CURRICULUM VITAE (RESUME)

Date: **July 18en, 2018**

PERSONAL DATA:

Name and surname: Liviu Mihai **CHIRCA**
Date of birth: July *07*, 1967
Place of birth: Ploiesti, Prahova county, ROMANIA
Main residence: Bucharest, ROMANIA
Citizenship: Romanian (EU)
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EDUCATION:

1) Diploma of ***Ph.D.*** in the field of ***Electronics and Telecommunication Engineering*** issued by the Politechnical University of Bucharest; Doctoral thesis "*Radiant Systems Synthesis with the help of the computer*" – (http://www.geocities.ws/chircal/documents/PhD_Diploma_face_LC.tif).
2) Diploma of ***Electrical Engineer*** issued by the Faculty of Electronics and Telecommunications**,** section *Radio-communications*. (1986-1991). (http://www.geocities.ws/chircal/documents/Faculty_Diploma_face_LC.tif)

SPECIALIZATIONS:

1) ***LICENCE no.1/1998*** for the activities of ***design, installation and sustenance of the telecommunication networks***, issued by the *Romanian Ministry of Communications* (under my name): http://www.geocities.ws/chircal/documents/Authorization_Design_Telecommunication_face_LC.tif.
2) ***Radiocommunication systems projects*** (National and International regulations in the field) according with the rules in force - ITU (more than 100 projects completed & approved by the authorities):
   - **RF planning/coverage/traffic** for many types of the mobile networks: FDMA/GSM/CDMA/WCDMA;
   - **Design**, **analyze** & **optimize** fixed & mobile networks including Microwave Links (RF Repeaters, Radiorelays, Trunking, Radiopaging, **TDMA/WCDMA/OFDMA** systems, VSAT networks – satellite).
3) ***Consulting in the field of telecommunications:*** purchasing, marketing and installing telecommunications equipments + charges related to these according with the rules in force in ROMANIA (usefully related links: Ministry of Communications, General Inspectorate of Communications);
4) "***Usage of Personal Computers in local networks***", course graduated at National Informatics and Research Institute in 1992 - http://www.geocities.ws/chircal/documents/Certificate_work_PC_in_Networks_LC.tif
5) ***Proficiency/knowledge/experience in a lot of software tools like:***

✓ **(RF) Wireless Network Planning software tools:**
- **Planet**, made by *MSI* -> acquired by Mentum: http://www.mentum.com
  (please see my Planet's CDMA evaluation report: http://www.geocities.ws/chircal/Planet_evaluation.pdf)
- **Enterprise Suite / ASSET**, made by *Aircom* – http://www.aircom.co.uk/
- **iPlanner (ATOLL)**, made by *Forsk* - http://www.forsk.com/
- **Wizard** (**E6482A**), made by *Agilent -> Optimi* - http://www.optimi.com/
- **TEMS LinkPlanner**, made by *Ericsson* – http://www.ericsson.com)
- **TAP**, (Terrain Analysis Package – made by *SoftWright* LLC - USA – http://www.softwright.com/)
- **AirPro** (**CE4**), made by *Lucent Technologies*
- **Odyssey** - Wireless Network Planning and Design Tool

✓ **GIS software tools:**
- **MapInfo**, - made by *MapInfo* - http://www.mapinfo.com/
  A very powerful GIS data software tool.

- ✓ **Data Recording/Analyzing/PostProcessing/Optimizing/Performance software tools:**
  - **XCAL**, **XCAP**, made by *Couei* -> acquired by *Accuver* – http://www.accuver.com/
  - **TEMS Investigation**, made by *Ericsson* – http://www.ericsson.com/
  - **Actix Analyzer,** made by *ACTIX* - http://www.actix.com/
  - **CAIT**, – made by *Qualcomm* – http://www.qualcomm.com/
  - **Agileto**, made by *Agileto* - http://www.agileto.com/
  - **RFO** & **BORIS** – made by *Nortel Networks (Alcatel-Lucent) – (WCDMA RF Post-Processing tools)*
  - **W-NMS -** made by *Nortel (Alcatel-Lucent) – (network monitoring and management system tool)*
  - **LDAT** – made by *Alcatel-Lucent– (cdma2000 / WCDMA RF Post-Processing tool)*
  - **eDAT** – made by *Alcatel-Lucent – (the new multi technology/vendor Post-Processing tool)*
  - **NIMS-PrOptima** - made by Mycom International – *(Postprocessing & Performance tool)*
  - **NPO** – made by *Alcatel-Lucent – (ALU Monitoring / Performance tool)*
- ✓ **Manage/Record Wireless database tools:**
  - **CellTracker**, – made by *CellTracker – UK* – http://www.celltracker.co.uk/
    A professional database tool especial designed for Mobile Telecommunication Network Operators.
  - **FileMaker Pro** – Software tool designed for the maintenance & tracking of the database related to the 2G & 3G database Sites/Cells/BSC/RNC from the Mobile Network, 2G&3G swap projects, etc.
  - **Omnix (Evenflow)** – Software tool for tracking the Sites/Cells Mobile Network database
  - **Vantive, Amdocs**, **Clarify** – Recording & Tracking tools for different kind of cases especially related to mobile networks (Orders, Customer complains, etc)
  - **Magnet IPD** (**OMC**), - Tools for checking/implementing changes into the mobile network.
- ✓ **Work with different PC platforms, networks and program environments:**
  - ***Programming in*:**
    - ⇒ **Visual Basic**, - including VBA (macros/scripts under different MSOffice files);
    - ⇒ **MathCAD**, - evaluate RF coverage areas for BTSs, reliability of MW – VHF, UHF links, etc,
    - ⇒ **CellTracker**, - customize windows/reports according with RF/MW Department objectives,
  - ***PC networks***: Windows (98, NT, 2000, XP, Vista, 7, 10), Unix, Novell, Internet;
  - ***Text & Database processing***: MSOffice (MSWord, MSExcel, MSAccess, MSPPoint, etc);

ACTUAL OCUPATION:

RF Planning, Optimization, Performance & Management activity on the 2G/3G/4G networks.

JOB/WORK EXPERIENCE:

(More than **25 years experience** in the field of ***telecommunication – radio-communication - systems***)

Please see below a synthesis of my work experience (including links to references):

- **Agileto (2014 Jan –> Present) – RF Benchmark, Audit & Optimization** (**http://www.agileto.com/**)
- **Alcatel-Lucent (2007 April –> 2013 Dec) – Ref: Vincent MERLIN** (**vincent.merlin@nokia.com**)
  - **Orange** [*France*] **(2012 Oct –> 2013 Dec)**
    a) 4G Radio Optimization on LTE 2600MHz with a BW = 20MHz
    b) 3G/2G Swap [NSN/Nortel/Motorola => Alcatel-Lucent]
  - **Monaco Telecom** [*Monaco*] **(2012 Jan –> 2012 Sep)**
    [Alcatel-Lucent 3G (UA 7.1.3) general optimization + upgrade to the 3rd carrier];
  - **Orange** & **SFR** [*France*] **(2009 Sep –> 2011 Dec)**
    [Alcatel-Lucent 3G optimization + many features evaluation on Orange & SFR mobile networks];
  - **Vodacom** [*South Africa*] **(2008 Aug –> 2009 August)**
    [3G Swap: Siemens => Alcatel-Lucent];
  - **Orange** [*France* / *Slovakia*] **(2007 June –> 2008 July)**
    [3G Swap: former 3G Alcatel => Alcatel-Lucent (former 3G Nortel)];
  - **Go Mobile** [*Malta*] **(2007 Apr –> 2007 May)**
    [Alcatel-Lucent 3G deployment / optimization];
- **Vodafone UK (2006 July –> 2006 Dec) – Aircom International (Nortel)** & **Ericsson**
- **O2 UK (2006 Jan –> 2006 Jun) – [WFI subcontracting] Ref: Isaac Omotayo (Isaac.Omotayo@wfinet.com)**
- **NORTEL Networks (2004 July –> 2005 Nov) –** (**Orange 3G**: **Israel** (*Partner*) / **Poland** / **Slovakia**)
- **TELEMOBIL (2001 Nov –> 2004 June) - http://www.geocities.ws/chircal/documents/Telemobil_cert.tif**
- **INTRAROM (2000 Jan -> 2001 Oct) - http://www.geocities.ws/chircal/documents/Intrarom_rec.tif**
- **RADCOM (1994 May –> 1999 Dec) - http://www.geocities.ws/chircal/documents/Radcom_rec.tif**

2014 January -> Present) **Agileto (http://www.agileto.com/)**

Company Profile: –> **Agileto is a telecom company which provides Agileto PRO Edition software tool and associated 2G/3G/4G Benchmark, Audit & Optimization services.**

My title

2G/3G/4G Technical Manager

My role

Lead Agileto PRO Edition software tool development on the following directions:
https://youtu.be/om2WP3wnFpU

- Support all type of the mobile networks generations 2G/3G/4G;
- Continuous support to parse the dump/snapshot files from all the main vendors (Nokia, Ericsson, Huawei, Alcatel-Lucent, ZTE);
- Support RF audit and mobile network optimization activities by both methods drive test & call trace;
- Support to parse drive test log files collected by the main (TEMS, NEMO) acquisition tools;
- Develop the best neighboring relationship IntraTechnology (IntraFrequency & Interfrequency) and InterTechnology based only on the geographically Cells's positions and azimuths.
- Imagine new algorithms & techniques which automatize many activities like:
  - Output reports & maps in MapInfo & Google Earth (Sites & Cells + Neighbors + Drive Test + KPIs)
  - OMC Audit & Sanity check verifications
  - Inconsistency Cells parameters declarations
  - Lack of coverage & quality areas
  - Pollution areas
  - Overshooters cells
  - Cell Coverage areas (Top1 / ASet / Full)
  - Missing neighbors (to be added)
  - Non useful neighbors (to be deleted)
  - Cross sectors / feeders
  - Planning errors for 2G(BCCH) / 3G(PSC) / 4G(PCI)
  - 'Border cells' list (auto-detection for the optimization purposes)

Produce multiple series of RF training movies on different topics (available online);
https://www.youtube.com/playlist?list=PL6VEOXBhw1-D2ZMQxfQl-R8E_SqqXXvxP

Develop and Implement free of trial POC (Prof of Concept) for all the new clients interested to asses our mobile RF Audit and Optimization services.
http://www.agileto.com/optimization.html

2012 September -> **2013** December) **Alcatel-Lucent (Orange France projects)**

Projects:

Radio Optimization on 4G/LTE 2600MHz with a BW = 20MHz

- Post-processing the associated LTE drive tests files for different scenarios and optimize the output final results (developments by using the spatial binning instead of the temporal binning) in order to qualify the radio aspects presented below:
  - Pilot Pollution impact on the Throughput and/or associated BLER;
  - Investigations/Correlations between the Throughput and the difference [dB] between the serving cell and the first reported neighbor (RSRP);
- Parameters changes proposition in order to reduce the pilot pollution in order to extend/increase the area with 1 server;
- Planning and Protocol of Measurement Management for the Drive Test purpose;
- Support for the generation of the Report Redaction and customer presentation;

Acceptance team leader for the 3G/2G Orange swap project (NSN/Nortel/Motorola => ALU)

- Prepare and improve the acceptance swap reference documents in correlation with Orange acceptance team;

- Coordinate AFD (the acceptance drive test company) and check the correctness of the drive tests results provided;
- Post-process the acceptance drive tests log files and prepare the Acceptance swap reports Before and After the swap;
- Organize and lead the internal (ALU) acceptance meetings by involving the ALU optimization and monitoring teams in order to generate and provide a final coherent report to the client (ORF);
- Investigate the KPIs NOK and propose solutions/corrective optimization actions independent and/or in correlation with ALU optimization teams;
- Lead the official (ALU-ORF) acceptance meetings by providing the acceptance investigations reports and explanations to the client (Orange);
- Ensure the smooth transition of the zones acceptance from ALU to ORF in a good timeframe;

2009 September -> **2012** September) **Alcatel-Lucent (France & Monaco 3G Optim** projects**)**

Company Profile: –> **Alcatel-Lucent is an internationally player / leader in telecommunication.**

My title

3G/2G Optimization Expert Engineer

Projects:

Monaco Telecom mobile operator (Principality of Monaco) (2012 January -> Present):

- Act as the Key Customer Contact within ALU technical team;
- Leading the regular technical meetings and provide the necessary support to the customer;
- Audit & alignment of their 3G mobile network parameters;
- Define and propose the best strategy for the conversion of their bi-frequency 3G network from F1=R99/F2=HSXPA to F1=R99+HSXPA/F2=HSXPA; supervise the practical implementation;
- Propose the strategy and related parameterization (involving the interaction between different algorithms involving the traffic distribution between frequency layers) for the introduction of the 3rd carrier on their 3G networkF1=R99+HSXPA/F2=HSXPA/F3=HSXPA;
- Design, optimization and supervision in live of their mobile 3G network during the "Grand Prix Formula 1" event, involving the introduction of the 4th (3G) carrier for one central mobile BTS;
- General 3G/2G optimization activities performed on their mobile networks in order to improve overall their KPIs performance (eg: accessibility/retainability/traffic/throughput/etc).

Orange & SFR mobile operators (France) (2009 September -> 2011 December):

- Optimisation/Evaluation new features & KPIs available (UA7.X) like:
  - Coexisting & interaction between UMTS in 2GHz & 900MHz frequency bands;
  - PA Power pooling,
  - RRC Reestablishment (CS & PS);
  - Cell_FACH, Cell_PCH, URA_PCH;
  - [3G] UMTS 3 carriers deployment, configuration/design/evaluation/optimisation;
  - HSXPA maximum throughput evaluations & investigations for different UEs categories;
  - Evaluate, Investigate & Optimize the Voice Quality (MOS) over the 3G networks;
  - Deployment, Investigation, Optimisation Reccomendation & Troubleshooting in UMTS covering/service for the TGV (**T**rain **G**rand **V**itesse / High Speed Train) railways;
  - etc...

2008 August -> **2009** August) **Alcatel-Lucent** & **Vodacom (South Africa 3G Swap** project**)**

Company Profiles: –> **Alcatel-Lucent and Vodacom are two internationally leaders telecommunication companies (Vodacom provides total communications services to Africa)**

My title

3G RF Optimization Team Leader (**3G Swap** on **WCDMA** network) –> **QoS Department**

Role of my team

⇒ **3G Optimization on Vodacom 3G swap project** for west part of South Africa [3G swap project: Siemens => Alcatel-Lucent]; optimize the new 3G Alcatel-Lucent network after the swap in order to ensure that the main KPIs performances are better or at least the same after the 3G swap process.

My role

Management / Coordination:

- **Coordinate**, **supervise** and **guide** all **RF Optimization team** (6+1 Engineers **Alcatel-Lucent** [ALU]) in charge with all the optimization requirements related to the 3G swap project for the west part of South Africa belonging to Vodacom's 3G network;
- **Coordinate and lead all the drive tests activities** (ATIO) for all phases of the 3G swap project (**Site Verifications** [SV] + **Cluster Optimizations** [CO] + **Pre-Acceptance** [PA] **+ Acceptance**);
- **Generate and maintain updated** all the **documents** and **procedures** related to 3G optimization activities (regarding types & timeframes) as well as all types of the drive test scenarios to be performed for each type of optimization phase;
- **Lead** ALU **weekly optimization meetings** (involving all RF Optimization engineers, drive-test coordinator, QoS manager, Monitoring, Acceptance) in order to continue and adjust properly the smooth evolution of the project into the right timeframe;
- **Keep updated ALU management** on weekly basis regarding the currently & forecast status of the optimization activities;
- **Participate regularly to weekly QoS / Technically / Acceptance meetings** with the customer and support ALU toward the customer on different topics under discussion;
- **Initiate QoS internally and externally (Eng/OMC) meetings** in order to debate different design/optimization/parameterization technically topics;

Technically contribution / development:

- Provide **RFOptimisationTool** (tool developed under VBA) customized properly in order to make easy and efficiently the entire specifically work for all RF Optimization/Monitoring engineers:
  - Reading directly 3G snapshot files [*.xml, *.xcm] and export in MSExcel files different most usefully RF information/parameters (3G-3G, 3G-2G neighbors, RNC Name/ID, NodeB name, FDDCell Name/CellID/PSC, etc);
  - Generate 3G->3G & 3G->2G neighbors proposals based on the scanner measurements & CTN traces log files (recorded by RNC);
  - Generate MapInfo representation of the 3G & 2G network;
  - Evaluate/Generate visually in MapInfo the 3G->3G & 3G->2G neighbors;
  - Generate automatically the WOs for the neighbors to be updated into the network based on the visually actions performed directly visually in MapInfo (additions/deletions);
  - Evaluate automatically the 3G "border cells" based on the geographically position of each FDDcell, its azimuth and antennas beam-width;
  - Audit / Sanity Check performed on the 3G network providing:
    - Total number of 3G->3G & 3G->2G neighbors/reciprocity status/ per each frequency and in total; signalizing different limitations (sib11andDch, etc);
    - Closest 3G cell (cell_ID/distance) having the same PSC for each 3G FDDCell;
    - Etc;
- **Develop** and maintain secured **databases** (VBA macros under Excel) in order to track all the main activities related to the 3G swap project (AB + SV + CO + PA + AA) with **automatically KPIs calculation** features;
- Support the investigations / corrections necessary to be performed whenever they are reported by the customer directly or as user complains;
- Propose the **new design/configuration/parameterization** versions to be tested and applied for the special isolated **3 carriers NodeBs** (finally tested and agreed by the customer);
- Analyze and correct/optimize the initially strategy regarding the reselection for the generally deployed 2 carriers nodeBs as well as all the parameterization related to the new features regarding iMCTA CAC / Service / Alarm mechanisms;
- **Support the monitoring department** in special investigations related to specific KPIs degradation and provide solutions to overcome the issues reported;
- **Provide generally end to end support and solutions for fundamentally optimization activities;**

2008 March -> **2008** July) **Alcatel-Lucent** & **Orange FR & SK (UA 5.1.1 KPIs performance)**

Company Profiles: –> **Orange France & Slovakia are two mobile operators cellular providers, leaders on national markets providing 2G & 3G mobile services solutions.**

My title

3G End to End KPIs performance & evaluation engineer
(**WCDMA**, Alcatel-Lucent 3G WNMS UA 5.1.1 KPIs performance on **UMTS** network)

Role of my team

⇒ To evaluate & prove the new Alcatel-Lucent KPIs commitments toward Orange mobile operator based on the new 3G Alcatel-Lucent WCDMA release UA 5.1.1. The drive tests / results have been performed in two Orange 3G networks: **France** (*Lyon* & *Paris*) & **Slovakia** (*Banska Bistrica*);

My role

- Follow-up, prepare and perform (end to end) the entire set of KPIs drive tests in order to prove the KPIs performance / commitments regarding the new Alcatel-Lucent 3G release UA 5.1.1;
- Organize, prepare, set-up and perform accordingly the 3G RNC/NodeB/FDDCell parameterization + mobile XCAL/XCAP tools settings for different KPIs scenarios purposes;
- Investigate the mobile drive test logfiles together with those related to different interfaces (Uu, Iu, CTg, etc) in order to find the root cause in case of test failures and propose new better solutions;
- Post-process the drive-tests logfiles performed, calculate the specific KPIs and provide the right explanations/feedback to the customers on different topic as per their specific request;
- Participate regularly to ALU internally conference calls meetings and with the customer too, in order to provide the actual status & evolution of the project; explain different technically topics on a case by case as per requested by the customer;

Special achievement

- Finishing (summer 2008) the UA 5.1.1 KPIs performance/evaluation project in both locations (France & Slovakia) accomplishing all the committed Alcatel-Lucent KPIs toward Orange group.

2007 April -> **2008** February) **Alcatel-Lucent** & **Orange FR** (France **3G - UMTS Swap** project)

Company Profiles: –> **Alcatel-Lucent and Orange are two famous & representative companies in France being the main players into the telecommunications business world from this area.**

My title

3G RF Optimization Team Leader (**WCDMA**, **3G Swap** on **UMTS** project/network)

Role of my team

⇒ **2007 April -> May**: Optimization on the new 3G network (Go Mobile) developed in Malta;

⇒ **2007 June -> 2008 February**: 3G Optimization on Orange France 3G swap project (west part of France) with the new 3G equipments provided by Alcatel-Lucent (former Nortel 3G division); ensure that the main KPIs performances are better or the same after the 3G swap process.

My role

Management / Coordination:

- **Coordinate**, **supervise** and **guide** the **RF Optimization team** (**Alcatel-Lucent** [AL-LU]) in charge with the 3G swap project for the west part of France related to the Orange's 3G network;
- **Coordinate the drive tests teams** to proceed with specific kind of the drive test calls protocols in order to provide the right input data for the Optimization teams (**Site Verifications** + **Cluster Optimizations** + **Pre-Acceptance**);
- Organize, prepare and lead the **weekly optimization meeting** (AL-LU) related to the **3G swap evolution** project and decide/update the new strategy and forecasted activity for the week ongoing;
- Maintain & provide new proposals for all locally 3G (swap) **work procedures** to be in line with the similar from all the other 3G swap areas, as well as with the headquarter team from Paris;
- **Coordinate** the actions of the **RF Optimization team** to be in line with the same **strategy** followed by the "Monitoring" department;

Technically contribution / development:

- **Develop** linked and secured **databases** (VBA macros under Excel) to be used quickly & efficiently by all our locally AL-LU teams in order to store & keep the traces of all the main activities related to the 3G swap project (**Site Verifications** + **Cluster Optimizations** + **Pre-Acceptance**);
- **Propose new strategies** (thresholds for the reselection of 3G & 2G, handovers **3G->3G**, **3G->2G**, etc) to be customized specifically for our west area after the swap in order to achieve the best KPIs performances from both perspectives & data inputs: Drive Tests (Optimization) & Monitoring;
- **Participate** during the Pre-Acceptance & Acceptance (transferring) activities to **special investigations/resolutions** in order to prove that AL-LU achieved the minimum contractual KPIs;
- **Develop** customized and powerful tools (VBA) in order to provide **automatically** the **3G-3G & 3G-2G neighbors** based only on the scanner measurement drive test data and/or (CTN) call traces data;
- **Develop** specific **tools** (VBA) in order to be used for the automatically identification of the **neighboring 3G-3G-2G limitations** (reciprocity, max number of neighbors, etc);
- **Evaluate** automatically (VBA) all the geographically **3G "border cells**" and propose/implement a **special strategy/settings** for them in order to improve their specific (initially bad) KPIs;
- **Develop new set of tools** and provide them to be used by our locally (west) Optimization team (as well as by all the other 3G swap project areas teams) in order to be able to use **MapInfo** visually for the **neighboring (3G-3G-2G)** process -> more **professionally, efficiency** & **accuracy**;

Special achievement

Finishing at the right times and getting always the minimum AL-LU's contractual KPIs for all the zone acceptances swapped from the west part of the Orange 3G mobile network; all KPIs met without receiving any issues reported during the last zone acceptance areas (Nantes, Concarne, Orleans, Caen…).

2006 (July -> December) **– Vodafone UK & Aircom Int. - (operator 3G - UMTS - WCDMA project)**

Company Profile: –> **Vodafone UK is one of the main mobile operators in UK being proud to be nr "1" between all the other UK competitors in terms of the quality & performance.**

My title

3G Optimization & Performance Engineer (**WCDMA**, **3G - UMTS** network)

Role of my team

⇒ Monitor the Performance & provide the Optimization of the **3G UMTS** (**WCDMA**) network for **Vodafone UK** in the North and NW area of the UK.

My role

- Participate to the weekly **Performance Management** meetings and provide the right feedback/support/explanations regarding the optimization status and the performance of the Vodafone's (Nortel 3G UMTS coverage area) network.
- **Monitor**, **check** and **investigate** the **RNCs** performances (CS & PS) based on the common agreed KPIs metrics between the **RO** (Regional Optimization) and **TS** (Telecomm Systems).
- Monitor continuously the performance of the network from the very low level (**FddCell**) up to the area / **100K Towns** / **RNC** levels. Detect the main sites/cells offenders and take the proper actions in order to improve the general KPI performances,
- Monitor the KPIs metrics performance and provide the Optimization and **integration** support for all the new 3G sites integrated into the network as well as for the temporary new 3G sites related to the **special events**,
- Propose new features/parameters to be implemented into the network, generate the **draft trial** document proposals and provide the final conclusions and recommendations,
- Provide day to day optimization recommendations for the 3G cells that are falling into the Worst Cell List (**WCL**) and coordinate these actions with specific trials/activities between RO and TS,
- **Coordinates drive test teams** and ask them to perform specific drive tests according with different call patterns related to the area of interest & the **KPIs** measured,

- Open and monitor the cases in **Clarify** in order to track the progress of different processes (integrations/faults/alarms) and interact with different other specific departments (**SAM**, **CAT**, etc),
- Non **BAU** (Business As Usually) activity – provide guidelines for unique and automatically identifications of all the 3G coverage "**border cells**" as main responsible for the general degradation of the KPIs performance of the network (task partially completed that should be run periodically this task has been completed by generating a dedicated software tool followed by the imminent results representing massive change requests recommendation proposals in the network in order to improve KPIs),
- Coordination with the **CAT** (Coverage And Transmission) Planning engineers in order to achieve the best trade of between Coverage area targets objectives and the best KPIs performance,
- Monitor **HSDPA** performances separately from **PS R99** and see the impact it may have on the general PS KPI performances,
- Participate to different internal **Vodafone's activities/presentations** (NIMS PrOPtima future deployments, Actix, Nortel's additional features, software tools to be available/provided) and partially involvement in future **Strategies for deployment** (the best approach for the border cells, new E1 requested based on the Iub congestion, etc);

2006 (January -> June) **– O2 (UK) & WFI - London (O2 operator - UMTS - WCDMA** project**)**

Company Profile: –> **O2 (UK) is one of the main mobile operators in UK being proud to be no 1 between all the other UK competitors (wide GSM and massive deployment/optimization of 3G)**

My title

⇒ **WFI team leader for the O2 – (London central) project**
Senior 3G RF Planning & Optimization Engineer (**WCDMA**, **3G - UMTS** network)

Role of my team

⇒ Planning & Optimizing **3G UMTS** (**WCDMA**) network for **O2** in London (central) area

My role

- Acting as **WFI team leader** for the **O2** project; supervising & coordination of the WFI team, participation to the weekly WFI report conference calls;
- **Planning** the new 3G network (development) for O2 in London - central area; participation at site surveys, tracking and selections for the best candidates,
- Provide **support & feedback** for the "agents" and the "Acquisition & Implementation" department in order to deal/progress with the local authorities (Ex: **Coverage plots** for the new proposed sites),
- Provide **optimization** for the currently O2's 3G network based on the daily/weekly performance cells reports (**KPIs**), **Offcom** drive tests, **customer complaints** and specific (requested) drive tests,
- Prepare plans for **the new 3G cells integrations** (Magnet IPD), track and provide **resolution details** for different Vantive cases regarding the **drop and block calls,**
- **Coordinates drive test teams** in order to perform specific drive tests according with different call patterns related to the area of interest & **KPIs** measured,
- Prepare, supervise, implement, and final reports regarding **OTSR – STSR projects** in order to improve the coverage & quality of the O2's 3G network,
- Participate to different internal O2's activities like trainings (**Magnet IPD**, **Amdocs)**, RF Safety courses, Strategies for deployment, etc.

2005 (April -> November) **NORTEL Networks - France (Orange group – 3G UMTS** projects**)**

Company Profile: –> **Nortel Networks is one of the major four Telecommunication Vendors and a Major force in the development and deployment of the 3G Networks.**

My title

⇒ **Senior UMTS RF Planning/Optimization Engineer** (in **WCDMA**, **3G - UMTS** networks)

Role of my team

⇒ Planning & Optimizing **3G UMTS** (**WCDMA**) networks as following:

- April –> September 2005, **Poland**, **Krakow** & **Katowice** cities (customer: **Orange PL**);
- September –> November 2005, **Slovakia**, **Bratislava** city (customer: **Orange SK**).

My role

As **Senior RF Planning/Optimizing Consultant Engineer for UMTS networks**, my main activities were as follows:

- Planning the **3G UMTS (WCDMA)** network trial in Krakow area and provide assistance, feedback & support to local Orange's RF Planning team (**iPlaner** planning software tool),
- Acting as **RF Prime** for Katowice 3G area, providing RFO support for Customer's RF team,
- Coordinates drive test teams in order to perform specific drive tests according with different call patterns related to the **KPIs** measured,
- Optimize the 3G trial areas (**WCDMA**) in order to get the contractual KPIs using specific RF software tools like: **Couei - XCAL** & **XCAP**, **Nortel – RFO & Boris**, **TEMS Investigation**, etc;
- **Analyze, post process (troubleshooting), calculate and compare KPIs** with different software tools (XCAL, XCAP, RFO, Boris) and try to reach the same KPIs with all (avoid unrealistic values using more ways);
- **RF Optimization support** and handoff to Customer's RF team the RFO knowledge for the 3G network using standard procedures according with the Operator's request (Centertel – Orange);
- Prepare and present to the customer **Nortel's workshop** related to "**UTRAN Optimization**";
- Prepare and present to the customer **RF Optimization reports** after each phase of Optimization;
- Accomplished in time all the contractual **KPIs** related to **Voice**, **PS data** & **Video calls**, including **3G-2G reselections/handovers** using specific drive tests equipments, techniques & tools.

2005 (February -> March), **Glotel Plc – Vodafone RO (**for **3G UMTS - WCDMA** project**)**

Company Profile: –> **Vodafone RO** (**Connex**) **is the number one GSM & 3G operator in Romania providing the full 3G series of services. (For details please see http://www.vodafone.ro/)**

My title

⇒ **Senior UMTS Optimization Engineer** (in a WCDMA, **3G - UMTS** network)

Role of my team

⇒ Audit & Optimize the Vodafone's 3G UMTS – WCDMA network in Bucharest (Romania).

My role

As **Senior RF Optimizing Consultant engineer for an UMTS (WCDMA) network**, my main activities were as follows:

- Analyze & propose recommendations for the **3G planning** that was done by Vodafone team,
- Coordinate drive test teams in order to perform specific drive test according with the KPIs analyzed and under observation,
- Post process and analyze the drive test data using intensive **TEMS Investigation** & **Actix** software specific tools,
- To propose changes request into the 3G Vodafone's network (mechanical changes: eg – Antennas azimuth & tilts, and 3G software parameters as well) in order to achieve the target KPIs values,
- To provide detailed reports and recommendations for the future in order to continually increase the performance of the Vodafone's 3G UMTS – WCDMA network.

2004 (July -> November), **NORTEL Networks (Israel)** **(Partner – Orange, 3G UMTS** project**)**

Company Profile: –> **Nortel Networks is one of the big four Telecommunication Vendors and a Major force in the development and deployment of 3G Networks.**

My title

⇒ **Senior UMTS Optimization Engineer** (in a **WCDMA**, **3G - UMTS** network)

Role of my team

⇒ Planning, Optimizing and increasing system performance and development of a **UMTS** network

My role

As **Senior RF Optimizing Consultant engineer for an UMTS (WCDMA) network**, my main activities were as follows:

- Improve the knowledge related to the UMTS (3g - WCDMA) most from the RF point of view as an addendum to my existing cdma2000 background,
- Optimize continuously the FUT area (TelAviv + neighbors) network in order to obtain the best KPIs using new logging and post processing software tools like: **Couei: XCAL** & **XCAP**, **Nortel: RFO**;
- Coordinate the drive test teams in order to make new type of proposed drive tests according with different call patterns in order to be able to measure a lot of **KPIs**,
- Analyze, post process and compare KPIs data from different sources (core network - PrOptima, drive tests - XCAL, XCAP, RFO, **Actix**) and try to propose ways to improve the radio performance metrics at cell level as well as at network level,
- Monitor and find continuously ways to improve from the air interface point of view (Uu) three of the most important metrics like:

  Accessibility & ***Retainability*** (how easy the mobiles can access the network and how big is the call drop rate for **CS** (voice + video) and **PS** with different rates)

2001 (November)→ **2004 (**June**),** **TELEMOBIL** company - http://www.zapp.ro/en/about-zapp/

Company profile: –> One of the four Romanian National Mobile Phone Network Operators. **Telemobil was the first 3G Operator in Europe [the first 3G Operator in 450 MHz frequency band in the world].**

My title

⇒ **RF Network Planning/Optimizing Engineer** (**CDMA 3G** network - cdma2000 1xRTT & EVDO)

Role of my team

⇒ Planning, Optimizing, Increasing system performance, Developing – a **cdma2000 1x RTT, EVDO** network.

My role

Responsible for the RF network design and increase/optimize air interface performance. Evaluate system parameters and continuous optimize system behavior according to the proper RF Engineering principles and calculations:

- ***Planning***
  - Analyzing the service and network quality parameters and requirements (coverage, capacity, performance).
  - Creating, proposing and processing of a specific link-budget.
  - Finding, planning and designing of the RF network sites and them properties according to the RF considerations (antennas, feeders, power link budgets, etc.).
  - BSS system parameters, dimensioning of BTSs, BSCs and TCs from the traffic point of view.
  - Making coverage and capacity predictions using different available software tools.
  - Establishing the needs regarding test and measurement instruments.
- ***Increasing/Optimizing system performance***
  - Processing the measurements obtained from drive tests in order to create the Network Coverage and Quality Reports.
  - Optimizing the RF network using the input from Network Optimization (parameters and system configurations change).
  - Collaborate with other departments for outage analyzing and recovering.
- ***Developing***
  - Technical information updating and enhancement regarding RF knowledge (air interface).
  - Participating to meetings and negotiations regarding Radio Spectrum and other elements that could affect good network performing.
  - Acting as a mentor to Junior RF Engineers by providing guidance and training.
  - Assist in coordinating frequency assignment with regulatory agencies.
  - Help to migrate initial CDMA network database toward CellTracker - professional – database.
  - **Provide** at request (Telemobil - in-house) **training** for knowledge related to GSM & CDMA networks.

Special achievement

I was one of the first RF Network Planning/Optimizing Engineers who was in charge to plan/design/install/implement/optimize the first **3G** Mobile Network from the Europe and the **first 3G**

Network in the world in 450MHz frequency band (Telemobil). It was a **cdma2000 1x** network and it was implemented by using **Lucent Technologies** equipment.

2000 (Jan)→**2001 (**Oct**)** **INTRAROM** Company (ROMANIA) – http://www.intrarom.ro/

Company profile – (Telecommunication Company with strong relationship with INTRACOM – from Greece)

⇒ Purchasing, marketing, selling, designing and installing telecommunication equipments with more than 600 employees.

My title

⇒ Radio Frequency and Transmission Design Engineer

Role of my radio department

⇒ Principal subcontractor of the GSM operator Cosmote Company (the 3rd national operator for a GSM network) to design, install and put in operation a new GSM/DCS telecommunication network.

My role

⇒ To create, manage and develop a special database for Engineering Department to maintain the whole data base which is necessary for a GSM project (built initially in MSExcel with helpful interfaces made in Visual Basic),

⇒ To participate and supervise part of the design activity of the national Transmissions GSM network (Microwave links, optical fiber, HDSL, etc) – using TEMS LinkPlanner tools Software,

⇒ To suggest and be active involved in part of the design activity of the national GSM cells planning (estimate coverage area, no of cells on the site, azimuths, no of TRU for traffic capacity, etc.),

⇒ To participate at site surveys and establish the choosing candidates from many potential sites candidates according to RF coverage area and microwave transmission links considerations,

⇒ To establish the final topology for part of the national Transmission GSM network (Microwave links, optical fiber, HDSL, etc) – especial for MW links:

- choose traffic capacity according to the customer's initial and future plans,
- choose the optimum frequency bands to use for the specified MW links,
- choose the optimum antennas diameters and evaluate the azimuths and elevations,
- choose the optimum RF output power equipment for obtaining the best MW radio links,
- evaluate path calculation links according to the ITU recommendation,
- evaluate far and near interferences,

⇒ To give "OK" and supervise the sites projects (for part of the GSM network) from "Site Acquisition" phase to "Details to Execution" phase, according to transmissions point of view (propose all the necessary modifications which have to be made for optimum results as a design and site surveys actions),

⇒ ***To keep update with the news regarding CDMA and 3G Mobile Networks:*** **cdmaOne** - my public summer presentation (2001) about CDMA IS-95 for the **B**oard of **E**uropean **S**tudents of **T**echnology organization - http://www.bestbc.pub.ro/ - to download it click on the provided link: http://www.geocities.ws/chircal/cdmaOne_BEST.pdf,

Special achievement

At INTRAROM Company I had the opportunity to design & optimize as RF & Transmission Design Engineer a new **DCS1800** network in Romania (Cosmote). The network was implemented **with Ericsson equipment** for both BTSs – **RBS2000 family** and MW links – **Minilink E** family. At that time INTRAROM finished the "Phase 1" and "Phase 2" objectives => more than 75% from Romanian's land - principal cities from Romania and the principal roads between these.

1994 → 1999 (December 31) **RADCOM** Company (ROMANIA) – http://www.radcom.ro/

Company profile (ISO 9001 certified) - exclusive dealer in ROMANIA of MAXON Company www.maxon.co.uk

⇒ Purchasing, marketing, selling, designing and installing telecommunication equipments.

(Partnership and business with companies like: ORANGE, MOTOROLA, ERICSSON, ALCATEL, NOKIA, MAXON, ZETRON, AMTECH, GTS, KENWOOD, SIMOCO, etc.)

My title

⇒ Head of the Radio Network Design Department

Role of my RF design department

⇒ To make all the necessary correspondence with the authorities in the Romanian telecommunication field (Ministry of Communications, General Inspectorate of Communications, etc),

⇒ To prepare all the necessary documentation for obtaining the Licenses for different kind of radiocommunication systems (commercial repeaters, trunking and radiorelay systems, radiopaging systems, VSAT network systems),

⇒ To prepare all the necessary documentation for obtaining the type approvals for a lot of communication equipments such as: fixed and mobile telephone, portable, fixed and mobile radio stations, radio data module transceivers, VSAT (remote or hub) base stations, etc,

⇒ To report to the General Inspectorate of Communications promptly (when it is necessary) and periodically, the whole RADCOM's commercial radio-networks that will be put in function, or that are in function, with all the equipments which work on these,

⇒ To inform about the news in the field of telecommunication (new types of equipments, national and international rules in the field, etc).

My role

⇒ To participate and supervise all the design projects which require designing in the field of radiocommunication systems such as simplex radio base stations, repeaters, trunking, radiopaging and radiorelay systems:

- choose the optimum base station equipments according with the range of frequency able to be used in that zone,
- choose the optimum antennas for obtaining the best radio link budgets,
- choose the optimum RF output powers according with the national and international restrictions,
- choose the optimum RF configuration (function of the complexity of the radio multichannel network),
- predict (estimate) the coverage and protection areas for all radio base stations that are involved in the project, using Bullington, Okumura, or different other radio propagation models,
- design/evaluate the link budget between two sites situated in different places (VHF + UHF bands).

⇒ To develop (MathCad environment) a new RF coverage design software tool that matches all the specific requirements in the field of radiocommunication systems. This software tool is still used today in Romania by some telecommunication companies to make the requested projects in order to be approved by the Romanian authorities (Ministry of Communications, General Inspectorate of Communications),

⇒ To supervise all the operations for the new radio base stations that will be put in function,

⇒ To participate and to offer technical solutions at all the projects in which RADCOM is involved, and to make the feasibility projects in cooperation with sales and marketing departments,

⇒ To lead, supervise and coordinate the whole activity of the radio design department (3 people including me), to obtain all the points that were related as the duties of the Radio Design Department (according with ISO 9001 Quality System Standard that RADCOM already has).

Special achievement

At RADCOM I was involved in Romanian's "**National Spectrum Management System**" project, having as customer the General Inspectorate of Communications. In this project the responsibilities for RADCOM were from the design stage to the base stations site survey, installation and implementation of the whole radio-network for obtaining one National Spectrum Management System for ROMANIA country. My special duties were to establish the optimum number of base stations that will radio-cover all the Romanian's land, estimate the radio coverage for all the potential radio base stations candidates and elaborate the criteria to choose the best candidates from the radiopropagation perspective.

1991 → 1994 Research and Development Institute of the Army *(RDIA) – ROMANIA country*

Profile of RDIA

⇒ To research, develop, and design new equipments that will be implemented in the Romanian Army.

My title

⇒ Assistant – researcher (as a civil worker) at the RDIA, Clinceni, near Bucharest city.

Role of my radio collective

⇒ Design, manufacture and experiment a digital radio-relay system that will work inside of the frequency band of 225MHz - 425MHz (only RF section).

My role

⇒ Design, build and experiment the following modules that compose the radio-relay system:
- synthesis of frequency module that will be modulated with HDB3 signal at 256Kbps speed,
- adapter circuit module between HDB3 standard signal (output) and modulator's input of the synthesis of frequency,
- antennas with the feeders (between the output/input RF amplifier/receiver and the antenna).

⇒ Design/evaluate radio links budget between the sites that may be situated in different places:
- evaluate adaptation of the antennas (VSWR) at different frequency,
- establish orientation (azimuth and tilt) of the antennas,
- design/evaluate RF power link budget (RF output power, path loss: free space and diffraction, radio sensitivity of the receiver, feeders and connectors attenuation, etc).

Special achievement

As a civil worker RF engineer, I participated to all phases [design/manufacture/experiment] of the digital radio-relay systems for the Romanian Army. After all the subsystems of the radio-relay system were tested, many radio links between Bucharest city and other site locations have been made, with very good results/performances.

LANGUAGES: **1) English** - very good, **2) French** – good, **3) Romanian** – mother tongue;

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- ***E-mail:*** **chircal@yahoo.com** (*Alternative email:* chircal@gmail.com)
- ***Personal WEB page*** (download my updated *CV (Resume), Skills, Diplomas, References, etc.)* **http://www.rfot.ro/liviu.chirca.html** or **http://www.geocities.ws/chircal/mypage.html** (old version) or

- ***Mobile phones:*** RO: **+40 722 639 044**
- ***Fixed phones:*** RO: **+40 318 806 547**