3.6 Conducted Spurious Emission Measurement

3.6.1 Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

For Band 7

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30MHz up to a frequency including its 10^{th} harmonic.

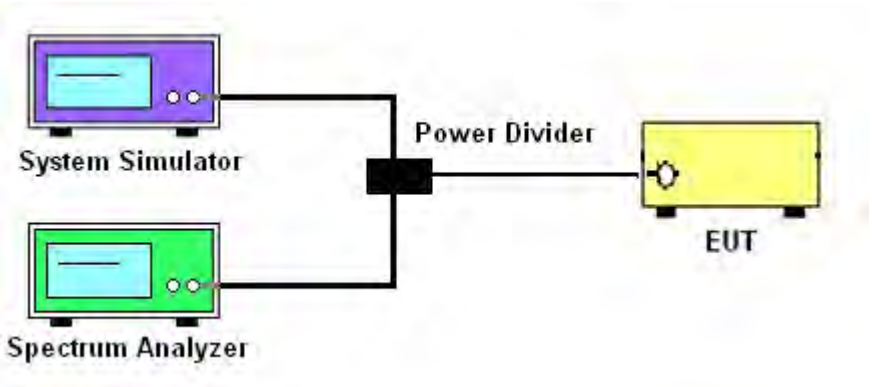
3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.6.3 Test Procedures

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. The middle channel for the highest RF power within the transmitting frequency was measured.
4. The conducted spurious emission for the whole frequency range was taken.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
   = P(W)- [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
   = -13dBm.
8. For Band 7
   The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)
   = P(W)- [55 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [55 + 10log(P)] (dB)
   = -25dBm.

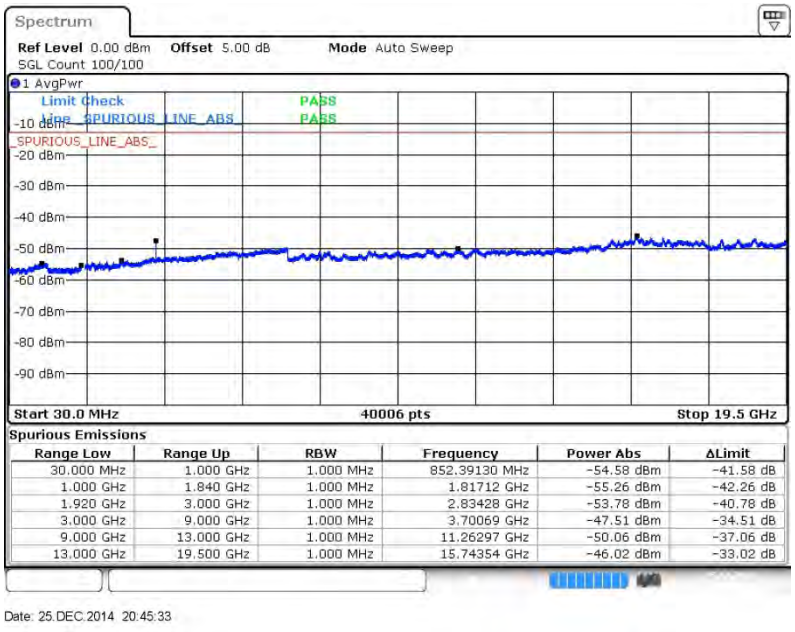
3.6.4 Test Setup



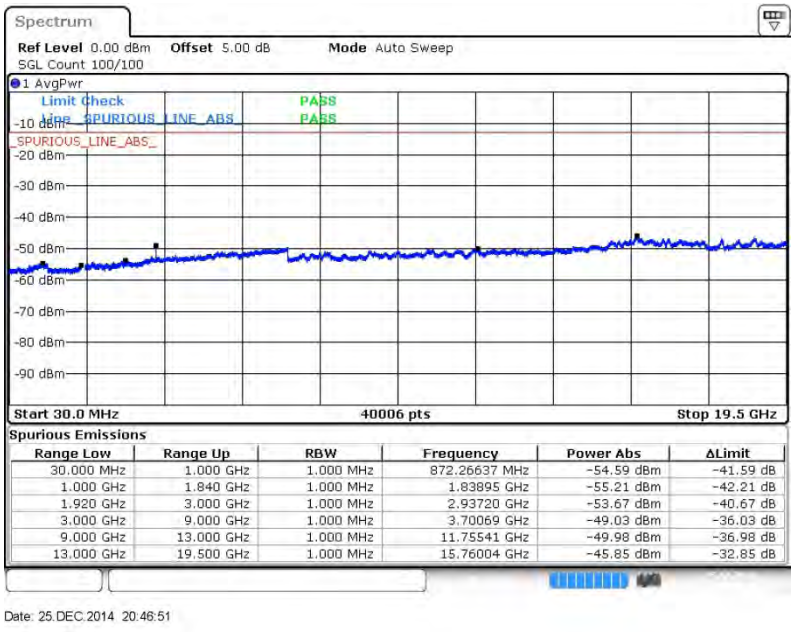
3.6.5 Test Result (Plots) of Conducted Spurious Emission

Band :	LTE Band 2	Channel :	CH18607 (Low)
Band Width :	1.4MHz		

QPSK (RB Size 1, RB Offset 0)

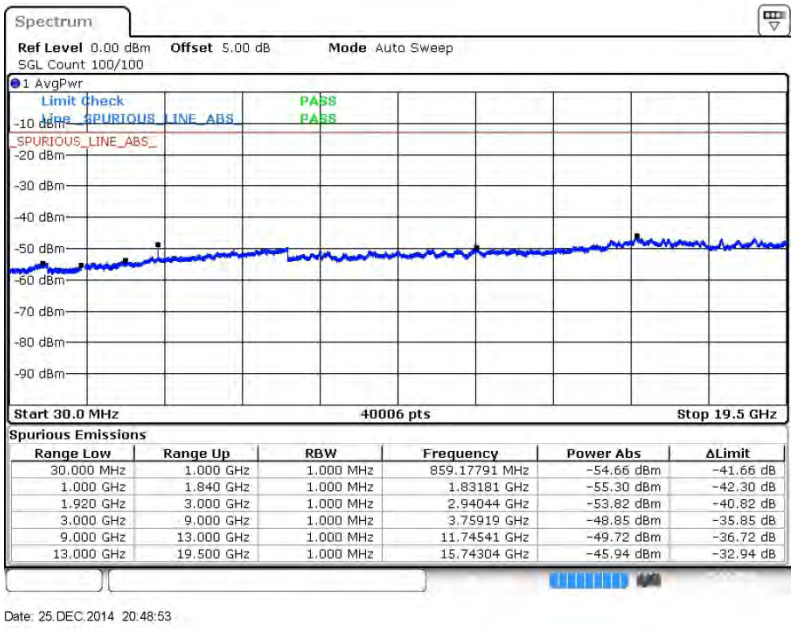


16QAM (RB Size 1, RB Offset 5)



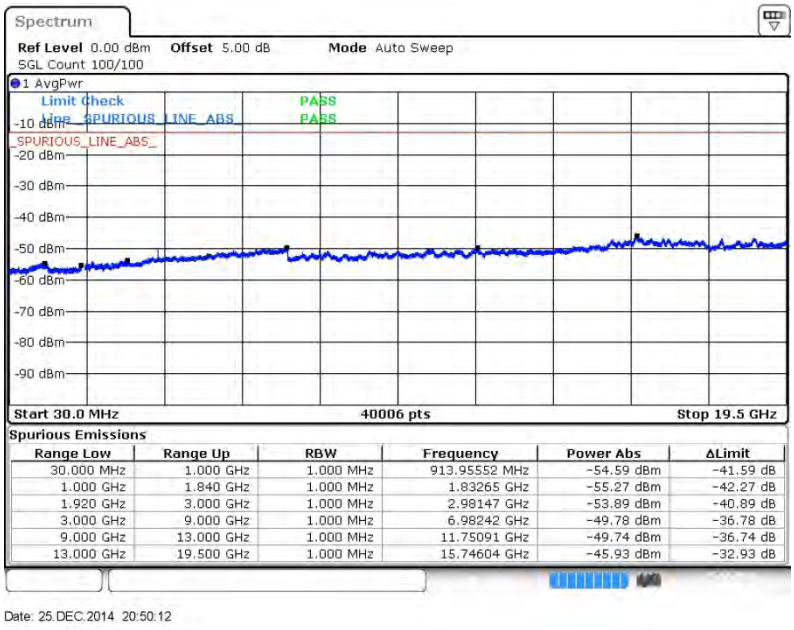
Band :	LTE Band 2	Channel :	CH18900 (Middle)
Band Width :	1.4MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 25.DEC.2014 20:48:53

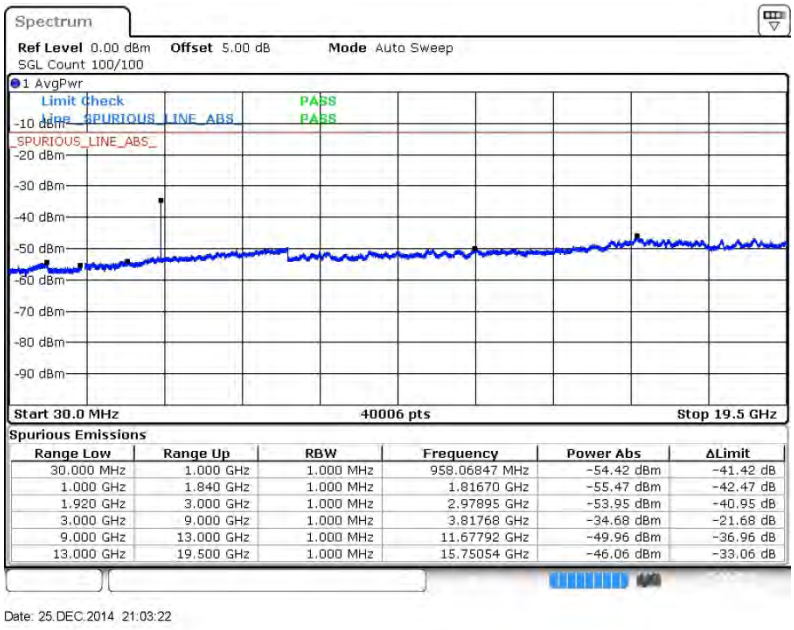
16QAM (RB Size 1, RB Offset 5)



Date: 25.DEC.2014 20:50:12

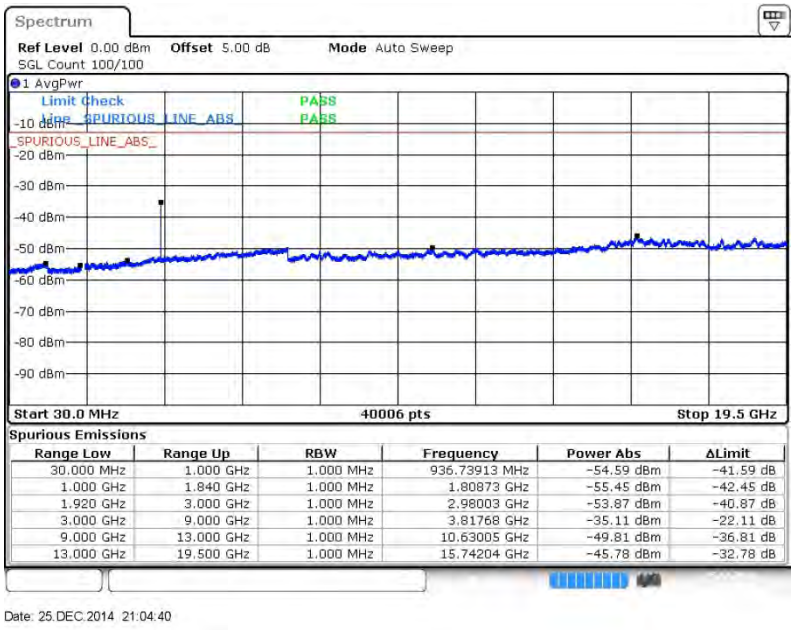
Band :	LTE Band 2	Channel :	CH19193 (High)
Band Width :	1.4MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 25.DEC.2014 21:03:22

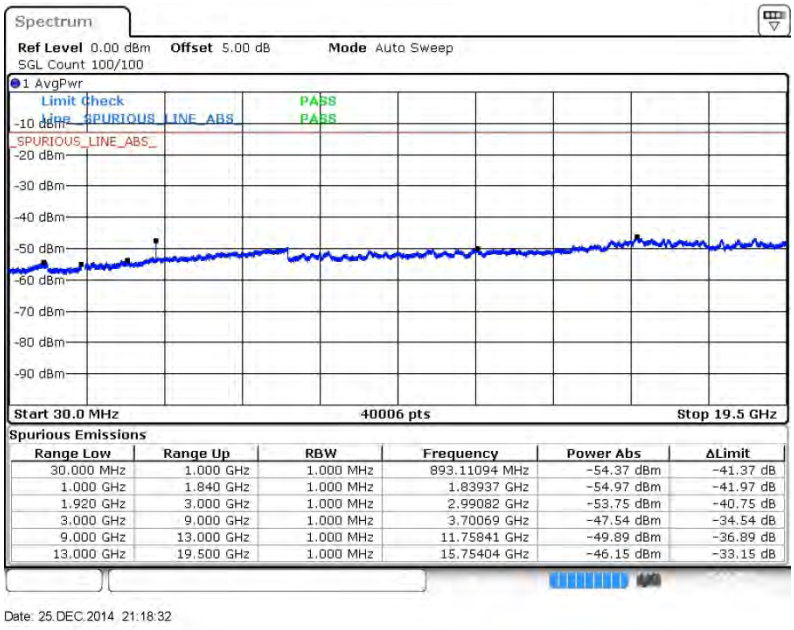
16QAM (RB Size 1, RB Offset 5)



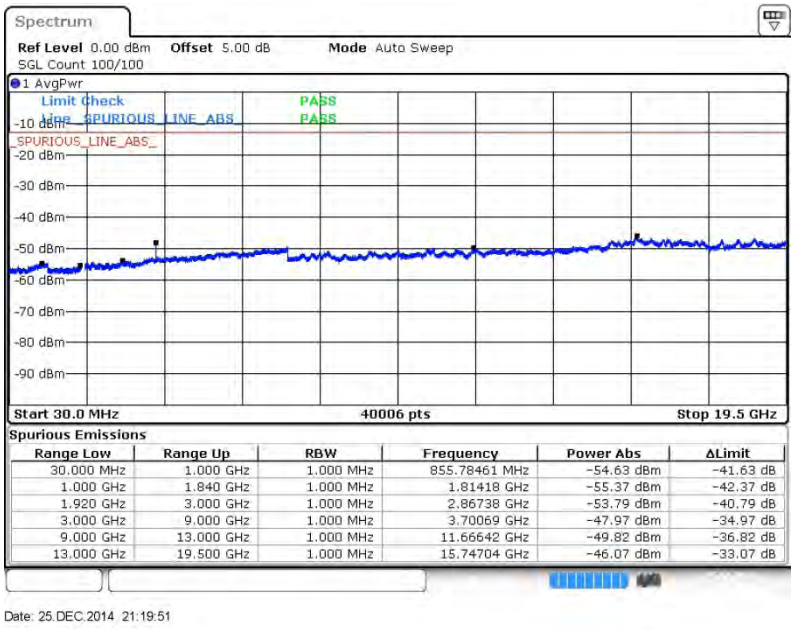
Date: 25.DEC.2014 21:04:40

Band :	LTE Band 2	Channel :	CH18615 (Low)
Band Width :	3MHz		

QPSK (RB Size 1, RB Offset 0)

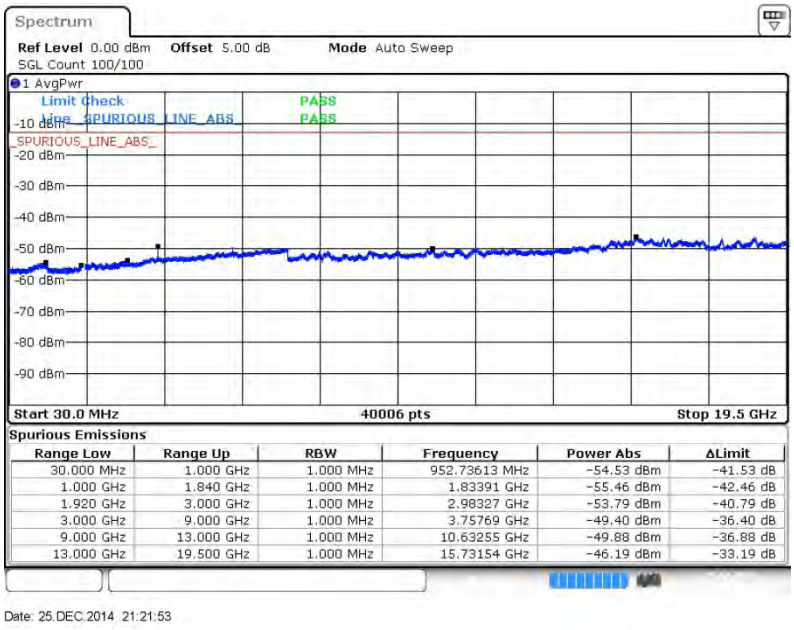


16QAM (RB Size 1, RB Offset 0)

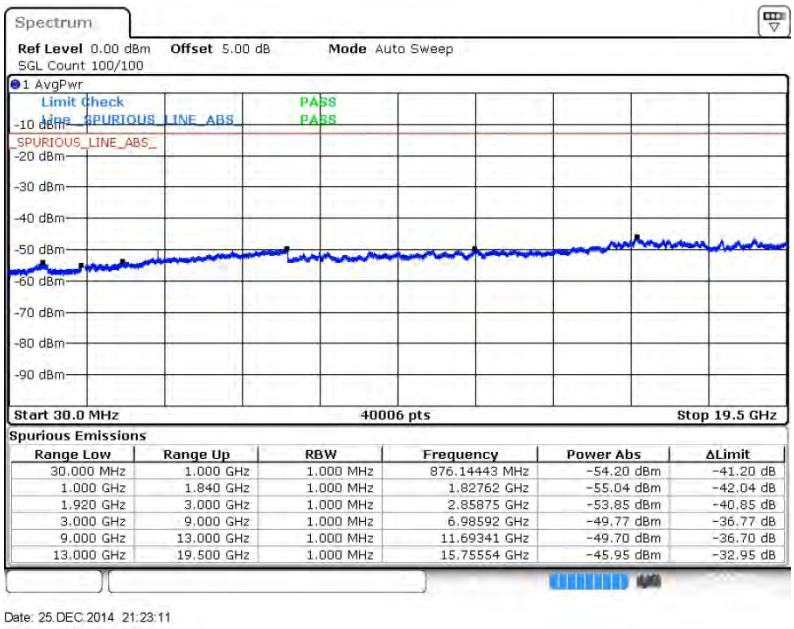


Band :	LTE Band 2	Channel :	CH18900 (Middle)
Band Width :	3MHz		

QPSK (RB Size 1, RB Offset 0)

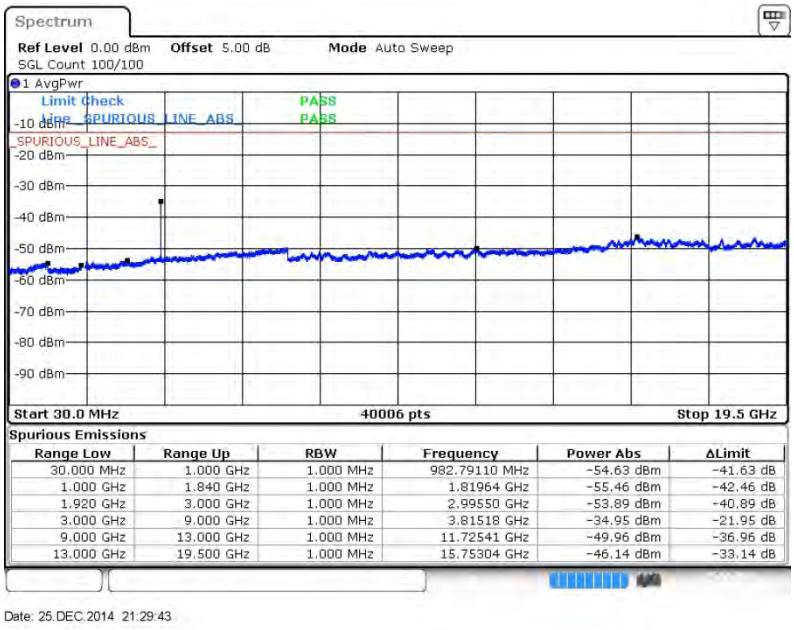


16QAM (RB Size 1, RB Offset 0)

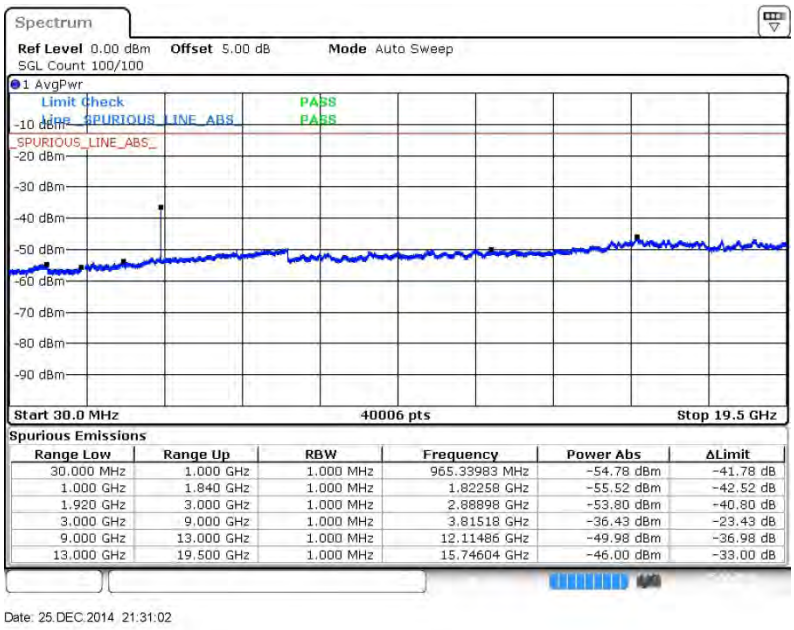


Band :	LTE Band 2	Channel :	CH19185 (High)
Band Width :	3MHz		

QPSK (RB Size 1, RB Offset 0)

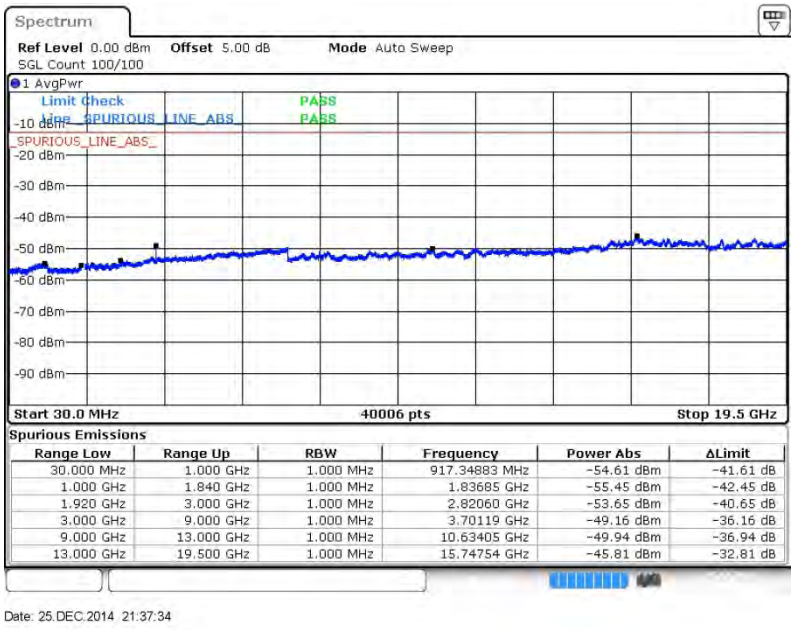


16QAM (RB Size 1, RB Offset 0)



Band :	LTE Band 2	Channel :	CH18625 (Low)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	917.34883 MHz	-54.61 dBm	-41.61 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.83685 GHz	-55.45 dBm	-42.45 dB
1.920 GHz	3.000 GHz	1.000 MHz	2.82060 GHz	-53.65 dBm	-40.65 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.70119 GHz	-49.16 dBm	-36.16 dB
9.000 GHz	13.000 GHz	1.000 MHz	10.63405 GHz	-49.94 dBm	-36.94 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.74754 GHz	-45.81 dBm	-32.81 dB

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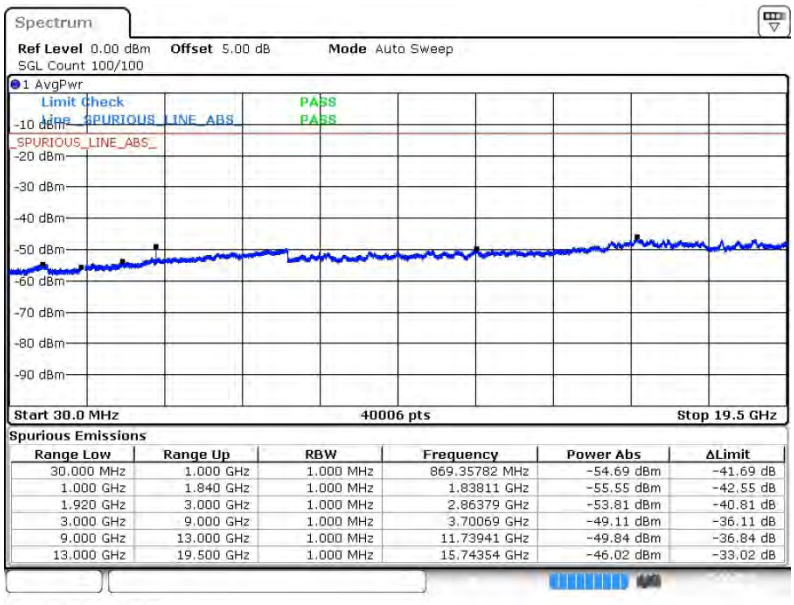
16QAM (RB Size 1, RB Offset 0)



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	869.35782 MHz	-54.69 dBm	-41.69 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.83811 GHz	-55.55 dBm	-42.55 dB
1.920 GHz	3.000 GHz	1.000 MHz	2.86379 GHz	-53.81 dBm	-40.81 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.70069 GHz	-49.11 dBm	-36.11 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.73941 GHz	-49.84 dBm	-36.84 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.74354 GHz	-46.02 dBm	-33.02 dB

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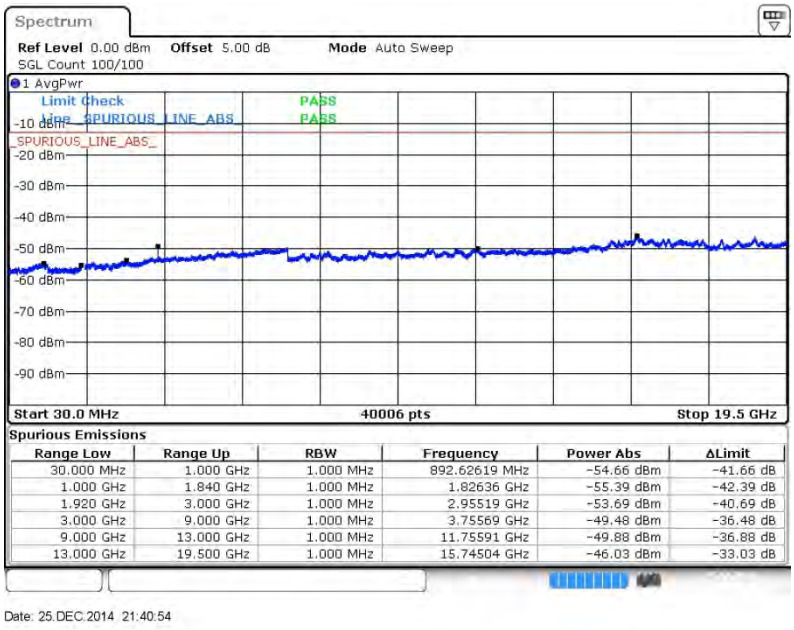
Band :	LTE Band 2	Channel :	CH18900 (Middle)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)

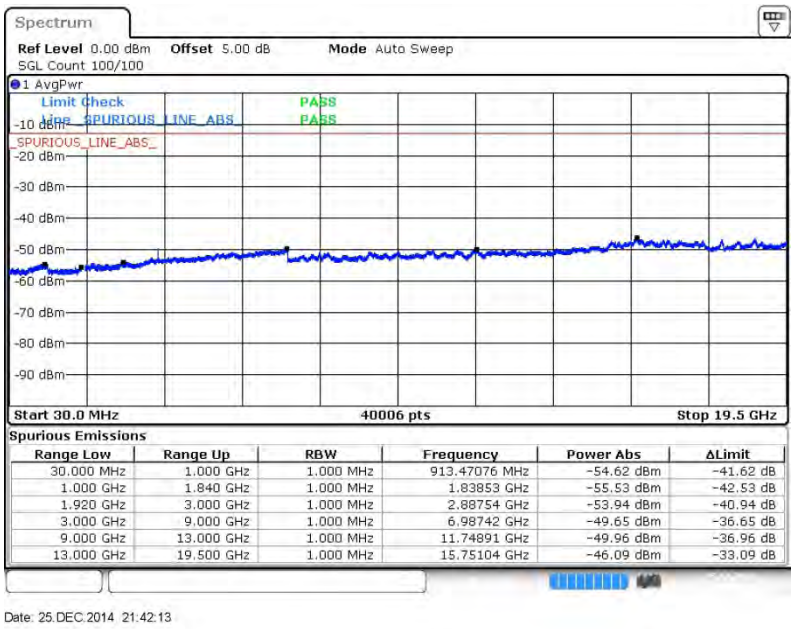


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	892.62619 MHz	-54.66 dBm	-41.66 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.82636 GHz	-55.39 dBm	-42.39 dB
1.920 GHz	3.000 GHz	1.000 MHz	2.95519 GHz	-53.69 dBm	-40.69 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.75569 GHz	-49.48 dBm	-36.48 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.75591 GHz	-49.88 dBm	-36.88 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.74504 GHz	-46.03 dBm	-33.03 dB

Date: 25.DEC.2014 21:40:54

16QAM (RB Size 1, RB Offset 0)



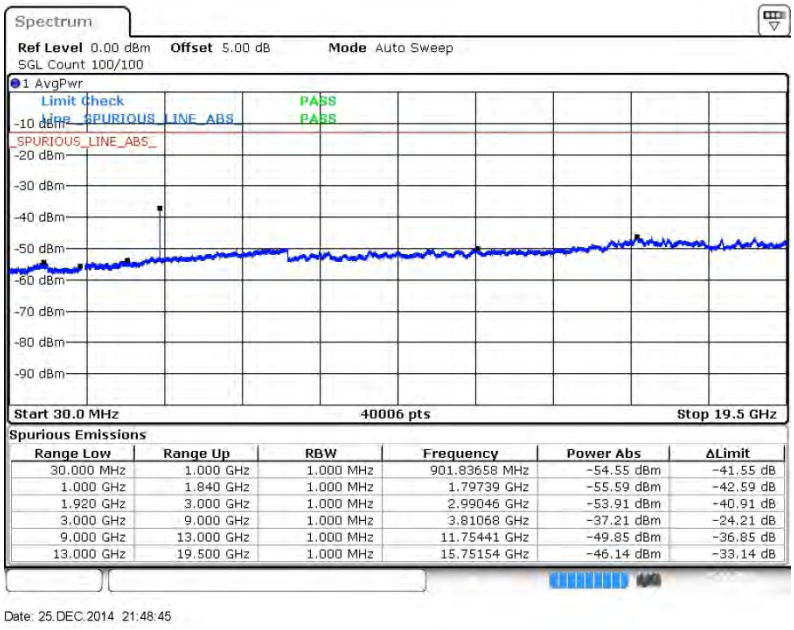
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	913.47076 MHz	-54.62 dBm	-41.62 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.83853 GHz	-55.53 dBm	-42.53 dB
1.920 GHz	3.000 GHz	1.000 MHz	2.88754 GHz	-53.94 dBm	-40.94 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.98742 GHz	-49.65 dBm	-36.65 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74891 GHz	-49.96 dBm	-36.96 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75104 GHz	-46.09 dBm	-33.09 dB

Date: 25.DEC.2014 21:42:13

Band :	LTE Band 2	Channel :	CH19175 (High)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)

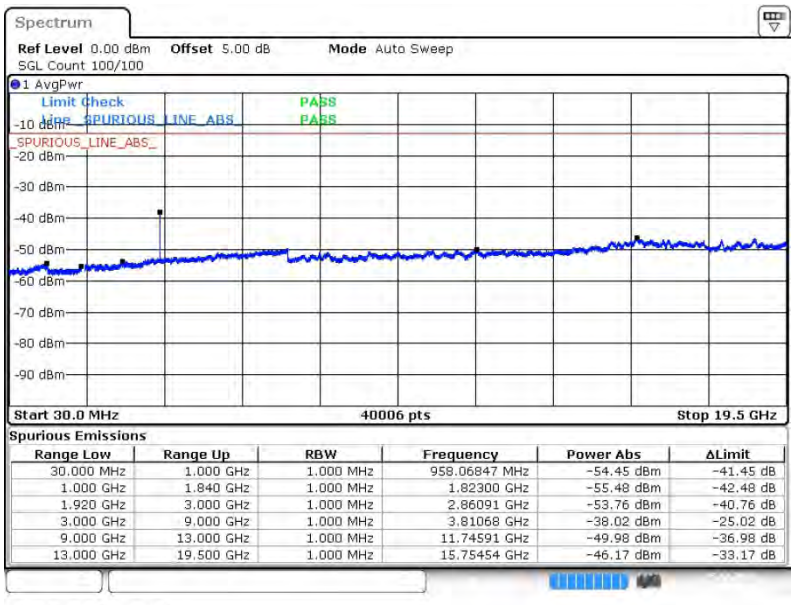


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	901.83658 MHz	-54.55 dBm	-41.55 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.79739 GHz	-55.59 dBm	-42.59 dB
1.920 GHz	3.000 GHz	1.000 MHz	2.99046 GHz	-53.91 dBm	-40.91 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.81068 GHz	-37.21 dBm	-24.21 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.75441 GHz	-49.85 dBm	-36.85 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75154 GHz	-46.14 dBm	-33.14 dB

Date: 25.DEC.2014 21:48:45

16QAM (RB Size 1, RB Offset 0)



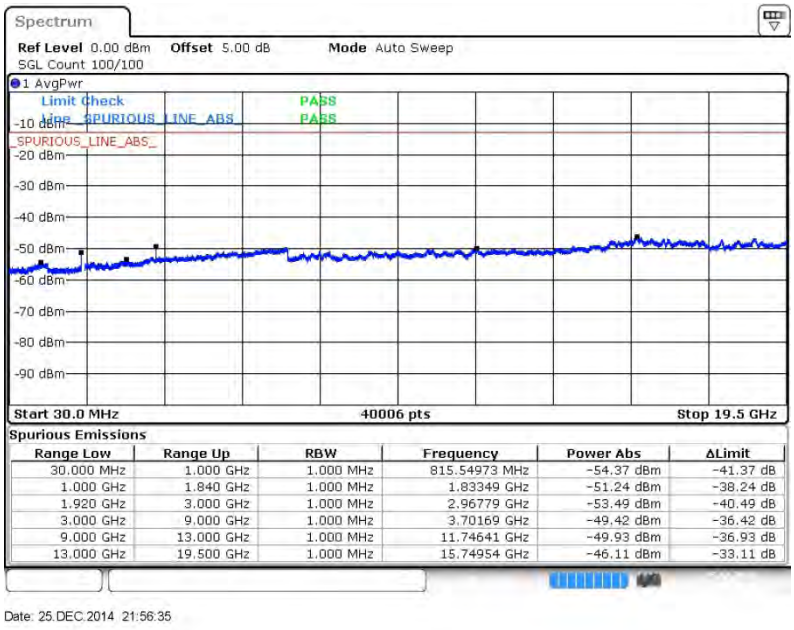
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	958.06847 MHz	-54.45 dBm	-41.45 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.82300 GHz	-55.48 dBm	-42.48 dB
1.920 GHz	3.000 GHz	1.000 MHz	2.86091 GHz	-53.76 dBm	-40.76 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.81068 GHz	-38.02 dBm	-25.02 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74591 GHz	-49.98 dBm	-36.98 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75454 GHz	-46.17 dBm	-33.17 dB

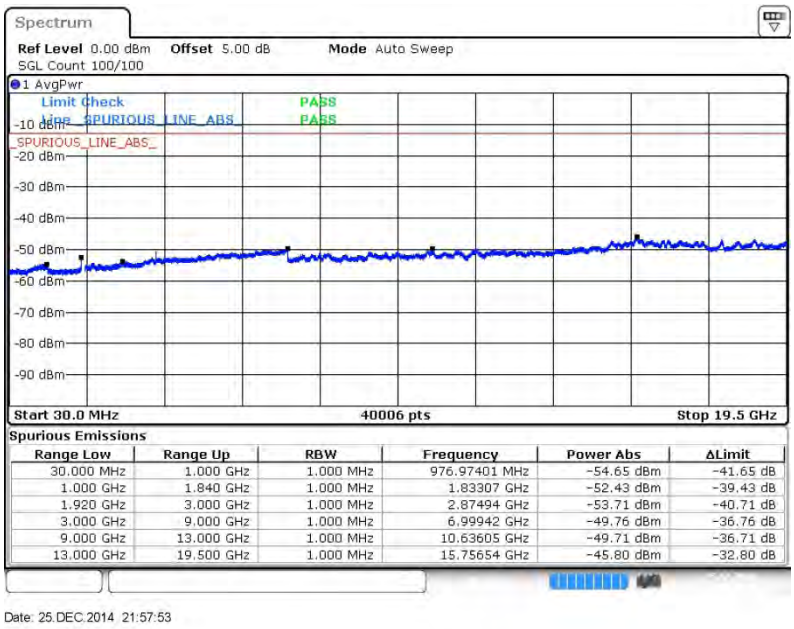
Date: 25.DEC.2014 21:50:03

Band :	LTE Band 2	Channel :	CH18650 (Low)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 24)

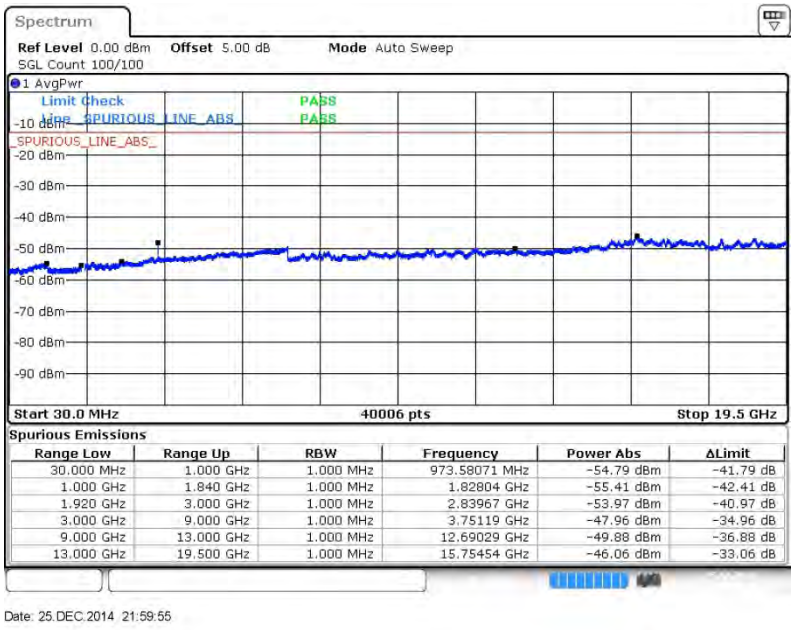


16QAM (RB Size 1, RB Offset 24)

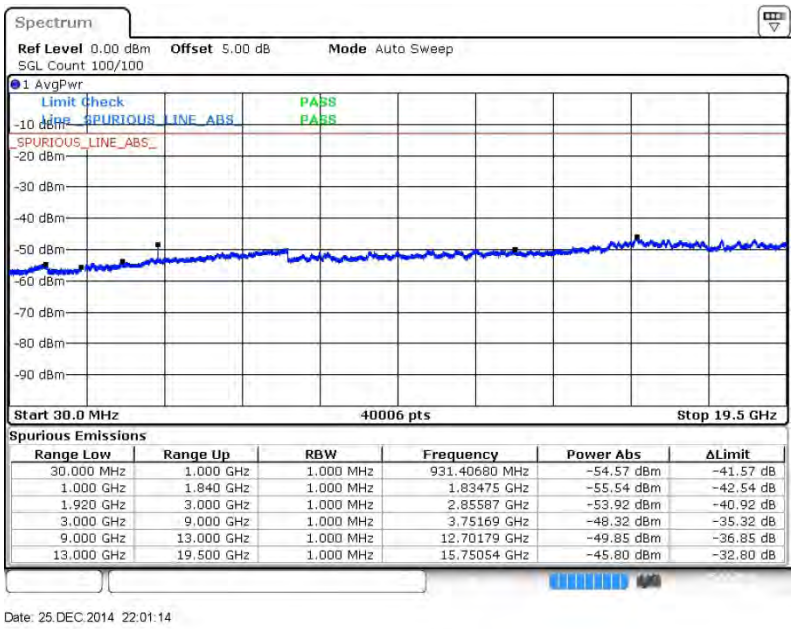


Band :	LTE Band 2	Channel :	CH18900 (Middle)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 24)

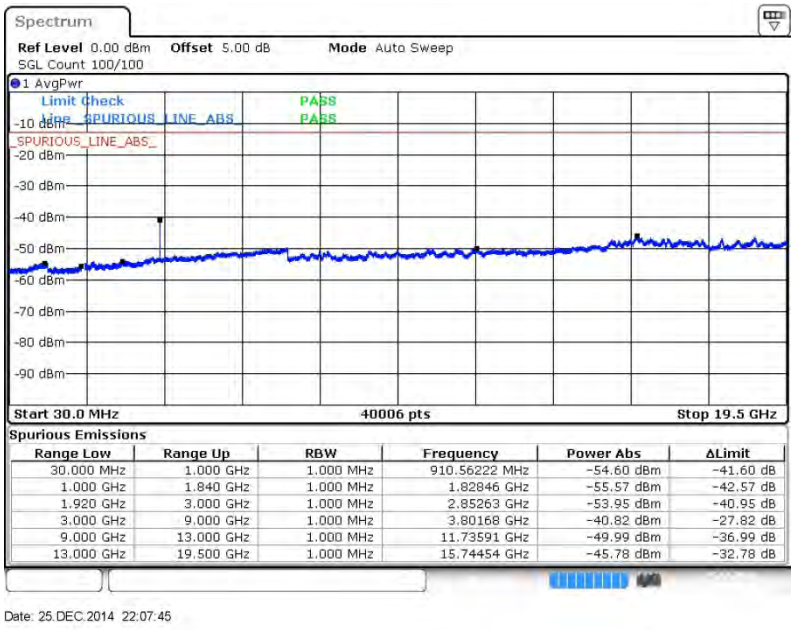


16QAM (RB Size 1, RB Offset 24)

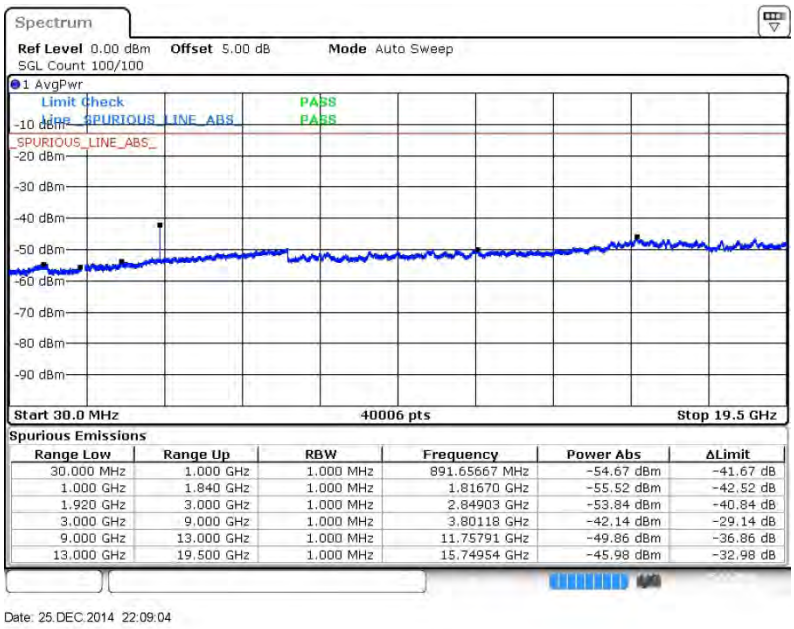


Band :	LTE Band 2	Channel :	CH19150 (High)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 24)

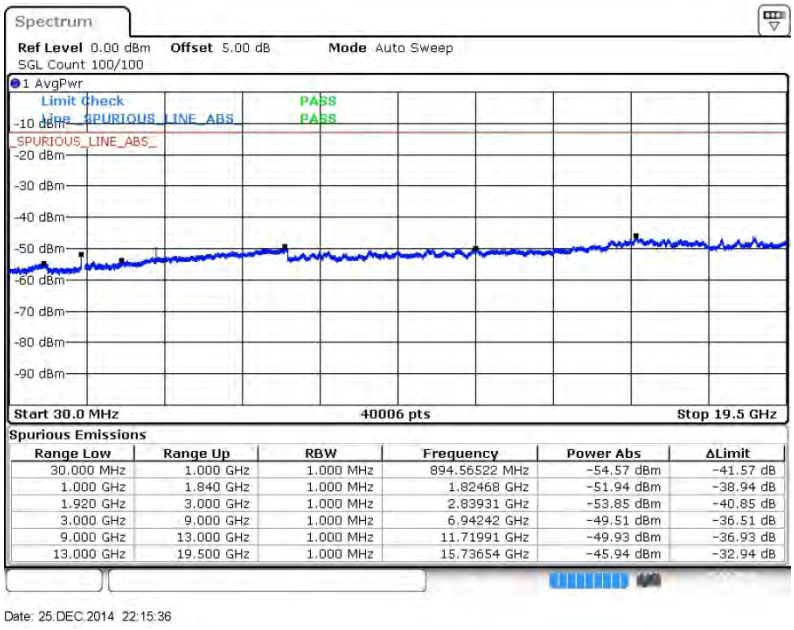


16QAM (RB Size 1, RB Offset 24)

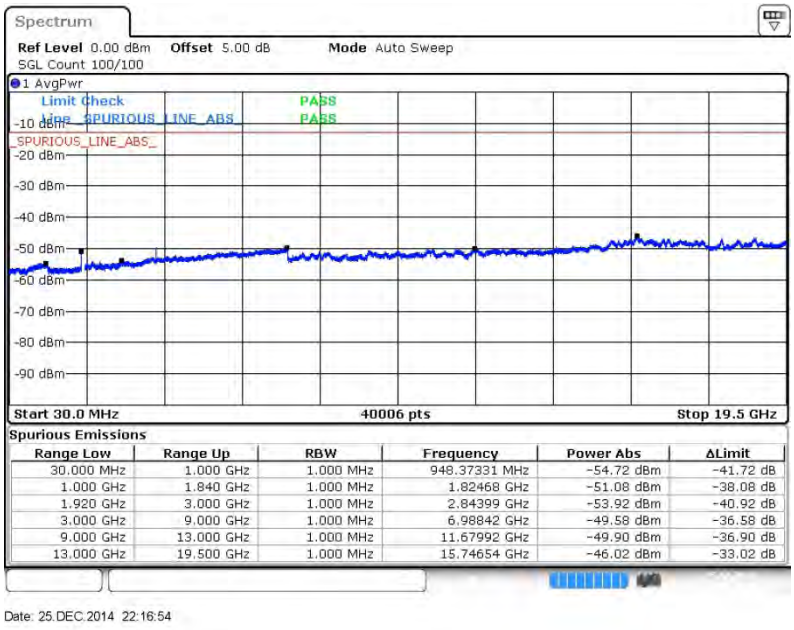


Band :	LTE Band 2	Channel :	CH18675 (Low)
Band Width :	15MHz		

QPSK (RB Size 1, RB Offset 37)

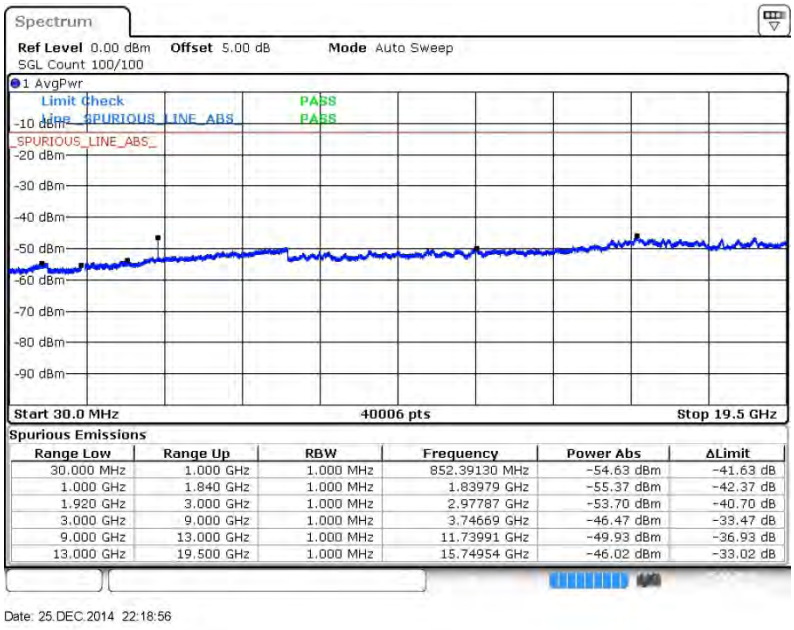


16QAM (RB Size 1, RB Offset 37)

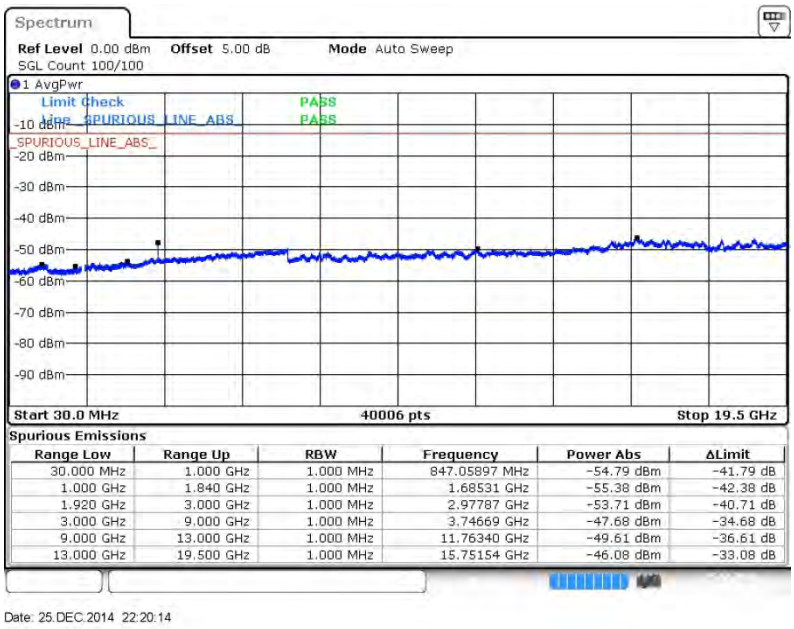


Band :	LTE Band 2	Channel :	CH18900 (Middle)
Band Width :	15MHz		

QPSK (RB Size 1, RB Offset 74)

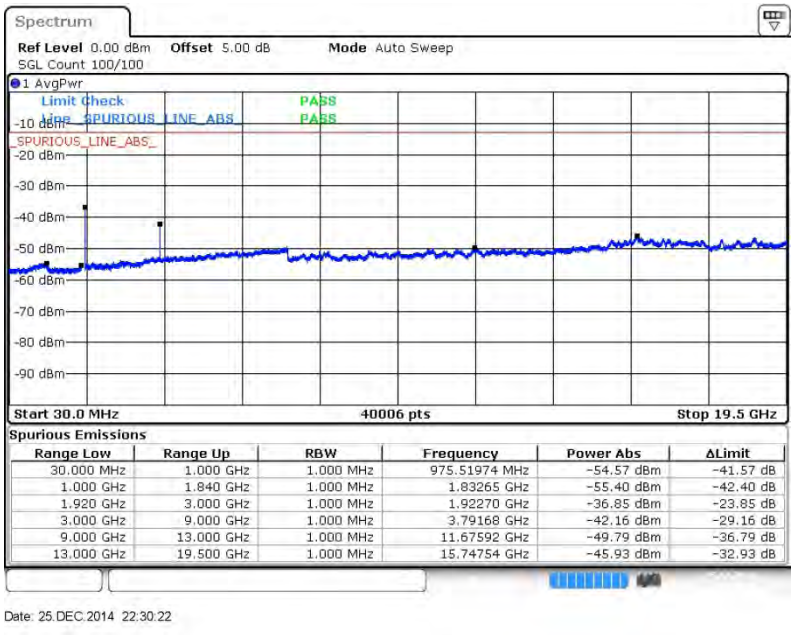


16QAM (RB Size 1, RB Offset 74)

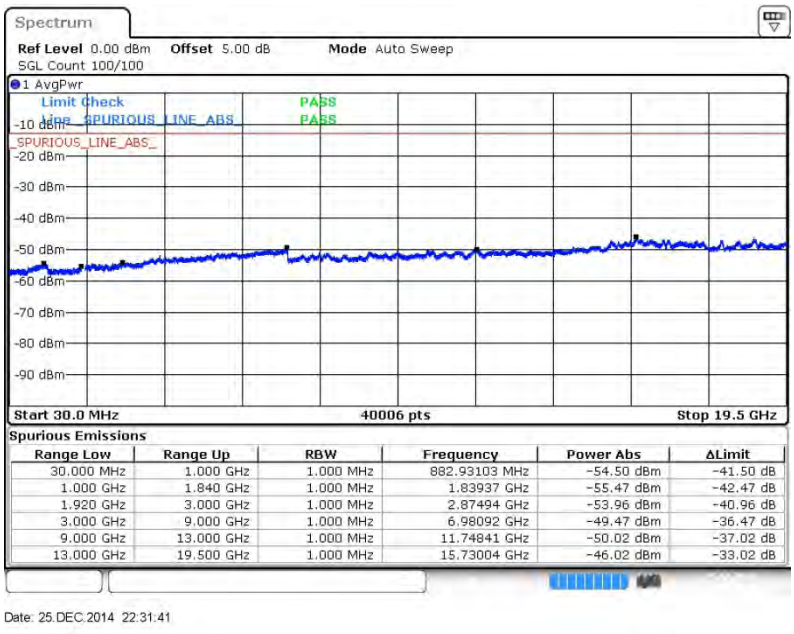


Band :	LTE Band 2	Channel :	CH19125 (High)
Band Width :	15MHz		

QPSK (RB Size 1, RB Offset 0)

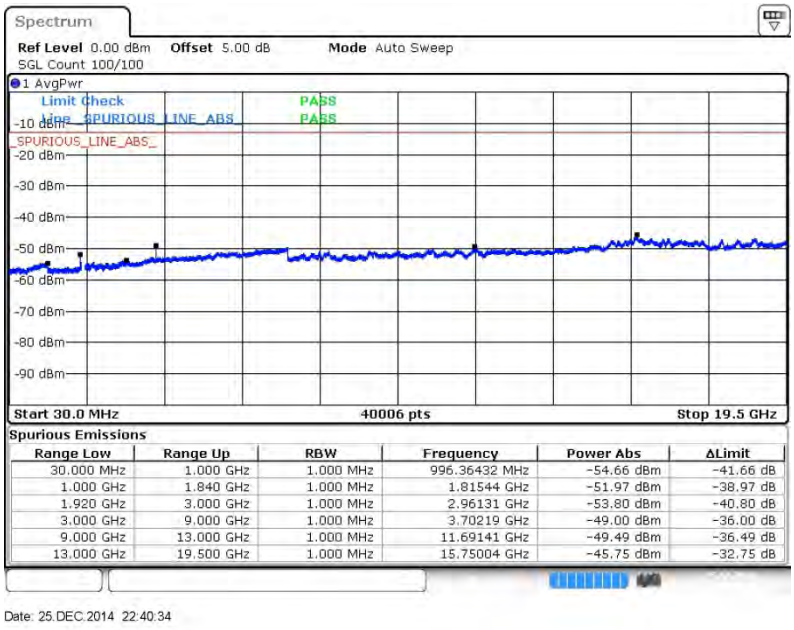


16QAM (RB Size 1, RB Offset 0)

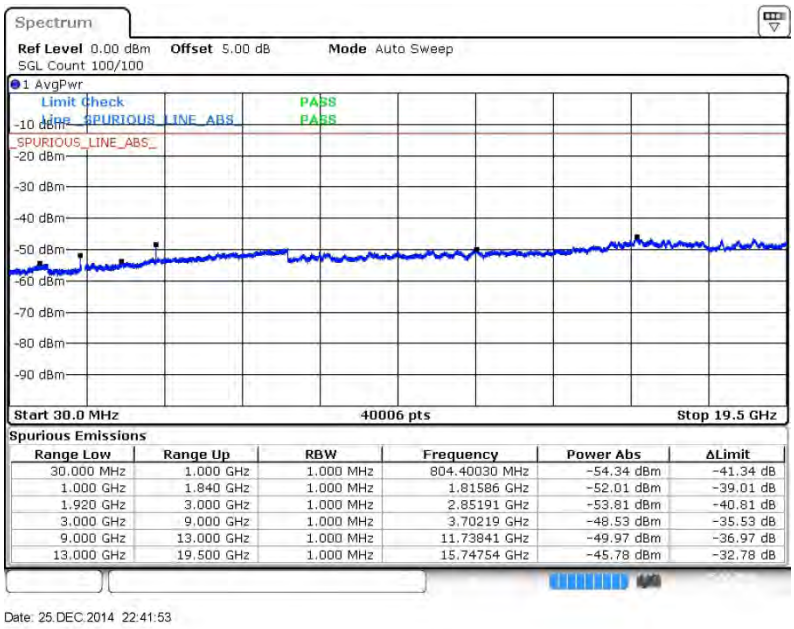


Band :	LTE Band 2	Channel :	CH18700 (Low)
Band Width :	20MHz		

QPSK (RB Size 1, RB Offset 0)

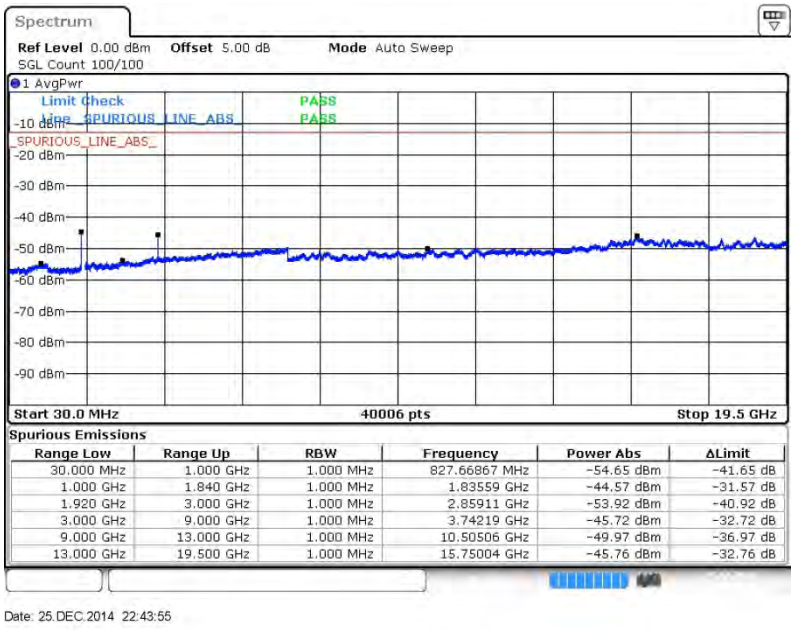


16QAM (RB Size 1, RB Offset 49)

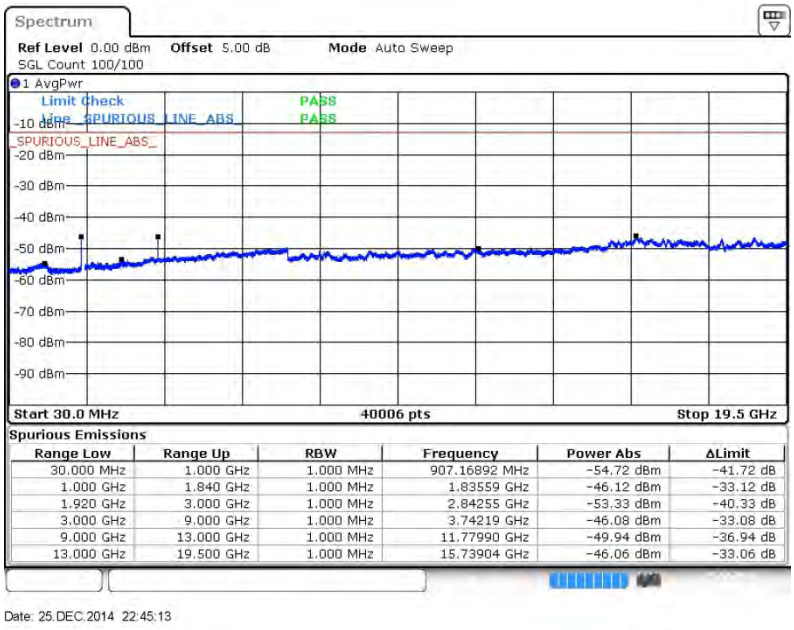


Band :	LTE Band 2	Channel :	CH18900 (Middle)
Band Width :	20MHz		

QPSK (RB Size 1, RB Offset 0)

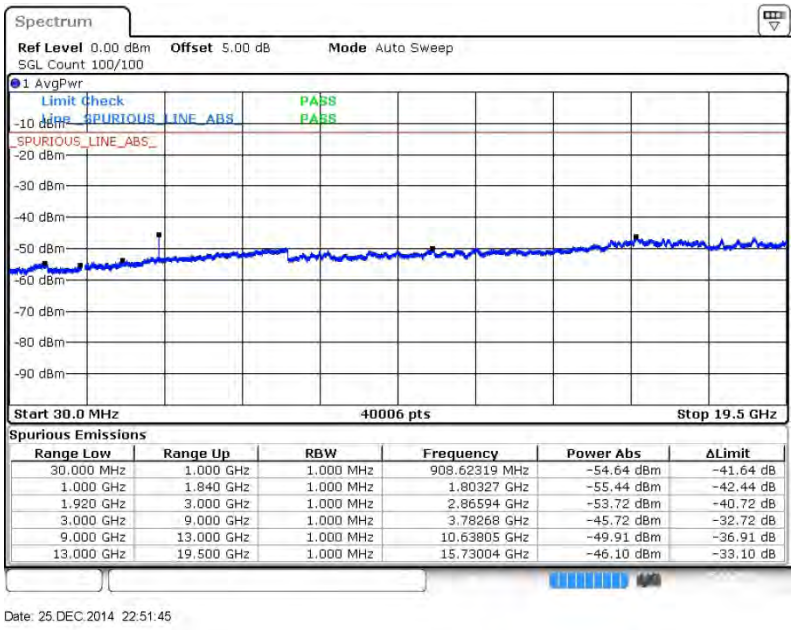


16QAM (RB Size 1, RB Offset 0)

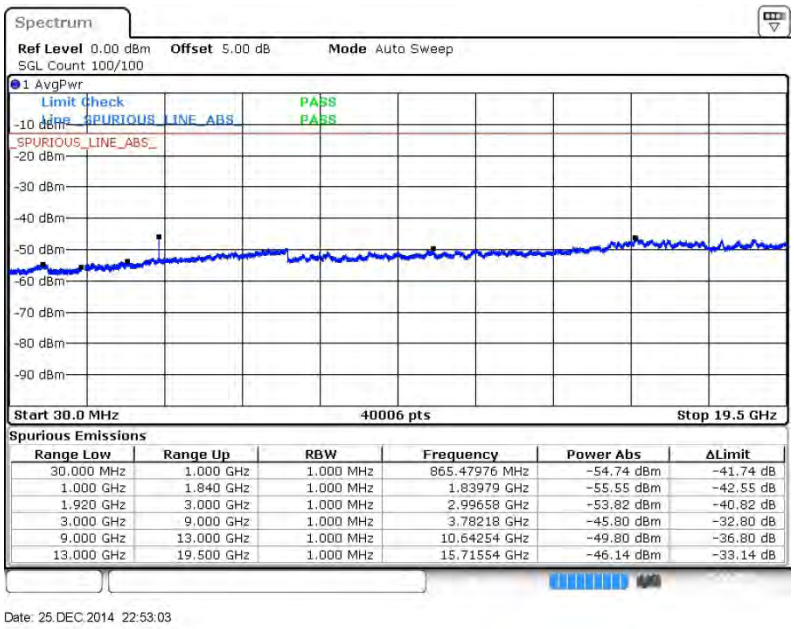


Band :	LTE Band 2	Channel :	CH19100 (High)
Band Width :	20MHz		

QPSK (RB Size 1, RB Offset 0)

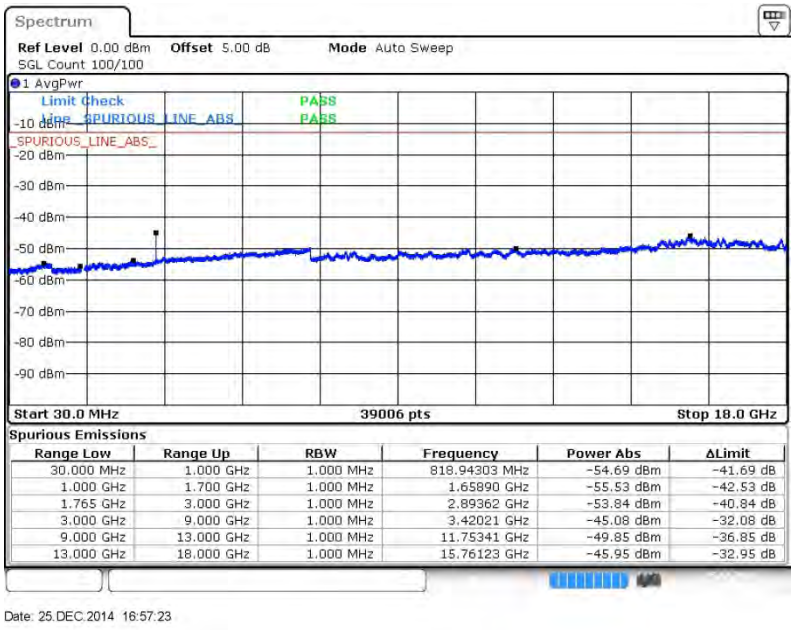


16QAM (RB Size 1, RB Offset 0)



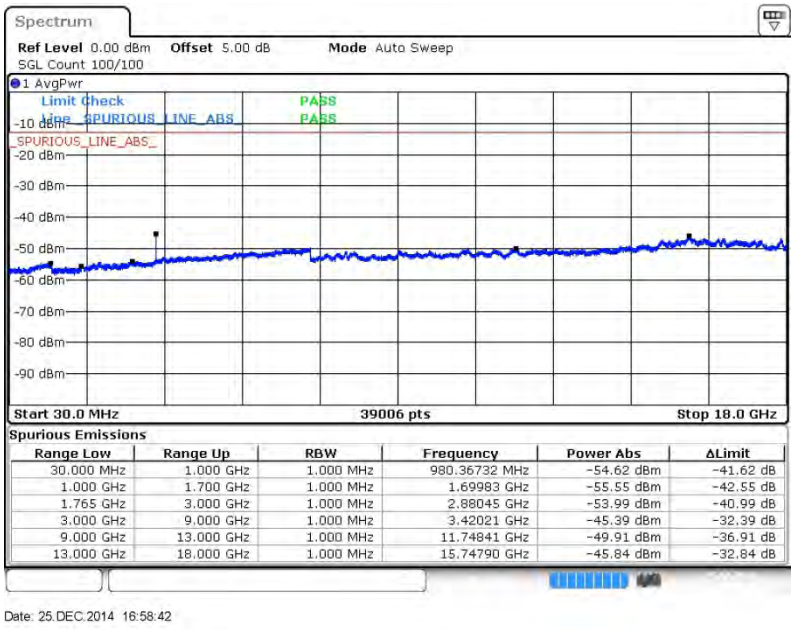
Band :	LTE Band 4	Channel :	CH19957 (Low)
Band Width :	1.4MHz		

QPSK (RB Size 3, RB Offset 0)



Date: 25.DEC.2014 16:57:23

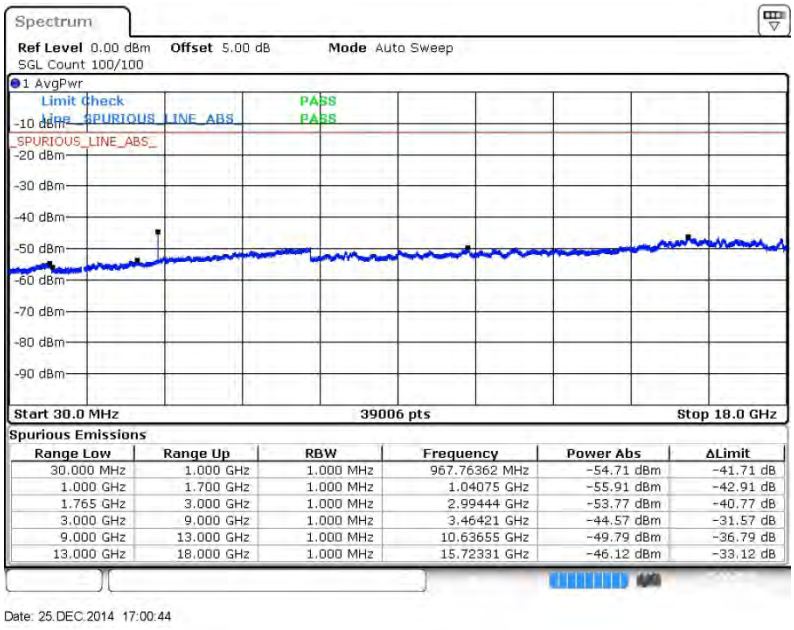
16QAM (RB Size 1, RB Offset 5)



Date: 25.DEC.2014 16:58:42

Band :	LTE Band 4	Channel :	CH20175 (Middle)
Band Width :	1.4MHz		

QPSK (RB Size 3, RB Offset 2)

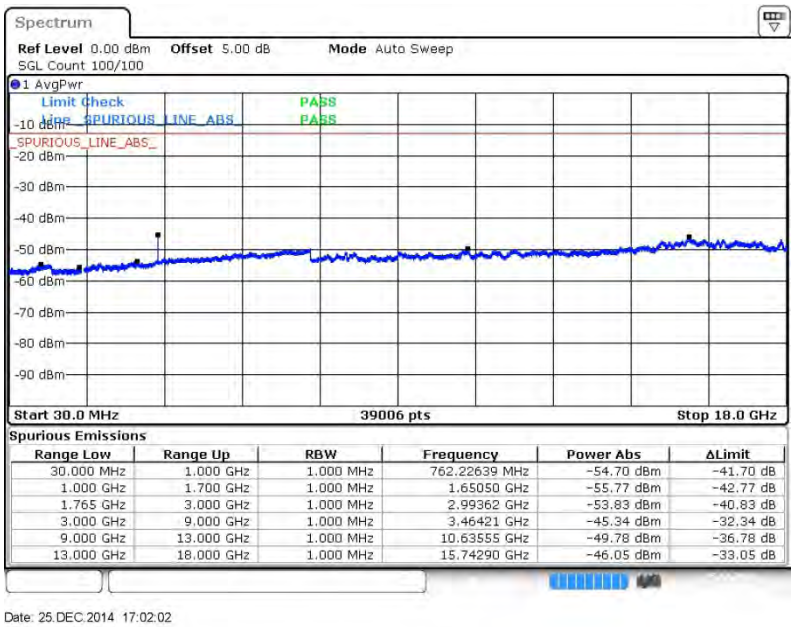


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	967.76362 MHz	-54.71 dBm	-41.71 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.04075 GHz	-55.91 dBm	-42.91 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.99444 GHz	-53.77 dBm	-40.77 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.46421 GHz	-44.57 dBm	-31.57 dB
9.000 GHz	13.000 GHz	1.000 MHz	10.63655 GHz	-49.79 dBm	-36.79 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.72331 GHz	-46.12 dBm	-33.12 dB

Date: 25.DEC.2014 17:00:44

16QAM (RB Size 1, RB Offset 2)



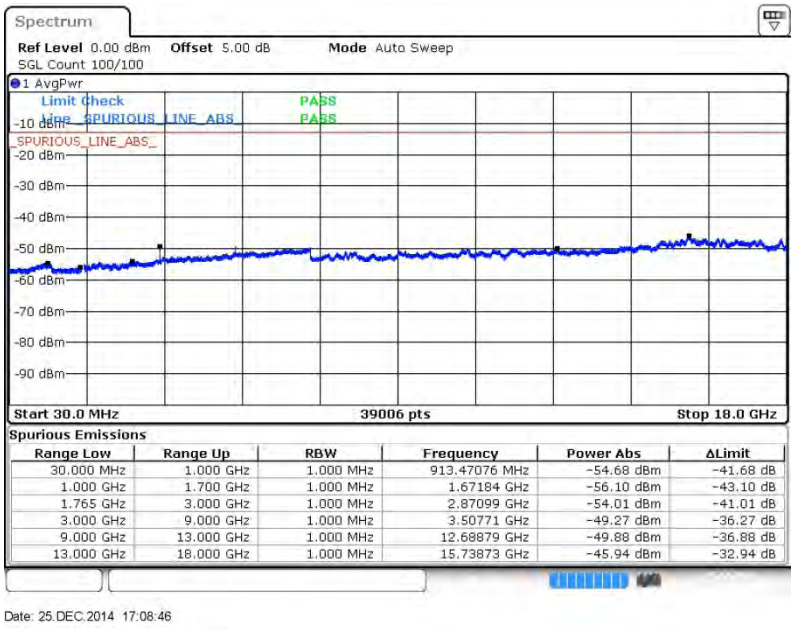
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	762.22639 MHz	-54.70 dBm	-41.70 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.65050 GHz	-55.77 dBm	-42.77 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.99362 GHz	-53.83 dBm	-40.83 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.46421 GHz	-45.34 dBm	-32.34 dB
9.000 GHz	13.000 GHz	1.000 MHz	10.63555 GHz	-49.78 dBm	-36.78 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.74290 GHz	-46.05 dBm	-33.05 dB

Date: 25.DEC.2014 17:02:02

Band :	LTE Band 4	Channel :	CH20393 (High)
Band Width :	1.4MHz		

QPSK (RB Size 3, RB Offset 0)

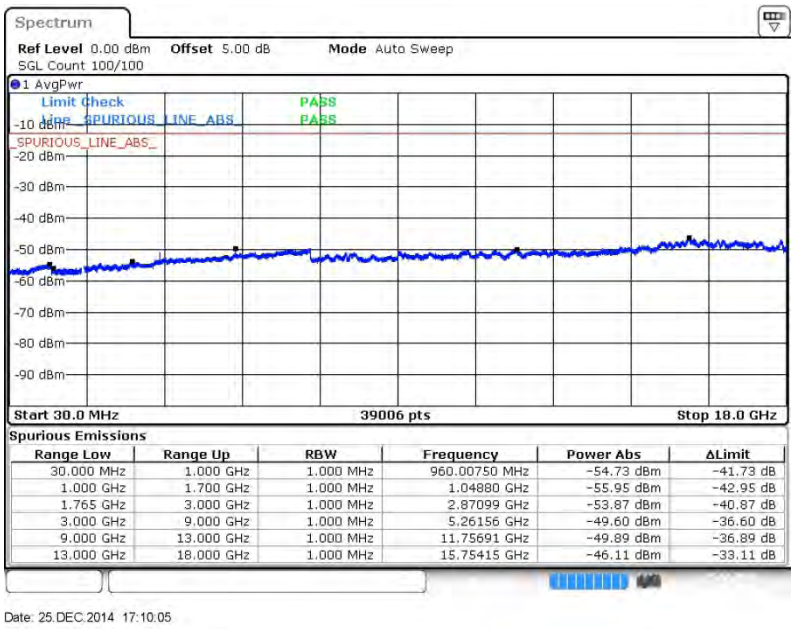


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	913.47076 MHz	-54.68 dBm	-41.68 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.67184 GHz	-56.10 dBm	-43.10 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.87099 GHz	-54.01 dBm	-41.01 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.50771 GHz	-49.27 dBm	-36.27 dB
9.000 GHz	13.000 GHz	1.000 MHz	12.68879 GHz	-49.88 dBm	-36.88 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.73873 GHz	-45.94 dBm	-32.94 dB

Date: 25.DEC.2014 17:08:46

16QAM (RB Size 1, RB Offset 2)



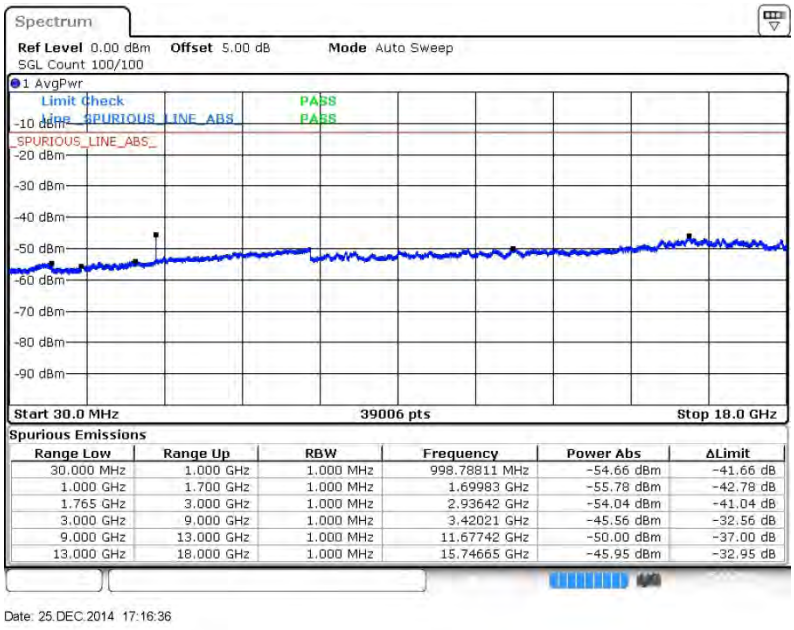
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	960.00750 MHz	-54.73 dBm	-41.73 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.04880 GHz	-55.95 dBm	-42.95 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.87099 GHz	-53.87 dBm	-40.87 dB
3.000 GHz	9.000 GHz	1.000 MHz	5.26156 GHz	-49.60 dBm	-36.60 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.75691 GHz	-49.89 dBm	-36.89 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.75415 GHz	-46.11 dBm	-33.11 dB

Date: 25.DEC.2014 17:10:05

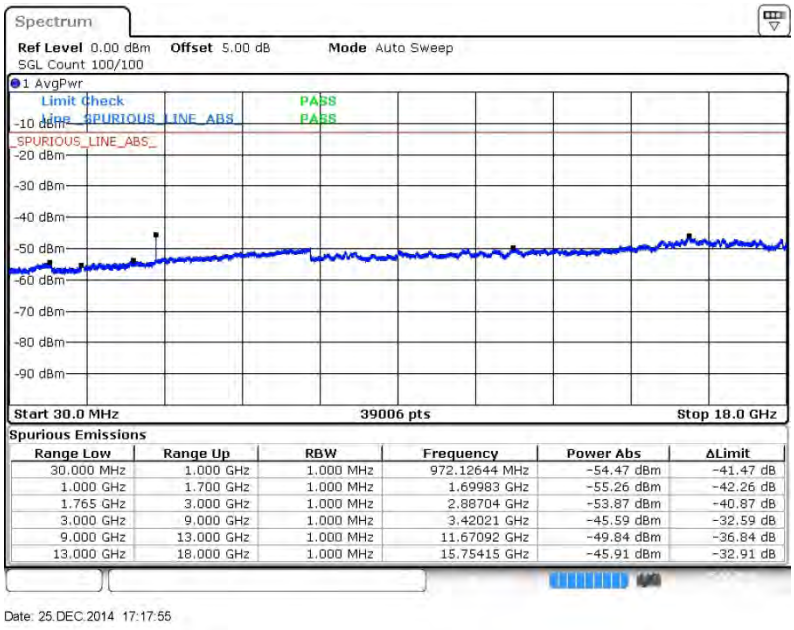
Band :	LTE Band 4	Channel :	CH19965 (Low)
Band Width :	3MHz		

QPSK (RB Size 1, RB Offset 7)



Date: 25.DEC.2014 17:16:36

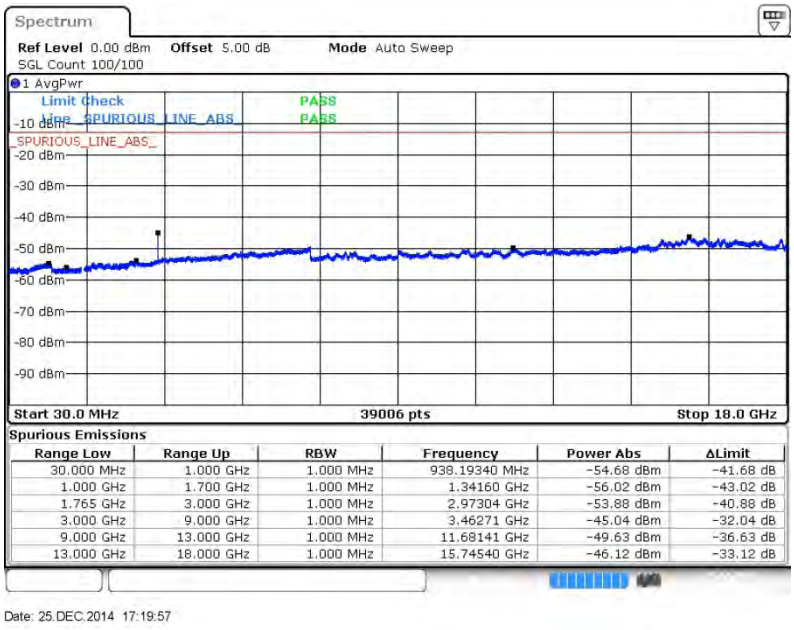
16QAM (RB Size 1, RB Offset 7)



Date: 25.DEC.2014 17:17:55

Band :	LTE Band 4	Channel :	CH20175 (Middle)
Band Width :	3MHz		

QPSK (RB Size 1, RB Offset 0)

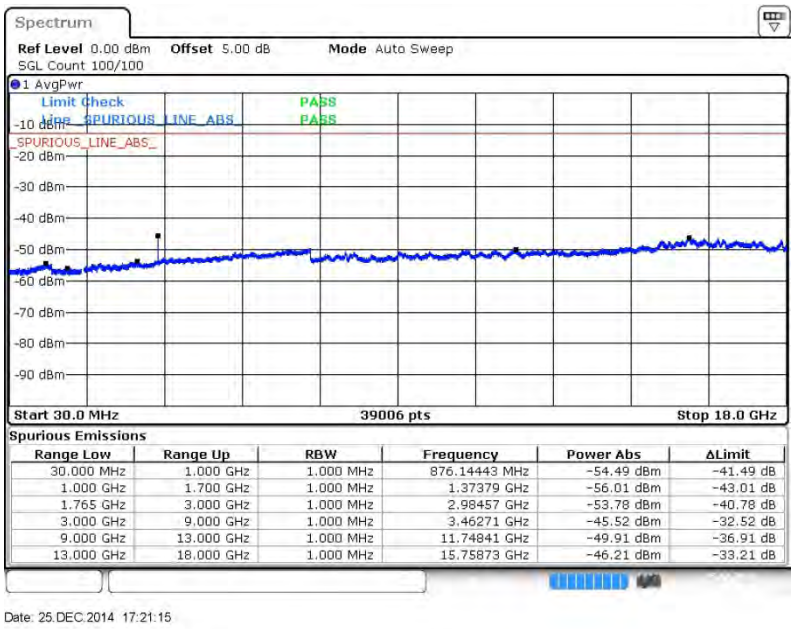


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	938.19340 MHz	-54.68 dBm	-41.68 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.34160 GHz	-56.02 dBm	-43.02 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.97304 GHz	-53.88 dBm	-40.88 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.46271 GHz	-45.04 dBm	-32.04 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.68141 GHz	-49.63 dBm	-36.63 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.74540 GHz	-46.12 dBm	-33.12 dB

Date: 25.DEC.2014 17:19:57

16QAM (RB Size 1, RB Offset 0)



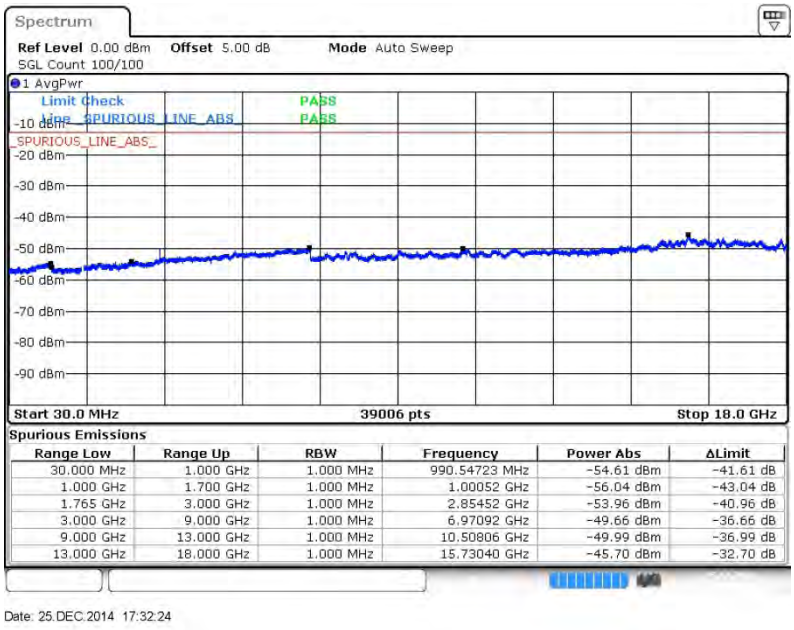
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	876.14443 MHz	-54.49 dBm	-41.49 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.37379 GHz	-56.01 dBm	-43.01 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.98457 GHz	-53.78 dBm	-40.78 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.46271 GHz	-45.52 dBm	-32.52 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74841 GHz	-49.91 dBm	-36.91 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.75873 GHz	-46.21 dBm	-33.21 dB

Date: 25.DEC.2014 17:21:15

Band :	LTE Band 4	Channel :	CH20385 (High)
Band Width :	3MHz		

QPSK (RB Size 1, RB Offset 7)

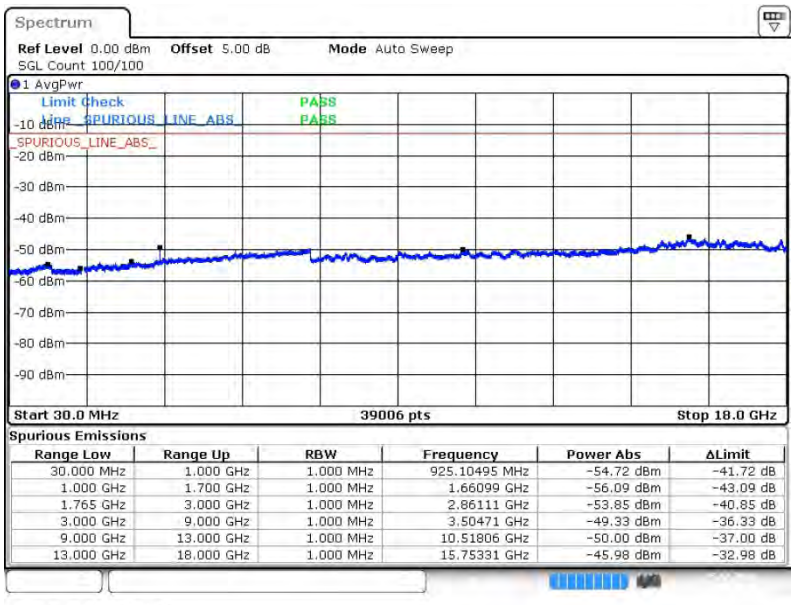


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	990.54723 MHz	-54.61 dBm	-41.61 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.00052 GHz	-56.04 dBm	-43.04 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.85452 GHz	-53.96 dBm	-40.96 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.97092 GHz	-49.66 dBm	-36.66 dB
9.000 GHz	13.000 GHz	1.000 MHz	10.50806 GHz	-49.99 dBm	-36.99 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.73040 GHz	-45.70 dBm	-32.70 dB

Date: 25.DEC.2014 17:32:24

16QAM (RB Size 1, RB Offset 0)



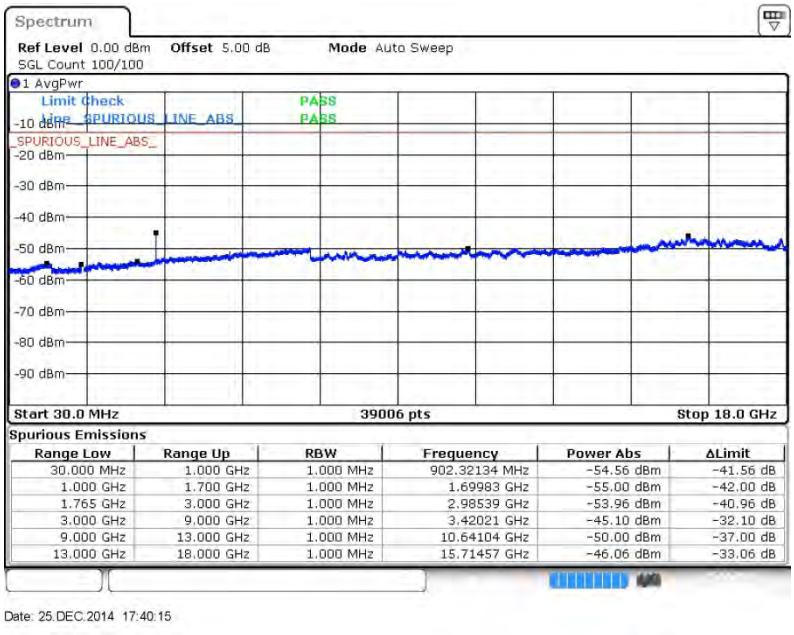
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	925.10495 MHz	-54.72 dBm	-41.72 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.66099 GHz	-56.09 dBm	-43.09 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.86111 GHz	-53.85 dBm	-40.85 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.50471 GHz	-49.33 dBm	-36.33 dB
9.000 GHz	13.000 GHz	1.000 MHz	10.51806 GHz	-50.00 dBm	-37.00 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.75331 GHz	-45.98 dBm	-32.98 dB

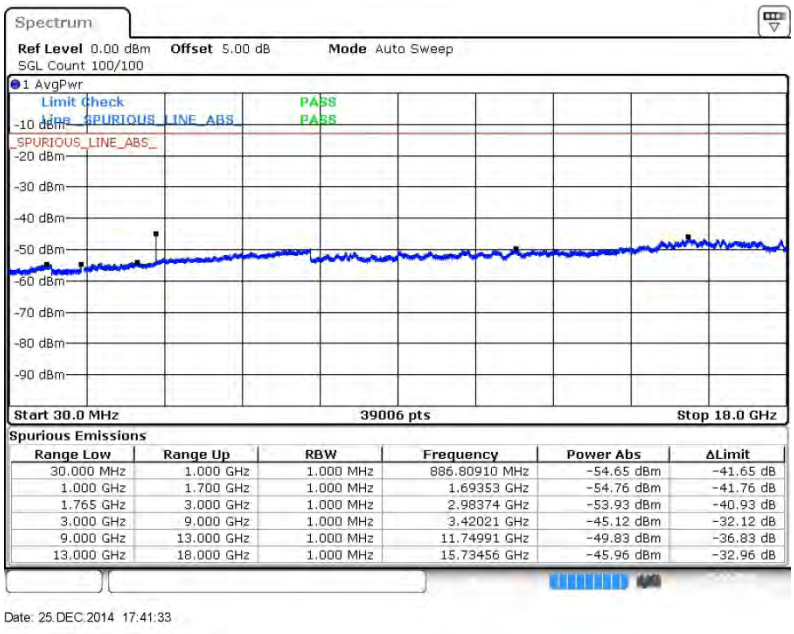
Date: 25.DEC.2014 17:33:43

Band :	LTE Band 4	Channel :	CH19975 (Low)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 12)

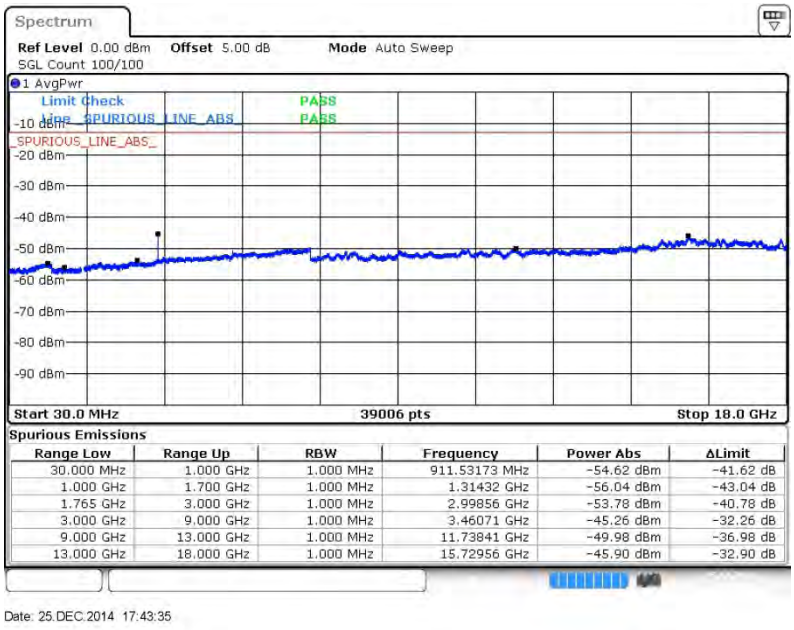


16QAM (RB Size 1, RB Offset 12)



Band :	LTE Band 4	Channel :	CH20175 (Middle)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)

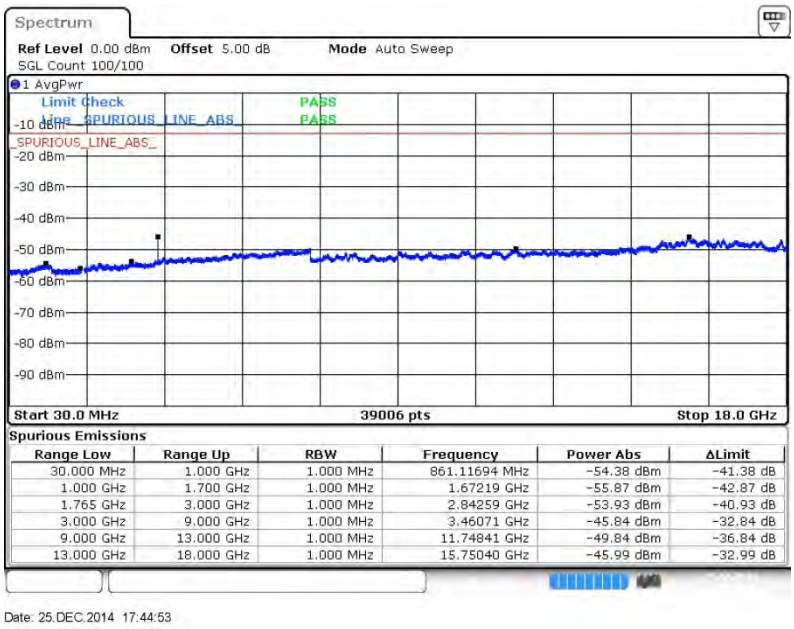


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	911.53173 MHz	-54.62 dBm	-41.62 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.31432 GHz	-56.04 dBm	-43.04 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.99856 GHz	-53.78 dBm	-40.78 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.46071 GHz	-45.26 dBm	-32.26 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.73841 GHz	-49.98 dBm	-36.98 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.72956 GHz	-45.90 dBm	-32.90 dB

Date: 25.DEC.2014 17:43:35

16QAM (RB Size 1, RB Offset 0)



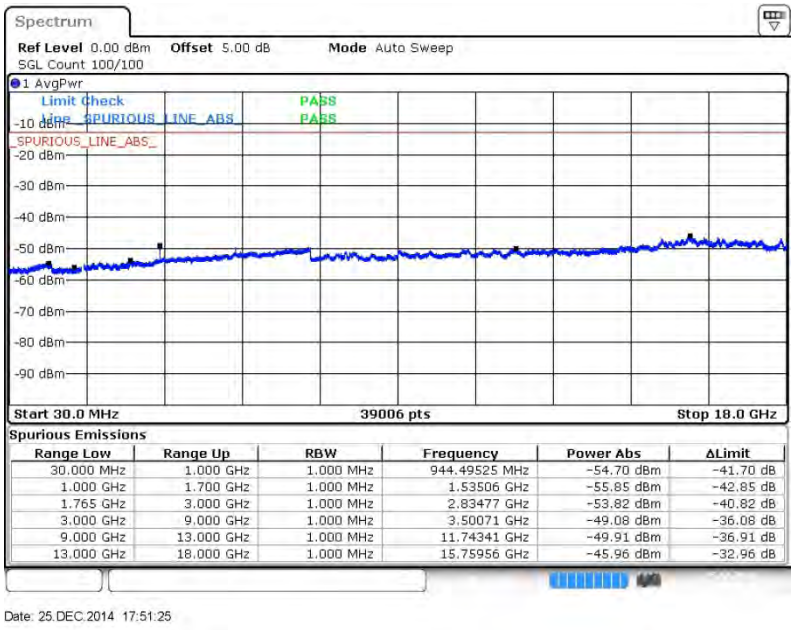
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	861.11694 MHz	-54.38 dBm	-41.38 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.67219 GHz	-55.87 dBm	-42.87 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.84259 GHz	-53.93 dBm	-40.93 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.46071 GHz	-45.84 dBm	-32.84 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74841 GHz	-49.84 dBm	-36.84 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.75040 GHz	-45.99 dBm	-32.99 dB

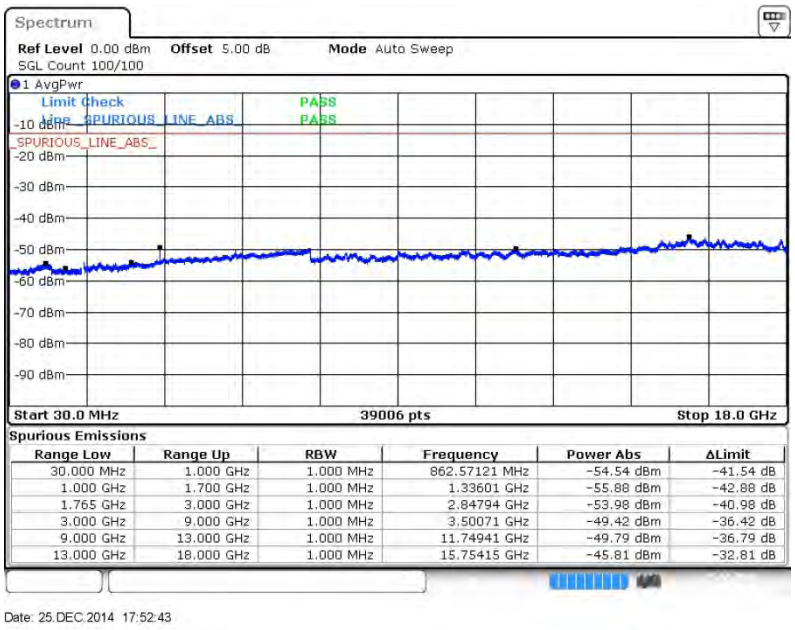
Date: 25.DEC.2014 17:44:53

Band :	LTE Band 4	Channel :	CH20375 (High)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)

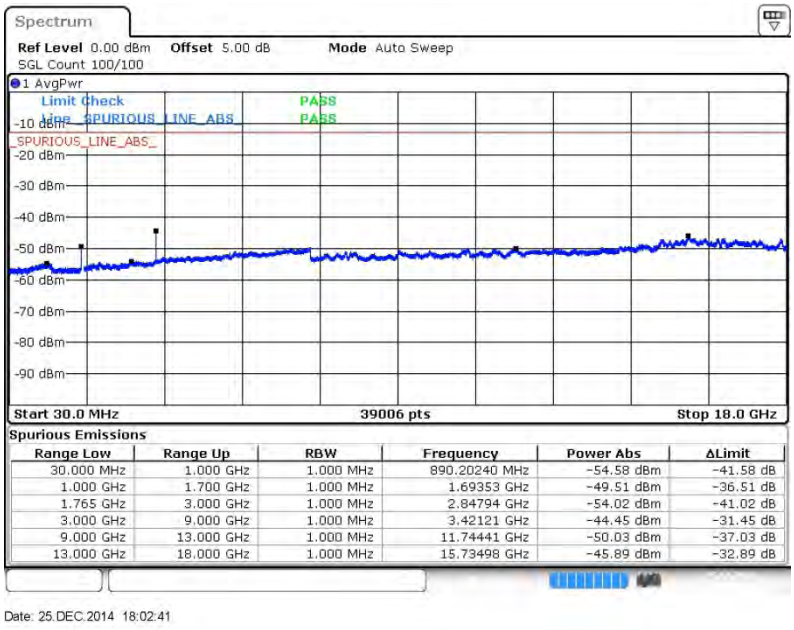


16QAM (RB Size 1, RB Offset 0)

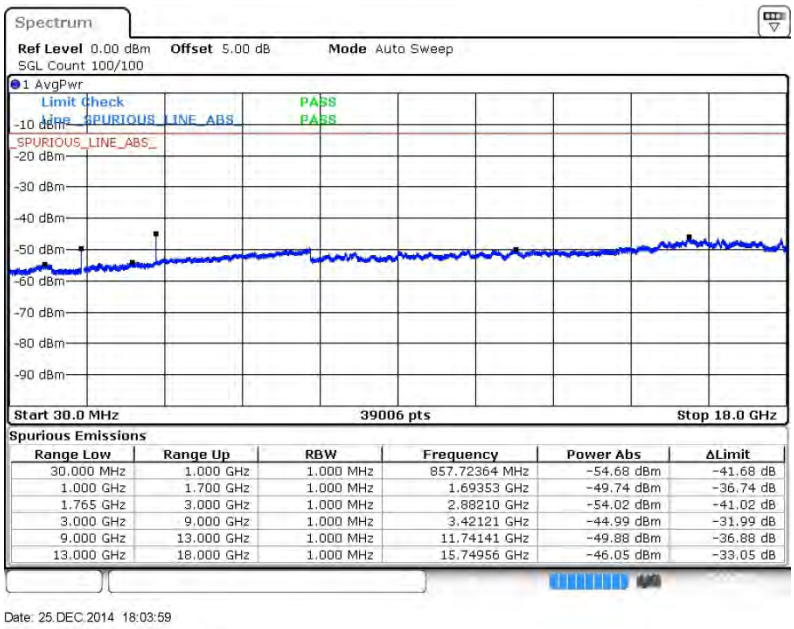


Band :	LTE Band 4	Channel :	CH20000 (Low)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)

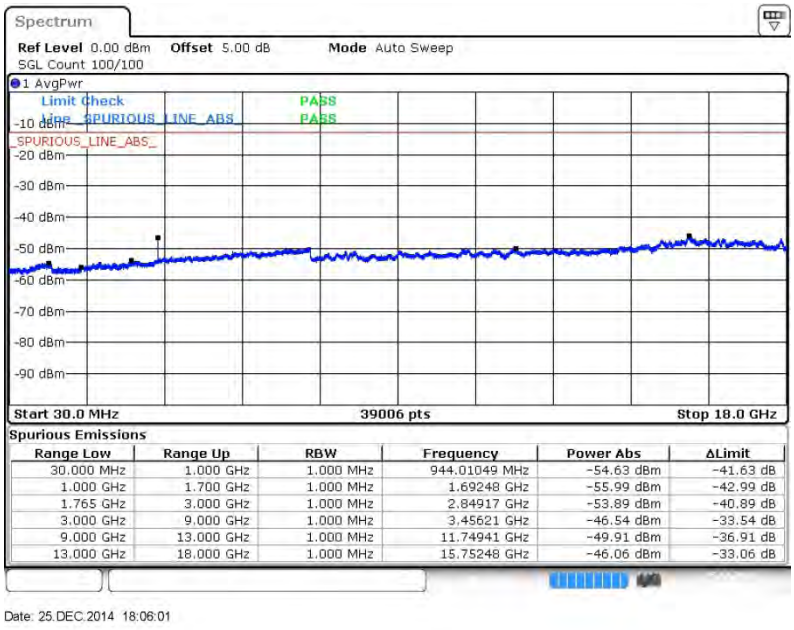


16QAM (RB Size 1, RB Offset 0)



Band :	LTE Band 4	Channel :	CH20175 (Middle)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)

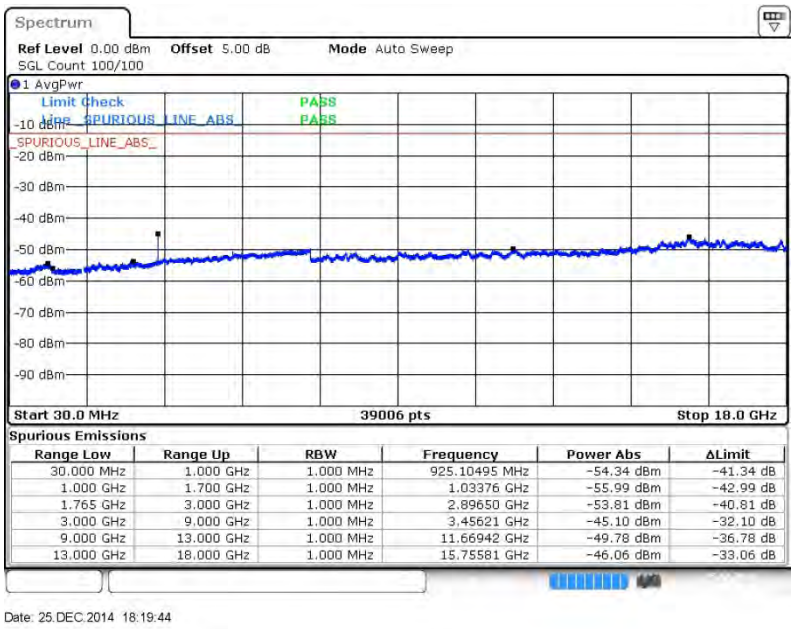


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	944.01049 MHz	-54.63 dBm	-41.63 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.69248 GHz	-55.99 dBm	-42.99 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.84917 GHz	-53.89 dBm	-40.89 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.45621 GHz	-46.54 dBm	-33.54 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74941 GHz	-49.91 dBm	-36.91 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.75248 GHz	-46.06 dBm	-33.06 dB

Date: 25.DEC.2014 18:06:01

16QAM (RB Size 1, RB Offset 0)



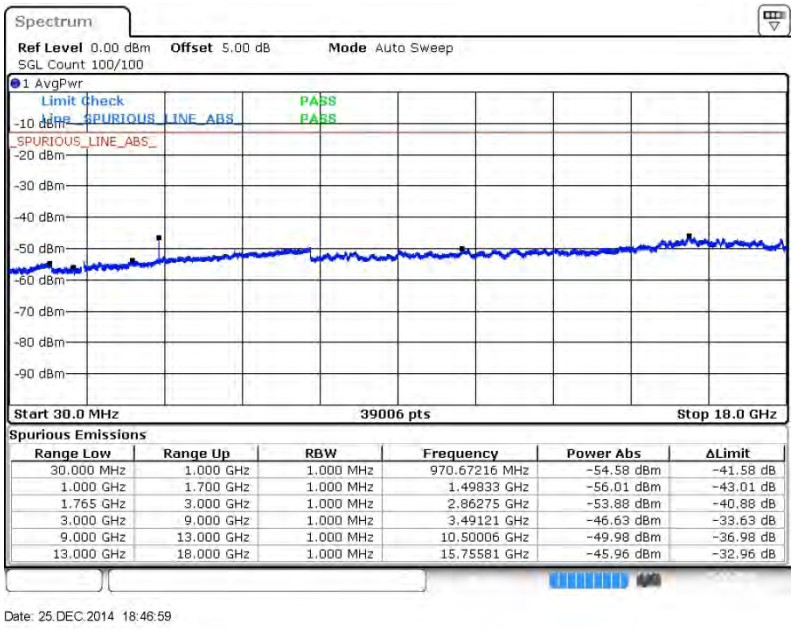
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	925.10495 MHz	-54.34 dBm	-41.34 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.03376 GHz	-55.99 dBm	-42.99 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.89650 GHz	-53.81 dBm	-40.81 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.45621 GHz	-45.10 dBm	-32.10 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.66942 GHz	-49.78 dBm	-36.78 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.75581 GHz	-46.06 dBm	-33.06 dB

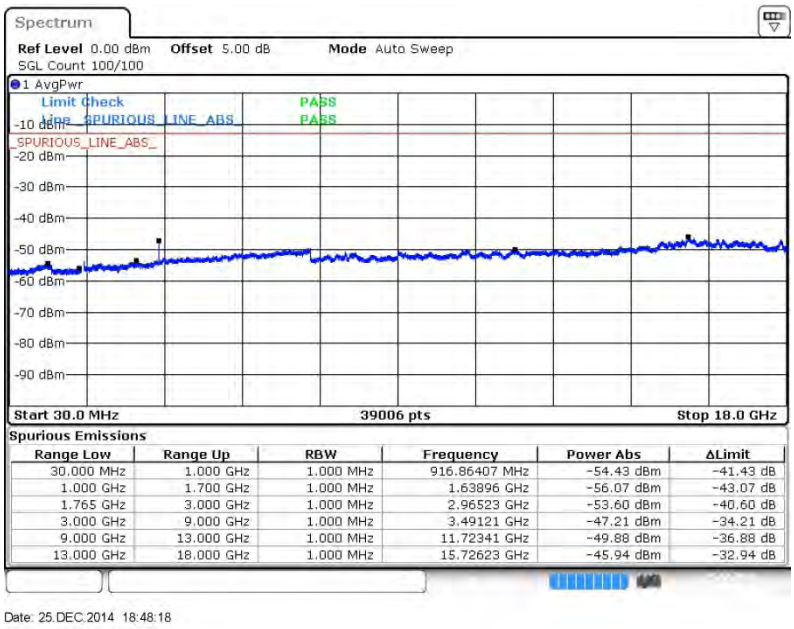
Date: 25.DEC.2014 18:19:44

Band :	LTE Band 4	Channel :	CH20350 (High)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 24)

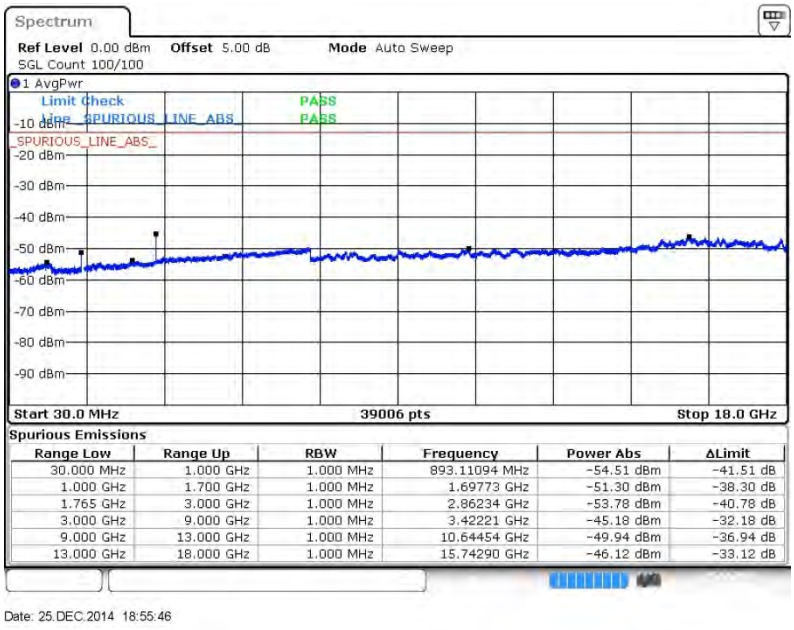


16QAM (RB Size 1, RB Offset 24)



Band :	LTE Band 4	Channel :	CH20025 (Low)
Band Width :	15MHz		

QPSK (RB Size 1, RB Offset 0)

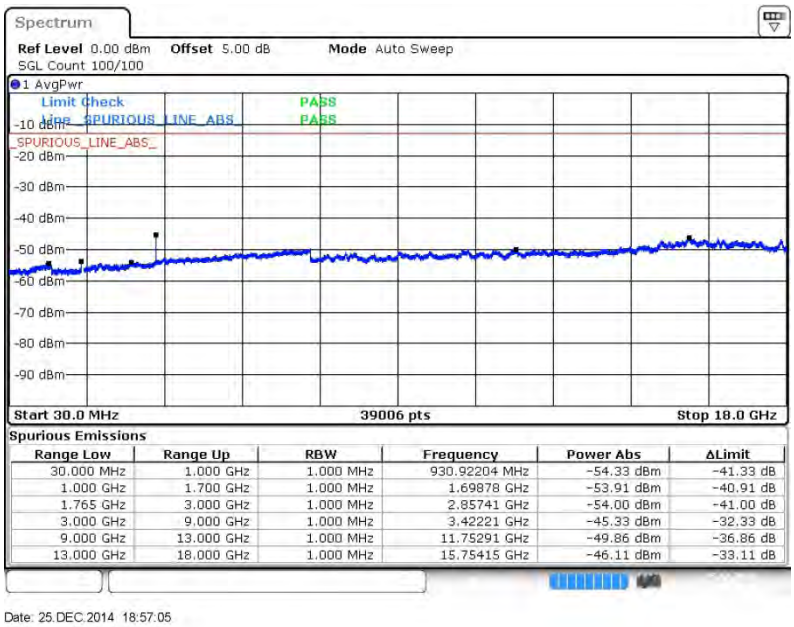


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	893.11094 MHz	-54.51 dBm	-41.51 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.69773 GHz	-51.30 dBm	-38.30 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.86234 GHz	-53.78 dBm	-40.78 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.42221 GHz	-45.18 dBm	-32.18 dB
9.000 GHz	13.000 GHz	1.000 MHz	10.64454 GHz	-49.94 dBm	-36.94 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.74290 GHz	-46.12 dBm	-33.12 dB

Date: 25.DEC.2014 18:55:46

16QAM (RB Size 1, RB Offset 0)



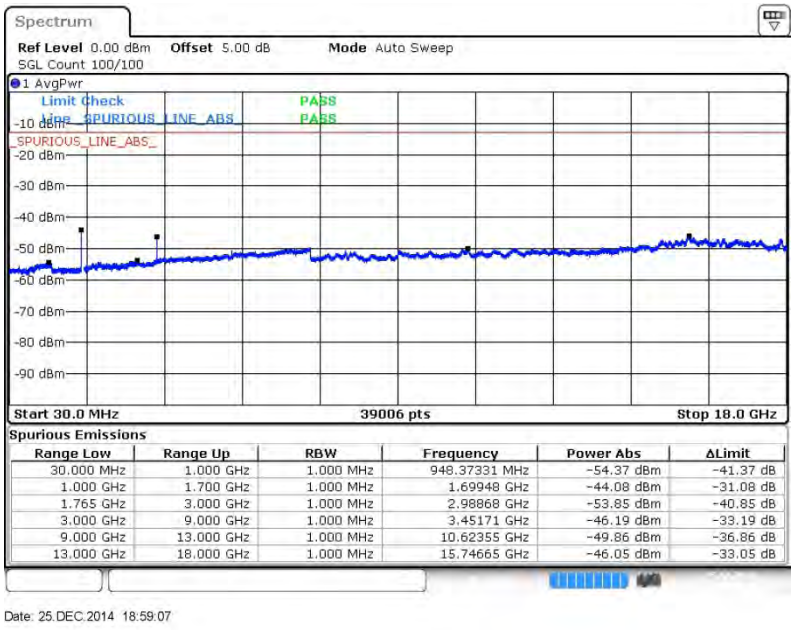
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	930.92204 MHz	-54.33 dBm	-41.33 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.69878 GHz	-53.91 dBm	-40.91 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.85741 GHz	-54.00 dBm	-41.00 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.42221 GHz	-45.33 dBm	-32.33 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.75291 GHz	-49.86 dBm	-36.86 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.75415 GHz	-46.11 dBm	-33.11 dB

Date: 25.DEC.2014 18:57:05

Band :	LTE Band 4	Channel :	CH20175 (Middle)
Band Width :	15MHz		

QPSK (RB Size 1, RB Offset 0)

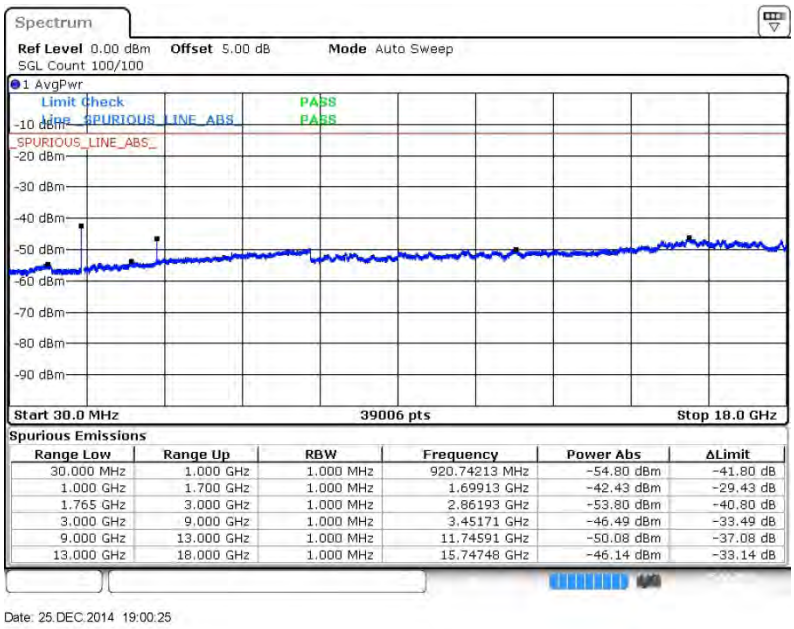


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	948.37331 MHz	-54.37 dBm	-41.37 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.69948 GHz	-44.08 dBm	-31.08 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.98868 GHz	-53.85 dBm	-40.85 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.45171 GHz	-46.19 dBm	-33.19 dB
9.000 GHz	13.000 GHz	1.000 MHz	10.62355 GHz	-49.86 dBm	-36.86 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.74665 GHz	-46.05 dBm	-33.05 dB

Date: 25.DEC.2014 18:59:07

16QAM (RB Size 1, RB Offset 0)



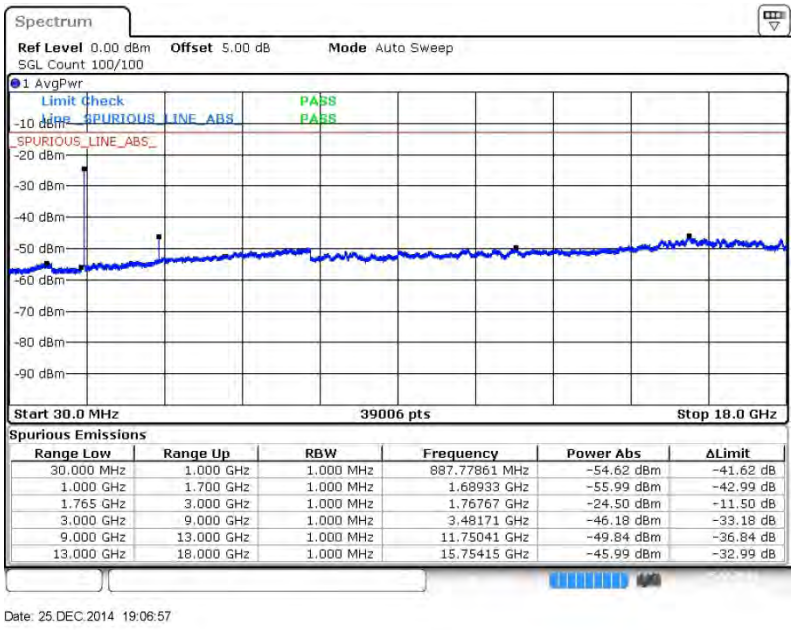
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	920.74213 MHz	-54.80 dBm	-41.80 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.69913 GHz	-42.43 dBm	-29.43 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.86193 GHz	-53.80 dBm	-40.80 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.45171 GHz	-46.49 dBm	-33.49 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74591 GHz	-50.08 dBm	-37.08 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.74748 GHz	-46.14 dBm	-33.14 dB

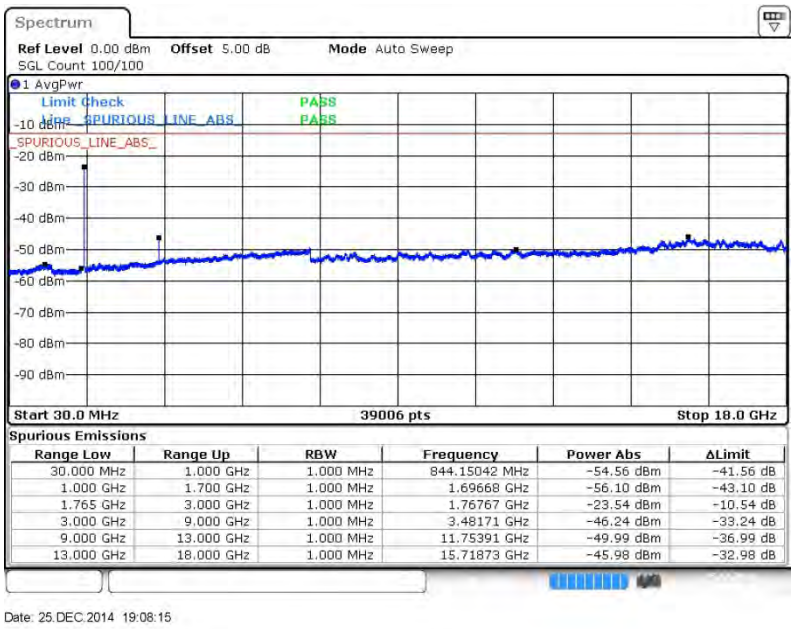
Date: 25.DEC.2014 19:00:25

Band :	LTE Band 4	Channel :	CH20325 (High)
Band Width :	15MHz		

QPSK (RB Size 1, RB Offset 0)

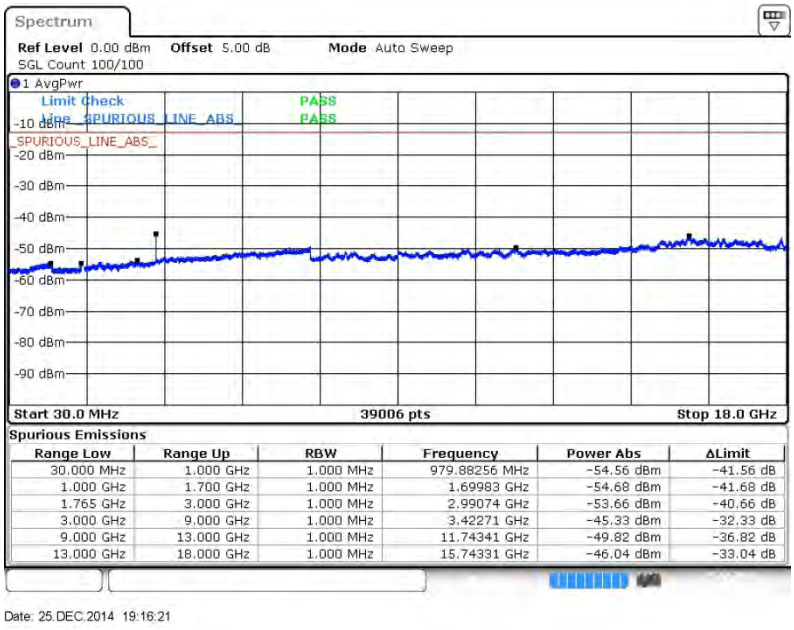


16QAM (RB Size 1, RB Offset 0)



Band :	LTE Band 4	Channel :	CH20050 (Low)
Band Width :	20MHz		

QPSK (RB Size 1, RB Offset 0)

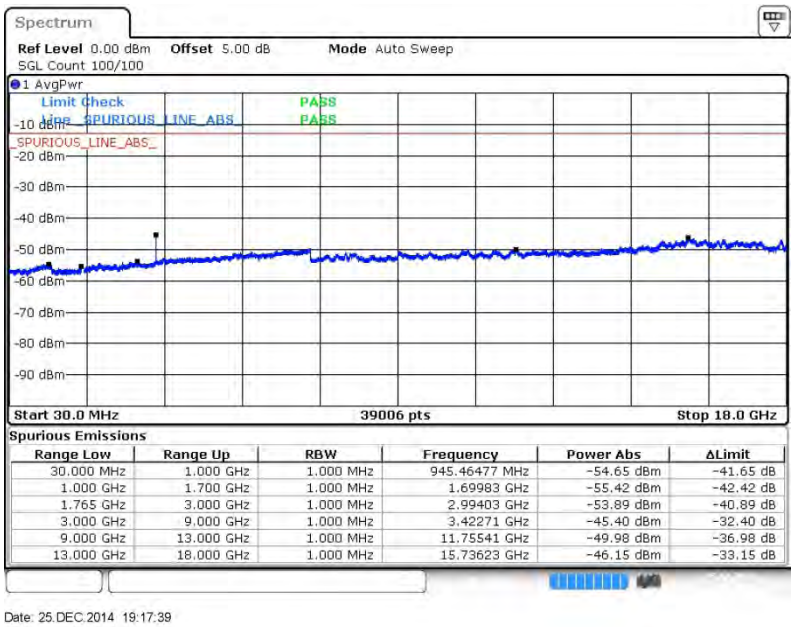


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	979.88256 MHz	-54.56 dBm	-41.56 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.69983 GHz	-54.68 dBm	-41.68 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.99074 GHz	-53.66 dBm	-40.66 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.42271 GHz	-45.33 dBm	-32.33 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74341 GHz	-49.82 dBm	-36.82 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.74331 GHz	-46.04 dBm	-33.04 dB

Date: 25.DEC.2014 19:16:21

16QAM (RB Size 1, RB Offset 0)



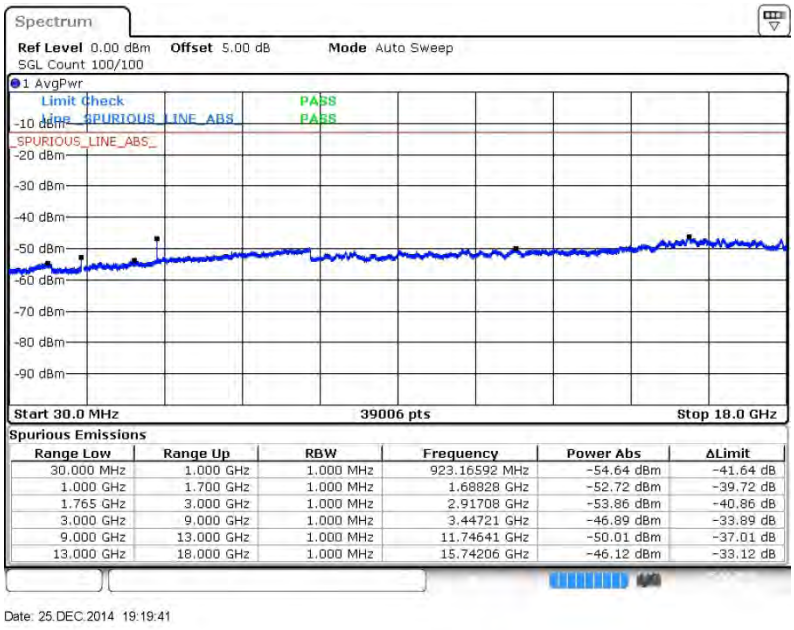
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	945.46477 MHz	-54.65 dBm	-41.65 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.69983 GHz	-55.42 dBm	-42.42 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.99403 GHz	-53.89 dBm	-40.89 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.42271 GHz	-45.40 dBm	-32.40 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.75541 GHz	-49.98 dBm	-36.98 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.73623 GHz	-46.15 dBm	-33.15 dB

Date: 25.DEC.2014 19:17:39

Band :	LTE Band 4	Channel :	CH20175 (Middle)
Band Width :	20MHz		

QPSK (RB Size 1, RB Offset 0)

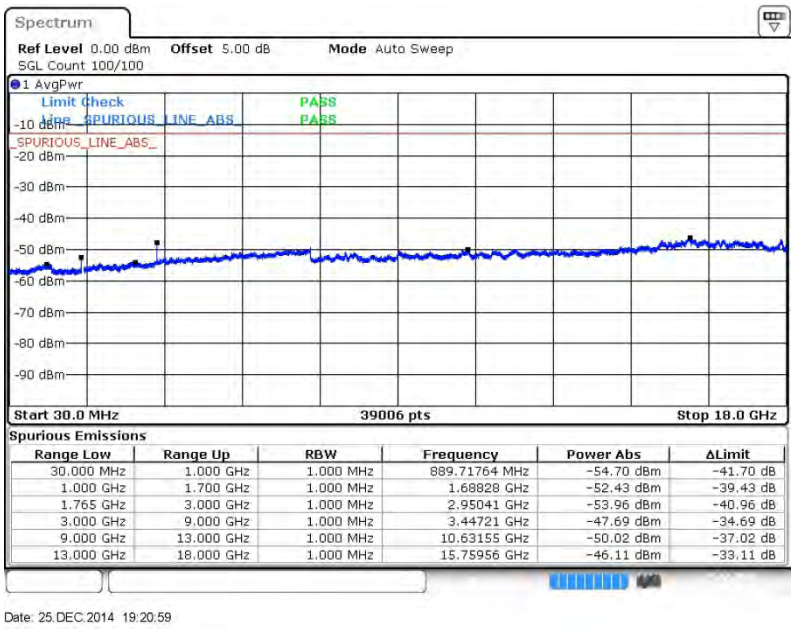


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	923.16592 MHz	-54.64 dBm	-41.64 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.68828 GHz	-52.72 dBm	-39.72 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.91708 GHz	-53.86 dBm	-40.86 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.44721 GHz	-46.89 dBm	-33.89 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74641 GHz	-50.01 dBm	-37.01 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.74206 GHz	-46.12 dBm	-33.12 dB

Date: 25.DEC.2014 19:19:41

16QAM (RB Size 1, RB Offset 0)



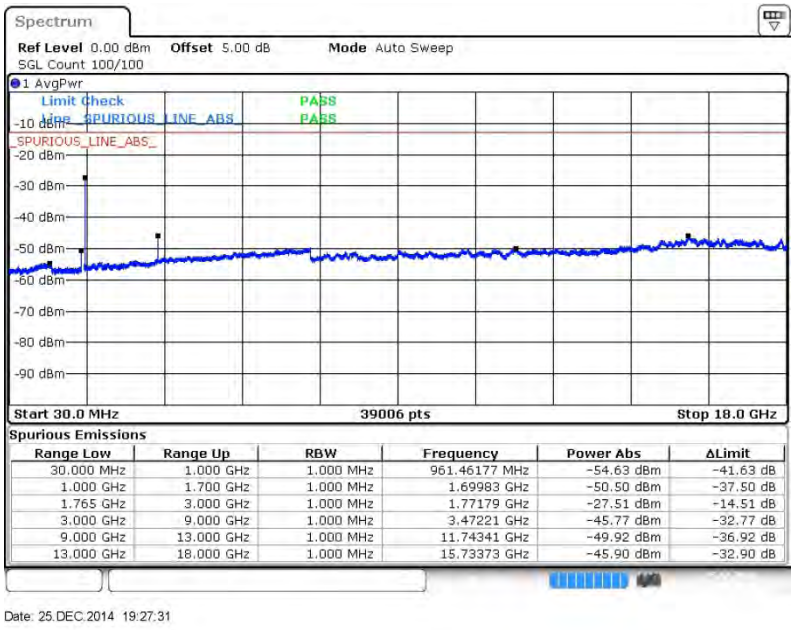
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	889.71764 MHz	-54.70 dBm	-41.70 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.68828 GHz	-52.43 dBm	-39.43 dB
1.765 GHz	3.000 GHz	1.000 MHz	2.95041 GHz	-53.96 dBm	-40.96 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.44721 GHz	-47.69 dBm	-34.69 dB
9.000 GHz	13.000 GHz	1.000 MHz	10.63155 GHz	-50.02 dBm	-37.02 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.75956 GHz	-46.11 dBm	-33.11 dB

Date: 25.DEC.2014 19:20:59

Band :	LTE Band 4	Channel :	CH20300 (High)
Band Width :	20MHz		

QPSK (RB Size 1, RB Offset 0)

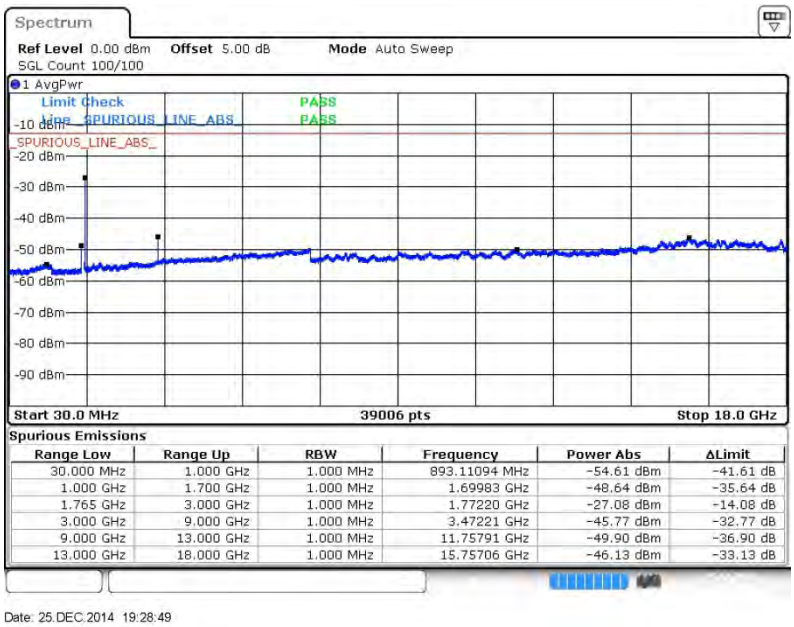


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	961.46177 MHz	-54.63 dBm	-41.63 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.69983 GHz	-50.50 dBm	-37.50 dB
1.765 GHz	3.000 GHz	1.000 MHz	1.77179 GHz	-27.51 dBm	-14.51 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.47221 GHz	-45.77 dBm	-32.77 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74341 GHz	-49.92 dBm	-36.92 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.73373 GHz	-45.90 dBm	-32.90 dB

Date: 25.DEC.2014 19:27:31

16QAM (RB Size 1, RB Offset 0)



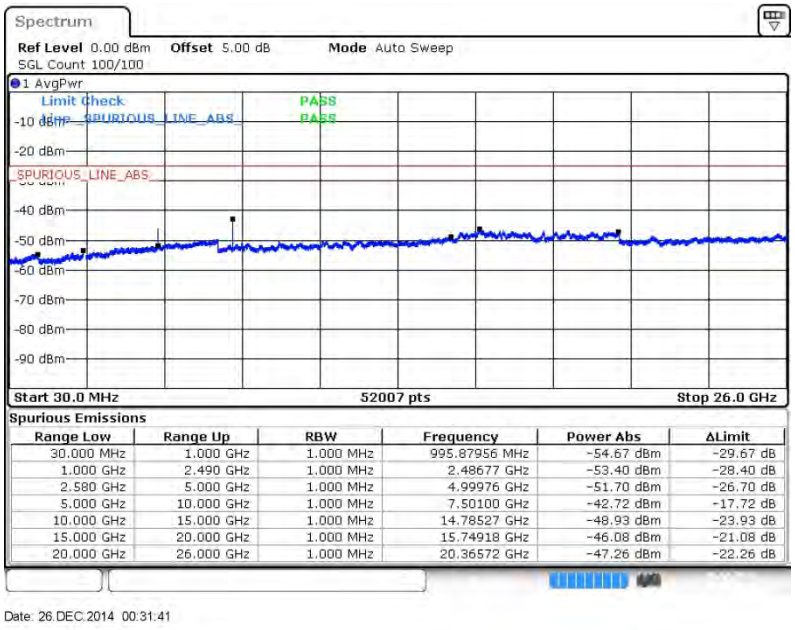
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	893.11094 MHz	-54.61 dBm	-41.61 dB
1.000 GHz	1.700 GHz	1.000 MHz	1.69983 GHz	-48.64 dBm	-35.64 dB
1.765 GHz	3.000 GHz	1.000 MHz	1.77220 GHz	-27.08 dBm	-14.08 dB
3.000 GHz	9.000 GHz	1.000 MHz	3.47221 GHz	-45.77 dBm	-32.77 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.75791 GHz	-49.90 dBm	-36.90 dB
13.000 GHz	18.000 GHz	1.000 MHz	15.75706 GHz	-46.13 dBm	-33.13 dB

Date: 25.DEC.2014 19:28:49

Band :	LTE Band 7	Channel :	CH20775 (Low)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)

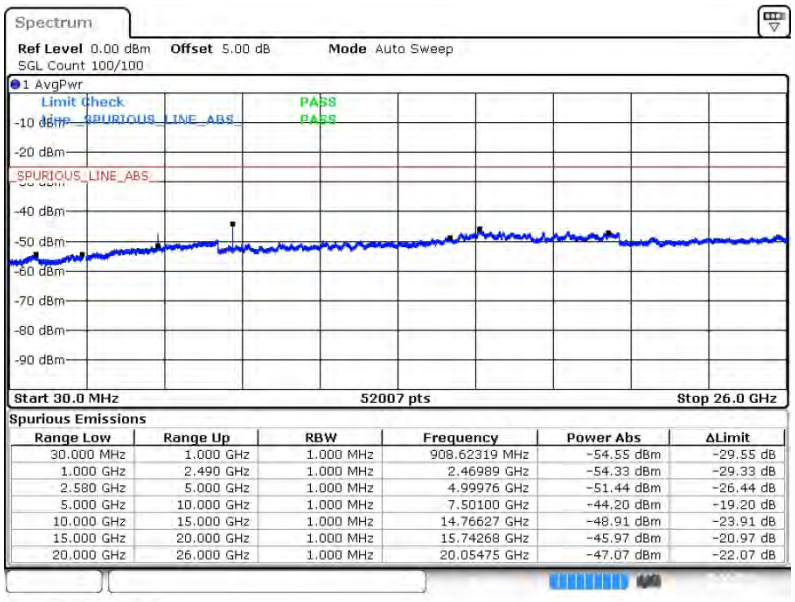


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	995.87956 MHz	-54.67 dBm	-29.67 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.48677 GHz	-53.40 dBm	-28.40 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.99976 GHz	-51.70 dBm	-26.70 dB
5.000 GHz	10.000 GHz	1.000 MHz	7.50100 GHz	-42.72 dBm	-17.72 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.78527 GHz	-48.93 dBm	-23.93 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.74918 GHz	-46.08 dBm	-21.08 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.36572 GHz	-47.26 dBm	-22.26 dB

Date: 26.DEC.2014 00:31:41

16QAM (RB Size 1, RB Offset 0)



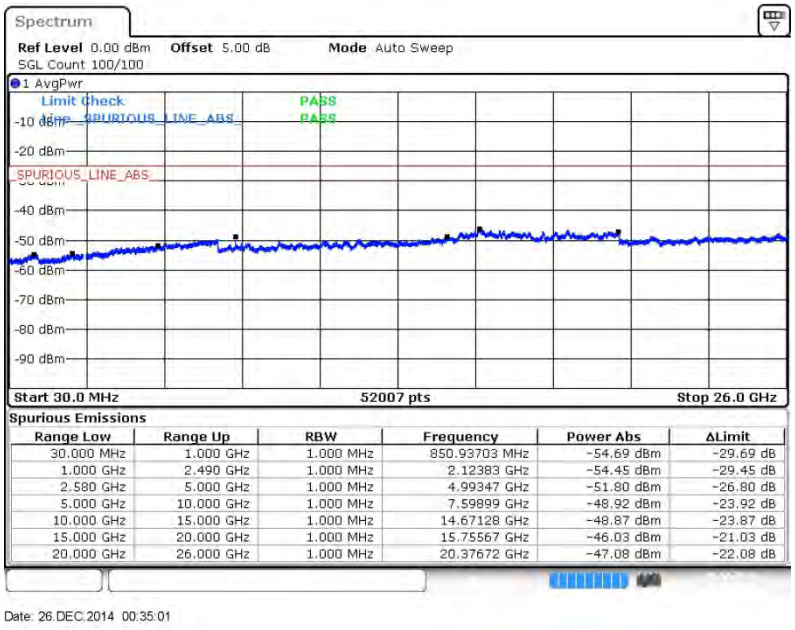
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	908.62319 MHz	-54.55 dBm	-29.55 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.46989 GHz	-54.33 dBm	-29.33 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.99976 GHz	-51.44 dBm	-26.44 dB
5.000 GHz	10.000 GHz	1.000 MHz	7.50100 GHz	-44.20 dBm	-19.20 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.76627 GHz	-48.91 dBm	-23.91 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.74268 GHz	-45.97 dBm	-20.97 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.05475 GHz	-47.07 dBm	-22.07 dB

Date: 26.DEC.2014 00:32:59

Band :	LTE Band 7	Channel :	CH21100 (Middle)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)

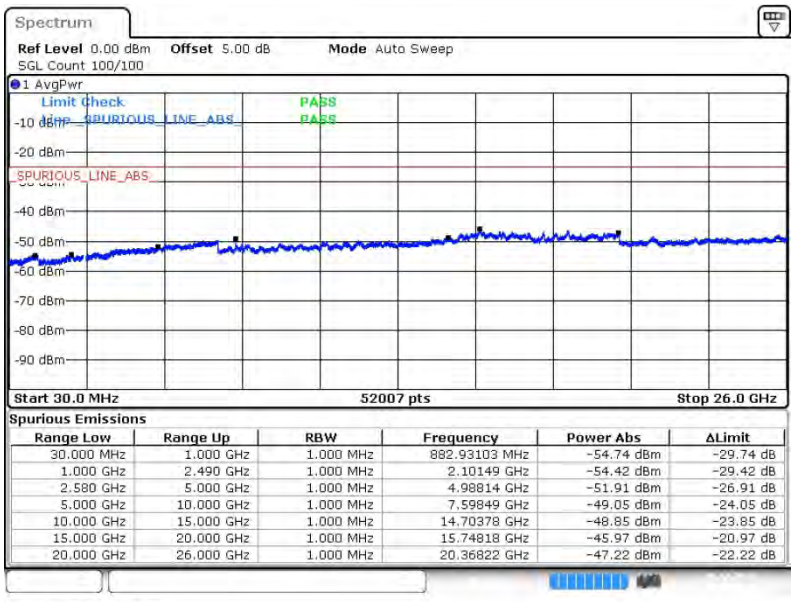


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	850.93703 MHz	-54.69 dBm	-29.69 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.12383 GHz	-54.45 dBm	-29.45 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.99347 GHz	-51.80 dBm	-26.80 dB
5.000 GHz	10.000 GHz	1.000 MHz	7.59899 GHz	-48.92 dBm	-23.92 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.67128 GHz	-48.87 dBm	-23.87 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.75567 GHz	-46.03 dBm	-21.03 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.37672 GHz	-47.08 dBm	-22.08 dB

Date: 26.DEC.2014 00:35:01

16QAM (RB Size 1, RB Offset 0)



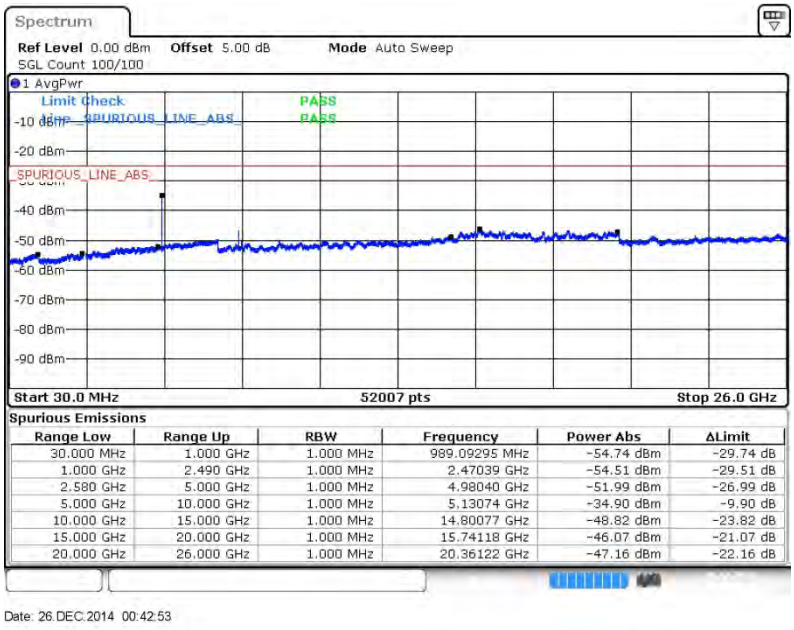
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	882.93103 MHz	-54.74 dBm	-29.74 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.10149 GHz	-54.42 dBm	-29.42 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.98814 GHz	-51.91 dBm	-26.91 dB
5.000 GHz	10.000 GHz	1.000 MHz	7.59849 GHz	-49.05 dBm	-24.05 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.70378 GHz	-48.85 dBm	-23.85 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.74818 GHz	-45.97 dBm	-20.97 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.36822 GHz	-47.22 dBm	-22.22 dB

Date: 26.DEC.2014 00:36:20

Band :	LTE Band 7	Channel :	CH21425 (High)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)

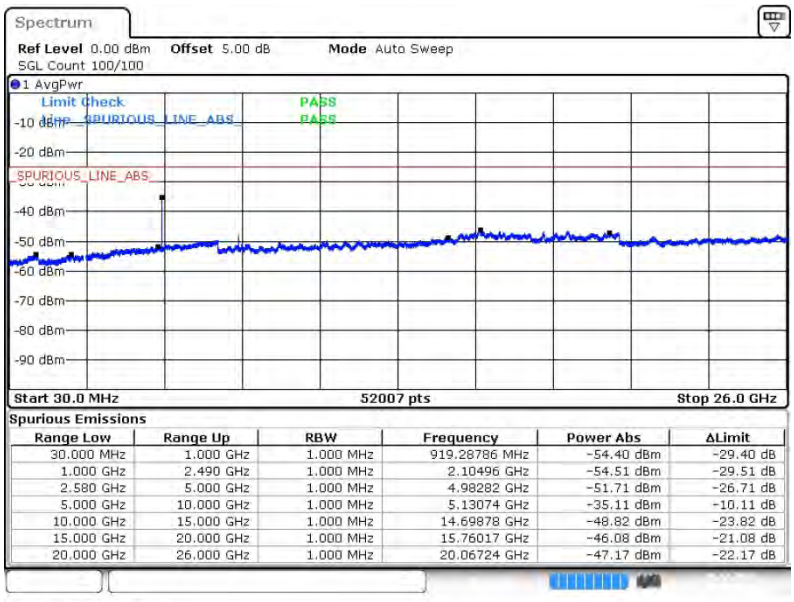


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	989.09295 MHz	-54.74 dBm	-29.74 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.47039 GHz	-54.51 dBm	-29.51 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.98040 GHz	-51.99 dBm	-26.99 dB
5.000 GHz	10.000 GHz	1.000 MHz	5.13074 GHz	-34.90 dBm	-9.90 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.80077 GHz	-48.82 dBm	-23.82 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.74118 GHz	-46.07 dBm	-21.07 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.36122 GHz	-47.16 dBm	-22.16 dB

Date: 26.DEC.2014 00:42:53

16QAM (RB Size 1, RB Offset 0)



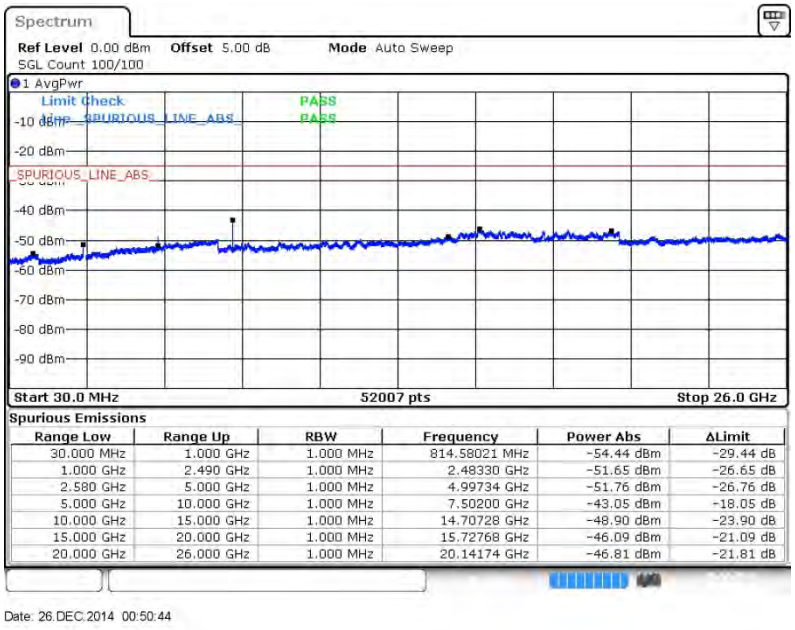
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	919.28786 MHz	-54.40 dBm	-29.40 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.10496 GHz	-54.51 dBm	-29.51 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.98282 GHz	-51.71 dBm	-26.71 dB
5.000 GHz	10.000 GHz	1.000 MHz	5.13074 GHz	-35.11 dBm	-10.11 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.69878 GHz	-48.82 dBm	-23.82 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.76017 GHz	-46.08 dBm	-21.08 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.06724 GHz	-47.17 dBm	-22.17 dB

Date: 26.DEC.2014 00:44:11

Band :	LTE Band 7	Channel :	CH20800 (Low)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)

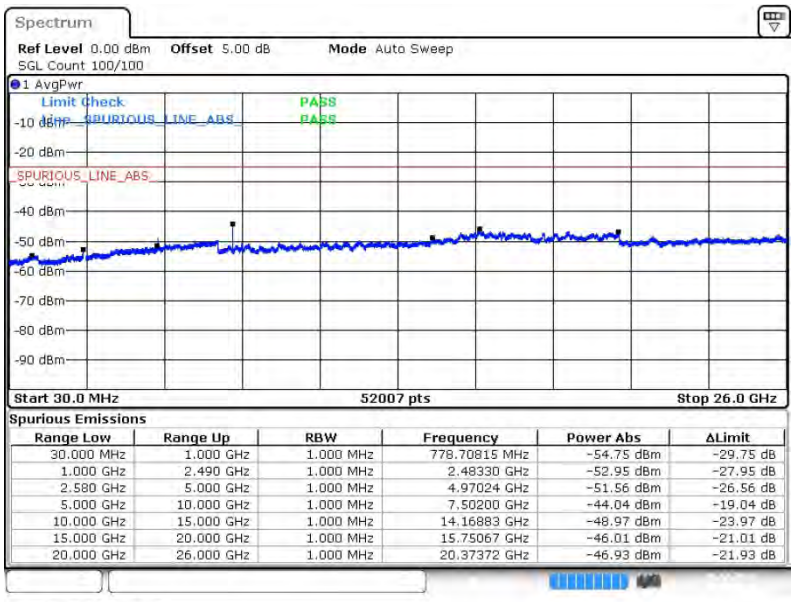


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	814.58021 MHz	-54.44 dBm	-29.44 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.48330 GHz	-51.65 dBm	-26.65 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.99734 GHz	-51.76 dBm	-26.76 dB
5.000 GHz	10.000 GHz	1.000 MHz	7.50200 GHz	-43.05 dBm	-18.05 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.70728 GHz	-48.90 dBm	-23.90 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.72768 GHz	-46.09 dBm	-21.09 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.14174 GHz	-46.81 dBm	-21.81 dB

Date: 26.DEC.2014 00:50:44

16QAM (RB Size 1, RB Offset 0)



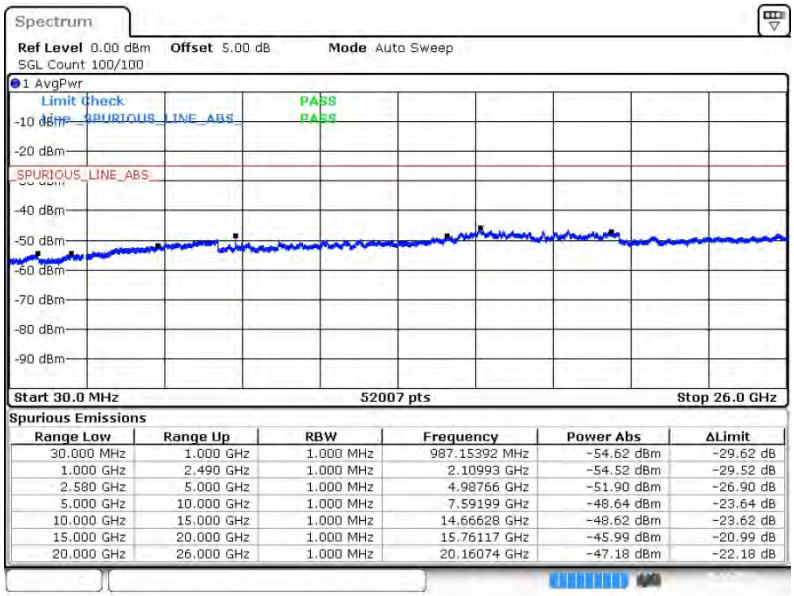
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	778.70815 MHz	-54.75 dBm	-29.75 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.48330 GHz	-52.95 dBm	-27.95 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.97024 GHz	-51.56 dBm	-26.56 dB
5.000 GHz	10.000 GHz	1.000 MHz	7.50200 GHz	-44.04 dBm	-19.04 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.16883 GHz	-48.97 dBm	-23.97 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.75067 GHz	-46.01 dBm	-21.01 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.37372 GHz	-46.93 dBm	-21.93 dB

Date: 26.DEC.2014 00:52:03

Band :	LTE Band 7	Channel :	CH21100 (Middle)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)

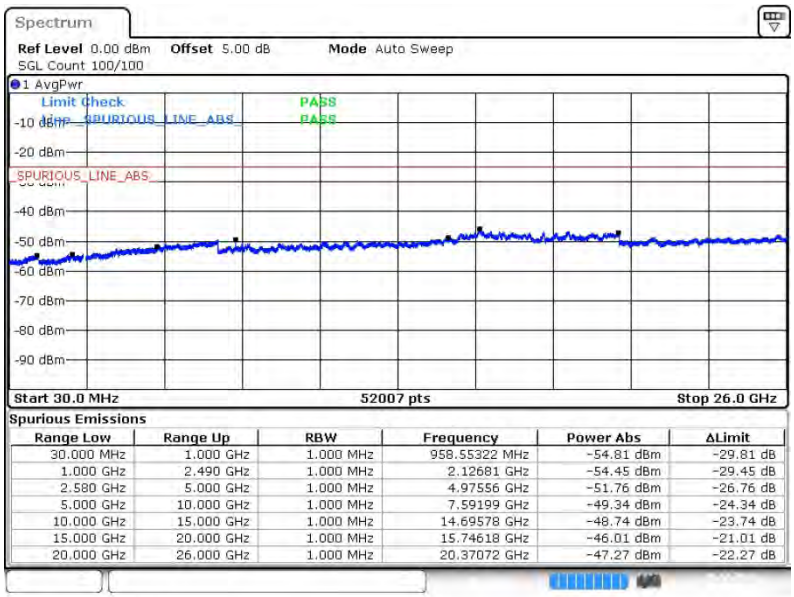


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	987.15392 MHz	-54.62 dBm	-29.62 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.10993 GHz	-54.52 dBm	-29.52 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.98766 GHz	-51.90 dBm	-26.90 dB
5.000 GHz	10.000 GHz	1.000 MHz	7.59199 GHz	-48.64 dBm	-23.64 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.66628 GHz	-48.62 dBm	-23.62 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.76117 GHz	-45.99 dBm	-20.99 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.16074 GHz	-47.18 dBm	-22.18 dB

Date: 26.DEC.2014 00:54:05

16QAM (RB Size 1, RB Offset 0)



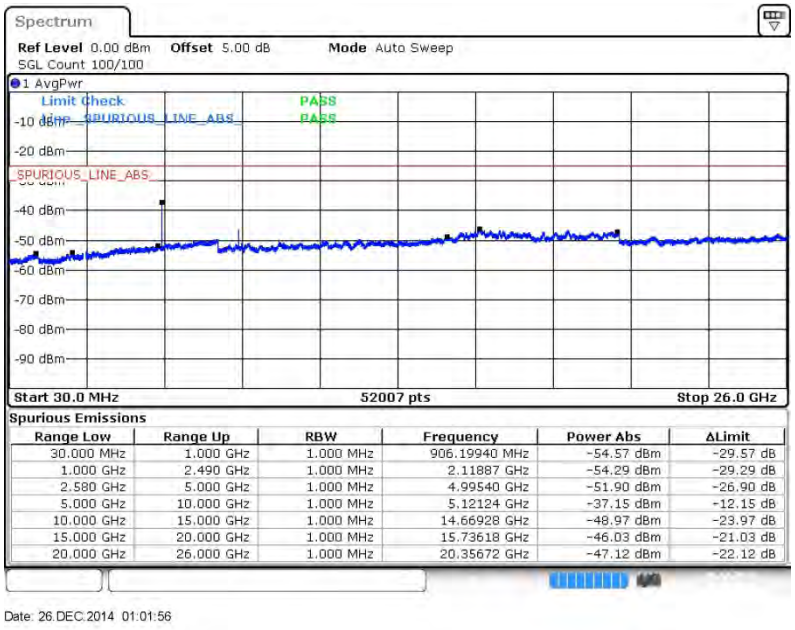
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	958.55322 MHz	-54.81 dBm	-29.81 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.12681 GHz	-54.45 dBm	-29.45 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.97556 GHz	-51.76 dBm	-26.76 dB
5.000 GHz	10.000 GHz	1.000 MHz	7.59199 GHz	-49.34 dBm	-24.34 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.69578 GHz	-48.74 dBm	-23.74 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.74618 GHz	-46.01 dBm	-21.01 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.37072 GHz	-47.27 dBm	-22.27 dB

Date: 26.DEC.2014 00:55:23

Band :	LTE Band 7	Channel :	CH21400 (High)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)

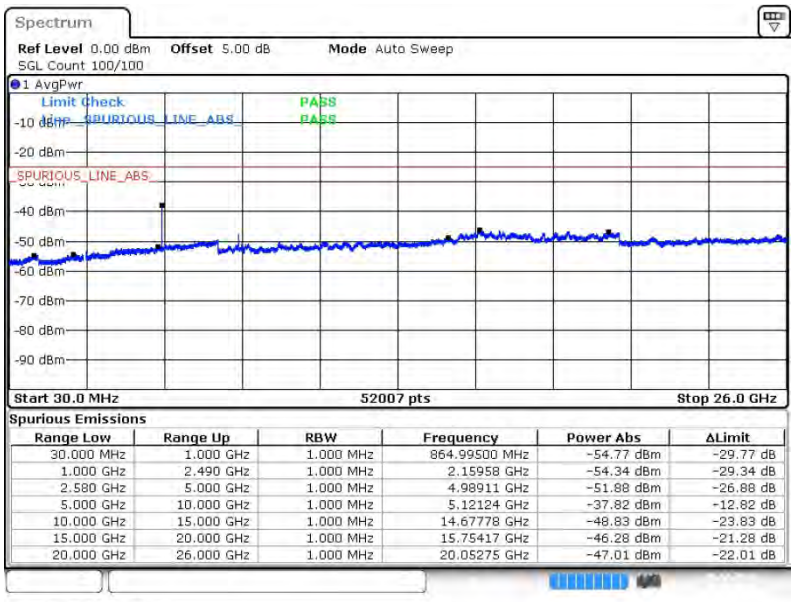


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	906.19940 MHz	-54.57 dBm	-29.57 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.11887 GHz	-54.29 dBm	-29.29 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.99540 GHz	-51.90 dBm	-26.90 dB
5.000 GHz	10.000 GHz	1.000 MHz	5.12124 GHz	-37.15 dBm	-12.15 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.66928 GHz	-48.97 dBm	-23.97 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.73618 GHz	-46.03 dBm	-21.03 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.35672 GHz	-47.12 dBm	-22.12 dB

Date: 26.DEC.2014 01:01:56

16QAM (RB Size 1, RB Offset 0)



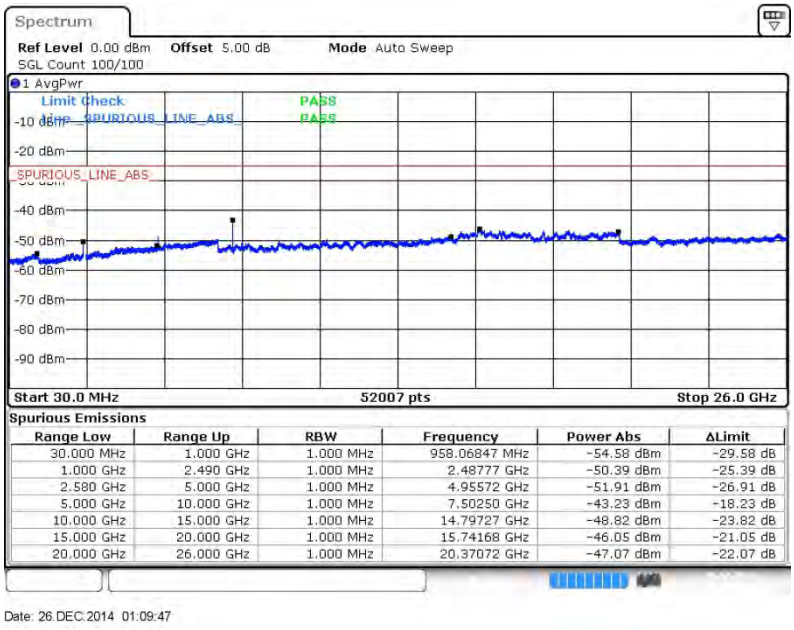
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	864.99500 MHz	-54.77 dBm	-29.77 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.15958 GHz	-54.34 dBm	-29.34 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.98911 GHz	-51.88 dBm	-26.88 dB
5.000 GHz	10.000 GHz	1.000 MHz	5.12124 GHz	-37.82 dBm	-12.82 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.67778 GHz	-48.83 dBm	-23.83 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.75417 GHz	-46.28 dBm	-21.28 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.05275 GHz	-47.01 dBm	-22.01 dB

Date: 26.DEC.2014 01:03:14

Band :	LTE Band 7	Channel :	CH20825 (Low)
Band Width :	15MHz		

QPSK (RB Size 1, RB Offset 0)

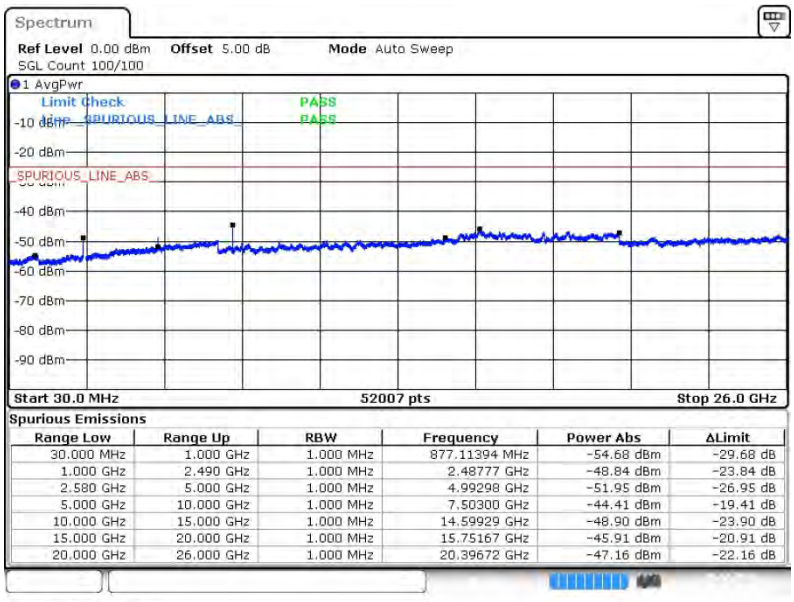


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	958.06847 MHz	-54.58 dBm	-29.58 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.48777 GHz	-50.39 dBm	-25.39 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.95572 GHz	-51.91 dBm	-26.91 dB
5.000 GHz	10.000 GHz	1.000 MHz	7.50250 GHz	-43.23 dBm	-18.23 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.79727 GHz	-48.82 dBm	-23.82 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.74168 GHz	-46.05 dBm	-21.05 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.37072 GHz	-47.07 dBm	-22.07 dB

Date: 26.DEC.2014 01:09:47

16QAM (RB Size 1, RB Offset 0)



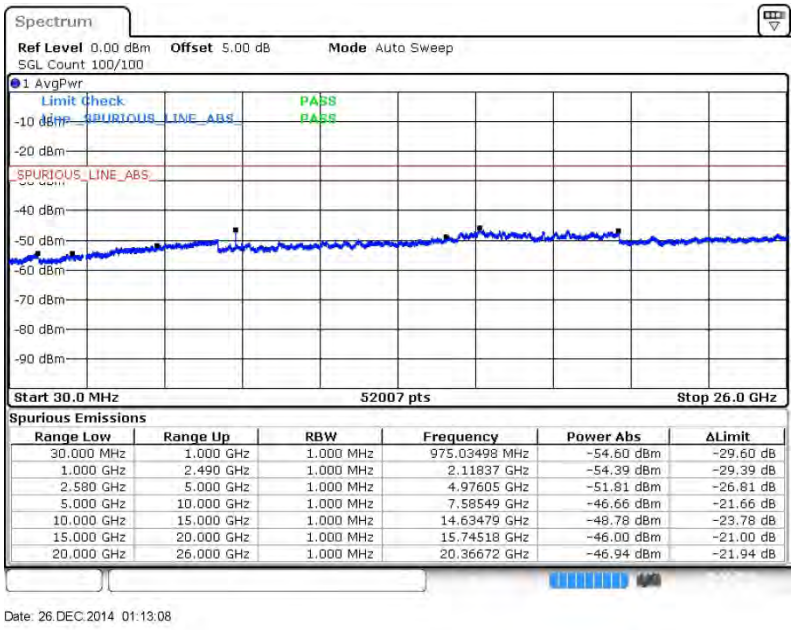
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	877.11394 MHz	-54.68 dBm	-29.68 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.48777 GHz	-48.84 dBm	-23.84 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.99298 GHz	-51.95 dBm	-26.95 dB
5.000 GHz	10.000 GHz	1.000 MHz	7.50300 GHz	-44.41 dBm	-19.41 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.59929 GHz	-48.90 dBm	-23.90 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.75167 GHz	-45.91 dBm	-20.91 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.39672 GHz	-47.16 dBm	-22.16 dB

Date: 26.DEC.2014 01:11:05

Band :	LTE Band 7	Channel :	CH21100 (Middle)
Band Width :	15MHz		

QPSK (RB Size 1, RB Offset 0)

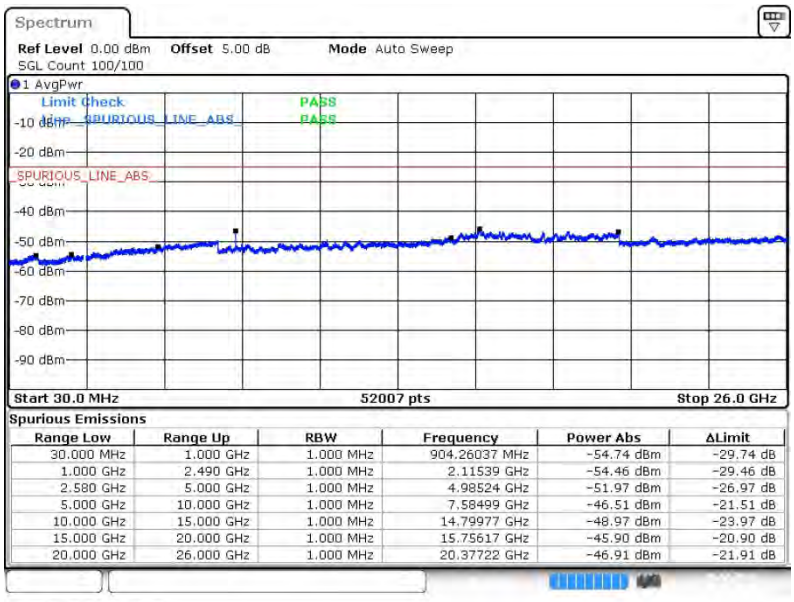


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	975.03498 MHz	-54.60 dBm	-29.60 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.11837 GHz	-54.39 dBm	-29.39 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.97605 GHz	-51.81 dBm	-26.81 dB
5.000 GHz	10.000 GHz	1.000 MHz	7.58549 GHz	-46.66 dBm	-21.66 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.63479 GHz	-48.78 dBm	-23.78 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.74518 GHz	-46.00 dBm	-21.00 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.36672 GHz	-46.94 dBm	-21.94 dB

Date: 26.DEC.2014 01:13:08

16QAM (RB Size 1, RB Offset 0)



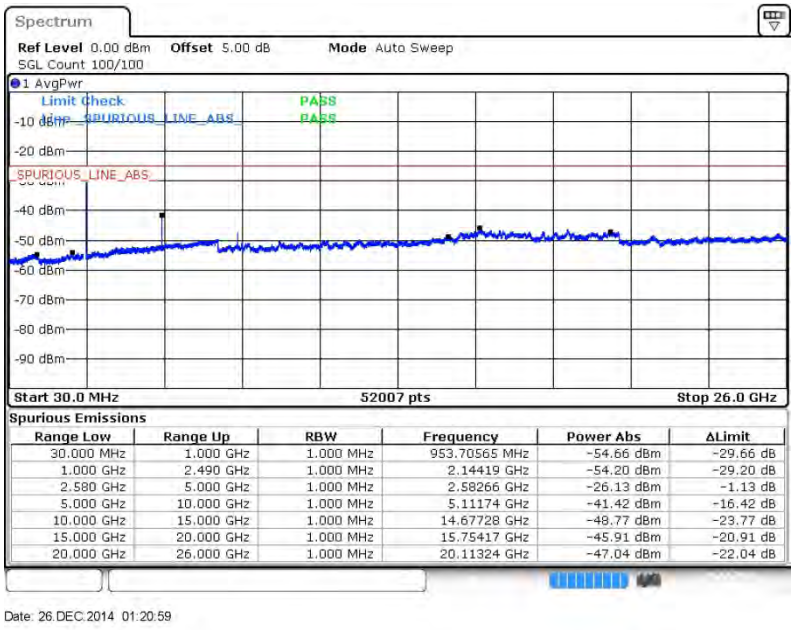
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	904.26037 MHz	-54.74 dBm	-29.74 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.11539 GHz	-54.46 dBm	-29.46 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.98524 GHz	-51.97 dBm	-26.97 dB
5.000 GHz	10.000 GHz	1.000 MHz	7.58499 GHz	-46.51 dBm	-21.51 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.79977 GHz	-48.97 dBm	-23.97 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.75617 GHz	-45.90 dBm	-20.90 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.37722 GHz	-46.91 dBm	-21.91 dB

Date: 26.DEC.2014 01:14:26

Band :	LTE Band 7	Channel :	CH21375 (High)
Band Width :	15MHz		

QPSK (RB Size 1, RB Offset 0)

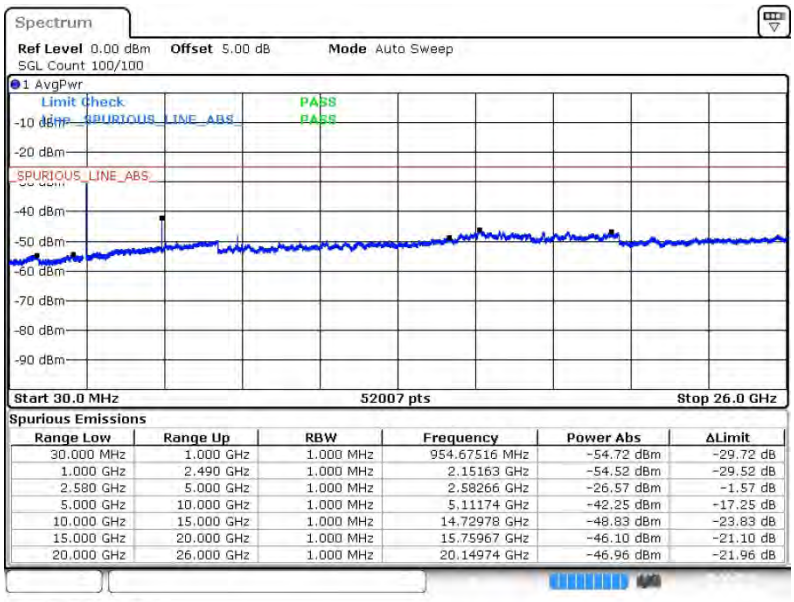


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	953.70565 MHz	-54.66 dBm	-29.66 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.14419 GHz	-54.20 dBm	-29.20 dB
2.580 GHz	5.000 GHz	1.000 MHz	2.58266 GHz	-26.13 dBm	-1.13 dB
5.000 GHz	10.000 GHz	1.000 MHz	5.11174 GHz	-41.42 dBm	-16.42 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.67728 GHz	-48.77 dBm	-23.77 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.75417 GHz	-45.91 dBm	-20.91 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.11324 GHz	-47.04 dBm	-22.04 dB

Date: 26.DEC.2014 01:20:59

16QAM (RB Size 1, RB Offset 0)



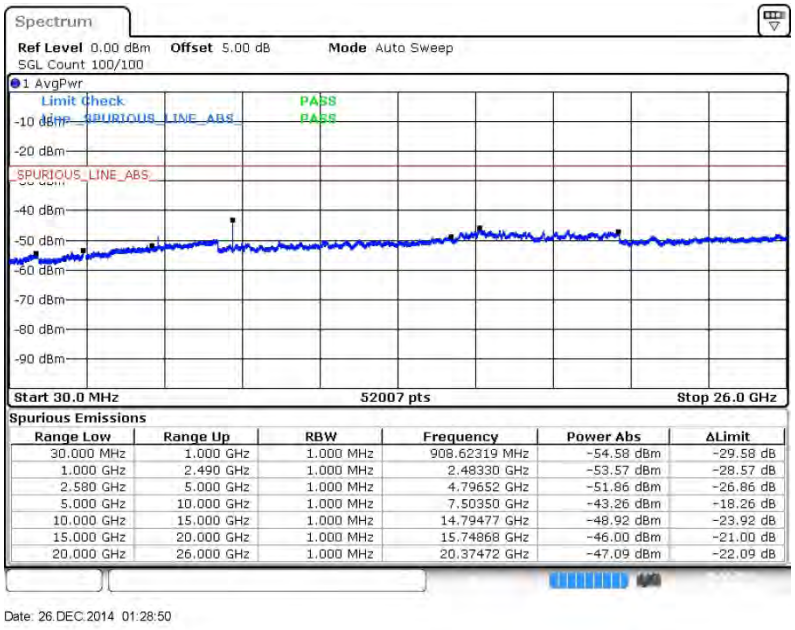
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	954.67516 MHz	-54.72 dBm	-29.72 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.15163 GHz	-54.52 dBm	-29.52 dB
2.580 GHz	5.000 GHz	1.000 MHz	2.58266 GHz	-26.57 dBm	-1.57 dB
5.000 GHz	10.000 GHz	1.000 MHz	5.11174 GHz	-42.25 dBm	-17.25 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.72978 GHz	-48.83 dBm	-23.83 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.75967 GHz	-46.10 dBm	-21.10 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.14974 GHz	-46.96 dBm	-21.96 dB

Date: 26.DEC.2014 01:22:18

Band :	LTE Band 7	Channel :	CH20850 (Low)
Band Width :	20MHz		

QPSK (RB Size 1, RB Offset 0)

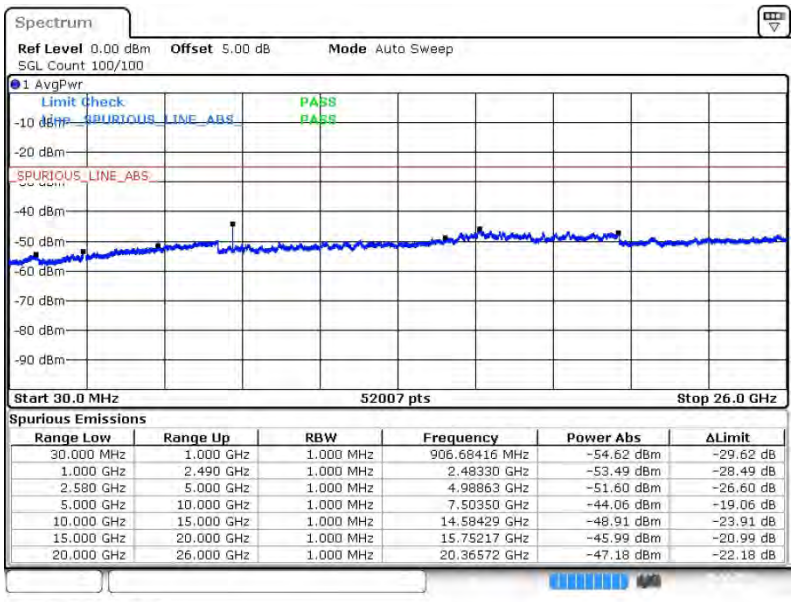


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	908.62319 MHz	-54.58 dBm	-29.58 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.48330 GHz	-53.57 dBm	-28.57 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.79652 GHz	-51.86 dBm	-26.86 dB
5.000 GHz	10.000 GHz	1.000 MHz	7.50350 GHz	-43.26 dBm	-18.26 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.79477 GHz	-48.92 dBm	-23.92 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.74868 GHz	-46.00 dBm	-21.00 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.37472 GHz	-47.09 dBm	-22.09 dB

Date: 26.DEC.2014 01:28:50

16QAM (RB Size 1, RB Offset 0)



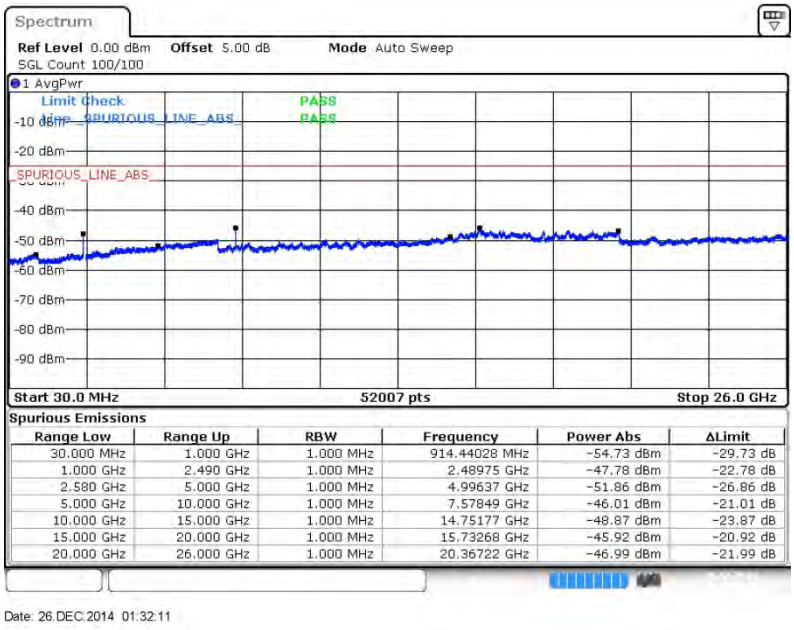
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	906.68416 MHz	-54.62 dBm	-29.62 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.48330 GHz	-53.49 dBm	-28.49 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.98863 GHz	-51.60 dBm	-26.60 dB
5.000 GHz	10.000 GHz	1.000 MHz	7.50350 GHz	-44.06 dBm	-19.06 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.58429 GHz	-48.91 dBm	-23.91 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.75217 GHz	-45.99 dBm	-20.99 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.36572 GHz	-47.18 dBm	-22.18 dB

Date: 26.DEC.2014 01:30:09

Band :	LTE Band 7	Channel :	CH21100 (Middle)
Band Width :	20MHz		

QPSK (RB Size 1, RB Offset 0)

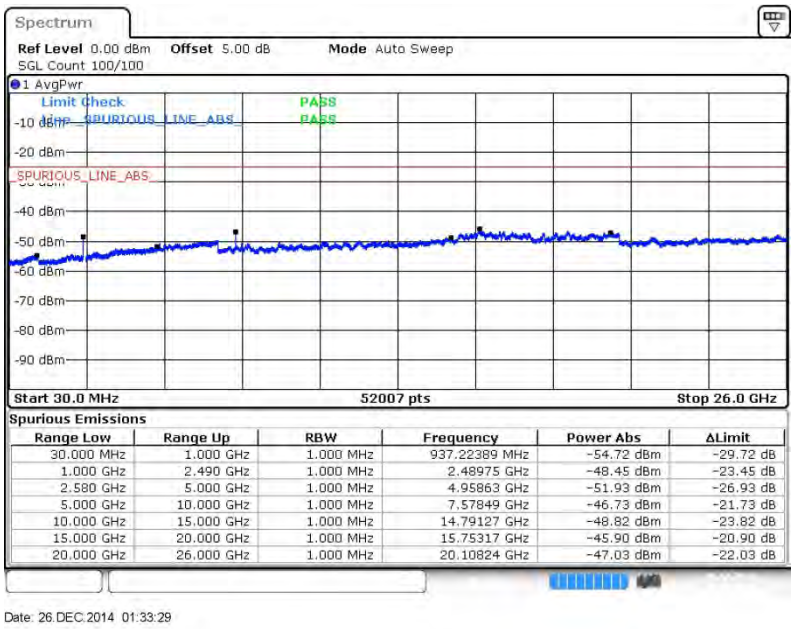


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	914.44028 MHz	-54.73 dBm	-29.73 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.48975 GHz	-47.78 dBm	-22.78 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.99637 GHz	-51.86 dBm	-26.86 dB
5.000 GHz	10.000 GHz	1.000 MHz	7.57849 GHz	-46.01 dBm	-21.01 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.75177 GHz	-48.87 dBm	-23.87 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.73268 GHz	-45.92 dBm	-20.92 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.36722 GHz	-46.99 dBm	-21.99 dB

Date: 26.DEC.2014 01:32:11

16QAM (RB Size 1, RB Offset 0)



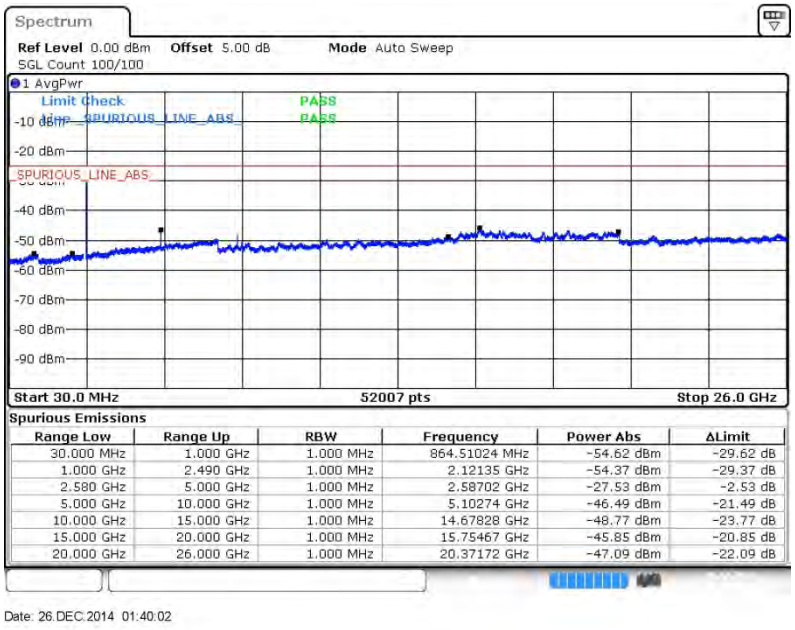
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	937.22389 MHz	-54.72 dBm	-29.72 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.48975 GHz	-48.45 dBm	-23.45 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.95863 GHz	-51.93 dBm	-26.93 dB
5.000 GHz	10.000 GHz	1.000 MHz	7.57849 GHz	-46.73 dBm	-21.73 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.79127 GHz	-48.82 dBm	-23.82 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.75317 GHz	-45.90 dBm	-20.90 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.10824 GHz	-47.03 dBm	-22.03 dB

Date: 26.DEC.2014 01:33:29

Band :	LTE Band 7	Channel :	CH21350 (High)
Band Width :	20MHz		

QPSK (RB Size 1, RB Offset 0)

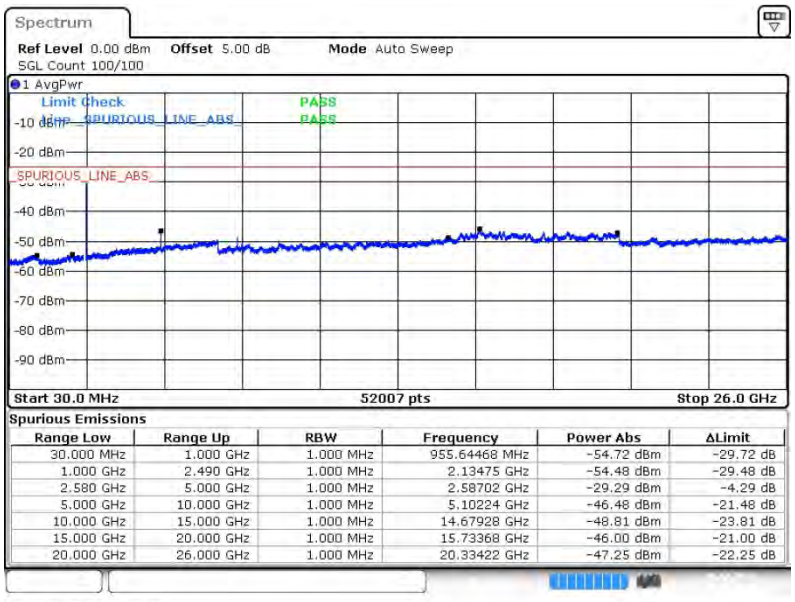


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	864.51024 MHz	-54.62 dBm	-29.62 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.12135 GHz	-54.37 dBm	-29.37 dB
2.580 GHz	5.000 GHz	1.000 MHz	2.58702 GHz	-27.53 dBm	-2.53 dB
5.000 GHz	10.000 GHz	1.000 MHz	5.10274 GHz	-46.49 dBm	-21.49 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.67828 GHz	-48.77 dBm	-23.77 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.75467 GHz	-45.85 dBm	-20.85 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.37172 GHz	-47.09 dBm	-22.09 dB

Date: 26.DEC.2014 01:40:02

16QAM (RB Size 1, RB Offset 0)



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	955.64468 MHz	-54.72 dBm	-29.72 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.13475 GHz	-54.48 dBm	-29.48 dB
2.580 GHz	5.000 GHz	1.000 MHz	2.58702 GHz	-29.29 dBm	-4.29 dB
5.000 GHz	10.000 GHz	1.000 MHz	5.10224 GHz	-46.48 dBm	-21.48 dB
10.000 GHz	15.000 GHz	1.000 MHz	14.67928 GHz	-48.81 dBm	-23.81 dB
15.000 GHz	20.000 GHz	1.000 MHz	15.73368 GHz	-46.00 dBm	-21.00 dB
20.000 GHz	26.000 GHz	1.000 MHz	20.33422 GHz	-47.25 dBm	-22.25 dB

Date: 26.DEC.2014 01:41:21

3.7 Radiated Spurious Emission Measurement

3.7.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-C-2004. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

For Band 7
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

3.7.2 Measuring Instruments

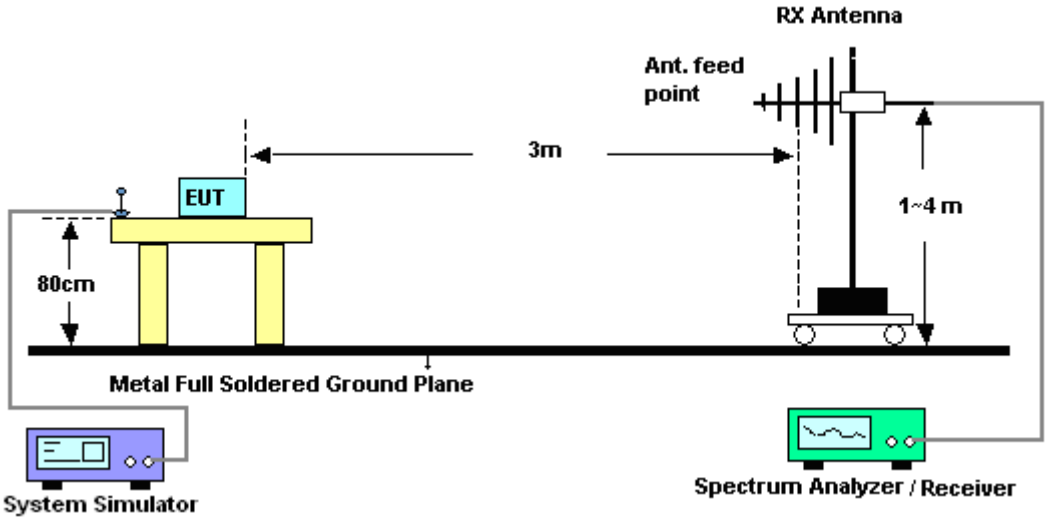
The measuring equipment is listed in the section 4 of this test report.

3.7.3 Test Procedures

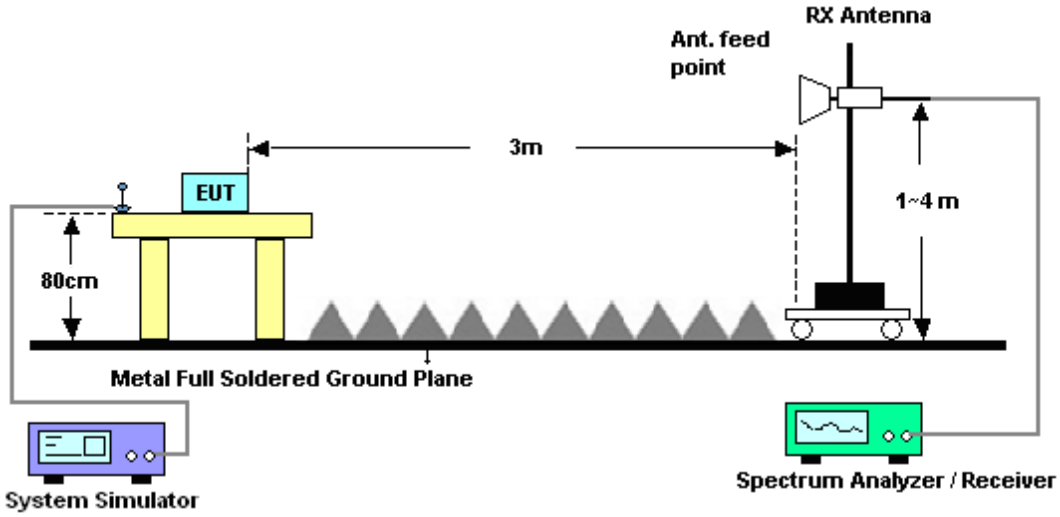
1. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
    The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.
    For Band 7
    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [55 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [55 + 10log(P)] (dB)
    = -25dBm.
11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
12. ERP (dBm) = EIRP - 2.15

3.7.4 Test Setup

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.7.5 Test Result of Field Strength of Spurious Radiated

Band :	LTE Band 2	Temperature :	22~23°C
Test Mode :	1.4MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Horizontal
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3759	-60.69	-13	-47.69	-67.68	-64.27	3	6.58	H	Pass
5637	-59.14	-13	-46.14	-63.41	-64.51	3.84	9.21	H	Pass
7518	-54.66	-13	-41.66	-62.52	-61.33	4.43	11.10	H	Pass

Band :	LTE Band 2	Temperature :	22~23°C
Test Mode :	1.4MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Vertical
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3759	-63.71	-13	-50.71	-67.79	-67.28	3	6.58	V	Pass
5637	-56.74	-13	-43.74	-62.97	-62.11	3.84	9.21	V	Pass
7518	-56.47	-13	-43.47	-63.63	-63.14	4.43	11.10	V	Pass

Band :	LTE Band 2	Temperature :	22~23°C
Test Mode :	3MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Horizontal
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3756	-60.74	-13	-47.74	-67.73	-64.32	3	6.58	H	Pass
5635	-58.48	-13	-45.48	-62.75	-63.85	3.84	9.21	H	Pass
7515	-53.34	-13	-40.34	-61.56	-60.01	4.43	11.10	H	Pass

Band :	LTE Band 2	Temperature :	22~23°C
Test Mode :	3MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Vertical
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3756	-63.61	-13	-50.61	-67.69	-67.18	3	6.58	V	Pass
5635	-55.90	-13	-42.90	-62.13	-61.27	3.84	9.21	V	Pass
7515	-55.85	-13	-42.85	-63.01	-62.52	4.43	11.10	V	Pass

Band :	LTE Band 2	Temperature :	22~23°C
Test Mode :	5MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Horizontal
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3756	-58.86	-13	-45.86	-65.85	-62.44	3	6.58	H	Pass
5632	-59.04	-13	-46.04	-63.31	-64.41	3.84	9.21	H	Pass
7509	-54.88	-13	-41.88	-62.74	-61.55	4.43	11.10	H	Pass

Band :	LTE Band 2	Temperature :	22~23°C
Test Mode :	5MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Vertical
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3756	-64.11	-13	-51.11	-68.19	-67.68	3	6.58	V	Pass
5632	-57.10	-13	-44.10	-63.33	-62.47	3.84	9.21	V	Pass
7509	-55.50	-13	-42.50	-62.66	-62.17	4.43	11.10	V	Pass

Band :	LTE Band 2	Temperature :	22~23°C
Test Mode :	10MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Horizontal
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3750	-59.55	-13	-46.55	-66.54	-63.13	3	6.58	H	Pass
5625	-57.42	-13	-44.42	-61.69	-62.79	3.84	9.21	H	Pass
7500	-55.05	-13	-42.05	-62.91	-61.72	4.43	11.10	H	Pass

Band :	LTE Band 2	Temperature :	22~23°C
Test Mode :	10MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Vertical
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3750	-61.90	-13	-48.90	-65.98	-65.47	3	6.58	V	Pass
5625	-54.95	-13	-41.95	-61.18	-60.32	3.84	9.21	V	Pass
7500	-55.93	-13	-42.93	-63.09	-62.60	4.43	11.10	V	Pass

Band :	LTE Band 2	Temperature :	22~23°C
Test Mode :	15MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Horizontal
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3744	-59.64	-13	-46.64	-66.63	-63.22	3	6.58	H	Pass
5617.5	-57.65	-13	-44.65	-61.92	-63.02	3.84	9.21	H	Pass
7491	-54.06	-13	-41.06	-61.92	-60.73	4.43	11.10	H	Pass

Band :	LTE Band 2	Temperature :	22~23°C
Test Mode :	15MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Vertical
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3744	-61.08	-13	-48.08	-65.16	-64.65	3	6.58	V	Pass
5617.5	-55.18	-13	-42.18	-61.41	-60.55	3.84	9.21	V	Pass
7491	-55.02	-13	-42.02	-62.18	-61.69	4.43	11.10	V	Pass

Band :	LTE Band 2	Temperature :	22~23°C
Test Mode :	20MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Horizontal
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3741	-59.32	-13	-46.32	-66.31	-62.90	3	6.58	H	Pass
5610	-57.43	-13	-44.43	-61.70	-62.80	3.84	9.21	H	Pass
7479	-53.30	-13	-40.30	-61.54	-59.97	4.43	11.10	H	Pass

Band :	LTE Band 2	Temperature :	22~23°C
Test Mode :	20MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Vertical
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3741	-62.91	-13	-49.91	-66.99	-66.48	3	6.58	V	Pass
5610	-55.68	-13	-42.68	-61.91	-61.05	3.84	9.21	V	Pass
7479	-55.35	-13	-42.35	-62.51	-62.02	4.43	11.10	V	Pass

Band :	LTE Band 4	Temperature :	22~23°C
Test Mode :	1.4MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Horizontal
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3463.6	-58.14	-13	-45.14	-65.40	-61.50	3.12	6.49	H	Pass
5195.4	-55.89	-13	-42.89	-61.81	-60.87	3.65	8.64	H	Pass
6927	-46.12	-13	-33.12	-59.10	-52.70	4.15	10.72	H	Pass
8658	-51.26	-13	-38.26	-62.04	-58.71	4.65	12.11	H	Pass
10392	-39.32	-13	-26.32	-59.26	-47.39	5.1	13.17	H	Pass

Band :	LTE Band 4	Temperature :	22~23°C
Test Mode :	1.4MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Vertical
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3463.6	-63.91	-13	-50.91	-65.99	-67.27	3.12	6.49	V	Pass
5195.4	-58.59	-13	-45.59	-61.99	-63.57	3.65	8.64	V	Pass
6927.2	-53.52	-13	-40.52	-63.28	-60.09	4.15	10.72	V	Pass
8659	-48.87	-13	-35.87	-61.89	-56.32	4.65	12.11	V	Pass
10392	-46.84	-13	-33.84	-65.17	-54.91	5.1	13.17	V	Pass

Band :	LTE Band 4	Temperature :	22~23°C
Test Mode :	3MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Horizontal
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3462	-59.03	-13	-46.03	-66.29	-62.39	3.12	6.49	H	Pass
5193	-57.10	-13	-44.10	-63.02	-62.08	3.65	8.64	H	Pass
6924	-49.49	-13	-36.49	-61.13	-56.06	4.15	10.72	H	Pass

Band :	LTE Band 4	Temperature :	22~23°C
Test Mode :	3MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Vertical
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3462	-63.93	-13	-50.93	-66.01	-67.29	3.12	6.49	V	Pass
5193	-59.11	-13	-46.11	-62.51	-64.09	3.65	8.64	V	Pass
6924	-53.75	-13	-40.75	-63.51	-60.32	4.15	10.72	V	Pass

Band :	LTE Band 4	Temperature :	22~23°C
Test Mode :	5MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Horizontal
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3459	-57.57	-13	-44.57	-64.83	-60.93	3.12	6.49	H	Pass
5190	-55.43	-13	-42.43	-61.35	-60.41	3.65	8.64	H	Pass
6921	-50.58	-13	-37.58	-62.22	-57.15	4.15	10.72	H	Pass

Band :	LTE Band 4	Temperature :	22~23°C
Test Mode :	5MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Vertical
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3459	-63.58	-13	-50.58	-65.66	-66.94	3.12	6.49	V	Pass
5190	-59.70	-13	-46.70	-63.1	-64.68	3.65	8.64	V	Pass
6921	-53.23	-13	-40.23	-62.99	-59.80	4.15	10.72	V	Pass

Band :	LTE Band 4	Temperature :	22~23°C
Test Mode :	10MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Horizontal
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3456	-57.66	-13	-44.66	-64.92	-61.02	3.12	6.49	H	Pass
5182.5	-56.19	-13	-43.19	-62.11	-61.17	3.65	8.64	H	Pass
6909	-51.68	-13	-38.68	-63.32	-58.25	4.15	10.72	H	Pass

Band :	LTE Band 4	Temperature :	22~23°C
Test Mode :	10MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Vertical
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3456	-63.28	-13	-50.28	-65.36	-66.64	3.12	6.49	V	Pass
5182.5	-57.92	-13	-44.92	-61.32	-62.90	3.65	8.64	V	Pass
6909	-52.80	-13	-39.80	-62.56	-59.37	4.15	10.72	V	Pass

Band :	LTE Band 4	Temperature :	22~23°C
Test Mode :	15MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Horizontal
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3450	-57.39	-13	-44.39	-64.65	-60.75	3.12	6.49	H	Pass
5175	-57.26	-13	-44.26	-63.18	-62.24	3.65	8.64	H	Pass
6900	-50.04	-13	-37.04	-61.68	-56.61	4.15	10.72	H	Pass

Band :	LTE Band 4	Temperature :	22~23°C
Test Mode :	15MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Vertical
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3450	-63.34	-13	-50.34	-65.42	-66.70	3.12	6.49	V	Pass
5175	-59.51	-13	-46.51	-62.91	-64.49	3.65	8.64	V	Pass
6900	-52.89	-13	-39.89	-62.65	-59.46	4.15	10.72	V	Pass

Band :	LTE Band 4	Temperature :	22~23°C
Test Mode :	20MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Horizontal
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3444	-57.92	-13	-44.92	-65.18	-61.28	3.12	6.49	H	Pass
5167.5	-57.03	-13	-44.03	-62.95	-62.01	3.65	8.64	H	Pass
6894	-48.48	-13	-35.48	-60.12	-55.05	4.15	10.72	H	Pass

Band :	LTE Band 4	Temperature :	22~23°C
Test Mode :	20MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Vertical
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3444	-63.67	-13	-50.67	-65.75	-67.03	3.12	6.49	V	Pass
5167.5	-59.85	-13	-46.85	-63.25	-64.83	3.65	8.64	V	Pass
6891	-53.06	-13	-40.06	-62.82	-59.63	4.15	10.72	V	Pass

Band :	LTE Band 7	Temperature :	22~23°C
Test Mode :	5MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Horizontal
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
5065	-42.15	-25	-17.15	-54.86	-47.14	3.49	8.48	H	Pass
7600	-25.86	-25	-0.86	-46.29	-32.73	4.28	11.15	H	Pass
10128	-43.97	-25	-18.97	-61.38	-51.82	5.1	12.94	H	Pass

Band :	LTE Band 7	Temperature :	22~23°C
Test Mode :	5MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Vertical
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
5065	-37.68	-25	-12.68	-52.58	-42.67	3.49	8.48	V	Pass
7600	-34.30	-25	-9.30	-53.1	-41.16	4.28	11.15	V	Pass
10132	-37.94	-25	-12.94	-58.65	-45.78	5.1	12.94	V	Pass

Band :	LTE Band 7	Temperature :	22~23°C
Test Mode :	10MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Horizontal
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
5060	-41.81	-25	-16.81	-54.68	-46.80	3.49	8.48	H	Pass
7595	-26.61	-25	-1.61	-46.80	-33.48	4.28	11.15	H	Pass
10120	-43.45	-25	-18.45	-60.90	-51.29	5.1	12.94	H	Pass

Band :	LTE Band 7	Temperature :	22~23°C
Test Mode :	10MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Vertical
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
5060	-36.73	-25	-11.73	-51.81	-41.71	3.49	8.48	V	Pass
7595	-31.65	-25	-6.65	-51.08	-38.52	4.28	11.15	V	Pass
10124	-42.11	-25	-17.11	-60.16	-49.95	5.1	12.94	V	Pass

Band :	LTE Band 7	Temperature :	22~23°C
Test Mode :	15MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Horizontal
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
5060	-37.67	-25	-12.67	-51.99	-42.66	3.49	8.48	H	Pass
7590	-25.72	-25	-0.72	-46.16	-32.59	4.28	11.15	H	Pass
10116	-37.93	-25	-12.93	-59.06	-45.77	5.1	12.94	H	Pass

Band :	LTE Band 7	Temperature :	22~23°C
Test Mode :	15MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Vertical
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
5060	-40.13	-25	-15.13	-54	-45.12	3.49	8.48	V	Pass
7590	-35.18	-25	-10.18	-53.74	-42.05	4.28	11.15	V	Pass
10116	-42.23	-25	-17.23	-60.25	-50.07	5.1	12.94	V	Pass

Band :	LTE Band 7	Temperature :	22~23°C
Test Mode :	20MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Horizontal
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
5050	-40.15	-25	-15.15	-53.73	-45.14	3.49	8.48	H	Pass
7580	-26.38	-25	-1.38	-46.65	-33.25	4.28	11.15	H	Pass
10104	-40.88	-25	-15.88	-59.94	-48.72	5.1	12.94	H	Pass

Band :	LTE Band 7	Temperature :	22~23°C
Test Mode :	20MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Vertical
Remark :	Spurious emissions below 1GHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
5055	-38.13	-25	-13.13	-52.91	-43.12	3.49	8.48	V	Pass
7580	-34.60	-25	-9.60	-53.34	-41.46	4.28	11.15	V	Pass
10104	-41.53	-25	-16.53	-59.99	-49.37	5.1	12.94	V	Pass

3.8 Frequency Stability Measurement

3.8.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

3.8.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

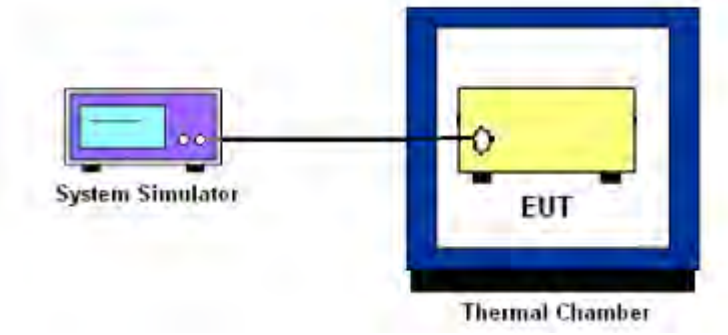
3.8.3 Test Procedures for Temperature Variation

1. The EUT was set up in the thermal chamber and connected with the system simulator.
2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.8.4 Test Procedures for Voltage Variation

1. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator.
2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

3.8.5 Test Setup



3.8.6 Test Result of Temperature Variation (FCC)

Band :	LTE Band 2 (QPSK)	Limit (ppm) :	within authorized band

Temperature (°C)	BW 10MHz	Result
	Deviation (ppm)	
50	0.0007	PASS
40	0.0010	
30	0.0014	
20(Ref.)	0.0000	
10	0.0020	
0	0.0015	
-10	0.0016	
-20	0.0008	
-30	0.11	

Note: The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

Band :	LTE Band 4 (QPSK)	Limit (ppm) :	within authorized band

Temperature (°C)	BW 10MHz	Result
	Deviation (ppm)	
50	0.0102	PASS
40	0.0077	
30	0.0088	
20(Ref.)	0.0000	
10	0.0098	
0	0.0118	
-10	0.0002	
-20	0.0092	
-30	0.0030	

Note: The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

Band :	LTE Band 7 (QPSK)	Limit (ppm) :	within authorized band

Temperature (°C)	BW 10MHz	Result
	Deviation (ppm)	
50	0.0006	PASS
40	0.0007	
30	0.0006	
20(Ref.)	0.0000	
10	0.0007	
0	0.0010	
-10	0.0006	
-20	0.0004	
-30	0.0011	

Note: The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

3.8.7 Test Result of Voltage Variation (FCC)

Band	Bandwidth	Voltage (Volt)	Deviation (ppm)	Limit (ppm)	Result
LTE Band 2	10M	4.2	0.0005	(Note 3.)	PASS
		Normal	0.0005		
		3.5	0.0011		
LTE Band 4	10M	4.2	0.0020	(Note 3.)	PASS
		Normal	0.0089		
		3.5	0.0094		
LTE Band 7	10M	4.2	0.0004	(Note 3.)	PASS
		Normal	0.0024		
		3.5	0.0012		

Remark:

1. Normal Voltage = 3.7V.
2. The manufacturer declared that the EUT could work properly between voltage 3.5V ~ 4.2V.
3. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV30	101338	9kHz~30GHz	May 04, 2014	Dec. 25, 2014~ Jan. 14, 2015	May 03, 2015	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	-40~+150°C	Oct. 25, 2014	Dec. 25, 2014~ Jan. 14, 2015	Oct. 24, 2015	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Oct. 25, 2014	Jan. 07, 2015~ Jan. 29, 2015	Oct. 24, 2015	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP30	101399	9kHz~30GHz	May 04, 2014	Jan. 07, 2015~ Jan. 29, 2015	May 03, 2015	Radiation (03CH01-KS)
Bilog Antenna	TeseQ	CBL6112D	37879	30Mhz-2Ghz	Sep. 13, 2014	Jan. 07, 2015~ Jan. 29, 2015	Sep. 12, 2015	Radiation (03CH01-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Nov. 08, 2014	Jan. 07, 2015~ Jan. 29, 2015	Nov. 07, 2015	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701030	1GHz~18GHz	Nov. 08, 2014	Jan. 07, 2015~ Jan. 29, 2015	Nov. 07, 2015	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Mar. 10, 2014	Jan. 07, 2015~ Jan. 29, 2015	Mar. 09, 2015	Radiation (03CH01-KS)
Amplifier	com-power	PA-103A	161073	1MHz~1GHz	May 04, 2014	Jan. 07, 2015~ Jan. 29, 2015	May 03, 2015	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02371	1GHz~26.5GHz	Oct. 28, 2014	Jan. 07, 2015~ Jan. 29, 2015	Oct. 27, 2015	Radiation (03CH01-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jan. 07, 2015~ Jan. 29, 2015	NCR	Radiation (03CH01-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Jan. 07, 2015~ Jan. 29, 2015	NCR	Radiation (03CH01-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Jan. 07, 2015~ Jan. 29, 2015	NCR	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP 7	100818	9kHz~7GHz	Jul. 17, 2014	Dec. 27, 2014	Jul. 16, 2015	EIRP (OTA02-SZ)
Quad-Ridged Horn	ETS-Lindgren	3164-08	00102954	700MHz~10000MHz	N/A	Dec. 27, 2014	N/A	EIRP (OTA02-SZ)
Multi-Devices Controller	ETS-Lindgren	2090-OPT1	00108147	N/A	N/A	Dec. 27, 2014	N/A	EIRP (OTA02-SZ)
Switch Control Mainframe	Agilent	3499A	MY42005451	N/A	N/A	Dec. 27, 2014	N/A	EIRP (OTA02-SZ)

5 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.5dB**