Device Modeling Report

COMPONENTS: Violet Laser Diode
PART NUMBER: NDHV310APC
MANUFACTURER: NICHIA CORPORATION
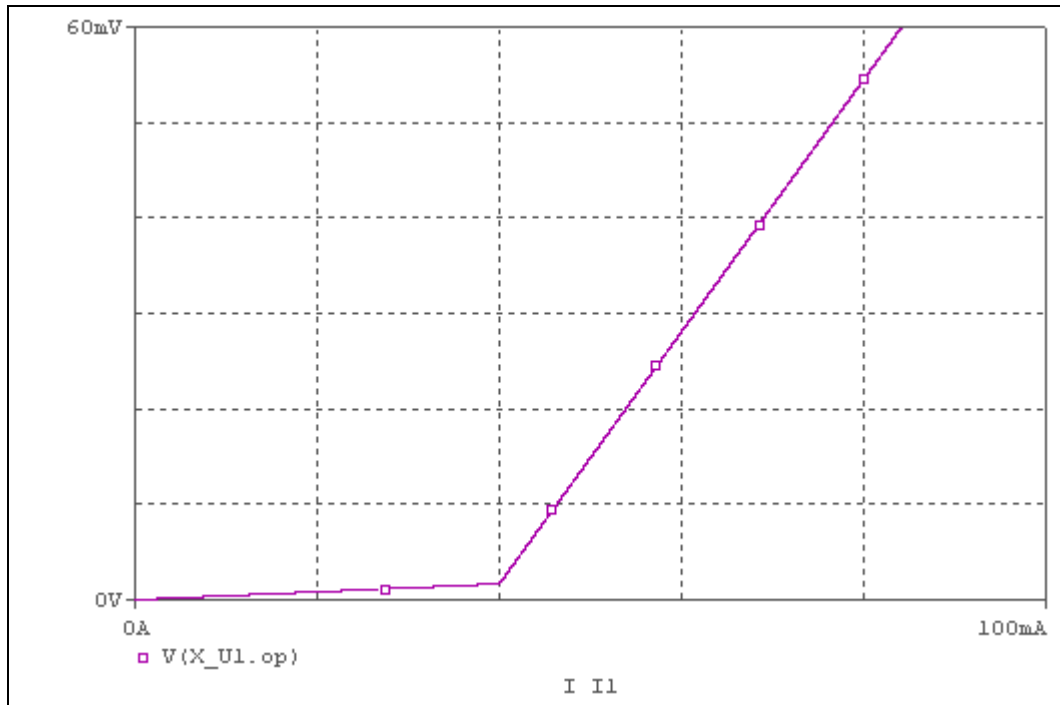
Bee Technologies Inc.
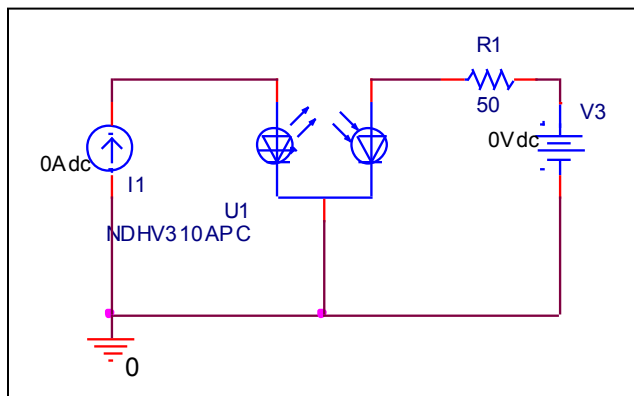
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a positive value)
IBV	Reverse Breakdown Current(a positive value)
TT	Transit Time

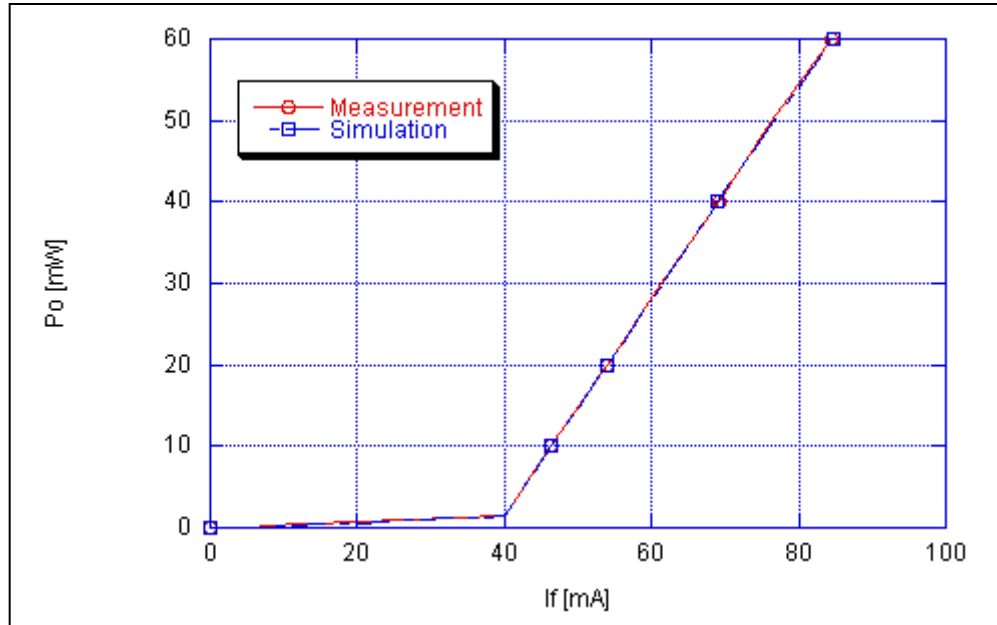# Optical Output Power vs. Forward current characteristics

Circuit simulation result

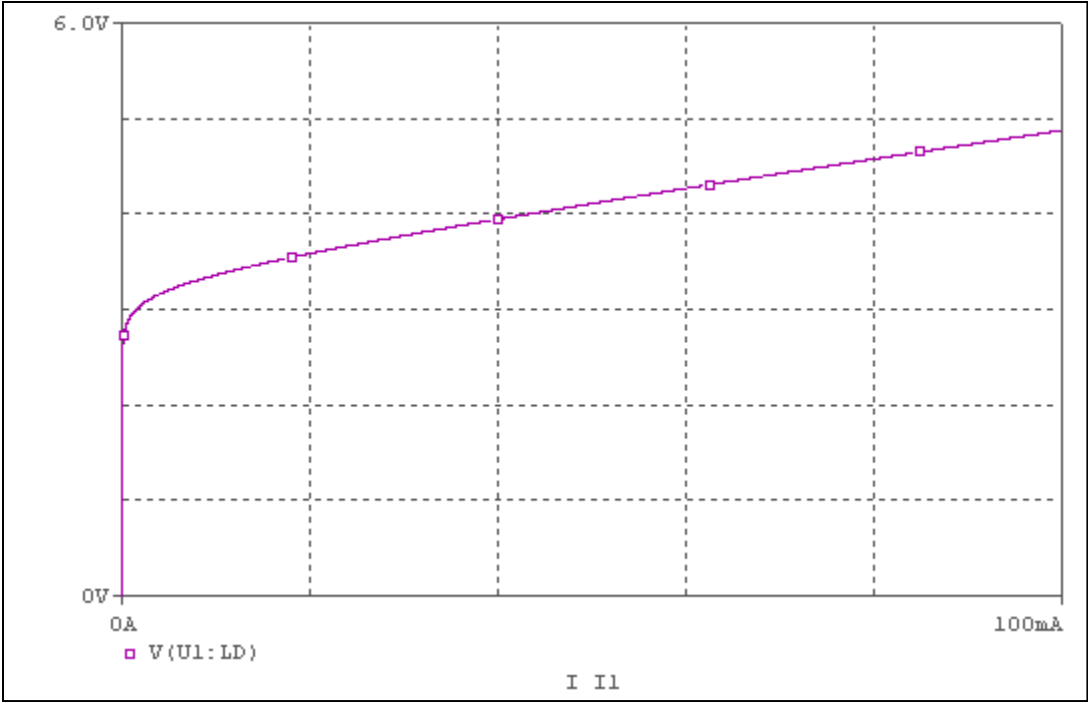

Evaluation circuit

Comparison graph

Simulation Result

Po[mW]	IF[mA]		Error (%)
	Measurement	Simulation	
10	46.3636	46.307	0.122079
20	53.818	53.878	0.111487
30	61.273	61.45	0.288871
40	69.091	69.022	0.099868
50	76.3636	76.594	0.301714
60	84.545	84.765	0.260216

Forward Voltage vs. Forward Current characteristics

Circuit simulation result

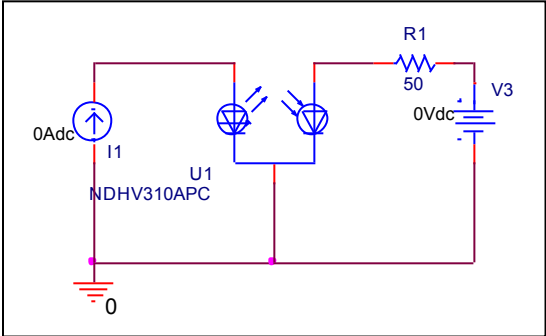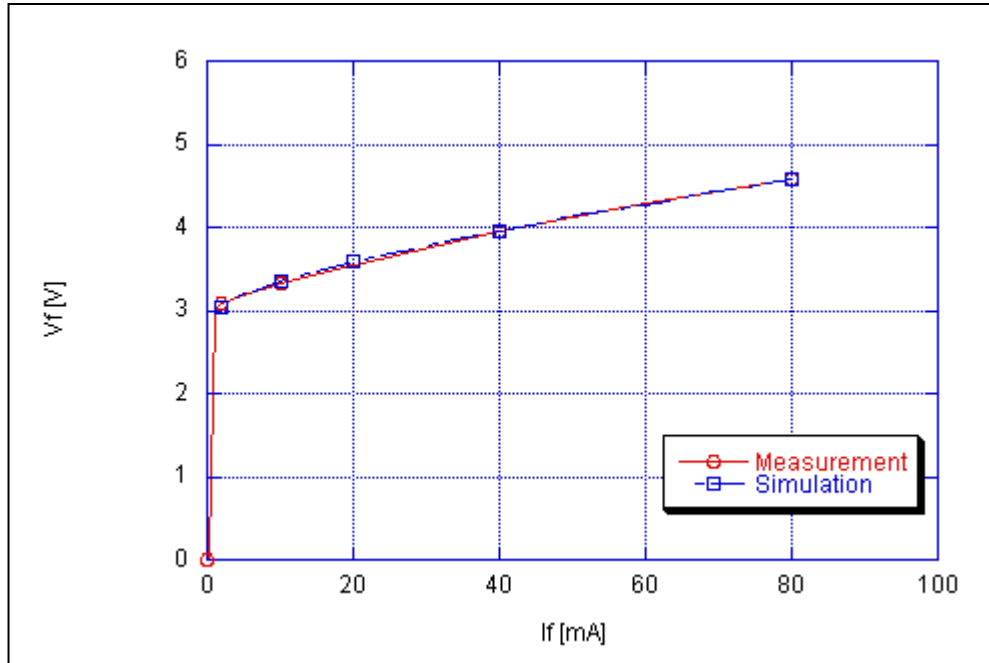Evaluation circuit
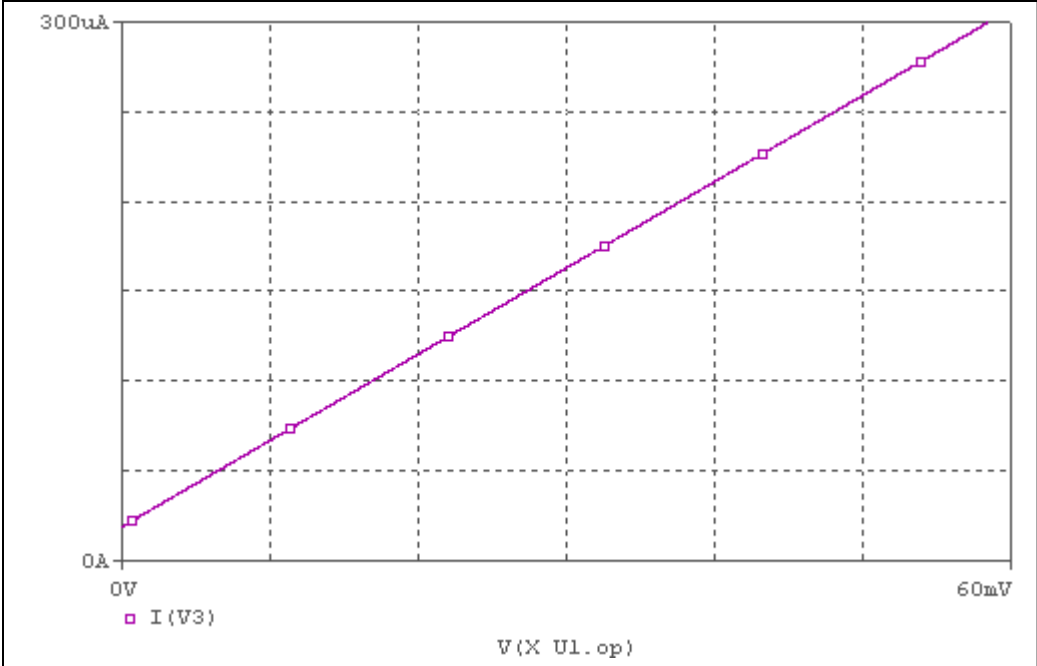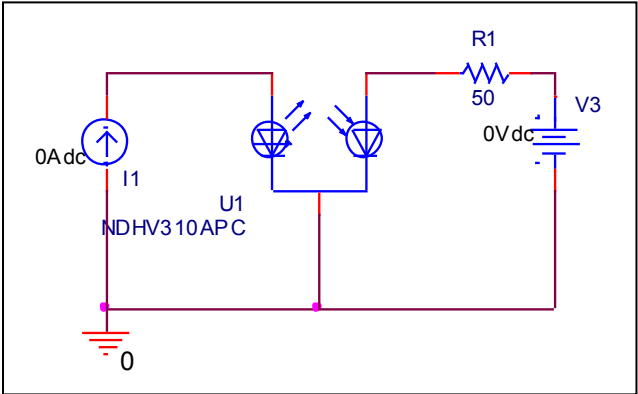
Comparison graph

Simulation Result

If [mA]	Vf [V]		Error (%)
	Measurement	Simulation	
5	3.195	3.2026	0.237872
10	3.333	3.3598	0.80408
20	3.5476	3.5846	1.042959
40	3.952	3.9447	0.184717
60	4.2857	4.2676	0.422335
80	4.57	4.5754	0.118162

Monitor Current vs. Optical Output Power characteristics
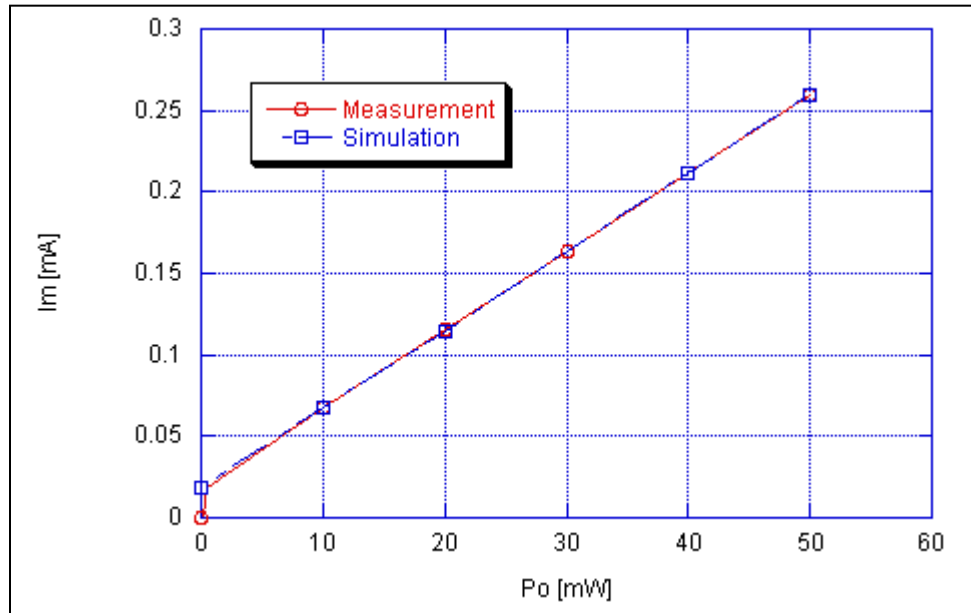
Circuit simulation result

Evaluation circuit

Comparison graph

Simulation Result

Po [mW]	Im [mA]		Error (%)
	Measurement	Simulation	
10	0.06769	0.067152	0.7948
20	0.11538	0.115065	0.273011
30	0.1638	0.163083	0.437729
40	0.211538	0.211101	0.206582
50	0.25923	0.259119	0.042819