TK316: UMTS Optimization

Duration

4.0 Days

Course Content

1. WCDMA basics

- 1.1. The Basic Principles of WCDMA
  - 1.1.1. Radio Propagation Characteristics
  - 1.1.2. Spreading Technology
  - 1.1.3. Channel Coding
  - 1.1.4. Interleave Technology
  - 1.1.5. Modulation
- 1.2. WCDMA Radio mechanism
  - 1.2.1. WCDMA Data transmission Procedure
  - 1.2.2. Channel Coding of WCDMA
  - 1.2.3. Spreading Technology of WCDMA
  - 1.2.4. Modulation of
- 1.3. WCDMA Key Technologies
  - 1.3.1. Power Control
  - 1.3.2. Handover Control
  - 1.3.3. Admission Control
  - 1.3.4. Load Control
  - 1.3.5. Code Resource Allocation
  - 1.3.6. RAKE Receiver
- 1.4. Evolution to HSPA

Copyright © TEKonsult 2017

2. WCDMA RNO Principles and Procedures

- 2.1. Brief introduction
- 2.2. Single site verification
- 2.3. Radio frequency optimization
- 2.4. Parameters Optimization
- 2.5. Regular Testing & KPI Analysis

3. Performance monitoring

- 3.1. KPI analysis hierarchies
- 3.2. Call setup optimization
- 3.3. Call drop
- 3.4. Mobility
  - 3.4.1. Soft Handover
  - 3.4.2. ISHO
  - 3.4.3. Relocation
- 3.5. HSPA setup
- 3.6. HSPA drop
- 3.7. HSPA Mobility
  - 3.7.1. SCC
  - 3.7.2. HSUPA SHO

4. Air interface optimization

- 4.1. Interference monitoring and reduction
  - 4.1.1. Overview
  - 4.1.2. Ec/Io
  - 4.1.3. Little I
  - 4.1.4. Pilot pollution - cell matrix
  - 4.1.5. Propagation delay - positioning

Copyright © TEKonsult 2017

4.1.6. SHO delay
4.2. Coverage monitoring and enhancement
4.3. Slow fading analysis
4.4. CQI monitoring and improvement
5. Capacity monitoring
5.1. Transmitted carrier power
5.1.1. Node B reporting
5.1.2. Total DL power
5.1.3. R99 power
5.1.4. HSDPA power
5.2. Received total wideband power
5.2.1. Sources
5.2.2. Total UL power
5.2.3. R99 power
5.2.4. HSUPA power
5.3. Code tree allocation
5.3.1. R99
5.3.2. HSDPA
6. Capacity enhancement
6.1. R99 Features
6.1.1. Load Based AMR Codec Mode Selection
6.1.2. BLER target settings
6.1.3. Eb/No settings
6.1.4. Throughput based optimization
6.1.5. Maximum radio link power
6.1.6. 4Rx diversity

Copyright © TEKonsult 2017

6.2. Network load reduction features in RU40:

6.2.1. Fast Cell_PCH Switching

6.2.2. Fast Dormancy Profiling

6.3. HSDPA

6.3.1. Fractional DPCH

6.3.2. Dynamic BLER

6.3.3. 72 HSPA users per cell

6.3.4. HSPA 128 Users per Cell

6.4. HSUPA

6.4.1. 2ms TTI

6.4.2. 5.8 Mbit/s

6.5. HSDPA+

6.5.1. Flexible RLC

6.5.2. 64QAM and MIMO

6.5.3. Dual cell HSDPA

6.5.4. Dual cell HSDPA with MIMO and 64QAM

6.5.5. HS Cell_FACH

6.5.6. CS voice over HSPA

6.5.7. Continuous packet connectivity

6.6. HSUPA+

6.6.1. Interference cancellation receiver

6.6.2. Frequency domain equalizer

6.6.3. Flexible RLC in UL

6.6.4. HSUPA 16QAM

6.6.5. Dynamic HSUPA BLER

6.7. Capacity Usage Optimization

6.7.1. Mass Event Handler management

Copyright © TEKonsult 2017

6.7.2. Voice Call Prioritization during High Traffic Load

7. UMTS_LTE Interworking

7.1. WCDMA - LTE Mobility overview

7.1.1. Inter-layer Mobility

7.1.2. 3GPP Priority Layer Concept

7.1.3. WCDMA – LTE Mobility features

7.1.4. WCDMA Cell System Information Block 19

7.1.5. S-criteria & measurement management

7.1.6. Triggers (moving UEs to LTE)

7.1.7. LTE - RSRP - Reference Signal Received Power

7.1.8. LTE - RSRQ - Reference Signal Received Quality

7.1.9. LTE - RSRP and RSRQ

7.1.10. LTE Measurement rules

7.2. Mobility to LTE RRC_IDLE mode.

7.2.1. Smart LTE layering

7.2.2. Introduction

7.2.3. Triggers

7.2.4. Triggers Fine-tuners

7.2.5. Measurement Based LTE Layering

7.2.6. RSRQ Based LTE Reselection and Interworking

7.3. Mobility to LTE RRC_CONNECTED mode

7.3.1. Smart LTE Handover

7.3.2. Triggers

7.3.3. Service restrictions

7.3.4. Handover prioritization

Copyright © TEKonsult 2017

Copyright © TEKonsult 2017