

OUTPUT POWER LTE BAND 12 (EXPANDED)



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
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. The fundamental emission output power (maximum average conducted output power) 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 5.2.4.4 of ANSI C63.26 was used to make the measurement. This method uses trace averaging across ON and OFF times of the EUT transmissions in the spectrum analyzer channel power function using an RMS detector. Following the measurement a duty cycle correction was applied by adding $[10 \log (1 / D)]$, where D is the duty cycle, to the measured power to compute the average power during the actual transmission times.

Per FCC section 27.50(c)(3), the Effective Radiated Power (ERP) of the transceiver cannot exceed 1000 Watts/MHz

Per RSS 130 section 4.6.3/ SRSP-518 5.1, the maximum (EIRP) limits are 1640 watts/MHz.

OUTPUT POWER LTE BAND 12 (EXPANDED)



TWTr 2019.08.30.0 XMM 2019.09.05

EUT: Aircscale Base Transceiver Station Remote Radio Head Model AHLBBA		Work Order: NOKI0013	
Serial Number: K9193514835		Date: 23-Mar-20	
Customer: Nokia Solutions and Networks		Temperature: 22.3 °C	
Attendees: Mitch Hill, John Rattanaovong		Humidity: 51% RH	
Project: None		Barometric Pres.: 1008 mbar	
Tested by: Brandon Hobbs	Power: 54 VDC	Job Site: TX03	
TEST SPECIFICATIONS		Test Method	
FCC 27:2020		ANSI C63.26:2015	
RSS-130:2019, SRSP-518		RSS-130:2019, SRSP-518	
COMMENTS			
All measurement path losses were accounted for in the reference level offset 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			
None			
Configuration #	2,6	Signature	
		Initial Power (dBm/OBW)	Duty Cycle Factor (dB)
		Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)
		FCC ERP / RSS EIRP Limits (dBm/OBW)	Results

Band 12, 729 MHz - 745 MHz LTE

Port 1

5 MHz Channel Bandwidth

QPSK Modulation

High Channel 742.5 MHz

48.863

0

Not Provided

48.9

60 / 62.15

N/A

16-QAM Modulation

High Channel 742.5 MHz

48.868

0

Not Provided

48.9

60 / 62.15

N/A

64-QAM Modulation

High Channel 742.5 MHz

48.837

0

Not Provided

48.8

60 / 62.15

N/A

256-QAM Modulation

High Channel 742.5 MHz

48.853

0

Not Provided

48.9

60 / 62.15

N/A

10 MHz Channel Bandwidth

QPSK Modulation

High Channel 740 MHz

48.829

0

Not Provided

48.8

60 / 62.15

N/A

16-QAM Modulation

High Channel 740 MHz

48.817

0

Not Provided

48.8

60 / 62.15

N/A

64-QAM Modulation

High Channel 740 MHz

48.85

0

Not Provided

48.9

60 / 62.15

N/A

256-QAM Modulation

High Channel 740 MHz

48.843

0

Not Provided

48.8

60 / 62.15

N/A

Port 2

5 MHz Channel Bandwidth

QPSK Modulation

High Channel 742.5 MHz

48.872

0

Not Provided

48.9

60 / 62.15

N/A

16-QAM Modulation

High Channel 742.5 MHz

48.706

0

Not Provided

48.7

60 / 62.15

N/A

64-QAM Modulation

High Channel 742.5 MHz

48.772

0

Not Provided

48.8

60 / 62.15

N/A

256-QAM Modulation

High Channel 742.5 MHz

48.748

0

Not Provided

48.7

60 / 62.15

N/A

10 MHz Channel Bandwidth

QPSK Modulation

High Channel 740 MHz

48.786

0

Not Provided

48.8

60 / 62.15

N/A

16-QAM Modulation

High Channel 740 MHz

48.748

0

Not Provided

48.7

60 / 62.15

N/A

64-QAM Modulation

High Channel 740 MHz

48.714

0

Not Provided

48.7

60 / 62.15

N/A

256-QAM Modulation

High Channel 740 MHz

48.731

0

Not Provided

48.7

60 / 62.15

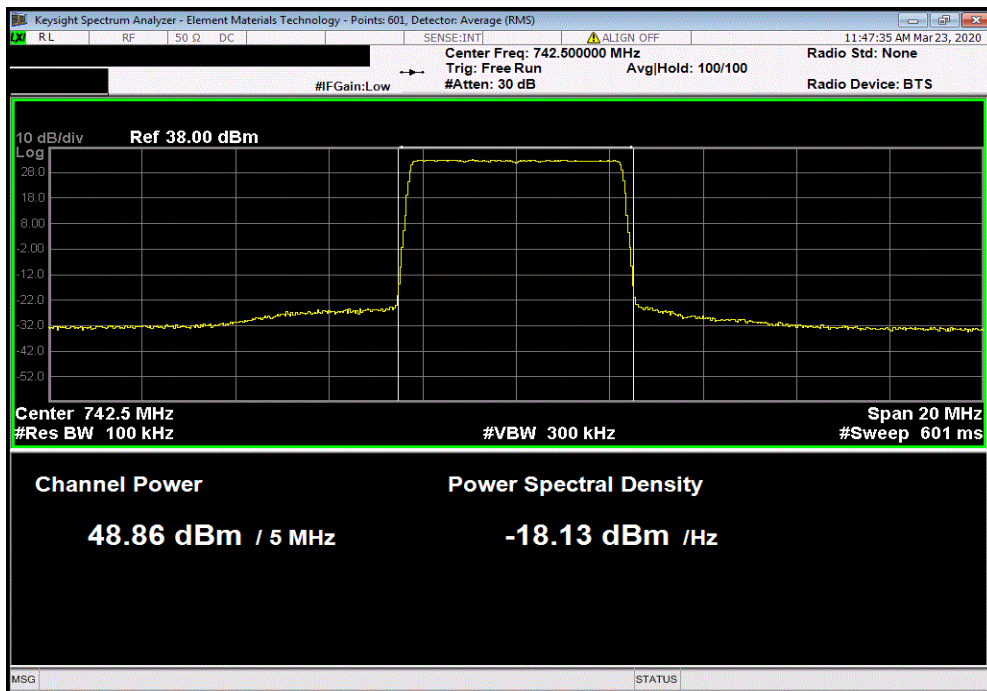
N/A

OUTPUT POWER LTE BAND 12 (EXPANDED)

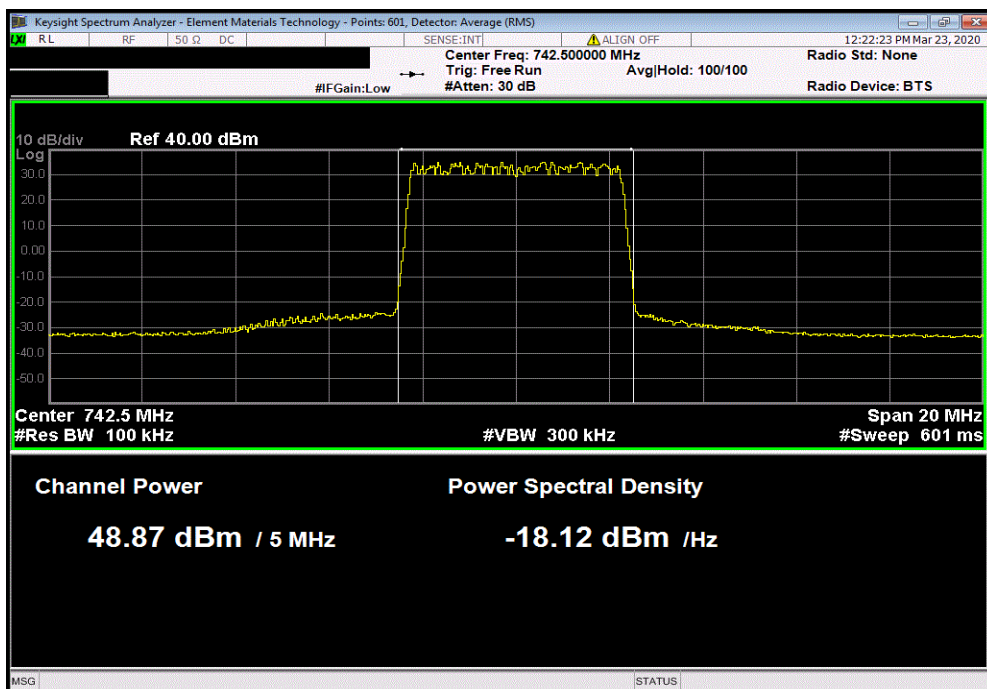


TbT's 2019.08.30.0 XMt 2019.09.05

Band 12, 729 MHz - 745 MHz LTE, Port 1, 5 MHz Channel Bandwidth, QPSK Modulation, High Channel 742.5 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.863	0	Not Provided	48.9	60 / 62.15	N/A	



Band 12, 729 MHz - 745 MHz LTE, Port 1, 5 MHz Channel Bandwidth, 16-QAM Modulation, High Channel 742.5 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.868	0	Not Provided	48.9	60 / 62.15	N/A	

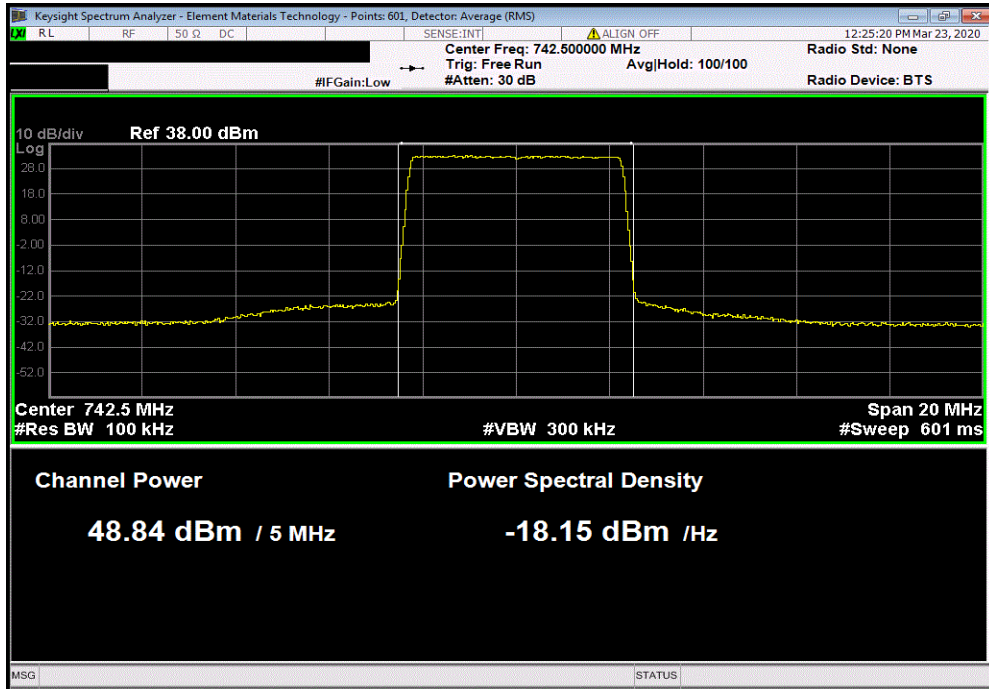


OUTPUT POWER LTE BAND 12 (EXPANDED)

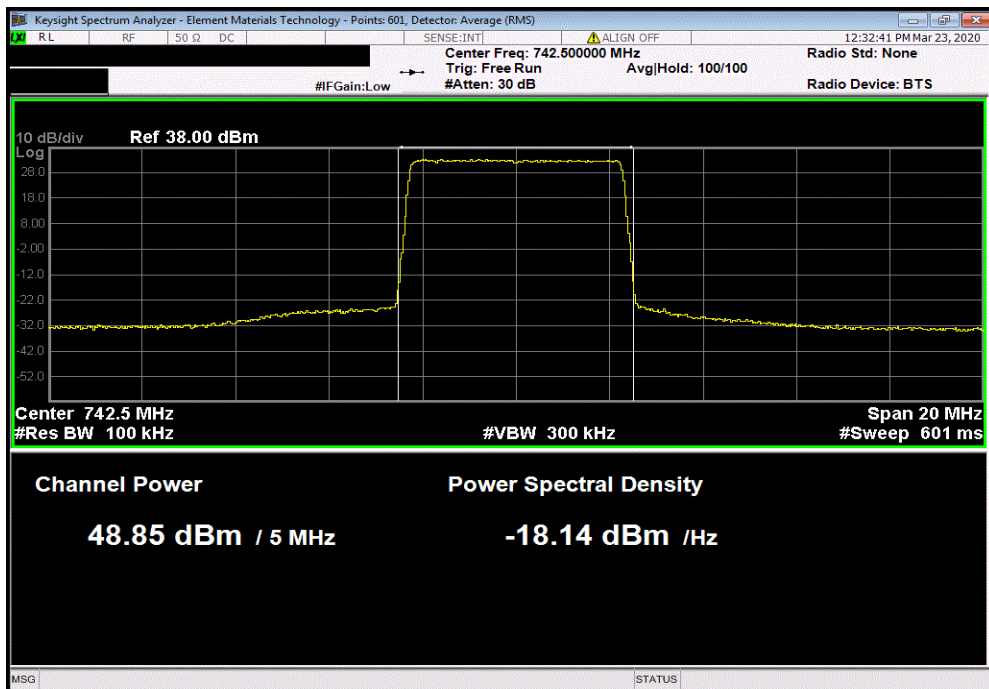


TbTz 2019.08.30.0 XMt 2019.09.05

Band 12, 729 MHz - 745 MHz LTE, Port 1, 5 MHz Channel Bandwidth, 64-QAM Modulation, High Channel 742.5 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.837	0	Not Provided	48.8	60 / 62.15	N/A	



Band 12, 729 MHz - 745 MHz LTE, Port 1, 5 MHz Channel Bandwidth, 256-QAM Modulation, High Channel 742.5 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.853	0	Not Provided	48.9	60 / 62.15	N/A	

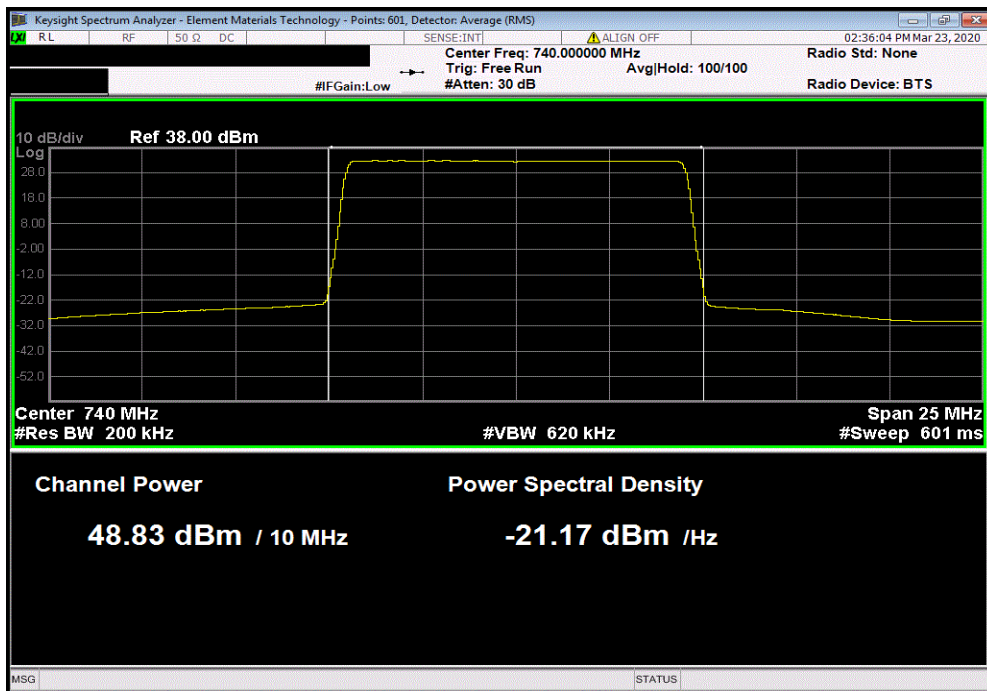


OUTPUT POWER LTE BAND 12 (EXPANDED)

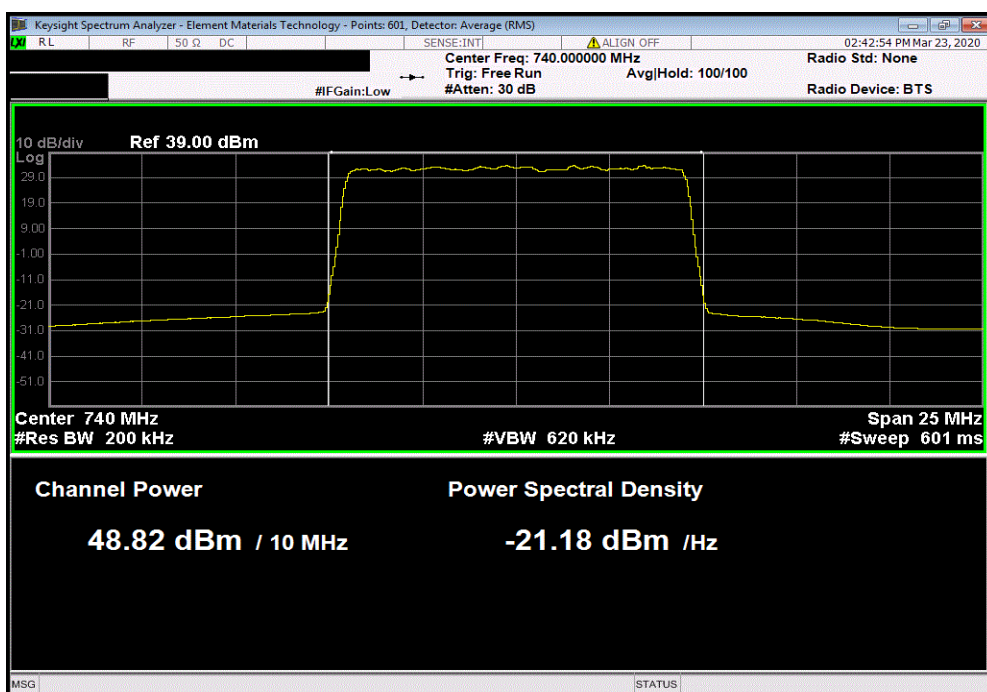


TbTz 2019.08.30.0 XMt 2019.09.05

Band 12, 729 MHz - 745 MHz LTE, Port 1, 10 MHz Channel Bandwidth, QPSK Modulation, High Channel 740 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)		Results
48.829	0	Not Provided	48.8	60 / 62.15		N/A



Band 12, 729 MHz - 745 MHz LTE, Port 1, 10 MHz Channel Bandwidth, 16-QAM Modulation, High Channel 740 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)		Results
48.817	0	Not Provided	48.8	60 / 62.15		N/A

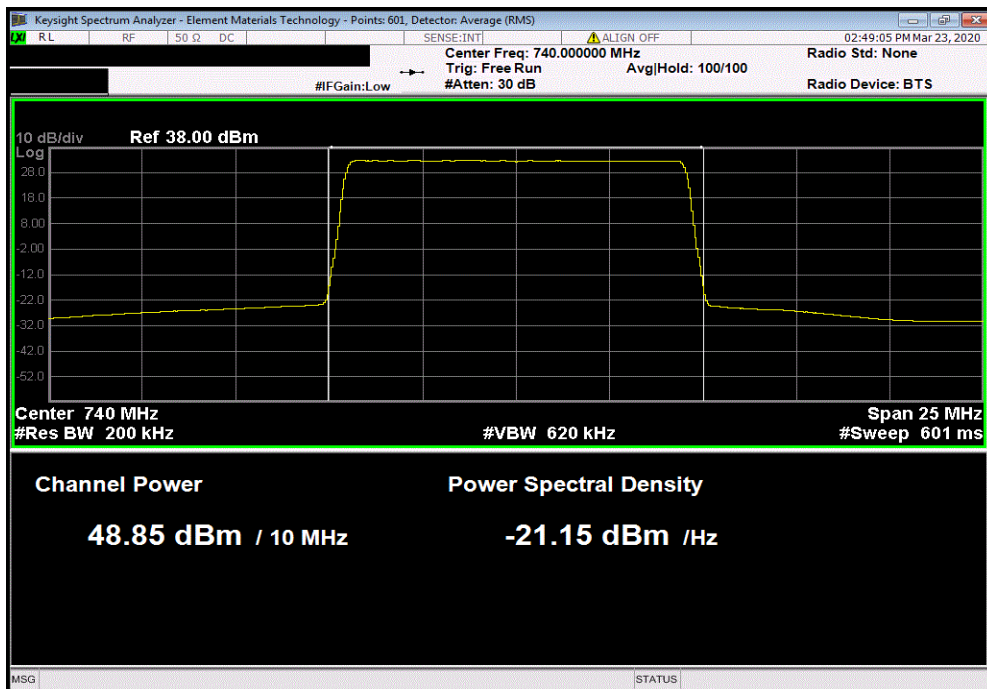


OUTPUT POWER LTE BAND 12 (EXPANDED)

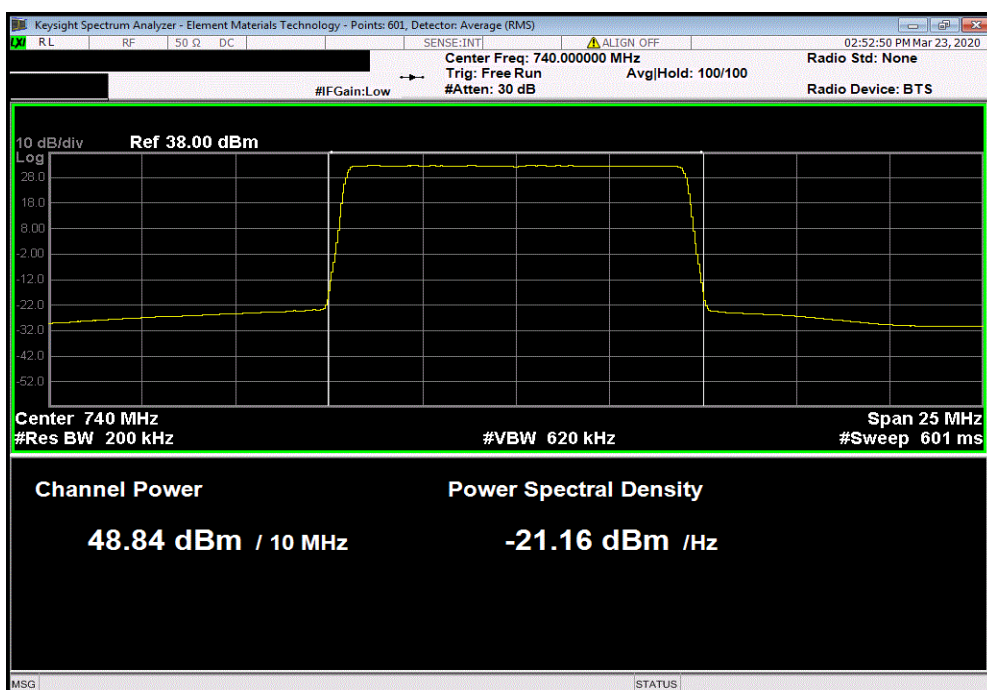


TbTz 2019.08.30.0 XMt 2019.09.05

Band 12, 729 MHz - 745 MHz LTE, Port 1, 10 MHz Channel Bandwidth, 64-QAM Modulation, High Channel 740 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.85	0	Not Provided	48.9	60 / 62.15	N/A	



Band 12, 729 MHz - 745 MHz LTE, Port 1, 10 MHz Channel Bandwidth, 256-QAM Modulation, High Channel 740 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.843	0	Not Provided	48.8	60 / 62.15	N/A	

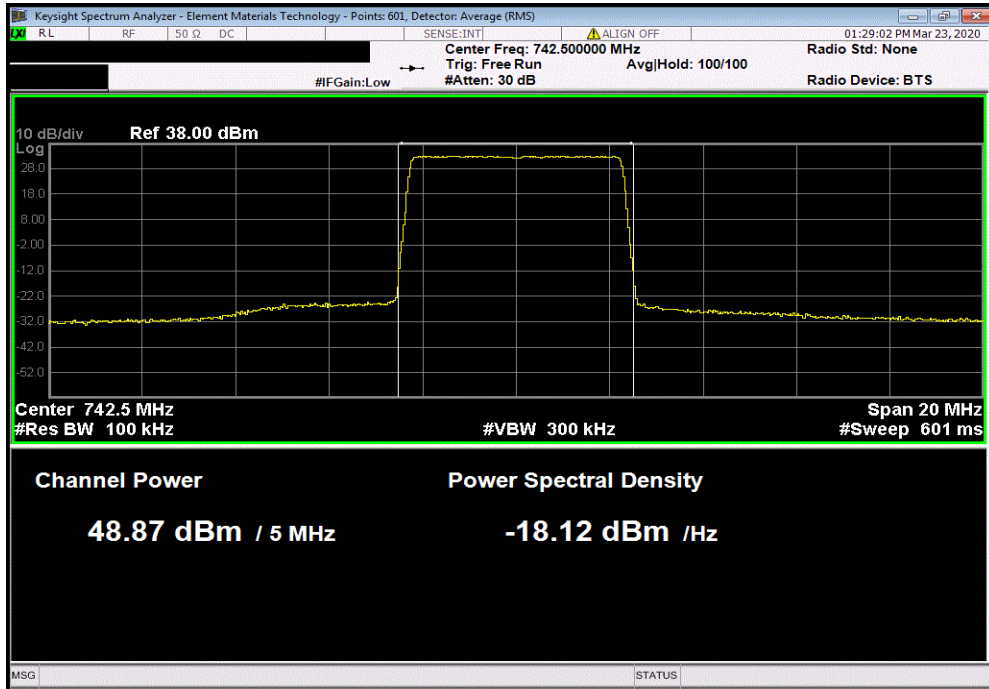


OUTPUT POWER LTE BAND 12 (EXPANDED)

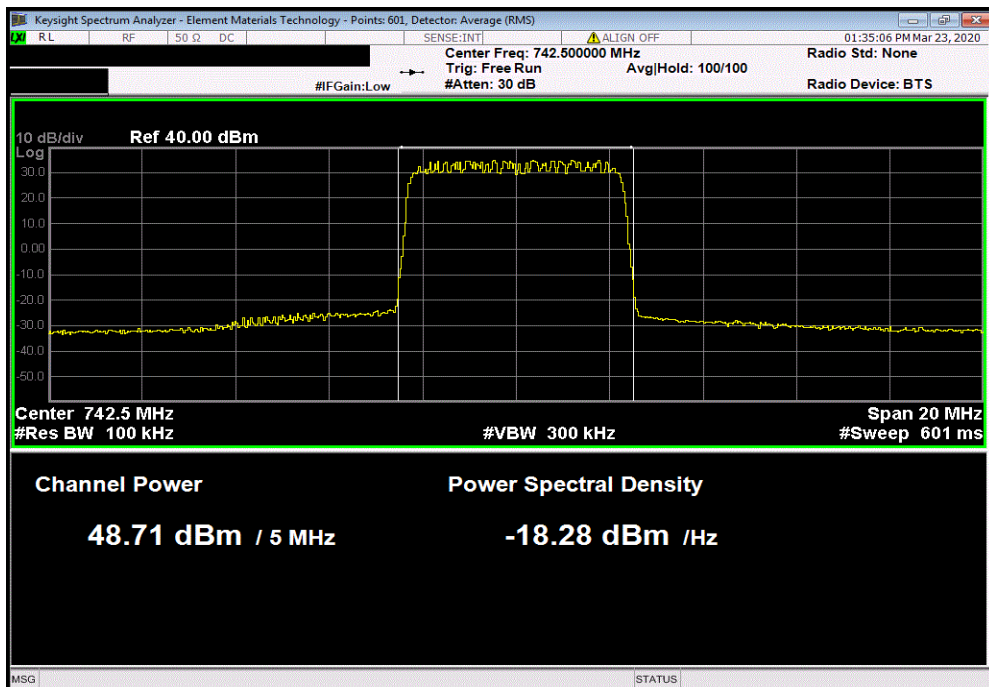


TbTz 2019.08.30.0 XMt 2019.09.05

Band 12, 729 MHz - 745 MHz LTE, Port 2, 5 MHz Channel Bandwidth , QPSK Modulation, High Channel 742.5 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.872	0	Not Provided	48.9	60 / 62.15	N/A	



Band 12, 729 MHz - 745 MHz LTE, Port 2, 5 MHz Channel Bandwidth , 16-QAM Modulation, High Channel 742.5 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.706	0	Not Provided	48.7	60 / 62.15	N/A	

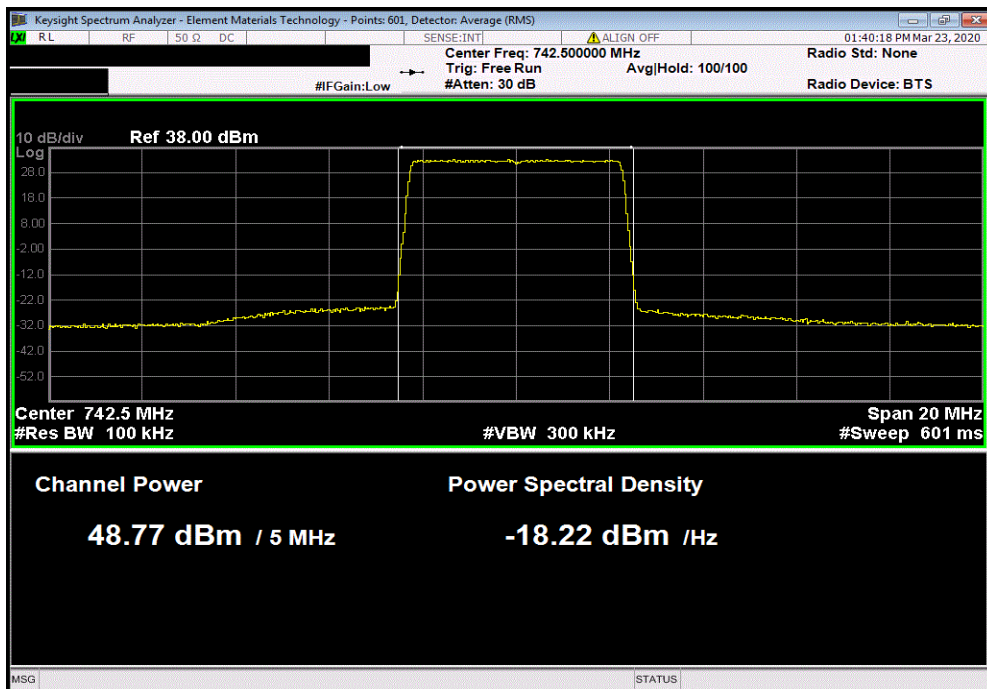


OUTPUT POWER LTE BAND 12 (EXPANDED)

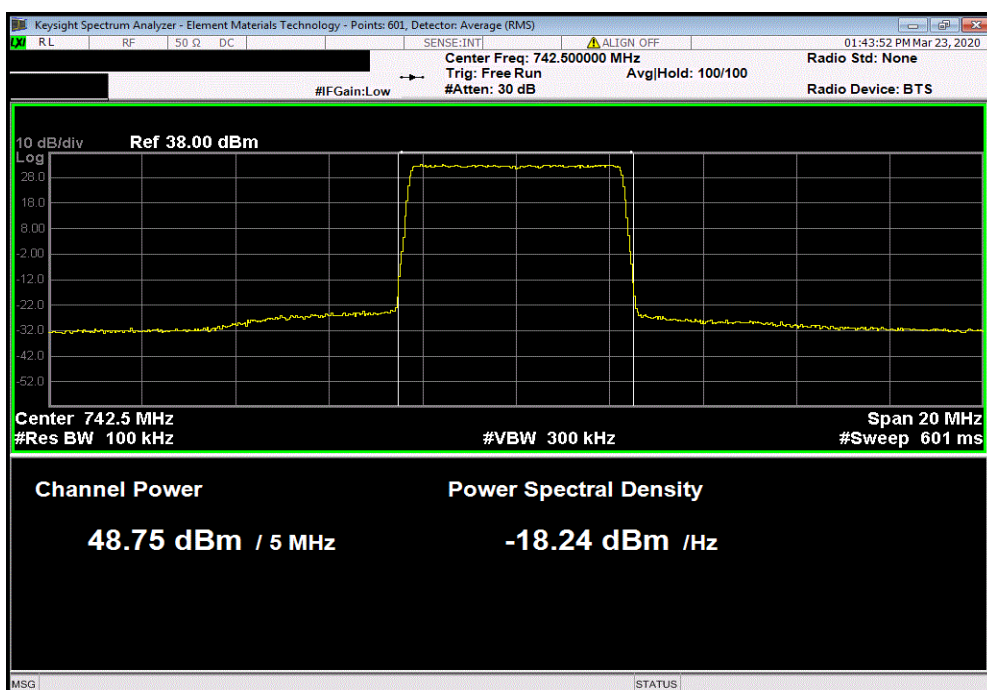


TbTz 2019.08.30.0 XMt 2019.09.05

Band 12, 729 MHz - 745 MHz LTE, Port 2, 5 MHz Channel Bandwidth, 64-QAM Modulation, High Channel 742.5 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.772	0	Not Provided	48.8	60 / 62.15	N/A	



Band 12, 729 MHz - 745 MHz LTE, Port 2, 5 MHz Channel Bandwidth, 256-QAM Modulation, High Channel 742.5 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.748	0	Not Provided	48.7	60 / 62.15	N/A	

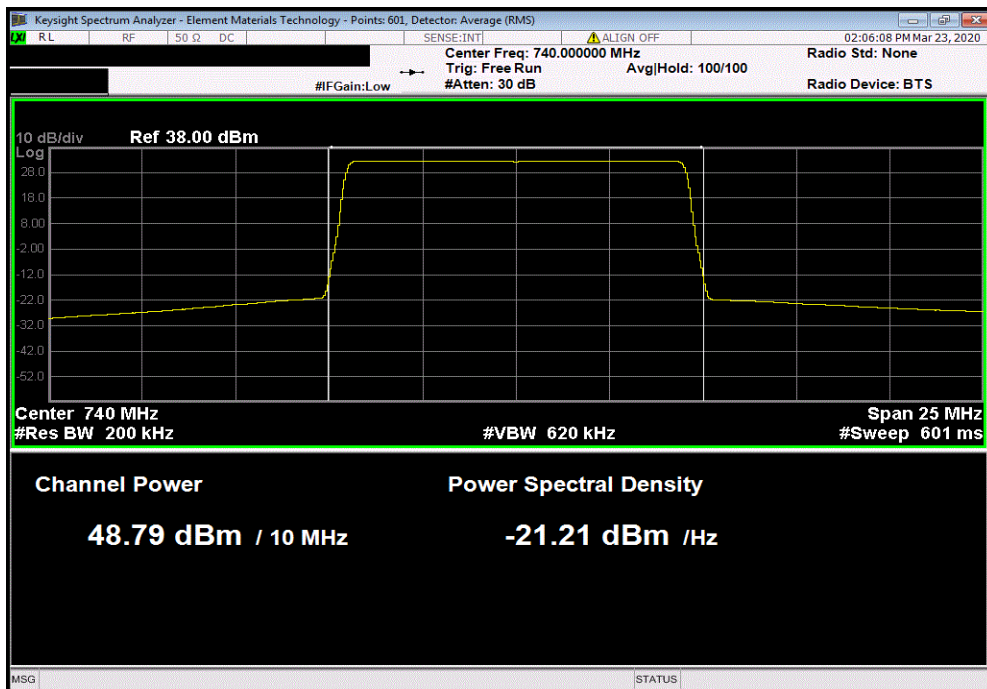


OUTPUT POWER LTE BAND 12 (EXPANDED)

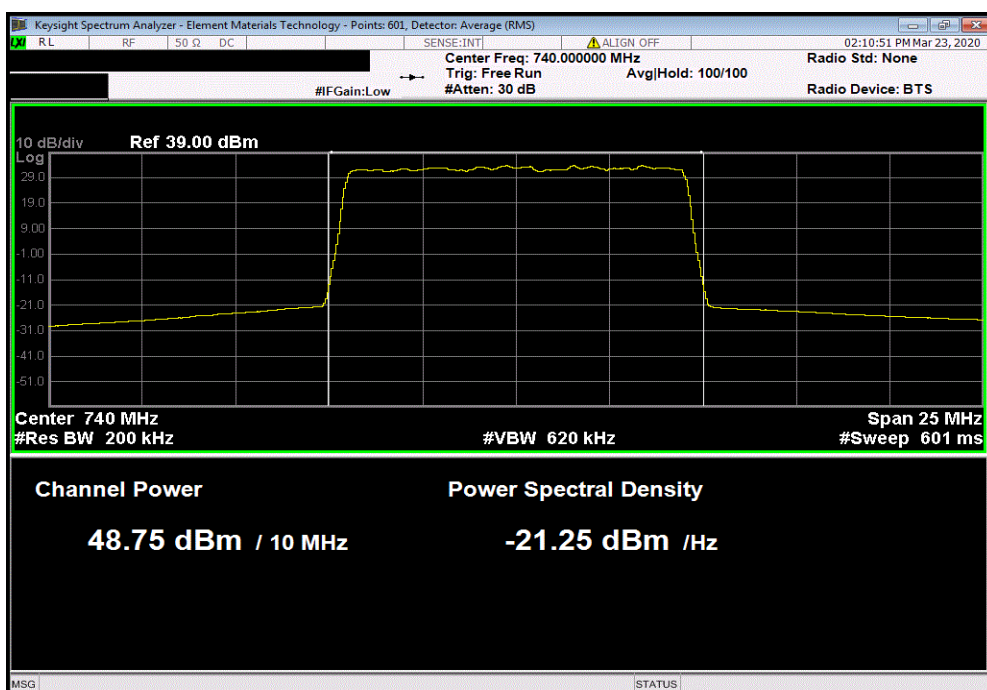


TbTz 2019.08.30.0 XMt 2019.09.05

Band 12, 729 MHz - 745 MHz LTE, Port 2, 10 MHz Channel Bandwidth, QPSK Modulation, High Channel 740 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)		Results
48.786	0	Not Provided	48.8	60 / 62.15		N/A



Band 12, 729 MHz - 745 MHz LTE, Port 2, 10 MHz Channel Bandwidth, 16-QAM Modulation, High Channel 740 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)		Results
48.748	0	Not Provided	48.7	60 / 62.15		N/A

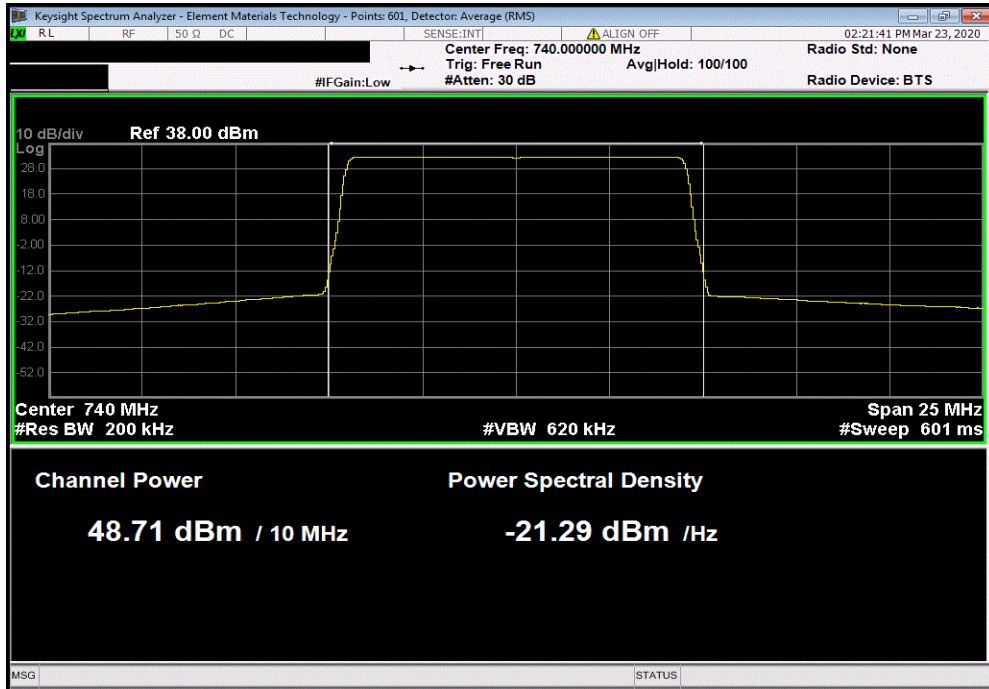


OUTPUT POWER LTE BAND 12 (EXPANDED)

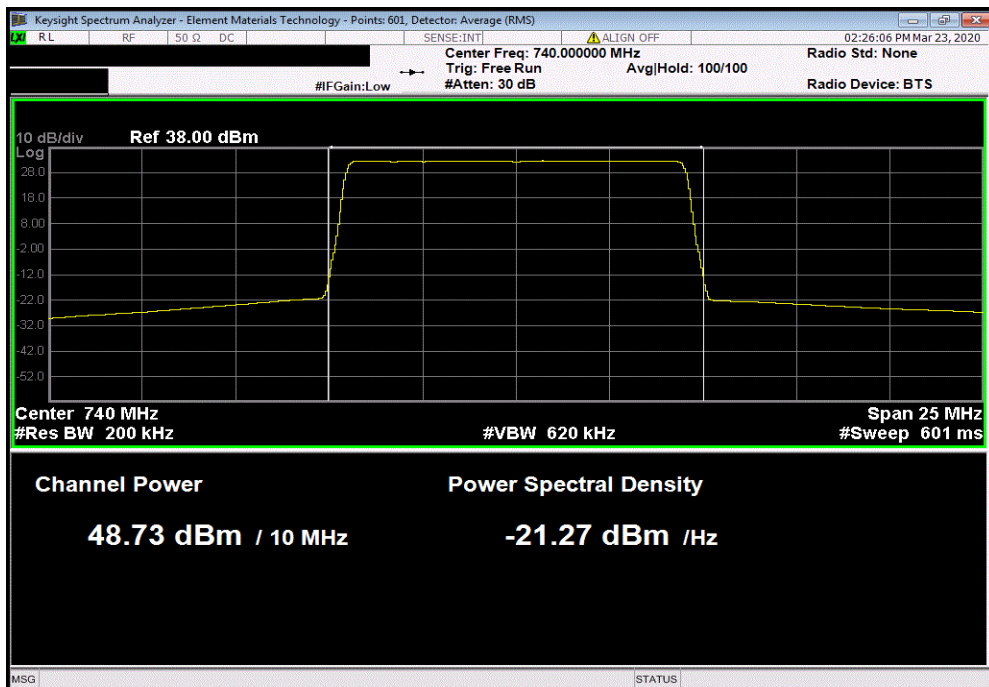


TbTz 2019.08.30.0 XMt 2019.09.05

Band 12, 729 MHz - 745 MHz LTE, Port 2, 10 MHz Channel Bandwidth, 64-QAM Modulation, High Channel 740 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.714	0	Not Provided	48.7	60 / 62.15	N/A	



Band 12, 729 MHz - 745 MHz LTE, Port 2, 10 MHz Channel Bandwidth, 256-QAM Modulation, High Channel 740 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.731	0	Not Provided	48.7	60 / 62.15	N/A	



OUTPUT POWER LTE BAND 29 (EXPANDED)



XMIT 2019.09.05

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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. The fundamental emission output power (maximum average conducted output power) was measured using the channels and modes as called out on the following data sheets. The transmit power was set to its default maximum.

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Per FCC section 27.50(c)(3), the Effective Radiated Power (ERP) of the transceiver cannot exceed 1000 Watts/MHz

Per RSS 130 section 4.6.3/ SRSP-518 5.1, the maximum (EIRP) limits are 1640 watts/MHz.

OUTPUT POWER LTE BAND 29 (EXPANDED)



TkTx 2019.08.30.0 XMM 2019.09.05

EUT:	Airscale Base Transceiver Station Remote Radio Head Model AHLBBA		Work Order:	NOKI0013			
Serial Number:	K9193514835		Date:	23-Mar-20			
Customer:	Nokia Solutions and Networks		Temperature:	22.7 °C			
Attendees:	Mitch Hill, John Rattanaovong		Humidity:	48.9% RH			
Project:	None		Barometric Pres.:	1008 mbar			
Tested by:	Brandon Hobbs	Power:	54 VDC	Job Site: TX03			
TEST SPECIFICATIONS			Test Method				
FCC 27:2020			ANSI C63.26:2015				
RSS-130:2019, SRSP-518			RSS-130:2019, SRSP-518				
COMMENTS							
All measurement path losses were accounted for in the reference level offset 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							
None							
Configuration #	2,6	Signature					
		Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results

Band 29, 717 MHz - 728 MHz LTE

Port 1

5 MHz Bandwidth

QPSK Modulation

Low Channel 719.5 MHz

43.734

0

Not Provided

43.734

60 / 62.15

N/A

16-QAM Modulation

Low Channel 719.5 MHz

43.726

0

Not Provided

43.726

60 / 62.15

N/A

64-QAM Modulation

Low Channel 719.5 MHz

43.711

0

Not Provided

43.711

60 / 62.15

N/A

256-QAM Modulation

Low Channel 719.5 MHz

43.723

0

Not Provided

43.723

60 / 62.15

N/A

10 MHz Bandwidth

QPSK Modulation

Low Channel 722 MHz

43.768

0

Not Provided

43.768

60 / 62.15

N/A

16-QAM Modulation

Low Channel 722 MHz

43.775

0

Not Provided

43.775

60 / 62.15

N/A

64-QAM Modulation

Low Channel 722 MHz

43.739

0

Not Provided

43.739

60 / 62.15

N/A

256-QAM Modulation

Low Channel 722 MHz

43.738

0

Not Provided

43.738

60 / 62.15

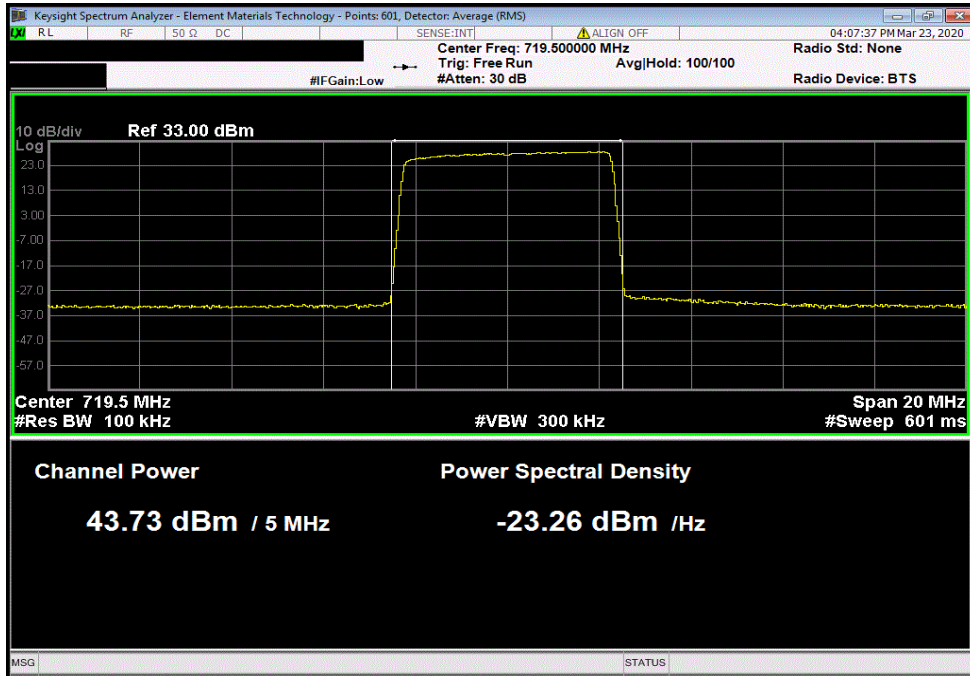
N/A

OUTPUT POWER LTE BAND 29 (EXPANDED)

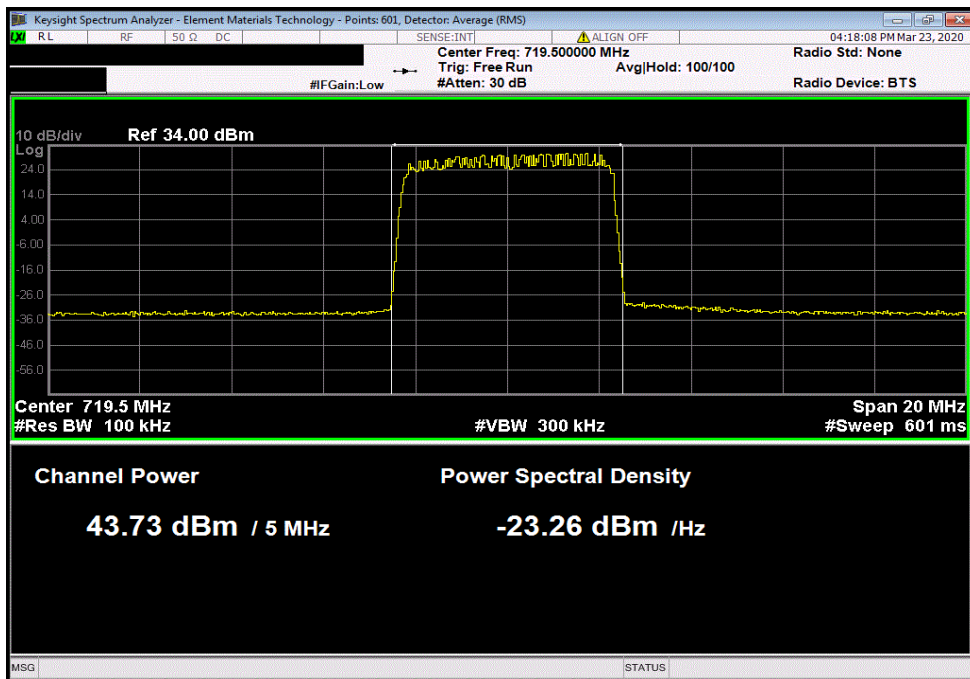


TbTx 2019.08.30.0 XMt 2019.09.05

Band 29, 717 MHz - 728 MHz LTE , Port 1, 5 MHz Bandwidth, QPSK Modulation, Low Channel 719.5 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
43.734	0	Not Provided	43.7	60 / 62.15	N/A	



Band 29, 717 MHz - 728 MHz LTE , Port 1, 5 MHz Bandwidth, 16-QAM Modulation, Low Channel 719.5 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
43.726	0	Not Provided	43.7	60 / 62.15	N/A	

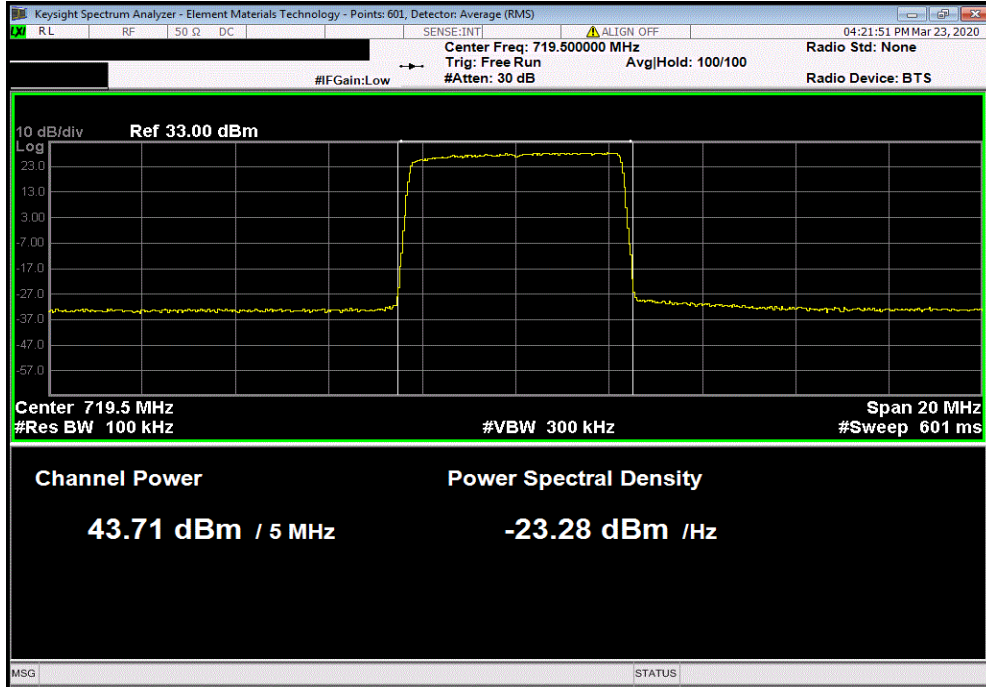


OUTPUT POWER LTE BAND 29 (EXPANDED)

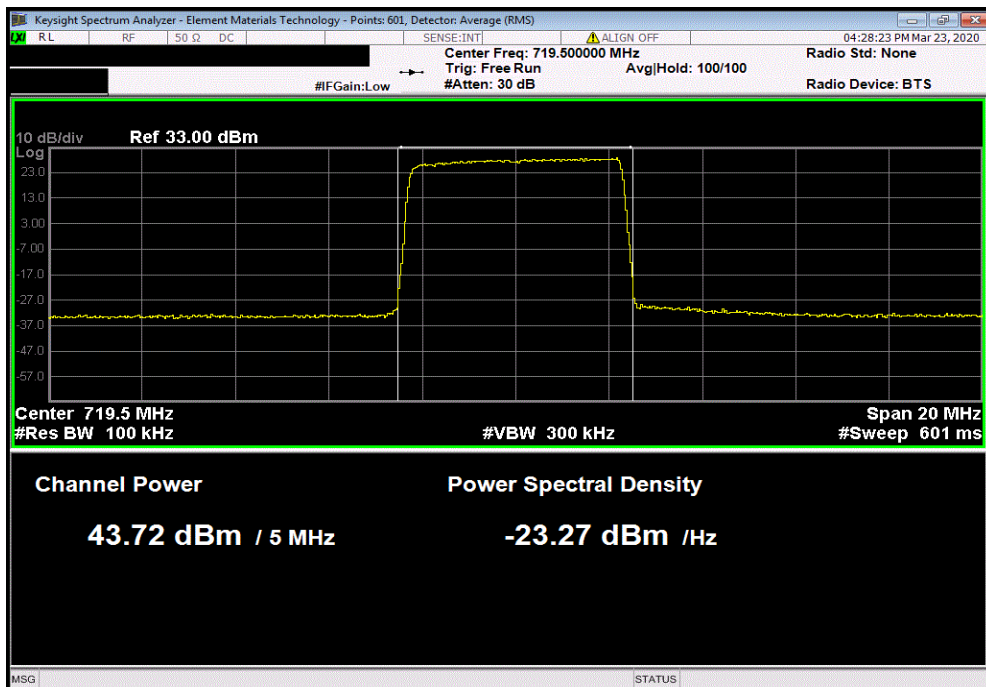


TMTX 2019.08.30.0 XM8 2019.09.05

Band 29, 717 MHz - 728 MHz LTE , Port 1, 5 MHz Bandwidth, 64-QAM Modulation, Low Channel 719.5 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
43.711	0	Not Provided	43.7	60 / 62.15	N/A	



Band 29, 717 MHz - 728 MHz LTE , Port 1, 5 MHz Bandwidth, 256-QAM Modulation, Low Channel 719.5 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
43.723	0	Not Provided	43.7	60 / 62.15	N/A	

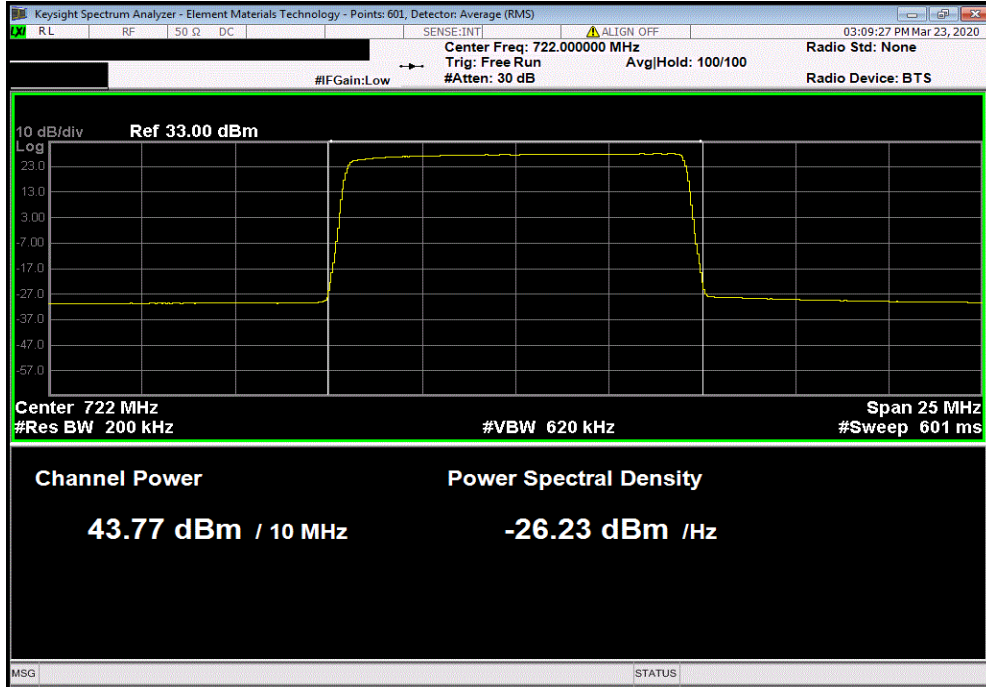


OUTPUT POWER LTE BAND 29 (EXPANDED)

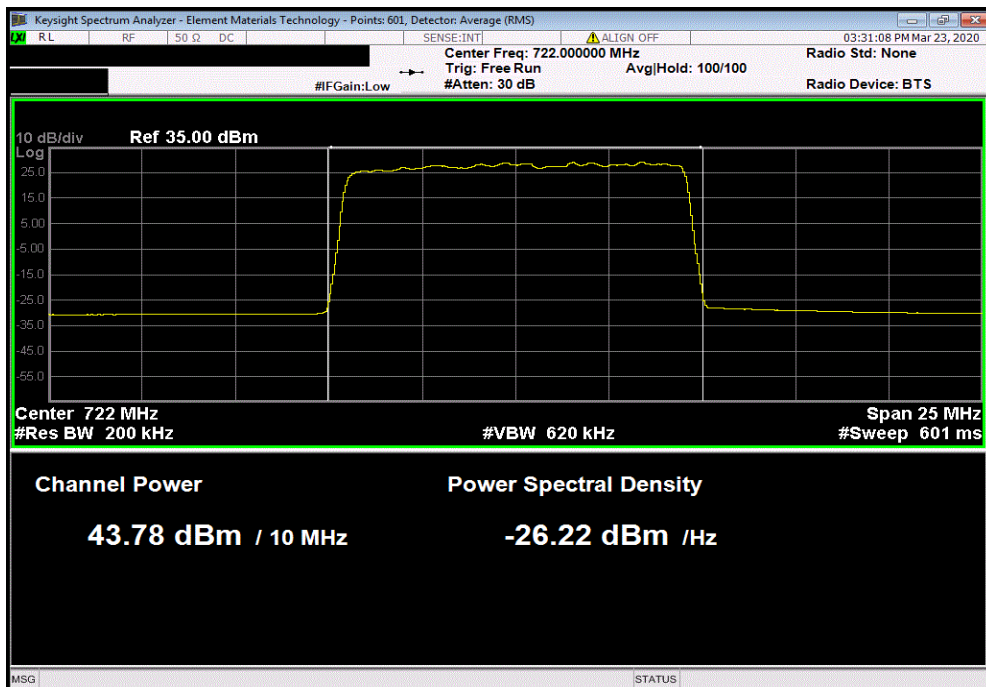


TMTx 2019.08.30.0 XMR 2019.09.05

Band 29, 717 MHz - 728 MHz LTE , Port 1, 10 MHz Bandwidth, QPSK Modulation, Low Channel 722 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
43.768	0	Not Provided	43.8	60 / 62.15	N/A	



Band 29, 717 MHz - 728 MHz LTE , Port 1, 10 MHz Bandwidth, 16-QAM Modulation, Low Channel 722 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
43.775	0	Not Provided	43.8	60 / 62.15	N/A	

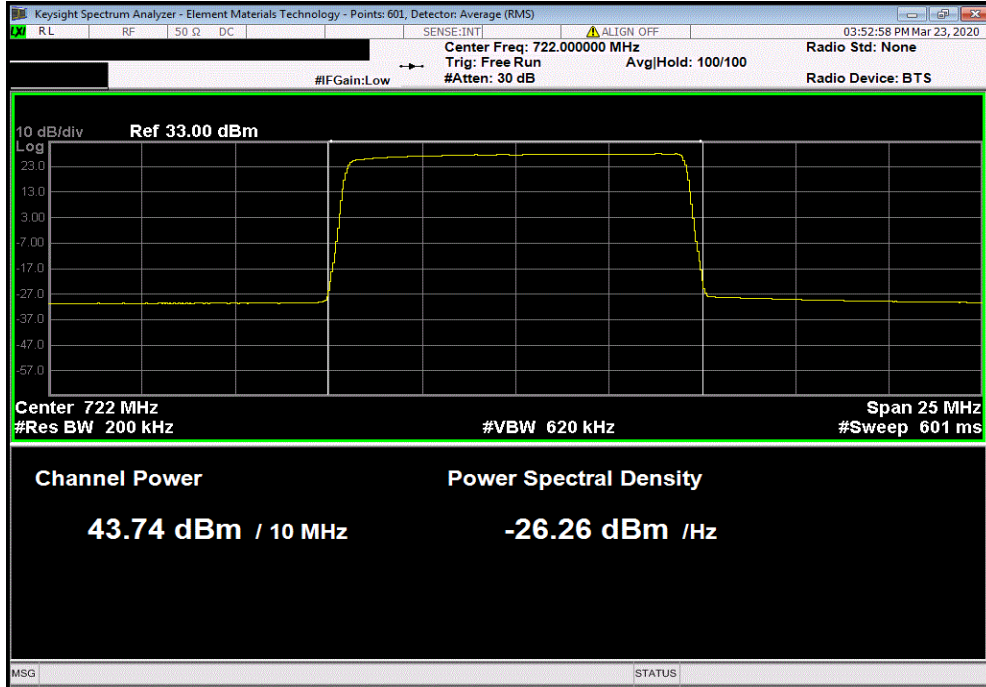


OUTPUT POWER LTE BAND 29 (EXPANDED)

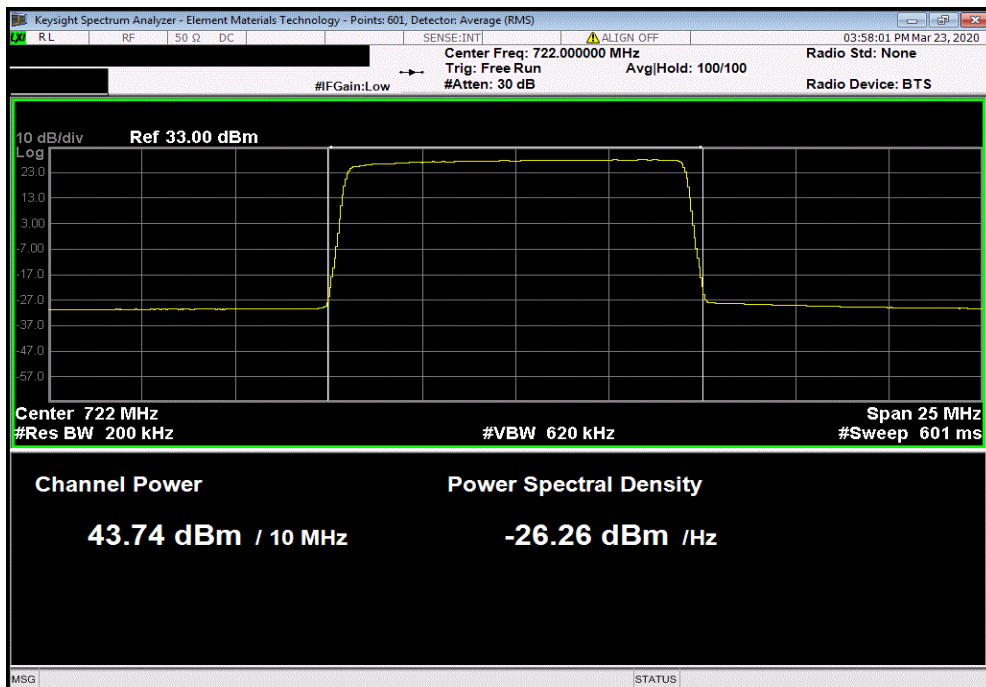


TMTx 2019.08.30.0 XM8 2019.09.05

Band 29, 717 MHz - 728 MHz LTE , Port 1, 10 MHz Bandwidth, 64-QAM Modulation, Low Channel 722 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
43.739	0	Not Provided	43.7	60 / 62.15	N/A	



Band 29, 717 MHz - 728 MHz LTE , Port 1, 10 MHz Bandwidth, 256-QAM Modulation, Low Channel 722 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
43.738	0	Not Provided	43.7	60 / 62.15	N/A	



OUTPUT POWER LTE BAND 14 (GUARDBAND)



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
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. The fundamental emission output power (maximum average conducted output power) 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 5.2.4.4 of ANSI C63.26 was used to make the measurement. This method uses trace averaging across ON and OFF times of the EUT transmissions in the spectrum analyzer channel power function using an RMS detector. Following the measurement a duty cycle correction was applied by adding $[10 \log (1 / D)]$, where D is the duty cycle, to the measured power to compute the average power during the actual transmission times.

Per FCC section 90.542, the Effective Radiated Power (ERP) of the transceiver cannot exceed 1000 Watts/MHz
Per RSS 140 section 4.3 and SRSP-540, the maximum (EIRP) limits are 1000 watts/MHz.

OUTPUT POWER LTE BAND 14 (GUARDBAND)



TbTx 2019.08.30.0 XMN 2019.09.05

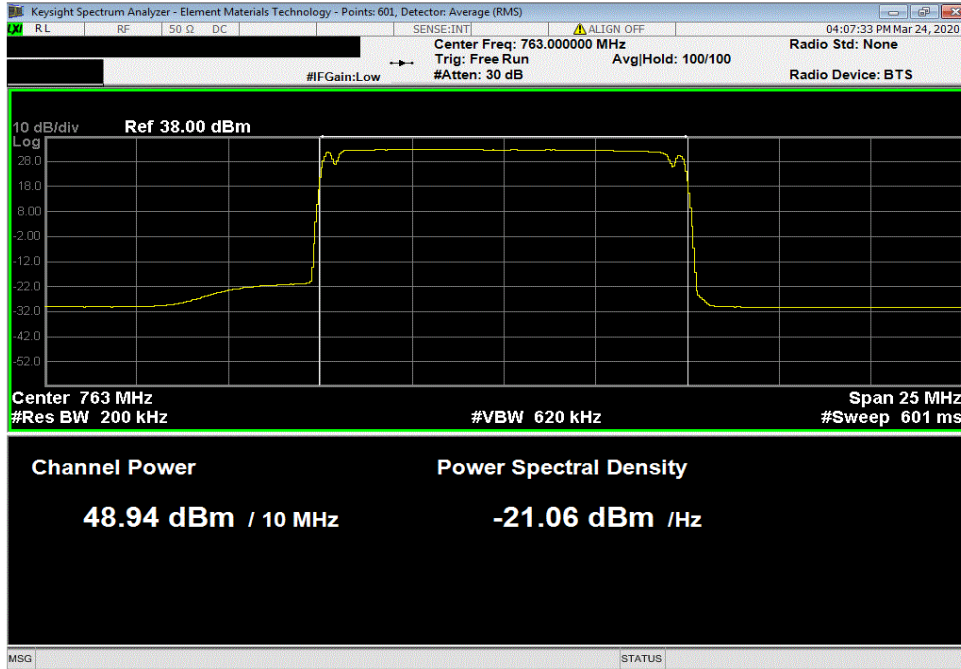
EUT: Aircscale Base Transceiver Station Remote Radio Head Model AHLBBA		Work Order: NOKI0013	
Serial Number: K9193514835		Date: 24-Mar-20	
Customer: Nokia Solutions and Networks		Temperature: 22.4 °C	
Attendees: Mitch Hill, John Rattanaovong		Humidity: 50.6% RH	
Project: None		Barometric Pres.: 1008 mbar	
Tested by: Brandon Hobbs	Power: 54 VDC	Job Site: TX03	
TEST SPECIFICATIONS		Test Method	
FCC 901:2020		ANSI C63.26:2015	
RSS-140:2018, SRSP-540		RSS-140:2018, SRSP-540	
COMMENTS			
All measurement path losses were accounted for in the reference level offset including any attenuators, filters and DC blocks. The hottest port per power amplifier (PA) was used for testing. 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			
None			
Configuration #	2,6	Signature	
		Initial Power (dBm/OBW)	Duty Cycle Factor (dB)
		Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)
		FCC ERP / RSS EIRP Limits (dBm/OBW)	Results
Band 14, 763 MHz, LTE			
Port 1			
10 MHz Bandwidth			
QPSK Modulation			
	Mid Channel 763 MHz	48.942	0
		Not Provided	48.942
			60 / 60
			N/A
Port 2			
10 MHz Bandwidth			
QPSK Modulation			
	Mid Channel 763 MHz	48.837	0
		Not Provided	48.837
			60 / 60
			N/A

OUTPUT POWER LTE BAND 14 (GUARDBAND)

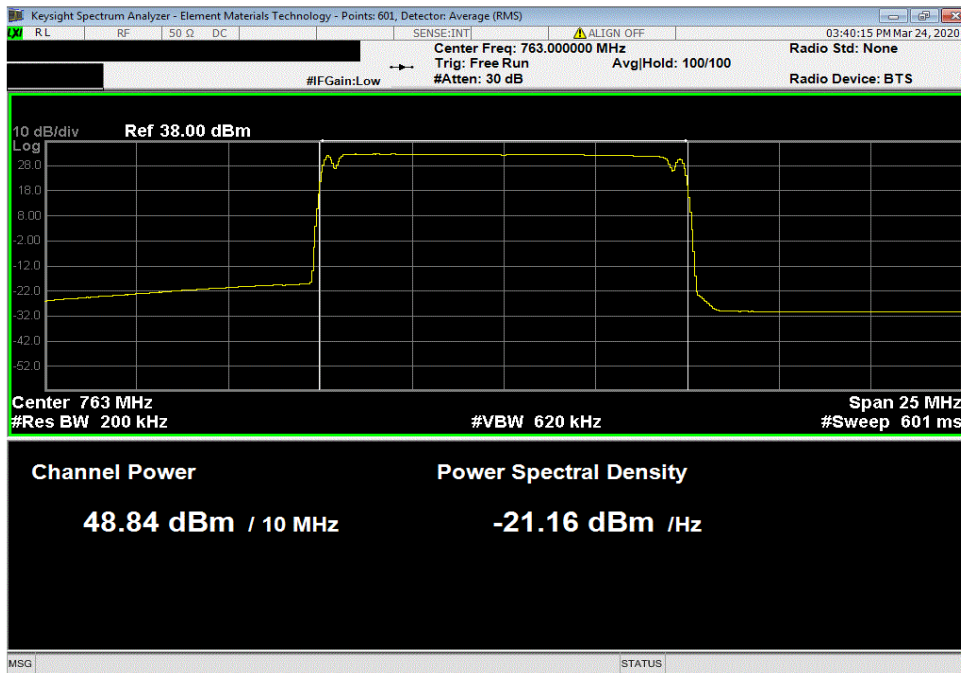


TbTx 2019.08.30.0 XM6 2019.08.05

Band 14, 763 MHz, LTE, Port 1, 10 MHz Bandwidth, QPSK Modulation, Mid Channel 763 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.942	0	Not Provided	48.9	60 / 60	N/A	



Band 14, 763 MHz, LTE, Port 2, 10 MHz Bandwidth, QPSK Modulation, Mid Channel 763 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.837	0	Not Provided	48.8	60 / 60	N/A	



OUTPUT POWER LTE BANDS 29,12 (GUARDBAND)



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
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. The fundamental emission output power (maximum average conducted output power) 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 5.2.4.4 of ANSI C63.26 was used to make the measurement. This method uses trace averaging across ON and OFF times of the EUT transmissions in the spectrum analyzer channel power function using an RMS detector. Following the measurement a duty cycle correction was applied by adding $[10 \log (1 / D)]$, where D is the duty cycle, to the measured power to compute the average power during the actual transmission times.

Per FCC section 27.50(c)(3), the Effective Radiated Power (ERP) of the transceiver cannot exceed 1000 Watts/MHz
Per RSS 130 section 4.6.3 and SRSP-518 5.1, the maximum (EIRP) limits are 1640 watts/MHz.

OUTPUT POWER LTE BANDS 29,12 (GUARDBAND)



TestRx 2019.08.30.0 XMM 2019.09.05

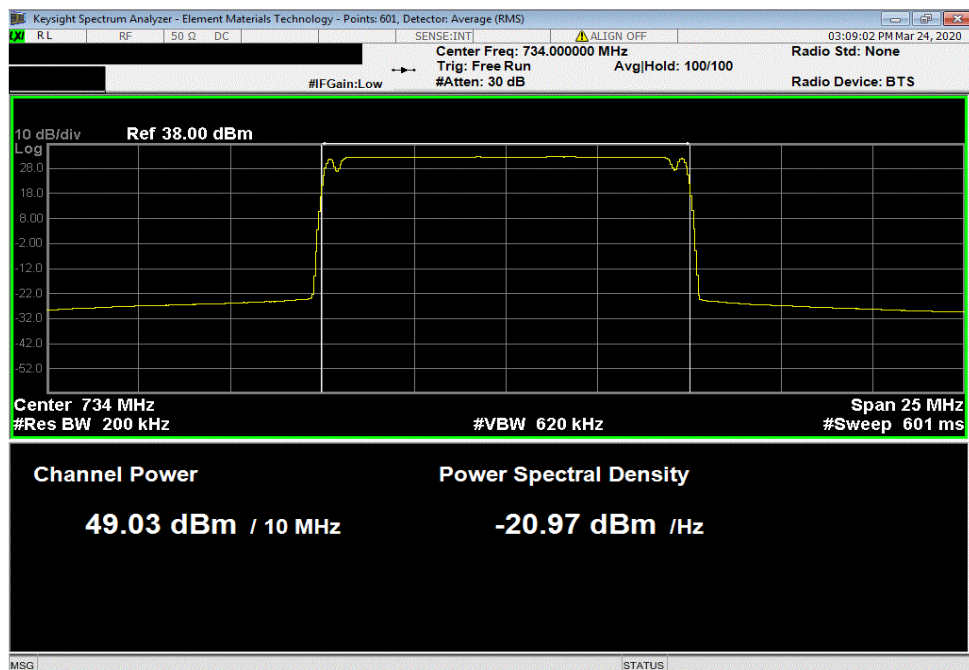
EUT: Aircscale Base Transceiver Station Remote Radio Head Model AHLBBA				Work Order: NOKI0013			
Serial Number: K9193514835				Date: 24-Mar-20			
Customer: Nokia Solutions and Networks				Temperature: 22.5 °C			
Attendees: Mitch Hill, John Rattanaovong				Humidity: 50.4% RH			
Project: None				Barometric Pres.: 1008 mbar			
Tested by: Brandon Hobbs			Power: 54 VDC		Job Site: TX03		
TEST SPECIFICATIONS				Test Method			
FCC 27:2020				ANSI C63.26:2015			
RSS-130:2019, SRSP-518				RSS-130:2019, SRSP-518			
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. 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							
None							
Configuration #	2,6	Signature 					
		Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results
Band 12, 729 MHz - 745 MHz, LTE							
Port 1							
10 MHz Bandwidth							
QPSK Modulation							
Low Channel 734 MHz		49.029	0	Not Provided	49.0	60 / 62.15	N/A
Mid Channel 737 MHz		49.049	0	Not Provided	49.0	60 / 62.15	N/A
High Channel 740 MHz		48.978	0	Not Provided	49.0	60 / 62.15	N/A
Port 2							
10 MHz Bandwidth							
QPSK Modulation							
Low Channel 734 MHz		48.927	0	Not Provided	48.9	60 / 62.15	N/A
Mid Channel 737 MHz		48.916	0	Not Provided	48.9	60 / 62.15	N/A
High Channel 740 MHz		48.92	0	Not Provided	48.9	60 / 62.15	N/A
Band 29, 717 MHz - 728 MHz, LTE							
Port 1							
10 MHz Bandwidth							
QPSK Modulation							
Low Channel 722 MHz		43.879	0	Not Provided	43.9	60 / 62.15	N/A
Mid Channel 722.5 MHz		43.943	0	Not Provided	43.9	60 / 62.15	N/A
High Channel 723 MHz		43.926	0	Not Provided	43.9	60 / 62.15	N/A

OUTPUT POWER LTE BANDS 29,12 (GUARDBAND)

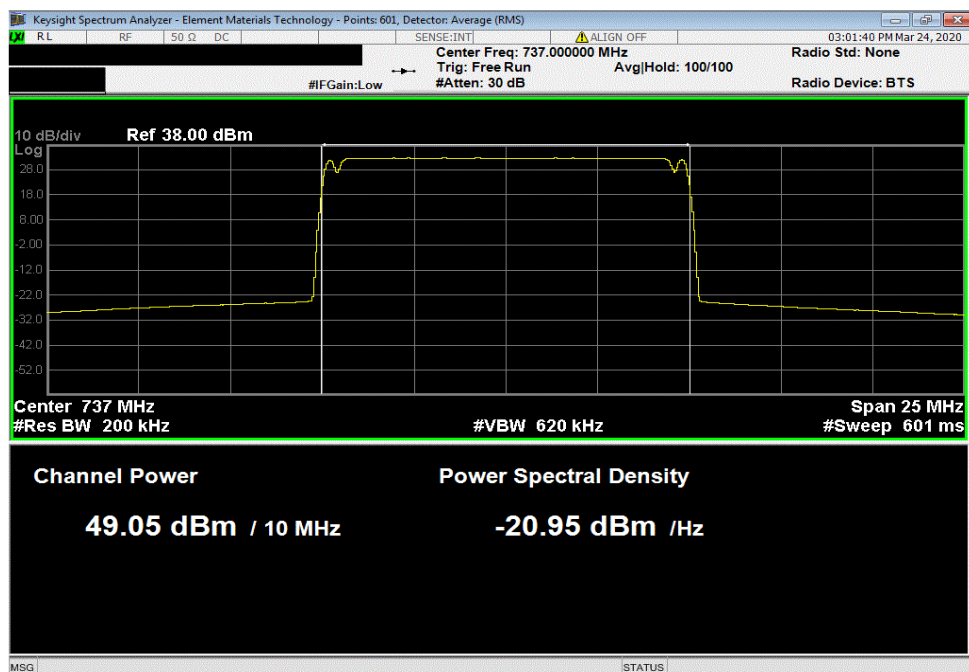


TbTtx 2019.08.30.0 XME 2019.09.05

Band 12, 729 MHz - 745 MHz, LTE, Port 1, 10 MHz Bandwidth, QPSK Modulation, Low Channel 734 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
49.029	0	Not Provided	49.0	60 / 62.15	N/A	



Band 12, 729 MHz - 745 MHz, LTE, Port 1, 10 MHz Bandwidth, QPSK Modulation, Mid Channel 737 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
49.049	0	Not Provided	49.0	60 / 62.15	N/A	

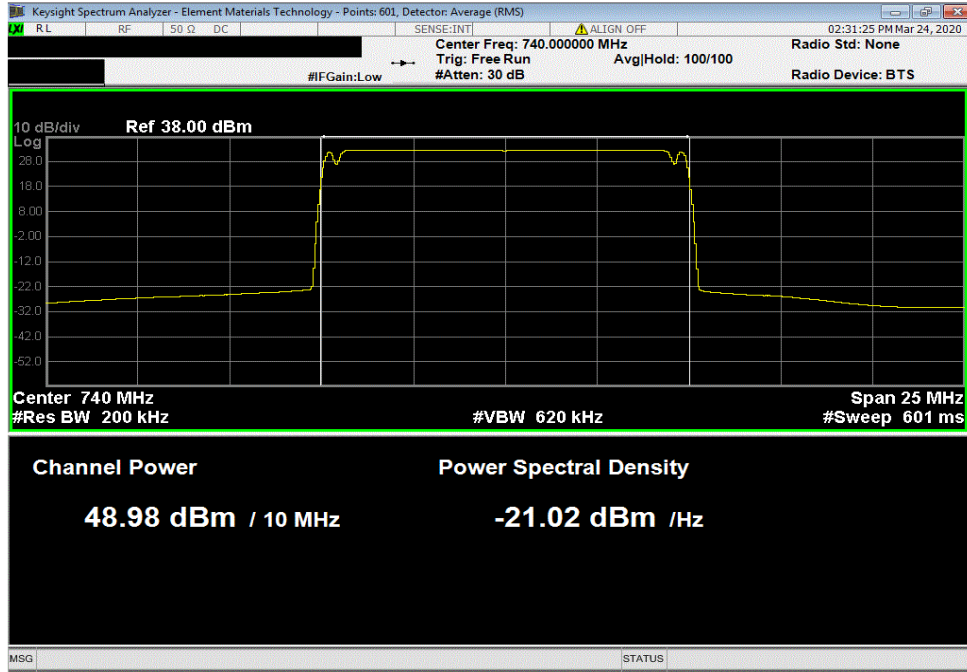


OUTPUT POWER LTE BANDS 29,12 (GUARDBAND)

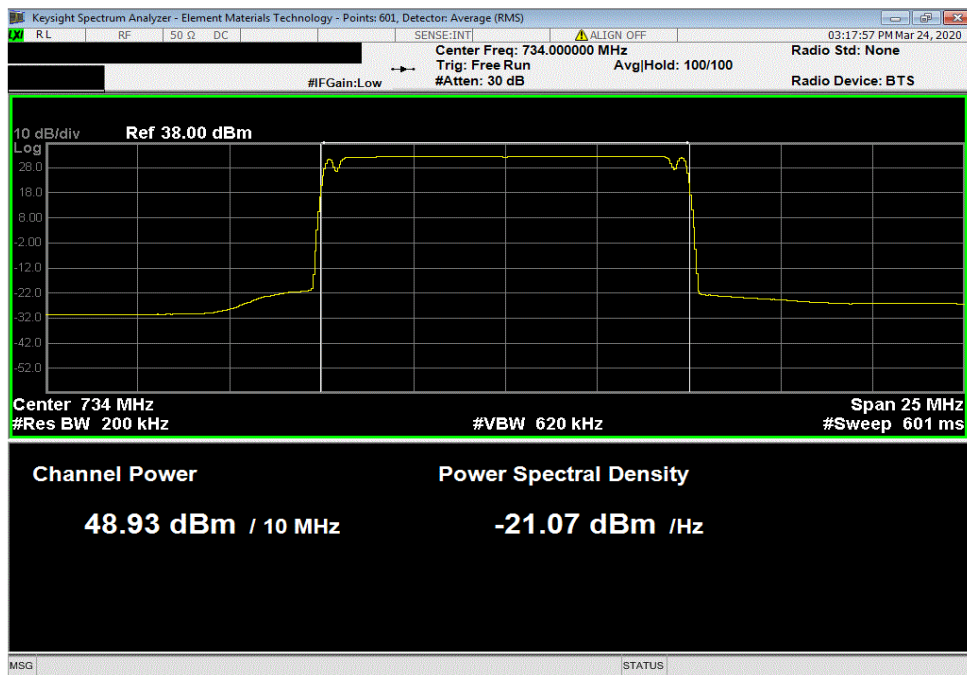


TbTx 2019.08.30.0 XMM 2019.09.05

Band 12, 729 MHz - 745 MHz, LTE, Port 1, 10 MHz Bandwidth, QPSK Modulation, High Channel 740 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)		Results
48.978	0	Not Provided	49.0	60 / 62.15		N/A



Band 12, 729 MHz - 745 MHz, LTE, Port 2, 10 MHz Bandwidth, QPSK Modulation, Low Channel 734 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)		Results
48.927	0	Not Provided	48.9	60 / 62.15		N/A

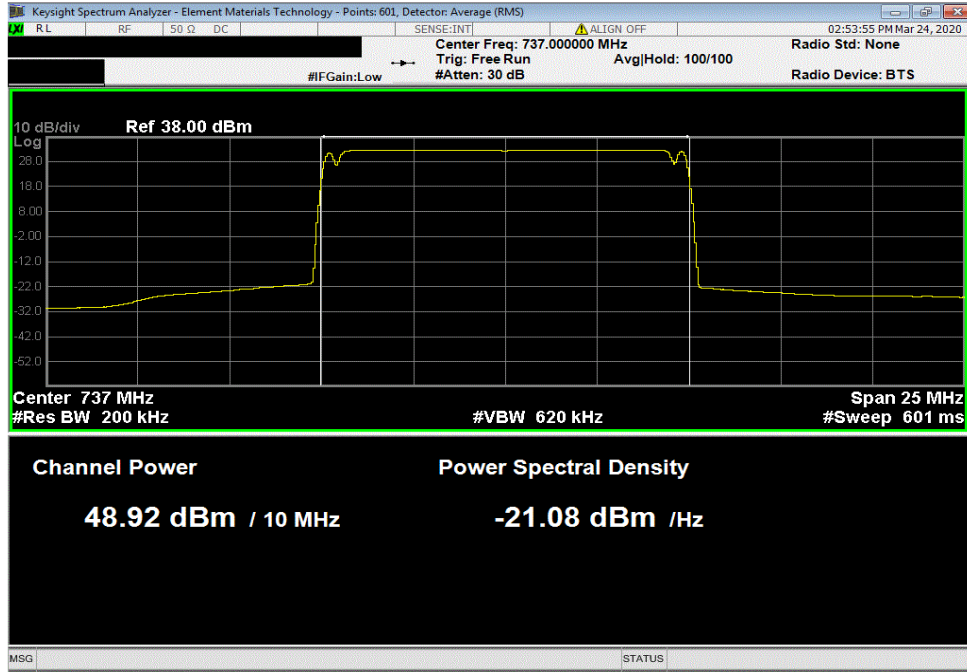


OUTPUT POWER LTE BANDS 29,12 (GUARDBAND)

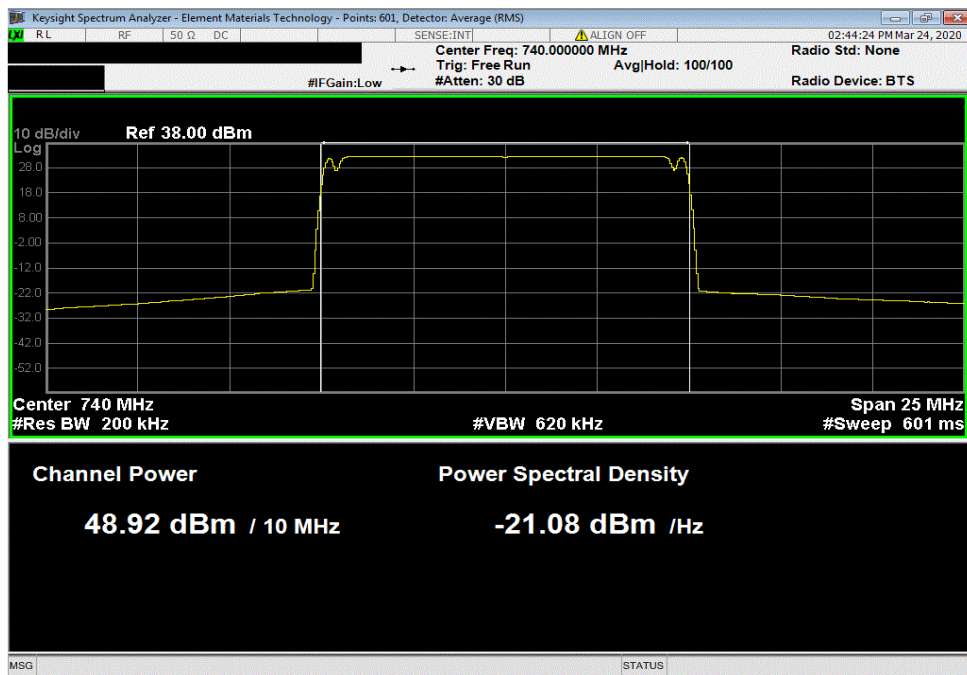


TbTb 2019.08.30.0 XMM 2019.09.05

Band 12, 729 MHz - 745 MHz, LTE, Port 2, 10 MHz Bandwidth, QPSK Modulation, Mid Channel 737 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.916	0	Not Provided	48.9	60 / 62.15	N/A	



Band 12, 729 MHz - 745 MHz, LTE, Port 2, 10 MHz Bandwidth, QPSK Modulation, High Channel 740 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.92	0	Not Provided	48.9	60 / 62.15	N/A	

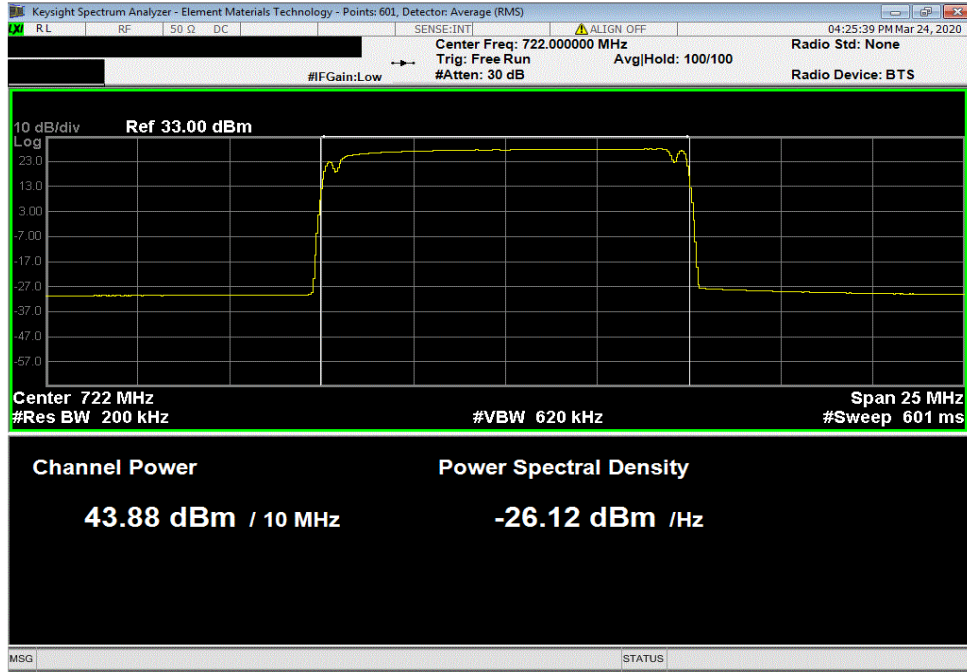


OUTPUT POWER LTE BANDS 29,12 (GUARDBAND)

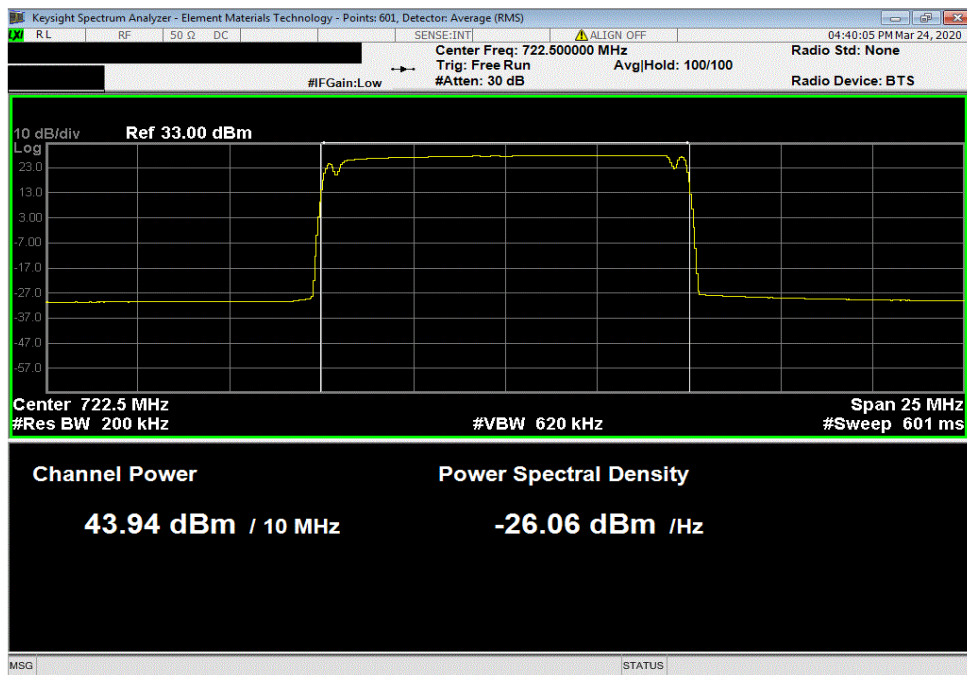


TbTx 2019.08.30.0 XM 2019.09.05

Band 29, 717 MHz - 728 MHz, LTE, Port 1, 10 MHz Bandwidth, QPSK Modulation, Low Channel 722 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)		Results
43.879	0	Not Provided	43.9	60 / 62.15		N/A



Band 29, 717 MHz - 728 MHz, LTE, Port 1, 10 MHz Bandwidth, QPSK Modulation, Mid Channel 722.5 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)		Results
43.943	0	Not Provided	43.9	60 / 62.15		N/A

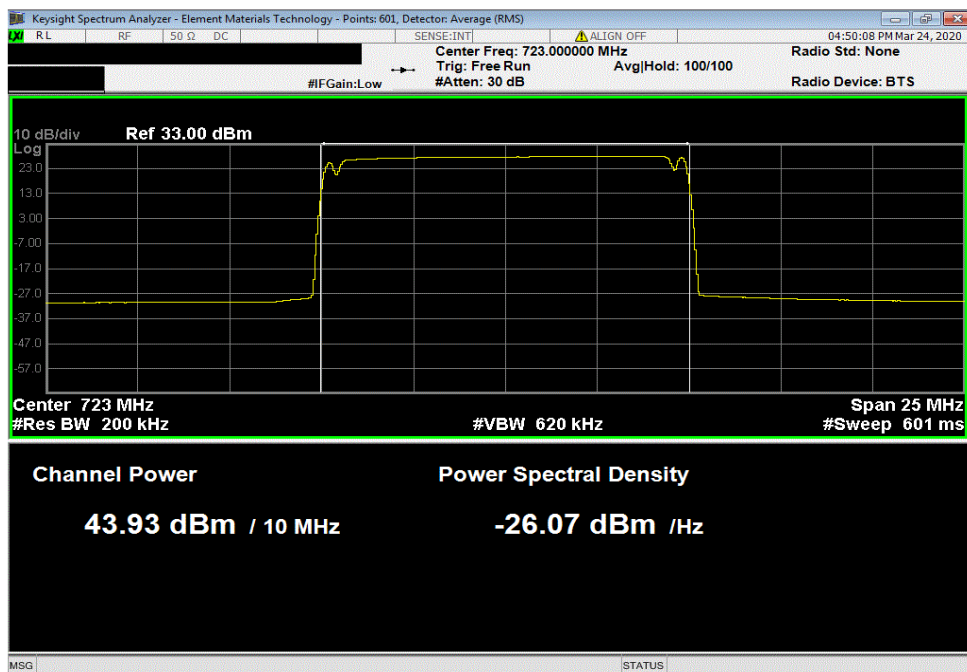


OUTPUT POWER LTE BANDS 29,12 (GUARDBAND)



TbTb 2019.08.30.0 XME 2019.09.05

Band 29, 717 MHz - 728 MHz, LTE, Port 1, 10 MHz Bandwidth, QPSK Modulation, High Channel 723 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)		Results
43.926	0	Not Provided	43.9	60 / 62.15		N/A



OUTPUT POWER LTE BAND 12 (INBAND)



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
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. The fundamental emission output power (maximum average conducted output power) 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 5.2.4.4 of ANSI C63.26 was used to make the measurement. This method uses trace averaging across ON and OFF times of the EUT transmissions in the spectrum analyzer channel power function using an RMS detector. Following the measurement a duty cycle correction was applied by adding $[10 \log (1 / D)]$, where D is the duty cycle, to the measured power to compute the average power during the actual transmission times.

Per FCC section 27.50(c)(3), the Effective Radiated Power (ERP) of the transceiver cannot exceed 1000 Watts/MHz
Per RSS 130 section 4.6.3 and SRSP-518 5.1, the maximum (EIRP) limits are 1640 watts/MHz.

OUTPUT POWER LTE BAND 12 (INBAND)



TkTx 2019.08.30.0 XMI 2019.09.05

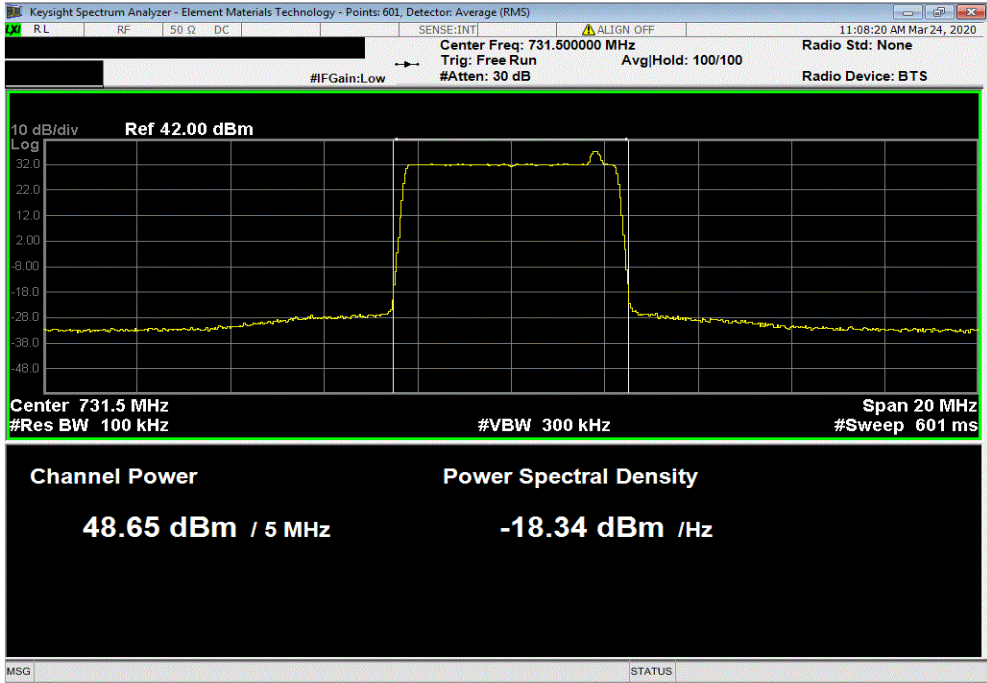
EUT: Aircscale Base Transceiver Station Remote Radio Head Model AHLBBA				Work Order: NOKI0013			
Serial Number: K9193514835				Date: 24-Mar-20			
Customer: Nokia Solutions and Networks				Temperature: 22.5 °C			
Attendees: Mitch Hill, John Rattanaovong				Humidity: 50.6% RH			
Project: None				Barometric Pres.: 1008 mbar			
Tested by: Brandon Hobbs			Power: 54 VDC		Job Site: TX03		
TEST SPECIFICATIONS				Test Method			
FCC 27:2020				ANSI C63.26:2015			
RSS-130:2019, SRSP-518				RSS-130:2019, SRSP-518			
COMMENTS							
All measurement path losses were accounted for in the reference level offset including any attenuators, filters and DC blocks. The hottest port per power amplifier (PA) was used for testing. 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							
None							
Configuration #	2,6	Signature 					
		Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results
IOT NB, Band 12, 729 MHz - 745 MHz, LTE							
Port 1							
5 MHz Bandwidth							
QPSK Modulation							
Low Channel 731.5 MHz		48.649	0	Not Provided	48.6	60 / 62.15	N/A
Mid Channel 737 MHz		48.741	0	Not Provided	48.7	60 / 62.15	N/A
High Channel 742.5 MHz		48.664	0	Not Provided	48.7	60 / 62.15	N/A
10 MHz Bandwidth							
QPSK Modulation							
Low Channel 734 MHz		48.944	0	Not Provided	48.9	60 / 62.15	N/A
Mid Channel 737 MHz		48.936	0	Not Provided	48.9	60 / 62.15	N/A
High Channel 740 MHz		48.915	0	Not Provided	48.9	60 / 62.15	N/A
Port 2							
5 MHz Bandwidth							
QPSK Modulation							
Low Channel 731.5 MHz		48.732	0	Not Provided	48.7	60 / 62.15	N/A
Mid Channel 737 MHz		48.73	0	Not Provided	48.7	60 / 62.15	N/A
High Channel 742.5 MHz		48.552	0	Not Provided	48.6	60 / 62.15	N/A
10 MHz Bandwidth							
QPSK Modulation							
Low Channel 734 MHz		48.908	0	Not Provided	48.9	60 / 62.15	N/A
Mid Channel 737 MHz		48.843	0	Not Provided	48.8	60 / 62.15	N/A
High Channel 740 MHz		48.82	0	Not Provided	48.8	60 / 62.15	N/A

OUTPUT POWER LTE BAND 12 (INBAND)

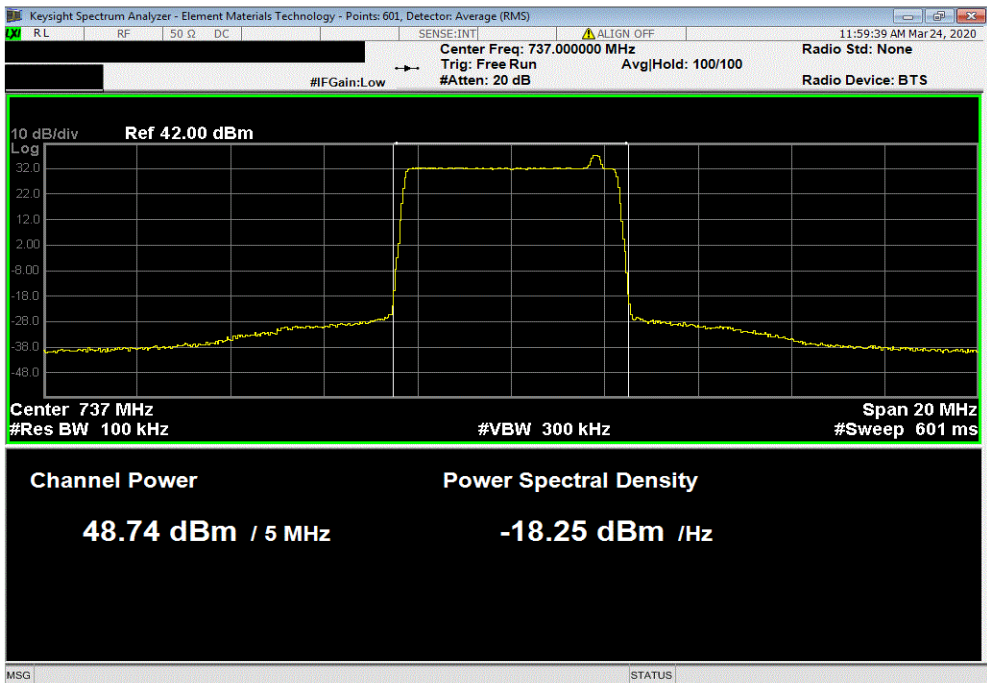


TbTz 2019.08.30.0 XMt 2019.09.05

IOT NB, Band 12, 729 MHz - 745 MHz, LTE, Port 1, 5 MHz Bandwidth , QPSK Modulation , Low Channel 731.5 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.649	0	Not Provided	48.6	60 / 62.15	N/A	



IOT NB, Band 12, 729 MHz - 745 MHz, LTE, Port 1, 5 MHz Bandwidth , QPSK Modulation , Mid Channel 737 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.741	0	Not Provided	48.7	60 / 62.15	N/A	

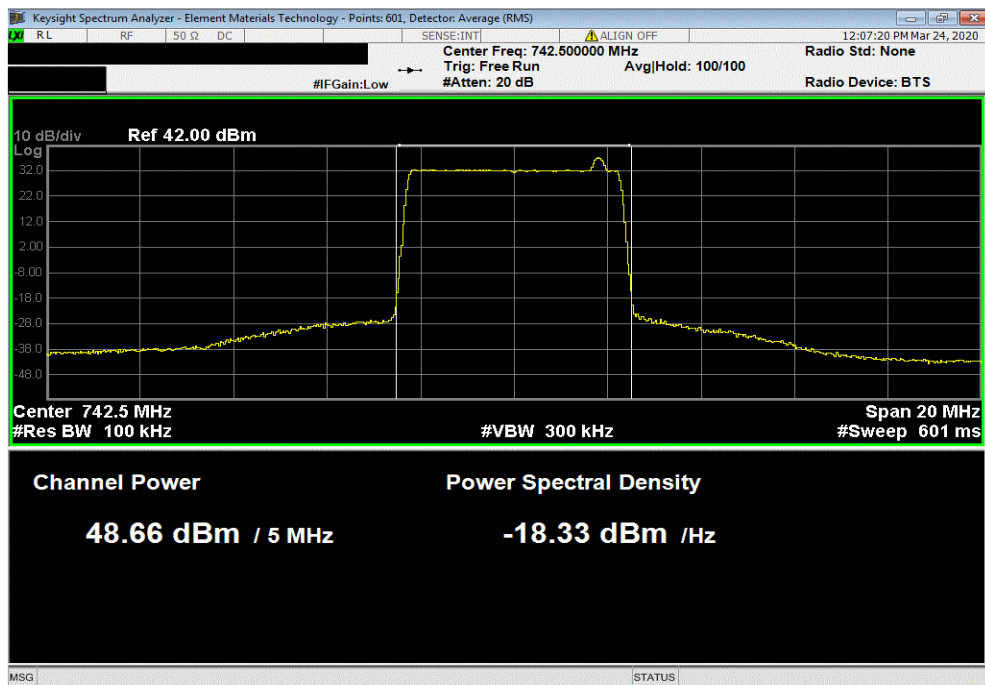


OUTPUT POWER LTE BAND 12 (INBAND)

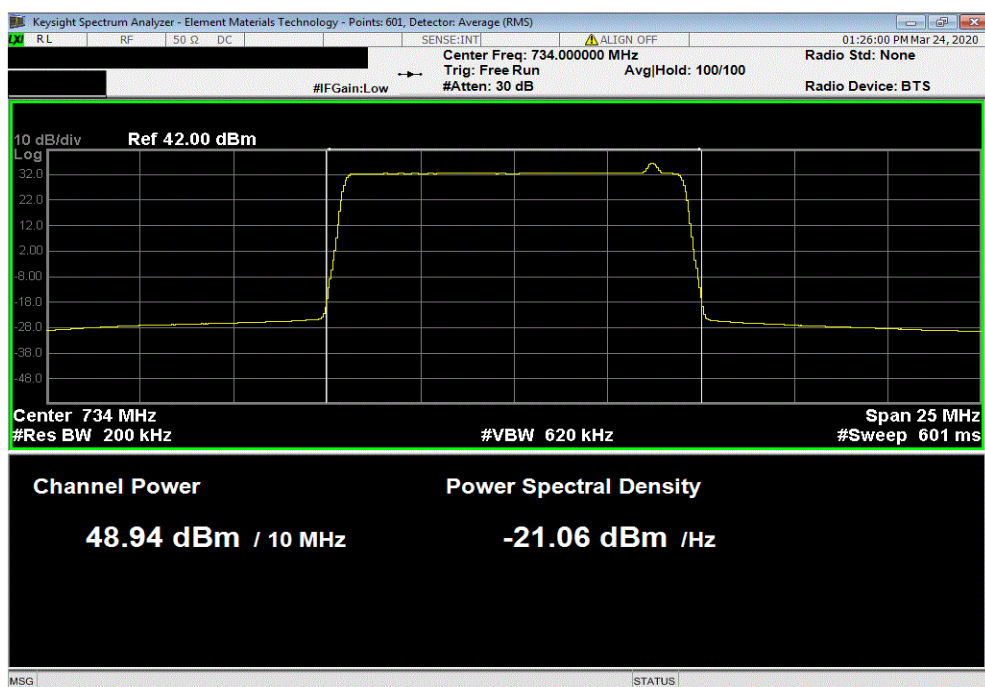


TbT's 2019.08.30.0 XMt 2019.09.05

IOT NB, Band 12, 729 MHz - 745 MHz, LTE, Port 1, 5 MHz Bandwidth, QPSK Modulation, High Channel 742.5 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.664	0	Not Provided	48.7	60 / 62.15	N/A	



IOT NB, Band 12, 729 MHz - 745 MHz, LTE, Port 1, 10 MHz Bandwidth, QPSK Modulation, Low Channel 734 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.944	0	Not Provided	48.9	60 / 62.15	N/A	

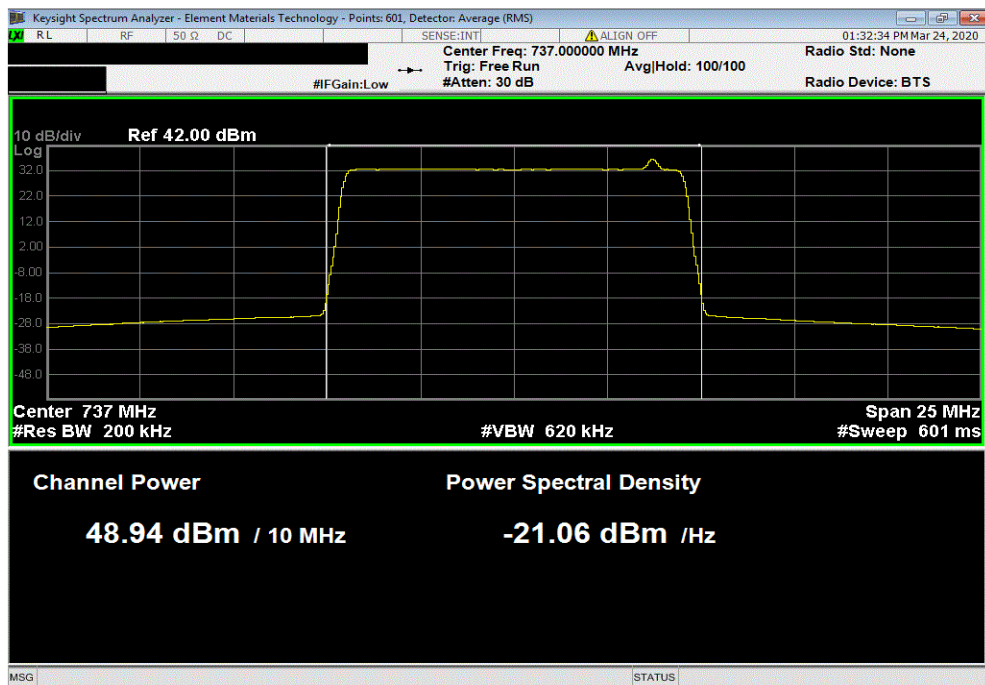


OUTPUT POWER LTE BAND 12 (INBAND)

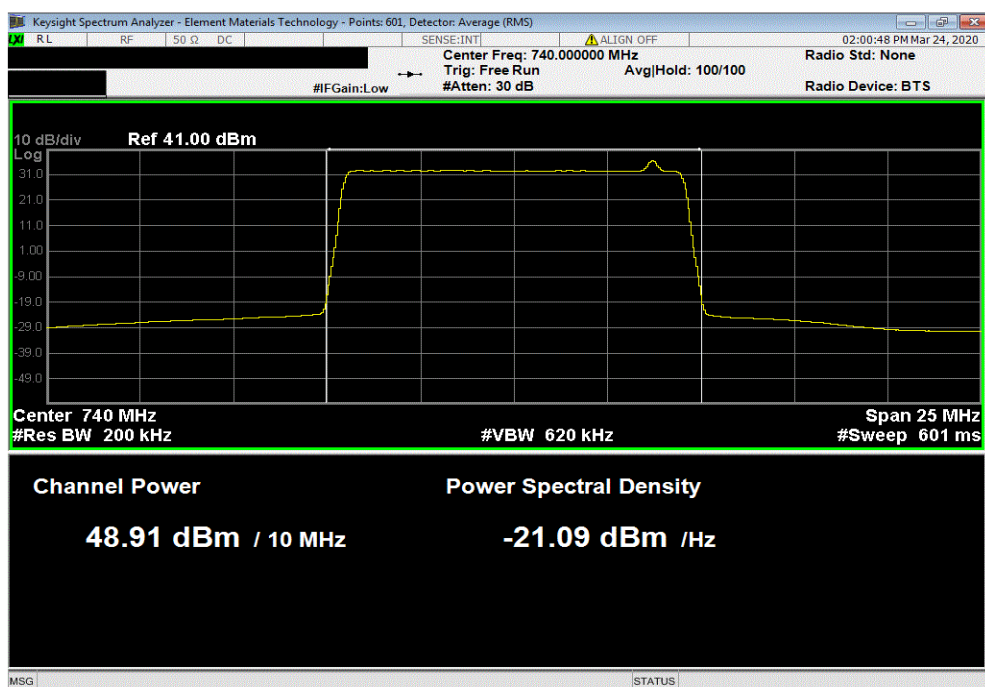


TbTz 2019.08.30.0 XMt 2019.09.05

IOT NB, Band 12, 729 MHz - 745 MHz, LTE, Port 1, 10 MHz Bandwidth, QPSK Modulation, Mid Channel 737 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.936	0	Not Provided	48.9	60 / 62.15	N/A	



IOT NB, Band 12, 729 MHz - 745 MHz, LTE, Port 1, 10 MHz Bandwidth, QPSK Modulation, High Channel 740 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.915	0	Not Provided	48.9	60 / 62.15	N/A	

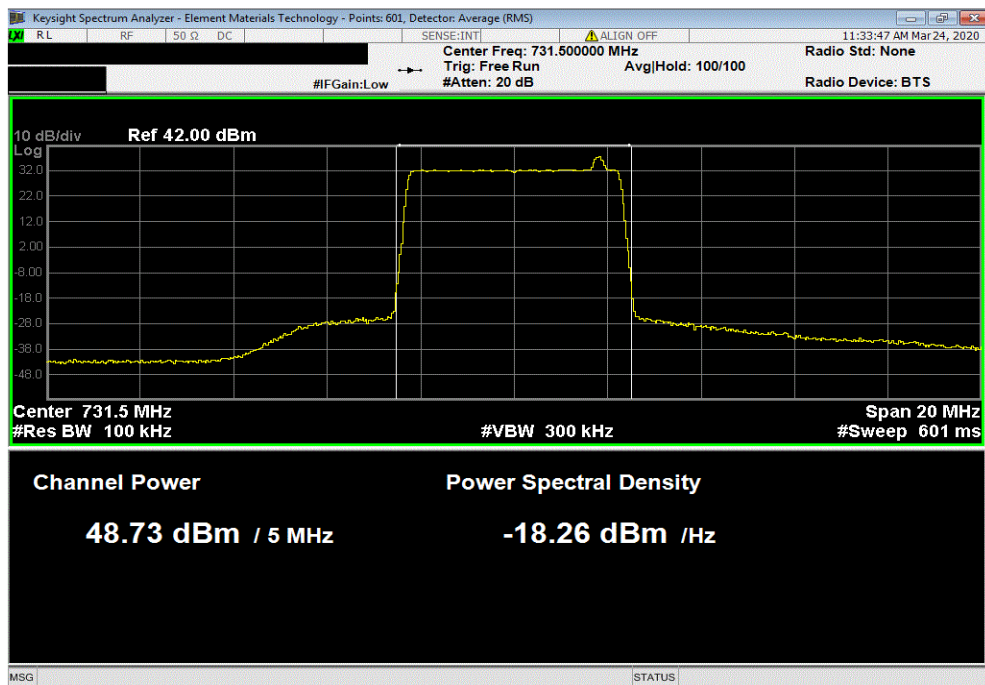


OUTPUT POWER LTE BAND 12 (INBAND)

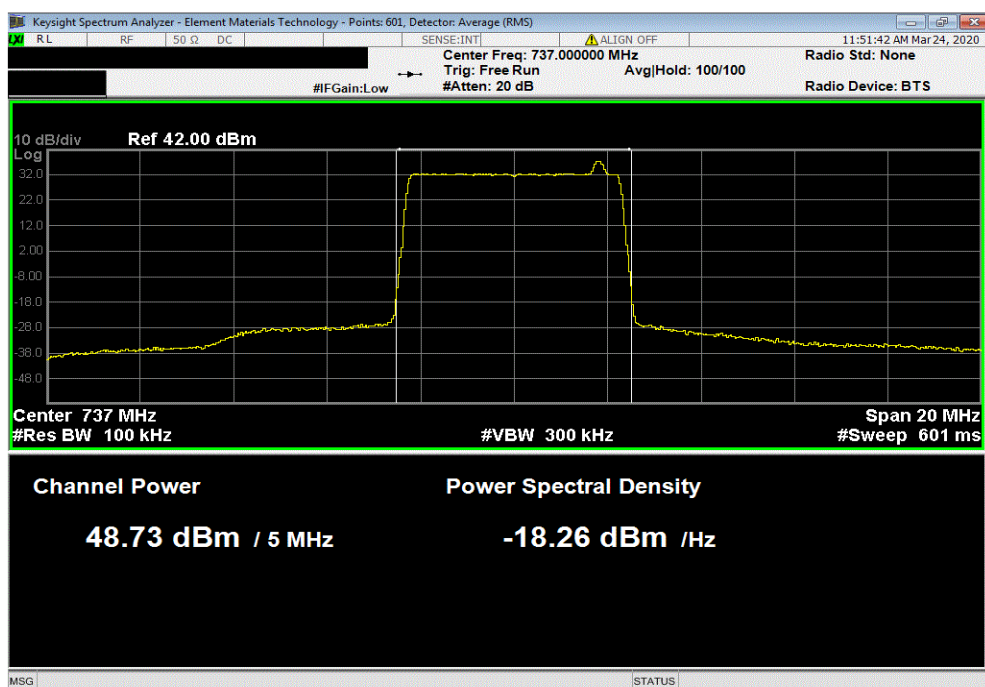


TbTz 2019.08.30.0 XMt 2019.09.05

IOT NB, Band 12, 729 MHz - 745 MHz, LTE, Port 2, 5 MHz Bandwidth , QPSK Modulation , Low Channel 731.5 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.732	0	Not Provided	48.7	60 / 62.15	N/A	



IOT NB, Band 12, 729 MHz - 745 MHz, LTE, Port 2, 5 MHz Bandwidth , QPSK Modulation , Mid Channel 737 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.73	0	Not Provided	48.7	60 / 62.15	N/A	

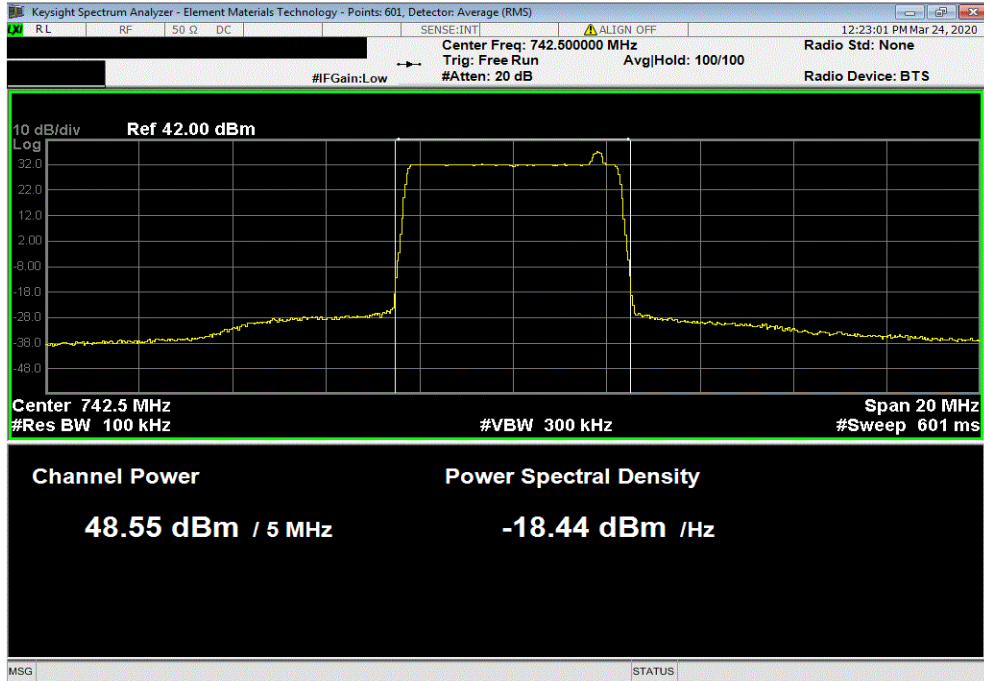


OUTPUT POWER LTE BAND 12 (INBAND)

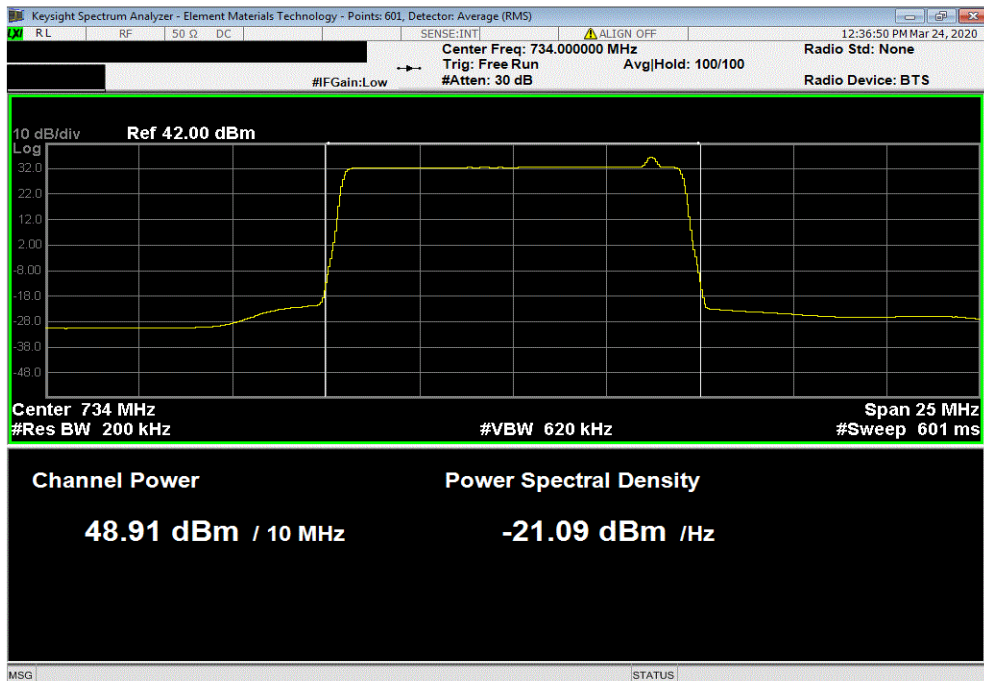


TbTz 2019.08.30.0 XMt 2019.09.05

IOT NB, Band 12, 729 MHz - 745 MHz, LTE, Port 2, 5 MHz Bandwidth, QPSK Modulation, High Channell 742.5 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.552	0	Not Provided	48.6	60 / 62.15	N/A	



IOT NB, Band 12, 729 MHz - 745 MHz, LTE, Port 2, 10 MHz Bandwidth, QPSK Modulation, Low Channel 734 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.908	0	Not Provided	48.9	60 / 62.15	N/A	

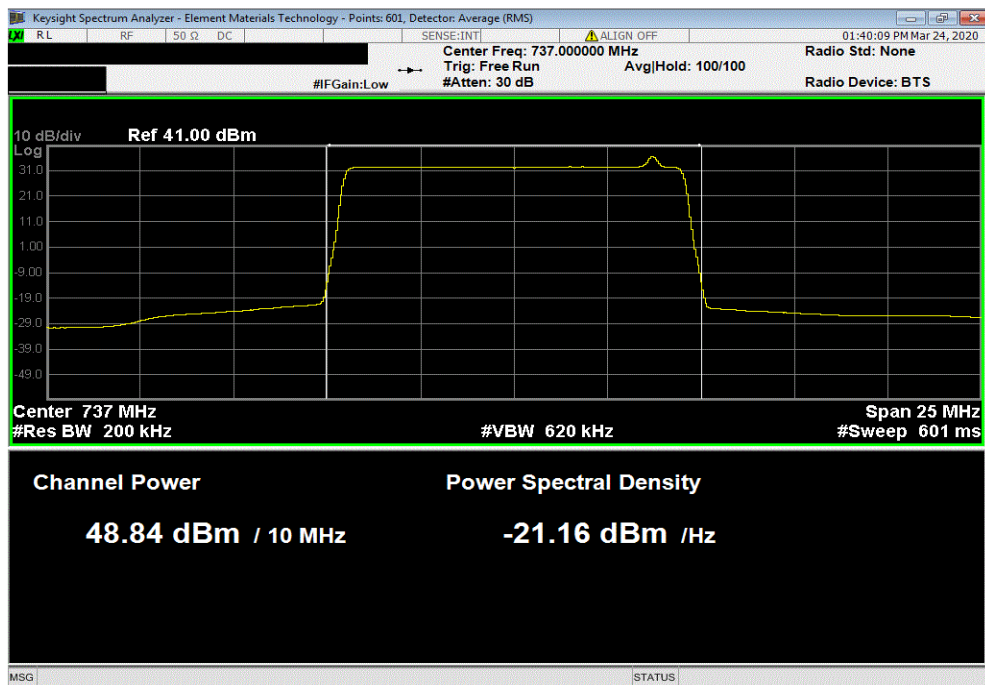


OUTPUT POWER LTE BAND 12 (INBAND)



TbT's 2019.08.30.0 XMt 2019.09.05

IOT NB, Band 12, 729 MHz - 745 MHz, LTE, Port 2, 10 MHz Bandwidth, QPSK Modulation, Mid Channel 737 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.843	0	Not Provided	48.8	60 / 62.15	N/A	



IOT NB, Band 12, 729 MHz - 745 MHz, LTE, Port 2, 10 MHz Bandwidth, QPSK Modulation, High Channel 740 MHz						
Initial Power (dBm/OBW)	Duty Cycle Factor (dB)	Antenna Gain (dBd)+2.15=(dBi)	Final w/o Ant Gain Value (dBm/OBW)	FCC ERP / RSS EIRP Limits (dBm/OBW)	Results	
48.82	0	Not Provided	48.8	60 / 62.15	N/A	

