REQUIREMENTS DATABASE STRUCTURE

NAME	DESCRIPTION	CODE_LIST	TYPE
REQ_TYPE	Requirement type	FRQ - functional requirement; NFR - non-functional requirement; REC - recommendation.	Text
REQ_AREA	Requirement area	LED - low-end demonstrator; HED - high-end demonstrator; DEM - both demonstrators; PRO - promotional/ training activity.	Text
REQ_NR	Requirement number (within one type)		AutoNumber
UID	Unique identifier (complex string)		Text
DESCRIPTION	User story (in case of FRQs and RECs) or quality indicator (in case of NFRs)		Text
RATIONALE	Rationale of the desired requirement		Text
ORIGIN	Document or person/ group originating the requirement		Text
USER_VALUE	The value of the requirement to the users		Text
PRIORITY	Priority given to it by the FieldFact team	[1 = high; 5 = low]	Integer [1, 5]
HISTORY	As appropriate, the history of the requirement		Text
NOTE	Note or corresponding quality attribute in case of NFRs		Text

FUNCTIONAL REQUIREMENTS

REQ_TYPE	REQ_AREA	REQ_NR	UID	DESCRIPTION	RATIONALE	ORIGIN	USER_VALUE	PRIORITY	HISTORY	NOTE
FRQ	DEM	1	FRQ-DEM-1	User can always locate his/her current position. The position can be displayed in the digital map/ projected onto operationally used datasets.	Position location is the basic functionality required during the field measurement. It is a starting point of each activity and it helps the user understand where he is currently located. The data elements for FieldFact spatial objects generated during field activities will be based upon the positioning samples generated from the SIS.	DEL-3.1, p. 11: Positioning/ spatial data should be integrated in the FieldFact architecture on all aggregation levels starting with collection of data in the field.	Precise location; Better orientation during the field measurement/ demonstration.	1		
FRQ	DEM	2	FRQ-DEM-2	User can view, combine and integrate various available spatial data sets (at least digital orthophoto, topographic map and LPIS reference parcels).	Integration of various spatial data sets (LPIS represents official reference managed by the competent authority) is essential for establishment of the link between measured values and the outside world. The demonstrator will show how different data from different sources can be used simultaneously.	DEL-1.3, p.12-13,17: Data integration and interoperability identified as a key issue; stakeholders suggest to address those issues.	Better orientation during the field measurement/ demonstration; Immediate comparison of measured/ collected values with spatial data/ maps.	1		
FRQ	LED	3	FRQ-LED-3	User can select desired LPIS reference parcel from the list. The code and geometry of the parcel will be centered and highlighted in the digital map.	Existing reference is a good starting point for each demonstration activity. This function simulates the selection of specific parcel from the list of all parcels cultivated by the farmer.	DEL-2.2, p.82-83, DEL-1.3, p.11: LPIS identified as a spatial reference widely used by European farmers.	Standardized geographic location of demonstration activities.	2		
FRQ	LED	4	FRQ-LED-4	User can measure the area and perimeter of selected agricultural parcel in the field. The result will be displayed in alphanumerical as well as graphical form.	This functionality can support the preparation of subsidy application by the farmer. Parcel geometry and perimeter can be used as indicators for validity of parcel declaration. Parcel data could be also used in applications related to food traceability.	DEL-2.2, p.92: Parcel measurement selected as a priority application for LED.	Information about area and perimeter of the declared parcel	1		
FRQ	DEM	5	FRQ-DEM-5	User will receive simulated integrity indicator.	Simulation of an integrity indicator that could be derived from the future Galileo integrity message will be used for demonstration of the value of integrity and signal authentication for the acceptance of results, e.g. by the government, partners in the logistic chain or consumers.	SoW, p. 5, OBJ-4: Dissemination and promotion of the EGNOS/ Galileo benefits and added-values is the key project objective; DEL-1.3, p.11: Farmers care about operational reliability of the GNSS signal.	Reliable information about the quality of the measurement; Information about the EGNOS/ Galileo added value.	2		
FRQ	DEM	6	FRQ-DEM-6	User can print the results of the measurement on a printer. Both alphanumerical and graphical data will be printed on one A4 page.	The output from the measurement can be immediately printed and released to the user. This will help the user to understand how the results can be processed and visualized. It will be a tangible reminder of the activity the user has experienced.	FieldFact team: based on previous experiences and practices in agricultural fairs, demonstration events and training and education.	Immediately available summary of results and reminder of performed activity.	3		
FRQ	LED	7	FRQ-LED-7	Measured area can be transferred and displayed in the sample digital subsidy application form. The form can be than printed on one A4 page.	This functionality will demonstrate the integration of measured data with other farm data, in particular how the use of Galileo originated authentic measurement can simplify the preparation of subsidy application.	DEL-1.3, p.14: Increased data exchange expected by stakeholders; DEL-2.2, p.32: European farmers apply for area-related subsidies.	Simplified preparation of subsidy application.	3		
FRQ	LED	8	FRQ-LED-8	User can measure a part of the boundary of selected LPIS parcel as a sequence of points. EGNOS corrections will be automatically activated and simulated integrity indicator will be received at the end of the measurement.	This functionality will demonstrate possible farmer input to the process of LPIS update. Higher demands on accuracy will be satisfied by the use of EGNOS corrections (demonstration of GALILEO higher accuracy). Simulation of an integrity indicator that could be derived from the future Galileo integrity message will demonstrate the value of integrity for the acceptance of results. Galileo signal authentication provides authenticated hallmark for the delivered data.	DEL-2.2, p.92: Parcel measurement including LPIS update selected as a priority application for LED; DEL-1.3, p.8-9: Higher accuracy and reliability is needed for LPIS mapping; SoW, p. 5, OBJ-4: Dissemination and promotion of the EGNOS/ Galileo benefits and added-values is the key project objective.	Accurate measurement for LPIS update; Reliable information about the quality and authenticity of the measurement; Demonstration of the EGNOS/ Galileo added value.	1		

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FRQ	LED	9	FRQ-LED-9	User can split existing LPIS reference parcel by measuring new internal boundary.	This functionality will demonstrate possible farmer input to the process of LPIS update. Higher demands on accuracy will be satisfied by the use of EGNOS corrections (demonstration of GALILEO higher accuracy). Simulation of an integrity indicator that could be derived from the future Galileo integrity message will demonstrate the value of integrity for the acceptance of results. Galileo signal authentication provides authenticated hallmark for the delivered data.	DEL-2.2, p.92: Parcel measurement including LPIS update selected as a priority application for LED; DEL-1.3, p.8-9: Higher accuracy and reliability is needed for LPIS mapping; SoW, p. 5, OBJ-4: Dissemination and promotion of the EGNOS/ Galileo benefits and added-values is the key project objective.	Accurate measurement for LPIS update; Reliable information about the quality and authenticity of the measurement; Demonstration of the EGNOS/ Galileo added value.	2		
FRQ	LED	10	FRQ-LED-10	Results of the measurement will replace the corresponding part of LPIS reference parcel or will split it and the parcel geometry will be updated. New area and perimeter will be calculated and displayed.	This functionality will show in a very understandable way how the measured results can be processed using GIS capabilities of the demonstrator.	DEL-1.3, p.17: GIS functionality recommended for the LED.	Updated geometry and attributes of changed LPIS reference parcel.	2		
FRQ	LED	11	FRQ-LED-11	User can print LPIS parcel identification data, existing and updated parcel geometry plus simulated integrity indicator together on one A4 page.	The output from the measurement can be immediately printed and released to the user. This will help the user to understand how the results can be processed and visualized. The print can be used as an example of the form to be submitted to the administration in charge of LPIS update. In addition, it will be a tangible reminder of the activity the user experienced.	FieldFact team: based on previous experiences and practices in agricultural fairs, demonstration events and training and education.	Immediately available summary of results and reminder of performed activity; Direct use of measured data.	3		
FRQ	HED	12	FRQ-HED-12	Recommendation map (based on results of simulated yield mapping or biomass monitoring and soil analyses) and corresponding application map are integrated in the demonstrator.	Geographical information on crop performance or actual crop status forms a basis for variable application, reduces inputs and increases crop yield and quality. Crop information and soil analyses represent inputs to generate a recommendation map for the demonstration of variable rate application. Map-based variable rate technology is proposed because of higher flexibility and less difficulty in comparison with sensor-based approach .	DEL-2.2, p.95: Harvest and biomass monitoring selected as priority applications for HED.	Recommendation map showing the variability of properties over the selected field; Application map containing target rates to be applied.	1		
FRQ	HED	13	FRQ-HED-13	During the movement of the machine the system registers the position and automatically sets the application rate according to the information from the application map. EGNOS corrections will be automatically activated and simulated integrity indicator will be received at the end of the demonstration.	Variable rate application will be demonstrated during the machine movement. information about the position combined with calculated input will result in simulated site-specific treatment. Higher demands on accuracy will be satisfied by the use of EGNOS corrections (demonstration of GALILEO higher accuracy). Simulation of an integrity indicator that could be derived from the future Galileo integrity message will demonstrate the value of integrity for the acceptance of results.	DEL-2.2, p.95: Variable rate application selected as a priority applications for HED; SoW, p. 5, OBJ-4: Dissemination and promotion of the EGNOS/ Galileo benefits and added-values is the key project objective.	Demonstration of variable rate application fed by harvest and biomass monitoring data; demonstration of the EGNOS/ Galileo added value.	1		
FRQ	HED	14	FRQ-HED-14	System can register the movement of the machine and the actual applied rate which can be visualized and displayed in the digital map.	Registered machine movement visualized as a trajectory in the map and actual rate map can demonstrate how authentic data on executed activities can be automatically collected, visualized and further exchanged with the government or the partners in the production/ distribution chain.	DEL-1.3, p.17: Provision of authentic documents of executed activities responds to the stakeholder expectations.	Registration of authentic data on executed farm activity.	2		

REQ_TYPE	REQ_AREA	REQ_NR	UID	DESCRIPTION	RATIONALE	ORIGIN	USER_VALUE	PRIORITY	HISTORY	NOTE
FRQ	HED	15	FRQ-HED-15	User can print collected data on machine movement, target and actual applied rates plus simulated integrity indicator together on one A4 page.	Collected data should be immediately printed and released to the user. This will help the user to understand how the results can be processed and visualized. It will be a tangible reminder of the activity the user has experienced.	FieldFact team: based on previous experiences and practices in agricultural fairs, demonstration events and training and education.	Immediately available summary of results and reminder of performed activity.	3		
FRQ	HED	16	FRQ-HED-16	Simulated spatial data on environmental zoning can be integrated in the system, viewed and combined with other available spatial data in the digital map .	The demonstrator should integrate and show an example of spatial data related to selected cross-compliance requirement in the area of environment and soil protection (e.g. buffer zones around water courses or hedgerows, nitrate vulnerable zone or Natura 2000 areas).	DEL-1.3, p.6-8: Cross-compliance requirements in the area of environment and soil protection introduced in the EU legislation; DEL-1.3, p.12-13,17: Data integration and interoperability identified as a key issue; stakeholders suggest to address those issues; DEL-1.3, p.16: Environmental driver identified by the stakeholders.	Integration of spatial data related to requirements in the area of environment and soil protection.	2		
FRQ	HED	17	FRQ-HED-17	During the movement of the machine the system can automatically set the corresponding application rate after crossing the boundary of simulated spatial zone.	The demonstrator should be able to show how the system can automatically react on changed requirements after crossing the boundary of simulated zone related to selected cross-compliance requirement in the area of environment and soil protection.	DEL-1.3, p.6-8: Cross-compliance requirements in the area of environment and soil protection introduced in the EU legislation; DEL-1.3, p.16: Environmental driver identified by the stakeholders.	Demonstration of how the GNSS/GIS application can help with regard to cross-compliance requirements in the area of environment and soil protection.	2		
FRQ	HED	18	FRQ-HED-18	User can transfer collected data on machine movement and variable rate application to the sample farm management system (FMS) environment.	This functionality will demonstrate the integration of collected data with other farm data, in this case sample FMS environment.	DEL-1.3, p.14: Increased data exchange expected by stakeholders.	Demonstration of direct use of collected data in the FMS environment.	3		
FRQ	LED	19	FRQ-LED-19	User can transfer collected data on parcel measurement to the sample farm management system (FMS) environment or governmental database.	This functionality will demonstrate the integration of collected data with other data, in this case sample FMS environment or governmental database.	DEL-1.3, p.14: Increased data exchange expected by stakeholders; DEL-1.3, p.12-13,17: Data integration and interoperability identified as a key issue; stakeholders suggest to address those issues.	Demonstration of the possibility to transfer and integrate data from the low-end device to FMS or governmental portal.	3		

NON FUNCTIONAL REQUIREMENTS

REQ_TYPE	REQ_AREA	REQ_NR	UID	DESCRIPTION	RATIONALE	ORIGIN	USER_VALUE	PRIORITY	HISTORY	NOTE
NFR	DEM	1	NFR-DEM-1	Functionality of demonstrators covers functional requirements according to given priority.	Proposed functional requirements reflect the results of critical analysis and stakeholder views. Each requirement has a priority given to it by the project team.	Functional requirements elicited in this Requirements Analysis.	Functionality reflecting results of critical analysis and stakeholder views.			Extended ISO model: Functionality, Suitability
NFR	DEM	2	NFR-DEM-2	Right results of operations are obtained during demonstrations.	Quality of results obtained during demonstrations directly influence users in either positive or negative way.	Fieldfact team: Common practices for software development and testing.	User receives correct results of performed operations.			Extended ISO model: Functionality, Accuracy
NFR	DEM	3	NFR-DEM-3	Demonstrators are interoperable with currently available GNSS (GPS and EGNOS).	Demonstrators shall be based on currently available GPS. At the same moment they should be able to receive the signal from EGNOS (demonstration of higher accuracy).	Fieldfact team, based upon GSA information: EGNOS will be operational, Galileo will not be in the air at the time of demonstration events.	Demonstration of a fully operational system, showing the advantages of EGNOS.			Extended ISO model: Functionality, Interoperability
NFR	DEM	4	NFR-DEM-4	Demonstrators are interoperable with related external systems.	Data exchange and data integration with external systems (according to functional requirements) can demonstrate how obtained results can be shared with other users.	DEL-1.3, p.14: Increased data exchange expected by stakeholders; DEL-1.3, p.12-13,17: Data integration and interoperability identified as a key issue; stakeholders suggest to address those issues.	The user can see that local positioning adds value and can be integrated with his own processes and information sources.			Extended ISO model: Functionality, Interoperability
NFR	DEM	5	NFR-DEM-5	Demonstrators comply with relevant technical standards for data representation and exchange.	Demonstrators should adhere to relevant technical standards, in particular standard web protocols, formats for data representation (e.g. XML, GPX), formats for spatial data exchange (e.g. GML), standards for data exchange (e.g. SOAP, WMS, WFS).	DEL-1.3, p.14: Increased data exchange expected by stakeholders; FieldFact team: Considering recent developments in the common views of IT architecture and the clear trends in agriculture to follow these directions.	The user can learn about the advantages of using standards for connectivity and integration with other applications and data sources.			Extended ISO model: Functionality, Compliance
NFR	DEM	6	NFR-DEM-6	Demonstrators prevent an unauthorized access.	It should be demonstrated that data is personalized which makes securing data based on e.g. user ID possible. This feature could help users to clear up their doubts concerning security of their data and privacy issues.	Common practice in handling privacy sensitive and/or valuable personal information; Various national and European privacy protection laws; DEL-2.2, p.27: privacy concerns are considered one of the inhibitioning factors in precision agriculture adoption.	User can see and understand that gathered information is coupled to his profile and his data can be secured from access by others and his privacy can be assured.			Extended ISO model: Functionality, Security
NFR	DEM	7	NFR-DEM-7	Demonstrators are able to show not only final (calculated or processed) results but also initial measured values.	The origin of processed data should be traceable to the collector/ owner of the data (e.g. user and/or farm). This applies also to aggregated information. This feature shows that the whole system is transparent (not a "black box" approach).	FieldFact team	Traceable origin of processed data.			Extended ISO model: Functionality, Traceability
NFR	DEM	8	NFR-DEM-8	Demonstrators are able to be used in demonstrations lasting from several hours to one day. A maximum of one fault per day is acceptable.	It is expected that the demonstration event will take almost the whole day. Demonstrator should be able to be used continuously without faults. Non-performance could influence the credibility of demonstration in a negative way.	Fieldfact team: Derived from experience with the organization of similar demonstration events.	Reliable performance without faults.			Extended ISO model: Reliability, Maturity
NFR	DEM	9	NFR-DEM-9	Faults does not result in data loss.	Already obtained and processed data should not be lost in case of fault. Non-performance could influence the credibility of demonstration in a negative way.	Fieldfact team	No data loss in case of fault.			Extended ISO model: Reliability, Fault tolerance
NFR	DEM	10	NFR-DEM-10	Demonstrators are able to continue in limited performance in case of fault; restart is easy and always possible.	It should be always possible to safely end the session and easily restart the demonstrator in case of fault. Non-performance could influence the credibility of demonstration in a negative way.	FieldFact team	Limited performance in case of fault; easy and always possible restart.			Extended ISO model: Reliability, Fault tolerance
NFR	DEM	11	NFR-DEM-11	If the system fails, it can be on-line and back in working order within 5 minutes. The end-user operated part of the system is easily resetable or restartable (by the end-user) to operational mode if faults occur.	The recovery of the system should be fast enough. Non-performance could influence the credibility of demonstration in a negative way.	FieldFact team	Fast recovery of the system.			Extended ISO model: Reliability, Recoverability
NFR	DEM	12	NFR-DEM-12	During demonstrations the availability measured as mean time between failures / (mean time between failure + mean time to repair) is at least 99%.	It is expected that the demonstration event will take almost the whole day. Demonstrator should be able to be used continuously without any faults. Non-performance could influence the credibility of demonstration in a negative way.	FieldFact team	Continuous operation without faults and breaks.			Extended ISO model: Reliability, Availability
NFR	DEM	13	NFR-DEM-13	Demonstration of the end user part of the system can continue if problems occur in the coupling with server system (e.g. failing internet connection, no GPRS signal available).	Failures in demonstrator infrastructure components should preferably not lead to a degraded performance of the demonstrator. These failures should affect the user experience and understanding as little as possible. End results will be explained using an example result.	FieldFact team	User will be able to complete the demonstration and get a representative user experience and good understanding of the advantages of the use of Galileo in the demonstrated application.			Extended ISO model: Availability, Degradability

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NFR	DEM	14	NFR-DEM-14	The understandabilty of the demonstrator (in particular instructions, menus, icons, map window, etc.) is rated high by the majority of users.	Demonstrator should be easily understandable by the users because there will be only limited time for explanation and training during demonstration events. Understandability directly influences the interest and enthusiasm of particiapants.	Fieldfact team: Common standards on software process and user interface design.	User will be supported in understanding the application and the process by comonly used user interface concepts and logical application flow adapted to the process.			Extended ISO model: Usability, Understandability
NFR	LED	15	NFR-LED-15	It is possible to explain how to use the demonstrator within a maximum of 15 minutes. The user is than able to perform one selected demonstration application (e.g. measurement of parcel area and perimeter) without additional support.	Demonstration functions should be very easy to learn by the users because there will be only limited time for explanation/ training during demonstration events. The demonstrator should use user interface concepts, icons and terminology that is generally accepted and aimed at the targeted user group (farmers).	Fieldfact team: Derived from experience with the setup and organization of similar demonstration events.	Unexperienced users can understand and operate the application with very limited instruction.			Extended ISO model: Usability, Learnability
NFR	HED	16	NFR-HED-16	It is possible to explain how to use the demonstrator within a maximum of 30 minutes. The user is then able to perform one selected demonstration application with a trainer assistance.	Demonstration functions should be very easy to learn by the users because there will be only limited time for explanation/ training during demonstration events. The demonstrator should use user interface concepts, icons and terminology that is generally accepted and aimed at the targeted user group (farmers).	Fieldfact team: Derived from experience with the setup and organization of similar demonstration events.	Unexperienced users can understand and operate the application with very limited instruction.			Extended ISO model: Usability, Learnability
NFR	DEM	17	NFR-DEM-17	Majority of users consider that little or no appeal is made to their previous technical knowledge during operation.	Demonstrators should present their functionality to users without hindrance because there will be only limited time for explanation/ training during demonstration events. The demonstrator should use user interface concepts, icons and terminology that is generally accepted and aimed at the targeted user group (farmers).	Fieldfact team: Majority of users (demonstration visitors) is not expected to have extensive technical and IT related experience.	User does not need extensive experience in IT and strong technical background to understand and operate the application.			Extended ISO model: Usability, Operability
NFR	DEM	18	NFR-DEM-18	Demonstrators display the progress and status of the availability and accuracy of the signal and the progress of calculations and communications.	The user should be always well informed about the current status and progress of the application. Ambiguous state of the process will leave users insecure and might have a negative impact on the user experience. Demonstrator should display progress and status in an clear way - e.g. by using graphic status indicators and/or progress bars.	Fieldfact team: based on common ideas on user interface design.	The user receives clear information about the progress and status of the application at all times.			Extended ISO model: Usability, Explicitness
NFR	DEM	19	NFR-DEM-19	Demonstrators will not be customizable by the end-users.	There is no functional requirement for customizability of the demonstrators. Besides, the limited time available for individual demonstrations does not allow users to 'play' with customization.	FieldFact team	User is not distracted from the core functionality by (in this case non-relevant) customization options			Extended ISO model: Usability, Customisability
NFR	DEM	20	NFR-DEM-20	The majority of users evaluate the demonstrators (and the demonstration offered) as attractive and appealing to them.	Behaviour and presentation must be appealing to users and leave them enthusiastic to work with the application and to tell others about their experiences; feedback information must be provided that allows users and spectators to review and re-think about their actions and the significance of it for their business.	FieldFact team	The application will be interesting and appealing to work with for users.			Extended ISO model: Usability, Attractivity
NFR	DEM	21	NFR-DEM-21	Demonstrators are available in the users native language, the user group's common technical terms are used, available functions are easily distinguishable.	The demonstrator should be designed for the targeted user groups: - be in the users native language; - use the user group's common technical terms; - allow easily distinguish between available functions.	FieldFact team	Clear and understandable system.			Extended ISO model: Usability, Clarity
NFR	DEM	22	NFR-DEM-22	End user parts of demonstrators are equipped with a concise and straightforward help function which is always available and context sensitive.	The end user part of the demonstrator should be equipped with a concise and straightforward help function. This help function should be always available and context sensitive. The limitations of targeted device (e.g. smart phone, PDA) should be taken into account.	FieldFact team	Always available and context sensitive help function.			Extended ISO model: Usability, Helpfulness
NFR	DEM	23	NFR-DEM-23	User-friendliness of demonstrators is rated high by the majority of users on topics as: screen composition, vocabulary, application of colour and sound.	Demonstrators should be user friendly because there will be only limited time for explanation/ training during demonstration events. The demonstrator should use user interface concepts, icons and terminology that is generally accepted and aimed at the targeted user group (farmers).	FieldFact team	User friendly system.			Extended ISO model: Usability, User-friendliness

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NFR	DEM	24	NFR-DEM-24	The maximum time needed to collect, process and aggregate data during one demonstration is within 0.5 hour	The demonstration should be repeated several times during one event. Thus only limited time will be available in order to allow interested users to participate.	FieldFact team	Repeated demonstrations - interested users will be able to participate.			Extended ISO model: Efficiency, Time Behaviour
NFR	DEM	25	NFR-DEM-25	The maximum time needed to transmit data from end user part to the server or vice versa is 30 seconds.	User will not be willing to wait for a long time on data transmissions during demonstrations.	FieldFact team	User can continue demonstration process without having to wait too long.			Extended ISO model: Efficiency, Time Behaviour
NFR	DEM	26	NFR-DEM-26	The maximum time needed to process and aggregate collected data is 5 minutes.	Demonstrations will have an evaluation part after collection of the data. In this evaluation it must be possible to view processed and aggregated data and to compare datasets from various sources.	FieldFact team	Immediate processing and evaluation of collected data allows to present application results to users directly after demonstration.			Extended ISO model: Efficiency, Time Behaviour
NFR	LED	27	NFR-LED-27	Local resources needed in the field and for integration/ viewing: standard PDA or smartphone with GPS and EGNOS and standard office computer or laptop with permanent internet connection.	Technical resources needed for collection data in the field and for integration/ viewing should be sufficient enough to ensure required behaviour, on the other hand they should be standard devices/ services commercially available.	FieldFact team	Demonstrator uses commercially available resources.			Extended ISO model: Efficiency, Resource Behaviour
NFR	DEM	28	NFR-DEM-28	Demonstrators are able to be used in demonstrations lasting from several hours to one day. Power supply of mobile equipment should suffice or devices should be quickly rechargable.	It is expected that the demonstration event will take almost the whole day. Demonstrator should be able to be used continuously without loss of power. Non-performance could influence the credibility of demonstration in a negative way.	Fieldfact team: Derived from experience with the organization of similar demonstration events.	Reliable, continuous performance without loss of power.			Extended ISO model: Efficiency, Resource Behaviour
NFR	DEM	29	NFR-DEM-29	Maintainability of the demonstrator software will not be a major issue when developing the demonstrators. Common practices for software engineering will secure reasonal maintainability.	Since the demonstrators will not be in continuous operation, and the software will neither be distributed to a large group of users as standard software, specific standards concerning the maintainability of the demonstrator software will not be developed. The quality attributes concerning maintainability will therefore not be taken into account during the analysis.	FieldFact team	Not relevant for the demonstrator end user.			Extended ISO model: Maintainability, All attributes
NFR	DEM	30	NFR-DEM-30	Demonstrators are easily adaptable to different environments (e.g. different spatial data sets or formats of subsidy applications)	It should be easy to adapt the demonstrators to the specific local environment (adaptability to specific national/ local data sets, co-ordinate systems, formats of subsidy applications etc.)	FieldFact team	Demonstration adapted to local conditions.			Extended ISO model: Portability, Adaptability
NFR	DEM	31	NFR-DEM-31	FieldFact demonstration configuration can be installed and configured within one working day.	There will be only limited time for installation and configuration of FieldFact demonstrators before the start of each demonstration event. It should be possible to finalize all necessary preparations within one day.	Fieldfact team: Derived from experience with the setup and organization of similar demonstration events.	Timely installed and configured system at demonstrations.			Extended ISO model: Portability, Installability
NFR	DEM	32	NFR-DEM-32	No extra measures will be taken in order to comply to the conformance of the demonstrator aplications.	According to available knowledge on the Extended ISO model, the fulfilment of conformance is difficult to measure. The conformance attribute is adequately covered by the attributes Functionality, Interoperability and Compliance.	FieldFact team	Not relevant for the demonstrator end user.			Extended ISO model: Portability, Conformance
NFR	DEM	33	NFR-DEM-33	Replaceability will not be an issue in the development of the demonstrator software.	It is not intended to replace any existing software with the demonstrator software.	FieldFact team	Not relevant for the demonstrator end user.			Extended ISO model: Portability, Replaceability

RECOMMENDATIONS

REQ_TYPE	REQ_AREA	REQ_NR	UID	DESCRIPTION	RATIONALE	ORIGIN	USER_VALUE	PRIORITY	HISTORY	NOTE
REC	PRO	1	REC-PRO-1	Clearly explain Galileo added value (better accuracy, availability and reliability) and remind the link to demonstrators (higher accuracy while using EGNOS, simulation of Galileo integrity message).	Dissemination and promotion of the EGNOS/ Galileo benefits and added-values is the key project objective. The information can be shared with the participants in the form of presentation, poster, leaflet or round table. The functionality of demonstrators will include some Galileo features (EGNOS corrections, simulation of Galileo integrity message) that should be highlighted.	SoW, p. 5, OBJ-4: Dissemination and promotion of the EGNOS/ Galileo benefits and added-values is one of the key project objectives.	Information about Galileo added value.	1		
REC	PRO	2	REC-PRO-2	Present and discuss several examples of successful implementation of GNSS in the regional/ national context.	Participants can be encouraged by the presentation of examples of successful implementation of GNSS in the region where the event takes place. The way how to overcome existing constraints and barriers should be discussed.	DEL-1.3, p.12: Stakeholders suggest to show good results and publish success stories.	Motivative examples of successful implementastion.	2		
REC	PRO	3	REC-PRO-3	During the presentation of demonstrators provide users information about expected price of such kind of solution and availability (and eventually cost) of spatial data.	Presentation of demonstrators should be accompanied with information about availability and cost of such kind of solution including spatial data. Interested participants can obtain additional information related to practical implementation on the farm.	DEL-1.3, p.11-13,17: Cost is perceived by stakeholders as the main constaint; data integration and interoperability identified as a key issue; stakeholders suggest to address those issues.	Complex information related to practical implementation on the farm.	1		
REC	PRO	4	REC-PRO-4	Explain and demonstrate the integration of measured values with farm management systems and data exchange with the “outside world”, e.g. government or the production/ distribution chain.	Both demonstrators (see FRQ-LED-7, FRQ-HED-18 and FRQ-LED-19) will show how measured values can be integrated with FMS and exchanged with government or production/ distribution chain. This demonstration should be completed by the discussion about practical aspects related to the data integration and exchange in the regional/ national context.	DEL- 1.3, p.12,13,17: Data integration and interoperability identified as a key issue; stakeholders suggest to address those issues.	Better orientation in the area of data exchange.	3		
REC	PRO	5	REC-PRO-5	Explain the fourth identified “environmental driver” and demonstrate the way how the GNSS/GIS applications can help with regard to cross-compliance requirements in the area of environment and soil protection.	The high-end demonstrator (see FRQ-HED-16 and 17) will show an example related to the cross-compliance requirement in the area of environment and soil protection. The demonstration should be completed by the presentation and discussion focused on the use of GNSS/GIS applications in this area.	DEL-1.3, p.6-8: Cross-compliance requirements in the area of environment and soil protection introduced in the EU legislation; DEL-1.3, p.16: Environmental driver identified by the stakeholders	Better understanding how the GNSS/GIS applications can help with regard to cross-compliance requirements in the area of environment and soil protection.	2		

REQ_TYPE	REQ_AREA	REQ_NR	UID	DESCRIPTION	RATIONALE	ORIGIN	USER_VALUE	PRIORITY	HISTORY	NOTE
REC	PRO	6	REC-PRO-6	Include round table with interested stakeholders in order to discuss issues like current state of GNSS use in agriculture, barriers and opportunities, motives for adoption, policy and regulatory framework.	The round table can be a good opportunity for getting valuable feed-back from stakeholders. Obtained information can complete the available information about motives, expectations and constraints already collected in the frame of WP1 and WP2.	FieldFact team: based on positive experience from stakeholder consultations	Direct involvement in the discussion on Galileo use in agriculture.	3		
REC	PRO	7	REC-PRO-7	Prepare a simple questionnaire covering selected NFRs, ask the users to fill in and evaluate obtained results.	Some of the NFRs quality indicators (e.g. 14, 17, 20 or 23) require assessment made by the users. Filling in a simple questionnaire after performed demonstration can bring an important feed-back from users. Assessment can be made after processing and evaluation of obtained results.	FieldFact team: We have set quality requirements, but these need to be verified by the stakeholders. Questionnaire is a structured and uniform way of measuring the fullfillment of these quality aspects.	Direct involvement in the evaluation of demonstrators.	1		
REC	PRO	8	REC-PRO-8	Establish a co-operation with interested farm (preferably research, model or university farm) and co-operate during the preparation and implementation of demonstration/ training events.	Co-operation with an interested partner could be very profitable for both parties - the farm could be a good place for demonstration and training activities; in addition the farm could provide necessary digital data.	Fieldfact team: Derived from experience with the setup and organization of similar demonstration events.	Demonstration/ training activity organized in the farm (focus mainly on farmers).	2		
REC	PRO	9	REC-PRO-9	Establish a co-operation with competent national/ regional administration and co-operate during the preparation and implementation of promotion/ training events.	Co-operation with competent national/ regional administration could help with regard to the provision of digital LPIS data, digital orthoimages and other data/ information related to the administration and control of agricultural subsidies in the national/ regional context (important mainly for the demonstration of LED).	Fieldfact team: Derived from experience with the setup and organization of similar demonstration events.	Up-to-date data/ information related to the administration and control of agricultural subsidies.	2		
REC	PRO	10	REC-PRO-10	During the preparation of demonstration/ training events take into account the structure of participants. Implement High-end demonstration in the area where intensive, larger scale farming prevails.	While presentation and training with a low-end demonstrator is likely to be interesting for most European farmers, the advantages of high-end demonstrators are likely to be more appreciated by truly commercial farmers.	Fieldfact team: Derived from experience with the setup and organization of similar demonstration events.	Demonstrations attracting the local participants (farmers).	1		