



DIVISION OF
CORPORATION FINANCE

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

September 3, 2013

Via E-mail

Thomas Gutierrez
President and Chief Executive Officer
GT Advanced Technologies Inc.
243 Daniel Webster Highway
Merrimack, NH 03054

**Re: GT Advanced Technologies Inc.
Amendment No. 2 to Registration Statement on Form S-3
Filed August 22, 2013
File No. 333-189170**

Dear Mr. Gutierrez:

We have limited our review of your registration statement to those issues we have addressed in our comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your registration statement and providing the requested information. Where you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

Prospectus Cover

1. We note your revisions in response to prior comment 1; however, when your revised cover is read with the last sentence of footnote (4) to your fee table, it appears that you intend that a varying amount will be deducted from the \$50,000,000 total offering price depending on the price that the selling shareholders receive. The class of securities, number of securities, offering price, and fee payable for the secondary offering must be separately allocated in the fee table, and the size of the primary offering should not depend on that separately allocated amount. Please revise your prospectus cover and fee table footnotes to make clear, if true, that the primary offering is for a maximum of \$35,637,826 of the securities registered for sale. Remove any implication that the primary offering amount is dependent of the selling security holders. In this regard, it appears that footnote 3 in your fee table should not apply to the selling shareholders even though that footnote currently is associated with the "secondary" row of your fee table; please revise or advise.

About This Prospectus, page 1

2. Your response to prior comment 2 addresses only 1,151,792 of the 1,487,604 shares that you say on page 1 of your prospectus are held in escrow. Please expand your response to prior comment 2 to address the balance of the shares held in escrow.

Industry Developments and Impact on our Business, page 2

3. We note that you have deleted the disclosure regarding the percentage decrease in your “PV business” and the amount of your negative bookings. Please restore these disclosures.

Incorporation of Certain Documents by Reference, page 17

4. Please revise to incorporate by reference your August 2, 2013 and August 23, 2013 Form 8-K filings.

Exhibit 5.1

5. We note your revisions to prior comment 4; however, footnote 1 to the fee table does not appear to be limited to conversions into common stock, preferred stock or other debt securities as in clause (iii) of this exhibit. Likewise, the third-to-last bullet point on page 11 contemplates that the debt may be convertible into other securities not addressed in clause (iii) of this exhibit. Please ensure that your fee table includes all securities that you are registering for sale, that exhibit 5.1 clearly addresses each of those securities, and that that your prospectus is consistent with the fee table and exhibit.
6. We note your revisions in response to prior comment 5; however, it is unclear why the penultimate paragraph of this exhibit is necessary or appropriate for the opinion regarding the common stock, including the common stock offered by the selling stockholders. Please advise or file a revised opinion.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and all applicable Securities Act rules require. Since the company and its management are in possession of all facts relating to a company’s disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

Please contact Joseph McCann at (202) 551-6262 or me at (202) 551-3617 with any questions.

Sincerely,

/s/ Russell Mancuso

Russell Mancuso
Branch Chief

cc (via e-mail): Christopher D. Comeau, Esq. – Ropes & Gray LLP