



Federal State Unitary Enterprise
«State ATM Corporation»

Branch of «North East Air Navigation»



AIDC Interaction between Magadan ACC
and Anchorage ARTCC





AIDC

Historical Background, Current State of Things

According to the intentions announced by FSUE “State ATM Corporation” at CPWG/13 meeting, the branch “North East Air Navigation” has arranged work on the voiceless interaction between Magadan ACC and Anchorage ARTCC on AIDC protocol:

- The equipment project developed in 2017;
- The hardware facilities for AIDC messaging delivered, installed, adjusted and started up;
- The automated ATC “Alpha” System software updated;
- The software and equipment bed tests run locally;
- The local tests of the Automated Alpha System carried out at ATC working places in online mode.



Equipment Project

AIDC Server



УТВЕРЖДАЮ

Директор филиала
«Аэронавигация Северо-Востока»
ФГУП «Госкорпорация по ОрВД»
Ю.А. Самойлов
«05» мая 2017 г.

ПРОЕКТ ОСНАЩЕНИЯ
дополнительным оборудованием
для организации безречевое взаимодействия
по протоколу AIDC с РДЦ Анкоридж
Магаданского УЦ ЕС ОрВД

Заместитель директора
по разработкам
ООО «Фирма «НИТА»
Ю.А. Дурманенко
«05» мая 2017 г.

Санкт-Петербург
2017





AIDC

Historical Background, Current State of Things

- The Memorandum of Understanding for operational testing between Magadan ACC and Anchorage ARTCC signed.
- The operational testing has been conducted in accordance with the MOU since July 26, 2018.
- The draft LOA between Magadan ACC and Anchorage ARTCC providing for the coordination procedures on AIDC protocol is prepared and agreed upon.
- The standard operating procedures for voiceless interaction between Magadan ACC and Anchorage ARTCC on AIDC protocol is planned to be started on June 30, 2021.
- The message exchange results for the period of October 01, 2020 – October 31, 2020 are the following:
 - Anchorage → Magadan - 96,30%
 - Magadan → Anchorage - 99,08%



AIDC

The Structure of LRM Error Messages Received from Anchorage ARTCC

Number of LRMs PAZAZQZX to UHMMZQZA	LRM type
1	LRM-RMK/13/9/INVALID AIRCRAFT MODEL
1	LRM-RMK/RMK/54/.. / SYNTAX ERROR IN FIELD ..
1	LRM-RMK/RMK/10(15)/15(22)/EQP SDE3FGHIJ3J4J5RWXYZ/LB1 ?INVALID (CNA) EQUIP DESIGNATOR?
2	LRM-RMK/RMK/28/15/... INVALID NAVAID FIX
8	LRM-RMK/RMK/43/15/* INVALID SIGNIFICANT POINT DESIGNATOR
11	LRM-RMK/RMK/00/61 INVALID CRC
14	LRM-RMK/39/22/MISSING SPEED DESIGNATOR
21	LRM-RMK/6/7/INVALID ACID
21	LRM-RMK/RMK/01/00/UHMMZQZA ?INVALID SENDING UNIT?
32	LRM-RMK/RMK/40/15(22)/* INVALID ROUTE ELEMENT DESIGNATOR
32	LRM-RMK/RMK/31/14//EM08 INVALID SUPPLEMENTARY CROSSING DATA
52	LRM-RMK/RMK/18/48/OTH PBN/..... ?INVALID PBN?
143	LRM-RMK/RMK/57/ ?INVALID MESSAGE?
210	LRM-RMK/RMK/10/7/* INVALID SSR CODE
264	LRM-RMK/RMK/14/9/*/J INVALID WAKE TURBULENCE CATEGORY (!WTC!)
409	LRM-RMK/RMK/18/48/OTH /....?INVALID DESIGNATOR?
2019	LRM-RMK/RMK/18/(48, 54)/OTH?FORMAT ERROR?
3241	TOTAL

Number of LRMs PAZNZQZX to UHMMZQZA	LRM type
1	LRM-RMK/25/14/INVALID BOUNDARY POINT DESIGNATOR
4	LRM-RMK/62/UNDEFINED ERROR
4	LRM-RMK/13/9/INVALID AIRCRAFT MODEL
4	LRM-RMK/52/0/MORE THAN ONE FIELD MISSING
13	LRM-RMK/RMK/00/61 INVALID CRC
13	LRM-RMK/RMK/57/ ?INVALID MESSAGE?
13	LRM-RMK/RMK/10(15)/15(22)/EQP SDE3FGHIJ3J4J5RWXYZ/LB1 ?INVALID (CNA) EQUIP DESIGNATOR?
14	LRM-RMK/6/7/INVALID ACID
25	LRM-RMK/26/14,15/INVALID ENROUTE POINT
1161	LRM-RMK/65/INVALID MESSAGE SEQUENCE
1252	TOTAL

Sending Station	Receiving Station		message amount
PAZAZQZX	UHMMZQZA		77203
	LRMs		3241
PAZNZQZX	UHMMZQZA		44368
	LRMs		1256
PAZAZQZX + PAZNZQZX	UHMMZQZA	121571	total percentage
LRMs		4497	3,70%



AIDC

The Structure of LRM Error Messages Received from Magadan ACC

Number of LRMs UHMMZQZA to PAZAZQZX	LRM type
1	LRM-RMK/19/16/INVALID DESTINATION AERODROME
2	LRM-RMK/25/14/INVALID BOUNDARY POINT DESIGNATOR
8	LRM-RMK/RMK/00/61 INVALID CRC
12	LRM-RMK/13/9/INVALID AIRCRAFT MODEL
116	LRM-RMK/6/7/INVALID ACID
122	LRM-RMK/7/7/DUPLICATE ACID
225	LRM-RMK/62/UNDEFINED ERROR
486	TOTAL

Number of LRMs UHMMZQZA to PAZNZQZX	LRM type
5	LRM-RMK/RMK/00/61 INVALID CRC
6	LRM-RMK/RMK/57/ ?INVALID MESSAGE?
8	LRM-RMK/19/16/INVALID DESTINATION AERODROME
28	LRM-RMK/25/14/INVALID BOUNDARY POINT DESIGNATOR
62	LRM-RMK/13/9/INVALID AIRCRAFT MODEL
78	LRM-RMK/62/UNDEFINED ERROR
104	LRM-RMK/7/7/DUPLICATE ACID
345	LRM-RMK/6/7/INVALID ACID
636	TOTAL

Sending Station	Receiving Station	message amount	percentage
UHMMZQZA	PAZAZQZX	77146	
LRMs		486	0,63%
UHMMZQZA	PAZNZQZX	44862	
LRMs		636	1,42%

UHMMZQZA	PAZAZQZX + PAZNZQZX	122008	total percentage
LRMs		1122	0,92%



AIDC Data on ATC «Alpha» System Situational Display (Magadan)

Входящие						
Время	От	Рейс	Тип	Данные	Зав.	Ошибка
00:50:03	От АК	CES590	CPL	VALDA/0133 F320		

Согласованные						
Вд	Рейс	ВРЛ	Точка	Время	Эшел	Прим
↔	СНН496	3562	ЖАЛДА	00:56	< F380	
↔	ССА830	3575	ЖАЛДА	00:58	< F360	
↔	CES590		ЖАЛДА	01:33	< F320	

ЦЕС590
Внеш.СГЛ->АЖ
Согласен (АСР)
Изменение (CDN)
Опасность (ЕМГ)
Информация (MIS)

Исходящие						
Время	Кому	Рейс	Тип	Данные	Зав.	Ошибка
00:47:46	Для ЯС	ДАЛ27	АВТ	ТУРДИ/0118 F360		
00:47:35	Для ЯС	КАЛО38	АВТ	ТУРДИ/0118 F340		

Ожидаемые [-60 +60]											
Актив											
Вд	Рейс	ВРЛ	Точка	Время	Эшел	Упр	АВТ	ОЛДИ/АИДС	Увед	W	Прим
↔	АСА005		АГУРА	01:26	< F360	???				W	
↔	CSN660		VALDA	02:05	< F320	???				W	
↔	CES768		VALDA	02:08	< F380	???				W	

Согласованные											
Вд	Рейс	ВРЛ	Точка	Время	Эшел	Упр	ОЛДИ/АИДС	Увед	W	Прим	
↔	CES590	3616	ЖАЛДА	01:31	< F320	АЖ			W		
↔	СНН7978	3127	ЖАЛДА	01:39	< F360	АЖ			W		

На управлении											
Вд	Рейс	ВРЛ	Точка	Время	Эшел	Упр	Сгл	ОЛДИ/АИДС	Увед	W	Прим
↔	CSN330	2626	АСБАТ	01:19	< F340	C1			ПЗ	W	
↔	AAL183	2034	ПАЛАМ	01:22	< F380	C1			ПЗ	W	
↔	AAL281	4261	УМУРИ	01:26	< F360	C1			ПЗ	W	
↔	CA01056	6235	АСБАТ	01:35	< F340	C1			ПЗ	W	
↔	CES582	0026	АСБАТ	01:50	< F380	C1			ПЗ	W	
↔	CSN399	3105	ЛИСКИ	01:54	F330	C1		CPL АЖ ЛИСКИ F330/01:54	П	W	
↔	ССА888	7661	АСБАТ	01:56	< F380	C1			ПЗ	W	
↔	АСА027	6345	ИНДОЛ	02:18	< F360	C1			П	W	
↔	ССА992	0022	АСБАТ	02:20	< F320	C1			ПЗ	W	
↔	СНН496	3562	АСБАТ	02:21	< F380	C1			ПЗ	W	

Исходящие						
Время	Кому	Рейс	Тип	Данные	Зав.	Ошибка
01:08:55	Для АЖ	CSN399	CPL	ЛИСКИ/0154 F330		

Входящие						
Время	От	Рейс	Тип	Данные	Зав.	Ошибка
01:05:44	От ПЗ	ГЛП3516	АВТ	УБ/0116 F280	✓	Неск. планов
01:05:19	От АР1	СРА831	CPL	ПИНАГ/0208 F340		
01:01:33	От АР2	УАЛ888	CPL	КОКЕС/0202 F360	✓	
00:59:51	От АР2	УАЛ888	АВТ	Оповещение АВТ	✓	

СГЛ
CSN399 *C1
F330 *F330 км970
hdg spd
a337 d404



Implementation Plan

In the course of operational testing we are identifying the possible errors and are eliminating their causes. The software is quickly modified in Magadan ACC when necessary. These measures has already helped decrease significantly the number of errors during the AIDC coordination.

In fact, the operational testing of the voiceless AIDC interaction has already allowed reducing the air traffic coordination workload for ATC. The AIDC implementation will allow enhancing the airspace capacity of the Magadan ACC sectors.



THANK YOU FOR YOUR ATTENTION!