Memorandum of Understanding

between

TDR Foundation

&

Jaypee Institute of Information Technology

(For Collaborative Projects and Research-based Knowledge Sharing)

This Memorandum of Understanding (hereinafter referred to as MoU) is made on *the 1st* day of the month of August in the year 2023 by **TDR Foundation, having registered office at Unit no 005, US Complex, 120 Mathura road, New Delhi 110076** [hereinafter called the First party], on the ONE PART and the Jaypee Institute of **Information Technology, A-10, Sector-62, Noida-201309, Uttar Pradesh,[hereby** called Second party] who for the purpose of this MoU are hereinafter collectively referred to as the parties.

The parties, having discussed fields of common research interests and allied activities between the two, have decided to enter into long-term collaboration for the promotion of research and development in cutting-edge areas of Engineering and Technology in accordance with the provisions contained in the Guidelines issued *by head offices of both the parties* and as revised from time to time.

WHEREAS the **"First Party"** established as **NGO** vide UID No: DL/2021/0279437 *dated 02 July 2020* is involved in the development of innovative technologies across different verticals.

AND WHEREAS the **"Second Party"** is involved in research and education in the areas of Science, Engineering, and Technology.

AND WHEREAS it has been considered expedient to agree in writing to participate jointly in the upcoming project, requiring both parties' expertise. **The details of Joint Project are included as in Annexure (attached).**

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Article 1. Terms & Conditions

1.1 In the case of research work resulting in new patent /publication. authors/inventors will be from both parties.

1.2 Operational details of research effort and collaboration will be made in common research areas/ programs and/or projects restricted to the specific mandated domains within the approved disciplines/divisions.

1.3 The costs of specific consumables/operational costs of the equipment will be borne by the respective organizations as per mutual discussions, etc.

1.4 The first party will visit JIIT to interact with a nominated students/faculty. These students will be selected by JIIT based on the selection process involving resume filtering and interview/other criteria, of the second party. This can, be repeated in subsequent years, depending upon the requirements of the project. No new MOU document would be required to be signed in such a case, specifically for this purpose.

Article 2. Management

2.1 Chairman Radio Group of the First party and the Head of the Institution of the Second party will be responsible for working out the operational details of cooperation between the two organizations and ensuring proper and effective implementation of this MOU.

Article 3. Exchange of Information

3.1. The term "information" includes scientific or technical data, results and/or methods of investigation, and other information intended to be provided, exchanged, or arising under project descriptions entered into pursuant to this MOU.

3.2. The parties support the widest possible dissemination of information. However, looking at the nature of the work of the First party, Non-Disclosure Agreements (NDAs) might need to be signed with the Second party based on the criticality of the projects in consideration.

3.3. In case of the possibility of publication of a joint work, the decision will be taken by mutual understanding. Although such publications of research work are highly encouraged by both parties, in no case, the Second party will publish any jointly executed work without the written consent of the First party.

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Article 4. General Provisions

4.1 It is understood that the First Party and the Second Party subscribe to the principle of equal opportunity and do not discriminate on the basis of race, sex, age, caste, or religion. Both institutions shall abide by these principles in the administration of this agreement and neither party shall impose criteria for the exchange of scholars or students, which violate principles of non-discrimination.

4.2 Both parties acknowledge that the timely progress of the project is paramount and shall comply with the regulations and policies of the First party and the Second party.

4.3 Any research publications arising will be published only with the express permission of the first party with the provisions for the students to conduct research for their respective degree program limited to be part of JIIT internal assessment, as may be permitted by first party from time to time.

4.4 No part of the work done in collaboration with JIIT Noida will be published in print/ electronic media in any form without the prior written consent of First party.

4.5 All questions related to this MOU arising during its term will be settled by the parties by mutual agreement. Disagreements at the operating level shall be forwarded to respective higher officials for appropriate resolution, failing which an arbitrator of mutual acceptance may be identified for the settlement of the dispute, if any.

4.6 Either party will handle all questions not foreseen related to this MOU by mutual agreement.

4.7 Nothing in this MOU is intended to affect other cooperation or collaboration between the parties.

Article 5. Intellectual Property Rights

5.1 Both parties will be expected to ensure the protection of the Intellectual Property Rights of each other or generated or likely to be generated during the student's research work. Both parties shall be joint applicants for any of the IPRs likely to be generated as collaborative research work.

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5.2 On completion of project and full and final settlement of all outstanding dues the Firmware will become absolute property of the first party. First party will be free to use it for any further enhancements/modifications on its own.

Article 6. Entry Into effect, modification, termination, and jurisdiction

6.1 This MOU shall become effective on the date it is signed by the parties and shall be valid for one year. Both parties shall review the status of the MOU at the end of each quarter to determine any modification, whenever necessary. The period of validity of this MOU may be extended by mutual consent up to two years. **N**on **D**isclosure **A**greement (**NDA**) will survive completion/termination of this MOU for five years beyond the Last working day of this MOU. This MOU may be amended by mutual written agreement at any time by either party upon written notification signed by the competent authority of the party initiating termination, Such notification must be given to the other party at least three months in advance from the effective date of termination.

6.2 Dean (Academic and Research), JIIT Noida, and Chairman Radio Group, TDR Foundation, will have the discretion to terminate this MOU at any tune without citing any reason and vice- versa.

6.3 All joint activities not completed at the expiration or termination of the MOU may be continued until their completion under the terms of this MOU.

6.4 No amendment or modification of the MOU shall be valid unless the same is made in writing by both the parties or their authorized representatives and specifically stating the same to be the amendment of the MOU. The modifications/changes shall become part of the MOU and shall be effective from the date on which they are made/executed unless otherwise agreed to.

6.5 For all legal matters the jurisdiction of this agreement shall be Delhi/Noida.

This MOU has been executed in two originals, one of which has been retained by the First party and the other by the Second party).

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IN WITNESS WHEREOF, the parties have executed this MOU and represent that they approve, accept, and agree to the terms contained herein.

Name and Address of the First Party

01/08/23

Mr. O K Sharma
Chairman Radio Group
TDR Foundation
Unit #005, US Complex, 120 Mathura road,
New Delhi 110076

Mr. Vinod Mago,
Sec. TDR Foundation
Unit #005, US Complex, 120 Mathura road,
New Delhi 110076

Name and Address of the Second Party

Prof. (Dr.) B. R. Mehta
Vice – Chancellor (VC)
Jaypee Institute of Information Technology.
A-10, Sector-62, Noida-201309, Uttar Pradesh

1/8/23

Prof. Shweta Srivastava,
Dean (A & R) Coordinator
Jaypee Institute of Information Technology.
A-10, Sector-62, Noida-201309, Uttar Pradesh

Witness

1 Rakesh Aggarwal

2 Satyapal

1 (Vijay Khare)

2 (Gaurav Verma)

Shamim Akhtar

Date: 1st August 2023

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ANNEXURE

1. First party will recognize the Second party as an Institute for conducting research and development in the field of multi-discipline engineering. The Second party will recognize the First party as Scientists/knowledge/industry partners of JIIT, as recommended by its Dean (Academic and Research), in accordance with the service rules and regulations for undertaking collaborative research projects as below.
   i. To begin immediate collaborative work between TDR Foundation and faculty members/Ph.D. scholars/students working in the Department of Electronics and Communication Engineering (ECE).
   ii. Engagement of students on projects & research work focusing on FPGA firmware coding to implement patented Z-Mod concept.

2. TDR Foundation to provide/Loan following: -
   i. Working Hardware complete with associated cables connectors and power supply and necessary documentation links available from manufacturer.
   ii. TSW14J56 JESD204B High-Speed Data Capture and Pattern Generator Card
   iii. DAC3XJ8XEVM High-Speed Data Capture card
   iv. TDR Foundation will provide Input signal interface giving AES/EBU (Unicode format)
   v. Spectrum analyzer as & when required for testing

3. JIIT to provide/Loan following: -
   i. Architecture and flow diagram of the project.
   ii. FPGA firmware coding to include
      1. Flow diagram
      2. RTL generation
      3. Firmware code
      4. Coding tools (some can be downloaded from TI site)
      5. Test protocol
      6. Output results to be measured in time and frequency domain (will need 200MHz oscilloscope)
      7. Details of GUI for evaluation and later use
      8. Validation/certification of the project outcome

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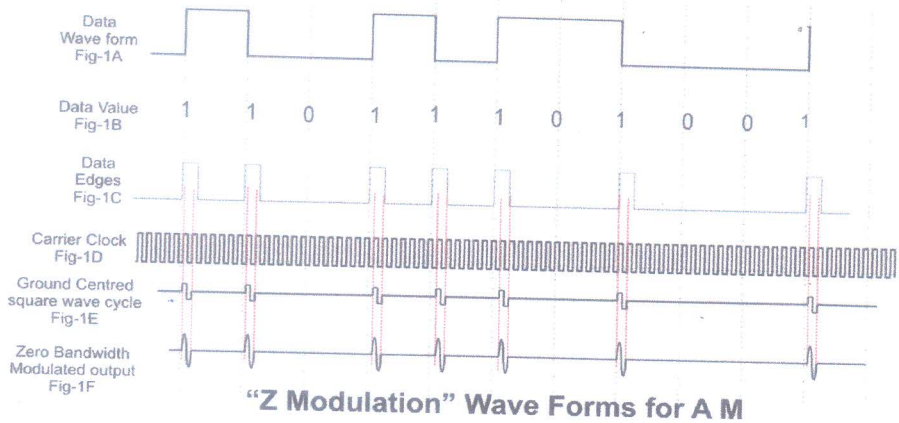
4. Brief Requirement of the Project: –

   a. Generated Modulated carrier cycles, Freq. 7 to 30 MHZ, operating freq. 12 MHZ Output expected wave form (As per fig)



"Z Modulation" Wave Forms for A M

   b. Cycle generation in "Cycle-by-Cycle" process. With cycle start and end at zero crossing point of sine cycle.

   c. Detection in "Cycle-by-Cycle" process to be established for testing.

5. Both parties understand that all financial arrangements required for undertaking the proposed research project is agreed upon as follows: -

Sr. No	Stage	Target Date	Phase time line & payment stages	Amount
1	Phase-1	01-08-2023	ON signing of MOU Study of Hardware Kit/ basic testing	1.25 Lac
2	Phase-2	01-11-2023	RTL generation & Firmware code generation	1.25 Lac
3	Phase-3	01-02-2024	Testing on Hardware& output results measured in time and frequency	1.25 Lac
4	Phase-4	01-05-2024	Feedback from TDR Foundation and reassessment if required and delivery of project and IP	1.35 Lac

Note: **All payments are linked to stage achievements.**

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