

INTERNATIONAL CIVIL AVIATION ORGANIZATION AFI PLANNING AND IMPLEMENTATION REGIONAL GROUP (APIRG) PROJECT COORDINATION COMMITTEE FIRST MEETING (APCC/1)

PROJECT: GROUND/GROUND COM PROJECT.1

Coordinator: South Africa DOMAIN: IIM

AFI REGION	PROJECT DESCRIPTION	REFEI IIMSG Routir	RENCE / Area of ng # All		
Sub-domain	Title of the Project		End		
Aeronautical Communication (COM) (ICAO Facilitator: WACAF/ESAF ROs/CNS	GROUND/GROUND COMMUNICATION : Implementation of Ground/ground communication aimed at ensuring traffic coordination between air traffic controllers Project-Team Coordinator: South Africa Project Team Experts (13): Côte d'Ivoire, Cameroon, Ghana, Seychelles, Senegal, Kenya, Mauritania, ASECNA, IATA, Nigeria, Botswana, Togo, Uganda	Month/ Year	Month/ Year		
Objectives	ObjectivesIn the framework of the technologies Roadmap for Communic GANP and the AFI strategy, aassist States in the implementatioObjectivesAir Traffic Service /Direct Speech (ATS/DS) in accordance requirements of Annex 11, Air Traffic Service Chapter 6 for air Navigation services Chapter 10 and the provision of b) Air Traffic Service Interfacilities Data Communication with the requirements of Annexes 10 and 11 and 11				
	guidance documents (Doc 44, Doc 9694)c) Voice over Internet Protocol (VoIP)				
Scope	The provision of coordination service between Air traffic contr Air Traffic control Centers involved in the provision of air avig international civil aviation. The implementation scheme will be in accordance with the req provision of Aeronautical fixed Service (AFS) as defined by th	ollers will co gation service uirements of e AFI Air	over all e for the		
	Navigation Plan (AFI/RAN Abuja 1997).				

AFI REGION	PROJECT DESCRIPTION	REFERENC IIMSG / Area Routing # Al				
Sub-domain	Title of the Project	Start	End			
Metrics	 a) ATS/DS: Number of ATS/DS circuits implemented: X Average availability of ATS/DS circuits : X% b) AIDC: Number of AIDC systems installed: X % of ATS units with AIDC: X% Number of AIDC interconnections implemented, % of ACCs with AIDC systems interconnection implemented: X c) VoIP: Number of VoIP systems installed: X % of ATS units with VoIP: X% Number of VoIP interconnections implemented, % of ACCs with VoIP: X% Number of VoIP interconnections implemented, % of ACCs with VoIP systems interconnection implemented; X % 					
	Ground/Ground coordination communication supporting	enhanced	aeronautical			
Strategy	All tasks will be carried out by COM experts nominated by AFI States participating in the project, led by the Project-Team Coordinator and under the supervision of the Project Facilitators (ROs/CNS, Dakar and Nairobi) through the IIM SG working methodology. Upon completion of the tasks, the results will be sent to the Project Facilitators as a final document for submission to, and if necessary approval by the APIRG Projects Coordination Committee (APCC). For the purpose of collaborative decision making meetings will be held with the areas involved					
Rationale/Justification	 a) ATS/DS: The requirements for ATS/DS are contained in Plan (ANP), FASID Table CNS 1D (ATS/DS Plan) and AT implemented in accordance with these AFI Rational improvements are noted, notably with the implementation telecommunications. However the non- availability of AT time to time results from the obsolescence of some VSAT te b) AIDC: The introduction of automated Air Traffic Mana region associated with surveillance data processing syster to the automation of the transfer and coordination of A traffic centers. AIDC appears to complement ATS/gradually play the first role in traffic coordination. c) VoIP: In the AFI region the ATS/DS Network is based on pot the absence of an ATS voice switching and signaling system automation of backup links for ATS/DS. The implementation more flexibility and increase the availability of vocal, coordination in the availability and increase the availability of vocal. 	the AFI Air S/DS circuit ized Plan. of aeronauti S/DS encour chnologies gement systems has pav Air Traffic b DS service bint to point c does not faci n of VoIP will nation communication communicatio	Navigation s have been Significant cal satellite ntered from cems in the ed the way between air and will circuits and litate the l bring unication.			
Related Projects	 All APIRG projects specifically related to: ✓ PIA2-Increased Interoperability, Efficiency and Capacit Ground Integration (B0-FICE) ✓ PIA3-Increased effectiveness of ground based safety ne ✓ PIA3- Air Traffic Situational Awareness(ATSA) (B0-A 	ty through G ts (B0-SNET ASEP)	round- [)			

Project Deliverables	Relationship with the Regional Performance- Objectives (RPOs/PFFs) and ASBU Modules	KPI	Responsible	Status of Implementation ¹	Date of Delivery	Comments
	Air Traffic Se	ervice Dir	ect Speech (ATS	S/DS)		
Implementation/Activation of ATS/DS Circuits	AFI B0-FICE AFI B0-ASEP AFI B0-SNET PFF-CNS		 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 		December 2017	
Restauration/Improvement of the availability of ATS/DS Failing circuits	AFI B0-FICE AFI B0-ASEP AFI B0-SNET PFF-CNS	terfacilitie	 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader S Data communica 	tion (AIDC)	December 2017	
						r
Teleconferences, Workshops/Seminars, meetings (French and English) on AIDC systems operation and their implementation scheme	AFI B0-FICE AFI B0-ASEP AFI B0-SNET PFF-CNS		 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 		TBD	
Implementation/interconnection and operation of AIDC systems	AFI B0-FICE AFI B0-ASEP AFI B0-SNET PFF-CNS		 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 		TBD	
Assessment/Reporting on the operation of AIDC systems and operation	AFI B0-FICE AFI B0-ASEP AFI B0-SNET PFF-CNS Voice ov	er Interne	 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader t protocol (VoIP) 		TBD	

AFI REGION		PROJECT DESCRIPTION	REFERENCE IIMSG / Area of Routing # All		
Sub-domain		Title of the Project	Start	End	
Teleconferences, Workshops/Seminars, meetings (French and English) on VoIP systems operation and their implementation scheme	AFI B0-FICE AFI B0-ASEP AFI B0-SNET PFF-CNS	 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 	TBD		
Implementation/interconnection and operation of VoIP systems	AFI B0-FICE AFI B0-ASEP AFI B0-SNET PFF-CNS	 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 	TBD		
Assessment/Reporting on the operation of VoIP systems and operation	AFI B0-FICE AFI B0-ASEP AFI B0-SNET PFF-CNS	 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 	TBD		
Detailed guidance provided to States not complying with the AFI AFS Plan	AFI B0-FICE AFI B0-ASEP AFI B0-SNET PFF-CNS	 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 	TBD		
List of States with ATS/DS, AIDC and VoIP, implemented	AFI B0-FICE AFI B0-ASEP AFI B0-SNET PFF-CNS	 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 	TBD		
Resources needed	 Adequate Human Resource to be appointed by States Funds to conduct meetings, Workshops, Seminars Missions and to translate reports, regional guides and manuals. Likewise, participants must be given facilities to participate in teleconferences and coordination meetings. Funds for meetings with project Team Members in order to assess the results an propose corrective actions. States could use their human resources to conduct th foreseen COM tests and monitoring, and, if necessary, cover the financial cost since the experience gained will result in an improvement of their own systems 				

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Grey	Task not started yet
Green	Activity being implemented as scheduled
Yellow	Activity started with some delay, but will be implemented on time
Red	Activity not implemented on time; mitigation measures are required

PROJECT: GROUND/GROUND COM PROJECT.2

Coordinator: South Africa

DOMAIN: IIM

AFI REGION	PROJECT DESCRIPTION	REFEI IIMSG Routii	RENCE / Area of ng # All		
Sub-domain	Title of the Project	Start	End		
Aeronautical Communication (COM)	GROUND/GROUND COMMUNICATION : Implementation of Ground/ground communication aimed at ensuring operational traffic data flow and Information management (FPLs, OPMETS, NOTAM)		Month/		
(ICAO Facilitator: WACAF/ESAF ROs/CNS	cilitator: WACAF/ESAF ROs/CNS Project-Team Coordinator: South Africa Project Team Experts (13): Côte d'Ivoire, Cameroon, Ghana, Seychelles, Senegal, Kenya, Mauritania, ASECNA, IATA, Nigeria, Botswana, Togo, Uganda				
	In the framework of the technologies Roadmap for Communi GANP and the AFI strategy assist States in the implementatio	cation define n of :	ed in the		
	d) Aeronautical Fixed Service Network (AFTN)				
	e) Air Traffic Service Message Handling System (AMHS)	;			
Objectives	in accordance with the operational requirements of A Meteorology, Annex 10 Volume II Aeronautical telecommu Traffic Service, Annex 15 Aeronautical Information Ser supporting guidance documents (Doc 9896 Manual for the A and Protocols, Doc 9880, Manual on Detailed Technical Aeronautical Telecommunication Network (ATN) using I Protocols Doc 9694 Manuel on Air Traffic Services Data link	Annex 3 A nication, An vice, and th TN using IPS Specification SO/OSI Sta Application	eronautical nex 11, Air ne relevant S Standards ons for the ndards and s		
Scope	The exchange of aeronautical time sensitive operational data w Traffic control Centers involved in the provision of air avigatic international civil aviation. The implementation scheme will be in accordance with the req	ill cover all and service for uirements of	Air		
	provision of Aeronautical fixed Service (AFS) as defined by the AFI Air				
Metrics	 Navigation Plan (AFI/KAN Abuja 1997). d) AFTN: Number of AFTN circuits implemented: X - Average availability of AFTN circuits : e) AMHS: Number of AMHS systems installed: X - % of ATS units with AMHS: X% Number of AMHS interconnections implemented - % of ACCs with AMHS systems interconnections implemented: X	X%			
Outcome	Ground/Ground coordination communication supporting	enhanced	aeronautical		
Strategy	All tasks will be carried out by COM experts nominated by in the project, led by the Project-Team Coordinator and und Project Facilitators (ROs/CNS, Dakar and Nairobi) through	AFI States per the supervision of the supervision o	participating vision of the G working		

AFI REGION		PROJECT DESCRIPTION REFERENCE IIMSG / Area of Routing # All					
Sub-domain	Title of the Project				Start	End	
	methodology. U Facilitators as a APIRG Projects decision-making, b) AFTN : The	methodology. Upon completion of the tasks, the results will be sent to the Project Facilitators as a final document for submission to, and if necessary approval by the APIRG Projects Coordination Committee (APCC). For the purpose of collaborative decision-making, meetings will be held with the areas involved.					
	(ANP), FASID TABLE CNS 1A (AFTN Plan) and AFTN circuits h implemented in accordance with this AFI Rationalized Plan. S improvements are noted, notably with the implementation of aeronautica telecommunications. However the non- availability of AFTN encounted time to time results from the obsolescence of some VSAT technologies					have been Significant cal satellite ntered from	
Justification	b) AMHS : The introduction of automated Air Traffic Management systems in the region associated with surveillance data processing systems with possible automation of the transfer and coordination of Air Traffic between air traffic centers require an available digital ground/ground communication system. If the other hand the requirements of aeronautical information and aeronautical meteorological data exchange rely on the availability of a bit oriented digitat message handling system with enough capacity of transportation, switching an buffering. The implementation of AMHS will bring more flexibility and increase the availability aeronautical data flow in the framework of a System Wide Information Management (SWIM) accordination communication						
Related Projects	 All APIRG projects specifically related to: ✓ PIA2-Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration (B0-FICE) ✓ PIA3-Increased effectiveness of ground based safety nets (B0-SNET) 						
	✓ PIA3- Ai	ir Traffic	Situational Aware	eness(ATSA) (B0-	ASEP)		
Project Deliverables	Relationship with the KPI Regional Responsible Performance- Responsible Objectives Date of (RPOs/PFFs) and ASBU Modules						
	Aeronaut	ical Fixed	d Service (AFTN	D			
Restauration/Improvement of the availability of AFTN Failing circuits	AFI B0-FICE AFI B0-ASEP AFI B0-SNET PFF-CNS		 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 		December 2017		

AFI REGION	PROJECT DESCRIPTION			PROJECT DESCRIPTION IIMS Rot		REFE IIMSG Routin	RENCE / Area of ng # All
Sub-domain		Title of the Project	Start	End			
Implementation/Activation of AFTN Circuits	AFI B0-FICE AFI B0-ASEP AFI B0-SNET PFF-CNS	 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 	December 2017				
	Air Traffic Service	e Message Handling System (AMHS)					
Teleconferences, Workshops/Seminars, meetings (French and English) on AMHS systems operation and their implementation scheme	AFI B0-FICE AFI B0-ASEP AFI B0-SNET PFF-CNS	 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 	TBD				
Implementation/interconnection and operation of AMHS systems	AFI B0-FICE AFI B0-ASEP AFI B0-SNET PFF-CNS	 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 	TBD				
Assessment/Reporting on the operation of AMHS systems and operation	AFI B0-FICE AFI B0-ASEP AFI B0-SNET PFF-CNS	 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 	TBD				
Detailed guidance provided to States not complying with the AFI AFS Plan	AFI B0-FICE AFI B0-ASEP AFI B0-SNET PFF-CNS	 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 	TBD				
List of States with AFTN and AMHS, implemented	AFI B0-FICE AFI B0-ASEP AFI B0-SNET PFF-CNS	 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 	TBD				

AFI REGION	PROJECT DESCRIPTION	REFEI IIMSG Routir	RENCE / Area of ng # All
Sub-domain	Title of the Project	Start	End
Resources needed	 Adequate human Resources to be appointed by States Funds to conduct meetings, Workshops, Seminars Missic reports, regional guides and manuals. Likewise, participants to participate in teleconferences and coordination meet Funds for meetings with project Team Members in order propose corrective actions. States could use their human re foreseen COIM tests and monitoring, and, if necessar costs, since the experience gained will result in an imp systems. 	ons and to tra must be giv ings. to assess the sources to ry, cover to provement o	anslate en facilities e results and conduct the he financial f their own

¹ Grey Task not started yet

Green Activity being implemented as scheduled

Yellow Activity started with some delay, but will be implemented on time

Red Activity no

PROJECT: AIR/GROUND COM PROJECT

Coordinator: South Africa DOMAIN: IIM

AFI REGION	PROJECT DESCRIPTION	REFE IIMSG Routin	RENCE / Area of ng # All		
Sub-domain	Title of the Project	Start	End		
Aeronautical Communication (COM) (ICAO Facilitator: WACAF/ESAF ROs/CNS	GROUND/GROUND COMMUNICATION : Implementation of Air/Ground communication aimed at ensuring Air traffic control Project-Team Coordinator: South Africa Project Team Experts (13): Côte d'Ivoire, Cameroon, Ghana, Seychelles, Senegal, Kenya, Mauritania, ASECNA, IATA, Nigeria, Botswana, Togo, a, Uganda	Month/ Year	Month/ Year		
	In the framework of the technologies Roadmap for Communica GANP and the AFI strategy assist States in the implementation Service through :	ation defined of Aeronau	in the tical Mobile		
	f) High Frequency/Very High Frequency (HF / VHF) voice (Communicat	ion		
Objections	g) High Frequency/Very High Frequency Data link commun	nication (HF	/VHF DL)		
Objectives	h) Controller/Pilot Data Link Communication (CPDLC)				
	In accordance with the operational requirements of ICAO Annex 10 Volumes II & III Aeronautical Telecommunication, Annex 11 Air Traffic Service and the relevant supporting guidance documents (Doc 4444 Procedures for Air Navigation Service (PANSATM) Doc 9694 Manuel on Air Traffic Services Data link Applications, Doc 10037 Global Operational Data Link Document (GOLD)				
Scope	The provision of air/ground communication between Pilots and ATCOs will cover all Airspaces and Air Traffic control Centers involved in the provision of air avigation service for international civil aviation.				
	provision of Aeronautical mobile Service (AMS) as defined by the AFI Air Navigation Plan (AFI/RAN Abuja 1997).				
Metrics	 f) HF/VHF Voice & Data Link: Number of Routes covered by HF/VHF communication - Average availability of HF/VHF voice : . Number of HF/VHH DL station implemented - Average availability of HF/VHF DL : X9 g) CPDLC: - Number of ATCs with CPDLC systems installed - Average availability of CPDLC Links : X% 	on : X X% %			
Outcome	Air/Ground communication supporting enhanced aeronautic	cal operation	onal safety,		
Strategy	All tasks will be carried out by COM experts nominated by AI the project, led by the Project-Team Coordinator and under Project Facilitators (ROs/CNS, Dakar and Nairobi) through methodology. Upon completion of the tasks, the results will	FI States par the superv the IIM S be sent to	ticipating in ision of the SG working the Project		

AFI REGION	PROJECT DESCRIPTION	REFERENCE IIMSG / Area of Routing # All
Sub-domain	Title of the Project	Start End
Rationale/Justification	Facilitators as a final document for submission to, and if nec APIRG Projects Coordination Committee (APCC). For the p decision-making, meetings will be held with the areas involved. a) HF/VHF Voice : The requirements for HF/VHF are c Navigation Plan (ANP), FASID TABLE CNS 2A (Aeronauti Aeronautical Mobile Satellite service-AMS &AMSS and Sta implemented in accordance with this AFI Air Naviga improvements are noted, notably with the implementation telecommunications. However the non- availability of Remote time to time results from the obsolescence of some VSAT technol b) HF/VHF and Data Link : The regional requirements remain to be updated by the project Team c) CPDLC : The introduction of datalink communication with surveillance data processing systems with possible autom coordination of Air Traffic between air traffic centers require air/ground communication system. The implementation of C accuracy in the exchanged messages and increase the a exchanges between ATCOs and pilots.	cessary approval by the purpose of collaborative ontained in the AFI Air cal Mobile Service and ttions circuits have been ttion Plan. Significant of aeronautical satellite VHF encountered from ologies. for HF/VHF Data Link in the region associated ation of the transfer and tire an available digital 2PDLC will bring more availability of message
Related Projects	 All APIRG projects specifically related to: PIA1-Improve Traffic flow through Runway Sequencing RSEQ PIA1-Increased Runway Throughput through optim Separation - B0-WAKE PIA1- Improved Airport Operations through Airport PIA2- Service Improvement through Digital Aerona Management- B0-DIAM PIA2-Meteorological information supporting enhance efficiency and safety- B0- MET PIA3-Air Traffic Situational Awareness(ATSA)- B0- AS PIA3-Improved Operations through Enhanced En-Route FRTO PIA3-Improved flow performance through planning wide view- B0-NOPS. PIA3- Improved access to optimum Flight levels thr Procedures using ADS-B- B0-OPF PIA4- Improved flexibility and Efficiency in Decent CDO. PIA4-Improved Flexibility and Efficiency Departure Climb Operations (CCO)-B0-CCO 	(AMAN/DMAN)- B0 - ized Wake Turbulence E – B0-ACDM utical Information ced operational SEP Trajectories- BO - based on Network- ough Climb/Descent I application of Data provides (CDO) - B0 - e profiles-Continuous

Project Deliverables	Relationship with the Regional Performance- Objectives (RPOs/PFFs) and ASBU Modules	KPI	Responsible	Status of Implementation ³	Date of Delivery	Comments
	H	IF/VHF/	CPDLC			
Implementation of HF &VHF stations (Voice & data Link)	AFI B0-ASEP AFI B0-FRTO AFI B0-CDO AFI B0-CCO PFF-CNS		 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 		December 2019	
Implementation/Operation of CPDLC Circuits	AFI B0-ASEP AFI B0-FRTO AFI B0-CDO AFI B0-CCO. PFF-CNS		 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 		December 2019	
Teleconferences, Workshops/Seminars, meetings (French and English) on VHF/CPDLC systems operation and their implementation scheme	AFI B0-ASEP AFI B0-FRTO AFI B0-CDO AFI B0-CCO PFF-CNS		 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 		TBD	
Implementation/sharing and operation of Remote VHF systems	AFI B0-ASEP AFI B0-FRTO AFI B0-CDO AFI B0-CCO PFF-CNS		 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 		TBD	
Assessment/Reporting on the operation of Air ground communication systems and operation	AFI B0-ASEP AFI B0-FRTO AFI B0-CDO AFI B0-CCO PFF-CNS		 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 		TBD	
Detailed guidance provided to States not complying with the AFI AMS Plan	AFI B0-ASEP AFI B0-FRTO AFI B0-CDO AFI B0-CCO PFF-CNS		 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 		TBD	

AFI REGION	PROJECT DESCRIPTION		REFERENCE IIMSG / Area of Routing # All			
Sub-domain		Title	of the Project		Start	End
List of States with VHF and CPDLC, implemented	AFI B0-ASEP AFI B0-FRTO AFI B0-CDO AFI B0-CCO PFF-CNS		 ✓ AFI COM Project Coordinators ✓ AFI COM Project Team Leader 		TBD	
Resources needed	 Adequate human Funds to conduct reports, regional participate in te Funds for meet propose correctit foreseen COIM since the experi 	n resource ct meeting guides a leconfer ings with ve action tests an ence gain	es to be appointed gs, Workshops, S nd manuals. Like ences and coord project Team M s. States could us d monitoring, and ned will result ir	by States Seminars Mission ewise, participants dination meetings Members in order se their human re d, if necessary, c n an improvement	ns and to trai must be give s. to assess the sources to over the fin of their ov	nslate n facilities to e results and conduct the ancial costs, vn systems.

Grey Task not started yet

Green Activity being implemented as scheduled

Yellow Activity started with some delay, but will be implemented on time

Red Activity not implement

PROJECT: RADIONAVIGATION & GNSS PROJECT

Coordinator: Cameroon

DOMAIN: IIM

AFI REGION	PROJECT DESCRIPTION	REFEI IIMSG Routii	RENCE / Area of ng # All
Sub-domain	Title of the Project	Start	End
Aeronautical Communication (COM) (ICAO Facilitator: WACAF/ESAF ROs/CNS	 RADO NAVIGATION AIDS & GNSS : Implementation of Conventional Nav'Aids and GNSS (Core and Augmented) aimed at enabling the implementation of PBN Project-Team Coordinator: Cameroon Project Team Experts (8): Senegal, IATA, ASECNA, Kenya, Mauritania, South Africa, Uganda, Côte d'Ivoire, 	Month/ Year	Month/ Year
	In the framework of the technologies Roadmap for Navigation and the AFI strategy assist States in the implementation of Aer Service by the effective implementation of :	defined in th onautical Na	e GANP vigation
Objectives	i) Aeronautical conventional Radio Navigation Systems (VU	OR, DME, II	LS)
	 j) Global Navigation Satellite systems (GNSS-core and aug with the operational requirements of ICAO Annex 10 V Traffic Service and the relevant supporting guidance doc Manual on Testing of Radio Navigation Aid, Doc 9 Satellite System (GNSS) Manual. 	gmented),in olumes I Ar cuments (Doc 849 Global	accordance mex 11 Air c Doc 8071 Navigation
	The provision of aeronautical Radio Navigation and Global Navi Systems to aircraft will cover all Airspaces and all phases of flig	igation Satel	lite
Scope	The implementation scheme will be in accordance with the requi provision of Aeronautical Radio Navigation Service (ARNS) as Air Navigation Plan (AFI/RAN Abuja 1997).	rements of tl defined by th	he he AFI
Metrics	 h) Conventional Nav'Aids: Number of En-Route conventional radio navigation so DMEs) implemented : X Average availability of VOR & DMEs so Number of Approach and landing radio navigation st (LOC/Glide/DMEs) implemented: X Average availability of LOC/Glide/DME i) GNSS: Number of FIRs with National Regulation on GP % fleet operating GNSS En-Route Number of Aerodrome with Augmented GNSS So (ABAS/GBAS/SBAS) implemented % fleet operating Augmented GNSS in Approach 	etations (VOF tations : X% ations Ss: X% NSS promulg ystems and landing	R, gated: X phases
Outcome	Radio navigation and Global Navigation Satellite system aeronautical operational safety, capacity and efficiency in particul	n supporting lar the operat	g enhanced
Strategy	All tasks will be carried out by NAV experts nominated by Al the project, led by the Project-Team Coordinator and under Project Facilitators (ROs/CNS, Dakar and Nairobi) through methodology. Upon completion of the tasks, the results will	FI States par the superv the IIM S be sent to	ticipating in ision of the G working the Project

AFI REGION		PROJEC	T DESCRIPTION		REFERENCE IIMSG / Area of Routing # All	
Sub-domain		Title	of the Project		Start	End
	Facilitators as a f APIRG Projects decision-making,	² acilitators as a final document for submission to, and if necessary approval by the APIRG Projects Coordination Committee (APCC). For the purpose of collaborative lecision-making, meetings will be held with the areas involved.				
Rationale/Justification	 d) Conventi- are contained in Navigation Aids Radionavigation Navigation Plan. e) GNSS: The airspaces will er implementation augmented GNSS of landing system landing operation 	 are contained in the AFI Air Navigation. The requirements for conventional raty rates are contained in the AFI Air Navigation Plan (ANP), FASID TABLE CNS 3 (Radio Navigation Aids and GNSS in support of the PBN Implementation); conventional Radionavigation stations have been implemented in accordance with this AFI Air Navigation Plan. e) GNSS: The operation of core GNSS En-route in continental remote and oceanic airspaces will enable the implementation of Air Nav and RNP and facilitated the implementation of PBN with all its expected benefits. The implementation of augmented GNSS in coordination with user requirements will bring more opportunity of landing systems and increase availability, accuracy and flexibility for approach and landing operation. 				
Related Projects	 All APIRG projects specifically related to: ✓ PIA 1- Optimization of Approach Procedures Including Vertical Guidance - B0 – APTA ✓ PIA 3-Improved Operations through Enhanced En-Route Trajectories- BO-FRTO ✓ PIA 4-Improved flexibility and Efficiency in Decent provides (CDO) - B0-CDO. ✓ PIA 4-Improved Flexibility and Efficiency Departure profiles-Continuous 					
Project Deliverables	Relationship with the Regional Performance- Objectives (RPOs/PFFs) and ASBU Modules	КРІ	Responsible	Status of Implementation ⁴	Date of Delivery	Comments
	Convent	ional Nav	v'Aids & GNSS			
Implementation of VOR/DMEs/ILSs	AFI B0 – APTA AFI B0-FRTO AFI B0-CDO AFI B0-CCO PFF-CNS		 ✓ AFI NAV Project Coordinators ✓ AFI NAV Project Team Leader 		December 20179	
Implementation of Augmented GNSS (ABAS/GBAS/SBAS)	AFI B0 – APTA AFI B0-FRTO AFI B0-CDO AFI B0-CCO PFF-CNS		 ✓ AFI NAV Project Coordinators ✓ AFI NAV Project Team Leader 		December 20179	

AFI REGION		PROJECT DESCRIPTION	REFE IIMSG Routin	RENCE / Area of ng # All
Sub-domain		Title of the Project	Start	End
Operation of conventional Nav'Aids and GNSS systems	AFI B0 – APTA AFI B0-FRTO AFI B0-CDO AFI B0-CCO PFF-CNS	 ✓ AFI NAV Project Coordinators ✓ AFI NAV Project Team Leader 	TBD	
Teleconferences, Workshops/Seminars, meetings (French and English) on Nav'aids and GNSSS systems operation and their implementation scheme	AFI B0 – APTA AFI B0-FRTO AFI B0-CDO AFI B0-CCO PFF-CNS	 ✓ AFI NAV Project Coordinators ✓ AFI NAV Project Team Leader 	TBD	
Assessment/Mitigation of GNSS vulnerabilities	AFI B0 – APTA AFI B0-FRTO AFI B0-CDO AFI B0-CCO PFF-CNS	 ✓ AFI NAV Project Coordinators ✓ AFI NAV Project Team Leader 	continuous	
Assessment/Reporting on the operation of Air ground communication systems and operation of Nav'Aids and GNSS systems	AFI B0 – APTA AFI B0-FRTO AFI B0-CDO AFI B0-CCO PFF-CNS	 ✓ AFI NAV Project Coordinators ✓ AFI NAV Project Team Leader 	TBD	
Detailed guidance provided to States not complying with the AFI Navigation Plan	AFI B0-ASEP AFI B0-FRTO AFI B0-CDO AFI B0-CCO PFF-CNS	 ✓ AFI NAV Project Coordinators ✓ AFI NAV Project Team Leader 	TBD	
List of States with Conventional Nav'aids and GNSS systems, implemented	AFI B0-ASEP AFI B0-FRTO AFI B0-CDO AFI B0-CCO PFF-CNS	 ✓ AFI NAV Project Coordinators ✓ AFI NAV Project Team Leader 	TBD	

AFI REGION	PROJECT DESCRIPTION IIMSG / Area Routing # A		RENCE / Area of ng # All
Sub-domain	Title of the Project	Start	End
Resources needed	 Adequate Human Resources to be appointed by States Funds to conduct meetings, Workshops, Seminars Mission regional guides and manuals. Likewise, participants must be participate in teleconferences and coordination meetings Funds for meetings with project Team Members in order propose corrective actions. States could use their human rest foreseen COIM tests and monitoring, and, if necessary, c since the experience gained will result in an improvement 	is and to tran given facilitie to assess the sources to over the fin of their ow	Islate reports, es to e results and conduct the ancial costs, m systems.

Task not started yet
Activity being implemented as scheduled
Activity started with some delay, but will be implemented on time
Activity not implemented on time; mitigation measures are required

PROJECT: PROTECTION OF SPECTRUM & CNS INFRASTRUCTURE PROJECT

Coordinator: Cameroon

DOMAIN: IIM

AFI REGION	PROJECT DESCRIPTION	REFE IIMSG Routin	RENCE / Area of ng # All		
Sub-domain	Title of the Project	Start	End		
Aeronautical Communication (COM) (ICAO Facilitator: WACAF/ESAF ROs/CNS	PROTECTION OF SPECTRUM AND CNS/ATMINFRSTRUCTURE: Development of policies, systems toprotect Aeronautical spectrum and CNS infrastructures Project-Team Coordinator: CameroonProject Team Experts (8): Senegal, IATA, ASECNA, Kenya,Mauritania, South Africa, Uganda, Côte d'Ivoire,	Month/ Year	Month/ Year		
	In the framework of the technologies Roadmap for Spectrum of the AFI strategy, assist States sustain adequate resources for operations by the effective development and implementation of protection of :	lefined in the or CNS &A' relevant poli	e GANP and TM systems icies for the		
Objectives	 k) The Aeronautical Radio Frequency spectrum 1) Aeronautical Communication, Navigation, Surveillance and Air Traffic Management systems and infrastructures, in accordance with the operational requirements of ICAO Annex 10 Volumes V Telecommunication, Annex 11 Air Traffic Service and the relevant supporting guidance documents (Doc. 9718Handbook on Radio Erequency Spectrum Requirements for Civil Aviation Volumes L& II) 				
Scope	The provision of adequate spectrum to aeronautical CNS and cover all airspaces involve all phases of flights and all ATCs. The insurance of the electronic protection of CNS/ATM syster subject challenging all the security of the ATM community. The implementation schemes will be in accordance with the provision of Aeronautical) spectrum as defined in the H Frequency Spectrum Requirements for Civil Aviation (Doc. 97 relevant document under development by the ICAO Communic provision of the AEI Air Navigation Plan (AEI/RAN Abuja 199	ATM servions is current requirements andbook on 18), the forth cation Panel	ces will ly a big s of the Radio coming and the		
Metrics	 j) Provision and protection of Adequate frequency ban Number of State having submitted ICAO post their National Authority of Regulation of Tel support: X % of States with effective support of the l Regulation of Telecommunication to IC. WRC : X% k) Security of CNS/ATM systems Number of ATCs with security system impleme % ATM/CNS infrastructure with protection police defined and implemented: X% 	d: ition to ITU ecommunica National Aut AO Position j nted: X ies and syster	WRC to tion for <i>hority of</i> for ITU ns		
Outcome	Protected Radio Frequency Spectrum and CNS/ATM infrastruc aeronautical operational safety, capacity and efficiency	ture supporti	ng enhanced		
Strategy	All tasks will be carried out by NAV experts nominated by A the project, led by the Project-Team Coordinator and unde	FI States par r the superv	ticipating in ision of the		

AFI REGION		PROJEC'	T DESCRIPTION		REFERENCE IIMSG / Area of Routing # All	
Sub-domain		Title	of the Project		Start	End
	Project Facilitator methodology. Up Facilitators as a APIRG Projects decision-making,	Project Facilitators (ROs/CNS, Dakar and Nairobi) through the IIM SG working nethodology. Upon completion of the tasks, the results will be sent to the Project Facilitators as a final document for submission to, and if necessary approval by the APIRG Projects Coordination Committee (APCC). For the purpose of collaborative hasis in making machines will be held with the areas involved				
Rationale/Justification	 f) Protection of aeronautical radiuser resulting in convergence of a convergence o	 Protection of Radio frequency Spectrum: The requirements for the protection of aeronautical radio frequency spectrum are currently challenged by non-aeronautical ser resulting in case of severe interferences that can jeopardize the safe provision of air avigation safety Protection of CNS/ATM Infrastructures: The emerging technologies widely ntroduced in the Aeronautical CNS/ATM safety of life related infrastructure archallenging risk of hacking that must be properly and continuously assessed and mitigated 				
Related Projects	All APIRG PIAs a	All APIRG PIAs and projects				
Project Deliverables	Relationship with the Regional Performance- Objectives (RPOs/PFFs) and ASBU Modules	КРІ	Responsible	Status of Implementation ⁵	Date of Delivery	Comments
F	Protection of Spect	rum and	CNS/ATM Infra	structure		
Submission of ICAO Position to WRC-19 to National Authority of Regulation of Telecommunication	All Modules PFF-CNS		 ✓ AFI NAV Project Coordinators ✓ AFI NAV Project Team Leader 		As soon as available	
Development of policies for the Protection of CNS & ATM Infrastructure	All Modules PFF-CNS		 ✓ AFI NAV Project Coordinators ✓ AFI NAV Project Team Leader 		December 2017	
Teleconferences, Workshops/Seminars, meetings (French and English) on Spectrum and systems protection	All Modules PFF-CNS		 ✓ AFI NAV Project Coordinators ✓ AFI NAV Project Team Leader 		TBD	

AFI REGION		PROJECT DESCRIPTION	REFERENCE IIMSG / Area of Routing # All	
Sub-domain		Start	End	
Assessment/Mitigation of systems vulnerabilities	All Modules PFF-CNS	 ✓ AFI NAV Project Coordinators ✓ AFI NAV Project Team Leader 	continuous	
Assessment/Reporting on the protection of spectrum and CNS/ATM Infrastructure	All Modules PFF-CNS	 ✓ AFI NAV Project Coordinators ✓ AFI NAV Project Team Leader 	TBD	
Detailed guidance provided to States not complying with the AFI Navigation Plan	All Modules PFF-CNS	 ✓ AFI NAV Project Coordinators ✓ AFI NAV Project Team Leader 	TBD	
List of States with Protection measures, implemented	All Modules PFF-CNS	 ✓ AFI NAV Project Coordinators ✓ AFI NAV Project Team Leader 	TBD	
Resources needed	 Adequate Huma Funds to conduct regional guides participate in te Funds for meet propose correcti foreseen NAV since the experi 	n Resources to be appointed by States et meetings, Workshops, Seminars Mission and manuals. Likewise, participants must be g leconferences and coordination meetings. ings with project Team Members in order to twe actions. States could use their human reso tests and monitoring, and, if necessary, co ence gained will result in an improvement	s and to tran given facilitie to assess the sources to over the fin of their ow	slate reports, es to e results and conduct the ancial costs, n systems.

GreyTask not started yetGreenActivity being implemented as scheduledYellowActivity started with some delay, but will be implemented on timeRedActivity not implemented on time; mitigation measures are required

PROJECT: SURVEILLANCE PROJECT

Coordinator: DOMAIN: IIM

AFI REGION	PROJECT DESCRIPTION	REFE IIMSG Routi	RENCE / Area of ng # All	
Sub-domain	Title of the Project	Start	End	
Aeronautical Communication (COM) (ICAO Facilitator: WACAF/ESAF ROs/CNS	 GROUND/GROUND COMMUNICATION : Implementation of Surveillance systems aimed at improving air traffic situational awareness Project-Team Coordinator: Cote d'Ivoire Project Team Experts (11): South Africa, Ghana, Cameroon, Ghana, Senegal, Nigeria, Mauritania, Seychelles, IATA, ASECNA, Uganda 	Month/ Year	Month/ Year	
Objectives	 In the framework of the technologies Roadmap for Surveillance defined in the GANP and the AFI strategy, assist States in the implementation of : a) Secondary Surveillance Radar Mode S (SSR) in accordance with the operational requirements of Annex 11, Air Traffic Service, Doc 4444 Procedures for air Navigation services and the provision of Annex 10 Volume IV and its supporting Documents b) Automatic Dependent Surveillance Contract (ADS-C) c) Automatic Dependent Surveillance Broadcast (ADS-B) ground and space based d) Multilateration (Mlat) 			
Scope	The provision of air traffic surveillance will cover all areas of rout homogeneous traffic flow in the AFI Region and will adress all Ce the provision of air avigation service for international civil aviation The implementation scheme will be in accordance with the require provision of Aeronautical surveillance as defined by the AFI Air N (AFI/RAN Abuja 1997).	ing and enters involv n. ements of the Navigation P	ed in e lan	

AFI REGION	PROJECT DESCRIPTION	REFEF IIMSG / Routir	XENCE / Area of ng # All		
Sub-domain	Title of the Project	Start	End		
Metrics	 I) SSR: Number of SSR stations installed: X Average availability of SSR stations : X% m) ADS-C: Number of ADS-C systems installed: X % of ATS units with ADS-C: X% Number of ADS-C interconnections implemented, % of ACCs with ADS-C systems interconnections X n) ADS-B: Number of ADS-B stations installed: X % of ATS units with ADS-B: X% 	ection implen	nented:		
	 o) Mlat: Number of Mlat systems installed: X % of ATS units with Mlat: X% Number of Mlat interconnections implemented, % of ACCs with Mlat systems interconnection implemented: X 				
Outcome	Surveillance service supporting enhanced aeronautical operation efficiency	hal safety, ca	apacity and		
Strategy	All tasks will be carried out by SUR experts nominated by AFI States participating in the project, led by the Project-Team Coordinator and under the supervision of the Project Facilitators (ROs/CNS, Dakar and Nairobi) through the IIM SG working methodology. Upon completion of the tasks, the results will be sent to the Project Facilitators as a final document for submission to, and if necessary approval by the APIRG Projects Coordination Committee (APCC). For the purpose of collaborative decision-making, meetings will be held with the grass involved				
Justification	 The requirements for surveillance systems (SSR Mode S, ADS contained in the strategy of implementation of the surveillance syst c) SSR Mode S: In continental airspace the provision of SSR M Traffic Centers the capacity to increase the surveillance of air i capacity and efficiency d) ADS-C: The introduction of ADS-C in oceanic and continent improve air navigation service by enabling the impro organization, the flexibility of routing. e) ADS-B: The introduction of ADS-B in continental air same level of service as given by SSR with cost effectivene combine the advantage of both ADS-C and SSR. f) Mlat: The introduction of Mlat will in the terminal areas sure effectiveness SSR Mode S 	•C, ADS-B, ems in the A lode S will g traffic enhand al remote air vement of space will p ess. ADS-B	Mlat) are FI Region give the Air cing safety, spaces will the space provide the Space will h cost		

AFI REGION	I	PROJECT	DESCRIPTION		REFERENCE IIMSG / Area of Routing # All	
Sub-domain		Title o	f the Project		Start	End
	All APIRG projects	specifica	lly related to:			
Related Projects	✓ PIA3-Increa B0-ASEP)	 ✓ PIA3-Increased effectiveness of ground based safety nets (B0-ASUR, B0 – SN B0-ASEP) 				
	✓ PIA4- Effici	ient Flight	t Path – Through T	Frajectory-based O	perations (B 0	- TBO)
Project Deliverables	with the Regional Performance- Objectives (RPOs/PFFs) and ASBU Modules	КРІ	Responsible	Status of Implementation ⁶	Date of Delivery	Comments
	Secondary Surv	eillance l	Radar Mode S (S	SSR)		
Implementation of SSR Mode S	AFI BO-ASUR, AFI BO -SNET, AFI BO-ASEP AFI BO-ASEP AFI BO-SNET PFF-CNS		 ✓ AFI SUR Project Coordinators ✓ AFI SUR Project Team Leader 		December 2017	
Restauration/Improvement of the availability of SSR Systems	AFI B0-ASUR, AFI B0 -SNET, AFI B0-ASEP AFI B0-ASEP AFI B0-SNET PFF-CNS		 ✓ AFI SUR Project Coordinators ✓ AFI SUR Project Team Leader 		December 2017	
	Automatic Dependa	ant Surveil	lance Contract (A	DS-C)		
Implementation of ADS-C	AFI BO-ASUR, AFI BO -SNET, AFI BO-ASEP AFI BO-ASEP AFI BO-SNET PFF-CNS		 ✓ AFI SUR Project Coordinators ✓ AFI SUR Project Team Leader ✓ AFI SUP 			
Improvement of the availability of ADS-C Systems	AFI BO-ASUR, AFI BO -SNET, AFI BO-ASEP AFI BO-ASEP AFI BO-SNET PFF-CNS	nt Surveill	 ✓ AFI SUR ✓ AFI SUR ✓ Project Team Leader 	DS-B)		
Automatic Dependant Surveillance Broadcast (ADS-B)						

AFI REGION	PROJECT DESCRIPTION		REFERENCE IIMSG / Area of Routing # All	
Sub-domain		Title of the Project	Start	End
Implementation of ADS-B	AFI BO-ASUR, AFI BO -SNET, AFI BO-ASEP AFI BO-ASEP AFI BO-SNET PFF-CNS	 ✓ AFI SUR Project Coordinators ✓ AFI SUR Project Team Leader 		
	•	Multilatération		
Implementation of Mlat	AFI BO-ASUR, AFI BO -SNET, AFI BO-ASEP AFI BO-ASEP AFI BO-SNET PFF-CNS	 ✓ AFI SUR Project Coordinators ✓ AFI SUR Project Team Leader 		
		General SUR		
Implement Performance Based Surveillance (PBS) based on the Required Surveillance Performance (RSP)	AFI B0-ASUR, AFI B0 -SNET, AFI B0-ASEP AFI B0-ASEP AFI B0-SNET PFF-CNS	 ✓ AFI SUR Project Coordinators ✓ AFI SUR Project Team L order 		
Implementation of Surveillance Data Fusion (data sharing)	AFI BO-ASUR, AFI BO -SNET, AFI BO-ASEP AFI BO-ASEP AFI BO-SNET PFF-CNS	 ✓ AFI SUR Project Coordinators ✓ AFI SUR Project Team Leader 		
Teleconferences, Workshops/Seminars, meetings (French and English) on surveillance systems operation and their implementation scheme	AFI BO-ASUR, AFI BO -SNET, AFI BO-ASEP AFI BO-ASEP AFI BO-SNET PFF-CNS	 ✓ AFI SUR Project Coordinators ✓ AFI SUR Project Team Leader 	TBD	
Assessment/Reporting on the operation of Surveillance systems and operation	AFI BO-ASUR, AFI BO -SNET, AFI BO-ASEP AFI BO-ASEP AFI BO-SNET PFF-CNS	 ✓ AFI COM Project Coordinators ✓ AFI SUR Project Team Leader 	TBD	

AFI REGION	PROJECT DESCRIPTION		REFE IIMSG Routi	REFERENCE IIMSG / Area of Routing # All	
Sub-domain		Title of the Project	Start	End	
Detailed guidance provided to States not complying with the AFI SUR Strategy	AFI B0-ASUR, AFI B0 -SNET, AFI B0-ASEP AFI B0-ASEP AFI B0-SNET PFF-CNS	 ✓ AFI SUR Project Coordinators ✓ AFI SUR Project Team Leader 	TBD		
List of States with Surveillance systems implemented	AFI B0-ASUR, AFI B0 -SNET, AFI B0-ASEP AFI B0-ASEP AFI B0-SNET PFF-CNS	 ✓ AFI SUR Project Coordinators ✓ AFI SUR Project Team Leader 	TBD		
Resources needed	 Adequate human r Funds to conduct regional guides an participate in tele Funds for meetin propose corrective foreseen SUR te since the experien 	essouces to be appointed by States meetings, Workshops, Seminars M id manuals. Likewise, participants must conferences and coordination meet gs with project Team Members in of e actions. States could use their huma ests and monitoring, and, if necessan ace gained will result in an improve	issions and to trans st be given facilities etings. order to assess the in resources to iry, cover the fin ment of their own	late reports, s to e results and conduct the ancial costs, systems.	

Grey	Task not started yet
Green	Activity being implemented as scheduled
Yellow	Activity started with some delay, but will be implemented on time
Red	Activity not implemented on time; mitigation measures are required