Test Report for Interoperability Testing

between

IFDS GSM-R dispatcher of Siemens CMT

and

GSM-R Network of Huawei

SIEMENS

HUAWEI

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1 Introduction

The inter-operability testing (IOT) between Siemens CMT and Huawei evaluates functionality and compatibility of IFDS GSM-R dispatcher of Siemens CMT and GSM-R Network of Huawei. They are the main elements of the railway communication solution.

This IOT is limited to the test-cases simulating very simple railway operation scenarios and restricted only to the PRA interface between MGW/MSC and dispatcher server enabling voice communication.

This test report is prepared by Huawei Technologies Co. Ltd. and Siemens CMT jointly, summarizing the detail results of the whole IOT testing activities.

2 References

[1]	EIRENE FRS	UIC Project EIRENE Functional Requirements Specification_v7
[2]	EIRENE FRS	UIC Project EIRENE System Requirements Specification_v15
[3]	P38 T 9001 4	FFFIS for GSM-R SIM Cards

3 Abbreviations

3GPP	3rd Generation Partnership Project
BSC	Base Station Controller
BSS	Base Station System
BTS	Base Transceiver Station
CMT	Communication, Media and Technology
EIRENE	European Integrated Railway Radio Enhanced Network
EMLPP	Enhanced Multi-Level Precedence and Pre-emption
FN	Functional number
GCA	Group Call Area
GId	Group call Identity
GSM-R	GSM - Railway
HLR	Home Location Register
HMI	Human-Machine-Interface
IFDS	Integrated Fixed Dispatcher System
LAC	Location Area Code
LAS	Link Assurance Signal
IMEI	International Mobile Equipment Identity
IMSI	International Mobile Subscriber Identity
ISDN	Integrated Services Digital Network
MCC	Mobile Country Code
MGW	Media Gateway
MMI	Man-Machine Interface
MNC	Mobile Network Code
MS	Mobile Station, GSM-R mobile phone with a valid SIM Card for the test
MSC	Mobile Switch Centre
PTT	Push-To-Talk
PTP	Point-to-Point call
REC	Railway Emergency Call
SIM	Subscriber Identity Module
SMS	Short Message Service
SMSC	Short Message Service Centre
UIC	UIC Union Internationale des Chemins de Fer
UMG	Universal Media Gateway
USSD	Unstructured Supplementary Service Data
VBS	Voice Broadcast Service
VGCS	Voice Group Call Service

4 Team Information

4.1 Team members from Huawei

Name	Title/Responsibility	Email	Phone Number
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4.2 Team members from Siemens CMT IFDS GSM-R dispatcher

Name	Title/Responsibility	Email	Phone Number
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5 Test Configuration

This section details the software versions of the network elements and the network configuration that were used to perform the test cases detailed in this document, together with the system parameters and the test equipment used to verify the results.

5.1 Network Configuration

The diagram(s) below show the network configuration(s) that were used to perform the tests during this IOT session.

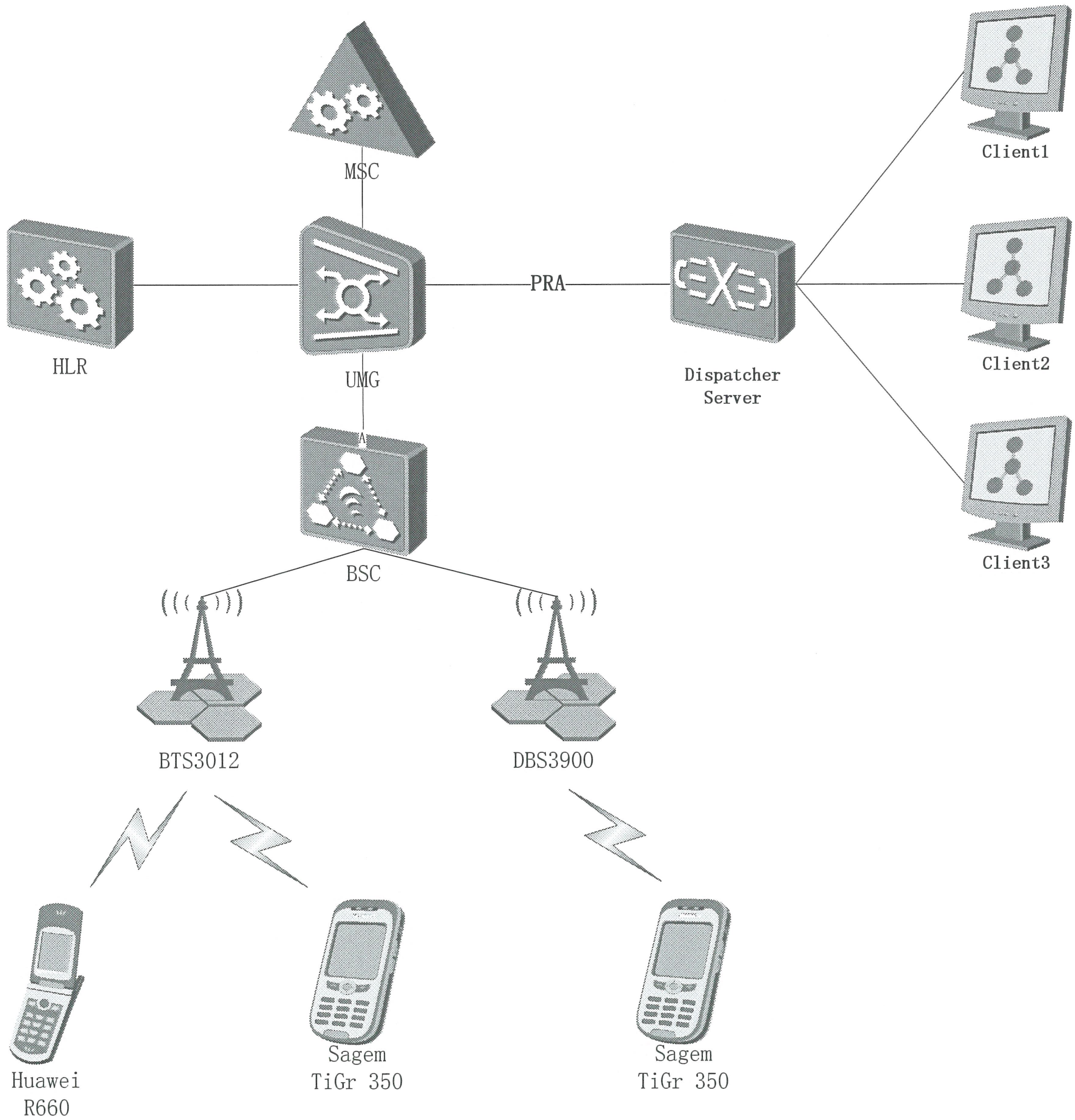

Figure 1: Network Configuration

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5.2 Network Element Versions

The following network elements were used to perform the tests in this IOT session:

Network Element	Provider	Software Version
HLR	Huawei	GUHLR9820V900R003
MSC Server	Huawei	GTSOFTX3000V100R001
MGW	Huawei	UMG8900V200R007
SIWF	Huawei	SIWFV300R001
BSC	Huawei	BSC6000V901R008
BTS	Huawei	BTS3012V301R008
BTS	Huawei	DBS3900V301R008
Dispatcher	Siemens CMT	SVN8084P3
Mobile Station	Huawei	Huawei R660
Mobile Station	Huawei	Sagem TiGR 350

5.3 System Parameters

This section details the appropriate database parameters to be used during this IOT session. It should be noted that it might be necessary to modify certain database parameters from these values in order to perform certain test cases.

5.3.1 Network parameters

Parameter	Cell 1	Cell 2
MCC	462	462
MNC	22	22
LAC	H' C102	H' C102
Cell ID	H' 0001	H' 0002
BCCH Frequency	990	994

5.3.2 SIM Parameters

Parameter	SIM1	SIM2	SIM3
IMSI	460209966999934	460209966999935	460209966999937
Common Group ID	VGCS: 200/201 Train REC: 299 VBS: 200/201	VGCS: 200/201 Train REC: 299 VBS: 200/201	VGCS: 200/201 Train REC: 299 VBS: 200/201
MSISDN	13966669934	13966669935	13966669937
Train Number	2 128636 01	2 128636 02	7 128636 01
Priority_Default	4	4	4
Priority_Max	0	0	0
Vendor	HED	HED	HED

5.3.3 Group Parameters

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Group ID	VGCS/200	VGCS/201	REC/299	VBS/200	VBS/201
Group Area	46022				
Cell 1	46022 C102 0001				
Cell 2	46022 C102 0002				
Priority	4	2	0	4	3

6 Test Case Results Management

6.1 Problem Lists

This section lists all the problems met during IOT test, whenever problems arise which prevents the test from execution. All the parties need to work together for troubleshooting.
Each problem is given one of the following statuses:

- **PR No.**
  Problem Record Number

- **PR level**
  It includes Critical, Major, Minor
  The “Critical” class is applicable whenever one or multiple failures of a test case block the remaining test cases from execution;
  The “Major” class is applicable whenever one or multiple failures of a test case block some remaining but not all test cases from execution;
  The “Minor” class is applicable whenever the problems do not fit in the above categories.

- **PR description**
  Detailed description of the problem

- **Related product**
  The problem belongs to which product from which vendor

- **PR state**
  There are three PR states: OPEN, FIXED, and CLOSED. If the PR is raised, the state is OPEN. If the PR is fixed in the next version, the state is FIXED. If the PR is not a problem, or if the PR is fixed and passed the regression test by Huawei and Siemens CMT the state is CLOSED.

PR No.	PR level	PR Description	Related product	PR state

7 Test Results

Each test case is given one of the following Test Results:

- **Passed (OK)**
All parties agree that the test case has met all the requirements defined in the test case description.

- **Passed with a Comment (OK*)**
All parties agree that the test case has met the requirements defined in the test case description; however a comment is included to clarify the behaviour witnessed during the test.

- **Failed (F)**
All parties agree that the test case has not met the criteria specified in the test case description.

- **Not Tested (NT)**
The test case was not performed for some reason.

For all test cases with an execution status of 'Passed with a Comment', 'Failed' or 'Untested' an explanation is given in column 'Comment'. Please check the following table for detailed result of each case.

7.1 Test Case Records

All the test case are performed under 900MHz as the below table's Commentary shown.

Catalogue	Test case title	Test result	Commentary
3.2.1	Outgoing PTP call from IFDS client to MS	ok	
3.2.2	Outgoing PTP call from IFDS client to MS via MSISDN	ok	
3.2.3	Incoming PTP call from MS to IFDS client	ok	
3.3.1	Outgoing VGCS call from IFDS client	ok	
3.3.2	Incoming VGCS call from MS to IFDS client	ok	
3.4.1	Outgoing VBS call from IFDS client	ok	
3.4.2	Incoming VBS call from MS to IFDS client	ok	
3.5.1	IFDS client calls himself via Primary controller	ok	
3.5.2	IFDS client calls himself via Secondary controller	ok	
3.5.3	IFDS client calls himself via Power supply controller	ok	
3.6.1	Outgoing call from IFDS client to MS via FN xxx1	ok	
3.6.2	Incoming call from MS to IFDS client via FN xxx2	ok	
3.6.3	IFDS client calls himself via FN xxx3	ok	
3.7.1	Outgoing REC call from IFDS client to MS	ok	
3.7.2	Incoming REC call from MS to IFDS client	ok	
3.8.1	VGCS call preempted by Railway Emergency Call	ok	
3.8.2	VBS call preempted by Railway Emergency Call	ok	
3.8.3	PTP call preempted by Railway Emergency Call	ok	
3.9	Call transfer	ok	
3.10	PEC	ok	
3.11	DTMF	ok	
3.12	Call hold	ok	
3.13	Language selection	ok	
3.14	Role selection	ok	

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7.2 Test summary

The initial IOT test between IFDS GSM-R dispatcher of Siemens CMT and Huawei GSM-R Network has completed, and has shown that they interwork successfully 900MHz under the tested environment in accordance to the requirement of EIRENE SRS Version 7 and FRS Version15 provided by ETSI. The test has also shown that the railway communication solution can effectively fulfil the dispatch operation.

There are totally 24 test cases with 24 cases passed.

Please refer to following table for summary.

Feature	Num	Passed	Passed with comments	Failed	Untested
Point-to-Point call	9	9			
Group calls	2	2			
Broadcast calls	2	2			
Railway emergency call	2	2			
Public emergency call	1	1			
Call arbitration	2	2			
Language setting	1	1			
Roles setting	1	1			
EMLPP	3	3			
DTMF	1	1			
Total	24	24			

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8 Approval

This Test Report is approved by:

Approved by	Siemens CMT IFDS GSM-R dispatcher	Huawei
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Title	Test & development engineers	Test engineer
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Title:	IFDS GSM-R dispatcher IOT Project Manager of Siemens CMT	Huawei IOT Project Manager
Signature		
Date	01. Nov. 2012	

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9 Document History

Version	Date	Comments
1.0.0	10-31-2012	Draft finished.

10 Appendix

10.1 Signatures of test results(Scan file)

Siemens CMT IFDS
GSM-R dispatcher_

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