

PEAK-TO-AVERAGE POWER RATIO (PAPR)



XMI 2019.09.05

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5171B-506	TEW	2-May-18	2-May-21
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	19-Mar-19	19-Mar-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

Because the conducted Output Power was measured using a RMS Average detector, the Peak to Average Power Ratio (PAPR) was measured to show that the maximum peak-max-hold spectrum to the maximum of the average spectrum does not exceed 13 dB.

The PAPR measurement method is described in ANSI C63.26 section 5.2.3.4.

The PAPR was measured using the CCDF function of the spectrum analyzer.

PEAK-TO-AVERAGE POWER RATIO (PAPR)



TMTx 2019.08.30.0 XMt 2019.09.05

EUT: AHLBBA RRH		Work Order: NOKI0004	
Serial Number: K9193514835		Date: 18-Nov-19	
Customer: Nokia Solutions and Networks		Temperature: 22.4 °C	
Attendees: John Rattanaovong		Humidity: 29.6% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Jonathan Kiefer		Power: 54VDC	
Job Site: TX09			
TEST SPECIFICATIONS		Test Method	
FCC 901:2019		ANSI C63.26:2015	
COMMENTS			
Band 14 PAPR measurements for LTE5 channel bandwidth at Mid channel using 256QAM on all four antenna ports. EUT is operated at 100% duty cycle.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature <i>Jonathan Kiefer</i>	
		PAPR Value (dB)	Limit (dB) Results
Band 14			
256QAM Modulation			
LTE5 Bandwidth			
Mid Channel, 763.0 MHz			
	Antenna Port 1	7.68	13 Pass
	Antenna Port 2	6.78	13 Pass
	Antenna Port 3	6.79	13 Pass
	Antenna Port 4	7.71	13 Pass

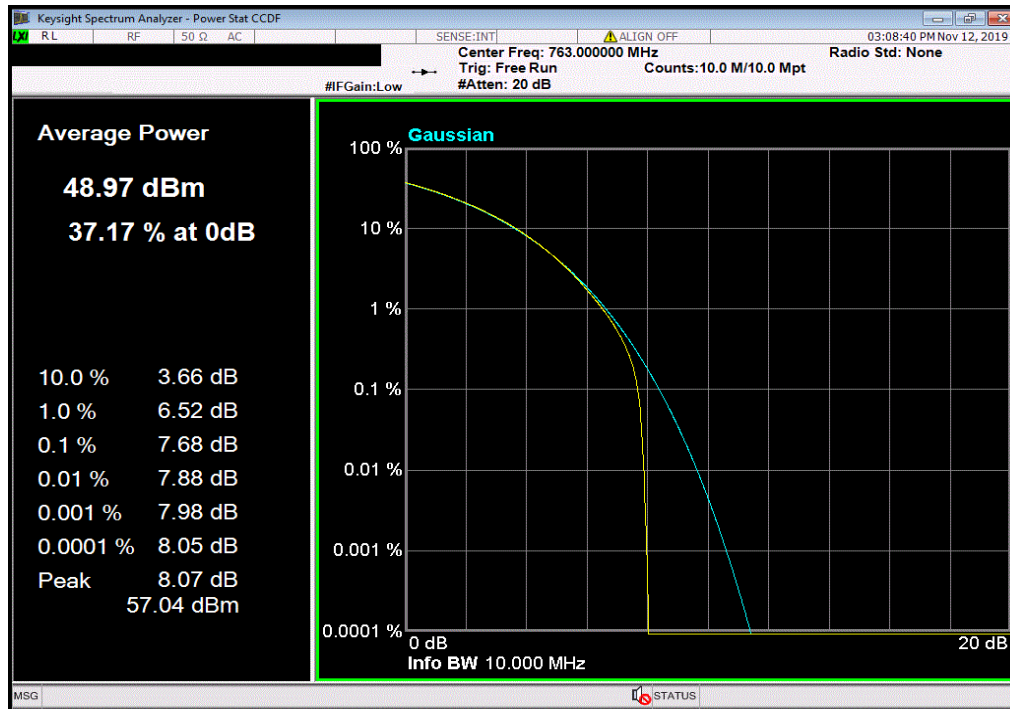
PEAK-TO-AVERAGE POWER RATIO (PAPR)



TbTx 2019.08.30.0 XMI 2019.09.05

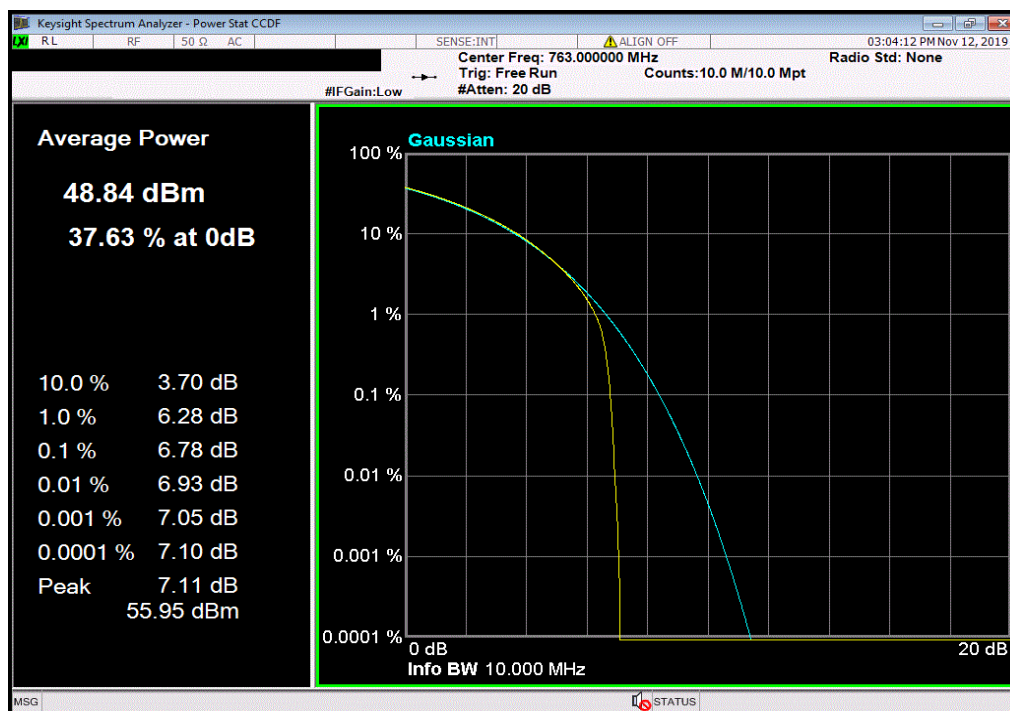
Band 14, 256QAM Modulation, LTE5 Bandwidth, Mid Channel, 763.0 MHz, Antenna Port 1

			PAPR	Limit	Results
			Value (dB)	(dB)	
			7.68	13	Pass



Band 14, 256QAM Modulation, LTE5 Bandwidth, Mid Channel, 763.0 MHz, Antenna Port 2

			PAPR	Limit	Results
			Value (dB)	(dB)	
			6.78	13	Pass



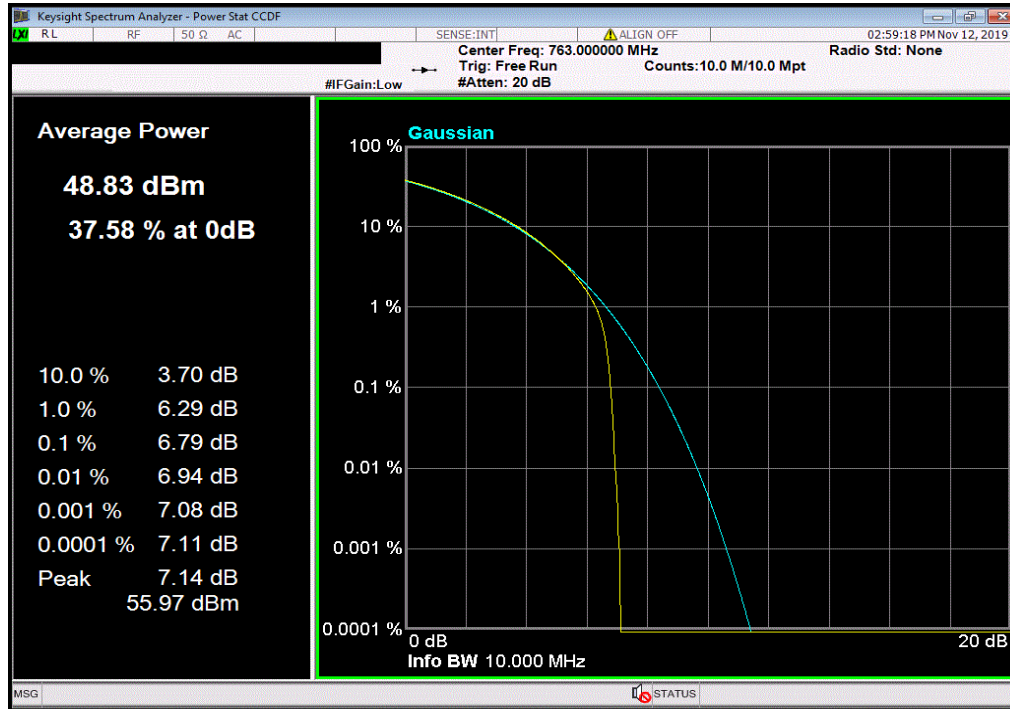
PEAK-TO-AVERAGE POWER RATIO (PAPR)



TbTx 2019.08.30.0 XMI 2019.09.05

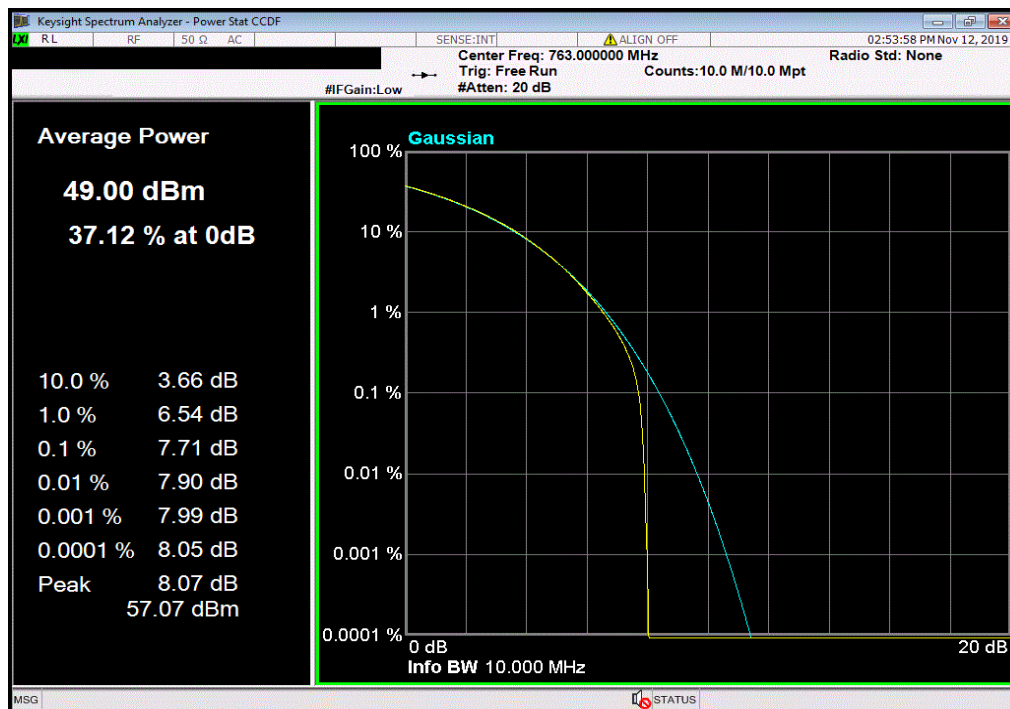
Band 14, 256QAM Modulation, LTE5 Bandwidth, Mid Channel, 763.0 MHz, Antenna Port 3

			PAPR	Limit	Results
			Value (dB)	(dB)	
			6.79	13	Pass



Band 14, 256QAM Modulation, LTE5 Bandwidth, Mid Channel, 763.0 MHz, Antenna Port 4

			PAPR	Limit	Results
			Value (dB)	(dB)	
			7.71	13	Pass



PEAK-TO-AVERAGE POWER RATIO (PAPR)



XMIT 2019.09.05

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TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5171B-506	TEW	2-May-18	2-May-21
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	19-Mar-19	19-Mar-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

Because the conducted Output Power was measured using a RMS Average detector, the Peak to Average Power Ratio (PAPR) was measured to show that the maximum peak-max-hold spectrum to the maximum of the average spectrum does not exceed 13 dB.

The PAPR measurement method is described in ANSI C63.26 section 5.2.3.4.

The PAPR was measured using the CCDF function of the spectrum analyzer.

PEAK-TO-AVERAGE POWER RATIO (PAPR)



TSTx 2019.08.30.0 XMI 2019.09.05

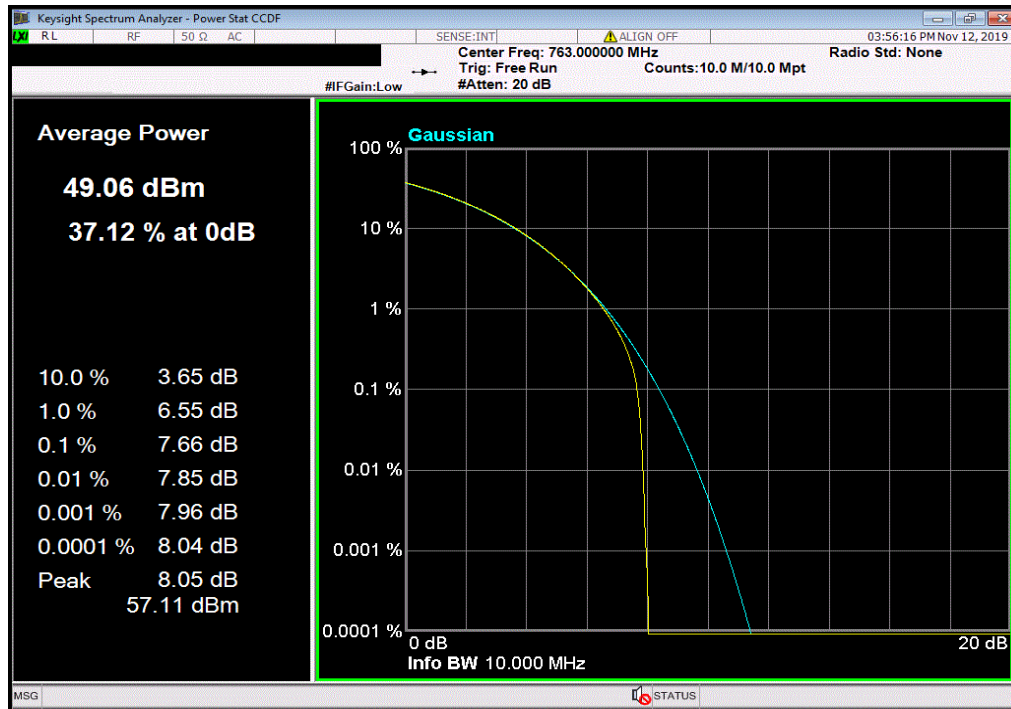
EUT: AHLBBA RRH		Work Order: NOKI0004	
Serial Number: K9193514835		Date: 18-Nov-19	
Customer: Nokia Solutions and Networks		Temperature: 22.4 °C	
Attendees: John Rattanaovong		Humidity: 29.6% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Jonathan Kiefer		Power: 54VDC	
		Job Site: TX09	
TEST SPECIFICATIONS		Test Method	
FCC 901:2019		ANSI C63.26:2015	
COMMENTS			
Band 14 PAPR measurements for LTE5 channel bandwidth at Mid channel for four modulation types. Tested on highest power antenna port (Port 1). EUT is operated at 100% duty cycle. Note 256QAM modulation LTE5 Mid channel data is shown elsewhere in this report.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature <i>Jonathan Kiefer</i>	
		PAPR Value (dB)	Limit (dB) Results
Band 14			
QPSK Modulation			
LTE5 Bandwidth			
Mid Channel, 763.0 MHz		7.66	13 Pass
16QAM Modulation			
LTE5 Bandwidth			
Mid Channel, 763.0 MHz		7.66	13 Pass
64QAM Modulation			
LTE5 Bandwidth			
Mid Channel, 763.0 MHz		7.67	13 Pass

PEAK-TO-AVERAGE POWER RATIO (PAPR)

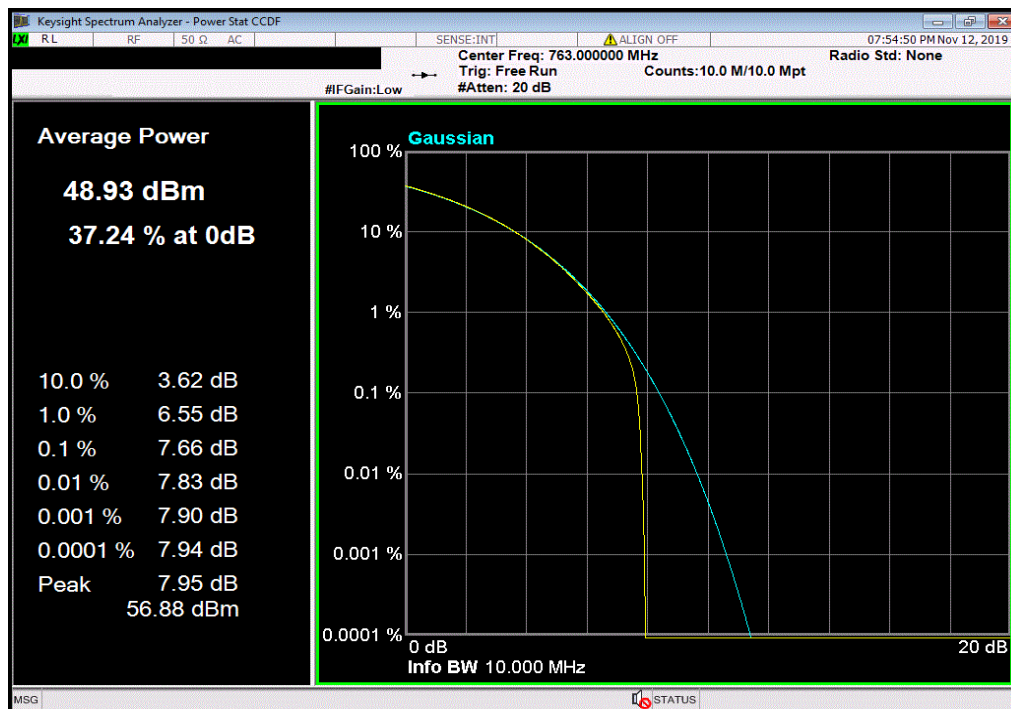


TbTx 2019.08.30.0 XMI 2019.09.05

Band 14, QPSK Modulation, LTE5 Bandwidth, Mid Channel, 763.0 MHz					
PAPR			Limit	Results	
Value (dB)			(dB)		
			7.66	13	Pass



Band 14, 16QAM Modulation, LTE5 Bandwidth, Mid Channel, 763.0 MHz					
PAPR			Limit	Results	
Value (dB)			(dB)		
			7.66	13	Pass

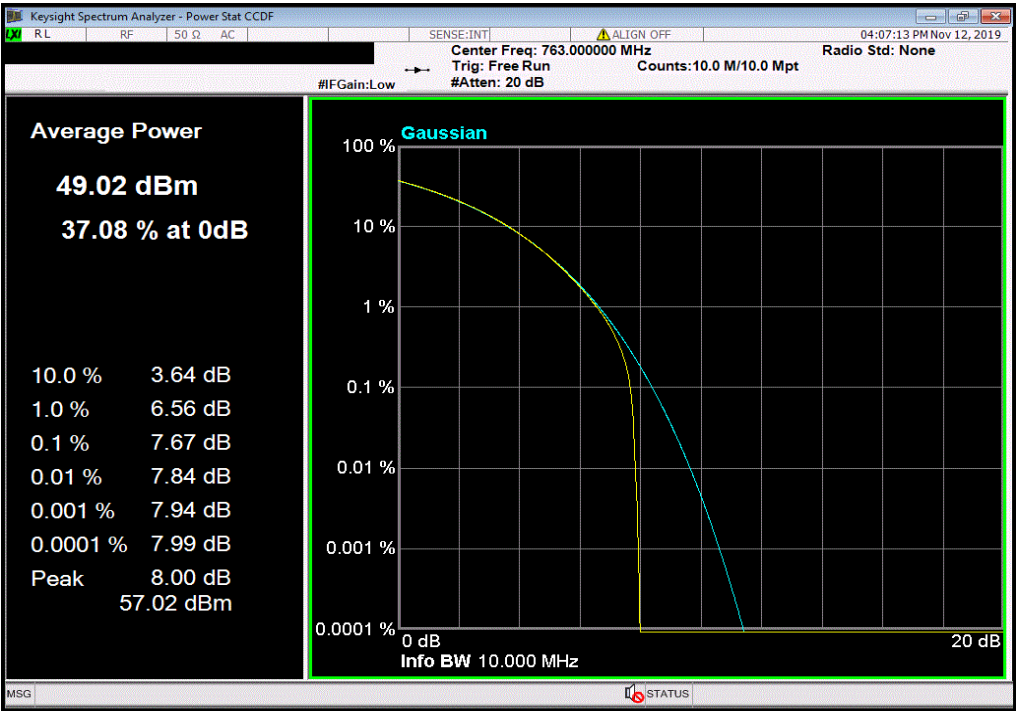


PEAK-TO-AVERAGE POWER RATIO (PAPR)



TbTx 2019.08.30.0 XMI 2019.09.05

Band 14, 64QAM Modulation, LTE5 Bandwidth, Mid Channel, 763.0 MHz						
			PAPR	Limit		
			Value (dB)	(dB)	Results	
			7.67	13	Pass	



PEAK-TO-AVERAGE POWER RATIO (PAPR)



XMIT 2019.09.05

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TEST EQUIPMENT

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Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	19-Mar-19	19-Mar-20

TEST DESCRIPTION

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Because the conducted Output Power was measured using a RMS Average detector, the Peak to Average Power Ratio (PAPR) was measured to show that the maximum peak-max-hold spectrum to the maximum of the average spectrum does not exceed 13 dB.

The PAPR measurement method is described in ANSI C63.26 section 5.2.3.4.

The PAPR was measured using the CCDF function of the spectrum analyzer.

PEAK-TO-AVERAGE POWER RATIO (PAPR)



TestTx 2019.08.30.0 XMir 2019.09.05

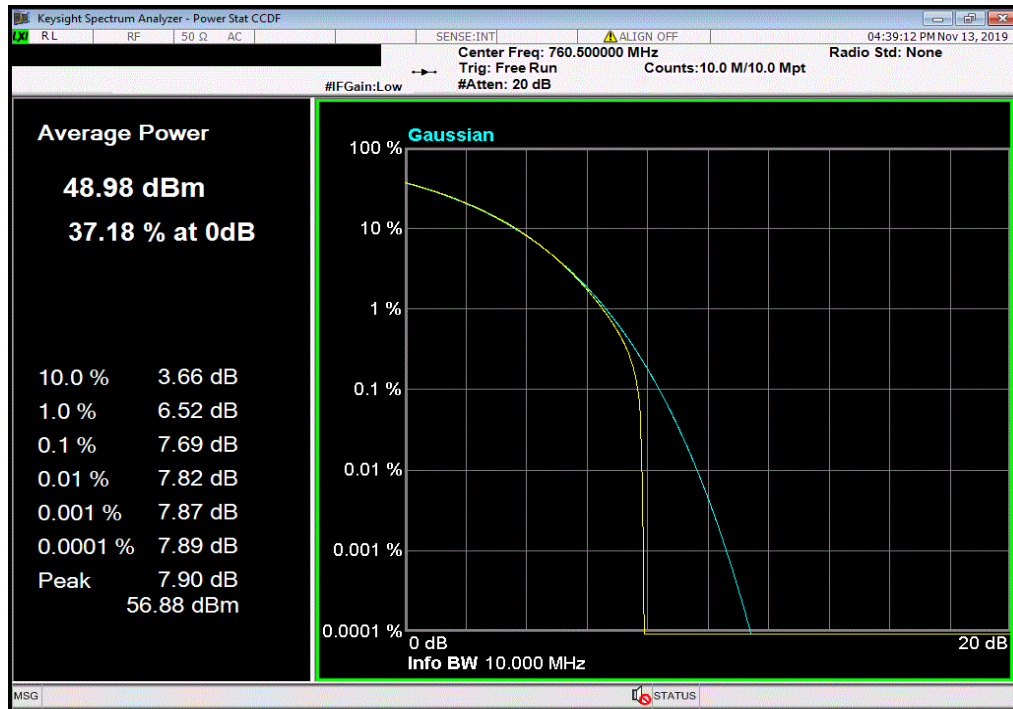
EUT: AHLBBA RRH		Work Order: NOKI0004	
Serial Number: K9193514835		Date: 18-Nov-19	
Customer: Nokia Solutions and Networks		Temperature: 22.4 °C	
Attendees: John Rattanaovong		Humidity: 29.6% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Jonathan Kiefer		Power: 54VDC	
		Job Site: TX09	
TEST SPECIFICATIONS		Test Method	
FCC 901:2019		ANSI C63.26:2015	
COMMENTS			
Band 14 PAPR measurements for 256QAM modulation type at Low, Mid and High channels for LTE5 and LTE10 channel bandwidths. Tested on highest power antenna port (Port 1). EUT is operated at 100% duty cycle. Note 256QAM LTE5 BW Mid channel data shown elsewhere in the report.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature <i>Jonathan Kiefer</i>	
		PAPR Value (dB)	Limit (dB) Results
Band 14			
256QAM Modulation			
LTE5 Bandwidth			
Low Channel, 760.5 MHz		7.69	13 Pass
High Channel, 765.5 MHz		7.77	13 Pass
LTE10 Bandwidth			
Single Channel, 763.0 MHz		7.77	13 Pass

PEAK-TO-AVERAGE POWER RATIO (PAPR)

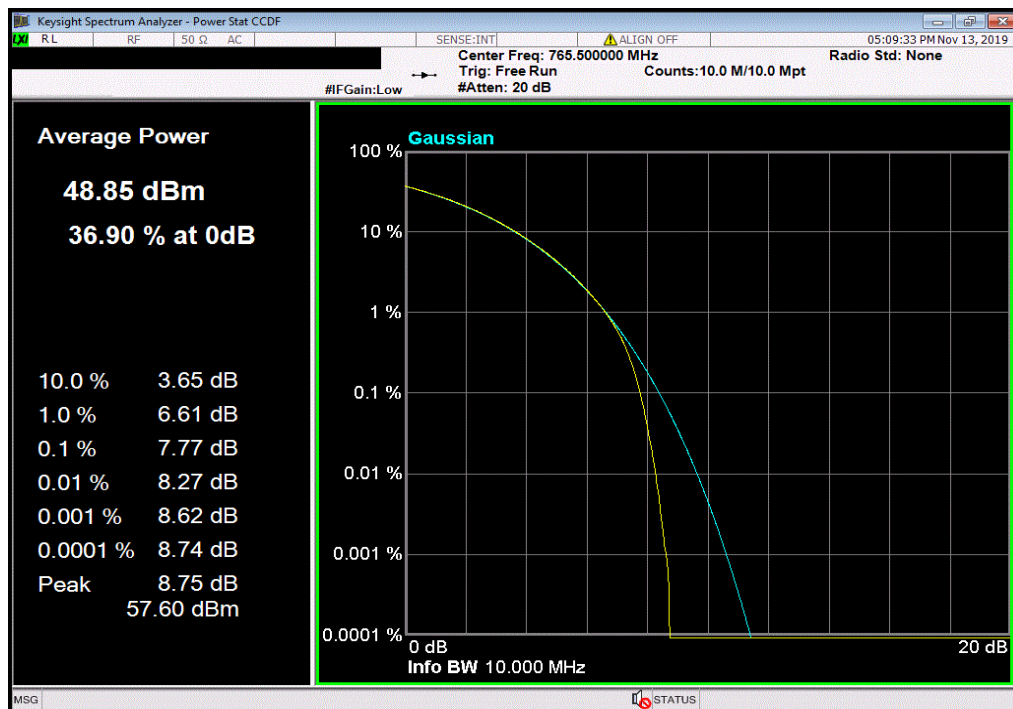


TbTx 2019.08.30.0 XMI 2019.09.05

Band 14, 256QAM Modulation, LTE5 Bandwidth, Low Channel, 760.5 MHz							
PAPR					Limit		Results
Value (dB)					(dB)		
				7.69	13	Pass	



Band 14, 256QAM Modulation, LTE5 Bandwidth, High Channel, 765.5 MHz						
PAPR				Limit		Results
Value (dB)				(dB)		
				7.77	13	Pass

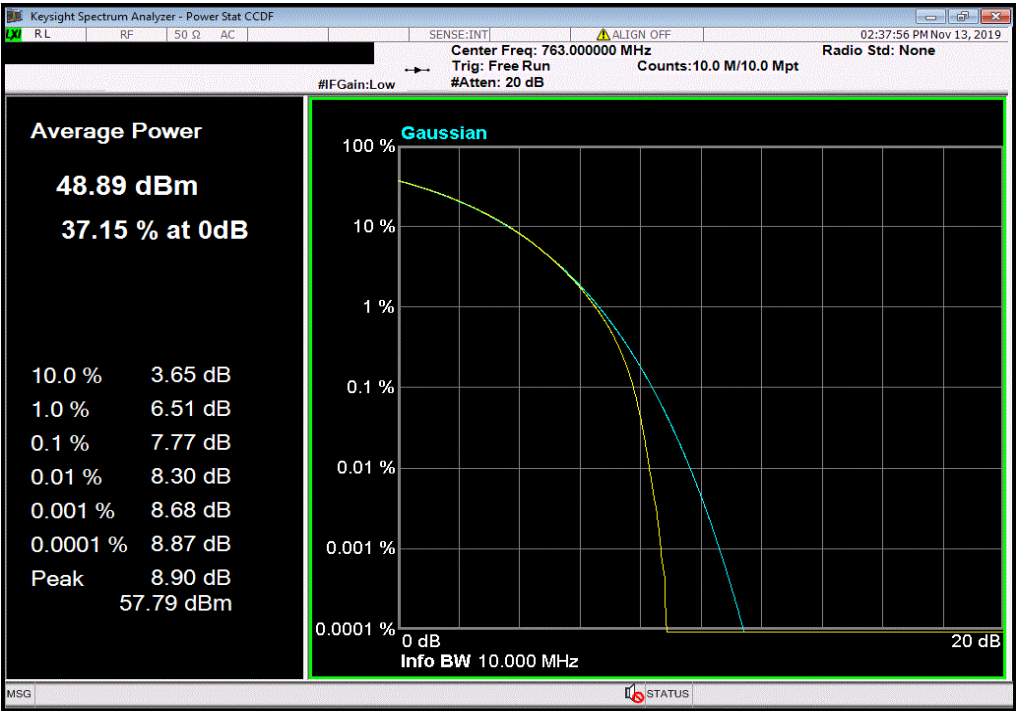


PEAK-TO-AVERAGE POWER RATIO (PAPR)



TbTx 2019.08.30.0 XMI 2019.09.05

Band 14, 256QAM Modulation, LTE10 Bandwidth, Single Channel, 763.0 MHz							
PAPR				Limit		Results	
Value (dB)				(dB)			
				7.77	13	Pass	



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TSTx 2019.08.30.0 XMI 2019.09.05

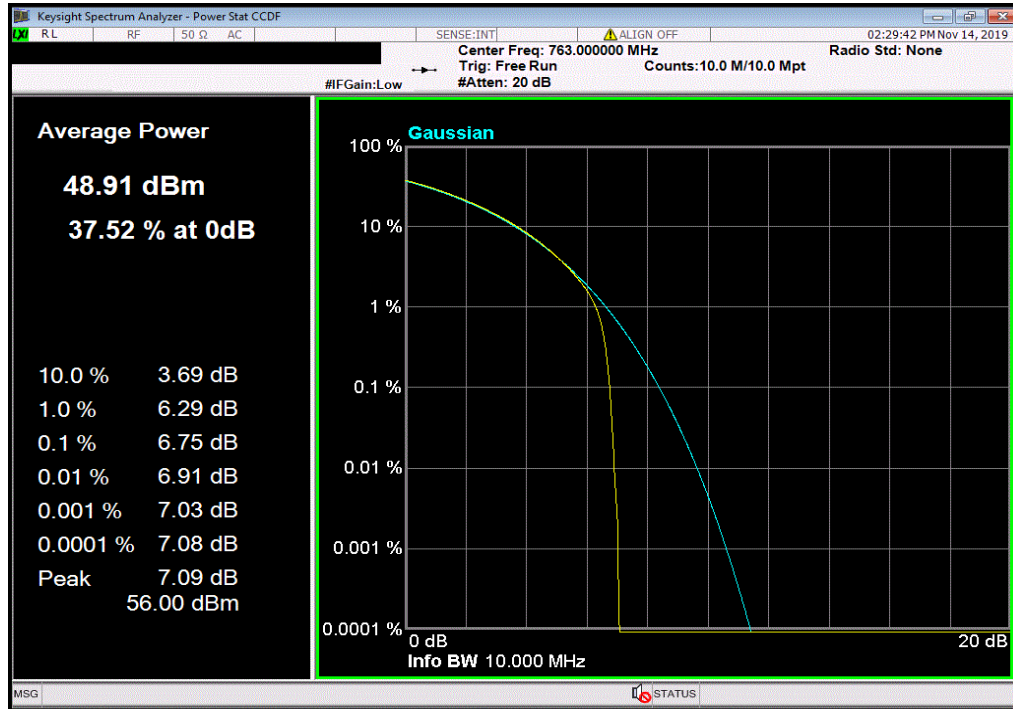
EUT: AHLBBA RRH		Work Order: NOKI0004	
Serial Number: K9193514835		Date: 18-Nov-19	
Customer: Nokia Solutions and Networks		Temperature: 22.4 °C	
Attendees: John Rattanaovong		Humidity: 29.7% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Jonathan Kiefer		Power: 54VDC	
		Job Site: TX09	
TEST SPECIFICATIONS		Test Method	
FCC 901:2019		ANSI C63.26:2015	
COMMENTS			
Band 14 PAPR measurements for LTE5 channel bandwidth at Mid channel for four modulation types. Tested on highest power antenna port (Port 2). EUT is operated at 100% duty cycle.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature <i>Jonathan Kiefer</i>	
		PAPR Value (dB)	Limit (dB) Results
Band 14	QPSK Modulation		
	LTE5 Bandwidth		
	Mid Channel, 763.0 MHz	6.75	13 Pass
	16QAM Modulation		
	LTE5 Bandwidth		
	Mid Channel, 763.0 MHz	6.74	13 Pass
	64QAM Modulation		
	LTE5 Bandwidth		
	Mid Channel, 763.0 MHz	6.75	13 Pass

PEAK-TO-AVERAGE POWER RATIO (PAPR)

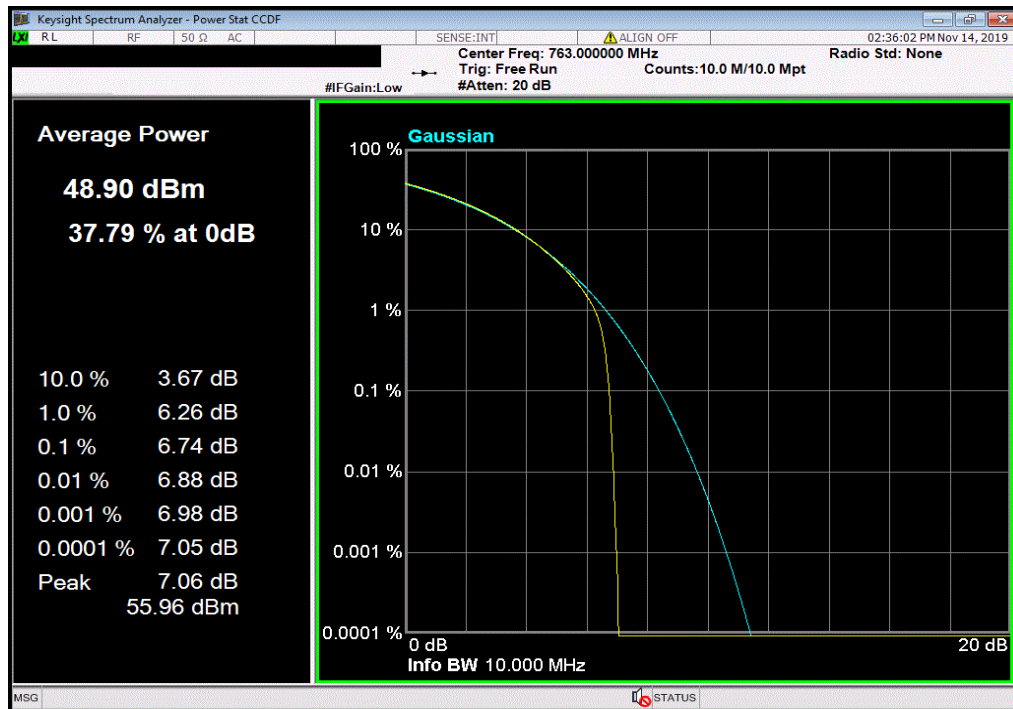


TbTx 2019.08.30.0 XMI 2019.09.05

Band 14, QPSK Modulation, LTE5 Bandwidth, Mid Channel, 763.0 MHz						
PAPR				Limit	Results	
Value (dB)				(dB)		
				6.75	13	Pass



Band 14, 16QAM Modulation, LTE5 Bandwidth, Mid Channel, 763.0 MHz						
PAPR				Limit	Results	
Value (dB)				(dB)		
				6.74	13	Pass

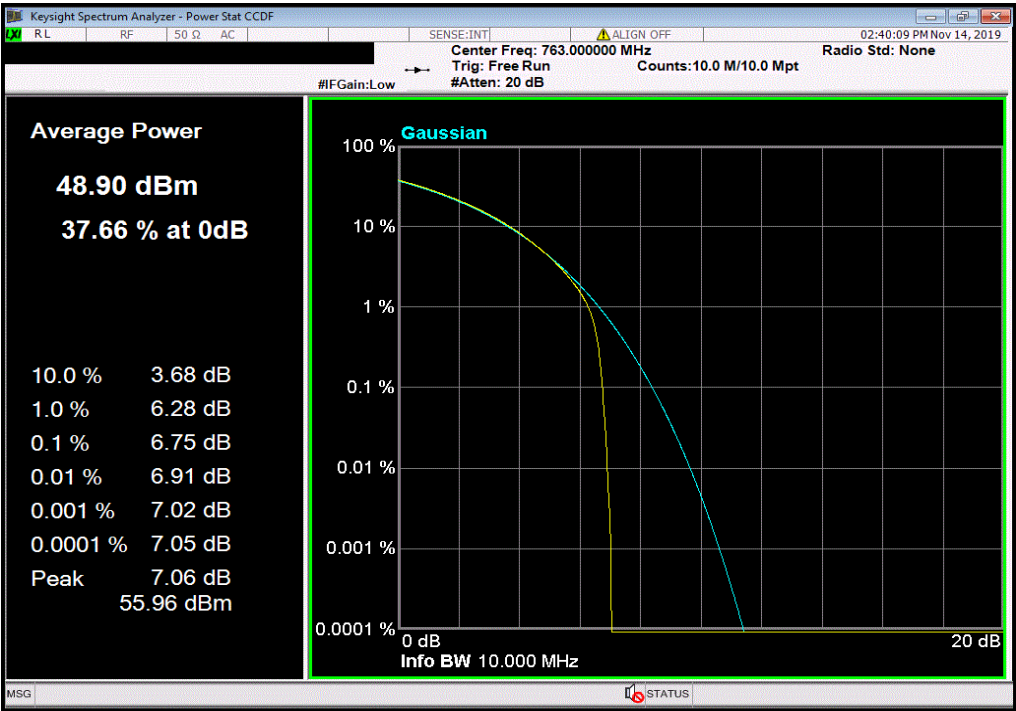


PEAK-TO-AVERAGE POWER RATIO (PAPR)



TbTx 2019.08.30.0 XMI 2019.09.05

Band 14, 64QAM Modulation, LTE5 Bandwidth, Mid Channel, 763.0 MHz						
			PAPR	Limit		
			Value (dB)	(dB)	Results	
			6.75	13	Pass	



PEAK-TO-AVERAGE POWER RATIO (PAPR)



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Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	19-Mar-19	19-Mar-20

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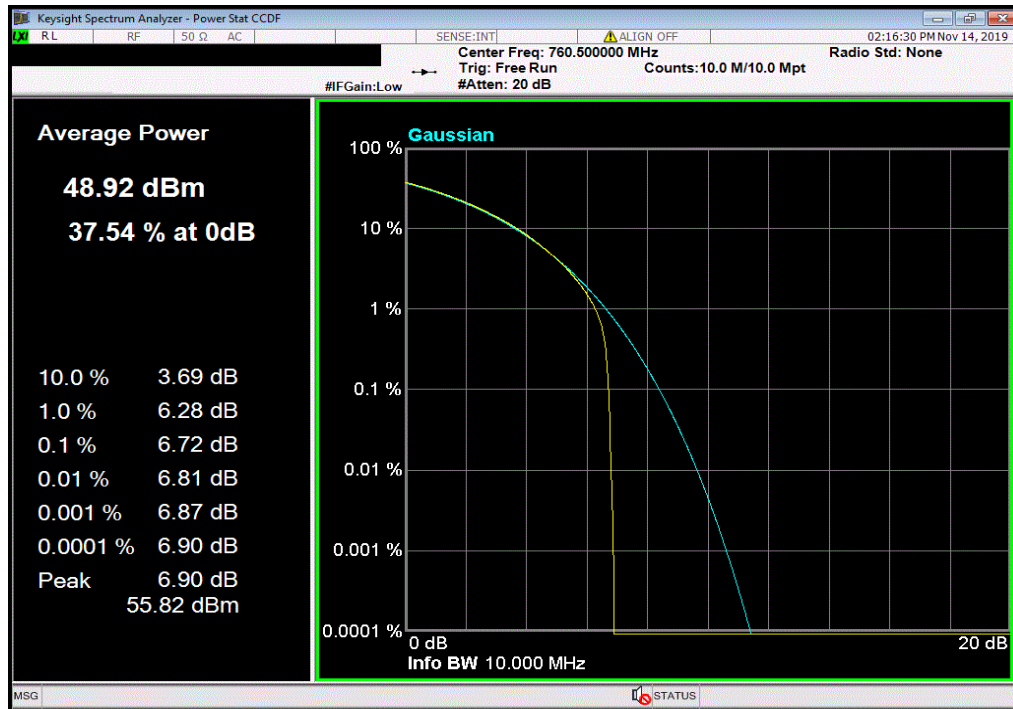
EUT: AHLBBA RRH		Work Order: NOKI0004	
Serial Number: K9193514835		Date: 18-Nov-19	
Customer: Nokia Solutions and Networks		Temperature:	
Attendees: John Rattanaavong		Humidity:	
Project: None		Barometric Pres.:	
Tested by: Jonathan Kiefer		Power: 54VDC	Job Site: TX09
TEST SPECIFICATIONS		Test Method	
FCC 901:2019		ANSI C63.26:2015	
COMMENTS			
Band 14 PAPR measurements for 256QAM modulation type at Low, Mid and High channels for LTE5 and LTE10 channel bandwidths. Tested on highest power antenna port (Port 2). EUT is operated at 100% duty cycle. Note: 256QAM LTE5 BW Mid Channel data shown elsewhere in the report.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature <i>Jonathan Kiefer</i>	
		PAPR Value (dB)	Limit (dB) Results
Band 14			
256QAM Modulation			
LTE5 Bandwidth			
Low Channel, 760.5 MHz		6.72	13 Pass
High Channel, 765.5 MHz		7.04	13 Pass
LTE10 Bandwidth			
Single Channel, 763.0 MHz		7.24	13 Pass

PEAK-TO-AVERAGE POWER RATIO (PAPR)

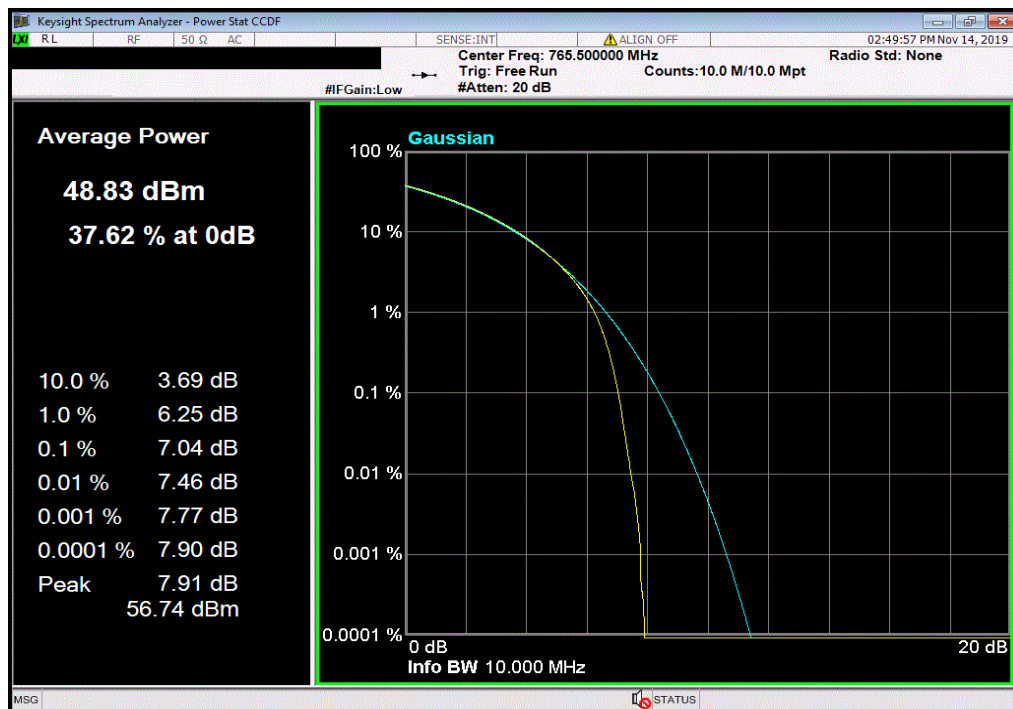


TbTx 2019.08.30.0 XMI 2019.09.05

Band 14, 256QAM Modulation, LTE5 Bandwidth, Low Channel, 760.5 MHz					
PAPR			Limit	Results	
Value (dB)			(dB)		
			6.72	13	Pass



Band 14, 256QAM Modulation, LTE5 Bandwidth, High Channel, 765.5 MHz					
PAPR			Limit	Results	
Value (dB)			(dB)		
			7.04	13	Pass

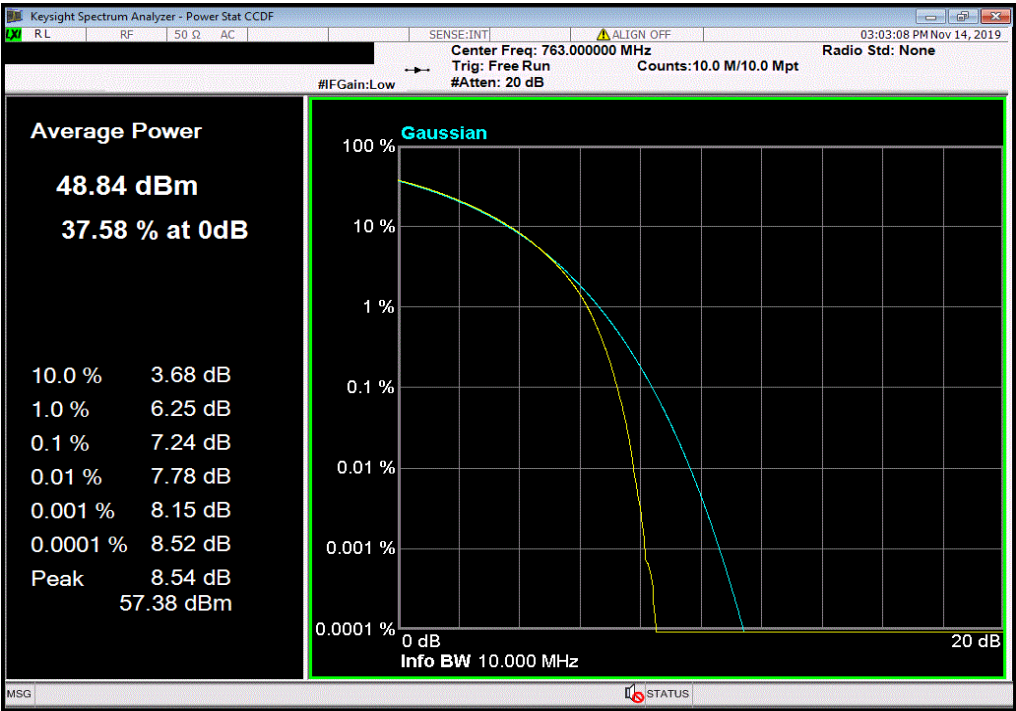


PEAK-TO-AVERAGE POWER RATIO (PAPR)



TbTx 2019.08.30.0 XMI 2019.09.05

Band 14, 256QAM Modulation, LTE10 Bandwidth, Single Channel, 763.0 MHz				
PAPR		Limit	Results	
Value (dB)		(dB)		
7.24		13	Pass	



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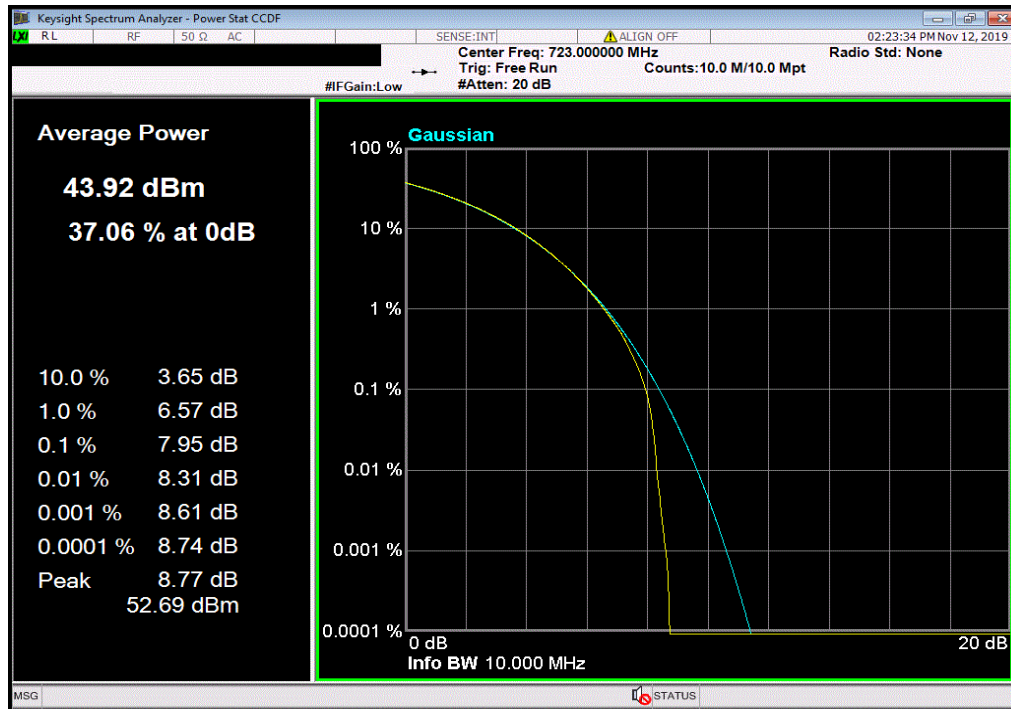
EUT: AHLBBA RRH		Work Order: NOKI0004	
Serial Number: K9193514835		Date: 18-Nov-19	
Customer: Nokia Solutions and Networks		Temperature: 22.4 °C	
Attendees: John Rattanaovong		Humidity: 29.6% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Jonathan Kiefer		Power: 54VDC	
Job Site: TX09			
TEST SPECIFICATIONS		Test Method	
FCC 27:2019		ANSI C63.26:2015	
COMMENTS			
Band 29 PAPR measurements for LTE5 channel bandwidth at Mid channel using 256QAM on Antenna Ports 1 & 4. EUT is operated at 100% duty cycle.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature <i>Jonathan Kiefer</i>	
		PAPR Value (dB)	Limit (dB) Results
Band 29	256QAM Modulation		
	LTE5 Bandwidth		
	Mid Channel, 723.0 MHz		
	Antenna Port 1	7.95	13 Pass
	Antenna Port 4	7.94	13 Pass

PEAK-TO-AVERAGE POWER RATIO (PAPR)

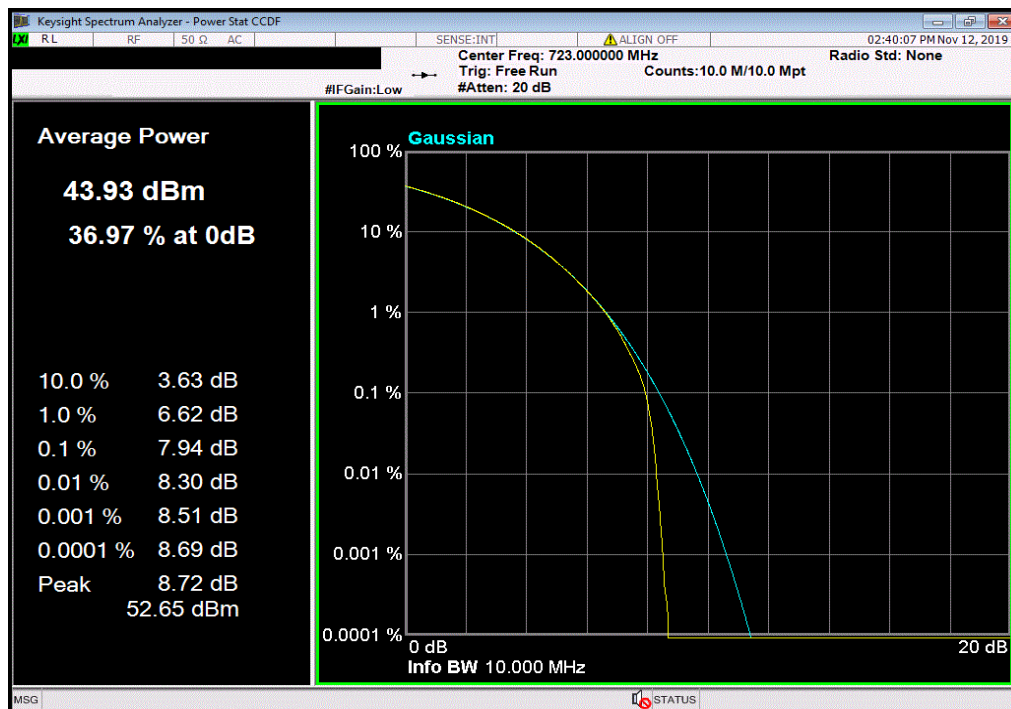


TbTx 2019.08.30.0 XMI 2019.09.05

Band 29, 256QAM Modulation, LTE5 Bandwidth, Mid Channel, 723.0 MHz, Antenna Port 1							
PAPR					Limit		Results
Value (dB)					(dB)		
					7.95	13	Pass



Band 29, 256QAM Modulation, LTE5 Bandwidth, Mid Channel, 723.0 MHz, Antenna Port 4						
PAPR				Limit		Results
Value (dB)				(dB)		
				7.94	13	Pass



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TSMTx 2019.08.30.0 XMM 2019.09.05

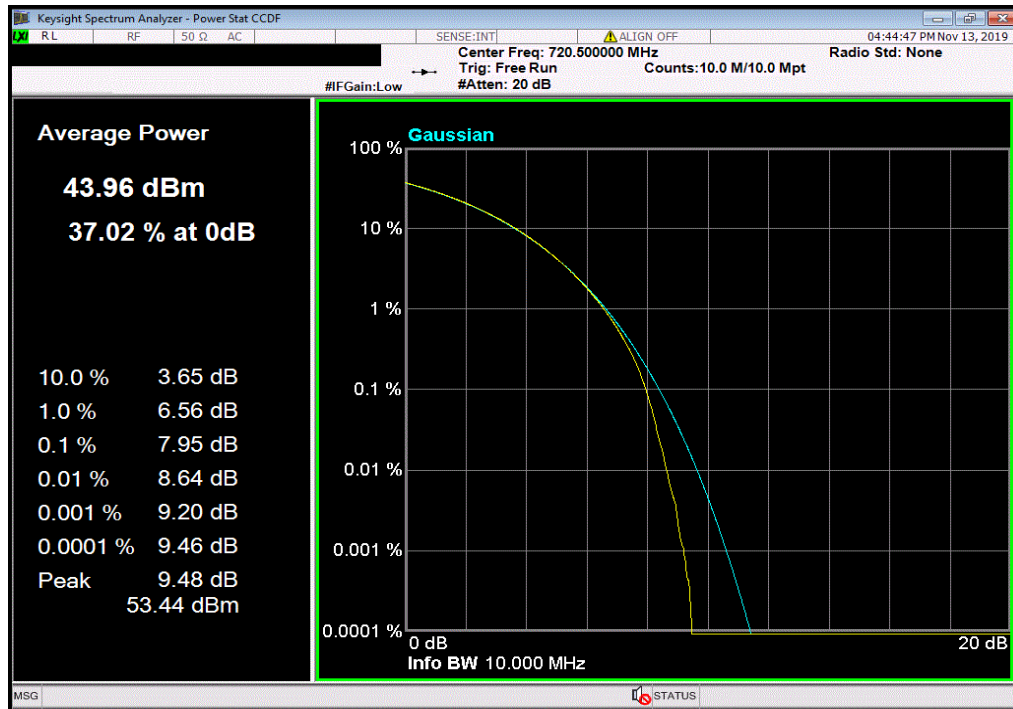
EUT: AHLBBA RRH		Work Order: NOKI0004	
Serial Number: K9193514835		Date: 18-Nov-19	
Customer: Nokia Solutions and Networks		Temperature: 22.4 °C	
Attendees: John Rattanaovong		Humidity: 29.6% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Jonathan Kiefer		Power: 54VDC	
Job Site: TX09			
TEST SPECIFICATIONS		Test Method	
FCC 27:2019		ANSI C63.26:2015	
COMMENTS			
Band 29 PAPR measurements for 256QAM modulation type at Low, Mid and High channels for LTE5 and LTE10 channel bandwidths. Tested on highest power antenna port (Port 1). EUT is operated at 100% duty cycle. Note: 256QAM LTE5 BW Mid channel data shown elsewhere in the report.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature <i>Jonathan Kiefer</i>	
		PAPR Value (dB)	Limit (dB) Results
Band 29			
256QAM Modulation			
LTE5 Bandwidth			
Low Channel, 720.5 MHz		7.95	13 Pass
High Channel, 725.5 MHz		8.05	13 Pass
LTE10 Bandwidth			
Single Channel, 723.0 MHz		8.1	13 Pass

PEAK-TO-AVERAGE POWER RATIO (PAPR)

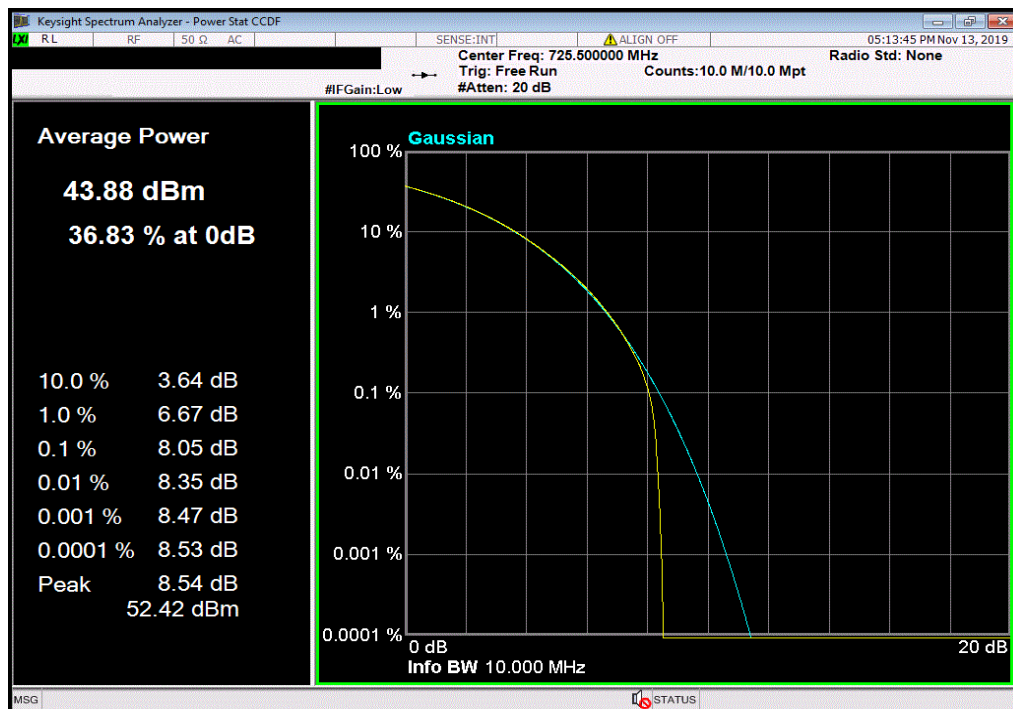


TbTx 2019.08.30.0 XMI 2019.09.05

Band 29, 256QAM Modulation, LTE5 Bandwidth, Low Channel, 720.5 MHz					
PAPR			Limit	Results	
Value (dB)			(dB)		
			7.95	13	Pass



Band 29, 256QAM Modulation, LTE5 Bandwidth, High Channel, 725.5 MHz					
PAPR			Limit	Results	
Value (dB)			(dB)		
			8.05	13	Pass

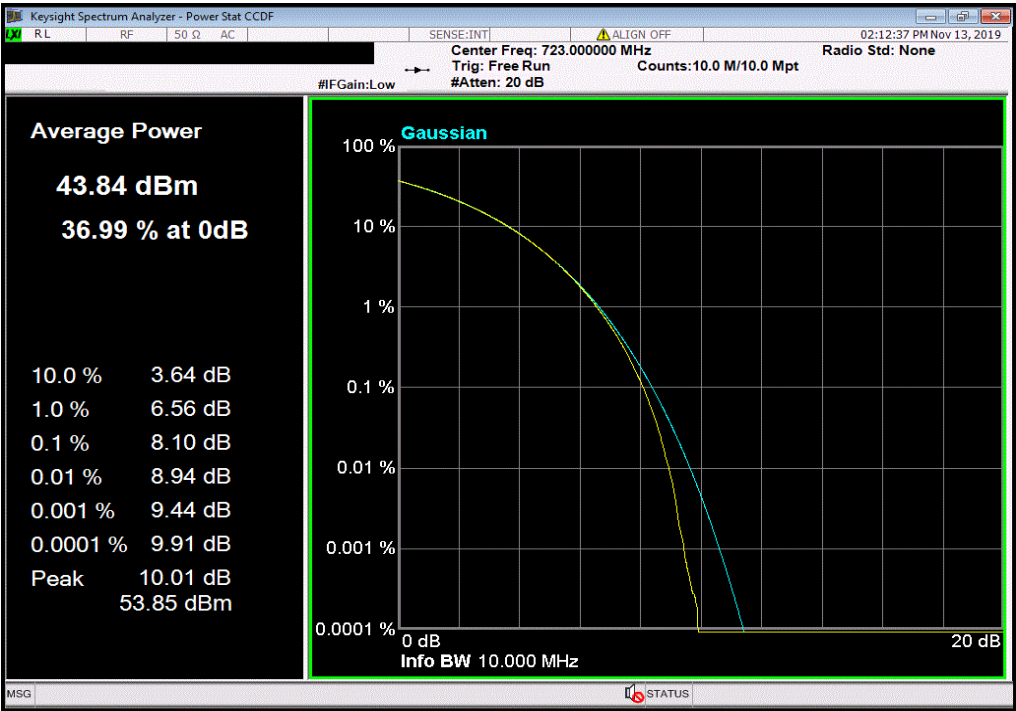


PEAK-TO-AVERAGE POWER RATIO (PAPR)



TbTx 2019.08.30.0 XMI 2019.09.05

Band 29, 256QAM Modulation, LTE10 Bandwidth, Single Channel, 723.0 MHz						
			PAPR	Limit		
			Value (dB)	(dB)	Results	
			8.1	13	Pass	



PEAK-TO-AVERAGE POWER RATIO (PAPR)



XMIT 2019.09.05

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5171B-506	TEW	2-May-18	2-May-21
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	19-Mar-19	19-Mar-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

Because the conducted Output Power was measured using a RMS Average detector, the Peak to Average Power Ratio (PAPR) was measured to show that the maximum peak-max-hold spectrum to the maximum of the average spectrum does not exceed 13 dB.

The PAPR measurement method is described in ANSI C63.26 section 5.2.3.4.

The PAPR was measured using the CCDF function of the spectrum analyzer.

PEAK-TO-AVERAGE POWER RATIO (PAPR)



TSTx 2019.08.30.0 XMI 2019.09.05

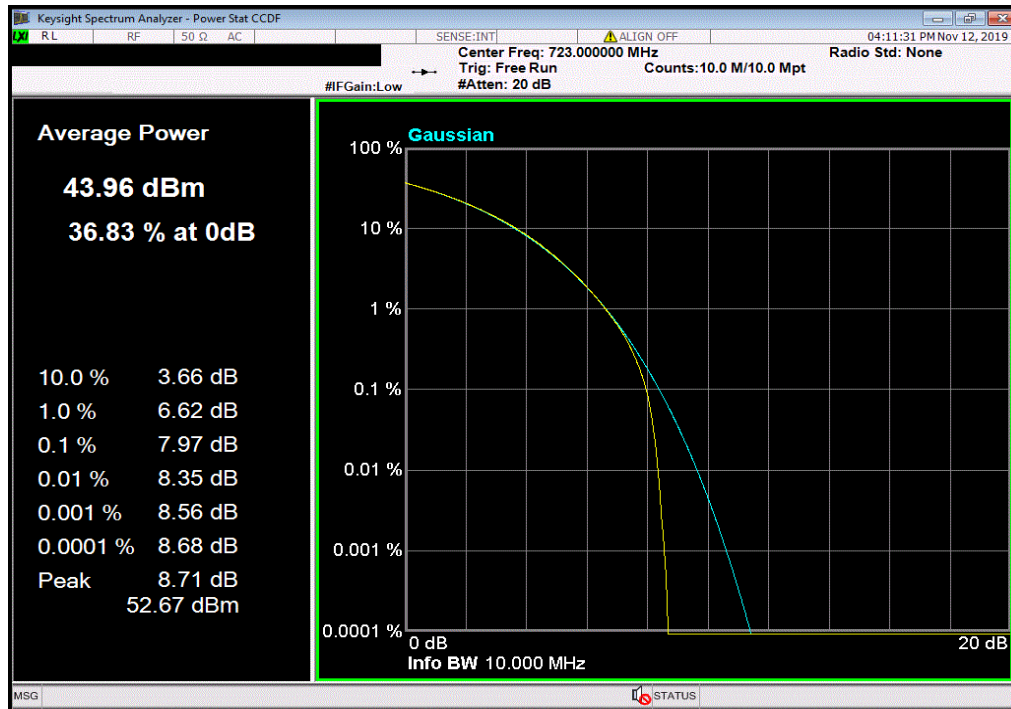
EUT: AHLBBA RRH		Work Order: NOKI0004	
Serial Number: K9193514835		Date: 18-Nov-19	
Customer: Nokia Solutions and Networks		Temperature: 22.4 °C	
Attendees: John Rattanaovong		Humidity: 29.6% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Jonathan Kiefer		Power: 54VDC	
		Job Site: TX09	
TEST SPECIFICATIONS		Test Method	
FCC 27:2019		ANSI C63.26:2015	
COMMENTS			
Band 29 PAPR measurements for LTE5 channel bandwidth at Mid channel for four modulation types. Tested on highest power antenna port (Port 1). EUT is operated at 100% duty cycle. Note 256QAM modulation data is shown elsewhere in the report.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature <i>Jonathan Kiefer</i>	
		PAPR Value (dB)	Limit (dB) Results
Band 29			
QPSK Modulation			
LTE5 Bandwidth			
Mid Channel, 723.0 MHz		7.97	13 Pass
16QAM Modulation			
LTE5 Bandwidth			
Mid Channel, 723.0 MHz		7.97	13 Pass
64QAM Modulation			
LTE5 Bandwidth			
Mid Channel, 723.0 MHz		7.96	13 Pass

PEAK-TO-AVERAGE POWER RATIO (PAPR)

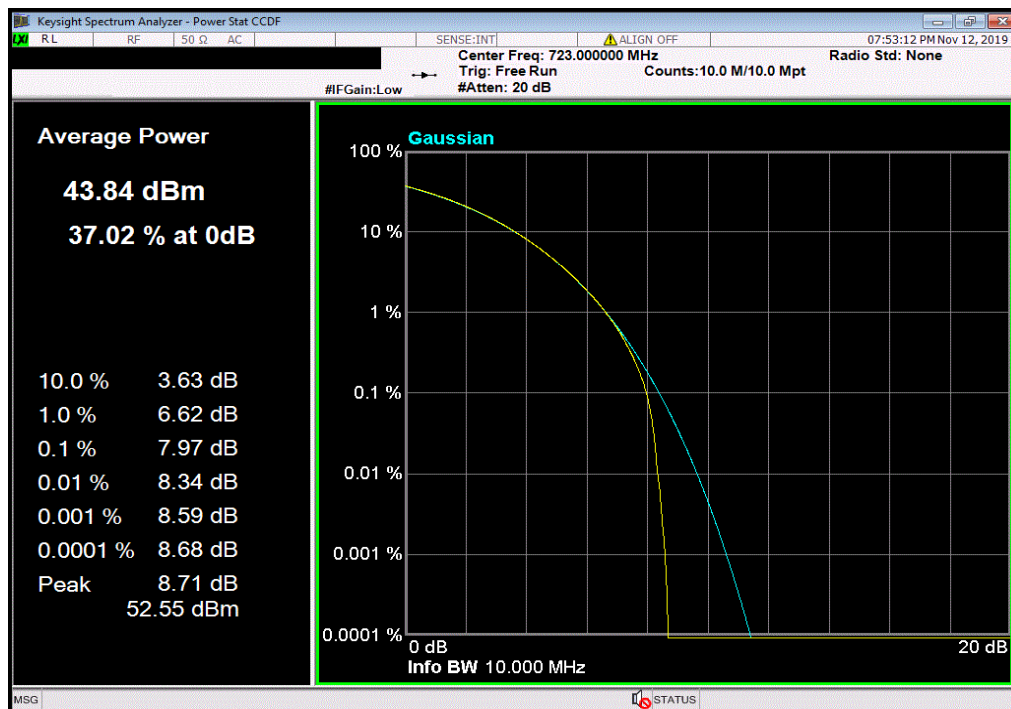


TbTx 2019.08.30.0 XMI 2019.09.05

Band 29, QPSK Modulation, LTE5 Bandwidth, Mid Channel, 723.0 MHz					
PAPR			Limit	Results	
Value (dB)			(dB)		
			7.97	13	Pass



Band 29, 16QAM Modulation, LTE5 Bandwidth, Mid Channel, 723.0 MHz					
PAPR			Limit	Results	
Value (dB)			(dB)		
			7.97	13	Pass

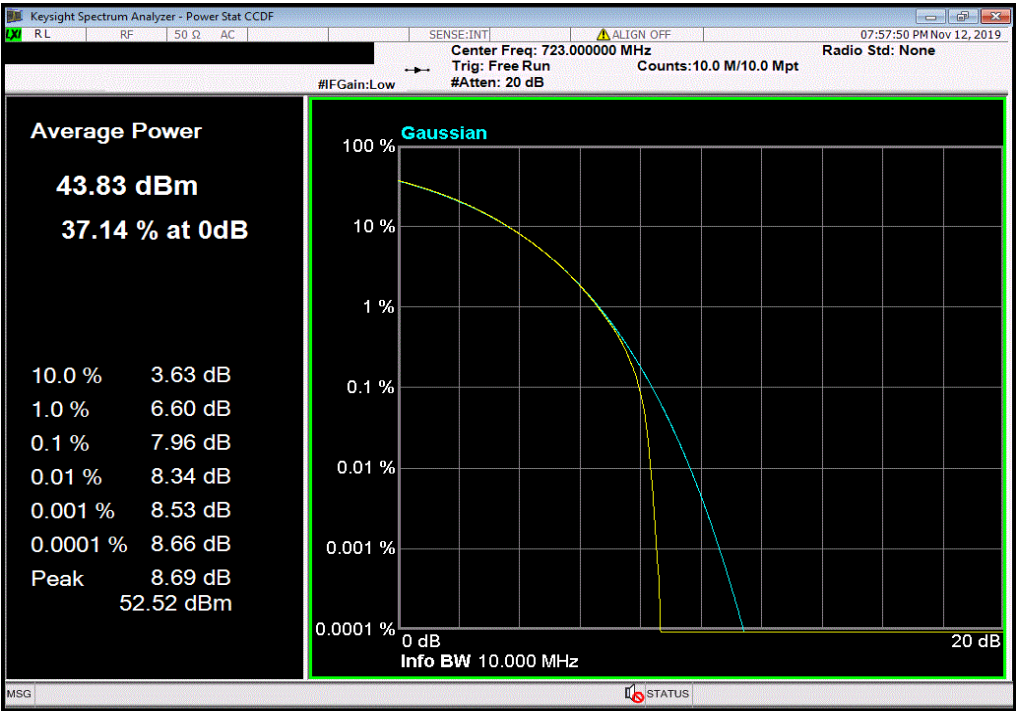


PEAK-TO-AVERAGE POWER RATIO (PAPR)



TbTx 2019.08.30.0 XMI 2019.09.05

Band 29, 64QAM Modulation, LTE5 Bandwidth, Mid Channel, 723.0 MHz							
				PAPR	Limit		
				Value (dB)	(dB)	Results	
				7.96	13	Pass	



OCCUPIED BANDWIDTH



XMIT 2019.09.05

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5171B-506	TEW	2-May-18	2-May-21
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	19-Mar-19	19-Mar-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The emissions bandwidth was measured using the channels and modes as called out on the following data sheets. The transmit power was set to its default maximum.

The method in section 5.4 of ANSI C63.26 was used to make the measurement.

The spectrum analyzer settings were as follows:

RBW = Approx. 1% of the emission bandwidth (B). This was an iterative process to determine the RBW based on the emissions bandwidth (B).

VBW=> RBW

A peak detector was used.

Trace max hold.

The spectrum analyzer occupied bandwidth measurement function was then used to measure the 26 dB emission bandwidth.

Band 12 Emission Designators for Port 1

Band 12 (729MHz to 744MHz) Emission Designators				
Channel Bandwidth	LTE-QPSK	LTE-16QAM	LTE-64QAM	LTE-256QAM
5M	4M86F9W	4M85F9W	4M87F9W	4M88F9W
10M	9M66F9W	9M66F9W	9M65F9W	9M67F9W
Note: Based on 26dB emission bandwidth				

OCCUPIED BANDWIDTH



TMTx 2019.08.30.0 XMI 2019.09.05

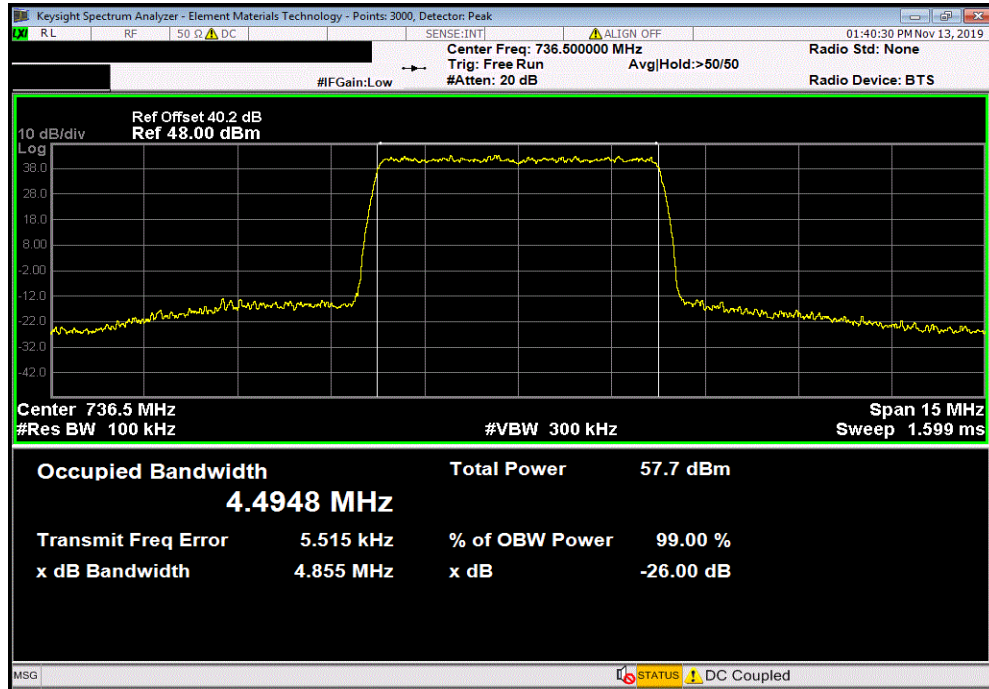
EUT: AHLBBA RRH		Work Order: NOKI0004	
Serial Number: K9193514835		Date: 18-Nov-19	
Customer: Nokia Solutions and Networks		Temperature: 22.4 °C	
Attendees: John Rattanaovong		Humidity: 29.6% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Jonathan Kiefer		Power: 54VDC	
		Job Site: TX09	
TEST SPECIFICATIONS		Test Method	
FCC 27:2019		ANSI C63.26:2015	
COMMENTS			
Band 12 emission bandwidth measurements for four modulation types at mid channel for LTE5 and LTE10 bandwidths. Tested on highest power antenna port (Port 1). EUT is operated at 100% duty cycle.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature <i>Jonathan Kiefer</i>	
		Value (MHz)	Limit Result
Band 12			
QPSK Modulation			
LTE5 Bandwidth			
	Mid Channel, 736.5 MHz	4.855 MHz	Within Band Pass
LTE10 Bandwidth			
	Mid Channel, 736.5 MHz	9.661 MHz	Within Band Pass
16QAM Modulation			
LTE5 Bandwidth			
	Mid Channel, 736.5 MHz	4.845 MHz	Within Band Pass
LTE10 Bandwidth			
	Mid Channel, 736.5 MHz	9.658 MHz	Within Band Pass
64QAM Modulation			
LTE5 Bandwidth			
	Mid Channel, 736.5 MHz	4.865 MHz	Within Band Pass
LTE10 Bandwidth			
	Mid Channel, 736.5 MHz	9.648 MHz	Within Band Pass
256QAM Modulation			
LTE5 Bandwidth			
	Mid Channel, 736.5 MHz	4.884 MHz	Within Band Pass
LTE10 Bandwidth			
	Mid Channel, 736.5 MHz	9.668 MHz	Within Band Pass

OCCUPIED BANDWIDTH

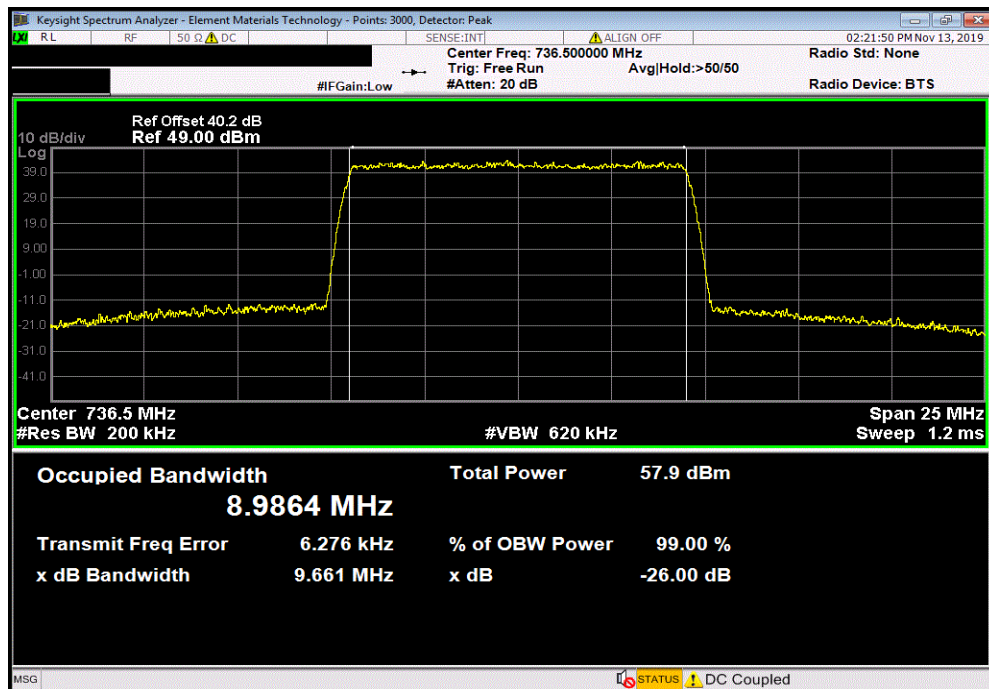


TbTx 2019.08.30.0 XMI 2019.09.05

Band 12, QPSK Modulation, LTE5 Bandwidth, Mid Channel, 736.5 MHz						
				Value (MHz)	Limit	Result
				4.855 MHz	Within Band	Pass



Band 12, QPSK Modulation, LTE10 Bandwidth, Mid Channel, 736.5 MHz						
				Value (MHz)	Limit	Result
				9.661 MHz	Within Band	Pass

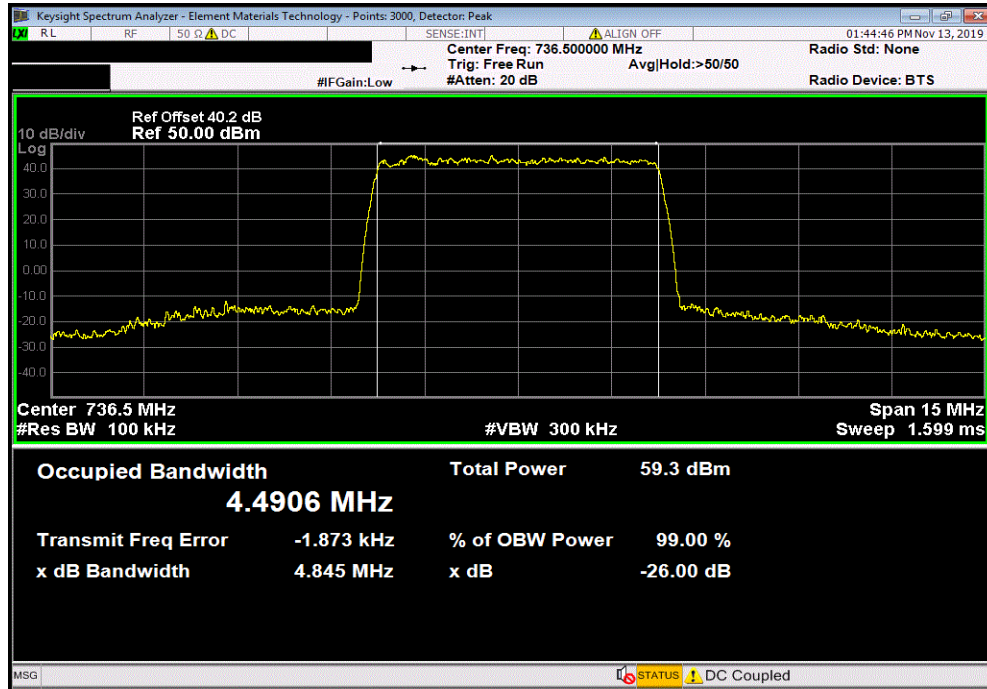


OCCUPIED BANDWIDTH

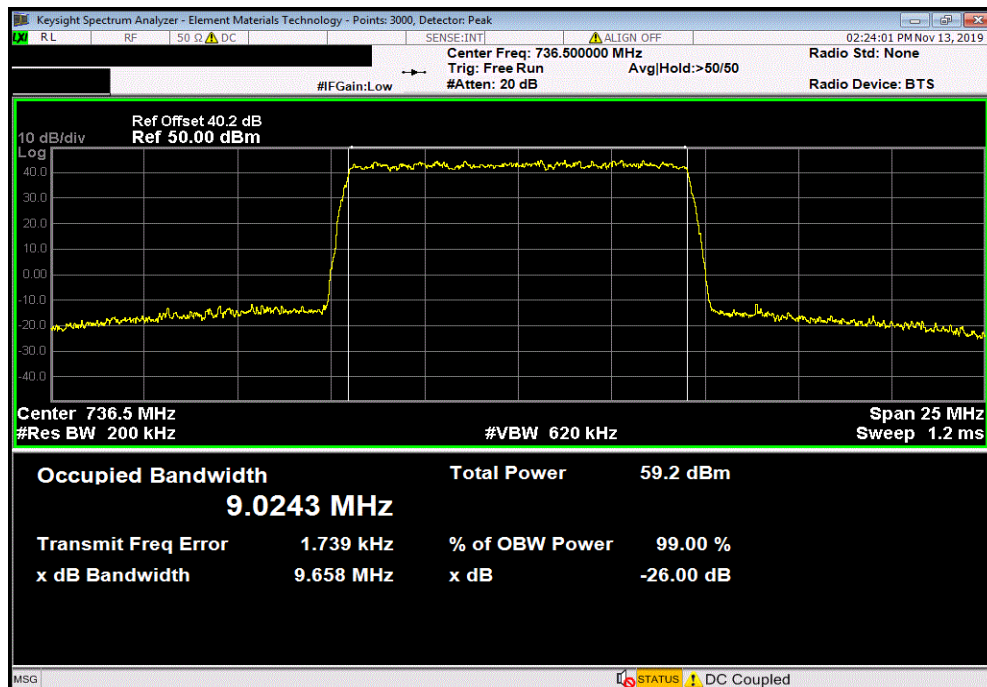


TbTx 2019.08.30.0 XMI 2019.09.05

Band 12, 16QAM Modulation, LTE5 Bandwidth, Mid Channel, 736.5 MHz						
				Value (MHz)	Limit	Result
				4.845 MHz	Within Band	Pass



Band 12, 16QAM Modulation, LTE10 Bandwidth, Mid Channel, 736.5 MHz						
				Value (MHz)	Limit	Result
				9.658 MHz	Within Band	Pass

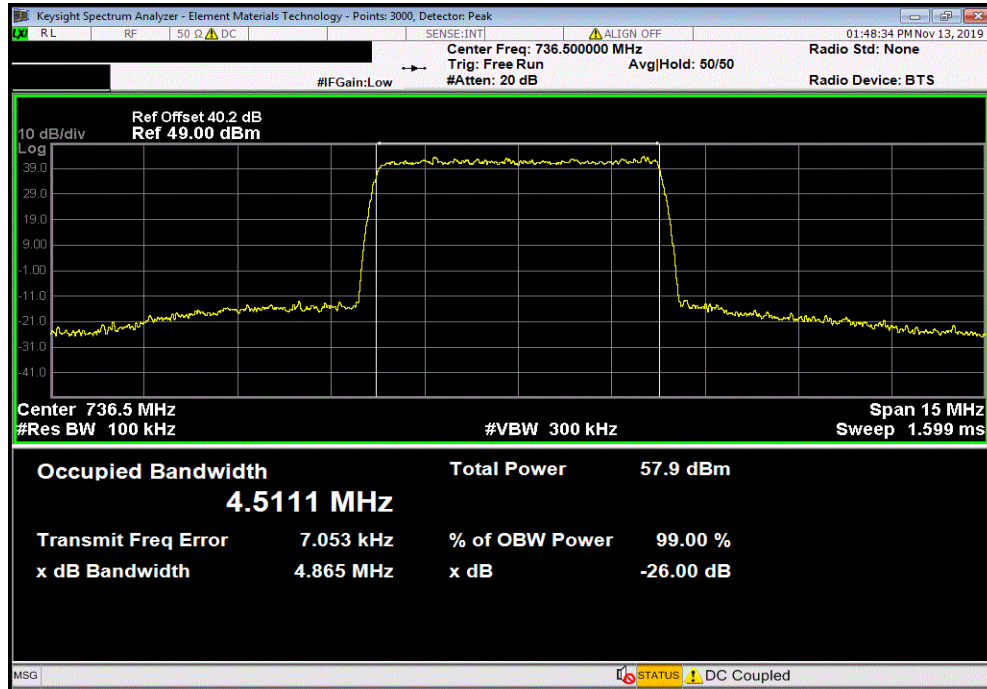


OCCUPIED BANDWIDTH

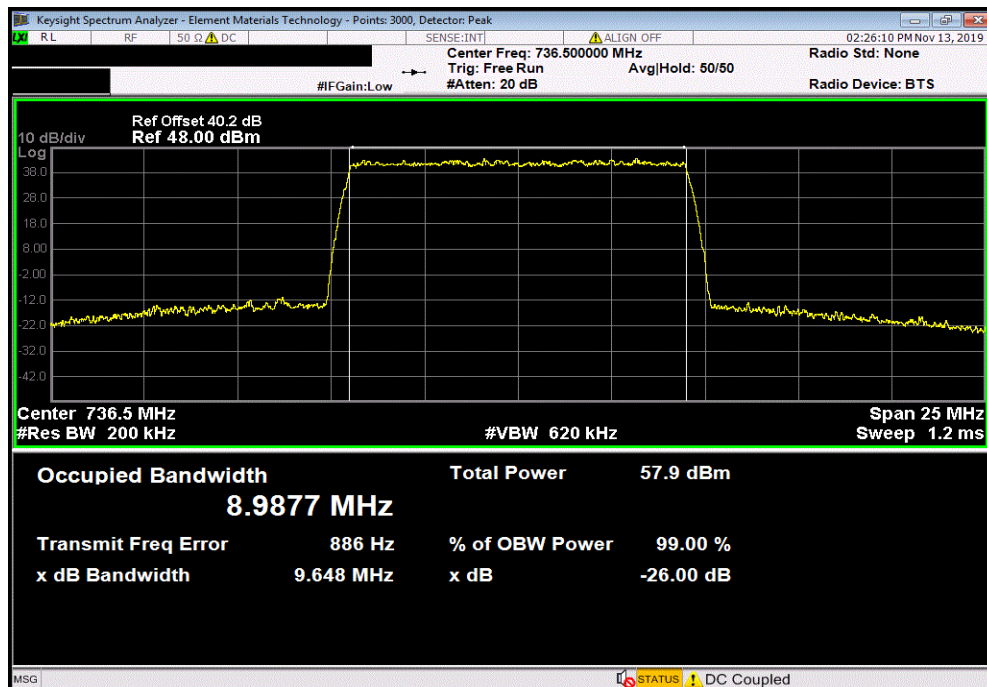


TbTx 2019.08.30.0 XMI 2019.09.05

Band 12, 64QAM Modulation, LTE5 Bandwidth, Mid Channel, 736.5 MHz						
				Value (MHz)	Limit	Result
				4.865 MHz	Within Band	Pass



Band 12, 64QAM Modulation, LTE10 Bandwidth, Mid Channel, 736.5 MHz						
				Value (MHz)	Limit	Result
				9.648 MHz	Within Band	Pass

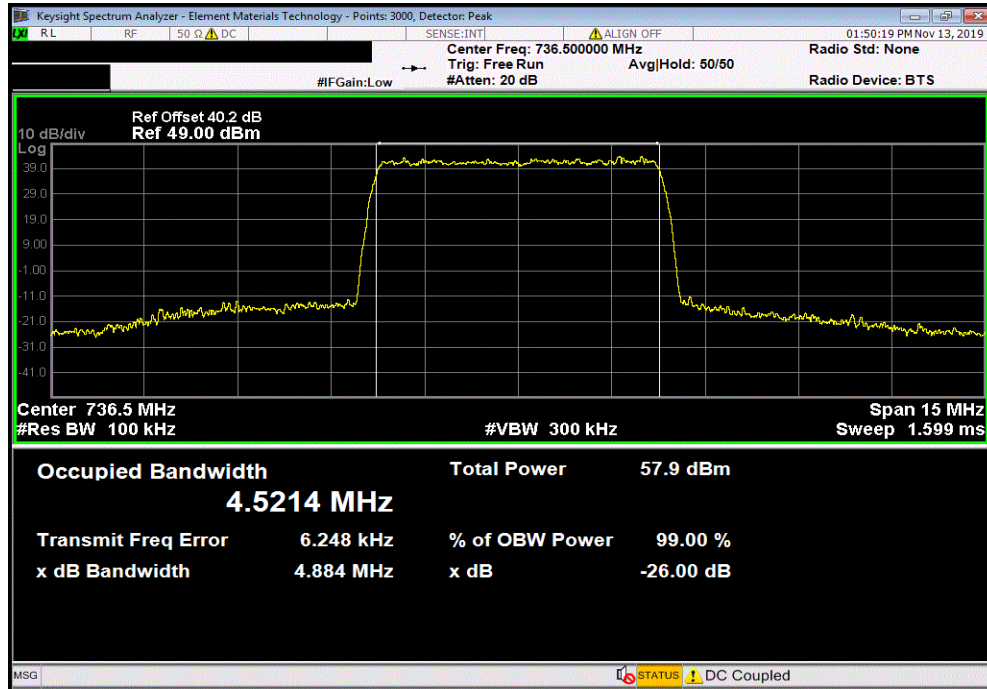


OCCUPIED BANDWIDTH

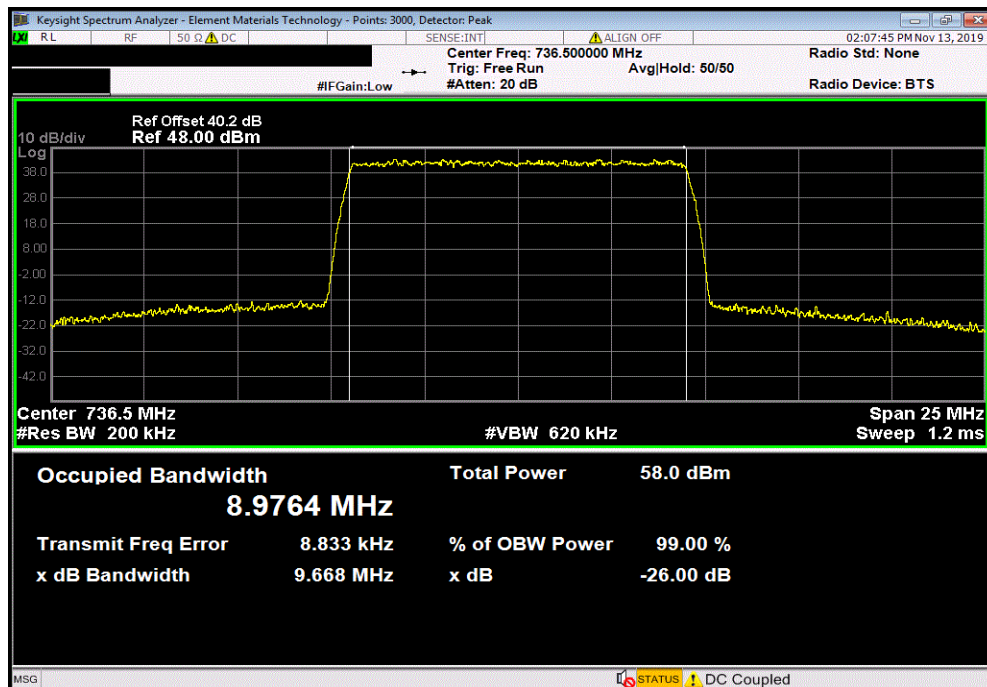


TbTx 2019.08.30.0 XMI 2019.09.05

Band 12, 256QAM Modulation, LTE5 Bandwidth, Mid Channel, 736.5 MHz						
				Value (MHz)	Limit	Result
				4.884 MHz	Within Band	Pass



Band 12, 256QAM Modulation, LTE10 Bandwidth, Mid Channel, 736.5 MHz						
				Value (MHz)	Limit	Result
				9.668 MHz	Within Band	Pass



OCCUPIED BANDWIDTH



XMIT 2019.09.05

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5171B-506	TEW	2-May-18	2-May-21
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	19-Mar-19	19-Mar-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The emissions bandwidth was measured using the channels and modes as called out on the following data sheets. The transmit power was set to its default maximum.

The method in section 5.4 of ANSI C63.26 was used to make the measurement.

The spectrum analyzer settings were as follows:

RBW = Approx. 1% of the emission bandwidth (B). This was an iterative process to determine the RBW based on the emissions bandwidth (B).

VBW=> RBW

A peak detector was used.

Trace max hold.

The spectrum analyzer occupied bandwidth measurement function was then used to measure the 26 dB emission bandwidth.

Band 12 Emission Designators for Port 2

Band 12 (729MHz to 744MHz) Emission Designators				
Channel Bandwidth	LTE-QPSK	LTE-16QAM	LTE-64QAM	LTE-256QAM
5M	4M86F9W	4M83F9W	4M86F9W	4M89F9W
10M	9M67F9W	9M67F9W	9M71F9W	9M67F9W
Note: Based on 26dB emission bandwidth				

OCCUPIED BANDWIDTH



TMTx 2019.08.30.0 XMI 2019.09.05

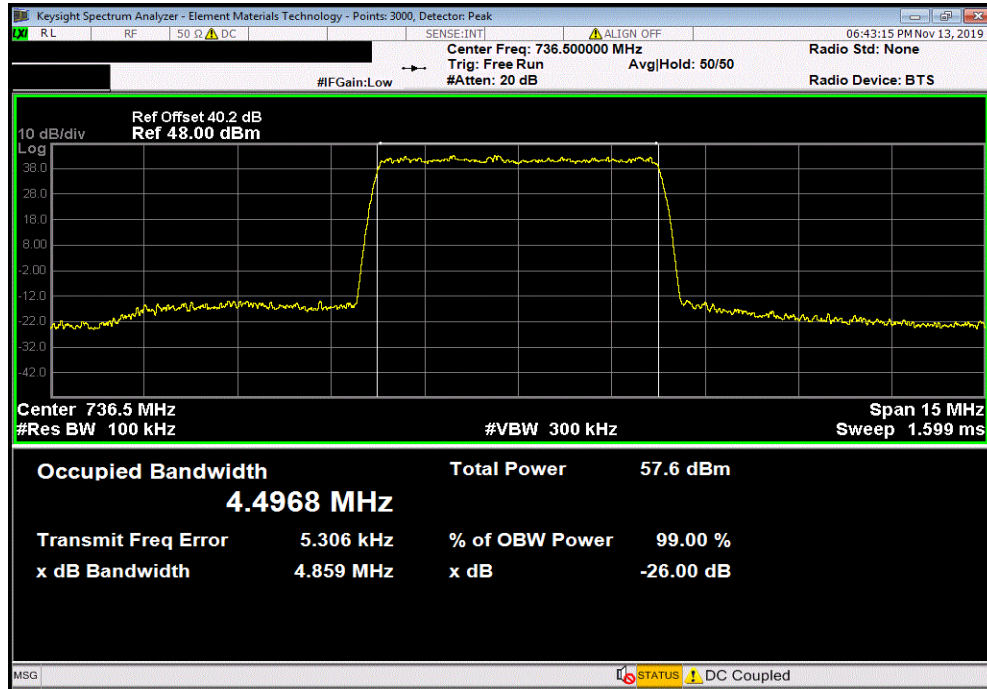
EUT: AHLBBA RRH		Work Order: NOKI0004	
Serial Number: K9193514835		Date: 18-Nov-19	
Customer: Nokia Solutions and Networks		Temperature: 22.4 °C	
Attendees: John Rattanaovong		Humidity: 29.7% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Jonathan Kiefer		Power: 54VDC	
		Job Site: TX09	
TEST SPECIFICATIONS		Test Method	
FCC 27:2019		ANSI C63.26:2015	
COMMENTS			
Band 12 emission bandwidth measurements for four modulation types at Mid channel for two channel bandwidths. Tested at highest power antenna port (Port 2). EUT is operated at 100% duty cycle.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature <i>Jonathan Kiefer</i>	
		Value (MHz)	Limit Result
Band 12			
QPSK Modulation			
LTE5 Bandwidth			
	Mid Channel, 736.5 MHz	4.859 MHz	Within Band Pass
LTE10 Bandwidth			
	Single Channel, 736.5 MHz	9.668 MHz	Within Band Pass
16QAM Modulation			
LTE5 Bandwidth			
	Mid Channel, 736.5 MHz	4.826 MHz	Within Band Pass
LTE10 Bandwidth			
	Single Channel, 736.5 MHz	9.673 MHz	Within Band Pass
64QAM Modulation			
LTE5 Bandwidth			
	Mid Channel, 736.5 MHz	4.859 MHz	Within Band Pass
LTE10 Bandwidth			
	Single Channel, 736.5 MHz	9.712 MHz	Within Band Pass
256QAM Modulation			
LTE5 Bandwidth			
	Mid Channel, 736.5 MHz	4.893 MHz	Within Band Pass
LTE10 Bandwidth			
	Single Channel, 736.5 MHz	9.668 MHz	Within Band Pass

OCCUPIED BANDWIDTH

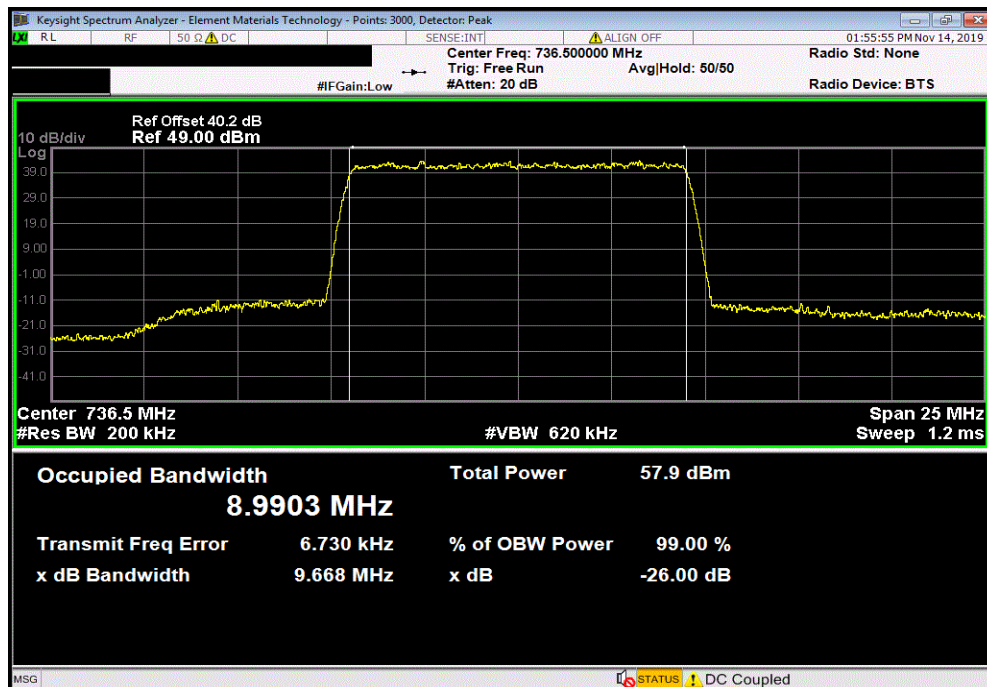


TbTx 2019.08.30.0 XMI 2019.09.05

Band 12, QPSK Modulation, LTE5 Bandwidth, Mid Channel, 736.5 MHz						
				Value (MHz)	Limit	Result
				4.859 MHz	Within Band	Pass



Band 12, QPSK Modulation, LTE10 Bandwidth, Single Channel, 736.5 MHz						
				Value (MHz)	Limit	Result
				9.668 MHz	Within Band	Pass

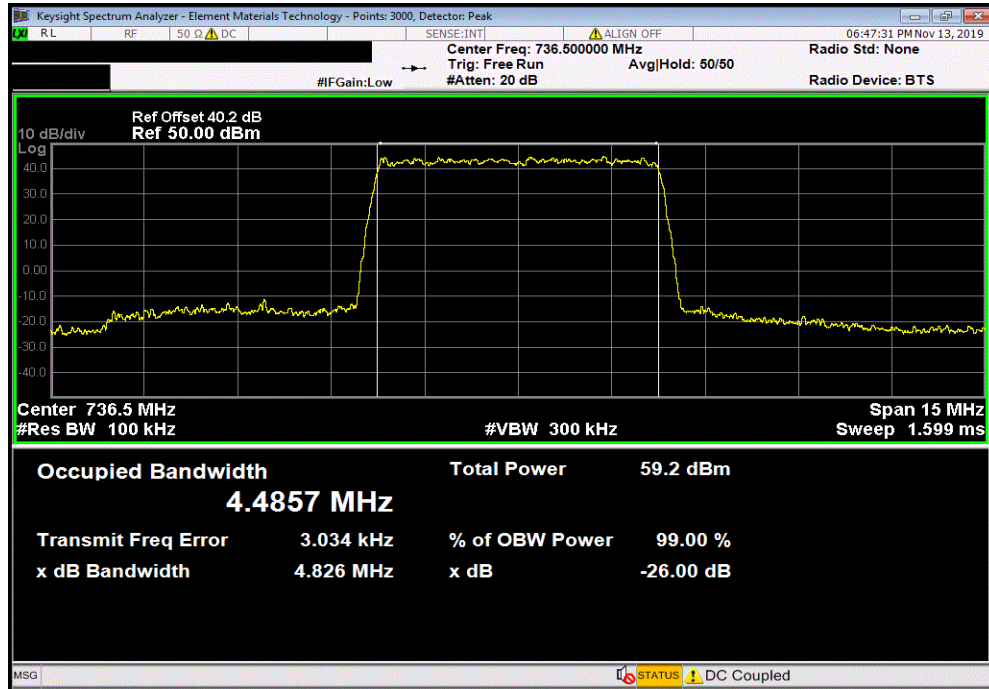


OCCUPIED BANDWIDTH

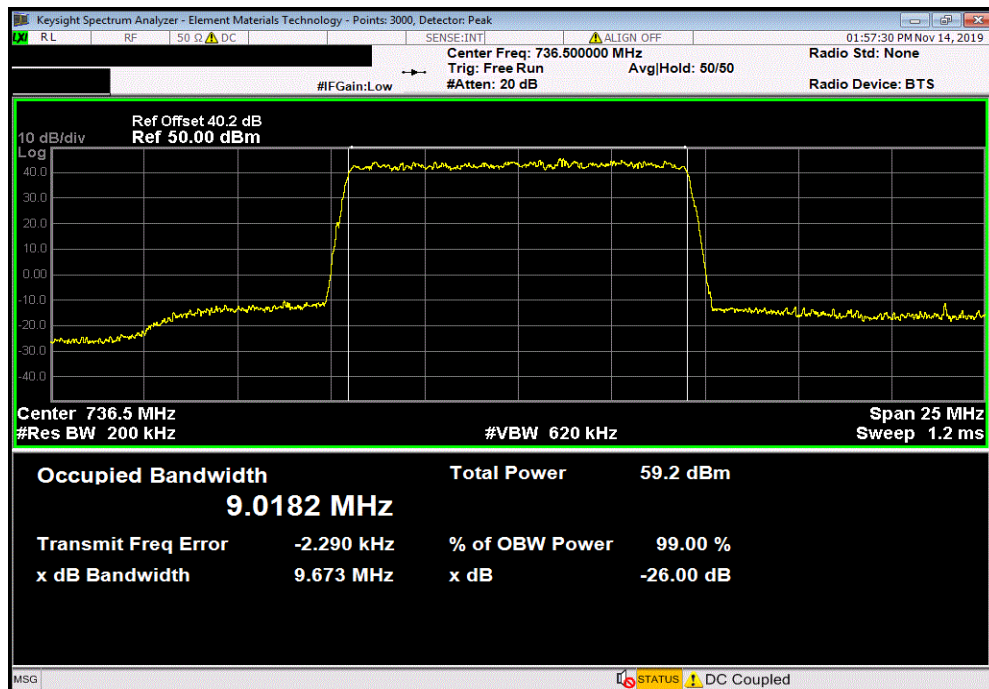


TbTx 2019.08.30.0 XMI 2019.09.05

Band 12, 16QAM Modulation, LTE5 Bandwidth, Mid Channel, 736.5 MHz						
				Value (MHz)	Limit	Result
				4.826 MHz	Within Band	Pass



Band 12, 16QAM Modulation, LTE10 Bandwidth, Single Channel, 736.5 MHz						
				Value (MHz)	Limit	Result
				9.673 MHz	Within Band	Pass

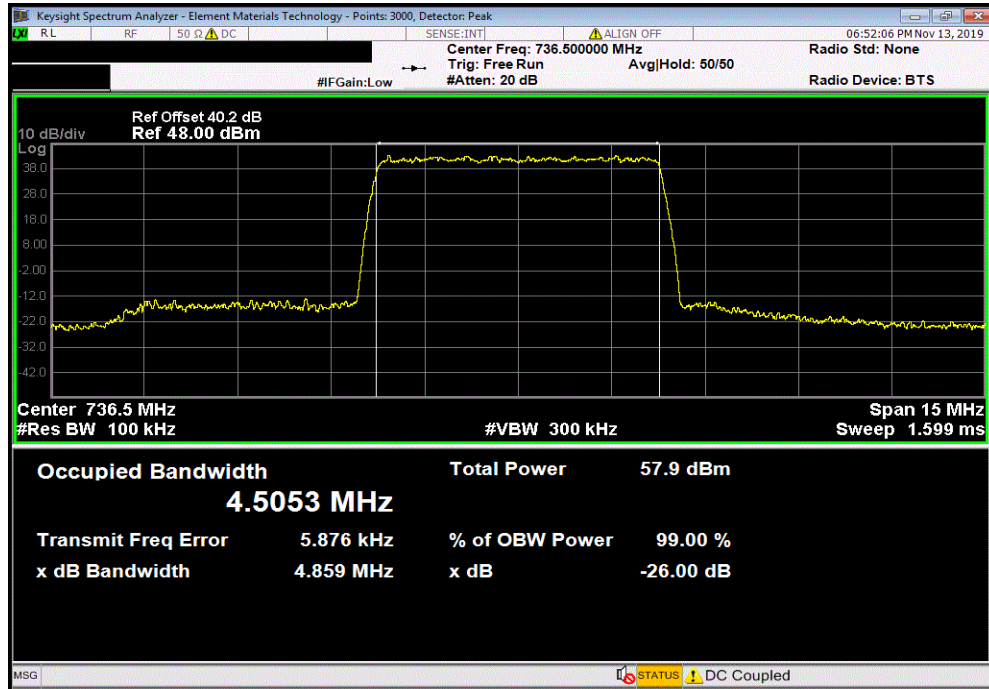


OCCUPIED BANDWIDTH

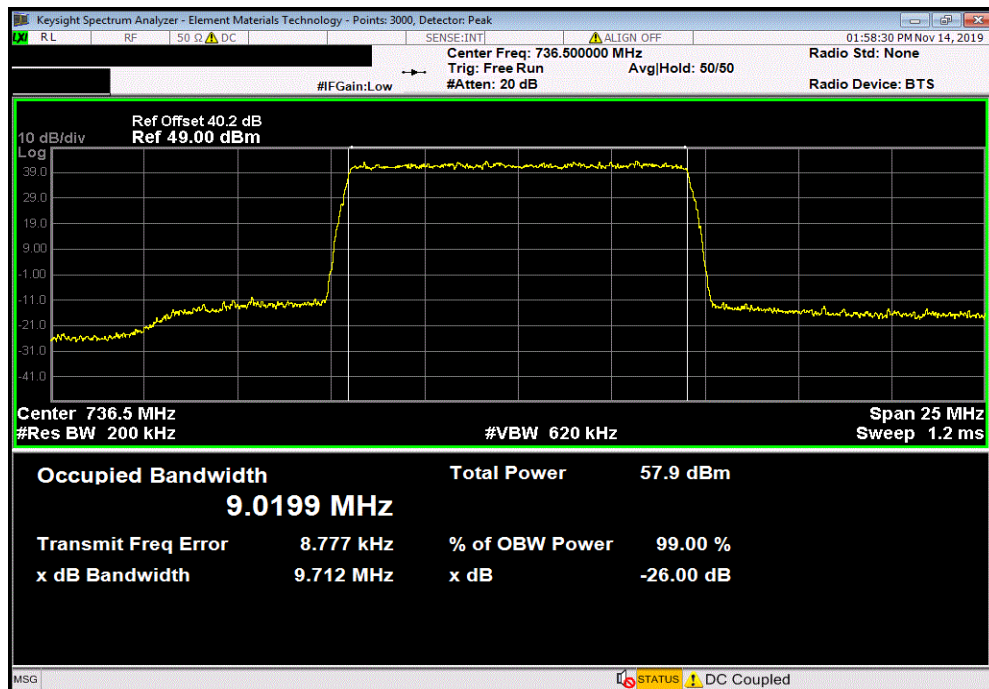


TbTtX 2019.08.30.0 XMI 2019.09.05

Band 12, 64QAM Modulation, LTE5 Bandwidth, Mid Channel, 736.5 MHz						
				Value (MHz)	Limit	Result
				4.859 MHz	Within Band	Pass



Band 12, 64QAM Modulation, LTE10 Bandwidth, Single Channel, 736.5 MHz						
				Value (MHz)	Limit	Result
				9.712 MHz	Within Band	Pass

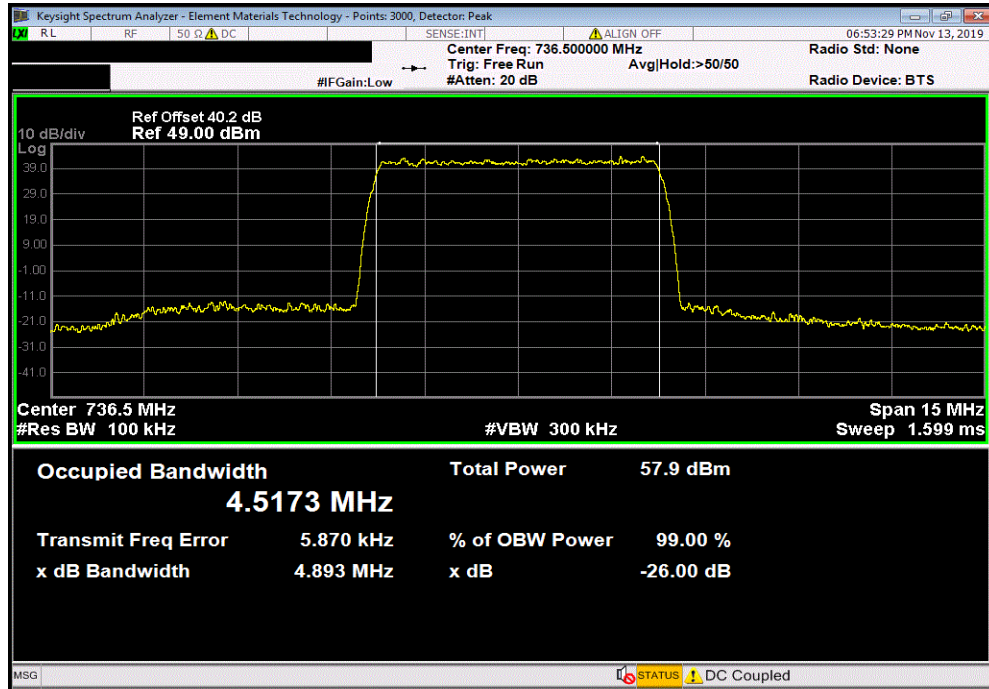


OCCUPIED BANDWIDTH

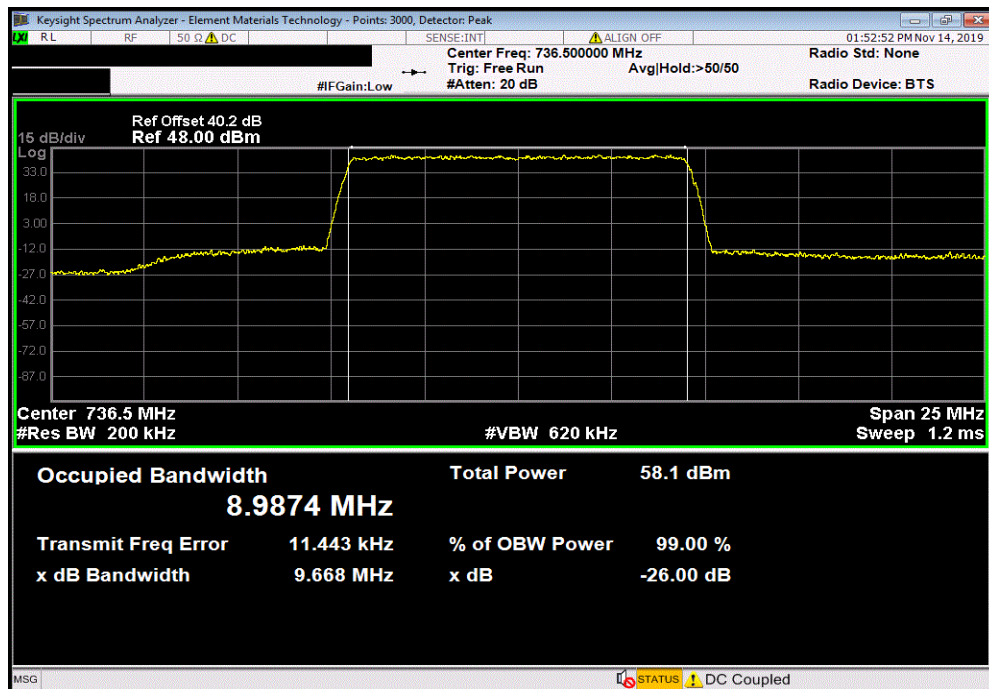


TbTx 2019.08.30.0 XMI 2019.09.05

Band 12, 256QAM Modulation, LTE5 Bandwidth, Mid Channel, 736.5 MHz						
				Value (MHz)	Limit	Result
				4.893 MHz	Within Band	Pass



Band 12, 256QAM Modulation, LTE10 Bandwidth, Single Channel, 736.5 MHz						
				Value (MHz)	Limit	Result
				9.668 MHz	Within Band	Pass



OCCUPIED BANDWIDTH



XMI 2019.09.05

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5171B-506	TEW	2-May-18	2-May-21
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	19-Mar-19	19-Mar-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The emissions bandwidth was measured using the channels and modes as called out on the following data sheets. The transmit power was set to its default maximum.

The method in section 5.4 of ANSI C63.26 was used to make the measurement.

The spectrum analyzer settings were as follows:

RBW = Approx. 1% of the emission bandwidth (B). This was an iterative process to determine the RBW based on the emissions bandwidth (B).

VBW=> RBW

A peak detector was used.

Trace max hold.

The spectrum analyzer occupied bandwidth measurement function was then used to measure the 26 dB emission bandwidth.

Band 14 Emission Designators for Port 1

Band 14 (758MHz to 768MHz) Emission Designators				
Channel Bandwidth	LTE-QPSK	LTE-16QAM	LTE-64QAM	LTE-256QAM
5M	4M86F9W	4M83F9W	4M85F9W	4M86F9W
10M	9M58F9W	9M59F9W	9M57F9W	9M55F9W
Note: Based on 26dB emission bandwidth				

OCCUPIED BANDWIDTH



TMTx 2019.08.30.0 XMM 2019.09.05

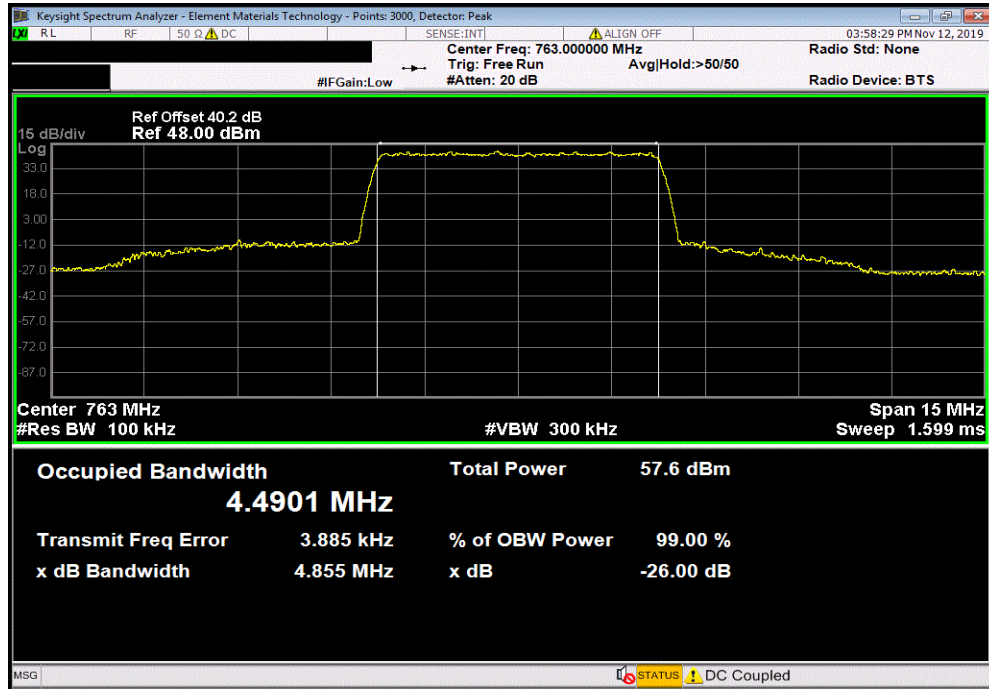
EUT: AHLBBA RRH		Work Order: NOKI0004	
Serial Number: K9193514835		Date: 18-Nov-19	
Customer: Nokia Solutions and Networks		Temperature: 22.4 °C	
Attendees: John Rattanaovong		Humidity: 29.6% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Jonathan Kiefer		Power: 54VDC	
		Job Site: TX09	
TEST SPECIFICATIONS		Test Method	
FCC 901:2019		ANSI C63.26:2015	
COMMENTS			
Band 14 emission bandwidth measurements for four modulation types at Mid channel for two channel bandwidths. Tested at highest power antenna port (Port 1). EUT is operated at 100% duty cycle.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature <i>Jonathan Kiefer</i>	
		Value (MHz)	Limit Result
Band 14			
QPSK Modulation			
LTE5 Bandwidth			
	Mid Channel, 763.0 MHz	4.855 MHz	Within Band Pass
LTE10 Bandwidth			
	Single Channel, 763.0 MHz	9.581 MHz	Within Band Pass
16QAM Modulation			
LTE5 Bandwidth			
	Mid Channel, 763.0 MHz	4.828 MHz	Within Band Pass
LTE10 Bandwidth			
	Single Channel, 763.0 MHz	9.588 MHz	Within Band Pass
64QAM Modulation			
LTE5 Bandwidth			
	Mid Channel, 763.0 MHz	4.853 MHz	Within Band Pass
LTE10 Bandwidth			
	Single Channel, 763.0 MHz	9.565 MHz	Within Band Pass
256QAM Modulation			
LTE5 Bandwidth			
	Mid Channel, 763.0 MHz	4.856 MHz	Within Band Pass
LTE10 Bandwidth			
	Single Channel, 763.0 MHz	9.554 MHz	Within Band Pass

OCCUPIED BANDWIDTH

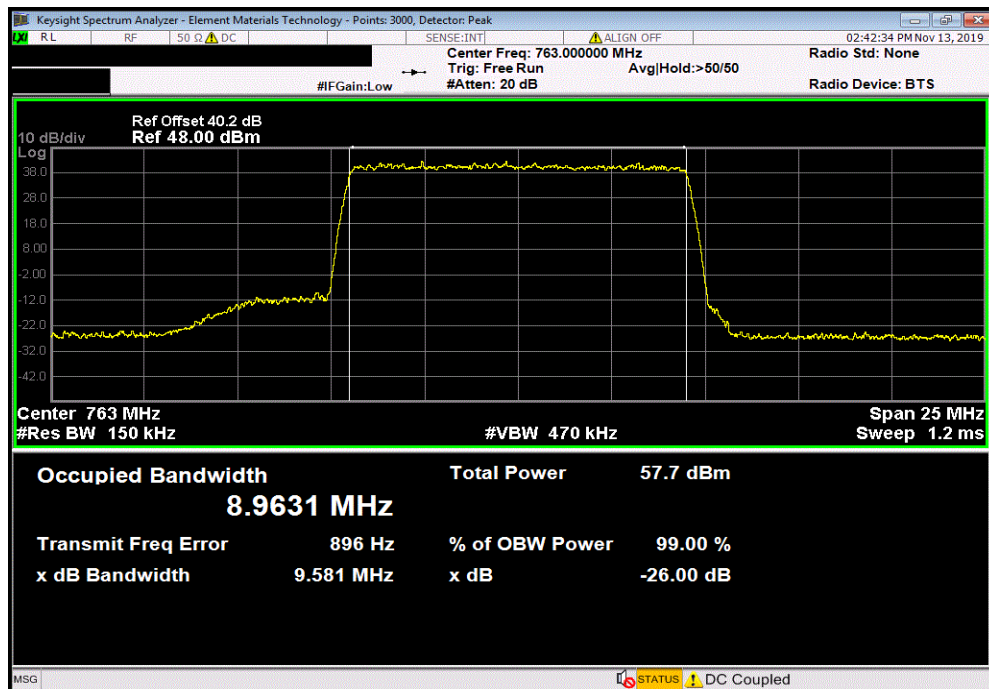


TbTx 2019.08.30.0 XMt 2019.09.05

Band 14, QPSK Modulation, LTE5 Bandwidth, Mid Channel, 763.0 MHz						
				Value (MHz)	Limit	Result
				4.855 MHz	Within Band	Pass



Band 14, QPSK Modulation, LTE10 Bandwidth, Single Channel, 763.0 MHz						
				Value (MHz)	Limit	Result
				9.581 MHz	Within Band	Pass

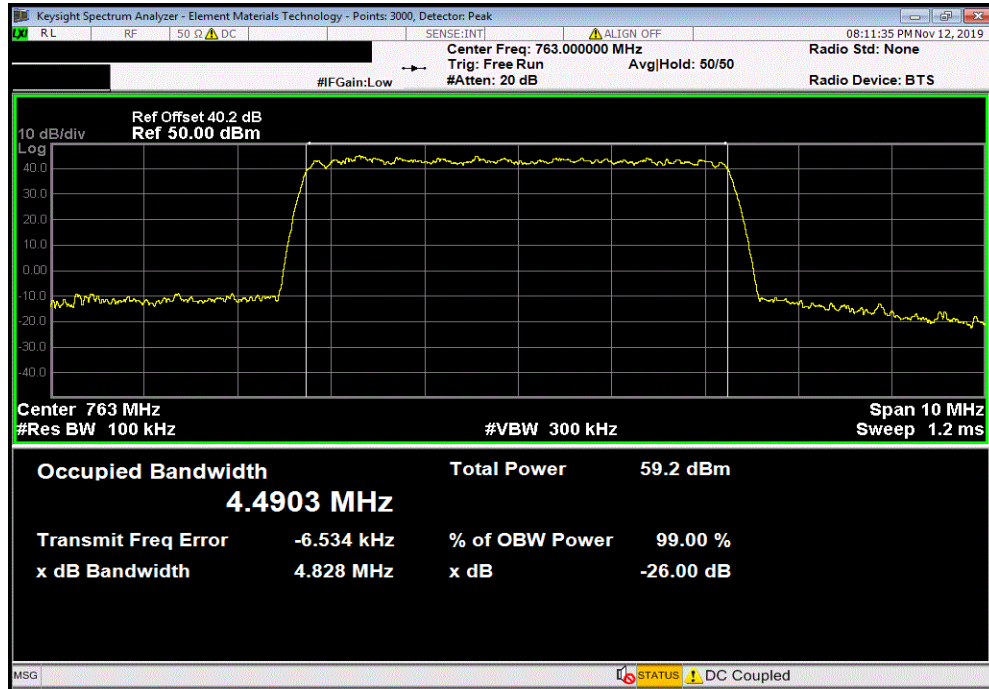


OCCUPIED BANDWIDTH

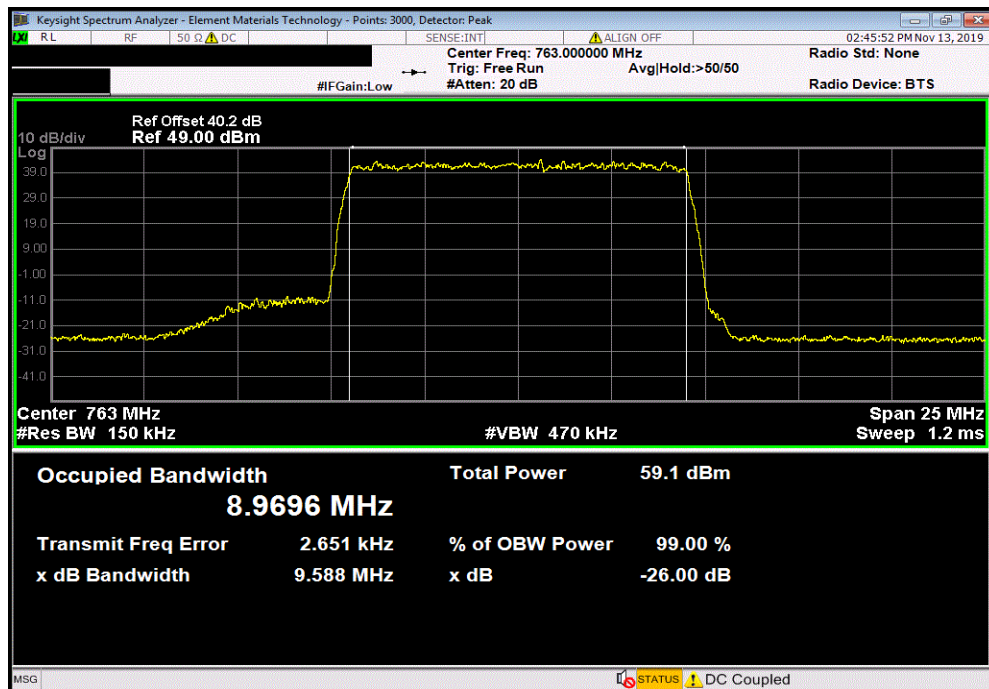


TbTx 2019.08.30.0 XMt 2019.09.05

Band 14, 16QAM Modulation, LTE5 Bandwidth, Mid Channel, 763.0 MHz						
				Value (MHz)	Limit	Result
				4.828 MHz	Within Band	Pass



Band 14, 16QAM Modulation, LTE10 Bandwidth, Single Channel, 763.0 MHz						
				Value (MHz)	Limit	Result
				9.588 MHz	Within Band	Pass

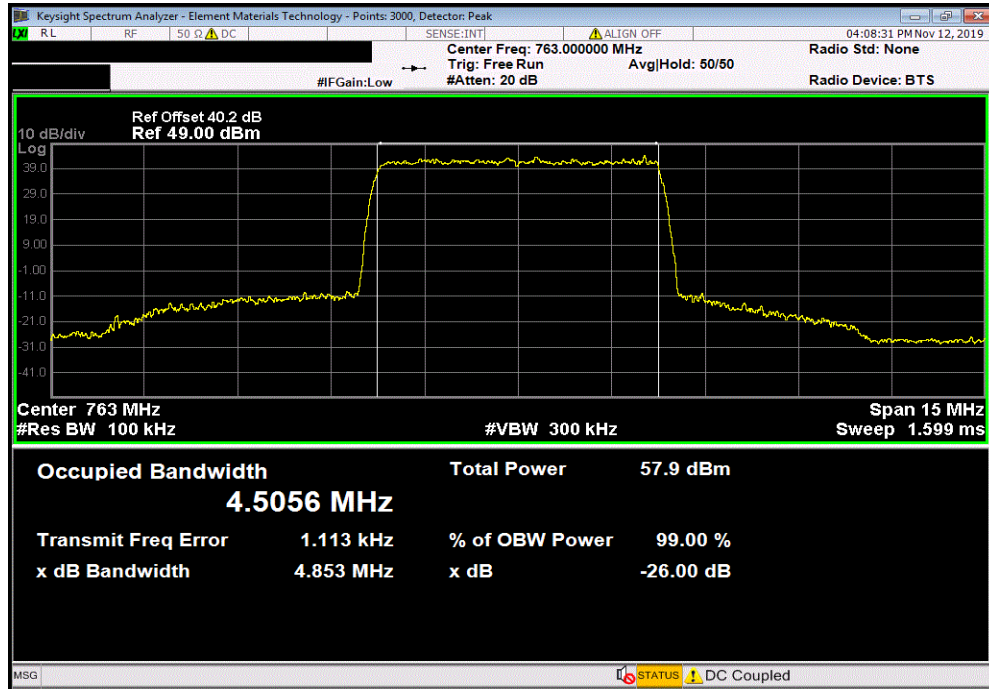


OCCUPIED BANDWIDTH

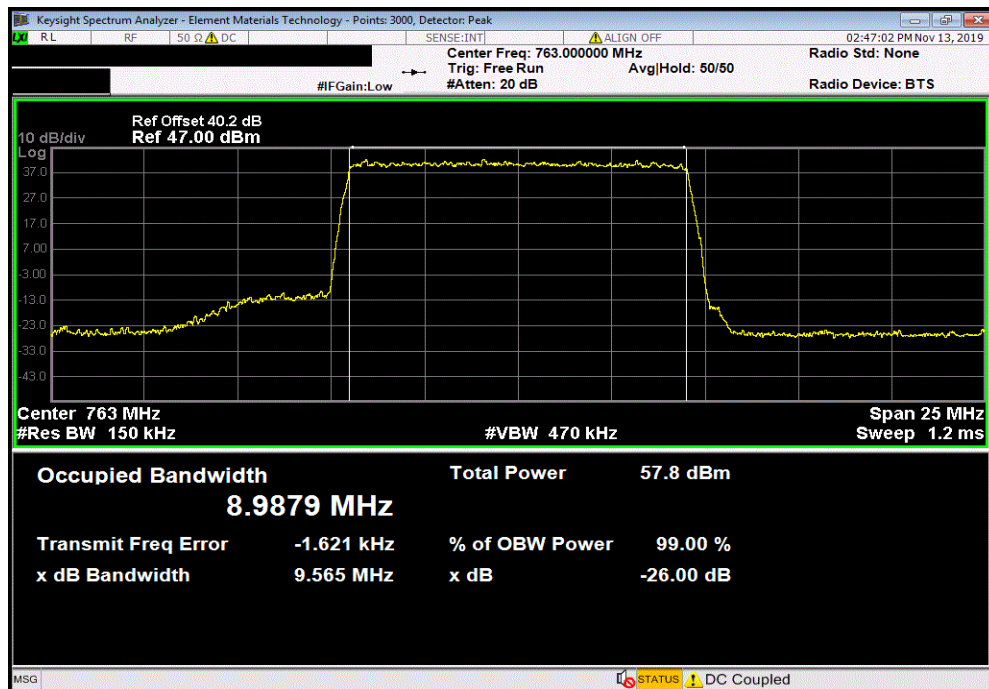


TbTx 2019.08.30.0 XMI 2019.09.05

Band 14, 64QAM Modulation, LTE5 Bandwidth, Mid Channel, 763.0 MHz						
				Value (MHz)	Limit	Result
				4.853 MHz	Within Band	Pass



Band 14, 64QAM Modulation, LTE10 Bandwidth, Single Channel, 763.0 MHz						
				Value (MHz)	Limit	Result
				9.565 MHz	Within Band	Pass

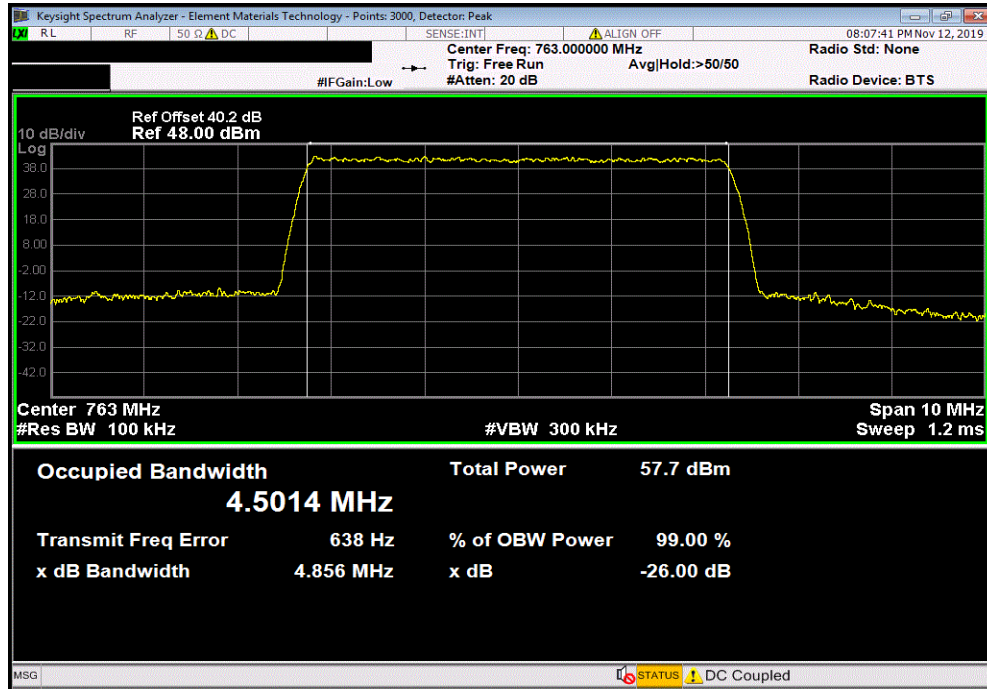


OCCUPIED BANDWIDTH

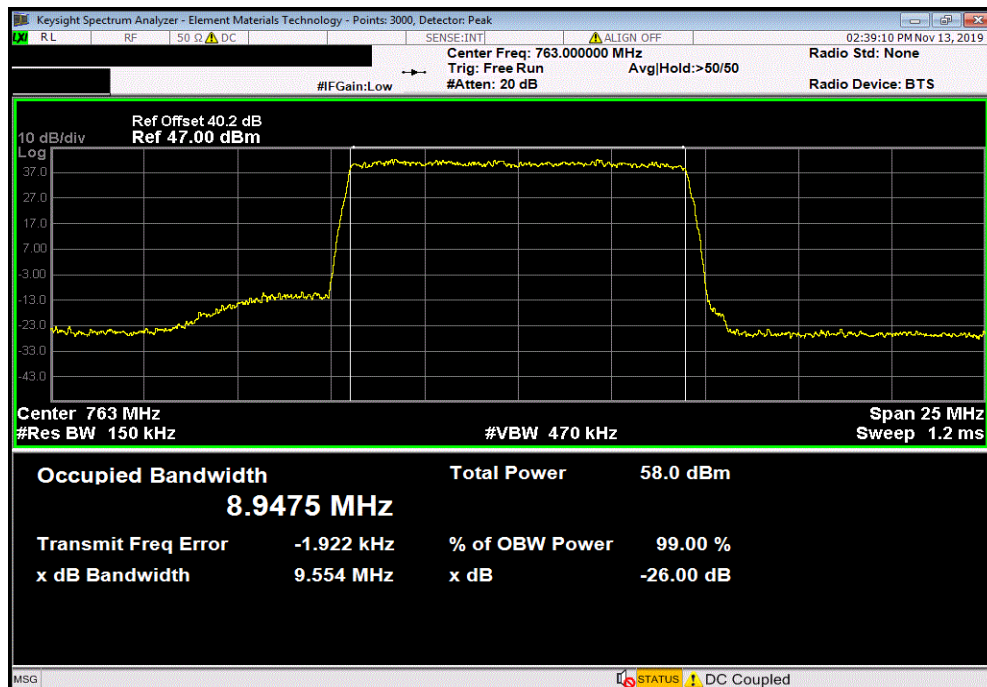


TbTx 2019.08.30.0 XMI 2019.09.05

Band 14, 256QAM Modulation, LTE5 Bandwidth, Mid Channel, 763.0 MHz						
				Value (MHz)	Limit	Result
				4.856 MHz	Within Band	Pass



Band 14, 256QAM Modulation, LTE10 Bandwidth, Single Channel, 763.0 MHz						
				Value (MHz)	Limit	Result
				9.554 MHz	Within Band	Pass



OCCUPIED BANDWIDTH



XMIT 2019.09.05

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5171B-506	TEW	2-May-18	2-May-21
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	19-Mar-19	19-Mar-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The emissions bandwidth was measured using the channels and modes as called out on the following data sheets. The transmit power was set to its default maximum.

The method in section 5.4 of ANSI C63.26 was used to make the measurement.

The spectrum analyzer settings were as follows:

RBW = Approx. 1% of the emission bandwidth (B). This was an iterative process to determine the RBW based on the emissions bandwidth (B).

VBW=> RBW

A peak detector was used.

Trace max hold.

The spectrum analyzer occupied bandwidth measurement function was then used to measure the 26 dB emission bandwidth.

Band 14 Emission Designators for Port 2

Band 14 (758MHz to 768MHz) Emission Designators				
Channel Bandwidth	LTE-QPSK	LTE-16QAM	LTE-64QAM	LTE-256QAM
5M	?F9W	4M83F9W	4M86F9W	4M86F9W
10M	9M44F9W	9M55F9W	9M62F9W	9M59F9W
Note: Based on 26dB emission bandwidth				

OCCUPIED BANDWIDTH



TMTx 2019.08.30.0 XMI 2019.09.05

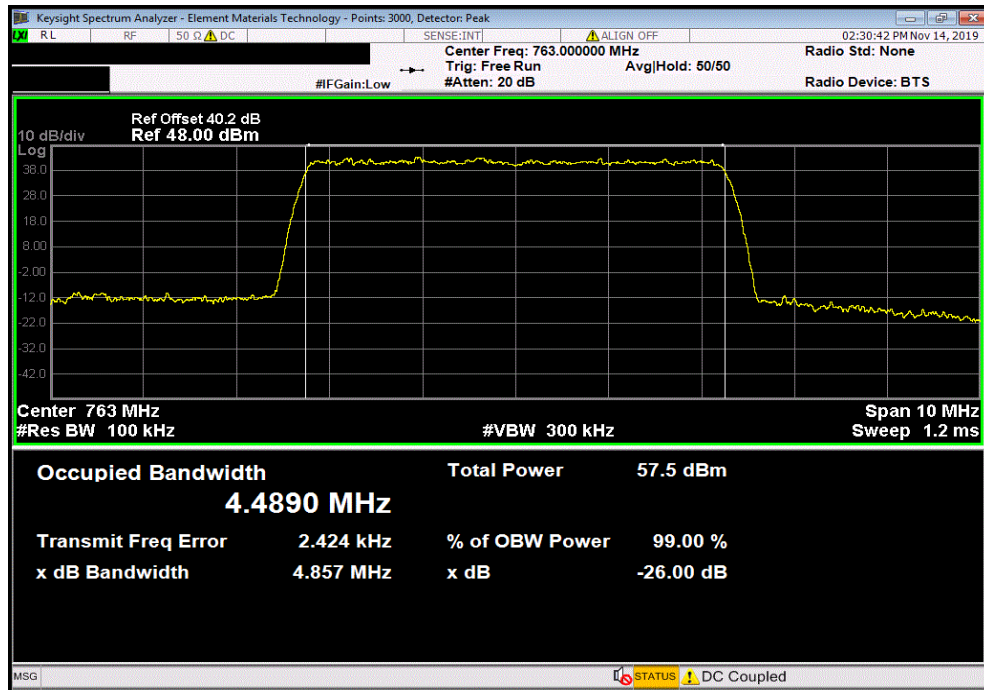
EUT: AHLBBA RRH		Work Order: NOKI0004	
Serial Number: K9193514835		Date: 18-Nov-19	
Customer: Nokia Solutions and Networks		Temperature: 22.4 °C	
Attendees: John Rattanaovong		Humidity: 29.7% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Jonathan Kiefer		Power: 54VDC	
		Job Site: TX09	
TEST SPECIFICATIONS		Test Method	
FCC 901:2019		ANSI C63.26:2015	
COMMENTS			
Band 14 emission bandwidth measurements for four modulation types at Mid channel for two channel bandwidths. Tested at highest power antenna port (Port 2). EUT is operated at 100% duty cycle.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature <i>Jonathan Kiefer</i>	
		Value (MHz)	Limit Result
Band 14			
QPSK Modulation			
LTE5 Bandwidth			
	Mid Channel, 763.0 MHz	4.857 MHz	Within Band Pass
LTE10 Bandwidth			
	Single Channel, 763.0 MHz	9.438 MHz	Within Band Pass
16QAM Modulation			
LTE5 Bandwidth			
	Mid Channel, 763.0 MHz	4.833 MHz	Within Band Pass
LTE10 Bandwidth			
	Single Channel, 763.0 MHz	9.554 MHz	Within Band Pass
64QAM Modulation			
LTE5 Bandwidth			
	Mid Channel, 763.0 MHz	4.863 MHz	Within Band Pass
LTE10 Bandwidth			
	Single Channel, 763.0 MHz	9.621 MHz	Within Band Pass
256QAM Modulation			
LTE5 Bandwidth			
	Mid Channel, 763.0 MHz	4.856 MHz	Within Band Pass
LTE10 Bandwidth			
	Single Channel, 763.0 MHz	9.587 MHz	Within Band Pass

OCCUPIED BANDWIDTH

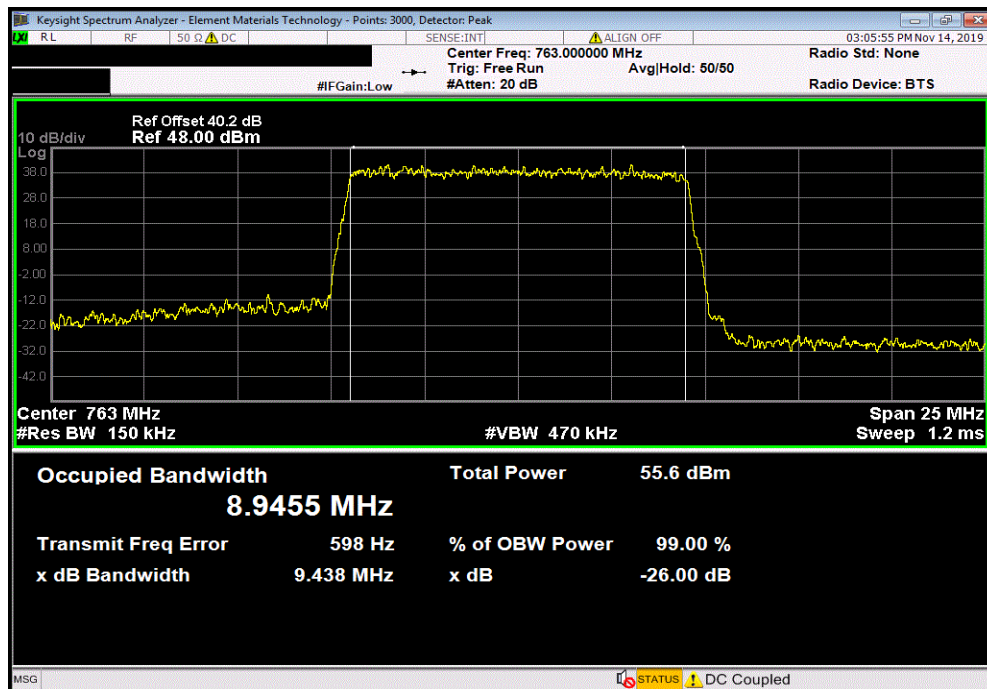


TbTx 2019.08.30.0 XMI 2019.09.05

Band 14, QPSK Modulation, LTE5 Bandwidth, Mid Channel, 763.0 MHz						
	Value	Limit	Result			
	(MHz)					
	4.857 MHz	Within Band	Pass			



Band 14, QPSK Modulation, LTE10 Bandwidth, Single Channel, 763.0 MHz						
	Value	Limit	Result			
	(MHz)					
	9.438 MHz	Within Band	Pass			

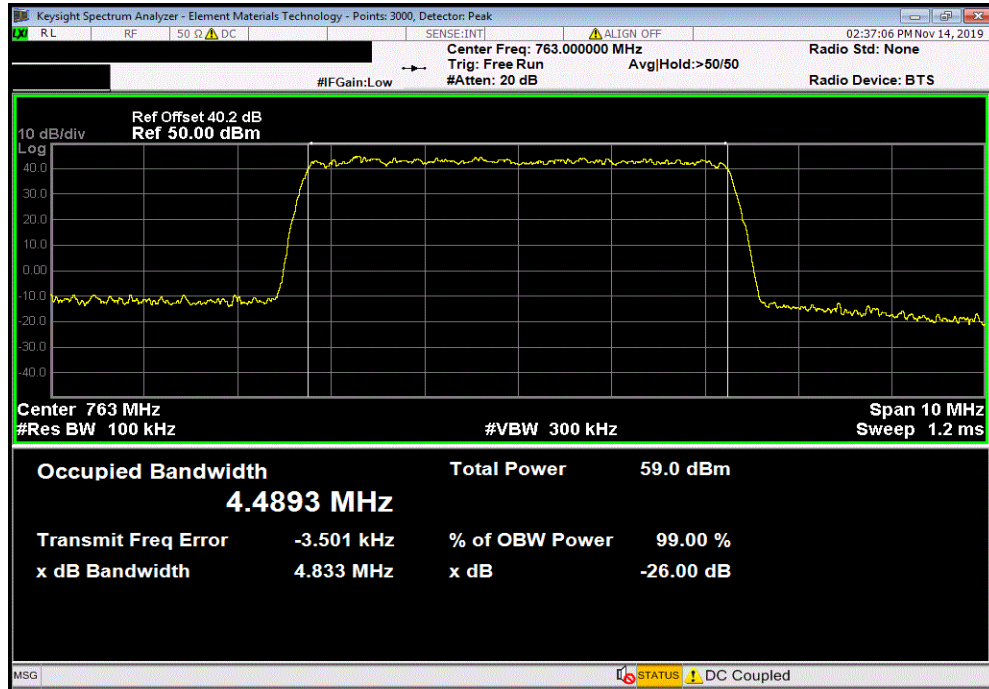


OCCUPIED BANDWIDTH

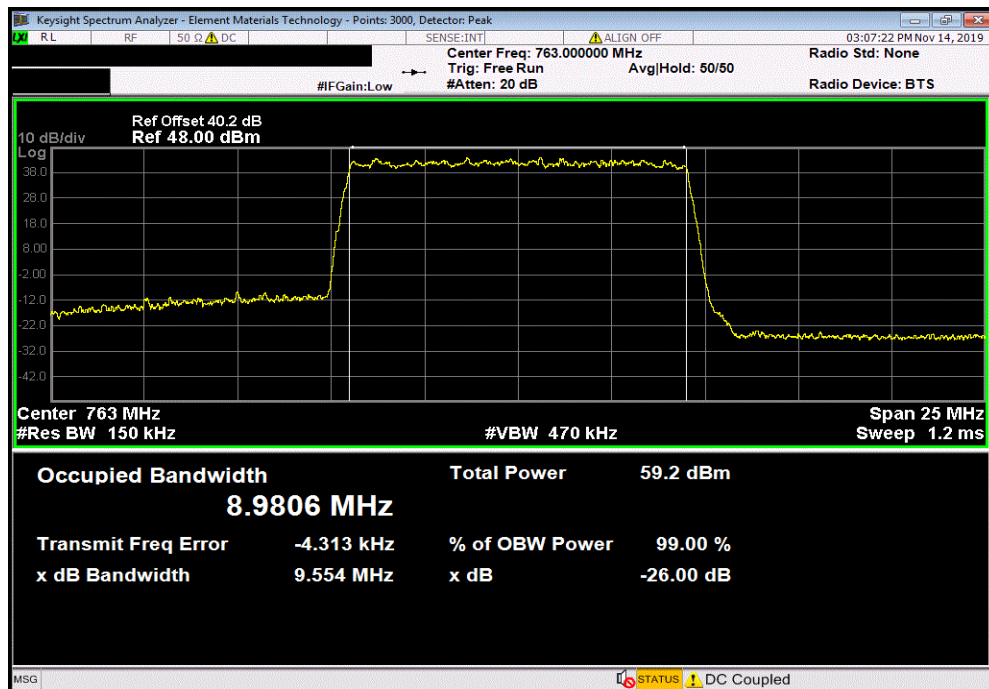


TbTx 2019.08.30.0 XMI 2019.09.05

Band 14, 16QAM Modulation, LTE5 Bandwidth, Mid Channel, 763.0 MHz						
				Value (MHz)	Limit	Result
				4.833 MHz	Within Band	Pass



Band 14, 16QAM Modulation, LTE10 Bandwidth, Single Channel, 763.0 MHz						
				Value (MHz)	Limit	Result
				9.554 MHz	Within Band	Pass

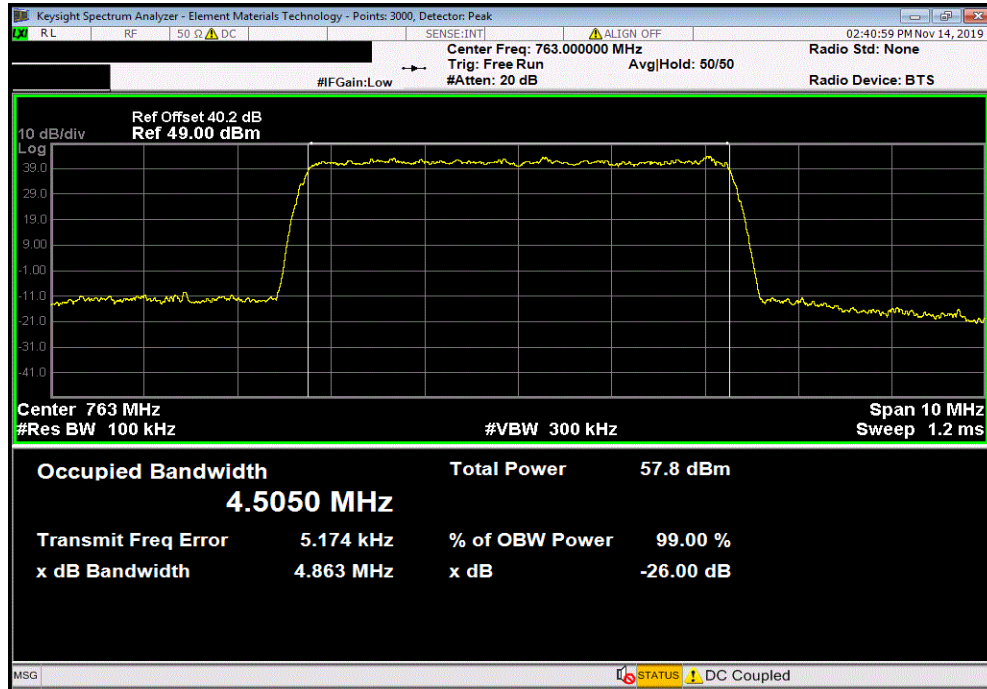


OCCUPIED BANDWIDTH

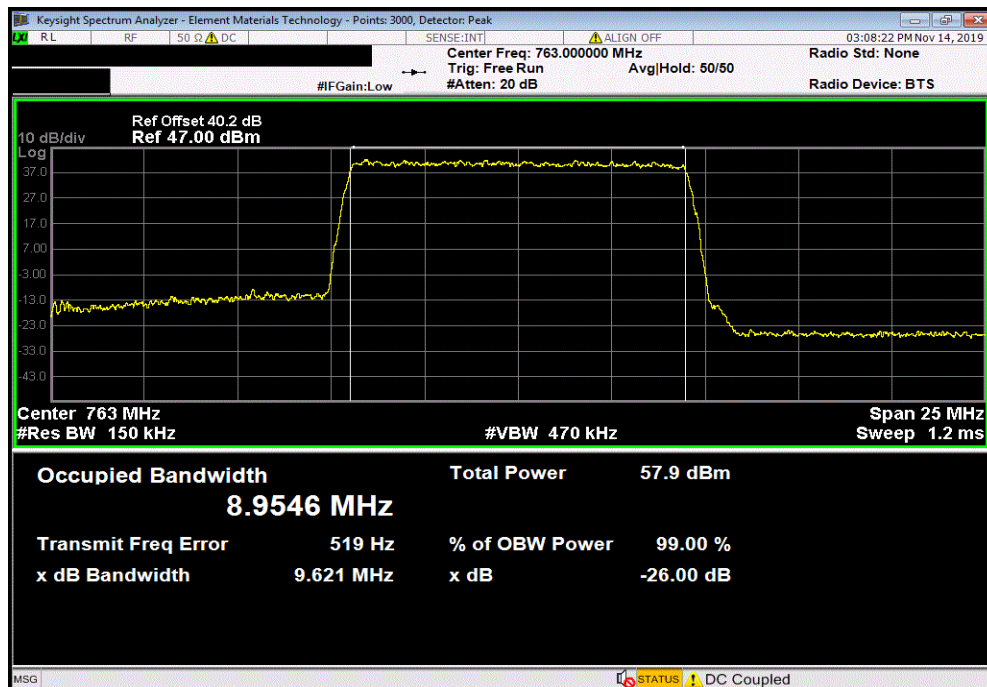


TbTx 2019.08.30.0 XMI 2019.09.05

Band 14, 64QAM Modulation, LTE5 Bandwidth, Mid Channel, 763.0 MHz						
				Value (MHz)	Limit	Result
				4.863 MHz	Within Band	Pass



Band 14, 64QAM Modulation, LTE10 Bandwidth, Single Channel, 763.0 MHz						
				Value (MHz)	Limit	Result
				9.621 MHz	Within Band	Pass

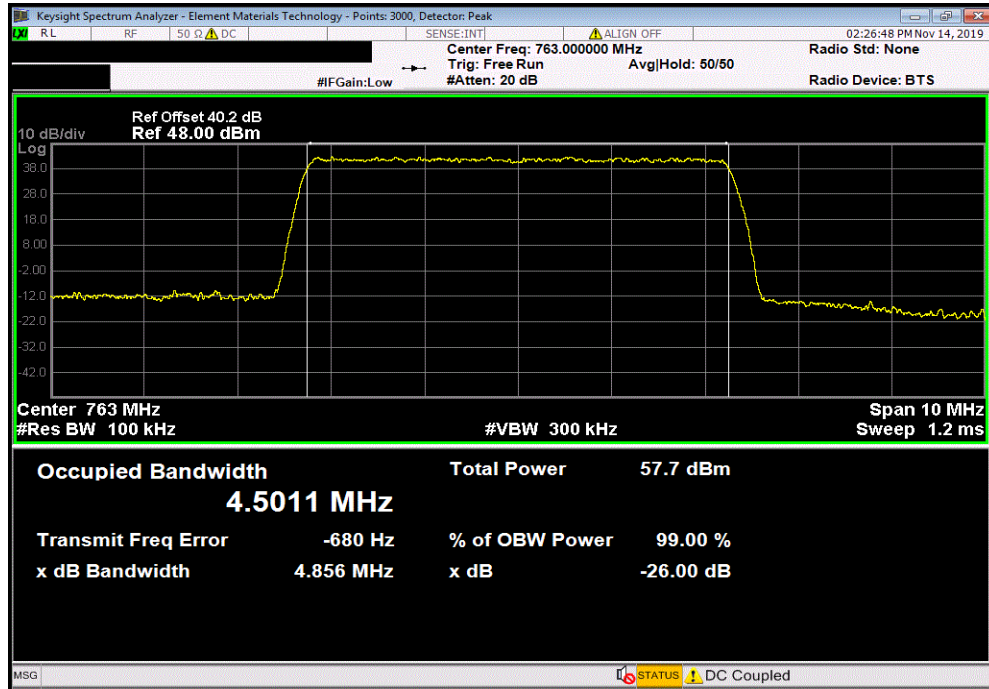


OCCUPIED BANDWIDTH

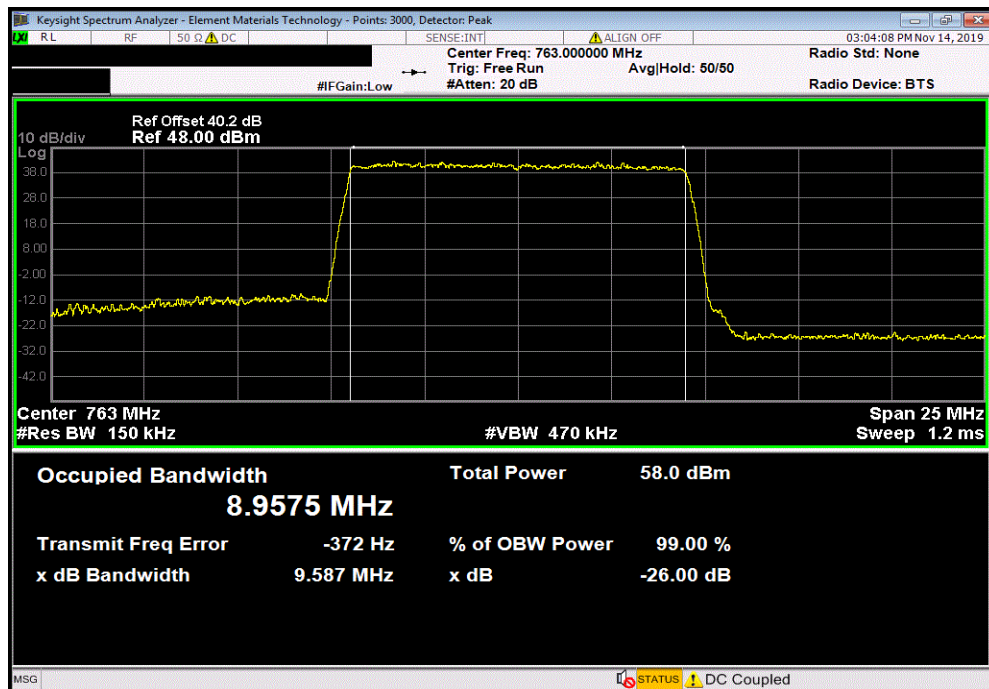


TbTx 2019.08.30.0 XMI 2019.09.05

Band 14, 256QAM Modulation, LTE5 Bandwidth, Mid Channel, 763.0 MHz						
				Value (MHz)	Limit	Result
				4.856 MHz	Within Band	Pass



Band 14, 256QAM Modulation, LTE10 Bandwidth, Single Channel, 763.0 MHz						
				Value (MHz)	Limit	Result
				9.587 MHz	Within Band	Pass



OCCUPIED BANDWIDTH



XMI 2019.09.05

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5171B-506	TEW	2-May-18	2-May-21
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	19-Mar-19	19-Mar-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The emissions bandwidth was measured using the channels and modes as called out on the following data sheets. The transmit power was set to its default maximum.

The method in section 5.4 of ANSI C63.26 was used to make the measurement.

The spectrum analyzer settings were as follows:

RBW = Approx. 1% of the emission bandwidth (B). This was an iterative process to determine the RBW based on the emissions bandwidth (B).

VBW=> RBW

A peak detector was used.

Trace max hold.

The spectrum analyzer occupied bandwidth measurement function was then used to measure the 26 dB emission bandwidth.

Band 29 Emission Designators for Port 1

Band 29 (718MHz to 728MHz) Emission Designators				
Channel Bandwidth	LTE-QPSK	LTE-16QAM	LTE-64QAM	LTE-256QAM
5M	4M85F9W	4M81F9W	4M85F9W	4M86F9W
10M	9M59F9W	9M60F9W	9M61F9W	9M57F9W
Note: Based on 26dB emission bandwidth				

OCCUPIED BANDWIDTH



TMTx 2019.08.30.0 XMI 2019.09.05

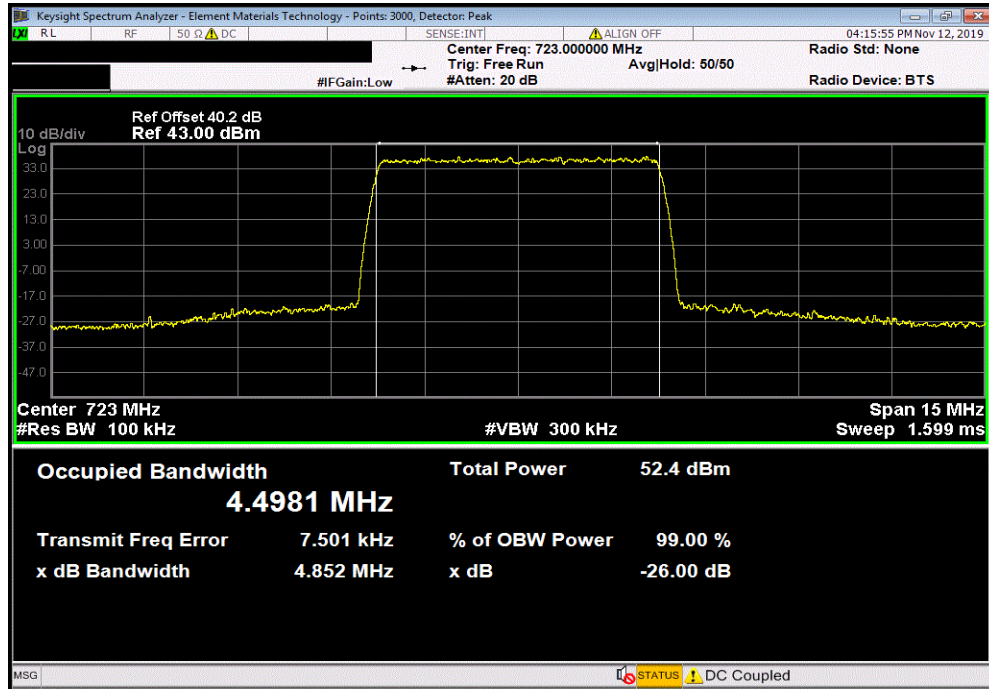
EUT: AHLBBA RRH		Work Order: NOKI0004	
Serial Number: K9193514835		Date: 18-Nov-19	
Customer: Nokia Solutions and Networks		Temperature: 22.4 °C	
Attendees: John Rattanaovong		Humidity: 29.6% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Jonathan Kiefer		Power: 54VDC	
		Job Site: TX09	
TEST SPECIFICATIONS		Test Method	
FCC 27:2019		ANSI C63.26:2015	
COMMENTS			
Band 29 emission bandwidth measurements for four modulation types at Mid channel for two channel bandwidths. Tested at highest power antenna port (Port 1). EUT is operated at 100% duty cycle.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature <i>Jonathan Kiefer</i>	
		Value (MHz)	Limit Result
Band 29			
QPSK Modulation			
LTE5 Bandwidth			
	Mid Channel, 723.0 MHz	4.852 MHz	Within Band Pass
LTE10 Bandwidth			
	Single Channel, 723.0 MHz	9.588 MHz	Within Band Pass
16QAM Modulation			
LTE5 Bandwidth			
	Mid Channel, 723.0 MHz	4.809 MHz	Within Band Pass
LTE10 Bandwidth			
	Single Channel, 723.0 MHz	9.597 MHz	Within Band Pass
64QAM Modulation			
LTE5 Bandwidth			
	Mid Channel, 723.0 MHz	4.848 MHz	Within Band Pass
LTE10 Bandwidth			
	Single Channel, 723.0 MHz	9.611 MHz	Within Band Pass
256QAM Modulation			
LTE5 Bandwidth			
	Mid Channel, 723.0 MHz	4.857 MHz	Within Band Pass
LTE10 Bandwidth			
	Single Channel, 723.0 MHz	9.57 MHz	Within Band Pass

OCCUPIED BANDWIDTH

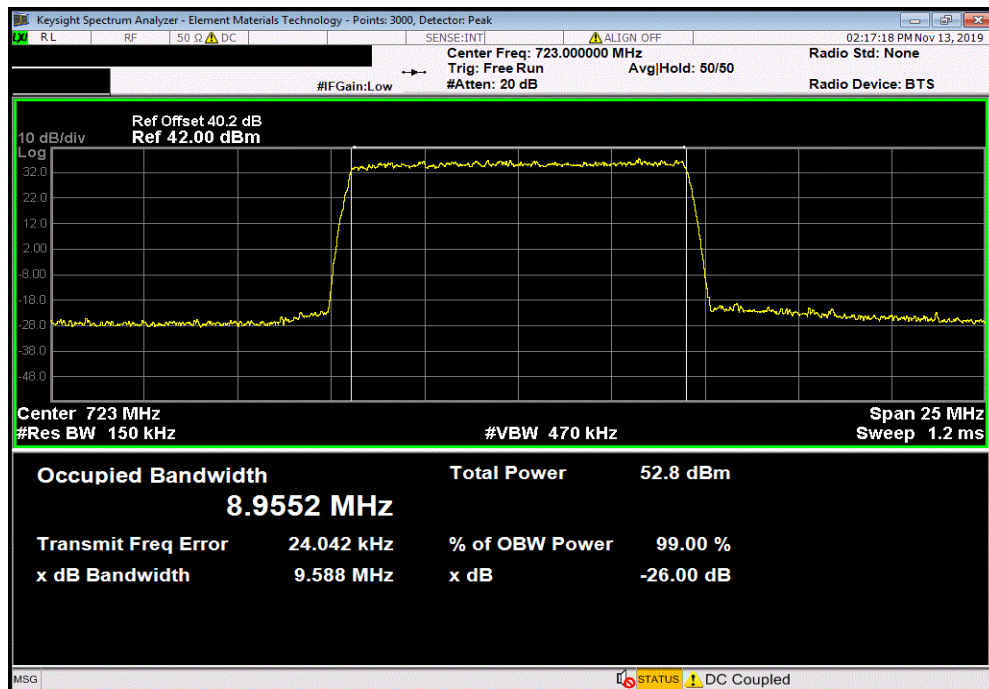


TbTtx 2019.08.30.0 XMI 2019.09.05

Band 29, QPSK Modulation, LTE5 Bandwidth, Mid Channel, 723.0 MHz						
				Value (MHz)	Limit	Result
				4.852 MHz	Within Band	Pass



Band 29, QPSK Modulation, LTE10 Bandwidth, Single Channel, 723.0 MHz						
				Value (MHz)	Limit	Result
				9.588 MHz	Within Band	Pass

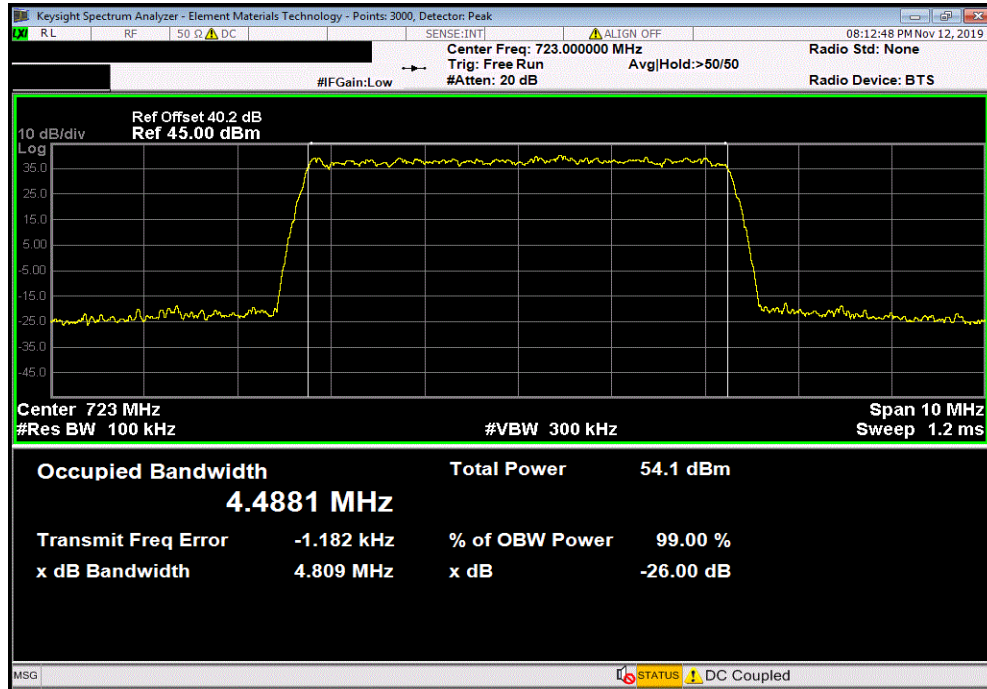


OCCUPIED BANDWIDTH

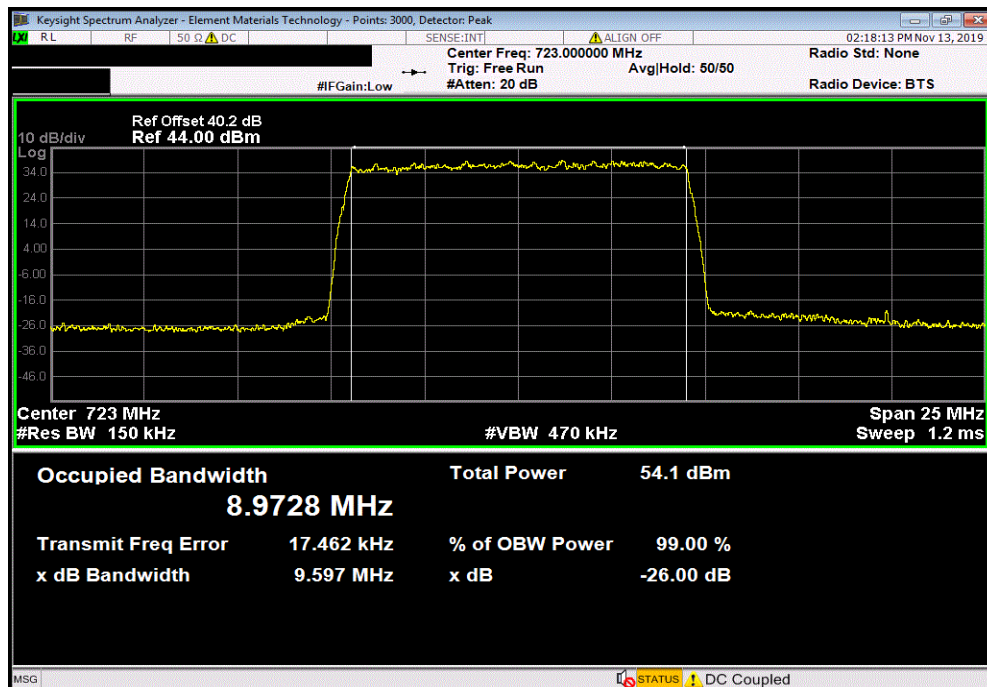


TbTx 2019.08.30.0 XMI 2019.09.05

Band 29, 16QAM Modulation, LTE5 Bandwidth, Mid Channel, 723.0 MHz						
				Value (MHz)	Limit	Result
				4.809 MHz	Within Band	Pass



Band 29, 16QAM Modulation, LTE10 Bandwidth, Single Channel, 723.0 MHz						
				Value (MHz)	Limit	Result
				9.597 MHz	Within Band	Pass

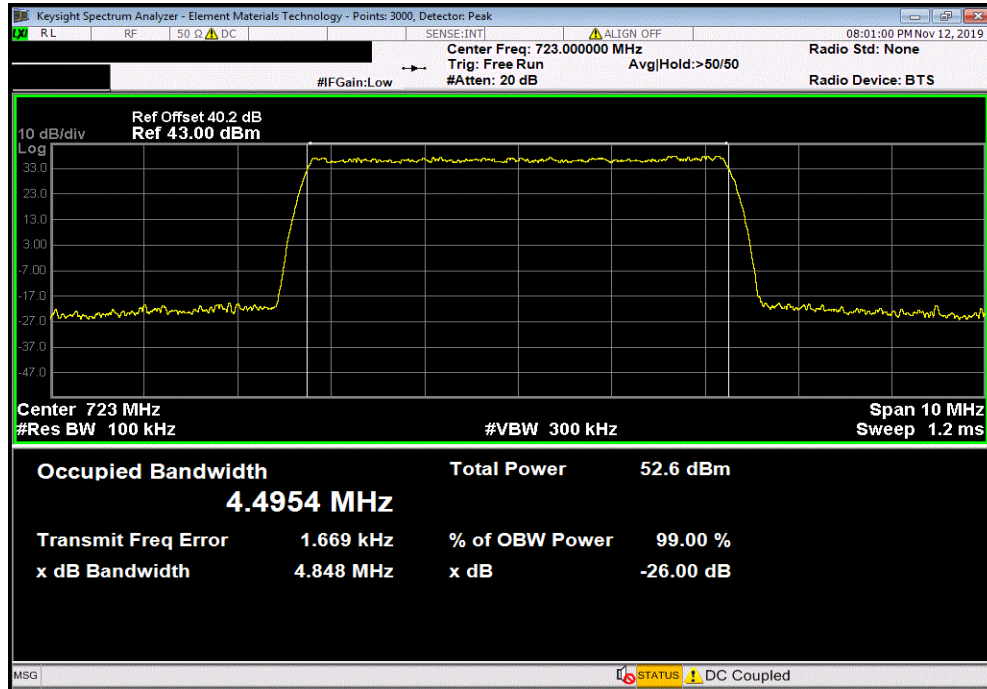


OCCUPIED BANDWIDTH

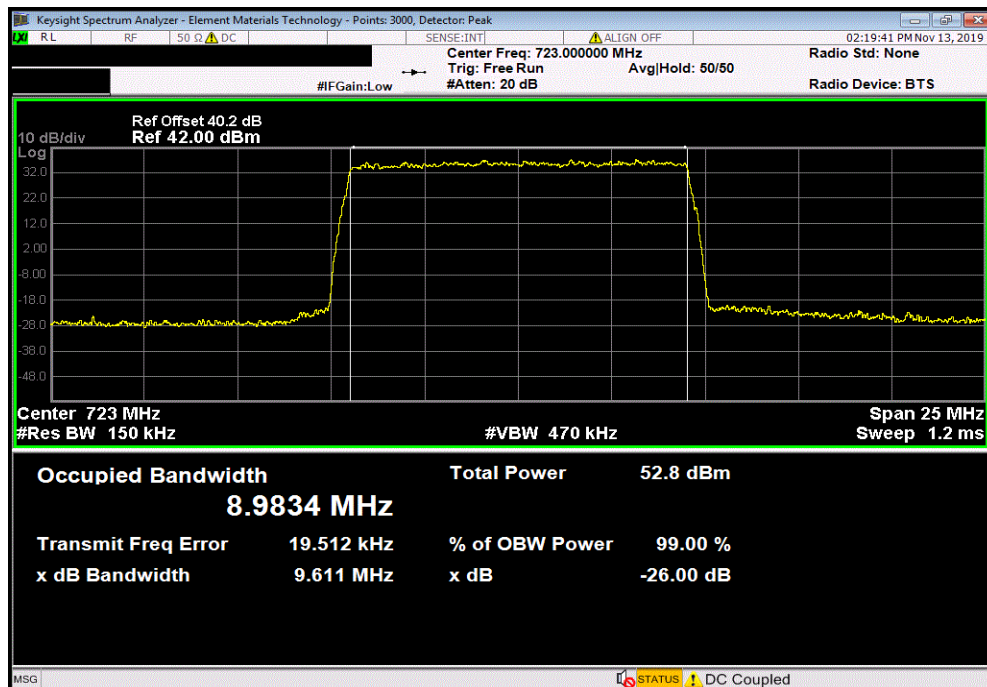


TbTx 2019.08.30.0 XMI 2019.09.05

Band 29, 64QAM Modulation, LTE5 Bandwidth, Mid Channel, 723.0 MHz						
				Value (MHz)	Limit	Result
				4.848 MHz	Within Band	Pass



Band 29, 64QAM Modulation, LTE10 Bandwidth, Single Channel, 723.0 MHz						
				Value (MHz)	Limit	Result
				9.611 MHz	Within Band	Pass

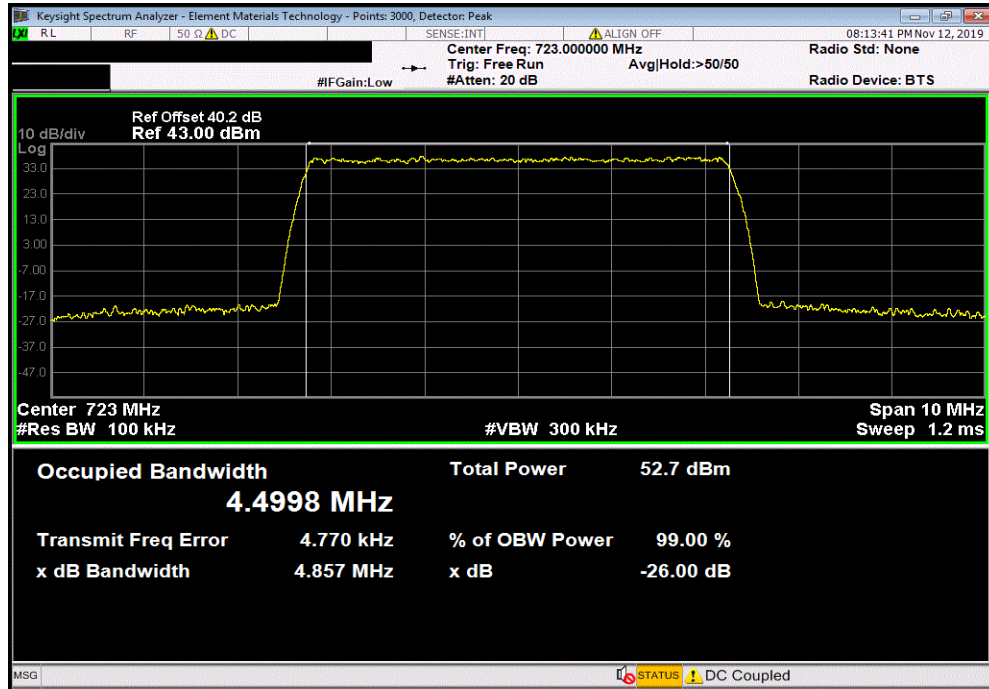


OCCUPIED BANDWIDTH



TbTx 2019.08.30.0 XMI 2019.09.05

Band 29, 256QAM Modulation, LTE5 Bandwidth, Mid Channel, 723.0 MHz						
				Value (MHz)	Limit	Result
				4.857 MHz	Within Band	Pass



Band 29, 256QAM Modulation, LTE10 Bandwidth, Single Channel, 723.0 MHz						
				Value (MHz)	Limit	Result
				9.57 MHz	Within Band	Pass

