

XMit 2020.03.25.

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
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	27-Feb-20	27-Feb-21
Generator - Signal	Keysight	N5171B-506	TEW	2-May-18	2-May-21

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.

Report No. NOKI0013 172/203

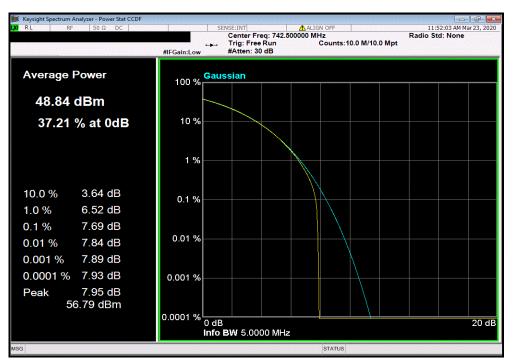


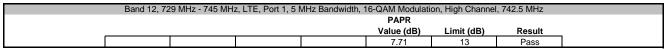
EUT: Airscale Base Transceiver Station Remote Radio Head Model AHLBBA
Serial Number: K9193514835
Customer: Nokia Solutions and Networks Work Order: NOKI0013 Date: 23-Mar-20 Temperature: 24.7 °C Attendees: Mitch Hill, John Rattanavong Humidity: 36.3% RH Barometric Pres.: 1024 mbar Project: None Tested by: Brandon Hobbs
TEST SPECIFICATIONS Power: 54 VDC Test Method Job Site: TX03 FCC 27:2020 COMMENTS All measurement path losses were accounted for in the reference level offest including any attenuators, filters and DC blocks. The hottest port per power amplifier (PA) was used for testing. Measured only the affected channels in each extended band. The worst case port was determined in the original client provided test report. The carrier power was set to maximum for all testing. DEVIATIONS FROM TEST STANDARD Configuration # 2,6 Signature PAPR Limit (dB) Value (dB) Result Band 12, 729 MHz - 745 MHz, LTE Port 1 5 MHz Bandwidth **QPSK Modulation** High Channel, 742.5 MHz 7.69 13 Pass 16-QAM Modulation High Channel, 742.5 MHz 7.71 13 Pass High Channel, 742.5 MHz 13 256-QAM Modulation High Channel, 742.5 MHz 7.71 13 Pass 10 MHz Bandwidth High Channel, 740 MHz 7 70 13 Pass 16-QAM Modulation High Channel, 740 MHz 7.69 13 Pass Modulation High Channel, 740 MHz odulation 7.70 13 Pass High Channel, 740 MHz 7 69 13 Pass 5 MHz Bandwidth QPSK Modulation High Channel, 742.5 MHz 6.70 13 Pass 16-QAM Modulation High Channel, 742.5 MHz 6.71 13 Pass 64-QAM Modulation High Channel, 742.5 MHz 256-QAM Modulation 6.70 13 Pass High Channel, 742.5 MHz 6.71 13 Pass 10 MHz Bandwidth QPSK Modulation High Channel, 740 MHz 6.73 13 Pass High Channel, 740 MHz 6.73 13 Pass High Channel, 740 MHz 6.74 13 Pass 256-QAM Modulation High Channel, 740 MHz 6.74 13 Band 29, 717 MHz - 728 MHz, LTE Port 1 5 MHz Bandwidth QPSK Modulation Low Channel, 719.5 MHz 8.03 13 Pass 16-QAM Modulation Low Channel, 719.5 MHz 8.03 13 Pass 64-QAM Modulation Low Channel, 719.5 MHz 256-QAM Modulation 8.05 13 Pass Low Channel, 719.5 MHz 8.09 13 Pass 10 MHz Bandwidth QPSK Modulation Low Channel, 722 MHz Pass 8.15 13 16-QAM Modulation Low Channel, 722 MHz 8.16 13 Pass Low Channel, 722 MHz 8.19 13 Pass 256-QAM Modulation Low Channel, 722 MHz 13 Pass

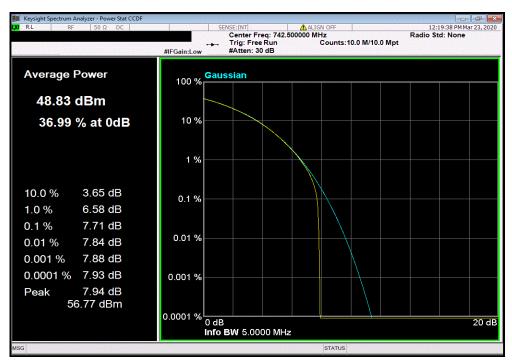
Report No. NOKI0013 173/203



Band 12, 729 MHz - 745 MHz, LTE, Port 1, 5 MHz Bandwidth, QPSK Modulation, High Channel, 742.5 MHz
PAPR
Value (dB) Limit (dB) Result
7.69 13 Pass



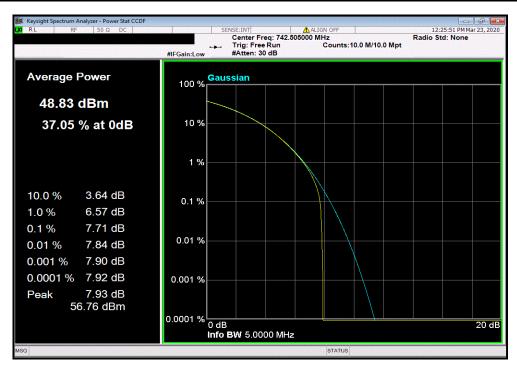


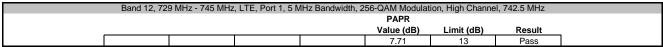


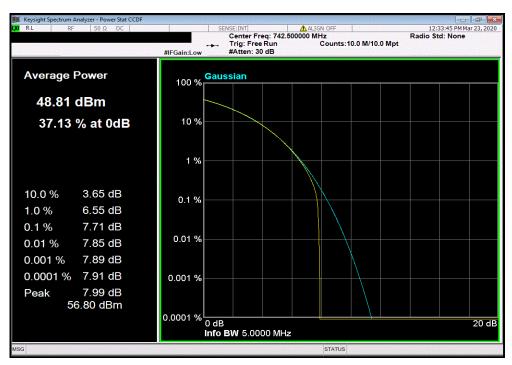
Report No. NOKI0013 174/203



Band 12, 729 MHz - 745 MHz, LTE, Port 1, 5 MHz Bandwidth, 64-QAM Modulation, High Channel, 742.5 MHz
PAPR
Value (dB) Limit (dB) Result
7.71 13 Pass



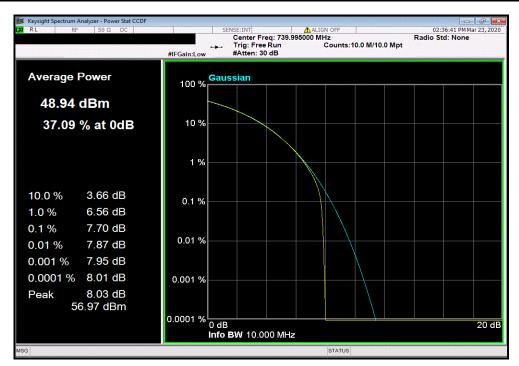


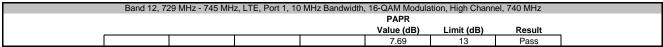


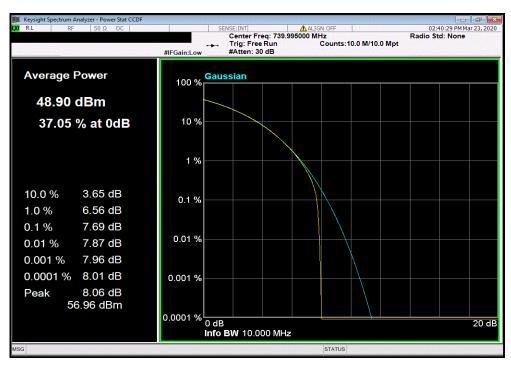
Report No. NOKI0013 175/203



Band 12, 729 MHz - 745 MHz, LTE, Port 1, 10 MHz Bandwidth, QPSK Modulation, High Channel, 740 MHz
PAPR
Value (dB) Limit (dB) Result
7.7 13 Pass



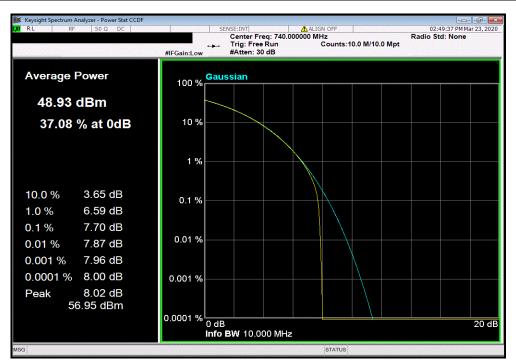


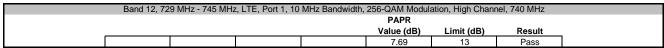


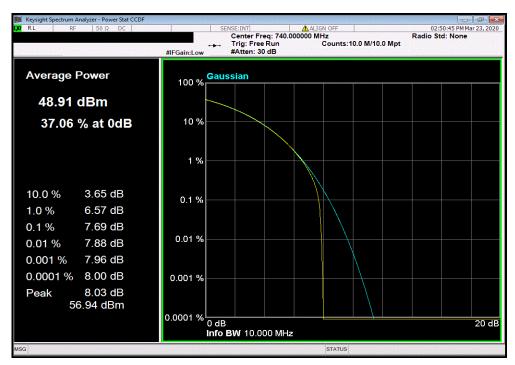
Report No. NOKI0013 176/203



Band 12, 729 MHz - 745 MHz, LTE, Port 1, 10 MHz Bandwidth, 64-QAM Modulation, High Channel, 740 MHz
PAPR
Value (dB) Limit (dB) Result
7.7 13 Pass



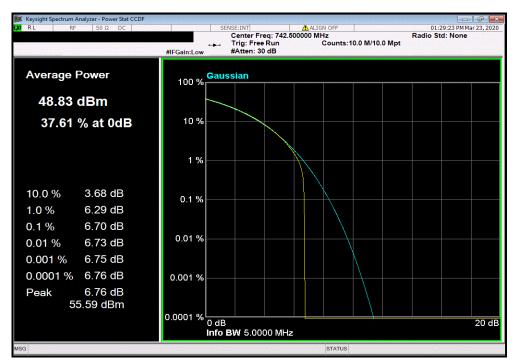


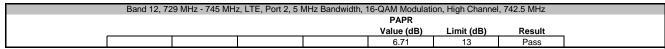


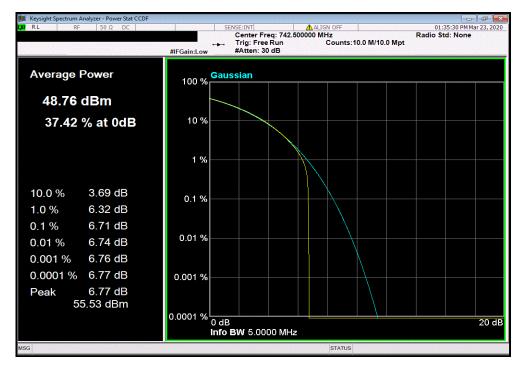
Report No. NOKI0013 177/203



Band 12, 729 MHz - 745 MHz, LTE, Port 2, 5 MHz Bandwidth, QPSK Modulation, High Channel, 742.5 MHz
PAPR
Value (dB) Limit (dB) Result
6.7 13 Pass



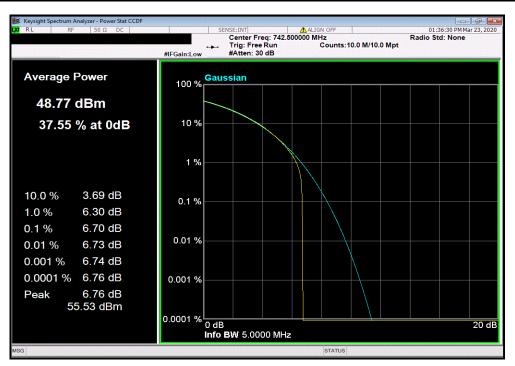


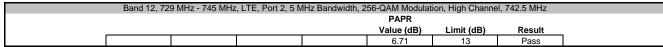


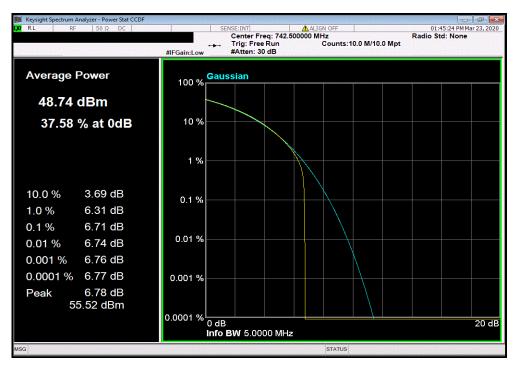
Report No. NOKI0013 178/203



Band 12, 729 MHz - 745 MHz, LTE, Port 2, 5 MHz Bandwidth, 64-QAM Modulation, High Channel, 742.5 MHz
PAPR
Value (dB) Limit (dB) Result
6.7 13 Pass



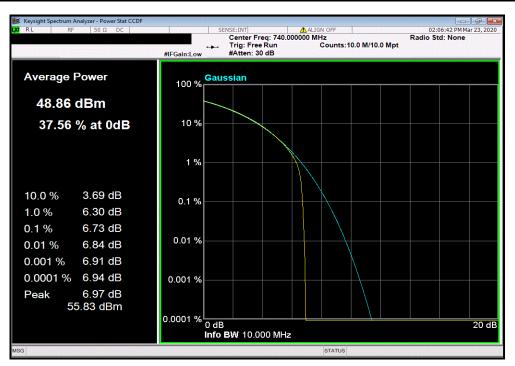


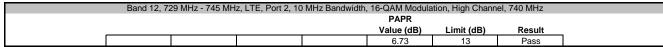


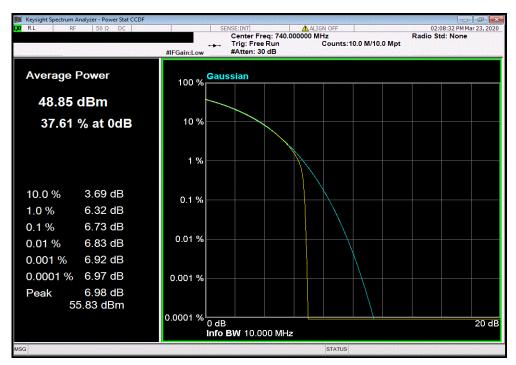
Report No. NOKI0013 179/203



Band 12, 729 MHz - 745 MHz, LTE, Port 2, 10 MHz Bandwidth, QPSK Modulation, High Channel, 740 MHz
PAPR
Value (dB) Limit (dB) Result
6.73 13 Pass



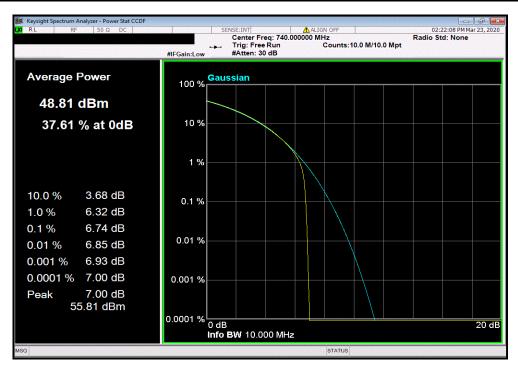


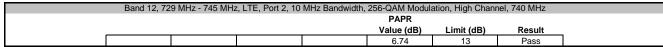


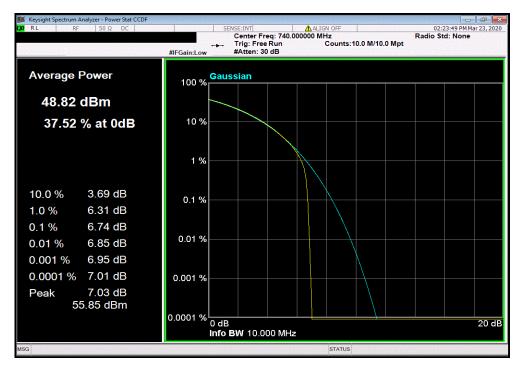
Report No. NOKI0013 180/203



Band 12, 729 MHz - 745 MHz, LTE, Port 2, 10 MHz Bandwidth, 64-QAM Modulation, High Channel, 740 MHz
PAPR
Value (dB) Limit (dB) Result
6.74 13 Pass



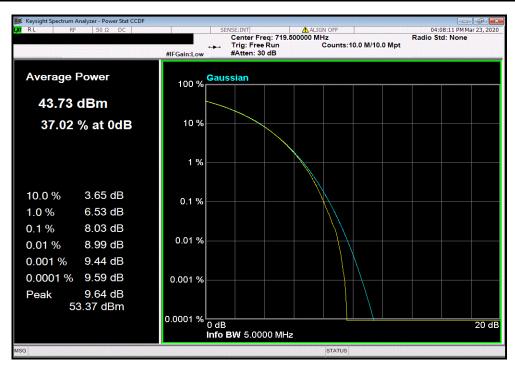


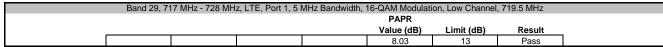


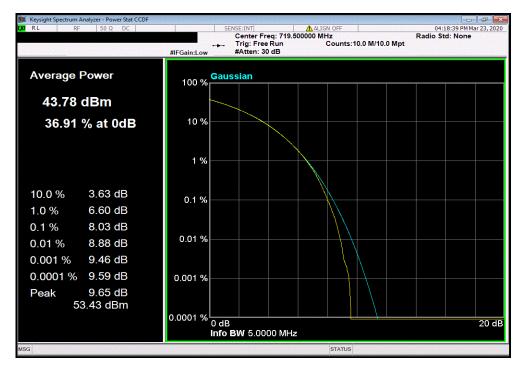
Report No. NOKI0013 181/203



Band 29, 717 MHz - 728 MHz, LTE, Port 1, 5 MHz Bandwidth, QPSK Modulation, Low Channel, 719.5 MHz
PAPR
Value (dB) Limit (dB) Result
8.03 13 Pass



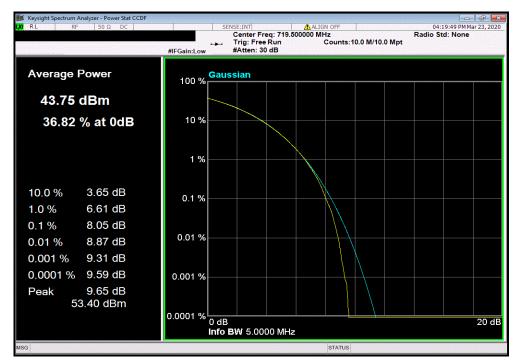




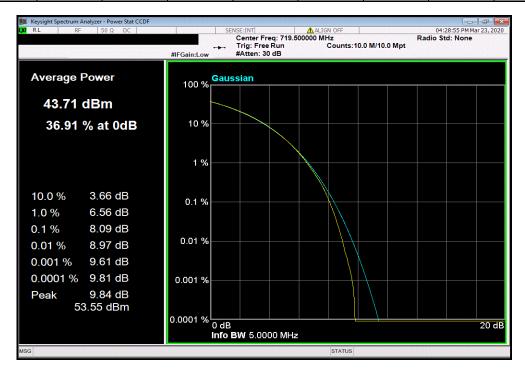
Report No. NOKI0013 182/203



Band 29, 717 MHz - 728 MHz, LTE, Port 1, 5 MHz Bandwidth, 64-QAM Modulation, Low Channel, 719.5 MHz
PAPR
Value (dB) Limit (dB) Result
8.05 13 Pass



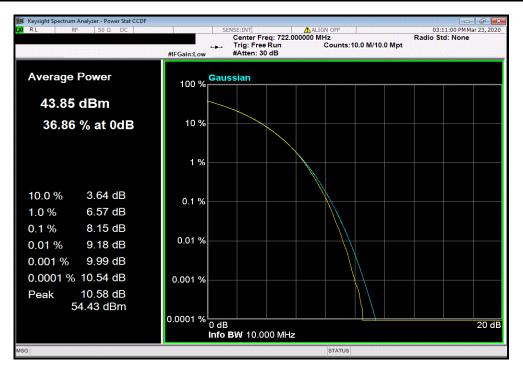


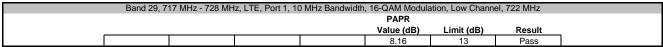


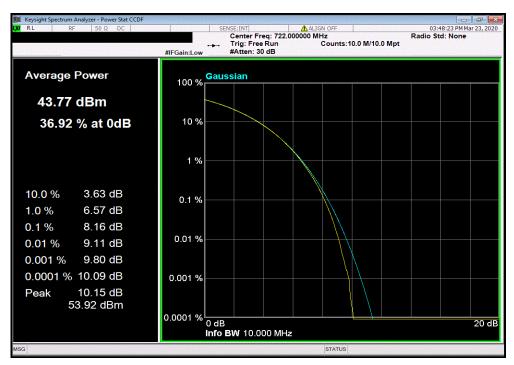
Report No. NOKI0013 183/203



Band 29, 717 MHz - 728 MHz, LTE, Port 1, 10 MHz Bandwidth, QPSK Modulation, Low Channel, 722 MHz
PAPR
Value (dB) Limit (dB) Result
8.15 13 Pass



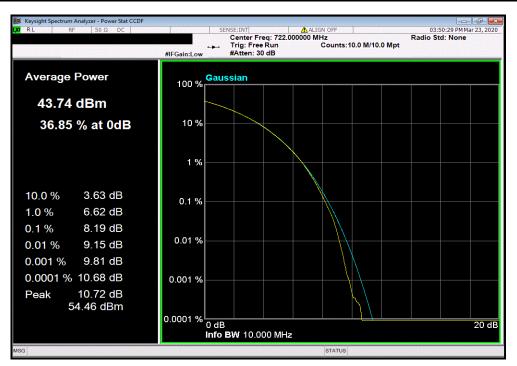


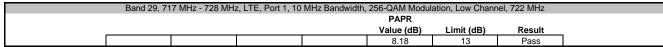


Report No. NOKI0013 184/203



Band 29, 717 MHz - 728 MHz, LTE, Port 1, 10 MHz Bandwidth, 64-QAM Modulation, Low Channel, 722 MHz
PAPR
Value (dB) Limit (dB) Result
8.19 13 Pass







Report No. NOKI0013 185/203



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TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	27-Feb-20	27-Feb-21
Generator - Signal	Keysight	N5171B-506	TEW	2-May-18	2-May-21

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.

Report No. NOKI0013 186/203



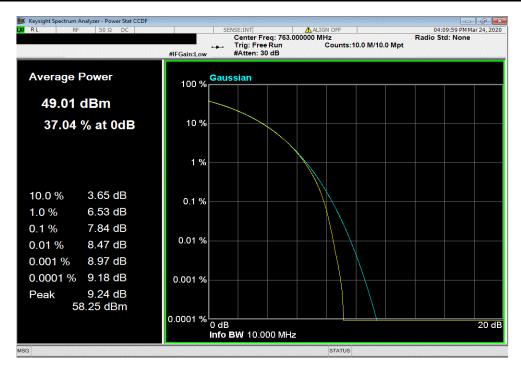
EUT:	Airscale Base Transceive	er Station Remote Radio Head Model	AHLBBA	Work Order:	NOKI0013	
Serial Number:	K9193514835			Date:	24-Mar-20	
Customer:	Nokia Solutions and Nety	works		Temperature:	24.9 °C	
Attendees:	Mitch Hill, John Rattanav	ong		Humidity:	36.5% RH	
Project:				Barometric Pres.:	1023 mbar	
	Brandon Hobbs		Power: 54 VDC	Job Site:	TX03	
TEST SPECIFICAT	IONS		Test Method			
FCC 901:2020			ANSI C63.26:2015			
RSS-140:2018			RSS-140:2018			
COMMENTS						
All measurement p	ath losses were accounted	d for in the reference level offest inclu	uding any attenuators, filters and DC blocks. The hottes	port per power amplifier (PA) was us	ed for testing. The	worst case port
				. p p (1 /1) 1140 416	g	port
was determined in	the original client provide	ed test report. The carrier power was s	set to maximum for all testing.			
DEVIATIONS FROM	M TEST STANDARD					
None						
Configuration #	2,6	Signature	J. J.			
				Value	Limit	Result
Band 14, 758 MHz -						
	Port 1					
	10 MHz Band					
		QPSK Modulation				
		Single Channel		7.84	13	Pass
	Port 2					
	10 MHz Band					
		QPSK Modulation				
		Single Channel		7.36	13	Pass

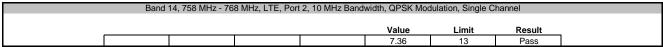
Report No. NOKI0013 187/203

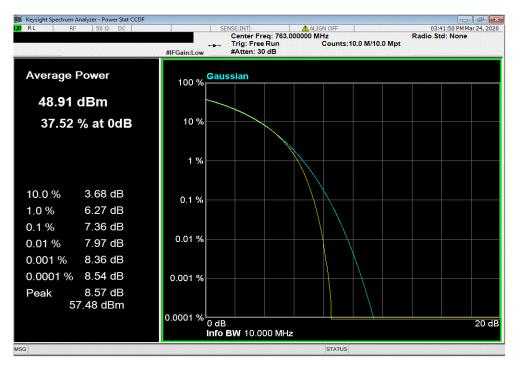


Band 14, 758 MHz - 768 MHz, LTE, Port 1, 10 MHz Bandwidth, QPSK Modulation, Single Channel

Value Limit Result
7.84 13 Pass







Report No. NOKI0013 188/203



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Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	27-Feb-20	27-Feb-21
Generator - Signal	Keysight	N5171B-506	TEW	2-May-18	2-May-21

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.

Report No. NOKI0013 189/203

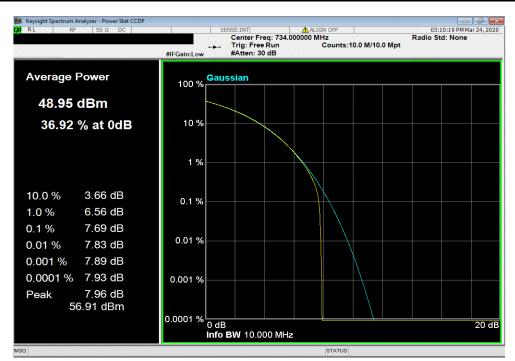


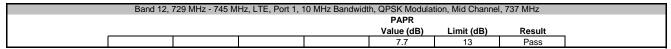
						XMit 2020.03.25.0
		er Station Remote Radio Head Model A	AHLBBA	Work Order:		
Serial Number:					24-Mar-20	
	Nokia Solutions and Net			Temperature:		
	Mitch Hill, John Rattanav	vong			36.1% RH	
Project:				Barometric Pres.:		
	Brandon Hobbs	·	Power: 54 VDC	Job Site:	TX03	
TEST SPECIFICAT	ONS		Test Method			
FCC 27:2020			ANSI C63.26:2015			
RSS-130:2019			RSS-130:2019			
COMMENTS						
All measurement p	ath losses were accounte	ed for in the reference level offest inclu	ding any attenuators, filters and DC blocks.	The hottest port per power amplifier (PA) was us	ed for testing. The	worst case port
was determined in	the original client provide	ed test report. The carrier power was s	et to maximum for all testing.			
			•			
	I TEST STANDARD					
None						
			7 /1 .			
Configuration #	2,6		1 1			
		Signature	<i>(</i> ~			
				PAPR		
				Value (dB)	Limit (dB)	Result
Band 12, 729 MHz -						
	Port 1	1.16				
	10 MHz Band					
		QPSK Modulation		7.00	40	D
		Low Channel, 734 MHz Mid Channel, 737 MHz		7.69 7.70	13 13	Pass Pass
		High Channel, 740 MHz		7.70	13	Pass
	Port 2	nigh Channel, 740 MHZ		7.69	13	Pass
	10 MHz Ban	dwidth				
	10 WII 12 Dalli	QPSK Modulation				
		Low Channel, 734 MHz		6.94	13	Pass
		Mid Channel, 737 MHz		6.78	13	Pass
		High Channel, 740 MHz		6.74	13	Pass
Band 29, 717 MHz -	728 MHz. LTE	ringir Gridinion, 7 40 Willia		0.14		. 400
	Port 1					
	10 MHz Band	dwidth				
		QPSK Modulation				
		Low Channel, 722 MHz		8.22	13	Pass
		Mid Channel, 722.5 MHz		8.17	13	Pass
		High Channel, 723 MHz		8.12	13	Pass
		J				

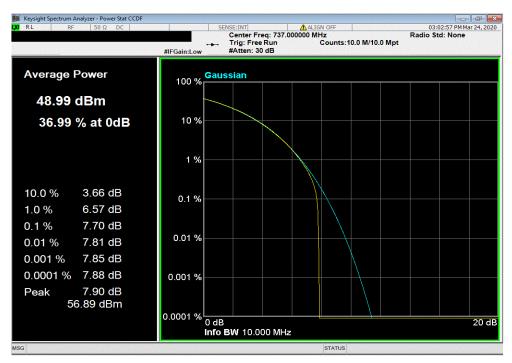
Report No. NOKI0013 190/203



Band 12, 729 MHz - 745 MHz, LTE, Port 1, 10 MHz Bandwidth, QPSK Modulation, Low Channel, 734 MHz
PAPR
Value (dB) Limit (dB) Result
7.69 13 Pass



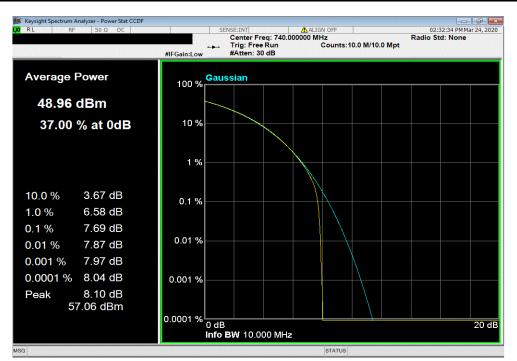


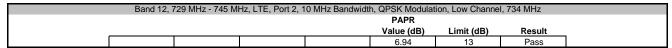


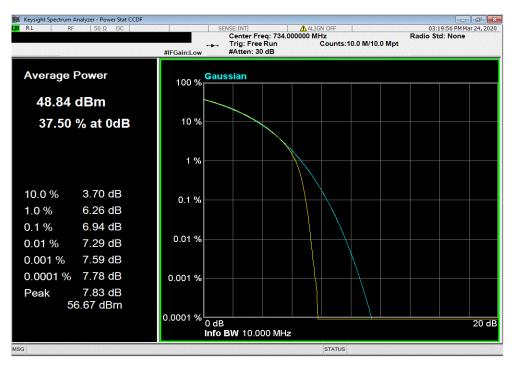
Report No. NOKI0013 191/203



Band 12, 729 MHz - 745 MHz, LTE, Port 1, 10 MHz Bandwidth, QPSK Modulation, High Channel, 740 MHz
PAPR
Value (dB) Limit (dB) Result
7.69 13 Pass



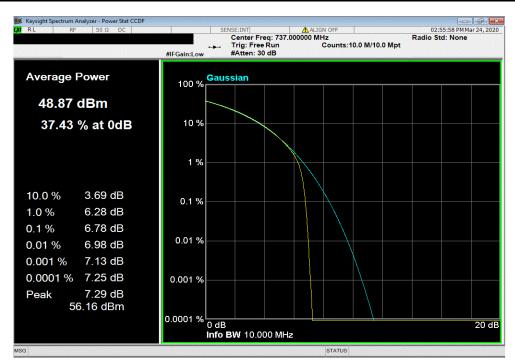


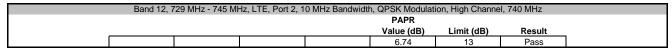


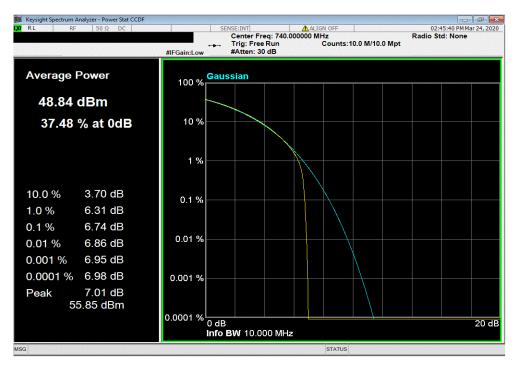
Report No. NOKI0013 192/203



Band 12, 729 MHz - 745 MHz, LTE, Port 2, 10 MHz Bandwidth, QPSK Modulation, Mid Channel, 737 MHz
PAPR
Value (dB) Limit (dB) Result
6.78 13 Pass



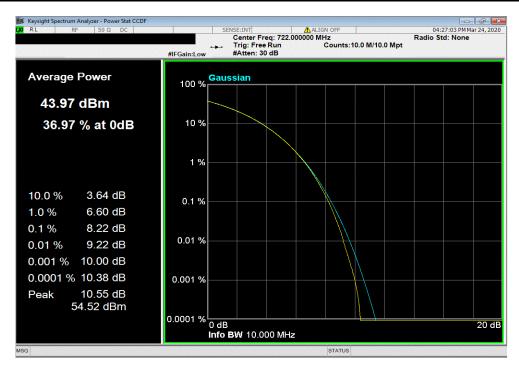


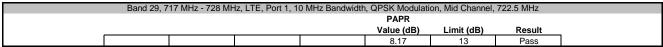


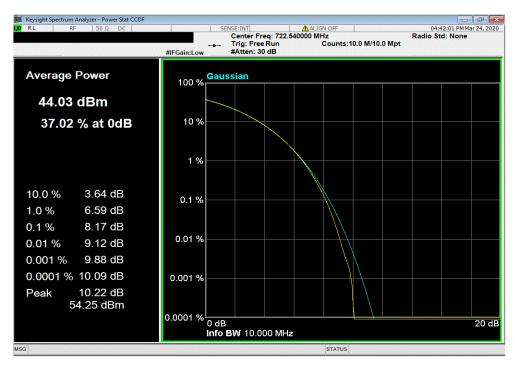
Report No. NOKI0013 193/203



Band 29, 717 MHz - 728 MHz, LTE, Port 1, 10 MHz Bandwidth, QPSK Modulation, Low Channel, 722 MHz
PAPR
Value (dB) Limit (dB) Result
8.22 13 Pass

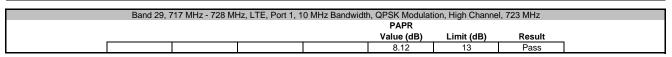


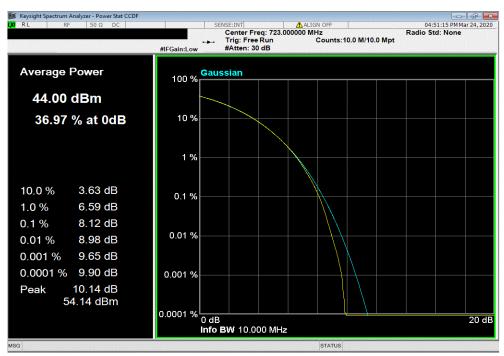




Report No. NOKI0013 194/203







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Report No. NOKI0013 196/203

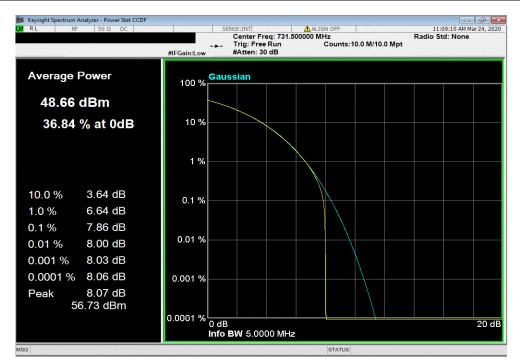


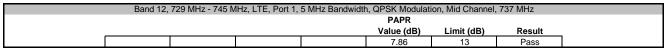
						XMit 2020.03
		tion Remote Radio Head Model A	AHLBBA	Work Order:		
Serial Number: K91935			·		24-Mar-20	
	Solutions and Networks	•	·	Temperature:		
	lill, John Rattanavong				36.4% RH	
Project: None				Barometric Pres.:		
Tested by: Brando	n Hobbs		Power: 54 VDC	Job Site:	TX03	
EST SPECIFICATIONS			Test Method			
CC 27:2020			ANSI C63.26:2015			
RSS-130:2019			RSS-130:2019			
OMMENTS						
		in the reference level offest inclu t report. The carrier power was s		The hottest port per power amplifier (PA) was us	sed for testing. The	worst case por
EVIATIONS FROM TEST S	STANDARD					
one						
Configuration #	2,6	Signature	1.1			
				PAPR		
				Value (dB)	Limit (dB)	Result
Port 1	5 MHz Bandwidth	Modulation				
		Low Channel, 731.5 MHz		7.86	13	Pass
		Mid Channel, 737 MHz		7.86	13	Pass
		High Channel, 742.5 MHz		7.86	13	Pass
	10 MHz Bandwidth QPSk	K Modulation				
		Low Channel, 734 MHz		7.78	13	Pass
		Mid Channel, 737 MHz		7.78	13	Pass
		High Channel, 740 MHz		7.78	13	Pass
Port 2						
	5 MHz Bandwidth					
	OPSK	Modulation				
	Q. O.					
	α. σ.	Low Channel, 731.5 MHz		6.93	13	Pass
	α, σ,	Low Channel, 731.5 MHz Mid Channel, 737 MHz		6.88	13	Pass
		Low Channel, 731.5 MHz Mid Channel, 737 MHz High Channel, 742.5 MHz				
	10 MHz Bandwidth	Low Channel, 731.5 MHz Mid Channel, 737 MHz High Channel, 742.5 MHz K Modulation		6.88 6.88	13 13	Pass Pass
	10 MHz Bandwidth	Low Channel, 731.5 MHz Mid Channel, 737 MHz High Channel, 742.5 MHz Modulation Low Channel, 734 MHz		6.88 6.88 7.00	13	Pass
	10 MHz Bandwidth	Low Channel, 731.5 MHz Mid Channel, 737 MHz High Channel, 742.5 MHz K Modulation		6.88 6.88	13 13	Pass Pass

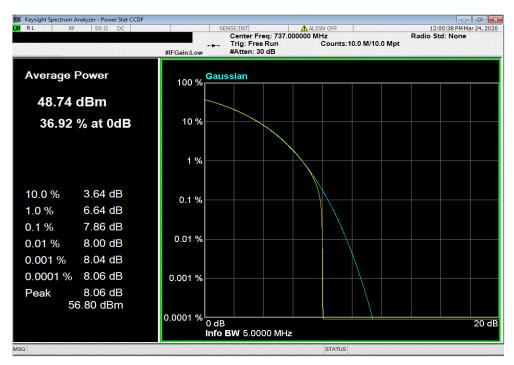
Report No. NOKI0013 197/203



Band 12, 729 MHz - 745 MHz, LTE, Port 1, 5 MHz Bandwidth, QPSK Modulation, Low Channel, 731.5 MHz
PAPR
Value (dB) Limit (dB) Result
7.86 13 Pass



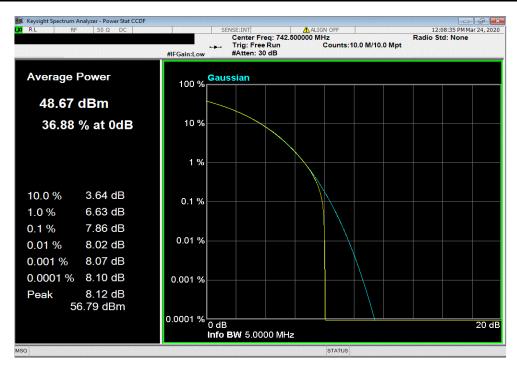


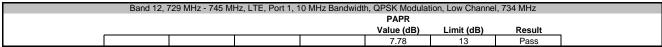


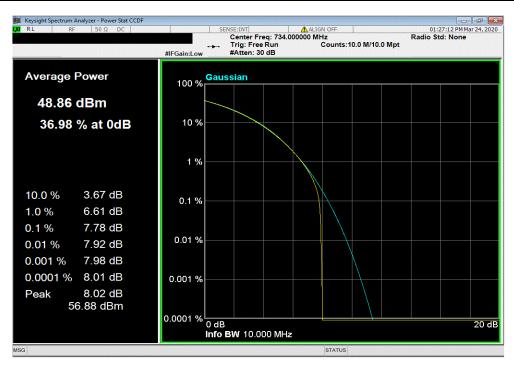
Report No. NOKI0013 198/203



Band 12, 729 MHz - 745 MHz, LTE, Port 1, 5 MHz Bandwidth, QPSK Modulation, High Channel, 742.5 MHz
PAPR
Value (dB) Limit (dB) Result
7.86 13 Pass



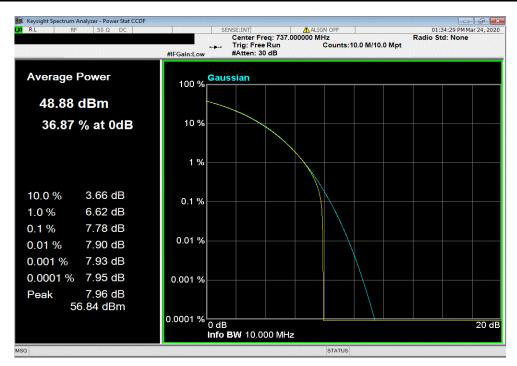


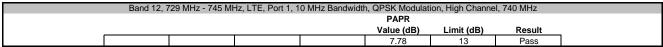


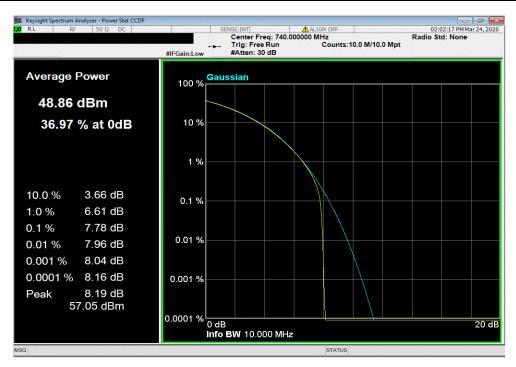
Report No. NOKI0013 199/203



Band 12, 729 MHz - 745 MHz, LTE, Port 1, 10 MHz Bandwidth, QPSK Modulation, Mid Channel, 737 MHz
PAPR
Value (dB) Limit (dB) Result
7.78 13 Pass



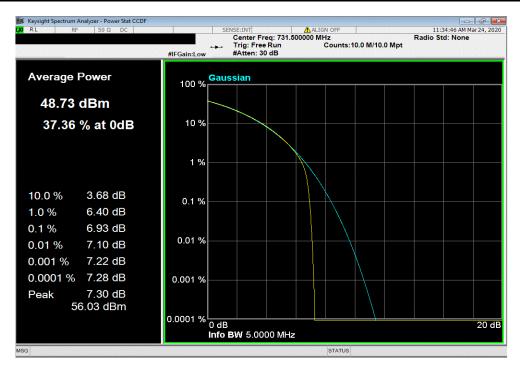


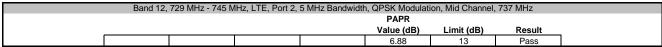


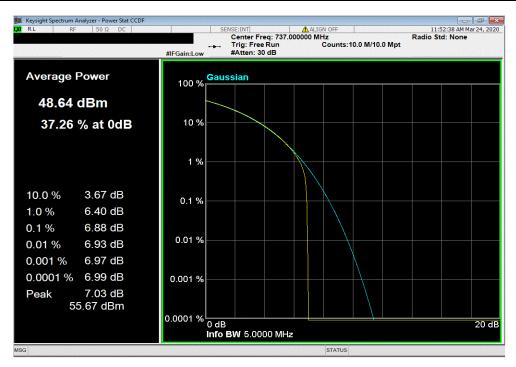
Report No. NOKI0013 200/203



Band 12, 729 MHz - 745 MHz, LTE, Port 2, 5 MHz Bandwidth, QPSK Modulation, Low Channel, 731.5 MHz
PAPR
Value (dB) Limit (dB) Result
6.93 13 Pass



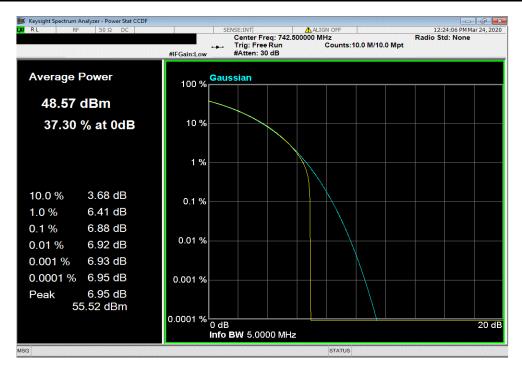


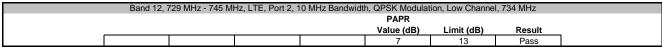


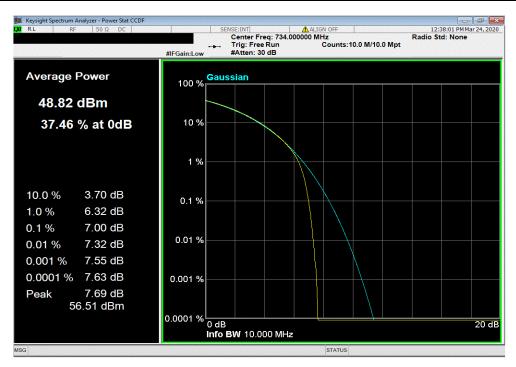
Report No. NOKI0013 201/203



Band 12, 729 MHz - 745 MHz, LTE, Port 2, 5 MHz Bandwidth, QPSK Modulation, High Channel, 742.5 MHz
PAPR
Value (dB) Limit (dB) Result
6.88 13 Pass



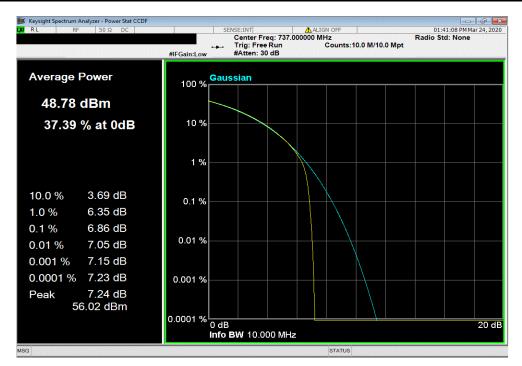


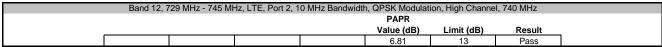


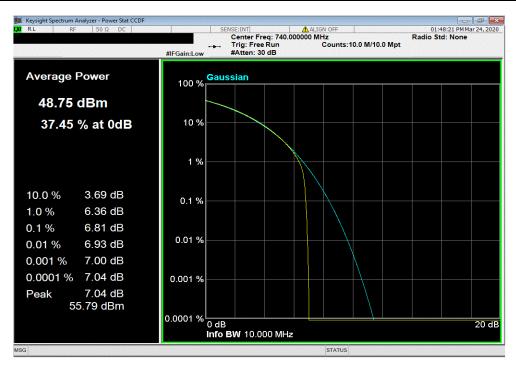
Report No. NOKI0013 202/203



Band 12, 729 MHz - 745 MHz, LTE, Port 2, 10 MHz Bandwidth, QPSK Modulation, Mid Channel, 737 MHz
PAPR
Value (dB) Limit (dB) Result
6.86 13 Pass







Report No. NOKI0013 203/203