Technical Compliance statement format for TOSS (RC for 5 years)

SI. No	RFP. No	Parameters	Compliance (Yes/No)	Remarks
1	5	Criteria for Service Provider		
2	5.1	Vendor Evaluation Criteria		
3	5.1.1	Service provider shall have minimum 5 years' experience in TOSS operations. Supporting documents shall be provided.		
4	5.1.2	Service provider should have successfully supported at least 5 TOSS operations in last 5 years. Supporting documents shall be provided.		
5	5.1.3	Service provider shall indicate the capability to deploy technically skilled manpower having fluency in English for TOSS operations.		
6	5.1.4	Service provider shall support the TOSS requirements with 99.95% reliable and 100% available Network Control Center (NCC) {Geographically diversified redundant NCC to be provided}. Supporting documents shall be provided.		
7	5.1.5	Service provider shall have Network stations in Three regions i.e. American region, European region and Australian/Asia-Pacific region (own or partner network stations).		
8	5.1.5.1	Service Provider shall mention at least One antenna meeting MCF/ISRO's technical specifications for C and/or Ku-band in each region (own or partner). i.e. bidder shall mandatorily quote for C-band antenna in all the three regions and/or Ku-band antenna in all the three regions.		
9	5.1.5.2	If offered antenna in any region is not meeting tendered specification. MCF reserves right to reject the offer.		
10	5.1.5.3	During the contract period, in case of exigency attributable to service provider, then alternate network station/ antenna & its interface tests (around T-3 months) shall be provided without additional cost implication.		
11	5.1.5.4	These network stations shall be connected over highly reliable, secure communication link (One prime & One back up) to service provider's Prime & redundant NCC which in turn gets connected to MCF/ISRO for TOSS support.		
12	5.1.6	The bidder shall obtain necessary licenses for network stations (own or partner) and Network Control Centers to support TOSS activity of ISRO missions.		
13	5.1.7	Service Provider shall mention the antenna meeting MCF/ISRO's technical specifications separately for C-band and/or Ku-band in each region.		

14	5.1.8	Participation of vendor in the pre-bid meeting (in person or in virtual mode) is mandatory whenever scheduled by MCF/ISRO. Failure in this will result in rejection of offer.	
15	5.2	Price evaluation criteria L1 will be calculated for C-band & Ku-band TOSS operations separately. One Launch per year is considered for calculating L1, i.e. total 5 launches in 5 years for both C-band & Ku-band.	
16	6	C-band & Ku-band Network Support	
17	6.1	The TOSS Service Provider shall mandatorily quote for three regions for C and/or Ku mission. The choice of Type-1 (6.1.1) or Type-2 (6.1.2) rests with MCF/ISRO based on mission requirements.	
18	6.1.1	Type1: Shall provide network stations in THREE regions, one each over American Region, European Region and Australian/ Asia-Pacific Region connected by highly reliable, secure leased link (One Prime and One back up) with Service Provider's Network Control Centre (NCC). The Satellite Control Centre of ISRO located at MCF, Hassan shall be interfaced to all the network stations through the Service provider's NCC.	
19	6.1.2	Type-2: Shall provide network stations in TWO regions, one each over American Region and European Region connected by highly reliable, secure leased link (One Prime and One back up) with service provider's Network Control Centre (NCC). The satellite Control Centre of ISRO located at MCF, Hassan shall be interfaced to all the network stations through the Service provider's NCC	
20	6.2	Overall Mission Support Requirement	
21	6.2.1	The network stations and the Service Provider's NCC(s) shall be compliant to both CCSDS (non-COP) and non-CCSDS TTC&R operations	
22	6.2.2	During establishment of communication link(s) Service provider shall take all necessary precautions for data security by means of secured network infrastructure and configuration, use of suitable UTM/ firewall etc. to ensure ISRO traffic is safe from any cyber-attacks.	
23	6.2.3	The TOSS Service Provider shall have Network Control Center(s) (NCCs) connected to each other and all network stations through 100% available links (One Prime and One back up) and NCC(s) shall be connected to MCF/ISRO over secure high-available data links.	
24	6.2.4	The network stations offered by the TOSS service provider shall support the mission operations with prime and backup configurations/ systems.	
25	6.2.5	Successful Bidder's ground station shall be equipped with the necessary dedicated equipment to execute TOSS mission requirements. Key elements of the ground station include a monopulse-tracking antenna with full acquisition pattern, search capability and redundant Baseband, RF conversion and RF	

		power amplification equipment. It is Bidder's responsibility to maintain sufficient on-hand spares for RF and baseband systems such that failed redundant system components may be replaced within 4-hours. Four-hour replacement does not include the antenna subsystem or high-powered amplifiers (transmitters). It is expected that the antenna subsystem maintenance history will be taken into account and on-hand spares for previously problematic units or circuit boards will be available. The antenna subsystem includes drive motors, drive power electronics, antenna control unit, tracking downconverter and basic antenna structure.	
26	6.2.6	During LEOP Satellite visibility	
27	6.2.6.1	Network stations shall carryout initial acquisition of the signal of the Satellite using the orbital information provided by MCF/ISRO and track the Satellite in Monopulse/Auto track mode continuously with program drive mode in background.	
28	6.2.6.2	Network stations shall receive Satellite telemetry signals, demodulate and make the data available to MCF/ISRO over TCP/IP socket connection to Base Band Units (BBU).	
29	6.2.6.3	Network stations shall transmit the tele-commands through MCF/ISRO provided command encoders/BBU TCU on authorization from MCF/ISRO.	
30	6.2.6.4	Network stations shall be configured as per ISRO's TOSS requirement. Access to BBU M&C to be provided to perform ranging operation using 7-tone ESA-like format. In addition, time-tagged azimuth and elevation angles of antenna should be accessible directly from MCF/ISRO.	
31	6.2.6.5	Network stations shall conduct a RF radiation survey/Noise Survey for longitudinal slots provided by MCF/ISRO for the critical operations as per mission requirement and detailed report including necessary spectrum plots with longitudinal information shall be submitted to MCF/ISRO. RF radiation survey has to be carried out as per MCF/ISRO requirement for any of the antenna to check interference with the satellite TTC frequency for a particular longitudinal slot in the satellite trajectory.	
32	6.2.6.6	Network stations shall take the spectrum plots of downlink telemetry and range carriers during AOS, LOS, during critical operations and as per the mission requirement and to be provided to identified email-ids of MCF/ISRO in jpeg format or in any other format requested by MCF/ISRO. Network stations shall also take the spectrum plots of uplink carriers as per the mission requirement.	
33	6.2.6.7	Network stations shall plot/record time tagged telemetry (TLM) AGC during AOS, LOS and critical operations and as per the mission requirements and shall be sent to identified email-ids of MCF/ISRO in jpeg format or in any other format requested by MCF/ISRO.	
34	6.2.7	Service Provider shall establish Voice connectivity to all the network stations including the Service provider's NCC(s) and desirably MCF/ISRO shall be part of voice bridge or any online meeting platform.	
35	6.2.8	Service Provider shall establish FTP/E-mail connectivity between MCF/ISRO and the NCC.	

36	6.2.9	Service provider shall ensure that all the selected network stations for any mission are connected to the NCC through redundant links.	
37	6.2.10	Service provider shall use proper encryption for data flow between MCF and service provider's NCC.	
38	6.2.11	The azimuth and elevation angle blockage information with respect to each network station needs to be provided by the Service Provider to MCF/ISRO along with the coverage Region of GSO as a part of	
		the technical document submitted along with the bid.	
39	6.2.12	During pre-launch simulation activities and LEOP phase operations, the Service Provider shall ensure that the NCC to be manned with technically skilled personnel, having fluency in English, for smooth operations.	
40	6.2.13	The Service provider shall ensure that BBUs with CORTEX compatible ICD is deployed at the network stations for TOSS support.	
41	6.2.14	Service provider shall facilitate MCF/ISRO to access, monitor and record AGC and Eb/No of the BBUs located at network stations or shall provide the required data to MCF/ISRO.	
42	6.2.15	If a single antenna cannot support the total Ku frequency band (12.75 - 13.25 GHz & 13.75 -14.5 GHz) then the bidder can provide solution with two different antenna in same region. However, in each	
		region whole band shall be covered using either single/multiple terminals.	
43	6.3	Interfaces	_
44	6.3.1	Connectivity to Service Provider's NCCs with network stations shall be provided (for continuous Satellite coverage) with MCF/ISRO, Hassan, India through reliable, secured dual redundant data link(s). Data links	
		established shall be leased links, over diversified routes, either terrestrial link (over OFC) or shall have	
		maximum of one satellite hop. All the transactions between NCC and MCF/ISRO shall be over TCP/IP.	
		The Service Provider shall deploy end equipment in redundant configuration at NCC and at MCF/ISRO.	
45	6.3.2	For a LEOP mission, the data link(s)shall support the transmission of minimum SIX TCP/IP socket	
.5	0.5.2	connections for telemetry data, one each for Tele-command, Range and angle data transfer from each	
		network station along with voice connectivity with NCC as per the mission requirement. The Service	
		Provider shall provide data link(s) bandwidth sufficient to support two overlapping LEOP operations.	
		The minimum bandwidth required is 1Mbps.	
46	6.3.3	The Service Provider shall deploy all the earth station network elements required for the mission in	
		LEOP phase except for proprietary command encoders (which will be provided by MCF/ISRO). After	
		entering into rate contract for non-CCSDS mission, MCF/ISRO will supply and install the command	
		encoders at identified network stations. The Service Provider shall provide all the technical support	
		during installation & operation of MCF/ISRO equipment.	

47	6.3.4		· · · · · · · · · · · · · · · · · · ·	ance in getting custom clearance for ISRO equipment				
			being sent to Network provider's station for supporting ISRO missions. The Service Provider shall assist in arranging permission/ clearance for MCF/ISRO engineers visit to					
48	6.3.5							
				orting launch missions/ any special operations (if				
_		required)						
49	6.3.6	The Service	ce provider shall support the mission froi	m T to T + 3 days nominally where T is the launch day.				
		In additio	n, the mission activities include following	g pre-launch simulations namely				
		• T-	1 month Network test (for one day)					
			vo Network Dress Rehearsals (one day operations	each around T-7 and T-3 days) preceding the launch				
50	6.3.7			provider shall be ready to stop the LEOP support for				
30	0.3.7		·	(T+3 days), and price shall be charged only for the				
		_	mber of days supported.	(1.5 days), and price shall be charged shift the				
51	6.3.8		· · · · · · · · · · · · · · · · · · ·	e mission support for beyond the stipulated duration				
				support and pricing shall be for the actual number of				
		days supp	oorted.					
52	6.3.9	Service pr	rovider shall ensure proper network cor	figuration to ensure inter-packet latency less than 2				
		seconds.						
53	6.4	Telemetr	•					
54	6.4.1	C-band Telemetry						
		Sl.No.	Description	Value				
		1	Carrier frequency range	3700–4200 MHz				
		2	Modulation	PCM-NRZ-S/PSK/PM or CCSDS/PSK/PM,				
				PSK sub carrier: 32 KHz, 128 KHz as per the				
				satellite configuration				
		3	PCM telemetry bit rate	1 Kbps to 10 Kbps selectable				
		4	On-board polarization for downlink	CP(LHCP/RHCP)				
				(diversity combiner shall be available to				
				process CP signal, as per satellite orientation).				
1		5	Downlink chains	Two independent downlink chains (C-band				
				CP(LHCP/RHCP) - PM-PSK-NRZ-S)				

55 6.4.2	ŀ	6 Ku-band T	Telemetry data transfer	Minimum Six streams of the Satellite telemetry data (over TCP/IP socket connection) from two independent downlink chains from each network station to MCF/ISRO in real-time	
		Sl.No.	Description	Value	
		1	Carrier Frequency range	10.70 - 12.00 GHz (desirable)	
		2	Modulation	PCM-NRZ-S/PSK/PM or CCSDS/PSK/PM, PSK sub carrier: 32 KHz, 128 KHz as per the satellite configuration	
		3	Bitrate	1 Kbps to 10 Kbps selectable	
		4	On-board polarization for downlink	CP (diversity combiner shall be available to process LHCP/RHCP signal, as per satellite orientation).	
		5	Downlink chains	Two independent downlink chains (Ku-band CP - PM-PSK-NRZ-S)	
		6	Telemetry data transfer	Minimum Six streams of the Satellite telemetry data (over TCP/IP socket connection) from two independent downlink chains from each network station to MCF/ISRO in real-time	
56 6.5	7	Telecomn	nand		

57	6.5.1	C-band Te	lecommand		
		SI.No.	Description	Value	
		1	Carrier Frequency range	5850- 6425 MHz	
		2	Modulation	PCM-RZ/FSK/FM and/or CCSDS(non-COP)/PSK/FM	
		3	Maximum frequency deviation	+/- 400 KHz.	
		4	Bitrate	100 bps and/or 500 bps.	
		5	Tele-command polarization (on-board for transfer orbit)	d - RHCP/LHCP	
		6	Command uplink capability	RHCP/LHCP from two independent chains on two tele-command uplink frequencies either simultaneously or through switching.	
		7	Tele-commanding	(FSK/FM and PSK/FM) to Satellite shall be through the network stations by interfacing computers at MCF/ISRO with ISRO proprietary command encoders/BBU TCU at each of the network stations.	
58	6.5.2	Ku-band T	elecommand		
		Sl.No.	Description	Value	
		1	Carrier Frequency range	12.75 - 13.25 GHz & 13.75 -14.5 GHz	
		2	Modulation	PCM-RZ/FSK/FM and/or CCSDS (non-COP)/PSK/FM.	
		3	Maximum frequency deviation	+/- 400 KHz.	
		4	Bitrate	100 bps and/or 500 bps.	
		5	Tele-command polarization (on- board - for transfer orbit	СР	

		7	Tele-commanding	CP from two independent chains on two telecommand uplink frequencies either simultaneously or through switching. (FSK/FM and PSK/FM) to Satellite shall be through the network stations by interfacing computers at MCF/ISRO with ISRO proprietary command encoders/BBU TCU at each of the network stations.	
59	6.6	Ranging			
60	6.6.1	C-band Ra			
		Sl.No.	Description	Value	
		1	Uplink frequency range	5850 - 6425 MHz	
		2	Downlink frequency range	3700 - 4200 MHz	
		3	Modulation	FM for uplink and PM for downlink.	
		4	Satellite ranging and range data transfer	7-tone ESA like format with/without spectral inversion as per MCF/ISRO requirement. The range processor shall support CORTEX compatible ICD format.	
		5	Zero range calibration	Facility to carryout Zero range calibration for range corrections.	
		6	Range/angle data	Time stamped range/angle data from network stations should be accessible by servers of MCF/ISRO	

61	6.6.2 I	Ku-band			
		S/N	Description	Value	
		1	Uplink frequency range	12.75 - 13.25 GHz & 13.75 -14.5 GHz	
		2	Downlink frequency range	10.70 - 12.00 GHz (desirable)	
		3	Modulation	FM for uplink and PM for downlink.	
		4	Satellite ranging and range data t	ransfer 7-tone ESA like format with/without spectral inversion as per MCF/ISRO requirement. The range processor shall support CORTEX compatible ICD format.	
		5	Zero range calibration	Facility to carryout Zero range calibration for range corrections.	
		6	Range/angle data	Time stamped range/angle data from network stations should be accessible by servers of MCF/ISRO	
62	6.7	Tuesday			
62	6.7	Tracking		r lock in Monopulse/Autotrack mode with the program track	
03	0.7.1	_	• • •	The TLE file will be provided by MCF/ISRO from time to time.	
64	6.7.2	In case of	of non-nominal launch leading to d	eviated Satellite trajectory, the Service provider should have ntenna drive modes such as Search/Box scan.	
65	6.7.3	(ACU), b		d program drive file to network station antenna control unit F/ISRO (through FTP/E-mail) from time to time, during orbit the Satellite.	
66	6.7.4	The serv	vice provider shall be responsible f	or driving the antenna and tracking the Satellite.	
67	6.8	Ground	System Requirements		
68	6.8.1				
		SI.No.	Description Va	lue	

	1	0	G/T	30 +/-0.5dB/°K or better at 5 ^o elevation, during transfer orbit
				and on-orbit phase with polarization matched to the on-board
				systems
	2	1	Antenna diameter	10 m or more
	3	<i>P</i>	Antenna Drive Mode	Monopulse/Autotrack, Program track, Manual, and Slew;
				Search: Spiral & Box scan, Augmented Autotrack (Autotrack
				with back ground program track)
	4	A	Antenna tracking	Capable to track CP signals as applicable to mission
	5	E	EIRP	Up to 82 dBW for tele-commanding/ranging in transfer orbit
	6	A	Antenna velocity	0.5 deg/sec minimum in both Az & El
69 6.8.2	Ku-ba	and G	Ground System Requireme	ents
69 6.8.2	Ku-ba	and G	iround System Requireme	ents
69 6.8.2		and G	Description	Value
69 6.8.2			· · ·	Value 34 dB/°K or better at 10 ⁰ elevation, during transfer orbit and
69 6.8.2	SI		Description	Value
69 6.8.2	SI		Description G/T	Value 34 dB/°K or better at 10 ⁰ elevation, during transfer orbit and
69 6.8.2	SI		Description	Value 34 dB/°K or better at 10° elevation, during transfer orbit and on-orbit phase with polarization matched to the on-board systems 8-meter or more.
69 6.8.2	SI.		Description G/T	Value 34 dB/°K or better at 10 ⁰ elevation, during transfer orbit and on-orbit phase with polarization matched to the on-board systems 8-meter or more. Monopulse/Autotrack, Program track, Manual, and Slew;
69 6.8.2	SI. 1		Description G/T Antenna diameter	Value 34 dB/°K or better at 10 ⁰ elevation, during transfer orbit and on-orbit phase with polarization matched to the on-board systems 8-meter or more. Monopulse/Autotrack, Program track, Manual, and Slew; Search: Spiral & Box scan, Augmented Autotrack (Autotrack)
69 6.8.2	SI. 1		Description G/T Antenna diameter	Value 34 dB/°K or better at 10 ⁰ elevation, during transfer orbit and on-orbit phase with polarization matched to the on-board systems 8-meter or more. Monopulse/Autotrack, Program track, Manual, and Slew;
69 6.8.2	SI. 1		Description G/T Antenna diameter	Value 34 dB/°K or better at 10 ⁰ elevation, during transfer orbit and on-orbit phase with polarization matched to the on-board systems 8-meter or more. Monopulse/Autotrack, Program track, Manual, and Slew; Search: Spiral & Box scan, Augmented Autotrack (Autotrack)
69 6.8.2	SI. 1 2 3		Description G/T Antenna diameter Antenna Drive Mode	Value 34 dB/°K or better at 10 ⁰ elevation, during transfer orbit and on-orbit phase with polarization matched to the on-board systems 8-meter or more. Monopulse/Autotrack, Program track, Manual, and Slew; Search: Spiral & Box scan, Augmented Autotrack (Autotrack with back ground program track)

70	6.8.3	The transmission and reception characteristics shall match the on-board polarization.	
71	6.8.4	MCF/ISRO shall access ACU parameters like tracking mode & time-stamped AZ and EL angle required	
		for the mission, by means of queries over TCP/IP	
72	6.8.5	Each of the network stations shall have hot redundancies for all the hardware elements including power	
		supply, uplink and downlink chains.	
73	6.8.6	Network station shall support Uplinks for ranging and commanding on two independent uplink chains	
		(independent uplink carriers) shall be supported either simultaneously or by switching.	
74	6.8.7	Network station shall support simultaneous downlinks for receiving two downlink carriers of Satellite	
		telemetry along with ranging tones.	
75	6.8.8	All the ground elements required for the support shall be service provider's responsibility excluding the	
		proprietary tele-command encoders of MCF/ISRO.	
76	6.8.9	Service provider is responsible for providing TCU/BBU for CCSDS based commanding.	
77	6.8.10	Downlink carrier from on-board will be modulated with any combination of Normal telemetry, Dwell	
		telemetry and Ranging. Downlink shall be shared between telemetry and ranging.	
78	6.8.11	Timing system accuracy of the network stations and NCC(s) shall be 10 ms or better.	
79	6.8.12	Timing System: GPS/GNSS based frequency and timing distribution system with timing accuracy of 10	
		ms or better.	
80	6.8.13	Network station shall support the availability of IRIG-B, NTP, 5/10 MHz reference for MCF/ISRO	
		command encoder.	
81	6.8.14	The service provider shall provide all the necessary Configuration documents of the network stations	
		and NCC (Main & redundant), along with the proposal/ bid.	
82	6.8.15	The service provider shall provide Standard Operation Procedure (SOP) document, necessary Interface	
		Control Documents (ICD), on award of Purchase Order under this RC which will be issued three months	
		before every mission. The documents shall contain detailed operational block diagrams of the network	
		stations, connectivity with the service provider's NCC, the configuration settings of the hardware	
		elements and the interface details of service provider's NCC with Satellite Control Center (SCC) of	
		MCF/ISRO.	
83	6.8.16	The service provider shall provide Contingency operation document, which includes procedures to be	
		followed during contingency at NCC, at network stations and contingency pertaining to data/voice links.	
84	6.8.17	One-time mandatory Compatibility test will be done for C-band & Ku-band stations in all Three regions	
Ì		before 4 months of first launch in each band after award of RC. Connectivity shall be established	
		between service provider's NCC & MCF/ISRO to substantiate station capability for supporting TOSS	

	operations of MCF/ISRO (To be jointly conducted by the Service Provider & MCF/ISRO). These tests shall	
	exhaustively cover all the tests required for Voice & Data connectivity	
6.9	Documents to be Provided along with Proposal/ bid	
6.9.1	Profile of Service Provider indicating expertise, endeavors, experience and the details of successful missions supported in the last ten years. These documents shall include the supporting documents mentioned in the vendor eligibility criteria.	
6.9.2	Configuration Documents along with version control consisting of:	
	Station RF & Baseband Configuration, drawing, capability and specifications.	
	NCC configuration and capabilities.	
	Link/network configuration.	
	Contingency recovery procedures	
6.10	Documents to be provided for each mission along with version controlInterface Control Document (ICD).	
	Station RF & Baseband Configuration, drawing, capability & specifications.	
	BBU & Converter settings.	
	NCC configuration	
	IP Address, LAN/WAN diagram	
6.11	Activities during TOSS Support of each Mission • Dataflow test with each Network Station	
	Two Network Dress Rehearsals (NDRs). Repetition of the tests shall be carried out if results are	
	not satisfactory based on MCF/ISRO request.	
	Activities specified in Section 6.2 for Overall Mission Support Requirement.	
	 During Dataflow test & NDRs Network station to carry out the following activities as per MCF/ISRO requirement. 	
	Configuration check and testing of all network elements, RF, Baseband & servo equipment	
	Antenna drive check	
	6.9.1 6.9.2 6.10	exhaustively cover all the tests required for Voice & Data connectivity 6.9 Documents to be Provided along with Proposal/ bid 6.9.1 Profile of Service Provider indicating expertise, endeavors, experience and the details of successful missions supported in the last ten years. These documents shall include the supporting documents mentioned in the vendor eligibility criteria. 6.9.2 Configuration Documents along with version control consisting of: • Station RF & Baseband Configuration, drawing, capability and specifications. • NCC configuration and capabilities. • Link/network configuration. • Contingency recovery procedures 6.10 Documents to be provided for each mission along with version control • Interface Control Document (ICD). • Station RF & Baseband Configuration, drawing, capability & specifications. • BBU & Converter settings. • NCC configuration • IP Address, LAN/WAN diagram 6.11 Activities during TOSS Support of each Mission • Dataflow test with each Network Station • Two Network Dress Rehearsals (NDRs). Repetition of the tests shall be carried out if results are not satisfactory based on MCF/ISRO request. • Activities specified in Section 6.2 for Overall Mission Support Requirement. • During Dataflow test & NDRs Network station to carry out the following activities as per MCF/ISRO requirement. • Configuration check and testing of all network elements, RF, Baseband & servo equipment

		 TTC operation with ISRO Test satellite. (If ISRO test satellite is not visible from particular network station, then service provider shall put maximum effort in providing a test satellite for the dataflow test / NDRs). Intermediate Frequency (IF/RF) Terminated mode or radiated mode of commanding to take spectrum plots of modulation deviation. Other spectrum plots and AGC plots as per real-time requirement. Spectrum plots, AGC plots & Failure report / fault report / deviations shall be sent to the MCF/ISRO identified email-ids. Observation reports, in case of delay/failure in carrying out mission related events (eg. AOS), shall be provided within 2 hours. Detailed failure reports /fault reports shall follow.
90	7	DURATION OF CONTRACT Ground Station/TTC network support rate contract will come into force from effective date for a period of FIVE years. Accordingly, the network provider shall provide prices which remain effective for FIVE years. In case any unforeseen situations or unsatisfactory service from network provider side, MCF/ISRO
		reserves right to pre-maturely terminate this contract with three months of advance notice to the TTC network provider. In case of any unforeseen situations arising at TTC network provider side, which may lead to termination of this contract, network provider shall provide minimum of six months advance notice to MCF/ISRO.
91	8	PRICING AND PAYMENT SCHEDULE The network service provider shall provide fixed prices (in price bid) which remain effective for five years or shall indicate prices for each year as applicable.

92	8.1	Payment schedule			
		Milestone After release of applicable Purchase order	Percentage of Total Fee/Price		
		1 Payment towards Licensing.	20%		
		Payment towards preparation of Network stations (3 months prior tinitially scheduled launch).	o 15%		
		Payment towards establishment of Datacom & carrying out rehears Tests (Typically T-30days).	al 15%		
		Payment on completion of Mission. However, payment shall be made as per actual number of day supported by each network station	50%		
		Total	100%		
93	8.1.1	A Purchase Order for each mission will be issued along with the technical parame mission after the Rate Contract establishment around T-3 months once the launch	•		
94	8.1.2	For all the milestones Payment will be done within 30 days after the submission of	nvoice.		
95	8.1.3	Insurance coverage for network stations is the responsibility of service provider, excluding the ISRO provided equipment.			
96	8.1.4	In case the launch is cancelled/called off/failure and if MCF/ISRO has paid excess amount to the service provider, then service provider is bound to return the excess amount after adjusting the expenses within 30 days of notice.			
97	8.1.5	Based on the ISRO Launch Manifest typically 15 launches (including C & Ku band) are expected in next 5 years. However, there is no commitment on number of launches during the contract period. The number of actual launches per year will vary (0-3) depending upon the ISRO's mission plan. During the contract period, in rare case, there may be One/more years where C-band launches are not scheduled or Ku-band launches are not scheduled.			
98	8.1.6	Prices shall be governed by the launch date. In case the LEOP operations of a missic end of a calendar year and spill over to the next calendar year, the prices shall hold year.			

99	8.1.7	Service provider shall quote for C-band and/or Ku-band missions (with own or partner antenna) in all	
		three regions.	
100	8.1.8	MCF/ISRO reserves the right to award separate rate contracts for C-band & Ku-band or a combined rate	
		contract for both. As per L1 evaluation separate RC will be signed as per the outcome.	
101	8.2	Service Fee: For each Mission, MCF shall pay Bidder the "Service Fee" specified in the applicable	
		Purchase Order under Rate Contract which is firm and fixed.	
102	8.3	Manner of Payment: MCF shall make all payments without offset, deduction or withholding and by	
		bank wire transfer. In addition, MCF shall be responsible for any and all transfer, exchange, or other	
		similar charges within India and similar charges outside India to the account of service provider. All	
		payments shall be paid to the banking account information specified in the applicable invoice or to such	
		other account as Bidder may instruct MCF in writing from time to time	
103	8.4	Taxes: Bidder shall quote prices inclusive of all applicable taxes and duties at their end.	
104	9	GENERAL TERMS AND CONDITIONS	
105	9.1	The bidder shall provide point-by-point technical compliance matrix table against all the support	
		requirements and specifications covered under this RFP. The bidder shall explicitly bring out all the	
		points in the remark column wherever the MCF/ISRO requirements are not met or exceeded.	
106	9.2	MCF/ISRO shall not be responsible for any loss, damage and safety of the network station equipment /	
		employee of TTC network provider while executing TTC service for Indian satellite / LV missions.	
107	9.3	TTC network provider shall not assign, sublet or delegate any part of this TTC support contract to any	
		sub-network provider without MCF/ISRO written consent.	
108	9.4	For all MCF/ISRO supplied equipment, Network provider shall ensure regulated electrical power and	
		environmental conditions for equipment to perform as desired.	
109	9.5	The bidder may obtain required clarifications, if any, before submitting the bid.	
110	9.6	MCF/ISRO reserves right to offer total TTC service to one party or enter into parallel contracts with	
		multiple parties.	
111	9.7	During the contract period if there are any other TTC/ data reception service requirements arising out	
		from future ISRO missions, the rate contract will be suitably amended with mutual agreement between	
		two parties.	
112	9.8	Pre-Bid Meeting	
		Bidder shall give his consent to participate in pre-bid meeting along with bid clarifications	
		through e-procurement portal.	
		Bidder may refer tender schedule for pre-bid meeting.	
		Diduct may refer tender schedule for pre-blu meeting.	

113	9.9	 The bidder must identify a contact person, phone number and mail ID to which any future correspondence may be addressed during the RFP stage of this solicitation. Pre-bid meeting shall be mandatorily attended in physical or virtual mode by the Technocommercial team from bidder. If site visit is required during pre-bid meeting, Bidder shall intimate about the same to MCF. The finalized document after pre-bid meeting shall be the baseline document for the entire contract and will be binding on the bidder. Bidder can request for site survey during pre-bid period to have better clarity on the tender requirement The tentative timeline for RFP process is as follows 			
	3.3	SI. De No 1 Da 2 Ve po me 3 Pre 4 Las	scription te of tender release ndor to seek clarifications (if any, through rtal only)/provide consent for pre-bid eeting e-bid meeting st date for Submission of bids ntative date of RC commencement	A + 10 days A + 12 days A + 40 days August 2024	
114	9.10	 Tender Instructions The Tenderers should submit quotations through ISRO e-Procurement portal complete in all respects with technical specifications, including pamphlets and catalogues. The authority of person signing the tender, if called for, shall be produced 			
115	9.11	Limitation of Bidder Liability: Bidder's cumulative liability for any and all claims arising under or in connection with this RC in the aggregate, shall be limited to the Service Fee for the applicable Mission Purchase Order, except in the case of willful misconduct or gross negligence.			

116	9.12	LICENSES, CLEARANCES AND PERMITS: Bidder shall use all reasonable efforts to obtain and maintain all	
		licenses, clearances and permits necessary for it to provide TOSS in accordance with its obligations	
		under this Rate Contract. Each Party shall use all reasonable efforts to cooperate with the other with	
		respect to the timely completion of such efforts. Such clearances shall be obtained at least two months	
		before the date of launch. It is clearly understood by the MCF that such services as envisaged herein	
		shall be provided only after obtaining all the regulatory Governmental clearances/approvals/licenses.	
117	9.13	FORCE MAJEURE: If the execution of contract is delayed due to reason of force majeure such as acts of	
		god, acts of public enemy, acts of Government, fires, floods, epidemics, quarantine restriction, strikes,	
		freight embargoes, etc., the Contractor shall give notice within 15 days to MCF in writing of his claim for	
		an extension of time. MCF on receipt of such notice after verification, if necessary, may agree to extend	
		the Contract delivery date as may be reasonable but without prejudice to other terms and conditions	
		of the Contract	
118	9.14	SECURITY DEPOSIT: On signing of the RC, Contractor shall at the option of the Purchaser and within the	
		period specified by him, in the form of Insurance Surety Bonds, Account Payee Demand Draft, FDR,	
		online payment or Standby LC in an acceptable form, as the Purchaser may determine, security deposit	
		of three percent (03%) of average per launch price over 5 years (Value of SD applicable separately for	
		C & Ku band). Such deposits shall be interest free & valid for a period of 5 years plus 2 months claim	
		period.	
119	9.15	Applicable Law: The Contract shall be interpreted, construed and governed by the laws of India.	
120	9.16	ARBITRATION: If at any time any question, dispute or difference whatsoever shall arise between the	
		purchaser and the Contractor upon or in connection with this Contract, either party may forthwith give	
		to the other notice in writing of the existence of such question, dispute or difference and the same shall	
		be referred to the adjudication of two arbitrators, one to be nominated by purchaser, other by a	
		Contractor and in the event of any difference of opinion, the arbitrators will refer the matter to the	
		umpire. The arbitration shall be conducted in accordance with the rules and procedure for arbitration	
		of the International Chamber of Commerce at Paris. The expense of the arbitrators and umpire shall be	
		paid as may be determined by them, the venue of such arbitration should be in India.	
121	9.17	COUNTER TERMS AND CONDITIONS OF SUPPLIERS: Where counter terms and conditions/printed or	
		cyclostyled conditions have been offered by the supplier, the same shall not be deemed to have been	
		accepted by the purchaser unless specific written acceptance thereof is obtained.	
122	9.18	LANGUAGE AND MEASURES: All documents pertaining to the Contract including specification, schedule,	
		notice, correspondence, operating and maintenance instructions, drawings or any other writings shall	

be written in English language. The metric system of measurement shall be used exclusively in	the	
Contract.		