

GB1059L RAN Network Quality Optimization Questionnaire

China Telecom(GuangDong) - Self-Assessment

2025/10

ANLAV Report: China Telecom

Final Review Cycle - 22 November 2025

High-Value Scenario	Cognitive Activity (IAAE)	Service Capability	Weight	Question	Method 1: Average (Official use)																				final score
					Criteria				Answer				Capacity			Interference			Coverage			Parameter and others			
					Option A	Option B	Option C	Option D	Capacity	Interference	Coverage	Parameter and others	Original score	Compensated score	Overall Score	Original score	Compensated score	Overall Score	Original score	Compensated score	Overall Score	Original score	Compensated score	Overall Score	
													25%			25%			25%			25%			
RAN network quality optimization	Intent	Intent Translation & Fulfillment evaluation	10%	How does the system translate the RAN network optimization intent into the RAN network optimization related control information and evaluate the RAN network optimization intent fulfillment?	4	3	0		B	A	B	A	3	3	3.8	4	4	3.9714286	3	3	3.8	4	4	4.00	3.89
	Awareness	RAN Network Information Collection	10%	How does the system collect data? Note: Data includes network performance data (e.g., performance measurement, MR data, MDT data), service experience data, etc.	3	2	0		A	A	A	A	3	3.8		3	4		3	3.8		3	4		
	Analysis	Issue Identification & Performance Deterioration Prediction	15%	network performance / service experience issues (e.g., coverage-related issues, RAN UE throughput-related issues) or predict network performance / service experience deterioration?	4	3	2	0	A	A	A	A	4	4		4	4		4	4		4	4		
		Issue Demarcation & Root Cause Analysis	20%	How does the system perform problem demarcation and root cause diagnosis?	4	3	2	0	A	A	A	A	4	4		4	4		4	4		4	4		
		Adjustment Solutions Generating	20%	How does the system generate the recommended network adjustment solutions (including a set of network adjusting actions) to solve the identified or predicted network performance / service experience	4	3	2	0	A	A	A	A	4	4		4	4		4	4		4	4		
	Decision	Solution Evaluation & Determination	15%	How does the RAN network optimization system have the capability of automatically evaluating network optimization solutions and determining the best solution to implement?	4	3	2	0	A	A	A	A	4	4		4	4		4	4		4	4		
	Execution	Solution implementation	10%	How does the RAN network optimization system have the capability of executing the network adjustment solutions (e.g., adjusting and configuring the network parameters)?	2	1	0		A	A	A	A	2	3.8		2	3.8		2	3.8		2	4		

Overall / Questions and Options



Cognitive Activity (IAADE)	Service Capability	Weight	Question	Option A	Option B	Option C	Option D
Intent	Intent Translation & Fulfilment evaluation	10%	How does the system translate the RAN network optimization intent into the RAN network optimization related control information and evaluate the RAN network optimization intent fulfilment? Note: RAN network optimization intent includes multiple targets for specified areas. RAN network optimization control information includes RAN network optimization policies (e.g. adjusting base station parameters, load balancing)	The system can automatically generate the network optimization related control information based on human defined intents. The system can automatically evaluate and generate the intent fulfilment report, including fulfilment status for targets	The system can automatically generate the network optimization related control information based on predefined rules. The system can automatically generate evaluation results. Human manually select the measurements for evaluation and confirm the evaluation result.	Manually define the RAN network optimization related control information based on expertise. Human manually evaluate the effect after the intention is implemented.	
Awareness	RAN Network Information Collection	10%	How does the system collect data? Note: Data includes network performance data (e.g., performance measurement, MR data, MDT data), service experience data if needed, network configuration data, and environment data (e.g., electronic map, site location).	The system can automatically collect and process data (e.g., data cleaning, missing data imputation) Note: the network performance data needs to be collected in the granularity of cell and UE. The service experience data needs to be collected in the granularity of service	The system can automatically collect and process data (e.g., data cleaning, missing data imputation) based on manually defined rules.	Manually select and use the system to collect and process data	People use the system to collect data and manually filter out invalid/redundant data.
Analysis	RAN Network Issue Identification & Performance Deterioration Prediction	15%	How does the system identifies RAN network performance / service experience issues (e.g., coverage-related issues, RAN UE throughput-related issues) or predict network performance /service experience deterioration?	The system can intelligently identify RAN network performance / service experience issues or predict network performance /service experience without human intervention.	The system can automatically identify network issues or predict network performance. Manual confirmation is required.	The system can identify network issues or predict network performance based on predefined rules.	Manually identify RAN network problems or predict network performance based on expertise.
	Issue Demarcation & Root Cause Analysis	20%	How does the system perform problem demarcation and root cause diagnosis?	The system intelligently demarcates issues and diagnoses root cause when the RAN network performance / service experience issue identified or performance deterioration predicted	The system can automatically demarcate network performance / service experience issues and diagnoses root cause, but requires human intervention to confirm the root causes.	The system can demarcate network issues and diagnoses root cause based on predefined rules.	Locating problems and analyzing the root causes of network problems based on expertise.
	Adjustment Solutions Generating	20%	How does the system generate the recommended network adjustment solutions (including a set of network adjusting actions) to solve the identified or predicted network performance / service experience issues? Note: network adjustment solutions including but not limited to L2/L3 configuration parameters, RF parameters, 5QI related service configuration parameters.	The system intelligently generates network optimization solutions (considering of the coordination of multiple network adjusting actions), adjusted to adapt to RAN Traffic & Performance changes in real time.	The system intelligently generates network optimization solutions (considering of the coordination of multiple network adjusting actions), adjusted to adapt to RAN Traffic & Performance changes in non-real time.	The System generates network optimization solutions based on predefined rules.	Network optimization solutions are manually proposed based on expertise.
Decision	Solution Evaluation & Determination	15%	How does the RAN network optimization system have the capability of automatically evaluating network optimization solutions and determining the best solution to implement?	The system intelligently evaluates and determines the optimal network optimization solution when the recommended solutions are generated.	The System automatically evaluates network optimization solutions, but requires human intervention to confirm the optimal solution.	The System generates network optimization solutions based on predefined rules, but requires human intervention.	network optimization solutions are evaluated and decided based on manual expertise.
Execution	Solution implementation	10%	How does the RAN network optimization system have the capability of executing the network adjustment solutions (e.g., adjusting and configuring the network parameters)? Note: network parameters including but not limited to L2/L3 configuration parameters, RF parameters, 5QI related service configuration parameters.	The System implements network adjustment actions, without human intervention	Humans use the system to execute manual instructions remotely.	Solution implementation is entirely manual.	

Intent / Intent Translation & Fulfilment evaluation - Interference



Question

How does the system translate the RAN network optimization intent into the RAN network optimization related control information and evaluate the RAN network optimization intent fulfilment?

Option A	Option B	Option C	Option D
<p>The system can automatically generate the network optimization related control information based on human defined intents. The system can automatically evaluate and generate the intent fulfilment report, including fulfillment status for targets.</p>	<p>The system can automatically generate the network optimization related control information based on predefined rules. The system can automatically generate evaluation results. Human manually select the measurements for evaluation and confirm the evaluation result.</p>	<p>Manually define the RAN network optimization related control information based on expertise. Human manually evaluate the effect after the intention is implemented.</p>	

The system autonomously recognizes and translates user intent, generating an intent fulfilment report. It then automatically and continuously monitors network quality to evaluate the achievement of optimization targets.

Leveraging Large Language Model (LLM) capabilities, the system achieves **autonomous user intent recognition and optimization report generation**. Through **real-time data monitoring**, it **automatically assesses and determines** if the network optimization **targets** have been **fulfilled**.

The system have the ability to automatically monitors intent fulfillment. Note that the network issue recovery time is decoupled from the ticket closure time, allowing the system can automatically determine whether network problems have been resolved (intent achieved) regardless of manual action time. 系统具备自动监控意图是否达成功能：即使人为操作反馈已完结，系统仍旧会自动监控影响网络或用户或业务体验的相关指标，并自动判断网优意图是否达成。

是否恢复	质差工单ID	场景类型	质差类型	质差等级	质差时间	工单号	工单状态	派单时间	恢复时间	接单时间	处理历时(小时)	运营商	厂家	地市	基站号	小区号	小区名称
✓	202510-31	高密度住宅区	5G语音质差小区	一般			已归档					电信					

Agents autonomously recognizes and translates user intent, generating an intent fulfilment report. 智能体可自动识别用户意图，并生成意图达成报告。

日期	VoNR语音建立成功率	VoNR语音掉话率	VoNR语音上行POCCP丢包率	VoNR语音下行PDCP丢包率	投诉工单量	投诉用户数	关联投诉量	恢复条件_1_是否无告警	恢复条件_2_是否指标恢复	恢复条件_3_是否投诉量下降
20251019								●	●	●
20251020								●	●	●
20251021								●	●	●
20251022								●	●	●
20251023								●	●	●
20251024								●	●	●
20251025								●	●	●
20251026								●	●	●
20251027								●	●	●
20251028								●	●	●
20251029								●	●	●
20251030								●	●	●
20251031								●	●	●

system automatically monitors

Intent / Intent Translation & Fulfilment evaluation - Coverage



Question

How does the system translate the RAN network optimization intent into the RAN network optimization related control information and evaluate the RAN network optimization intent fulfilment?



Option A

The system can automatically generate the network optimization related control information based on human defined intents. The system can automatically evaluate and generate the intent fulfilment report, including fulfillment status for targets.

Option B

The system can automatically generate the network optimization related control information based on predefined rules. The system can automatically generate evaluation results. Human manually select the measurements for evaluation and confirm the evaluation result.

Option C

Manually define the RAN network optimization related control information based on expertise. Human manually evaluate the effect after the intention is implemented.

Option D

Coverage: The same as Interference

manual action time

system automatically monitors

The screenshot shows the 'Intent Management' interface. It includes sections for 'Add each intent body' with buttons for 4G and 5G intent bodies, and 'Regular intent body analysis process'. Below, there are '4G Intent Body Analysis Report' and '4G Quality Difference Analysis Report' sections, detailing parameters like cell ID, frequency, and analysis dates.

序号	是否恢复	质差工单ID	场景类型	质差类型	质差等级	质差时间	工单号	工单状态	派单时间	恢复时间	故障历时(小时)	运营商	厂家	地市	基站号	小区号	小区名称
1	✓	202510...	高速	4G高重建比例小区	一般			已完结				电信					

日期	RRC连接重建比例	RRC连接重建比例分子	RRC连接重建比例分母	投诉工单量	投诉用户数	关联热点栅格数	恢复条件_1_是否无告警	恢复条件_2_是否指标恢复	恢复条件_3_是否投诉压降
20251017							●	●	●
20251018							●	●	●
20251019							●	●	●
20251020							●	●	●
20251021							●	●	●
20251022							●	●	●
20251023							●	●	●
20251024							●	●	●
20251025							●	●	●
20251026							●	●	●
20251027							●	●	●
20251028							●	●	●
20251029							●	●	●

Intent / Intent Translation & Fulfilment evaluation - Parameter



Question

How does the system translate the RAN network optimization intent into the RAN network optimization related control information and evaluate the RAN network optimization intent fulfilment?



Option A

The system can automatically generate the network optimization related control information based on human defined intents. The system can automatically evaluate and generate the intent fulfilment report, including fulfillment status for targets.

Option B

The system can automatically generate the network optimization related control information based on predefined rules. The system can automatically generate evaluation results. Human manually select the measurements for evaluation and confirm the evaluation result.

Option C

Manually define the RAN network optimization related control information based on expertise. Human manually evaluate the effect after the intention is implemented.

Option D

The screenshot shows a user interface for configuring and analyzing network optimization intents. It includes sections for loading intelligent bodies, configuring parameters for 4G and 5G intents, and viewing analysis reports. A red box highlights a specific report titled '5G小区分析报告' (5G Cell Analysis Report) with a date of 2025年11月17日. The report details cell information and network quality analysis for a specific cell.

Parameter : The same as Interference

序号	是否恢复	质差工单ID	场景类型	质差类型	质差等级	质差时间	工单号	工单状态	激活时间	恢复时间	手动操作时间	故障历时(小时)	运营商	厂家	地市	基站号	小区号	小区名称	
1	✓	202510[REDACTED]08	高密度住宅区	5G低接入成功率小区	一般	[REDACTED]	[REDACTED]	已归档	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	电信	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

工单号: GD[REDACTED]50

5G低接入成功率小区 (小区名: N[REDACTED]0)

日期	无线接入成功率	RRC连接建立成功率	NG接口信令连接建立成功率	初始QoS Flow建立成功率	RRC连接建立成功率	投诉工单量	投诉用户数	关联热点槽数	恢复条件1_是否无告警	恢复条件2_是否指标恢复	恢复条件3_是否投诉量压降
20251019	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	●	●	●
20251020	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	●	●	●
20251021	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	●	●	●
20251022	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	●	●	●
20251023	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	●	●	●
20251024	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	●	●	●
20251025	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	●	●	●
20251026	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	●	●	●
20251027	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	●	●	●
20251028	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	●	●	●
20251029	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	●	●	●
20251030	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	●	●	●
20251031	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	●	●	●

manual action time

system automatically monitors

Awareness / RAN Network Information Collection



Question

How does the system collect data?



Option A

Option B

Option C

Option D

The system can automatically collect and process data (e.g., data cleaning, missing data imputation)
 Note: the network performance data needs to be collected in the granularity of cell and UE. The service experience data needs to be collected in the granularity of service

The system can automatically collect and process data (e.g., data cleaning, missing data imputation) based on manually defined rules.

Manually select and use the system to collect and process data

People use the system to collect data and manually filter out invalid/redundant data.

The system automatically collects diverse types and multi-period network management data.

The system **autonomous collection and processing** of multi-period data, covering network performance at **Cell/UE** granularity and **service experience** at service granularity. **Data integrity** is ensured by **lineage tracking** and **daily quality alerts**.

Automated collection, processing, and continuous monitoring of multi-period data, covering Cell/UE granularity and service experience at service granularity.

Service experience

Awareness / RAN Network Information Collection (Cont.)



The system autonomously queries and collects multi-dimensional data, including Cell-level, Service-level, and User Experience level metrics. 系统具备自动收集意图相关数据并处理生成结果功能。数据包括但不限于无线网络的小区级、用户体验级、业务级。

Capacity

RAN performance Info

Service Info

Cell Info

User experience and RAN Info

The Capacity dashboard shows a table with columns for various performance metrics. The RAN performance Info dashboard displays a list of RAN performance metrics for different cells. The Service Info dashboard shows a table with columns for service-related metrics. The Cell Info dashboard displays a table with columns for cell-level metrics. The User experience and RAN Info dashboard shows a table with columns for user experience and RAN performance metrics.

Interference

Cell Info

RAN performance, User experience Info

External interference Info

The Interference dashboard shows a list of interference metrics for different cells. The Cell Info dashboard displays a table with columns for cell-level metrics. The RAN performance, User experience Info dashboard shows a table with columns for RAN performance and user experience metrics. The External interference Info dashboard displays a table with columns for external interference metrics.

Coverage

User Experience Speed Info

The Coverage dashboard shows a table with columns for coverage-related metrics. The User Experience Speed Info dashboard displays a table with columns for user experience speed metrics.

Parameter

User Experience and RAN Performance Info

TAC, Neighbor Info

The Parameter dashboard shows a table with columns for parameter-related metrics. The User Experience and RAN Performance Info dashboard displays a table with columns for user experience and RAN performance metrics. The TAC, Neighbor Info dashboard shows a table with columns for TAC and neighbor information metrics.

Analysis / RAN Network Issue Identification & Performance Deterioration Prediction

Question

How does the system identifies RAN network performance / service experience issues (e.g., coverage-related issues, RAN UE throughput-related issues) or predict network performance /service experience deterioration?

Option A	Option B	Option C	Option D
The system can intelligently identify RAN network performance / service experience issues or predict network performance /service experience without human intervention.	The system can automatically identify network issues or predict network performance. Manual confirmation is required.	The system can identify network issues or predict network performance based on predefined rules.	Manually identify RAN network problems or predict network performance based on expertise.

The system intelligently identifies RAN network performance and service experience issues and predicts network performance and service experience degradation.

Based on manually-defined intents and leveraging automatic data collection/processing and cross-platform integration, the system intelligently identifies RAN network performance and service experience issues (e.g., coverage, RAN UE throughput, and UE experience issues) and predicts future performance and service experience.

工单管理统计		工单详情									
质差类型	派单量	闭环率	恢复率	派单前		恢复后		关联到质差根因的小区数量	质差根因关联率	关联到优化建议的小区数量	优化建议关联率
				关联投诉工单量	关联(贬损+感知差)用户数	关联投诉工单量	关联(贬损+感知差)用户数				
4G流量异常小区											
4G严重干扰小区											
4G覆盖差小区											
5G语音质量差小区											
4G流量异常小区											
5G低CQI优良比小区											
4G低MR覆盖率小区											
4G高负荷小区											
5G高负荷小区											
4G语音业务质量差小区											
5G低MR覆盖率小区											
4G接入性能异常小区											
5G严重干扰小区											
合计											

The system intelligently identifies RAN network performance and service experience issues.

The dashboard displays a comprehensive overview of network performance. Key sections include:

- Basic Information:** Station name, location, and service type.
- Performance Metrics:** Line graphs showing uplink/downlink throughput and latency over time.
- Parameters and Indicators:** A list of key performance indicators (KPIs) such as average RRC connection user count, call success rate, and system handover success rate.
- Root Cause Analysis:** A section titled '存在参数问题(PRACH部分冲突)' (Parameter issue: PRACH part conflict) with optimization suggestions for specific cell IDs.
- Location Prediction:** A map showing predicted locations for signal quality issues, including predicted GPS coordinates and distance from the current location.

RAN performance, service experience, parameters predict

Analysis / Issue Demarcation & Root Cause Analysis – Capacity, Parameter



Question

How does the system perform problem demarcation and root cause diagnosis?

Option A	Option B	Option C	Option D
The system intelligently demarcates issues and diagnoses root cause when the RAN network performance / service experience issue identified or performance deterioration predicted	The system can automatically demarcate network performance / service experience issues and diagnoses root cause, but requires human intervention to confirm the root causes.	The system can demarcate network issues and diagnoses root cause based on predefined rules.	Locating problems and analyzing the root causes of network problems based on expertise.

The system intelligently performs problem demarcate and root cause diagnosis when a RAN performance/service experience issue is detected or performance degradation is predicted.

The system **intelligently** performs problem **demarcate and root cause diagnosis** including **coverage, interference, capacity, parameter and so on** when a RAN performance/service experience issue is detected or performance degradation is predicted **without human intervention**.

Capacity : The same as interference

工单ID	场景类型	质差类型	质差等级	质差时间	工单号	工单状态	派单时间	恢复时间	结案时间	故障历时(小时)	运营商	厂家	地市	基站号	小区号	小区名称
[Redacted]	其他	4G低速率小区	一般	[Redacted]	[Redacted]	已归档	[Redacted]	[Redacted]	[Redacted]	[Redacted]	电信	[Redacted]	[Redacted]	[Redacted]	[Redacted]	F [Redacted]_2

1 申告信息

工单编号: GD [Redacted] 06
 优先级: 三级
 故障描述: 2025-10-15 17:06:22 4G低速率小区/Ne=地市 [Redacted] 2
 故障原因: 连续3天满足用户下行平均速率<=0.5kbps, 且投诉、故障+感知下降, 且无告警、参数工单关联

工单来源: 省 [Redacted] 平台
 一级专业: 移动感知
 二级专业: 无线

故障所属区域: [Redacted]
 局向: [Redacted]

工单状态: 已归档

修复时长: 0小时0分
 派单时间: 2025-10-15 17:06:22
 接单时间: 2025-10-15 17:06:22
 回单时间: 2025-10-15 17:06:22

故障原因描述: 该小区属于广覆盖小区, 高负荷网络导致速率下降, 已对小区功率参数进行优化调整, 请师傅, 后续跟进

automatically dispatche tickets

Issue Demarcation:
 Tier 1 Domain: Mobile Experience
 Tier 2 Domain: RAN

1 申告信息

工单编号: GD [Redacted] 30
 优先级: 三级
 故障描述: 2025-10-15 17:06:22 5G低接入成功率小区/Ne=地市 [Redacted] 0
 故障原因: 连续3天无线接入成功率<=98.8%, 且投诉、故障+感知下降, 且无告警、参数工单关联

工单来源: 省 [Redacted] 平台
 一级专业: 移动感知
 二级专业: 无线

故障所属区域: [Redacted]
 局向: [Redacted]

工单状态: 已归档

修复时长: 0小时0分
 派单时间: 2025-10-15 17:06:22
 接单时间: 2025-10-15 17:06:22
 回单时间: 2025-10-15 17:06:22

故障原因描述: 经参数优化调整, 观察指标已有所改善

automatically dispatche tickets

Parameter : The same as interference

序号	是否恢复	质差工单ID	场景类型	质差类型	质差等级	质差时间	工单号	工单状态	派单时间	恢复时间	结案时间	故障历时(小时)	运营商	厂家	地市	基站号	小区号	小区名称
1	是	202510 [Redacted] 06	高密度住宅区	5G低接入成功率小区	一般	[Redacted]	[Redacted]	已归档	[Redacted]	[Redacted]	[Redacted]	[Redacted]	电信	[Redacted]	[Redacted]	[Redacted]	[Redacted]	N [Redacted] 0

Analysis / Adjustment Solutions Generating



Question

How does the system generate the recommended network adjustment solutions (including a set of network adjusting actions) to solve the identified or predicted network performance / service experience issues?

Option A	Option B	Option C	Option D
The system intelligently generates network optimization solutions (considering the coordination of multiple network adjusting actions), adjusted to adapt to RAN Traffic & Performance changes in real time.	The system intelligently generates network optimization solutions (considering the coordination of multiple network adjusting actions), adjusted to adapt to RAN Traffic & Performance changes in non-real time.	The System generates network optimization solutions based on predefined rules.	Network optimization solutions are manually proposed based on expertise.

The system intelligently generates adjustment solutions in real time based on the network status.

The system automatically queries the cell's latest performance, and other relevant data, and, in conjunction with intelligent rules, it autonomously generates multiple candidate solutions in real time, dispatching tickets that cover various network impairment types such as coverage, capacity, interference, and parameter.

基站网络质量分析报告

Capacity: Agent analysis report

报告日期: 2025年11月20日
用户问题: 在2025年9月30日至10月6日期间是否存在高负荷及质差问题。

一、基础信息

- 基站号: [REDACTED]
- 小区号: [REDACTED]
- 基站名称: [REDACTED] 2.1G
- 小区名称: [REDACTED] 2
- 设备厂商: [REDACTED]
- 网络制式: 4G (1.8G频段, 带宽20MHz)
- 基站类型: 室外站
- 运营商: 中国电信

二、性能与质差分析

1. 高负荷问题:
在2025年9月30日至10月6日期间, 小区5 [REDACTED] 共记录6条下行PRB高负荷告警, 表明存在容量不足问题, 可能导致用户感知网速慢。

2. 质差原因:
高负荷是主要矛盾, 且查到明确的质差原因数据 (存在过覆盖问题)

三、结论与建议

可选优化方案:

- 1. 重启基站设备以释放资源。
- 2. 通过网管分析下行频调度分配的RB数, 若不则重新分配带宽。
- 3. 开启下行频调度功能开关以提升资源利用率。
- 4. 调整小区功率, 通过收缩覆盖降低小区负荷。

最终执行建议:

- 对小区5 [REDACTED] 进行功率调整, 收缩覆盖 (建议在凌晨低业务时段操作)。

报告人: 网络优化分析Agent

4G小区覆盖与性能分析报告

Coverage: Agent analysis report

报告日期: 2025年11月20日
分析对象: 2025年9月30日-10月6日
目标小区: 5 [REDACTED]

一、小区基础信息

- 基站厂商: [REDACTED]
- 网络制式: 4G (FDD)
- 频段/带宽: 2.1G(20MHz)
- 基站类型: 室外站
- 运营商: 中国电信

二、性能数据概览

1. 容量与用户数
- 容量峰值: [REDACTED]
- 用户数波动: [REDACTED]

2. 网络质量
- CQI优秀率: [REDACTED]
- 速率峰值: [REDACTED]

3. 稳定性与资源
- 掉线率峰值: [REDACTED]
- PRB利用率: [REDACTED]

三、质差原因分析

- 覆盖问题: 检测到存在过覆盖记录 (9月30日-10月6日)。
- 干扰: 无线覆盖范围过大, 可能导致干扰信号质量下降。

四、结论与建议

问题确认:
1. 小区5 [REDACTED] 在分析时段内存在过覆盖问题, 导致10月5日CQI优秀率下降。
2. 节假日 (10月1-6日) 流量与用户数 [REDACTED]

优化建议 (二选一):

- 调整天线倾角:
- 将下行天线倾角调至-3°, 或方向角调整至-10°, 收缩覆盖范围。
- 执行优先级: 高 (需现场测试验证效果)。
- 降低发射功率:
- 将小区发射功率下调10%-15%, 减少过覆盖干扰。
- 执行优先级: 中 (需结合周边基站协同优化)。

最终建议: 优先采用方案1 (调整天线倾角), 因物理调整对覆盖控制更直接, 且资源利用率无需保留高功率。调整需在48小时内复测CQI优秀率与用户数变化。

报告人: 网络优化分析Agent

5G小区分析报告

Interference: Agent analysis report

报告日期: 2025年11月20日
分析对象: 5G小区 [REDACTED]

一、小区基础信息

参数项	详细内容
基站名称	[REDACTED]
小区名称	[REDACTED]
厂商	[REDACTED]
网络制式	5G (N1频段, 20.0MHz带宽)
挂高	0.0米 (室内分布系统)
运营商	中国电信

二、小区性能表现 (近期数据)

- 连接稳定性:
 - 无线接入成功率: [REDACTED]
 - RRC连接建立: [REDACTED]
 - UE上下文切换: [REDACTED]
- 用户感知:
 - 下行平均吞吐: [REDACTED]
 - CQI优秀率: [REDACTED]
- 资源利用率:
 - 上行PRB利用率: [REDACTED]
 - 下行PRB利用率: [REDACTED]
- 移动性管理:
 - 系统内切换成功率: [REDACTED]

性能结论: 小区整体表现良好, 无阻塞或基础性干扰。

三、质差原因分析 (2025年10月7日-10月13日)

问题记录:
- 共检测到 7次外部干扰事件 (频段: 2.1G, 带宽20MHz)。

根因判断: 外部干扰导致信号质量波动。

四、结论与建议

可选方案:

- 干扰定位: 使用扫频仪, 采用三频定位法确定干扰源具体位置。
- 干扰处理: 协调相关部门关闭干扰源或调整其发射时间。

最终建议:

- 立即执行: 安排网络优化团队携带扫频仪前往基站位置 ([REDACTED] 附近) 进行干扰源定位 (建议参考历史干扰时段) 进行三频定位测试, 锁定干扰源后协调相关部门处理。
- 后续监控: 干扰处理后需连续3天监测小区性能数据 (重点关注无线接入成功率和CQI优秀率), 确保问题彻底解决。

报告人: 网络优化分析Agent

5G小区性能分析报告

Parameter: Agent analysis report

报告日期: 2025年11月20日
分析对象: 2025年9月30日-10月6日
目标小区: [REDACTED]

一、小区基础信息

- 基站位置: N [REDACTED]
- 运营商: 中国电信
- 设备厂商: [REDACTED]
- 网络制式: 5G (频段N5, 带宽15.0MHz)
- 类型: 室内基站

二、性能指标分析

- 接入性能:
 - 无线接入成功率: [REDACTED]
 - RRC连接建立成功率: [REDACTED]
- 连接可靠性:
 - UE上下文切换成功率: [REDACTED]
 - 系统内切换成功率: [REDACTED]
- 信道质量:
 - CQI优秀率: 97
- 资源利用率:
 - 上行PRB利用率: [REDACTED]
 - 下行PRB利用率: [REDACTED]
- 无线覆盖:
 - RRC用户密度: [REDACTED]

总体评价: 各项KPI表现优秀, 网络运行稳定。

三、质差原因分析 (2025.09.30-10.06)

- 邻区基站参数一致性5-4问题: 4条记录
- TAC切换问题: 2条记录
- 邻区频元配置一致性5-4问题: 1条记录

四、结论与建议

问题定位:
- 主要存在邻区参数不一致性及TAC切换问题, 可能导致切换失败及速率波动。

优化建议:

- 立即执行: 通过 [REDACTED] 平台参数优化模块处理以下问题:
 - 邻区基站参数一致性5-4问题 (4条)。
 - 调整TAC切换策略 (2条)。
 - 修正邻区频元配置一致性5-4问题 (1条)。
- 持续监控: 优化后持续观察切换成功率及速率变化, 确保问题彻底解决。

最终建议: 优先处理TAC切换问题以降低切换失败风险, 再逐步优化邻区参数。

报告人: 网络优化分析Agent

Decision/Solution Evaluation & Determination – Parameters, Capacity, Coverage, Interference



Question

How does the RAN network optimization system have the capability of automatically evaluating network optimization solutions and determining the best solution to implement?

Option A	Option B	Option C	Option D
The system intelligently evaluates and determines the optimal network optimization solution when the recommended solutions are generated.	The System automatically evaluates network optimization solutions, but requires human intervention to confirm the optimal solution.	The System generates network optimization solutions based on predefined rules, but requires human intervention.	network optimization solutions are evaluated and decided based on manual expertise.

The system intelligently evaluates and determines the optimization solution when the recommend solutions are generated. In parameter scenario, the system autonomous determination and output of the optimal configuration based on comparison with predefined optimal values. In capacity and coverage scenarios, the system automatically evaluates and compares candidate solutions to directly provide the optimal plan.

基站网络质量分析报告

Capacity: Agent analysis report

报告日期: 2025年11月20日
用户问题: 在2025年9月30日至10月6日期间是否存在高负荷及质差问题。

一、基础信息

- 基站号: [REDACTED]
- 小区号: [REDACTED]
- 基站名称: [REDACTED] 2.1G
- 小区名称: [REDACTED] 2
- 设备厂商: [REDACTED]
- 网络制式: 4G (1.8G频段, 带宽20MHz)
- 基站类型: 室外站
- 运营商: 中国电信

二、性能与质差分析

1. 高负荷问题:
在2025年9月30日至10月6日期间, 小区 [REDACTED] 共记录6条下行PRB高负荷告警, 表明存在容量不足问题, 可能导致用户感知网速慢。

2. 质差原因:
高负荷是主要矛盾, 且查询到明确的质差原因数据 (存在过覆盖问题)

三、结论与建议

可选优化方案:

- 重启基站设备以释放资源。
- 通过网管分析下行频调度分配的RB数目, 若不是则重新分配带宽。
- 开启下行频调度功能开关以提升资源利用率。
- 调整小区功率, 通过收覆盖降低小区负荷。

最终执行建议:

- 对小区 [REDACTED] 进行功率调整, 收缩覆盖 (建议在凌晨低业务时段操作)。

报告人: 网络优化分析Agent

optimal solution

4G小区覆盖与性能分析报告

Coverage: Agent analysis report

报告日期: 2025年11月20日
分析时段: 2025年9月30日-10月6日
目标小区: [REDACTED]

一、小区基础信息

- 基站厂商: [REDACTED]
- 网络制式: 4G (FDD)
- 频段/带宽: 2.1G(20MHz)
- 基站类型: 室外站
- 运营商: 中国电信

二、性能数据

1. 接入性能:
无线接入成功率: [REDACTED]
RRC连接成功率: [REDACTED]

2. 连接稳定性:
UE上下文切换成功率: [REDACTED]

3. 信通性能:
CQI优良率: [REDACTED]

4. 资源利用率:
上行PRB利用率: [REDACTED]
下行PRB利用率: [REDACTED]

三、质差原因分析

- 覆盖问题: 检测到存在过覆盖记录 (9月30日-10月6日)。
- 干扰: 无线覆盖范围过大, 可能导致干扰信号质量下降。

四、结论与建议

问题确认:
1. 小区 [REDACTED] 在分析时段内存在过覆盖问题, 导致10月5日CQI优良率下降。
2. 节假日 (10月1-6日) 流量与用户数下降可能导致资源向问题区域倾斜。

优化建议 (二选一):
1. 调整天线倾角:
将下倾角增加2°-3°, 或方位角调整5°-10°, 收缩覆盖范围。
2. 调整发射功率:
将小区发射功率下调10%-15%, 减少过覆盖干扰。
3. 执行覆盖优化: 通过网管下发覆盖优化策略。

最终建议: 优先采用方案1 (调整天线倾角), 因物理调整对覆盖控制更精准, 且资源利用率无需提高功率。调整需在48小时内复测CQI优良率与用户数变化。

报告人: 网络优化分析Agent

optimal solution

5G小区分析报告

Interference: Agent analysis report

报告日期: 2025年11月20日
分析对象: 5G小区 [REDACTED]

一、小区基础信息

- 基站名称: [REDACTED]
- 小区名称: [REDACTED]
- 厂商: [REDACTED]
- 网络制式: 5G (N1频段, 20.0MHz带宽)
- 挂高: 0.0米 (室内分布系统)
- 运营商: 中国电信

二、小区性能表现 (近期数据)

1. 连接稳定性:
无线接入成功率: [REDACTED]
RRC连接成功率: [REDACTED]
UE上下文切换成功率: [REDACTED]

2. 用户感知:
下行平均吞吐量: [REDACTED]
CQI优良率: [REDACTED]

3. 资源利用率:
上行PRB利用率: [REDACTED]
下行PRB利用率: [REDACTED]

4. 移动性管理:
RRC连接成功率: [REDACTED]

性能结论: 小区整体表现良好, 无覆盖或基础性能问题。

三、质差原因分析 (2025年10月7日-10月13日)

问题记录:
1. 共检测到7次外部干扰事件 (频段: 2.1G, 带宽20MHz)。
2. 根因判断: 外部干扰导致信号质量波动。

四、结论与建议

可选方案:
1. 干扰定位: 使用扫频仪, 采用三定点法确定干扰源具体位置。
2. 干扰处理: 协调相关部门关闭干扰源或调整其发射功率。

最终建议:
立即执行: 安排网络优化团队携带扫频仪前往基站位置 ([REDACTED] 楼层/天线), 在干扰高发时段 (建议参考历史干扰时段) 进行三定点测试, 锁定干扰源并协调相关单位处理。
后续监控: 干扰处理后需连续3天监测小区性能数据 (重点关注无线接入成功率及CQI优良率), 确保问题彻底解决。

报告人: 网络优化分析Agent

optimal solution

5G小区性能分析报告

Parameter: Agent analysis report

报告日期: 2025年11月20日
分析时段: 2025年9月30日-10月6日
目标小区: [REDACTED]

一、小区基础信息

- 基站位置: [REDACTED]
- 运营商: 中国电信
- 设备厂商: [REDACTED]
- 网络制式: 5G (NR5G, 带宽15.0MHz)
- 类型: 室外基站

二、性能指标分析

1. 接入性能:
无线接入成功率: [REDACTED]
RRC连接成功率: [REDACTED]

2. 连接稳定性:
UE上下文切换成功率: [REDACTED]
系统内切换成功率: [REDACTED]

3. 信通性能:
CQI优良率: [REDACTED]

4. 资源利用率:
上行PRB利用率: [REDACTED]
下行PRB利用率: [REDACTED]

5. 质差告警:
RRC连接失败告警: [REDACTED]

总体评价: 各指标表现良好, 网络运行稳定。

三、质差原因分析 (2025.09.30-10.06)

1. 邻区基础参数一致性5-4问题: 4条记录
2. TAC切换问题: 2条记录
3. 邻区频元配置一致性5-4问题: 1条记录

四、结论与建议

问题定位:
1. 主要存在邻区参数一致性及TAC切换问题, 可能导致切换失败率及网络稳定性。

优化建议:
1. 立即执行: 通过网管下发邻区参数优化策略处理以下问题:
邻区基础参数一致性5-4问题 (4条),
邻区TAC配置问题 (2条),
修正邻区频元配置一致性5-4问题 (1条)。
2. 后续监控: 优化后持续观察切换成功率及网络稳定性变化, 确保问题彻底解决。

最终建议: 优先处理TAC配置问题以降低切换失败率, 再逐步优化邻区参数。

报告人: 网络优化分析Agent

optimal solution

Executing / Solution implementation – Capacity, Coverage



Question

How does the RAN network optimization system have the capability of executing the network adjustment solutions (e.g., adjusting and configuring the network parameters)?

 Option A	Option B	Option C	Option D
The System implements network adjustment actions, without human intervention	Humans use the system to execute manual instructions remotely.	Solution implementation is entirely manual.	

The system implements network adjustment actions without human intervention. The system automatically initiates and executes network adjustment actions, including changes to capacity, coverage, interference, and parameter that affect network quality or user experience.

已归档
申告时间: [redacted] GD [redacted] 06
4G低速率小区/Ne=地市

工单编号: GD [redacted] 06
优先级: 三级
故障描述: 2025-10-10 /Ne=地市
派单规则: 满足月总计RRC连接失败次数 >= 100且月总计UE上下文释放总次数 >= 100且月总计小区下行自忙时平均流量 > 0的, 并剔除高铁、地铁、高速小区。按小区的自忙时下行PRB层平均感知速率计算, 7天内至少4天, 带宽 <= 10M时速率 < (带宽*0.2)Mbps, 或带宽为其他取值时速率 < (带宽*0.5)Mbps, 判定为低速小区

恢复条件: 连续3天满足用户下行平均感知速率 >= 0.5*带宽, 且投诉、故障+感知差下降, 且无告警、参数工单关联

根因自动分析结论: 存在容量问题(下行PRB高负荷)
专家经验: 下行PRB高负荷对应建议: #1、基站设备进行扩容; #2、通过网管指标分析下行预调度分配的总RB数目, 如若数量不足可进行再次分配(预调度带宽); #3、对现有基站打开下行预调度功能开关; #4、针对主频基站及存在大量数据上传的场景可参考用户数高负荷解决方案; #5、10月3日自忙时下行PRB负荷92.93%, RRC连接用户数96.823
自动分析结论, 仅供参考。

+ 工单时限: 240小时0分
派发部门: [redacted]
接单部门: [redacted]
监控部门: [redacted]
最后回单时间: [redacted]

工单历时: [redacted]
挂起时长: 0小时0分
派发时间: 2025-10-10
接单时间: 2025-10-10
回档时间: 2025-10-10
故障原因: 其它

故障定位: [redacted]

+ 故障原因描述: 该小区属于广覆盖小区, 高负荷网络拥塞导致低速率, 已对小区功率参数进行优化调整, 请完结单, 后续跟进

Capacity 容量

已归档
申告时间: [redacted] GD [redacted] 63
4G高重建比例小区/Ne=地市

工单编号: GD [redacted] 63
优先级: 三级
故障描述: 2025-10-10 /Ne=地市
派单规则: 7天出现 >= 4天 & RRC连接重建比例 >= 5% & (UE发起的RRC连接建立成功次数+网络发起的RRC连接建立成功次数+RRC连接重建成功次数) > 2000

恢复条件: 连续3天 RRC连接重建比例 < 5%, 且投诉、故障+感知差下降, 且无告警、参数工单关联

根因自动分析结论: 存在覆盖问题(过覆盖)
专家经验: 过覆盖对应建议: #根据现场情况调整功率或不连续
自动分析结论, 仅供参考。

+ 工单时限: 240小时0分
派发部门: [redacted]
接单部门: [redacted]
监控部门: [redacted]
最后回单时间: [redacted]

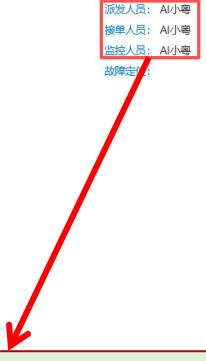
工单历时: [redacted]
挂起时长: 0小时0分
派发时间: 2025-10-10
接单时间: 2025-10-10
回档时间: 2025-10-10
故障原因: 其它

故障定位: [redacted]

+ 故障原因描述: 该小区存在过覆盖现象, 从而导致4G高重建比例高, 需下压机城下倾角

Coverage 覆盖

The full process is executed by AI



Executing / Solution implementation - Parameter, Interference



Question

How does the RAN network optimization system have the capability of executing the network adjustment solutions (e.g., adjusting and configuring the network parameters)?

Option A	Option B	Option C	Option D
The System implements network adjustment actions, without human intervention	Humans use the system to execute manual instructions remotely.	Solution implementation is entirely manual.	

The system implements network adjustment actions without human intervention.

The system automatically initiates and executes network adjustment actions, including changes to capacity, coverage, interference, and parameter that affect network quality or user experience.

Case 1: Parameter Adjustment

工单编码: GD [redacted] 50
 优先级: 三级
 故障描述: 2025-10-10 /Ne=地市
 派单规则: 筛选满足7天总计接入次数 (RRC_ConnSucc) >=100且7天总计程放次数 (UE_ContextRelease) >=100且7天下行小区总平均流量 (RLC_RxBytesLI+RLC_TxBytesDI) >500的电信承建的小区, 7天有4天及以上满足无线接入成功率 <=98.8%
 恢复条件: 连续3天无线接入成功率 >98.8%, 且投诉、故障+感知差下降, 且无告警、参数工单关联

是否参数优化工单是: [redacted]
 参数优化派单时间-类型: [redacted]
 是否关联到故障单: [redacted]
 统一规划站址编号: [redacted]
 根因自动分析结论: 存在参数问题(TAC交叠)
 专家建议: 8 [redacted] 3 (TAC当前值)、8 [redacted] 3 TAC交叠 (修改建议值)
 自动分析结论: 仅供参考

工单时长: 240小时0分
 派发部门: [redacted]
 接单部门: [redacted]
 监控部门: [redacted]
 最后回单时间: [redacted]

故障原因描述: 经参数优化调整, 观察指标已有所改善

派发人员: AI小嘴
 接单人员: AI小嘴
 监控人员: AI小嘴
 故障定位: [redacted]

Case 2: Interference Handling

工单编码: GD [redacted] 71
 优先级: 三级
 故障描述: 2025-10-10 /Ne=地市
 派单规则: 筛选满足月总计VoNR语音建立请求数>100的小区, 7天有4天及以上满足以下任一条件
 1)VoNR语音建立成功率<98%
 2)VoNR语音掉线率>1%
 3)VoNR语音上行PDCP层丢包率或者VoNR语音下行PDCP层丢包率任一指标>1.5%,并剔除月总计 VoNR 语音上行 PDCP 层用户面总数<10000 或月总计VoNR 语音下行 RLC 层用户面总数(SDU)<10000 的小区
 恢复条件: 连续3天满足VoNR语音建立成功率>98% 或 VoNR语音掉线率<1% 或 上/下行丢包<1.5%, 且投诉、故障+感知差下降, 且无告警、参数工单关联

是否参数优化工单是: [redacted]
 参数优化派单时间-类型: [redacted]
 是否关联到故障单: [redacted]
 根因自动分析结论: 存在干扰问题(外部干扰)
 专家建议: [redacted]建议:#1、使用扫频仪, 利用三点定位法对扫频确定干扰源, 待找到干扰源后协调关闭外部干扰源或外部干扰源移除。
 自动分析结论: 仅供参考

工单时长: 240小时0分
 派发部门: [redacted]
 接单部门: [redacted]
 监控部门: [redacted]
 最后回单时间: [redacted]

故障原因描述: 载波平均噪声干扰大于-95dBm, 存在上行干扰问题导致, 存在下挂直放站导致干扰, 需维护排查处理

派发人员: AI小嘴
 接单人员: AI小嘴
 监控人员: AI小嘴
 故障定位: [redacted]

The full process is executed by AI

Parameter 参数

Interference 干扰

THANKS

感谢聆听