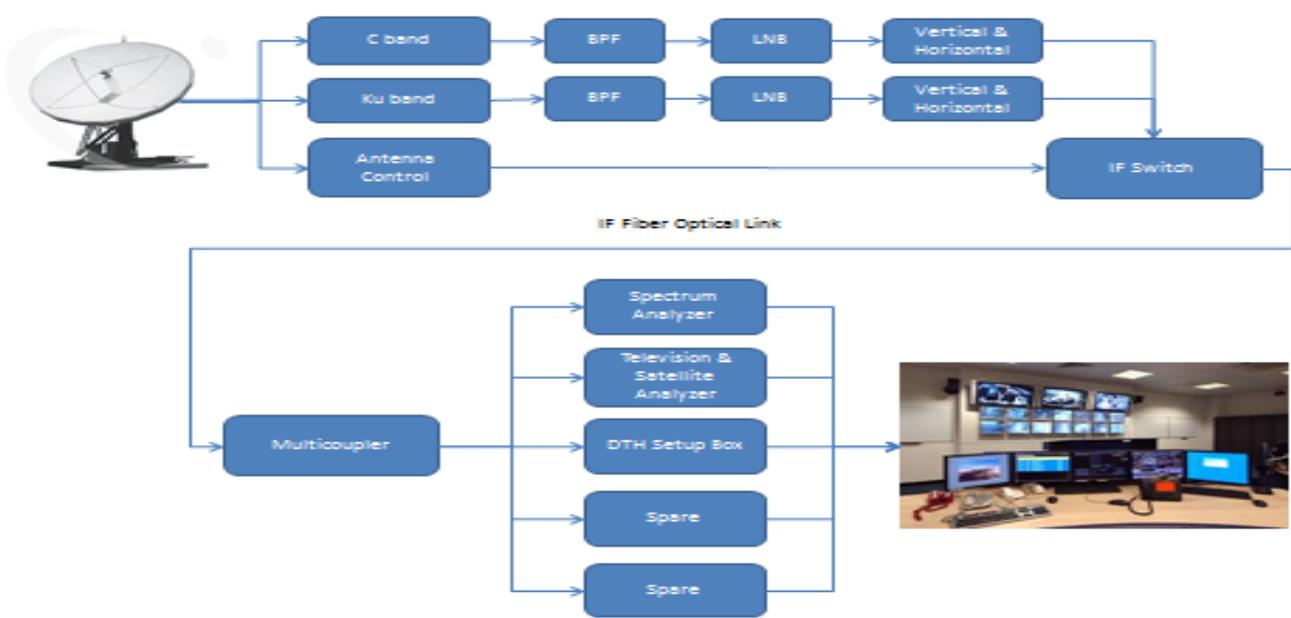


TENDER FOR THE DESIGN, SUPPLY, DELIVERY, INSTALLATION, TESTING, COMMISSIONING AND MAINTENANCE OF SUPER HIGH FREQUENCY (SHF) MONITORING SYSTEM

TENDER NO. : MCMC/MRD/SEIRD(1)/SHFMON/TCA/05/14(02)

Questions & Answers

No	Questions	Reply by MCMC
1	MMS A: Is the Spectrum Monitoring and Direction Finding measurement need to be conduct simultaneously or one measurement at one times?	It is explained under technical specification. We need to be able to monitor wanted and unwanted signal before DF. In the case of R&S system u need to provide 2 receivers because Argus is not capable to do this.
2	MMS B: Do the Antenna Mast maximum height need reach 10 meter as specify according to ITU?	In the tender document under item 5 & 7, it is not necessary to be 10m however, we do have the need of a mast that would enable us to get the best possible height (line of sight) for DFing that will cater the stability of the vehicle.
3	General diagram for SHF Monitoring Station	 <p>The diagram illustrates the SHF Monitoring Station architecture. It starts with a satellite dish connected to three parallel paths: C band, Ku band, and Antenna Control. The C band and Ku band paths each pass through a BPF (Band Pass Filter) and an LNB (Low Noise Amplifier) before reaching a Vertical & Horizontal polarization filter. The Antenna Control path bypasses these components. All three paths converge at an IF Switch. The output of the IF Switch is transmitted via an IF Fiber Optical Link to a Multicoupler. The Multicoupler then distributes the signal to four parallel processing units: a Spectrum Analyzer, a Television & Satellite Analyzer, a DTH Setup Box, and two Spare units. These units are connected to a monitoring room, which is depicted as a control center with multiple computer monitors and a desk.</p>

No	Questions	Reply by MCMC
4	<p>Clause under: - 7.15, 7.16 and 7.17 kindly please elaborate more about the statement mention 'Weather Proof'. May I know are you referring to also Horn Antenna beside BPF and In-line amplifier?</p>	<p>It is desirable that the horn antennas, BPF and inline amplifier (wiring, cabling, enclosure, waterproofing etc.) must be able to withstand the exposure to any form of weather without damage or effect to the measurement based on the tropical climate of Malaysia during operation.</p>
5	<p>(Appendix H) Items 6 & 10: while DF measurement - when the vehicle moving from one direction to another direction during DF'ing will the Antenna Mast was at elevated (extended) position or at re-tracked position. In term of safety purpose, our concern if the vehicle was in moving situation during the Antenna Mast was at extended or elevated position.</p>	<p>For MMS-B, DF tracking is to be performed while the mast is fully nested. The mast will only be extended while stationary if the signal is unable to be detected. Once the direction has been identified, the mast shall be retracted and the vehicle shall move towards the target area to continue the DF tracking.</p>
6	<p>What are the specifications, brand model for RMS used or owned by MCMC? What is the protocol used to communicate with the RMS? No. of RMS?</p>	<p>Current RMS is from TCI. 641 is model for its antenna and 715 is model for its system. Specification for its antenna is available at TCI website as follow: http://www.spx.com/en/assets/pdf/TCI%20641.pdf Please contact TCI for the specification of 715 system model.</p> <p>Communication between MMS-A or MMS-B with RMS shall utilize existing MCMC VPN network that uses OpenVPN protocol. Both MMS shall be able to access internet via cellular network. The Tenderer shall download and install the VPN client from https://openvpn.net/index.php/open-source/downloads.html. MCMC shall provide every MMS certificate and key files for the VPN access.</p> <p>There are total 22 RMS all over Malaysia. However more RMS will be introduced in the coming years.</p>
7	<p>What is the expected total weight & dimensions of MMS-A & MMS-B?</p>	<p>MCMC don't imposed any requirement for the weight & dimension of the vehicle as the design shall be proposed by the tenderer based on the main requirement as listed for MMS-A (Para 6 & Appendix G) and MMS-B (Para 7 & Appendix H) in the tender documents. However, tenderer must ensure that the vehicle is safe to be operated and approved by the relevant authorizing body (PUSPAKOM & JPJ) for operation. Tenderer shall also ensure that both vehicles can be driven using class D Malaysia driving license.</p>

No	Questions	Reply by MCMC
8	Other than storage of MMS-A & MMS-B systems in the vehicles, laptop mount, antennas etc., how many additional passengers must the vehicle accommodate & what other types of MCMC assets or additional storage needed?	At any one time, the vehicle shall be operated by 2 MCMC engineers. Preferable a 5 seater vehicle as any additional portable equipment could be stored at the rear seat compartment safely. Example of additional assets are drive test tools, power amplifiers, antennas, additional spectrum analyzers etc.
9	What are the expected location/test areas that both MMS-A & MMS-B used in? Urban areas/city/remote?	Both MMS should be able to operate in all areas as stated. MCMC foresee that both MMS will spend most time in urban areas. Small turning radius is expected in moving along the road within residential areas.
10	Types of interferences bands commonly interested in locating? (GSM, Wifi, ASTRO, ISM band, LTE bands etc.). Do you need detection/DF of wideband signals?	Please refer to Appendix G for MMS-A and Appendix H for MMS-B on the intended frequency ranges for detection. The common interferences are from non-standard devices operating in GSM, WCDMA, Wimax, LTE and C band satellite bands. DF of wideband signals is required.
11	What is the accuracy needed for the DF in meters terms? E.g. ±100m from actual signal or ±10m from actual signal for interference signals <6GHz?	DF accuracy is not measured in distance. Instead it is mentioned in bearing error as the system must be able to pin point the direction of the source with minimal error or deviations. It totally depends on the capability & sensitivity of the monitoring system as well as other factors that may influence the detection of a signal. Please refer to Appendix G & H for the minimum required standards as published by ITU.
12	MMS A: under item 6.10, No. 13 page 14 of 66, possible to elaborate more what it mean?	The proposed SA must have the capability to provide early warning if the input RF power or DC rating is beyond the equipment operating limit along with an in build protection to stop or suspend the measurement to avoid overpower damage at the front end of the SA while in operation.
13	Under Appendix I page 57 of 66 under items 9: Based on our experience and per your requirement:- the Satellite system Parabolic Antenna Dish for "C" and "KU" band - it supposedly only able to perform Satellite measurement BUT not Terrestrial measurement. Possible to elaborate it.	Satellite detection or measurement is a must. The requirement for Terrestrial detection is referring to the capability of the satellite dish to be steered 360° at 0° elevation if need be in event when there is in band (C and Ku bands) interference from terrestrial transmitters