



ITT no. **2003/S 234-208161** (4 December 2003)

COMMON TECHNICAL SPECIFICATIONS

FOR THE 2004 CAMPAIGN OF

REMOTE-SENSING CONTROL OF ARABLE AND FORAGE LAND AREA-BASED SUBSIDIES

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Pre-amble

This document describes the common technical specifications for the 2004 campaign of the remote sensing control of arable and forage land area-based subsidies (referred to as “remote sensing control” or, simply “control”). The document has been prepared by the European Commission (Joint Research Centre, JRC) in close collaboration with DG AGRI and the awarding Administrations in the participating Member States.

The document aims to describe the tasks that the Administrations of the Member States wish to entrust to contractors. For the sake of completeness, however, the technical context of the work requires some descriptions of the role and responsibilities of both the Administration and the Commission, if only to explain why a certain task is expected from the contractor. Some of the technical details may seem exhaustive, but are primarily included to allow bidders the best possible chance to estimate the expected workloads. Furthermore, as a common document, it has to be inclusive of all the possible choices, options and alternatives that are used in the Member States that use remote sensing controls.

This document is complemented by a separate “**National Addendum**”, which describes the particular choices, options and alternatives applicable in the respective Member State. The information given in this “National Addendum” must be taken into account in the reply to this ITT.

The information in this document is up-to-date with the existing EU regulations that are applicable at the time of writing (November 2003). It is the bidder’s responsibility to be aware of other general or specific regulations in the respective Member States that are applicable at the time of control.

Bidders are informed that Technical Recommendations regarding the different phases of the work are issued by the Commission every year in April. For information, the 2003 Recommendations are available on the JRC website (<http://mars.jrc.it/control/>).

The role of the Commission in the procurement procedure to which this document relates is strictly restricted to the technical support required to compile this document and in the coordination of the common publication. The selection, award and follow-up of any contract following from this open procedure is the sole responsibility of the awarding authority in the respective Member States as published in the Official Journal announcement [2003/S 234-208161 of 4 December 2003](#). While the Commission has attempted to make the information contained in these common technical specifications as accurate as possible, it does not warrant the accuracy of the information contained or embodied in the document. The Commission does not warrant or make any representations as to the accuracy of the information contained in the National Addenda produced by respective Member States. Contracts awarded are the sole responsibility of the awarding Administrations in the respective Member States.

1 Introduction

- 1.1** The majority of the European Union Member States, in co-operation with the European Commission, will use Remote Sensing in 2004 to control at least a part of the subsidies for the arable and forage areas funded by the EAGGF. Although the present Technical Specifications have been prepared jointly by the Member States and the Commission, each Member State is responsible for carrying out the work on its territory.

The following Member States participate in this Invitation to Tender: [Cyprus](#), [Germany](#), [Greece](#), [Ireland](#), [Luxembourg](#), [The Netherlands](#), [Portugal](#), [Sweden](#), [United Kingdom \(England\)](#). On the other hand, all other Member States and new Member States using remote sensing will follow these common Technical Specifications, but in a multi-annual programme that is not concerned by the present ITT. [Austria](#) does not participate in the programme this year. The volume of work and requirements specific to each participating Member State are described in Annex 1 and in a "National Addendum" (see § 8.7).

- 1.2** Remote sensing may be used for the control of the following area-related payments:

- Payments for certain arable crops based on Council Regulation (EC) No 1251/1999 (O.J. L 160, p. 1)¹. This Regulation sets out the details of the system of area aids as compensatory payments to farmers for the loss of income caused by the reduction of institutional prices. This system was first introduced as part of the reform of the Common Agricultural Policy (CAP) in 1992.

This regulation provides for area-based subsidies for various kinds of crops falling within the "crop groups"² cereals, oilseeds, protein crops, flax and (as of 1 January 2001) hemp grown for fibre. Different factors have to be taken into account for the calculation of the area aid, such as the regional average yield, as set out in regionalisation plans established by the Member States and the national or regional base-area. This is on condition that a minimum percentage of the arable land declared by the farmer is set aside. This percentage is now fixed at a basic rate of 10%. A voluntary set-aside of more than the required area is possible.

Producers who apply for subsidies for land under cultivation capable of producing not more than 92 tonnes of cereals according to the regional average yield are exempt from this set-aside obligation. Such producers may, however, set-aside land on a voluntary basis nonetheless. A farmer can decide not to request aid for part of his land, or to declare a part of his eligible crops as a forage area, as a way of falling within this group of producers and hence being exempt from the set-aside obligation.

Further details concerning these measures are to be found in Commission Regulation (EC) No 2316/1999.

In addition Council Regulation (EC) No 1254/1999 (O.J. L 160, p. 21) provides for various premiums for livestock. These premiums are limited by the application of a stocking density on the holding per hectare and calendar year (calculated as livestock units (LU) compared to forage area).

¹ All the EC Official Journals, as well as other documents published by the EU, can be obtained in Member States from the National Services responsible for the distribution of the said publications. Electronic versions of Council and Commission regulations can be found at <http://europa.eu.int/eur-lex/>

² Most of the terms between double quotes ("...") in this introduction are defined in the regulations.

- Area-related payments for agricultural production methods to protect the environment and to maintain the countryside and for certain measures in relation to forestry based on Council Regulation (EC) No 1257/1999 (O.J. L 160, p. 80). This regulation is the general basis for the rural development policies of the EC and is supported by the application Commission Reg. (EC) No 445/02 and by Recommendations from DG AGRI (Doc. VI/10535/99 - Rev.7).
 - Area-related payments as laid down in Title IV, chapters 1-5 of Council Regulation (EC) No. 1782/2003 (OJ L 270, p. 1).
 - A hectare-based subsidy for certain grain legumes (lentils, chickpeas and vetches) based on Council Regulation (EC) No 1577/96 (O.J. L 206, p. 4).
 - A simplified scheme as provided for in Article 2 a of Council Regulation (EC) No 1259/1999 (O.J. L 173, p. 1-4) and in Commission Regulation (EC) No 1/2002 laying down detailed rules for the application of Council Regulation (EC) No 1259/1999 as regards simplified scheme for payments to farmers under certain support schemes (O.J. L 1, p. 1-8).
 - The Single Area Payment Scheme (SAPS) adopted by some of the Candidate Countries is defined in an amendment of Council Reg. (EC) No 1259/1999 (new Article 1b), introduced by the Act concerning the conditions of Accession, Part V, Annex II (6) point 27. The SAPS, which is foreseen to come into force by the date of accession, introduces a single area payment for all the arable and forage areas but also includes permanent crops (without restrictions) as well as vegetable gardens. However, additional top-ups may be defined for specific crops or group of crops. The National Addendum will provide detailed information on these specific groups, as well as on the minimum eligible size of the agricultural parcel if any.
- 1.3** The control rules in respect of the aforementioned area payments are governed by the Integrated Administration and Control System (IACS) as set out in:
- Council Regulation (EEC) No 3508/92 (O.J. L 355, p.1) establishing an Integrated Administration and Control System for certain Community aid schemes and amended by Council Regulation (EEC) No 1593/2000 (O.J. L 182, p. 4, introducing the use of GIS and recommending ortho-imagery);
 - Commission Regulation (EEC) No 2419/2001 (O.J. L 327, p.11), laying down detailed rules for applying IACS.
- 1.4** According to Article 1 § 2 of Regulation No 2316/1999, all these schemes are mutually exclusive. In other words, it is not permitted in most cases to submit more than one request for "area" based aid, for the same parcel and the same year. Also, "second crops" (or "catch crops") are excluded from the scheme, and only the principal crop can be subsidized.
- 1.5** The "regionalisation" plans are fixed by each Member States and will not be detailed here. As subsidies vary regionally according to the different reference yields, they must be calculated separately if the declared fields or parcels are situated in different yield regions and the set-aside area must be adapted.
- 1.6** All agricultural parcels should be listed in the applicant's declaration, even though some of them will not be subsidized. For example, the farmer declares the parcel but does not apply for subsidy, in order to be exempted from the set-aside obligation, or if the crop is not eligible (e.g. sugar beet, potatoes etc.). Therefore, the distinction will be made in this document between "declared", "eligible" and "subsidized".

2 Overview

- 2.1** Farmers are required to submit their annual subsidy applications in prescribed form and by dates set in line with Regulation No 3508/92, in general between the end of March and 15 May depending on Member States. According to Article 8 § 4 of the same regulation, the control of these applications can, as an option, be based on satellite or aerial remote sensing and call in external contractors.
- 2.2** Remote sensing allows correct applications to be picked out so that inspection on the spot can be directed to the others and to problem parcels and the inspection number and cost are reduced accordingly. The contractor participates only in the stages related to this photo-interpretation, as the previous and final processing of dossiers is reserved for the Administration. Also, this arrangement is assumed to be "invisible" to the farmer, since no third party appears between him and the Administration. The penalty calculations, sanctions or financial consequences for the farmer are not the responsibility of the contractor.

- 2.3** The Commission's contribution to the programme is, since the 1999 campaign, restricted to furnishing satellite imagery free of charge, the execution of an external quality control procedure (see § 7.4.2) and the technical coordination of methodological choices. This role is observed as a direct support to the Member States' administrations that participate in the programme.
- 2.4** The area and land use of all the relevant subsidized (see § 1.6) parcels of a sample of the applications lodged by the farmers will be verified. Each crop/payment group will be categorized separately by applying the decision tables and technical tolerances established by the Administrations.
- 2.5** The photo-interpretation can be carried out on a series of several satellite images (or aerial photographs) distributed in time ("time series"), or on only one very high resolution (VHR) image (aerial orthophoto or VHR satellite ortho-image). In the latter case at least, the diagnosis **may not** be completed by computer-aided photo-interpretation (CAPI) procedures alone. This is why, after having first checked the parcel area declared on the imagery, it is necessary to organize a series of "rapid field visits" in order to **check the land use or the eligibility of the parcel**. This implies that such visits are feasible in the local context. **These visits may be systematic (for instance when only one orthophoto is used) or limited to doubtful parcels, sensitive groups (such as set-aside, durum wheat) or specific commitments.**
- 2.6** All crop plans submitted for 2004, which include forage areas, but exclude non-subsidized parcels, shall be controlled using images of that year. In some control areas and using archive images, it will be ascertained that the land fulfils the conditions of eligibility for arable and set-aside subsidies during the course of the reference years ("historical" checks).
- 2.7** The work procedure is similar in all participating Member States. The tasks will be carried out partially by the National Administration, the contractor and the Commission. The principal stages can be summarized as follows:

Table 1.
Main stages

Responsible	Description	Period
<i>Preliminary work (§ 3)</i>		
Administration	Choice of control sites, assessment of image requirements	September-November
Administration	Call for tenders, selection of contractors, signature of contracts	December- March
Commission	Publication of Technical Recommendations 1 to 3	April
Administration	Selection and administrative processing of applications lodged in chosen sites; transfer to contractors of dossiers and data bases (declarations, and if available, digital LPIS and ortho-images)	April- June
Contractor	Collection of topographical or GIS data needed and boundary digitization of parcels declared	March- June
<i>Preparation of data (§ 4)</i>		
Commission/ Contractor	Acquisition of satellite images (Commission) and/or aerial photographs (contractors), processing, geometrical correction etc.	September - November, March - July (August)
<i>Photo-interpretation of applications (§ 5)</i>		
Contractor	Photo-interpretation of parcels to be checked	May- August
<i>Decision rules and technical tolerances (§ 6)</i>		
Contractor	Categorisation and return of dossiers and results	June- August
<i>Administrative organisation (§ 7)</i>		
Administration	Inspection on the spot of problem parcels	July- October
Contractor	Contractor's report to Administration and discussions of results	October- November
Commission	Quality assurance	October – May

3 Preliminary work

The majority of this preliminary work is the **responsibility of the Administration** and is outlined for information only.

3.1 Selection of control sites

- 3.1.1 The number and location of sites for the remote sensing controls will have been established previously between the Member State and the Commission. The number of sites is dependent on the remote sens-

ing sampling rate decided by each Member State and on the expected number of applications submitted in these sites. The sites will remain confidential and will not be disclosed to the contractor until a contract has been awarded.

- 3.1.2 The selection criteria for these sites will be entirely at the discretion of the Administration and will not be discussed with the contractor. In general, the sites to be controlled are selected taking account of appropriate risk factors to be determined by the Member States according to the principles laid down in the Commission Regulation (EC) no. 2419/2001 Article 19 and/or 23 (Cf. § 3.2.4). As it is not possible to describe these sites in detail, the bidder should use the following information to evaluate the work to be done. The sites to be controlled:
- by high resolution (HR) satellite images will be defined, in general, as a circle of a 25 km radius. The size and shape of the actual control site may differ from the 25 km radius circle but is generally included in this circle. The sites will be selected in order to ensure that a minimum number of dossiers (500) or a minimum area (7500 ha) is controlled.
 - by VHR satellite images (possibly in combination with HR satellite images) will be defined as a rectangular envelope containing the actual control site (e.g. an administrative unit or a cluster of dossiers). The rectangular envelopes will be defined by the Administration in conjunction with the Commission taking into account the characteristics of the VHR scenes. In order to optimize the VHR image acquisition, these sites will normally be dedicated to a specific sensor (Ikonos or Quickbird)³. The actual control site will be defined by a polygon in which the claimed area should be at least 25 to 30% of the polygon area.
 - by aerial photographs could be distributed inside administrative boundaries, as a function of optimised flight plans and administrative units (e.g. communes) to be checked.
- 3.1.3 The Commission intends to cover with VHR Quickbird, Ikonos, and/or EROS data some 30% of the area controlled by the MS and new MS. The use of such data for controlling the Single Area Payments Scheme in the new MS appears appropriate in conjunction with RFVs (see § 5.2.2). However the Commission is NOT able to confirm the financing of any data for the new Member States before the date of entry in the EU.

3.2 Selection of dossiers

- 3.2.1 The contents of the dossiers, the method used to describe and locate the parcels, as well as the annexes of the application will vary greatly between Member States and from one region to another. It is not possible to describe or even summarize them here. Conversely, the tenderer should demonstrate in his offer that he fully comprehends the national regulations and the type of applications that he will be expected to verify, and the information which they will contain. Relevant information may be included in the "National Addendum".
- 3.2.2 Approximate figures on the number of dossiers and sites, with or without reference period control, are given in Annex 1. These figures should be taken as provisional. Also, in order to help the bidders determining a mean cost per application, the Administration should indicate the mean number of parcels per application and per control region, if requested by the bidders, as this number may vary significantly between regions of a given Member State.
- 3.2.3 The "area" based aid applications for the 2004 campaign will be submitted no later than 15 May. Modification to applications may be allowed up to 15 June, depending on the Member State. According to the way applications are selected by the Administration, contractors may receive the dossiers to be controlled early after their lodging (e.g. end of May - early June) and generally in paper form, or later in the campaign (e.g. July) and preferably in digital form as these will have been entered and checked by the Administration. These two alternatives depend on the strategy adopted by the Administration for selecting the sample of applications to be checked: this sample may be selected on the basis of the declarations and controls from the previous year(s) in which case the sample should be (approximately) determined early in the campaign⁴ or from the list of current year applications, once all will have been entered in the database. The Administration should give to the bidders an indicative schedule of dossiers delivery as well as a deadline for providing the results as, in case of anomaly found during the remote sensing control, some of the crops have to be inspected in the field before a certain date (e.g. 31 August for set-aside). As a general rule, inspections of arable crops have to be carried out before or soon after

³ see JRC document IPSC/G03/P/PAR D(2003)(2213) for more details

the harvest to be fully effective, according to DG AGRI's recommendations on On-The-Spot checks of area⁵.

3.2.4 Member States shall apply the following risk-criteria for the selection of applications to be checked on the spot, in accordance with Article 19 of Commission Regulation (EC) No 2419/2001:

- the amount of aid involved,
- the number of agricultural parcels and the area for which aid is requested,
- changes from the previous year,
- the findings of checks made in past years,
- those farmers who are either just above or below ceilings or limits relevant for the granting of aids
- other factors to be defined by the Member States.

To provide the element of representativity, the Member States shall select randomly between 20 % and 25 % of the minimum number of farmers to be subject to on-the-spot checks.

However, for remote sensing controls, Member States may select all applications falling within a control zone. An applicant will be considered as falling within a control zone if at least 80% of its claimed area falls in the zone. Selecting geographical clusters of applications (i.e. all the applications falling in a predefined area) presents the advantages of reducing the number of topographic maps and references required (e.g. cadastral maps) and optimizing the acquisition of satellite images and aerial photographs. Furthermore, selecting all applications within a zone will enhance the detection of parcel overlaps and/or multiple declarations from different applications. On the other hand, a risk analysis performed at the level of a control zone may not be as efficient as a risk based selection performed at application level (as per article 19). If the Member State decides not to select all applicants falling within the control zone, the provisions of Article 19 shall apply (see article 23 1b).

3.3 Delivery of applications and data entry

3.3.1 In principle, the Administrations will strive to check the applications to be delivered to the contractor so as to eliminate any inconsistencies (e.g. invalid reference parcel number).

3.3.2 Ideally, the alphanumeric data of the dossiers will be transmitted to the contractors in digital form. If due to time constraints, the alphanumeric data of the current year cannot be delivered in digital form, the Administration is advised to distribute the alphanumeric data of the previous year in digital form, so as to limit data entry by the contractor to changes made in the current year application. These data will be supplied on a date agreed between the Administration and the contractor, and if necessary will be delivered in batches. The cartographic documentation should be supplied, where available, at the same time or separately (see § 4.5).

3.3.3 The format of the database given to the contractor will be described by the Administration, and accompanied, if necessary, by a list of the codes used. For each dossier, the minimum information provided (possibly under an anonymous form) will be:

- an identification number given by the Administration, thus creating a link between the dossiers and the database;
- the commune where the head office of the farm is located;
- agricultural region(s) as defined by the Member State in its "regionalisation" plan;
- the support scheme under which the application is made (see also § 10.7.1);
- for each parcel declared (even if it is not subsidized or situated outside the control site):
 - a reference permitting the location of the parcel according to the national LPIS;
 - area in hectares to two decimal places;
 - code(s) for the (successive) use(s) of the land during the year in question;
 - code(s) for the (successive) crop/payment group(s);
 - if appropriate, a code indicating if the field is irrigated;
- for each set-aside parcel, according to the case:
 - distinction between annual set-aside under Regulation 2316/1999 and possible other types of fallow;

⁴ The definitive sample will be known only when all applications will have been lodged.

⁵ "On-the-spot checks of area according to articles 15-23 of Commission Regulation (EC) No 2419/2001", DG-AGRI J.3 Working Document Ref. AGRI/2254/2003 replacing working document VI/8388/94 Rev. 6 of 17.12.1999.

- or list of parcels with "industrial" set-aside and the crop declared.
- 3.3.4 The contractor will check on arrival all dossiers received and acknowledge the receipt of each batch of dossiers. Those found to be incomplete or obviously incorrect during this check will be returned to the Administration with summary results of the preliminary checks, and will only be dealt with if corrected within 30 days.
- 3.3.5 In some Member States (see the National Addendum, § 8.7), the applications to be checked may be provided in paper form to speed up their delivery. In this case, the contractor will have to perform the alphanumeric data entry himself. In addition to the alphanumeric data of the previous year (see § 3.3.2), the Administration should provide to the contractor its operational module for data entry. Alternatively, the list of consistency checks to be performed on the data entered as well as the necessary ancillary data (e.g. the list of the valid reference parcel ids) should be supplied to the contractor by the Administration. The tenderer shall propose a supplementary price for inputting applications, calculated by dossier so the Administration can pass the data entry work to the contractor if it so wishes.
- 3.3.6 In the new MS, the contractor will generally not receive any digital copy of the declarations from the previous year. Moreover, in case of SAPS, in addition to the necessary administrative information, the minimum information provided will be:
- The list of agricultural parcels and land-use within the SAPS production blocks of the farmer;
 - The list of parcels subjected to a national top-up.
 - a sketch map providing the geographic location of these parcels.

4 Preparation of data

A number of possible alternatives can be considered in order to obtain the necessary image material for photo-interpretation:

- multitemporal HR satellite images: optical (multispectral) or radar images (to complement or replace missing optical images);
- VHR satellite images: bundled imagery (i.e. panchromatic and multispectral)
- aerial photos: several options are acceptable: in black-and-white, true colour or colour-infrared (CIR) mode, acquired during the current year or recent archive images (in particular, recent orthophotos used for the national Land Parcel Identification System (LPIS) can be used), mono- or multi-temporal coverage;
- or a combination of HR satellite images and VHR images / aerial photo.

It is highly recommended that the choice be made according to local conditions, in agreement with the recommendations of DG AGRI on the accuracy of area measurements⁵ (i.e. the technical tolerance should not exceed 5% of the measured area of the agricultural parcel or a 1.5 m perimeter buffer). If the choice is not imposed by the Administration, the tenderer must indicate and justify in detail his choice, with possible different alternatives according to local conditions. Some options, such as mono-temporal controls using satellite images or archive aerial photographs with no year 2004 flight, are not recommended strategies. The tenderer should carefully consider all consequences of his choice, in terms of price, area measurements (pixel size), or land use determination (radiometry and number of images).

4.1 Acquisition of satellite images

- 4.1.1 For each site to be controlled by HR satellite images, a series of multi-temporal SPOT 2,4,5 XI/XS, LANDSAT TM or IRS-1C/D LISS-III sensor data will be ordered directly by the Commission, based on requirements drawn up and agreed with the Administration and/or the contractor. If possible, one XI/XS/TM/LISS-III autumn and three (or, exceptionally, four) spring/early summer images will be supplied. The Commission will request a SPOT programming service for the established acquisition windows.
- 4.1.2 The Commission will not supply SPOT or IRS panchromatic images since VHR imagery or aerial orthophoto should normally be used for area measurement and should be available for all the sites.

- 4.1.3 Limited technical evaluation results exist on the quality of the new SPOT 5 “super-mode” PAN imagery. Extrapolation of quality norms for existing satellite data suggests that these data **will not be of sufficient resolution** to reach the area measurement accuracy required by the Commission⁵ for most regions. Supply of this type of data will therefore be restricted to exceptional requests.
- 4.1.4 **Multispectral 10 m resolution SPOT 5 will be supplied to contractors whenever possible. The SPOT 5 sensor provides an option to deliver sub-scenes of 20x20 km², 30x30km² and 40x40 km². Where possible, and especially for VHR sites, SPOT 5 data may be delivered in such sub scenes covering the actual zone to be controlled.**
- 4.1.5 **For the VHR sites defined by the National Administration following JRC document IPSC/G03/P/PAR D(2003)(2213), one bundle image (Ikonos or Quickbird PAN and multispectral) will be ordered to replace the traditional PAN HR image and one of the spring (multispectral) windows. The Quickbird or Ikonos window will be defined by the MS Administration and will cover approximately 1½ months. The 1.8m resolution EROS data which only exists in panchromatic mode will be used as **backup** during the same period. In any case, the corresponding HR multispectral image will be programmed and ordered if needed.**
- 4.1.6 The Commission will also supply, if possible, radar images (RADARSAT⁶) to complement or replace optical data, either if a deadline agreed with the contractor has been passed in certain sites without optical acquisitions, or in anticipation (to the judgement of the Commission) in the regions where acquisitions are most difficult. All tenderers using satellite data for sites located above 50 degrees north have to demonstrate their ability to use radar images.
- 4.1.7 Especially for sites or where optical acquisition is difficult, the contractor may plan to use radar images as the principal source of information. In such a case, the number of optical images to be acquired over the site will be reduced to maximum 2. Such a decision must be made, in agreement with the Commission, at the beginning of the acquisition campaign.
- 4.1.8 The contractor will be committed to use in the photo-interpretation the complete series of images, delivered according the agreed acquisition schedule. The exclusive use of radar images will not be accepted if good optical images are also available. The use of the radar images provided will be compulsory only if a complete diagnosis cannot be established based on optical images only.
- 4.1.9 The sensors, the acquisition windows and the optimal number of images for the Member State concerned should be discussed in detail by the tenderer. He will take into account the necessary compromise between the acquisition of late images in 2004 for better discrimination of the spring sown crops, and the need to provide early results, in order to allow the Administration to carry out follow-up inspections in the field before the harvest. The tenderer may differentiate by region and justify a possible preference for XI/XS, TM, LISS-III or RADARSAT data. The Commission will evaluate the justification and try to satisfy this preference, taking into account the acquisitions already made, availability of actual imagery, and programming feasibility.

4.2 Management of image acquisition

- 4.2.1 The Commission will order the first good HR image (i.e. cloud-free) acquired for each site and each period fixed and have it delivered automatically to the contractor. If cloud-free images are not available, cloud cover evaluations of other images will be forwarded by the Commission to the contractor. Alternatively, the contractor may consult the image suppliers’ catalogue in order to identify cloudy, but still usable images, and suggest these to the Commission for supply.
- 4.2.2 **The Contractor should consider the use of partly cloudy VHR images, possibly in conjunction with backup images from EROS. A procedure will be defined for the acceptance of partly cloudy VHR images and provided to the Contractor in early 2004.**
- 4.2.3 The choice of archive images, if required, will be made with the help of the Commission, but under the exclusive responsibility of the contractor, by cross-checking the archives of SPOT, LANDSAT and IRS-1C/D with the geographic co-ordinates of the defined control sites. The tenderer will indicate if he

⁶ Since the 2000 campaign, the default SAR products supplied are so-called fine mode RADARSAT time series, which have a resolution of 10 m.

has the facility to make this search or has access to relevant archive images. If the necessary images are available from the archive of the Joint Research Centre of the Commission in Ispra, they have to be used.

- 4.2.4 The images will be bought by the Commission and supplied free to the contractor, at the latest 10 working days [after the order or the acquisition for VHR satellite images](#). These data remain Commission property and will be returned at the end of the work (Cf. § 7.5.4). The rules of copyright both for the Commission and image suppliers will be strictly adhered to. The images will be supplied preferably on compact disk (CD), [DVD, and/or FTP after agreement between the contractor, the Commission, and the image provider](#). The images will be delivered to one single address as stated by the contractor, with all costs paid by the Commission, except local taxes.
- 4.2.5 The image formats/levels will be level "1A" or "1B" for SPOT, "raw" or "system corrected" for LANDSAT and IRS where also the Fast Format, or Superstructure (FF or SS) may be chosen, and for RADARSAT "Fine beam path image" the format will be "PRI". [For the VHR sensors the format/level will be the Geo product or preferably the Geo ortho kit product for Ikonos, the basic imagery product or preferably the ortho ready imagery product for Quickbird, and the 1A "raw" or 1B system corrected product for EROS](#). All extra cost of all further processing (geometric ortho correction, enhancement etc.) will be at the expense of the contractor.
- 4.2.6 The contractor has [five days after receipt of the images](#) to make possible comments on the location or the quality of the received images, as compared to the characteristics announced when the order was placed. If required, he may request a longer approbation period. If the contractor does not react within this specified period, the images are considered suitable without restrictions. The price paid for the images that were not rejected and are considered unusable may be charged to the contractor.

4.3 Acquisition of aerial [imagery](#) (if applicable)

- 4.3.1 [New guidelines⁷ for the acquisition and ortho-rectification of aerial imagery \(i.e. including digital airborne imagery\) will be available on 28 November 2003.](#)
- 4.3.2 The aerial photograph must, as a general rule, be [photogrammetric](#) precision-scanned, thus allowing accurate geometric correction, scaling and overlay, as well as low-cost paper printing. This rule is compulsory when aerial photographs are used for area measurements. It becomes advisory when an aerial photograph is used instead of or in support of rapid field visits in order to check the land use.
- 4.3.3 If the tenderer has at his disposal or is able to acquire archive photographs and intends to use them, he should state for what purpose, and list precisely in his proposal the technical characteristics, source, and cost of acquisition and processing.
- 4.3.4 Except if the tenderer can demonstrate in his offer that the National Administration will organize this, he will be responsible for the acquisition of all photographs. He will research all archive photographs if necessary, negotiate all flight plans and authorisations, accept all technical and meteorological risks and organize the film processing.
- 4.3.5 If the tenderer is planning to acquire aerial photographs in the year 2004, he must indicate in particular:
- how he will obtain flight authorization and, if relevant, give the name of the subcontractor;
 - the aircraft model, the camera type, the lens, the photographic film;
 - the flight plan, altitude, scale, the proposed date(s), the minimum solar angle, the navigation system, GPS methodology, forward and lateral overlap, and whether cross strips will be used;
 - the techniques: film processing, expected ground resolution of the original, scale of printing and enlargements if relevant;
 - the detailed price for each stage of the work;
 - the proposed timetable, from the flight to the final product;
 - justification of the above selections.

⁷ Guidelines for Best Practice and Quality Checking of Ortho Imagery (JRC IPSC/G03/P/SKA/ska D(2003)(2402))

- 4.3.6 The tenderer will always include a buffer zone around each control site (size to be agreed with the Administration), in order to avoid having too many parcels of selected dossiers falling outside the area covered by the photographs.
- 4.3.7 The tenderer will specify how he will manage the aerial coverage obtained: proportion of photographs actually used, block-triangulation size and limits, mosaicking seams, archiving, disk space, etc.

4.4 Processing of images and photographs

- 4.4.1 Aerial photographs will be **photogrammetric** precision-scanned. Photographic developing techniques should be described, laboratory mentioned and scanning equipment detailed (e.g. type of scanner, geometric precision of scanner, scan direction, scan resolution, scanned pixel output size) in the proposal. For the remainder of this document "image" will refer both to the satellite image and the scanned aerial photograph.
- 4.4.2 **The contractor needs to have appropriate software suite (or sub-contracting options), and "know how" to process all image types (i.e. georeference all image types, Pan-sharpen VHR bundle images) and should demonstrate this especially for the new VHR sensors (Ikonos, Quickbird, and EROS). For ortho-rectification of HR and VHR satellite imagery, the contractor is referred to the **Guidelines for Best Practice and Quality Checking of Ortho Imagery**⁷.**
- 4.4.3 The images will be geometrically corrected using techniques that will ensure a good image-to-map and image-to-image overlay, even with high view angles. The allowed geometric errors in the output images are expressed as a maximum "absolute" Root Mean Square Error (RMSE) tolerance on check points, and are stated below. These values are 1-dimensional RMSE values, and apply independently in the X- , and in the Y- directions:

DATA TYPE	MAX RMSE
• aerial photographs, VHR PAN 1 m satellite imagery (eg. Quickbird, Ikonos)	2.5 m
• EROS 1.8m satellite imagery single scene	2.5
• EROS 1.8m satellite imagery vector scene (> 27 km)	3.5m
• SPOT 2, 4 multispectral	30 m
• SPOT 5 multispectral	15 m
• IRS multispectral	40 m
• RADARSAT	20 m
• LANDSAT TM, (ETM+)	50 m

The above RMSE tolerances values should be considered maximum allowed RMSE. They put requirements on the input data, on the ground reference data, on the digital terrain model (DTM⁸) (if applicable) and on each step of the geometric correction process. The tenderer shall detail all steps in the production chain. He shall justify the correction method proposed (e.g. ortho-correction or polynomial) and how he expects to obtain the precision, with special reference to differences in altitude in the agricultural areas concerned.

- 4.4.4 For the sites where ortho-rectification will be considered as necessary, the tenderer shall indicate if he will correct the images in-house or sub-contract this work. If this is to be produced in-house, the price of the DTM and processing per scene (fixed or variable costs) shall be clearly indicated. If this processing is to be sub-contracted, the tenderer must name the proposed contractor, list all the necessary specifications and include in his financial statement the supplementary cost of this correction.
- 4.4.5 In case of ortho-rectification, the tenderer shall indicate the technical characteristics of the DTM, either if bought, produced by the tenderer or delivered by a sub-contractor. He will indicate the method used to produce the DTM; from map contours, stereo pairs, or other. He will indicate the map scale and cartographic system, and relevant contour interval, or grid size (distance between points).

⁸ normally, $RMSE_x = RMSE_y$ and $RMSE_z = 2 \times RMSE_x$.

- 4.4.6 The tenderer will indicate his choice of cartographic system (spheroid/datum, projection) for the processed images. He may also choose to obtain the geodetic co-ordinates of the reference points from the competent Administration, or to acquire the co-ordinates of these points using a Global Positioning System (GPS). [In any case he will give details on the Ground Control Points \(GCPs\) and check points used, their source, number and distribution.](#)
- 4.4.7 The tenderer will indicate and justify all other possible processing techniques envisaged: radiometric correction, contrast stretching, resampling, etc.
- 4.4.8 The tenderer shall indicate his previous experience, capability and comments with regard to processing radar images. In particular, he will discuss the software to be used and outline how he proposes to carry out geometric correction and to identify the land use using these images. He will propose a timetable for the acquisition of the radar images intended to replace the optical images.

4.5 Acquisition of topographic documents

- 4.5.1 If the declarations to be controlled contain appropriate cartographic documents localizing the parcels on the images (cadastral or topographical map extracts, aerial photographs, sketches, etc.), the Administration will supply them free of charge to the contractor (in the original form if possible).
- 4.5.2 In other cases, the contractor will approach the competent authorities for all (paper or digital) documents, such as maps or aerial photography, needed to cover the parcels falling within the control sites. If available, databases of alphanumeric official parcel area (such as cadastral areas or LPIS parcels area) should be acquired at the same time. Particular attention should be paid to this type of data, knowing that the declared and measured areas should be cross-checked with the official area. In case of over-claims a "ceiling" on the official area should be undertaken by the contractor (cf. § 6.2.5), unless this remains within the exclusive competence of the Administration. The contractor should detail the list of required documents and data. These materials should be supplied free of charge by the Administration, in principle within 30 days from receipt of the list. They must be returned at the end of the contract.
- 4.5.3 The contractor shall acquire other map references that he needs (to give an overview of the sites, for fieldwork or documents, geometric correction, etc.).

4.6 Digitization of the reference parcels limits

- 4.6.1 [In the frame of Council Regulation No 1593/00, a fully digital Land Parcel Identification System \(LPIS\) should be implemented at latest by January 2005. When available in digital form, the relevant parts of the LPIS, i.e. the vector of the reference parcels and, if any, the associated orthophotos will be provided to the contractor.](#)

[The digital LPIS is already available in some Member States \(Belgium, Denmark, Finland, Ireland, The Netherlands, Portugal and Sweden\) and in many regions of the other Member States \(Cf. National Adendum\).](#)

- 4.6.2 [If the digital reference maps are not available, the boundaries of all the reference parcels related to the sample of dossiers to be checked shall be digitized by the contractor. This will be done from the paper reference maps, i.e. cadastre, ordnance survey or other large scale maps used to locate the agricultural parcels. Except if decided otherwise by the Administration, the non-subsidized parcels declared in the sample will also be covered in order to allow cross checks between declarations or to give an overall view of the dossier on the field documents.](#)
- 4.6.3 [In principle, the digitization of the reference parcels limits begins as soon as the applications are available. However the tenderer may propose alternative methods to anticipate this preparatory work, i.e. digitize the reference parcels limits before the reception of the applications. For example, in agreement with the Administration the contractor could:](#)
- [re-use the information extracted from the dossiers submitted in previous years to identify the main areas to be digitized for the current campaign, when only a sample of applications are controlled in the site;](#)
 - [or decide a complete digitization of the area of interest when 100% of the applications are controlled within the site.](#)

- 4.6.4 In this digitization phase, it is very important to keep the parcels numbers of the national LPIS (cadastral parcels, blocks or ilots), in order to be able to perform a cross-check (on areas and reference number) between the digitized parcels and the alphanumeric database of the LPIS. In some cases it may be also justified to proceed with preliminary work on the reference parcels for the preparation of photo-interpretation. For example, when the declared parcels are based on blocks composed of cadastral parcels, the contractor should merge the cadastral parcels to form the blocks or ilots to be controlled.
- 4.6.5 According to the documents available and the geographic context, the bidder will describe the digitizing technique(s) planned (screen work on a photograph or scanned map background, transfer of the field limits on topographic documents, etc.) and estimate the corresponding work plan.

4.7 Ground data collection

- 4.7.1 As a training for the CAPI and/or classification of the satellite images, the contractor will carry out during the period most appropriate for the crops of interest, a field survey in each control site selected. The survey will cover at least 750 ha (or 300 parcels) per site and should ensure a good representation of the crops of interest. The survey sample size may be reduced or the field survey may be focused on crops of interest or rare crops, if the tenderer is able to demonstrate, to the satisfaction of the Administration, that he is able to build a database of reference fields for the most common crops in another way. Parcels along public ways can be used, especially if private parcels are inaccessible.
- 4.7.2 The tenderer will indicate the methodology that he intends to use for this fieldwork (transects, area frame survey, etc.), the origin and the characteristics of the documents drawn up for the investigators, the personnel envisaged and their qualifications, the proposed dates, the planned duration, the area surveyed, the method proposed to ensure a minimum number of parcels per crop of interest on a per-site basis, etc.

5 Photo-interpretation of applications

The purpose of the remote-sensing control is to check the area and land use of the agricultural parcels in the dossier. Computer-Aided Photo-Interpretation (CAPI) will be used for checking the area claimed and generally the land use. For some crops, the eligibility of the parcel in the sense of article 7 of Regulation 1251/1999 (see § 5.6 on reference year control) or in terms of condition or minimum area/width should also be checked.

5.1 Parcel area check (boundary validation)

- 5.1.1 To determine the agricultural parcel areas, the parcel will be located on the screen with the help of the reference parcels vectors and other appropriate documentation (e.g. sketches) and its limits validated using mainly the imagery of the highest resolution, preferably of the current year (in line with the reference in footnote 5 on page 6). This work will be undertaken, if possible as soon as the relevant imagery is available. Digitization and validation of the land use (if possible) can be combined provided this does not delay the work. The tenderer will describe the technique used for this validation.
- 5.1.2 The area of each subsidized agricultural parcel will be verified. Unless requested otherwise by the Administration, the area of non-subsidized agricultural parcels will, in general, not be checked. However, in cases where non-subsidized parcels share a reference parcel with subsidized ones, checking the non-subsidized parcels will allow to better check the subsidized ones (i.e. detect incompatibilities) and, on the other hand, may train the interpreter on specific crops. During the photo-interpretation on later images, the software should, if necessary, allow further modifications to the limits already validated on the earlier image. The result of this work will be the photo-interpreted (called "measured") area, to be compared with the declared area for each agricultural parcel. The results will be expressed in hectares with two decimal places, rounded to the nearest unit.
- 5.1.3 The comparison between declared and measured area will be carried out during the categorisation phase, and for the parcels whose declared land use has been validated, a technical tolerance per parcel will be taken into account. Once the parcel area and land use checks performed, a technical code should be assigned to each parcel (see § 6.2.3), hence allowing to compute a retained area. This re-

tained area may then be modified following the comparison with the official area of the reference parcel (i.e. cadastral or LPIS area), as specified in § 6.2.5.

5.2 Land use checks

The land use check will at least be started on screen and will be completed, if necessary, by rapid visits on the spot (as far as local regulations allow the contractor to carry out these inspections). Whatever the procedure selected, the contractor has to organize himself to be able to provide a diagnosis for all the parcels of the sample within the sites.

5.2.1 On the screen

The land use check with **multi-temporal** images may be made through **automatic classification** and/or **photo-interpretation** on the screen (Computer-Aided Photo-Interpretation, CAPI). The images will be overlaid with the digitized vectors showing the position of the parcels to be checked. The tenderer will justify and illustrate his choice and the different stages of the checks. He will describe the training techniques and quality control for the proposed method. If he uses classification, he will give the criteria for assignment of land use and explain how the classification results are used in the parcel categorisation (e.g. as an ancillary image layer helping the interpreter or as automatic parcel label). As CAPI is necessary to validate the parcel boundaries through the determination of the crop extension, it may be used to check the land use at the same time (this will in general be possible except for crops not yet visible on the highest resolution image, e.g. the summer crops on a May orthophoto or VHR image). In such a strategy, performing an automatic classification (in general with as many dates as possible) may not appear as cost-effective.

5.2.2 “Rapid field visits” option

5.2.2.1 The purpose of the “rapid field visits” (RFV) is to observe the actual land use without contacting the farmer. The area measurements are in general not carried out during rapid field visits. However, if permitted, for parcel boundaries not clearly identifiable on the highest resolution imagery, some length or point measurements will be made so that the parcel area could be measured on screen at a later stage. The RFV option is relevant in case of mono-temporal images or when the available images do not permit a correct interpretation of the land use (typically for doubtful parcels or important crops of difficult identification). They can also be proposed when the strategy of the National Administration is to reduce the number of farm inspections to a minimum (in which case, photographs of the parcel may be taken and shown to the applicant during a contradictory meeting).

5.2.2.2 The rapid field visits can be undertaken either by the contractor or by a sub-contractor with good knowledge of crop identification. If relevant, the tenderer should indicate the following:

- whether he proposes a field visit and the procedure envisaged;
- what is the volume of work envisaged and whether the contractor expects to do this himself or how he will sub-contract it;
- the personnel planned for this work and their qualification.

5.2.2.3 The rapid field visits will be carried out on the basis of the first results of categorisation generated by the contractor. Field visit documents (such as maps for the overall location of parcels, detailed location document, e.g. with image background overlaid by the vector boundaries) have to be made available to facilitate the work of the staff in charge of rapid field visits. The results of rapid field visits should indicate the actual land use and any pre-defined anomaly code if appropriate.

5.2.2.4 The contractor should record that the method of land-use identification is by means of a rapid field visit, in order to be able to identify the rate of validation by this method (when land use and area are first checked by CAPI). Then the categorisation should be run again, using the rapid field visit results.

5.2.3 Crop groups

Article 30 of Regulation (EC) 2419/2001 distinguishes crop groups for the purpose of calculation of aid, reductions and exclusions. **All crops receiving the same aid per hectare (and not specifically mentioned in article 30) belong to the same payment group.** Areas under cereals, oilseeds, linseed and flax and hemp **may receive the same aid** but have still to be distinguished for administrative and on-the-spot check purposes and, moreover, for the purpose of Regulation 2390/1999 and 1251/1999.

As a minimum, the land use checks will list the "crop groups" below:

- cereals, distinguishing maize, rice and durum wheat if relevant;
- oilseed, except linseed;
- linseed, flax and hemp;
- grain legumes (if applicable);
- protein crops;
- set-aside, differentiated as much as possible from other bare or uncultivated soil;
- pasture and other forage crops as distinguished in Art. 30 (a), (b), (c) and (d) of Regulation 2419/2001;
- other annual crops;
- permanent land use other than grass (orchards, vineyards, woods etc.);
- non-agricultural use (buildings, lakes, etc.).

Other agricultural land use may be distinguished by eligibility, for possible cross checking with other schemes. Irrigated and non-irrigated crops will be distinguished where the Member States use this differentiation. Furthermore, as many sub-groups should be listed as the number of yield regions with different subsidy levels, in which the parcels are situated.

5.2.4 Additional provisions (e.g. systematic RFV) shall be defined by the Administration for the control of durum wheat, especially in regions where both durum and soft wheat are grown.

5.2.5 Others schemes

Parcels benefiting from other area subsidy schemes included in the accompanying measures of the Council Regulation (EC) No. 1257/1999 on rural development (see § 1.2), or in national environment protection schemes, and included in the sample, may also be checked during the control, depending on the choice of the Member State. Examples of such schemes are the compensatory allowances paid for less favoured areas (LFA) and for areas with environmental restrictions, and support measures for agri-environment and afforestation measures. In all such cases, the role of the control by remote sensing is generally restricted to the measurement of the parcel area and the identification of the land use. **For the other commitments related to these schemes, additional measures (e.g. inspections) should be defined by the Administration.**

5.3 Specific case of SAPS (new Member States)

5.3.1 In case of SAPS the list of crop groups to be controlled will be adjusted according to the national Top-ups. This list will include:

- the SAPS group (total of arable crops + forage + permanent crops + vegetable gardens);
- The different crops or crop groups subject to national top-ups (Cf. National Addendum).

5.3.2 The control by CAPI of the national top-ups is similar to the control of the IACS crop groups. The control of SAPS will be supported by the use of the sketch maps provided by the farmers to describe the land use of their production blocks and will focus on removing the ineligible areas (such as buildings, woody areas, or water bodies) inside these blocks.

5.3.3 To be eligible for SAPS, the agricultural parcels should be maintained in "Good Agricultural and Environmental Conditions" (GAEC). Criteria to check these conditions shall be defined by the Member States (Cf. National Addendum). Doubtful cases identified by CAPI should be reported with appropriate codes in order to decide upon complementary inspections (e.g. cases of grasslands covered with bushes or ferns, arable parcels with trace of erosion). However, as certain GAEC may not be checked properly with remote sensing, additional measures (e.g. inspections) should be defined by the Administration to control these specific conditions.

- 5.3.4 More generally, Contractors are recommended to use appropriate codes to flag any specific problem which may be linked to the quality of the SAPS declarations (alphanumerical form or sketch maps). These codes may lead to rapid field visits or contact with the farmers according to specific procedures (Cf. National Addendum).

5.4 Synthesis at the application level

- 5.4.1 The parcel checks will have the following primary objectives:
- for all parcels declared as "subsidized":
 - to check the net area and land use of each parcel;
 - to eliminate fields with an observed area lower than the prescribed minimum;
 - to remove the ineligible parts of fields;
 - to check that the parcel is not included in another application.
 - for parcels declared as fallow:
 - to detect fields cropped or harvested fraudulently;
 - to verify all types of fallow, authorized according to the regions;
 - for parcels declared as forage:
 - to check that they were in production during the period fixed;
 - for parcels not subsidized:
 - to check if necessary that the parcel does not overlap or is not included in subsidized parcels (of other declarations, for example).
- 5.4.2 Generally, no check will be made by the contractor for the following:
- the parcels not declared;
 - the presence of animals;
 - the final use of the products, in the case where crops may be used for forage or grain (e.g. oilseed rape or maize), or for industrial set-aside;
 - the compliance of the observed percentage set-aside in respect with the farmer's obligations;
 - the dividing of areas between farmers having common fields or between associates;
 - the varieties of oilseed rape or durum wheat.

However, if required by the National Addendum, the contractor may have to take into account the animal density per hectare for the forage group, using information provided by the Administration from the livestock declarations (to be defined in the National Addendum).

- 5.4.3 It may also be agreed with the Administration that the contractor should return in anticipation all applications where there is evidence of errors in parcel size or area, together with field documents for the surveyor that highlight the problem. This helps the Administration to begin on-the-spot checks earlier, without having to wait for land use determination. In this situation it is necessary to decide with the Administration whether or not to continue with the photo-interpretation of these dossiers.

5.5 Two-phase controls

- 5.5.1 In the Member States or sites where summer crops are important, it may not be feasible to categorize all crops in time to ensure that the winter-sown crops are checked before the harvest. In this case the dossiers may be divided into two or three categories: "winter", "summer" and possibly "mixed", to be defined by the Administration. The dossiers will then be categorized in two phases. Where this methodology is adopted:
- the "winter" and "mixed" dossiers will be checked first for the winter crops and the unclear or rejected dossiers will be pointed out to the Administration;
 - once the summer image is available (or once the RFV have been carried out), the "summer" and possibly "mixed" dossiers will be processed again for the summer crops and a final diagnosis will be provided;
 - the results and on-the-spot documents (see § 7.5.1) will be produced successively for each category and will be of the type "alternative b" if they are not grouped by dossier.
- 5.5.2 This two-phase control can be replaced, for the summer crops, by a partial photo-interpretation followed by a rapid field visit.

5.6 Reference year control

5.6.1 According to article 7(1) of Reg. (EC) No 1251/1999, parcels under "permanent crop" (grassland, orchards, wood, etc.) on 31.12.1991 are not eligible for aid. The objective of the reference year control is to check parcel eligibility in the sense of this article. Annex I of Regulation (EC) No 2316/1999, defines the applicability of the term "permanent crop". One of the conditions to qualify as such is that the crop has occupied the land for five years or longer. This makes it necessary to go back to the period 1987-1991 to examine the eligibility on 31.12.1991. To check the parcel qualification as a "permanent crop", the use of archive images is hence necessary, e.g. to ensure that permanent grassland has not been returned to production and declared as arable.

5.6.2 The eligibility dates for the New Member States are defined in the Accession Treaty: Parcels under "permanent" crop (grassland, orchards, wood, etc.) on dates varying between 31.12.2000 and 1.12.2002 according to each Member-State will not be eligible for arable aid. This rule does not apply to the SAPS.

The purpose of this reference eligibility is to avoid an undue increase of arable lands following the implementation of IACS. If the national LPIS does not provide clear information of the eligibility of the reference parcels, an extra photo-interpretation of the orthophotos from the LPIS should be requested to identify ineligible parcels or doubtful cases where complementary evidence could be requested to farmers (Cf. National Addendum).

5.6.3 Reference year control by remote sensing shall be carried out on sites selected by the Administrations. These sites will be chosen according to the availability of good quality archive imagery and to technical constraints. The Commission will provide the necessary images. The number of sites and number of applications per site are indicated in Annex 1. For this number of applications, the tender will identify the price supplement for this additional verification.

5.6.4 For the selected sites, the contractor will check, using archive images, if the criteria provided for in the regulations that the Administration requires to be checked are adhered to. The results by parcel and by dossier over the reference period will be presented separately, as well as cumulated with those of the 2004 controls.

6 Decision rules and technical tolerances

6.1 General remarks on decision rules and technical tolerances

6.1.1 "Standard" decision rules, based on current European or national regulations, and applicable to crop/payment groups and applications, have already been set up in previous years in co-operation with the Administrations. These rules are summarized in the present chapter and will be adapted, where necessary, taking into account the particular situation of each Member State in the year 2004.

6.1.2 At the end of the photo-interpretation phase, each parcel should be assigned at least one technical code that will allow the determination of the parcel retained area. A diagnosis will then be issued for each crop/payment group foreseen by Article 30 of Regulation No 2419/2001 and selected by the Administration, and then at dossier level. This diagnosis will be based on the group declared and retained areas. As area compensation between parcels of the same group are foreseen by the regulations, the rules for the application of sanctions or exclusions are defined at the crop/payment group level (thresholds of 3%, 2 ha, 20%, as per Article 32 of Regulation No 2419/2001). As a consequence, the most appropriate method for sorting dossiers is a diagnostic rule at the group level.

6.1.3 The sorting of dossiers for which a follow-up action is necessary is a characteristic of remote-sensing controls. As a general rule, anomalies detected following remote sensing controls should be followed-up by any appropriate administrative action, and where necessary by a field inspection. One of the objectives of the sorting of dossiers is to concentrate field inspections on a reduced number of problematical data. The criteria to be retained therefore depend on organizational or strategic considerations (see § 6.3.3), but also on the national law.

- 6.1.4 Since 2001, all Member States apply tolerances at the parcel level, which is consistent and compatible with the Commission's recommendations and state-of-the-art for other types of area control measurements.
- 6.1.5 **Technical tolerances** (as mentioned e.g. in Article 22 of Regulation No 2419/2001) are intended to take into consideration the uncertainties specific to any measurement technique. Technical tolerances apply to the result of any area measurement during the control and make it possible to appreciate its reliability. The definition of technical tolerances concerns all "on-the-spot controls", and standards **have been set considering** the precision of the instruments or of the methods used ⁹. In the case of controls with remote sensing, the technical tolerance defined at the parcel level will take into account the type of maps, the spatial resolution of the images or aerial photographs used, and other factors such as the size and shape of parcels. Note that, as from 2003 onwards, the choice of the appropriate (satellite or airborne) image resolution for use in area measurement in a given site is ultimately determined by the requirement that "the method of measurement must be adapted to the expected agricultural parcel size in the region concerned, so that the **technical tolerance does not exceed 5% of the agricultural parcel area measured or a 1.5 m perimeter buffer** for all measured parcels" (from the reference in footnote 5 on page 5). The buffer tolerance is calculated by multiplying the parcel perimeter with a buffer width (see § 6.2.2).
- 6.1.6 **The principle of applying a technical tolerance to the parcel measured area is the following:** If the difference (positive or negative) between the areas declared and measured at the parcel level is less than the technical tolerance, then the declared area is retained; if this difference is greater than the technical tolerance, the measured area is retained. **The over- and under-declarations are processed in the same way, making possible the compensation between parcels of the same group and outside tolerances.**
- 6.1.7 At the parcel level, no photo-interpretation will be carried out for:
- parcels within the sample, but falling outside **the imagery or outside the site (i.e. for which the LPIS vectors are not readily available) or parcels that cannot be located due to erroneous or missing reference parcel number;**
 - agricultural parcels (as defined in Regulation No 3508/92, see § 1.3) declared as less than **the minimum area eligible to aid. This minimum area that shall not exceed 0.3 ha (as foreseen by Article 4 of Regulation No 2419/2001) is defined by the National Administrations. Moreover, the interpretation of small parcels may not be feasible due to the lack of imagery of a sufficient resolution. In such a case, the National Administration will define the minimum size under which the parcel cannot be interpreted (but is eligible).**
- Special decision rules applied to these cases are explained below (see § 6.2.4 and Table 3) as well as for all the other circumstances where the control with remote sensing is not applicable.
- 6.1.8 **The principle of sorting of dossiers at the crop/payment group level is the following:** The areas declared and retained for each parcel are summed at the group level, where the decision on **payment** is made. The sorting is based on the discrepancies between the declared and **retained** areas. **All groups with a declared area greater than the retained area shall be rejected. However the decision to field inspect the corresponding dossiers may depend on the importance of the discrepancy and/or the procedures in place in the Member State. Area thresholds expressed in absolute (ha) and/or relative (%) values or monetary thresholds based on the payment in play are generally used to decide on the follow-up action. Whatever this follow-up action,** an overall conclusion for the crop groups and the dossiers will always be presented, as well as the justification of the decision at the parcel level for each criterion.

6.2 Observations and codification at the parcel level

- 6.2.1 Schematically, there are four steps in the categorisation at parcel level:

Step 1: For each **measured** agricultural parcel, the technical tolerance is calculated.

Step 2: A code is assigned to the agricultural parcel according to codification rules. The standard rules are set forth in § 6.2.3.

⁹ See JRC document "Technical Tolerances for On the Spot Checks" (Ref: JRC IPSC/G03/P/SKA/ska D(2003)(1576)) for technical information on the maximum tolerances to be applied for different classes of measurement tools and in particular for RS / aerial ortho imagery.

Step 3: According to the technical code, the retained area and the retained land use are assigned to the land parcel (see § 6.2.4).

Step 4: The retained area is compared to the official reference area (as registered in the LPIS) for ceiling (see § 6.2.5).

In certain cases, the first and second steps may be carried out in reverse order.

6.2.2 Calculation of technical tolerances

At the end of the photo-interpretation process, each interpreted parcel should have in the database at least one technical code, a measured area and an observed land use.

6.2.2.2 The technical tolerance should conform to DG AGRI's recommendations for on-the-spot checks ⁴: "the technical tolerance in relation to each declared parcel should not exceed 5% of the agricultural parcel area measured. Alternatively a technical tolerance based on a perimeter buffer of up to 1.5m may be used." Moreover, "the maximum technical tolerance for each agricultural parcel should not exceed in absolute terms 1.0 ha", i.e. a ceiling to 1.0 ha should be applied whenever the tolerance exceeds this threshold. For very small parcels, "instead of the 5% or 1.5m buffer tolerance, an absolute tolerance of 0.02 ha may be applied to take account of errors in rounding".

6.2.2.3 The buffer tolerance is calculated by multiplying the parcel **outer perimeter** with a buffer width to obtain a buffer area. The buffer widths proposed in Table 2 below are **maxima** and are listed for image products accepted for parcel measurement.

Table 2.

Maximum buffer widths proposed for the calculation of parcel area measurement tolerance¹⁰

Code	Image product used	Buffer widths
L1	Aerial ortho-photography (or VHR satellite ortho-imagery)	+/- 1.5 metres
L2	EROS ortho-imagery or recent archive aerial photography combined with satellite HR images	+/- 3 metres

6.2.2.4 The buffer approach which is applied in nearly all MS is recommended as it is technically sound. For MS opting for a buffer width greater than 1.5 m, an extra test should be implemented to check that the computed tolerance (e.g. 3m x perimeter) does not exceed 5% of the measured area.

6.2.2.5 The technical tolerances should be applied only to photo-interpreted agricultural parcels, and not to the internal cadastral parcels. In cases where the agricultural parcel is composed of several cadastral parcels, **computing the tolerance at the level of internal cadastral parcel** would lead to the application of an unjustified and excessive technical tolerance.

6.2.3 Codification rules

6.2.3.1 A series of "standard" codes have been defined in relation to specific conditions as stated in Table 3 below:

- The Tx codes are assigned to parcels not checked for some technical reason independent from the interpreter (e.g. parcel outside the image). As assigning a T code implies giving the benefit of doubt to the applicant, these codes should not be assigned to parcels deemed doubtful during CAPI.
- The Ax codes correspond to anomalies, in particular those related to eligibility, and lead to the rejection of part or a totality of the parcel.

¹⁰ The use of stand-alone SPOT/IRS PAN satellite images is no longer recommended for parcel measurement.

- The Cx codes are assigned to the parcels CAPId (i.e. fully checked) but for which the declared area or crop/payment group is not accepted by the interpreter. Different rules apply for computing the retained area.

If relevant, several codes could be assigned to the same parcel. If both the declared area and the declared **crop/payment group** are accepted, the controlled parcel will be coded as “OK”.

- 6.2.3.2 When several codes are assigned, the retained area and the retained land use should always correspond to the least favourable condition. In any case the rules should always be defined in accordance with the National Administration.
- 6.2.3.3 When it is justified, additional codes may be defined at the national level. In such cases, the condition of the additional codes should not be the condition of existing codes. For other schemes it may be useful to add specific codes. In such cases it is recommended to use other letters (G, K, L etc.).
- 6.2.3.4 Up to the **2002 campaign**, the technical codes T1 and T5 were used for “land use interpretation impossible” and “parcel limit problem not resolved on the image” respectively. These cases are now regrouped under the code C4 code. In contrast with the remaining T codes (except T6), the C4 code is the result of some interpretation and an indication of **possible disagreements** with the declared land use or area. It should hence require some follow-up action (e.g. RFV).

Table 3.

Standard codes related to the condition encountered at the parcel level, and proposed rules for the calculation of retained area and retained land use to be transferred to the group level

Observations at the parcel level	Code	Areas transferred to the group
Outside images or aerial photographs	T2	Use the declared area and land use
Outside control site (or outside maps available)	T3	
Covered by clouds	T4	
Declared as less than threshold set by Administration	T6	
Declared or found as less than the minimum parcel size set by the Administration	A1	Give zero value to the area
Set-aside declared or found less than 0.3 ha and not rounded by permanent boundaries	A1a	
Width of set-aside strip < 20m Width of set-aside strip along watercourse < 10m	A1b A1c	
Parcel (or part) claimed more than once	A2	Give zero value to (the disputed part of) the area
Parcel or reference not found in the documentation Area ineligible (reference period, 1986-1991)	A3 A4	Give zero value to area
Declared in one crop/payment group, but found in another	C1	Give zero value to the eligible area, except for "obvious errors". If possible, indicate the land use found
Parcel declared in only one group, but found to be in more than one group	C2	Divide parcel, then apply previous rules
Land use correct, area outside tolerance (over-declaration i.e. declared > measured)	C3+	Use measured area And observed land use
Land use correct, area outside tolerance (under-declaration)	C3-	
Land use interpretation impossible or parcel limit problem not resolved on the image	C4	Give zero value to the area
Obvious error not covered by another code	E1	Use measured area And observed land use
Land use correct, area within tolerance	OK	Use declared area and declared land use

6.2.4 Calculation of retained area and retained land use

The last column of table 3 indicates which area should be retained at parcel level.

- 6.2.4.1 The threshold for the **T6 code** should be fixed by the Administration taking into account the resolution of the imagery available: Where the land use and area checks are based only on 10-20m pixel satellite images, a threshold of 0.7 ha at least should be used. If 1m pixel images of the current year are used, the Administration may decide not to fix any threshold. In any case, the T6 code should not be applied automatically to all parcels declared below the threshold but assigned by the interpreter to parcels not interpretable due to size but for which the declared crop is thought to be correct.
- 6.2.4.2 The threshold for the **A1 code** is the minimum size of an agricultural parcel for which aid can be claimed. For parcels declared above the threshold but found below, a technical tolerance may be applied. In particular, for parcels found outside tolerance with respect to the declared area but inside tolerance with respect to the A1 threshold, the retained area can be fixed either to the A1 threshold (the parcel is deemed eligible and is assigned a C3+ code) or to zero (with the A1 code).
- 6.2.4.3 For set-aside strips that are partly eligible (coded A1b or A1c), the eligible part will be measured. This eligible part should respect the eligibility criteria for set-aside (e.g. should be greater than 0.3ha). Contractors are referred to the procedure defined by the Administration for classical field inspection.
- 6.2.4.4 For parcels (partially or fully) claimed more than once (i.e. coded A2), the proposed rule consists in subtracting the overlapping / over-claimed area to each of the parcels in conflict. However, disallowing the whole area of these parcels is also acceptable.
- 6.2.5 Parcel area ceiling based upon the Land Parcel Identification System
- 6.2.5.1 Complementary tests will be performed to take into account the official information available for the reference parcels (i.e. cadastral parcels, physical blocks, farmer's blocks or "ilots" ...). For these tests, the Administration will provide the contractors with digital files containing the official areas of the reference LPIS parcels utilized.
- 6.2.5.2 If relevant, for each agricultural parcel, the retained area (i.e. after application of a technical tolerance) is compared to the gross official area of the corresponding reference LPIS parcel (or the sum of official areas when the agricultural parcel is linked to several reference parcels). The retained area is kept when it is not greater than the reference LPIS area. Above this threshold, the official LPIS area is adopted.
- 6.2.5.3 In the case of "ilots" or block reference systems, a different test will be performed: the sum of the retained areas of all the agricultural parcels located in the block is compared to the reference area of the block (or the sum of the areas of the reference parcels composing the ilot). As in the above case, the retained areas are kept when their sum is not greater than the LPIS block area. Above this threshold, reduction of areas should be applied proportionally to all agricultural parcels in order that the official LPIS area is respected. This last test, illustrated in the case of reference block systems, is applicable more generally in cases where several agricultural parcels have been declared in the same reference parcel.

6.3 Categorisation at the crop/payment group level: conformity test

- 6.3.1 For each crop/payment group, the total declared area of the group (Dg) has to be compared to the total retained area of the group (Mg). The categorisation tests are applied at the payment group level, in order to allow compensation between over-claimed and under-claimed parcels of the same group (if this compensation is allowed or possible in the Member State concerned).
- 6.3.2 The application of a technical code¹¹ to each claimed parcel allows the determination of a retained area for each parcel. Dg and Mg are then calculated by summing the declared and retained areas of the parcels belonging to the same payment group. The following three cases will be encountered at the payment group level:
- A1: The declared area is equal to the measured area (**Dg - Mg = 0**).
 - A2: The declared area is less than the measured area (**Dg - Mg < 0**). In this case, the Administration will accept and pay only what was claimed.

¹¹ In case several technical codes are applied to a given parcel, the main code should be the stricter one (in terms of retained area).

- R: The declared area is greater than the measured area ($Dg - Mg > 0$)¹².

The first two categories can be considered as accepted. **The third category should be considered rejected.** As any rejected dossier should be subjected to a follow-up action, a second test may be performed in order to determine whether the follow-up action should be field inspection or another appropriate administrative action.

6.3.3 Sorting of rejected groups (R1-R3)

The following tests are suggested for rejected groups to categorize the severity of the rejection. For each rejected group, one of the tests R1 to R3 below will apply as a function of the group retained area (Mg). A field inspection is recommended for groups failing the test (i.e. coded RF1, RF2 or RF3). For the rejected groups that pass the test (RP1, RP2 or RP3) the Administration has the choice of either carrying out field inspections or using any appropriate administrative procedure (i.e. correspondence informing the farmer that his claim will be reduced in conformity with the discrepancy found, with possibility of recourse for the applicant if foreseen by the national law). In this context, the R1-R3 tests serve as an optimisation step in the reporting process to the Administration.

Table 4.
Sorting to be applied at the group level in case of rejection

Test	Range of the test according to the area observed	Sorting criterion (declared – measured)	Codes for the groups	
			Pass	Fail
R1	$0 < Mg \leq S2/P4$	$0 < (Dg - Mg) \leq S2$ (ha)	RP1	RF1
R2	$S2/P4 < Mg \leq S3/P4$	$0 < ((Dg - Mg)/Mg) \leq P4$ (%)	RP2	RF2
R3	$S3/P4 < Mg$	$0 < (Dg - Mg) \leq S3$ (ha)	RP3	RF3

In this table: **Dg** - declared area of the group; **Mg** - total retained area for the group.

- 6.3.3.1 Table 5 below indicates the proposed values for the P4, S2 and S3 thresholds. These thresholds should be adapted to the local conditions by the National Administrations.
- 6.3.3.2 Parameters S2 and P4 may be optimised in order to avoid organizing field inspections for small discrepancies. A Member State may decide to apply only one absolute threshold, for instance based on the calculation of the disputed payment, to sort the dossiers to be field inspected.

Table 5.
Proposed categorisation thresholds for the crop group

Categorisation thresholds for the crop group	Code	Proposed thresholds
relative (%)	P4	≤ 2 %
absolute (ha)	S2	≤ 0.5 ha
	S3	≤ 2 ha

6.4 Categorisation at the dossier level

There are three steps in the categorisation of the dossiers: A conformity test; a completeness test; and a final diagnosis per dossier combining the two previous ones.

6.4.1 Conformity test

A dossier is accepted if all groups are accepted (i.e. $Dg - Mg \leq 0$ for any payment group). Table 6 below summarizes this test for Member States making a distinction between the dossiers rejected for minor

¹² Groups with declared area larger than zero ($Dg > 0$) but found with zero area ($Mg = 0$) should obviously be rejected.

discrepancies (i.e. with none of the groups coded RF1, RF2 or RF3) and those rejected for major discrepancies (with at least 1 group coded RF1, RF2 or RF3). The proposed coding (DP1 and DF1) remains valid whatever the test applied for sorting the rejected dossiers (e.g. fixed threshold in ha or monetary unit). If no sorting is applied (i.e. all rejected dossiers are processed in the same way), the categories DP1 and DF1 could be amalgamated into one category coded DR1.

6.4.2 Completeness test

A dossier will be categorized as "complete" if the percentage of the total retained area of the T coded parcels in the processed groups is lower than two thresholds (Cf. table 6):

- P2 (for the total surface area of the dossier);
- **and** P3 (for the set-aside group).

The P2 threshold applies to **all claimed parcels of the dossier**, while P3 only concerns the set-aside group. If the percentage of T coded areas exceeds any of these thresholds, the dossier is incomplete (codes DI2 and DI3). In order to be complete, a dossier that includes set-aside must therefore pass the two tests¹³.

The maximum values of the two thresholds are indicated in Table 7. However, the two thresholds and, possibly, the list of the groups to be considered important should be determined by the National Administrations (i.e. other groups may be added to the set-aside group).

Table 6.
DOSSIER level tests

Input	Test	Dossier conformity test	Dossier codes	
			Yes	No
The whole dossier	D1	All groups accepted ($Dg-Mg \leq 0$) ?	DA1	
		If at least 1 group is rejected, dossier is rejected Are all rejected groups coded RP1, 2 or 3 ?	DP1 All rejected groups are RP1, 2 or 3	DF1 at least 1 rejected group is RF1, 2 or 3
Area retained for:		Dossier completeness test	Dossier codes	
			Pass (complete)	Fail (incomplete)
the whole dossier	D2	Σ [dossier retained area T codes] / Σ Mg \leq P2	DC	DI2
the set-aside group	D3	AND [set-aside retained area T codes] / Mg set-as. \leq P3		DI3

¹³ After the introduction of Regulation 1251/1999, the differentiation between "general" and "simplified" schemes is no longer made. The "arable" dossiers can, in some member states, be separated in "large producers" (for whom set-aside is compulsory) and "small producers" (who are under no obligation to set land aside, but who may do so if they wish). See the National Addendum for details.

Table 7.
Parameters to be fixed by the Administration

Code	Relative tolerances (%)	Proposed maximum	
		Application with set-aside	Application without set-aside
P2	Dossier retained area with T codes	20 %	20 %
P3	Set-aside group retained areas with T codes	20 %	-

6.4.3 Final diagnosis at the dossier level

6.4.3.1 The final diagnosis summarizes the diagnoses of the conformity and completeness tests at dossier level. Table 8 below proposes a general diagnostic code per dossier and describes the follow-up action to be undertaken for rejected or incomplete dossiers. In particular, incomplete dossiers that were part of the initial control sample have to be completed in the field. In some Member States, the contractor may be in charge of the RFV necessary to complete the dossier (Cf. National Addendum).

6.4.3.2 The general diagnostic code proposed takes account of the distinction between dossiers rejected for minor and major discrepancies. If such a sorting is not used, the diagnostic codes can be simplified (e.g. DR7 and DR8 for rejected complete and rejected incomplete respectively).

6.4.3.3 Whatever the diagnosis at dossier level, Member States may decide to manage parcels outside tolerances by appropriate administrative procedures, in particular if the anomaly originates from the LPIS.

6.4.3.4 A dossier categorized as incomplete will be counted and paid to the contractor if it has been processed and photo-interpreted normally. It neither will be counted nor paid if it appeared incomplete before the digitization and the photo-interpretation.

Table 8.
Final diagnosis at the dossier level

Test	Conformity	Completeness	Code	Conclusion
D5	Pass	Pass (complete)	DA5	Dossier accepted by remote sensing
D6	Pass	Fail (incomplete)	DI6	Dossier not controlled with Remote Sensing; groups which have caused the dossier to be incomplete are verified on the spot
D7	Fail due to small discrepancy only (DP1)	Pass (complete)	DR7p	Dossier “rejected”; all the rejected groups being in the RPN categories (cf. Table 4), an appropriate administrative procedure may be used to notify the farmer of the correction.
D8	Fail due to small discrepancy only (DP1)	Fail (incomplete)	DR8p	Dossier “rejected”; the parcels that caused the dossier to be incomplete are verified on the spot; the opportunity can be taken to check rejected groups (in case no appropriate administrative procedure has been applied).
D7	Fail due to large discrepancy (DF1)	Pass (complete)	DR7f	Dossier “rejected”; an appropriate administrative procedure may be used to notify the farmer of the correction, but usually the rejected groups are verified on the spot.
D8	Fail due to large discrepancy (DF1)	Fail (incomplete)	DR8f	Dossier “rejected”; both the rejected groups and the parcels that caused the dossier to be incomplete are verified on the spot

7 Administrative organisation

7.1 Field inspections (by the Administration)

- 7.1.1 The field inspections will be made by the competent authorities of the Member States after photo-interpretation (and possibly after the rapid field visits) and are not the subject of the present Technical Specifications.
- 7.1.2 The Administration will carry out most of the controls before the harvest. The work schedule will therefore be established taking this into account, and in agreement with the Administration. If needed, the areas where there is an early harvest can be given priority, so that these results are delivered first (see § 5.5). In certain cases, a deadline may be decided when the photo-interpretation will start whatever the number of images received. Also, dossiers where area problems have been found (see § 5.4.3) or where technical problems that might prevent a correct categorisation have already been identified, may be returned in anticipation to the Administration. The contractor will adapt his work schedule to these conditions and the choices and deadlines of the Administration.

7.2 Work calendar

This calendar may differ between and within Member States, from one agricultural region to another. It should be based on the following dates but also adapted to the delivery date for applications as adopted by the Administrations pursuant to Regulation No 3508/92 (see §§ 1.3 and 3.2.3).

Indicative dates of the work calendar are given in Table 9. For the interim report, site data for quality control, the final report and satellite image return (which are all deliverables to JRC) the indicated dates are fixed. In case the contractor is not able to keep one of these dates, a justification, approved by the Administration, explaining the delay and indicating the new delivery date, should reach JRC not later than 10 days before the expiry of the deadline.

Table 9.
Provisional work calendar

15.09.2003 - 15.01.2004	selection of control sites
01.03 - 01.04.2004	signature of contract
01.04 - 15.06.2004	receipt of digitized declarations of sample to control
01.05 - 30.06.2004	ground data collection
15.06.2004	interim report deliverable to Administration and JRC
20.06 - 20.08.2004	delivery of interpretation results and control documents
15.08 - 10.09.2004	(possible) delivery of photo-interpretation results for spring sown crops
01.09 - 01.10.2004	transmission to the contractor of the results of the on-the-spot checks
15.9.2004	Delivery of site data for quality control to the JRC
15.10.2004	final report deliverable to Administration and JRC
Before 01.12.2004	Return of all supplied satellite data to JRC

7.3 Meetings

- 7.3.1 The contractors must provide for two meetings at their own expenses, to be held with the Commission and the Administration during the contract, either at the JRC, Ispra, or in Brussels.
- 7.3.2 Regular progress meetings (at intervals to be agreed) will also be organized with the Administration in the concerned Member State, though not necessarily with the participation of the Commission. The contractor will be responsible for his travel costs.

7.4 Quality control

- 7.4.1 It is important that the contractors implement quality management in their procedures. An internal quality assurance is required from the contractor (e.g. resulting in Quality Control Records). In his interim report, the tenderer shall include a description of such internal quality assurance and its outputs, which he expects to put in place at each stage of the work at his premises and also at the sub-contractor's premises (if relevant) (see § 7.8.1).

7.4.2 An **external** quality control relating to the execution and the results of remote sensing will be organized jointly by the Member States and the Commission. This quality control will cover:

- verification of the general organisation of the project (conformity to the Technical Specifications, work flow and project management, adequate technical and human resources, etc.);
- specific verification of the technical stages
- assessment of the work undertaken by the contractor and control of the results of the contractor on the basis of a sample of dossiers.

In 2004, these checks will be carried out on **one** control site per contractor, selected by the Administration. The contractors will be obliged to deliver all necessary elements for the quality control to the JRC by the prescribed date. [A JRC document describes the data and formats requested \(see Recommendations 4\).](#)

As from 2004, a **simplified Quality Control will be carried out with the objective of speeding the delivery of the QC results to the Administration. This simplified QC will consist in an analysis of the QC data provided by the contractor (as for the full QC, a number of queries will be run) followed by a 3 to 5 day visit to the contractor to clarify any anomaly found and check a sample of dossiers or parcels using the contractor's system. The objective of this visit is to separate real "problems" from database export artefacts and clarify any specific procedure or rule.**

7.4.3 The Administration may also require field documents to be produced for a sample of "accepted" dossiers, as a supplementary quality control. Each of these documents which are over 10 % of the controlled dossiers will be paid at the set price proposed in § 10.10.

7.5 Deliverables

The contractor shall deliver the following documents:

7.5.1 To the Administration on dates to be agreed taking into account §§ 5.4.3, 5.5 and 7.1.2:

7.5.1.1 Alternative "a": Control results by dossier:

- a list of dossiers by geographical unit and by category (accepted or rejected, complete or incomplete), with reason(s) and the level of completeness;
- for each dossier, the results by parcel (category, both declared and found area and land use, technical code given, and possible remarks);
- for the applications with at least one "rejected" group, a folder prepared for the field inspector which will contain:
 - a geometrically corrected "imageette", if possible made from the most precise document (e.g. aerial photograph) in black and white at a scale and format to be agreed with the Administration (e.g. 1:10,000 scale at DIN A4), with delimitation of the boundaries, indication of the reference of each parcel and those subsidized (or to be verified);
 - a large-scale cartographic document, possibly transparent and that can be superimposed on the imageette (to be agreed with the administration), enabling the field worker to locate all the parcels easily when on the spot;
 - a table giving comments per parcel.

Whatever the percentage of rejected or incomplete dossiers, the minimum of field documents to be produced in alternative "a" will be 10% of the number photo-interpreted. If necessary, the Administration will select a sample of accepted dossiers, in order to reach this minimum. It will then be the responsibility of the Administration to decide which dossiers it will inspect on the spot, or will not inspect.

OR

7.5.1.2 **Alternative "b": Control results by "geographic unit"** (section of cadastre, of commune, map sheet, block of adjacent parcels, etc.):

- for rejected dossiers, alphanumeric documents containing the parcels within the section as for the first two indents of alternative "a";
- for all sections containing parcels of dossiers judged as rejected, a folder for the field inspector should be included, as alternative "a", but for example in DIN A3 format and covering the whole section. All declared parcels should be included and those subsidized (or to verify) should be flagged;

- a table containing all declared parcels in the section and a comment for all parcels of dossiers judged as rejected.
- 7.5.1.3 Member States will indicate their choice of alternative "a" or "b". The separate control of spring-sown crops (§ 5.5) necessitates two deliveries of the control documents, preferably type alternative "b". In all cases, the delivery of control documents in batches is recommended, in order to spread out the workload of the inspectors.
- 7.5.2 To the Administration, no later than the 31.12.2004 (or a date to be agreed):
- return all documentation supplied by the Administration (cadastral maps, original or copies of the declarations, etc.);
 - all the documents purchased or produced for the contract and paid for (photos, maps, ortho-images, forms, etc.);
 - all data base files developed during the contract, in the format agreed with the Administration;
 - all digitized parcel vectors files along with attribute files containing field information and topology (format to be agreed with Administration);
 - a copy of the flight plan and the aerial photographs used for the control (raw and/or processed and scanned).
- 7.5.3 To the JRC for the quality control, no later than 15.09.2004: the data listed in Table 10, for one site selected by the Member State.

Table 10
Data required for the Quality Control

Type of data	Contents	Format
Alphanumeric	Data resulting from the application input (dossiers, groups and parcels declared) Contractor's results of photo-interpretation and categorisation, per parcel, group and dossier. Ancillary information	ACCESS database (pre-defined and supplied by JRC)
Vector	Vectorial database of the parcels as validated after the photo-interpretation. Original maps used for the location of declared parcels (in vector or raster format). Data from the ground survey (used for land use interpretation training)	SHAPE files or <i>Export</i> ARC/INFO or compatible with <i>Ungenerate</i> of ARC/INFO
Images	Satellite images and/or scanned aerial photographs (fully processed)	Digital, under the formats ERDAS "IMG", ERDAS "LAN", TIFF or compressed MrSID or ECW formats and related files (e.g. "STA", "TFW", etc.)
Ancillary data	Description of files and formats delivered. Meta-data database inherent to each geometrically corrected image. Quality Control Records (QCRs) Nomenclature of the land uses and crop groups declared and observed. Photo-interpretation rules and manual. Categorisation rules and tolerances. Quality Assurance procedures	ACCESS data base (pre-defined and supplied by JRC) Tables and digital files, and/or hard copies

- 7.5.4 To the Commission, no later than the 01.12.2004:
- the original images (in the original format/level delivered to the contractor) on a CD or DVD;

7.6 Documents to receive

The documents, dossiers and images to be delivered to the contractor have been described above.

After the on-the-spot checks or other follow up action, the Administrations will supply, if necessary in batches, feedback on the findings made by the Administration for all verified dossiers (see § 7.1). These results will be available by the 01.10.2004 and delivered in an agreed format. The contractors shall

compare their results with those of the Administrations in the final report. Any conflicting evidence will be discussed.

7.7 Progress reports

The contractor will provide to the Administration, at the end of every month, from the contract notification until the end of September 2004, a short progress report (in the national language). It should show an updated work schedule and a summary of the documents, maps, files, dossiers, images, aerial photographs, etc., received, produced and/or delivered and the volume of data processed.

7.8 Reports

Two reports shall be delivered. They will be subjected to cross-examination before approval. A summary shall be submitted simultaneously in the national language and in English, French or German. If several languages are used, only the versions in the national language will be authoritative. If some part of the work is unfinished or some results are not available at the final report deadline, the report will be delivered at the fixed deadline and an addendum will be provided later.

7.8.1 **Interim report (by 15.06.2004): Printed version:** four (4) copies to the Administration and two (2) to the JRC. **Digital version:** one (1) copy to the Administration, and one (1) to the JRC.

The report shall contain:

- overview of methodology and possible revisions;
- analysis of decision rules, tolerances, techniques and adaptations;
- definitive organisational plan, work schedule, personnel, material, detailed hard-and software description, division of work between partners;
- description of the internal quality assurance set up by the contractor;
- sampling plan and organisation of the ground data collection;
- appraisal of administrative checks of the application sample;
- draft field document for field inspectors;
- present work position and rate of progress;
- revised work schedule indicating actual work progress relative to the planned one.

The Administration may possibly decide, before the beginning of the work, not to require this interim report. In that event, it will deduct its cost from the contract price.

7.8.2 **Final report (by 15.10.2004): Printed version:** four (4) copies of the report and twelve (12) of the summary to the Administration, three (3) copies of the report and the summary to the JRC. **Digital version:** one (1) copy of the report and the summary to the Administration, and one (1) copy of the report and the summary to the JRC.

The report shall contain:

- a synthesis and update of the interim report;
- a critical appraisal of the initial methodology, adaptations (justifying the changes if relevant) and results obtained;
- expected and actual calendars, and discussion of the delays if relevant;
- division of work between partners or sub-contractors;
- detailed analysis of the quality of reference documents: maps, declarations, data bases given to the contractor, etc.;
- detailed analysis of the remote-sensing and field checks results, synthesis, and discussion of the differences;
- examples of field documents;
- analysis of the different types of:
 - farms (size, mean area, number of parcels, etc.);
 - irregularities and their frequency and areas concerned;
- synthesis of the average difference between data declared and measured;
- analysis of the precision of measurements and the tolerances used;
- analysis of the ground data results;
- discussion and interpretation of the regulations;
- proposals for simplifying and improving the methodology;
- analysis of the duration of work and actual costs;

- analysis forms/tables prepared by the JRC and the Administration.

7.8.3 The printed reports addressed to the JRC must be sent by private courier service (e.g. DHL, UPS etc.), and not by public post.

7.9 Archive

7.9.1 The contractor shall keep, at least until **31.12.2005 for possible audits**, an archive of the main databases having led to the categorisation delivered to the Administration, for all dossiers processed: alphanumeric and vectorial databases (with attributes), digital maps and processed images. He shall ensure for the same period the capacity to extract the necessary data from the database and to print the documents referred to in the next paragraph, and the protection of the data. This date could be postponed, after agreement with the Administration, for a defined period (e.g. for 1 year) and price.

7.9.2 If needed and for some dossiers still unresolved, the Administration may require the contractor, during the storage period, to print documents analogous to those described under § 7.5.1, containing colour (except for black-and-white data) imajettes from all images or aerial photographs having been used to categorize these dossiers.

7.9.3 The tender will include, as an option, one or several price proposals:

- possibly, to keep this archive beyond **31.12.2005**;
- the price per dossier to print documents as described above.

7.10 Penalties applicable to the contractor

7.10.1 Errors of Interpretation

The final purpose of Control with Remote Sensing is ensuring that applications are correctly checked. Contractors should make sure that their operators are appropriately trained to perform CAPI and use the technical codes adequately. National Administrations are entitled to apply penalties in case important or systematic errors of interpretation are discovered during their quality control (Cf. National Addendum).

7.10.2 Lateness

Unless agreed beforehand by the parties involved, there may be a penalty of 0.2 % of the contract value for each working day of delay relative to the date agreed for the delivery, either of the control documents mentioned in § 7.5.1, or the reports mentioned in § 7.8. The delivery dates will be fixed referring to the reception date of the dossiers to process or of the last image used. These penalties are all cumulative. The late delivery of only a part of the work will be penalized *pro rata*. If the delays are not due to the contractor the corresponding dates will be postponed. However, sub-contractors failings may not be invoked.

8 General recommendations

8.1 Groups of contractors are allowed to submit a tender or to negotiate without having to assume a particular legal form. In this case the persons responsible for the main phases of the work should be mentioned, and their qualifications indicated. Any company awards or certificates obtained (e.g. ISO 9000 series) should be mentioned.

8.2 The tenderer is committed by all terms of his tender: price, methodology, personnel, sub-contractors, working places, software, etc. He may not change it substantially after having lodged the tender or during the contract life, except if the procedures applicable to the public contracts are respected and the Administration agrees.

8.3 The successful tenderers will be invited to sign a contract with the Administration concerned, referring to these Technical Specifications. The tenderer will ask for information from the Administration, on the particular conditions applicable to the public works contracts of the type referred to by the present call for tender. The principal contractor shall furnish the Administration with a copy of the agreements with their partners (and/or sub-contractors).

8.4 Due to the sensitive nature of the work and the access to confidential documents, close collaboration between the contractor and the Administration services is absolutely necessary. The contractor must there-

fore propose staff who speak the national language(s), and are based in the Member State concerned in each offer. The tenderer must keep these authorities up to date on the progress of work, and on the basic techniques being used so that those authorities can, in return, provide the information that the contractor needs and understand why it is needed. In particular it is in the contractor's interest to warn the authorities of any difficulties that arise, to propose appropriate solutions, and to settle any differences of interpretation as soon as possible.

- 8.5** The administration of the contract will be coordinated jointly by the Administration and the JRC. More precisely, the main responsibilities will be divided as follows:
- the Administration will sign the contract and receive all results, approve all reports received from the contractor and manage the financial aspects of the contract;
 - the contractor will be responsible, to the Administration, for all obligations ensuing from the present Technical Specifications and the resulting contract;
 - the JRC will provide the satellite images, participate in the technical evaluation of the work and, as far as necessary and possible, provide a technical support to the Administration and the contractor.
- 8.6** The Administration and the Commission will each be, insofar they are concerned, the owners of all the results of the work. Any use or publication of the results will be subject to their prior agreement.
- 8.7** A **compulsory addendum**, containing special requirements or additional national provisions, should be requested from the awarding Administration in each Member State of interest for the tenderer. Furthermore, the information given in Annex 1 may have changed since the publication of the call for tender. Before submitting the tender, the tenderer is invited to verify with the Administration concerned, that his assumptions in terms of alternatives, number of sites and dossiers, historical checks, etc. correspond well with the position of the Administration.

9 Technical offer

9.1 Presentation rules

- 9.1.1 Various **alternatives** have been suggested (for example §§ 3.3.5, 4.3.4, 5.2.1, 5.2.2, 7.5.1 etc.), for which the tenderer will have to make a choice, in line with the details given in the National Addendum. Additional **options** that are not mentioned in these specifications can also be proposed. In such cases, a comparison with a standard method will always be made. Only options that are directly operational and productive, without risk of compromising parts of the checks and with costs competitive to previously tested solutions, will be considered.
- 9.1.2 The availability of adapted and powerful software in order to carry out the work is a vital pre-condition for success. As a consequence, this aspect will be one of the essential selection criteria. The proposal shall provide full details on the software used and for what part of the work it is intended, by whom it has been developed, whether it has already been used for similar work and for how long, what is the tenderer's experience, whether previous versions will be adapted, if options are available, etc.
- 9.1.3 All proposals prepared in reply to this call for tender will be submitted using the standard format given below, in order to ensure easy comprehension and objective comparability. The tenderer is invited to discuss in detail all the elements which will enable him to automate the control process, and which will affect the categorisation quality and unit cost of the dossiers to check.
- 9.1.4 If the tenderer already has collaborated with the Administration concerned in the framework of the control or has already submitted tenders in previous years, he is advised to facilitate the reading of the tender by highlighting what is new in the proposal for 2004.

9.2 Contents

- 9.2.1 General information:
- name of the tenderer(s). Contact address and person responsible;
 - summary of the tender;
 - compliance matrix and indication of where to find the answers to the various prescriptions of the Technical Specifications;

- general analysis of work, demonstrating a knowledge of the European and National regulations, local conditions, national application system under the IACS, contents of the applications which will be checked, and experience of working with the Administration responsible for the IACS.
- 9.2.2 Detailed description of the methodology:
- discussion and justification of the basic choice: satellite and/or aerial photographs;
 - if relevant, complete technical appraisal of the aerial photography;
 - analysis of the geometric and radiometric corrections and proposal;
 - references and discussion of the use of radar data;
 - evaluation of the cadastral topographical maps available (or digital data) and proposed digitization method (if relevant);
 - proposed technique to digitize the parcel limits (if relevant) and to create links between the declared data and the parcels;
 - analysis of the working timetable and “bottlenecks”;
 - means of accelerating the first stages of the work (§ 4.6.3);
 - ground data collection;
 - validation of the parcel limits and area calculation;
 - detailed study of automatic classification and photo-interpretation; description of training (software and personnel), photo-interpretation keys and examples of the proposed method;
 - possibly, organisation of the rapid field visits (§ 5.2.2);
 - discussion of the summer crops (§ 5.5), i.e. two-phase controls;
 - methodology for the reference years checks;
 - proposal for documents to be delivered to the Administration (for accepted and rejected dossiers).
- 9.2.3 Personnel and materials available
- if relevant, precise distribution of work between partners or subcontractors and justification of sub-contracting, share of the work planned for each partner (in per cent of the total price); written agreement between all the partners for the tasks allotted;
 - personnel, precise tasks and qualifications;
 - number of teams, number of persons per team, number of shifts planned for the various phases of the project. Estimate of the total number of dossiers processed each day/shift with the full team: (1) digitization of the parcels; (2) photo-interpretation and (3) field document production;
 - location(s) where the various phases of work will be carried out. If this will be carried out in several sites simultaneously, means provided to guarantee the homogeneity of the results;
 - processing facilities available, specifying: (1) hardware and software proposed for the main tasks; (2) capacity installed; (3) whether it is already available, or to be acquired or developed; (4) level of experience already acquired; (5) precise location (town, country, if several workplaces);
 - summary of materials already available: images, aerial photographs, maps, etc.
- 9.2.4 Project management:
- general organisation, production chain, co-ordination, internal meetings;
 - management and training of permanent and temporary staff;
 - relations with the Administration.
- 9.2.5 Timetable (taking into account the fact that the precise location of the sites is not disclosed):
- dates (“acquisition windows”) proposed for acquisition of satellite images or photographs;
 - dates proposed for archive images (reference years control);
 - detailed timetable for the various phases of the work;
 - provisional timetable for delivery of the results.
- 9.2.6 Internal quality assurance:
- Description of the internal quality assurance to be put in place at each stage of the work and for each sub-contractor (if relevant).
- 9.2.7 Confidentiality:

The confidential nature of this work is of paramount importance. Confidentiality must be guaranteed for the farmers’ applications, the control sites, the image acquisition dates and the results of checks. A detailed explanation of the tenderers data protection measures must feature in the proposal.

9.2.8 Possible options:

If the tenderer wishes to present additional options, he will:

- describe in detail and justify his proposition;
- analyse the effects as regards results, timetable, simplification of work and costs;
- compare it with a standard method of the specifications.

9.2.9 Agreements

- the tenderer's agreement to carry out the work, duration of validity of the offer;
- accept the possible external quality control and the consequences that may ensue therefrom;
- agree to the confidentiality and measures provided to ensure this;
- status of the person authorized to sign the tender, date and signature of tender.

9.2.10 Companies and personnel:

- description of all the participating companies, references since 1997 relevant to the work;
- number of permanent personnel members at the date of the tender, by principal category, and if relevant, by partner;
- if applicable, ISO certifications or others and date of obtaining;
- curricula vitae of the participants, with the description of their responsibilities.

9.2.11 Summary tables

These tables may be used to evaluate the tenders. The tenderer should check carefully that he has completed the tables, that all figures match and that all information provided in the tables is consistent with that of the full proposal. There are two sets of tables to complete:

- a technical summary of the proposal (see Annex 2);
- a financial summary of the tender (see Annex 3).

10 Price proposal

10.1 A summary of the tender will be supplied as set out in Annex 2 (technical part) and Annex 3 (financial part).

10.2 Unless otherwise specified by the participating Member States, the "lots" described in Annex 1 cannot be divided by the tenderer. On the contrary, the Administration may divide the work between several contractors according to criteria to its judgement: e.g. balance of volume of work, different techniques, vertical division of the tasks, regional distribution, etc.

10.3 Tenders may be made for several lots, so long as the pricing of each is distinct. The equipment and methodology may differ from one lot to another, but must remain homogenous within a lot. However:

- the proposed satellite or aerial data may differ from one control site to another, but the resulting price difference should clearly be shown;
- where the Member State imposes different techniques according to the sites, each group of sites using the same technique will constitute a separated lot.

10.4 If the tenderer already possesses materials or earlier work and can use them free of charge, this should be mentioned in the tender so as to avoid misinterpretation of the costs put forward. In all cases, the offers will exclude the cost of standard level satellite imagery, which are bought directly by the Commission but will include in detail the cost of processing the images following the different options to be chosen. Conversely, the price of aerial photography and processing will always be included in the proposed price, except if they are free.

10.5 Each stage of the work shall be identified and priced separately. Furthermore, the offer will distinguish between fixed and variable costs with the principal items detailed for both of these groups.

Fixed costs are those that do not vary directly with the control of individual applications. They in turn can be divided into base project costs (management, meetings, equipment, training, salaries, etc.), and fixed costs per site (image processing, ground data collection, etc.). The price of topographic maps will be considered as fixed if their use is general, and variable if they are used for individual dossiers. The tenderer will list what he considers as fixed and variable cost in his tender, respectively.

- 10.6** The variable prices will be calculated with a series of parameters, either imposed in the National Addendum, or to be proposed in the tender. In both cases, they must be presented in Annex 3. These parameters are explained below.

- 10.6.1 The control “*method*” to be used in the various sites will be codified in the following way:

M1	control site with satellite images only
M2	site with satellite images and 2004 aerial photographs
M3	site with satellite images and archive aerial photographs
M4	site with aerial photographs only and rapid field visits
M5	site with satellite images and rapid field visits
Mx	site with other method, to be defined

- 10.6.2 *Historical controls* of the reference periods (if relevant):

H1	control of the 1986-1991 reference period
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- 10.6.3 The following parameters will be defined in the National Addendum or appear in the Annex of this document:

NSM1, NSM2, ..., NSMx	number of sites with methods respectively M1, M2, ..., Mx
NSH1	number of sites with controls H1
NDM1, NDM2, ..., NDMx	number of dossiers respectively in sites with methods M1, M2, ..., Mx
NDH1	number of dossiers with controls H1
NDD	number of dossiers to be input (if relevant)

All these parameters will be adjusted if necessary at the completion of the contract, in order to obtain the final price.

- 10.6.4 The following parameters in principle depend upon the lack of optical images:

NSR	number of sites where radar images will be used
NDR	number of dossiers with radar controls

- 10.7** The tender shall also include the following unit prices, these may not be changed after the tender submission:

FP	base fixed costs for the project
FR	additional fixed costs for the use of radar images (if relevant)
CSM1, CSM2, ..., CSMx	fixed costs per site with methods respectively M1, M2, ..., Mx
CSR	additional fixed costs per site where radar images will be used
CSH1	additional fixed costs per site with H1 controls
CDM1, CDM2, ..., CDMx	variable costs per dossier in sites respectively M1, M2, ..., Mx
CDR	additional variable costs per dossier in sites with radar images
CDH1	additional variable costs per dossier with controls H1
CDD	additional variable costs per dossier to be input

- 10.7.1 Unless otherwise specified in the National Addendum, the applications can be listed in four categories (or "dossier types"): arable, forage only, **SAPS** or "other" (other subsidy schemes, see § 5.2.5). If necessary, the latter category may be subdivided. Separate unit prices, one for each type, may be proposed. In that event, a weighted average price ("CD") shall be calculated. This is not necessary if a single lump sum is proposed for all types. The assumed distribution between the different types will take into account all available information, notably the possible absence of certain types in the Member State considered.

- 10.7.2 If the prices per dossier type are differentiated, a rule for adjusting "CD" may be provided for if the final type weight differs with more than 5% from that anticipated. If sensible differences are envisaged between sites in respect of the type weight and if different methods are used, the weighting per site ("CDMx") shall be adapted, taking into account the various methods and dossiers types. In that event, the calculation formulas used shall be provided.

10.7.3 Some of the prices defined above may be zero, if the corresponding task is not performed or is not charged. All non-relevant parameters and prices will be set to zero.

10.8 The contract **base price** will be calculated with the following formula. After the completion of the work, it will possibly be adjusted if some adaptable parameters have been modified.

$$\begin{array}{rcccccc} \text{Base} & & \text{price} & = & & \text{FP} \\ + & \text{CSM1*NSM1} & + & \text{CSM2*NSM2} & + \dots & + & \text{CSM}_x \text{*NSM}_x \\ + & \text{CDM1*NDM1} & + & \text{CDM2*NDM2} & + & \dots & + & \text{CDM}_x \text{*NDM}_x \\ + & \text{price of the aerial photography, if applicable.} & & & & & & \end{array}$$

10.9 The possible **supplements** will be calculated in the following way:

$$\begin{array}{l} \text{Supplements} = \text{FR} \\ + \text{CSR*NSR} + \text{CDR*NDR} \\ + \text{CSH1*NSH1} + \text{CDH1*NDH1} \\ + \text{CDD*NDD} \quad + \text{options} + \text{alternatives.} \end{array}$$

10.10 Each price proposal (see annex 3, G.3), will mention at least the *average unit* price for:

- input one dossier (see § 3.3.5);
- digitize field limits for one application (see § 4.6.2);
- one field document to be handed over to the inspector;
- one "rapid field visit" for an individual dossier (if relevant).

10.11 If necessary, the number of dossiers to be processed ("ND") will be modified by the Administration before the signature of the contract. This number however will never be less than 0.50 "ND" or more than 1.50 "ND", unless otherwise specified in the National Addendum. Also the contract may specify that, if the Administration is obliged to alter, or the contractor is unable to process, the expected number of dossiers, a price adjustment will be made based on the actual number processed.

10.12 The Administration may also require in the National Addendum several proposals following various hypotheses: different number of sites or dossiers, alternative techniques, etc. In that event, several columns with different prices should be given in Annex 3 F.

10.13 If options are proposed, the cost of each must be indicated with precision. Especially, if the tenderer wants to submit two offers, using satellite or aerial photography respectively, he will then propose separate prices, i.e. several Annexes 3.

10.14 Independently from the principal one-year tender, the tenderer shall also propose a price for the following two years, thus allowing the Administration to choose between one-year and multi-year contracts.

- These multi-year prices will use a current price indicator (salaries, currencies, inflation, etc.), also giving, where appropriate, a correction factor for the anticipated changes in this indicator;
- the prices will be divided between fixed and variable costs;
- the rate and period of paying-off will be clearly identified.

10.15 The tenderer is expected to have sufficient knowledge of the country for which he presents an offer: structure of control services, availability of topographic or cadastral documents, regionalisation plans adopted, average size of the farms etc. If price reservations are made (e.g. on the number of fields or cadastral maps needed to cover a farm, the complexity of the declaration or the regionalisation plans, etc.), the necessary parameters should be attached, in order to allow the Administration to recalculate the tender price corresponding to the final figures. However, a price in standard conditions must always be given in Annex 3.

10.16 If any part of the offer implies the payment of Value Added Tax (VAT) or other taxes, this shall be specified separately, so that if necessary it can be reimbursed.

10.17 Depending on the National rules, payment shall be made, for example in four instalments, corresponding to the contract signature, on approval of each of the two reports referred to in § 7.8, and after delivery of the documents described under § 7.5.2. The first payment may be subject to a performance guarantee issued by a bank or official institution for the benefit of the Administration. This guarantee will cover the advance payment and should be valid until 31.12.2004. If no interim report is delivered, another milestone may be agreed.

ANNEX 1. Volume of Work and Requirements specific to each Member State

1. **Approximate number of applications and sites, with or without reference period control.** Further information will be provided within the “National Addendum”.

Member State	Number of year 2004 sites			Number of year 2004 applications		
	Reference period		TOTAL	Reference period		TOTAL
	with	Without		with	without	
CYPRUS		2	2		2500	2500
GERMANY		9	9		4990	4990
GREECE		3	3		6700	6700
IRELAND		8	8		5000	5000
LUXEMBOURG	1		1	80		80
The NETHERLANDS	5		5	2500		2500
PORTUGAL (satellite)		13	13		8.000	8.000
PORTUGAL (aerial)		5	5		8.000	8.000
SWEDEN		5	5		1700	1700
UNITED KINGDOM (England)		7	7		2350	2350

2. **Complementary Information (method proposed for the controls, important dates and any specific issues)**

CYPRUS

Additional information will be included in the National Addendum, which will be complementary to the Common Technical Specifications.

GERMANY

The Länder Hessen, Niedersachsen, Nordrhein- Westfalen and Saarland will take part in the call for tender. All Länder will use a combined aerial/satellite approach.

GREECE

Any further information and the number of dossiers will be provided within the “National Addendum”

IRELAND

Methodology, hardware and software will be similar to what has been used in previous years. Image acquisition (Nov 2003 - July 2004), Image Correction (April - July), Application data (mid April onwards), Digitising (from mid April 2004), Ground Truth (mid May onwards), Land Use Determination (mid May onwards), Interim Report (mid May), Categorisation & Control of results (end July 2004).

LUXEMBOURG

CwRS-Method: current year VHR bundle satellite imagery/HR satellite imagery.

Backup Method (to be used if no usable VHR data has been acquired by the end of the initial VHR window): current year aerial ortho/HR satellite imagery

Proposed delivery date of dossiers to the contractor: 15 June 2004

Proposed delivery date of CwRS results: 30 calendar days after delivery of dossiers to the contractor

Specificities: All data available at the national mapping agency ACT (Administration du Cadastre et de la Topographie) will be provided to the contractor in the national coordinate reference system called ‘LUREF’ (LUXembourg REference Frame).

The NETHERLANDS

The sites in the Netherlands should be considered as 4 with 1 reserve site, and that the number 2500 is indicative (there will not be more than 2500 applications).

PORTUGAL

The Portuguese administration reserves the right to modify the work partitioning between remote sensing controls and traditional field controls. A National Addendum (“Adenda Obrigatória”) is available (from INGA) and will stipulate the exact date and place of delivery of the tender proposals.

SWEDEN

Controls are carried out with satellite imagery, further information is given in a National Addendum.

UNITED KINGDOM (England)

The number of dossiers per site is expected to be approximately 400 for the 4 sites for which VHR satellite imagery will not be available and approximately 250 for the 3 sites for which it will be available.

ANNEX 2: TECHNICAL RÉSUMÉ OF THE PROPOSAL

Member State	
Name of principal tenderer:	Name and function of the person responsible:

Contact Address		
Phone:	Fax:	E-mail

Associated Companies	Project Responsibilities	% of price	Person principally responsible

Location of the principal tasks (give details for each partner or sub-contractor)		
Tasks	Location of performance (city, country)	Person principally responsible

A. TECHNICAL PERSONNEL

	Name	Qualifications
Project Manager		
Technical Manager		
Persons responsible from sub-contractors or partners		

N° of employees	Management	Computer	Field Work	Digitization	Photo-interp	Other
permanent: actual						
to be recruited						
temporary: actual						
to be recruited						

B. METHODOLOGY

Dossiers Analysis	
Basic choice: satellite and/or aerial photos. In the latter case, please give details:	
Documents for parcel boundary location (type, scale):	
Level of pre-processing and geometric correction for satellite images and aerial photographs:	
Maps and DTMs for geometric correction (type/scale, average date):	
Expected precision for geometric corrections (metre):	absolute relative
Methods to accelerate the preparatory work (see § 4.6.3):	
Ground Data Collection Method (§ 4.7.2):	
Proposed method for digitizing field limits:	Place (city, country) where the digitization will be carried out:
Processing (CAPI and/or classification, see § 5.2.1):	
Description of the rapid field visits, if relevant:	

C. COMPUTER EQUIPMENT

SOFTWARE for the project	Installation place (city, country)	Installed (name & version number)	Years of experience	Proposed (if different)
Operating System(s):				
Database:				
Image Processing:				

Software (contd.)	Installation place	Already installed	Years of experience	Proposed
GIS:				
Management/ Diagnosis:				

HARDWARE	Type	% for the project	location (city, country)	number	
				already installed	to be bought/ leased
Main/Mini Frame:					
Work Stations:					
PCs:					
Tape/ CD-ROM Drives:					
Printers:					

Network details:	
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Number of dossiers processed per normal work day (1 shift) and for all the team available			
Dossiers digitized per day:	Dossiers photo-interpreted per day	dossiers per photo-interpreter/hour:	number of shifts per day:

D. MISCELLANEOUS

Summary of possible options and variations with reference to § 10.4:
Other relevant points:

ANNEX 3: FINANCIAL RESUME OF THE PROPOSAL

(A) Currency:	(B) VAT Percentage if applicable: %
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(C) Definition of some elements used in the formulas below	
(C.1) Dossiers types	
(C.2) Sites/Methods	
(C.3) Other costs included in the base proposal (see E.4 below)	

(D) Assumptions as per § 10.7.1, and the associated number of dossiers

	General	Simplified	Forage	Others	...	Total
Number of dossiers of different types						
Unit variable cost per dossier						
Total cost for all dossiers						
Average cost per dossier (=CD)						

(E) Calculation of base proposal price

(E.1) Fixed costs for the project, VAT not included (= FP)	
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(E.2) Fixed costs per site (base proposal, VAT not included)

Method	M1	M2	M3	M4	M5	...	TOTAL
Fixed costs per site (= CSMx)							
Number of sites (= NSMx)							
Total cost (= CSMx*NSMx)							

(E.3) Variable costs per dossier (base proposal, VAT not included)

Code for the different sites	M1	M2	M3	M4	M5	...	TOTAL
Cost per dossier (CDMx)							
Number of dossiers (NDMx)							
Total cost (= CDMx*NDMx)							

(E.4) Other costs to include in the base proposal price (following C.3 above)	
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(E.5) Total cost of base proposal (= E.1 + E.2 + E.3 + E.4)

	VAT not included	VAT	VAT included
Total price for base proposal			

(F) Details of base proposal price excluding VAT

(if necessary for different hypotheses, see § 10.12)

(F.1) FIXED COSTS (overall and per site)	Cost of the hypotheses applicable		
	hypothesis 1	hypothesis ...	hypothesis ...
Set-up of the project and general management:			
Computer (1) hardware:			
(2) software (bought or developed):			
Maps and DTM bought:			
Aerial Photographs (if applicable) (1) flight:			
(2) processing and scanning:			
Geometric and radiometric corrections (1) satellite images:			
(2) Aerial photography (if applicable):			
Automatic classification:			
Ground Survey:			
Average fixed personnel costs:			
Meetings			
Interim report			
Final report			
Other fixed costs:			
TOTAL FIXED COSTS:			
(F.2) VARIABLE COSTS (per dossier)			
Preliminary checks of dossiers on arrival			
Digitization of parcels or purchase of the vectors:			
Maps bought for the dossiers (field location):			
Boundary validation and Photo-interpret. (CAPI) :			
Production of on-the-spot control documents:			
Rapid field visits (if relevant):			
Categorisation and preparation of results:			
Variable costs for personnel (not included above):			
Other variable costs:			
TOTAL VARIABLE COSTS:			
(F.3) TOTAL COSTS OF BASE PROPOSAL, excluding VAT:			
VAT			
(F.3) TOTAL COSTS OF BASE PROPOSAL, including VAT:			

(G) Price proposal for possible supplements, excluding VAT

(G.1) Radar images	FR	CSR	CDR
Costs excluding VAT			

(G.2) References	CSH1	CDH1
Costs excluding VAT		

(G.3) Costs excluding VAT, per dossier (see § 10.10)			
Input of 1 dossier (CDD)	digitization of the limits of 1 dossier	1 field control document	rapid field visit for 1 dossier

(G.4) Other additional costs	Unit price
to keep the archive beyond 31.12.2004:	
to print one complete colour dossier:	

(G.5) Other possible options or alternatives	Unit or total price (specify)

(H) Multi-year base proposal, excluding VAT (see § 10.10)

	year 1	year 2	year 3
Base fixed costs			
Fixed costs per site			
Variable costs			
Total without options, constant 2004 prices:			
assumption of annual price change retained (inflation, salaries, etc.), in per cent:		%	%
Total without options, variable prices:			

Date:	
Name and Signature:	

(End of document).