

NOYA INTERNATIONAL Network Planning & Optimization Services

www.ny.com.tr



ABOUT US





NOYA INT.' SERVICES

Planning Services

O Transmission & Radio Survey

● G/U/L Radio Network planning

G/U/L Transmission planning

Optical backbone and infrastructure planning

Optimization Services

G/U/L/NR RF Optimization

G/U/L/NR TRANSMISSION Optimization

F/O, FTTX /FTTH Capacity and aggregation network optimization

Hands on Experience

 AUDIT, KPI Monitoring, Acceptance Fulfillment, SWAP, New Generation implementation and commissioning, On-Air

 Drive Testing, BENCHMARK, CLUSTER, IBS, COASTAL, DRONE, SCANNER, MOS POLQA,PESQ, SUBWAY, SSV
 Reporting, AUDIT, BM REPORT, SSV REPORTING,CLUSTER REPORTING



NOYA INT.' PLANNING SERVICES 1

Planning Services

Transmission & Radio Survey

Survey site visit

Survey drawing with pro dwg tools

Statistical drawing and calculations











NOYA INT.' PLANNING SERVICES 2

Planning Services

- Transmission & Radio Survey
- Survey site visit

Survey drawing with pro dwg tool

Statistical drawing and calculations











NOYA INT.' Analysis Tools

Relational and Tailor-made PYTHON Algorithm Generation Innovative Fine Tune Options with Al

Cross Filtering

Parallel Plot







Drive tests maintain their value in telecom network performance evaluation, additionally the race to 5G is increasing the importance to understand competition and ensure high quality of service experience.

Iconic Features

3d NR signal modeling at test routes Ability to monitor NR MIB Messages Script based SVT test scenario and target monitoring.

Real on Time postprocessing to identify problems on site





HANDS ON EXPERIENCE

- ACTIX
- NEMO HANDY/OUTDOOR
- TEMS Investigation/Discovery
- Genex PROBE
- ATOLL
- MENTUM LINK PLANNER
- TEMS LINK PLANNER
- POSITIONING TOOLS
- F/O PLANNING TOOLS
- SURVEY AND DRAWING
 TOOLS



OUR MILESTONES FOR 5G



- Our company participated 5G Trial Operation with TURKTELEKOM, as a solution partner of HUAWEI and concluded 33 sites' the 5G NR Tests and reporting
- Our company participated 5G Trial Operation with VODAFONE, as a solution partner of HUAWEI and concluded 20 sites' the 5G NR Tests and reporting
- Our company participated 5G Trial Operation with TURKCELL, as a solution partner of Ericsson and concluded the trial with a world data speed record.

• With precise parameter analysis and predictions at optimum network conditions are established. The trial project is prepared at 6 months of time interval. After the whole engineering process is completed results are shared at commercial telecommunication platforms.

1G	2G	3G	4G	5G
Released: 1979 Standards: NMT, AMPS & TACS Capabilities: • Analog voice	Released: 1991 Standards: GSM & CDMA Capabilities: • Digital voice • Encrypted communication • Limited roaming • SMS & MMS Extensions: • GPRS (2.5G) • CDMA2000 (2.5G) • EDGE (2.75G)	Released: 2002 Standards: UMTS & EV-DO Capabilities: • Mobile broadband • Locating services • Multimedia streaming • Seamless global roaming Extensions: • HSPA+ (3.5G)	Released: 2009 Standards: LTE Capabilities: • High Speed mobile Internet • IP-based packet switching • HD multimedia streaming • Seamless global roaming Extensions: • Feature extension through new category/releases	Released: 2019 Standards: 5G Capabilities: • Private networks (local use frequency) • (I)loT Ready • Massive Machine Type communication • Ultra-low-latency • Ultra-high reliability • Ultra-high reliability • Ultra-high reliability • Millimeter wave support Extensions: • Feature extension through new categories/releases
0.0024 Mbit/s	0.064 Mbit/s	42 Mbit/s	1,000 Mbit/s	10,000 Mbit/s
Industry Impact: –	Industry Impact: 0	Industry Impact: +	Industry Impact: ++	Industry Impact: +++
• No impact on industrial applications	Remote control / Telecontrol Text messages from and to remote machines	Video monitoring Remote Access to machines (e.g. for teleservice) Remote Condition Monitoring	Mobile service Technicians Service via smart phones Wireless Backhaul	Autonomous Logistics Autonomous Machines Assisted Work Wireless Backhaul Edge Computing Mobile Equipment

OUR REAL ON TIME MONITORING FOR 5G THROUGHPUT VALUES







	V Vew Finder:	
Filtered View(2)(OTA-NMS-RRC)		
Time Stamp Name	Summary	* Key Type Name Tin
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NOYA INT.' HSE REGULATIONS AND POLICY

Our company has definite and strict rules, obligations about HSE policy.

All our equipment and team members are trained and certified by government approved certified outsource company.

With surveillance software and remote cams, we can monitor all our process 7/24











NOYA INT.' 3P MODEL AND INNOVATION

Progressive KPI Monitoring

- Relational and Tailor-made PYTHON Algorithm Generation
-) Innovative Fine Tune Options with AI

Improved Hardware Performance Monitoring

- Unstable Performance Inspection
- Improved Capacity Utilization
- Precise Investment Forecast with Reinforced Learning

Accurate Perception

- Integration of Source-free Big Data with Flexible Trained Models
- Organized Task Management
- Precise and Agile Actions



TECHNOLOGY vs. WORKLOAD





NOYA INT.' 3P MODEL APPROACH

Fine Tune and Benchmark of KPI Results

- Anomaly Detection and Root Cause analysis regarding to defined KPI formulas
- Using PYTHON for Analytics with Flexible time period options
- Traffic Steering and Load Balance Analysis for Efficient Resource Utilization
- Tool creation with simple user interfaces



3P

NOYA INT.' 3P MODEL CASE STUDY 1

Throughput Optimization

Fine Tune and Benchmark of KPI Results

Throughput Impact Actions Massive Check from OSS MIMO Feature Activation Check CRS Port Count MIMO config compatibility check MIMO Set Check RANK Indicator Analysis CRS Port Check PRB Utilization JITTER and TX path controls



NOYA INT.' 3P MODEL CASE STUDY 2

Fine Tune and Benchmark of KPI Results

BCCH SC PCI Collision Analysis

Overshooter Cell Analysis

Overshooting Effects on Modulation

Cell Radius & Serving Cell Area

Relational Analysis between Mobility Integrity and Accesibility

CQI / SQI index vs Modulation Rate comparison

PLMN and TAC config controls

Fast and accurate reporting



NOYA INT.' QUALITY CERTIFICATION



www.vertacert.com - info@vertacert.co





REFERENCES



Cluster Test	704 Regions G/U/L/NR		
C.Complaint	>3500 Tickets		
49 LTE SSV	>3900 Sites		
SG UMTS SSV	>8000 Sites		
ogo SWAP SSV	11143 G/U/L Sites 17 Operators 12 Countries		
5G TEST	122 5G NR Sites for 3 Operators		



REFERENCE DETAILS

15 5G Sites SSV and Initial Tuning for Turkcell

35 5G Sites SSV and Initial Tuning for TURKTELEKOM

72 5G Sites SSV and Cluster test and Initial Tuning for VODAFONE

4200 2G/3G/4G sites are planned for swap of TURKTELEKOM. Initial tuning KPI monitoring and cluster based RF optimization performed with 12 Senior engineers

RAN Optimization for G/U/L Network at Azerbaijan.

Completed in Iran 145 BTS installation and on-air services

Providing transmission planning and RAN optimizing services to Kcell in Kazakhstan with Ericsson

Radio Network Design & Optimization and Transmission Network Design & Optimization for Geocell in Georgia

Radio Network Design & Optimization for Astelit telecom in Ukraine

Radio Network Design & Optimization for Turktelekom Swap project in TURKEY Radio Network Design & Optimization and Transmission Network Design & Optimization Project for Kcell&MTC in Kazakhstan

For Turkcell swap project 1500 site's SSV and cluster testing completed for 15 cities in Turkey

Initial Tuning, Optimization and SSV testing completed for Turkcell in Turkey

TR Nominal Planning and Comissioning completed for Watania in Palestine

In North Iraq for Sana Mobile a turnkey transmission projects was implemented with 45 pairs of Radio Link equipment

2800 2G/3G SSV testing completed for Turkcell in Turkey

Turkcell Transmission Planning and opitimization completed in 35 cities. LOS survey completed for this project.

486 RAN Sharing site SSV completed For C-POS project of VODAFONE&TT in West-Blacksea Region Turkey

2300 2G/3G/4G Swap SSV testing completed for Avea in Turkey

3478 3G/4G Customer Complain Tests are performed for VODAFONE BFOSS project

