	B	C	D	E	F	G	H	I	J	K	L
2							Response by Network Service Provider				
3		**Best practices**	**Guidance material**			**Questions**	**Compliant**		**Elaborate in more detail on compliance option selected**	**Indicate planned actions to address Gap**	**Expected Budgetary cost to address Gap**
4							**Yes**	**No**	(Attach separate documentation if necessary)	(Attach separate documentation if necessary)	
5	**1.Year of completion**	Not applicable									
6	**2.Period of Inception**	Not applicable									
7	**3.Membership**	Not applicable									
8	**4.Satellite used**	Contingency planning required to ensure continuity of service in case of disruption or failure of operated satellite States shall provide the degree of facility reliability and availability consistent with their operational requirement.	ICAO, Annex 11 — Air Traffic Services, Section 2.30 ICAO, Annex 10, Volume I, Section 2.5 and Attachment F ICAO, Doc 9859 - Safety Management Manual.			**Satellite contingency Planning**					
9				4,1		Indicate which satellite is used					
10				4,2		Indicate the life expectancy of the satellite					
11				4,3		Describe what alternative arrangements exist, should there be a catastrophic failure of the satellite in use					
12				4,4		Indicate whether reserved spectrum is available on **another** satellite					
13				4,5		Should operation be moved from the existing satellite to another satellite, what will be the procedure to re-establish services?					
14						**Facility Reliability, Availability & Security**					
15				4,6		Indicate whether all the VSAT network terminals are located in a secure area under the jurisdiction of the ANSPs					
16				4,7		Confirm that no unauthorized persons have access to the VSAT network terminals					
17				4,8		Is an Un-interruptible Power Supply available for the VSAT terminal					
18				4,9		If so, what is the back-up time					
19				4.10		Describe what happens after the back-up time has elapsed.					
20				4.11		Is there no-break power available on the airport and is the VSAT connected to that supply?					
21				4.12		Indicate whether the ATS/DS services, AFTN services, etc. are dependent on terrestrial data cables or other services located outside the security area of the ANSP's, in other words where the ANSP does not have any control over its availability, management , etc.					
22				4.13		If so, indicate the approximate length of the terrestrial data cable that is outside the security area of the ANSP's					
23				4.14		Indicate any other data cables or supporting services related to the VSAT service that is located outside the security area of the ANSP's					
24											

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3		Best practices	Guidance material	Questions			Compliant		Elaborate in more detail on compliance option selected	Indicate planned actions to address Gap	Expected Budgetary cost to address Gap
4							Yes	No	(Attach separate documentation if necessary)	(Attach separate documentation if necessary)	
25	**5.Transponder (Up/Down)**	Contingency planning required to ensure continuity of service in case of disruption or failure of operated satellite States shall provide the degree of facility reliability and availability consistent with their operational requirement.	ICAO, Annex 11 — Air Traffic Services ICAO, Annex 10, Volume I, Section 2.5 and Attachment F ICAO, Doc 9859 - Safety Management Manual.	5,1		Indicate which satellite transponder(s) are used					
26				5.2		Indicate what contingency arrangements are in place by the satellite service provider in case to ensure continuity of services					
27				5.3		Is the spectrum in use based on non-preemptible service					
28				5.4		Indicate when the present lease agreement will expire					
29				5.5		Is a first right of refusal available when the lease expires					
30				5.6		If not, describe what arrangements are in place to ensure continuation of the VSAT services					
31											
32	**6.Frequency band**	In accordance with ITU Radio Regulations	ITU, Radio Regulations	6,1		Indicate the frequency bands utilized by the satellite services and the Beam Type (e.g. East Hemi beam, Global beam, etc)					
33				6,2		Confirm that the VSAT services comply with the ITU requirements for the frequency bands utilized					
34											
35	**7.Topology**	Meshed network		7,1		Is the network topology meshed					
36				7,2		Is the network topology a combination of star & meshed					
37				7,3		Is the star topology upgradable to a meshed topology					
38				7.4		If so, describe briefly what the upgrade will involve					
39											
40	**8.Satellite access method**	Multiple Frequency —Time Division Multiple Access (MF-TDMA)	ICAO, Annex 10, Aeronautical Telecommunications, Volume III ICAO, Doc 9776, Manual on VHF Digital Link Mode 2 ICAO, Doc 9805, Manual on VHF Digital Link Mode 3	8.1		Is the network satellite access method based on MF-TDMA					
41				8.2		If the network satellite access method is based on MF-TDMA, is there a backup synchronization station in place					
42				8.3		If the network satellite access method is **not** MF-TDMA, indicate the access method used for the network					
43				8.4		Indicate the main reasons for selecting the access method used					
44				8.5		How is bandwidth allocated for all services provided (i.e. permanent, on demand)					
45											
46	**9.Lease Bandwidth**	Available bandwidth should accommodate current and future services	ICAO, Annex 10, Aeronautical Telecommunications, Volume II ICAO, Annex 11, Air Traffic Services ICAO, Doc 4444 – PANS/ATM ICAO, Doc 9880- Detailed Technical Specifications on ATN ICAO, Doc 7474 (ANP/FASID)	9.1		Is sufficient spectrum available for new terminals, future services and applications.					
47				9.2		If not, how will this issue be addressed					
48				9.3		Is the available capacity contended? If so, what is the contention ratio?					
49											

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4					Yes	No	(Attach separate documentation if necessary)	(Attach separate documentation if necessary)	
50	**10.Administrative arrangements**	States commitment should be formalized and documented, including delegation of operational, technical and financial authority (as applicable).	ICAO, Doc 7474 (ANP/FASID) – Guidelines for multinational facility/service	10.1 Are there any formal arrangements between States and network service provider in place in respect of technical, operational and financial responsibilities.					
51				10.2 Briefly describe the format and structure of formal arrangements					
52				10.3 What is the term (duration) of these formal arrangements					
53									
54	**11.Technical arrangements (Maintenance Management)**	Network control center (NCC) should be implemented for all networks.	ICAO, ALLPI RG/5, Conclusion 5/16	11.1 Is an NCC implemented for maintenance and management of the network					
55				11.2 Briefly describe the network maintenance philosophy and how corrective & preventative maintenance are conducted					
56				11.3 Indicate the Network management protocol, and type communication circuits used (e.g. SNMP, ethernet IP)					
57				a) Is there a pro-active management facility?					
58				11.4 Briefly describe the management of spares used for corrective maintenance					
59				11.5 Briefly describe the fault reporting procedure between the remote VSAT terminals and the NCC					
60				a) Is there a dedicated helpdesk/service desk for fault reporting					
61				b) If so, how is it accessed (phone call - international/local or other communication medium - mail/fax, etc)					
62				c) What is the percentage of fault resolution on first call?					
63				d) What is the escalation procedure and how is this activated					
64				e) How is fault resolution reporting done? Are there SLAs on fault resolution with regard to Mean-Time-To-Respond and Restore					
65				11.6 Provide a list of all VSAT network terminals and indicate:					
66				a) the antenna size for each terminal					
67				b) the ampliifier output power fo reach terminal					
68				c) the minimum excess amplifier power available to add another RF carrier					
69				11.7 Provide a list of all interconnections between all the VSAT network terminal listed (AFTN & ATS/DS)					
70				11.8 Provide a list of all connections between all the VSAT network terminal listed and adjacent networks					
71				11.9 What is the current VSAT circuit availability (Recommended availability >= 99.8%)					
72				11.10 Indicate the BER applicable to the physical layer of communications (with Forward Error Correction employed) (recommended BER <= 1 in 10-7).					
73				11.11 Indicate the total one-way voice circuit latency (including voice compression and encoding) (recommended value < 400 ms)					
74				11.12 Indicate the network call blocking probability (recommended value <= 2.5 x 10-3 (or 1 in 400 attempts					
75				11.13 Indicate the set-up time for a voice call (Recommended set-up time <= 2 s)					

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4							**Yes**	**No**	(Attach separate documentation if necessary)	(Attach separate documentation if necessary)	
76				11.14		Indicate the voice compression ratio and type of compression (G.729, G.726,G.711, etc)					
77				11.15		Will any components reach it's end-of-life during the operation of the network					
78				11.16		If so how will these end-of-life components be managed					
79				11.17		Is training provided to the local on-site technicians					
80				11.18		Is refresher training provided for technician					
81				11.19		If so, how often does refresher training take place					
82				11.20		At what level of training is maintained (I,O,D Level)					
83											

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4					Yes	No	(Attach separate documentation if necessary)	(Attach separate documentation if necessary)	
84	**12.Dedicated engineering service channel**	A dedicated service channel is recommended to facilitate coordination of maintenance between networks' stations	ICAO Annex 10, Volume I, Attachment F	12.1 Is a dedicated engineering maintenance channel available for voice communication between the NCC and the on-site technicians					
85				12.2 If not, is a dedicated engineering maintenance voice channel planned					
86									
87	**13.Services supported**	Aeronautical fixed services (AFTN, ATS/DS) Aeronautical mobile service (AMS) – Extended VHF radio "coverage Aeronautical Telecommunication Network (ATN) applications (AMHS, AIDC)"	ICAO, Annex 10, Aeronautical Telecommunications, Volume II ICAO, Annex 11, Air Traffic Services ICAO, Doc 4444 – PANS/ATM ICAO, Doc 9880- Detailed Technical Specifications on ATN ICAO, Doc 7474 (ANP/FASID)	13.1 Confirm that all primary services mentioned are supported						
88				13.2 Indicate which primary services can **not** be supported					
89				13.3 If not all primary services are supported, can the network be adapted to support these services					
90									
91	**14. New Services to be supported**	To be defined.		14.1 Indicate what new aeronautical services, e.g. as required by ANSPs, are planned that will utilize the VSAT network					
92				14.2 Can the network support these services					
93				14.3 What additional new services can be supported by the VSAT network (e.g. radar data, Met services, ADS-B/C, CPDLC, GNSS, AIM, etc.)					
94									
95	**15. Funding mechanism for the networks**	Sustainable funding mechanism required for all networks.	ICAO, Doc 9082— Policies on user charges	15.1 Briefly describe how the operation of the network is presently funded					
96				15.2 Briefly describe how new services will be funded to ensure sustainability of the network					
97									

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3		**Best practices**	**Guidance material**	**Questions**	**Compliant**		**Elaborate in more detail on compliance option selected**	**Indicate planned actions to address Gap**	**Expected Budgetary cost to address Gap**
4					**Yes**	**No**	(Attach separate documentation if necessary)	(Attach separate documentation if necessary)	
98	**16. Connectivity (internal connectivity and interconnections with other networks)**	Full connectivity required within and between all the networks ICAO to address all the identified non-technical issues.	ICAO, Doc 7474 — Air Navigation Plan (FASID) Connectivity Matrices for ATS/DS and AFTN AFI AFTN Routing Director	16.1 Are all interconnections required with adjacent networks in terms of the AFI Plan addressed in such a way that it provides seamless operation					
99				16.2 How are these seamless operations achieved					
100				16.3 Indicate all the interconnections that are not seamless					
101				16.4 Briefly describe the reason for these interconnection not being seamless					
102				16.5 Are there any adjacent networks that need to be interconnected that are currently not connected					
103				16.6 If so, name these networks					
104				16.7 Will it be possible to provide seamless operation for any planned interconnections with adjacent networks					
105				16.8 Briefly describe how this will be achieved					
106				16.9 If seamless operation can not be achieved, briefly describe the reasons for this					
107									

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3		Best practices	Guidance material			Questions	Compliant		Elaborate in more detail on compliance option selected	Indicate planned actions to address Gap	Expected Budgetary cost to address Gap
4							Yes	No	(Attach separate documentation if necessary)	(Attach separate documentation if necessary)	
108	**17. Management of interconnections**	Formal agreements recommended to address interconnection issues		17.1		Are there agreements currently in place between adjacent network service providers in respect of operation, fault reporting, maintenance, etc.					
109				17.2		If so, briefly describe how interconnections between adjacent networks are managed in respect of operation, fault reporting, maintenance, etc.					
110				17.3		If not, indicate how this deficiency will be addressed					
111				17.4		Is your current network capable of supporting a Multinational facility/service as envisaged in Conclusion 1/11 of the 1ST AFT VSAT Managers Meeting? If so, please describe how?					
112	**18. Base band transmission protocols**	Use of standardized bit-oriented protocols Internet Protocol Suite (I PS) recommended X25 to be discontinued	ICAO, Annex 10, Aeronautical Telecommunications, Volume III ICAO, Doc 9896 — Manual on ATN using IPS Standards and Protocols AFI/7 Recommendation 9/6 APIRG Conclusion 13/10 APIRG Conclusion 16/13 APIRG Conclusion 16/14	18.1		Can the network support IP operation as recommended by ICAO					
113				18.2		Is it planned that the network will still accommodate legacy protocols in future					
114											
115	**19. Transmission speed**	AFTN main circuits: 1200 bauds ATN circuits 9.6 Kbps ATN backbone circuits: 64 Kbps	APIRG Conclusion 12/13 APIRG ATN/TF/2 Report	19.1		Does the current network comply with the recommended transmission speeds for AFTN and ATN					
116				19.2		If it does not comply, indicate what the current transmission speeds are and identify the specific services and circuits that it is applicable to.					
117											
118	**20. AFTN circuit**	Circuit availability should be monitored and provided to ICAO Regional Office on monthly basis. Minimum requirement is: 99.8% (excluding the end-user equipment attached to the VSAT circuit)	ICAO, Doc 7474, ANP (AFT/7 Recommendations 9/3 and 9/4)	20.1		Is AFTN circuit availability monitored					
119				20.2		If not, what is the reason for the non-compliance					
120				20.3		Does the AFTN circuit availability comply with the recommended minimum value of 99.8%					

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4							**Yes**	**No**	(Attach separate documentation if necessary)	(Attach separate documentation if necessary)	
121				20.4		Is the information made available to the ANSPs for submission to the ICAO Regional Office					
122											

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4					**Yes**	**No**	(Attach separate documentation if necessary)	(Attach separate documentation if necessary)	
123	**21.Message transit times**	Message transit times should be monitored and provided quarterly to ensure that operational requirements are met: high priority message (5 minutes) and a low priority message (10 minutes)	ICAO, Annex 11, Air Traffic Services, Chapter 6, Paragraph *XXX* ICAO, Doc 8259, Manual on the Planning and Engineering of AFTN APIRG Conclusion 12/13	21.1 Is the message transit times monitored in the network					
124				21.2 If so, is it provided to ICAO on a quarterly basis					
125				21.3 If not, are there any provisions in place to provide this information in future					
126									
127	**22.AFTN circuit loading**	Performance evaluation of AFTN circuits is required on the basis of statistics collected for a period of minimum three days at the interval of six months from 23 to 25 April and October. These include traffic volume, traffic statistics and circuit occupancy, which are needed to assess the suitability of the modulation rate of AFTN circuits.	ICAO, Doc 8259, Manual on the Planning and Engineering of AFTN	22.1 Is the AFTN circuit loading measured as required by ICAO					
128				22.2 If not, is there any provision in place to perform measurements in future					
129									