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Dear Editor,

Please find attached our manuscript titled “**Path Loss Modelling for High Speed Rail in 5G Communication System**“ for possible publication in *International Journal of Technology*. The novelties and significance of this work are highlighted below:

Challenges in the field of 5G - HSR

- Safety-critical train operations require an evolution. The widely used GSM-R has already a predicted obsolescence by 2030. Keeping in the mind in five years, standard migration in rail industry will need a next-generation solution by 2025 and the better connectivity of the upcoming 5G connection requires a comprehensive knowledge of path loss to design optimal telecommunication link budget.
- A traditional existed path loss prediction is mostly conducted for cellular networks even for 5G utilization. However, for 5G-HSR scenario, high velocity and specifically 5G high allocation spectrum (26 Ghz) utilized in this study require an unusual approach which is differ from the existing traditional methods.
- Difficulties in conducting measurement data is one of the major problems since it is hard to know in what kind of propagation and attenuation experienced by 5G-HSR

Advances or new findings demonstrated in this study:

- This study proposes a **new path loss model for Line of Sight Scenario in 5G-HSR Communication System** as the typical infrastructure of HSR. Unfortunately, there are 3 unknown parameters existed from the constructed model because of some measurement difficulties conducted in the field.
- Therefore, Generalized Reduced Gradient (GRG), Genetic Algorithm (GA) are applied to find not only the unknown parameters but also to validate the accuracy of the new path loss model for 5G-HSR for Line of Sight scenario.
- The almost similar objective functions yielded from this study strengthen the accuracy of new path loss model and we ensure that this proposed model is applicable for designing the future dense of wireless communication infrastructures for high speed rail in 5G communication network.

Therefore, we strongly hope that you would consider this manuscript for possible publication in *International Journal of Technology*. Finally, the manuscript, or its contents in some other form, has not been published previously by any of the authors and/or is not under consideration for publication in another journal at the time of submission. Thank you

First author:



Selvi Lukman
Faculty of Industrial Technology,
Engineering Physics Department
Lab. Tek. VI Jl. Ganesha 10 Bandung, 40132 Indonesia
Phone: +62 22 2504424 ext 132
Fax: +62 22 2506281
Email: lukmansylvia@gmail.com ;
sylvia_lukman@students.itb.ac.d
Mobile: +6281804138888