
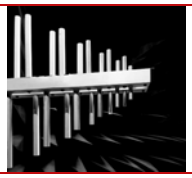
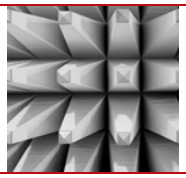

CETECOM ICT Services
consulting - testing - certification

Annex F LTE CA data

Appendix to Test Report No.: 1-6965/13-14-02-E

DAkkS Deutsche Akkreditierungsstelle D-PL-12076-01-01

Testing Laboratory

CETECOM ICT Services GmbH
Untertürkheimer Straße 6 – 10
66117 Saarbrücken/Germany
Phone: + 49 681 5 98 - 0
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e-mail: ict@cetecom.com

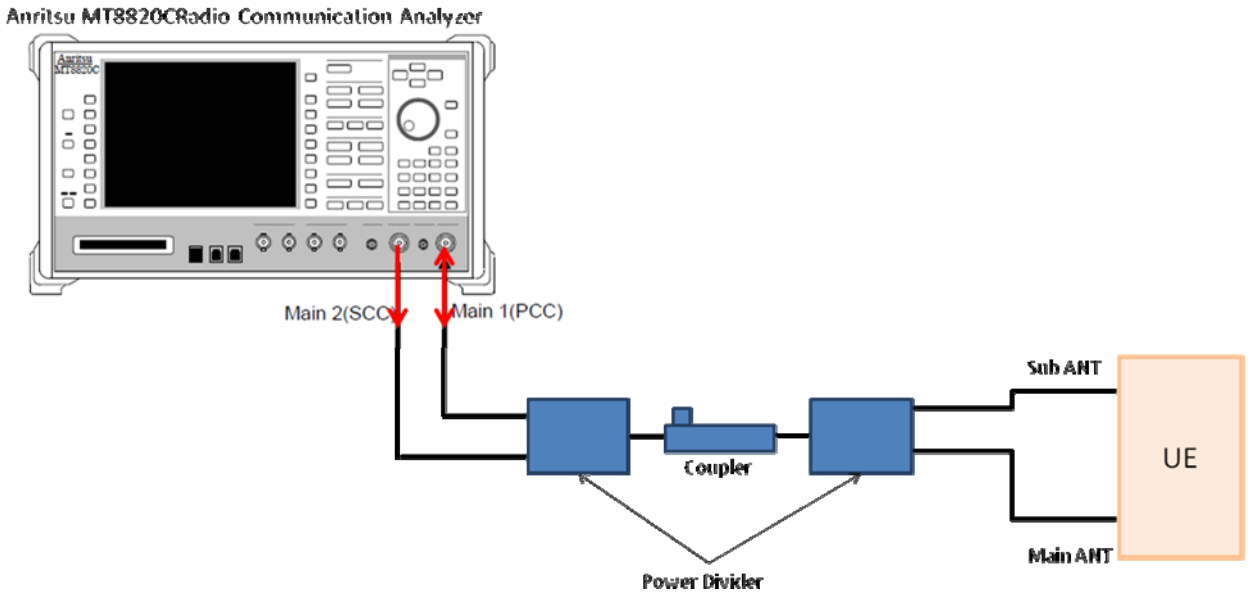
Accredited Test Laboratory:
The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2005) by the Deutsche Akkreditierungsstelle GmbH (DAkkS)
The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number: D-PL-12076-01-01

Annex F presents the measurement setup for LTE Carrier Aggregation conducted measurements and detailed test results as they were provided by the customer.

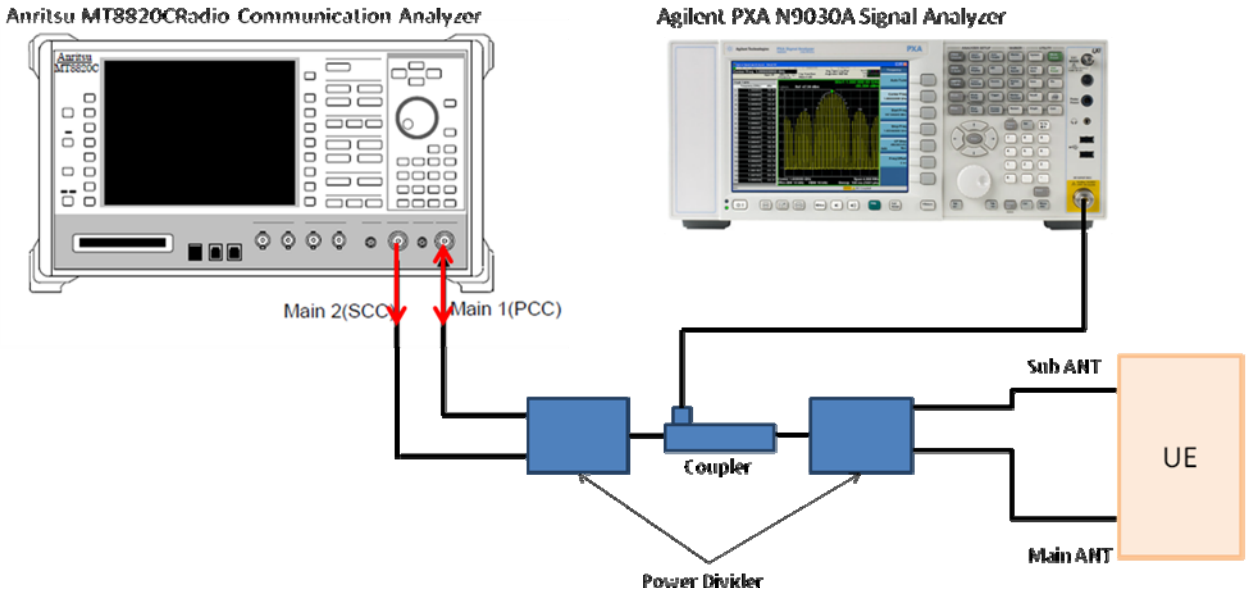
1 Table of contents

1.1 Description of measurement

Measurement setup for output power measurement



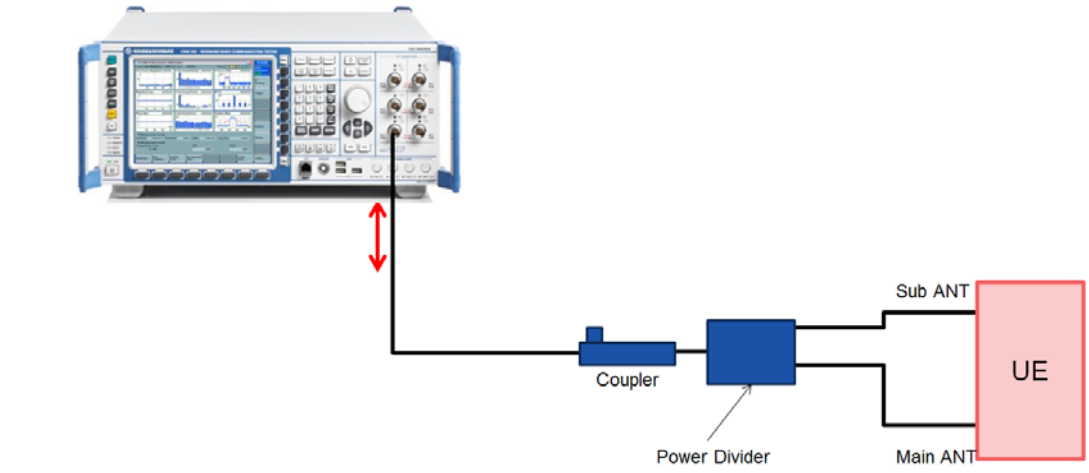
Measurement setup for DL spectrum



Alternatively a R&S CMW 500 was used as shown in the in the following

Measurement Setup for Output power measurement

R&S CMW 500 Radio Communication Tester



Measurement Setup for DL spectrum

R&S CMW 500 Radio Communication Tester

Agilent PSA E4445A Spectrum Analyzer

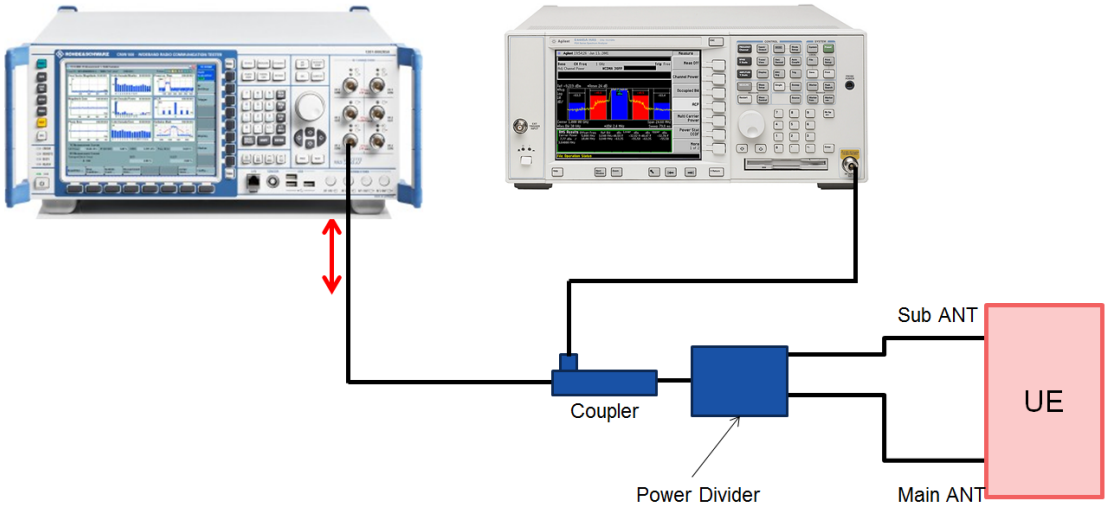
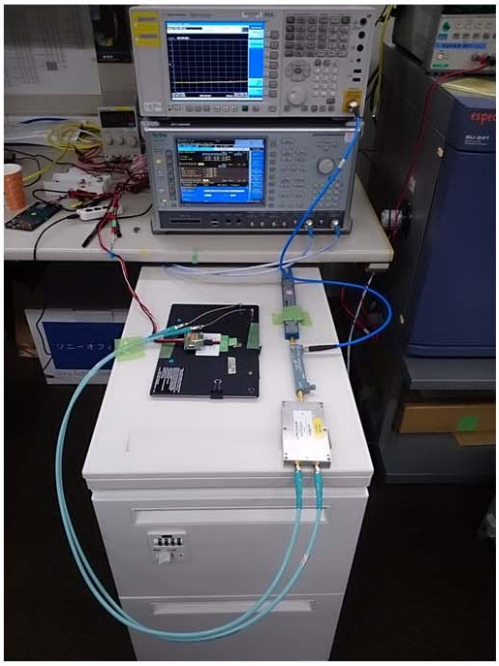


Photo 1/2



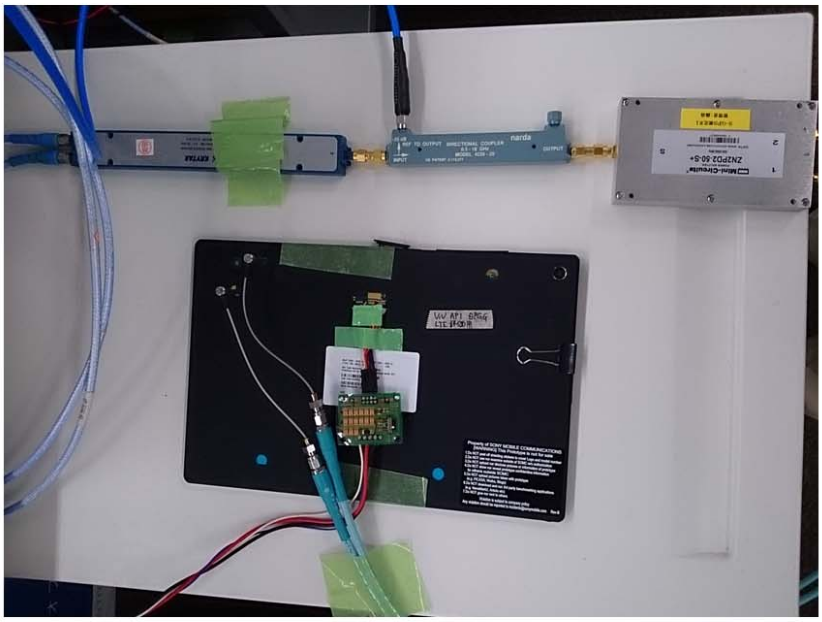
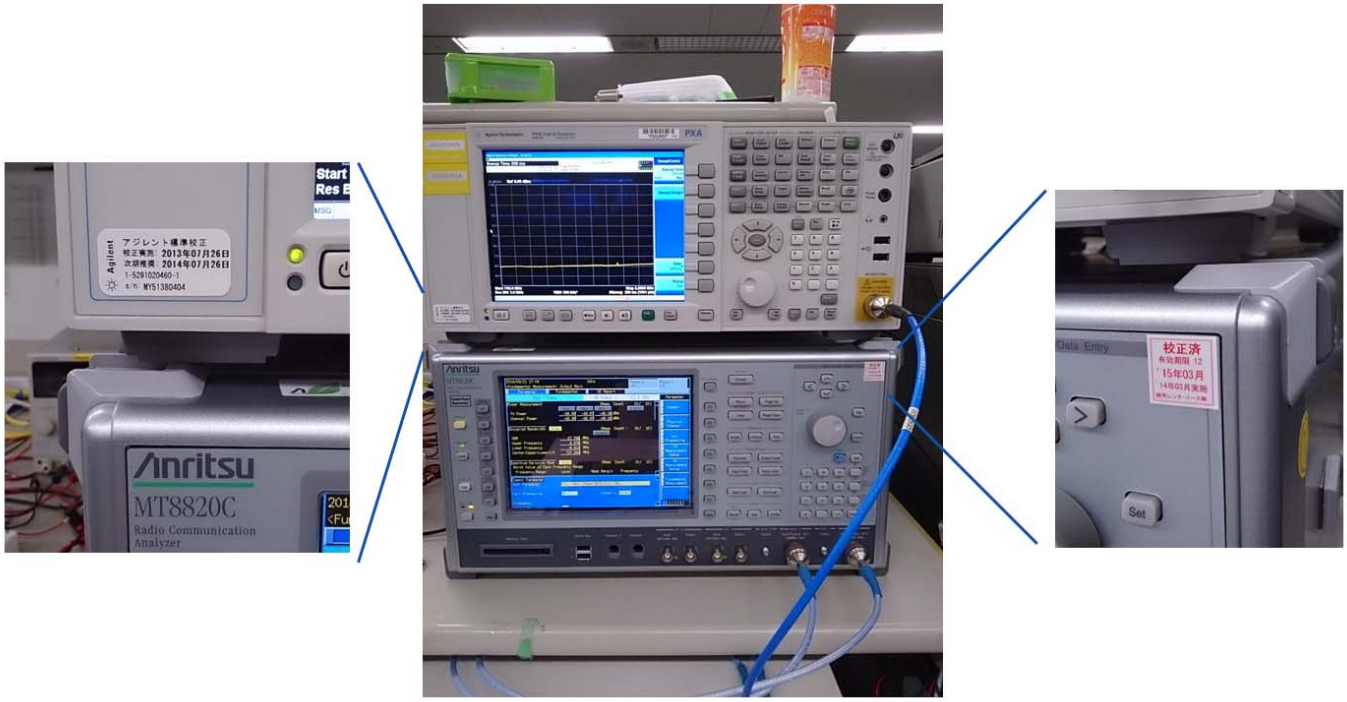


Photo 2/2



1.2 LTE – Carrier Aggregation B4 with second downlink carrier B13

1.2.1 LTE – Carrier Aggregation B4 - B13 – Conducted Power

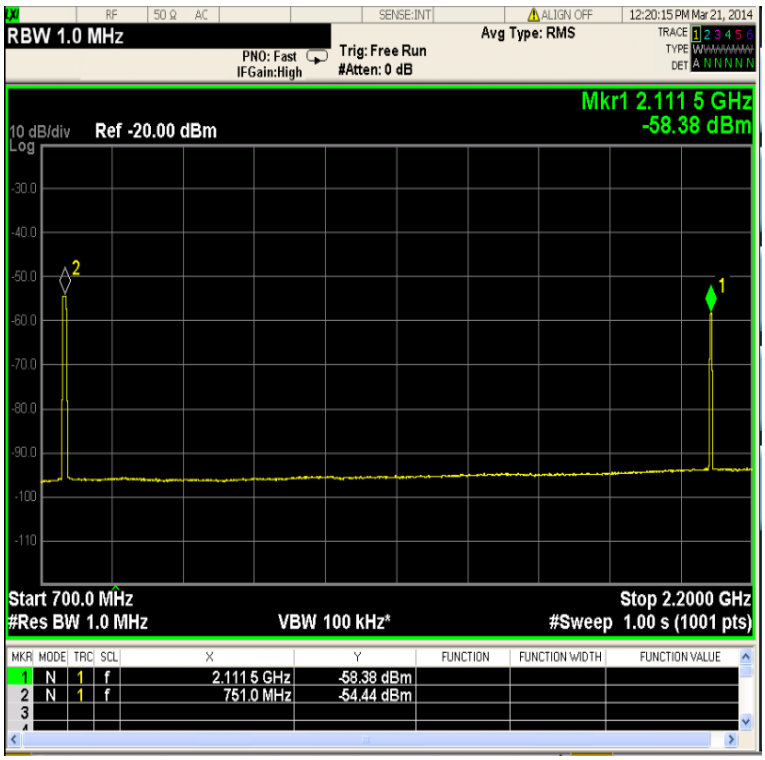
			Output Power (conducted_CA)			Output Power (Conducted_Non-CA)		Deviaton (nonCA - CA) [dB]	
BW [MHz]	Channel / Frequency [MHz]	Resource block allocation	Average Output Power [dBm]	Average Output Power [dBm]	SCC setting (band 13)	Average Output Power [dBm]	Average Output Power [dBm]		
			QPSK	16-QAM		QPSK	16-QAM	QPSK	16-QAM
5	19975 / 1712.5	100% RB	22.1	21.0	10 MHz BW 100% RB	22.2	21.1	0.1	0.1
	20175 / 1732.5	100% RB	21.7	20.8	10 MHz BW 100% RB	21.8	20.8	0.1	0.0
	20375 / 1752.5	100% RB	22.0	21.0	10 MHz BW 100% RB	22.1	21.2	0.1	0.2
10	**20000 / 1715.0**	**100% RB**	**22.1**	**21.1**	**10 MHz BW 100% RB**	22.2	21.1	0.1	0.0
	20175 / 1732.5	100% RB	21.8	20.8	10 MHz BW 100% RB	21.8	20.9	0.0	0.1
	20350 / 1750.0	100% RB	22.1	20.9	10 MHz BW 100% RB	22.1	21.1	0.0	0.2

Table 1: Results for LTE B4 default power.

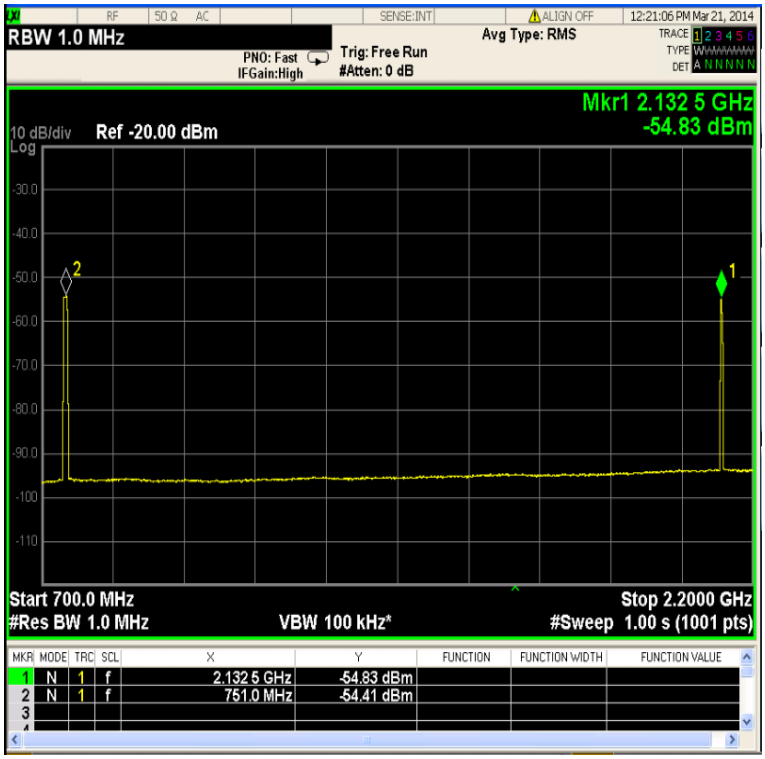
			Output Power (conducted_CA)			Output Power (Conducted_Non-CA)		Deviaton (nonCA - CA) [dB]	
BW [MHz]	Channel / Frequency [MHz]	Resource block allocation	Average Output Power [dBm]	Average Output Power [dBm]	SCC setting (band 13)	Average Output Power [dBm]	Average Output Power [dBm]		
			QPSK	16-QAM		QPSK	16-QAM	QPSK	16-QAM
5	19975 / 1712.5	100% RB	13.0	13.1	10 MHz BW 100% RB	12.5	12.6	-0.5	-0.5
	20175 / 1732.5	100% RB	13.0	13.0	10 MHz BW 100% RB	12.5	12.5	-0.5	-0.5
	20375 / 1752.5	100% RB	13.1	13.1	10 MHz BW 100% RB	12.6	12.6	-0.5	-0.5
10	20000 / 1715.0	100% RB	13.2	13.2	10 MHz BW 100% RB	12.7	12.7	-0.5	-0.5
	20175 / 1732.5	100% RB	13.2	13.0	10 MHz BW 100% RB	12.7	12.5	-0.5	-0.5
	20350 / 1750.0	100% RB	13.3	13.2	10 MHz BW 100% RB	12.8	12.7	-0.5	-0.5

Table 2: Results for LTE B4 back off power.

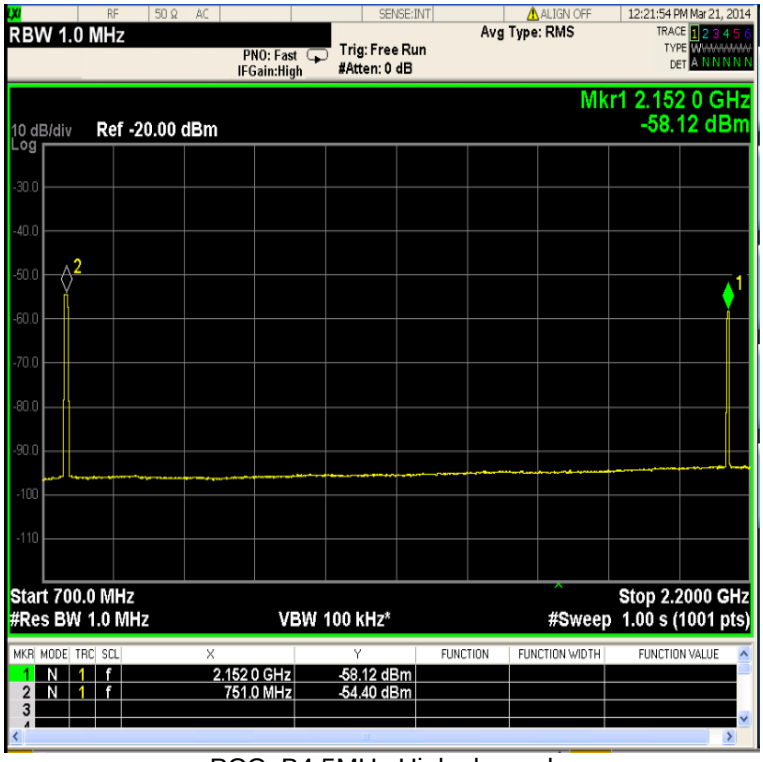
1.2.2 LTE – Carrier Aggregation B4 - B13 – Spectrums



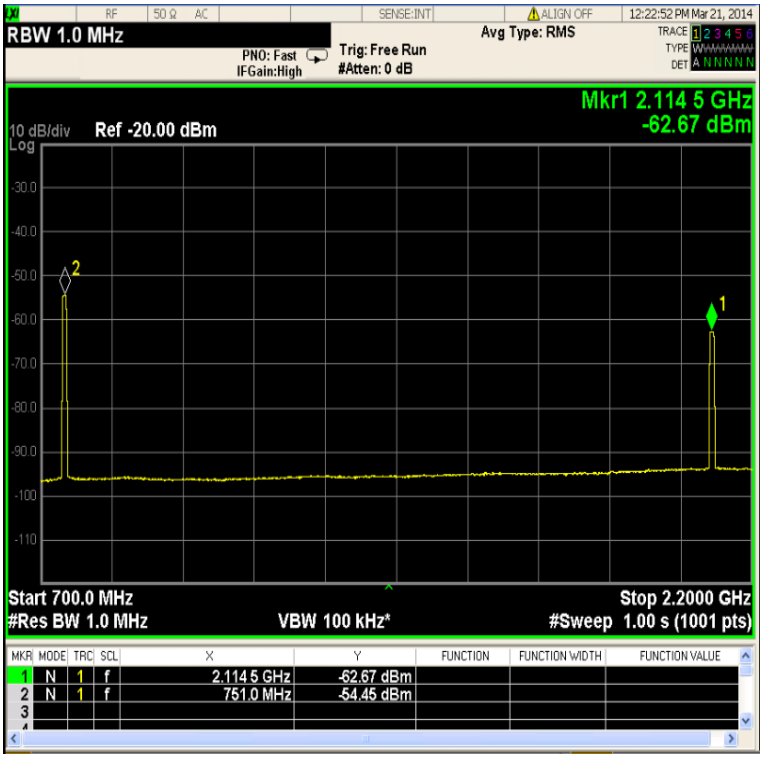
PCC: B4 5MHz Low channel
SCC: B13 10MHz



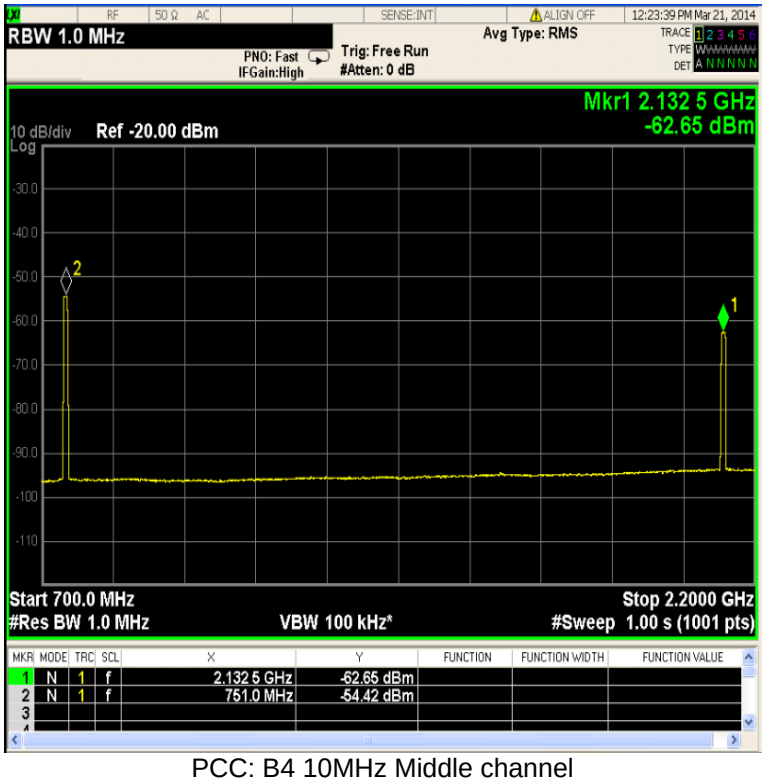
PCC: B4 5MHz Middle channel
SCC: B13 10MHz



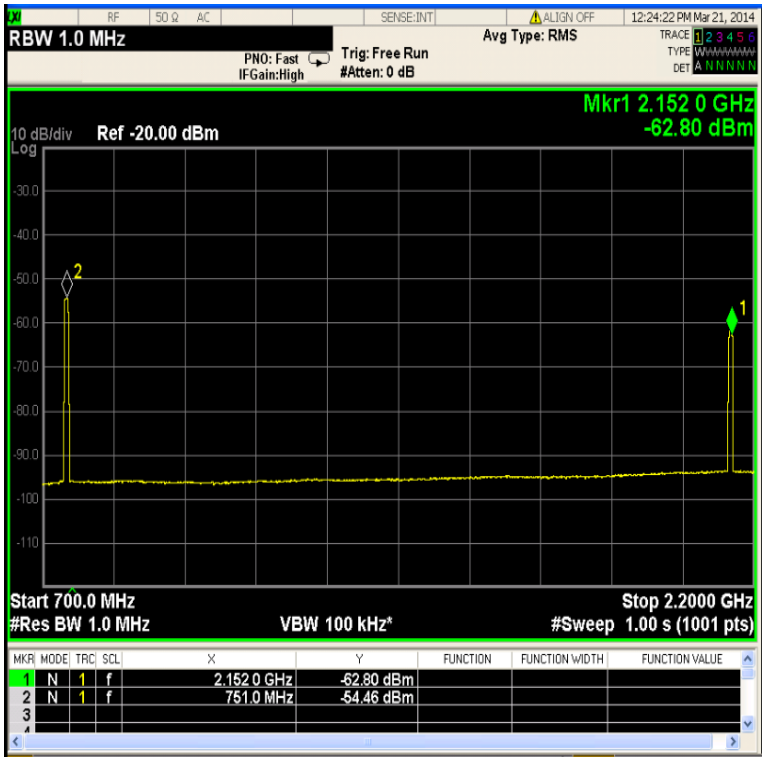
PCC: B4 5MHz High channel
SCC: B13 10MHz



PCC: B4 10MHz Low channel
SCC: B13 10MHz



PCC: B4 10MHz Middle channel
SCC: B13 10MHz

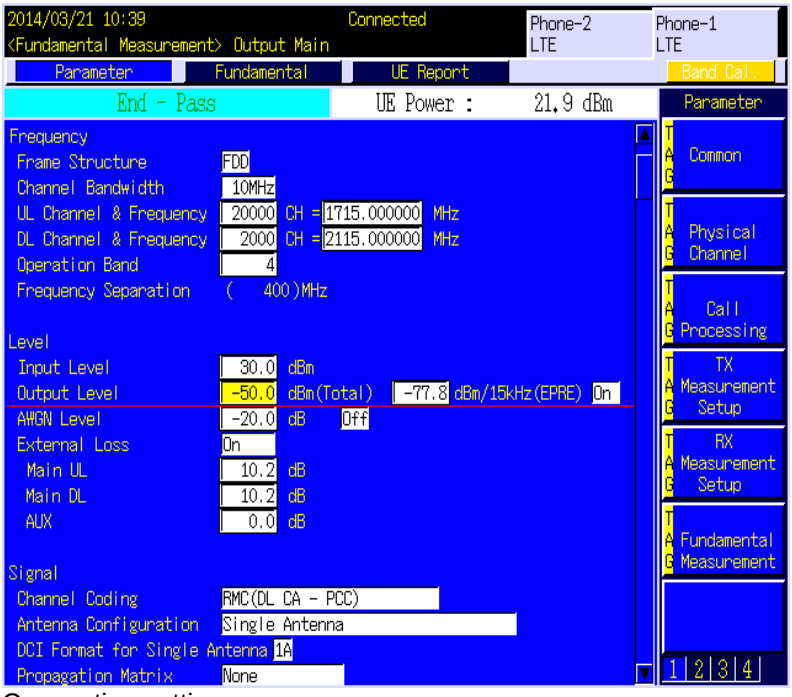


PCC: B4 10MHz High channel
SCC: B13 10MHz

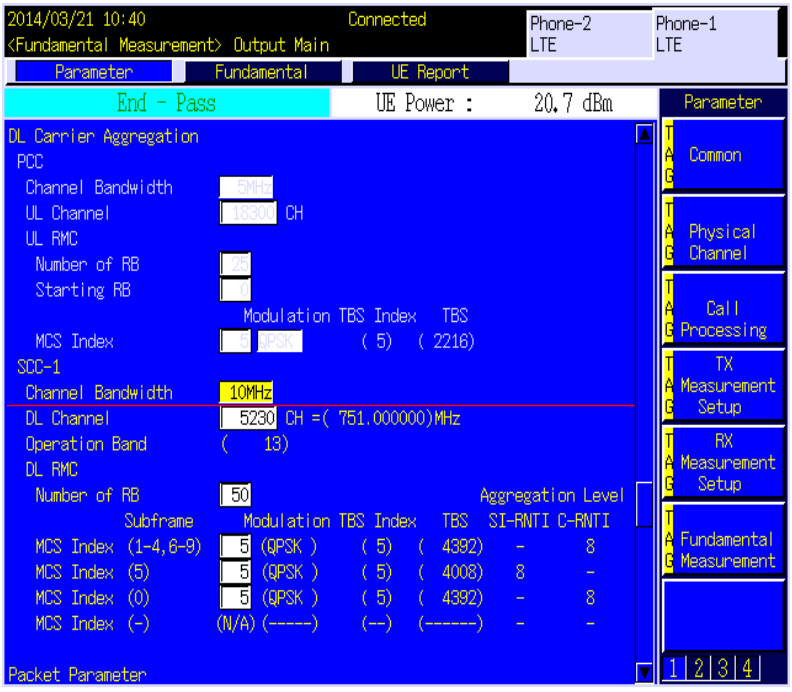
1.2.3 LTE – Carrier Aggregation B4 - B13 – Base station simulator settings

The following plots show the radio communication tester settings (Anritsu MT8820C) for the configuration that produced the highest output power with LTE B4 + B13.

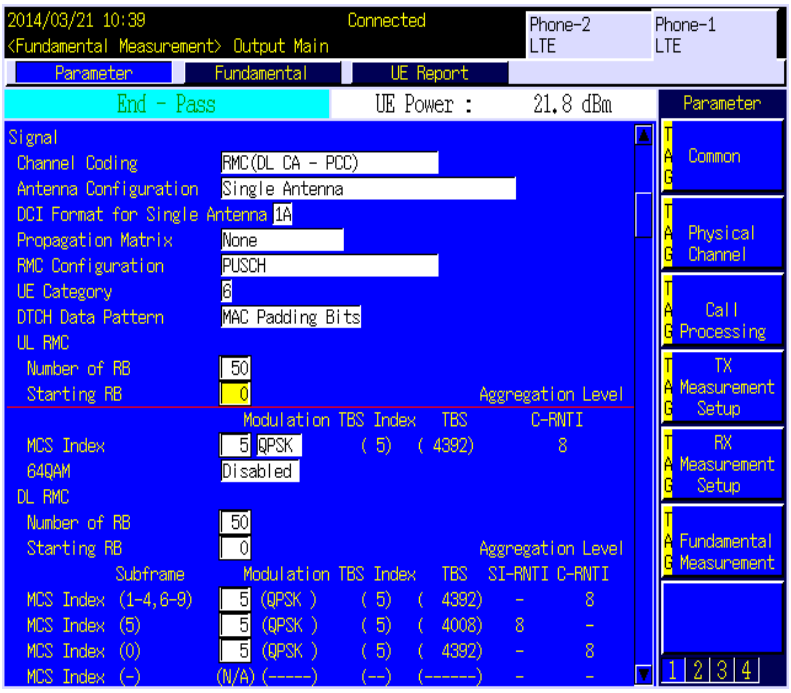
PCC: LTE FDD 4 with 10MHz BW at low channel 20000 (1715.0 MHz) and RB allocation 100%



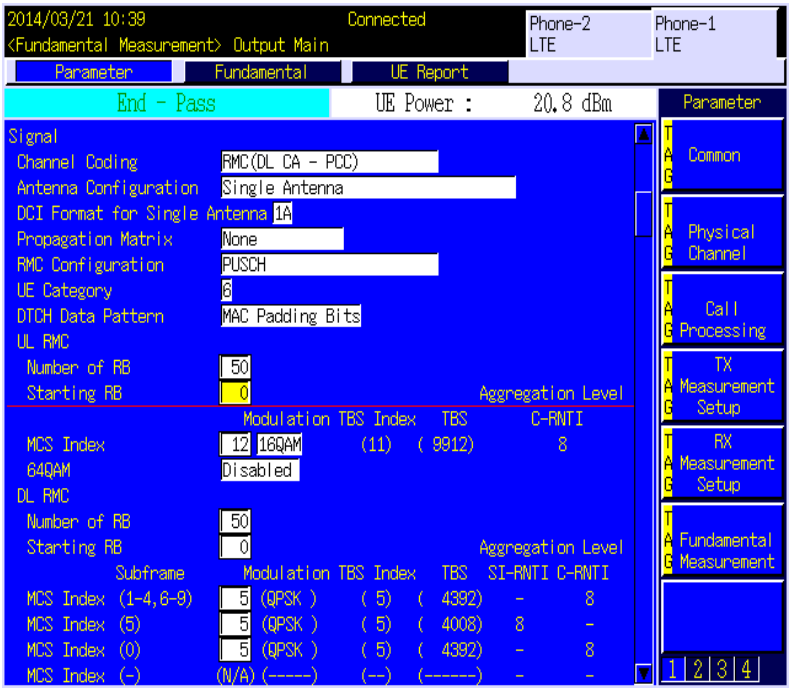
Connection settings



Bandwidth-settings

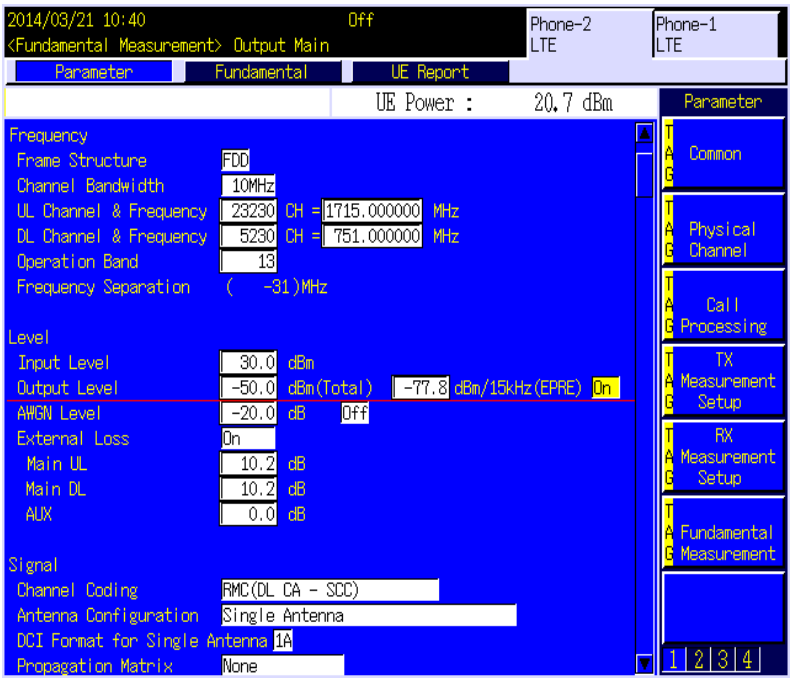

2014/03/21 10:39
Connected
<Fundamental Measurement> Output Main
Phone-2 LTE
Phone-1 LTE
Parameter
Fundamental
UE Report
End - Pass
UE Power : 21.8 dBm
Parameter
Signal
Channel Coding RMC(DL CA - PCC)
Antenna Configuration Single Antenna
DCI Format for Single Antenna 1A
Propagation Matrix None
RMC Configuration PUSCH
UE Category 6
DTCH Data Pattern MAC Padding Bits
UL RMC
Number of RB 50
Starting RB 0
Aggregation Level
Modulation TBS Index TBS C-RNTI
MCS Index 5 QPSK (5) (4392) 8
64QAM Disabled
DL RMC
Number of RB 50
Starting RB 0
Aggregation Level
Subframe Modulation TBS Index TBS SI-RNTI C-RNTI
MCS Index (1-4,6-9) 5 (QPSK) (5) (4392) - 8
MCS Index (5) 5 (QPSK) (5) (4008) 8 -
MCS Index (0) 5 (QPSK) (5) (4392) - 8
MCS Index (-) (N/A) (-----) (--) (------) - -
Common
Physical Channel
Call Processing
TX Measurement Setup
RX Measurement Setup
Fundamental Measurement
1 2 3 4

QPSK

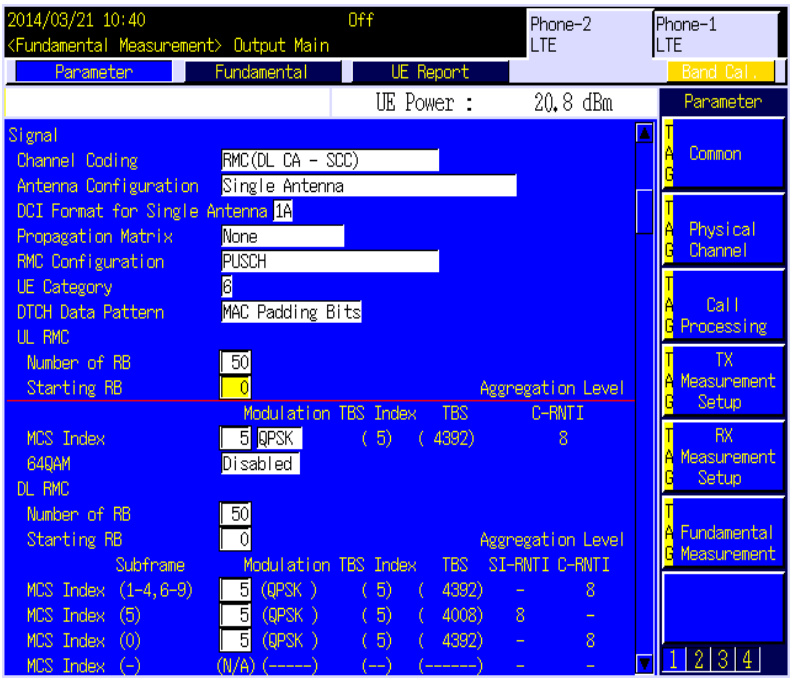

2014/03/21 10:39
Connected
<Fundamental Measurement> Output Main
Phone-2 LTE
Phone-1 LTE
Parameter
Fundamental
UE Report
End - Pass
UE Power : 20.8 dBm
Parameter
Signal
Channel Coding RMC(DL CA - PCC)
Antenna Configuration Single Antenna
DCI Format for Single Antenna 1A
Propagation Matrix None
RMC Configuration PUSCH
UE Category 6
DTCH Data Pattern MAC Padding Bits
UL RMC
Number of RB 50
Starting RB 0
Aggregation Level
Modulation TBS Index TBS C-RNTI
MCS Index 12 16QAM (11) (9912) 8
64QAM Disabled
DL RMC
Number of RB 50
Starting RB 0
Aggregation Level
Subframe Modulation TBS Index TBS SI-RNTI C-RNTI
MCS Index (1-4,6-9) 5 (QPSK) (5) (4392) - 8
MCS Index (5) 5 (QPSK) (5) (4008) 8 -
MCS Index (0) 5 (QPSK) (5) (4392) - 8
MCS Index (-) (N/A) (-----) (--) (------) - -
Common
Physical Channel
Call Processing
TX Measurement Setup
RX Measurement Setup
Fundamental Measurement
1 2 3 4

16-QAM

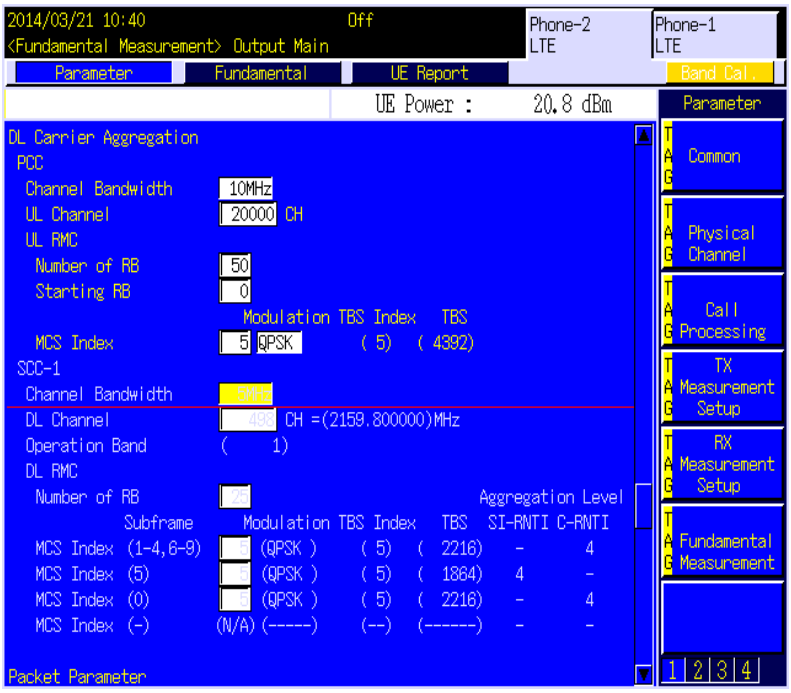
SCC: LTE Band 13 with 10MHz BW and RB allocation 100%



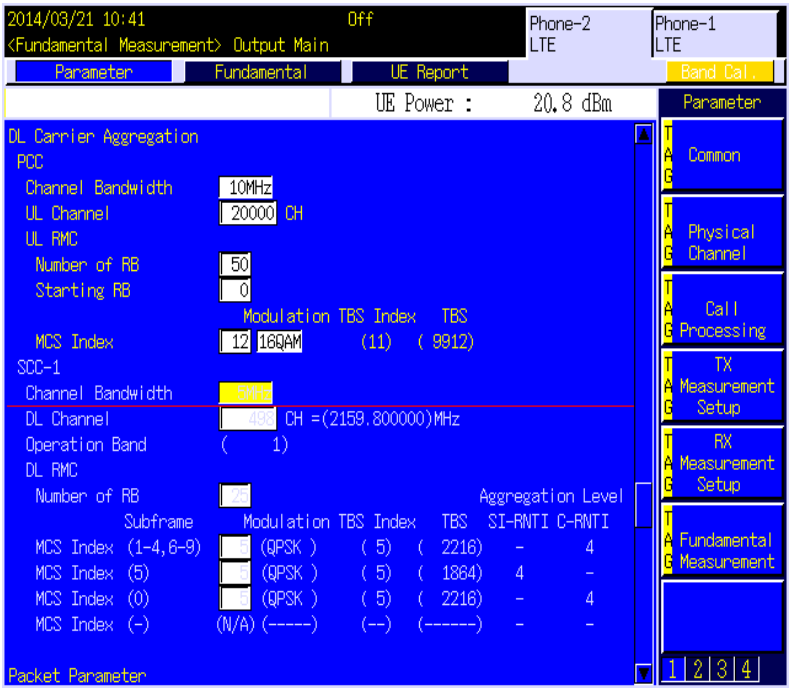
SCC-Output settings



SCC-Connection settings

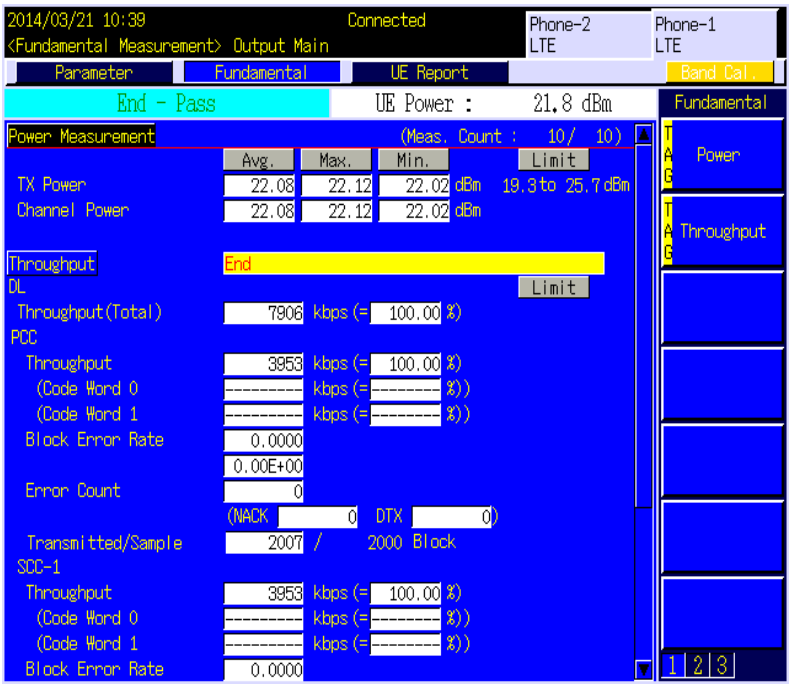

2014/03/21 10:40
Off
<Fundamental Measurement> Output Main
Phone-2 LTE
Phone-1 LTE
Parameter
Fundamental
UE Report
Band Cal.
UE Power : 20.8 dBm
DL Carrier Aggregation
PCC
Channel Bandwidth 10MHz
UL Channel 20000 CH
UL RMC
Number of RB 50
Starting RB 0
Modulation TBS Index TBS
MCS Index 5 QPSK (5) (4392)
SCC-1
Channel Bandwidth 5MHz
DL Channel 498 CH =(2159.800000)MHz
Operation Band (1)
DL RMC
Number of RB 25
Aggregation Level
Subframe Modulation TBS Index TBS SI-RNTI C-RNTI
MCS Index (1-4,6-9) 5 (QPSK) (5) (2216) - 4
MCS Index (5) 5 (QPSK) (5) (1864) 4 -
MCS Index (0) 5 (QPSK) (5) (2216) - 4
MCS Index (-) (N/A) (-----) (--) (------) - -
Packet Parameter
Parameter
Common
Physical Channel
Call Processing
TX Measurement Setup
RX Measurement Setup
Fundamental Measurement
1 2 3 4

QPSK

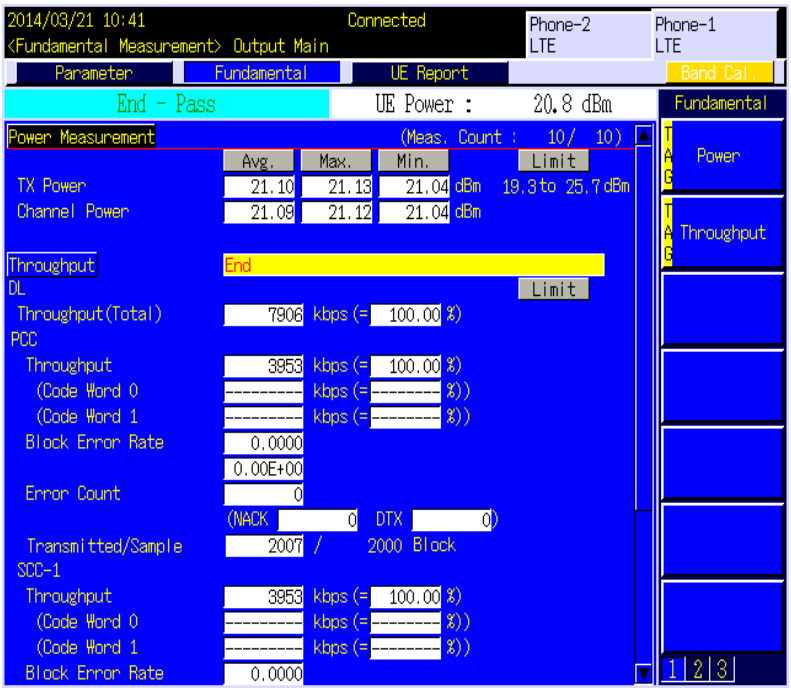

2014/03/21 10:41
Off
<Fundamental Measurement> Output Main
Phone-2 LTE
Phone-1 LTE
Parameter
Fundamental
UE Report
Band Cal.
UE Power : 20.8 dBm
DL Carrier Aggregation
PCC
Channel Bandwidth 10MHz
UL Channel 20000 CH
UL RMC
Number of RB 50
Starting RB 0
Modulation TBS Index TBS
MCS Index 12 16QAM (11) (9912)
SCC-1
Channel Bandwidth 5MHz
DL Channel 498 CH =(2159.800000)MHz
Operation Band (1)
DL RMC
Number of RB 25
Aggregation Level
Subframe Modulation TBS Index TBS SI-RNTI C-RNTI
MCS Index (1-4,6-9) 5 (QPSK) (5) (2216) - 4
MCS Index (5) 5 (QPSK) (5) (1864) 4 -
MCS Index (0) 5 (QPSK) (5) (2216) - 4
MCS Index (-) (N/A) (-----) (--) (------) - -
Packet Parameter
Parameter
Common
Physical Channel
Call Processing
TX Measurement Setup
RX Measurement Setup
Fundamental Measurement
1 2 3 4

16-QAM

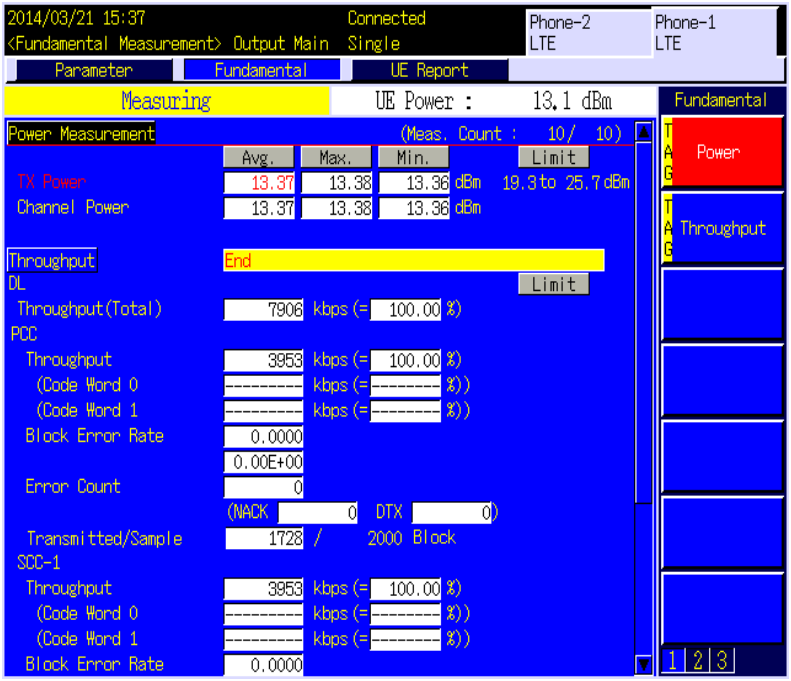
Results:



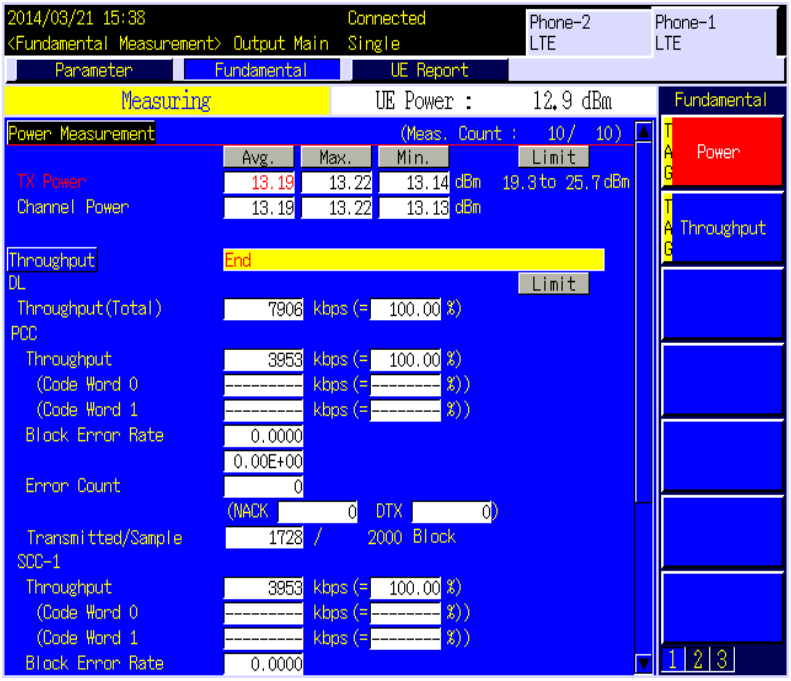
Default power (QPSK)



Default power (16-QAM)



Power back off (QPSK)



Power back off (16-QAM)

1.3 LTE – Carrier Aggregation B13 with second downlink carrier B4

1.3.1 LTE – Carrier Aggregation B13 - B4 – Conducted Power

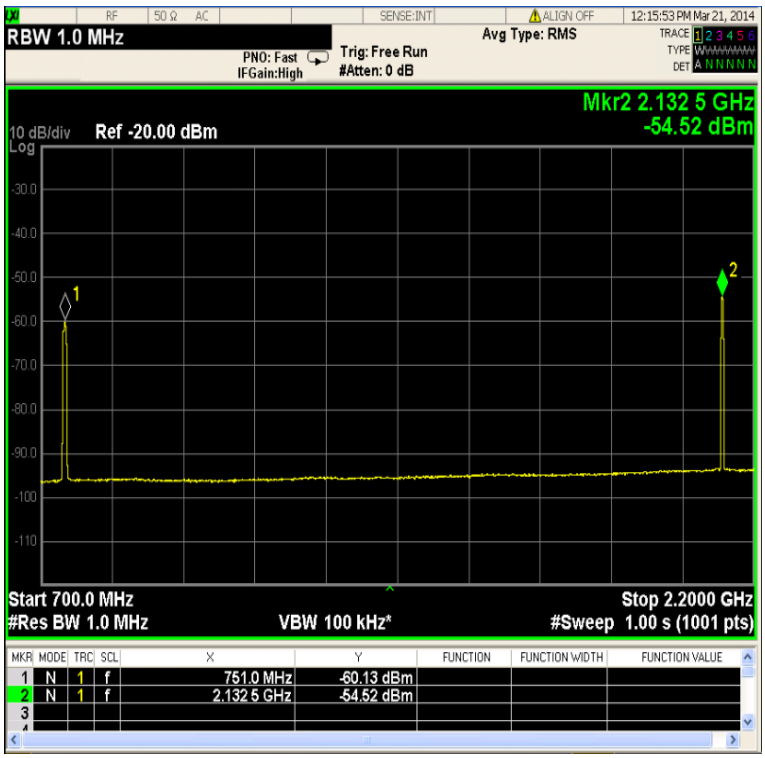
			Output Power (conducted_CA)			Output Power (Conducted_Non-CA)		Deviaton (nonCA - CA) [dB]	
BW [MHz]	Channel / Frequency [MHz]	Resource block allocation	Average Output Power [dBm]	Average Output Power [dBm]	SCC setting (band 13)	Average Output Power [dBm]	Average Output Power [dBm]		
			QPSK	16-QAM		QPSK	16-QAM	QPSK	16-QAM
10	23230 / 782	100% RB	21.9	21.0	5 MHz BW 100% RB	22.3	21.3	0.4	0.3
	23230 / 782	**100% RB**	**21.9**	**21.0**	**10 MHz BW 100% RB**	22.3	21.3	0.4	0.3

Table 3: Results for LTE B13 default power.

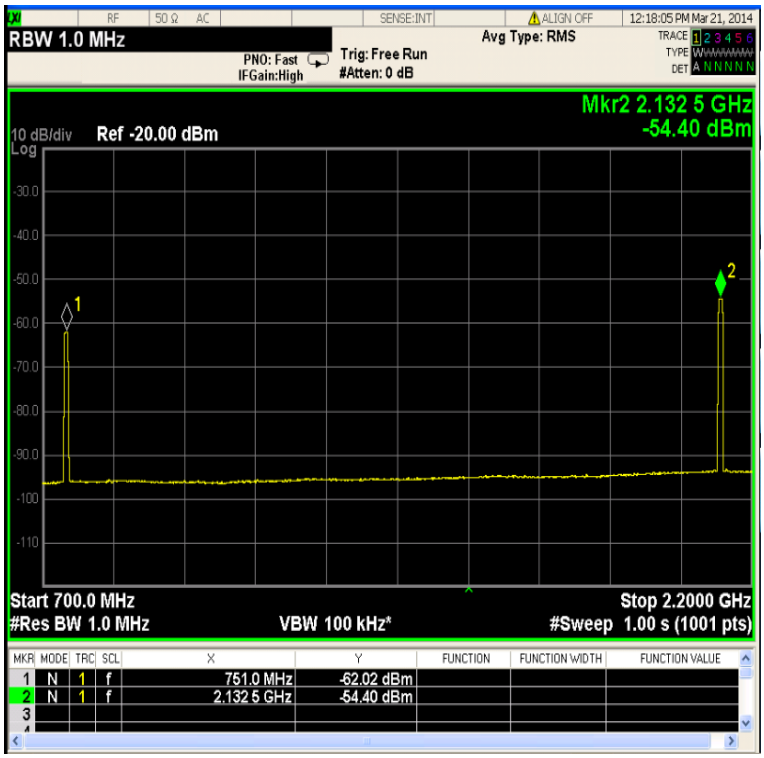
			Output Power (conducted_CA)			Output Power (Conducted_Non-CA)		Deviaton (nonCA - CA) [dB]	
BW [MHz]	Channel / Frequency [MHz]	Resource block allocation	Average Output Power [dBm]	Average Output Power [dBm]	SCC setting (band 13)	Average Output Power [dBm]	Average Output Power [dBm]		
			QPSK	16-QAM		QPSK	16-QAM	QPSK	16-QAM
10	23230 / 782	100% RB	18.9	19.0	5 MHz BW 100% RB	19.1	19.1	0.2	0.1
	23230 / 782	100% RB	18.9	19.0	10 MHz BW 100% RB	19.1	19.1	0.2	0.1

Table 4: Results for LTE B13 back off power.

1.3.2 LTE – Carrier Aggregation B13 - B4 – Spectrums



PCC: B13 10MHz Middle channel
SCC: B4 5MHz

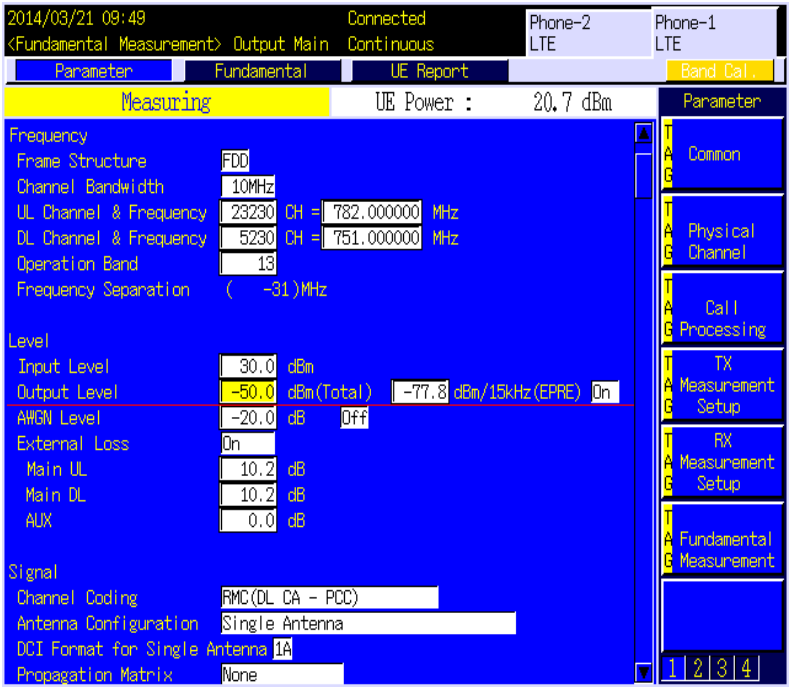


PCC: B13 10MHz Middle channel
SCC: B4 10MHz

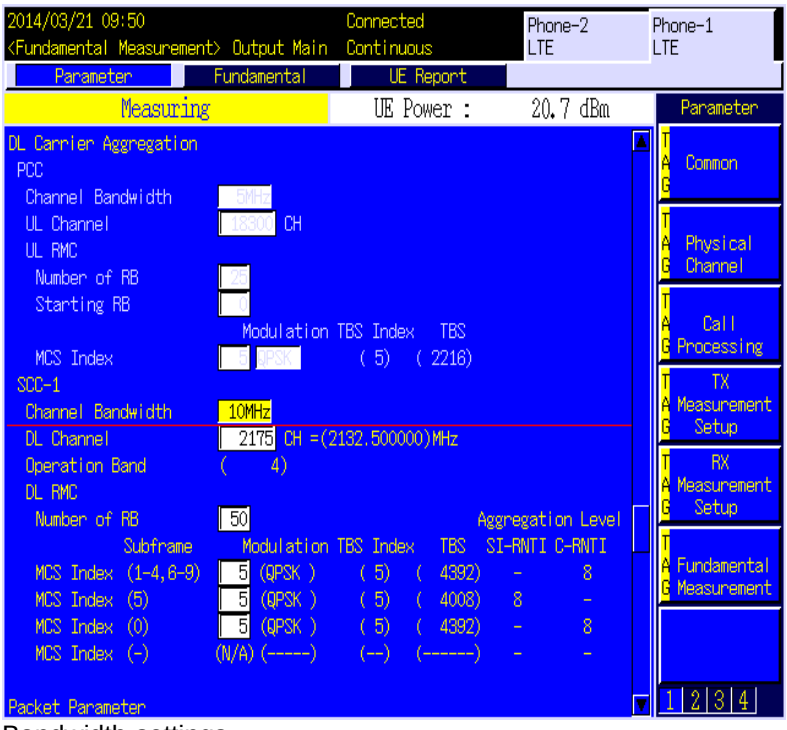
1.3.3 LTE – Carrier Aggregation B13 – B4 – Base station simulator settings

The following plots show the radio communication tester settings (Anritsu MT8820C) for the configuration that produced the highest output power with LTE B13 + B4.

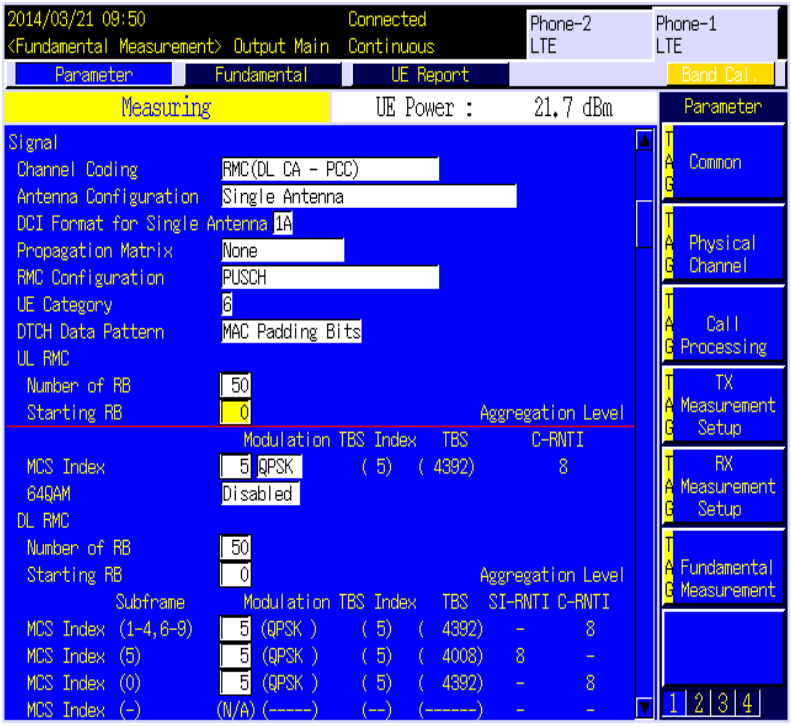
PCC: LTE FDD 13 with 10MHz BW at middle channel 23230 (782.0 MHz) and RB allocation 100%



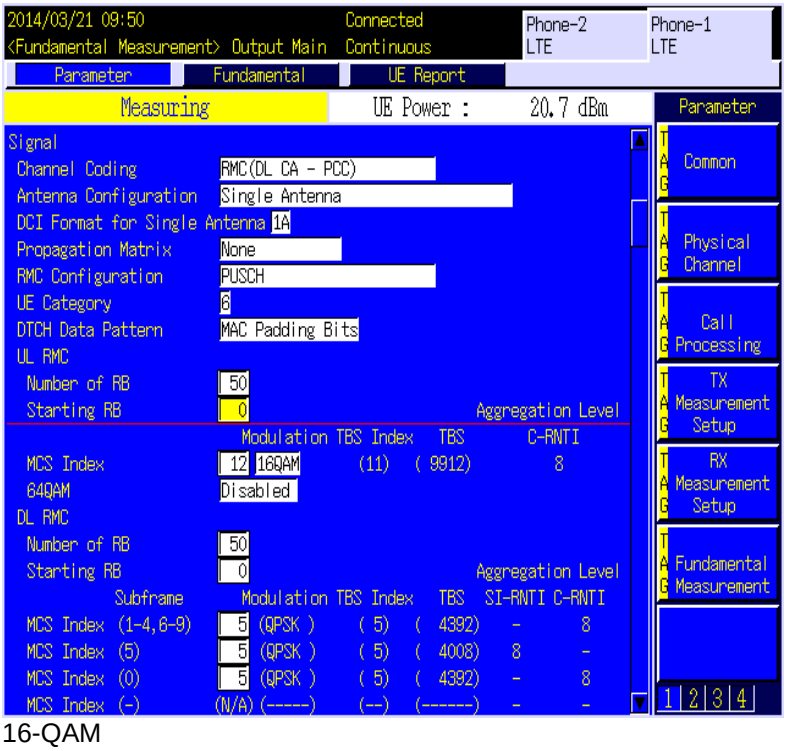
Connection settings



Bandwidth-settings

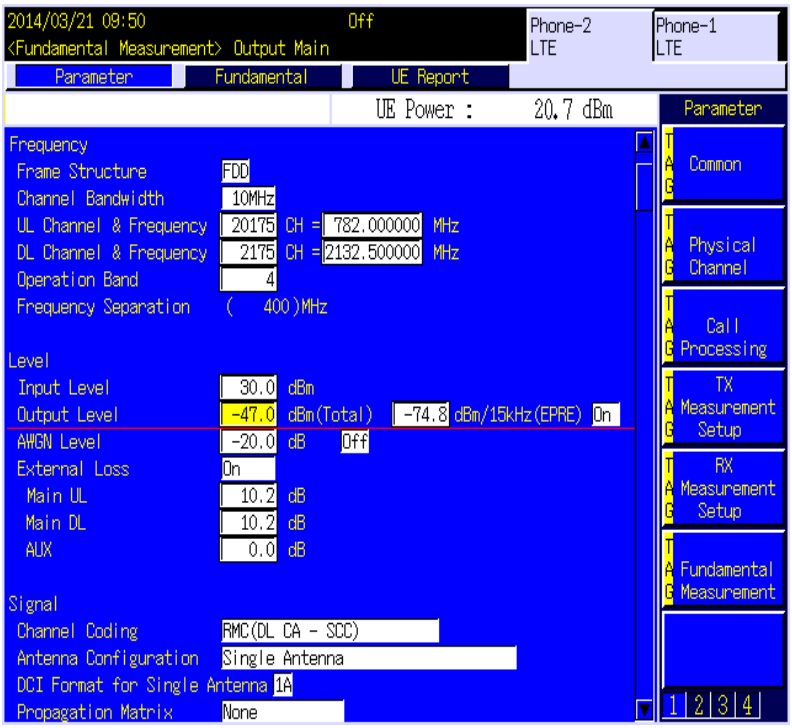

2014/03/21 09:50
Connected
<Fundamental Measurement> Output Main Continuous
Phone-2 LTE
Phone-1 LTE
Parameter
Fundamental
UE Report
Band Cal.
Measuring
UE Power : 21.7 dBm
Parameter
Signal
Channel Coding RMC(DL CA - PCC)
Antenna Configuration Single Antenna
DCI Format for Single Antenna 1A
Propagation Matrix None
RMC Configuration PUSCH
UE Category 6
DTCH Data Pattern MAC Padding Bits
UL RMC
Number of RB 50
Starting RB 0
Aggregation Level
Modulation TBS Index TBS C-RNTI
MCS Index 5 QPSK (5) (4392) 8
64QAM Disabled
DL RMC
Number of RB 50
Starting RB 0
Aggregation Level
Subframe Modulation TBS Index TBS SI-RNTI C-RNTI
MCS Index (1-4,6-9) 5 (QPSK) (5) (4392) - 8
MCS Index (5) 5 (QPSK) (5) (4008) 8 -
MCS Index (0) 5 (QPSK) (5) (4392) - 8
MCS Index (-) (N/A) (-----) (--) (------) - -
Common
Physical Channel
Call Processing
TX Measurement Setup
RX Measurement Setup
Fundamental Measurement
1 2 3 4

QPSK

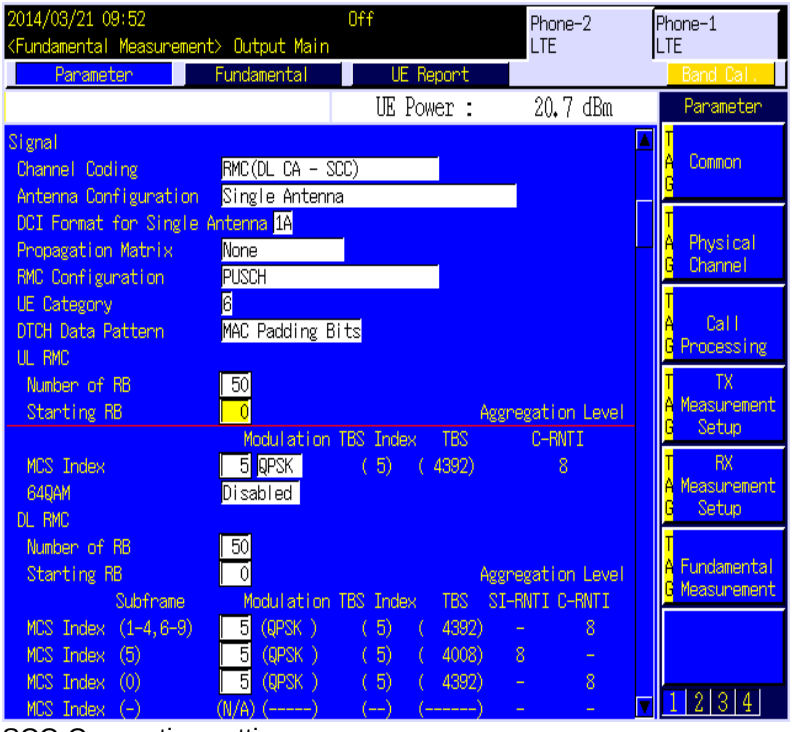

2014/03/21 09:50
Connected
<Fundamental Measurement> Output Main Continuous
Phone-2 LTE
Phone-1 LTE
Parameter
Fundamental
UE Report
Measuring
UE Power : 20.7 dBm
Parameter
Signal
Channel Coding RMC(DL CA - PCC)
Antenna Configuration Single Antenna
DCI Format for Single Antenna 1A
Propagation Matrix None
RMC Configuration PUSCH
UE Category 6
DTCH Data Pattern MAC Padding Bits
UL RMC
Number of RB 50
Starting RB 0
Aggregation Level
Modulation TBS Index TBS C-RNTI
MCS Index 12 16QAM (11) (9912) 8
64QAM Disabled
DL RMC
Number of RB 50
Starting RB 0
Aggregation Level
Subframe Modulation TBS Index TBS SI-RNTI C-RNTI
MCS Index (1-4,6-9) 5 (QPSK) (5) (4392) - 8
MCS Index (5) 5 (QPSK) (5) (4008) 8 -
MCS Index (0) 5 (QPSK) (5) (4392) - 8
MCS Index (-) (N/A) (-----) (--) (------) - -
Common
Physical Channel
Call Processing
TX Measurement Setup
RX Measurement Setup
Fundamental Measurement
1 2 3 4

16-QAM

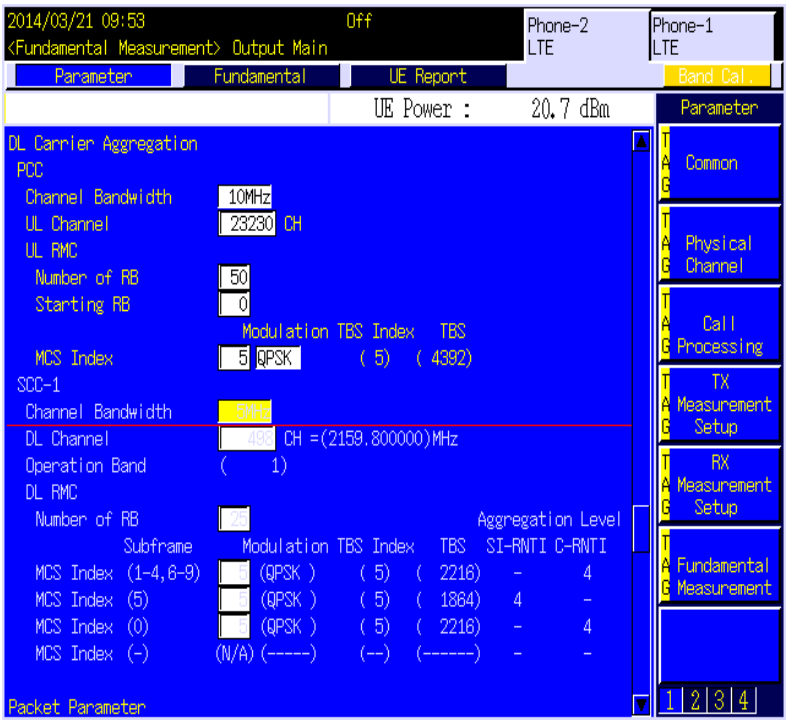
SCC: LTE Band 4 with 10MHz BW and RB allocation 100%



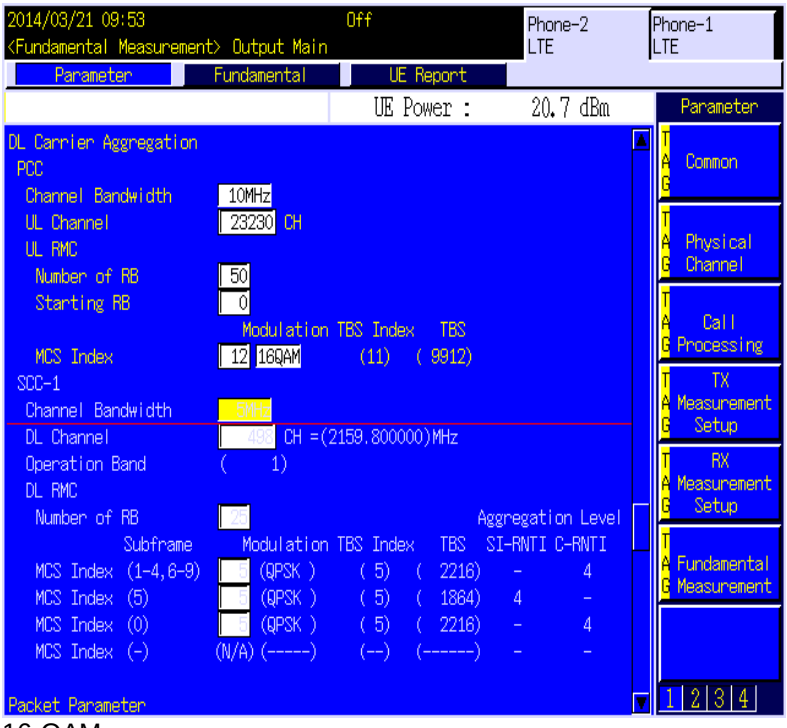
SCC-Output settings



SCC-Connection settings

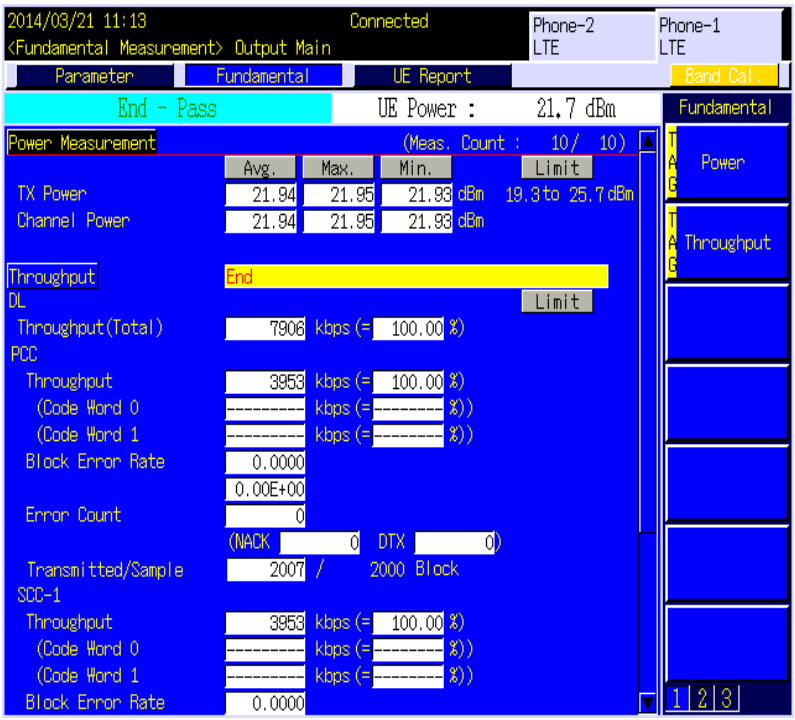

2014/03/21 09:53
Off
<Fundamental Measurement> Output Main
Phone-2
LTE
Phone-1
LTE
Parameter
Fundamental
UE Report
Band Cal
UE Power : 20.7 dBm
Parameter
DL Carrier Aggregation
PCC
Channel Bandwidth 10MHz
UL Channel 23230 CH
UL RMC
Number of RB 50
Starting RB 0
Modulation TBS Index TBS
MCS Index 5 QPSK (5) (4392)
SCC-1
Channel Bandwidth 5MHz
DL Channel 498 CH =(2159.800000)MHz
Operation Band (1)
DL RMC
Number of RB 25
Aggregation Level
Subframe Modulation TBS Index TBS SI-RNTI C-RNTI
MCS Index (1-4,6-9) 5 (QPSK) (5) (2216) - 4
MCS Index (5) 5 (QPSK) (5) (1864) 4 -
MCS Index (0) 5 (QPSK) (5) (2216) - 4
MCS Index (-) (N/A) (-----) (--) (------) - -
Packet Parameter
Common
Physical Channel
Call Processing
TX Measurement Setup
RX Measurement Setup
Fundamental Measurement
1 2 3 4

QPSK

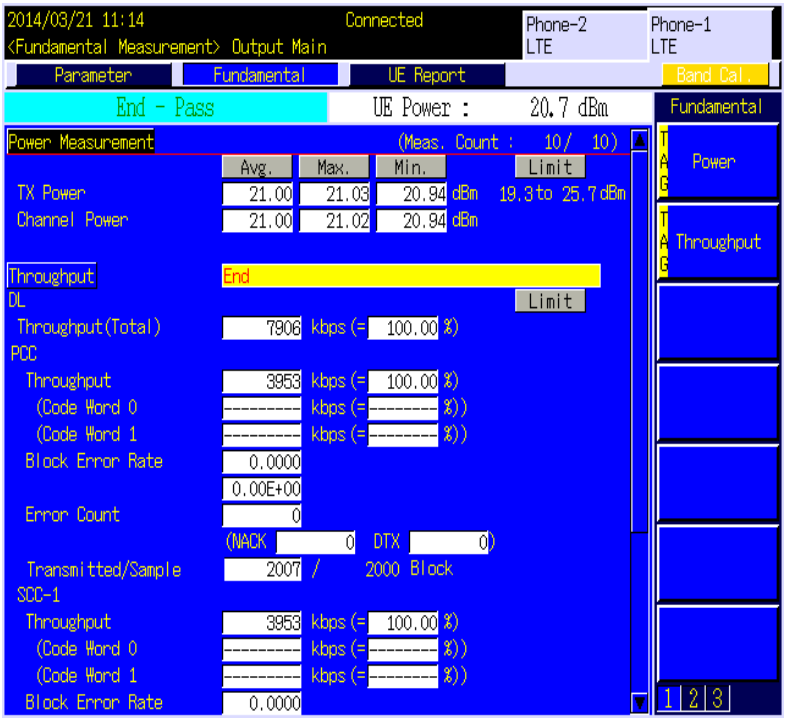

2014/03/21 09:53
Off
<Fundamental Measurement> Output Main
Phone-2
LTE
Phone-1
LTE
Parameter
Fundamental
UE Report
UE Power : 20.7 dBm
Parameter
DL Carrier Aggregation
PCC
Channel Bandwidth 10MHz
UL Channel 23230 CH
UL RMC
Number of RB 50
Starting RB 0
Modulation TBS Index TBS
MCS Index 12 16QAM (11) (9912)
SCC-1
Channel Bandwidth 5MHz
DL Channel 498 CH =(2159.800000)MHz
Operation Band (1)
DL RMC
Number of RB 25
Aggregation Level
Subframe Modulation TBS Index TBS SI-RNTI C-RNTI
MCS Index (1-4,6-9) 5 (QPSK) (5) (2216) - 4
MCS Index (5) 5 (QPSK) (5) (1864) 4 -
MCS Index (0) 5 (QPSK) (5) (2216) - 4
MCS Index (-) (N/A) (-----) (--) (------) - -
Packet Parameter
Common
Physical Channel
Call Processing
TX Measurement Setup
RX Measurement Setup
Fundamental Measurement
1 2 3 4

16-QAM

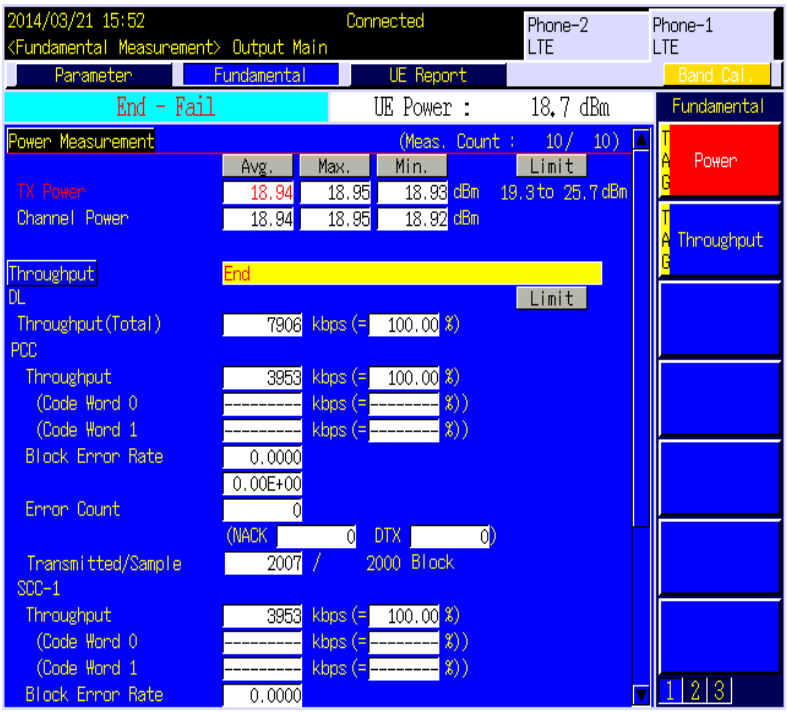
Results:



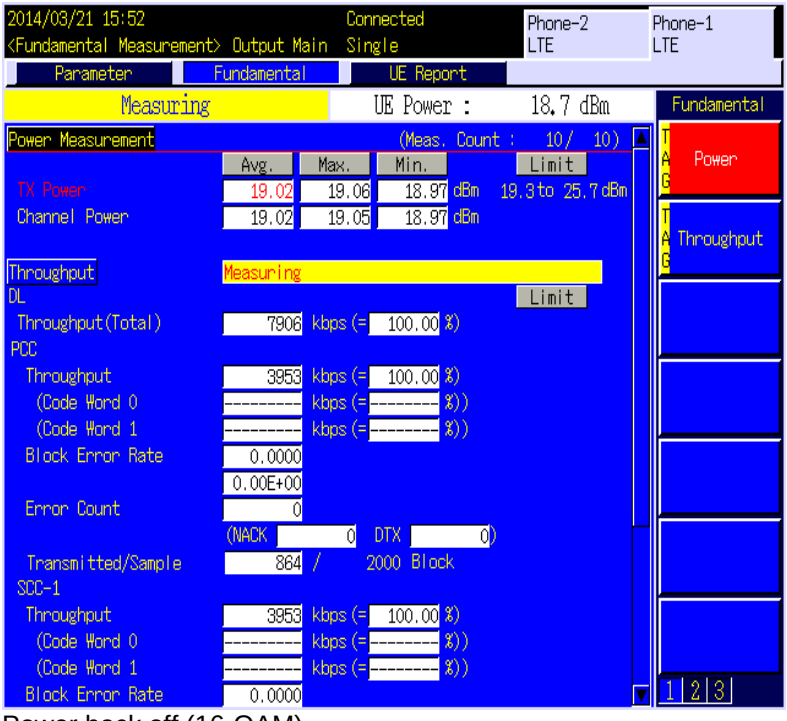
Default power (QPSK)



Default power (16-QAM)



Power back off (QPSK)



Power back off (16-QAM)

1.4 LTE – Carrier Aggregation B2 with second downlink carrier B13

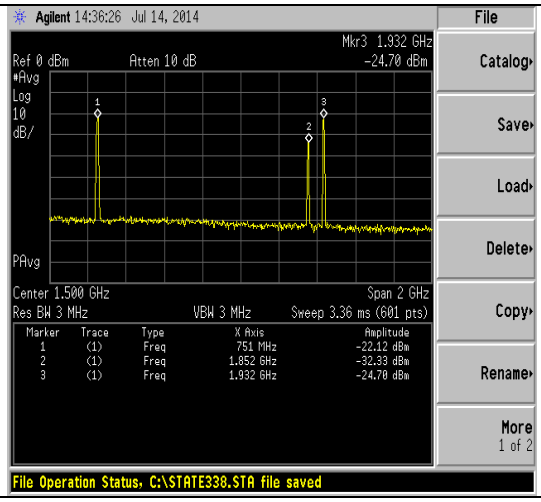
1.4.1 LTE – Carrier Aggregation B2 - B13 – Conducted Power

			Output Power (conducted_CA)			Output Power (Conducted_Non-CA)		Deviaton (nonCA - CA) [dB]	
Bandwidth [MHz]	Channel / Frequency [MHz]	Resource block allocation	Average Output Power [dBm]	Average Output Power [dBm]	SCC setting (band 13)	Average Output Power [dBm]	Average Output Power [dBm]		
			QPSK	16-QAM		QPSK	16-QAM	QPSK	16-QAM
default power									
5 MHz	18625 / 1852.5	100% RB	22.11	21.13	10 MHz BW 100% RB	21.98	21.09	-0.13	-0.04
	18900 / 1880.0	100% RB	21.76	20.75	10 MHz BW 100% RB	21.73	20.73	-0.03	-0.02
	19175 / 1907.5	**100% RB**	**22.26**	**21.20**	**10 MHz BW 100% RB**	22.22	21.16	-0.04	-0.04
10 MHz	18650 / 1855.0	100% RB	22.12	21.07	10 MHz BW 100% RB	22.04	21.00	-0.08	-0.07
	18900 / 1880.0	100% RB	21.78	20.87	10 MHz BW 100% RB	21.77	20.84	-0.01	-0.03
	19150 / 1905.0	100% RB	22.10	21.02	10 MHz BW 100% RB	22.10	21.11	0.00	0.09
backoff power									
5 MHz	18625 / 1852.5	100% RB	12.55	12.45	10 MHz BW 100% RB	12.41	12.26	-0.14	-0.19
	18900 / 1880.0	100% RB	12.39	12.48	10 MHz BW 100% RB	12.46	12.34	0.07	-0.14
	19175 / 1907.5	100% RB	12.23	12.19	10 MHz BW 100% RB	12.13	12.07	-0.10	-0.12
10 MHz	18650 / 1855.0	100% RB	12.43	12.29	10 MHz BW 100% RB	12.30	12.19	-0.13	-0.10
	18900 / 1880.0	100% RB	12.52	12.56	10 MHz BW 100% RB	12.41	12.47	-0.11	-0.09
	19150 / 1905.0	100% RB	12.41	12.41	10 MHz BW 100% RB	12.33	12.33	-0.08	-0.08

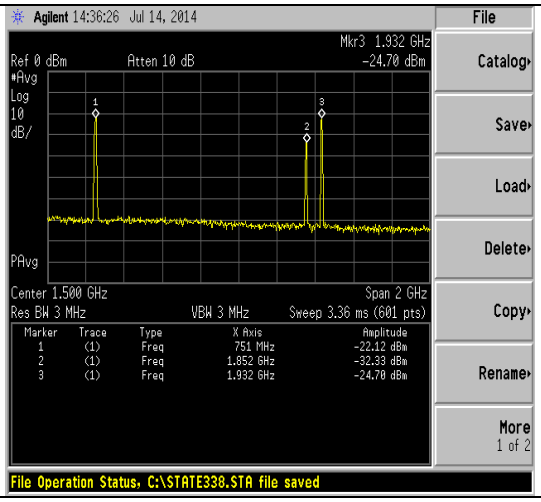
Table 5: Results for LTE B2 including back off power levels.

1.4.2 LTE – Carrier Aggregation B2 - B13 – Spectrums

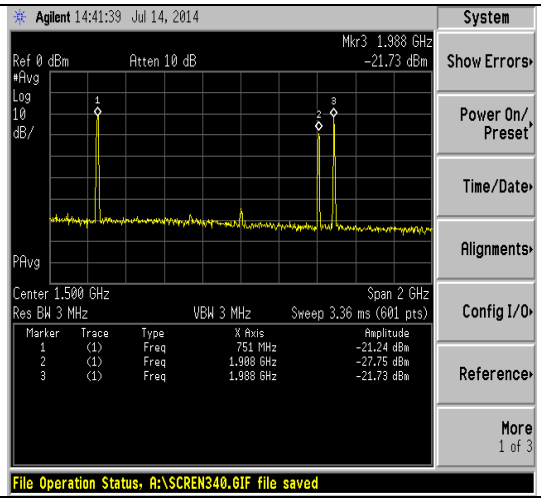
PCC: B2 5MHz Lch SCC: B13 10MHz



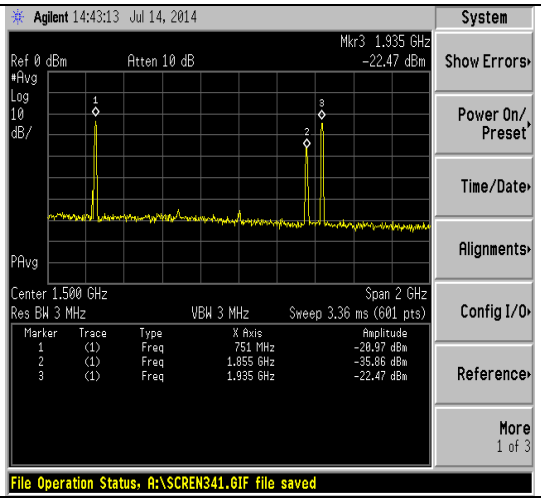
PCC: B2 5MHz Mch SCC: B13 10MHz



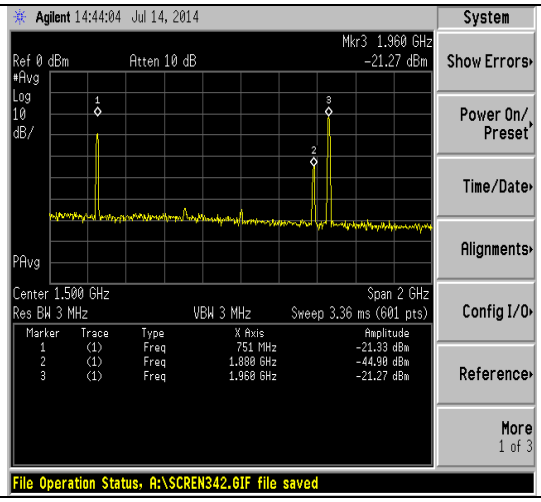
PCC: B2 5MHz Hch SCC: B13 10MHz



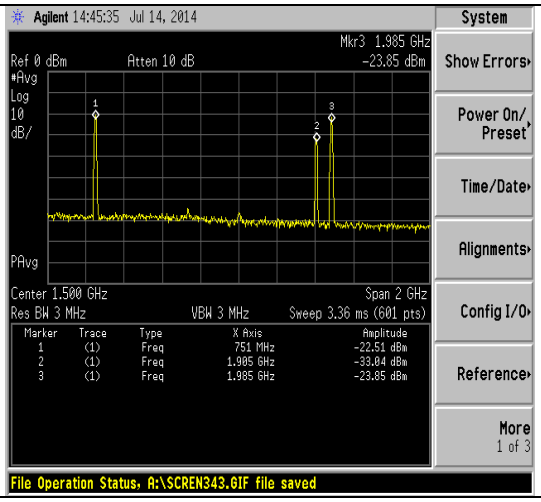
PCC: B2 10MHz Lch SCC: B13 10MHz



PCC: B2 10MHz Mch SCC: B13 10MHz



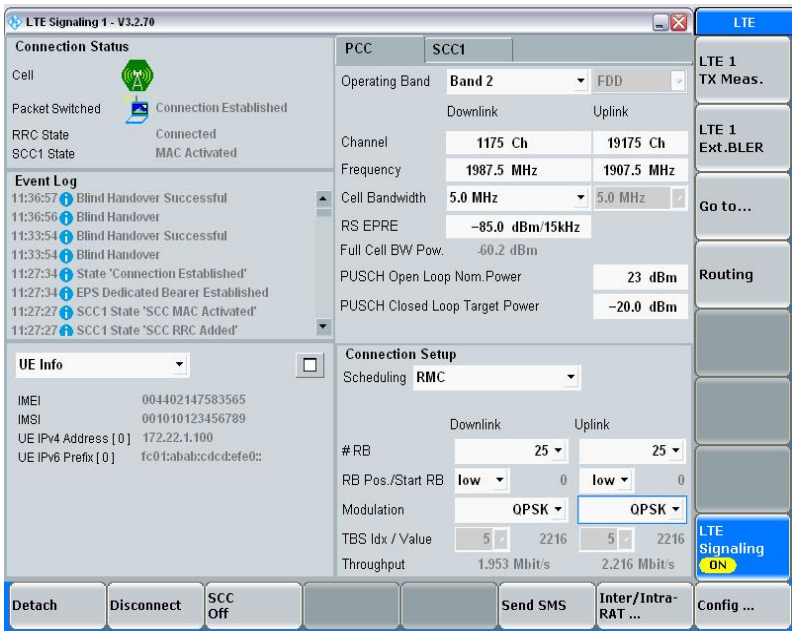
PCC: B2 10MHz Hch SCC: B13 10MHz



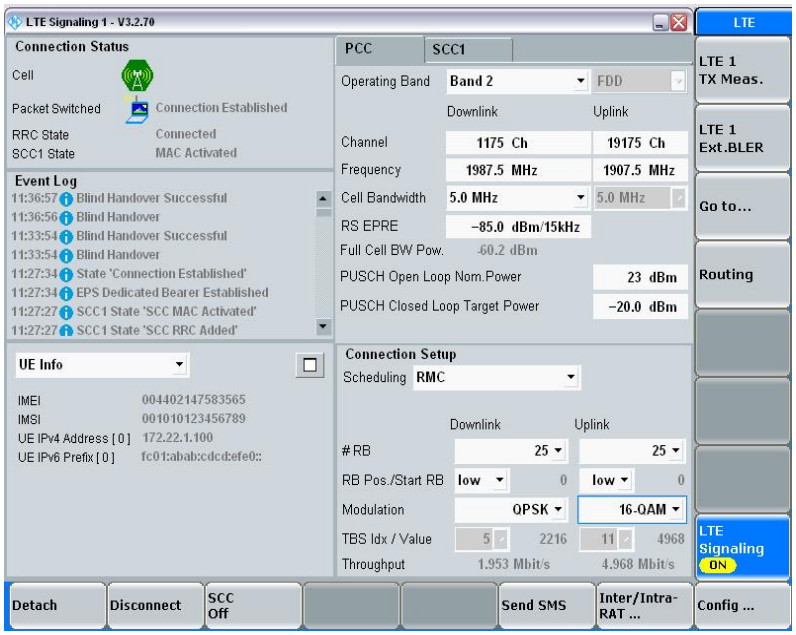
1.4.3 LTE – Carrier Aggregation B2 - B13 – Base station simulator settings

The following plots show the radio communication tester settings (R&S CMW500) for the configuration that produced the highest output power with LTE B2 + B13.

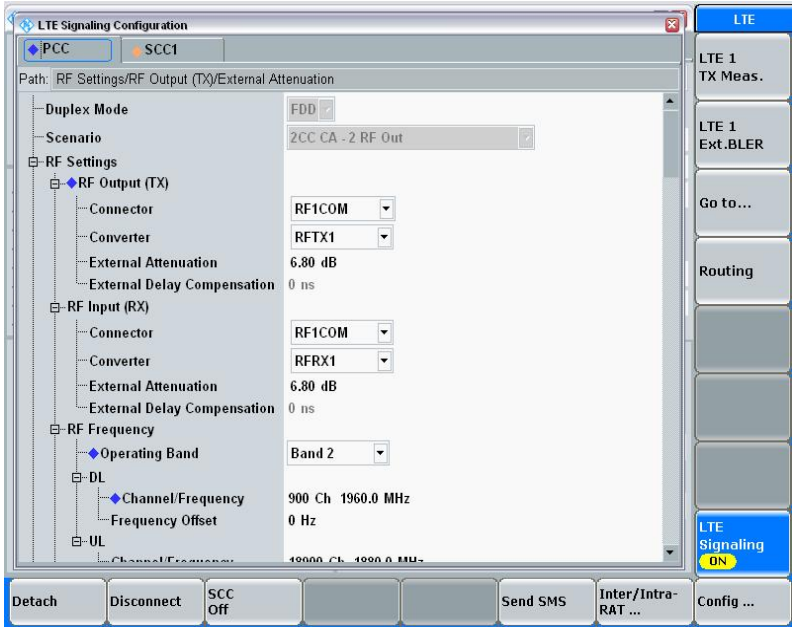
PCC: LTE FDD 2 with 5MHz BW at high channel 19175 (1907.5 MHz) and RB allocation 100%



QPSK

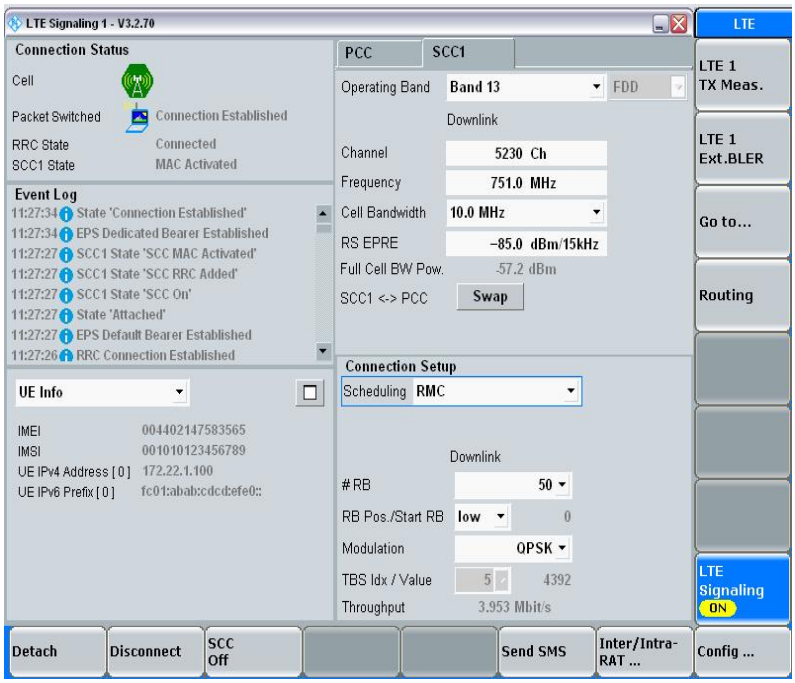


16-QAM

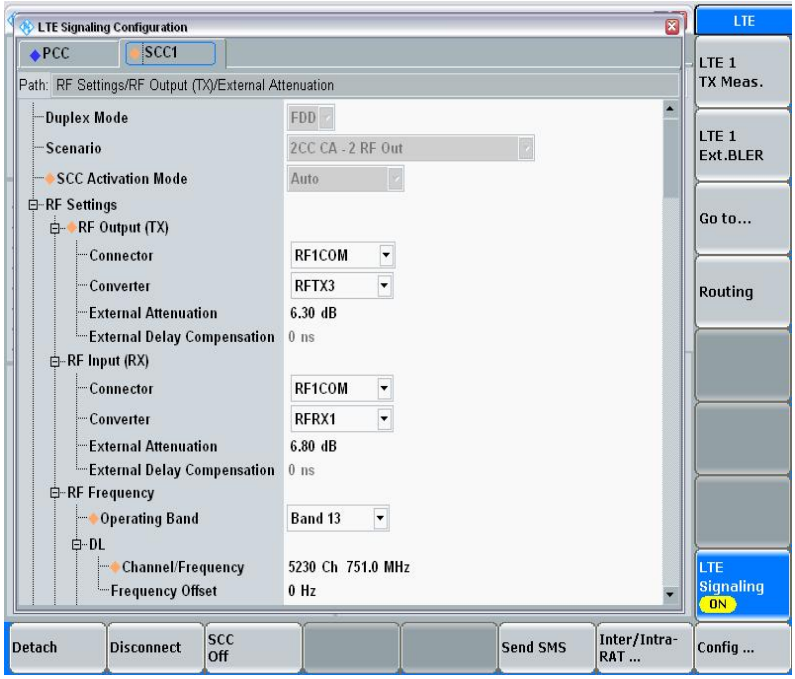


Output-settings

SCC: LTE Band 13 with 10MHz BW and RB allocation 100%

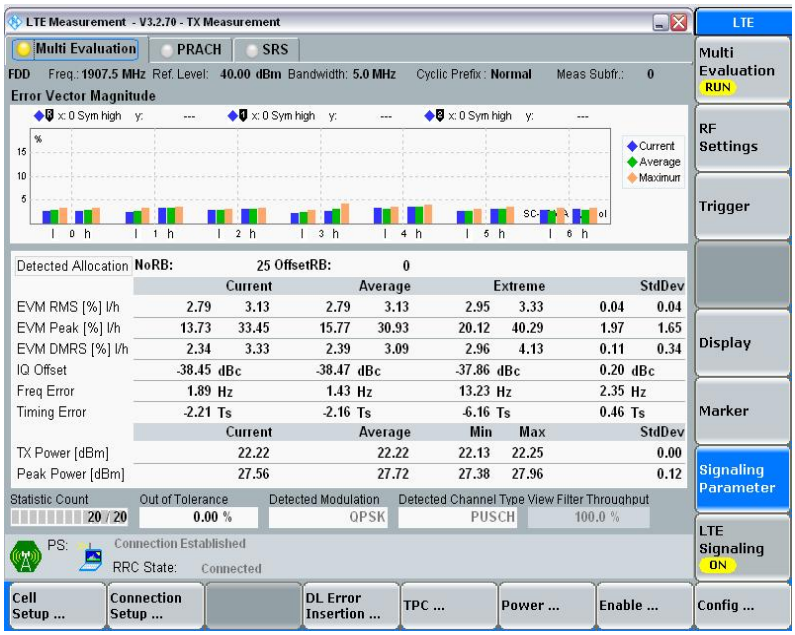


SCC-settings

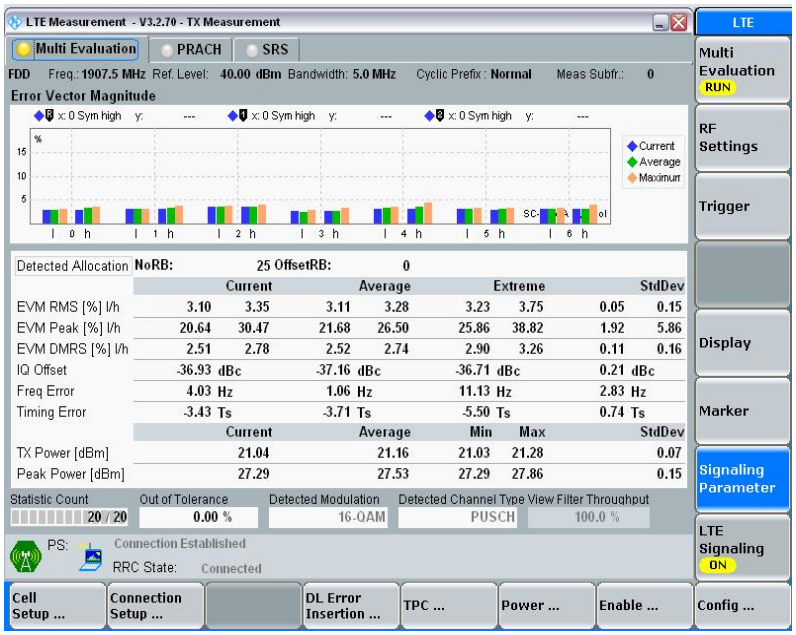


SCC-output-settings

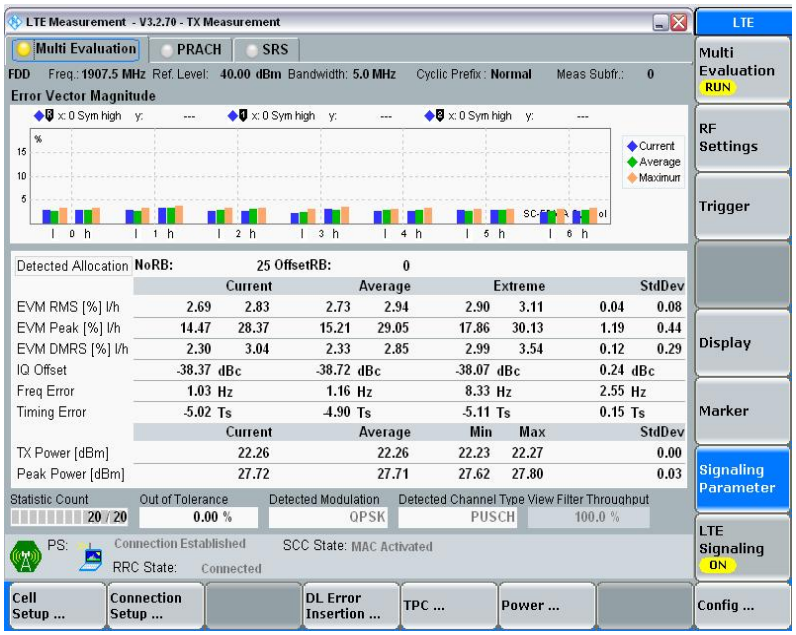
Results:



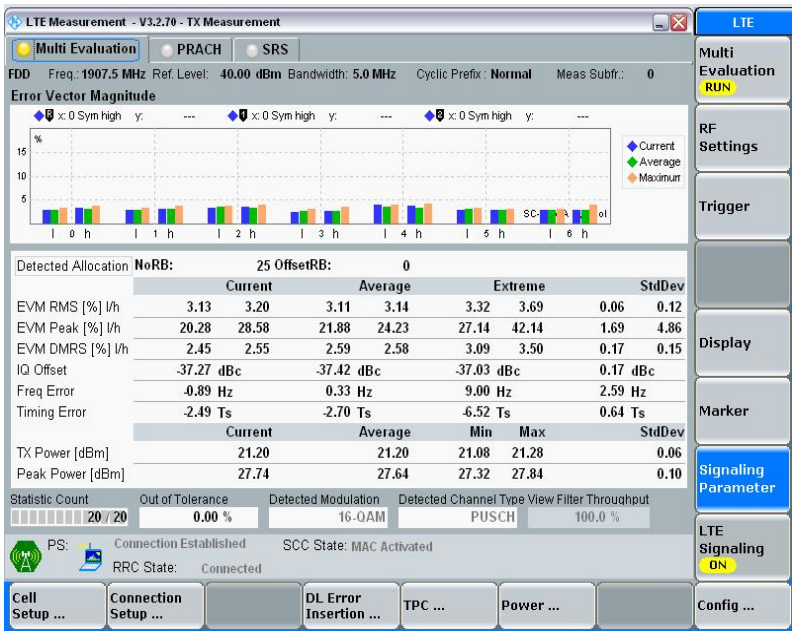
Default power non CA (QPSK)



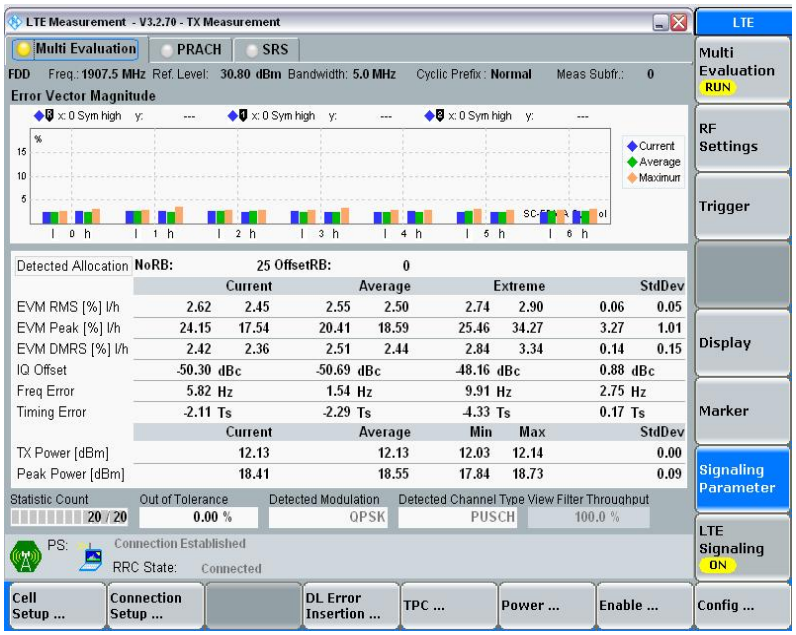
Default power non CA (16-QAM)



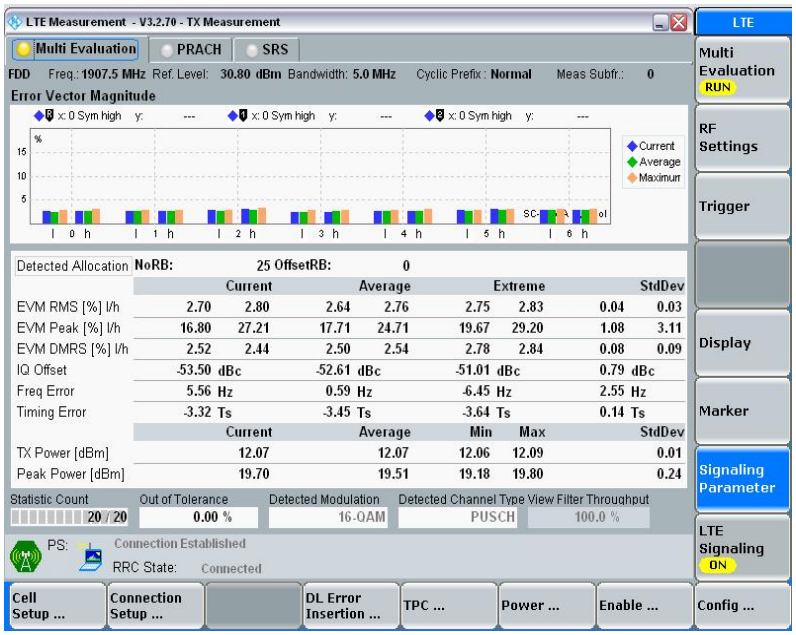
Default power CA (QPSK)



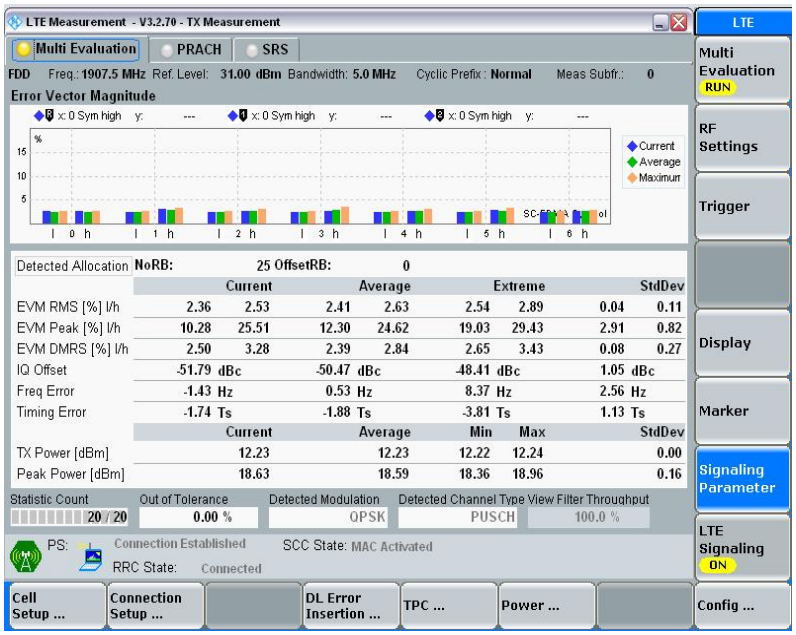
Default power CA (16-QAM)



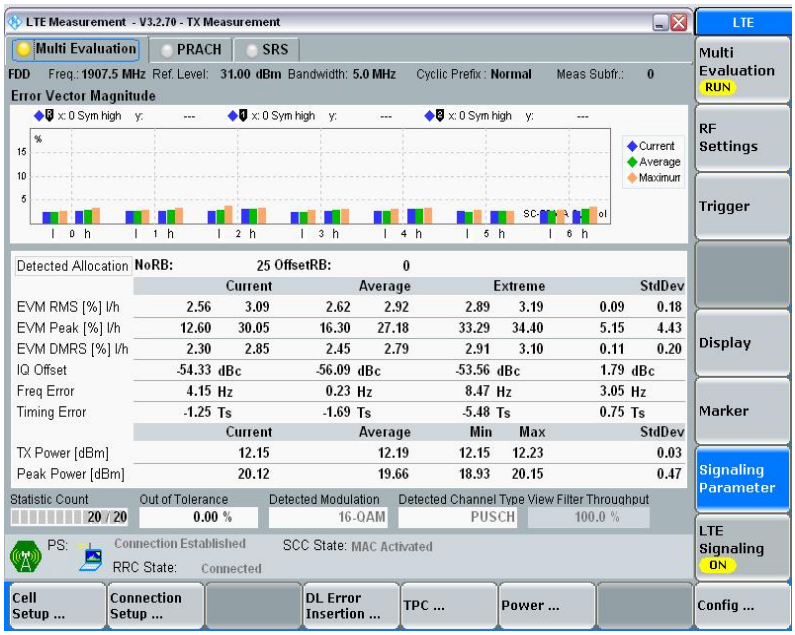
Back off power non CA (QPSK)



Back off power non CA (16-QAM)



Back off power CA (QPSK)



Back off power CA (16-QAM)

1.5 LTE – Carrier Aggregation B13 with second downlink carrier B2

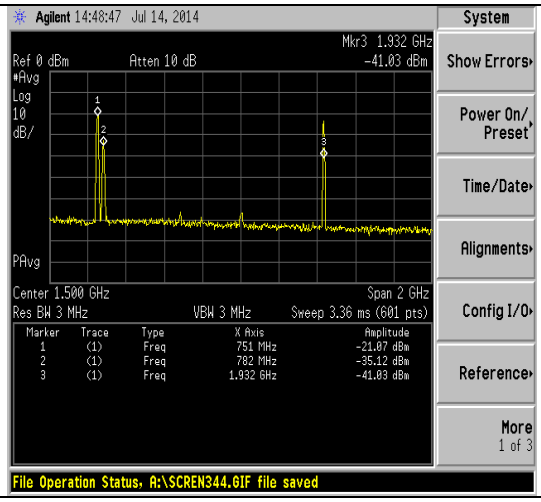
1.5.1 LTE – Carrier Aggregation B13 - B2 – Conducted Power

			Output Power (conducted_CA)			Output Power (Conducted_Non-CA)		Deviaton (nonCA - CA) [dB]	
Bandwidth [MHz]	Channel / Frequency [MHz]	Resource block allocation	Average Output Power [dBm]	Average Output Power [dBm]	SCC setting (band 2)	Average Output Power [dBm]	Average Output Power [dBm]		
			QPSK	16-QAM		QPSK	16-QAM	QPSK	16-QAM
default power									
10 MHz	23230 / 782	100% RB	21.82	20.86	5 MHz BW 100% RB	21.70	20.73	-0.12	-0.13
10 MHz	**23230 / 782**	**100% RB**	**21.83**	**20.85**	**10 MHz BW 100% RB**	21.70	20.73	-0.13	-0.12
backoff power									
10 Mhz	23230 / 782	100% RB	18.66	18.65	5 MHz BW 100% RB	18.59	18.60	-0.07	-0.05
10 MHz	23230 / 782	100% RB	18.66	18.66	10 MHz BW 100% RB	18.59	18.60	-0.07	-0.06

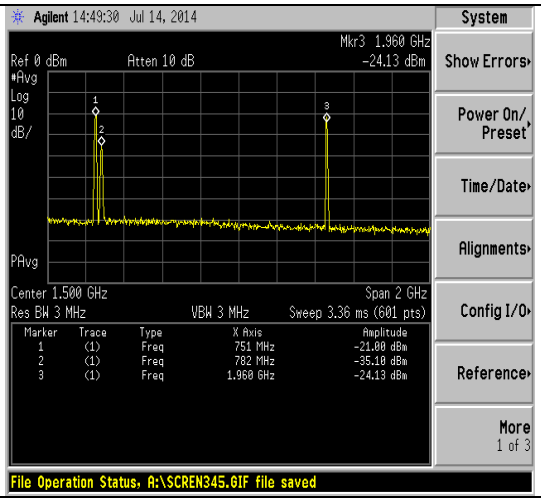
Table 6: Results for LTE B13 including back off power levels.

1.5.2 LTE – Carrier Aggregation B13 - B2 – Spectrums

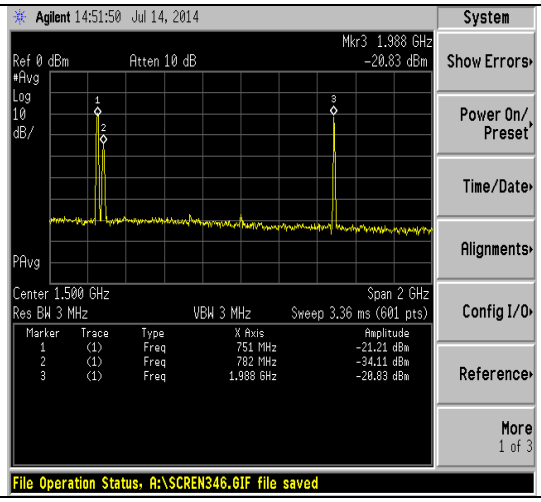
PCC: B13 10MHz SCC: B2 5MHz Lch



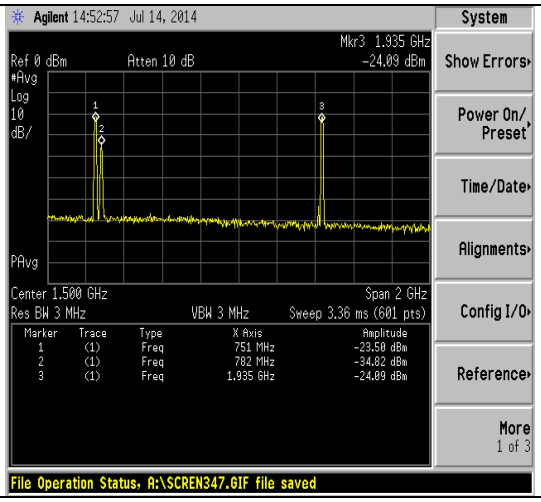
PCC: B13 10MHz SCC: B2 5MHz Mch



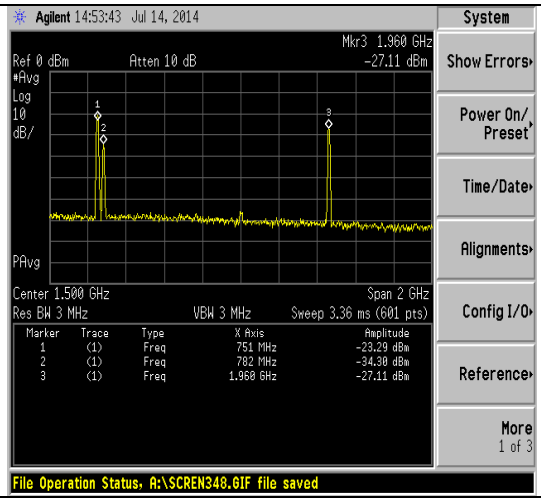
PCC: B13 10MHz SCC: B2 5MHz Hch



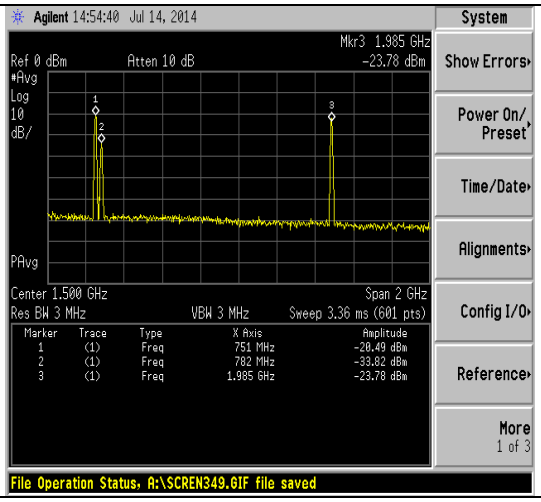
PCC: B13 10MHz SCC: B2 10MHz Lch



PCC: B13 10MHz SCC: B2 10MHz Mch



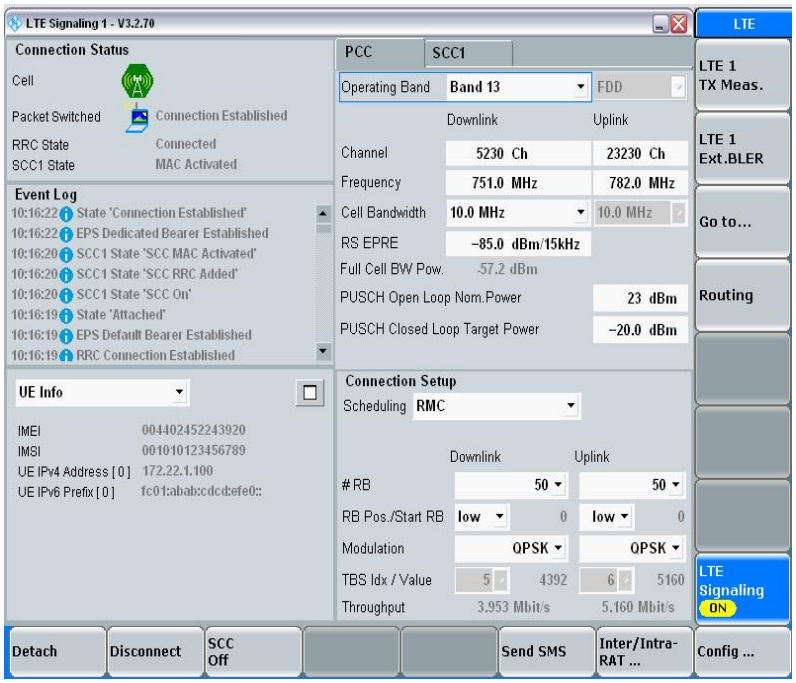
PCC: B13 10MHz SCC: B2 10MHz Hch



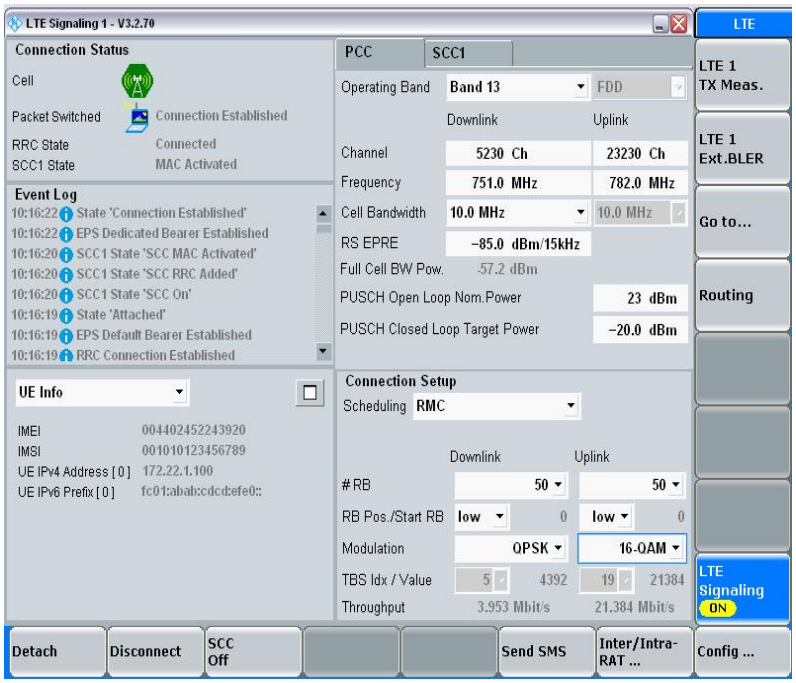
1.5.3 LTE – Carrier Aggregation B13 - B2 – Base station simulator settings

The following plots show the radio communication tester settings (R&S CMW500) for the configuration that produced the highest output power with LTE B13 + B2.

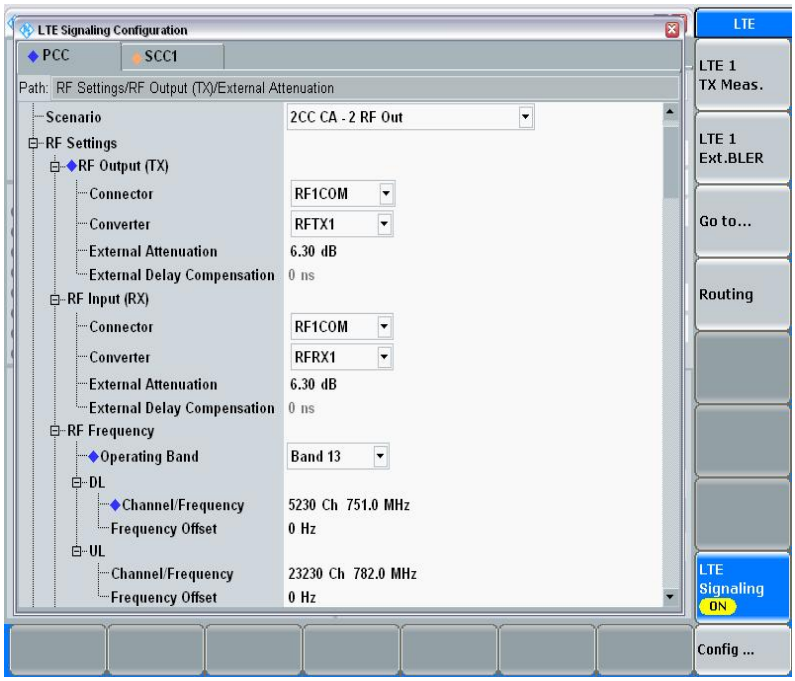
PCC: LTE FDD 13 with 10MHz BW at high channel 23230 (782.0 MHz) and RB allocation 100%



QPSK

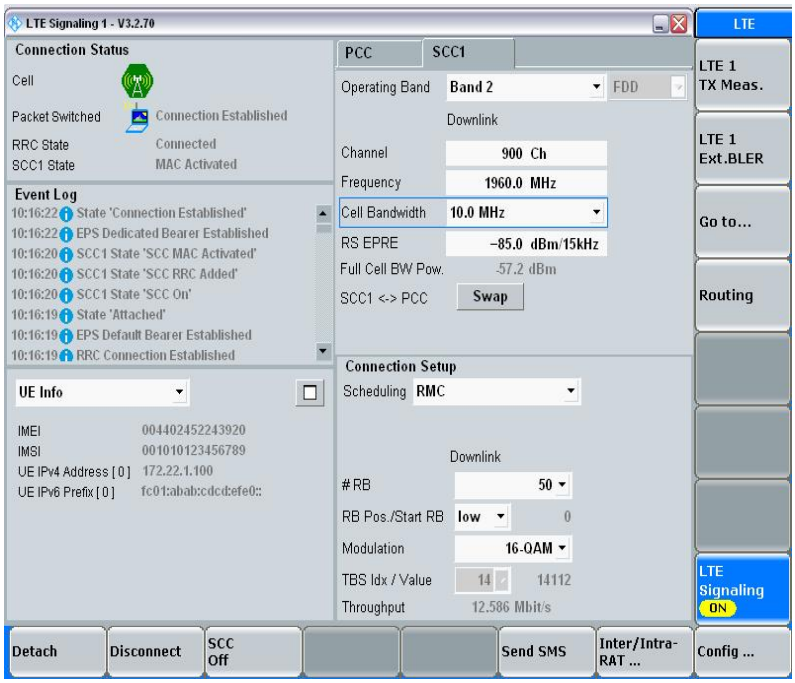


16-QAM

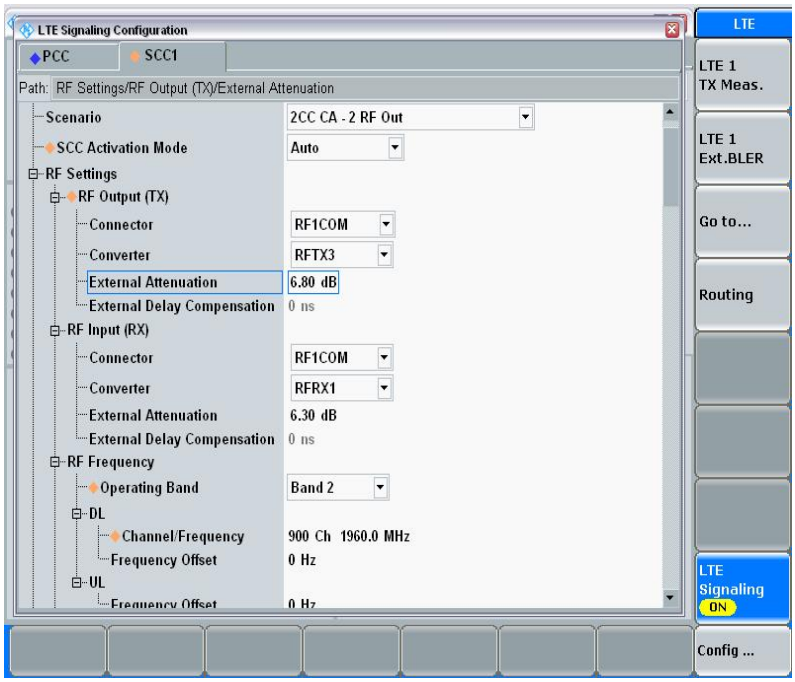


Output-settings

SCC: LTE Band 2 with 10MHz BW and RB allocation 100%

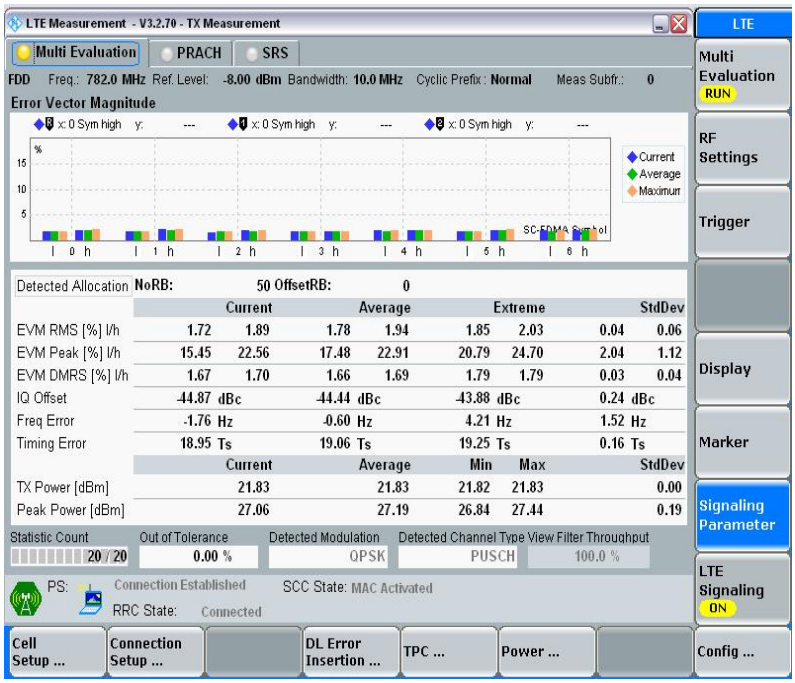


SCC-settings

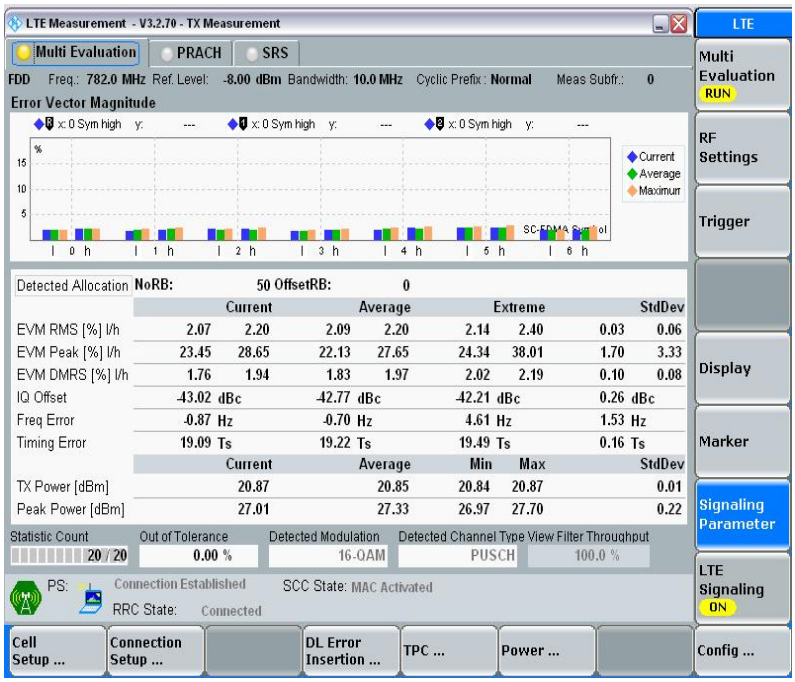


SCC-output-settings

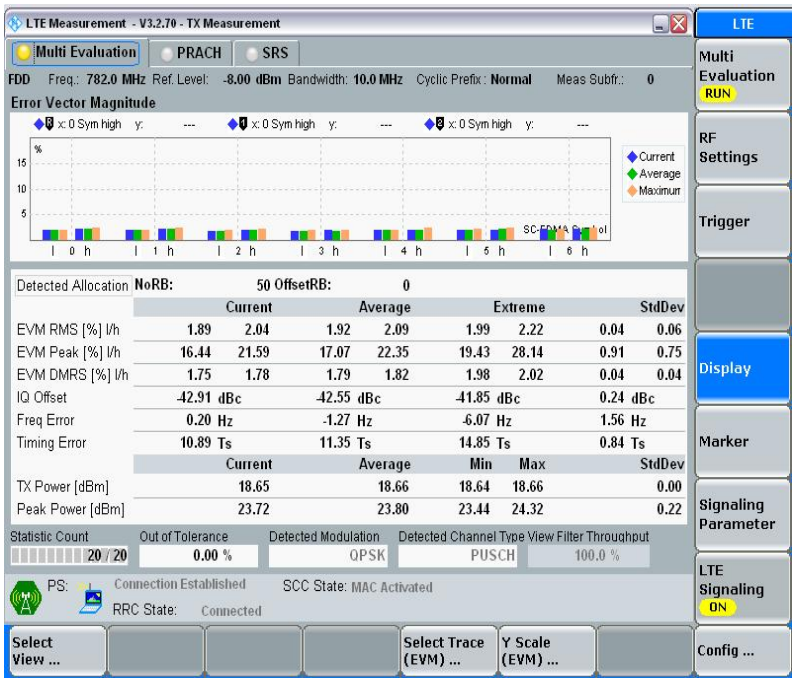
Results:



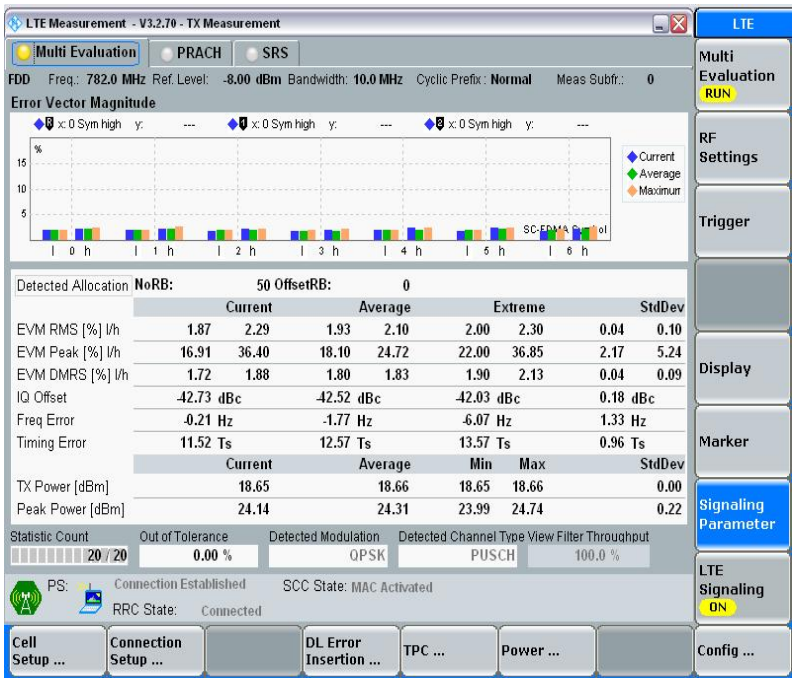
Default power (QPSK)



Default power (16-QAM)



Back off power (QPSK)



Back off power (16-QAM)

1.6 Test Equipment

Equipment	Type	Manufact.	Serial No.	Last Calibration	Next Calibration
Radio Communication Analyzer	MT8820C	Anritsu	6.201E+09	04.2014	03.2015
Radio Communication Tester	CMW 500	R&S	1201.0002K50-106105-Vr	08.2013	08.2014
Signal Analyzer	N9030A	Agilent	MY51380404	07.2013	07.2014
Spectrum Analyzer	E4445A	Agilent	MY48250222	03.2013	03.2014
DC Power Supply	E3632A	Agilent	MY52470209	n.a	n.a
Power Splitter	ZN2PD2-50-S+	Mini-Circuits	60400627	n.a	n.a
Power Divider	6005180	KRYTAR	100778	n.a	n.a
Directional Coupler	4226-20	narda	3473	n.a	n.a

1.7 Device under test

The measurements were performed with following sample:

HW: A (AP1)
S/N: CB5126DPGG
Default Power S/N CB5126DPJR
Backoff Power S/N CB5126SKBX