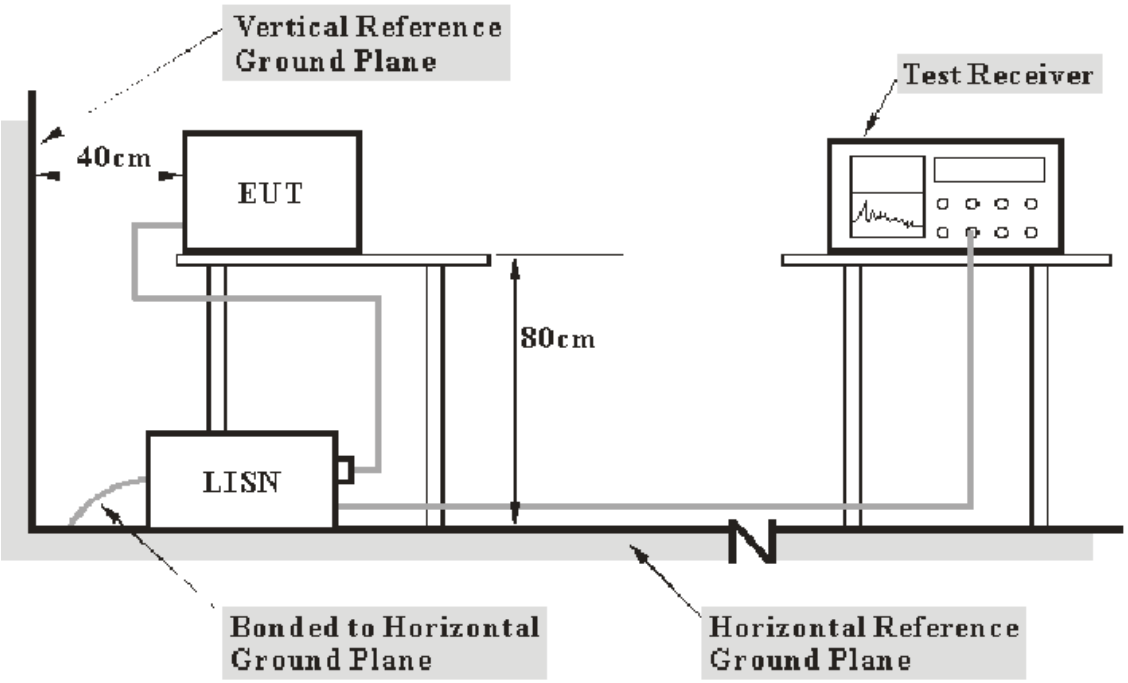
CONDUCTED EMISSION

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at BACL is ±2.4 dB.

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with MP-5 measurement procedure. The specification used was the FCC Part 18 limits.

The EUT was connected to a 120 VAC/ 60Hz power source.

Spectrum Analyzer Setup

The spectrum analyzer was set to investigate the spectrum from 450 KHz to 30MHz.

During the conducted emission test, the spectrum analyzer was set with the following configurations:

Frequency Range	*RBW*	*Video B/W*
450KHz - 30MHz	10KHz	10KHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
COM Power	LISN	LI-200	12208	2003-10-30	2004-10-29
COM Power	LISN	LI-200	12005	2003-10-30	2004-10-29
R/S	Spectrum Analyzer	FSEM	849720/019	2003-10-30	2004-10-29
FLUKE	True RMS Multimeter	187	78540402	2004-3-23	2005-3-22

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed in accordance to NVLAP requirements.

Test Procedure

During the conducted emission test, the EUT power cord was connected to the outlet of the LISN.

Maximizing procedure were performed on the six (6) highest emissions of the EUT.

All data was recorded in the peak detection mode.

Test Data

Date of Test	:	July 15, 2004	Temperature	:	25℃
EUT	:	Compact type fluorescent lamp with self-ballast	Humidity	:	70%
M/N	:	INNO-F12-027L	Operating Mode	:	On
S/N	:	040654	Test Engineer:		Sam Lin

LINE CONDUCTED EMISSIONS				FCC PART 18	
Frequency MHz	Amplitude dBμV	Detector QP/AV/Peak	Phase Line/Neutral	Limit dBμV	Margin dB
0.457	47.20	QP	Neutral	48.00	-0.80
0.450	45.86	QP	Neutral	48.00	-2.14
0.951	40.00	QP	Neutral	48.00	-8.00
1.834	36.67	QP	Neutral	48.00	-11.33
29.499	29.50	QP	Line	48.00	-18.50
1.759	1.760	QP	Line	48.00	-46.24
1.135	1.140	QP	Line	48.00	-46.87

Date of Test	:	July 15, 2004	Temperature	:	25℃
EUT	:	Compact type fluorescent lamp with self-ballast	Humidity	:	70%
M/N	:	INNO-F12-025L	Operating Mode	:	On
S/N	:	040654	Test Engineer:		Sam Lin

LINE CONDUCTED EMISSIONS				FCC PART 18	
Frequency MHz	Amplitude dBμV	Detector QP/AV/Peak	Phase Line/Neutral	Limit dBμV	Margin dB
0.966	40.6	QP	Line	48	-7.4
2.131	37.3	QP	Neutral	48	-10.7
3.019	37.2	QP	Line	48	-10.8
0.746	37.0	QP	Neutral	48	-11.0
15.67	27.8	QP	Line	48	-20.2
15.17	26.9	QP	Neutral	48	-21.1

Date of Test	:	July 15, 2004	Temperature	:	25℃
EUT	:	Compact type fluorescent lamp with self-ballast	Humidity	:	70%
M/N	:	INNO-F11-020L	Operating Mode	:	On
S/N	:	040654	Test Engineer:		Sam Lin

LINE CONDUCTED EMISSIONS				FCC PART 18	
Frequency MHz	Amplitude dBμV	Detector QP/AV/Peak	Phase Line/Neutral	Limit dBμV	Margin dB
1.07	46.6	QP	Neutral	48	-1.4
0.498	45.2	QP	Neutral	48	-2.8
0.45	36.9	QP	Line	48	-11.1
0.966	35.2	QP	Line	48	-12.8
10.69	28.3	QP	Neutral	48	-19.7
10.09	28.3	QP	Line	48	-19.7

Date of Test	:	July 15, 2004	Temperature	:	25℃
EUT	:	Compact type fluorescent lamp with self-ballast	Humidity	:	70%
M/N	:	INNO-F11-015L	Operating Mode	:	On
S/N	:	040654	Test Engineer:		Sam Lin

LINE CONDUCTED EMISSIONS				FCC PART 18	
Frequency MHz	Amplitude dBμV	Detector QP/AV/Peak	Phase Line/Neutral	Limit dBμV	Margin dB
0.641	39.4	QP	Line	48	-8.6
0.479	37.8	QP	Neutral	48	-10.2
4.604	30.8	QP	Neutral	48	-17.2
10.44	27.9	QP	Line	48	-20.1
10.97	27.6	QP	Neutral	48	-20.4
2.96	37.8	QP	Line	69.5	-31.7

Date of Test	:	July 15, 2004	Temperature	:	25℃
EUT	:	Compact type fluorescent lamp with self-ballast	Humidity	:	70%
M/N	:	INNO-T12-027L	Operating Mode	:	On
S/N	:	040654	Test Engineer:		Sam Lin

LINE CONDUCTED EMISSIONS				FCC PART 18	
Frequency MHz	Amplitude dBμV	Detector QP/AV/Peak	Phase Line/Neutral	Limit dBμV	Margin dB
0.565	40.6	QP	Line	48	-7.4
0.66	40.1	QP	Neutral	48	-7.9
1.787	39.8	QP	Neutral	48	-8.2
0.937	38.3	QP	Line	48	-9.7
17.25	31.0	QP	Line	48	-17.0
24.3	29.8	QP	Neutral	48	-18.2

Date of Test	:	July 15, 2004	Temperature	:	25℃
EUT	:	Compact type fluorescent lamp with self-ballast	Humidity	:	70%
M/N	:	INNO-T12-025L	Operating Mode	:	On
S/N	:	040654	Test Engineer:		Sam Lin

LINE CONDUCTED EMISSIONS				FCC PART 18	
Frequency MHz	Amplitude dBμV	Detector QP/AV/Peak	Phase Line/Neutral	Limit dBμV	Margin dB
1.586	44.4	QP	Neutral	48	-3.6
0.469	44.1	QP	Neutral	48	-3.9
0.517	39.2	QP	Line	48	-8.8
1.49	39.0	QP	Line	48	-9.0
10.03	30.5	QP	Neutral	48	-17.5
10.52	30.3	QP	Line	48	-17.7

Date of Test	:	July 15, 2004	Temperature	:	25℃
EUT	:	Compact type fluorescent lamp with self-ballast	Humidity	:	70%
M/N	:	INNO-T12-020L	Operating Mode	:	On
S/N	:	040654	Test Engineer:		Sam Lin

LINE CONDUCTED EMISSIONS				FCC PART 18	
Frequency MHz	Amplitude dBμV	Detector QP/AV/Peak	Phase Line/Neutral	Limit dBμV	Margin dB
0.631	40.9	QP	Line	48	-7.1
0.45	40.8	QP	Line	48	-7.2
0.727	38.0	QP	Neutral	48	-10.0
0.488	37.2	QP	Neutral	48	-10.8
17.79	32.1	QP	Line	48	-15.9
17.01	30.3	QP	Neutral	48	-17.7

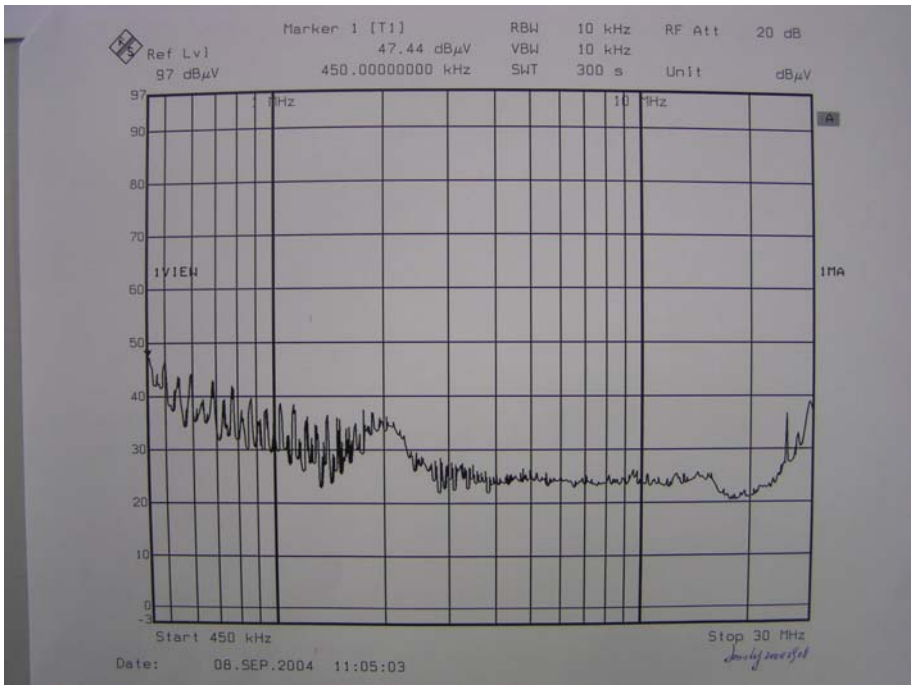
Test Result: Pass

Plot(s) of Test Data

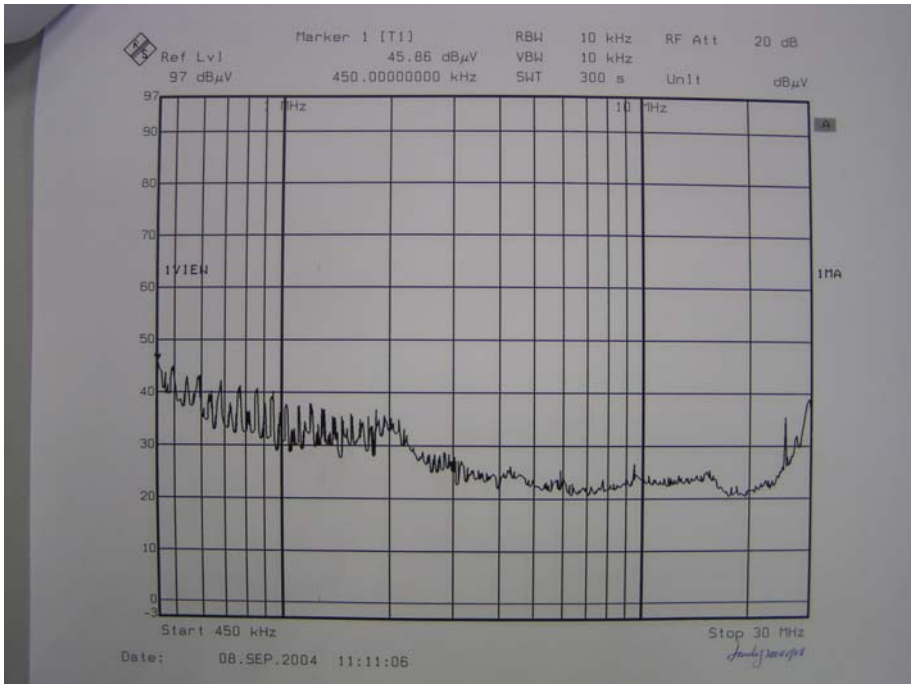
Plot(s) of Test Data is presented hereinafter as reference.

INNO-F12-027L

Line:

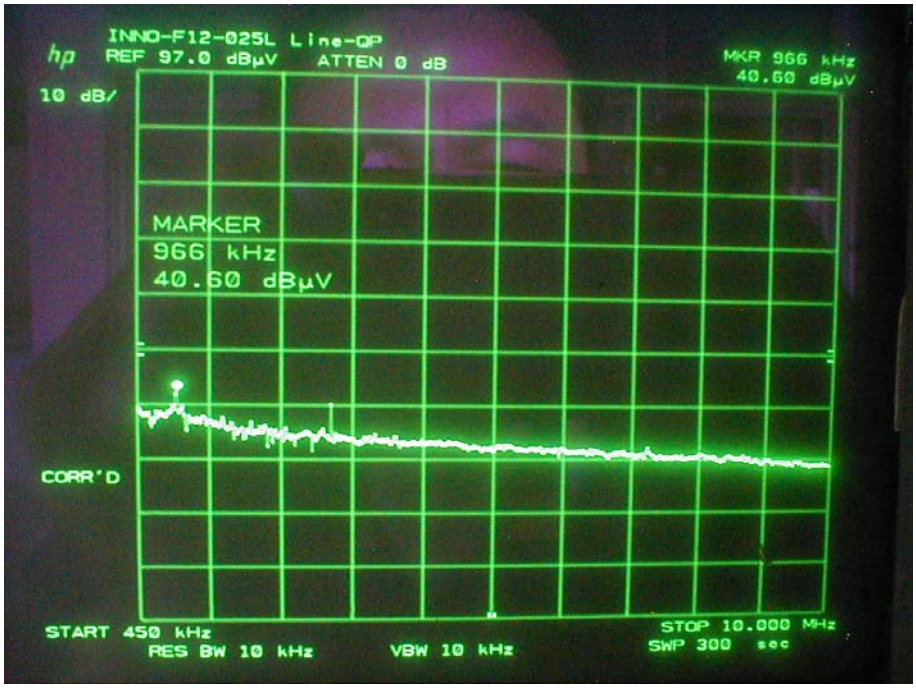


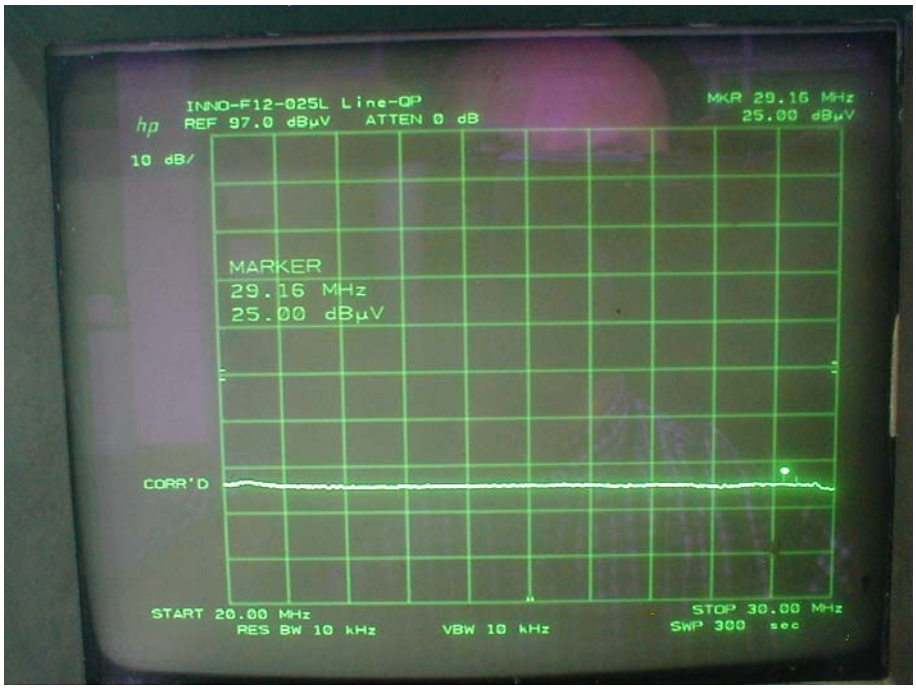
Neutral:



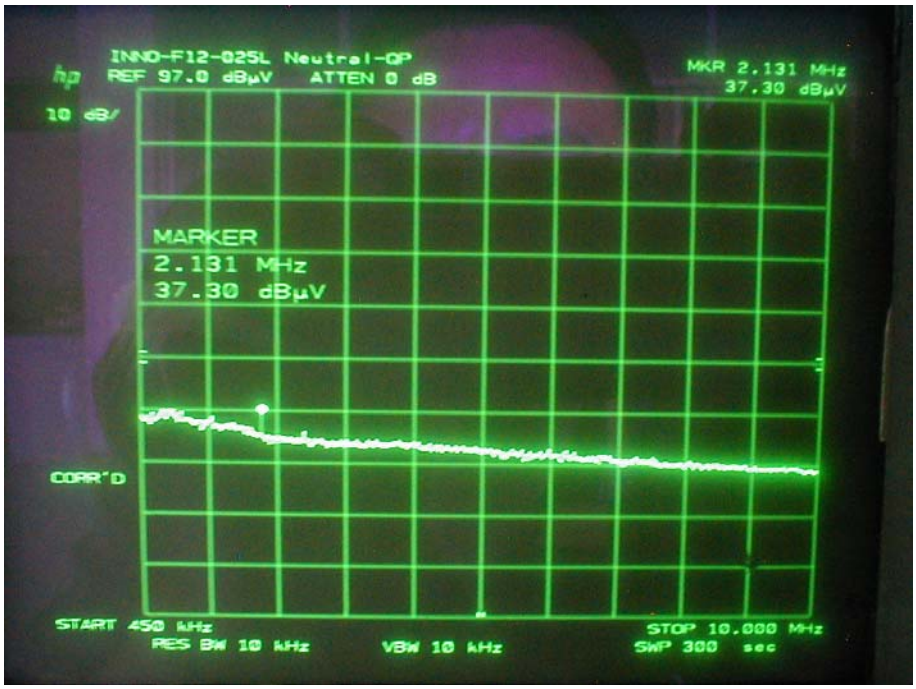
INNO-F12-025L

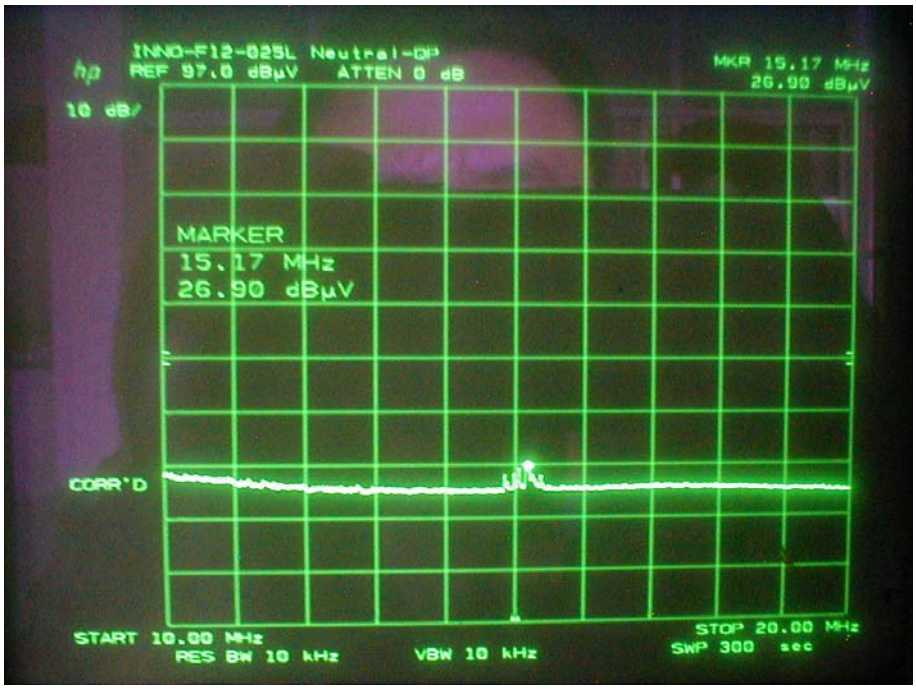
Line:




INNO-F12-025L Line-QP
hp REF 97.0 dBµV ATTEN 0 dB
MKR 29.16 MHz
25.00 dBµV
10 dB/
MARKER
29.16 MHz
25.00 dBµV
CORR'D
START 20.00 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 30.00 MHz
SWP 300 sec

Neutral:

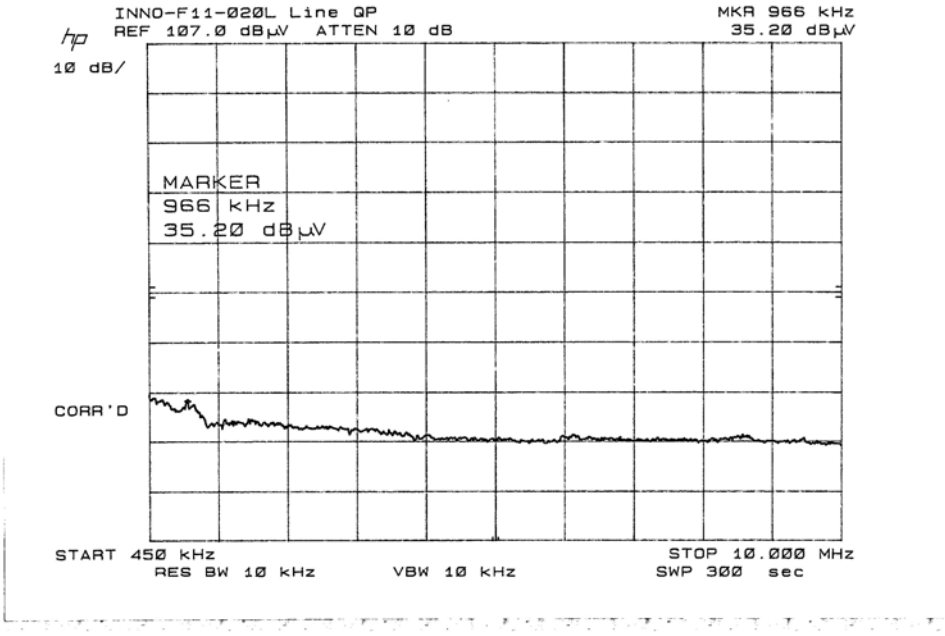

INNO-F12-025L Neutral-QP
hp REF 97.0 dBµV ATTEN 0 dB
MKR 2.131 MHz
37.30 dBµV
10 dB/
MARKER
2.131 MHz
37.30 dBµV
CORR'D
START 450 kHz
RES BW 10 kHz
VBW 10 kHz
STOP 10.000 MHz
SWP 300 sec

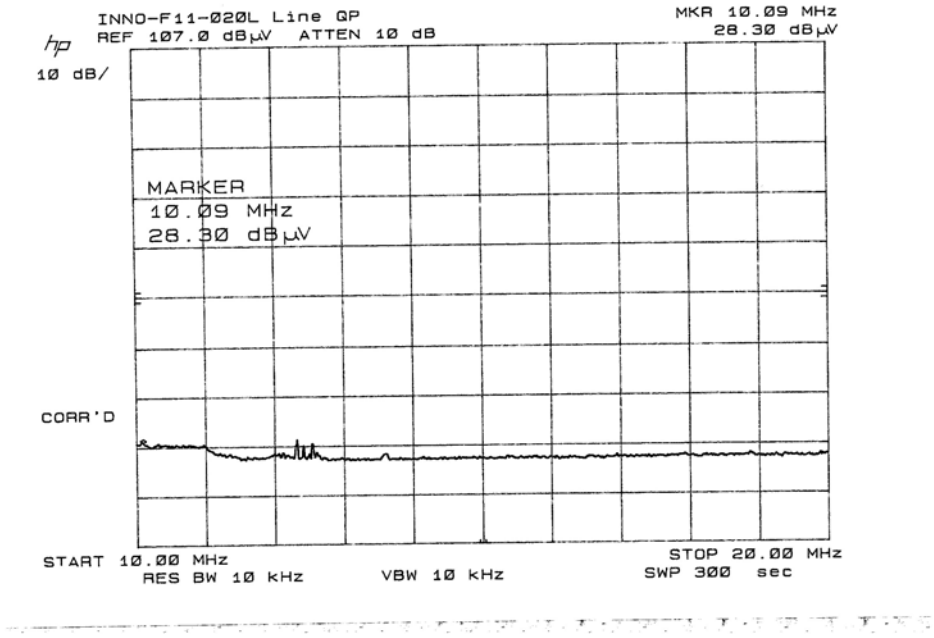

INNO-F12-025L Neutral-QP
hp REF 97.0 dBµV ATTEN 0 dB
MKR 15.17 MHz
26.90 dBµV
10 dB/
MARKER
15.17 MHz
26.90 dBµV
CORR'D
START 10.00 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 20.00 MHz
SWP 300 sec

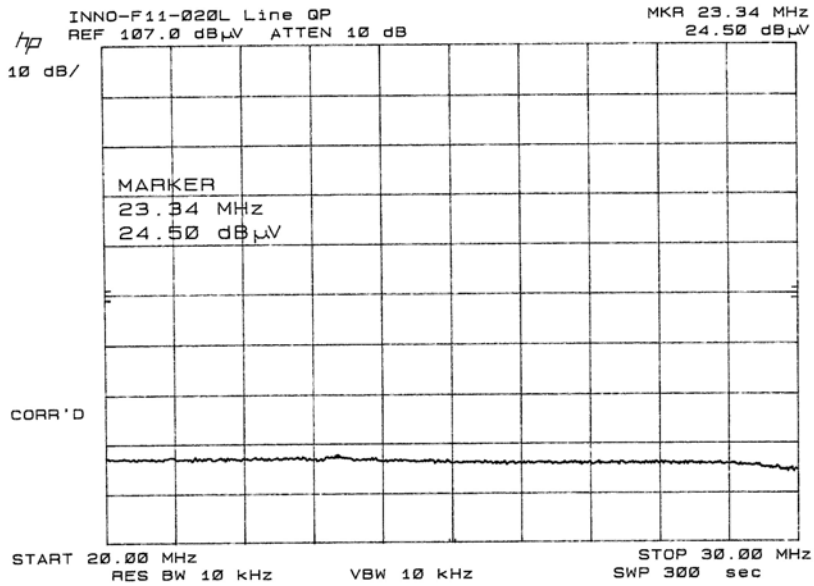
INNO-F12-025L Neutral-QP
hp REF 97.0 dBµV ATTEN 0 dB
MKR 20.08 MHz
22.40 dBµV
10 dB/
MARKER
20.08 MHz
22.40 dBµV
CORR'D
START 20.00 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 30.00 MHz
SWP 300 sec

INNO-F11-020L

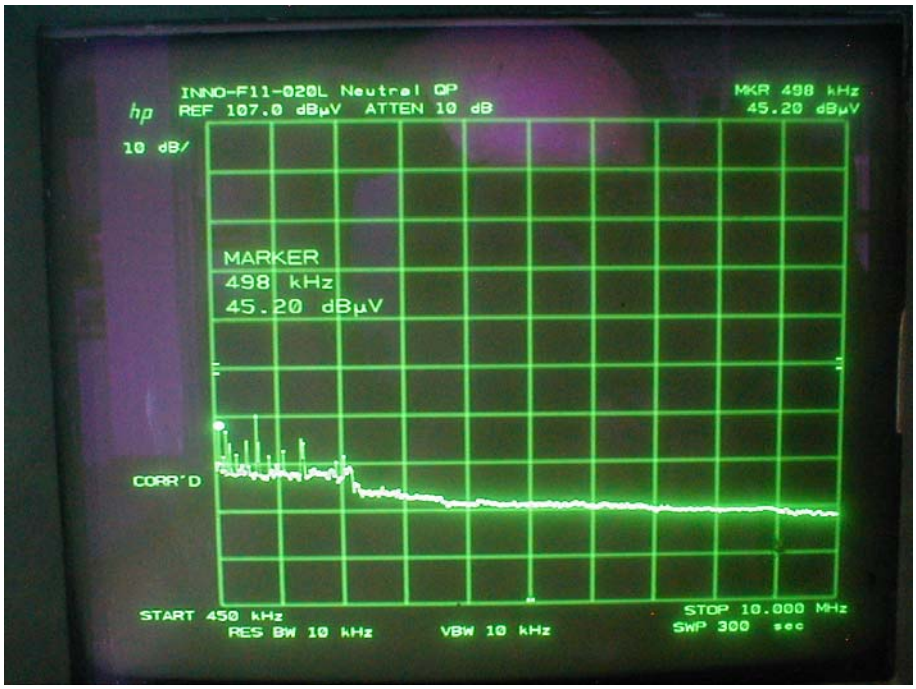
Line:

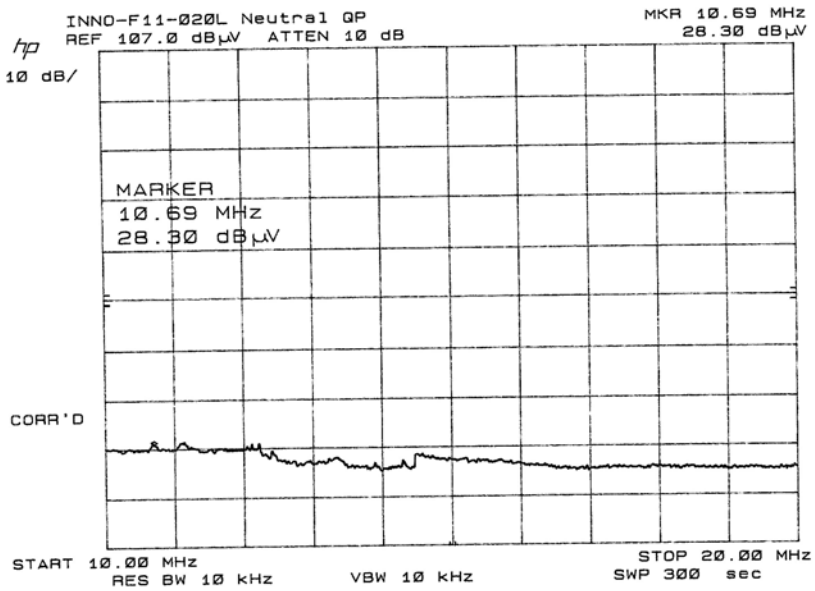


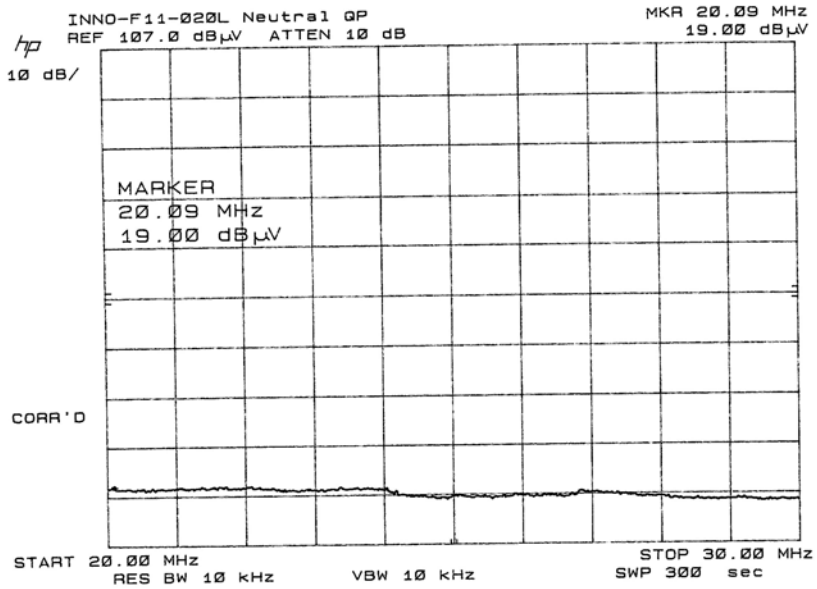



INNO-F11-020L Line QP
REF 107.0 dBμV ATTEN 10 dB
MKR 23.34 MHz
24.50 dBμV
10 dB/
MARKER
23.34 MHz
24.50 dBμV
CORR'D
START 20.00 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 30.00 MHz
SWP 300 sec

Neutral:

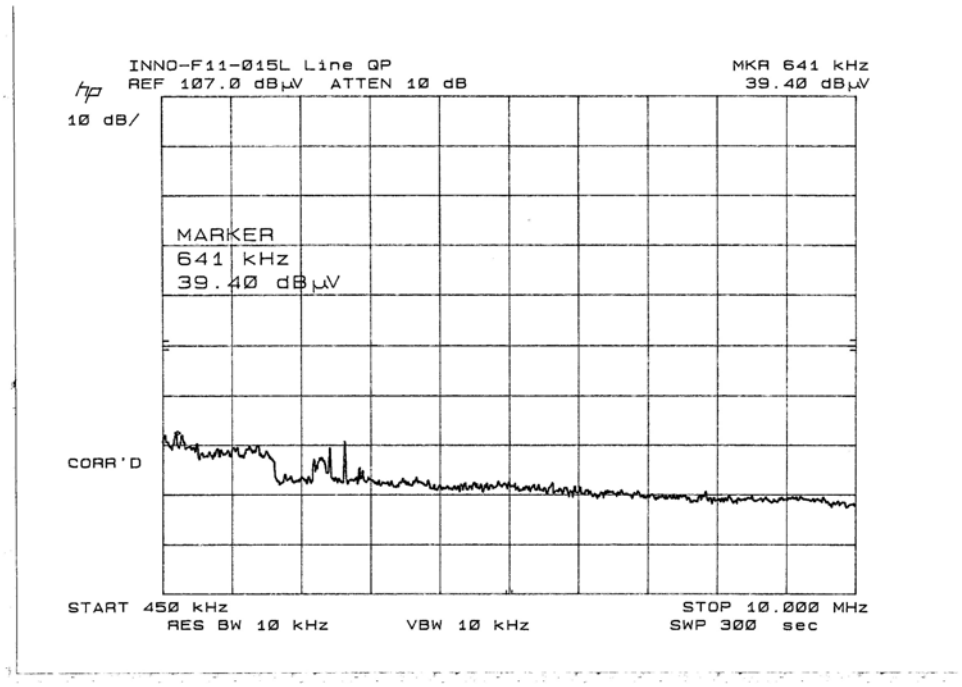

INNO-F11-020L Neutral QP
REF 107.0 dBμV ATTEN 10 dB
MKR 498 kHz
45.20 dBμV
10 dB/
MARKER
498 kHz
45.20 dBμV
CORR'D
START 450 kHz
RES BW 10 kHz
VBW 10 kHz
STOP 10.000 MHz
SWP 300 sec

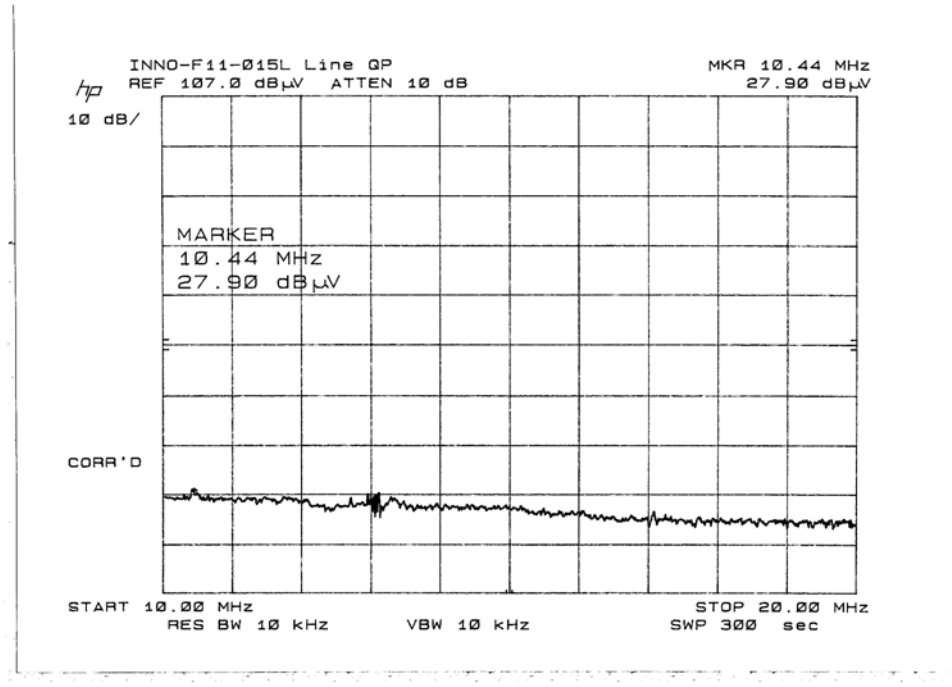

INNO-F11-020L Neutral QP
REF 107.0 dBμV ATTEN 10 dB
MKR 10.69 MHz
28.30 dBμV
10 dB/
MARKER
10.69 MHz
28.30 dBμV
CORR'D
START 10.00 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 20.00 MHz
SWP 300 sec

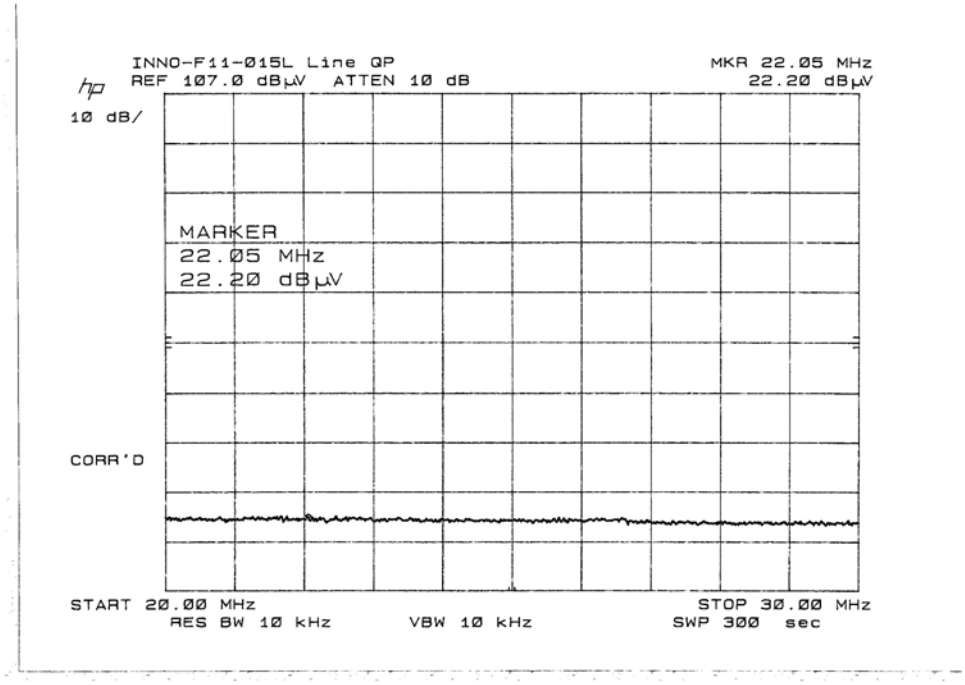

INNO-F11-020L Neutral QP
REF 107.0 dBμV ATTEN 10 dB
MKR 20.09 MHz
19.00 dBμV
10 dB/
MARKER
20.09 MHz
19.00 dBμV
CORR'D
START 20.00 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 30.00 MHz
SWP 300 sec

INNO-F11-015L

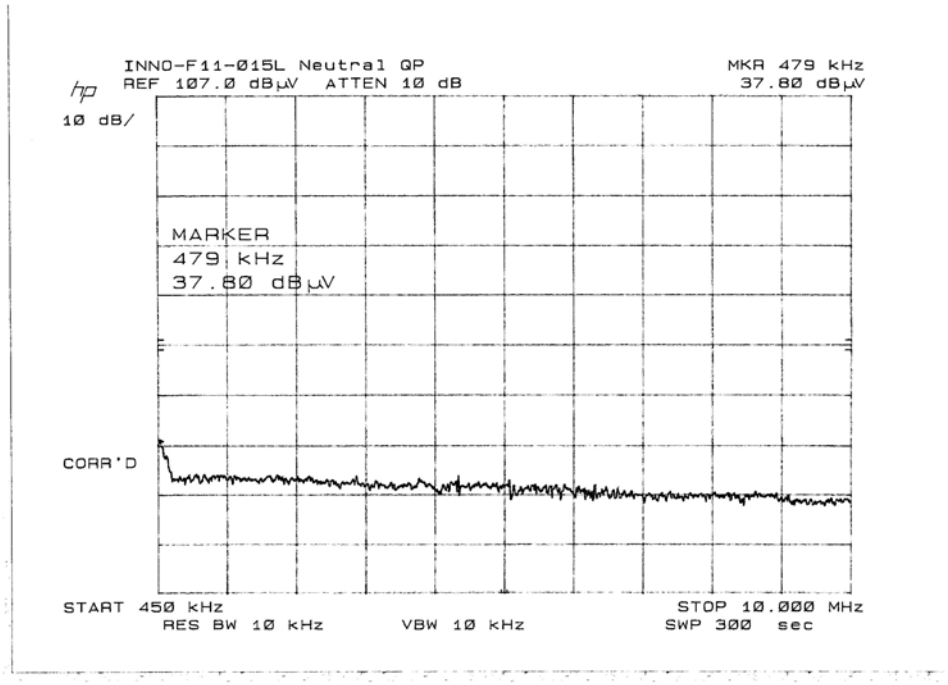
Line:

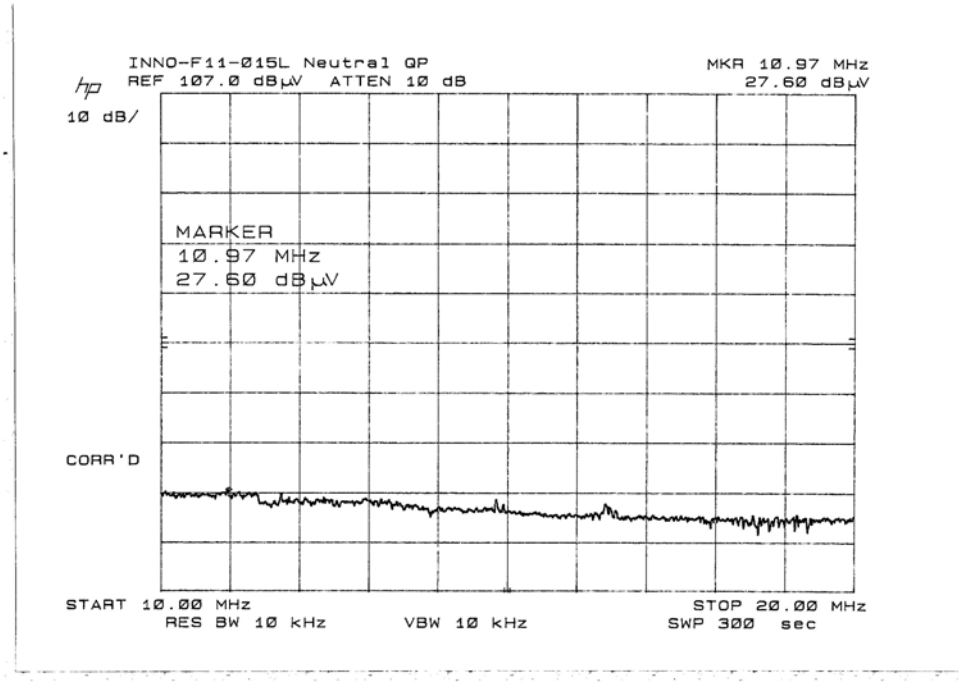


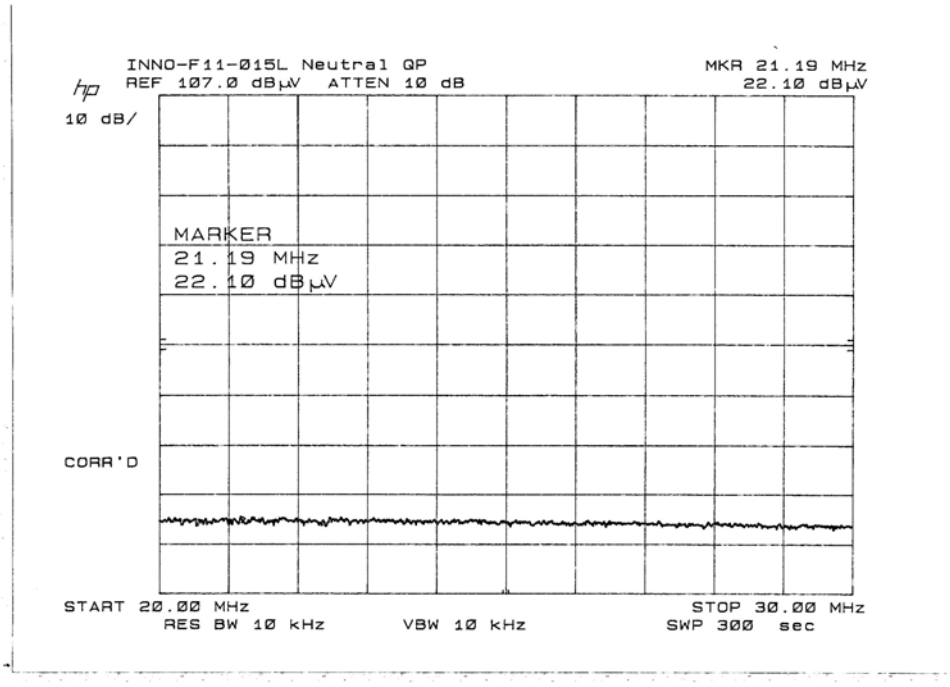



INNO-F11-015L Line QP
REF 107.0 dBμV ATTEN 10 dB
MKR 22.05 MHz
22.20 dBμV
10 dB/
MARKER
22.05 MHz
22.20 dBμV
CORR'D
START 20.00 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 30.00 MHz
SWP 300 sec

Neutral:

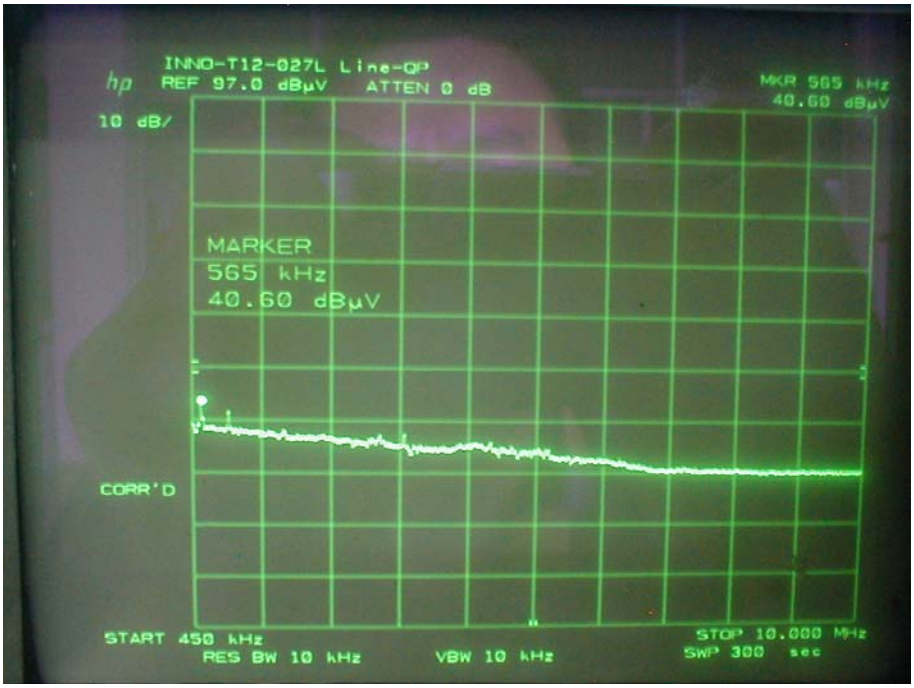

INNO-F11-015L Neutral QP
REF 107.0 dBμV ATTEN 10 dB
MKR 479 kHz
37.80 dBμV
10 dB/
MARKER
479 kHz
37.80 dBμV
CORR'D
START 450 kHz
RES BW 10 kHz
VBW 10 kHz
STOP 10.000 MHz
SWP 300 sec

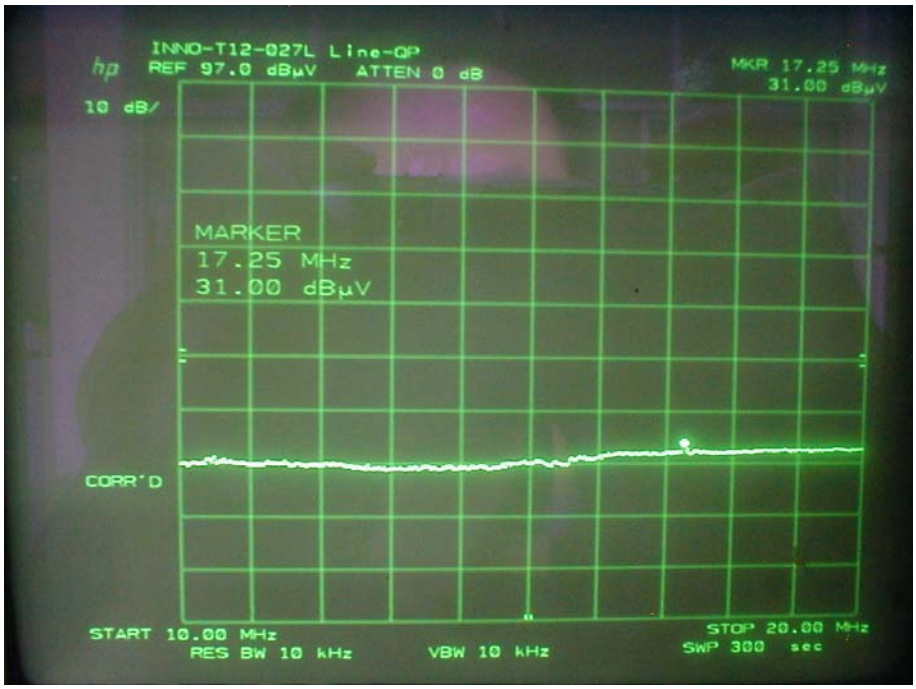

INNO-F11-015L Neutral QP
REF 107.0 dBμV ATTEN 10 dB
MKR 10.97 MHz
27.60 dBμV
10 dB/
MARKER
10.97 MHz
27.60 dBμV
CORR'D
START 10.00 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 20.00 MHz
SWP 300 sec

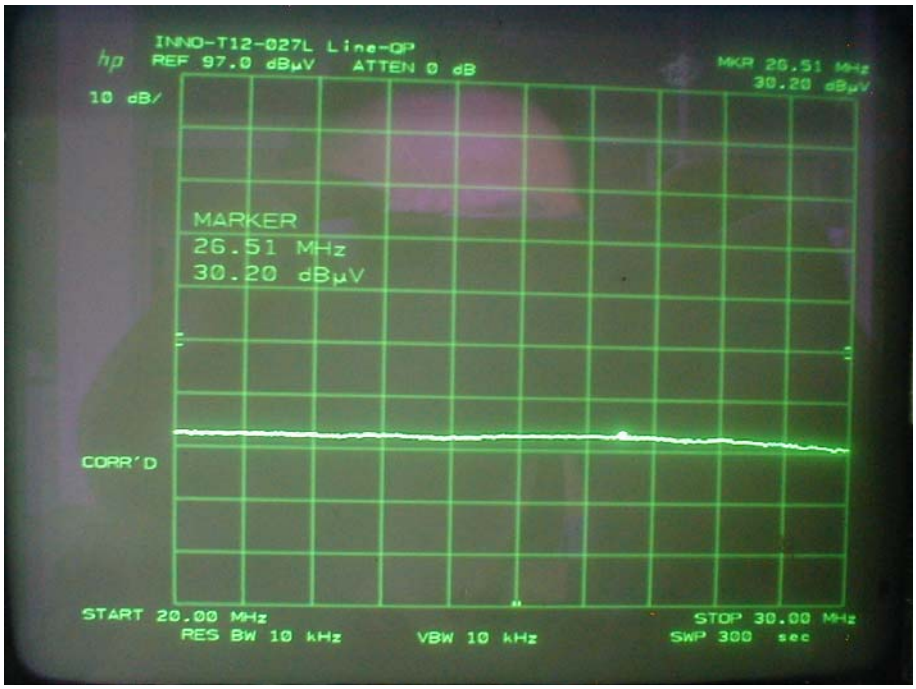

INNO-F11-015L Neutral QP
REF 107.0 dBμV ATTEN 10 dB
MKR 21.19 MHz
22.10 dBμV
10 dB/
MARKER
21.19 MHz
22.10 dBμV
CORR'D
START 20.00 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 30.00 MHz
SWP 300 sec

INNO-T12-027L

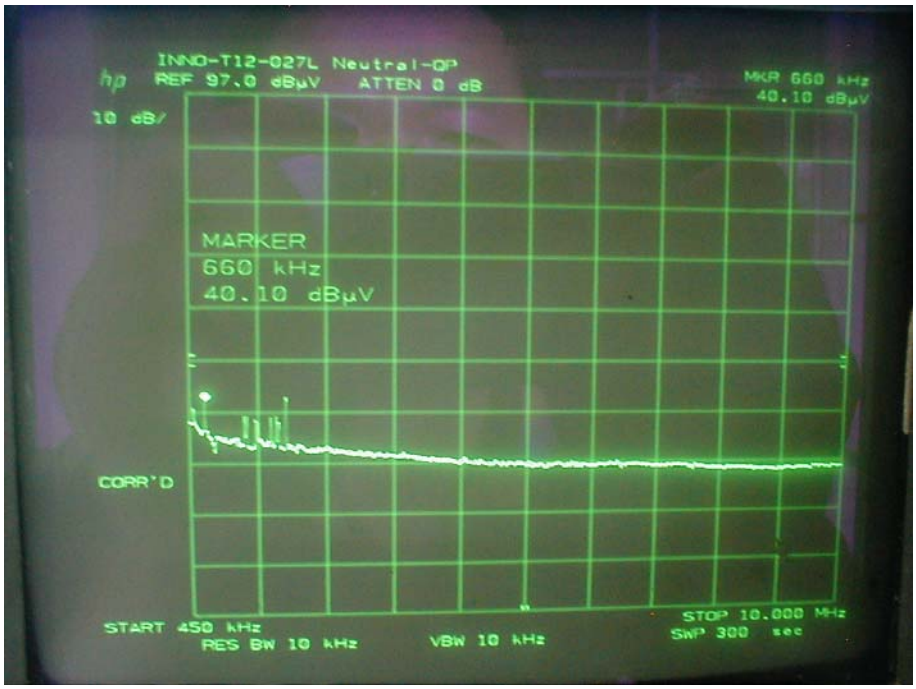
Line:



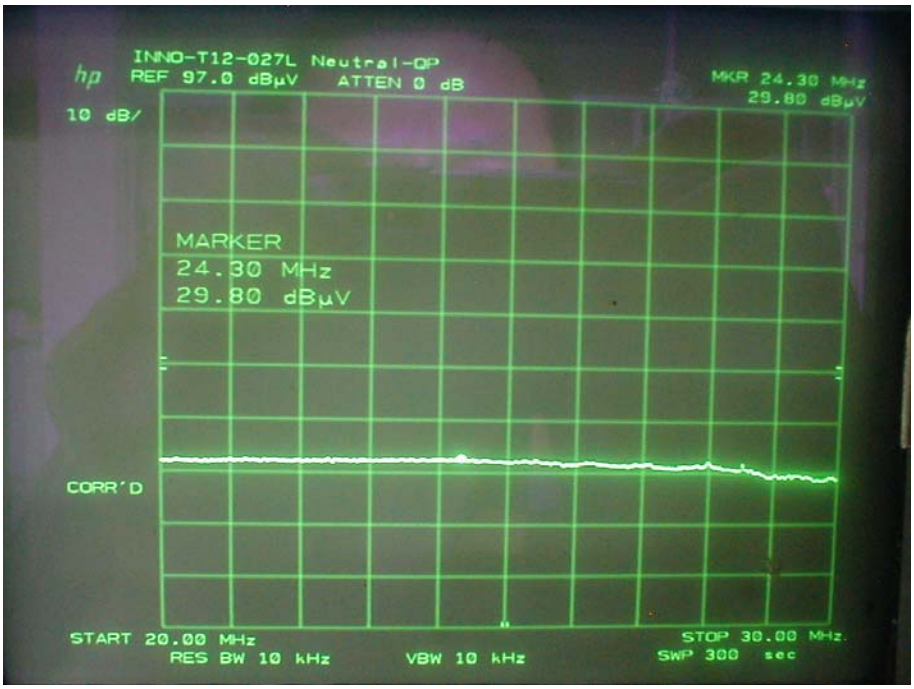



INNO-T12-027L Line-QP
hp
REF 97.0 dBµV ATTEN 0 dB
MKR 26.51 MHz
30.20 dBµV
10 dB/
MARKER
26.51 MHz
30.20 dBµV
CORR'D
START 20.00 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 30.00 MHz
SWP 300 sec

Neutral:

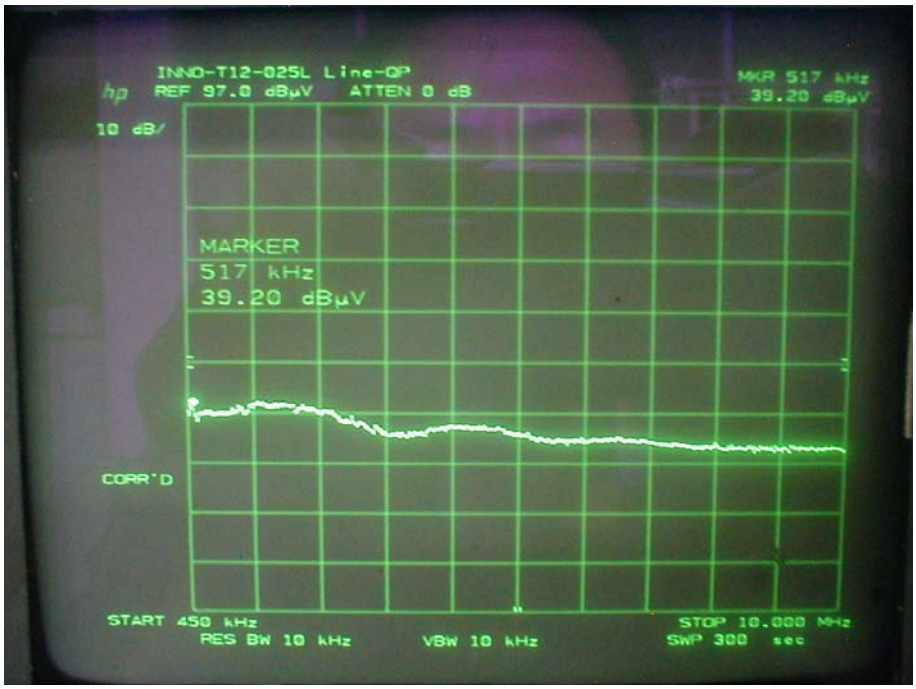

INNO-T12-027L Neutral-QP
hp
REF 97.0 dBµV ATTEN 0 dB
MKR 660 kHz
40.10 dBµV
10 dB/
MARKER
660 kHz
40.10 dBµV
CORR'D
START 450 kHz
RES BW 10 kHz
VBW 10 kHz
STOP 10.000 MHz
SWP 300 sec

INNO-T12-027L Neutral-QP
hp
REF 97.0 dBμV ATTEN 0 dB
MKR 19.95 MHz
29.40 dBμV
10 dB/
MARKER
19.95 MHz
29.40 dBμV
CORR'D
START 10.00 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 20.00 MHz
SWP 300 sec


INNO-T12-027L Neutral-QP
hp
REF 97.0 dBμV ATTEN 0 dB
MKR 24.30 MHz
29.80 dBμV
10 dB/
MARKER
24.30 MHz
29.80 dBμV
CORR'D
START 20.00 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 30.00 MHz
SWP 300 sec

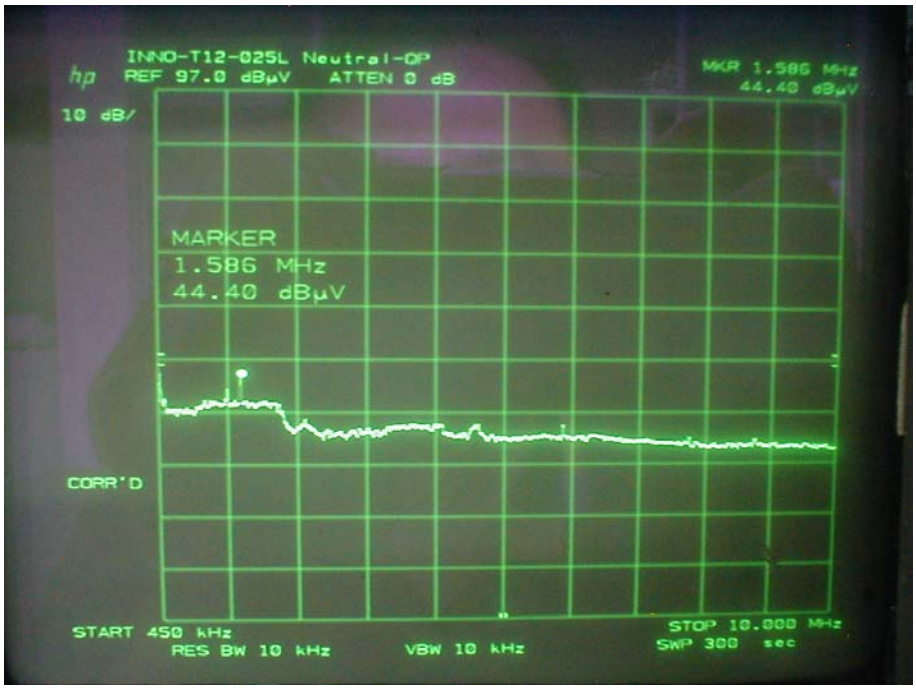
INNO-T12-025L

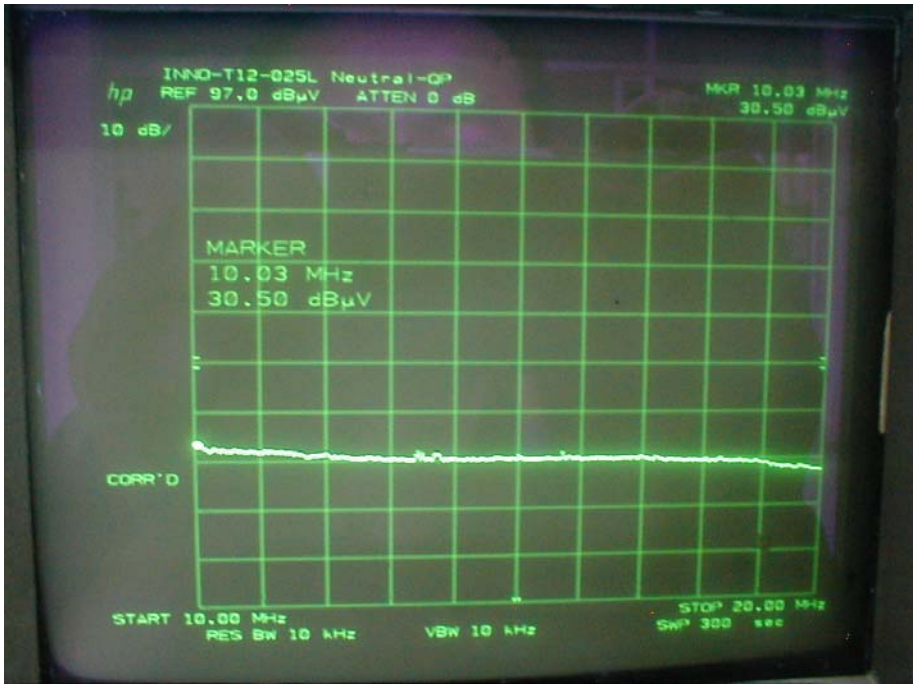
Line:

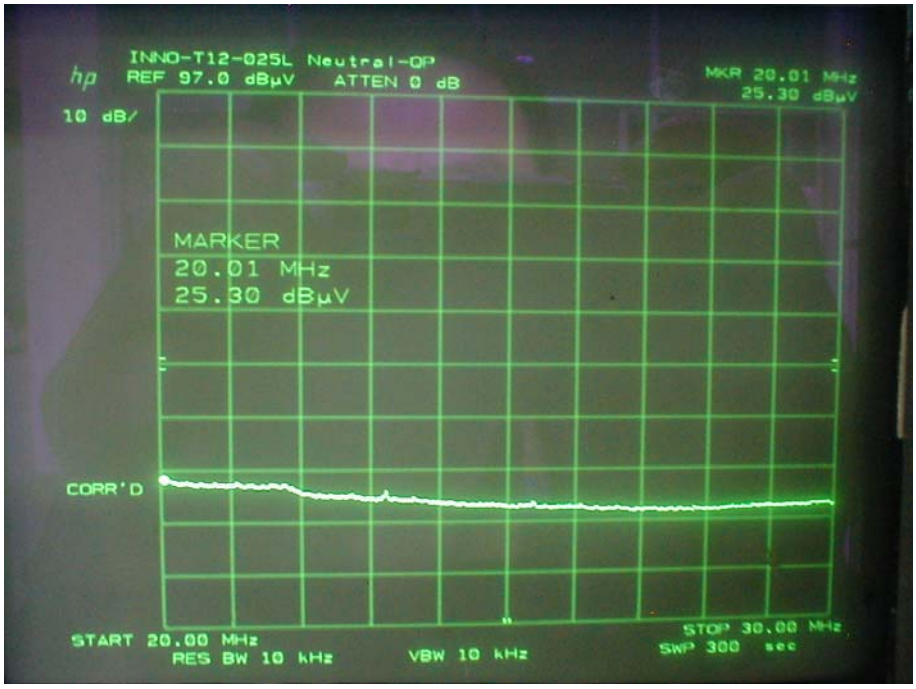


INNO-T12-025L Line-QP
hp REF 97.0 dBµV ATTEN 0 dB
MKR 22.04 MHz
25.30 dBµV
10 dB/
MARKER
22.04 MHz
25.30 dBµV
CORR'D
START 20.00 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 30.00 MHz
SWP 300 sec

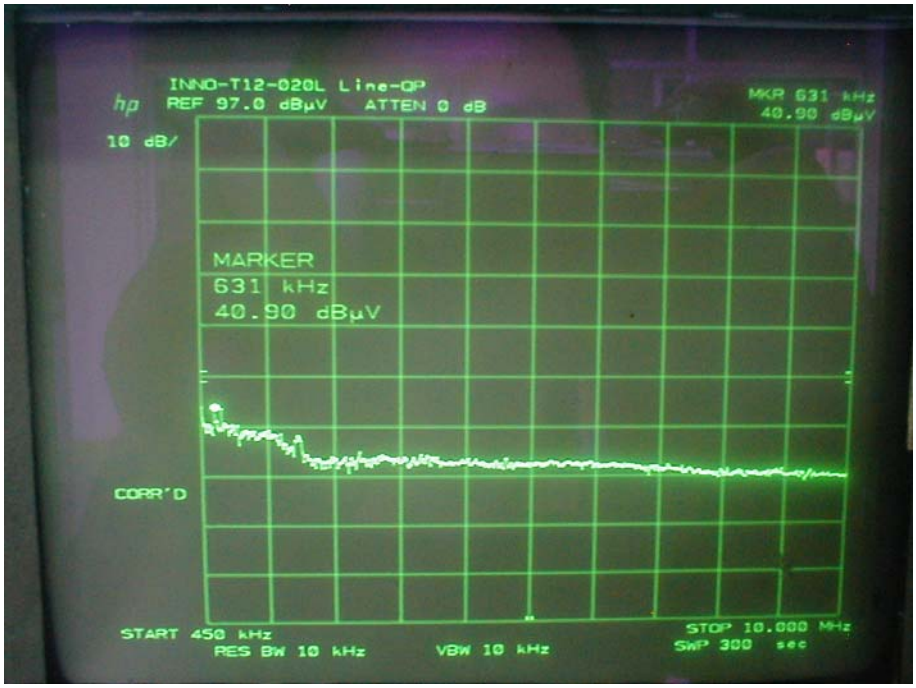
Neutral:

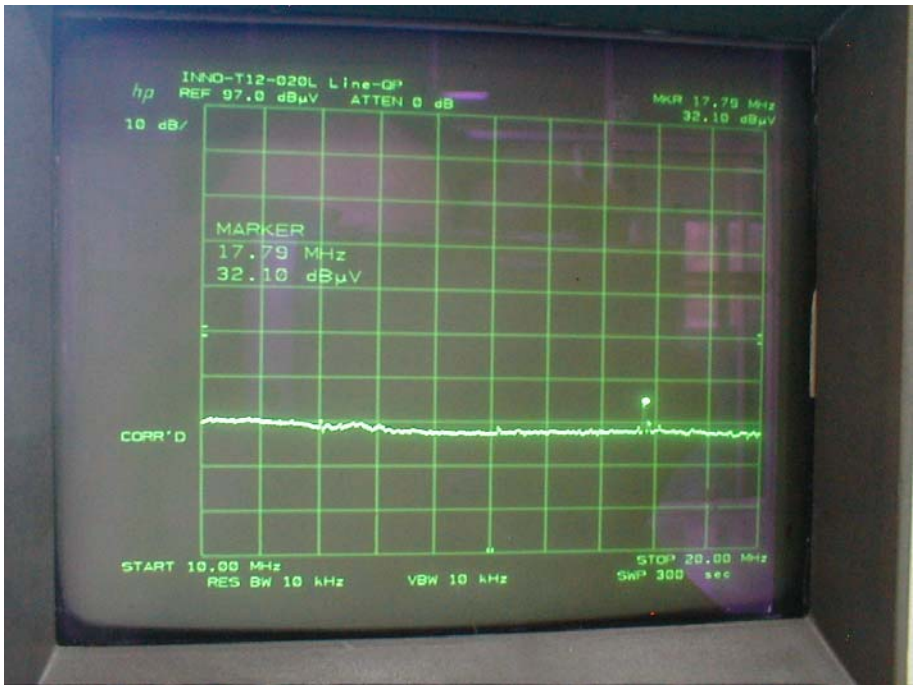

INNO-T12-025L Neutral-QP
hp REF 97.0 dBµV ATTEN 0 dB
MKR 1.586 MHz
44.40 dBµV
10 dB/
MARKER
1.586 MHz
44.40 dBµV
CORR'D
START 450 kHz
RES BW 10 kHz
VBW 10 kHz
STOP 10.000 MHz
SWP 300 sec


INNO-T12-025L Neutral-QP
hp REF 97.0 dBµV ATTEN 0 dB
MKR 10.03 MHz
30.50 dBµV
10 dB/
MARKER
10.03 MHz
30.50 dBµV
CORR'D
START 10.00 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 20.00 MHz
SWP 300 sec


INNO-T12-025L Neutral-QP
hp REF 97.0 dBµV ATTEN 0 dB
MKR 20.01 MHz
25.30 dBµV
10 dB/
MARKER
20.01 MHz
25.30 dBµV
CORR'D
START 20.00 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 30.00 MHz
SWP 300 sec

Line:

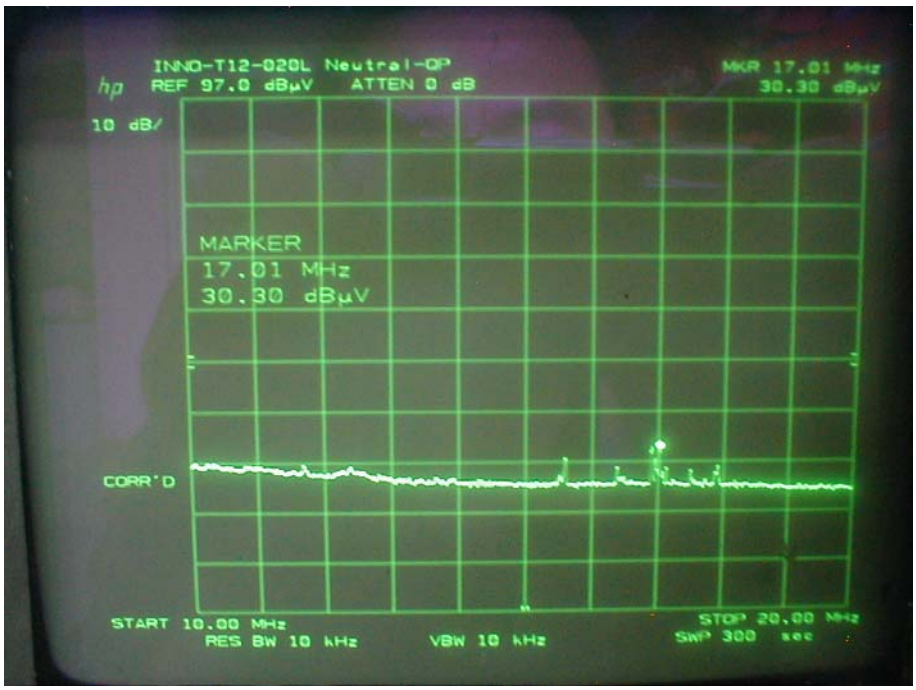

INNO-T12-020L Line-QP
hp REF 97.0 dBµV ATTEN 0 dB
MKR 631 kHz
40.90 dBµV
10 dB/
MARKER
631 kHz
40.90 dBµV
CORR'D
START 450 kHz
RES BW 10 kHz
VBW 10 kHz
STOP 10.000 MHz
SWP 300 sec


INNO-T12-020L Line-QP
hp REF 97.0 dBµV ATTEN 0 dB
MKR 17.79 MHz
32.10 dBµV
10 dB/
MARKER
17.79 MHz
32.10 dBµV
CORR'D
START 10.00 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 20.00 MHz
SWP 300 sec

INNO-T12-020L Line-OP
hp REF 97.0 dBµV ATTEN 0 dB
MKR 20.16 MHz
26.20 dBµV
10 dB/
MARKER
20.16 MHz
26.20 dBµV
CORR'D
START 20.00 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 30.00 MHz
SWP 300 sec

Neutral:

INNO-T12-020L Neutral-OP
hp REF 97.0 dBµV ATTEN 0 dB
MKR 727 kHz
38.00 dBµV
10 dB/
MARKER
727 kHz
38.00 dBµV
CORR'D
START 450 kHz
RES BW 10 kHz
VBW 10 kHz
STOP 10.000 MHz
SWP 300 sec


INNO-T12-020L Neutral-QP
hp REF 97.0 dBµV ATTEN 0 dB
MKR 17.01 MHz
30.30 dBµV
10 dB/
MARKER
17.01 MHz
30.30 dBµV
CORR'D
START 10.00 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 20.00 MHz
SWP 300 sec

INNO-T12-020L Neutral-QP
hp REF 97.0 dBµV ATTEN 0 dB
MKR 25.43 MHz
22.10 dBµV
10 dB/
MARKER
25.43 MHz
22.10 dBµV
CORR'D
START 20.00 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 30.00 MHz
SWP 300 sec