



ASTI-FM 03-11
REV 1/08 JUN 2022

**DOST-ASTI Bids and Awards Committee
Invitation to Bid (Public Bidding)**

IB No:	23-07-4438	Date:	2023-07-10
PR No:	VIROS-23-05-16851	Date:	2023-05-29
Source of Funds:	VIROS-ROVE: V2X Initiatives for Road Safety Road Safety V2x Initiatives		
Total ABC:	Php 1,125,000.00		
Time, Date & Venue of Pre-bid Conference:	July 18, 2023, 9:00 AM at Videoconferencing (MS Teams)		
Time and Date of Submission of Bids:	July 31, 2023, 9:00 AM		
Time, Date & Venue of Opening Bids:	July 31, 2023, 9:30 AM at DOST-ASTI and Videoconferencing (MS Teams)		
Date of availability of Complete Set of Documents:	July 11, 2023		
Deadline of Potential Bidder's Clarifications:	July 21, 2023		
Deadline of ASTI's Supplemental Bid Bulletin:	July 24, 2023		
Delivery Schedule:			

The *Department of Science and Technology (DOST)* - Advanced Science and Technology Institute (ASTI), through its Bids and Awards Committee (BAC), hereby invites all interested Bidders to submit their bids for the *item/s* listed below. *Section II. Instructions to Bidders (ITB) of the DOST-ASTI Bidding Documents provides information necessary for bidders to prepare responsive bids, in accordance with the requirements of DOST-ASTI. The ITB likewise provides information on*

Bidding will be conducted through open competitive bidding procedures using a *non-discretionary "pass/fail" criterion as specified in the 2016 revised Implementing Rules and Regulations of Republic Act No. 9184.*

A complete set of *DOST-ASTI Bidding Documents* may be acquired by interested Bidders on the date and address given on this document, and upon payment of the applicable fee, pursuant to the latest Guidelines issued by the Government Procurement Policy Board. Further, the *DOST-ASTI Bidding Documents* may be accessed through the *DOST-ASTI website (https://asti.dost.gov.ph/)*.

For further inquiries, you may contact the **DOST-ASTI BAC Secretariat** at telephone number **+63 2 8249-8500 / +63 2 8426-9755 local 1206/1212** or send your message to **bac-sec@asti.dost.gov.ph**.

Respectfully,

BAYANI BENJAMIN R. LARA
BAC Chairperson

NO.	TECHNICAL SPECIFICATIONS	QTY	UNIT	JNIT PRICE(Php)	TOTAL PRICE(Php)
1	<p>V2X Devices</p> <p>1. GENERAL OVERVIEW</p> <p>1.1. The Advanced Science and Technology Institute (ASTI) is seeking qualified and competent bidders for the supply and delivery of one (1) Lot V2X Devices.</p> <p>1.2. Said devices are to be characterized and evaluated for its functionality, latency, and reliability, and will be integrated to project prototypes as communication medium.</p> <p>1.3. The approved budget for the contract is inclusive of all applicable government taxes and services charges.</p> <p>2. SUPPLY AND DELIVERY OF THE FOLLOWING ITEMS:</p> <p>2.1. V2X Devices</p> <p>2.1.1. One (1) Lot V2X Devices includes the following:</p>	1	lot	1,125,000	1,125,000.00

ASTI Bldg., U.P. Technology Park Complex, C.P. Garcia Ave., Diliman, Quezon City, Philippines 1101

• Website: www.asti.dost.gov.ph • E-mail: info@asti.dost.gov.ph • Tel. No.s: +632 927-2541, +632 927-3502, +632 426-9759, +632 426-9760

• Fax No.: +632 925-8598

2.1.1.1. Four (4) Units C-V2X System-On-Module

2.1.1.2. Two (2) Units C-V2X Evaluation Kit

2.1.1.3. Two (2) Units DSRC-EU System-On-Module

2.1.1.4. One (1) Unit DSRC-EU Evaluation Kit

2.1.2. One (1) Lot V2X Devices Specification:

2.1.2.1. C-V2X System-On-Module

2.1.2.1.1. IEEE 1609/SAE J2735 stack and SDK for C-V2X Protocol

2.1.2.1.2. Form Factor: PCI Express Mini Card (Mini PCIe), 51.0 mm x 38.5 mm PCBA size, 8.5 mm wider than the standard

2.1.2.1.3. Complete V2X system in small 50.95 x 38.5 mm product size with standard mPCIe pin-definition, containing V2X chipsets, GPS, eHSM, 256MB DDR3 RAM, and 512MB NAND.

2.1.2.1.4. V2X SDK with standard compliant V2X stacks, user friendly APIs for Service, Tx/Rx, PoTi, J2735 compliant Messages encode/code, and application example codes, including Event Detector to detect remote vehicle and roadside events, Traffic Signal Detector to detect current position's signal phase, RTK Sample Application to improve GNSS accuracy.

2.1.2.1.5. Secured V2X communication supports or CCMS including the V2X PKI certificate management and the private key operation on the embedded Hardware Security Module (eHSM).

2.1.2.1.6. Integrated and modular V2X subsystem in mPCIe allows expandable applications of V2X sensor fusions or AI applications on an existing computing host platform with ease.

2.1.2.1.7. External Molex connector can be used to provide 5V power input, 1PPS if external GNSS selected, and other UART I/O directly from the host platform board, in case no 5V power input GNSS 1PPS, and UART supported from mPCIe slot.

2.1.2.1.8. Antenna detection and diagnose supported.

2.1.2.1.9. Support DFU mode using command from host platform to update the SOM firmware.

2.1.2.1.10. Standard off-the-shelf with rugged design for V2X PoC, design reference and field deployment of T-Box or NAD or vehicle aftermarket or ITS transportation and road traffic industries.

2.1.2.2. C-V2X Evaluation Kit

2.1.2.2.1. IEEE 1609/SAE J2735 stack and SDK for C-V2X Protocol; C-V2X Radio mode: 3GPP LTE-V2X Rel. 14 PC5 side link; Supported Frequency band: 5.895 ~ 5.925 GHz.

2.1.2.2.2. Product Form Factor: 103mm (L) x 31mm (H) aluminum plate enclosure, thickness: 1.0mm

2.1.2.2.3. External Connectors: One integrated 20-pin I/O interface - Power 6-48V DC, Reset, One RS-232 for console (baud rate 115200 bps), one RS-232 for external GNSS NMEA input, one 1PPS input, Two CAN, One USB with USB bus power, Two GPIOs; One Ethernet port, One USB Mini-B port, Two FAKRA Z RF port for V2X, One FAKRA C RF port for GNSS.

2.1.2.2.4. On-Board Interface reserved: one Mini PCIe slot (for LTE module), one SIM slot, LED headers, Boot strapping DIP switch, JTAG 7-pin header.

2.1.2.2.5. Antenna: two detachable FAKRA type Z 5dBi Omni Dipole (for diversity) one detachable FAKRA type C active GNSS antenna, cable length: 3 meters

2.1.2.2.6. Operation Voltage: DC 6-48 V ± 5% Complete V2X system, containing V2X chipsets, GPS, eHSM, 256MB DDR3 RAM, and 512MB NAND.

2.1.2.2.7. V2X SDK with standard compliant V2X stacks, user friendly APIs for Service, Tx/Rx, PoTi, J2735 compliant Messages encode/code, and application example codes, including Event Detector to detect remote vehicle and roadside events, Traffic Signal Detector to detect current position's signal phase, RTK Sample Application to improve GNSS accuracy.

2.1.2.2.8. Secured V2X communication supports or CCMS including the V2X PKI certificate management and the private key operation on the embedded Hardware Security Module (eHSM).

2.1.2.2.9. Antenna detection and diagnose supported.

2.1.2.3. DSRC-EU System-On-Module

2.1.2.3.1. ITS-G5 stack and SDK for DSRC-EU V2X Protocol

2.1.2.3.2. Form Factor: PCI Express Mini Card (Mini PCIe), 51.0 mm x 38.5 mm PCBA size, 8.5 mm wider than the standard

2.1.2.3.3. Complete V2X system in small 50.95 x 38.5 mm product size with standard mPCIe pin-definition, containing V2X chipsets, GPS, eHSM, 256MB DDR3 RAM, and 512MB NAND.

2.1.2.3.4. V2X SDK with standard compliant V2X stacks, user friendly APIs for Service, Tx/Rx, PoTi, ITS-G5 compliant Messages encode/code, and application example codes, including Event Detector to detect remote vehicle and roadside events, Traffic Signal Detector to detect current position's signal phase, RTK Sample Application to improve GNSS accuracy.

2.1.2.3.5. Secured V2X communication supports or CCMS including the V2X PKI certificate management and the private key operation on the embedded Hardware Security Module (eHSM).

2.1.2.3.6. Integrated and modular V2X subsystem in mPCIe allows expandable applications of V2X sensor fusions or AI applications on an existing computing host platform with ease.

2.1.2.3.7. External Molex connector can be used to provide 5V power input, 1PPS if external GNSS selected, and other UART I/O directly from the host platform board, in case no 5V power input GNSS 1PPS, and UART supported from mPCIe slot.

2.1.2.3.8. Antenna detection and diagnose supported.

2.1.2.3.9. Support DFU mode using command from host platform to update the SOM firmware.

2.1.2.4. DSRC-EU Evaluation Kit

2.1.2.4.1. ITS-G5 stack and SDK for DSRC-EU V2X Protocol; DSRC-V2X Radio mode: 802.11p Supported Frequency band: 5.895 ~ 5.925 GHz.

2.1.2.4.2. Product Form Factor: 103mm (L) x 31mm (H) aluminum plate enclosure, thickness: 1.0mm

2.1.2.4.3. External Connectors: One integrated 20-pin I/O interface - Power 6-48V DC, Reset, One RS-232 for console (baud rate 115200 bps), one RS-232 for external GNSS NMEA input, one 1PPS input, Two CAN, One USB with USB bus power, Two GPIOs; One Ethernet port, One USB Mini-B port, Two FAKRA Z RF port for V2X, One FAKRA C RF port for GNSS.

2.1.2.4.3. On-Board Interface reserved: one Mini PCIe slot (for LTE module), one SIM slot, LED headers, Boot strapping DIP switch, JTAG 7-pin header.

2.1.2.4.3. Antenna: two detachable FAKRA type Z 5dBi Omni Dipole (for diversity) one detachable FAKRA type C active GNSS antenna, cable length: 3 meters

2.1.2.4.3. Operation Voltage: DC 6-48 V ± 5% Complete V2X system, containing V2X chipsets, GPS, eHSM, 256MB DDR3 RAM, and 512MB NAND.

2.1.2.4.3. V2X SDK with standard compliant V2X stacks, user friendly APIs for Service, Tx/Rx, PoTi, ITS-G5 compliant Messages encode/code, and application example codes, including Event Detector to detect remote vehicle and roadside events, Traffic Signal Detector to detect current position's signal phase, RTK Sample Application to improve GNSS accuracy.

2.1.2.4.4. Secured V2X communication supports or CCMS including the V2X PKI certificate management and the private key operation on the embedded Hardware Security Module (eHSM).

2.1.2.4.7. Antenna detection and diagnose supported.

3. WARRANTY AND AFTER SALES SUPPORT

3.1. All units must carry six (6) months warranty for other parts and services that covered defects in materials and workmanship.

3.2. Replacement units should be provided for defective units, fifteen (15) calendar days upon receipt of notice from End-users/DOST-ASTI Property and Supply Section.

3.2.1. Defective units may be defined as units not working upon testing or units that have failed to work after testing within seven (7) calendar days from purchase.

3.3. End- users must be able to request technical support by phone or email. Moreover, technical support service should be available and can reached from Mondays to Fridays at 8am-5pm subject upon the availability of the aforementioned.

3.3.1. The end-user should receive feedbacks and responses from the third party twenty-four (24) hours after the inquiry or concern was made.

4. PAYMENT AND DELIVERY TERMS

4.1. Delivery of Goods and/or performance of services shall be made by the supplier within thirty (30) calendar days upon issuance of Notice to Proceed.

4.2. Payment shall be made only upon certification/acceptance by the end-user to the effect that the Goods have been rendered or delivered in accordance with the terms of this Contract and have been duly inspected and accepted. No payment shall be made for items not yet delivered under this Contract.

4.3. Price of the bid must be inclusive of government taxes and other charges. Breakdown of prices must be provided by the supplier.

TOTAL APPROVED BUDGET FOR THE CONTRACT (ABC):	Php 1,125,000.00
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RESERVATION CLASE

The Advanced Science and Technology Institute reserves the right to accept or reject any proposal, to annul the bidding process, and to reject all proposals at any time prior to contract award, without thereby incurring any liability to the affected proponent or proponents.