

TRACTATENBLAD

VAN HET

KONINKRIJK DER NEDERLANDEN

JAARGANG 2002 Nr. 2

A. TITEL

*Verdrag inzake het open luchtruim, met bijlagen;
Helsinki, 24 maart 1992*

B. TEKST

De Engelse en de Franse tekst van Verdrag en bijlagen zijn geplaatst in *Trb.* 1992, 142. Voor correcties in de Franse tekst zie *Trb.* 1993, 21. Het Verdrag is voorts nog ondertekend voor de volgende staat:

Kirgizstan 15 december 1992

C. VERTALING

Zie *Trb.* 1993, 21.

D. PARLEMENT

Bij brieven van 17 september 1993 (Kamerstukken II 1993/94, 23 420 (R 1484), nr. 1) is het Verdrag in overeenstemming met artikel 91, juncto additioneel artikel XXI, eerste lid, onderdeel a, van de Grondwet op de voet van artikel 61, derde lid, van de Grondwet naar de tekst van 1972 overgelegd aan de Eerste en de Tweede Kamer van de Staten-Generaal, en in overeenstemming met artikel 24, eerste lid, van het Statuut voor het Koninkrijk aan de Staten van de Nederlandse Antillen en de Staten van Aruba.

De toelichtende nota die de brieven vergezelde, is ondertekend door de Minister van Buitenlandse Zaken P. H. KOOIJMANS en de Minister van Defensie A. L. TER BEEK.

De goedkeuring door de Staten-Generaal is verleend op 30 oktober 1993.

E. BEKRACHTIGING

In overeenstemming met artikel XVII, eerste lid, van het Verdrag hebben de volgende staten een akte van bekrachtiging of goedkeuring nedergelegd bij de regering van Canada of de regering van de Republiek Hongarije:

Canada ¹⁾	21 juli 1992
Tsjechië ²⁾	21 december 1992
Slowakije ²⁾	21 december 1992
Denemarken ³⁾	21 januari 1993
Noorwegen ³⁾	14 juli 1993
Frankrijk	30 juli 1993
Hongarije	11 augustus 1993
Griekenland	9 september 1993
Spanje ³⁾	18 november 1993
de Verenigde Staten van Amerika ⁴⁾	3 december 1993
het Verenigd Koninkrijk van Groot-Britannië en Noord-Ierland	8 december 1993
Duitsland	27 januari 1994
Bulgarije ³⁾	15 april 1994
Roemenië ³⁾	5 juni 1994
Italië ⁵⁾	28 oktober 1994
IJsland	25 augustus 1994
Portugal	22 november 1994
Turkije ⁶⁾	30 november 1994
Polen ⁷⁾	17 mei 1995
België ⁸⁾	28 juni 1995
het Koninkrijk der Nederlanden (voor het gehele Koninkrijk) ⁸⁾	28 juni 1995
Luxemburg ⁸⁾	28 juni 1995
Georgië ³⁾	31 augustus 1998
Oekraïne ³⁾	20 april 2000
Rusland	2 november 2001
Wit-Rusland	2 november 2001

¹⁾ Onder de volgende verklaring:

“The Government of Canada declares, with respect to Article XIII, Section II of the Treaty on Open Skies, that it will initially implement the required privileges and immunities to the extent permitted by Canadian law, and that it is reviewing the question of whether any legislative changes will be necessary for Canada to implement fully the required privileges and immunities.”.

²⁾ Deze staat heeft een verklaring van voortgezette gebondenheid afgelegd.

³⁾ De akte is alleen bij de regering van Hongarije nedergelegd.

⁴⁾ Onder de volgende interpretatieve verklaring van 4 februari 1994:

“In connection with Article XII of the Treaty on Open Skies, the Government of the United States of America makes the following statement:

Article XII of the Open Skies Treaty does not modify existing international law

on liability for injury or damage that may occur as a result of flights conducted under the Treaty. It does not impose liability on the observing Party to pay compensation for injury or damage to an observed Party, or to its natural or juridical persons or to their property, caused by the operation of the observation aircraft during an observation flight in the course of implementation of the Open skies Treaty, if such observation flight was conducted using an observation aircraft designated and provided by the observed Party under Article VI of the Treaty. Further, the United States will seek compensation from the observed Party in any case in which injury or damage to the United States, including but not limited to any of its flight representatives, sensor operators and inspectors, is caused by the operation of the observation aircraft during an observation flight in the course of implementation of the Open Skies Treaty and if such observation flight was conducted using an observation aircraft designated and provided by the observed party pursuant to Article VI of the Treaty.”.

5) De akte is nedergelegd bij de regering van Canada op 31 oktober 1994.

6) De akte is nedergelegd bij de regering van Canada op 1 december 1994.

7) De akte is nedergelegd bij de regering van Canada op 29 mei 1995.

8) Onder de volgende wijziging voor de Benelux van Aanhangsel I bij Bijlage E (zoals afgedrukt op blz. 146 van Tractatenblad 1992, 142):

“State Party: Benelux

POINT OF ENTRY/EXIT		
SITE	LOCATION	INSPECTION OF AIRCRAFT/SENSORS
Zaventem/Melsbroek	N 50.54.08 E 04.29.09	Yes
OPEN SKIES AIRFIELD		
SITE	LOCATION	INSPECTION OF AIRCRAFT/SENSORS
Zaventem/Melsbroek	N 50.54.08 E 04.29.09	Yes
ENTRY/EXIT FIXES		
N/A		
REFUELING AIRFIELDS		
N/A		
CALIBRATION TARGETS		
SITE	LOCATION (ARP)	
Gilze-Rijen	N 51.34.05 E 04.55.59.”.	

G. INWERKINGTREDING

De bepalingen van het Verdrag waarvan enkele ingevolge artikel XVIII, afdeling I, vanaf 24 maart 1992 voorlopig werden toegepast, zijn ingevolge artikel XVII in werking getreden op 1 januari 2002.

H. TOEPASSELIJKVERKLARING

Het Verenigd Koninkrijk van Groot-Brittannië en Noord-Ierland heeft bij de bekrachtiging het Verdrag van toepassing verklaard op:

Anguilla, Bermuda, de Britse soevereine gebieden Akrotiri en Dhekelia op het eiland Cyprus, de Britse Maagdeneilanden, de Caymaneilanden, de Ducie en Oeno eilanden, de Falklandeilanden, Gibraltar, Guernsey, Henderson, het Britse gebied in de Indische Oceaan, Jersey, het eiland Man, Montserrat, de eilandengroep Pitcairn, Sint Helena, de onderhorigheden van Sint Helena, de Turks- en Caicoseilanden en de Zuid-Georgia en Zuid-Sandwich eilanden.

J. GEGEVENS

Besluiten

De „Open Luchtruim”-Overlegcommissie (OSCC) heeft in overeenstemming met artikel X, tweede lid, van het onderhavige Verdrag de volgende besluiten genomen op de in de onderscheiden besluiten genoemde data. De Engelse tekst¹⁾ van de besluiten luidt als volgt:

Decision Number One to the Treaty on Open Skies

Distribution of costs arising under the Treaty on Open Skies

The States Parties to the Treaty on Open Skies, pursuant to the provisions of Annex L, Section I, paragraph 9 of the Treaty on Open Skies, have agreed as follows:

The following provisions shall govern the distribution of costs arising under the Treaty on Open Skies, hereinafter referred to as the Treaty:

SECTION I. DISTRIBUTION OF COSTS OF OBSERVATION FLIGHTS CONDUCTED ON AN OBSERVATION AIR- CRAFT OF THE OBSERVING PARTY

1. Unless otherwise specified in this Decision, or agreed between the States Parties involved, an observing Party using its own observation air-

¹⁾ De Duitse, de Franse, de Italiaanse, de Russische en de Spaanse tekst zijn niet afgedrukt.

craft shall reimburse the observed Party for the costs of only the following goods and services related to the observation aircraft:

A) Fuel, oil, hydraulic fluid, oxygen, de-icing fluid and water requested in the course of the observation mission;

B) Ground technical and commercial servicing requested by the flight crew of the observing Party; and

C) Additional services provided by the observed Party pursuant to Article VI, Section I, paragraph 17 (D) of the Treaty.

2. The costs for the goods defined in paragraph 1 (A) of this Section and Section II, paragraph 4 of this Decision, and consumed during a demonstration flight requested by the observed Party pursuant to Annex F, Section III of the Treaty shall be met by the observed Party unless the demonstration flight results in the cancellation of the observation flight in accordance with the provisions of Article VIII and Annex F of the Treaty. In this case the observing Party shall meet such costs of the demonstration flight.

3. In the event that the observing Party takes the original film negative on its own observation aircraft or transport aircraft to the processing location, it shall upon request of the observed Party, and provided the availability of seats, transport free of charge personnel of the observed Party verifying the film processing to the film developing location. In such case the observing Party assumes no liability for transporting such passengers.

4. Costs resulting from a deviation or curtailment of an observation flight in accordance with Article VIII, Section II, paragraph 5 (C) of the Treaty, shall be met by the observed Party. All other costs connected with a deviation from the flight plan of the observation flight, as defined in Section I, paragraph 1 (A) of this Decision, shall be paid by the observing Party.

5. The costs of recording media, transportation of the media to the processing location of their processing, chemicals expended in processing, and duplication for the observed Party shall be borne by the observing Party.

SECTION II. DISTRIBUTION OF COSTS OF OBSERVATION FLIGHTS CONDUCTED ON OBSERVATION AIRCRAFT PROVIDED BY THE OBSERVED PARTY PURSUANT TO ARTICLE VI, SECTION I, PARAGRAPH 1 OF THE TREATY

1. In the event that the observing Party uses its own transport aircraft as a means of transport, it shall pay for the goods and services defined in Section I, paragraph 1 of this Decision that the observing Party

requests for its transport aircraft during the period of its presence on the territory of the observed Party.

2. Unless otherwise specified in this Decision, or agreed between the States Parties involved, an observed Party exercising its right to provide an observation aircraft shall be reimbursed by the observing Party for the costs of only the following goods and services related to the observation aircraft:

A) Fuel, oil, hydraulic fluid, oxygen, de-icing fluid and water consumed in the course of the observation mission; and

B) Additional services provided by the observed Party pursuant to Article VI, Section I, paragraph 17 (D) of the Treaty.

3. The costs for the goods defined in paragraphs 2 (A) and paragraph 4 of this Section, and consumed during a demonstration flight requested by the observing Party pursuant to Annex F, Section III of the Treaty shall be met by the observing Party unless the demonstration flight results in the cancellation of the flight in accordance with the provisions of Article VIII and Annex F of the Treaty. In this event, the observed Party shall not charge the observing Party for the demonstration flight.

4. The costs of recording media used in the observation flight and for producing duplicates for the observed Party as well as the costs of the chemicals expended in processing and duplication for the observed Party shall be borne by the observing Party.

5. If the observing Party exercises its right to process the recording media, it shall pay the costs of transporting them to its processing facility. If the observing Party waives its right to process the recording media, and they are thus processed by the observed Party, the observed Party shall pay for their transportation to its processing facility and to the point of exit used by the observing Party.

6. Costs connected with a deviation or curtailment of an observation flight in accordance with Article VIII, Section II, paragraphs 5 (A), 5 (B), or 5 (C) of the Treaty shall be met by the observed Party. All other costs as defined in paragraph 2 (A) of this Section, connected with a deviation from the flight plan of the observation flight, shall be paid by the observing Party.

7. The observed Party shall cover the costs connected with the travel, if applicable, of flight representatives from the nearest point of entry to the Open Skies airfield where the observation flight begins and from the Open Skies airfield where the observation flight ends to the nearest point of exit, unless the transport aircraft of the observing Party is used for that purpose.

SECTION III. REIMBURSEMENT OF COSTS FOR USE OF OBSERVATION AIRCRAFT DESIGNATED BY A THIRD STATE PARTY

Reimbursement for the use by an observing Party of an observation aircraft designated by a third State Party shall be fair and reasonable and be established in accordance with the arrangements of the States Parties concerned.

SECTION IV. COSTS ARISING FROM CERTIFICATION OF OBSERVATION AIRCRAFT AND SENSORS AND ADDITIONAL FLIGHTS

1. Except for the provisions of Section V, paragraph 2 of this Decision, the costs arising from the certification of an observation aircraft and sensors pursuant to the provisions of Annex D of the Treaty, including the costs of one valid in-flight examination, shall be met by the State Party or Group of States Parties designating the observation aircraft.

2. If additional flights are agreed among the States Parties involved, the costs shall be met by those States Parties requesting such flights. These additional flights shall not interfere with the certification process and shall be without prejudice to the provisions of Annex D of the Treaty.

SECTION V. GENERAL RULES

1. Travel expenses of flight crew and flight representatives of the observing Party to the point of entry and from the point of exit shall be borne by the observing Party with the exception of travel expenses specified in Section II, paragraph 7 of this Decision.

2. The arrangements agreed to in the following subparagraphs A and B regarding the payment by the observing Party for meals and accommodation shall not be a precedent for other existing or future arms control agreements.

A) Travel expenses for representatives of the States Parties at the certification process, as well as costs for their meals and accommodation up to the equivalent of 75 ECUs per person per day, shall be met by the State Party which they represent.

B) Unless otherwise agreed, the observed Party shall not charge more than the equivalent of 75 ECUs in a convertible currency per person per day for meals and accommodation provided to the personnel of the observing Party.

3. Costs of additional services provided by the observed Party pursuant to Article VI, Section I, paragraph 17 (D) of the Treaty shall be met by the observing Party regardless of which State Party provides the observation aircraft.

4. Fees shall not be charged either to a transiting State Party or to an observing State Party for the use of navigational aids and for air traffic control services, airport landing, takeoff, ground handling, parking and security for all Open Skies transit, transport, and observation flights. This provision shall be re-examined on the basis of practical experience if so requested by a State Party one year after entry into force of the Treaty.

5. The observed Party shall cover the costs of its personnel participating in the preparation and conduct of an observation flight over its territory.

6. Unless otherwise agreed, the observed Party shall charge for the goods and services defined in Section I, paragraph 1, and Section II, paragraphs 1 and 2 of this Decision, using prices set at the lowest available commercial rate, not including taxes, at Cologne Airport in the Federal Republic of Germany, as of 1 January of the current year and of every year thereafter. A price list for such items shall be distributed to all States Parties by the depositaries no later than 31 January each year.

7. Unless otherwise agreed, an observed Party exercising its right to provide an observation aircraft shall charge the observing Party for goods defined in Section II, paragraph 4 of this Decision, a price not exceeding that for such goods at the lowest available commercial rate, not including taxes, existing in Canada, as of 1 January of each year, from any company whose products are used by a certified Canadian observation aircraft, or, if there be no such aircraft, by an observation aircraft certified by the United States. A price list for such goods shall be distributed to all States Parties by the Depositaries no later than 31 January each year.

8. States Parties shall cover the costs of emergency medical treatment on their territory provided to personnel of other States Parties performing activities in accordance with the provisions of the Treaty.

9. No later than 30 days after completion of an observation flight the observed Party shall transmit a bill in a convertible currency to the observing Party clearly itemising the costs incurred during that observation flight. For all costs not mentioned in paragraphs 2, 3, 7 and 8 of this Section which are customarily charged in the local currency, this bill shall also identify the price in the currency of the observed Party as well as the exchange rate prevailing at the date the expense was incurred. For the purposes of this Section the personnel of a third State Party participating in the conduct of an observation flight shall be considered as personnel of the observing Party.

10. Unless otherwise agreed, at the end of each calendar year the States Parties will exchange requests for payment in a convertible currency. Following this exchange, the total costs of goods and services provided by the States Parties shall be compared by the States Parties to determine if actual reimbursement is required. Following this review, any State Party that is in debt to any other State Party shall pay its debt to that State Party no later than 1 March of the following year – unless the debt is still under discussion – in a convertible currency at the rate of exchange between the convertible currency used for billing and the one used for actual payment prevailing on the date of exchange of accounts. This rule shall also apply to observing Parties using an observation aircraft of a third State Party.

SECTION VI. COSTS ARISING FROM DATA SHARING

Duplicates of sensor output collected during an observation flight shall be provided by the observing Party at a fair and reasonable price, which will be determined on a bilateral basis. After one year of practical implementation of the Treaty, the Open Skies Consultative Commission shall review the necessity for new provisions to calculate such costs.

This Decision shall enter into force simultaneously with the Treaty on Open Skies and shall have the same duration as the Treaty.

Decided in Vienna, in the Open Skies consultative Commission, on 10 December 1992, in each of the six languages specified in Article XIX of the Treaty on Open Skies, all texts being equally authentic.

Decision Number Two to the Treaty on Open Skies

Additional non-destructive-testing equipment

The States Parties to the Treaty on Open Skies, pursuant to the provisions of Annex F, Section I, paragraph 7 of the Treaty on Open Skies, have agreed as follows:

In addition to the items of non-destructive-testing equipment which the observed Party shall have the right to take on board and use on the observation aircraft, the observed Party shall also have the right to take on board and use a volt-ohm meter.

In addition to the item of equipment specified above, the Open Skies Consultative Commission may agree, after 30 June 1992, within the framework of consideration of technical measures, on additional items of non-destructive-testing equipment.

This Decision shall enter into force simultaneously with the Treaty on Open Skies and shall have the same duration as the Treaty.

Decided in Vienna, in the Open Skies Consultative Commission, on 29 June 1992, in each of the six languages specified in Article XIX of the Treaty on Open Skies, all texts being equally authentic.

Decision Number Three to the Treaty on Open Skies

Methodology for calculating the minimum height above ground level at which each optical camera installed on an observation aircraft may be operated during an observation flight

The States Parties to the Treaty on Open skies, pursuant to the provisions of Annex D, Appendix 1, Section III, paragraph 2 of the Treaty on Open Skies, have agreed as follows:

The methodology for calculating the minimum height above ground level at which each optical camera installed on the observation aircraft may be operated during an observation flight, shall be as follows:

A) determine the ground resolution of the optical camera (lens/filter/film combination) at the altitude from which the calibration target was photographed, from a visual analysis of the image of the calibration target (across track and along track) on the original film negative. The value of the ground resolution shall be equal to the width of a single bar in the smallest group of bars which can be distinguished as separate bars, in centimetres;

B) produce a D logE curve for the film using a densitometer to measure the densities of a 21-step sensitometric strip exposed on the film by a sensitometer prior to the flight;

C) determine the effective modulation of the calibration target from an analysis of the image of the calibration target on the original film negative by electronic means or, if that is not possible, by comparison with a calibrated sensitometric strip on the film;

D) calculate the height above ground level at which the optical camera would achieve a ground resolution of 30 centimetres against a target which has the agreed modulation of 0.4, or equivalent contrast ratio of 2.3 of 1, against its background; and

E) determine the mean value of the height above ground level obtained from paragraph (D) from at least five passes over the calibration target, as follows:

$$H_{\min} = \frac{1}{n} \sum_{i=1}^n H_i \left[\frac{L_a}{L_2} \right] \left[\frac{K_1}{K_2} \right]^m$$

where:

H_{\min} is the mean value of the minimum height above ground level, in metres;

n is the total number of passes over the calibration target;

H_i is the height of the aircraft, in metres, at the moment the calibration target was photographed;
 L_a is the agreed ground resolution of 30 centimetres;
 L_2 is the ground resolution, in centimetres, obtained from paragraph (A);
 K_1 is the agreed modulation of 0.4 at which ground resolution is defined;
 K_2 is the effective modulation obtained from paragraph (C) as follows:
 where: $K_2 = \frac{C-1}{C+1}$ where $C = 10^{\Delta \log E}$

$\Delta \log E$ is the difference in the logarithm of the exposures between the black and white bars on the calibration target;
 m is the agreed corrected exponent value of 0.45.

This value shall represent the certified minimum height above ground level, in metres, at which the optical camera (lens/filter/film combination) may be operated during an observation flight.

This Decision shall enter into force simultaneously with the Treaty on Open Skies and shall have the same duration as the Treaty.

Decided in Vienna, in the Open Skies Consultative Commission, on 29 June 1992, in each of the six languages specified in Article XIX of the Treaty on Open Skies, all texts being equally authentic.

Decision Number Four to the Treaty on Open Skies

Minimum camera specification for an observation aircraft of an observed Party exercising its right to provide an observation aircraft for an observation flight

The States Parties to the Treaty on Open Skies have agreed as follows:

Unless otherwise agreed, in the event that an observed Party exercises its right to provide the observation aircraft for an observation flight, with respect to optical cameras, the observed Party shall provide for such an observation flight an observation aircraft with the following specifications:

A) The observation aircraft shall be equipped with a panoramic camera certified in accordance with the methodology set out in Decision Number Three as capable of achieving a ground resolution of 30 centimetres at a minimum height above ground level of no less than 8,000 metres and with a field of view of no less than 93 degrees; and

B) The observation aircraft shall be equipped with a suite of three framing cameras certified in accordance with the methodology set out in Decision Number Three as capable of achieving a ground resolution of

30 centimetres in the range of 1,000 to 2,600 metres height above ground level and with an aggregate field of view of no less than 70 degrees.

Observed Parties exercising their right to provide an observation aircraft for an observation flight shall provide observation aircraft meeting the above requirements no later than 1 January of the fourth year following the year in which the Treaty enters into force.

States Parties shall have the right to agree in the future on changes to this Decision.

This Decision shall enter into force simultaneously with the Treaty on Open Skies and shall have the same duration as the Treaty.

Decided in Vienna, in the Open Skies Consultative Commission, on 29 June 1992, in each of the six languages specified in Article XIX of the Treaty on Open Skies, all texts being equally authentic.

Decision Number Five to the Treaty on Open Skies

Responsibility for the processing of film used during an observation flight

The States Parties to the Treaty on Open Skies, pursuant to the provisions of Article IX, Section II, paragraph 2 of the Treaty on Open Skies, have agreed as follows:

The observing Party shall have the right to determine whether the observing Party, or the observed Party providing the observation aircraft, shall process the film used during the observation flight. In the event that the observing Party exercises its right to process the film used during the observation flight on an observation aircraft provided by the observed Party, the observed Party shall bear no responsibility for the quality of the processing of that original film negative. If the quality of the processed film is inadequate and the State Parties involved are unable, after making every effort, to resolve a dispute over whether failure or inadequacy in the quality of the data collected during the observation flight was due to sensor operation, to processing, or to some other factor, the observing Party shall assume responsibility and the observation flight shall count against the quotas of both States Parties.

This Decision shall enter into force simultaneously with the Treaty on Open Skies and shall have the same duration as the Treaty.

Decided in Vienna, in the Open Skies Consultative Commission, on 29 June 1992, in each of the six languages specified in Article XIX of the Treaty on Open Skies, all texts being equally authentic.

Decision Number Seven to the Treaty on Open Skies
Methodology for determining the ground resolution of a Synthetic Aperture Radar (SAR)

The States Parties to the Treaty on Open Skies, pursuant to the provisions of Appendix 1 to Annex D, Section I, paragraph 4 and Annex D, Appendix 1, Section III, paragraph 5 of the Treaty on Open Skies, have agreed as follows:

SECTION I. DEFINITION OF TERMS

The following definitions shall apply to terms used in this Decision:

1. The term “azimuth” shall mean the direction parallel to the aircraft track.
2. The term “slant range” shall mean a distance perpendicular to the aircraft track in the slant plane.
3. The term “image” shall mean a two-dimensional (slant range and azimuth) array of processed radar amplitude samples.
4. The term “initial phase data”, also known as “complex raw data” or “radioholograms”, shall mean the data recorded by the SAR on magnetic media before the data are processed to form an image.

5. The “radar cross section” (RCS) of a corner reflector shall be calculated using the formula:

$$RCS = \frac{4}{3} \pi \left[\frac{a^4}{\lambda^2} \right]$$

where:

RCS is the radar cross section in square metres (m²).

a is the length of each inside edge of the corner reflector in metres;
and

λ is the operating wavelength of the SAR in metres;

RCS may be expressed in decibels (dB) using the following formula:

where:

$$RCS_{dB} = 10 \text{Log}_{10} \left[\frac{RCS_{m^2}}{1 m^2} \right]$$

0 dB is referenced to 1 m²;

6. The term “impulse response” shall mean the response of a SAR to the radar signal reflected from a trihedral corner reflector.
7. The term “amplitude” also known as “the value of the signal of the output of the SAR”, shall mean the square root of the power or intensity of a radar sample.
8. The term “spatial resolution” shall mean the widths in slant range and azimuth at 0.707 times the peak value of the two-dimensional Gaus-

sian surface which is determined by five radar samples extracted from or close to the main lobe of an impulse response.

9. The term “ground resolution” shall mean the spatial resolution in slant range and azimuth, stated in metres.

10. The term “sensitivity level” shall mean the radar signal giving the same amplitude as the average amplitude of the output noise from the SAR.

11. The term “saturation level” shall mean the largest radar signal whose amplitude is reduced to no less than 0.707 of the amplitude of the ideal linear response for a given RCS.

12. The term “dynamic range” shall mean the ratio of the saturation level to the sensitivity level of the radar samples taking into account all SAR system and recording system limitations. The value may be specified in terms of decibels using the formula:

$$20 \log_{10} \left[\frac{A_{\max}}{A_{\min}} \right]$$

where:

A_{\max} is the amplitude of the saturation level;

A_{\min} is the amplitude of the sensitivity level.

13. The term “spatial scaling factor in azimuth” shall mean the distance in metres in azimuth on the ground between consecutive radar samples.

14. The term “spatial scaling factor in slant range” shall mean the distance in metres in the slant plane between consecutive radar samples.

15. The term “sidelobe” shall mean any value of the radar return found in an impulse response which lies at a distance greater than 1.4 times the spatial resolution from the position of the peak amplitude of the main lobe.

16. The term “peak sidelobe” shall mean the largest sidelobe found in the impulse response.

17. The term “integrated sidelobe power” shall mean the total power in all sidelobes of an impulse response out to the extent of the uncompressed radar pulse in both range and azimuth.

18. The term “integrated sidelobe level” shall mean the square root of the ratio of the integrated sidelobe power of an impulse response to the power in the main lobe of that impulse response.

19. The term “ambiguity level” shall mean the square root of the ratio of the peak power of the brightest false target found in a radar image to the peak power of the true image of the that target.

SECTION II. SPECIFICATIONS FOR CALIBRATION TARGET ARRAYS

The following specifications for calibration target arrays for measuring the ground resolution of a SAR during certification or demonstration flights are established pursuant to Appendix 1 to Annex D, Section I, paragraph 4 to the Treaty on Open Skies.

1. Each corner reflector shall be made of radar reflecting material. The three inside surfaces of the trihedral shall be perpendicular to each other. Each corner reflector shall be constructed to an accuracy of two millimetres in the length of each inside edge, and the better of half a degree in angle between the inside surfaces or 0.1 times the operating wavelength of the SAR across any portion of the aperture. Each corner reflector shall be aligned within plus or minus three degrees of the perpendicular to the flight direction and the optimum elevation angle from the horizontal for the SAR whose resolution is being determined.

2. Each calibration target array shall consist of a number of trihedral corner reflectors of various RCS arranged on a flat surface, for example, short grass, concrete and asphalt, which provides a mean background RCS of between -25 and -30 dB per square metre. Each corner reflector shall be positioned to reduce the effect of multipath propagation of radar signals on the RCS of the corner reflector to a reasonable level. Each corner reflector shall be adjustable in azimuth and elevation to enable the imaging aspect to be optimised. Each corner reflector shall be located with respect to other corner reflectors in the array so as to ensure that its radar shadow does not interfere with the radar return from other corner reflectors. Each array shall be located with respect to any other array so as to ensure that there is no interference with the radar returns from any other array. There shall be no obstructions or objects in the area surrounding the arrays which could interfere with the radar return from any corner reflector within an array.

3. The calibration target array to measure the linearity of the amplitude response of a SAR to a series of corner reflectors whose RCS in dB increase in a linear fashion shall consist of at least 12 individual corner reflectors placed in a straight line. The array shall be aligned at an angle of 45 degrees to the aircraft flight path. The spacing between individual corner reflectors shall be equal and shall be between 30 and 50 metres. The RCS of individual corner reflectors shall increase in equal increments of 5 dB from a minimum of no greater than -10 dB to a maximum of no less than 45 dB. The physical size of each corner reflector shall be optimised for SARs with operating wavelengths of between 0.03 and 0.05 metres.

4. The calibration target array to measure the ground resolution of a SAR shall consist of 9 individual corner reflectors arranged in a square in three rows of three. One diagonal of the square shall be perpendicu-

lar to the aircraft flight path. The spacing between adjacent corner reflectors in the array shall be equal and shall be between 100 and 120 metres. The RCS of the corner reflectors in the array shall be equal and in the range of 15 to 30 dB and at least 40 dB above the effective background RCS. The physical size of the corner reflectors shall be optimised for SARs with operating wavelengths of between 0.03 and 0.05 metres.

SECTION III. ANALYSIS OF DATA COLLECTED DURING A CERTIFICATION OR DEMONSTRATION FLIGHT

The following procedures for the analysis of data collected during a certification or demonstration flight are established pursuant to Annex D, Appendix 1, Section III, paragraph 5 to the Treaty on Open Skies.

1. The ground resolution of a SAR installed on an observation aircraft shall be determined in both azimuth and slant range using data collected from images of trihedral corner reflectors deployed in arrays in accordance with the specifications in Section II.

2. The impulse response shall be approximated by a smoothing function in accordance with the following methodology:

A) The initial phase data shall be recorded on magnetic media. A single-look amplitude image of each corner reflector shall be produced from the initial phase data using image-formation algorithms and shall be stored on magnetic media.

B) The highest amplitude value and two amplitude values either side of the highest value in both slant range and azimuth which may be used to represent the main lobe shall be extracted from the image of the corner reflector to form a 5 element cross which shall represent the impulse response of the SAR.

C) A smoothed amplitude profile shall be constructed by determining the two-dimensional Gaussian function which passes through the 5 individual values obtained in paragraph 2(B).

D) The smoothed amplitude profile obtained from paragraph 2(C) which lies on the lines which pass through the original radar samples closest to the peak amplitude and the individual values obtained in paragraph 2(B) shall be plotted on hardcopy and, optionally, on a video display. The five radar samples either side of the central value in slant range and azimuth shall also be plotted on this graph.

3. During certification, the impulse response shall be interpolated by a Fourier transform in accordance with the following methodology:

A) A sixteen by sixteen square of amplitude values in slant range and azimuth centered on a corner reflector shall be entered into a two-dimensional array;

B) A two-dimensional Fourier transform shall be performed on the array obtained from subparagraph 3(A);

C) The number of elements in the Fourier-transformed array constructed in subparagraph 3(B) shall be expanded by sixteen times in each dimension by inserting zero values into the centre elements of this Fourier-transformed array;

D) A two-dimensional inverse Fourier transform shall be performed on this 256 by 256 array;

E) The values of amplitude in slant range and azimuth obtained in subparagraph 3(D) which lie on the lines which pass through the original radar samples closest to the peak amplitude shall be plotted on hardcopy with linear interpolation between the interpolated radar samples. The amplitudes of the original radar samples shall also be plotted on this hardcopy.

4. The amplitude linearity of a SAR shall be determined using data collected from an image of at least 12 corner reflectors deployed in a linear array in accordance with the specifications in paragraph 3 of Section II. The data shall be analysed in accordance with the following methodology:

A) A smoothed amplitude profile of each of the corner reflectors in the linear array that is detectable in the processed image shall be constructed according to the procedures specified in paragraph 2 above.

B) The peak value of each impulse response shall be determined from the smoothed amplitude profiles obtained in subparagraph 4(A).

C) The peak amplitudes determined in subparagraph 4(B) shall be plotted against value of the square root of the RCS of the associated corner reflector.

D) A straight line shall be fitted to the linear portion of the individual points plotted in subparagraph 4(C).

E) The graph obtained in subparagraph 4(D) shall be used to calculate the sensitivity level and the saturation level of the SAR.

F) The graph obtained in subparagraph 4(D) shall be used to apply a correction to the linearity of the amplitude response of the SAR between the calculated sensitivity and saturation levels.

5. The spatial resolution of the SAR shall be determined using data collected from an image on the 9 corner reflectors deployed in a square in accordance with the specifications in paragraph 4 of Section II. The data shall be analysed in accordance with the following methodology:

A) A smoothed amplitude profile shall be constructed for each of the 9 corner reflectors in the array, in accordance with the procedures specified in paragraph 2 above.

B) The distance between the centres of the two corner reflectors at either end of the diagonals of the array on the ground, measured to an accuracy of no worse than one metre (for slant range with regard to incidence angle), shall be divided by the number of intervals between the corresponding number of radar samples in the image, to determine the spatial scaling factors in slant range and azimuth.

C) The width of the curves in slant range and azimuth at the level which is 0.707 times the peak amplitude shall be measured in terms of the distance between radar samples for each smoothed amplitude profile obtained in subparagraph 5(A).

D) The average of the nine azimuth values and the average of the nine slant range values obtained in subparagraph 5(C) shall be converted to distance in metres by multiplying by the spatial scaling factors determined in subparagraph 5(B).

6. The accuracy of the determination of the ground resolution using the Gaussian approximation in paragraph 5 and the value of the side lobes of the full impulse response shall be determined using data collected from the image of one of the 9 corner reflectors deployed in a square in accordance with the specifications in paragraph 4 of Section II. The data shall be analysed in accordance with the following methodology:

A) An interpolated amplitude profile shall be constructed for one of the 9 corner reflectors in the array, in accordance with the procedures specified in paragraph 3 above;

B) The width of the curves in slant range and azimuth at the level which is 0.707 times the peak amplitude shall be measured in terms of distances between radar samples for the interpolated amplitude profile obtained in subparagraph 6(A);

C) If the average width of the curves obtained in subparagraph 5(C) is within five percent of the value obtained in subparagraph 6(B), the Gaussian approximation is defined as being a sufficiently accurate approximation for the determination of spatial resolution.

D) If the average width of the curves obtained in subparagraph 5(C) is not within fivepercent of the value obtained in subparagraph 6(B), the interpolated amplitude profile shall be obtained for each of the nine corner reflectors and used to calculate spatial resolution in accordance with the procedures specified in subparagraphs 5(B) to 5(D) above.

E) The maximum value of the side lobes of the SAR shall be determined from the interpolated profile obtained in subparagraph 6(A) above.

F) The integrated side lobe level shall be calculated from manufacturer's information provided by the State Party conducting the certification.

G) The ambiguity level shall be calculated from manufacturer's information provided by the State Party conducting the certification.

7. The ground resolution of the SAR shall be the spatial resolution in metres in slant range and azimuth obtained from either subparagraph 5(D) or subparagraph 6(D).

This Decision shall enter into force simultaneously with the Treaty on Open Skies and shall have the same duration as the Treaty.

Decided in Vienna, in the Open Skies Consultative Commission, on 10 December 1992, in each of the six languages specified in Article XIX of the Treaty on Open Skies, all texts being equally authentic.

Van de volgende besluiten is de tekst niet afgedrukt¹⁾:

**Decision number six to the Treaty on Open Skies
Rules of procedures and working methods of the Open Skies
Consultative Commission
Vienna, 16 July 1993**

**Decision number eight to the Treaty on Open Skies
Intervals at which data shall be annotated;
Vienna, 16 July 1993**

**Decision number nine to the Treaty on Open Skies
Codes other than alphanumeric values to be used for the annotation
of data
Vienna, 16 July 1993**

**Decision number ten to the Treaty on Open Skies
Scale of distribution for the common expenses associated with the
operation of the Open Skies Consultative Commission
Vienna, 16 July 1993**

**Decision number eleven to the Treaty on Open Skies
Financial and administrative questions, relating to point VI of
Decision OSCC/I/Dec. 6 of 29 June 1992
Vienna, 16 July 1993**

¹⁾ De Engelse tekst ligt ter inzage bij de Afdeling Verdragen van het Ministerie van Buitenlandse Zaken.

**Decision number twelve to the Treaty on Open Skies
Information to be provided together with calibration target
diagrams
Vienna, 6 December 1993**

**Decision number thirteen to the Treaty on Open Skies
Methodology for calculating the minimum permissible flight
altitude when using optical and video cameras
Vienna, 18 April 1994**

**Decision number fourteen to the Treaty on Open Skies
Methodology for calculating the minimum height above ground
level at which each video camera with real time display installed
on an observation aircraft may be operated during an observation
flight
Vienna, 6 October 1994**

**Decision number fifteen to the Treaty on Open Skies
Methodology for calculating the minimum height above ground
level at which each infrared line-scanning device installed on an
observation aircraft may be operated during an observation flight
Vienna, 6 October 1994**

**Decision number sixteen to the Treaty on Open Skies
Calibration of ground processing equipment used for the
determination of H_{\min} from video cameras or infrared line-
scanning devices and for calibrating ground-based tape reprodu-
cers used to replay data from SAR sensors
Vienna, 6 October 1994**

**Decision number seventeen to the Treaty on Open Skies
The format in which data is to be recorded and exchanged on
recording media other than photographic film
Vienna, 6 October 1994**

**Decision number eighteen to the Treaty on Open Skies
Mandatory time period for storing and sharing data recorded
during an observation flight
Vienna, 6 October 1994**

**Decision number nineteen to the Treaty on Open Skies
Supplementary provisions for the completion of the mission plan
and for the conduct of an observation flight
Vienna, 23 January 1995**

**Decision number twenty to the Treaty on Open Skies
Provisions for a three-letter and telephony designator for the
Open Skies Consultative Commission and aircraft identification
for open skies flights**

**Decision number twenty-one to the Treaty on Open Skies
Establishment of an Open Skies Central Data Bank
Vienna, 23 October 1995**

Verwijzingen

Zie *Trb.* 1992, 142 en *Trb.* 1993, 21.

Voor het op 7 december 1944 te Chicago tot stand gekomen Verdrag inzake de Burgerluchtvaartorganisatie zie ook, laatstelijk, *Trb.* 1999, 108.

Voor het op 26 juni 1945 te San Francisco tot stand gekomen Handvest van de Verenigde Naties zie ook, laatstelijk, *Trb.* 2001, 179.

Voor het op 18 april 1961 te Wenen tot stand gekomen Verdrag inzake diplomatiek verkeer zie ook *Trb.* 1994, 212.

Uitgegeven de *achtste* januari 2002.

De Minister van Buitenlandse Zaken,

J. J. VAN AARTSEN