

**Nineteenth Meeting of the Cross Polar Trans East Air Traffic Management Providers' Work Group
(CPWG/19)**

(Tokyo, Japan, 11-15 May 2015)

Agenda Item 6: State ATM ATS Route Catalogue

Route variations within Russia in Support of Cross Polar Operations

(Presented by IATA – United Airlines)

SUMMARY

This working paper presents information for the Group's consideration in the continued development of route flexibility within the Russian Federation. This paper provides an example of variations of possible routes, including User Preferred Routes, within the airspace between the Yakutsk VOR (UTS) and the enroute waypoint NINON (N52 00.0 E127 40.1)

1. Introduction

1.1 In our desire to continue to enhance operational flexibility within the Russia Federation airspace, the following working paper provides an example of the variations between two common points within the ATS structure between the Yakutsk VOR (UTS) and NINON at (N52 00.0 E127 40.1). The working paper uses a Boeing 777-200ER on a Chicago to Beijing flight for representation of the various route possibilities between UTS and NINON waypoints.

1.2 Due to the variability of upper air winds, there are at least 4 different route possibilities between these two points. The distance between UTS and NINON is 611nm.

2. Discussion

2.1 Currently there are two routing options between these two fixes, UTS G493 BEDNA G115 ARKOD G494 NINON (618nm), and UTS B148 ODANA G494 NINON (639nm). The great circle distance from UTS to NINON is 611nm.

2.2 Four additional routing variations have been constructed by our flight planning system between UTS and NINON to illustrate the "potential" variations on a daily basis:

- Great circle routing (611nm)
- UTS DCT OGTIN (N58 11.3 E130.03.6) and NINON (616nm)
- UTS DCT OGTIN DCT ARELI ((N55 15.0 E129 52.1) DCT NINON (623nm)
- UTS DCT N60 E130 DCT N55E129 DCT NINON (616nm) - shown as "Free Flight in the illustration would be a User Preferred Route – UPR"

2.3 The illustrations indicate on “one specific” day the variation between the five route comparisons were within 2 minutes and approximately 400 pounds of each other on a representative Chicago to Beijing Boeing 777-200ER flight.

2.4 There are a significant number of city pairs that could benefit by increased route flexibility illustrated in this paper from North America to China. This includes but is not limited to departures from New York and Newark, Boston, Washington (Dulles), Detroit, Atlanta, Chicago, Toronto to destinations such as Beijing, Shanghai, and Hong Kong.

2.5 The “UPR – Free Flight” example provided a 213 pound improvement over the current regular routing from UTS via G493 G115 G494 NINON routing, with no change in total flight time.

2.6 The intent of this paper is to illustrate that although User Preferred Routes are not currently authorized in Russian continental airspace, there are several routing options that could be considered to provide increased optimization of operations through Russia.

3. Action by the Meeting

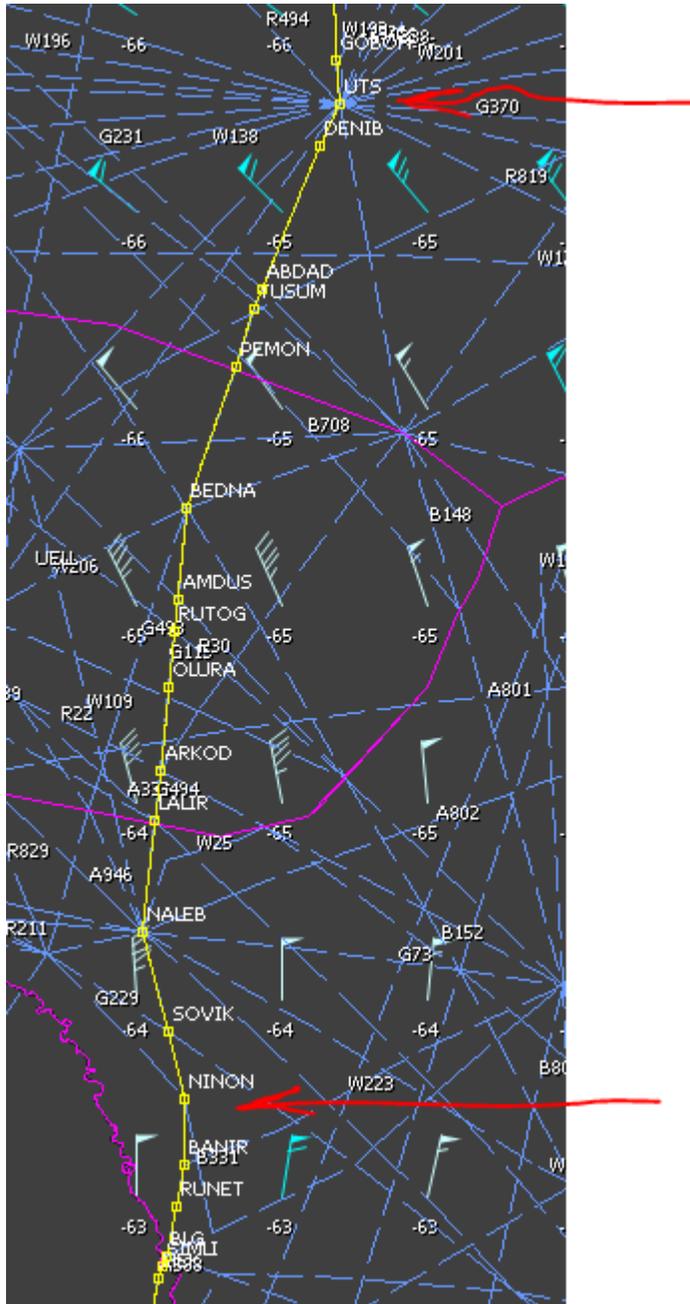
3.1 The meeting is invited to:

- a. review the information contained in this Working Paper;
- b. Consider the development of additional route variations within the airspace as indicated in the paper.

Illustrations of Route Variations:

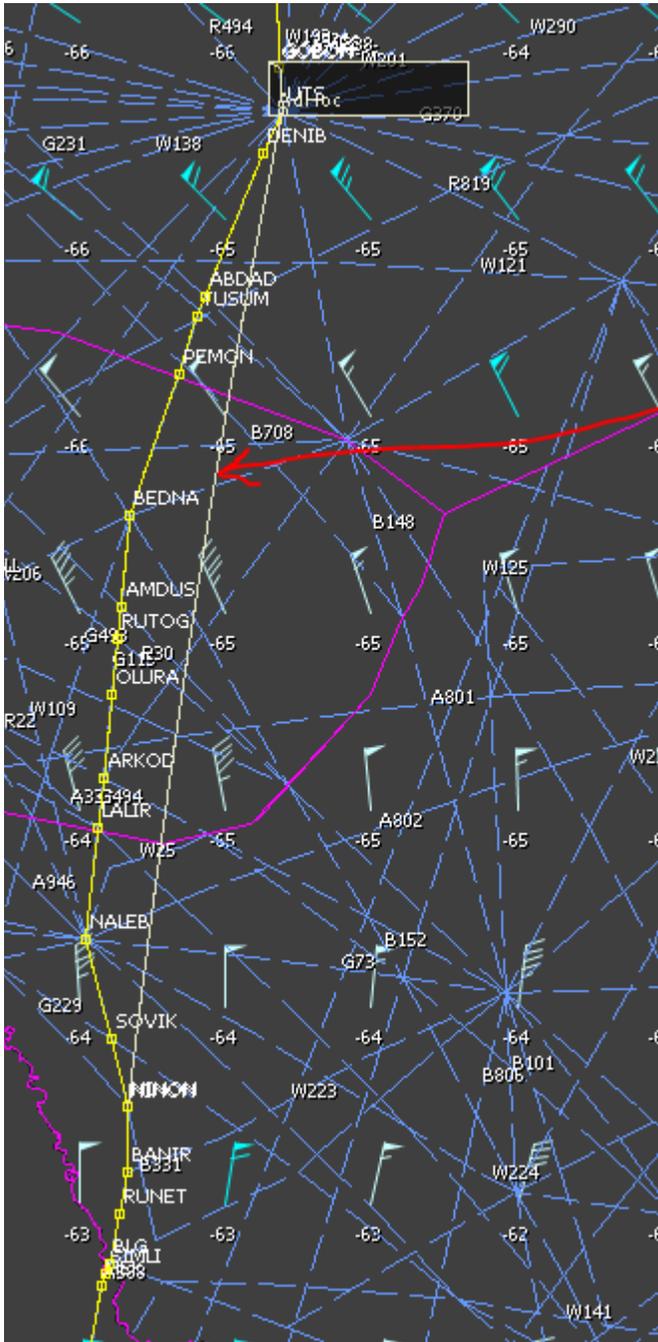
UTS to NINON

Existing routing shown in yellow.



Distance 618nm
Time 12:53
Fuel 185,000 B/O

Great circle connection from UTS to NINON

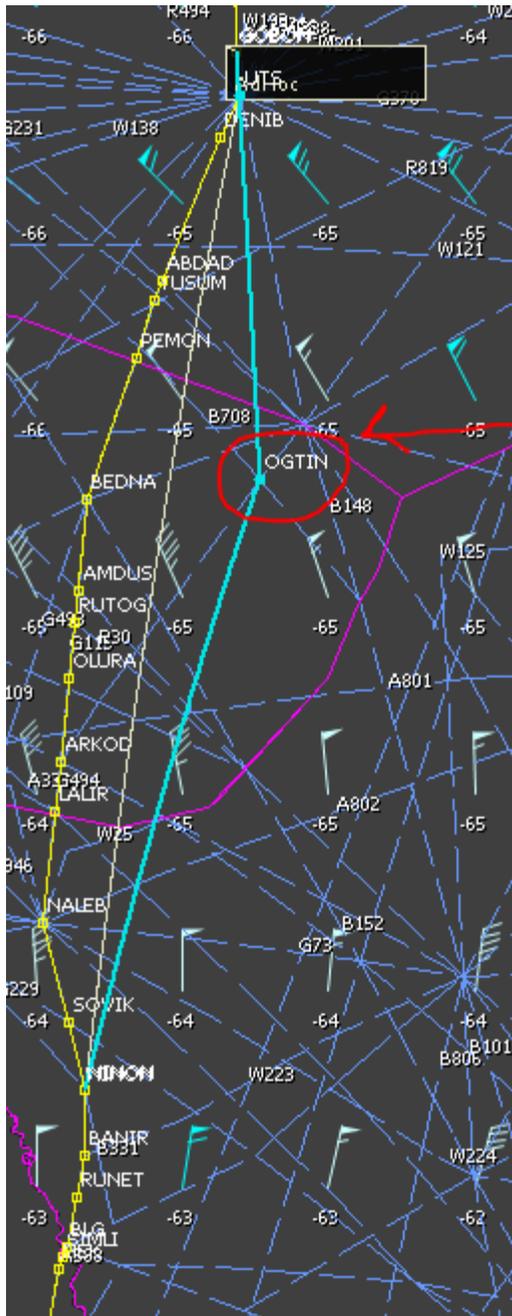


Distance 611NM

Time 12:53

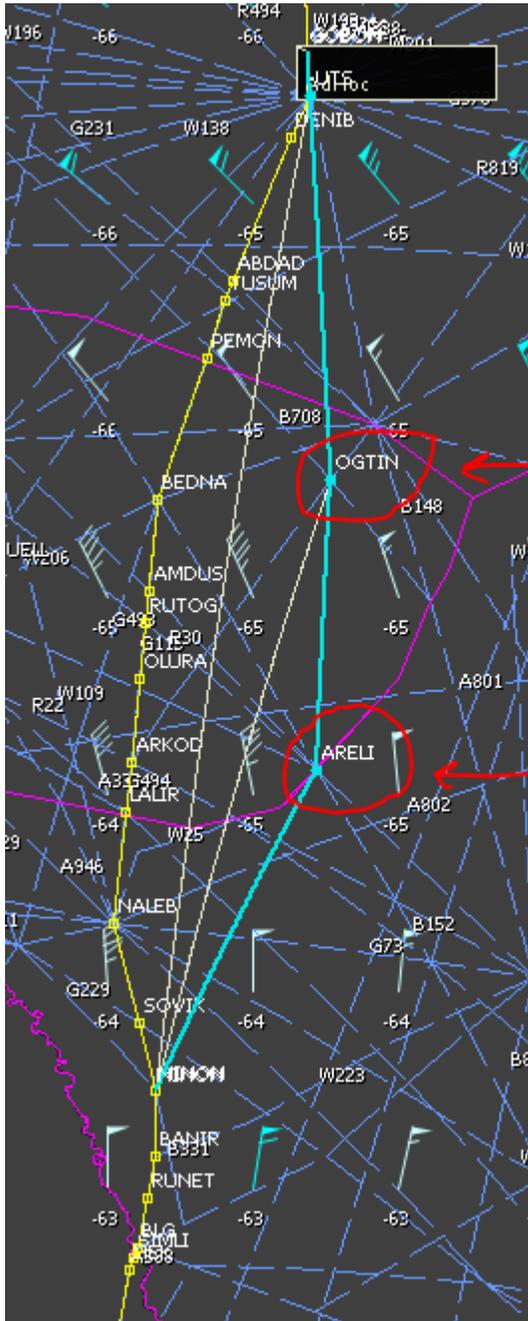
Fuel 184,787lbs

UTS OGTIN NINON – used existing waypoints



Distance 616nm
Time 12:54
Fuel 185,027Nm

UTS OGTIN ARELI NINON – variation using existing waypoints



Distance 623nm

Time 12:55

Fuel 185,219

UTS..60N130E..55N129E..NINON – UPR / “Free Flight”



Distance 616nm

Time 12:53

Fuel 184,981

Example Flight: Chicago to Beijing	UTS to NINON NM	Total Flight Time	Fuel burn - B772	
Existing UTS to NINON	618	12:53	185,000	
Great circle connection from UTS to NINON	611	12:53	184,787	
UTS OGTIN NINON – used existing waypoints	616	12:54	185,027	
UTS OGTIN ARELI NINON – variation using existing waypoints	623	12:55	185,219	
UTS..60N130E..55N129E..NINON – UPR / “Free Flight”	611	12:53	184,881	