

**المواصفات الفنية الخاصة بالمناقصة العامة**

**رقم المناقصة : (٢٠١١/٦٥)**

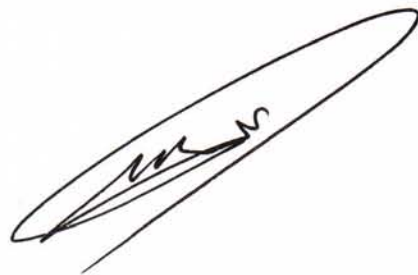
**الخاصة بشراء وتوريد (٧٥) وصلة ميكرووفيف مع التدريب**

**المؤسسة العامة للاتصالات السلكية واللاسلكية**

**الإدارة العامة للمشتريات والمخازن**

**إدارة المشتريات - قسم العقود والمناقصات**

# General Technical Specifications for 75-Links Digital Microwave Systems



## General Technical Specifications for 75 Links Digital Microwave Systems

---

### A- Basic Technical Specifications

- 1- Flexible pure IP packet microwave system
- 2- **System capacity:** pure packet services (upgradeable by software only)
- 3- **Loop Facilities:** Software Base Band, IF and RF Loopback.
- 4- **High Tx. Power:** >26dBm for 6,7GHz and > 22dBm for 13GHz (depend on capacity and modulation type ).
- 5- **ODUs Type:** All Links (small or big capacities) must have the same ODUs type
- 6- **User Interface:** E1 G.703, 120Ω Balanced with Ethernet ports10/100 Bas.
- 7- **SDH Systems Built-in ADM or Multiplexers**
- 8- **IDUs Type:** All Links (6,7&13 GHz) must have the same IDUs type
- 9- All SDH Links With ( STM-1 Automatic Protection Switch )

### B: Links Details:

#### 1- Technical Specifications 7 Links 6U GHz

- System Type: 7 Links SDH (1+1)
- Frequency Band: 6430 – 7110 MHZ ITU-R 384 (6.4 – 7.1 GHZ)  
Center Frequency 6770 MHZ
- Capacity: STM 1
- T/R Spacing: 340MHz
- System Configuration: 5 Links 1+1 HSB
- Interface type: Optical Fiber

#### 2- Technical Specifications for 49 Links 7GHz

- **Frequency Band:** 7425-7725 MHz - ITU-R F.385-6 & Fo = 7575 MHz.
- **T/R Spacing:** 161MHz.
- **Required System Capacity & Configuration:** See Table (1).  
4 Links 48E1s (1+1 HSB)  
4 Links 32E1s (1+1 HSB)  
27 Links 16E1s (1+1 HSB)  
16 Links 4E1s (1+0)
- **ODUs Type:** All Links (small or big capacities) must have the same ODUs type.
- **User Interface:** - E1 G.703, 120Ω Balanced with Ethernet ports10/100 Bas T.

#### 3- Technical Specifications for 17 Links 13GHz

- **Frequency Band:** 1275 – 1325 MHz (ITU-R F.497-5 CEPT)
- **T/R Spacing:** 266 MHz.
- **Required System Capacity & Configuration:** See Table (1).  
3 Links 16E1s (1+1 HSB)  
14 Links 4E1s (1+0)
- **ODUs Type:** All Links (small or big capacities) must have the same ODUs type.
- **User Interface:** E1 G.703, 120Ω Balanced with Ethernet ports10/100 Bas T.

## **C – General Technical Specifications**




- 1- Antenna Type: Andrew HP with Radom
- 2- Power Control: ATPC & MTPC
- 3- Operation Temperature Range:
  - IDU: -10 to +50 °c
  - ODU: -30 to +55 °c
- 4- Split Type: Equal Split
- 5- Aux. Data Channel: LAN, 64Kbit/s G.703, V11/V.28,Asy.RS232C
- 6- Power Source: ± 23 to 60 Volts D.C (Auto detection)
- 7- Low Power Consumption
- 8- Operation Humidity: for IDU 95% at +35°C and 100% for ODU
- 9- Weather proofing Outdoor Unit, high Wind resistance and low Weights
- 10- Frequency Stability: ± 5 or ± 6 ppm
- 11- Regulatory: CEPT
- 12- History Alarm Facilities
- 13- High Gain and High System Performance
- 14- IF Cable Type 8D-FB, 150m / Site ( 300m/Link 1+1) & 75m / Site ( 150m/Link 1+0)

## **D: The Offer Should be Include the flowing Points:**

- 1- Network Management System with protocol has a possibility to control any MW systems.
- 2- All equipments must be Capable to work with IP technology simply.
- 3- Training O&M for 10 Trainers (outside) 20 working days with full accommodation.
- 4- Factory Acceptances Test (2 Engineers) 5 Days.
- 5- Tributaries Cables for each site with Connectors (4meter).
- 6- Installation Materials for each site (DDF Frames, VS Tool, IF Connectors, Ground Kits, Racks 19 inch and IF Surge Protected Arresters, etc.).
- 7- Warranty for spear part and repair faulty units at list 5 years.
- 8- System Configuration Software (CD- ROM).
- 9- System Link should be labeling by site name.
- 10- The offer must include Spear Parts of 20% from the total quantity.
- 11-Local Craft Terminal (LCT) two set (Mobile Intel (R) Centrino Duo.3G RAM, 500G HD, DVD/CD-ROM -RW, LAN, FAX Mod. & Arabic Keyboards).
- 12- Documents (Hardcopy & Softcopy).
- 13- Radio Equipments should be made by One

General Technical Specifications for 75 Links Digital Microwave Systems Table (1)

No.	Sites Name	Direction	Dist.(Km)	Configuration & Capacity	Frequency Band (GHz)	Antenna Diameter (m)
1	MUNIF Mount.	AL-TURBAH	7.5	1+0 (4E1)	13	0.9
2	AWN Mount.	TAIZ	16	1+0 (4E1)	7	1.2
3	ALAF Mount.	AL-HASHA'A	29	1+0 (4E1)	7	1.2
4	AL-RUJA'A	SABER	40	1+1 (48E1)	7	1.8
5	AL NABI SHIAIB 2	JALIS	6	1+0 (4E1)	13	0.9
6	AL-QAFR	REHAB	13	1+0 (4E1)	13	1.2
7	REBAH	SUMARAH	10	1+0 (4E1)	13	1.2
8	AL-MANAR (BADAN)	AWD Mount.	24	1+0 (4E1)	7	1.2
9	SRAR	QARAH	7.5	1+0 (4E1)	13	1.2
10	AL WAEEL Mount.	AL-AREEF	42	1+0 (4E1)	7	1.8
11	AL-CAMP	AL-AREEF	11	1+0 (4E1)	13	1.2
12	NATA'A	AL-BADEAA	13	1+0 (4E1)	13	1.2
13	HORAN	AL-HABLAH	7	1+0 (4E1)	13	1.2
14	AL-MALAJM	AL-HABLAH	18	1+0 (4E1)	7	1.2
15	AL-DORIA'A	AL-ARR	20	1+0 (4E1)	7	1.2
16	AL-WAJR	TASLAH	14.5	1+0 (4E1)	7	1.2
17	AL-MALAH Mount.	AL-SALEEF	43	1+0 (4E1)	7	1.8
18	AL-BARADON	ASBEEL	18	1+0 (4E1)	7	1.2
19	BANI ASAD	SUMARAH	51	1+0 (4E1)	7	2.4
20	GHAIL HAMDAN	DAYN	7.5	1+0 (4E1)	13	0.9
21	MASWAR HADOR	BRIRAH	11.5	1+0 (4E1)	13	1.2
22	BANI DABIAN	AL-TARAF	45	1+0 (4E1)	7	1.8
23	DABRAN	KOAINAH	25	1+0 (4E1)	7	1.2
24	SHAMSAN KAIDAN	AL-MAHABISHAB	3.5	1+0 (4E1)	13	0.6
25	SORWAH	HAILAN Mount.	5	1+0 (4E1)	13	0.6



No.	Sites Name	Direction	Dist.(Km)	Configuration & Capacity	Frequency Band (GHz)	Antenna Diameter (m)
26	AL-TLILI Mount.	AL-ZAFN	14.5	1+0 (4E1)	7	1.2
27	AL-LOB Mount.	BANI GHITH	17.5	1+0 (4E1)	7	1.2
28	GALAS	AL DALA'A L.E	5.5	1+0 (4E1)	13	0.6
29	AL-SHOAIB	AL-AWBAL	10	1+0 (4E1)	13	1.2
30	DAYN	RIAM ARHAB	20	1+1 (16E1)	7	1.2
31	RIAM ARHAB	AL-ALAMEEN	30	1+1 (16E1)	7	1.2
32	AL-MUBBAH	ZABEED	35	1+1 (32E1)	7	1.2
33	AL-DAN	ATOMAH	30	1+1 (32E1)	7	1.2
34	ATOMAH	SUMARAH	40	1+1 (48E1)	7	1.8
35	Alissy	Sumara	48.7	1+1 (STM1)	6	2.4
36	AL-QABREEN	QURAD	35	1+1 (32E1)	7	1.2
37	DAYN	QARN ALAJAM	35	1+1 (32E1)	7	1.2
38	AL-AHMAR Mount.	AL-ABLAH	25	1+1 (48E1)	7	1.2
39	AL-AHMAR Mount.	AL-TALAH	25	1+1 (16E1)	7	1.2
40	AL-AHMAR Mount.	AL-ROKAB	40	1+1 (16E1)	7	1.8
41	AL-AHMAR Mount.	AUMARAH	40	1+1 (16E1)	7	1.8
42	AL-AHMAR Mount.	AL-NAWAH	40	1+1 (48E1)	7	2.4
43	AL-ARW Mount.	AL-DAMAG	30	1+1 (16E1)	7	1.2
44	HARAD	AL-DAMAG	45	1+1 (16E1)	7	2.4
45	JAMARK HARAD	AL-MAFTAH	45	1+1 (16E1)	7	1.8
46	MARA'A	AL-TALH	35	1+1 (16E1)	7	1.8
47	AL-THANIAH	AL-TALH	30	1+1 (16E1)	7	1.2
48	MAFTAH	AL-NAWAH	28	1+1 (16E1)	7	1.2
49	AL-DAMAG	AL-NAWAH	29	1+1 (16E1)	7	1.2
50	Sana'a	Ayban	12	1+1 (STM1)	6	1.8
51	Ayban	Yesleh	41.9	1+1 (STM1)	6	2.4
52	Yesleh	Alissy	52.6	1+1 (STM1)	6	2.4
53	Alissy	Dhamar	13.5	1+1 (STM1)	6	2.4
54	Radman	Masar	40.5	1+0 (4E1)	7	1.2
55	Madrojah	Abtha	24	1+0 (4E1)	7	1.2

No.	Sites Name	Direction	Dist.(Km)	Configuration & Capacity	Frequency Band (GHz)	Antenna Diameter (m)
56	Asad Al kamel	BVS1	32	1+1 (16E1)	7	1.8
57	BVS1	BVS2	32.5	1+1 (16E1)	7	1.8
58	DAYN	RIAM ARHAB	20	1+1 (16E1)	7	1.2
59	RIAM ARHAB	AL-ALAMEEN	30	1+1 (16E1)	7	1.2
60	Bait Al sadi	Abs	28	1+1 (16E1)	7	1.2
61	aL Jah	Jales	27	1+1 (16E1)	7	1.2
62	AL-TLILI Mount.	AL-ZAFN	14.5	1+1 (16E1)	7	1.2
63	AL-LOB Mount.	BANI GHITH	17.5	1+1 (16E1)	7	1.2
64	GALAS	AL DALA'A L.E	5.5	1+1 (16E1)	13	0.6
65	AL-SHOAIB	AL-AWBAL	10	1+1 (16E1)	13	1.2
66	Radman	Masar	40.5	1+1 (16E1)	7	1.2
67	Madrojah	Abtha	24	1+1 (16E1)	7	1.2
68	Al shahba	BVS8	22.5	1+1 (16E1)	13	1.2
69	Khamer	Shehara	35	1+1 (16E1)	7	1.2
70	Al Hasha	Al Msimeer	30	1+1 (16E1)	7	1.2
71	Al Tarf	Bani Dhabyan	44	1+1 (16E1)	7	1.8
72		Link 1 Spare		1+1 (STM1)	6	2.4
73		Link 2 Spare		1+1 (STM1)	6	2.4
74		Link 3 Spare		1+1 (16E1)	7	1.2
75		Link 4 Spare		1+1 (16E1)	7	1.2

