

**IRCON INTERNATIONAL LIMITED**  
(A Govt. of India Enterprise)



**C-4, District Centre, Saket, New Delhi-110017, INDIA**

TEL.: +91 11 29565666 FAX: +91 11 26522000

**Tender No. IRCON/9030/MAL.SGDT/S&T/Commn/Pkg.III Dated: 04.01.2010**

Name of Work: Design, Engineering, Manufacture, Supply, Installation, Interfacing & Integration, Testing and Commissioning of Communication & related works for Electrified Double Track project between Seremban to Gemas

**Addendum/Corrigendum No.1 Date:19.01.2010**

**1. In view of addition of the work of Signal Post Telephone (SPT) Communication system within the scope of this tender, para 2 of item 2. of "Appendix To Tender" i.e. Scope of Work has been modified. This para is replaced and to be read as under:**

"2. The work shall broadly include design, Supply, Installation, Integration, Interfacing, testing & commissioning of the following:

- a) **Digital Transmission System:** The work involve provision of STM-4 at all stations & halt equipped with 21 E1 interface, Primary MUX fully loaded and other associated works like 24 fibres/cores Optical Fiber Cable between Seremban to Gemas section, NMS etc. as per tender requirement.
- b) **EPABX System:** The work involves provision of new PABX Exchange at Gemas (equipped with 300 extension, expandable up to 1000 extensions) expansion of line capacity of existing exchange at Seremban, phones at various locations, interfacing with existing KTMB network and other associated works as per tender requirement.
- c) **Passenger Information System:** The works involves provision of Passenger Information System at Senawang halt & Sungai Gadut Station, integration with existing KTMB system along with other associated work as per tender requirement.
- d) **Public Address System:** The works involves provision of Public Address System at all Stations & Halt except Seremban station, integration with existing KTMB system along with other associated work as per tender requirement.
- e) **Centralised Clock system:** The works involve provision of Centralised Clock system at CTC/Gemas, Stations, halt etc. integration with existing KTMB system along with other associated work as per tender requirement.
- f) **CCTV & SCADA:** The works involve provision of CCTV & SCADA at all Stations, Halts, TFSs (Track Feeder Stations), MPTSLs (Mid Point Track Sectioning Locations) etc, integration with existing KTMB system along with other associated works as per tender requirement.

- g) **STAR & SPOT System:** The works involve provision of STAR & SPOT system at Stations & Halts except Seremban station along with other associated work as per tender requirement. It also includes relocation of existing system to new location at Seremban station.
- h) **SPT Communication System:** The works involve provision of PAX based SPT communication system with telephones at all signals and at intermediate sidings throughout the project area as well as facilities at stations for communication with the telephones in the adjacent areas along with other associated works such as PAX exchange, interfacing & integration with existing KTMB's PAX type SPT network etc as per tender requirement.
- i) Provision of channels for working of Power SCADA, AFC & Signalling System in the project area is in the scope of this tender.
- j) Modification, integration & extension of communication system at CTC/KL for remote monitoring & control, complete with all current features. Under normal circumstances, the whole of the project area shall be remotely monitored & controlled from the main CTC/KL Sentral. The new south CTC at Gemas shall assume control in emergency with the requisite release from the CTC/KL Sentral. The contractor should provide all communication system at CTC/Gemas.
- k) Both the south CTC & KL Sentral CTC shall be interfaced, integrated and connected in parallel and configured in such a way that at any time, Communication system within the project area shall be controlled from a single control only.
- l) Two Fibres used for loop back protection of existing STM-1 network of KTMB shall be made available between Seremban and KL section to IRCON by KTMB. On these fibers, STM-4 shall be provided by the contractor. One of the STM-1 links of the new network shall be utilized as loop back protection of existing KTMB network. The remaining STM-1 shall be used for the SGEDT project for extension of Digital transmission system of CTC KL Sentral. The work of shifting of existing loop back protection of KTMB network on STM-4 network being provided is also in the scope of this tender.
- m) Loop back protection of digital transmission system between Gemas & KL Sentral shall be within the scope of this work.
- n) IRCON shall make available one HDPE duct duly laid in cable trough all along the section between Seremban to Gemas. In the present tender, the scope of work involves blowing and other associated works of OFC cable as per technical requirement.
- o) All equipment to be supplied shall be of type approved by KTMB. It should be noted that some equipment types, although still in use, may no longer be approved for new installations.
- p) Supply of spares, software, documentation, as-built drawings, manuals, off-line systems, special tools and test equipment etc within 21 days from the date of issuance of Certificate of Practical Completion.

- q) Supply of all resources including personnel required for completing the project to the satisfaction of the ultimate client.
- r) Imparting adequate in house training, on job training and field training to PMC's, KTMB's and Employer's designers, maintenance and operating personnel. Training modules required for the system are to be submitted along with offer for evaluation.
- s) Consequential work, modifications to stations adjacent to the Project area etc., required to be carried out for adjacent KTMB and 3rd Party systems, plant and equipment which arise as a result of provision of the new works.
- t) Providing Technical support for maintenance of all communication works in respect of interim works, temporary works, stage construction, partial occupation or partial taking over of the works for issuance of certificate of practical completion and taking over of completion project by KTMB.
- u) Defect Liability period up to 16<sup>th</sup> August 2014 or extended period if any.
- v) Dismantling and handover of all released materials & equipment after completion of entire communication works and handing over to KTMB."

**2. "Price Schedule" has been modified due to addition of the work of Signal Post Telephone (SPT) communication system within the scope of this tender. The complete "Price Schedule" is replaced and to be read as under:**

### PRICE SCHEDULE

#### SGEDT PROJECT - COMMUNICATION SYSTEMS

#### SUMMARY OF PRICES

ITEM	DESCRIPTION		SUMMARY	
			AMOUNT IN RM IN FIGURES	AMOUNT IN RM IN WORDS
(1)	DESIGN & ENGINEERING SCHEDULE	Annexure-A		
(2)	SUPPLY OF MATERIAL SCHEDULE (Sr. no. 1 to 8)	Annexure-B		
(3)	INSTALLATION, TESTING & COMMISSIONING SCHEDULE (Sr.no. 1 to 8)	Annexure-C		
	<b>GRAND TOTAL (A+B+C)</b>			

**Note:-** Tenderers are requested to read complete tender document, Instructions carefully before filling up the Price Schedule.

**Annexure-‘A’****(1) DESIGN & ENGINEERING SCHEDULE**

SN	DESCRIPTION OF MATERIAL	UNIT	QUANTITY	UNIT RATE IN RM	AMOUNT IN RM
1	Design & Engineering for the complete Digital Transmission system as per tender specifications for the SGEDT project.	LS			
2	Design & Engineering for the complete Automatic Telephone switching system (PABX) system as per tender specifications for the SGEDT project.	LS			
3	Design & Engineering for the complete Public Information system as per tender specifications for the SGEDT project.	LS			
4	Design & Engineering for the complete PA system as per tender specifications for the SGEDT project.	LS			
5	Design & Engineering for the complete CLOCK system as per tender specifications for the SGEDT project.	LS			
6	Design & Engineering for the complete CCTV & SCADA system as per tender specifications for the SGEDT project.	LS			
7	Design & Engineering for the complete STAR & SPOT system as per tender specifications for the SGEDT project.	LS			
8	Design & Engineering for the complete PAX based Signal Post Telephone (SPT) Communication system as per tender specifications for the SGEDT project.	LS			
<b>TOTAL FOR DESIGN &amp; ENGINEERING SCHEDULE</b>					

**Note:-** Tenderers are requested to read complete tender document, Instructions carefully before filling up the Price Schedule.

**Annexure-‘B’****(2) SUPPLY OF MATERIAL SCHEDULE**

<b>1 DIGITAL TRANSMISSION SYSTEM</b>					
<b>SN.</b>	<b>DESCRIPTION OF MATERIAL</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT RATE IN RM</b>	<b>AMOUNT IN RM</b>
1.1	STM-4 with rack and accessories as per system design based on tender requirement.	Nos			
1.2	2MB Digital branching equipment fully equiped with interface cards, racks and accessories as per system design based on tender requirement.	Nos			
1.3	24 Fibre OFC Cable.	KMs			
1.4	OFC Jointing/splicing kit with accessories as required.	Nos			
1.5	Optical fibre cable box (Fibre distribution frame)	Nos			
1.6	48V Power supply system with 12 Hours battery backup and accessories as per system design based on tender requirement.	Nos			
1.7	Network Management system at Gemas	No			
1.8	Modification / upgradation of existing Network Management system at KL CTC.	No			
1.9	Other Items (To be specified)				
<b>SUB TOTAL FOR DIGITAL TRANSMISSION SYSTEM</b>					

<b>2. PABX SYSTEM</b>					
<b>S.N.</b>	<b>DESCRIPTION OF MATERIAL</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT RATE IN RM</b>	<b>AMOUNT IN RM</b>
2.1	PABX Exchange (Alcatel make) at Gemas station with racks, accessories etc as per system design based on tender requirement for installation of telephone at Gemas, Batang Melaka & Tampin stations including offices, depots etc.	No			
2.2	Upgradation, modification and relocation of existing PABX Exchange (Alcatel make) at Seremban station with racks, accessories etc as per system design based on tender requirement for installation of telephones at Seremban, Senawang halt, Sungai Gadut & Rembau stations including offices, depots etc.	No			
2.3	Upgradation, modification and relocation of existing PABX Exchange (Alcatel make) at KL CTC with rack and accessories as per system design based on tender requirement for installation of telephone at stations, halts, offices, depots etc.	No			
2.4	Telephone Concentrator set for every CTC operator console and accessories as per system design based on tender requirement.	Nos			
2.5	Upgradation, modification and relocation of existing Telephone Concentrator sets at CTC /KL as per system design based on tender requirement.	No			
2.6	Digital telephone instrument and accessories as per system design based on tender requirement..	Nos			
2.7	Analog telephone Instrument and accessories as per system design based on tender requirement..	Nos			
2.8	Indoor data cables per system design based on tender requirement..	Kms			

2.9	Outdoor Communication cable, 10 Pair x 0.6 mm as per system design based on tender requirement..	Kms			
2.10	48V Power supply system with 12 Hours battery backup and accessories as per system design based on tender requirement.	Nos			
2.11	System Management with operator console etc at Gemas as per system design based on tender requirement.	Nos			
2.12	Modification /upgradation of existing System Management as per system design based on tender requirement..	Nos			
2.13	Other Items (To be specified)				
<b>SUB TOTAL FOR PABX SYSTEM</b>					

<b>3. PASSENGER INFORMATION SYSTEM</b>					
<b>S.N.</b>	<b>DESCRIPTION OF MATERIAL</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT RATE IN RM</b>	<b>AMOUNT IN RM</b>
3.1	Central Control Unit with racks, accessories etc at new CTC Gemas as per system design based on tender requirement.	No			
3.2	Modification/upgradation of existing Central Control Unit with racks, accessories etc at CTC KL as per system design based on tender requirement.	No			
3.3	Local Control Unit with racks, accessories etc at Senawang halt and Sungai Gadut station as per system design based on tender requirement..	Nos			
3.4	LCD Display Board and accessories at Senawang halt and Sungai Gadut station as per system design based on tender requirement.	Nos			
3.5	Indoor data cable,	Kms			
3.6	Power cable,	Kms			
3.7	Central workstation with accessories etc at CTC Gemas as per system design based on tender requirement.	Nos			
3.8	Modification/upgradation of existing Central workstation at CTC KL as per system design based on tender requirement.	Nos			
3.9	Other Items (To be specified)				
<b>SUB TOTAL FOR PASSENGER INFORMATION SYSTEM</b>					

<b>4. PUBLIC ADDRESS SYSTEM</b>					
<b>S.N.</b>	<b>DESCRIPTION OF MATERIAL</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT RATE IN RM</b>	<b>AMOUNT IN RM</b>
4.1	Long line public address system at CTC Gemas with racks, accessories etc as per system design based on tender requirement.	Nos			
4.2	Modification/upgradation of existing Long line public address system at CTC KL with racks, accessories etc as per system design based on tender requirement.	Nos			
4.3	Local Public address system at all stations and halts except Seremban station with rack, accessories etc as per system design based on tender requirement.	Nos			
4.4	Local Control Unit with racks, accessories etc at Rembau, Tampin, Batang Melaka and Gemas stations as per system design based on tender requirement.	Nos			
4.5	Speaker, Horn type with accessories as per system design based on tender requirement..	Nos			
4.6	Speaker, Ceiling type with accessories as per system design based on tender requirement..	Nos			
4.7	Cable for PA system	Kms			
4.8	Other Items (To be specified)				
<b>SUB TOTAL FOR PUBLIC ADDRESS SYSTEM</b>					

<b>5. CENTRALISED CLOCK SYSTEM</b>					
<b>SN.</b>	<b>DESCRIPTION OF MATERIAL</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT RATE IN RM</b>	<b>AMOUNT IN RM</b>
5.1	Primary master clock system with racks, accessories etc at CTC Gemas as per system design based on tender requirement.	No			
5.2	Modification/upgradation of existing Primary master clock system at CTC KL as per system design based on tender requirement.	No			
5.3	Secondary master clock system with rack, interfaces and accessories at all stations & Halt as per system design based on tender requirement.	Nos			
5.4	Double sided digital clock and accessories as per system design based on tender requirement.	Nos			
5.5	Single sided digital clock and accessories as per system design based on tender requirement.	Nos			
5.6	Indoor data cable as per system design based on tender requirement.	Kms			
5.7	Power cable as per system design based on tender requirement.	Kms			
5.8	Other Items (To be specified)				
<b>SUB TOTAL FOR CENTRALISED CLOCK SYSTEM</b>					

<b>6. CCTV &amp; SCADA SYSTEM</b>					
<b>S.N.</b>	<b>DESCRIPTION OF MATERIAL</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT RATE IN RM</b>	<b>AMOUNT IN RM</b>
6.1	CCTV & SCADA system (Willowglen make) with MMI, racks, supervisory and remote control/monitoring unit, video remote terminal unit, hard disk, accessories etc at CTC Gemas as per system design based on tender requirement.	No			
6.2	Modification/upgradation of existing CCTV & SCADA system (Willowglen make) at CTC KL including supervisory and remote control/monitoring unit, video remote terminal unit, hard disk etc at CTC KL as per system design based on tender requirement.	No			
6.3	Supervisory and remote control/monitoring unit with video remote terminal unit, hard disk etc at all stations except Seremban station as per system design based on tender requirement.	Nos			
6.4	PTZ Camera and accessories as per system design based on tender requirement.	Nos			
6.5	Fixed Camera and accessories as per system design based on tender requirement.	Nos			
6.6	48V Power supply system with 12 Hours battery backup and accessories as per system design based on tender requirement.	Nos			
6.7	Controller, motorised breaker and Remote Terminal unit of SCADA system at all stations & halt except Seremban station as per system design based on tender requirement.	Nos			
6.8	Indoor data cable as per system design based on tender requirement.	Kms			
6.9	Power cable as per system design based on tender requirement.	Kms			
6.10	SCADA digital - Input/output modules and accessories as per system design based on tender requirement.	Nos			
6.11	Other Items (To be specified)				
<b>SUB TOTAL FOR CCTV &amp; SCADA SYSTEM</b>					

<b>7. STAR &amp; SPOT SYSTEM</b>					
<b>S.N.</b>	<b>DESCRIPTION OF MATERIAL</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT RATE IN RM</b>	<b>AMOUNT IN RM</b>
7.1	Networking equipment including switch, router, accessories etc. for STAR & SPOT system as per system design based on tender requirement.	Nos			
7.2	Desktop, accessories etc. for STAR & SPOT system as per system design based on tender requirement.	Nos			
7.3	Indoor data Cable as per system design based on tender requirement..	Kms			
7.4	Power Cable as per system design based on tender requirement..	Kms			
7.5	Other Items (To be specified)				
<b>SUB TOTAL FOR STAR &amp; SPOT SYSTEM</b>					

<b>8. SPT SYSTEM</b>					
<b>SN.</b>	<b>DESCRIPTION OF MATERIAL</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT RATE IN RM</b>	<b>AMOUNT IN RM</b>
8.1	PAX type SPT Exchange (Alcatel) at stations with racks, accessories etc. as per system design based on tender requirement for installation of Signal Post Telephones at all signals and at intermediate sidings throughout the project.	No			
8.2	SPT Phone Instrument set and accessories as per system design based on tender requirement				
8.3	Operator Console at stations with accessories as per system design based on tender requirement.				
8.4	48V Power supply system with 12 Hours battery backup and accessories as per tender document.				
8.5	Outdoor Communication cable, 10 Pair x 0.6 mm				
8.6	Out Door Communication cable, 20 Pair x 0.6 mm				
8.7	Out Door Communication cable, 50 Pair x 0.6 mm				
8.8	System Management with operator console etc at CTC Gemas as per system design based on tender requirement.				
8.9	Reconfiguration, modification and/or upgradation of existing Signal Post PAX system, system management at KL CTC including operator console etc as per system design based on tender requirement.				
8.10	Other Items (To be specified)				
<b>SUB TOTAL FOR SPT SYSTEM</b>					
<b>TOTAL OF Annx.-'B' - ALL SUB SYSTEMS (1 TO 8)</b>					

**Note:-** Tenderers are requested to read complete tender document, Instructions carefully before filling up the Price Schedule.

## Annexure- 'C'

**(3) INSTALLATION, TESTING & COMMISSIONING SCHEDULE**

<b>1 DIGITAL TRANSMISSION SYSTEM</b>					
<b>S.N.</b>	<b>DESCRIPTION OF MATERIAL</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT RATE IN RM</b>	<b>AMOUNT IN RM</b>
1.1	Indoor equipment including Rack, STM-4, 2 MB MUX, Power supply system, earthing etc as per tender document.	LS			
1.2	Laying/blowing of OFC cable in HDPE duct, splicing and other accessory work as per Tender requirement.	Kms			
1.3	Termination and other accessory works of OFC cable in Equipment room as per tender requirement.	LS			
1.4	Network Management system at Gemas	No			
1.5	Modification /upgradation of existing Network Management system at KL CTC	No			
1.6	Other Items (To be specified)				
<b>SUB TOTAL FOR DIGITAL TRANSMISSION SYSTEM</b>					

<b>2. PABX SYSTEM</b>					
<b>SN.</b>	<b>DESCRIPTION OF MATERIAL</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT RATE IN RM</b>	<b>AMOUNT IN RM</b>
2.1	All Indoor equipment including rack, PABX exchange, Power supply system, earthing etc at Gemas as per system design based on tender requirement.	No			
2.2	All indoor equipment for upgradation, modification and relocation of existing PABX Exchange (Alcatel make) at Seremban station as per system design based on tender requirement.	No			
2.3	All indoor equipment for upgradation, modification and relocation of existing PABX Exchange (Alcatel make) at KL CTC as per system design based on tender requirement.	No			
2.4	Telephone Concentrator set for every CTC operator console as per system design based on tender requirement.	Nos			
2.5	Upgradation, modification and relocation of existing Telephone Concentrator sets at CTC /KL as per system design based on tender requirement.	Nos			
2.6	Trenching with all protective works for laying of outdoor communication cable as per system design based on tender requirement.	Kms			
2.7	Laying of outdoor communication cable, jointing, termination etc as per as per system design based on tender requirement.	Kms			
2.8	Laying of Indoor communication cable, jointing, termination etc as per as per system design based on tender requirement.	Kms			
2.9	48V Power supply system with 12 Hours battery backup and accessories as per system design based on tender requirement.	Nos			
2.10	System Management with operator console etc at Gemas as per system design based on tender requirement.	Nos			
2.11	Modification /upgradation of existing System Managements as per system design based on tender requirement..	Nos			
2.12	Other Items (To be specified)				
<b>SUB TOTAL FOR PABX</b>					

<b>3. PASSENGER INFORMATION SYSTEM</b>					
<b>S.N.</b>	<b>DESCRIPTION OF MATERIAL</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT RATE IN RM</b>	<b>AMOUNT IN RM</b>
3.1	Central Control Unit with racks, accessories etc at CTC Gemas as per system design based on tender requirement.	Nos			
3.2	Modification/upgradation of Central Control Unit with racks, accessories etc at CTC KL as per system design based on tender requirement.	Nos			
3.3	Local Control Unit with racks, accessories etc at Senawang halt and Sungai Gadut station as per system design based on tender requirement.	Nos			
3.4	LCD Display Board and accessories at Senawang halt and Sungai Gadut station as per system design based on tender requirement.	Nos			
3.5	Laying of Indoor communication cable & power cable, jointing, termination etc as per as per system design based on tender requirement.	Kms			
3.6	Central workstation with accessories etc at CTC Gemas as per system design based on tender requirement.	Nos			
3.7	Modification/upgradation of existing Central workstation at CTC KL as per system design based on tender requirement.	Nos			
3.8	Other Items (To be specified)				
<b>SUB TOTAL FOR PASSENGER INFORMATION SYSTEM</b>					

<b>4. PUBLIC ADDRESS SYSTEM</b>					
<b>S.N.</b>	<b>DESCRIPTION OF MATERIAL</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT RATE IN RM</b>	<b>AMOUNT IN RM</b>
4.1	Long line public address system at CTC Gemas with racks, accessories etc as per system design based on tender requirement.	Nos			
4.2	Modification/upgradation of existing Long line public address system at CTC KL with racks, accessories etc as per system design based on tender requirement.	Nos			
4.3	Local Public address system at all stations and halt except Seremban station with rack, accessories etc as per system design based on tender requirement.	Nos			
4.4	Local Control Unit with racks, accessories etc at Rembau, Tampin, Batang Melaka and Gemas stations as per system design based on tender requirement..	Nos			
4.5	Speaker, Horn type with accessories as per system design based on tender requirement..	Nos			
4.6	Speaker, Ceiling type with accessories as per system design based on tender requirement.	Nos			
4.7	Laying of Indoor communication cable, jointing, termination etc as per as per system design based on tender requirement.	Kms			
4.8	Other Items (To be specified)				
<b>SUB TOTAL FOR PUBLIC ADDRESS SYSTEM</b>					

<b>5. CENTRALISED CLOCK SYSTEM</b>					
<b>S.N.</b>	<b>DESCRIPTION OF MATERIAL</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT RATE IN RM</b>	<b>AMOUNT IN RM</b>
5.1	Primary master clock system with racks, accessories etc at CTC Gemas as per system design based on tender requirement.	Nos			
5.2	Modification/upgradation of existing Primary master clock system at CTC KL as per system design based on tender requirement.	Nos			
5.3	Secondary master clock system with rack, interfaces and accessories at all stations & Halts as per system design based on tender requirement.	Nos			
5.4	Double sided digital clock and accessories	Nos			
5.5	Single sided digital clock and accessories	Nos			
5.6	Laying of Indoor communication, power cable, jointing, termination etc as per as per system design based on tender requirement.	Kms			
5.7	Other Items (To be specified)				
<b>SUB TOTAL FOR CENTRALISED CLOCK SYSTEM</b>					

<b>6. CCTV &amp; SCADA SYSTEM</b>					
<b>SN</b>	<b>DESCRIPTION OF MATERIAL</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT RATE IN RM</b>	<b>AMOUNT IN RM</b>
6.1	CCTV & SCADA system (Willowglen make) with MMI, racks, supervisory and remote control/monitoring unit, video remote terminal unit, hard disk, accessories etc at CTC Gemas as per system design based on tender requirement.	No			
6.2	Modification/upgradation of existing CCTV & SCADA system (Willowglen make) at CTC KL including supervisory and remote control/monitoring unit, video remote terminal unit, hard disk etc at CTC KL as per system design based on tender requirement.	No			
6.3	Supervisory and remote control/monitoring unit with video remote terminal unit, hard disk etc at all stations except Seremban station as per system design based on tender requirement.	Nos			
6.4	PTZ Camera and accessories as per system design based on tender requirement.	Nos			
6.5	Fixed Camera and accessories as per system design based on tender requirement.	Nos			
6.6	48V Power supply system with 12 Hours battery backup and accessories as per system design based on tender requirement.	Nos			
6.7	Controller, motorised breaker and Remote Terminal unit of SCADA system at all stations & halt except Seremban station as per system design based on tender requirement.	Nos			
6.8	Laying of Indoor communication, power cable, jointing, termination etc as per as per system design based on tender requirement.	Kms			
6.9	SCADA digital - Input/output modules and accessories as per system design based on tender requirement.	Nos			
6.10	Other Items (To be specified)				
<b>SUB TOTAL FOR CCTV &amp; SCADA SYSTEM</b>					

<b>7. STAR &amp; SPOT SYSTEM</b>					
<b>S.N.</b>	<b>DESCRIPTION OF MATERIAL</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT RATE IN RM</b>	<b>AMOUNT IN RM</b>
7.1	Networking equipment including switch, router, accessories etc. for STAR & SPOT system as per system design based on tender requirement.	Nos			
7.2	Desktop, accessories etc. for STAR & SPOT system as per system design based on tender requirement.	Nos			
7.3	Laying of Indoor communication, power cable, jointing, termination etc as per as per system design based on tender requirement.	Kms			
7.4	Other Items (To be specified)				
<b>SUB TOTAL FOR STAR &amp; SPOT SYSTEM</b>					

<b>8. PAX TYPE SPT SYSTEM</b>					
<b>SN.</b>	<b>DESCRIPTION OF MATERIAL</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT RATE IN RM</b>	<b>AMOUNT IN RM</b>
8.1	All Indoor equipment including PAX exchange, rack, power supply system, earthing etc at stations as per system design based on tender requirement.	Nos			
8.2	SPT telephone with accessories, earthing etc as per system design based on tender requirement.	Nos			
8.3	Operator Console at stations with accessories as per system design based on tender requirement.	Nos			
8.4	Laying of out door communication cable, jointing, termination etc as per system design based on tender requirement.	Kms			
8.5	System Management with operator console etc at CTC Gemas as per system design based on tender requirement.	Nos			
8.6	Reconfiguration, modification and/or upgradation of existing Signal Post PAX system, system management at KL CTC including operator console etc as per system design based on tender requirement.	Nos			
8.7	Other Items (To be specified)				
<b>SUB TOTAL FOR PAX TYPE SPT SYSTEM</b>					
<b>TOTAL OF Annx.-'C' - ALL SUB SYSTEMS (1 TO 8 )</b>					

**Note:-** Tenderers are requested to read complete tender document, Instructions carefully before filling up the Price Schedule.

**All other terms and conditions of tender remain unchanged.**

**GENERAL MANAGER (S&T)  
IRCON INTERNATIONAL LIMITED**