

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
	<p>Attention: Colonel E Strydom                      E- mail:<a href="mailto:strydomE@saps.gov.za">strydomE@saps.gov.za</a></p> <p>The e-Mail shall clearly identify the number of the Bid, the specification number as indicated on this document and the system/equipment called for in this Bid followed by the Bidders enquiry.</p>	
<b>1.9</b>	<b>TELEPHONIC ENQUIRIES</b>	<b>STATE:</b>
1.9.1	Bidders shall note that no telephonic enquiries whatsoever regarding this Bid requirement shall be made to the SA Police Service.	
1.9.2	All enquiries shall be made in writing and may be submitted via E-mail for attention: <a href="mailto:strydomE@saps.gov.za">strydomE@saps.gov.za</a> This e-Mail shall clearly identify the number of the bid, the item and the specification number of the bid.	
1.9.3	Any enquiries shall be made well in advance of the Bid closing date and time. Any enquiries made later than seven (7) working days prior to the Bid closing date and time shall not be entertained by the SA Police Service.	
<b>1.10</b>	<b>SPECIFIC REQUIREMENTS</b>	<b>STATE:</b>
1.10.1	The following is mandatory requirements for this bid and non-compliance will result in the rejection of the Bidders offer:	
1.10.1.1	A type approval certificate from the Independent Communication Authority of South Africa (ICASA) for all radio transmission equipment offered. Take note that the certificate handed in with the bid response must be in the name of the Bidder.	
1.10.1.2	ICASA Licence in the name of the bidder for the supply and distribution of radio transmission equipment within the boundaries of South Africa.	
1.10.1.3	Certification as per 1.6.3 and 1.6.4 of this bid.	
1.10.1.4	Samples as per clauses, 3.7.2; 4.7.2; 5.7.2;6.7.2 and 8.5.2	

60 / 10 4 TR (23) 

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
	<b>CHAPTER 2</b>	<b>STATE:</b>
<b>2</b>	<b>GENERAL REQUIREMENT</b>	
<b>2.1</b>	<b>SCOPE OF REQUIREMENT</b>	
2.1.1	The scope of this requirement calls for the supply, delivery, plan, design implementation and maintenance of transmission equipment and all associated peripherals required for a single microwave link or an entire network of links as and when required within South Africa, in accordance with all sound engineering practices and standards, including internal SAPS standards and regulations.. The specification consists of the following:	
2.1.1.1	Chapter 3 focuses on 2.4 GHz and 5 GHz ISM Licenced Band Microwave equipment: <ul style="list-style-type: none"> <li>• 2,4 GHz</li> <li>• 5 GHz</li> </ul>	
2.1.1.2	Chapter 4 focuses on 24GHz Microwave Radio Links: <ul style="list-style-type: none"> <li>• 24 GHz</li> </ul>	
2.1.1.3	Chapter 5 focuses on 70GHz Microwave Radio Links: <ul style="list-style-type: none"> <li>• 70 GHz</li> </ul>	
2.1.1.4	Chapter 6 focuses on various point to point Microwave Radio Links: <ul style="list-style-type: none"> <li>• 4 - 40 GHz ( 4.5, 7/8, 15,18,21-23 and 38 GHz)</li> </ul>	
2.1.1.5	Chapter 7 focuses on various Feeders and Connectors: <ul style="list-style-type: none"> <li>• UTP CAT5-E indoor and outdoor protected cable</li> <li>• Various Feeders</li> <li>• Various Connectors</li> <li>• Lightning arrestors</li> <li>• Optic Fibre</li> </ul>	
2.1.1.6	Chapter 8 focuses on -48Vdc SNMP rectifiers and power supplies with backup batteries: <ul style="list-style-type: none"> <li>• 48Vdc SNMP rectifiers</li> <li>• Backup batteries</li> <li>• 48Vdc power supplies</li> </ul>	

61104TR(2)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
2.1.1.7	<p>Chapter 9 focuses on Test equipment:</p> <ul style="list-style-type: none"> <li>• All-in-one Ethernet and Optical tester.</li> <li>• Microwave transmission tester (E1, Ethernet, Fibre etc.)</li> <li>• Microwave Antenna alignment tools</li> <li>• Cable and connector testers</li> </ul>	
<b>2.2</b>	<b>IDENTIFICATION</b>	<b>STATE:</b>
2.2.1	The equipment shall be fitted with labels indicating at least the manufacturer's name or trademark, model number and unique serial number where applicable.	
<b>2.3</b>	<b>QUALITY AND STANDARDS</b>	<b>STATE:</b>
2.3.1	All materials and equipment supplied on this contract shall be new and the best of the respective kind.	
2.3.2	<p>All materials and equipment supplied shall fully comply with the requirements laid down in this specification with the latest applicable standards certification or as otherwise specified not limited to at least the following where applicable:</p> <ul style="list-style-type: none"> <li>· EMC: EN 301 489-4, EN 301 489-1, FCC 47 CFR, part 15, class B</li> <li>· Ingress Protection: IEC 60529 IP56</li> <li>· Storage: ETSI EN 300 019-1-1 Class 1.2</li> <li>· Safety: EN 60950-1, IEC 60950-1, UL 60950-1, CSA-C22.2 No.60950-1, EN 60950-22, UL 60950-22, CSA C22.2.60950-22</li> <li>· 10/100/1000base-T/X (IEEE 802.3)</li> <li>· Ethernet VLANs (IEEE 802.3ac)</li> <li>· Virtual LAN (VLAN, IEEE 802.1Q)ITU-T G.703, G.736, G.775, VLAN (MEF-8)· IP/UDP (IETF)· MPLS (MFA8)</li> </ul>	
2.3.3	Apart from any other right which the SA Police Service may have in terms of the Contract, it shall have the right to set the standard and to accept or reject part of the specified equipment depending on the quality of materials and workmanship offered.	
2.3.4	The Bidder shall be notified if the quality of material and/or workmanship is not acceptable. In such an event the Contractor shall replace the specific part or repair it to the satisfaction of the SA Police Service.	
2.3.5	The successful Bidder shall submit equipment supplied for batch testing and which will be carried out by Standards South Africa. Costs for such testing will be for the account of the bidder.	

62/104TR (23)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
<b>2.4</b>	<b>INVOICING AND PACKAGING</b>	<b>STATE:</b>
2.4.1	The successful Bidder shall itemize and describe, individually all accessories, equipment and documents on the relevant delivery notes and invoices when delivering the equipment. No statement such as, "as per specification" will be accepted on a delivery note.	
2.4.2	Delivery notes must be delivered to an officer of the Technology Management Services Division of the SA Police Service by prior appointment.	
2.4.3	Equipment including all accessories shall be packed separately and properly in its own container.	
<b>2.5</b>	<b>GUARANTEE</b>	<b>STATE:</b>
2.5.1	All equipment including all accessories, supplied by the Bidder to the SA Police Service shall be guaranteed in terms of General Conditions of Contract.	
<b>2.6</b>	<b>SUBCONTRACTORS</b>	<b>STATE:</b>
2.6.1	Bidders are allowed to make use of subcontractors. The name(s) of subcontractors used for this Bid and what their function consists of in terms of this contract, shall be submitted to the SA Police Service.	
2.6.2	The SA Police Service will not deal with the subcontractors, but only with the Bidder. All Bid responsibilities will stay with the Bidder and cannot be allocated to the subcontractor. The SA Police Service will hold the Bidder accountable for any delays, non-compliance, etc. on the subcontractor's part.	
2.6.3	The subcontractor is bound by the same requirements as the Bidder. The Subcontractor must also comply with all the requirements of this document.	

63 / 104 TR (22)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
	<b>CHAPTER 3</b>	
<b>3</b>	<b>2.4GHz AND 5 GHz MICROWAVE RADIOS</b>	
<b>3.1</b>	<b>SCOPE OF THE REQUIREMENT</b>	<b>STATE:</b>
3.1.1	The Microwave radios offered shall operate in the allocated ISM Band, be certified for Wi-Fi use and shall be supplied as per specification and requirements of the Bid.	
3.1.2	This Chapter focuses on Microwave links in the following bands: <ul style="list-style-type: none"> <li>• 2.4 GHz</li> <li>• 5 GHz</li> </ul>	
3.1.3	The Bidder shall supply microwave links in the 2.4 GHz and 5 GHz band for use in specific applications.	
3.1.4	The bidder shall ensure that a comprehensive price list is provided for all equipment associated with the solution.	
3.1.5	The bidder shall include a fully functional description and installation manual for the equipment.	
3.1.6	The bidder shall indicate exactly what components are offered to constitute as a complete link.	
3.1.7	The bidder shall price each individual piece of equipment to allow the SAPS to procure equipment as spares or to add on where and when required.	
3.1.8	The Bidder shall include in his pricing Network Management solutions.	
3.1.9	The Bidder shall include all required services to be included in his pricing and should focus on but not be limited to the following: <ul style="list-style-type: none"> <li>• Planning</li> <li>• Pre-visits to sites</li> <li>• Installation</li> <li>• Test and Commissioning</li> </ul>	
<b>3.2</b>	<b>TECHNICAL SPECIFICATIONS</b>	<b>STATE:</b>
3.2.1	Frequency band as per ICASA allocated band.	
3.2.2	Operational Temperature should be -20°C to + 55°C.	
3.2.3	Power transmission and power range – <ul style="list-style-type: none"> <li>• Lowest Tx Power 8 dBm,</li> <li>• Highest Tx Power 25 dBm.</li> </ul> Transmit Power Control - resolution of 1 dB	
3.2.4	Channel bandwidth - 5 MHz, 10 MHz, and 20 MHz and up Channel Bandwidth.	
3.2.5	The system shall support MIMO (2X2), Single or Diversity to increase service availability in Non- line- of- sight (NLOS) conditions or environments with interference.	

64/104 TR (22)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
3.2.6	Air Safety - Support Air interface encryption AES-128. The AES encrypts both the source and destination MAC addresses. Support randomization of passwords in order to avoid any possible attacks. Support MAC L2 Link lock - Ability to engage two sites of the link.	
<b>3.3</b>	<b>ANTENNA</b>	<b>STATE:</b>
3.3.1	The Bidder shall provide pricing as part of Section 3 but not be limited to the following antennas: <ul style="list-style-type: none"> <li>• Collinear (various sizes and Gain)</li> <li>• Dish (various sizes and Gain)</li> </ul>	
3.3.2	The bidder shall provide a comprehensive price list including all required accessories to ensure a full complete installation.	
<b>3.4</b>	<b>SERVICES</b>	<b>STATE:</b>
3.4.1	The Bidder shall include all required services to be included in his pricing as part of Section 3 and should focus on but not be limited to the following: <ul style="list-style-type: none"> <li>• Planning.</li> <li>• Pre-visits to sites.</li> <li>• Installation.</li> <li>• Test and Commissioning.</li> </ul>	
3.4.2	The Installation services as mentioned in paragraph 3.4.1 shall include all required cabling, connectors and associated equipment per site installation.	
<b>3.5</b>	<b>TRACK RECORD - APPENDIX B</b>	<b>STATE:</b>
3.5.1	In order to establish whether the Bidder has a proven track record in this field, details of users in the RSA to whom the Bidder has successfully supplied the equipment offered, shall be submitted with the Bid documents for verification by the SA Police Service.	
3.5.2	The track record shall be compiled by the Bidder and labelled "Appendix B". The details of previous clients shall include at least the following: <ul style="list-style-type: none"> <li>• Name of Client/Organization,</li> <li>• Full Postal and Street Address,</li> <li>• Telephone and Facsimile numbers,</li> <li>• Contact Person,</li> <li>• Type and quantity of equipment supplied,</li> <li>• Date when contract was finally completed and equipment was handed to the client, and</li> <li>• Value of the contract in current Rand value.</li> </ul>	

65 | 104 TR (22) 

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
3.5.3	The Bidder must clearly indicate against each previous contract with a client whether the equipment offered is exactly the same/ similar to the equipment called for in this specification or whether the equipment offered differs from the equipment called for and the extent of the difference.	
<b>3.6</b>	<b>A CERTIFICATE OF APPROVAL</b>	<b>STATE:</b>
3.6.1	A certificate of type approval from the Independent Communication Authority of South Africa (ICASA) for the use of the make and model Microwave radio offered in the RSA shall be submitted with the Bid documents. The certificate must be in the name of the bidder.	
<b>3.7</b>	<b>SAMPLE</b>	<b>STATE</b>
3.7.1	The following samples shall be made available for viewing at the Bidder's or Manufacturer's premises. The Bidder shall be responsible to make arrangements for samples to be viewed for at least six (6) personnel of the SAPS. The samples shall be viewed within the Gauteng Provincial region only. <ul style="list-style-type: none"> <li>• 2.4 GHz</li> <li>• 5 GHz</li> </ul>	
3.7.2	Failure to submit the details of a sample for viewing shall result in a non-acceptance of a Bidder's offer.	
3.7.3	The Bidder shall indicate where a full working sample containing all peripherals and equipment can be viewed and tested for evaluation purposes.	
3.7.4	It shall be the bidder's full responsibility to arrange where such samples can be viewed and tested for evaluation purpose within the boundaries of South Africa.	
<b>3.8</b>	<b>TIME SCHEDULE</b>	<b>STATE:</b>
3.8.1	It is a requirement of this Bid that delivery and installation of ordered equipment shall commence not later than eight (8) weeks after an official order has been received by the successful Bidder, unless otherwise negotiated. Due to the various construction and installation time frames the contracted bidder for a specific service shall interact with the SAPS to determine exact time frames per site.	
3.8.2	Non-compliance to the above-mentioned delivery date as agreed upon per site will result in the enforcement of penalties in terms of General Conditions of Contract.	
<b>3.9</b>	<b>DOCUMENTATION</b>	<b>STATE:</b>
3.9.1	The successful bidder as per equipment, service required shall ensure that the installation be thoroughly and accurately documented.	

66 / 104TR (22)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
3.9.2	Photostat copies of originals are unacceptable and the documentation must be in the English language.	
3.9.3	All equipment supplied shall be accompanied by an As-built hard copy and CD of the Installation where applicable.	
3.9.4	The Equipment offered including all additional equipment shall be supported by a full set of technical documentation, to assist SA Police Service Technical Personnel in the evaluation stage of the Bid. This documentation shall also allow the SA Police Service to maintain the equipment offered. The technical documentation shall include at least the following:	
3.9.4.1	Detailed technical specifications.	
3.9.4.2	Detailed wiring diagrams	
3.9.4.3	A detailed technical description of the operation of the equipment offered.	
3.9.4.4	A complete list of components, including manufacturers part numbers, component numbers and descriptions. International ICN codes for components shall be included, if available.	
3.9.4.5	A recommended spare parts' list shall be included by the Bidder.	
<b>3.10</b>	<b>REPAIRS UNDER GUARANTEE</b>	<b>STATE:</b>
3.10.1	Bidders shall have qualified personnel and fully equipped workshop/manufacturing facilities available, to enable the Bidder to deliver a professional and speedy service to the SA Police Service during the guarantee period.	
3.10.2	Full maintenance and repairs shall be finalized by the successful Bidder, within one (1) week after faulty equipment has been identified and pointed out to the relevant bidder.	
3.10.3	Bidders must submit a name list accompanied with certified copies of technical qualifications applicable to this requirement for all qualified personnel under the Bidders control.	
3.10.4	Bidders shall state the details of spares in stock, workshops and any other relevant facilities under the Bidder's control throughout the RSA.	
3.10.5	Note that no offer will be accepted from a Bidder, if the Bidder has no qualified personnel, sufficient spares in stock and a fully equipped workshop. The Bidder shall provide full details of such personnel, spares and workshop for inspection by the SA Police Service during the evaluation stage if deemed necessary by the Bid Evaluation Committee.	

67 / 104TR (2)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
3.10.6	<p>Bidders shall report the following to the SA Police Service, Division Technology Management Services in writing on a monthly basis, for any repairs done to equipment during the duration of the contract and the guarantee period:</p> <ul style="list-style-type: none"> <li>• Date of fault report,</li> <li>• Nature of the fault, &amp;</li> <li>• Parts replaced</li> </ul> <p>Date Microwave Radio is handed back to the SAPS.</p>	
<b>3.11</b>	<b>TECHNICAL TRAINING</b>	<b>STATE:</b>
3.11.1	Each Bidder shall ensure that a comprehensive training schedule as per what is offered by each Bidder shall be available.	
3.11.2	The Bidder shall provide relevant training for all equipment offered in this chapter.	
3.11.3	Cost of any training or relevant material offered shall be specified by the Bidder and included in the Bid price and stated in Appendix A.	
<b>3.12</b>	<b>AVAILABILITY OF SPARES</b>	<b>STATE:</b>
3.12.1	Bidders shall certify in writing that they are capable to supply spares as per relevant Chapter for the equipment as asked for in this Bid document within two (2) weeks from receiving an order. If a Bidder is unable to comply with this, then its Bid shall be rejected.	
3.12.2	Failure of a Bidder to deliver any spares within this two (2) weeks at any stage of the contract period or within a period of five (5) years without good reason, shall result in penalty clauses as per General Conditions of Contract par 22 be enforced on the quoted prices of the spares.	
<b>3.13</b>	<b>PROGRAMMING SOFTWARE</b>	<b>STATE:</b>
3.13.1	All programming software and licences needed to program specific equipment shall be included in the offer.	
3.13.2	Bidders shall state whether all relevant software will be made available to the SAPS for use without holding specific sections or parts of their software as proprietary software. If a Bidder is not willing to release all such software to the SAPS, the SAPS will not consider the Bid.	
3.13.3	All software shall have full usage facilities. Software with limited usage [e.g. 30 times usage only, etc.] or other factors which limit the SAPS technical staff to perform their duties shall not be accepted and shall result in non acceptance of the Bid.	
3.13.4	If it should be determined at a later stage that the software delivered does not meet the requirements as described in par. 3.13.3, the Bidder shall be liable for all the costs to correct or replace that relevant software package.	

68 / 104 TRG (2)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
3.13.5	Bidders shall make available all upgrades on the software version delivered towards the SAPS, free of charge for at least up to five (5) years after the warranty period.	
<b>3.14</b>	<b>DELIVERY</b>	<b>STATE:</b>
3.14.1	The successful Bidder shall deliver the offered equipment to the address indicated on the official order or as decided between the parties. Cost for this delivery shall be quoted for as a, per Province price and included in the Bid price.	
3.14.2	The Bidder shall make firm arrangements (date and time) with technical staff from Division Technology Management Services for delivery.	
3.14.3	The successful Bidder shall inform the SA Police Service, in writing (email) on a regular basis with respect to construction/installation when inspection can be done on services delivered. The equipment installed/constructed shall be inspected by a representative of the SA Police Service, Division Technology Management Services at the High Site where installation/construction took place. A certificate of inspection and approval for the equipment/services delivered will be issued by the latter representative before payment can be processed.	
3.14.4	See also Chapter 2 section 2.3 "Quality and Standards". No equipment will be accepted by the SA Police Service that does not comply with this section	

69 | 104TR(3)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
--	-------------	---------------

**APPENDIX A PART 03**

<b>3.15 CHAPTER 3 PRICING TABLE</b>		
<b>MANDATORY PRICING INCLUDING VAT</b>		<b>PRICE</b>
<b>Note:</b>	Pricing <b>must</b> be supplied for all lines in this section — R0.00 prices will be deemed to be <b>free of charge</b> for <b>unlimited</b> volumes.	
<b>3.15.1 PRICING FOR STANDARD COMPONENTS</b>		
3.15.1.1	<p><b>ICN- 5820T05028494</b></p> <p><b>Base Price for a complete 2.4 GHz Link</b> which includes:</p> <ul style="list-style-type: none"> <li>a) 2 x 2.4 GHz Microwave Radios</li> <li>b) 2 x Antennas with brackets</li> <li>c) All associated cabling and connectors required for a complete installation</li> </ul>	
3.15.1.2	<p><b>ICN- 5820T05028495</b></p> <p><b>Base Price for a complete 5 GHz Link</b> which includes:</p> <ul style="list-style-type: none"> <li>a) 2 x 5 GHz Microwave Radios</li> <li>b) 2 x Antennas with brackets</li> <li>c) All associated cabling and connectors required for a complete installation</li> </ul>	
<b>3.15.2 PRICING FOR ADDITIONAL COMPONENTS</b>		
3.15.2.1	Extension of standard warranty to full coverage (parts and labour) and <b>on-site</b> repairs for an <b>additional 2 years</b> , i.e. <b>3 years total</b> (36 months) from date of delivery	
<b>3.15.3 TRAINING</b>		
3.15.3.1	<b>ICN - 9825T05083688</b> Price per technician as per 3.11 of this chapter.	
<b>3.15.4 PRICING FOR ACCESSORIES AND OPTIONAL COMPONENTS</b>		
<b>Note:</b>	Pricing <b>must</b> be supplied for all lines if specified components are available from Bidder. Please add all items that can be procured separately and which can be seen as part of or additional components in the blank lines provided.	

70 1104TR(22)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
	<b>CHAPTER 4</b>	
4	<b>24 GHz MICROWAVE RADIOS</b>	
4.1	<b>SCOPE OF THE REQUIREMENT</b>	<b>STATE:</b>
4.1.1	The Microwave radios offered shall operate in the allocated ISM Band, be certified for Wi-Fi use and shall be supplied as per specification and requirements of this Bid.	
4.1.2	This Chapter focuses on Microwave links in the following bands: <ul style="list-style-type: none"> <li>• 24 GHz</li> </ul>	
4.1.3	The Bidder shall supply microwave links in the 24 GHz band (ISM free band) for use in specific applications.	
4.1.4	The bidder shall ensure that a comprehensive price list is provided for all equipment associated with the solution.	
4.1.5	The bidder shall include a fully functional description and installation manual for the equipment.	
4.1.6	The bidder shall indicate exactly what components are offered to constitute as a complete link.	
4.1.7	The bidder shall price each individual piece of equipment to allow the SAPS to procure equipment as spares or to add on where and when required.	
4.1.8	The Bidder shall include in his pricing Network Management solutions.	
4.1.9	The Bidder shall include all required services to be included in his pricing and should focus on but not be limited to the following: <ul style="list-style-type: none"> <li>• Planning</li> <li>• Pre-visits to sites</li> <li>• Installation</li> <li>• Test and Commissioning</li> </ul>	
4.2	<b>TECHNICAL SPECIFICATIONS</b>	<b>STATE:</b>
4.2.1	Frequency band as per ICASA allocated band.	
4.2.2	Operational Temperature should be -20°C to + 50°C.	
4.2.3	Power transmission and power range - Lowest Tx Power: -8 dBm, Highest Tx Power 25 dBm. Transmit Power Control - resolution of 1 dB	
4.2.4	Channel Width - 5 MHz, 10 MHz, 20 MHz, 40MHz Channel Bandwidth	
4.2.5	Multiplexing protocol in air - OFDM; The radio interface is based on OFDM Technology to support high capacity robust links also in Non-Line of Sight (NLOS) conditions.	

7/104 TR (22)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
4.2.6	Multiple antennas Technology - MIMO; The system supports MIMO (2X2), Single or Diversity - to increase service availability in NLOS conditions or in interfered environment.	
4.2.7	ODU with integrated antenna and connectorized ODU. The Integrated antenna gain is around 16 dBi, with FBR > 35 dB and a VSWR < 2	
4.2.8	Throughput – minimum of 200 Mbps Net aggregated capacity	
4.2.9	Latency and jitter - Latency < 3 ms One way, < 6 ms Round Trip.	
4.2.10	Air Safety - Support Air interface encryption AES-128. The AES encrypts both the source and destination MAC addresses. Support randomization of passwords in order to avoid any possible attacks. Support MAC L2 Link lock - Ability to engage two sites of the link.	
4.2.11	Power Consumption -35W (IDU + ODU)	
4.2.12	Insulation characteristics - TDM ports, Ethernet 10/100 BaseT interfaces	
4.2.13	Quality of Service (QoS) - VLAN based (802.1p) or Differentiated service (Diffserv) based.	
4.3	<b>ANTENNA</b>	<b>STATE:</b>
4.3.1	The Bidder shall provide pricing as part of Section 3 but not be limited to the following antennas: <ul style="list-style-type: none"> <li>• Collinear (various sizes and Gain)</li> <li>• Dish (various sizes and gain)</li> </ul>	
4.3.2	The bidder shall provide a comprehensive price list including all required accessories to ensure a full complete installation.	
4.4	<b>SERVICES</b>	<b>STATE:</b>
4.4.1	The Bidder shall include all required services in his pricing as part of Section 3 and should focus on but not be limited to the following: <ul style="list-style-type: none"> <li>• Planning.</li> <li>• Pre-visits to sites.</li> <li>• Installation.</li> <li>• Test and Commissioning.</li> </ul>	
4.4.2	The Installation services as mentioned in paragraph 4.4.1 shall include all required cabling, connectors and associated equipment per site installation.	
4.5	<b>TRACK RECORD - APPENDIX B</b>	<b>STATE:</b>
4.5.1	In order to establish whether the Bidder has a proven track record in this field, details of users in the RSA to whom the Bidder has successfully supplied the equipment offered, shall be submitted with the Bid documents for verification by the SA Police Service.	

72/104TRC(2)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
4.5.2	<p>The track record shall be compiled by the Bidder and labelled "Appendix B". The details of previous clients shall include at least the following:</p> <ul style="list-style-type: none"> <li>a) Name of Client/Organization,</li> <li>b) Full Postal and Street Address,</li> <li>c) Telephone and Facsimile numbers,</li> <li>d) Contact Person,</li> <li>e) Type and quantity of equipment supplied,</li> <li>f) Date when contract was finally completed and equipment was handed to the client, and</li> <li>g) Value of the contract in current Rand value.</li> </ul>	
4.5.3	The Bidder must clearly indicate against each previous contract with a client whether the equipment offered is exactly similar to the equipment called for in this specification or whether the equipment offered differs from the equipment called for and the extent of the difference.	
4.6	<b>A CERTIFICATE OF APPROVAL</b>	<b>STATE:</b>
4.6.1	A certificate of type approval from the Independent Communication Authority of South Africa (ICASA) for the use of the specific equipment offered in the RSA shall be submitted with the Bid documents. The certificate must be in the name of the bidder.	
4.7	<b>SAMPLE</b>	<b>STATE:</b>
4.7.1	<p>The following samples shall be made available for <i>viewing</i> at the Bidder's or Manufacturer's premises. The Bidder shall be responsible to make arrangements for samples to be viewed by at least six (6) personnel of the SAPS. The samples shall be viewed within the Gauteng Provincial region only.</p> <ul style="list-style-type: none"> <li>• Complete 24GHz</li> </ul>	
4.7.2	Failure to submit the details of a sample for viewing shall result in a non-acceptance of a Bidder's offer.	
4.7.3	The Bidder shall indicate where a full working sample containing all peripherals and equipment can be viewed and tested for evaluation purposes.	
4.7.4	It shall be the bidder's full responsibility to arrange where such samples can be viewed and tested for evaluation purpose within the provincial boundaries of Gauteng.	
4.8	<b>TIME SCHEDULE</b>	<b>STATE:</b>
4.8.1	It is a requirement of this Bid that delivery and installation of ordered equipment shall commence not later than eight (8) weeks after an official order has been received by the successful Bidder, unless otherwise negotiated. Due to the various construction and installation time frames the contracted bidder for a specific service shall interact with the SAPS to determine exact time frames per site.	

73/104 TRC

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
4.8.2	Non-compliance to the above-mentioned delivery date as agreed upon per site will result in the enforcement of penalties in terms of General Conditions of Contract.	
<b>4.9</b>	<b>DOCUMENTATION</b>	<b>STATE:</b>
4.9.1	The successful bidder as per equipment, service required shall ensure that the installation be thoroughly and accurately documented.	
4.9.2	Photostat copies of originals are unacceptable and the documentation must be in the English language.	
4.9.3	All equipment supplied shall be accompanied by an As-built hard copy and CD of the Installation where applicable.	
4.9.4	The Equipment offered including all additional equipment shall be supported by a full set of technical documentation, to assist SA Police Service Technical Personnel in the evaluation stage of the Bid. This documentation shall also allow the SA Police Service to maintain the equipment offered. The technical documentation shall include at least the following:	
4.9.4.1	Detailed technical specifications.	
4.9.4.2	Detailed wiring diagrams	
4.9.4.3	A detailed technical description of the operation of the equipment offered.	
4.9.4.4	A complete list of components, including manufacturers part numbers, component numbers and descriptions. International ICN codes for components shall be included, if available.	
4.9.4.5	A recommended spare parts' list shall be included by the Bidder.	
<b>4.10</b>	<b>REPAIRS UNDER GUARANTEE</b>	<b>STATE:</b>
4.10.1	Bidders shall have qualified personnel and fully equipped workshop/manufacturing facilities available, to enable the Bidder to deliver a professional and speedy service to the SA Police Service during the guarantee period.	
4.10.2	Full maintenance and repairs shall be finalized by the successful Bidder, within one (1) week after faulty equipment has been identified and pointed out to the relevant bidder.	
4.10.3	Bidders must submit a name list accompanied with certified copies of technical qualifications applicable to this requirement for all qualified personnel under the Bidders control.	
4.10.4	Bidders shall state the details of spares in stock, workshops and any other relevant facilities under the Bidder's control throughout the RSA.	

74/104TR (27)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
4.10.5	Note that no offer will be accepted from a Bidder, if the Bidder has no qualified personnel, sufficient spares in stock and a fully equipped workshop. The Bidder shall provide full details of such personnel, spares and workshop for inspection by the SA Police Service during the evaluation stage if deemed necessary by the Bid Evaluation Committee.	
4.10.6	Bidders shall report the following to the SA Police Service, Division Technology Management Services in writing on a monthly basis, for any repairs done to equipment during the duration of the contract and the guarantee period: <ul style="list-style-type: none"> <li>• Date of fault report,</li> <li>• Nature of the fault, &amp;</li> <li>• Parts replaced</li> </ul> Date Microwave Radio is handed back to the SAPS.	
<b>4.11</b>	<b>TECHNICAL TRAINING</b>	<b>STATE:</b>
4.11.1	Each Bidder shall ensure that a comprehensive training schedule as per what is offered by each Bidder shall be available.	
4.11.2	The Bidder shall provide relevant training for equipment offered in this Chapter.	
4.11.3	Cost of any training or relevant material offered shall be specified by the Bidder and included in the Bid price and stated in Appendix A.	
<b>4.12</b>	<b>AVAILABILITY OF SPARES</b>	<b>STATE:</b>
4.12.1	Bidders shall certify in writing that they are capable to supply spares as per relevant Chapter for the equipment as asked for in this Bid document within two (2) weeks from receiving an order. If a Bidder is unable to comply with this, then its Bid shall be rejected.	
4.12.2	Failure of a Bidder to deliver any spares within this two (2) weeks at any stage of the contract period or within a period of five (5) years without good reason, shall result in penalty clauses as per General Conditions of Contract par 22 be enforced on the quoted prices of the spares.	
<b>4.13</b>	<b>PROGRAMMING SOFTWARE</b>	<b>STATE:</b>
4.13.1	All programming software and licences needed to program specific equipment shall be included in the offer.	
4.13.2	Bidders shall state whether all relevant software will be made available to the SAPS for use without holding specific sections or parts of their software as proprietary software. If a Bidder is not willing to release all such software to the SAPS, the SAPS will not consider the Bid.	
4.13.3	All software shall have full usage facilities. Software with limited usage [e.g. 30 times usage only, etc.] or other factors which limit the SAPS technical staff to perform their duties shall not be accepted and shall result in non-acceptance of the Bid.	

75/104TR (2)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
4.13.4	If it should be determined at a later stage that the software delivered does not meet the requirements as described in par. 4.13.3, the Bidder shall be liable for all the costs to correct or replace that relevant software package.	
4.13.5	Bidders shall make available all upgrades on the software version delivered towards the SAPS, free of charge for at least up to five (5) years after the warranty period.	
<b>4.14</b>	<b>DELIVERY</b>	<b>STATE:</b>
4.14.1	The successful Bidder shall deliver the offered equipment to the address indicated on the official order or as decided between the parties. Cost for this delivery shall be quoted for as a per Province price and included in the Bid price	
4.14.2	The Bidder shall make firm arrangements (date and time) with staff from division Technology Management Services for delivery.	
4.14.3	The successful Bidder shall inform the SA Police Service, in writing (email) on a regular basis with respect to construction/installation when inspection can be done on services delivered. The equipment installed/constructed shall be inspected by a representative of the SA Police Service, Division Technology Management Services at the High Site where installation/construction took place. A certificate of inspection and approval for the equipment/services delivered will be issued by the latter representative before payment can be processed.	
4.14.4	See also Chapter 2 section 2.3 "Quality and Standards". No equipment will be accepted by the SA Police Service that does not comply with this section.	

76 / 104 TR (2) 

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
--	-------------	---------------

**APPENDIX A PART 04**

<b>4.15 CHAPTER 4 PRICING TABLE</b>		
<b>MANDATORY PRICING INCLUDING VAT</b>		<b>PRICE</b>
<b>Note:</b>	Pricing <b>must</b> be supplied for all lines in this section — R0.00 prices will be deemed to be <b>free of charge</b> for <b>unlimited</b> volumes.	
<b>4.15.1 PRICING FOR STANDARD COMPONENTS</b>		
4.15.1.1	<b>ICN – 5820T05065267</b>  <b>Base Price for a complete Link system which includes:</b>  a) 2 x 24GHz Microwave Radios b) 2 x Antennas with brackets c) All associated cabling and connectors required for a complete installation.	
<b>4.15.2 PRICING FOR ADDITIONAL COMPONENTS</b>		
4.15.2.1	Extension of standard warranty to full coverage (parts and labour) and <b>on-site</b> repairs for an <b>additional 2 years</b> , i.e. <b>3 years total</b> (36 months) from date of delivery	
<b>4.15.3 TRAINING</b>		
4.15.3.1	<b>ICN - 9825T05083689</b> Price per technician as per 4.11 and 4.14 of this chapter.	
<b>4.15.4 PRICING FOR ACCESSORIES AND OPTIONAL COMPONENTS</b>		
<b>Note:</b>	Pricing <b>must</b> be supplied for all lines if specified components are available from Bidder. Please add all items that can be procured separately and which can be seen as part of or additional components in the blank lines provided.	

77 / 104TR (∞)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
	<b>CHAPTER 5</b>	
5	<b>70GHz MICROWAVE RADIOS</b>	
5.1	<b>SCOPE OF THE REQUIREMENT</b>	<b>STATE:</b>
5.1.1	The Microwave radios offered shall operate in the allocated ISM Band, be certified for Wi-Fi use and shall be supplied as per specification and requirements of this Bid.	
5.1.2	This Chapter focuses on Microwave links in the following bands: <ul style="list-style-type: none"> <li>• 70GHz</li> </ul>	
5.1.3	The Bidder shall supply microwave links in the 70GHz band (ISM free band) for use in specific applications.	
5.1.4	The bidder shall ensure that a comprehensive price list is provided for all equipment associated with the solution.	
5.1.5	The bidder shall include a fully functional description and installation manual for the equipment.	
5.1.6	The bidder shall indicate exactly what components are offered to constitute as a complete link.	
5.1.7	The bidder shall price each individual piece of equipment to allow the SAPS to procure equipment as spares or to add on where and when required.	
5.1.8	The Bidder shall include in his pricing Network Management solutions.	
5.1.9	The Bidder shall include all required services to be included in his pricing and should focus on but not be limited to the following: <ul style="list-style-type: none"> <li>• Planning</li> <li>• Pre-visits to sites</li> <li>• Installation</li> <li>• Test and Commissioning</li> </ul>	
5.2	<b>TECHNICAL SPECIFICATIONS</b>	<b>STATE:</b>
5.2.1	Frequency band as per ICASA allocated band.	
5.2.2	Operational Temperature should be -20°C to + 50°C.	
5.2.3	Power transmission and power range - Lowest Tx Power: -8 dBm, Highest Tx Power 25 dBm. Transmit Power Control - resolution of 1 dB	
5.2.4	Channel Width between 14 – 10 000MHz Channel Bandwidth.	
5.2.5	Multiplexing protocol in air - OFDM; The radio interface is based on OFDM Technology to support high capacity robust links also in Non-Line of Sight (NLOS) conditions.	
5.2.6	Multiple antennas Technology - MIMO; The system supports MIMO (2X2), Single or Diversity - to increase service availability in NLOS conditions or in interfered environment.	

78/104TR (22)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
5.2.7	ODU with integrated antenna and connectorized ODU. The Integrated antenna gain is around 16 dBi, with FBR > 35 dB and a VSWR < 2	
5.2.8	Throughput –minimum of 200 Mbps Net aggregated capacity	
5.2.9	Latency and jitter - Latency < 3 ms One way, < 6 ms Round Trip.	
5.2.10	Air Safety - Support Air interface encryption AES-128. The AES encrypts both the source and destination MAC addresses. Support randomization of passwords in order to avoid any possible attacks. Support MAC L2 Link lock - Ability to engage two sites of the link.	
5.2.11	Power Consumption -35W (IDU + ODU)	
5.2.12	Insulation characteristics - TDM ports, Ethernet 10/100 BaseT interfaces	
5.2.13	Quality of Service (QoS) - VLAN based (802.1p) or Differentiated service (Diffserv) based.	
5.3	<b>ANTENNA</b>	<b>STATE:</b>
5.3.1	The Bidder shall provide pricing as part of Section 3 but not be limited to the following antennas: <ul style="list-style-type: none"> <li>• Collinear (various sizes and Gain)</li> <li>• Dish (various sizes and gain)</li> </ul>	
5.3.2	The bidder shall provide a comprehensive price list including all required accessories to ensure a full complete installation.	
5.4	<b>SERVICES</b>	<b>STATE:</b>
5.4.1	The Bidder shall include all required services in his pricing as part of Section 3 and should focus on but not be limited to the following: <ul style="list-style-type: none"> <li>• Planning.</li> <li>• Pre-visits to sites.</li> <li>• Installation.</li> <li>• Test and Commissioning.</li> </ul>	
5.4.2	The Installation services as mentioned in paragraph 5.4.1 shall include all required cabling, connectors and associated equipment per site installation.	
5.5	<b>TRACK RECORD - APPENDIX B</b>	<b>STATE:</b>
5.5.1	In order to establish whether the Bidder has a proven track record in this field, details of users in the RSA to whom the Bidder has successfully supplied the equipment offered, shall be submitted with the Bid documents for verification by the SA Police Service.	

79/104TR (2)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
5.5.2	<p>The track record shall be compiled by the Bidder and labelled "Appendix B". The details of previous clients shall include at least the following:</p> <ul style="list-style-type: none"> <li>a) Name of Client/Organization,</li> <li>b) Full Postal and Street Address,</li> <li>c) Telephone and Facsimile numbers,</li> <li>d) Contact Person,</li> <li>e) Type and quantity of equipment supplied,</li> <li>f) Date when contract was finally completed and equipment was handed to the client, and</li> <li>g) Value of the contract in current Rand value.</li> </ul>	
5.5.3	The Bidder must clearly indicate against each previous contract with a client whether the equipment offered is exactly similar to the equipment called for in this specification or whether the equipment offered differs from the equipment called for and the extent of the difference.	
5.6	<b>A CERTIFICATE OF APPROVAL</b>	<b>STATE:</b>
5.6.1	A certificate of type approval from the Independent Communication Authority of South Africa (ICASA) for the use of the specific equipment offered in the RSA shall be submitted with the Bid documents. The certificate must be in the name of the bidder.	
5.7	<b>SAMPLE</b>	<b>STATE:</b>
5.7.1	<p>The following samples shall be made available for <i>viewing</i> at the Bidder's or Manufacturer's premises. The Bidder shall be responsible to make arrangements for samples to be viewed by at least six (6) personnel of the SAPS. The samples shall be viewed within the Gauteng Provincial region only.</p> <ul style="list-style-type: none"> <li>• Complete 70GHz</li> </ul>	
5.7.2	Failure to submit a sample for viewing shall result in a non-acceptance of a Bidder's offer.	
5.7.3	The Bidder shall indicate where a full working sample containing all peripherals and equipment can be viewed and tested for evaluation purposes.	
5.7.4	It shall be the bidder's full responsibility to arrange where such samples can be viewed and tested for evaluation purpose within the provincial boundaries of Gauteng.	
5.8	<b>TIME SCHEDULE</b>	<b>STATE:</b>
5.8.1	It is a requirement of this Bid that delivery and installation of ordered equipment shall commence not later than eight (8) weeks after an official order has been received by the successful Bidder, unless otherwise negotiated. Due to the various construction and installation time frames the contracted bidder for a specific service shall interact with the SAPS to determine exact time frames per site.	

80/104 TRC

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
5.8.2	Non-compliance to the above-mentioned delivery date as agreed upon per site will result in the enforcement of penalties in terms of General Conditions of Contract.	
<b>5.9</b>	<b>DOCUMENTATION</b>	<b>STATE:</b>
5.9.1	The successful bidder as per equipment, service required shall ensure that the installation be thoroughly and accurately documented.	
5.9.2	Photostat copies of originals are unacceptable and the documentation must be in the English language.	
5.9.3	All equipment supplied shall be accompanied by an As-built hard copy and CD of the Installation where applicable.	
5.9.4	The Equipment offered including all additional equipment shall be supported by a full set of technical documentation, to assist SA Police Service Technical Personnel in the evaluation stage of the Bid. This documentation shall also allow the SA Police Service to maintain the equipment offered. The technical documentation shall include at least the following:	
5.9.4.1	Detailed technical specifications.	
5.9.4.2	Detailed wiring diagrams	
5.9.4.3	A detailed technical description of the operation of the equipment offered.	
5.9.4.4	A complete list of components, including manufacturers part numbers, component numbers and descriptions. International ICN codes for components shall be included, if available.	
5.9.4.5	A recommended spare parts' list shall be included by the Bidder.	
<b>5.10</b>	<b>REPAIRS UNDER GUARANTEE</b>	<b>STATE:</b>
5.10.1	Bidders shall have qualified personnel and fully equipped workshop/manufacturing facilities available, to enable the Bidder to deliver a professional and speedy service to the SA Police Service during the guarantee period.	
5.10.2	Full maintenance and repairs shall be finalized by the successful Bidder, within one (1) week after faulty equipment has been identified and pointed out to the relevant bidder.	
5.10.3	Bidders must submit a name list accompanied with certified copies of technical qualifications applicable to this requirement for all qualified personnel under the Bidders control.	
5.10.4	Bidders shall state the details of spares in stock, workshops and any other relevant facilities under the Bidder's control throughout the RSA.	

81 / 104 TR (2)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
5.10.5	Note that no offer will be accepted from a Bidder, if the Bidder has no qualified personnel, sufficient spares in stock and a fully equipped workshop. The Bidder shall provide full details of such personnel, spares and workshop for inspection by the SA Police Service during the evaluation stage if deemed necessary by the Bid Evaluation Committee.	
5.10.6	Bidders shall report the following to the SA Police Service, Division Technology Management Services in writing on a monthly basis, for any repairs done to equipment during the duration of the contract and the guarantee period: <ul style="list-style-type: none"> <li>• Date of fault report,</li> <li>• Nature of the fault, &amp;</li> <li>• Parts replaced</li> </ul> Date Microwave Radio is handed back to the SAPS.	
<b>5.11</b>	<b>TECHNICAL TRAINING</b>	<b>STATE:</b>
5.11.1	Each Bidder shall ensure that a comprehensive training schedule as per what is offered by each Bidder shall be available.	
5.11.2	The Bidder shall provide relevant training for equipment offered in this Chapter.	
5.11.3	Cost of any training or relevant material offered shall be specified by the Bidder and included in the Bid price and stated in Appendix A.	
<b>5.12</b>	<b>AVAILABILITY OF SPARES</b>	<b>STATE:</b>
5.12.1	Bidders shall certify in writing that they are capable to supply spares as per relevant Chapter for the equipment as asked for in this Bid document within two (2) weeks from receiving an order. If a Bidder is unable to comply with this, then its Bid shall be rejected.	
5.12.2	Failure of a Bidder to deliver any spares within this two (2) weeks at any stage of the contract period or within a period of five (5) years without good reason, shall result in penalty clauses as per General Conditions of Contract par 22 be enforced on the quoted prices of the spares.	
<b>5.13</b>	<b>PROGRAMMING SOFTWARE</b>	<b>STATE:</b>
5.13.1	All programming software and licences needed to program specific equipment shall be included in the offer.	
5.13.2	Bidders shall state whether all relevant software will be made available to the SAPS for use without holding specific sections or parts of their software as proprietary software. If a Bidder is not willing to release all such software to the SAPS, the SAPS will not consider the Bid.	
5.13.3	All software shall have full usage facilities. Software with limited usage [e.g. 30 times usage only, etc.] or other factors which limit the SAPS technical staff to perform their duties shall not be accepted and shall result in non-acceptance of the Bid.	

82/104TR Coa

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
5.13.4	If it should be determined at a later stage that the software delivered does not meet the requirements as described in par. 5.13.3, the Bidder shall be liable for all the costs to correct or replace that relevant software package.	
5.13.5	Bidders shall make available all upgrades on the software version delivered towards the SAPS, free of charge for at least up to five (5) years after the warranty period.	
<b>5.14</b>	<b>DELIVERY</b>	<b>STATE:</b>
5.14.1	The successful Bidder shall deliver the offered equipment to the address indicated on the official order or as decided between the parties. Cost for this delivery shall be quoted for as a per Province price and included in the Bid price	
5.14.2	The Bidder shall make firm arrangements (date and time) with staff from Division Technology Management Services for delivery.	
5.14.3	The successful Bidder shall inform the SA Police Service, in writing (email) on a regular basis with respect to construction/installation when inspection can be done on services delivered. The equipment installed/constructed shall be inspected by a representative of the SA Police Service, Division Technology Management Services at the High Site where installation/construction took place. A certificate of inspection and approval for the equipment/services delivered will be issued by the latter representative before payment can be processed.	
5.14.4	See also Chapter 2 section 2.3 "Quality and Standards". No equipment will be accepted by the SA Police Service that does not comply with this section	

83 | 104 TRC

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
--	-------------	---------------

**APPENDIX A PART 05**

<b>5.15 CHAPTER 5 PRICING TABLE</b>		
<b>MANDATORY PRICING INCLUDING VAT</b>		<b>PRICE</b>
<b>Note:</b>	Pricing <b>must</b> be supplied for all lines in this section — R0.00 prices will be deemed to be <b>free of charge</b> for <b>unlimited</b> volumes.	
<b>5.15.1 PRICING FOR STANDARD COMPONENTS</b>		
5.15.1.1	<p><b>ICN – 5820T05065268</b></p> <p><b>Base Price for a complete Link system which includes:</b></p> <ul style="list-style-type: none"> <li>a) 2 x 70GHz Microwave Radios</li> <li>b) 2 x Antennas with brackets</li> <li>c) All associated cabling and connectors required for a complete installation</li> </ul>	
<b>5.15.2 PRICING FOR ADDITIONAL COMPONENTS</b>		
5.15.2.1	Extension of standard warranty to full coverage (parts and labour) and <b>on-site</b> repairs for an <b>additional 2 years</b> , i.e. <b>3 years total</b> (36 months) from date of delivery	
<b>5.15.3 TRAINING</b>		
5.15.3.1	<b>ICN - 9825T05083690</b> Price per technician as per 5.11 and 5.14 of this chapter.	
<b>5.15.3 PRICING FOR ACCESSORIES AND OPTIONAL COMPONENTS</b>		
<b>Note:</b>	Pricing <b>must</b> be supplied for all lines if specified components are available from Bidder. Please add all items that can be procured separately and which can be seen as part of or additional components in the blank lines provided.	

84 / 104 TR (23)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
	<b>CHAPTER 6</b>	
<b>6</b>	<b>4 to 40 GHz MICROWAVE RADIOS</b>	
<b>6.1</b>	<b>SCOPE OF THE REQUIREMENT</b>	<b>STATE:</b>
6.1.1	Microwave radios shall be supplied as per specification and requirements of the Bid document.	
6.1.2	This Chapter will focus on Microwave radios in the 4 - 40 GHz bands with Mission Critical reliability required by the SAPS.	
6.1.3	The bidder shall ensure that a comprehensive price list is provided for all equipment associated with the solution including capacity and configuration licences. Bidders may also include in the pricing table their point to multipoint solutions available.	
6.1.4	The bidder shall include technical and installation manuals for the equipment.	
6.1.5	The bidder shall indicate exactly what components are offered to constitute as a complete link including capacity licence.	
6.1.6	The bidder shall price each individual piece of hardware and software including all accessories available to allow the SAPS to procure equipment as spares or to add on where and when required.	
6.1.7	The Bidder shall include in his pricing a Network Management solution. Please take note that the SAPS is currently utilising the Netmaster Network Management tool, bidders are to ensure that all equipment offered is able to interface with the current Netmaster Network Management tool in use by the SAPS.	
6.1.8	The Bidder shall include engineering services in his pricing and should focus on but not be limited to the following:	
	<ul style="list-style-type: none"> <li>• Planning</li> </ul>	
	<ul style="list-style-type: none"> <li>• Pre-visits to sites</li> </ul>	
	<ul style="list-style-type: none"> <li>• Installation</li> </ul>	
	<ul style="list-style-type: none"> <li>• Test and Commissioning</li> </ul>	
	<ul style="list-style-type: none"> <li>• As-Built Documentation</li> </ul>	
<b>6.2</b>	<b>GENERAL SPECIFICATIONS</b>	<b>STATE:</b>
6.2.1	The Microwave solutions should be available in the range from 4 GHz to 40 GHz. Bidders must take note that only Mission Critical reliable equipment will be accepted for this bid.	
6.2.2	The Microwave Radio shall have the capability of Cross Polarization Interference Cancelling (XPIC) functionality and must be indicated in the pricing table.	
6.2.3	The Radio shall have Multi Rate Multi Coding.	

85/104 TR (22)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
6.2.4	The Microwave Radio options shall be Synchronous Digital Hierarchy (SDH) or Packet based.	
6.2.5	The Microwave radio shall operate in a 1+0 and Hot standby configuration modes.	
6.2.6	The Microwave radio shall have channel bandwidths not limited to 7MHz, 14 MHz 28Mhz and 56Mhz with spectrum efficiency capabilities.	
6.2.7	The radio shall include advanced Carrier switching features.	
6.2.8	The microwave radio shall include fixed or "hitless" adaptive modulation.	
6.2.9	The radio shall have synthesized oscillators, be available with space and frequency diversity switching, forward error correction for improved threshold performance as well as a Transversal Adaptive Equaliser (TAE) for an improved dispersive fade margin.	
6.2.10	The digital interface of the radio shall make provision for E1 connectivity, up to 72xE1's. E1 interface connections according to channel capacity requirements.	
6.2.11	Modular construction shall be offered if available to facilitate ease of maintenance.	
6.2.12	The radio shall not have any frequency selective spares but be provided with wideband component and fixed tuneable oscillators.	
6.2.13	The radios shall be provided with independent transmitter, receiver and modem switching.	
6.2.14	The radio shall be provided with full diagnostic performance monitoring making provision for various status and alarm indicators and monitoring test points visible through the network management tool.	
6.2.15	The radio shall be designed so that it can be remotely monitored and controlled through a central Network Management solution. (Non-Proprietary SNMP network monitoring).	
6.2.16	A local diagnostic port (RS232 C) shall be available to perform and execute radio link performance measurements, monitoring, and diagnostics with local and remote loopback capability.	
6.2.17	The link shall have Air Safety - Support at least Air interface encryption AES-128 must be included with each link supplied.	
<b>6.3</b>	<b>TECHNICAL SPECIFICATIONS</b>	<b>STATE:</b>
	Digital microwave radios provided shall meet the following technical specifications:	
6.3.1	<b>GENERAL</b>	<b>STATE:</b>
6.3.1.1	Operating Frequency Range: <b>4GHz to 40 GHz</b>	
6.3.1.2	Frequency stability: + 10 ppm	
6.3.1.3	Modulation type: QPSK, QAM 16 to at least QAM 512	

86/104TR (2)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
6.3.1.4	RF Connector: RFU-C type with N-Type connector	
6.3.1.5	Maximum interconnect cable length : At least 100 metres	
6.3.1.6	Radio software configuration shall be via a Web-Based application via an Ethernet management port on the radio with user name and password protection capabilities. <b>No priority</b> interfaces or software programmable features used to manage and configure the radio shall be considered for this bid.	
<b>6.3.2</b>	<b>TRANSMITTER</b>	<b>STATE:</b>
6.3.2.1	Nominal Output Power: At least +23 dBm depending on capacity.	
6.3.2.2	RF Bandwidth : 7, 14, 28 or 56 MHz	
6.3.2.3	Hot Standby Switch Loss : 1dB	
<b>6.3.3</b>	<b>RECEIVER</b>	<b>STATE:</b>
6.3.3.1	Bit Error Rate (BER) : $1 \times 10^{-6}$	
6.3.3.2	Receiver Threshold : 75 x E1 per 28 MHz Band Width with minimum BER 10-10 (dBm) : -68	
<b>6.3.4</b>	<b>DIGITAL INTERFACE</b>	<b>STATE:</b>
6.3.4.1	Interface ITU-T E1 at any combination up to 75E1	
6.3.4.2	Digital Line Rate : 2,048Mbps and multiples thereof	
6.3.4.3	Optical Interface: Optical Interface based on single mode fibre (G.652 - Single Mode) when applicable including SFP modules.	
<b>6.3.5</b>	<b>MECHANICAL SPECIFICATIONS</b>	<b>STATE:</b>
6.3.5.1	Mounting : Indoor Unit (IDU) - 19 inch rack mount	
6.3.5.2	1 + 1 switch - 19 inch rack mount, 1Rack unit height	
6.3.5.3	Outdoor Unit (ODU) - Tower or pole mount	
<b>6.3.6</b>	<b>ENVIRONMENTAL CONDITIONS</b>	<b>STATE:</b>
6.3.6.1	Temperature Range: IDU: -25°C to +70°C	
	ODU: -33°C to +55°C	
6.3.6.2	Humidity: IDU: Up to 95% (non-condensing)	
	ODU: Up to 100% (all weather)	

87 / 104TR (22)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
6.3.7	<b>ANTENNA</b>	<b>STATE:</b>
6.3.7.1	The Bidder shall provide pricing but not be limited to the following antenna sizes for each frequency band offered:	
6.3.7.1.1	<ul style="list-style-type: none"> <li>• 300mm</li> </ul>	
6.3.7.1.2	<ul style="list-style-type: none"> <li>• 600mm</li> </ul>	
6.3.7.1.3	<ul style="list-style-type: none"> <li>• 800mm</li> </ul>	
6.3.7.1.4	<ul style="list-style-type: none"> <li>• 1200mm</li> </ul>	
6.3.7.2	Bidders shall note that all antennas offered will be supplied with a standard flange similar to that of the Andrews Antennas when mounting to the ODU, note that no proprietary antenna solution will be accepted for this bid.	
6.3.7.3	The bidder shall provide a comprehensive price list under section 3 of this Chapter including all required accessories to ensure a full complete installation and working solution with at least a bandwidth capacity of 50Mbit/s.	
6.4	<b>TRACK RECORD - APPENDIX B</b>	<b>STATE:</b>
6.4.1	In order to establish whether the Bidder has a proven track record in this field, details of users in the RSA to whom the Bidder has successfully supplied the equipment offered, shall be submitted with the Bid documents for verification by the SA Police Service.	
6.4.2	The track record shall be compiled by the Bidder and labelled "Appendix B". The details of previous clients shall include at least the following:	
	a) Name of Client/Organization,	
	b) Full Postal and Street Address,	
	c) Telephone and Facsimile numbers,	
	d) Contact Person,	
	e) Type and quantity of equipment supplied,	
	f) Date when contract was finally completed and equipment was handed to the client, and	
	g) Value of the contract in current Rand value.	
6.4.3	The Bidder must clearly indicate against each previous contract with a client whether the equipment offered is exactly similar to the equipment called for in this specification or whether the equipment offered differs from the equipment called for and the extent of the difference.	

88 / 104TR (2)

**SPECIFICATION: FOR THE SUPPLY, DELIVERY, PLAN, DESIGN, IMPLEMENTATION, MAINTENANCE AND SUPPORT OF TRANSMISSION EQUIPMENT FOR THE SOUTH AFRICAN POLICE SERVICE NATIONALLY FOR A PERIOD OF THREE (3) YEARS**

	DESCRIPTION	Comply/Do not
<b>6.5</b>	<b>A CERTIFICATE OF APPROVAL</b>	<b>STATE:</b>
6.5.1	A certificate of type approval from the Independent Communication Authority of South Africa (ICASA) for the use of the specific make and model of equipment offered in the RSA shall be submitted with the Bid documents. The certificate must be in the name of the bidder.	
<b>6.6</b>	<b>SAMPLE</b>	<b>STATE:</b>
6.6.1	The Bidder shall be responsible to make arrangements for samples to be viewed by at least six (6) personnel of the SAPS. The following samples shall be made available for <i>viewing</i> at the Bidder's or Manufacturer's premises: <ul style="list-style-type: none"> <li>• Complete <b>4/6GHz</b> Link</li> <li>• Complete <b>7/8GHz</b> Link</li> <li>• Complete <b>15GHz</b> Link</li> <li>• Complete <b>18GHz</b> Link</li> <li>• Complete <b>23GHz</b> Link</li> <li>• Complete <b>38GHz</b> Link</li> </ul>	
6.6.2	Failure to indicate where such samples can be viewed shall result in a non-acceptance of a Bidder's offer.	
6.6.3	The Bidder shall note that the sample must be a complete working sample containing all peripherals and equipment and shall be made available for viewing during the evaluation process.	
6.6.4	It shall be the bidder's full responsibility to arrange where such samples can be viewed and tested for evaluation purpose within the boundaries of the Gauteng Province.	
<b>6.7</b>	<b>TIME SCHEDULE</b>	<b>STATE:</b>
6.7.1	It is a requirement of this Bid that delivery and installation of ordered equipment shall commence not later than eight (8) weeks after an official order has been received by the successful Bidder, unless otherwise negotiated. Due to the various construction and installation time frames the contracted bidder for a specific service shall interact with the SAPS to determine exact time frames per site.	
6.7.2	Non-compliance to the above-mentioned delivery date as agreed upon per site will result in the enforcement of penalties in terms of General Conditions of Contract.	
<b>6.8</b>	<b>DOCUMENTATION</b>	<b>STATE:</b>
6.8.1	The successful bidder as per equipment, service required shall ensure that the installation be thoroughly and accurately documented.	
6.8.2	Photostat copies of originals are unacceptable and the documentation must be in the English language.	
6.8.3	All equipment supplied and installed shall be accompanied by an As-built document in hard and soft copy where applicable.	

89/104TRC