International Civil Aviation Organization
CAR/SAM Regional Planning and Implementation Group (GREPECAS)
Seventeenth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/17)
(Cochabamba, Bolivia (Plurinational State of), 21 to 25 July 2014)

Agenda Item 4: **Regional Air Navigation Planning and Implementation Performance Framework: Review of Programmes and Projects**
4.4 Ground-Ground and Ground-Air Communication Infrastructure Programme Projects

MEVA III NETWORK IMPLEMENTATION

(Presented by Secretariat)

SUMMARY

This working paper presents progress of the MEVA III Network implementation activities and interconnections to other regional networks. The MEVA Network is the regional telecommunication network serving as the communication, navigation and surveillance infrastructure for air navigation and the future Aeronautical Telecommunication Network (ATN) for the CAR Region.

References

- MEVA III Request for Information (RFI) Process (September – November 2012)
- MEVA III Tender Process (June – September 2013)
- Twenty-sixth MEVA Technical Management Group (MEVA TMG/26) Meeting, Mexico City, Mexico, 4 to 7 June 2013
- Twenty-seventh MEVA Technical Management Group (MEVA TMG/27) Meeting, Mexico City, Mexico, 14 to 16 October 2013
- Twenty-eighth MEVA Technical Management Group (MEVA TMG/28) Meeting, Miami, United States, 26 to 30 May 2014

Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency • Environmental Protection

1. Introduction

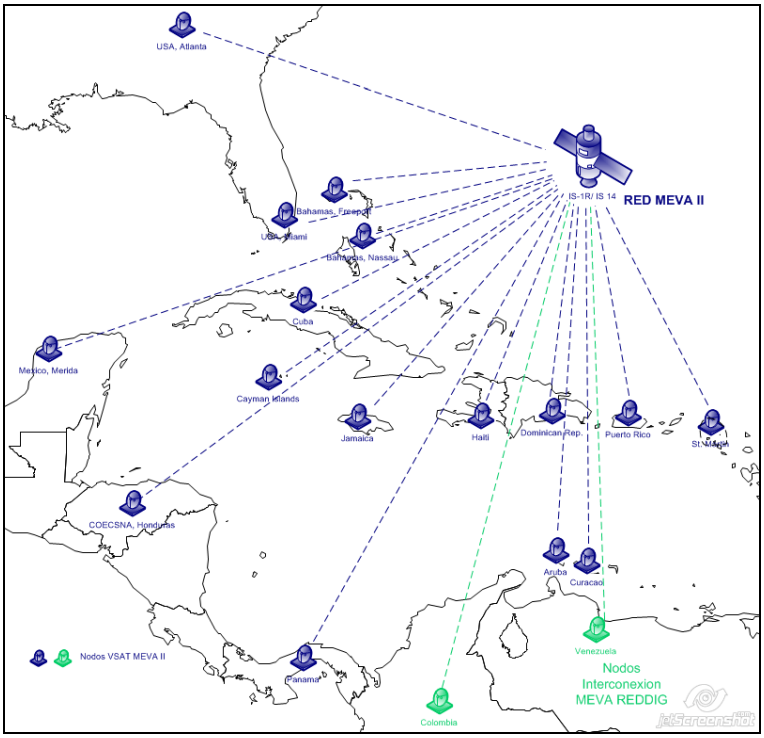
1.1 The MEVA satellite network has been fully operational since 1999 as MEVA I, consisting of a C-band Demand Assigned Multiple Access – Very Small Aperture Terminal (DAMA-VSAT) satellite network providing integrated voice and data services between ICAO Member States, airports and air traffic control facilities throughout the Central Caribbean area. The MEVA I Network replaced the less reliable and costlier undersea leased telecommunications cables that had been used in the past.

1.2 A MEVA I Network modernization phase, designated as the MEVA II Network, was initiated in 2005 under a ten-year contract consisting of five fixed years and five optional years. The network has been performing according to expectations and requirements, and has seen increased services carried over the network since its inception. The contract is coming to an end and new technology is available to accommodate new telecommunications demands.

1.3 Similarly, the MEVA II Network is currently interconnected with the REDDIG Network through the MEVA nodes in COCESNA and the REDDIG nodes in Bogota and Caracas, representing the joint network agreements between both regional networks and facilitating the efficient telecommunication service between regions.

1.4 The MEVA II Network service is provided by 18 nodes, whose Network Operation Center (NOC) operates in Miami and the Master Reference Terminal/Alternate Master Reference Terminal (MRT/AMRT) operate in Miami and Atlanta, respectively. Figure 1 illustrates the distribution of the 18 nodes.

Figure 1. MEVA II Network



2. Discussion

2.1 Considering the completion of the MEVA II Network services contract term and the need to review the MEVA architecture and services to ensure that the network will support emerging requirements in a cost effective manner, a Request for Information (RFI), conducted by ICAO on behalf of the MEVA Members, was released to the industry in 2012 to explore solutions currently offered by the telecommunication industry that would meet the present and future requirements of the MEVA community. MEVA Members analyzed the responses to the RFI and agreed on the architecture for the MEVA III Network.

2.2 ICAO, on behalf of the MEVA Technical Management Group (TMG), issued a Request for Proposal (Tender Package) to the VSAT telecommunication services industry in June 2013 inviting submission of technical and cost proposals for MEVA III VSAT telecommunications services. The tender process was completed in November 2013 and, since the beginning of 2014, negotiation has been conducted with the tender process winning bidder – Comsoft.

2.3 The MEVA III Network will be a C-band VSAT/Multifrequency (MF)-Time Division Multiple Access/Internet Protocol (TDMA/IP) satellite solution under the IS-14 satellite with multiprotocol and flexible interface that will support all voice and data communication services for air traffic control and coordination in the Central Caribbean area with single or dual chain configurations and Commercial-Off-The-Shelf (COTS) equipment and/or software.

2.4 MEVA III will maintain the current telecommunications circuit connectivity between VSAT nodes in the MEVA III Network and the nodes in the REDDIG II VSAT Network in South America. The MEVA III Network is capable of supporting future CAR Region and sub-regions Air Traffic Service (ATS) requirements with circuit telecommunication services compatible with the requirements of Aeronautical Message Handling System (AMHS), Aeronautical Telecommunication Network (ATN), Controller-Pilot Data Link Communication (CPDLC), Global Navigation Satellite System (GNSS), Very High Frequency (VHF), radar data sharing and other aeronautical services.

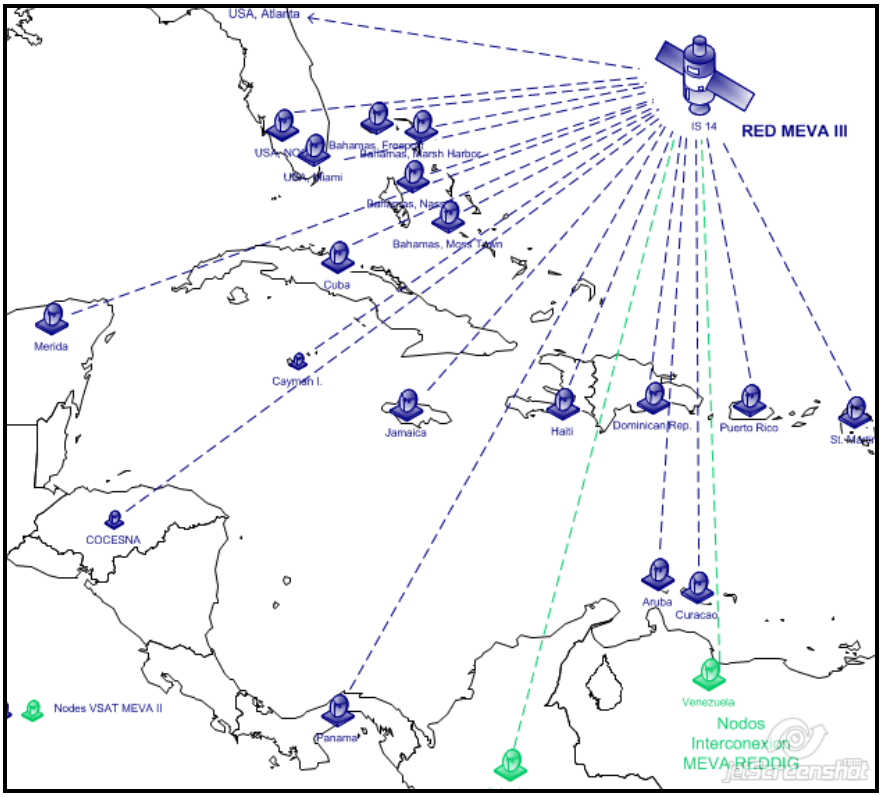
2.5 The MEVA III Network represents a total telecommunications service solution for MEVA III users that will minimize the cost of ownership and operation while at the same time will meet all of the functional and performance requirements as specified in the MEVA III Service Level of Agreement and the monitoring/reporting requirements. MEVA III implementation is in almost all cases leased end-to-end. VSAT terminals in the MEVA III Network will be constantly monitored and controlled by Comsoft's Network Management Center (NMC) and backup NMC. Some basic characteristics of the network are as follows:

Characteristic	Description
Network Topology	Full Mesh Capability
Availability	99.9% minimum
Efficiency	Reduced bandwidth consumption
Security	Authentication & Security Procedures Options
Scalability	Seamless addition of new sites and/or services
Versatility	Supports Voice (E&M, FXO, FXS), Header Compression with VoIP Data (Legacy, X.25, v24, v35, Ethernet, HDLC) TCP/IP PAMA, DAMA
Redundancy	Hardware and/or physical media
NOC	24/7, English/Spanish
Satellite Access	MF-TDMA
Services	Shoutlines Dialed voice lines VHF voice channels with keying options X.25 circuits IP circuits Radar circuits Maintenance line (2400)

Characteristic	Description
Technology	TCP/IP based satellite network
Equipment	Leased, purchased
Monitoring and Control	Provided by Service Provider NMS Available as live read-only for all the members via website
Satellite	IS-14
Interconnectivity	REDDIG II Network, E/CAR AFS Network
Spare Parts	On site, Centralized
Preventive Maintenance	Annual timing at the discretion of each Member
Disaster Recovery	Optional
Cost Reduction	Reuse of equipment Reduced bandwidth Reduced Recurring Monthly Costs Low NRC
Troubleshooting & Corrective Maintenance	24/7 Call Support (No Additional Charge) Troubleshooting ticket system & System Message Recording Details Dispatch Tech (Next-Flight) On-Site Negotiated Custom Service Contracting Agreement

2.6 With the implementation of the MEVA III Network, three additional nodes will be added – two in Bahamas and one in Miami for the new NOC, resulting in the following MEVA III Network configuration:

Figure 2. MEVA III Network



2.7 Each MEVA Member will sign individual contracts with the MEVA III Service Provider - Comsoft. The target date for all contracts to be signed and all individual contracts to be completed is 31 July 2014.

2.8 Implementation of the MEVA III Network is planned to begin in August 2014 and be operational by the first quarter of 2015. The MEVA III implementation schedule is presented as **Appendix** to this paper.

2.9 The interconnection of the MEVA-Eastern Caribbean (E/CAR) AFS Networks is also included under MEVA III implementation through San Juan, Puerto Rico. Coordination for the MEVA III-REDDIG II interconnections has already started and a joint network meeting for MEVA III-REDDIG II interconnection is scheduled for 2015.

3. Suggested actions

3.1 The Meeting is invited to:

a) review the MEVA III implementation activities information;

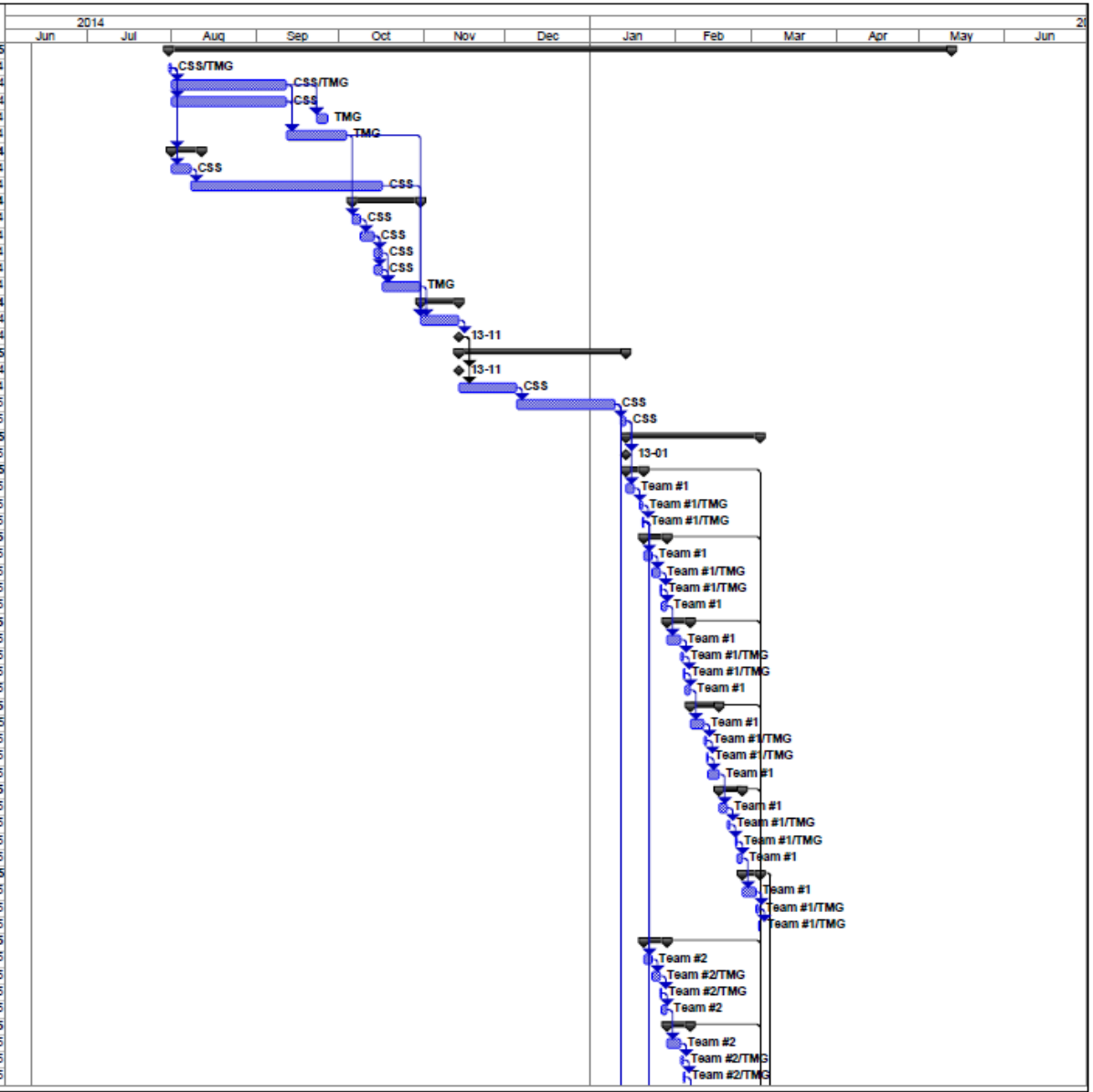
b) analyze the MEVA III implementation activities based on the current MEVA II satisfactory and profitable operation and maintenance experience, in the form of Services supply; and

c) suggest any action as deemed necessary.

- - - - - -

PROJECT MEVA III

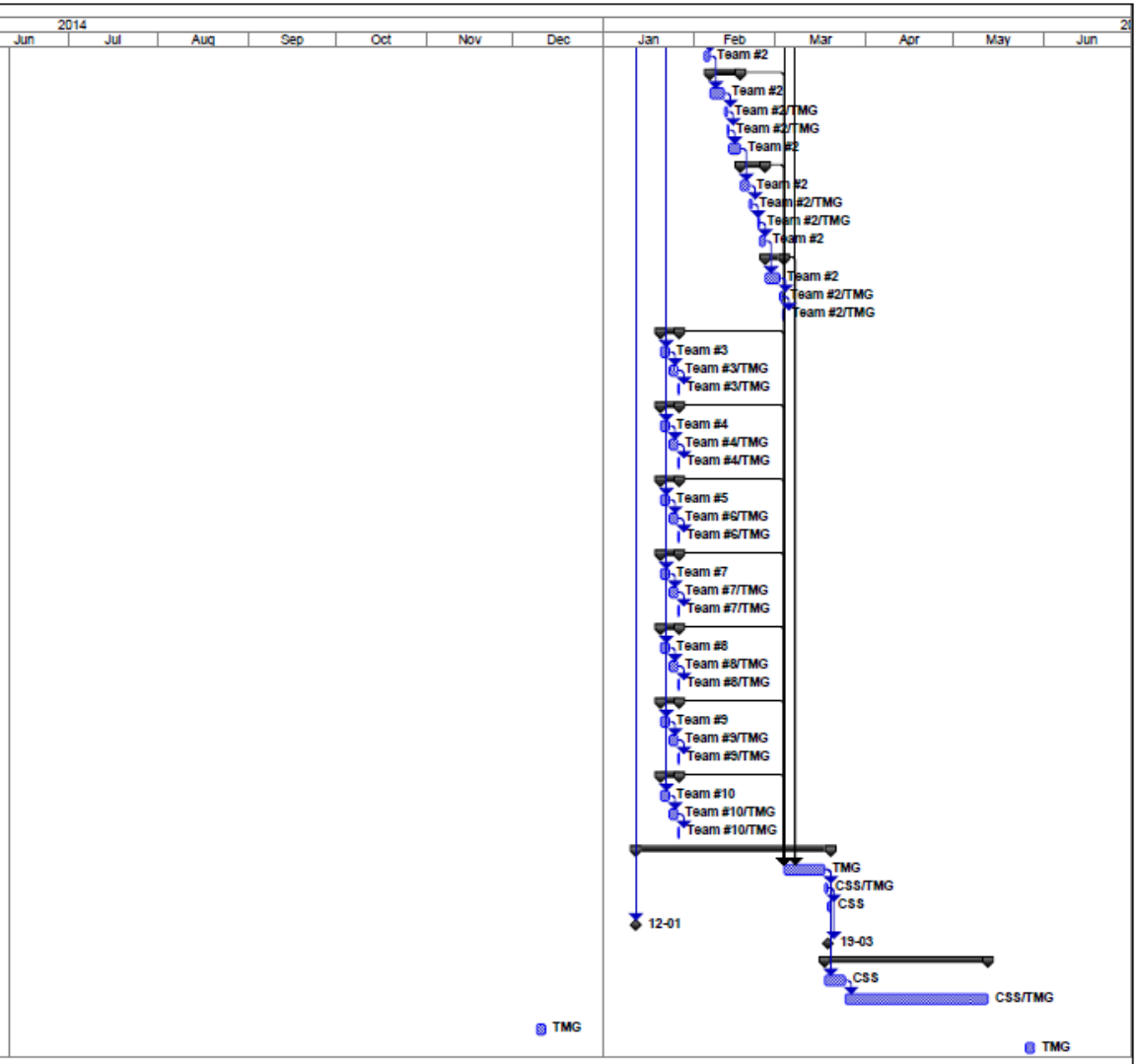
ID	Vorgangsname	Start	Finish
1	**Project MEVA III**	**Thu 31-07-14**	**Tue 12-05-15**
2	Signiture of Contract	Thu 31-07-14	Thu 31-07-14
3	Preparation of System Design Document (SDD)	Fri 01-08-14	Thu 11-09-14
4	Preparation of Transition Plan	Fri 01-08-14	Thu 11-09-14
5	MEVA III TF/03 Meeting	Tue 23-09-14	Fri 26-09-14
6	Document Approval by TMG	Fri 12-09-14	Fri 03-10-14
7	**Site Surveys**	**Thu 31-07-14**	**Mon 11-08-14**
30	Placement of Equipment Orders	Fri 01-08-14	Thu 07-08-14
31	Lead Time for Equipment Delivery	Fri 08-08-14	Thu 16-10-14
32	**System Engineering**	**Mon 06-10-14**	**Thu 30-10-14**
33	System Design	Mon 06-10-14	Wed 08-10-14
34	Preparation Equipment Config.	Thu 09-10-14	Mon 13-10-14
35	Preparation of SAT Procedures	Tue 14-10-14	Thu 16-10-14
36	Preparation of FAT Procedures	Tue 14-10-14	Thu 16-10-14
37	Approval of SAT & FAT documents	Fri 17-10-14	Thu 30-10-14
38	**FAT**	**Fri 31-10-14**	**Thu 13-11-14**
39	FAT, (preparation & executions)	Fri 31-10-14	Thu 13-11-14
40	Provision of FAT Documents	Thu 13-11-14	Thu 13-11-14
41	**Delivery**	**Thu 13-11-14**	**Tue 13-01-15**
42	Provision of Shipment Documents	Thu 13-11-14	Thu 13-11-14
43	Equipment Shipping	Fri 14-11-14	Thu 04-12-14
44	Customs Clearing	Fri 05-12-14	Fri 09-01-15
45	Equipment Shipping to Sites	Mon 12-01-15	Tue 13-01-15
46	**Installation**	**Tue 13-01-15**	**Tue 03-03-15**
47	Miami Newcom Teleport Installation	Tue 13-01-15	Tue 13-01-15
48	**Atlanta (Master)**	**Wed 14-01-15**	**Tue 20-01-15**
49	Onsite Installation	Wed 14-01-15	Fri 16-01-15
50	OJT On the Job Training for Customer	Mon 19-01-15	Mon 19-01-15
51	SAT	Tue 20-01-15	Tue 20-01-15
52	**Cuba**	**Tue 20-01-15**	**Wed 28-01-15**
53	Onsite Installation	Tue 20-01-15	Fri 23-01-15
54	OJT On the Job Training for Customer	Fri 23-01-15	Mon 26-01-15
55	SAT	Mon 26-01-15	Mon 26-01-15
56	Travelling	Tue 27-01-15	Wed 28-01-15
57	**Bahamas (Nassau)**	**Thu 29-01-15**	**Fri 06-02-15**
58	Onsite Installation	Thu 29-01-15	Mon 02-02-15
59	OJT On the Job Training for Customer	Tue 03-02-15	Tue 03-02-15
60	SAT	Wed 04-02-15	Wed 04-02-15
61	Travelling	Wed 04-02-15	Fri 06-02-15
62	**Bahamas (Freeport)**	**Fri 06-02-15**	**Mon 16-02-15**
63	Onsite Installation	Fri 06-02-15	Wed 11-02-15
64	OJT On the Job Training for Customer	Wed 11-02-15	Thu 12-02-15
65	SAT	Thu 12-02-15	Thu 12-02-15
66	Travelling	Fri 13-02-15	Mon 16-02-15
67	**Dominican Republic (Santo Domingo)**	**Tue 17-02-15**	**Wed 25-02-15**
68	Onsite Installation	Tue 17-02-15	Thu 19-02-15
69	OJT On the Job Training for Customer	Fri 20-02-15	Fri 20-02-15
70	SAT	Mon 23-02-15	Mon 23-02-15
71	Travelling	Mon 23-02-15	Wed 25-02-15
72	**Haiti (Port au Prince)**	**Wed 25-02-15**	**Tue 03-03-15**
73	Onsite Installation	Wed 25-02-15	Mon 02-03-15
74	OJT On the Job Training for Customer	Mon 02-03-15	Tue 03-03-15
75	SAT	Tue 03-03-15	Tue 03-03-15
76	**Aruba**	**Tue 20-01-15**	**Wed 28-01-15**
77	Onsite Installation	Tue 20-01-15	Fri 23-01-15
78	OJT On the Job Training for Customer	Fri 23-01-15	Mon 26-01-15
79	SAT	Mon 26-01-15	Mon 26-01-15
80	Travelling	Tue 27-01-15	Wed 28-01-15
81	**Curaçao**	**Thu 29-01-15**	**Fri 06-02-15**
82	Onsite Installation	Thu 29-01-15	Mon 02-02-15
83	OJT On the Job Training for Customer	Tue 03-02-15	Tue 03-02-15
84	SAT	Wed 04-02-15	Wed 04-02-15



Projekt: MEVA III - Project Plan
Datum: Wed 11-06-14

Vorgang	Projektsammelvorgang	Inactive Task	Duration-only	Finish-only			
Unterbrechung	Externe Vorgänge	Inactive Milestone	Manual Summary Rollup	In Arbeit			
Meilenstein	Externer Meilenstein	Inactive Summary	Manual Summary	Stichtag			
Sammelvorgang	Inactive Task	Manual Task	Start-only				

ID	Vorgangsname	Start	Finish
85	Travelling	Wed 04-02-15	Fri 06-02-15
86	**Jamaica (Kingston)**	**Fri 06-02-15**	**Mon 16-02-15**
87	Onsite Installation	Fri 06-02-15	Wed 11-02-15
88	OJT On the Job Training for Customer	Wed 11-02-15	Thu 12-02-15
89	SAT	Thu 12-02-15	Thu 12-02-15
90	Travelling	Fri 13-02-15	Mon 16-02-15
91	**St. Maarten (Philipsburg)**	**Tue 17-02-15**	**Wed 25-02-15**
92	Onsite Installation	Tue 17-02-15	Thu 19-02-15
93	OJT On the Job Training for Customer	Fri 20-02-15	Fri 20-02-15
94	SAT	Mon 23-02-15	Mon 23-02-15
95	Travelling	Mon 23-02-15	Wed 25-02-15
96	**Caiman Islands (Georgetown)**	**Wed 25-02-15**	**Tue 03-03-15**
97	Onsite Installation	Wed 25-02-15	Mon 02-03-15
98	OJT On the Job Training for Customer	Mon 02-03-15	Tue 03-03-15
99	SAT	Tue 03-03-15	Tue 03-03-15
100	**Miami**	**Tue 20-01-15**	**Mon 26-01-15**
101	Onsite Installation	Tue 20-01-15	Fri 23-01-15
102	OJT On the Job Training for Customer	Fri 23-01-15	Mon 26-01-15
103	SAT	Mon 26-01-15	Mon 26-01-15
104	**Bogota**	**Tue 20-01-15**	**Mon 26-01-15**
105	Onsite Installation	Tue 20-01-15	Fri 23-01-15
106	OJT On the Job Training for Customer	Fri 23-01-15	Mon 26-01-15
107	SAT	Mon 26-01-15	Mon 26-01-15
108	**COCESNA (Honduras/Tegucigalpa)**	**Tue 20-01-15**	**Mon 26-01-15**
109	Onsite Installation	Tue 20-01-15	Fri 23-01-15
110	OJT On the Job Training for Customer	Fri 23-01-15	Mon 26-01-15
111	SAT	Mon 26-01-15	Mon 26-01-15
112	**Mexico (Merida)**	**Tue 20-01-15**	**Mon 26-01-15**
113	Onsite Installation	Tue 20-01-15	Fri 23-01-15
114	OJT On the Job Training for Customer	Fri 23-01-15	Mon 26-01-15
115	SAT	Mon 26-01-15	Mon 26-01-15
116	**Panama (Panama City)**	**Tue 20-01-15**	**Mon 26-01-15**
117	Onsite Installation	Tue 20-01-15	Fri 23-01-15
118	OJT On the Job Training for Customer	Fri 23-01-15	Mon 26-01-15
119	SAT	Mon 26-01-15	Mon 26-01-15
120	**Puerto Rico (San Juan)**	**Tue 20-01-15**	**Mon 26-01-15**
121	Onsite Installation	Tue 20-01-15	Fri 23-01-15
122	OJT On the Job Training for Customer	Fri 23-01-15	Mon 26-01-15
123	SAT	Mon 26-01-15	Mon 26-01-15
124	**Venezuela (Caracas)**	**Tue 20-01-15**	**Mon 26-01-15**
125	Onsite Installation	Tue 20-01-15	Fri 23-01-15
126	OJT On the Job Training for Customer	Fri 23-01-15	Mon 26-01-15
127	SAT	Mon 26-01-15	Mon 26-01-15
128	**NAT (Network Acceptance Test)**	**Mon 12-01-15**	**Thu 19-03-15**
129	Switch-over of active connections	Wed 04-03-15	Tue 17-03-15
130	Shut down of MEVA II	Wed 18-03-15	Wed 18-03-15
131	Switch to final modulation & coding of MEVA III network	Thu 19-03-15	Thu 19-03-15
132	Start of Space Segment Contract	Mon 12-01-15	Mon 12-01-15
133	Start of Service Charges	Thu 19-03-15	Thu 19-03-15
134	**General**	**Wed 18-03-15**	**Tue 12-05-15**
135	As-built Documentation to Sites	Wed 18-03-15	Tue 24-03-15
136	Level 2/restauration Customer Trainings / date / time / amount tbd.	Wed 25-03-15	Tue 12-05-15
137	MEVA TMG/29 Meeting	Tue 09-12-14	Thu 11-12-14
138	MEVA TMG/30 Meeting	Tue 26-05-15	Thu 28-05-15



Projekt: MEVA III - Project Plan
Datum: Wed 11-06-14

Vorgang	Projektsammelvorgang	Inactive Task	Duration-only	Finish-only			
Unterbrechung	Externe Vorgänge	Inactive Milestone	Manual Summary Rollup	In Arbeit			
Meilenstein	Externer Meilenstein	Inactive Summary	Manual Summary	Stichtag			
Sammelvorgang	Inactive Task	Manual Task	Start-only				

Seite 2

— END —