European Aviation Safety Agency

EASA

TYPE-CERTIFICATE DATA SHEET

No. EASA.IM.A.176

for

RRJ-95

Type Certificate Holder:

Joint Stock Company Sukhoi Civil Aircraft

Polikarpov str., 23B, building 2
125284, Moscow
Russian Federation

For Model: RRJ-95B

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SECTION 1: RRJ-95B

I. General

This Data Sheet, which is part of Type Certificate No. IM.A.176, prescribes conditions and limitations under which the product for which the Type Certificate was issued meets the airworthiness requirements of the European Aviation Safety Agency

1. Type/ Model/ Variant

RRJ-95 /RRJ-95B

2. Performance Class

A

3. Certifying Authority

Interstate Aviation Committee Aviation Register
Bolshaya Ordynka str., 22/2/1
119017, Moscow, Russia

Since the Russian federation Decree 1283 dated 28.11.2015 the Russian Federation Certification Authority is:
Federal Air Transport Agency (Rosaviatsia)

4. Manufacturer

Joint Stock Company Sukhoi Civil Aircraft
Polikarpov str., 23B, building 2
Russian Federation, 125284, Moscow

5. IAC AR Application Date

April 15th, 2004 (Application correction April 24nd, 2009)

6. EASA Type Certification Application Date

July 22nd, 2004 (Letter 4631/354 dated 03.07.2009 to extend request for the validation period)

7. IAC AR Type Certificate Date

January 28th, 2011

8. EASA Type Certification Date

February 3rd, 2012

SECTION 1: RRJ-95B - continued

9. EASA Type – Certificate Data Sheet for Noise
RRJ-95B - February 3rd, 2012

II. Certification Basis

1. Reference Date for determining the applicable airworthiness requirements

January 27th, 2006

2. Reference Date for determining the applicable operational suitability requirements

June 2008 for Master Minimum Equipment List as per JAR MMEL/MEL amendment 1 as defined in ORI N° 4.
31 January 2014 for Flight Crew Data as per CS-FCD.
31 January 2014 for Cabin Crew Data as per CS-CCD.

3. IAC AR Certification Data Sheet No.

CT 322-RRJ-95 **(the latest revision 54 dated 09.11.2016)**

4. IAC AR Certification Basis

Requirements from the document №RRJ0000-LS-204-021RU, Rev. G, based on Aviation Regulations, Part 25 Airworthiness Regulations of Transport Category Airplanes with Amendments 1-5

5. EASA Airworthiness Requirements

EASA Certification Specification 25, Amendment 1, effective as of December 12, 2005, except where identified below.

Certification Specification All Weather Operations (CS AWO), Book 1 and 2 published October 17, 2003.

5.1. Special Conditions

5.1.1. Special Conditions issued because the product has novel or unusual design features relative to the design practices on which the applicable CS 25 are based (EC 1702/2003 part 21 .A16(a)(1))

B-01 Motion and Effects of Cockpit Controls

B-03 Flight Envelope Protection

B-04 Normal load factor limiting system

B-05 Static Longitudinal Stability and Low energy awareness

B-06 Stalling and operating speeds

B-09 Flight in icing condition

SECTION 1: RRJ-95B - continued

C-01 Interaction Systems and Structures

C-03 Engine and APU Load Conditions

C-06 Gust and Turbulence

C-07 Design Manoeuvre Requirements

C-11 Pilot Limit Forces

C-12 Design Dive Speed

C-14 Main Landing Gear Doors Load Condition

D-01 Type C Passenger Exits

D-06 Harmonized 671/672

D-07 Application of heat release and smoke density requirements to seat materials

E-01 Reversing System Requirements

F-01 HIRF Protection

F-17 Aircraft Towing

F-21 Flight Data Recorders

F-24 Security Assurance Process to isolate or protect the Aircraft systems and networks from external network security threats

5.1.2. Special conditions issued because the intended use of the product is unconventional (EC 1702/2003 part 21 .A16 (a) (2))

None

5.1.3. Special conditions issued because experience from other products has shown that unsafe conditions may develop (EC 1702/2003 part 21 .A16 (a) (3))

B-02 Consistency between Crew Procedures and Published Performance Data

D-03 Fire protection of thermal and acoustic insulation material

D-04 Fuselage Doors, Hatches and Exits

D-08 Flight Controls system - application of ARAC proposal 25.671

E-02 Fuel Tank Safety

E-04 Sustained Engine Imbalance

E-07 Flawing and Blowing Snow

E-08 Flammability Reduction System (Nitrogen Generation System)

E-09 Fuel Quantity Indication System

E-10 Water / Ice in Fuel System

H-01 Enhanced Airworthiness Program for Airplane Systems – ICA on EWIS

5.1.4. Special conditions issued from an elect to comply by the applicant with NPA or other regulatory proposals

SECTION 1: RRJ-95B - continued

None

5.2. Exemptions

None

5.3. Deviations

None

5.4. Equivalent Safety Findings

D-11 Green Aircraft Exit Configuration

5.5. Environmental Protection Requirements

- ICAO Annex 16 Volume 1 " Aircraft Noise" 3-rd Edition, amendment 7, Part II "Aircraft Noise certification", Chapter 4 and
- CS 36 amendment 1 (ED decision n° 2007/007/R dated 3 April 2007)
- Part II, Chapter 2 of ICAO Annex 16 Volume II, 2nd Edition, Amendment 4
- CS 34 initial issue(ED decision n° 2003/3/RM dated 11/10/2003)

5.6. Environmental Protection Standards

ICAO Annex 16, Volume I, Amendment 9 (Fifth Edition), Chapter 4 for Noise; and ICAO Annex 16, Volume II (Third Edition), Amendment 6, for Emissions.

For details of the certified noise levels see TCDSN EASA.IM.A.176.

6. Operational Suitability Requirements

6.1 Flight Crew Data

Certification Specifications for Operational Suitability Data (OSD) Flight Crew Data – CS-FCD, Initial Issue (dated 31 January 2014)

6.2. Cabin Crew Data

Certification Specifications for Operational Suitability Data (OSD) Cabin Crew Data – CS-CCD, Initial Issue (dated 31 January 2014)

6.3. Master Minimum Equipment List

Certification basis as recorded in ORI 4 is JAR-MMEL Section 1 Subpart A and B Amendment 1 with the MoC specified in SCAC position in the ORI N°4.

SECTION 1: RRJ-95B - continued

III. Technical Characteristics and Operational Limitations

1. Type Design Definition

The aircraft type design is defined in document T7.TD.0000.000.13/J and all Type Design changes associated with the Major Changes approved by EASA.

2. Description

The RRJ-95B aircraft is a twin turbofan engine, single aisle, large category aircraft, short/medium range.

3. Equipment

The basic required equipment as prescribed in the applicable airworthiness regulations shall be installed in the aircraft. Those equipment are identified in document T7.92.0000.000.000.30.

4. Dimensions

Overall Length	29,940 m (98.23 ft)
Total Height	10,283 m (33.74 ft)
Wing Span	27,80 m (91.21 ft)
Wing Area	83.80 m^2 (902 ft^2)

5. Engines

Two (2) PowerJet S.A. Turbofan Engine Models
SaM146-1S17 turbofan (EASA Engine Type Certificate: EASA.E.034)
Engine Limits:

	Low Pressure Rotor Speed N1 (rpm)	**High Pressure Rotor Speed N2 (rpm)**	**Sea Level static thrust ratings (daN)**	**Maximum Exhaust Gas Temperature (°C)**
Maximum for Takeoff (5 min)	6814 (105%)	18523 (110%)	7684	972
Maximum continuous	6814 (105%)	18523 (110%)	6637	928

Reference Speeds (100%): N1 6489rpm & N2 16839

SaM146-1S18 turbofan (Engine covered by EASA Type Certificate EASA.E.034, installation covered by major change approval 10060566 and major change approval 10061094)

SECTION 1: RRJ-95B - continued

	Low Pressure Rotor Speed N1 (rpm)	High Pressure Rotor Speed N2 (rpm)	Sea Level static thrust ratings (daN)	Maximum Exhaust Gas Temperature (°C)
Maximum for Takeoff (5 min)	6814 (105%)	18523 (110%)	7900	972
Maximum continuous	6814 (105%)	18523 (110%)	6637	928

Oil Temperature: Starting: - 40°C (min.)
Minimum before take-off: 10°C
Maximum: 140°C
(During transients within the flight envelope an oil supply temperature rise up to 155°C is allowed)

Note: Other engine limitations: See the relevant Engine Type Certificate Data Sheet.

6. Auxiliary Power Unit

One APU Honeywell RE220 (RJ) (approved by TSO C-77A)
Oils: refer to the applicable approved manuals

7. Propellers

Not Applicable

8. Fluids (Fuel, Oil, Additives, Hydraulics)

8.1 Fuel

KEROSENE	Specification			
	FRANCE	UK	USA	RUSSIA
JET A-1	DCSEA 134	DEF STAN 91-91	ASTM D 1655	GOST R 52050
JET A			ASTM D 1655	
RT TS-1				GOST 10277

8.2 Oil

Type I: BP2389 (MIL-PRF-7808)
Type II: MJII reference oil (MIL-PRF-23699 and SAE AS5780)

8.3 Hydraulics

SECTION 1: RRJ-95B - continued

Nominal pressure: 3000 psi
Hydraulic fluids: SKYDROL LD4 and HyJet IV-Aplus
(in compliance with specifications AS1241).

Note: Refer also to the Limitations Section of the Airplane Flight Manual

9. Fluid Capacities

9.1 Fuel

Tanks	**Usable Fuel**	
	Liters	**Kg(*)**
Center Tank	5665	4419
Wing tank compartment 1	1925	1501
Wing Tank compartment 2	1660	1295
Wing tank compartment 3	1350	1053
Wing tank supply compartment	135	105
Total wing tank L or R	5070	3954
Total	**15805**	**12327**
	Unusable fuel	
Center Tank	2	1.6
Wing tank L or R	21	16.8
Total	**44**	**18.4**

* Fuel Density 0.78 Kilograms / Liter

9.2 Oil

Maximum Engine Oil Volume: 13,9 liters per tank
Minimum Engine Oil Volume: 6,95 liters per tank

Maximum APU Oil Volume: 4,83 liters
Minimum APU Oil Volume: 3,55 liters

10. Airspeed Limits

(Unless otherwise specified, speeds are indicated airspeeds)

- Maximum operating limit speed (V_{MO}) 308 kts IAS.
- Maximum operating limit Mach number (M_{MO}) 0.81 M.
- V_{MCL} (sea level) FLAPS 2: **115 kts** - V_{MCL} (sea level) FLAPS 3/FULL: **112 kts**
- V_{MCL} (sea level) FLAPS 3/FULL: **117 kts** (When equipped with by major change 10060566)
- V_{MC} (sea level) 117 kts

  V_{MC} (sea level) 116 kts (When equipped with by

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major change 10060566)

- V_{MCG} (sea level) 106 kts
- V_{MCG} (sea level) 111 kts (When equipped with by major change 10060566)

Landing Gear Extension speed (V_{LO}) 255 kts CAS

- Landing Gear Retraction speed (V_{LO}) 215 kts CAS
- Landing Gear Extended (V_{LE}) 255 kts CAS

11. Flight Envelope

Maximum Operating Altitude: 12200 m / 40000 ft

12. Operating Limitations

12.1 Approved Operations

The airplane is approved for the following kinds of flight and operation, both Day and Night, provided the required equipment is installed and approved in accordance with the applicable regulations/specifications:

- RVSM
- Visual (VFR)
- Instrument (IFR)
- Icing Conditions
- Contaminated Runway
- Low weather minima (CAT I operations and CAT II operations and CAT IIIA operations)
- Contaminated Runways
- Flexible Take-off
- Vertical Navigation (VNAV)
- RNAV1 /PRNAV /SELCAL
- Narrow Runway up to 30 m

12.2 Other Limitations

Airport Elevation	up to 8466 ft (2580 m) (barometric pressure)
Environmental Ground Temperature	+45/- 40°C
Maximum Crosswind (take off/landing)	30 Kts
Maximum tailwind (take off/landing)	10 Kts
Runway slope	+/- 2%

Note : refer to the Airplane Flight Manual for any other limitation

13. Maximum Certified Masses

- Maximum Ramp Weight (MRW) 46055 kg

SECTION 1: RRJ-95B - continued

- Maximum Take-Off Weight (MTOW) 45880 kg
- When equipped with by major change 10060566- Maximum Take-Off Weight (MTOW) 49450 kg
- When equipped with by major change 10061094 - Maximum Take-Off Weight (MTOW) 45880 kg
- Maximum Landing Weight (MLW) 41000 kg
- Maximum Zero Fuel Weight (MZFW) 40000 kg

14. Centre of Gravity Range

Extreme forward: 8% MAC
Extreme aft 36% MAC

Note: Refer to the approved Airplane Flight Manual for dependence of allowable CG's position depending on the aircraft weight

15. Datum

Station 0.0 is located 1.78 m [70.08 in] forward of the airplane nose

16. Mean Aerodynamic Chord (MAC)

3063mm [120.6 inches]

17. Levelling Means

Leveling targets are marked in red on the fuselage, wing and stabilizers. Laser means are used for leveling

18. Minimum Flight Crew

Two (2): Pilot and co-pilot

19. Minimum Cabin Crew

In accordance with the following;

Installed Passenger Seats	Minimum Cabin Crew
98	2

NOTE: The above minimum cabin crew numbers are those demonstrated by the type certificate holder. A lower number is acceptable in the case of specific cabin layouts if documented in an EASA approved major design change or Supplemental Type Certificate (STC).

20. Maximum Seating Capacity

SECTION 1: RRJ-95B - continued

The maximum number of passengers approved for the emergency evacuation is 98

Note: See interior layout drawing for the maximum passenger capacities approved for each aeroplane when delivered

21. Baggage/ Cargo Compartment

Cargo compartment (class C)	Maximum Load (kg)
Forward	1945
Aft	2255
Total	4200

For the positions and the loading conditions authorized in each position (references of containers, pallets and associated weights), see Weight and Balance Manual

22. Wheels and Tyres

22.1 Wheels

Nose Landing Gear: H24x7.7-10
Main Landing Gear: H40x14.5-19

22.2 Tires:

Nose Landing Gear: 24x7.7 R10 - 16 PR - 225 MPH
Main Landing Gear: 40x14.5 R19 - 24PR - 225 MPH

23. ETOPS

No ETOPS approval granted.

IV. Operating and Service Instructions

1. Airplane Flight Manual (AFM)

EASA Approved Airplane Flight Manual referenced № M7.92.0AFM.000.000.EN

2. Instructions for Continued Airworthiness and Airworthiness Limitations

EASA Approved Aircraft Maintenance Manual Chapter 04 Airworthiness Limitations Section referenced № M7.92.0AMM.004.000.EN Revision 8 including points as Certification Maintenance Requirements (CMR), Airworthiness Limitation Items (ALI), Safe Life Limits and Fuel Tank Safety.

3. Weight and Balance Manual (WBM)

SCAC document with reference № M7.92.0WBM.000.000.EN .

SECTION 1: RRJ-95B - continued

V. Operating Suitability Data (OSD)

The Operational Suitability Data elements listed below are approved by the European Aviation Safety Agency under the EASA Type Certificate EASA.IM.A.176 as per Commission Regulation (EU) 748/2012 as amended by Commission Regulation (EU) No 69/2014.

1. Master Minimum Equipment List

The Master Minimum Equipment List applicable is defined in the document M7.92.MMEL.000.000.EN Revision 7 (dated 21.12.2016) or later approved revisions.

2. Flight Crew Data

The Flight Crew Data is defined in the EASA Operational Suitability Data Flight Crew RRJ0000-RP-205-3294 (dated 28.04.2015) or later approved revisions.

3. Cabin Crew Data

The Cabin Crew Data is defined in the EASA Operational Suitability Data Cabin Crew RRJ0000-RP-205-3322 (dated 28.05.2015) or later approved revisions.

VI. Notes

1. Import Requirements:

   a. The Export Certificate of Airworthiness to EU country issued by IAC AR should contain the following statement (in the English language):
   "The aircraft covered by this certificate has been examined, tested, and found to conform to the Type Design approved under EASA Type Certificate No. IM.A.176 as defined in TCDS IM.A.176 issue 1 (or later revision) and to be in condition for safe operation."

   b. When equipped with the engine SaM146-1S18, installed by major change 10060566, the aircraft receive the commercial designation RRJ-95LR-100.

   c. When equipped with the engine SaM146-1S-18, installed by the major change 10061094, the aircraft receive the commercial designation RRJ-95B-100

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

I. Acronyms and Abbreviations

A/C Aircraft
AFM Airplane Flight Manual
ALI Airworthiness Limitation Items
AMC Acceptable Means of Compliance
APU Auxiliary Power Unit
CCD Cabin Crew Data
CG Center of Gravity
CMR Certification Maintenance Requirements
CRI Certification Review Item
EASA European Aviation Safety Agency
EU European Union
EWIS Enhanced Wiring Interconnection System
FCD Flight Crew Data
ICA Instructions for Continued Airworthiness
ICAO International Civil Aviation Organization
IFR Instrument Flight Rules
VFR Visual Flight Rules
NPA Notice of Proposed Amendment
OSD Operational Suitability Data
SCAC Sukhoi Civil Aircraft Company
TCDS Type Certificate Data Sheet
TCDSN Type Certificate Data Sheet for Noise
VFR Visual Flight Rules

II. Type Certificate Holder Record

Joint Stock Company Sukhoi Civil Aircraft
Polikarpov str., 23B, building 2
Russian Federation, 125284, Moscow

III. Change Record

Issue	Date	Changes	TC issue
Issue 01	3 February 2012	Initial Issue	Initial Issue, 3 February 2012

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Issue 02	10 December 2015	Update to include the following points and major changes: -OSD information -CAT II -High Altitude Airfield -High Temperature -Crosswind -Contaminated Runway -Flexible Take-Off -Reference to AFM Issue B -Reference to AMM Revision 5 -Reference to WBM Revision B	
Issue 3	07 March 2017	Introduction of information related to the major change 10060566 and 10061094	

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