RG50xQ&RM5xxQ Series
FTM Application Note

5G Module Series

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About the Document

Revision History

Version	Date	Author	Description
-	2021-03-16	Duke XIN/ Evan JIN	Creation of the document
1.0	2021-04-20	Duke XIN/ Evan JIN	First official release

Contents

Table Index

1 Introduction

Quectel's 5G RG50xQ series and RM5xxQ series modules support transmitting and receiving in FTM (Factory Test Mode). This document mainly introduces the related AT commands and tests to facilitate RF calibration.

1.1. Applicable Modules

Table 1: Applicable Modules

Module Series	Model
RG500Q	RG500Q-EA
RG502Q	RG502Q-EA
RM500Q	RM500Q-GL
	RM500Q-AE
RM502Q	RM502Q-GL
	RM502Q-AE
RM510Q	RM510Q-GL
RM505Q	RM505Q-AE

2 Description of AT Commands

2.1. AT Command Introduction

2.1.1. Definitions

- **<CR>**   Carriage return character.
- **<LF>**   Line feed character.
- **<...>**   Parameter name. Angle brackets do not appear on the command line.
- **[...]**   Optional parameter of a command or an optional part of TA information response. Square brackets do not appear on the command line. When an optional parameter is not given in a command, the new value equals to its previous value or the default settings, unless otherwise specified.
- **Underline**   Default setting of a parameter.

2.1.2. AT Command Syntax

All command lines must start with **AT** or **at** and end with **<CR>**. Information responses and result codes always start and end with a carriage return character and a line feed character: **<CR><LF><response><CR><LF>**. Throughout this document, only the commands and responses are presented, while carriage return and line feed characters are deliberately omitted.

Table 2: Types of AT Commands

Command Type	Syntax	Description
Test Command	**AT+<cmd>=?**	Test the existence of corresponding Write Command and return information about the type, value, or range of its parameter.
Read Command	**AT+<cmd>?**	Check the current parameter value of a corresponding Write Command.
Write Command	**AT+<cmd>=<p1>[,<p2>[,<p3>[...]]]**	Set user-definable parameter value.
Execution Command	**AT+<cmd>**	Return a specific information parameter or perform a specific action.

2.2. Declaration of AT Command Examples

The AT command examples in this document are provided to help you familiarize with AT commands and learn how to use them. The examples, however, should not be taken as Quectel's recommendation or suggestions about how you should design a program flow or what status you should set the module into. Sometimes multiple examples may be provided for one AT command. However, this does not mean that there exists a correlation among these examples and that they should be executed in a given sequence.

2.3. AT Commands

2.3.1. AT+QRFTEST   RF Tests in FTM for WCDMA/LTE

AT+QRFTEST RF Tests in FTM for WCDMA/LTE	
Test Command **AT+QRFTEST=?**	Response **+QRFTEST: "rx",<type>,<band>,<bw>,<channel>,<chain _idx>,<expected_rxagc>** **+QRFTEST: "tx",<type>,<band>,<bw>,<channel>,<tx_en able>,<tx_power>** **+QRFTEST: "mode",(**list of supported **<mode>**s**)** **OK**

2.3.1.1. AT+QRFTEST="mode"   Query/Set FTM

AT+QRFTEST="mode" Query/Set FTM	
Write Command **AT+QRFTEST="mode"[,<mode>]**	Response If the **<mode>** is omitted, query the current configuration: **+QRFTEST: <mode>** **OK** If the **<mode>** is specified, set FTM: **OK** Or **ERROR**
Maximum Response Time	300 ms

Characteristics	This command takes effect immediately; The configuration will not be saved.

Parameter

<mode>	Integer type. RF test mode.
	0 Online mode
	1 FTM

2.3.1.2. AT+QRFTEST="rx"   Receiving in FTM

AT+QRFTEST="rx" Receiving in FTM	
Write Command **AT+QRFTEST="rx",<type>,<band>,<bw>,<channel>,<chain_idx>,<expected_rxagc>**	Response **+QRFTEST: <rx_agc>,<gain>** **OK** Or **ERROR**
Maximum Response Time	300 ms
Characteristics	This command takes effect immediately; The configuration will not be saved.

Parameter

<type>	Integer type. LTE/WCDMA configuration.
	0 WCDMA
	1 LTE
<band>	Integer type. LTE/WCDMA band.
	1 LTE B1/WCDMA B1
	2 LTE B2/WCDMA B2
	3 LTE B3/WCDMA B3
	4 LTE B4/WCDMA B4
	5 LTE B5/WCDMA B5
	6 LTE B6/WCDMA B6
	7 LTE B7/WCDMA B7
	8 LTE B8/WCDMA B8
	9 LTE B9/WCDMA B9
	10 LTE B10/WCDMA B10
	11 LTE B11/WCDMA B11
	....

	19	LTE B19/WCDMA B19
	20	LTE B20
	28	LTE B28
	....	
\<bw\>	Integer type. LTE/WCDMA bandwidth.	
	0	1.4 MHz
	1	3 MHz
	2	5 MHz
	3	10 MHz
	4	15 MHz
	5	20 MHz
	6	40 MHz
\<channel\>	Integer type. LTE/WCDMA channel, see *Table 3* for details.	
\<chain_idx\>	Integer type. Receiving antenna type.	
	0	PRx
	1	DRx
	2	Rx2
	3	Rx3
\<expected_rxagc\>	Integer type. Expected Rx AGC. Test equipment power level in dBm × 10.	
\<rx_agc\>	Integer type. Tested Rx AGC.	
\<gain\>	Integer type. Rx AGC/10. Unit: dBm.	

NOTE

When performing receiving in FTM for LTE, the setting of the receiving antenna type needs to be in the order of PRx, DRx, Rx2, and Rx3, that is, **\<chain_idx\>** needs to be set in the order of 0, 1, 2, and 3.

Table 3: Rx Channel Distribution of WCDMA/LTE Bands

WCDMA/LTE Bands	Range of Rx Channels (Minimum-Default-Maximum)
LTE B1	0–300–599
LTE B2	600–900–1199
LTE B3	1200–1575–1949
LTE B4	1950–2175–2399
LTE B5	2400–2525–2649
LTE B6	2650–2700–2749
LTE B7	2750–3100–3449

LTE B8	3450–3625–3799
LTE B9	3800–3975–4149
LTE B10	4150–4450–4749
LTE B11	4750–4850–4949
LTE B12	5010–5095–5179
LTE B13	5180–5230–5279
LTE B14	5280–5330–5379
LTE B17	5730–5790–5849
LTE B18	5850–5925–5999
LTE B19	6000–6075–6149
LTE B20	6150–6300–6449
LTE B21	6450–6525–6599
LTE B22	6600–7000–7399
LTE B23	7500–7600–7699
LTE B24	7700–7870–8039
LTE B25	8040–8365–8689
LTE B26	8690–8865–9039
LTE B27	9040–9125–9209
LTE B28	9210–9435–9659
LTE B29	9660-9715-9769
LTE B30	9770–9820–9869
LTE B31	9870–9895–9919
LTE B32	9920–10140–10359
LTE B33	36000–36100–36199
LTE B34	36200–36275–36349

LTE B35	36350–36650–36949
LTE B36	36950–37250–37549
LTE B37	37550–37650–37749
LTE B38	37750–38000–38249
LTE B39	38250–38450–38649
LTE B40	38650–39150–39649
LTE B41	39650–40620–41589
LTE B42	41590–42590–43589
LTE B43	43590–44590–45589
LTE B46	46790–50665–54539
LTE B47	54540–54890–55239
LTE B48	55240–55990–56739
LTE B66	66436–66886–67335
LTE B71	68586–68761–68935
WCDMA B1	10562–10838
WCDMA B2	9662–9938
WCDMA B3	1162–1513
WCDMA B4	1537–1738
WCDMA B5	4357–4458
WCDMA B6	4387–4413
WCDMA B7	2237–2563
WCDMA B8	2937–3088
WCDMA B9	9237–9387
WCDMA B10	3112–3388
WCDMA B11	3712–3812

WCDMA B19	712–763

2.3.1.3. AT+QRFTEST="tx"　Transmitting in FTM

AT+QRFTEST="tx"　Transmitting in FTM	
Write Command **AT+QRFTEST="tx",<type>,<band>,<bw>,<channel>,<tx_enable>,<tx_power>**	Response **OK** Or **ERROR**
Maximum Response Time	300 ms
Characteristics	This command takes effect immediately; The configuration will not be saved.

Parameter

<type>	Integer type. LTE/WCDMA configuration.	
	0	WCDMA
	1	LTE
<band>	Integer type. LTE/WCDMA band.	
	1	LTE B1/WCDMA B1
	2	LTE B2/WCDMA B2
	3	LTE B3/WCDMA B3
	4	LTE B4/WCDMA B4
	5	LTE B5/WCDMA B5
	6	LTE B6/WCDMA B6
	7	LTE B7/WCDMA B7
	8	LTE B8/WCDMA B8
	9	LTE B9/WCDMA B9
	10	LTE B10/WCDMA B10
	11	LTE B11/WCDMA B11
	....	
	19	LTE B19/WCDMA B19
	20	LTE B20
	28	LTE B28
	....	
<bw>	Integer type. LTE/WCDMA bandwidth.	
	0	1.4 MHz
	1	3 MHz
	2	5 MHz
	3	10 MHz

	4 15 MHz
	5 20 MHz
	6 40 MHz
<channel>	Integer type. LTE/WCDMA channel. See *Table 4* for details.
<tx_enable>	Integer type. Enable/disable Tx.
	0 Disable
	1 Enable
<tx_power>	Integer type. A parameter that affects the actual Tx power, and it is recommended to set it to 60.

Table 4: Tx Channel Distribution of WCDMA/LTE Bands

WCDMA/LTE Bands	Range of Tx Channels (Minimum-Default-Maximum)
LTE B1	18000–18300–18599
LTE B2	18600–18900–19199
LTE B3	19200–19575–19949
LTE B4	19950–20175–20339
LTE B5	20400–20525–20649
LTE B6	20650–20700–20749
LTE B7	20750–21100–21449
LTE B8	21450–21625–21799
LTE B9	21800–21975–22149
LTE B10	22150–22450–22749
LTE B11	22750–22850–22949
LTE B12	23010–23095–23179
LTE B13	23180–23230–23279
LTE B14	23280–23330–23379
LTE B17	23730–23790–23849
LTE B18	23850–23925–23999
LTE B19	24000–24075–24149

LTE B20	24150–24300–24449
LTE B21	24450–24525–24599
LTE B22	24600–25000–25399
LTE B23	25500–25600–25699
LTE B24	25700–25870–26039
LTE B25	26040–26365–26689
LTE B26	26690–26865–27039
LTE B27	27040–27125–27209
LTE B28	27210–27435–27659
LTE B29	N/A
LTE B30	27660–27710–27759
LTE B31	27760–27785–27809
LTE B32	N/A
LTE B33	36000–36100–36199
LTE B34	36200–36275–36349
LTE B35	36350–36650–36949
LTE B36	36950–37250–37549
LTE B37	37550–37650–37749
LTE B38	37750–38000–38249
LTE B39	38250–38450–38649
LTE B40	38650–39150–39649
LTE B41	39650–40620–41589
LTE B42	41590–42590–43589
LTE B43	43590–44590–45589
LTE B46	46790–50665–54539

LTE B47	54540–54890–55239
LTE B48	55240–55990–56739
LTE B66	131972–132322–132671
LTE B71	133122–133297–133471
WCDMA B1	9612–9888
WCDMA B2	9262–9538
WCDMA B3	937–1288
WCDMA B4	1312–1513
WCDMA B5	4132–4233
WCDMA B6	4162–4188
WCDMA B7	2012–2338
WCDMA B8	2712–2863
WCDMA B9	8762–8912
WCDMA B10	2887–3163
WCDMA B11	3487–3587
WCDMA B19	312–363

2.3.2. AT+QRFTESTNR5G   RF Tests in FTM for 5G

AT+QRFTESTNR5G RF Tests in FTM for 5G	
Test Command **AT+QRFTESTNR5G=?**	Response **+QRFTESTNR5G: "rx",<type>,<band>,<bw>,<channel>,<chain_idx>,<expected_rxagc>,<tx_relate>** **+QRFTESTNR5G: "tx",<type>,<band>,<bw>,<channel>,<tx_relate>,<tx_enable>,<RGI>,<PA Bias>,<PA current>** **+QRFTESTNR5G: "mode",(**list of supported **<mode>**s**)** **OK**

2.3.2.1. AT+QRFTESTNR5G="mode" Query/Set FTM

AT+QRFTESTNR5G="mode" Query/Set FTM	
Write Command **AT+QRFTESTNR5G="mode"[,<mode>]**	Response If the **<mode>** is omitted, query the current configuration: **+QRFTESTNR5G: <mode>** **OK** If the **<mode>** is specified, set FTM: **OK** Or **ERROR**
Maximum Response Time	300 ms
Characteristics	This command takes effect immediately; The configuration will not be saved.

Parameter

<mode>	Integer type. RF test mode.
	0 Online mode
	1 FTM

2.3.2.2. AT+QRFTESTNR5G="rx" Receiving in FTM

AT+QRFTESTNR5G="rx" Receiving in FTM	
Write Command **AT+QRFTESTNR5G="rx",<type>,<band>,<bw>,<channel>,<chain_idx>,<expected_rxagc>,<tx_relate>**	Response **+QRFTESTNR5G: <rx_agc>** **OK** Or **ERROR**
Maximum Response Time	300 ms
Characteristics	This command takes effect immediately; The configuration will not be saved.

Parameter

\<type\>	Integer type. 5G NR configuration.
	2 5G NR
\<band\>	Integer type. 5G NR band.
	1 n1
	2 n2
	3 n3
	4 Reserved
	5 n5
	6 Reserved
	7 n7
	8 n8
	9 Reserved
	10 Reserved
	11 Reserved
	....
	19 Reserved
	20 n20
	28 n28
	....
\<bw\>	Integer type. 5G NR bandwidth.
	0 1.4 MHz
	1 3 MHz
	2 5 MHz
	<u>3</u> 10 MHz
\<channel\>	Integer type. 5G NR channel, please refer to *Table 5* for details.
\<chain_idx\>	Integer type. Receiving antenna type.
	0 PRx
	1 DRx
\<expected_rxagc\>	Integer type. Expected Rx AGC. Test equipment power level in dBm × 10. The recommended value is -500.
\<rx_agc\>	Integer type. Tested Rx AGC.
\<tx_relate\>	Integer type. Tx1/Tx2 related PRx and DRx. This parameter needs to be used in conjunction with **\<chain_idx\>** to specify a specific receiving chain.
	0 Tx1 related PRx and DRx
	1 Tx2 related PRx and DRx

Table 5: Rx Channel Distribution of 5G NR Bands

5G NR Bands	Range of Rx Channels (Minimum-Maximum)
n1	422000–434000

n2	386000–398000
n3	361000–376000
n5	173800–178800
n7	524000–538000
n8	185000–192000
n20	158200–164200
n28	151600–160600
n38	514000–524000
n41	499200–537999
n50	286400–303400
n51	285400–286400
n66	422000–440000
n70	399000–404000
n71	123400–130400
n74	295000–303600
n75	286400–303400
n76	285400–286400
n77	620000–680000
n78	620000–653333
n79	693334–733333

2.3.2.3. AT+QRFTESTNR5G="tx"   Transmitting in FTM

AT+QRFTESTNR5G="tx" Transmitting in FTM	
Write Command **AT+QRFTESTNR5G="tx",<type>,<band>,<b w>,<channel>,<tx_relate>,<tx_enable>,<RGI**	Response **OK** Or

>,<PAbias>,<PA current>	ERROR
Maximum Response Time	300 ms
Characteristics	This command takes effect immediately; The configuration will not be saved.

Parameter

<type>	Integer type. 5G NR configuration.
	2 5G NR
<band>	Integer type. 5G NR band.
	1 n1
	2 n2
	3 n3
	4 Reserved
	5 n5
	6 Reserved
	7 n7
	8 n8
	9 Reserved
	10 Reserved
	11 Reserved
	....
	19 Reserved
	20 n20
	28 n28
	....
<bw>	Integer type. 5G NR bandwidth.
	0 1.4 MHz
	1 3 MHz
	2 5 MHz
	3 10 MHz
<channel>	Integer type. 5G NR channel, please refer to *Table 6* for details.
<tx_relate>	Integer type. Used to specify the actual Tx.
	0 Tx1, refers to the actual Tx1 port
	1 Tx2, refers to the actual Tx0 port
<tx_enable>	Integer type. Enable/Disable Tx.
	0 Disable
	1 Enable
<RGI>	Integer type. Transceiver output gain. Range: 55–65. The recommended value is 65.
<PA Bias>	Integer type. PA Bias voltage. Range: 3500–4000. The recommended value is 4000.
<PA current>	Integer type. PA current. Range: 2500–3800. The recommended value is 3000.

Table 6: Tx Channel Distribution of 5G NR Bands

5G NR Bands	Range of Tx Channels (Minimum-Maximum)
n1	384000–396000
n2	370000–382000
n3	342000–357000
n5	164800–169800
n7	500000–514000
n8	176000–183000
n20	166400–172400
n28	140600–149600
n38	514000–524000
n41	499200–537999
n50	286400–303400
n51	285400–286400
n66	342000–356000
n70	339000–342000
n71	132600–139600
n74	285400–294000
n75	N/A
n76	N/A
n77	620000–680000
n78	620000–653333
n79	693334–733333

NOTES

For RF tests in FTM mode for WCDMA/LTE//5G:

1. It is recommended to reboot the module after the RF test is completed to ensure that the module works normally.
2. Supported channels and frequency mapping in FTM for 5G is as following table:

Sub-6 Bands	Channels	Frequency
n41	499200	2496000 kHz
n77	620000	3300000 kHz
n78	620000	3300000 kHz
n79	693334	4400010 kHz

3. The RF tests in FTM under the corresponding frequency of 5G can also be performed according to the channels corresponding to n41/n77/n78/n79 specified by 3GPP.
4. It is recommended to complete the RF tests under the same network type at one time. Do not enter or exit the RF modes repeatedly, otherwise the module will easily restart. After completing the RF tests for one network type (5G NR/LTE/WCDMA), it is recommended to restart the module, and then perform the RF tests of the next network type. For example, after completing the 5G NR RF tests, restart the module first, and then perform the LTE RF tests.
5. After each Tx is tested, it is recommended to disable this Tx test first, and then perform other Tx tests.
6. Try not to insert a (U)SIM card during RF tests in FTM.
7. RF tests in FTM only verify whether the antenna path is normal, and cannot be used as a test for the module performance.
8. Commands introduced in this document is only suitable for verification and not for stress testing due to the instability of these commands in stress testing. It is recommended to add a delay in millisecond after each command returns **OK**.
9. For the correspondence between the RG500Q-EA and RG502Q-EA receiving chains specified by **<chain_idx>** and **<tx_relate>** and the actual antenna ports of the RF tests in FTM for 5G, see ***Appendix B***.

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3 Examples

3.1. RF Tests in FTM for WCDMA/LTE

```
AT+QRFTEST=?
+QRFTEST: "rx",<type>,<band>,<bw>,<channel>,<chain_idx>,<expected_rxagc>
+QRFTEST: "tx",<type>,<band>,<bw>,<channel>,<tx_enable>,<tx_power>
+QRFTEST: "mode",(0,1)

OK
AT+QRFTEST="mode",1
OK
AT+QRFTEST="mode"
+QRFTEST: 1

OK
AT+QRFTEST="rx",1,42,3,42590,0,-600
+QRFTEST: -617,-61

OK
AT+QRFTEST="tx",1,42,3,42590,1,60
OK
AT+QRFTEST="mode",0
OK
```

3.2. RF Tests in FTM for 5G

```
AT+QRFTESTNR5G=?
+QRFTESTNR5G: "rx",<type>,<band>,<bw>,<channel>,<chain_idx>,<expected_rxagc>,<tx_relat
e>
+QRFTESTNR5G: "tx",<type>,<band>,<bw>,<channel>,<tx_relate>,<tx_enable>,<RGI>,<PA Bias>,
<PA current>
+QRFTESTNR5G: "mode",(0,1)

OK
```

```
//Enter RF test mode.
AT+QRFTESTNR5G="mode",1
OK
AT+QRFTESTNR5G="mode"
+QRFTESTNR5G:1

OK
//Tests of Tx1 and related Rx.
AT+QRFTESTNR5G="rx",2,41,3,499200,0,-500,0
+QRFTESTNR5G: -49.2

OK
AT+QRFTESTNR5G="tx",2,41,3,499200,0,1,65,4000,3000
OK
AT+QRFTESTNR5G="tx",2,41,3,499200,0,0,65,4000,3000
OK

//Tests of Tx2 and related Rx.
AT+QRFTESTNR5G="rx",2,41,3,499200,0,-500,1
+QRFTESTNR5G: -49.1

OK
AT+QRFTESTNR5G="tx",2,41,3,499200,1,1,65,4000,3000
OK
AT+QRFTESTNR5G="tx",2,41,3,499200,1,0,65,4000,3000
OK

//Repeat other 5G NR sub-6 band tests.
  … …

//Exit from test mode, and enter online mode.
AT+QRFTESTNR5G="mode",0
OK
```
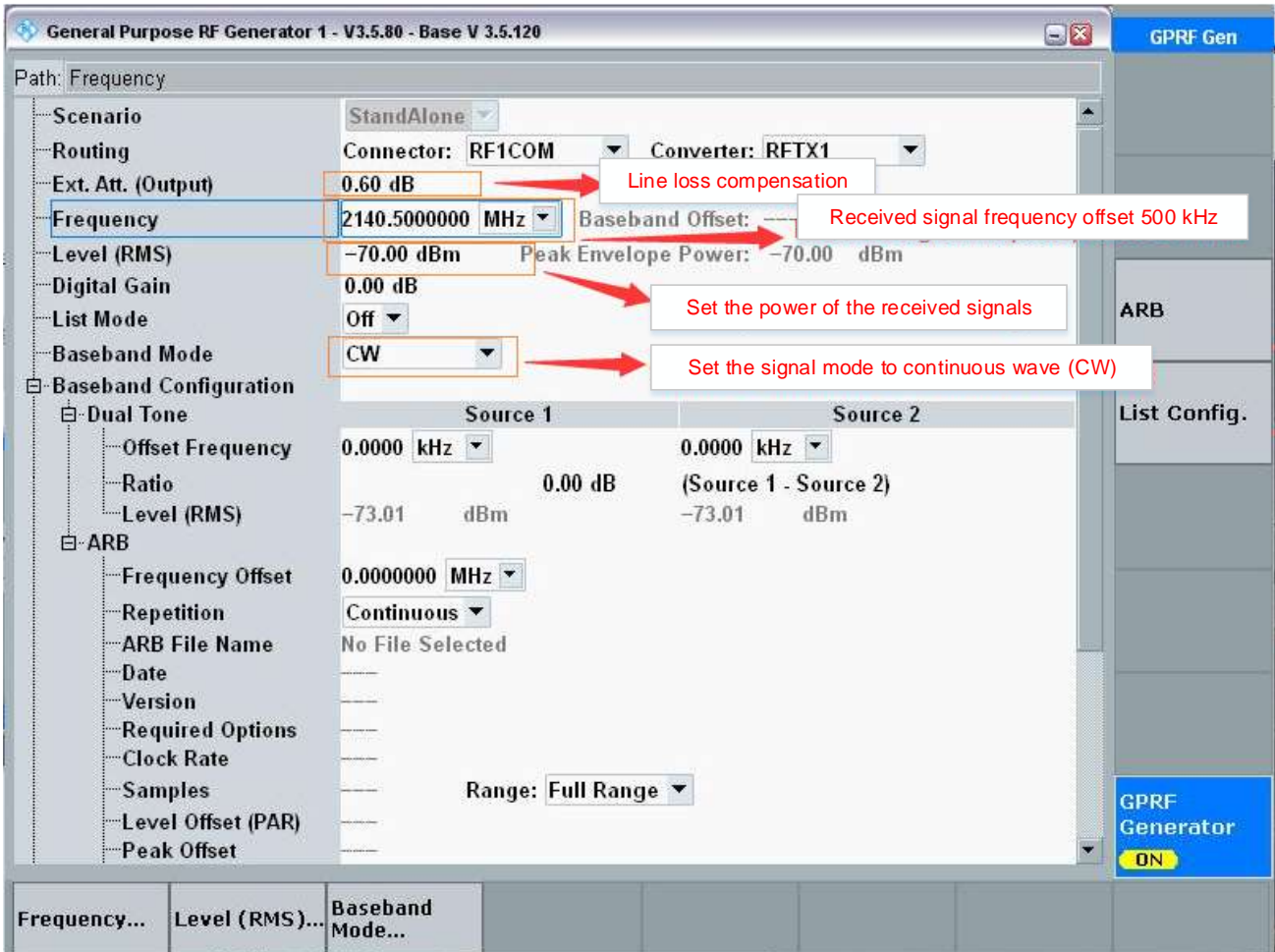
4 CMW500 Configuration for RF Tests

Signal sources which emit continuous waves can be used as the downlink CW signals. If CMW500 is used as a signal source, the following settings can be applied:

5 Appendix A Terms and Abbreviations

Table 7: Terms and Abbreviations

Abbreviation	Description
AGC	Automatic Gain Control
APT	Average Power Tracking
AWS	Amazon Web Services
CW	Continuous Wave
DRx	Diversity Receive
FTM	Factory Test Mode
LTE	Long Term Evolution
PA	Power Amplifier
PRx	Primary Receive
RF	Radio Frequency
Rx	Receive
Tx	Transmit
WCDMA	Wideband Code Division Multiple Access

6 Appendix B Antenna Mapping

Table 8: RG50xQ-EA Antenna Mapping

RATs	Bands	Ant0	Ant1	Ant2	Ant3	Ant4	Ant5	Ant6	Ant7
WCDMA	B1	TRx0	Rx1	-	-	-	-	-	-
	B2	-	-	-	-	-	-	-	-
	B3	TRx0	Rx1	-	-	-	-	-	-
	B4	-	-	-	-	-	-	-	-
	B5	TRx0	Rx1	-	-	-	-	-	-
	B6	TRx0	Rx1	-	-	-	-	-	-
	B8	TRx0	Rx1	-	-	-	-	-	-
	B19	TRx0	Rx1	-	-	-	-	-	-
LTE-FDD	B1	TRx0	Rx1	-	-	Rx2	-	Rx3	-
	B3	TRx0	Rx1	-	-	Rx2	-	Rx3	-
	B5	TRx0	Rx1	-	-	-	-	-	-
	B7	TRx0	Rx1	-	-	Rx2	-	Rx3	-
	B8	TRx0	Rx1	-	-	-	-	-	-
	B11	-	-	-	-	-	-	-	-
	B18	TRx0	Rx1	-	-	-	-	-	-
	B19	TRx0	Rx1	-	-	-	-	-	-
	B20	TRx0	Rx1	-	-	-	-	-	-
	B26	TRx0	Rx1	-	-	-	-	-	-
	B28	TRx0	Rx1	-	-	-	-	-	-

LTE-TDD	B32	TRx0	Rx1	-	-	Rx2	-	Rx3	-
	B34	TRx0	Rx1	-	-	Rx2	-	Rx3	-
	B38	TRx0	Rx1	-	-	Rx2	-	Rx3	-
	B39	TRx0	Rx1	-	-	Rx2	-	Rx3	-
	B40	TRx0	Rx1	-	-	Rx2	-	Rx3	-
	B41	TRx0	Rx1	-	-	Rx2	-	Rx3	-
	B42	-	-	-	-	TRx0	Rx2	Rx1	Rx3
5G NR FR1	n1	TRx0	Rx1	-	-	Rx2	-	Rx3	-
	n3	TRx0	Rx1	-	-	Rx2	-	Rx3	-
	n5	TRx0	Rx1	-	-	-	-	-	-
	n7	TRx0	Rx1	-	-	Rx2	-	Rx3	-
	n8	-	-	-	-	-	-	-	-
	n20	TRx0	Rx1	-	-	-	-	-	-
	n28	TRx0	Rx1	-	-	-	-	-	-
	n38	-	-	-	-	-	-	-	-
	n40	-	-	-	-	-	-	-	-
	n41	TRx1	Rx2	-	-	-	TRx0	Rx3	-
	n77	-	-	-	-	TRx0	TRx1	Rx2	Rx3
	n78	-	-	-	-	TRx0	TRx1	Rx2	Rx3
	n79	Rx3	TRx1	Rx2	TRx0	-	-	-	-
	n80	-	-	-	-	-	-	-	-
	n81	-	-	-	-	-	-	-	-
	n82	-	-	-	-	-	-	-	-
	n83	-	-	-	-	-	-	-	-
	n84	-	-	-	-	-	-	-	-

Table 9: RG50xQ-EA Antenna Mapping of 5G Rx Commands

RATs	Band	Tx1 PRx	Tx1 DRx	Tx2 PRx	Tx2 DRx
5G NR	n41	Ant0	Ant1	Ant5	Ant6
	n77	Ant5	Ant7	Ant4	Ant6
	n78	Ant5	Ant7	Ant4	Ant6
	n79	Ant1	Ant0	Ant3	Ant2

NOTE

As RM5xxQ series include many models, and the antenna port definitions are different, which will not be listed in detail in this document. For details, see the antenna mapping table in the Hardware Design document of the corresponding module. When performing FTM testing of a certain model, if you have any questions about the antenna connection method, please contact Quectel Technical Supports.