

# PalmSens BV - Testreport

## \*\*\* PCB MANUFACTURER TESTREPORT \*\*\*

Date+time: 03/27/2020 12:05:12  
**Device:** EmStatPico [EmStatPico\_FullTest]  
**USB name:** PICOTB005\_IC5 B [1]  
**Serial no:** EP1GB9ME fw v1.2 - build Mar 6 2020 13:22:40  
 Manufacturer ser.: 19151100200014  
 Test started: 03/27/2020 12:02:08 (total test time: 00:03:03)  
 PSDiagnostics: 4.5.327.21423  
 Test instrument: PICOTB005  
 Pin bed used: Pico1  
 Reference DMM: MY57511084  
 Test engineer: 453

### MF serial number

#### Check bootloader version

Property	Value
Version	1.1
State	R
String	tespbl11#Mar 12 2019 15:27:26

#### Check firmware version

Property	Value
Version	1.2
State	RELEASE
Date	Mar 6 2020 13:22:40

#### CH0 Pot. Acc. LowSpeed

E Applied	EmStatPico	Reference DMM	Read Error	Applied Error
-1.0000	-0.9995	-0.9991	0.03%	0.09%
-0.5000	-0.4994	-0.4992	0.03%	0.15%
0.0000	0.0000	0.0000	<0.0020V	<0.0020V
0.5000	0.4995	0.4995	0.01%	0.10%
1.0000	1.0000	0.9999	0.01%	0.01%

#### CH0 Pot. Acc. HighSpeed

E Applied	EmStatPico	Reference DMM	Read Error	Applied Error
-0.6000	-0.6002	-0.6002	0.00%	0.03%
-0.3000	-0.2997	-0.2996	0.00%	0.12%
0.0000	0.0002	0.0001	<0.0020V	<0.0020V
0.3000	0.3001	0.3000	0.04%	0.00%
0.6000	0.6001	0.6000	0.02%	0.00%

#### CH0 Low Speed Ranges

Range	i at -E (abs error)	i at E=0 (abs error)	i at +E (abs error)	Max Offset	Max Gain Error	Test cell	Test Cell cal. value
100 nA	-0.4991 (0.0009)	0.0000 (0.0000)	0.4993 (-0.0007)	0.0010	0.0050	R10M	1.0000
2 uA	-0.2562 (-0.0002)	-0.0001 (-0.0001)	0.2561 (0.0001)	0.0010	0.0026	R1M	1.0000
4 uA	-0.1281 (-0.0001)	-0.0001 (-0.0001)	0.1280 (0.0000)	0.0010	0.0013	R1M	1.0000
8 uA	-0.6407 (-0.0007)	-0.0001 (-0.0001)	0.6407 (0.0007)	0.0010	0.0064	R100K	1.0000
16 uA	-0.3204 (-0.0004)	-0.0001 (-0.0001)	0.3203 (0.0003)	0.0010	0.0032	R100K	1.0000

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32 $\mu$ A	-0.1602 (-0.0002)	-0.0001 (-0.0001)	0.1602 (0.0002)	0.0010	0.0016	R100K	1.0000
63 $\mu$ A	-0.4805 (-0.0005)	-0.0001 (-0.0001)	0.4808 (0.0008)	0.0010	0.0048	R10K	1.0000
125 $\mu$ A	-0.3993 (0.0007)	-0.0001 (-0.0001)	0.3993 (-0.0007)	0.0010	0.0040	R10K	1.0000
250 $\mu$ A	-0.1998 (0.0002)	-0.0001 (-0.0001)	0.1996 (-0.0004)	0.0010	0.0020	R10K	1.0000
500 $\mu$ A	-0.0999 (0.0001)	-0.0001 (-0.0001)	0.0998 (-0.0002)	0.0010	0.0010	R10K	1.0000
1 mA	-0.4992 (0.0008)	-0.0001 (-0.0001)	0.4992 (-0.0008)	0.0010	0.0050	R1K	1.0000
5 mA	-0.0999 (0.0001)	0.0000 (0.0000)	0.0998 (-0.0002)	0.0010	0.0010	R1K	1.0000

## CH0 High Speed Ranges

Range	i at -E (abs error)	i at E=0 (abs error)	i at +E (abs error)	Max Offset	Max Gain Error	Test cell	Test Cell cal. value
100 nA	-0.4999 (0.0001)	0.0004 (0.0004)	0.5005 (0.0005)	0.0020	0.0050	R10M	1.0000
1 $\mu$ A	-0.4998 (0.0002)	0.0001 (0.0001)	0.5002 (0.0002)	0.0020	0.0050	R1M	1.0000
6 $\mu$ A	-0.0802 (-0.0002)	0.0000 (0.0000)	0.0802 (0.0002)	0.0020	0.0008	R1M	1.0000
13 $\mu$ A	-0.4010 (-0.0010)	0.0001 (0.0001)	0.4013 (0.0013)	0.0020	0.0040	R100K	1.0000
25 $\mu$ A	-0.2005 (-0.0005)	0.0000 (0.0000)	0.2006 (0.0006)	0.0020	0.0020	R100K	1.0000
50 $\mu$ A	-0.1003 (-0.0003)	0.0000 (0.0000)	0.1003 (0.0003)	0.0020	0.0010	R100K	1.0000
100 $\mu$ A	-0.5001 (-0.0001)	0.0001 (0.0001)	0.5007 (0.0007)	0.0020	0.0050	R10K	1.0000
200 $\mu$ A	-0.2503 (-0.0003)	0.0000 (0.0000)	0.2503 (0.0003)	0.0020	0.0025	R10K	1.0000
1 mA	-0.4993 (0.0007)	0.0001 (0.0001)	0.5003 (0.0003)	0.0020	0.0050	R1K	1.0000
5 mA	-0.0999 (0.0001)	0.0000 (0.0000)	0.1000 (0.0000)	0.0020	0.0010	R1K	1.0000

## CH1 Pot. Acc. LowSpeed

E Applied	EmStatPico	Reference DMM	Read Error	Applied Error
-1.0000	-0.9998	-0.9996	0.03%	0.04%
-0.5000	-0.4997	-0.4996	0.03%	0.08%
0.0000	0.0000	0.0000	<0.0020V	<0.0020V
0.5000	0.4997	0.4996	0.01%	0.08%
1.0000	0.9999	0.9999	0.01%	0.01%

## CH1 Low Speed Ranges

Range	i at -E (abs error)	i at E=0 (abs error)	i at +E (abs error)	Max Offset	Max Gain Error	Test cell	Test Cell cal. value
100 nA	-0.4994 (0.0006)	-0.0001 (-0.0001)	0.4993 (-0.0007)	0.0010	0.0050	R10M	1.0000
2 $\mu$ A	-0.2565 (-0.0005)	-0.0001 (-0.0001)	0.2562 (0.0002)	0.0010	0.0026	R1M	1.0000
4 $\mu$ A	-0.1283 (-0.0003)	-0.0001 (-0.0001)	0.1281 (0.0001)	0.0010	0.0013	R1M	1.0000
8 $\mu$ A	-0.6412 (-0.0012)	-0.0002 (-0.0002)	0.6408 (0.0008)	0.0010	0.0064	R100K	1.0000
16 $\mu$ A	-0.3207	-0.0001	0.3204	0.0010	0.0032	R100K	1.0000

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	(-0.0007)	(-0.0001)	(0.0004)				
32 $\mu$ A	-0.1604	-0.0001	0.1602	0.0010	0.0016	R100K	1.0000
	(-0.0004)	(-0.0001)	(0.0002)				
63 $\mu$ A	-0.4811	-0.0002	0.4809	0.0010	0.0048	R10K	1.0000
	(-0.0011)	(-0.0002)	(0.0009)				
125 $\mu$ A	-0.3993	-0.0001	0.3990	0.0010	0.0040	R10K	1.0000
	(0.0007)	(-0.0001)	(-0.0010)				
250 $\mu$ A	-0.1999	-0.0001	0.1997	0.0010	0.0020	R10K	1.0000
	(0.0001)	(-0.0001)	(-0.0003)				
500 $\mu$ A	-0.1000	-0.0001	0.0998	0.0010	0.0010	R10K	1.0000
	(0.0000)	(-0.0001)	(-0.0002)				
1 mA	-0.4997	-0.0001	0.4994	0.0010	0.0050	R1K	1.0000
	(0.0003)	(-0.0001)	(-0.0006)				
5 mA	-0.1001	-0.0001	0.0998	0.0010	0.0010	R1K	1.0000
	(-0.0001)	(-0.0001)	(-0.0002)				

## CH1 High Speed Ranges

Range	i at -E (abs error)	i at E=0 (abs error)	i at +E (abs error)	Max Offset	Max Gain Error	Test cell	Test Cell cal. value
100 nA	-0.4996	0.0004	0.5004	0.0020	0.0050	R10M	1.0000
	(0.0004)	(0.0004)	(0.0004)				
1 $\mu$ A	-0.4998	0.0001	0.5001	0.0020	0.0050	R1M	1.0000
	(0.0002)	(0.0001)	(0.0001)				
6 $\mu$ A	-0.0802	0.0000	0.0801	0.0020	0.0008	R1M	1.0000
	(-0.0002)	(0.0000)	(0.0001)				
13 $\mu$ A	-0.4005	0.0001	0.4008	0.0020	0.0040	R100K	1.0000
	(-0.0005)	(0.0001)	(0.0008)				
25 $\mu$ A	-0.2003	0.0000	0.2004	0.0020	0.0020	R100K	1.0000
	(-0.0003)	(0.0000)	(0.0004)				
50 $\mu$ A	-0.1002	0.0000	0.1002	0.0020	0.0010	R100K	1.0000
	(-0.0002)	(0.0000)	(0.0002)				
100 $\mu$ A	-0.4945	0.0001	0.4951	0.0020	0.0049	R10K	1.0000
	(0.0000)	(0.0001)	(0.0006)				
200 $\mu$ A	-0.2475	0.0000	0.2476	0.0020	0.0025	R10K	1.0000
	(-0.0002)	(0.0000)	(0.0003)				
1 mA	-0.4492	0.0001	0.4500	0.0020	0.0045	R1K	1.0000
	(0.0013)	(0.0001)	(-0.0005)				
5 mA	-0.0898	0.0000	0.0900	0.0020	0.0009	R1K	1.0000
	(0.0003)	(0.0000)	(-0.0001)				

## Test GPIO

Set	Exp. on bus	Read on bus
Pin: 0	16	16
Pin: 1	8	8
Pin: 2	4	4
Pin: 3	2	2
Pin: 4	1	1
Pin: 7	1	1
Pin: 8	2	2
Pin: 9	4	4

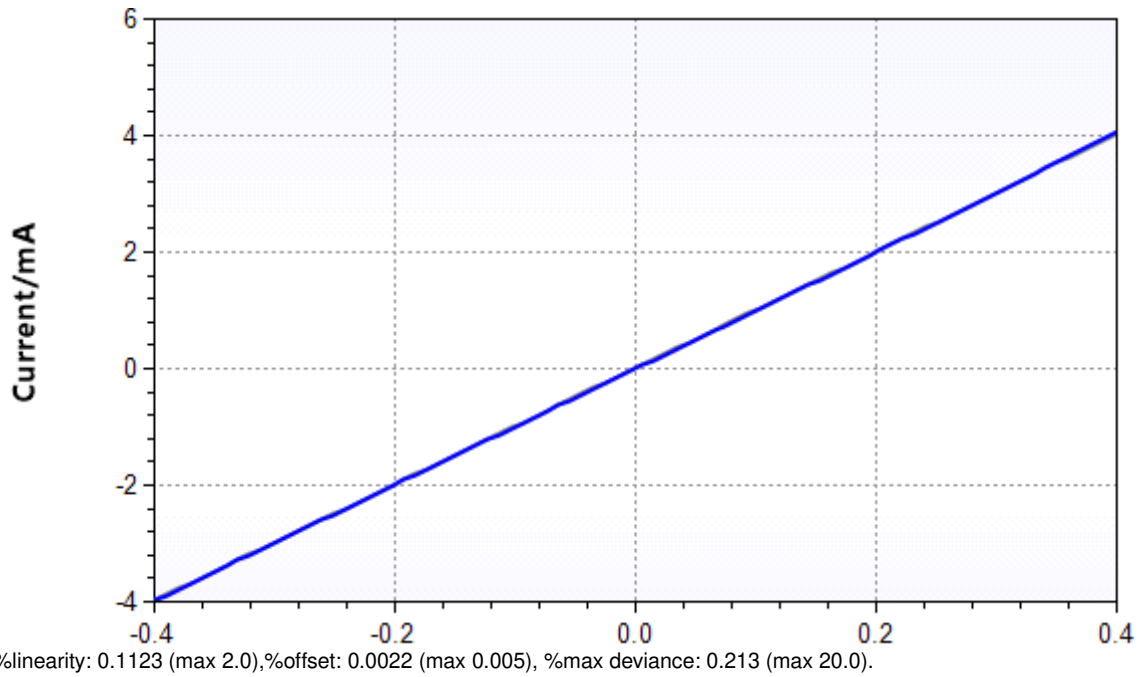
## Test Analog Inputs

Expected	Read
1.250 V	1.240 V
1.250 V	1.240 V
1.250 V	1.241 V

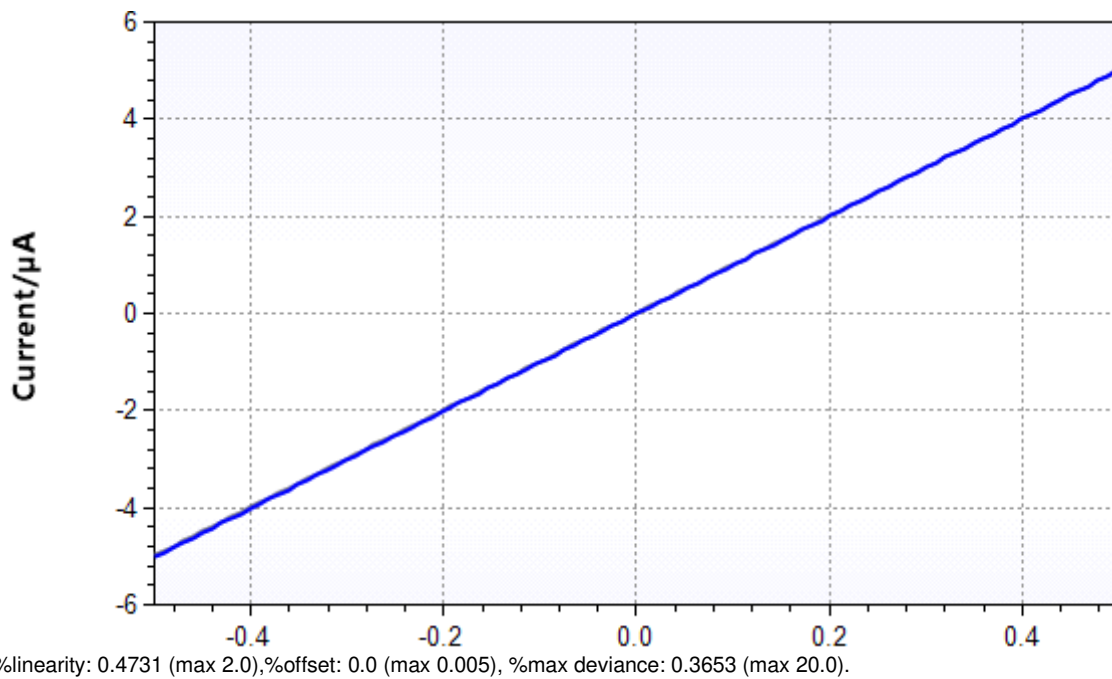
## Test BM Pins

Result
PASS

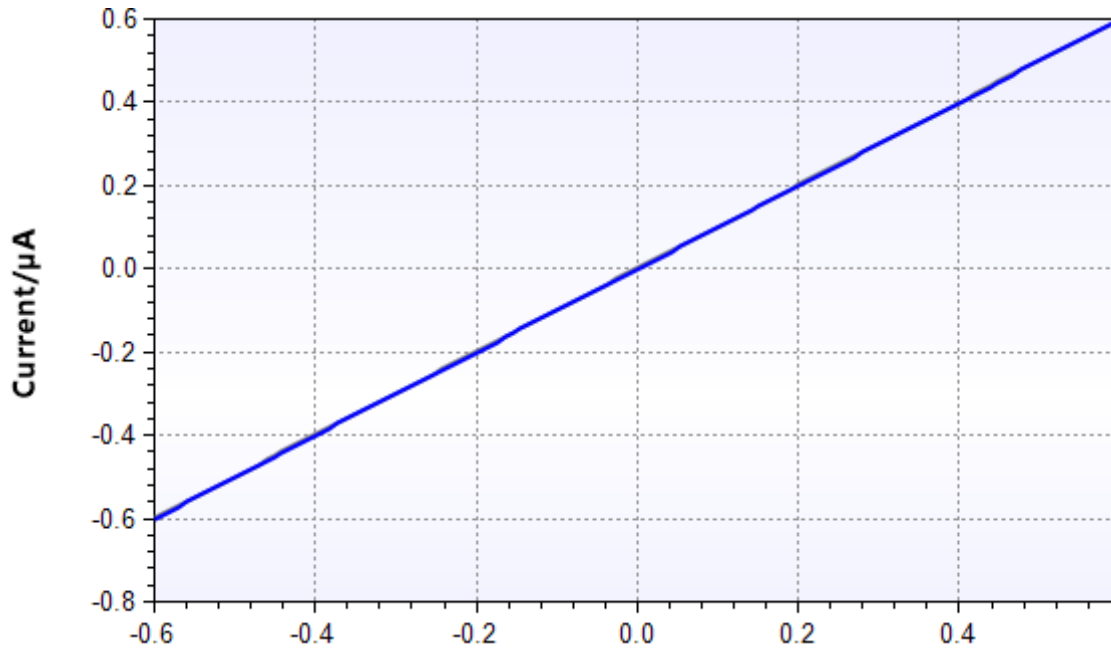
### CH0 LSV\_5mA range



### CH0 LSV 50uA range

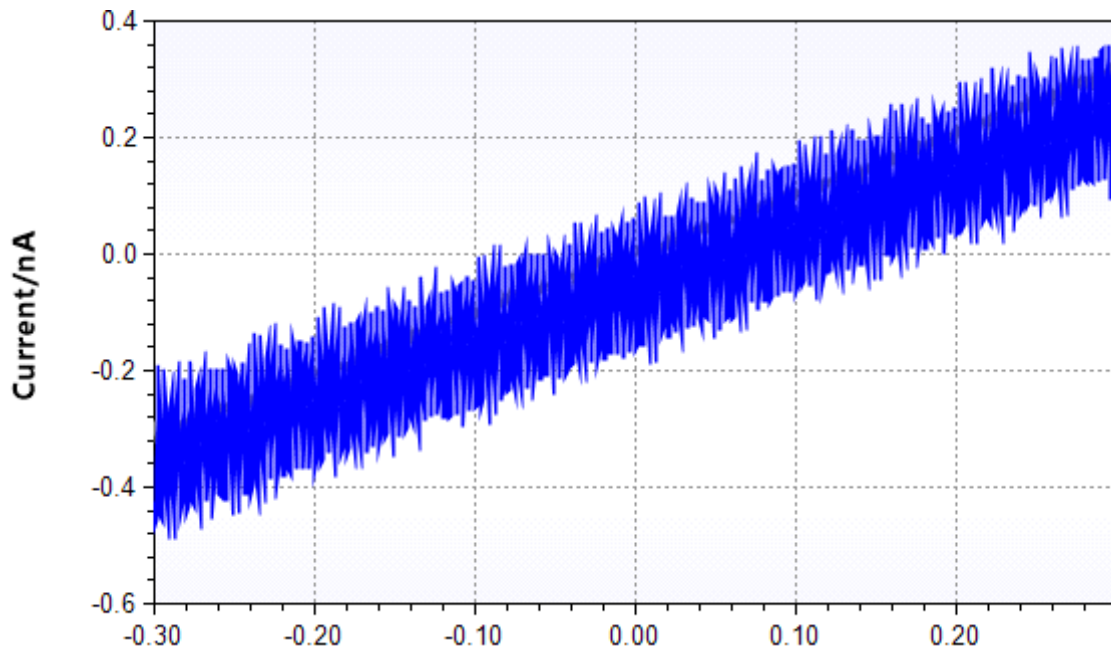


CH0 LSV 1uA range



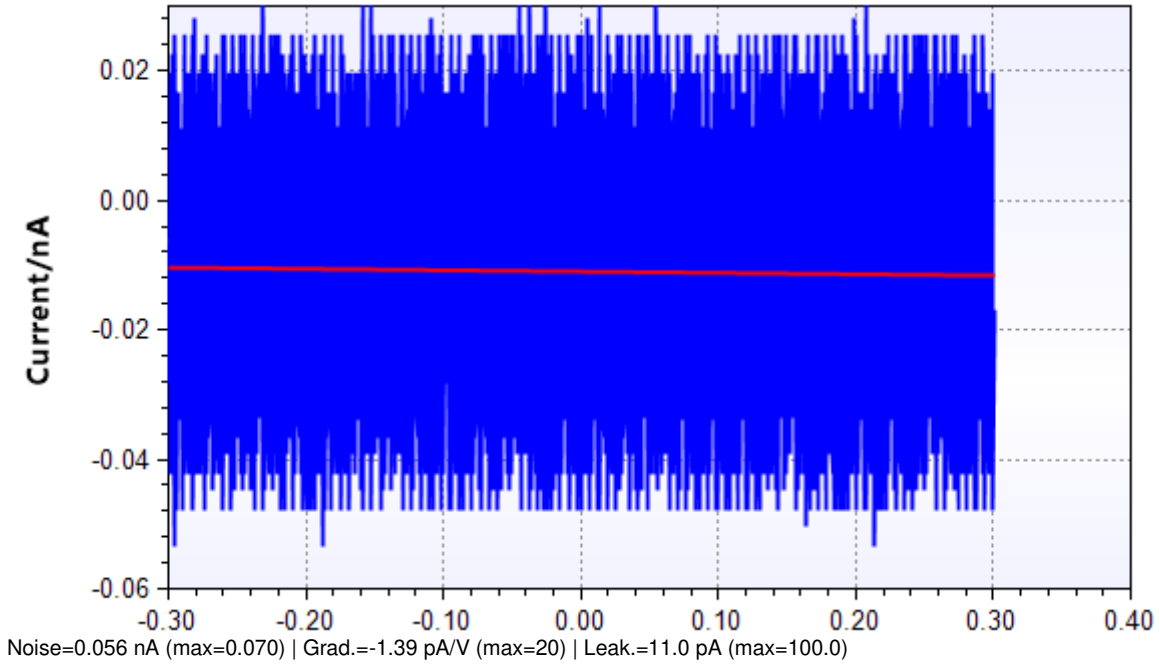
%linearity: 0.1229 (max 2.0),%offset: 0.0 (max 0.005), %max deviance: 0.2392 (max 20.0).

CH0 LSV 100nA range

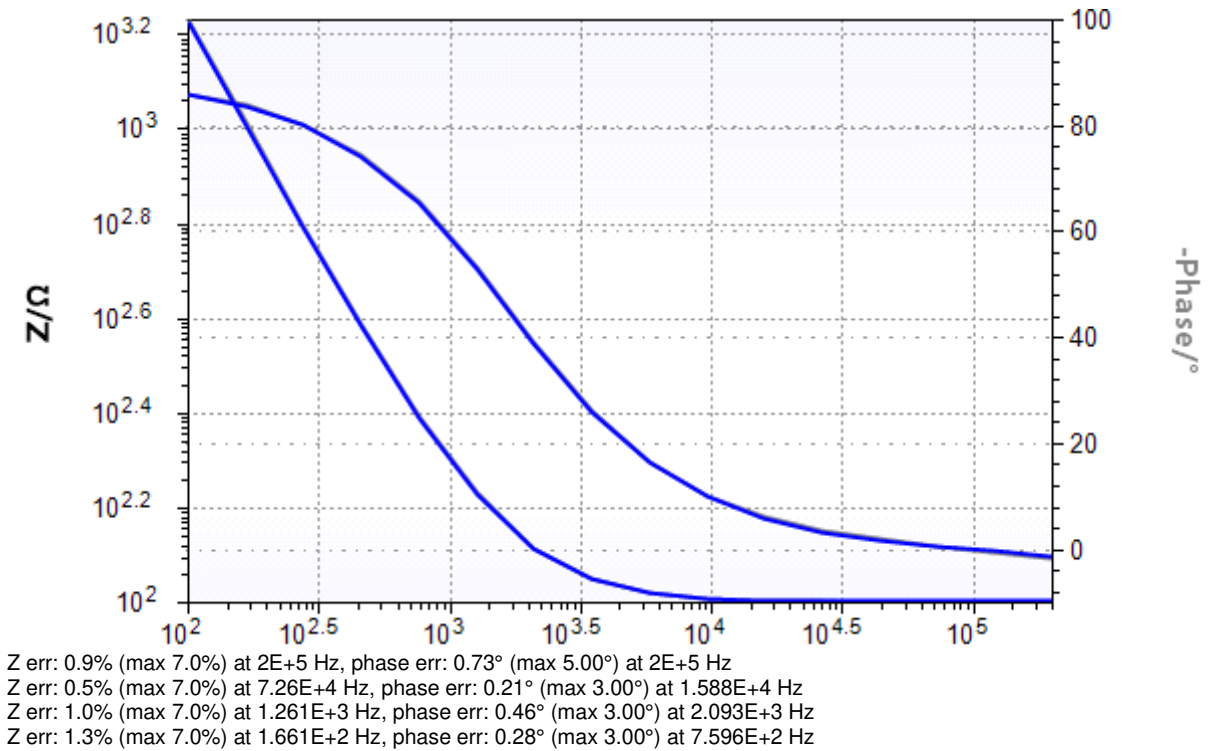


%linearity: 4.5994 (max 10.0),%offset: 0.0006 (max 0.005), %max deviance: 30.4348 (max 50.0).

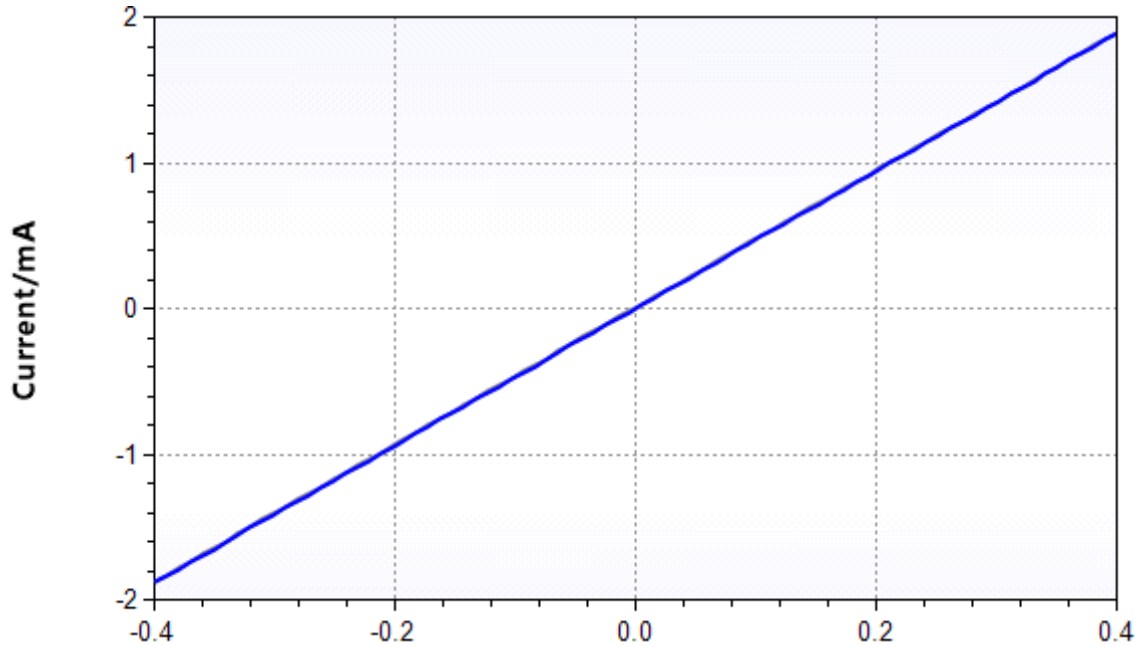
CH0 PSLeakage



CH0 EIS

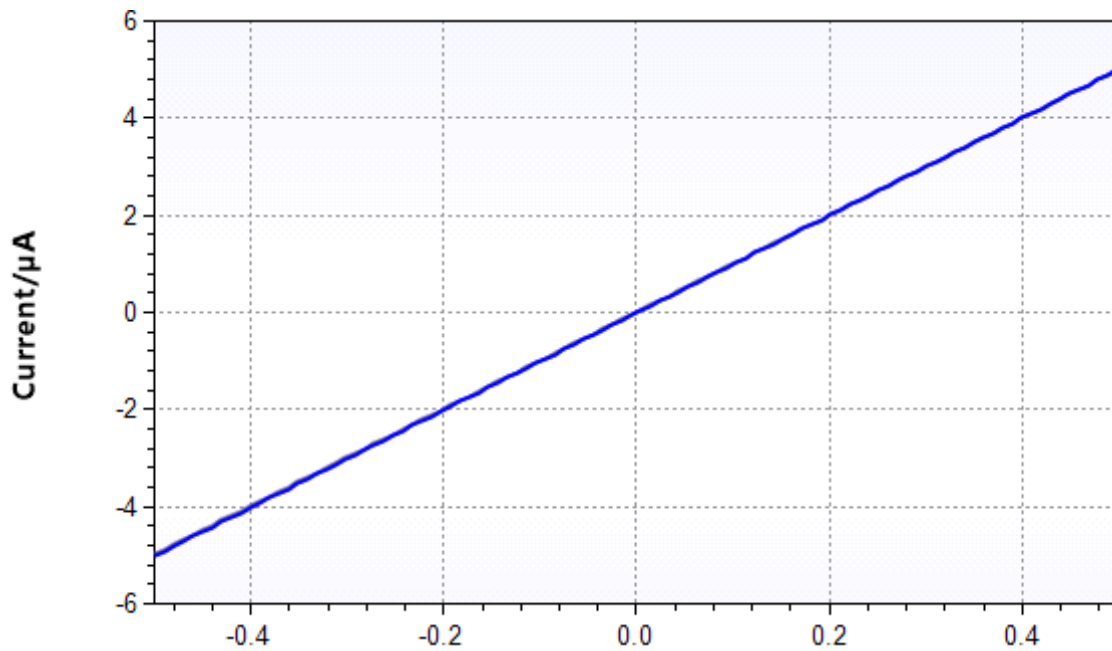


CH1 LSV\_5mA range



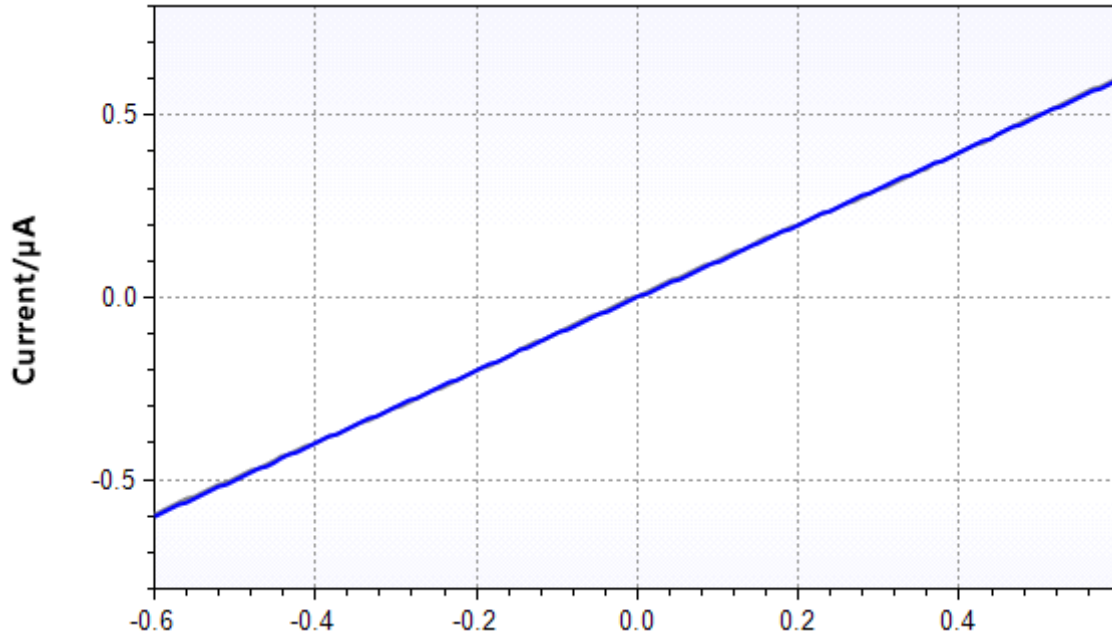
%linearity: 0.1599 (max 2.0),%offset: 0.0004 (max 0.005), %max deviance: 0.2451 (max 20.0).

CH1 LSV 50uA range



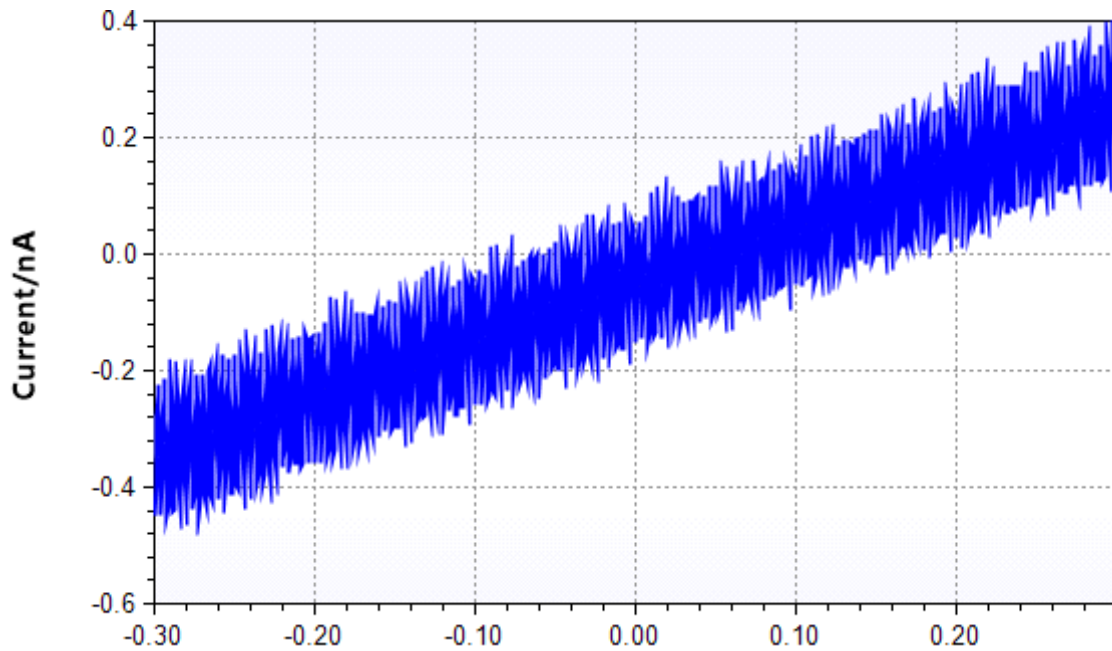
%linearity: 0.4658 (max 2.0),%offset: 0.0 (max 0.005), %max deviance: 0.4219 (max 20.0).

CH1 LSV 1uA range



%linearity: 0.1795 (max 2.0),%offset: 0.0 (max 0.005), %max deviance: 0.6287 (max 20.0).

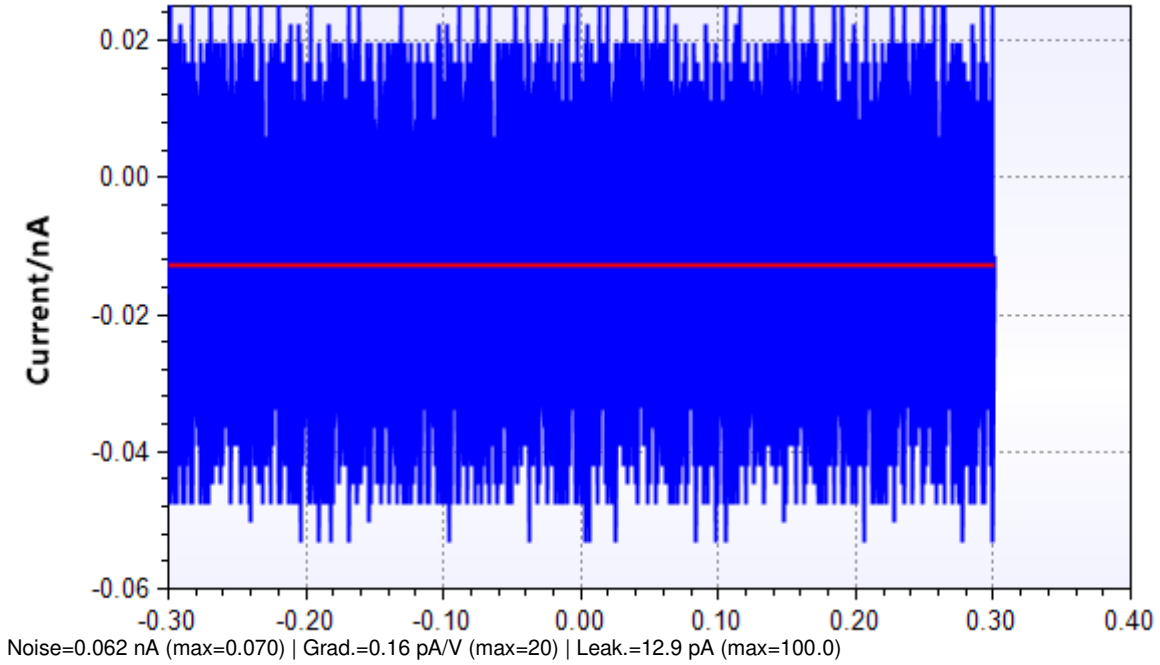
CH1 LSV 100nA range



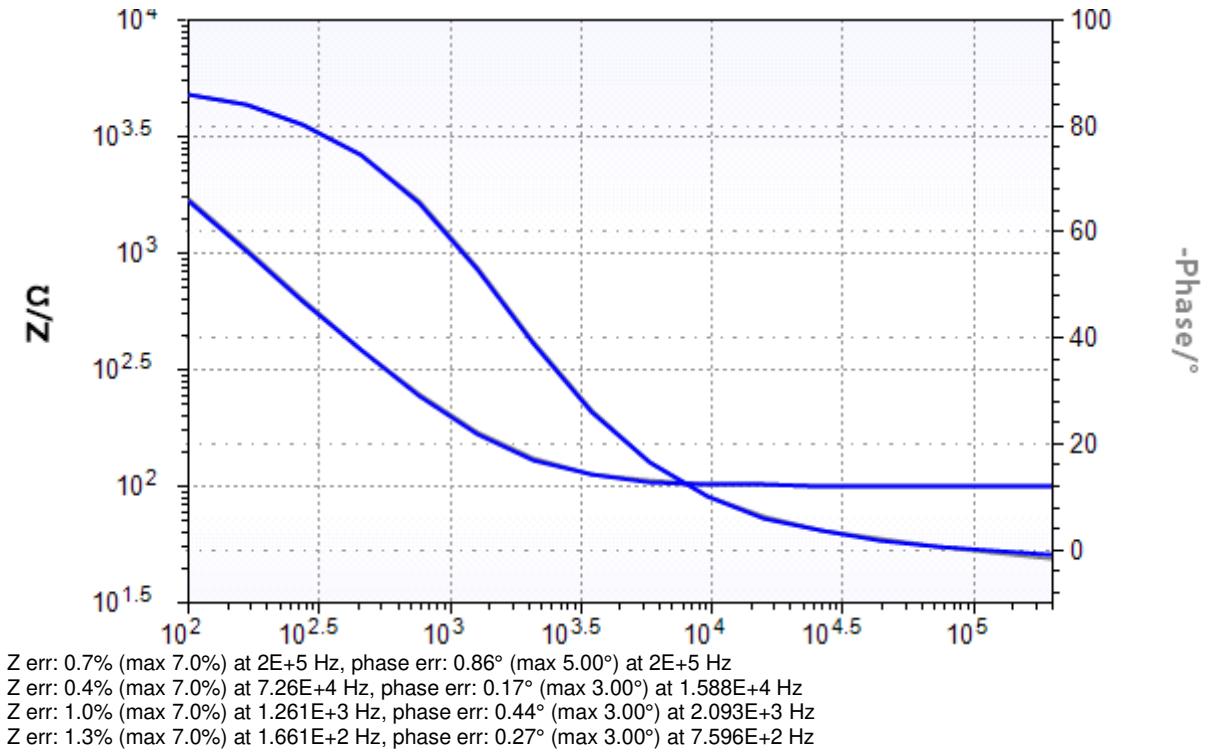
%linearity: 0.4113 (max 10.0),%offset: 0.0005 (max 0.005), %max deviance: 28.4406 (max 50.0).



CH1 PSLeakage



CH1 EIS



**BLUE power LED OK?**

YES

**Enable RED cell LED**

**RED cell LED OK?**

YES