

# MEASUREMENT/TECHNICAL REPORT

**Company: Interflex N.A., Inc.**

**FRN: 0006-6303-47**

**Models**

**IF P600**

**IF P603**

**FCC ID: P8KPXFB**

Description: This is a report to support a Class II permissive change.

Equipment Type: Low Power Communications Device Transmitter (DXX)

Report prepared for:

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Report prepared by:

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## Introduction

This report is designed to demonstrate the continued compliance of the IF P600 and IF P603 in light of alternative mounting configurations.

## Test Methodology

Radiated emission testing was performed according to the procedures in ANSI C63.4 (1992). The testing was performed at an antenna to EUT distance of 3 meters. The device's performance was investigated to 1GHz. The EUT was powered by a 24V DC power supply. Since the device is installed in one orientation, the emissions were maximized around the vertical axis and the maximum reading was recorded. The integrated antenna cannot be maximized separately.

## Test Facility

### *Curtis-Straus LLC*

All testing for the range 9kHz–1000MHz was performed at Curtis-Straus (A2LA Certificate Number 1627-01). The open area test site used to collect the radiated data is located at 527 Great Road, Littleton, MA 01460. Site "F" was used.

## Test Equipment

<b><i>SPECTRUM ANALYZERS</i></b>					
<b>x</b>	<b>Analyzer</b>	<b>Model No.</b>	<b>Company</b>	<b>Serial No.</b>	<b>Calibration Due</b>
<b>X</b>	<b>YELLOW</b> 9kHz-2.9GHz	8594E	HP	3523A01958	03-JUL-2003

<b><i>OPEN AREA TEST SITES (OATS)</i></b>					
<b>x</b>	<b>Site</b>	<b>FCC Code</b>	<b>IC Code</b>	<b>VCCI Code</b>	<b>Calibration Due</b>
<b>X</b>	<b>"F"</b> Florida	93448	IC 2762-F	R-468/ C-480	04-FEB-2004

<b><i>ANTENNAS</i></b>					
<b>x</b>	<b>Antenna</b>	<b>Model No.</b>	<b>Company</b>	<b>Serial No.</b>	<b>Calibration Due</b>
<b>X</b>	<b>GREEN-WHITE</b> Bilog: 30MHz-2GHz	CBL6112B	Chase	2574	28-JUL-2002
<b>X</b>	<b>LARGE LOOP</b> Passive Loop: 20Hz-5MHz	6511	EMCO	9704-1154	05-NOV-2003

<b><i>PREAMPLIFIERS / ATTENUATORS</i></b>					
<b>x</b>	<b>Preamplifier</b>	<b>Model No.</b>	<b>Company</b>	<b>Serial No.</b>	<b>Calibration Due</b>
<b>X</b>	<b>RED</b> 0.10-2000MHz	ZFL-1000-LN	MiniCircuits/ C-S	n/a	22-MAR-2003

Unless otherwise noted the calibration interval is one year. All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

## Measurement Results

### Operating Frequency

These devices operate at 125kHz.

### Electric Field Strength Radiation Measurements

Radiated Emissions Table							Curtis-Straus LLC		
Date: 09-Jul-02			Company: Interflex			Table 1			
Engineer: Evan Gould			EUT Desc: IF P600			Work Order: C0541			
Frequency Range: 10kHz-5MHz					Measurement Distance: 3 m				
Notes: communicating with the IF 1070; new mounting box					EUT Min Freq: 16MHz				
					Analyzer: Yellow				
Antenna Polarization (0° - 90°)	Frequency (MHz)	Reading (dBμV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBμV/m)	47 CFR 15.209		
							Limit (dBμV/m)	Margin (dB)	Result (Pass/Fail)
0	0.1254	64.4	21.7	51.9	0.0	94.6	105.6	-11.0	Pass
0	0.25	14.3	22.0	51.2	0.0	43.5	99.6	-56.1	Pass
0	0.3756	34.9	22.0	50.8	0.0	63.7	96.1	-32.4	Pass
0	0.5	8.4	22.1	50.6	0.0	36.9	73.6	-36.7	Pass
0	0.626	29.5	22.1	50.4	0.0	57.8	71.6	-13.8	Pass
0	0.75	12.2	22.1	50.3	0.0	40.4	70.1	-29.7	Pass
0	0.8757	21.7	22.0	50.1	0.0	49.8	68.7	-18.9	Pass
0	1.0	26.6	22.0	50.0	0.0	54.6	67.6	-13.0	Pass
0	1.125	28.6	22.0	49.8	0.0	56.4	66.5	-10.1	Pass
0	1.252	21.6	22.0	49.6	0.0	49.2	65.6	-16.4	Pass
Table Result: Pass by -10.1 dB Worst Freq: 1.125 MHz									
Test Site: "F"		Pre-Amp: Red		Cable: 65 ft RG8A/U			Antenna: Lg Loop		

Radiated Emissions Table							Curtis-Straus LLC		
Date: 09-Jul-02			Company: Interflex				Table 2		
Engineer: Evan Gould			EUT Desc: IF P603				Work Order: C0541		
Frequency Range: 10kHz-5MHz				Measurement Distance: 3 m					
Notes: communicating with the IF 1070; new mounting box				EUT Min Freq: 16MHz					
							Analyzer: Yellow		
Antenna Polarization (0° - 90°)	Frequency (MHz)	Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBµV/m)	47 CFR 15.209		
							Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
0	0.1254	64.0	21.7	51.9	0.0	94.2	105.6	-11.4	Pass
0	0.25	16.0	22.0	51.2	0.0	45.2	99.6	-54.4	Pass
0	0.3756	35.5	22.0	50.8	0.0	64.3	96.1	-31.8	Pass
0	0.5	9.5	22.1	50.6	0.0	38.0	73.6	-35.6	Pass
0	0.626	31.5	22.1	50.4	0.0	59.8	71.6	-11.8	Pass
0	0.75	13.0	22.1	50.3	0.0	41.2	70.1	-28.9	Pass
0	0.8757	22.1	22.0	50.1	0.0	50.2	68.7	-18.5	Pass
0	1.0	25.8	22.0	50.0	0.0	53.8	67.6	-13.8	Pass
0	1.125	29.3	22.0	49.8	0.0	57.1	66.5	-9.4	Pass
0	1.252	22.1	22.0	49.6	0.0	49.7	65.6	-15.9	Pass
Table Result: Pass by -9.4 dB Worst Freq: 1.125 MHz									
Test Site: "F"		Pre-Amp: Red		Cable: 65 ft RG8A/U			Antenna: Lg Loop		

Radiated Emissions Table							Curtis-Straus LLC		
Date: 09-Jul-02			Company: Interflex			Table 3			
Engineer: Evan Gould			EUT Desc: IF P600 & IF P603			Work Order: C0541			
Frequency Range: 30-1000MHz				Measurement Distance: 3 m					
Notes: communicating with the IF 1070; new mounting box				EUT Max Freq: 16MHz					
							Analyzer: Yellow		
Antenna Polarization (H / V)	Frequency (MHz)	Reading (dBμV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBμV/m)	47 CFR 15.209		
							Limit (dBμV/m)	Margin (dB)	Result (Pass/Fail)
V	30.8	40.7	22.0	17.5	0.4	36.6	40.0	-3.4	Pass
V	31.0	38.8	22.0	17.4	0.4	34.6	40.0	-5.4	Pass
V	32.0	41.9	22.0	16.9	0.4	37.2	40.0	-2.8	Pass
V	49.3	49.0	22.1	8.0	0.5	35.4	40.0	-4.6	Pass
V	60.5	47.5	22.0	5.1	0.6	31.2	40.0	-8.8	Pass
V	75.5	45.2	22.0	6.0	0.7	29.9	40.0	-10.1	Pass
V	91.9	54.0	22.1	9.1	0.8	41.8	43.5	-1.7	Pass
V	110.6	40.2	22.2	11.1	1.0	30.1	43.5	-13.4	Pass
V	121.0	43.0	22.2	11.7	1.0	33.5	43.5	-10.0	Pass
Only IF P600 powered			---	---	---	---	---	---	---
V	68.5	47.9	22.0	5.0	0.7	31.6	40.0	-8.4	Pass
V	68.2	49.4	22.0	5.0	0.7	33.1	40.0	-6.9	Pass
V 30kHzBWpk	92.3	48.5	22.1	9.2	0.8	36.4	43.5	-7.1	Pass
Only IF P603 powered			---	---	---	---	---	---	---
V	68.6	47.2	22.0	5.0	0.7	30.9	40.0	-9.1	Pass
V 30kHzBWpk	92.3	47.3	22.1	9.2	0.8	35.2	43.5	-8.3	Pass
Table Result: Pass by -1.7 dB Worst Freq: 91.9 MHz									
Test Site: "F"		Pre-Amp: Red		Cable: 65 ft RG8A/U			Antenna: Grn-Wht		

**Note:** When using the installation configuration for which this report was written, it is no longer necessary to install a ferrite (Fair-Rite #0431164951; Interflex p/n: FRP0003) on the ribbon cable between the MPU board and the connector board.

**Setup Photos**



IF P600



IF P630