

Little Box Challenge Contest Official Rules

NO PURCHASE NECESSARY TO ENTER OR WIN. VOID WHERE PROHIBITED. CONTEST IS OPEN TO RESIDENTS OF THE 50 UNITED STATES, THE DISTRICT OF COLUMBIA AND WORLDWIDE, EXCEPT FOR ITALY, BRAZIL, QUEBEC, CUBA, IRAN, SYRIA, NORTH KOREA, AND SUDAN. ENTRY IN THIS CONTEST CONSTITUTES YOUR ACCEPTANCE OF THESE OFFICIAL RULES.

The Little Box Challenge (the “Contest”) is a skill contest where entrant(s) must build a 2 kVA DC-AC inverter with a power density exceeding 50 Watts/inch³ that also exceeds performance criteria detailed below. The devices will be evaluated by judges, who will choose the winning entry in accordance with these Official Rules. The prize(s) will be awarded to entrant(s) whose device is evaluated as having the highest score in the judging criteria. See below for the complete details.

1. BINDING AGREEMENT: In order to enter the Contest, you must agree to these Official Rules (“Rules”). Therefore, please read these Rules prior to entry to ensure you understand and agree. You agree that submission of an entry in the Contest constitutes agreement to these Rules. You may not submit an entry to the Contest and are not eligible to receive the prizes described in these Rules unless you agree to these Rules. These Rules form a binding legal agreement between you and Google with respect to the Contest.

2. ELIGIBILITY: To be eligible to enter the Contest, you must be: (1) above the age of majority in the country, state, province or jurisdiction of residence (or at least twenty years old in Taiwan) at the time of entry; (2) not a resident of Italy, Brazil, Quebec, Cuba, Iran, Syria, North Korea, or Sudan; (3) not a person or entity under U.S. export controls or sanctions; and (4) have access to the Internet as of July 22, 2014. Contest is void in Italy, Brazil, Quebec, Cuba, Iran, Syria, North Korea, Sudan, and where prohibited by law. Employees, interns, contractors, and official office-holders of Google, employees of IEEE, and any companies affiliated with providing material or testing for this Contest (as further detailed below) and their parent companies, subsidiaries, affiliates, and their respective directors, officers, employees, advertising and promotion agencies, representatives, and agents (“Contest Entities”), and members of the Contest Entities’ and their immediate families (parents, siblings, children, spouses, and life partners of each, regardless of where they live) and members of the households (whether related or not) of such employees, officers and directors are ineligible to participate in this Contest. Sponsor reserves the right to verify eligibility and to adjudicate on any dispute at any time.

Specifically, the groups that are also ineligible to enter the Contest either as being designated as part of a team, or being promised a share of the prize money:

- Wide bandgap semiconductor switching manufacturers who are linked to from Contest Site.
- Anyone serving as a judge for any stage of the Contest, including without limitation review for grants, technical approach and testing application and/or final inverter testing.
- Anyone who performed a final evaluation of the prize specifications and testing procedure under

Non-Disclosure Agreement with the Sponsor.

If you are entering this Contest as part of a company or on behalf of your employer, these rules are binding on you, individually, and/or your employer. If you are acting within the scope of your employment, as an employee, contractor, or agent of another party, you warrant that such party has full knowledge of your actions and has consented thereto, including your potential receipt of a prize. You further warrant that your actions do not violate your employer's or company's policies and procedures.

3. SPONSOR: The Contest is sponsored by Google Inc. a Delaware corporation with principal place of business at 1600 Amphitheater Parkway, Mountain View, CA, 94043, USA, and the Institute of Electrical and Electronic Engineers ("IEEE") collectively called ("Sponsor or Sponsors").

4. CONTEST PERIOD: The Contest begins at 12:00:00 A.M. Pacific Time (PT) Zone in the United States on July, 22, 2014 and ends at 11:59:59 P.M. PT on July 22, 2015 ("Contest Period"). *ENTRANTS ARE RESPONSIBLE FOR DETERMINING THE CORRESPONDING TIME ZONE IN THEIR RESPECTIVE JURISDICTIONS.*

5. HOW TO ENTER: NO PURCHASE NECESSARY TO ENTER OR WIN. To enter the Contest, visit the Contest website located at www.littleboxchallenge.com ("Contest Site"). You will need to:

- Register yourself and name all team members ("Entrant or Team") using the online registration form on the Contest Site by September 30, 2014 ("Registration Period"). There can only be one point of contact listed for the Team. The point of contact will be responsible for interacting with Sponsors and will be in charge of organizing their own Team. Maximum amount of team members to one Team is ten (10). Your Team may share your prize money and/or get input from as many people as you like, as long as it does not violate other clauses of these T&Cs. Up until your testing application submission on July 22, 2015, you may remove or add Team members so long as the point of contact who originally registers the Team, remains the same name.
- Submit a technical approach and testing application by July 22, 2015.
- If chosen as one of up to 18 finalists, you need to deliver your inverter ("Device") in person to the designated testing facility, which will be in the United States ("Testing Site") by October 21, 2015. You must have a person deliver the device on behalf of your Team as long as you notify Sponsor prior to delivery who this person will be. You are responsible for paying your own trip to deliver the Device, organizing any travel logistics, clearing any visa requirements, and clearing import or hazard issues when transporting the Device. The Device may not be delivered via a mailing service (E.G. FedEx, DHL etc).
- You will also be responsible for picking up the Device from the Testing Site after the end of the testing period and announcement of the winner, projected to be in January or February of 2016 and any Devices remaining at the Testing Site more than thirty (30) days after such period may be disposed of and you will be liable for any costs incurred for such disposal.

LIMIT ONE (1) ENTRY PER ENTRANT OR TEAM. No person can be listed on more than one Team. If any person is listed on multiple Teams, Google reserves the right to disqualify the Team or provide an opportunity for the Team to remove the person. If more than one Team promises to share its prize money with the same individual, both the Teams and the individual may be disqualified. Subsequent entries may also be disqualified. Entries may be voided if they are illegible, incomplete, damaged, cannot be safely operated in the opinion of the judges (defined below), do not meet the Device Requirements described below, counterfeited, obtained through fraud, early, or late.

Devices will only be accepted from October 14-21, 2015, during business hours and will not be accepted from anyone who did not register as an Entrant during the Registration Period.

6. DEVICE REQUIREMENTS. The Device must meet the following criteria:

- (a) It must not be derogatory, offensive, threatening, defamatory, disparaging, libelous or contain any content that is inappropriate, indecent, sexual, profane, indecent, tortuous, slanderous, discriminatory in any way, or that promotes hatred or harm against any group or person, or otherwise does not comply with the theme and spirit of the Contest.
- (b) It must not contain content, material or any element that is unlawful, or otherwise in violation of or contrary to all applicable federal, state, provincial or local laws and regulations the laws or regulations in any state where Device is created.
- (c) It must not contain any content, material or element that displays any third party advertising, slogan, logo, trademark or otherwise indicates a sponsorship or endorsement by a third party, commercial entity or that is not within the spirit of the Contest, as determined by Sponsor, in its sole discretion.
- (d) It must be an original work that does not contain, incorporate or otherwise use any content, material or element owned by a third party, except in the case where Entrant has received permission from the third party to use or incorporate such content into their Device.
- (e) It cannot contain any content, element, or material that violates a third party's publicity, privacy or intellectual property rights.
- (f) The Device must be able to perform the following requirements over a testing period of at least 100 hours:
 - Accept an input voltage from a 450 Volts DC supply in series with a 10 Ω resistor
 - Produce an output voltage of 240 Volts RMS +/- 12 Volts RMS AC between two terminals
 - Serve a simulated residential load profile varying between 0 - 2 kVA
 - Produce a total harmonic distortion plus noise (THD+N) of < 5%
 - Produce a DC-AC conversion efficiency of > 95%
 - Produce an input ripple current of < 20% ($I_{\text{peak-peak}}/I_{\text{avg}}$)
 - Produce an input ripple voltage of < 3% ($V_{\text{peak-peak}}/V_{\text{avg}}$)
 - Be fully contained in a rectangular metal enclosure of volume not to exceed 40 inches³.

- Never exceed a temperature of 60°C on any point on the outside of the device that can be touched during operation at an ambient temperature of 15°C-30°C
- Adhere to Electromagnetic Compatibility Requirements as specified in FCC Part 15 B

Note that these are just the high level requirements for the Device performance. Entrants must refer to additional external requirement documents (such as the Detailed Inverter Specifications, Testing Procedure and Technical Approach/Testing Application submission guidelines) located on Contest Site for more details on these requirements.

During the Contest Period, the Sponsor, its agents and/or the judges (defined below) will be evaluating each Device to ensure that it meets the Device Requirements. The Sponsor reserves the right, in its sole discretion, to disqualify any Entrant who submits a Device that does not meet the Device Requirements.

The evaluation of the Devices will occur in two separate stages.

The first evaluation stage is through the review of a technical approach and testing application submission. Entrants must submit a technical approach and testing application electronically in pdf form, following instructions sent to each Team's registration email, on or before July 22, 2015.

The technical approach document must summarize, at a high level, the approach taken by the Team to build a high power density inverter meeting all the Device Requirements. Entrants are permitted to withhold confidential information which they regard as trade secrets, but must provide enough context for those reading their submission to understand what breakthroughs beyond conventional inverter design have allowed these high power densities. Failure to provide sufficient explanation of the approach will result in disqualification, regardless of Device performance. As described elsewhere, the Sponsor reserves the right to make some, all, or none of the technical approach documents public at the end of the competition.

The testing application must also be submitted at the same time as the technical approach document. The testing application contains information demonstrating the existence, viability and performance of the Device. Requirements include performance specifications, as measured and self reported by the Entrant, including performance data submitted in the form of high time resolution voltage and current waveforms and longer duration lower time resolution average voltage and current measurements. Photos of the Device are also required (see Contest Site and Detailed Testing Application Requirements for more details).

Of the technical approach and testing application submissions that are deemed to have met all the submission requirements, up to 18 of the applications that are deemed to have displayed compliance on all the performance criteria and have the highest stated power densities (i.e. smallest enclosure volumes) will be selected to proceed to the final testing phase.

More details on the requirements for the Technical Approach and Testing Application documents can be found in external documents (such as the Detailed Inverter Specifications, Testing Procedure and Technical Approach/Testing Application submission guidelines) located on Contest Site.

The second evaluation stage will occur at the Testing Facility beginning on or around October 21, 2015.

Each Device will be tested using the procedure outlined in external documents (such as the Detailed Inverter Specifications, Testing Procedure and Technical Approach/Testing Application submission guidelines) located on Contest Site. Each Device will be tested for approximately 100 hours to gather data on the performance characteristics relevant to the competition. The Sponsor retains the right at its sole discretion to change the testing procedure due to unforeseen or mitigating circumstances. The testing results will be made available to the Judges who will use this to determine the winner.

7. JUDGING: Each entry will be judged by a panel of experts who are employees of Sponsor and/or appointed by Google and the IEEE Power Electronics Society (“Judges”). This panel will make a set of non-binding recommendations to Google who will then, at its sole discretion, determine the winner, if any, of the prize. Beginning with the Technical Approach and Testing Application submission deadline on July 22, 2015, Technical Approach and Testing Application submission documents will be evaluated for a period of approximately eight (8) weeks. Up to eighteen (18) finalists will then be announced on or around September 16, 2015 and invited to the testing facility in the United States for final testing.

On or about October 21, 2015, each Device will be tested at the testing facility and subsequently evaluated by the Judges. The testing period will last for approximately ten to fifteen (10-15) weeks depending on the number of finalist inverter entries received. Judges will evaluate the Devices based on how well the Device meets the Device Requirements, including how well it is able to:

- Accept an input voltage from a 450 Volts DC supply in series with a 10 Ω resistor
- Produce an output voltage of 240 Volts RMS +/- 12 Volts RMS AC between two terminals
- Serve a simulated residential load profile varying between 0 - 2kVA.
- Produce a total harmonic distortion + noise (THD+N) of < 5%
- Produce a DC-AC conversion efficiency of > 95%.
- Produce an input ripple current of < 20% ($I_{\text{peak-peak}}/I_{\text{avg}}$)
- Produce an input ripple voltage of < 3% ($V_{\text{peak-peak}}/V_{\text{avg}}$)
- Be fully contained in a rectangular metal enclosure of volume not to exceed 40 inches³.
- Never exceed a temperature of 60°C on any point on the outside of the device that can be touched during operation at an ambient temperature of 15°C-30°C
- Adhere to Electromagnetic Compatibility Requirements as specified in FCC Part 15.

Note that these are just the high level specifications for the inverter performance. Entrants must refer to additional external requirement documents (such as the Detailed Inverter Specifications, Testing Procedure, and Technical Approach and Testing Application submission guidelines) located on Contest Site for more details on these requirements and judging criteria.

If no Device meets the Requirements, no prize will be awarded. If one Device meets the Requirements, its Entrant will be declared the winner. If more than one Device meets the Requirements, the winner shall be the Device that can fit into the smallest rectangular enclosure and thus has the highest power density. In the event that the volume of two or more Entrants is deemed identical the winner will then be based on the Device with the higher DC-AC efficiency.

On or around January 2016, the potential winner(s) will be selected and notified by telephone and/or email, at Sponsor's discretion. If a potential winner does not respond to the notification attempt within 5 days from the first notification attempt, then such potential winner will be disqualified and an alternate potential winner (if any) will be selected from among all eligible entries received based on the judging criteria described herein. With respect to notification by telephone, such notification will be deemed given when the potential winner engages in a live conversation with Sponsor or when a message is left on the potential winner's voicemail service or answering machine by the Sponsor, whichever occurs first. Except where prohibited by law, each potential winner may be required to sign and return a Declaration of Eligibility and Liability and Publicity Release and provide any additional information that may be required by Sponsor. If required, potential winners must return all such required documents within 5 days following attempted notification or such potential winner will be deemed to have forfeited the prize and another potential winner will be selected based on the judging criteria described herein. All notification requirements, as well as other requirements within these Rules, will be strictly enforced.

Both the Judges and Google may, at their sole discretion, recommend and/or choose to award the prize to an entry which does not strictly meet all the requirements, but is deemed to have superior overall performance to the other submissions and embody the advances and spirit of innovation sought by the prize.

In the event that no Devices are received, no prize will be awarded. Determinations by Google, taking into account the non-binding recommendations of the judges, are final and binding. Google reserves the right to cancel this Contest at anytime and reserves the right to not award any prize if the Contest is cancelled.

8. PRIZES: One (1) Team will be chosen and awarded one million (\$1M) dollars. The prize money will be given in its entirety to the point of contact listed for the winning team. That point of contact is responsible for dividing the prize money amongst other Team members.

Odds of winning any prize depends on the number of eligible entries received during the Contest Period and the skill of the Entrants. The prize will be awarded within approximately 8 weeks of receipt by Sponsor of

final prize acceptance documents. No transfer, substitution or cash equivalent for prize is allowed, except at Sponsor's sole discretion. Sponsor reserves the right to substitute a prize, in whole or in part, of equal or greater monetary value if a prize cannot be awarded, in whole or in part, as described for any reason. Value is subject to market conditions, which can fluctuate and any difference between actual market value and ARV will not be awarded. The prize may be subject to restrictions and/or licenses and may require additional hardware, software, service, or maintenance to use. The winner shall bear all responsibility for use of the prize in compliance with any conditions imposed by such manufacturer(s), and any additional costs associated with its use, service, or maintenance. Contest Entities have not made and Contest Entities are not responsible in any manner for any warranties, representations, or guarantees, express or implied, in fact or law, relating to the prize, regarding the use, value or enjoyment of the prize, including, without limitation, its quality, mechanical condition, merchantability, or fitness for a particular purpose.

10. TAXES: PAYMENTS TO POTENTIAL WINNERS ARE SUBJECT TO THE EXPRESS REQUIREMENT THAT THEY SUBMIT TO GOOGLE ALL DOCUMENTATION REQUESTED BY GOOGLE TO PERMIT IT TO COMPLY WITH ALL APPLICABLE STATE, FEDERAL, LOCAL, PROVINCIAL AND FOREIGN TAX REPORTING AND WITHHOLDING REQUIREMENTS. ALL PRIZES WILL BE NET OF ANY TAXES GOOGLE IS REQUIRED BY LAW TO WITHHOLD. ALL TAXES IMPOSED ON PRIZES ARE THE SOLE RESPONSIBILITY OF THE WINNERS. In order to receive a prize, potential winners must submit the tax documentation requested by Google or otherwise required by applicable law, to Google or the relevant tax authority, all as determined by applicable law, including, where relevant, the law of the potential winner's country of residence. The potential winner is responsible for ensuring that (s)he complies with all the applicable tax laws and filing requirements. If a potential winner fails to provide such documentation or comply with such laws, the prize may be forfeited and Google may, in its sole discretion, select an alternative potential winner.

11. GENERAL CONDITIONS: All federal, state, provincial and local laws and regulations apply. Google reserves the right to disqualify any Entrant from the Contest if, in Google's sole discretion, it reasonably believes that the Entrant has attempted to undermine the legitimate operation of the Contest by cheating, deception, or other unfair playing practices or annoys, abuses, threatens or harasses any other Entrants, Google, or the Judges.

Sponsors testing of the Devices for purposes of the Contest should not be considered any warrant or assurance of the safety of the Device.

12. INTELLECTUAL PROPERTY RIGHTS: As between Google and the Entrant, the Entrant retains ownership of all intellectual and industrial property rights (including moral rights) in and to the Device. As a condition of entry, Entrant grants Google, its subsidiaries, agents and partner companies, a perpetual, irrevocable, worldwide, royalty-free, and non-exclusive license to use, reproduce, adapt, modify, publish, distribute, publicly perform, create a derivative work from, and publicly display the Device (1) for the

purposes of allowing Google and the Judges to evaluate and test the Device for purposes of the Contest, and (2) in connection with advertising and promotion via communication to the public or other groups, including, but not limited to, the right to make screenshots, animations and device clips available for promotional purposes. As stated elsewhere in these Rules, the Sponsor reserves the right to make public any technical approach document submitted to the competition.

13. PRIVACY: Entrant acknowledges and agrees that Google may collect, store, share and otherwise use personally identifiable information provided during the registration process and the Contest, including, but not limited to, name, mailing address, phone number, and email address. Google will use this information in accordance with its Privacy Policy (<http://www.google.com/policies/privacy/>), including for administering the Contest and verifying Entrant's identity, postal address and telephone number in the event an entry qualifies for a prize.

Entrant's information may also be transferred to countries outside the country of Entrant's residence, including the United States. Such other countries may not have privacy laws and regulations similar to those of the country of Entrant's residence.

If an Entrant does not provide the mandatory data required at registration, Google reserves the right to disqualify the entry.

Entrant has the right to request access, review, rectification or deletion of any personal data held by Google in connection with the Contest by writing to Google at this email address datarequest@littleboxchallenge.com.

14. PUBLICITY. By accepting a prize, Entrant agrees to Sponsor and its agencies use of his or her name and/or likeness and Device for advertising and promotional purposes without additional compensation, unless prohibited by law. Google may choose to make public some or all of the Teams' high-level technical approach documents.

15. WARRANTY AND INDEMNITY: Entrants warrant that their Devices are their own original work and, as such, they are the sole and exclusive owner and rights holder of the submitted device and that they have the right to submit the Device in the Contest and grant all required licenses, except if the Device includes third party intellectual property, the Entrants have acquired the necessary licenses and rights to include such rights in their Device. Each Entrant agrees not to submit any Device that (1) infringes any third party proprietary rights, intellectual property rights, industrial property rights, personal or moral rights or any other rights, including without limitation, copyright, trademark, patent, trade secret, privacy, publicity or confidentiality obligations, except in the case stated above where Entrant has obtained permission from a third party to include such rights; or (2) otherwise violates the applicable state, federal, provincial or local law.

To the maximum extent permitted by law, each Entrant indemnifies and agrees to keep indemnified Contest Entities at all times from and against any liability, claims, demands, losses, damages, costs and expenses

resulting from any act, default or omission of the Entrant and/or a breach of any warranty set forth herein. To the maximum extent permitted by law, each Entrant agrees to defend, indemnify and hold harmless the Contest Entities from and against any and all claims, actions, suits or proceedings, as well as any and all losses, liabilities, damages, costs and expenses (including reasonable attorneys fees) arising out of or accruing from (a) any Device or other material uploaded or otherwise provided by the Entrant that infringes any copyright, trademark, trade secret, trade dress, patent or other intellectual property right of any person or defames any person or violates their rights of publicity or privacy, (b) any misrepresentation made by the Entrant in connection with the Contest; (c) any non-compliance by the Entrant with these Rules; (d) claims brought by persons or entities other than the parties to these Rules arising from or related to the Entrant's involvement with the Contest; (e) acceptance, possession, misuse or use of any prize or participation in any Contest-related activity or participation in this Contest; (f) any malfunction or other problem with the Device or the Contest Site; (g) any error in the collection, processing, or retention of entry information; or (h) any typographical or other error in the printing, offering or announcement of any prize or winners.

16. ELIMINATION: Any false information provided within the context of the Contest by any Entrant concerning identity, mailing address, telephone number, email address, ownership of right or non-compliance with these Rules or the like may result in the immediate elimination of the Entrant from the Contest.

17. INTERNET: Contest Entities are not responsible for any malfunction of the entire Contest Site or any late, lost, damaged, misdirected, incomplete, illegible, undeliverable, or destroyed Devices due to system errors, failed, incomplete or garbled computer or other telecommunication transmission malfunctions, hardware or software failures of any kind, lost or unavailable network connections, typographical or system/human errors and failures, technical malfunction(s) of any telephone network or lines, cable connections, satellite transmissions, servers or providers, or computer equipment, traffic congestion on the Internet or at the Contest Site, or any combination thereof, including other telecommunication, cable, digital or satellite malfunctions which may limit an Entrant's ability to participate.

18. RIGHT TO CANCEL, MODIFY OR DISQUALIFY. If for any reason the Contest is not capable of running as planned, including but not limited to infection by computer virus, bugs, tampering, unauthorized intervention, fraud, technical failures, or any other causes which corrupt or affect the administration, security, fairness, integrity, or proper conduct of the Contest, Google reserves the right at its sole discretion to cancel, terminate, modify or suspend the Contest. Google further reserves the right to disqualify any Entrant who tampers with the submission process or any other part of the Contest or Contest Site. Any attempt by an Entrant to deliberately damage any web site, including the Contest Site, or undermine the legitimate operation of the Contest is a violation of criminal and civil laws and should such an attempt be made, Google reserves the right to seek damages from any such Entrant to the fullest extent of the applicable law.

19. NOT AN OFFER OR CONTRACT OF EMPLOYMENT: Under no circumstances shall the submission of a Device into the Contest, the awarding of a prize, or anything in these Rules be construed as an offer or contract of employment with either Google, or the Contest Entities. You acknowledge that you have submitted your Device voluntarily and not in confidence or in trust. You acknowledge that no confidential, fiduciary, agency or other relationship or implied-in-fact contract now exists between you and Google or the Contest Entities and that no such relationship is established by your submission of a Device under these Rules.

20. FORUM AND RECOURSE TO JUDICIAL PROCEDURES: These Rules shall be governed by, subject to, and construed in accordance with the laws of the State of California, United States of America, excluding all conflict of law rules. If any provision(s) of these Rules are held to be invalid or unenforceable, all remaining provisions hereof will remain in full force and effect. To the extent permitted by law, the rights to litigate, seek injunctive relief or make any other recourse to judicial or any other procedure in case of disputes or claims resulting from or in connection with this Contest are hereby excluded, and all Entrants' expressly waive any and all such rights.

21. ARBITRATION: By entering the Contest, you agree that exclusive jurisdiction for any dispute, claim, or demand related in any way to the Contest will be decided by binding arbitration. All disputes between you and Google of whatsoever kind or nature arising out of these Rules, shall be submitted to Judicial Arbitration and Mediation Services, Inc. ("JAMS") for binding arbitration under its rules then in effect in the San Jose, California, USA area, before one arbitrator to be mutually agreed upon by both parties. The parties agree to share equally in the arbitration costs incurred.

22. WINNER'S LIST: The winner list will be posted on the prize website littleboxchallenge.com for a period of at least 6 months after the prize is awarded, on or around January 2016.