# Article information:

Thermal response for intermodulation distortion components of GaN HEMT for low and high frequency applications - ScienceDirect
[https://www.sciencedirect.com/science/article/pii/S0167931719300577?ref=cra\_js\_challenge=RR-1](https://www.sciencedirect.com/science/article/pii/S0167931719300577?ref=cra_js_challenge&fr=RR-1)

# Article summary:

1. Investigated the thermal effect on intermodulation distortion (IMD) behavior of GaN based high-electron mobility transistor (HEMT).

2. Significant modification observed in terms of magnitude on the linear component and the magnitude as well as the position and appearance of the nulls/notches of the nonlinear components.

3. Output IMDs degrade with increment of temperature and frequency, while notch/null's position of the nonlinear IMDs move following thermal response of threshold voltage.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article “Thermal response for intermodulation distortion components of GaN HEMT for low and high frequency applications” is a comprehensive study that investigates the thermal effect on intermodulation distortion (IMD) behavior of GaN based high-electron mobility transistor (HEMT). The article provides an exhaustive characterization of these nonlinear distortion behaviors which can be beneficial for active device design.

The article is reliable in its presentation, providing detailed information about the fabrication process, measurement technique, and results from experiments conducted to investigate IMD behavior over multi-bias condition, input power, frequency, and temperature. The authors also provide a thorough discussion about their findings which helps to understand their results better.

However, there are some potential biases in this article that should be noted. Firstly, there is no mention or discussion about possible risks associated with using GaN HEMTs in high frequency applications such as communication, radar, satellite etc., which could be important to consider when designing active devices. Secondly, there is no mention or discussion about any counterarguments or alternative solutions to using GaN HEMTs for these applications which could provide a more balanced view on this topic. Lastly, there is no mention or discussion about any potential limitations or drawbacks associated with using GaN HEMTs which could help readers make more informed decisions when considering this technology for their applications.

In conclusion, this article provides a comprehensive overview of thermal response for intermodulation distortion components of GaN HEMT for low and high frequency applications but it does not present both sides equally by failing to discuss possible risks associated with using this technology as well as any counterarguments or alternative solutions that may exist.

# Topics for further research:

* GaN HEMT risks
* GaN HEMT limitations
* GaN HEMT drawbacks
* Alternative solutions for GaN HEMT
* Counterarguments for GaN HEMT
* High frequency applications of GaN HEMT

# Report location:

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