



## **Total Partnership, Total Solution**

*KCB brings technology together to solve the most demanding RF product requirements within the Military, Aerospace and Satellite industries.*

### **KCB SOLUTIONS**

## **WOLFSPEED GaN Radiation Qualification Test Report**

**Part Number: CMPA801B025F**

**Disposition: Lot successfully completed radiation testing up to 1000krad without any failures.**

## 1. Summary

This document defines the Radiation Qualification Test requirements and the successful completion of 500 krad (Si) for the Wolfspeed CMPA801B025F, a gallium nitride (GaN) High Electron Mobility Transistor (HEMT) based monolithic microwave integrated circuit (MMIC). This unit is supplied on a screw-down, flange package with a frequency of operation from 8.5 to 11 GHz.

## 2. Reference Documents

- a. MIL-PRF-38534
- b. MIL-STD-883J

## 3. Product Information

- a. Test Vehicle: CMBA801B025F
- b. Product Function/Frequency: 25-W RF Power GaN HEMT 8.5-11 GHz

## 4. Exposure Report

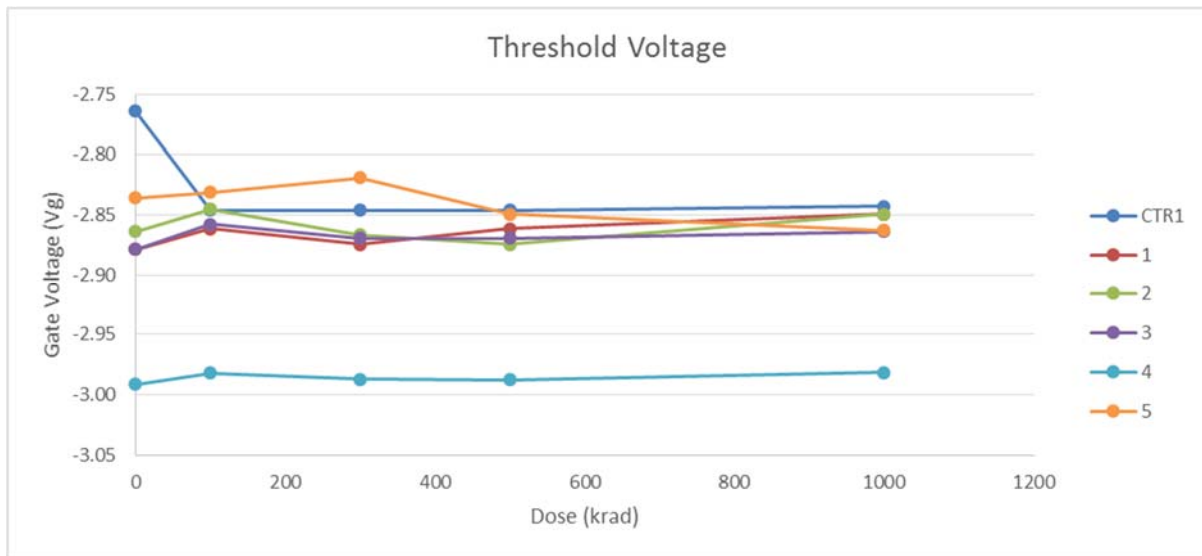
Testing Lab: VPT Rad, Radiation Lab & Test Services, Chelmsford, MA  
 Irradiation Date: November 24-25, 2015  
 Product: CMPA801B025F  
 Source Number: GC 220  
 Dosimetry Equipment: Bruker Biospin escan # 0162  
 Calibration due: (NIST) 03/2017 (Batch # T030901)

## 5. Dosimetry Results:

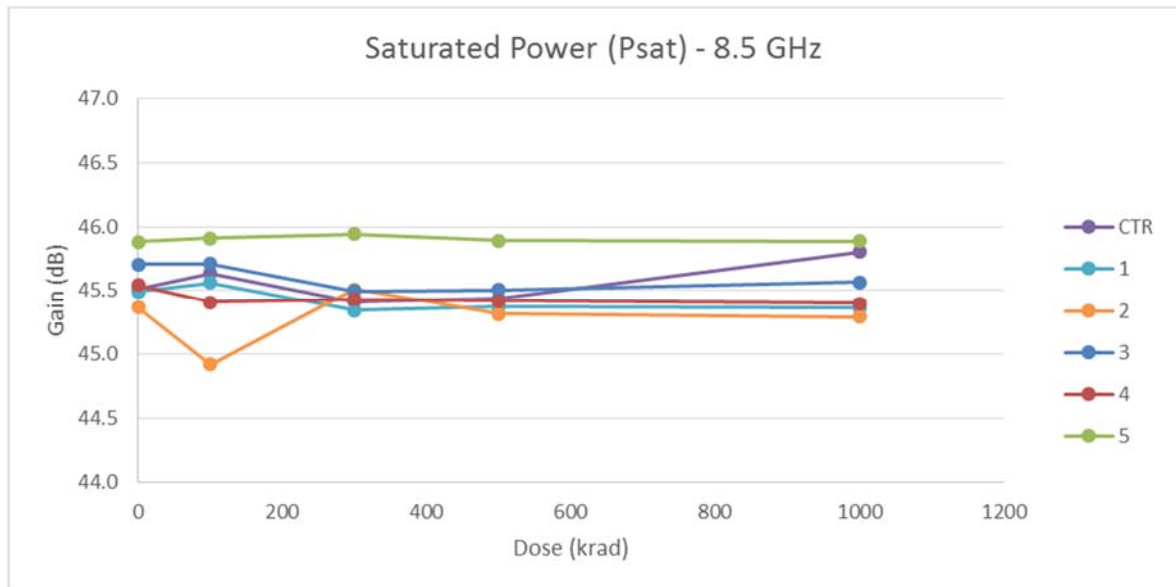
- a. The Irradiation Schedule/Dose Levels are based on the dosimetry map generated on 1/1/2015. The average dose rate is corrected for radiological decay and used to calculate the exposure time for the requested dose levels. The test specimens were exposed in an enclosed Pb/Al container to minimize dose enhancement effects.

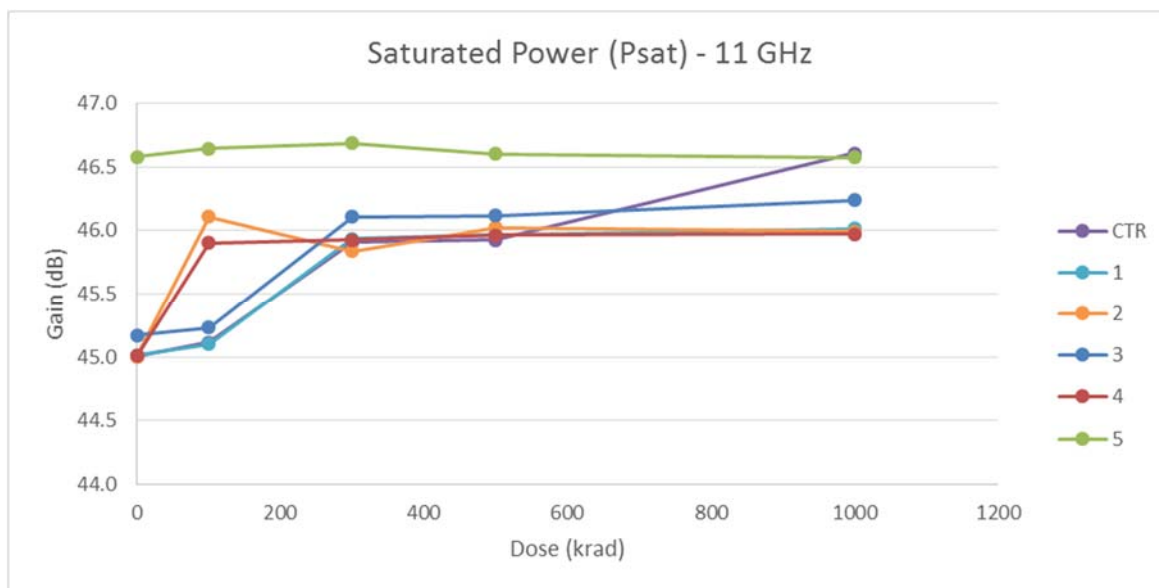
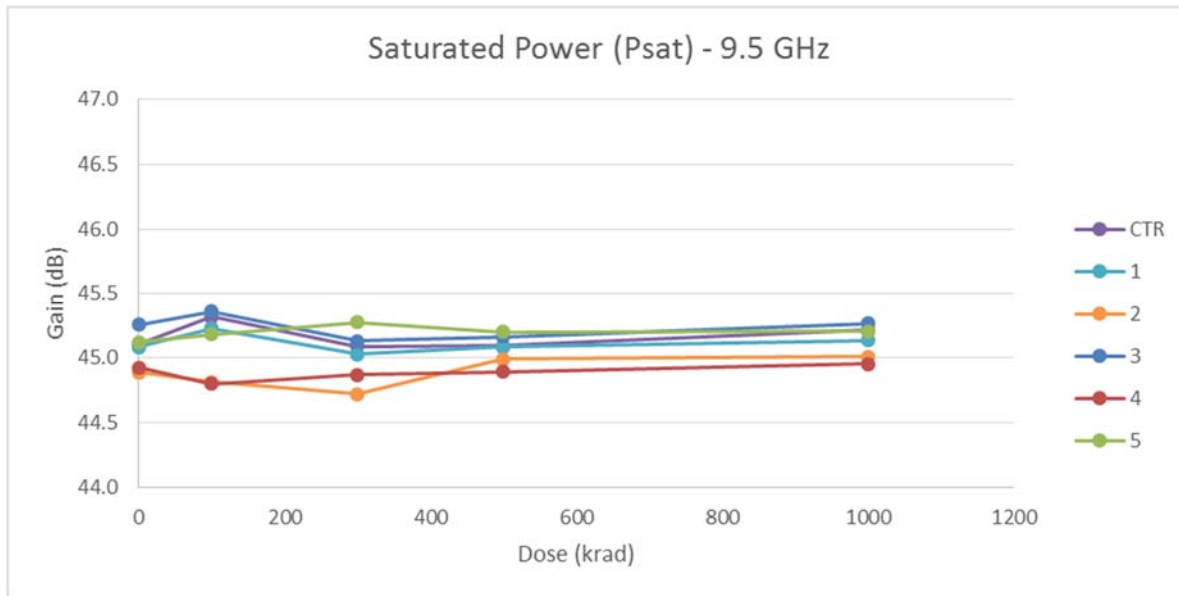
<b>Table 1</b>			
<b>Irradiation Schedule/Dose Levels</b>			
<b>Dose Rate Rad(Si)/sec</b>	<b>hr:min:sec</b>	<b>Incremental Dose Rad(Si)</b>	<b>Cumulative Dose Rad(Si)</b>
142+/-3.0%	0:12:16	103,040	103,040
	0:24:30	205,800	308,840
	0:24:30	205,800	514,600
	1:01:19	515,060	1,029,700

### 6. Test Results – Threshold Voltage

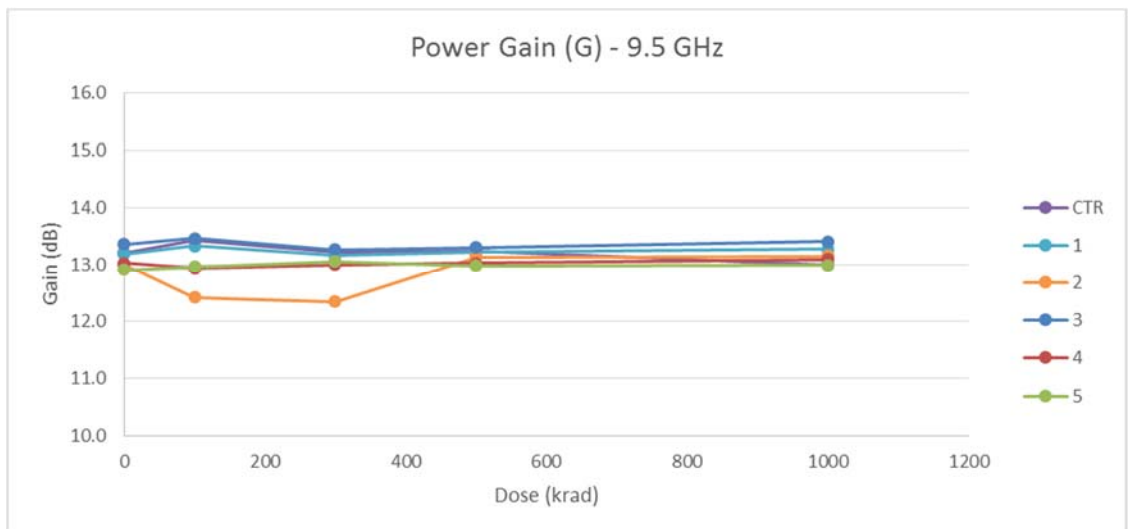
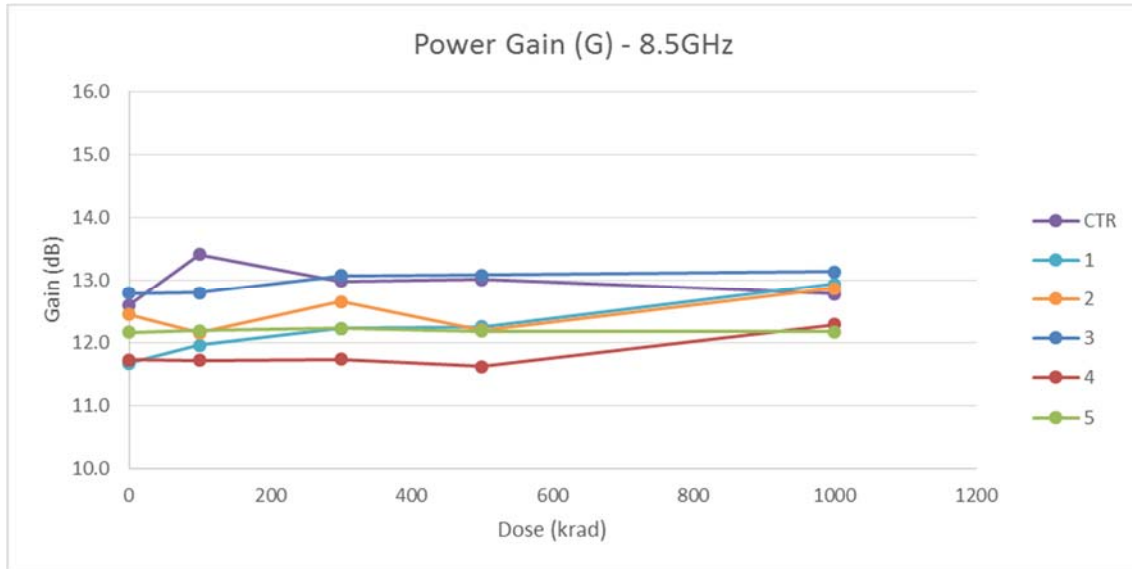


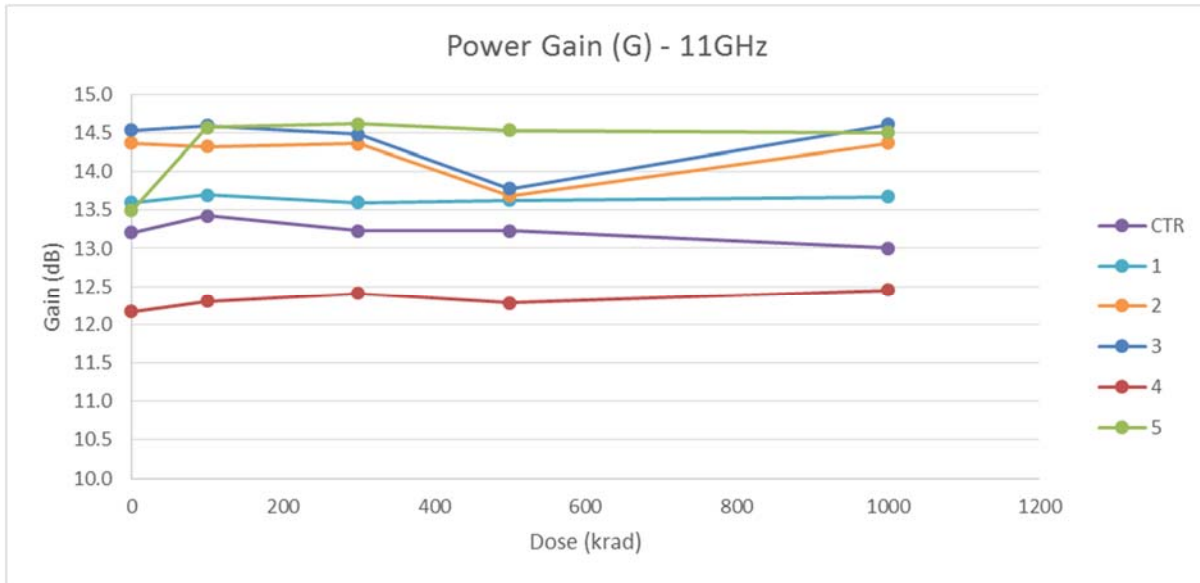
### 7. Test Results – Saturated Output Power (Psat)





### 7. Test Results – Power Gain (G)





**8. Test Results – Drain Efficiency ( $\eta$ )**

