


Trunking

Software Option 897 089

Operating Instructions

05_trunk Doc. Version: 9507-320-B

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 **Differences to former software versions:** see the lifeline at the end of this supplement

What Can the Trunking Software Option Do?

- Send out call-number-related requests to check in (registration).
- Accept and transmit Interprefix, Common Prefix, PSTN and PABX calls.
- Accept and transmit group calls.
- Query the serial number of a mobile.
- Change channel on the control channel and the traffic channel.
- Simulate a conference call. The Communication Test Set can both be included in an ongoing call by the mobile under test and include the mobile under test in a call.
- Accept and send status messages.
- STABLOCK is a virtual mobile. This mobile can be called by the mobile under test and send both group calls and status messages to the mobile under test.
- Send and receive data telegrams.

Connecting Mobile under Test

Connect the RF socket of the mobile under test to the RF socket of STABLOCK. DUPLEX mode is set automatically when you call up the test mask.

Basic Settings in Parameter Mask

TRUNKING		
System	: MPT 1327	← Enter parameters of trunking network
Lower Band Base Freq.(LBBF):	410.0000 MHz	
Channel Correspond. to LBBF:	0 No.	
Duplex Space	: 10.00 MHz	
Channel Space	: 12.5 kHz	
Channel No. ↑	: Freq. ↑	
RX-Frequency	: Upper Band	← Alter call-number display in test mask ← Set Relay 5 after call setup
Channel Number Offset	: + 0	
Type of Ident Display	PREFIX - IDENT	← Generate data telegrams
Use Relais 5 for PTT:	YES	
LEN: 3	RSA1: 0 Data codeword 1: 000000000000 RSA2: 0 Data codeword 2: 000000000000 RSA3: 0 Data codeword 3: 000000000000 RSA4: 0 Data codeword 4: 000000000000	

TEST RETURN

Fig. 10.1: Parameter mask

MPT 1327 or
PAA 2424?

The scroll variable in the `System` field determines whether MPT 1327 or PAA 2424 signalling is used.

Entering
system parameters

The entry in the `Lower Band Base Freq. (LBBF)` field defines the lower band frequency. Depending on whether the variable `Upper Band` or `Lower Band` is selected in the `RX Frequency` scroll field, the `Communication Test Set` transmits or receives on the lower band frequency.

In the field `Channel Correspond. to LBBF` you enter the channel number corresponding to the lower band frequency, and in the `Channel No.` scroll field you define whether the lower band frequency rises or falls with increasing channel number.

The duplex spacing and channel spacing are entered in the fields `Duplex Space` and `Channel Space`.

The entry in the `Channel Number Offset` field defines the channel offset. The entered figure is subtracted with its sign from the control-channel and traffic-channel number. The result determines the assignment of channel and frequency for the mobile under test.

Altering call-number display in test mask	The scroll variables in the field <code>Type of Ident Display</code> determine how mobile call numbers are displayed in the test mask. Depending on whether <code>NP-FIN-UN</code> or <code>PREFIX-IDENT</code> is set, the call number of the mobile is entered in the form number prefix-fleet number-unit number or prefix ident.
Set Relay 5	<p>If you place the scroll variable <code>YES</code> in the field <code>Use Relais 5 for PTT</code>, Relay No. 5 on the STABLOCK's Control Interface (A, B, C or D) will be set after call setup (see also description of the option Control Interface in Chapter 9).</p> <p>This facilitates the simulation of pressing the PTT key on the mobile especially by using AUTORUN programs.</p>
Generating data telegrams	<p>In the <code>LEN</code> field you enter the number of data telegrams (DCW = data code word). Permissible values are: 0 = one DCW, 1 = two DCWs, 2 = three DCWs and 3 = four DCWs. Depending on the entry, the data code words 1 to 4 are transmitted.</p> <p>The <code>RSA</code> field shows whether the current data code word is followed by another (1) or not (0). Default: 0. The bit is only relevant for data code words 2 and 4, because only these two telegrams can be followed by another one. After data code words 1 and 3 there is either another data code word or a filler telegram to fill the time slot.</p> <p>The data telegrams are entered in the fields <code>Data code-word 1-4</code>.</p>

Basic Settings in Test Mask

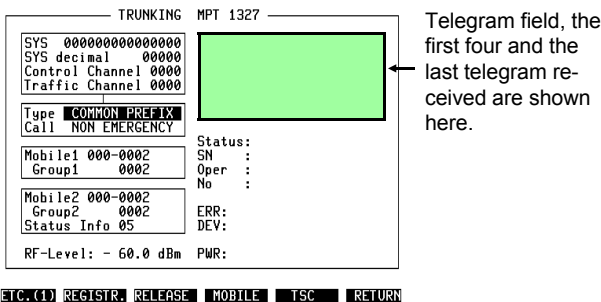


Fig. 10.2: Test mask.

Entering parameters of mobile under test

SYS (System Identity Code)

The 15 bits of which the SYS is composed contain the number of the network (OPID), the number of the cell (NDD) and a label (LAB) that states the permissible operating modes of the mobile under test.

The SYS is entered either bit by bit in the SYS field or as a decimal number in the SYS decimal field of the test mask.

Example: Chekker

The breakdown of the SYS into OPID, NDD and LAB is

Bit	1	2-8	9-12	13-15
SYS	0	OPID	NDD	LAB

special-to-system.

Attention: If the SYS for the mobile under test is unknown, the mobile cannot be tested.

Control channel	<p>Each network has at least one control channel. The number of the channel is entered in the <code>Control Channel</code> field.</p> <p>Attention: The mobile under test can only be tested with a valid control-channel number admissible for the mobile.</p>
Traffic channel	<p>Enter the number of a valid traffic channel in the <code>Traffic Channel</code> field. Only then can the mobile be tested on the traffic channel (eg call from and to mobile under test).</p>
Call number	<p>The call number of the mobile under test can be entered in the <code>Mobile1</code> field. The form of the call-number display is set in the scroll field <code>Type of Ident Display</code> of the parameter mask.</p> <p>When a call number is entered, the Communication Test Set requests the mobile under this number to check in.</p> <p>If the call number of the mobile under test is unknown, you can enter the number 000-0002 or 200-2001-020 in the <code>Mobile1</code> field. The Communication Test Set then sends a general request to register. When the mobile under test checks in, its call number is automatically entered in the <code>Mobile1</code> field.</p>
Group number	<p>To test the group-call functions, enter the group number of the mobile under test in the <code>Group1</code> field.</p> <p>Attention: If the Communication Test Set is to make a group call, the group number must be entered in the <code>Group1</code> field.</p>
Entering RF level	<p>Enter the RF level in the <code>RF-Level</code> field. The choice between terminal voltage (50 Ω) and EMF is made in the RX or DUPLEX mask.</p>

Entering parameters of virtual mobile

The virtual mobile is simulated by the Communication Test Set. In this way calls can be tested to and from the mobile under test.

Call number Enter the call number of the virtual mobile in the `Mobile2` field. Under this call number the mobile under test can call the virtual mobile.

Group number The group number must be entered in the `Group2` field if the mobile under test is to send a group call to the virtual mobile.

Status A status number can be entered in the `Status Info` field. Permissible values are 0 to 31. How the status number is interpreted by the mobile under test will depend on its programming. Exception: status 0 and 31. These two are reserved for "Receiver off-hook" (0) and "Receiver on-hook" (31).

Entering type of call The `Type` scroll field defines the type of call. The following types of call are possible: call with the same prefix (`COMMON PREFIX`), with different prefix (`INTERPREFIX`), in or from a private automatic branch exchange (`PABX`), call in or from the public switched telephone network (`PSTN`).

Normal call or emergency call? `NON EMERGENCY` or `EMERGENCY` in the `Call` scroll field determines whether a normal call or an emergency call is transmitted.

Performing Tests

TRUNKING		MPT 1327	
SYS 000000110001001	RQC FB32DC5CC858 D95F	HEAD FB32DCFF6642 B83D	
SYS decimal 00393	DCW 048D159E2404 AB43	DCW 234567890123 11F9	
Control Channel 0001	DCW 1159E24048D1 F1FF	DCW 167890123456 2DE4	
Traffic Channel 0289			
Type COMMON PREFIX	Status:	SN :	
Call NON EMERGENCY		Oper :	
		No :	1627
Mobile1 123-1602	ERR:		
Group1 7784	DEV:		
Mobile2 123-1627			
Group2 7784	PWR:		
Status Info 09			
RF-Level: - 60.0 dBm			

ETC.(4) **SDM** MOB **SDM** TSC RETURN

Telegram field, displays the first four and the most recently called telegrams.

Results, depending on the measurements, are displayed here.

These results can only be read during the measurement.

Fig. 10.3: (ETC(1...4)) switches between the four softkey levels in the test mask. (RETURN) recalls the parameter mask.

Registering mobile under test

Why?

A mobile can only be called or call itself if it is registered with the TSC. Registration of a mobile with the TSC occurs after switch-on, provided the mobile is in the correct network (the SYS of the network and the mobile are identical). If registration is successful, all other tests can be performed.

There are two kinds of registration: registration because of a general call by the TSC (ALH telegrams) and registration because the TSC requests the mobile to register (ALHR telegrams).

How?

- Enter parameters of trunked-radio network.
- Enter parameters of mobile under test. If the call number of the mobile is entered in the `Mobile1` field, the mobile is requested to register (ALHR). If the number 000-0002 or 200-2001-020 is entered, there is a general request to register (ALH).
- Start test with (`REGISTR.`) (halt with (`STOP`)).



If the mobile was already checked into the cell, in some networks it will no longer register on a general call to register. But there are two possibilities so that you can still carry out the test. If you know the call number of the mobile, you can call on it to register direct. If you do not know the call number, you change cell (alter SYS). A working mobile must register in a new cell.

Result

- Service display active on mobile under test.
- RQR telegram in telegram field.
- Call number of mobile under test in `Mobile1` field.

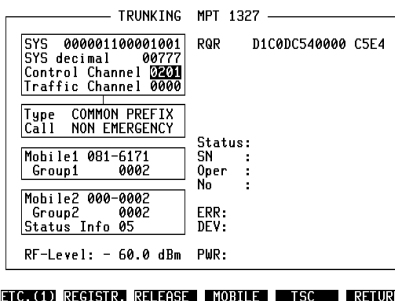


Fig. 10.4: Test mask after registration.

Querying serial number of mobile under test

- Why? Each mobile has an individual serial number that is stored unalterable in the mobile. By means of the serial number the TSC can check, for example, whether the mobile is authorized to be active in a network.
- How? Register mobile under test.
 (SER. NO.) starts test (halt with (STOP)).
- Result Serial number of mobile under test in SN field.

```

----- TRUNKING MPT 1327 -----
SYS 000001100011001 SAMIS 80880480091B 57F3
SYS decimal 00793
Control Channel 0201
Traffic Channel 0258

Type COMMON PREFIX
Call NON EMERGENCY

Mobile1 081-6171      Status:
Group1 7000           SN : 001/01/002331
                       Oper :
                       No  :

Mobile2 081-6167      ERR:
Group2 7000           DEV:
Status Info 01        PWR:

RF-Level: - 60.0 dBm
    
```

ETC.(2) SER. NO. NEW CHAN GROUPMOB GROUPTSC RETURN

Fig. 10.5: Test mask after querying serial number

Call from mobile under test

- Why?** Test whether the mobile can send a call. The calls Inter-prefix, Common Prefix, PABX and PSTN are tested.
- How?**
- Register mobile under test.
 - Set type of call in `Type` scroll field.
 - `(MOBILE)` starts test (halt with `(STOP)`).
 - Trigger call from mobile under test.
 - Press ringing key when mobile under test is on traffic channel.
- Result**
- Frequency error.
 - Deviation.
 - Transmitted power.
 - Received telegrams in telegram display field.
 - Type of call in `No` field.
 - The `Oper` field shows during the call whether the ringing key is pressed or not. The `Oper` figure 3 confirms clear-down of the call.
- Ending test**
- End call on mobile under test or with `(RELEASE)`.

```

TRUNKING MPT 1327
SYS 000001100011001 RGS D1C0BC430368 25B1
SYS decimal 00793 MAINT D1C0DC650200 D7E8
Control Channel 0201 MAINT D1C0DC650240 5979
Traffic Channel 0258 MAINT D1C0DC650220 90A1
MAINT D1C0DC650200 D7E8

Type COMMON PREFIX
Call NON EMERGENCY

Mobile1 081-6171 Status:
Group1 0002 SN :
Oper : 0 Pressel on
No : 8031

Mobile2 081-6167 ERR: -0.46 kHz
Group2 0002 DEV: +1.65 kHz
Status Info 05 -1.66 kHz
RF-Level: - 60.0 dBm PWR: 6.09 W

```

`ETC.(1) REGISTR. RELEASE MOBILE TSC RETURN`

Fig. 10.6: Test mask after call from mobile under test.

Call to mobile under test

- Why?** Test whether the mobile can receive a call. The following types of call can be tested: Interprefix, Common Prefix, PABX and PSTN.
- How?**
- Register mobile under test.
 - Set type of call in `Type` scroll field.
 - `(TSC)` starts test (halt with `(STOP)`).
- Result**
- Frequency error.
 - Deviation.
 - Transmitted power.
 - Received telegrams in telegram display field.
 - Type of call in `No` field.
 - The `Oper` field shows during the call whether the ringing key is pressed or not. The `Oper` figure 3 confirms clear-down of the call.
- Ending test**
- End call on mobile under test or with `(RELEASE)`.

```

----- TRUNKING MPT 1327 -----
SYS 000001100011001 ACKIq0 D1C0DC2702E0 6A79
SYS decimal 00793 RQ0 00 D1FFF45B0360 F21A
Control Channel 0201 MAINT D1C0DC652100 8F93
Traffic Channel 0202 MAINT D1C0DC652140 0102
Type COMMON PREFIX MAINT D1C0DC652120 CSDA
Call NON EMERGENCY MAINT D1C0DC652100 8F93
Mobile1 081-6171 Status: 00
Group1 0002 SN :
Oper : 0 Pressel on
No : 8190 TSC1
Mobile2 081-6167 ERR: -0.39 kHz
Group2 0002 DEV: +1.17 kHz
Status Info 01 -1.18 kHz
RF-Level: - 60.0 dBm PWR: 6.81 W

```

ETC.(1) REGISTR. RELEASE MOBILE TSC RETURN

Fig. 10.7: Test mask after call to mobile under test.

Group call from mobile under test

Why? Test whether the mobile can send a group call. The calls Interprefix and Common Prefix are tested.

How?

- Register mobile under test.
- Set type of call in `Type` scroll field.
- (`GROUPMOB`) starts test (halt with (`STOP`)).
- Trigger group call on mobile under test.

Result

- Frequency error.
- Deviation.
- Transmitted power.
- Received telegrams in telegram display field.
- Type of call in `No` field.
- The `Oper` field shows during the call whether the ringing key is pressed or not. The `Oper` figure 3 confirms clear-down of the call.

Ending test ○ End call on mobile under test or with (`RELEASE`).

```

----- TRUNKING MPT 1327 -----
SYS 000001100011001 RQS D1F344430368 4C7A
SYS decimal 00793 MAINT D1C0DC652100 8F93
Control Channel 0201 MAINT D1C0DC652140 0102
Traffic Channel 0209 MAINT D1C0DC652120 C8DA
                                MAINT D1C0DC652100 8F93
Type COMMON PREFIX
Call NON EMERGENCY
Mobile1 081-6171 Status:
Group1 0002 SN :
Oper : 0 Pressel on
No : 7784
Mobile2 081-6167 ERR: -0.40 kHz
Group2 7784 DEV: +0.44 kHz
Status Info 01 -0.46 kHz
RF-Level: - 60.0 dBm PWR: 6.85 W

```

`ETC.(2)` `SER. NO.` `NEW CHAN` `GROUPMOB` `GROUPTSC` `RETURN`

Fig. 10.8: Test mask after group call from mobile under test.

Group call to mobile under test

- Why?** Test how the mobile reacts to a group call. The calls Interprefix, Common Prefix, PABX and PSTN are tested.
- How?**
- Register mobile under test.
 - Set type of call in `Type` scroll field.
 - (`GROUPTSC`) starts test (halt with (`STOP`)).
- Result**
- Frequency error.
 - Deviation.
 - Transmitted power.
 - Received telegrams in telegram display field.
 - Type of call in `No` field.
 - The `Oper` field shows during the call whether the ringing key is pressed or not. The `Oper` figure 3 confirms clear-down of the call.
- Ending test**
- End call on mobile under test or with (`RELEASE`).

```

.....TRUNKING MPT 1327 .....
SYS 000001100011001 MAINT D1C0DC652100 8F93
SYS decimal 00793 MAINT D1C0DC652140 0102
Control Channel 0201 MAINT D1C0DC652120 CBDA
Traffic Channel 0209 MAINT D1C0DC652100 8F93
-----
Type COMMON PREFIX
Call NON EMERGENCY
-----
Mobile1 081-6171 Status:
Group1 7784 SN :
Oper : 0 Pressel on
No :
-----
Mobile2 081-6167 ERR: -0.42 kHz
Group2 7784 DEV: +0.15 kHz
Status Info 01 -0.16 kHz
RF-Level: - 60.0 dBm PWR: 6.85 W
    
```

ETC.(2) SER. NO. NEW CHAN GROUPMOB GROUPTSC RETURN

Fig. 10.9: Test mask after group call to mobile under test.

Conference call established by mobile under test

Why? Test whether the mobile can include a third mobile, simulated by the Communication Test Set, in an ongoing call. The calls Interprefix, Common Prefix, PABX and PSTN are tested.

How?

- Register mobile under test.
- Set type of call in `Type` scroll field.
- Trigger call to or from mobile under test.
- `(INCL MOB)` starts test (halt with `(STOP)`).
- Trigger conference call on mobile under test.

Result

- Frequency error.
- Deviation.
- Transmitted power.
- Received telegrams in telegram display field.
- Type of call in `No` field.
- The `Oper` field shows during the call whether the ringing key is pressed or not. The `Oper` figure 3 confirms clear-down of the call.

Ending test ○ End call on mobile under test or with `(RELEASE)`.

```

TRUNKING MPT 1327
SYS 000001100011001 RQS D1C0B4430360 ASED
SYS decimal 00793 MAINT D1C0DC652100 8F93
Control Channel 0201 MAINT D1C0DC652140 0102
Traffic Channel 0289 MAINT D1C0DC652120 CBDA
                                MAINT D1C0DC652100 8F93
Type COMMON PREFIX
Call NON EMERGENCY
Mobile1 081-6171 Status:
Group1 7784 SN :
Oper : 0 Pressel on
No : 6166
Mobile2 081-6166 ERR: -0.43 kHz
Group2 7784 DEV: +0.15 kHz
Status Info 01 -0.17 kHz
RF-Level: - 60.0 dBm PWR: 6.85 W

```

`ETC.(3) INCL MOB INCL TSC STAT MOB STAT TSC RETURN`

Fig. 10.10: Test mask after mobile under test has included third mobile, simulated by Communication Test Set, in ongoing call.

Including mobile under test in conference call

- Why?** Test whether the mobile can be included in a conference call. The calls Interprefix, Common Prefix, PABX and PSTN are tested.
- How?**
- Register mobile under test.
 - Set type of call in `Type` scroll field.
 - `(INCL TSC)` starts test (halt with `(STOP)`).
- Result**
- Frequency error.
 - Deviation.
 - Transmitted power.
 - Received telegrams in telegram display field.
 - Type of call in `No` field.
 - The `Oper` field shows during the call whether the ringing key is pressed or not. The `Oper` figure 3 confirms clear-down of the call.
- Ending test**
- End call on mobile under test or with `(RELEASE)`.

```

----- TRUNKING MPT 1327 -----
SYS 000001100011001 ACKIq0 D1C0DC27FF40 02B9
SYS decimal 00793 RQ0 00 D1FFF45B0360 F21A
Control Channel 0201 MAINT D1C0DC652100 8F93
Traffic Channel 0209 MAINT D1C0DC652140 0102
                                MAINT D1C0DC652120 CBDA
                                MAINT D1C0DC652100 8F93

Type COMMON PREFIX
Call NON EMERGENCY

Mobile1 081-6171      Status: 00
Group1 7784          SN   :
                                Oper : 0 Pressel on
                                No   : 8190 TSCI

Mobile2 081-6167      ERR:  -0.42 kHz
Group2 7784          DEV:  +0.13 kHz
Status Info 01       -0.15 kHz
RF-Level: - 60.0 dBm PWR:  6.85 W
    
```

ETC.(3) INCL MOB INCL TSC STAT MOB STAT TSC RETURN

Fig. 10.11: Test mask after mobile under test has been included as third subscriber in ongoing call simulated by Communication Test Set.

Querying status of mobile under test

- Why?** Test whether the mobile can send a status message. The calls Interprefix and Common Prefix are tested.
- How?**
- Register mobile under test.
 - (STAT MOB) starts test (halt with (STOP)).
- Result**
- Status in Status field.

```

TRUNKING MPT 1327
SYS 000001100011001 RQ0 23 D1C0B45B0377 FC94
SYS decimal 00793
Control Channel 0201
Traffic Channel 0209

Type COMMON PREFIX
Call NON EMERGENCY

Mobile1 081-6171 SN :
Group1 7784 Oper : 6166
No :

Mobile2 081-6166 ERR:
Group2 7784 DEV:
Status Info 01

RF-Level: - 60.0 dBm PWR:

```

Fig. 10.12: Test mask after querying status of mobile under test.

ETC.(3) INCL MOB INCL TSC STAT MOB STAT TSC RETURN

Sending status to mobile under test

- Why?** Test whether the mobile reacts correctly to a status message. The calls Interprefix and Common Prefix are tested.
- How?**
- Register mobile under test.
 - Set type of call.
 - (STAT TSC) starts test (halt with (STOP)).
- Result**
- Status on display of mobile under test.

```

TRUNKING MPT 1327
SYS 000001100011001 ACK q0 D1C0DC2302C0 C994
SYS decimal 00793
Control Channel 0201
Traffic Channel 0209

Type COMMON PREFIX
Call NON EMERGENCY

Mobile1 081-6171 SN :
Group1 7784 Oper : 6166
No :

Mobile2 081-6166 ERR:
Group2 7784 DEV:
Status Info 00

RF-Level: - 60.0 dBm PWR:

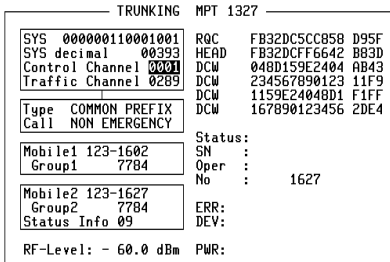
```

Fig. 10.13: Test mask after sending status to mobile under test.

ETC.(3) INCL MOB INCL TSC STAT MOB STAT TSC RETURN

Receiving data telegram from mobile under test

- Why? Test whether the mobile can send data telegrams. The calls Interprefix, Common Prefix, PABX and PSTN are tested.
- How? Register mobile under test.
 (SDM MOB) starts test (halt with (STOP)).
 Send data telegrams from mobile under test.
- Result Data telegrams are displayed in telegram field.



ETC.(4) [REDACTED] [REDACTED] SDM MOB SDM TSC RETURN

Fig. 10.14: Test mask after receiving four data telegrams from mobile under test.

Sending data telegram to mobile under test

- Why? Test whether the mobile can receive data telegrams. The calls Interprefix, Common Prefix, PABX and PSTN are tested.
- How? Enter data telegram in Parameter mask.
 Register mobile under test.
 Set type of call.
 (SDM TSC) starts test (halt with (STOP)).
- Result Reaction of mobile under test to data telegram.

Change channel

- Why? Test whether the mobile changes channel. Changes of channel can be made on the control channel and the traffic channel.
- How?
- Change control channel:
- Register mobile under test.
 - Enter new, valid control channel in `Control Channel` field.
 - `(NEW CHAN)` starts test (halt with `(STOP)`).
- Change traffic channel:
- Register mobile under test.
 - Start call with `(MOBILE)` or `(TSC)` (mobile must be on traffic channel).
 - Enter new, valid traffic channel in `Traffic Channel` field.
 - `(NEW CHAN)` starts test (halt with `(STOP)`).
- Result
- Change control channel: mobile must remain registered.
 - Change traffic channel: call must be maintained.

What is Trunking?

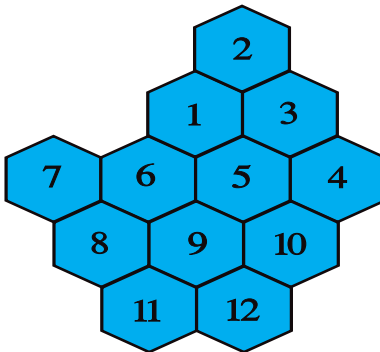
Trunking is a very complex system that could fill whole books. This is just a summary to show the ideas behind it, and as an example the setup of a normal call is explained.

Trunking, also known as trunked radio, is a further development of radiotelephony. In conventional radiotelephony all users have a frequency band that they can use at the same time. So undisturbed communication is not easy, because everyone can speak when he wants to. Private, for example business, matters can hardly be spoken of because all other users can listen in.

Trunking avoids these disadvantages. When one user calls another, a TSC (trunking system controller) chooses a free traffic channel from a trunk of channels. This traffic channel is only available to the two users for the duration of the call. Other users cannot listen in to them.

The TSC manages all operations in a trunking network. Each network is divided into small cells. So trunking sets can work with low and constant transmitter power and still produce reliable communication.

Fig. 10.15: Network of twelve cells.



In large networks there are a number of TSCs, which are then controlled by an MSC (master system controller).

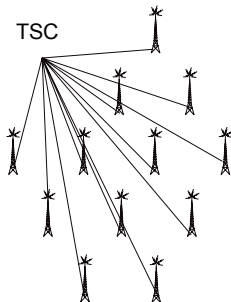


Fig. 10.16: Central system, one TSC (trunking system controller) controls all cells.

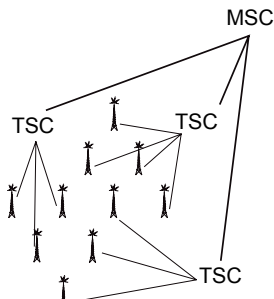
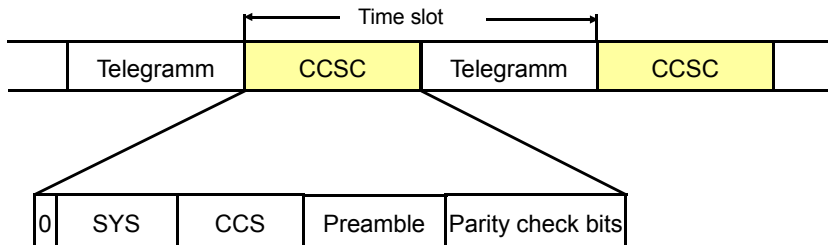


Fig. 10.17: Decentralized system, cells are assigned to several TSCs, which are controlled by one MSC (Master System Controller).

To prevent excessively long calls and thus long waiting times for a free traffic channel, trunking operators limit the speaking time. The TSC interrupts a connection if the permitted time is exceeded.

The signalling operations in trunking are digital and on a separate channel, the control channel. By means of telegrams (address code words) the TSC issues instructions to the subscriber sets or receives call requests.

The control channel is split up into time slots with a duration of 107 ms. In each time slot first the CCSC (control channel system code word) is transmitted and then a telegram.



The CCSC consists of the SYS (system identity code), the CCS (code word completion sequence), the preamble and parity check bits. The preamble and parity check bits are defined in the specifications. The CCS is computed from the CCSC. The first bit of the CCSC is always 0.

The SYS contains important network information: the number of the network, the number of the cell in which transmission takes place and bits with which operating restrictions of the mobiles are coded for example. The significance of the individual bits is left to the network operators.

When the TSC is idling, it continuously transmits Aloha telegrams (after the CCSC). This more or less means "If anyone wants something, he can ask".

When a mobile is turned on, it first checks whether the SYS that it receives from the TSC is identical to its own. If it is, the mobile can check into or register in the cell of the network. The service display on the mobile then signals that calls can be transmitted and received. If the SYS is not identical, the mobile is not allowed in the network or the cell, so it will not register.

To send a normal call, the mobile waits for an Aloha telegram from the TSC. Then it sends a request telegram (RQS = request simple call message). The TSC checks whether the called mobile can be reached. It sends a set-related Ahoy telegram. This means that the mobile is requested to report in. It does this with an acknowledge telegram. Finally the TSC sends both mobiles a GTC telegram (goto channel telegram) with the number of the traffic channel on which the call is to be made. After that the TSC again transmits Aloha telegrams.

Speed Summary

Parameter mask	
Entry fields	
System	Setting of trunked-radio system (MPT 1327 or PAA 2424)
Lower Band Base Freq. (LBBF)	Frequency of lower band
Channel Correspond. to LBBF	Channel number corresponding to LBBF
Duplex Space	Duplex spacing
Channel Space	Channel spacing
Channel No.	Scroll variable that determines, with increasing channel number, whether value of carrier frequency rises (Freq. ↑) or falls (Freq. ↓)
RX Frequency	Scroll variables that determine whether mobile receives in Upper Band or Lower Band
Channel Number Offset	Entry of channel offset
Type of Ident Display	Scroll variable that determines whether call number of mobile appears in test mask in form Prefix-Ident or NP-FIN-UN
LEN	Scroll variable that determines number of following data code words 0 = 1 data code word, 1 = 2 data code words, 2 = 3 data code words, 3 = 4 data code words
RSA1-RSA4	Return slot access flag
Data codeword 1-4	Data telegrams 1-4
Softkeys	
<input type="button" value="TEST"/>	Call up test mask
<input type="button" value="RETURN"/>	Call up OPTION CARD mask
Test mask	
Entry fields	
SYS	System identity code
SYS decimal	System identity code decimal
Control Channel	Number of valid control channel
Type	Scroll variable that determines type of call
Call	Scroll variable that determines whether normal call or emergency call is transmitted
Traffic Channel	Number of traffic channel
Mobile1	Call number of mobile (is also result field)
Group1	Group number of mobile

Mobile2	Call number of virtual mobile (is simulated by STABLOCK)
Group2	Group number of virtual mobile (is simulated by STABLOCK)
Status Info	Status of virtual mobile
RF Level	RF output level of Communication Test Set
Result fields	
Mobile1	Call number of mobile (is also entry field)
Telegram field	Display of first five telegrams and last telegram received
Status	Status of mobile (after (STATUS))
SN	Serial number of mobile (after (SER. NR))
Oper	Pressel on, pressel off, pressel continuously on, call ended
No	Call number and type transmitted by mobile
ERR	Frequency error of mobile
DEV	Frequency deviation of mobile
PWR	Transmitted power of mobile

Softkeys	
(ETC.(1-4))	Switches to next softkey level
(REGISTR.)	Requests mobile under test to register
(RELEASE)	Clears down connection (mobile stays on control channel)
(MOBILE)	Starts test "Mobile calls"
(TSC)	Starts test "Mobile is called"
(RETURN)	Calls up parameter mask
(SER. NO.)	Queries serial number of mobile
(NEW CHAN)	Changes from current channel to new channel
(GROUPMOB)	Group call from mobile
(GROUPTSC)	Group call from Communication Test Set
(INCL MOB)	Mobile includes third mobile (virtual mobile) in ongoing call
(INCL TSC)	Communication Test Set includes mobile as third mobile in ongoing call
(STAT MOB)	Status of mobile
(STAT TSC)	Communication Test Set sends status to mobile
(SDM MOB)	Data telegram sent by mobile
(SDM TSC)	Data telegram sent by Communication Test Set

