8.2   AT^MONI   Monitor idle mode and dedicated mode

Cell information can be issued in the form of periodic outputs (depending on **<period>** set with the Write command), or it can be queried directly using the Execute command.

Test command AT^MONI=?	Response ^MONI: (list of supported < **period** >s) **OK**
Write command AT^MONI =<period>	This command can be used to retrieve information of the serving/dedicated cell *automatically* every *n* seconds. To stop the presentation type any character. Note: The two header lines (see below) are output after every ten data lines. Response See execute command Parameter **<period>** 1 – 254 Display period in seconds
Execute command AT^MONI	This command can be used to retrieve the cell parameters of the serving/dedicated cell *on request*. Note: The length of following output lines exceeds 80 characters. Therefore a terminal program may draw a carriage return on a screen. However, this is not part of the response.

Response (Examples)

MS is not connected:

a) MS is camping on a cell and registered to the network:
```
Serving Cell                                    I Dedicated channel
chann rs  dBm MCC MNC  LAC cell NCC BCC PWR RXLev C1 I chann TS timAdv PWR  dBm Q ChMod
1013  21  -71 001  01 1001 0103   7   7  33  -105  33 I   No connection
```

b) MS is camping on a cell but <u>not registered</u> to the network (only emergency call allowed):
```
Serving Cell                                    I Dedicated channel
chann rs  dBm MCC MNC  LAC cell NCC BCC PWR RXLev C1 I chann TS timAdv PWR  dBm Q ChMod
 477  21  -71 123 456 A123 B456   5   3  33  -105  33 I   Limited Service
```

c) MS is camping on a cell but searching for a better cell (cell reselection)
```
Serving Cell                                    I Dedicated channel
chann rs  dBm MCC MNC  LAC cell NCC BCC PWR RXLev C1 I chann TS timAdv PWR  dBm Q ChMod
1013   4 -106 001  01 1001 0103   7   7  33  -105  -1 I   Cell Reselection
```

d) MS is searching, could not (yet) find a suitable cell
```
Serving Cell                                    I Dedicated channel
chann rs  dBm MCC MNC  LAC cell NCC BCC PWR RXLev C1 I chann TS timAdv PWR  dBm Q ChMod
  Searching
```

MS is connected:

```
Serving Cell                                    I Dedicated channel
chann rs  dBm MCC MNC  LAC cell NCC BCC PWR RXLev C1 I chann TS timAdv PWR  dBm Q ChMod
1013  19  -76 001  01 1001 0103   7   7  33  -105  33 I 1015   1     0   5 -76 0 S HR
```

Parameters	*Serving Cell:*	
	chann	ARFCN (Absolute Frequency Channel Number) of the BCCH carrier
	rs	RSSI value 0 – 63 (RSSI = Received signal strength indication)
	dBm	receiving level of the BCCH carrier in dBm
	MCC	Mobile Country Code (first part of the PLMN code)
	MNC	Mobile Network Code (second part of the PLMN code)
	LAC	location area code, see note below.
	cell	cell ID, see note below.
	NCC	PLMN colour code
	BCC	base station colour code
	PWR	maximal power level used on RACH channel in dBm
	RXLev	minimal receiving level (in dBm) to allow registration
	C1	cell selection criterion

Dedicated channel:

chann	ARFCN (Absolute Frequency Channel Number) of the TCH carrier Note: <**chann**> = **h** indicates frequency hopping.
TS	timeslot number
timAdv	timing advance in bits
PWR	current power level
dBm	receiving level of the traffic channel carrier in dBm
Q	receiving quality (0–7)
ChMod	channel mode (S_HR: Half rate, S_FR: Full rate, S_EFR: Enhanced Full Rate)

Depending on the service state, an additional textual output is generated (refer also to the response examples):

'Searching' - The MS is searching, but could not (yet) find a suitable cell. This output appears after restart of the MS or after loss of coverage.

'No connection' - The MS is camping on a cell and registered to the network. The service state is 'idle', i.e. there is no connection established or a dedicated channel in use.

'Cell Reselection' - The MS has not yet lost coverage but is searching for a better cell, since the cell reselection criterion is fulfilled.

'Limited Service' - The MS is camping on a cell but not registered to the network. Only emergency calls are allowed. The MS enters this state, for example, when
- no SIM card is inserted, or PIN has not been given,
- neither Home PLMN nor any other allowed PLMN are found,
- registration request was not answered or denied by the network (use command AT+CREG to query the registration status),
- authentication failed.

Reference	Note
Siemens	• The parameters **LAC** and **cell** are presented as hexadecimal digits, the remaining parameters are composed of decimal digits. • If the radio cell changes during a connection, the parameters **PWR**, **RXLev** and **C1** of the 'Serving Cell' part are not available under certain conditions and therefore, are displayed as "-" (for conditions see also +**CREG**, pg 137). This is because the MS does not update the cell selection and reselection parameters since, in this mode, they are not relevant for operation. When the connection ends, and the mobile is back to IDLE mode, correct values will be given. If the radio cell changes during a connection, it normally takes 1 or 2 seconds to update the parameters **cell**, **NCC** and **BCC**. Until the information is received from the new base station, the default values will be shown instead: cell="0000", NCC="-", BCC="-". • If the BS supports frequency hopping <u>during a connection</u>, the dedicated channel (parameter **chann**) is not stable. This mode is indicated by **chann** = '**h**'. • To some extent, the cell monitoring command AT^SMONC covers the same parameters. The receiving level, for example, can be queried with both commands. Yet the resulting values may be slightly different, even though obtained over a time period of a few seconds. This is quite normal and nothing to worry about, as the cell information is permanently updated.