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# Executive Summary

## VLAS System & Perspective Applications for OIL and LPG services

Circular-12

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The following English-Russian word collocations

*Система "Влас"<sup>™</sup>, система ВЛАС - система виртуально-локальных аварийных служб; VLAS-system<sup>™</sup> - Virtual Location Alerting System; Сеть "Влас"<sup>™</sup> - сеть связи на базе системы ВЛАС; VLAS-NET<sup>™</sup> - Communications Network Based on the VLAS-system - are the trade marks of VLAS-FLC.COM, they are registered or being in the process of registration in major countries, where the VLAS-system may be used - являются товарными знаками компании "VLAS-FLC.COM", они зарегистрированы или находятся в процессе регистрации в основных странах, где может использоваться система "Влас"<sup>™</sup>.*

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## Executive Summary

**Business Background, History and Objectives.** VLAS-FLC.COM identified an opportunity in the satellite telecom market for the low-level radio signals processed in the one-way transmission system. Three basic services should deliver (a) an accurate location of high and low resolutions, (b) sensor data and (c) a Force Majeure signal from small, light Reporters installed on user's mobile, fixed and transportable platforms in any part of the globe.

We are in the business of high technology of innovative operations within practically inaccessible niches of the long time neglected outsiders of the telecom applications. It is our mission to open these potential market segments not so much in the volume of traffic, but in a great number of reporting transmitters, integrated GPS receivers, sensors and triggers. We aim to provide a growing family of services, based on combinations of our basic services; each tailored to meet specific needs and wishes of an individual customer.

Our objective is to become a profitable company in a very short time, to start using available space segment resource as quick as possible and rapidly explode the size of business from this launch pad. In two-three years time, we will have to see up to 2 million of VLAS Reporters and 500 VLAS Receiving Systems generating traffic within 30% of the currently available space segment capacity. The company will achieve this in close co-operation with the selected industrial partners, regional service operators, and national service providers.

The system seems to be unique for the expected traffic cost, size of reporters and customer receiving systems, reliability of report delivery and the service availability. The services are not threatened by competition due to their operations in the targeted niches, unattended by the currently available systems. Initially, the business development was supplied with my own finance and other personal resource. Recently, I changed the individual approach and decided to attract partners, investors, potential operators and service providers; however, I suspended the project for few months until I restore my financial health shared with the project by undertaking other income generating projects.

**System Design and Operations.** The VLAS-system employs digital processing techniques applied to low level radio signals under the special software control, which helps use the system resources in the most effective way. At the transmitting end, frequency shift keying (FSK) techniques essentially applied to manipulate the carrier with the binary sequence. This stream represents a multiple fixed length frame within the set cycle format. At the receiving end of the satellite link, the FSK signal should undergo the bit-by-bit quasi-optimum pre-detector filtering and bit-by-bit detection. Then the process of superposition of the bit-upon-bit energy should take place in the cells assigned to the digits of the frame. The process involves coherent multiple superposition of bits within the set cycle. The decision to proceed with the final handling of the Report should be made upon the set criteria of reliable reception of the signal. Slide № 1 demonstrates the theory applied to the frame of five-digit length. The conceived system should keep accurate registered data related to the report and its transmission particulars: date, time, frequency of activation, cycle, frames and fields' structure as well as the Unique Synchro-Word, In-system Identity and the Forward Error Correction applied.

A unique satellite system for Virtual Local Alarming Services is capable of delivering position reports, sensor data and Force-Majeure Codes from mobile, fixed and semi-fixed (transportable) platforms in real time either directly to the Operators Monitoring Centres or through terrestrial and other networks, including Internet. Future generations of the system will allow (a) to implement a Return Broadcasting Link to reload Contracted Programs directly at the individual Reporters, (b) to use a new satellite platform with L-to-L one-way transmission link, (c) to transfer the service on LEO, HEO and ICO satellites with different spectrum arrangements, (d) to become a part of my Mobinfo concept.

**Business Advantages.** The VLAS system, dedicated by design to very specific operational tasks, will be capable of (a) delivering the report three times quicker, compared with the currently available satellite services; (b) nearly excluding power consumption from a transponder due to the low level signal technology applied; (c) ensuring autonomous operations for up to three years with no battery replacement; (d) enjoying practically unlimited spectrum resource, possibly on the satellites in overlapping unused safeguard bands; (e) providing higher security, confidentiality, encryption. **If one takes that in two-way systems the Power\*Spectrum\*Time product = 1.00 Unit, then believe it or not, in VLAS system for the similar message processing the product = 0.0005 Unit**

**VLAS-Project.** To get the whole system off the ground I need injection of around \$1.0mln; **Lead Time** 6 - 9 months for developing an operational demo prototype-laboratory. At stage one, I have to obtain a mathematical model on PC to analyze effects of relationship between some essential system variables, like link budget, stability, time-frequency slots, quality control ingredients, frame fields size, the system s/w and standard modulus for forward error correction. At stage two, I have to obtain a prototype, which will be used for proving the results of mathematical model, developing customized service applications, demonstrating their performance in real time and environment. At stage three, debugging the customer-made system and production of their final set of h/w and s/w, and use of the prototype of back-up system operations.

**Deployment** of a dedicated system into pre-commercial stage of operations for two-three customers within currently available resource may take 12 – 15 months. Expected Return – first year of operations. Invested so far >\$600.000. **Investments to direct:** final stage of development and production of the prototype-laboratory for demonstration purposes; partly will cover earlier investments in system, patents and documentation development, spectrum resource availability. **Market:** Pessimistic projections for user base growth of up to 100.000 reporters at \$100 – \$150 a set retail price and ten receiving systems for dispatch centres, rescue centres and operators at \$100.000 – \$180.000 a set. **Advantages:** First on the market, no competition in certain marketing niches. Rapid growth of user base. **Risks:** Possible delays in capital return for 3 - 6 months should the results of field trials require significant changes and retesting.

**PATENTS AND DOCUMENTATION.** The commercially oriented concepts and innovative designs are protected by two Russian patents, which also may be considered for purchasing, together with available documentation and on-going concern.

**Patent No 2107996** for invention: Local Alarming Communications System. Registered by the Russian Federation State Registry for Inventions according to the RF Patent Law introduced 14.11.1992. The Patent is valid from 27.03.1998 on the territory of the Russian Federation for 20 years.

**Patent No 2145151** for invention: Satellite One Way Transmission System for Short Recurring Reports. Registered by the Russian Federation State Registry for Inventions according to the RF Patent Law introduced 14.11.1992. The Patent is valid from 10.06.2000 on the territory of the Russian Federation for 20 years.

**System Definition Manuals** for the System Prototype, Reporter and Service Applications. English and Russian versions partly revised 1998 – 2001. Technical Requirements for VLAS System and its h/w and s/w components. Reference Materials - development of individual modules. Reference materials - complimentary system development.

**Business Plans** for the System Launch, for the VLAS Service Providers, for VLAS system Operators etc, Russian and English versions, last revision 1997.

**Legal Documentation** (Master Agreements, Contracts with potentially interested parties. The system and national licensing, regulations and operational procedures.

**A large set of Slides-based Presentations** in MS Power Point, Word, PDF formats, and WEB-Site VLAS-FLC.COM: [http://www.vlas-flc.com/Business\\_on\\_Offer\\_ENG.htm](http://www.vlas-flc.com/Business_on_Offer_ENG.htm).

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## Possible VLAS applications for OIL and LPG services

### HOW IT MIGHT WORK.... with VLAS System

1. A reading device is fitted to your Oil tank gauge or LPG tank gauge. Using new technology it senses the level of fuel and passes this info to the small VLAS-reporter.
2. VLAS-reporter sends this information out by satellite link, right into your direct receiving system at your information gathering and control centre at a regular time interval, say once a week and/or at certain pre-set levels detected by the gauge in real time operations.
3. Now, for the first time, your Oil and Gas suppliers can check in seven seconds whether your fuel and gas level is running low, and then arrange a delivery with you to ensure that you never run out of Oil and Gas.

Further details by request.