

Sverige





Report On

FCC Testing of the Ericsson AIR 3268 B48, KRD 901 254/3, LTE and NR (3550-3700 MHz) Base Station in accordance with FCC CFR 47 Part 2 and FCC CFR 47 Part 96

COMMERCIAL-IN-CONFIDENCE

FCC: TA8AKRD901254

PREPARED BY

APPROVED BY

DATED

the later

Maggie Whiting Key Account Manager

Steve Scarfe Authorised Signatory 24 November 2022

Document 75956604 Report 02 Issue 2

November-2022



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SECTION 1

REPORT INFORMATION



1.1 REPORT DETAILS

Manufacturer	Ericsson
Address	Torshamnsgatan 23 Kista SE-16480 Stockholm Sweden
Product Name & Product Number	AIR 3268 B48 - KRD 901 254/3
Serial Number(s)	Module 1 - E23E345114 Module 2 - E23E352423 Module 3 - E23E352422
Software Version	Module 1 - CXP2030039/7 Rev R35A89 Module 2 CXP2030039/7 Rev R35A89 Module 3 - CXP2030039/7 Rev R35A89
Hardware Version	Module 1 – R1B Module 2 – R1B Module 3 – R1B
Non-Tested Variant	AIR 3268 B48 - KRD 901 254/1
(See Section 1.11 Additional Information)	AIR 3268 B48 - KRD 901 254/11 AIR 3268 B48 - KRD 901 254/31
Test Specification/Issue/Date	FCC CFR 47 Part 2: 2021 FCC CFR 47 Part 96: 2021
Test Plan	FCC Test Plan AIR 3268 B48 Rev E 221027
Start of Test	02-November-2022
Finish of Test	17-November-2022
Name of Engineer(s)	Hector Moreno, Shashi Kiran, Ashok Kumar & Shakir Salman
Related Document(s)	KDB 971168 D01 v02r02 KDB 662911 D01 v02r01 ANSI C63.26-2015

ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate compliance with and FCC CFR 47 Part 2: 2021 and FCC CFR 47 Part 96: 2021. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s).

G.R.J mo

Hector Moreno, Shashi Kiran, Ashok Kumar & Shakir Salman This report has been amended to Issue 1 and should be read in place of Issue 1. This report has been amended to remove references FCC Tracking Inquiry Number 154167 Section 2.1.5.



1.2 BRIEF SUMMARY OF RESULTS

The tests that have been selected are detailed in the customer Test Plan as defined in section 1.1 of this report. The Test Plan is based on the TÜV SÜD FCC Test Plan Rationale, available on request.

A brief summary of results for each configuration, in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 96, is shown below.

[Specificati	on Clause		
Section	FCC CFR 47 Part 2	FCC CFR 47 Part 96	Test Description	Result
2.1	2.1046	96.41 (b)(c)(g)	Peak Output Power and Peak to Average Ratio - Conducted	Pass
2.2	2.1049	96.41 (e)(3)(i)	Occupied Bandwidth	Pass
2.3	2.1051	96.41 (e)(1)(i)	Band Edge	Pass
2.4	2.1051	96.41 (e)(1)(i), (e)(2), (e)(3)	Transmitter Spurious Emissions	Pass
2.5	2.1055	-	Frequency Stability	Pass

This test report covers only testing for LTE.

For additional configurations and test cases not contained within this test report, refer to the following reports:

TUV SUD Document 75956604 Report 03 – NR and NR+LTE

Intertek Report 2204406STO-101 contains Transmitter Spurious Radiated Emissions



1.3 TEST RATIONALE

The tests that have been selected are detailed in the customer Test Plan as defined in section 1.1 of this report. The Test Plan is based on the TÜV SÜD FCC Test Plan Rationale, available on request.



1.4 CONFIGURATION DESCRIPTION

					Carrier Frequency Configuration (MHz)				
Config No	RAT	No Of carriers	Carrier Bandwidth	Channel position B (MHz)	Channel position M (MHz)	Channel position T (MHz)	Power (dBm) per RDNB connector		
1		1	10 MHz	3555	3625	3695	19.56		
1		I	20 MHz	3560	3625	3690	22.3		
2			10 MHz	-	3555 + 3695	-	2x 19.52		
MC-1		2	20 MHz	-	3560 + 3690	-	2x 22.27		
2	LTE		10 MHz	3555 + 3565	3620 + 3630	3685 + 3695	2x 19.52		
MC-2			20 MHz	3560 + 3580	3615 + 3635	3670 + 3690	2x 22.27		
3		6	10 MHz	-	3555 + 3565 + 3575 + 3675 + 3685 + 3695	-	6x 19.52		
		5	20 MHz	-	3560 + 3580 + 3600 + 3670 + 3690	-	5x 22.27		



1.5 DECLARATION OF BUILD STATUS

Equipment Description				
Technical Description:				
(Please provide a brief description of the intended use of the	Antenno Integrated Dadia			
equipment including the technologies the product supports)	Antenna Integrated Radio L Ericsson AB	JNIT, B48, CBRS, LTE		
Manufacturer: Model:				
Model:	AIR 3268 B48 KRD 901 254/1 With Anten	no Coourity		
	Unlocked.	ina, Security		
	KRD 901 254/11 With Ante	nna. Security Locked		
	KRD 901 254/3 CAB-unit, S			
Part Number:	KRD 901 254/31 CAB unit,	Security Locked		
Hardware Version:	R1B			
Software Version:	CXP2030039/7 Rev R35A8	39		
FCC ID of the product under test	TA8AKRD901254			
Intentional Radiators				
RAT	LTE			
Frequency Range (MHz to MHz)	3550 - 3700 MHz			
Conducted Declared Output Power (dBm)	30,4 dBm			
	11 (Layer compensated ga	in) 23 (Effective		
Antenna Gain (dBi)	gain)	, 20 (2100000		
Supported Bandwidth(s) (MHz)	10,20 MHz			
Modulation Scheme(s)	QPSK, 16QAM, 64QAM, 2	56QAM		
Declared Worst Case Modulation Scheme & Test Model to be				
used	QPSK – TM 1.1			
IBW	150 MHz			
OBW	100 MHz (Contingous and Non-Contingous)			
ITU Emission Designator	8M97W7D, 17M9W7D, 97M5W7D (CA)			
Duty Cycle	67.6%			
Maximum number of carriers	6	2		
Maximum Total Power EIRP	47 dBm per 10MHz			
Max Power per carrier	34W (All Branches)			
Unintentional Radiators				
Highest frequency generated or used in the device or on which				
the device operates or tunes	CPRI 25,78 GHz			
Class B Digital Device (Use in residential environment only)	Class B Digital Device			
DC Power Supply (Delete if Not Applicable)				
Nominal voltage:	-48V			
Operating voltage:	-54.5V			
Extreme upper voltage:	-58.5V			
Extreme lower voltage:	-36V			
Max current:	15A at -36VDC and Max 10A at -48VDC			
Temperature		-		
Minimum temperature:	-40°C	, ,		
Maximum temperature:	55°C			
Antenna Characteristics				
Temporary antenna connector	State impedance	50 Ohm		
Integral antenna	Туре:	AAS (Advanced Antenna System)		
Standard Antenna Jack	No If yes, describe how user is prohibited from changing antenr			
		(if not professional installed):		
Equipment is only ever professionally installed	Yes			
Non-standard Antenna Jack	No			
Antenna detail specification				
EIRP Limit to be used	FCC			





Ancillaries							
Manufacturer: Model: Part Number: Country of Origin:							
SFP28 25GBASE-LR I-Temp SFP28	RDH 102 75/3 R1A SEP6300LH-E1-W China						
I hereby declare that I am entitled to sign on behalf of the manufacturer and that the information supplied is correct and complete.							
Name: Hans Ostgaard							
Position held:		Regulatory Enginee	r				
Email address:		hans .ostgaard@ericssor	n.com				
Telephone number: +4670307364							
Date:		08/07/2022					

No responsibility will be accepted by TÜV SÜD as to the accuracy of the information declared in this document by the manufacturer.



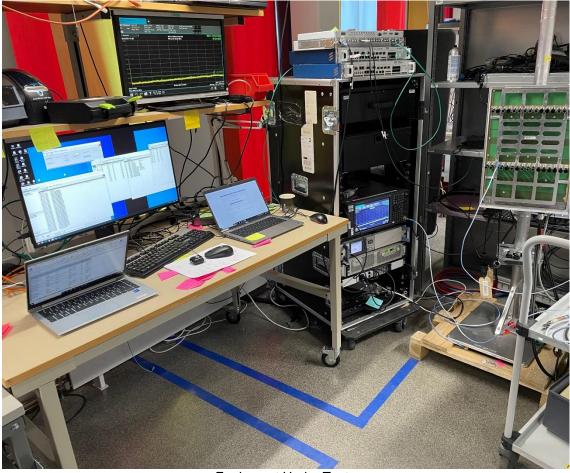
1.6 **PRODUCT INFORMATION**

1.6.1 Technical Description

The Equipment Under Test (EUT) AIR 3268 B48 - KRD 901 254/3 is an Ericsson AB Radio Unit working in the public mobile service Band 48 band which provides communication connections to Band 48 network.

The EUT is declared as operating from a nominal -48V DC supply.

The Equipment Under Test (EUT) is shown in the photograph below. A full technical description can be found in the Manufacturer's documentation.

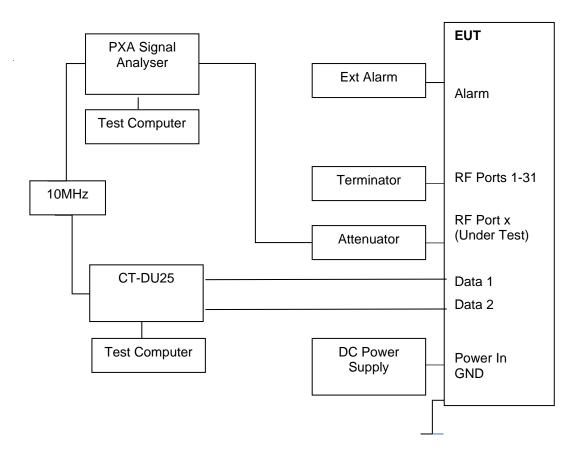


Equipment Under Test



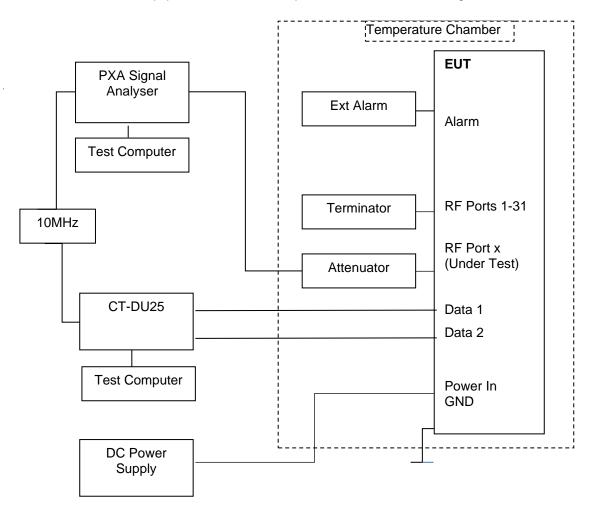
1.7 TEST SETUP

Conducted Test Set Up - Band Edge, Conducted Emissions

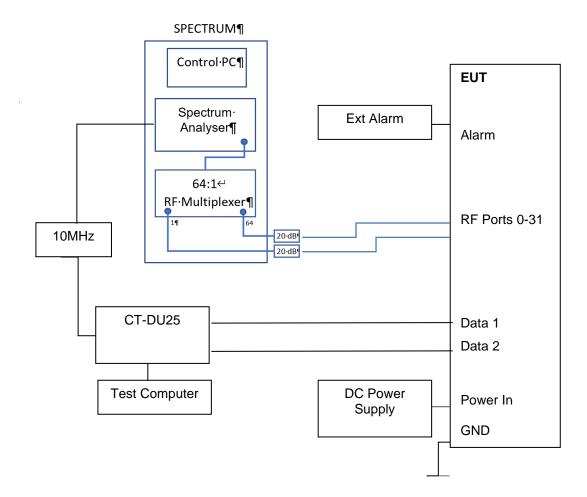




Conducted Test Set Up – Frequency Stability Dashed line indicates equipment inside the Temperature Chamber for testing







Conducted Test Set Up, Power, PSD, PAR, Occupied Bandwidth



1.8 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated as described in the Test Method for each Test.

The EUT was powered from a -54V DC supply unless otherwise stated.

563983 Ericsson Test Laboratory, Kista Postal Address: Ericsson AB, Isafjordsgatan 10, Stockholm, SE-16 440, Sweden

Under our group Swedac Accreditation, TÜV SÜD Sverige conducted the following tests Ericsson Test Lab, Kista.

Test Name	Name of Engineer(s)	Radio Serial Number
Peak Output Power and Peak to Average Ratio - Conducted	Shashi Kiran & Hector Moreno	Module 1 - E23E345114
Occupied Bandwidth	Shashi Kiran & Hector Moreno	Module 1 - E23E345114
Band Edge	Shakir Salman	Module 2 - E23E352423
Transmitter Spurious Emissions	Shakir Salman	Module 2 - E23E352423
Frequency Stability	Ashok Kumar	Module 3 - E23E352422

1.9 DEVIATION FROM THE STANDARD

No deviations from the applicable test standards or test plan were made during testing.

1.10 MODIFICATION RECORD

No modifications were made to the EUT during testing.



1.11 ADDITIONAL INFORMATION

The Test Plan is based on the TUV SUD Document FCC and ISED Test Plan Rationale for Base Station Equipment.

Pre-testing was performed in accordance with the Test Plan to establish the worst-case Port, modulation schemes and bandwidths.

The Port with the highest power, worst case port was Port 12. Worst case modulation was QPSK. Worst case bandwidth was 20MHz

For Max number of Carriers 5 x 20 MHz was selected for test, as 20MHz bandwidth was identified as the worst case.

This EUT uses the same port for Tx and Rx and therefore RX Spurious Emisisons has not been performed.

Rx Spurious Emissions have been covered by testing to FCC Part 15B, which are covered by a seprate test report.

Ericsson have provided the following details about the variants of the AIR 3268 B48, KRD 901 254/3. The differences between KRD 901 254/3 and KRD 901 254/1, KRD 901 254/11 and KRD 901 254/31 are as below:

KRD 901 254/1 (with un-security software and antenna)

KRD 901 254/11** (with security software and antenna)

KRD 901 254/3*(with un-security software and CAB/RDNB board for testing purpose) KRD 901 254/31(with security software and CAB/RDNB board for testing purpose)

Note*: Tested unit Note**: This will be the marketed, sold unit.

To expedite testing three AIR 3268 B48 radios were used, the Hardware and Software Versions were identical. The table in Section 1.8 indicates which units were used for which tests and refers to them throughout as Module 1, Module 2 and Module 3. Ericsson declared that testing on Modules 2 and 3 should use the same worst case Ports that were measured on Module 1 as this would be representative.

Throughout this report the power unit dBm is used. dBm is a unit of level used to indicate that a power level is expressed in decibels (dB) with reference to one milliwatt (mW). It is used as a convenient measure of absolute power because of its capability to express both very large and very small values in a short form.



SECTION 2

TEST DETAILS



2.1 PEAK OUTPUT POWER AND PEAK TO AVERAGE RATIO - CONDUCTED

2.1.1 Specification Reference

FCC CFR 47 Part 96, Clause 96.41 (b)(c)(g) FCC CFR 47 Part 2, Clause 2.1046

2.1.2 Date of Test and Modification State

03 and 07-November-2022 - Modification State 0

2.1.3 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.4 Environmental Conditions

Ambient Temperature	23.02-23.20 °C
Relative Humidity	38.2-38.8%

2.1.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01, clause 5.2.1, FCC KDB 662911 D01 and ANSI C63.26 Clause 6.4.3.2.2

The plot results presented are the measured worst case and represent typical performance for all bands and antenna ports, plot data performance is on file and available on request.

Duty Cycle Correction Factor (DCCF) was added to the spectrum analyser reference level offset.

2.1.6 Test Results

Configuration 1

Maximum Output Power 19.56 dBm per Port

DUT Configuration							
Carrier Configuration: LTE 10 MHz 1C QPSK Duty Cycle (%): 67.4							
RFBW:	10 MHz	DCCF (dB):	1.71				
		Peak Antenna Gain (dBi):	11.00				

Test Channel	Number of	PWR (dBm)			Total	Limit	Margin
	Measurements	Min	Max	Σ	EIRP (dBm)	(dBm/10MHz)	(dB)
Bottom (3555 MHz)	32	19.33	19.81	34.62	45.62	47.00	-1.38
Middle (3625 MHz)	32	17.87	19.49	33.89	44.89	47.00	-2.11
Top (3695 MHz)	32	18.64	19.26	33.93	44.93	47.00	-2.07

FCC Maximum Output Power Results

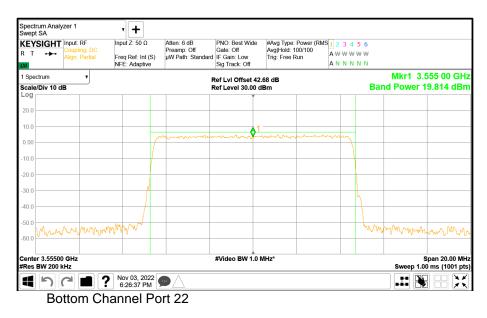
<u>Remarks</u>



In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

 Σ = Summed power over all 32 ports.

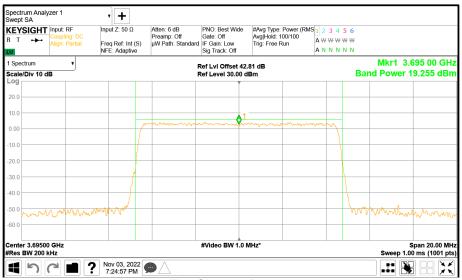
Total EIRP = Summed Power on all 32 Ports + Antenna Gain.





Middle Channel Port 9





Top Channe	el Port 10
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Test Channel	Number of	PSD (dBm/MHz)			EIRP	Limit	Margin
	Measurements	Min	Max	Σ	(dBm/MHz)	(dBm/MHz)	(dB)
Bottom (3555 MHz)	32	10.71	12.01	25.67	36.67	37.00	-0.33
Middle (3625 MHz)	32	10.15	10.90	24.81	35.81	37.00	-1.19
Top (3695 MHz)	32	9.68	11.41	24.97	35.97	37.00	-1.03

FCC Maximum Power Spectral Density Results

<u>Remarks</u>

 Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Test Channel	Number of	PAP	R (dB)	Limit	Margin (dB)	
	Measurements	Min	Max	(dB)		
Bottom (3555 MHz)	32	8.48	8.65	13.00	-4.36	
Middle (3625 MHz)	32	8.45	8.65	13.00	-4.35	
Top (3695 MHz)	32	8.45	8.66	13.00	-4.34	

Peak To Average Power Ratio Results

Configuration 1

Maximum Output Power 22.3 dBm



DUT Configuration									
Carrier Configuration:	LTE 20 MHz 1C QPSK	Duty Cycle (%):	67.6						
RFBW:	20 MHz	DCCF (dB):	1.70						
		Peak Antenna Gain (dBi):	11.00						

Test Channel			PWR (dBm)			Calculated	Limit	Margin	
	of Measure ments	Min	Max	Σ	EIRP (dBm)	Total EIRP (dBm/10MHz)	(dBm/10MHz)	(dB)	
Bottom (3560 MHz)	32	21.81	22.69	37.28	48.28	45.76	47.00	-1.24	
Middle (3625 MHz)	32	21.80	22.68	37.29	48.29	45.77	47.00	-1.23	
Top (3690 MHz)	32	22.23	23.11	37.64	48.64	46.12	47.00	-0.88	

FCC Maximum Output Power Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

 Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

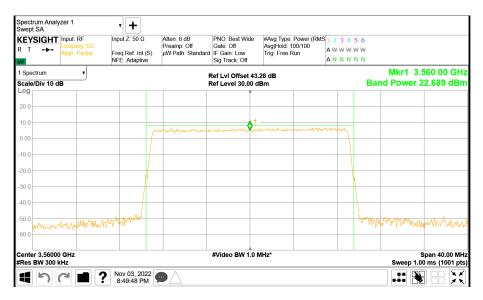
When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In leui of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

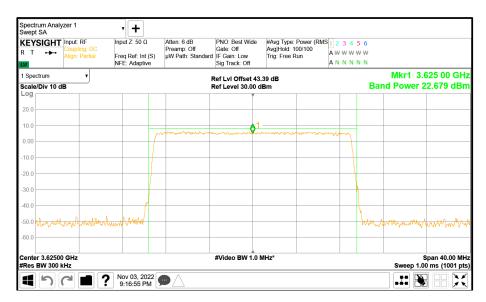
Total EIRP-10log/measured Bandwidth/10MHz

le 48.64dBm – (10log(17.88/10)) = 48.64-2.52 = 46.12 dBm/10MHz



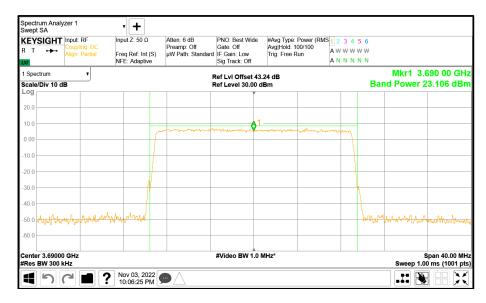


Bottom Channel Port 30



Middle Channel Port 20





Top Channel Port 30

Test Channel	Number of	PSD (dBm/MHz)			Total PSD	Limit	Margin	
	Measurements	Min	Max	Σ	(dBm/MHz)	(dBm/MHz)	(dB)	
Bottom (3560 MHz)	32	10.75	11.94	25.43	36.43	37.00	-0.57	
Middle (3625 MHz)	32	10.77	11.47	25.36	36.36	37.00	-0.64	
Top (3690 MHz)	32	10.59	12.27	25.62	36.62	37.00	-0.38	

FCC Maximum Power Spectral Density Results

<u>Remarks</u>

 Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.

Test Channel	Number of	PAP	R (dB)	Limit	Margin (dB)	
	Measurements	Min	Max	(dB)		
Bottom (3560 MHz)	32	8.51	8.74	13.00	-4.26	
Middle (3625 MHz)	32	8.50	8.77	13.00	-4.23	
Top (3690 MHz)	32	8.58	8.87	13.00	-4.13	

Peak To Average Power Ratio Results



Maximum Output Power 2 x 19.52 dBm

DUT Configuration									
Carrier Configuration:	LTE 10 MHz 2C	Duty Cycle (%):	67.5						
RFBW:	10 MHz	DCCF (dB):	1.71						
		Peak Antenna Gain (dBi):	11.00						

Test	Number of	P	PWR (dBm)		Total	Calculated Total	Limit	Margin
Channel	Measurements	Min	Max	Σ	Σ EIRP (dBm)	EIRP (dBm/10MHz)	(dBm/10MHz)	(dB)
Middle (3625 MHz)	32	20.20	23.24	37.05	48.05	45.30	47.00	-1.70

Remarks

FCC Maximum Output Power Results

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

 Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In leui of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

Total EIRP-10log/measured Bandwidth/10MHz

le 48.64dBm - (10log(17.88/10)) = 48.64-2.52 = 46.12 dBm/10MHz



Wept SA KEYSIGHT Input: RF R T ↔ Coupling: Di Align: Partia		Atten: 6 dB Preamp: Off μW Path: Standard	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Power (RM Avg Hold: 100/100 Trig: Free Run	IS 1 2 3 4 5 6 A W W W W W A N N N N N		
Spectrum v scale/Div 10 dB			Ref LvI Offset 43 Ref Level 30.00 d		Ba	Mkr1 3. nd Power 2	625 00 GH 23.235 dBr
20.0							
10.0	()					_	
10.0							
30.0							
40.0		holom Warman holo	an and any harmonic for	mohanahlahlaha	AN MUNICIPALITY	howahunt	or hyperson where
60.0	· · ·						
enter 3.6250 GHz Res BW 1.0 MHz			#Video BW 3.0	MHz*			Span 260.0 Mi 7 ms (1001 pi

Middle Channel Port 13

Test Channel	Number of	PS	6D (dBm/M⊦	łz)	Total PSD	Limit	Margin
	Measurements		Max	Σ	(dBm/MHz)	(dBm/MHz)	(dB)
Middle (3625 MHz)	32	9.62	11.89	25.10	36.10	37.00	-0.90

FCC Maximum Power Spectral Density Results

<u>Remarks</u>

 Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.

Configuration 2

Maximum Output Power 2 x 22.27 dBm

DUT Configuration									
Carrier Configuration:	LTE 20 MHz 2C	Duty Cycle (%):	67.6						
RFBW:	20 MHz	DCCF (dB):	1.70						
		Peak Antenna Gain (dBi):	11.00						



Test		Р	WR (dBn	n)	EIRP	Calculated Total EIRP	Limit	Margin
Channel	Measurements	surements $Min Max \Sigma$ (c	(dBm)	(dBm/10MHz)	(dBm/10MHz)	(dB)		
Middle (3625 MHz)	32	23.56	25.91	40.02	51.02	45.26	47.00	-1.71

Remarks

FCC Maximum Output Power Results

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

 Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

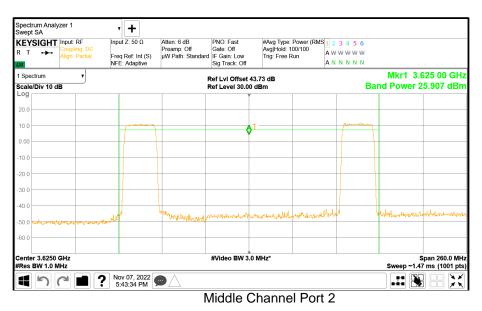
In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In leui of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

Total EIRP-10log/measured Bandwidth/10MHz

le 48.64dBm - (10log(17.88/10)) = 48.64-2.52 = 46.12 dBm/10MHz





Test Channel	est Channel Number of Measurements	PS	6D (dBm/M⊦	łz)	Total PSD	Limit	Margin
		Min	Max	Σ	(dBm/MHz)	(dBm/MHz)	(dB)
Middle (3625 MHz)	32	9.52	11.80	25.00	36.00	37.00	-1.00

FCC Maximum Power Spectral Density Results

Remarks

 Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.

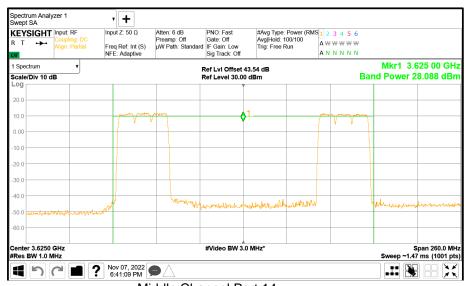
Configuration 3

Maximum Output Power 6 x 19.52 dBm

DUT Configuration								
Carrier Configuration:	LTE 10 MHz 6C QPSK P12	Duty Cycle (%):	67.4					
RFBW:	10 MHz	DCCF (dB):	1.71					
		Peak Antenna Gain (dBi):	11.00					

Test	Number of	PWR (dBm)		WR (dBm)		Calculated Total EIRP	Limit	Margin
Channel		Min	Max	Σ	(dBm)	(dBm/10MHz)	(dBm/10MHz)	(dB)
Middle (3625 MHz)	32	26.02	28.09	42.16	53.16	45.47	47.00	-1.53

FCC Maximum Output Power Results



Middle Channel Port 14



Test Channel	Number of	PSD (dBm/MHz)			EIRP	Limit	Margin
	Measurements	Min	Max	Σ	(dBm/MHz)	(dBm/MHz)	(dB)
Middle (3625 MHz)	32	10.15	12.11	25.46	36.46	37.00	-0.54

FCC Maximum Power Spectral Density Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

 Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

Configuration 3

Maximum Output Power 5 x 22.27 dBm

DUT Configuration								
Carrier Configuration:	LTE 20 MHz 5C QPSK P12	Duty Cycle (%):	67.6					
RFBW:	20 MHz	DCCF (dB):	1.70					
		Peak Antenna Gain (dBi):	11.00					

Test	Number of	P	(-)		Calculated Total	Limit	Margin		
Channel	Measurements	Min	Max	Σ	EIRP (dBm)	EIRP (dBm/10MHz)	(dBm/10MHz)	(dB)	
Middle (3625 MHz)	32	27.32	30.16	44.04	55.04	45.15	47.00	-1.85	

FCC Maximum Output Power Results

Remarks

In accordance with FCC KDB 662911 D01 V02r01 E 1) for In-Band Measurements, Measure and sum calculation has been made.

 Σ = Summed power over all 32 ports.

Total EIRP = Summed Power on all 32 Ports + Antenna Gain.

In accordance with ANSI C63.26-2015, 5.2.4 Average power and power spectral density measurements, Clause 5.2.4.1 General

When a reference bandwidth is specified in conjunction with average conducted power, ERP, or EIRP limits, then the average PSD is measured to demonstrate compliance to the relevant limits.

In leui of measurements in a 10MHz bandwidth the power was measured and Total EIRP dBm calculated as above, and then the dBm/10MHz Total EIRP was calculated using the measured 99% Occupied Bandwidth in the following formula;

Total EIRP-10log/measured Bandwidth/10MHz

le 48.64dBm – (10log(17.88/10)) = 48.64-2.52 = 46.12 dBm/10MHz



KEYSIGH1 R T +→ ™	Input: RF Coupling: DC Align: Partial	Input Z: 50 Ω Freq Ref: Int (S) NFE: Adaptive	Atten: 6 dB Preamp: Off µW Path: Standard	PNO: Fast Gate: Off I IF Gain: Low Sig Track: Off	#Avg Type: Power (RM Avg Hold: 100/100 Trig: Free Run	IS <mark>123456</mark> A₩₩₩₩₩ ANNNN		
1 Spectrum Scale/Div 10	dB			Ref Lvi Offset 4 Ref Level 30.00		Ва	Mkr1 3.6 nd Power 3	625 00 GH 0.157 dBr
20.0								
10.0		runner	have me		1	and however	-	
0.00			(V					
-10.0			Y V					
-20.0								
-30.0								
-40.0		. Mark		A hundre	had history and the second		Most Marken and	n-ludgeworkh
	rt-onghabararathyranau	β.v.						
-60.0								
Center 3.6250 #Res BW 1.0				#Video BW 3.0	MHz*		S Sweep ~1.47	pan 260.0 MH ′ ms (1001 pt

Middle Channel Port 4

Test Channel	Number of	PSD	SD (dBm/MHz)		Total PSD	Limit	Margin
	Measurements	Min	Max	Σ	(dBm/MHz)	(dBm)	(dB)
Middle (3625 MHz)	32	10.02	11.78	25.22	36.22	37.00	-0.78

FCC Maximum Power Spectral Density Results

<u>Remarks</u>

 Σ = In accordance with ANSI C63.26 6.4.3.2.2 Measure and sum the spectra across all 32 ports.

Total PSD = Summed PSD on all 32 Ports + Antenna Gain.

FCC CFR 47 Part 2, Clause 2.1046 FCC CFR 47 Part 96, Clause 96.41 (b)(c)(g)

Limit	
	Category A CBSD
	Maximum EIRP: 30 dBm/10 MHz
	Maximum PSD: 20 dBm/MHz
Maximum EIRP	
	Category B CBSD
	Maximum EIRP: 47 dBm/10 MHz
	Maximum PSD: 37 dBm/MHz
Peak to Average Ratio	13 dB



2.2 OCCUPIED BANDWIDTH

2.2.1 Specification Reference

FCC CFR 47 Part 96, Clause 96.41 (e)(3) FCC CFR 47 Part 2, Clause 2.1049

2.2.2 Date of Test and Modification State

04, 07 and 08 -November-2022 - Modification State 0

2.2.3 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.4 Environmental Conditions

Ambient Temperature	22.5-23.7°C
Relative Humidity	38.2-40.2%

2.2.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01, Clause 4.2 and 4.3. The Spectrum Analyser RBW was configured to be at least 1% of the channel bandwidth of the carrier to be measured.

For 26 dB Bandwidth, in accordance with KDB 971168 D01, a peak detector and a trace setting of Max Hold were used. The trace was allowed to stabilise. Using the Spectrum Analyser function, the 26dB measurement result was obtained.

4.2 Occupied bandwidth – relative measurement procedure The reference value is the highest level of the spectral envelope of the modulated signal, unless otherwise specified in an applicable rule section. Subclause 5.4.3 of ANSI C63.26-2015 is applicable.

4.3 Occupied bandwidth – power bandwidth (99 %) measurement procedure Subclause 5.4.4 of ANSI C63.26-2015 is applicable (wherein the recommendation is to use the 99 % power bandwidth function of a spectrum analyzer).

2.2.6 Test Results

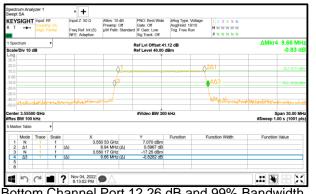
Configuration 1

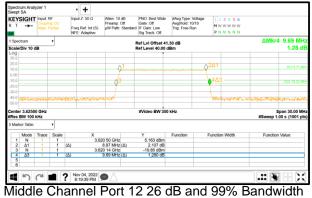
Maximum Output Power 19.56 dBm

DUT Configuration	DUT Configuration							
Carrier Configuration:	LTE 10 MHz 1C QPSK P12	Duty Cycle (%):	-					
RFBW:	10 MHz	DCCF (dB):	-					
		Peak Antenna Gain (dBi):	-					

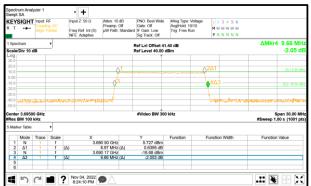


Test Channel	Port	Bandwidth (MHz)		
		99% OBW	26 dB EBW	
Bottom (3555 MHz)	12	8.940	9.660	
Middle (3625 MHz)	12	8.970	9.690	
Top (3695 MHz)	12	8.970	9.660	





Bottom Channel Port 12 26 dB and 99% Bandwidth



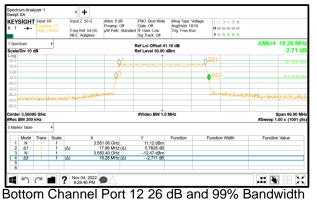
Top Channel Port 12 26 dB and 99% Bandwidth

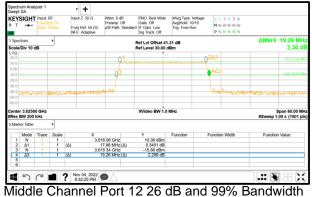


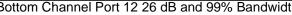
Maximum Output Power 22.3 dBm

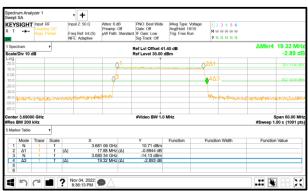
DUT Configuration			
Carrier Configuration:	LTE 20 MHz 1C QPSK P 12	Duty Cycle (%):	-
RFBW:	20 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3560 MHz)	12	17.880	19.260
Middle (3625 MHz)	12	17.880	19.260
Top (3690 MHz)	12	17.880	19.320









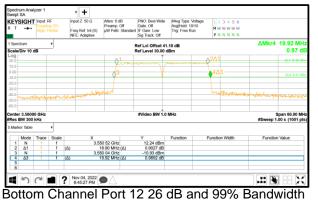
Top Channel Port 12 26 dB and 99% Bandwidth

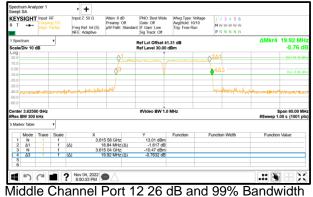


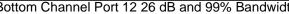
Maximum Output Power 2 x 19.52 dBm

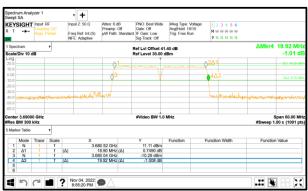
DUT Configuration			
Carrier Configuration:	LTE 10 MHz 2C QPSK P12	Duty Cycle (%):	-
RFBW:	10 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3560 MHz)	12	18.900	19.920
Middle (3625 MHz)	12	18.840	19.920
Top (3690 MHz)	12	18.900	19.920









Top Channel Port 12 26 dB and 99% Bandwidth

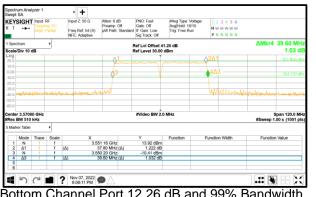
<

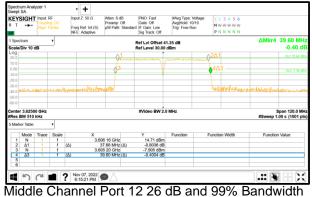


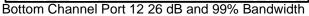
Maximum Output Power 2 x 22.27 dBm

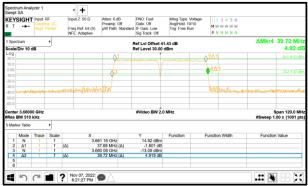
DUT Configuration			
Carrier Configuration:	LTE 20 MHz 2C QPSK P12	Duty Cycle (%):	-
RFBW:	20 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

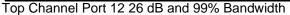
Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3570 MHz)	12	37.800	39.600
Middle (3625 MHz)	12	37.680	39.600
Top (3680 MHz)	12	37.680	39.720









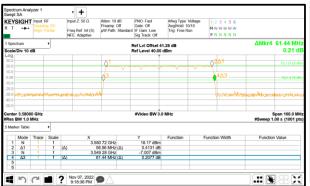


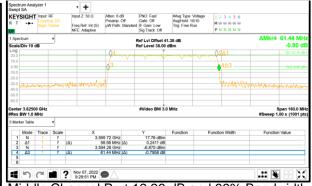


Maximum Output Power 6 x 19.52 dBm

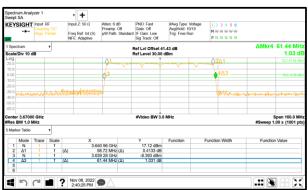
DUT Configuration			
Carrier Configuration:	LTE 10 MHz 6C port 12	Duty Cycle (%):	-
RFBW:	60 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3600 MHz)	12	58.560	61.440
Middle (3625 MHz)	12	58.560	61.440
Top (3650 MHz)	12	58.720	61.440





Bottom Channel Port 12 26 dB and 99% Bandwidth



Top Channel Port 12 26 dB and 99% Bandwidth

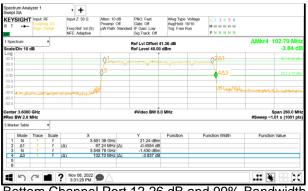
Middle Channel Port 12 26 dB and 99% Bandwidth

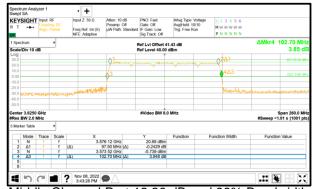


Maximum Output Power 5 x 22.27 dBm

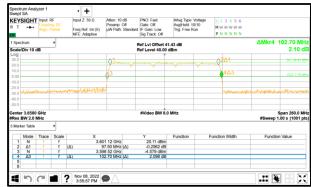
DUT Configuration			
Carrier Configuration:	LTE 20 MHz 5C QPSK P12	Duty Cycle (%):	-
RFBW:	20 MHz	DCCF (dB):	-
		Peak Antenna Gain (dBi):	-

Test Channel	Port	Bandwidth (MHz)	
		99% OBW	26 dB EBW
Bottom (3580 MHz)	12	97.240	102.700
Middle (3625 MHz)	12	97.500	102.700
Top (3670 MHz)	12	97.500	102.700

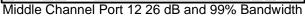




Bottom Channel Port 12 26 dB and 99% Bandwidth



Top Channel Port 12 26 dB and 99% Bandwidth





2.3 BAND EDGE

2.3.1 Specification Reference

FCC CFR 47 Part 96, Clause 96.41 (e)(1)(i) FCC CFR 47 Part 2, Clause 2.1051

2.3.2 Date of Test and Modification State

09 and 14 November-2022 - Modification State 0

2.3.3 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.4 Environmental Conditions

Ambient Temperature	22.5 - 22.9°C
Relative Humidity	39.1 - 41.9%

2.3.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01, Clause 6.0.

Band Edge measurements were used an Integration Bandwidth of at least 1% of the measured 26dB Bandwidth.

Each antenna port has been declared as being equivalent, therefore measurements were made on one antenna port only. To account for this, the limit was tightened by 10 * Log(N), where N is equal to the number of MIMO antenna ports.

For single port, the limit was calculated as being -13 dBm - 10 * Log (32) = -28.05 dBm.

2.3.6 Test Results

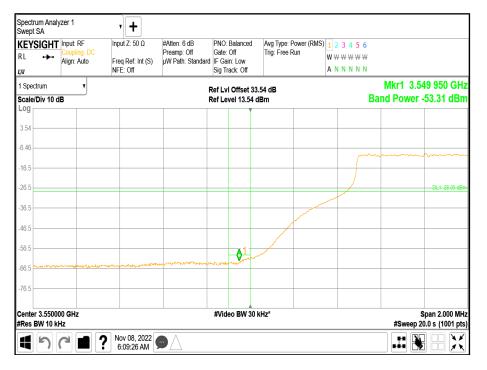
Configuration 1

Maximum Output Power 19.56 dBm

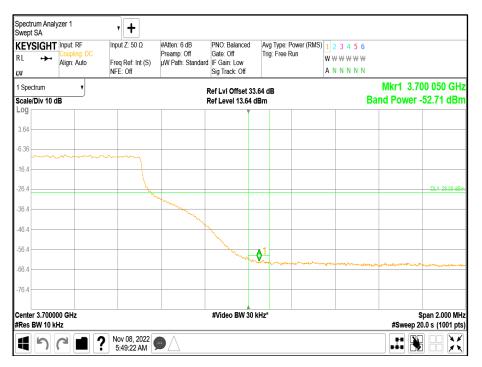
Antonno	LTE Modulation	LTE Carrier	Band Edge (MHz)		
Antenna		Bandwidth	Channel Position B	Channel Position T	
12	QPSK	10.0 MHz	3,555.0	3,695.0	
12	QPSK	20.0 MHz	3,560.0	3,690.0	



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Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T



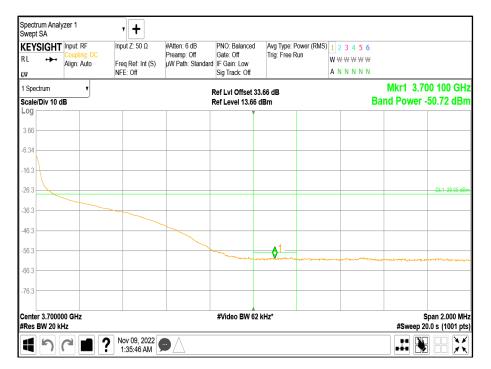


Maximum Output Power 22.3 dBm

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B

KEYSIGHT Inp RL ↔ Co Alia	ut: RF upling: DC gn: Auto	Input Z: 50 Ω Freq Ref: Int (S) NFE: Off	#Atten: 8 dB Preamp: Off µW Path: Standard	PNO: Balanced Gate: Off IF Gain: Low Sig Track: Off	Avg Type: F Trig: Free R	W-	2 3 4 <mark>5 6</mark> ₩₩₩₩₩ N N N N N N		
Spectrum	•			Ref Lvi Offset 3 Ref Level 25.51			Ba		549 900 GH r -51.05 dBr
15.5									
5.51									
14.5									
24.5									DL1-28.08 dB
34.5									
54.5				1					
64.5		and the second	n under the second						
enter 3.550000 0 Res BW 20 kHz	GHz			#Video BW 62	kHz*			#Sween	Span 2.000 Mi 20.0 s (1001 pt

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T





Maximum Output Power 2 x 22.27 dBm

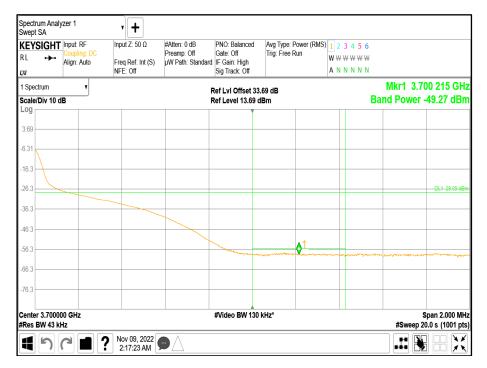
Antonno	LTE Modulation	LTE Carrier	Band Edge (MHz)		
Antenna		Bandwidth	Channel Position B	Channel Position T	
12	QPSK	20.0 MHz	3560 + 3580	3670 + 3690	

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B

KEYSIGH RL ↔	T Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Freq Ref: Int (S) NFE: Off	#Atten: 6 dB Preamp: Off µW Path: Standard	PNO: Balanced Gate: Off IF Gain: Low Sig Track: Off	Avg Type: Po Trig: Free Ru	ower (RMS) un	1 2 3 4 5 6 W \ W W W W W A N N N N N		
1 Spectrum Scale/Div 10	dB			Ref LvI Offset 33. Ref Level 13.55 d			В		549 785 GH; r -48.43 dBn
3.55									
6.45									
26.5									DL1-28.05 dBr
36.5									
46.5 56.5	المراجع ويعرف محادث معادر مع	(Autored, 1997), 1997 1997 1997 1997 1997 1997	1	and the second					
66.5									
76.5									
Center 3.550 Res BW 43				#Video BW 130	kHz*			#Sweep	Span 2.000 MH 20.0 s (1001 pts



|--|





Maximum Output Power 5 x 22.27 dBm

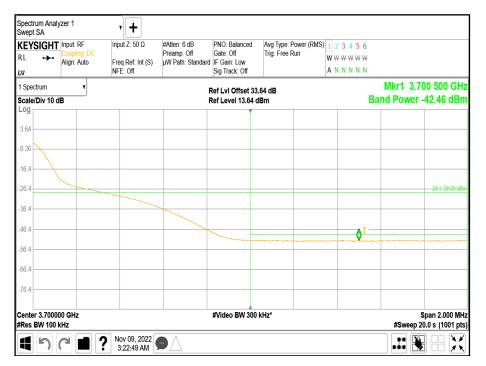
Antenna	LTE Modulation	dulation LTE Carrier Band Edge (MHz) Bandwidth Channel Position B Channel		dge (MHz)	
Antenna				Channel Position T	
12	QPSK	20.0 MHz	3560 + 3580 + 3600 + 3620 + 3640	3610 + 3630 + 3650 + 3670 + 3690	

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B

KEYSIGH RL ↔ w	T Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Freq Ref: Int (S) NFE: Off	#Atten: 6 dB Preamp: Off µW Path: Standard	PNO: Balanced Gate: Off IF Gain: Low Sig Track: Off	Avg Type: P Trig: Free R	W H	3 4 <mark>5 6</mark> / ₩ ₩ ₩ ₩ I N N N N		
1 Spectrum Scale/Div 10	dB			Ref Lvi Offset 33. Ref Level 13.55 d			Ba		.549 500 GH er -42.63 dBr
3.55									
6.45									
16.5									
36.5									DL1 28.05 dB
46.5		<mark>8</mark> 1-							
56.5				·····					
66.5									
-76.5									
Center 3.550 Res BW 100				#Video BW 300	KHZ*			#Swee	Span 2.000 MH p 20.0 s (1001 pts



|--|



FCC CFR 47 Part 2, Clause 2.1051 FCC CFR 47 Part 96, Clause 96.41 (e)(1)(i)

Limit

40	dBm -10log(32) = -28.0		\sim
-1.5	<u>abm - 10100(32) = -281</u>	US ABM (32 DOT WIIW	())



2.4 TRANSMITTER SPURIOUS EMISSIONS

2.4.1 Specification Reference

FCC CFR 47 Part 96, Clause 96.41 (e)(1), (e)(2), (e)(3) FCC CFR 47 Part 2, Clause 2.1051

2.4.2 Date of Test and Modification State

11, 15,16 and 17-November-2022 - Modification State 0

2.4.3 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.4.4 Environmental Conditions

Ambient Temperature	22.4 - 22.9°C
Relative Humidity	35.7 - 41.9%

2.4.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01, Clause 6.1.

Each antenna port has been declared as being equivalent, therefore measurements were made on one antenna port only. To account for this, the limit was tightened by 10 * Log(N), where N is equal to the number of MIMO antenna ports.

For single port, the limit was calculated as below: Range 0.009 to 3530 MHz = -40 dBm - 10 * Log (32) = -55.05 dBm. Range 3530 to 3650 MHz = -25 Bm - 10 * Log (32) = -40.05dBm. Range 3650 to 3660 MHz = -13 dBm - 10 * Log (32) = -28.05 dBm. Range 3700 to 3710 MHz = -13 dBm - 10 * Log (32) = -28.05 dBm. Range 3710 to 3720 MHz = -25 Bm - 10 * Log (32) = -40.05dBm. Range 3720 to 40000 MHz = -40 dBm - 10 * Log (32) = -55.05 dBm.

2.4.6 Test Results

Configuration 1

Maximum Output Power 19.56 dBm



Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B -Band 1 - Range 0.009 to 3530 MHz

3.194 0 GH -59.87 dBr
1 L1 -55.05 dBi
Stop 3.530 GH 7.07 s (7060 pts

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B -Band Mask_Low - Range 3530 to 3720 MHz - Mask_Low

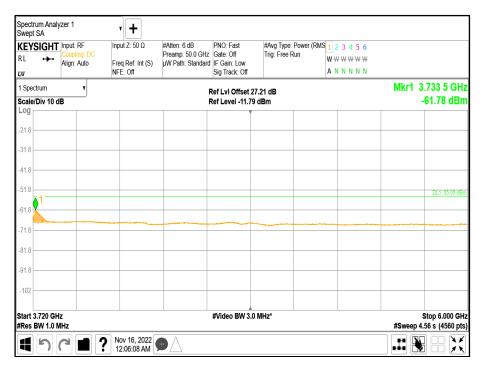




Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B -Band Mask_High - Range 3530 to 3720 MHz - Mask_High

KEYSIGHT ^{RL} →→→ Ø PASS	Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Freq Ref: Int (S) NFE: Off	#Atten: 2 dB Preamp: Off µW Path: Standard	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Power (Avg Hold: 1/1 Trig: Free Run	RMS 1 2 3 4 5 6 A ₩ ₩ ₩ ₩ ₩ A N N N N N	
1 Spectrum Scale/Div 10 c	۳ B		-	Ref LvI Offset 30 Ref Level 10.40			.560 50 GH2 56.878 dBm
Log D.400	e 1 Pass						
-9.60							
-19.6							
-29.6							
-49.6							
-59.6 Dunnan		alaan manan madaa ay	unummud	and and a state of the second	nadin tang manang panang		 (i)(this areas of the second
-69.6							
-79.6							
Start 3.56050 Res BW 100		i		#Video BW 3.0	MHz*	!	top 3.72000 GH 5.00 s (1001 pts

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B -Band 2 - Range 3720 to 6000 MHz





Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B -Band 3 - Range 6000 to 18000 MHz

Spectrum		Freq Ref: Int (S) NFE: Off	µW Path: Standard	Gate: Off IF Gain: Low Sig Track: Off	Trig: Free Run	MS 1 2 3 4 5 6 ₩₩₩₩₩₩ A N N N N N	
cale/Div 10 de	3		-	Ref LvI Offset 15 Ref Level -29.59			8.236 6 GH; -84.15 dBn
39.6							
19.6							DL1 -55.05 dBn
59.6 59.6							
/9.6		1					
39.6							
99.6							
110							
tart 6.000 GHz Res BW 1.0 M				#Video BW 3.0	MHz*		Stop 18.000 GH 4.0 s (24000 pts

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B -Band 4 - Range 18000 to 37000 MHz





Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M -Band 1 - Range 0.009 to 3530 MHz

Spectrum Analy. Swept SA	zer 1	• +						
RI	Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S) NFE: Off	#Atten: 2 dB Preamp: Off µW Path: Standard	PNO: Fast Gate: Off I IF Gain: Low Sig Track: Off	#Avg Type: Power Trig: Free Run	(RMS <mark>123456</mark> ₩₩₩₩₩₩ ANNNNN		
1 Spectrum Scale/Div 10 dl	T			Ref LvI Offset 3 Ref Level 15.95				3.165 4 GHz -62.01 dBm
Log	-			Ker Lever 15.95				-02.01 4011
5.95								
-4.05								
-14.1								
-24.1								
-34.1								
-44.1								
-54.1								DL1-55.05 dBr
-64.1					and the second		and an and a state of the state	
-74.1								
Start 9 kHz				#Video BW 3.0) MHz*			Stop 3.530 GHz
#Res BW 100 k	Hz			#11000 811 0.1	/ 11112			.07 s (7060 pts
ま り(?	Nov 08, 2022 6:00:49 AM	$\Box \triangle$					

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M -Band Mask_Low - Range 3530 to 3720 MHz - Mask_Low

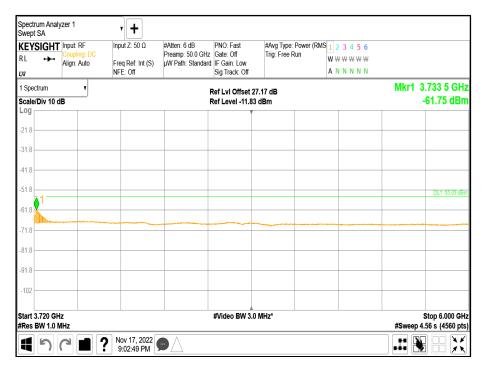




Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M -Band Mask_High - Range 3530 to 3720 MHz - Mask_High

RL	SIGHT Input: Coupl Align: PASS	ing: DC Auto	Input Ζ: 50 Ω Freq Ref: Int (S) NFE: Off	#Atten: 2 dB Preamp: Off μW Path: Standard	PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Avg Hold: 1/ Trig: Free R	'1	5 <mark>1</mark> 2 3 4 5 6 A₩₩₩₩₩ A N N N N N		
	trum Div 10 dB	V		-	Ref Lvi Offset 3 Ref Level 10.40					630 50 GH; i9.091 dBn
Log	Trace 1 P	ass								
-9.60 -										
-19.6 -										
-29.6										
-39.6 -										
-49.6	1									
-69.6 -	- and the first of the second s	O RUMAN (ADA))	angeleter anne anne anne anne anne anne anne an	United and a second state of the second s	n di tra pi polatra pol	hilden hen de	inni Valum	Darquiniyi qi Daiman kani yan	AND THE REPORT OF THE PARTY OF	
-79.6										
	.63050 GHz 3W 100 kHz				#Video BW 3.0) MHz*				op 3.72000 GH .00 s (1001 pts

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M -Band 2 - Range 3720 to 6000 MHz

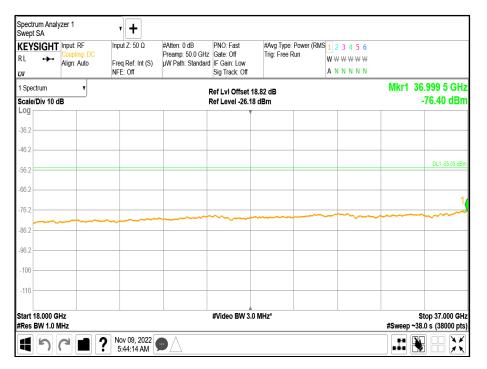




Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M -Band 3 - Range 6000 to 18000 MHz

KEYSIGH RL ↔ M	Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Freq Ref: Int (S) NFE: Off	#Atten: 0 dB Preamp: 50.0 GHz µW Path: Standard		#Avg Type: Power (R Trig: Free Run	MS 1 2 3 4 5 6 ₩₩₩₩₩₩₩ A N N N N N	
1 Spectrum Scale/Div 10	v dB		-	Ref LvI Offset 15 Ref Level -29.59			8.352 6 GH: -84.21 dBn
39.6							
49.6							DL1 -55.05 dBn
59.6							
79.6		• 1					
.89.6							
99.6							
-110							
-120							
tart 6.000 G Res BW 1.0			1	#Video BW 3.0	MHz*	I	Stop 18.000 GH 1.0 s (24000 pts

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M -Band 4 - Range 18000 to 37000 MHz





Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T -Band 1 - Range 0.009 to 3530 MHz

KEYSIGH RL ↔	Coupling: DC	Input Z: 50 Ω Freq Ref: Int (S) NFE: Off	#Atten: 2 dB Preamp: Off µW Path: Standard	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Power (R Trig: Free Run	MS 1 2 3 4 5 6 W W W W W W A N N N N N	
1 Spectrum Scale/Div 10	v) dB	- '		Ref LvI Offset 33 Ref Level 25.72 (- '	3.177 5 GH: -61.96 dBn
15.7							
5.72							
4.28							
-14.3							
-24.3							
-34.3							
-44.3							
-54.3							 1 1 1
-64.3		and a low of the low o					
Start 9 kHz #Res BW 10	0 kHz			#Video BW 3.0	MHz*		Stop 3.530 GH; 7.07 s (7060 pts

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T -Band Mask_Low - Range 3530 to 3720 MHz - Mask_Low

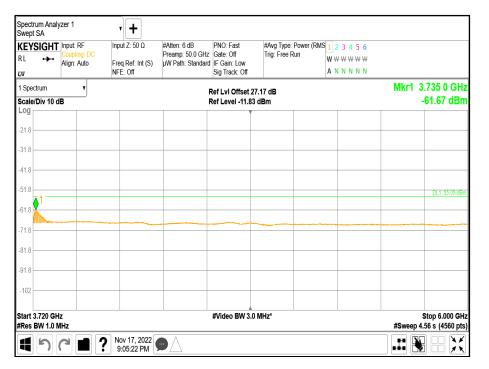




Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T -Band Mask_High - Range 3530 to 3720 MHz - Mask_High

RL	GHT Input: → Coupl Align: SS	ing: DC Auto	Input Ζ: 50 Ω Freq Ref: Int (S) NFE: Off	#Atten: 2 dB Preamp: Off µW Path: Standard	PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Power Avg Hold: 1/1 Trig: Free Run	(RMS 1 2 3 4 5 6 A ₩ ₩ ₩ ₩ ₩ A N N N N N		
1 Spectru Scale/Div		V		-	Ref LvI Offset 3 Ref Level 10.40				01 537 0 GH -59.649 dBm
Log 0.400	race 1 P	ass							
.9.60									
-19.6									
-29.6									
-39.6									
49.6									
-59.6	aller of the last and a second se	kanyantunisepa	aranan in staan an	unghauthabagaann	ŶĸĿŊĨIJħġţĸŢĸţĸĸŊIJċġţ	Balikalitetetetetetetetetetetetetetetetetetete			واستهدارا مريحة والمريحة والمريحة والمريحة
-79.6									
)1500 GHz / 100 kHz				#Video BW 3.0	MHz*		S #Sweet	top 3.720000 GH 5.00 s (1001 pts

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T -Band 2 - Range 3720 to 6000 MHz

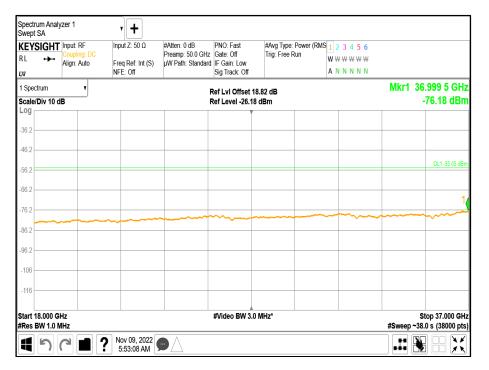




Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T -Band 3 - Range 6000 to 18000 MHz

KEYSIGH IL +++	Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Freq Ref: Int (S) NFE: Off	#Atten: 0 dB Preamp: 50.0 GHz μW Path: Standard		#Avg Type: Power (R Trig: Free Run	8MS 1 2 3 4 5 6 ₩₩₩₩₩₩₩ A N N N N N		
Spectrum cale/Div 10	dB			Ref Lvi Offset 15 Ref Level -29.59				8.348 1 GH -84.17 dBn
.og								
49.6								DL1 -55.05 dBi
59.6								001-00.00 001
69.6								
79.6		1						
89.6	-							
.110								
120								
tart 6.000 G Res BW 1.0				#Video BW 3.0	MHz*		sween ~2	Stop 18.000 GH 4.0 s (24000 pts

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T -Band 4 - Range 18000 to 37000 MHz





Maximum Output Power 22.3 dBm

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B -Band 1 - Range 0.009 to 3530 MHz

KEYSIGH⊺ RL +→- µav	Input: RF Coupling: DC Align: Auto	Input Ζ: 50 Ω Freq Ref: Int (S) NFE: Full	#Atten: 6 dB Preamp: Off µW Path: Standard	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Trig: Free R	w	2 3 4 5 6 ₩₩₩₩₩ N N N N N	
1 Spectrum Scale/Div 10	dB			Ref LvI Offset 33 Ref Level 26.13 (.176 0 GHz 58.74 dBn
16.1								
6.13								
-3.87								
-23.9								
33.9 43.9								
-53.9								 1 <u>011-55.05.dBr</u>
						landari hanidari Matalari		
Start 9 kHz #Res BW 1.0	MHz			#Video BW 3.0	MHz*			Stop 3.530 GH: .07 s (7060 pts

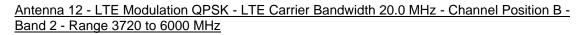
Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B -Band Mask_Low - Range 3530 to 3720 MHz - Mask_Low

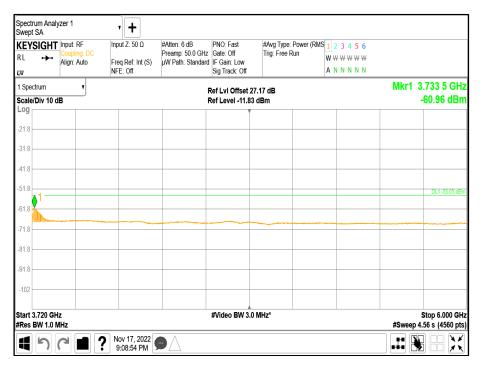
Swept KEYS RL	SIGHT	Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Freq Ref: Int (S)	#Atten: 2 dB Preamp: Off µW Path: Standard	PNO: Fast Gate: Off IF Gain: Low	#Avg Type: Avg Hold: 1/ Trig: Free R	/1	1 2 3 4 5 6 A ₩ ₩ ₩ ₩ ₩		
м	PASS	- 5	NFE: Off		Sig Track: Off	5		ANNNNN		
	trum Div 10 di	7 3			Ref LvI Offset 3 Ref Level 10.40				Mkr1	222 5 GHz 8.481 dBm
-09	Trace	1 Pass								
9.60										
19.6									_	
-29.6										
49.6								a per al francés de la companya de l		
59.6					North States of the State of th	and a state of the				
-69.6										
-79.6									-	
	3.530000 BW 1.0 M				#Video BW 3.0	MHz*		1	#	p 3.548500 GH: .00 s (1001 pts



Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B -Band Mask_High - Range 3530 to 3720 MHz - Mask_High

Spectrum Analyzer 1 Swept SA	+						
KEYSIGHT Input: RF RL Coupling: DC Align: Auto	Input Ζ: 50 Ω Corr CCorr Freq Ref: Int (S) NFE: Off	#Atten: 2 dB Preamp: Off μW Path: Standard	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Power (RI Avg Hold: 1/1 Trig: Free Run	MS <mark>1</mark> 23456 A \\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
1 Spectrum v Scale/Div 10 dB			Ref LvI Offset 30 Ref Level 10.40				570 50 GHz 1.056 dBm
Log Trace 1 Pass							
-9.60							
-19.6							
-29.6							
10.0		And and a state of the state of t	THAT WANT TO BE A STATE	עריינער אינער א	unundovorututut ^a hou	The State	
-59.6							
-69.6							
Start 3.57050 GHz			#Video BW 3.0	MHz*		St	op 3.72000 GH
#Res BW 1.0 MHz			#1400 811 0.0			#Sweep 5	.00 s (1001 pts
4 h C 1 (Nov 08, 2022 6:21:09 AM						



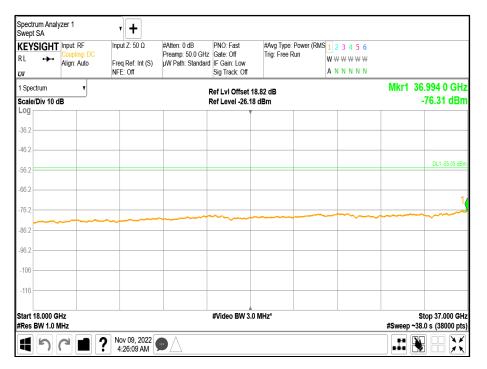




Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B -Band 3 - Range 6000 to 18000 MHz

	Align: Auto	Freq Ref: Int (S) NFE: Off	#Atten: 0 dB Preamp: 50.0 GHz µW Path: Standard		#Avg Type: Power (R Trig: Free Run	MIS 1 2 3 4 5 6 W ₩ ₩ ₩ ₩ ₩ A N N N N N	
Spectrum cale/Div 10 d	v B		-	Ref LvI Offset 15 Ref Level -29.59			8.252 6 GH: -84.26 dBn
0 9.6							
9.6							DL1 -55.05 dBr
i9.6							
9.6		1					
9.6							<u> </u>
19.6							
110							
art 6.000 GH Res BW 1.0 M				#Video BW 3.0	MHz*		Stop 18.000 GH 4.0 s (24000 pts

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B -Band 4 - Range 18000 to 37000 MHz





Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -Band 1 - Range 0.009 to 3530 MHz

Spectrum Anal Swept SA	lyzer 1	• +						
KEYSIGHT RL ↔→	Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S) NFE: Full	#Atten: 4 dB Preamp: Off µW Path: Standard	PNO: Fast Gate: Off d IF Gain: Low Sig Track: Off	#Avg Type: Po Trig: Free Rur	W W	3 4 5 6 ₩₩₩₩ N N N N	
1 Spectrum Scale/Div 10 d	▼ dB	I		Ref LvI Offset 3 Ref Level 24.01				.208 0 GHz 60.33 dBm
Log 14.0								
4.01								
-5.99								
-26.0								
-36.0								
-56.0								1 <u>-1 -55.05 dBr</u>
-66.0			tina pina ang katalan di kana di n Aya si aya na kapata pina pina ang katalan di ka					
Start 9 kHz #Res BW 1.0 I	MHz			#Video BW 3.) MHz*			Stop 3.530 GH 07 s (7060 pts
4)		Nov 09, 2022 1:26:50 AM						

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -Band Mask_Low - Range 3530 to 3720 MHz - Mask_Low

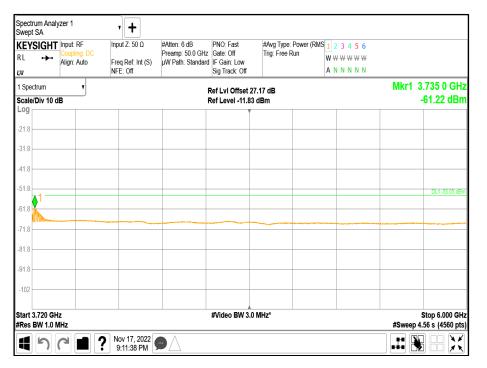




Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -Band Mask_High - Range 3530 to 3720 MHz - Mask_High

Spectrum Analyzer 1 Swept SA	+					
KEYSIGHT Input: RF R L Coupling: DC Align: Auto	Input Ζ: 50 Ω Corr CCorr Freq Ref: Int (S) NFE: Full	#Atten: 2 dB Preamp: Off µW Path: Standard	PNO: Fast Gate: Off I IF Gain: Low Sig Track: Off	#Avg Type: Power (Avg Hold: 1/1 Trig: Free Run	RMS <mark>1</mark> 23456 A₩₩₩₩₩₩ ANNNNN	
1 Spectrum v Scale/Div 10 dB			Ref LvI Offset 3 Ref Level 10.40			35 50 GHz 1.738 dBm
Log Trace 1 Pass			ľ			
-9.60						
-19.6						
-29.6						
line and						
-49.6 -59.6						Milliphianapura
-69.6						Talling Highward - 144
-79.6 Start 3.63550 GHz			#Video BW 3.0) MH a *		 p 3.72000 GH:
#Res BW 1.0 MHz			#VIGEO BVV 3.0	I MHZ"		00 s (1001 pts
	Nov 09, 2022 1:25:22 AM					



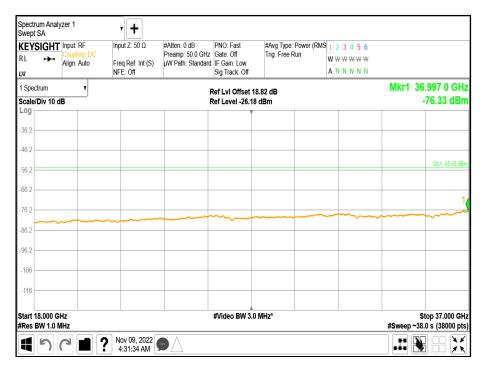




Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -Band 3 - Range 6000 to 18000 MHz

KEYSIGH	T Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Freq Ref: Int (S) NFE: Off	#Atten: 0 dB Preamp: 50.0 GHz µW Path: Standard		#Avg Type: Power (R Trig: Free Run	MS 1 2 3 4 5 6 W W W W W W A N N N N N			
Spectrum Ref Lvl Offset 15.41 dB Scale/Div 10 dB Ref Level -29.59 dBm Log V								Mkr1 8.353 6 GH -84.23 dB	
_og 39.6									
49.6								DL1 -55.05 dBr	
59.6									
69.6									
79.6		1							
89.6									
99.6									
-110									
-120									
itart 6.000 G Res BW 1.0				#Video BW 3.0	MHz*			Stop 18.000 GH 4.0 s (24000 pts	

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -Band 4 - Range 18000 to 37000 MHz

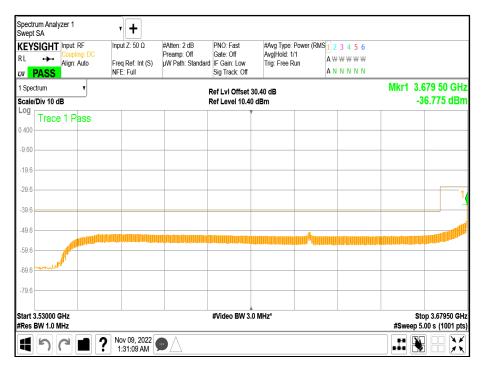




Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T -Band 1 - Range 0.009 to 3530 MHz

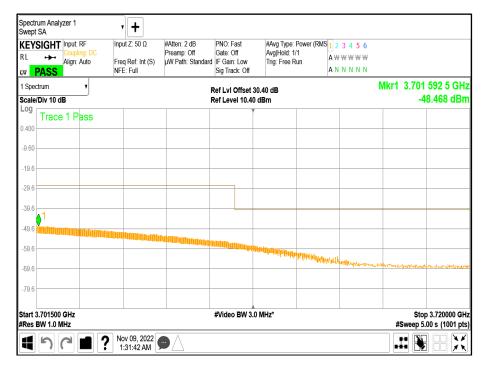
KEYSIGH RL +→- µar	Coupling: DC	Input Ζ: 50 Ω Freq Ref: Int (S) NFE: Full	#Atten: 6 dB Preamp: Off μW Path: Standard	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: F Trig: Free Ri	un	1 2 3 4 5 6 ₩₩₩₩₩₩ A N N N N N		
1 Spectrum Scale/Div 10 Log	v dB			Ref LvI Offset 3 Ref Level 25.39					3.052 9 GHz -58.39 dBm
15.4									
5.39									
4.61									
14.6									
24.6									
44.6									
-54.6								 1 -	DL1 -55.05 dBm
-64.6			erre et som en er				les breis des literes		
Start 9 kHz Res BW 1.0	per la relación dels estés de parte de			#Video BW 3.0					Stop 3.530 GH 7.07 s (7060 pts

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T -Band Mask_Low - Range 3530 to 3720 MHz - Mask_Low

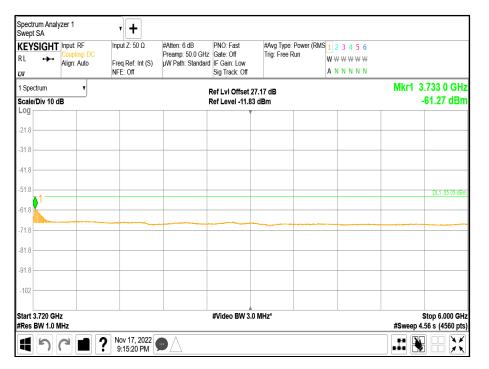




Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T -Band Mask_High - Range 3530 to 3720 MHz - Mask_High



Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T -Band 2 - Range 3720 to 6000 MHz

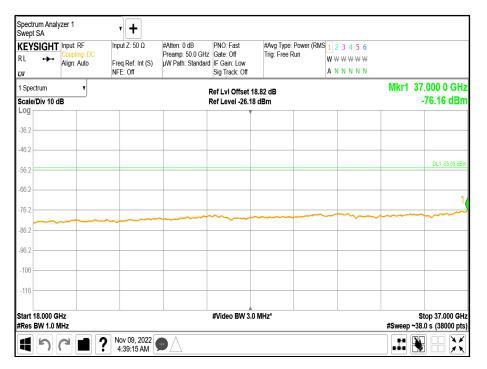




Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T -Band 3 - Range 6000 to 18000 MHz

Swept S		•				
KEYSI Rl	IGHT Input: RF ↔ Coupling: DC Align: Auto	Input Z: 50 Ω Freq Ref: Int (S)	#Atten: 0 dB Preamp: 50.0 GHz µW Path: Standard		#Avg Type: Power (RMS 1 2 3 4 5 6 Trig: Free Run W \ \ \ \ \ \ \ \ \ \ \	
L)(I		NFE: Off		Sig Track: Off	ANNNN	
1 Spectru	um v		F	Ref LvI Offset 15	.41 dB	Mkr1 8.198 6 GH
	liv 10 dB		F	Ref Level -29.59	dBm	-84.28 dBn
Log						
-39.6						
-49.6						
						DL1 -55.05 dBr
-59.6						
-69.6						
70.0						
-79.6						
-89.6						
-99.6						
-110						
-120						
	000 GHz W 1.0 MHz			#Video BW 3.0	MHz*	Stop 18.000 GH Sweep ~24.0 s (24000 pts#
		Nov 09, 2022				
		4:35:23 AM				🎫 🚺 🛅 📈

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T -Band 4 - Range 18000 to 37000 MHz





Maximum Output Power 2 x 22.27 dBm

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -Band 1 - Range 0.009 to 3530 MHz

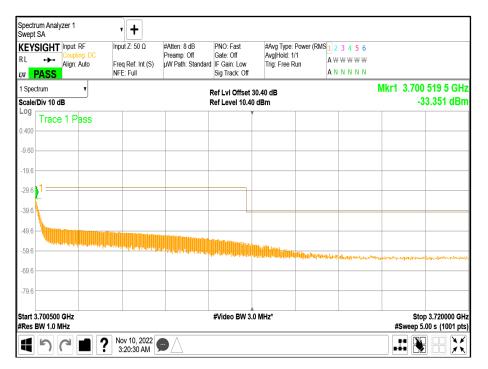
KEYSIGH RL +→- µa	Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Freq Ref: Int (S) NFE: Full	#Atten: 6 dB Preamp: Off µW Path: Standard	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Trig: Free R	w	2 3 4 5 6 ₩₩₩₩₩ N N N N N		
1 Spectrum Scale/Div 10 Log	dB			Ref LvI Offset 33 Ref Level 5.09 di		1			2.635 9 GHz -58.82 dBm
-4.91									
-14.9									
-34.9									
54.9						mbate context	1	. A. A. Louis of a Mida American	DL1 -55.05 dBr
-64.9			er men en in her en en in her en en in her en						
-84.9									
Start 9 kHz #Res BW 1.0	MHz			#Video BW 3.0	MHz*				Stop 3.530 GH 7.07 s (7060 pts

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -Band Mask Low - Range 3530 to 3720 MHz - Mask Low

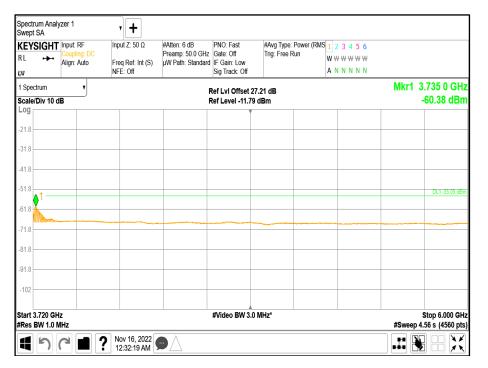
Spectr Swept	um Analy SA	zer 1	• +							
RL	Sight ++ Pass	Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Freq Ref: Int (S) NFE: Full	#Atten: 8 dB Preamp: Off µW Path: Standard	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Avg Hold: 1, Trig: Free R	tun A ₩	3 4 5 6 / \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\		
1 Spec Scale/		v B			Ref Lvi Offset 3 Ref Level 10.40					9 500 0 GHz 32.737 dBm
Log 0.400	Trace	1 Pass								
-9.60										
-19.6										1/
-39.6										1
-49.6							A FORMULA DA	ummumi M	I TITA I TATA I TITA I TATA	omonomor ⁽
-59.6	harmen	าปญาสายสาราง	inderine fremmenterstore	Magtheterrapeter (fragt	, abardation of the state	n fa ann an a				
-79.6										
	3.530000 BW 1.0 N				#Video BW 3.0) MHz*				op 3.549500 GHz 5.00 s (1001 pts)
	5		Nov 10, 2022 3:13:55 AM							



Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -Band Mask_High - Range 3530 to 3720 MHz - Mask_High



Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -Band 2 - Range 3720 to 6000 MHz

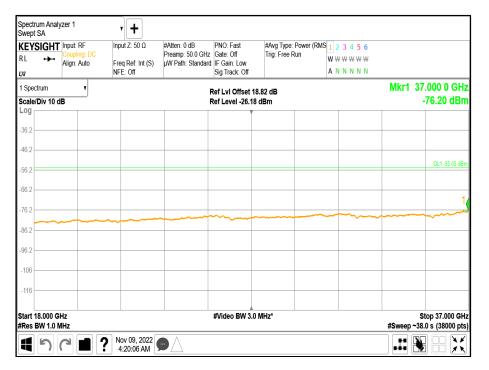




Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -Band 3 - Range 6000 to 18000 MHz

L + → • a	Coupling: DC Align: Auto	Input Ζ: 50 Ω Freq Ref: Int (S) NFE: Off	#Atten: 0 dB Preamp: 50.0 GHz µW Path: Standard		#Avg Type: Power (R Trig: Free Run	MS 1 2 3 4 5 6 W \# \# \# \# \# A N N N N N	
Spectrum cale/Div 10	dB		-	Ref LvI Offset 15 Ref Level -29.59).930 7 GH: -83.85 dBn
og 39.6							
19.6							DL1 -55.05 dBr
59.6							
9.6 9.6				1			-
39.6				L			<u> </u>
99.6							
110							
tart 6.000 GI Res BW 1.0				#Video BW 3.0	MHz*		Stop 18.000 GH

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -Band 4 - Range 18000 to 37000 MHz





Maximum Output Power 5 x 22.27 dBm

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -Band 1 - Range 0.009 to 3530 MHz

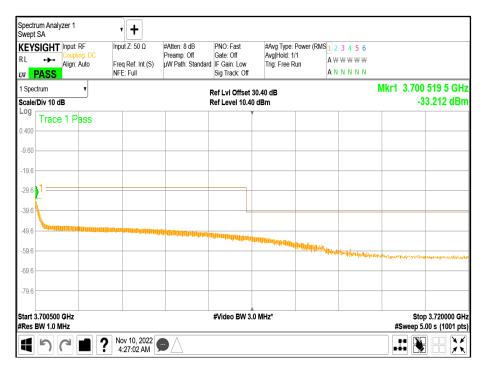
Spectrum Scale/Div 10 dB 	V	-	Ref LvI Offset 3 Ref Level -14.97			Mkr1 3	.263 0 GH
25.0			Rei Levei - 14.9/	dBm		 	-58.76 dBn
35.0							
55.0							0 1 55.05 dB
65.0	Malenta de Altala				dimental a har the		
75.0							
95.0							
-105							
itart 9 kHz Res BW 1.0 MHz			#Video BW 3.0	MHz*			Stop 3.530 GH .07 s (7060 pts

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -Band Mask Low - Range 3530 to 3720 MHz - Mask Low

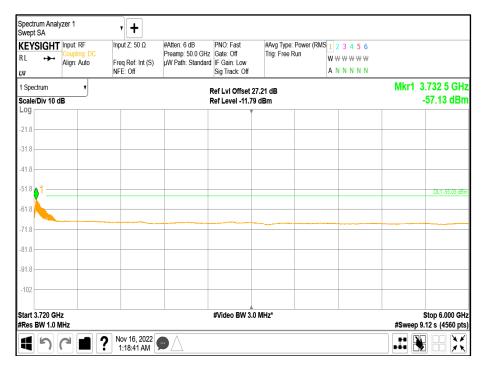




Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -Band Mask_High - Range 3530 to 3720 MHz - Mask_High



Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -Band 2 - Range 3720 to 6000 MHz

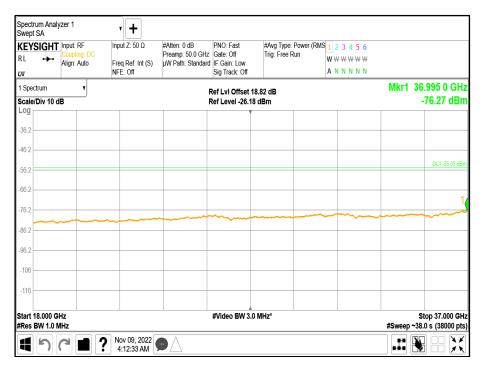




Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -Band 3 - Range 6000 to 18000 MHz

KEYSIGH	Coupling: DC	Input Z: 50 Ω Freq Ref: Int (S) NFE: Off	#Atten: 0 dB Preamp: 50.0 GHz µW Path: Standard		#Avg Type: Power (R Trig: Free Run	XMS 1 2 3 4 5 6 ₩₩₩₩₩₩ A N N N N N	
Spectrum Scale/Div 10	dB			Ref LvI Offset 15 Ref Level -29.59			0.929 7 GH -80.85 dBr
.og							
49.6							
59.6							DL1 -55.05 dB
69.6							
79.6				1			
89.6				L			<u> </u>
99.6							
-110							
120							
tart 6.000 G Res BW 1.0				#Video BW 3.0	MHz*		Stop 18.000 GH 4.0 s (24000 pts

Antenna 12 - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -Band 4 - Range 18000 to 37000 MHz





Limit Clauses 96.41 e(1)(i), e (2) and e(3)

3530-3450 MHz = -25 dBm/MHz 3540-3550 MHz = -13 dBm/MHz 3700-3710 MHz = -13 dBm/MHz 3710-3720 MHz = -25 dBm/MHz

9 kHz-3530 MHz = -40 dBm/MHz 3720 MHz - 40 GHz = -40 dBm/MHz



2.5 FREQUENCY STABILITY

2.5.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1055

2.5.2 Date of Test and Modification State

16-November-2022 - Modification State 0

2.5.3 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.5.4 Environmental Conditions

Ambient Temperature22.6°CRelative Humidity39.6%

2.5.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01, Clause 9 and ANSI C63.26 Clause 5.6

2.5.6 Test Results

Configuration 1

Maximum Output Power 22.30 dBm

Tomporoturo	Valtara	Frequency Error (Hz)
Temperature	Voltage	Channel Position M
-30°C	-48.0 V DC	3.10
-20°C	-48.0 V DC	2.88
-10°C	-48.0 V DC	1.82
0°C	-48.0 V DC	3.34
+10°C	-48.0 V DC	2.70
+20°C	-40.8 V DC	2.76
+20°C	-48.0 V DC	2.24
+20°C	-55.2 V DC	2.79
+30°C	-48.0 V DC	2.44
+40°C	-48.0 V DC	2.32
+50°C	-48.0 V DC	1.94

FCC CFR 47 Part 2, Clause 2.1055

	The frequency stability shall be sufficient to ensure that th		
Limit	fundamental emissions stay within the authorized bands of		
	operation.		



SECTION 3

TEST EQUIPMENT USED



3.1 **TEST EQUIPMENT USED**

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Туре No.	TE No.	Calibration Period (months)	Calibration Due
Maximum Peak Output	Power and Peak to	Average Ratio - Cond	ducted		
PXA Signal Analyzer	Keysight	N9030B	BAMS-1002016870	12	24-May-2023
Thermo Hygrobarometer	RS PRO	1160	TE5824	12	19-Jul-2023
Power Supply	Agilent Technologies	N8738A	BAMS-1001518021	N/A	O/P Mon
Multimeter	FLUKE	75111	TE0455	12	01-Dec-22
Spectrum Sysyem	TUV SUD	-	TE5991	N/A	O/P Mon
Occupied Bandwidth					
PXA Signal Analyzer	Keysight	N9030B	BAMS-1002016870	12	24-May-2023
Thermo Hygrobarometer	RS PRO	1160	TE5824	12	19-Jul-2023
Power Supply	Agilent Technologies	N8738A	BAMS-1001518021	N/A	O/P Mon
Multimeter	FLUKE	75111	TE0455	12	01-Dec-22
Spectrum Sysyem	TUV SUD	-	TE5991	N/A	O/P Mon
Band Edge					
PXA Signal Analyzer	Keysight	N9030B	BAMS-1002020934	12	15-Feb-2023
Network Analyzer	Agilent Technologies	N5230A	BAMS-1000635869	12	22-Sep-2023
Power Supply	Agilent Technologies	N8738A	BAMS-1001674522	N/A	O/P Mon
Multimeter	FLUKE	75111	TE0455	12	01-Dec-22
Thermo Hygrobarometer	RS PRO	1160	TE5824	12	19-Jul-2023
Attenuator 20dB	Aerflex	6834-20-11	QM935	N/A	O/P Mon
Attenuator 10dB	Weinsnchel	56-10	T3528	N/A	O/P Mon
Transmitter Spurious E	missions			-	-
PXA Signal Analyzer	Keysight	N9030B	BAMS-1002020934	12	15-Feb-2023
Network Analyzer	Agilent Technologies	N5230A	BAMS-1000635869	12	22-Sep-2023
Power Supply	Agilent Technologies	N8738A	BAMS-1001674522	N/A	O/P Mon
Multimeter	FLUKE	75111	TE0455	12	01-Dec-22
Thermo Hygrobarometer	RS PRO	1160	TE5824	12	19-Jul-2023
Attenuator 20dB	Aerflex	6834-20-11	QM935	N/A	O/P Mon
Attenuator 10dB	Weinsnchel	56-10	T3528	N/A	O/P Mon
High Pass filter	RF-Lambda	RHPF23G06G40	-	N/A	O/P Mon
Band rejection filter	Creoway	CW-DPF-3550- 3700-E13-M2	BAMS-1017040477	N/A	O/P Mon
Frequency Stability	-	-	1	-	1
Signal & Spectrum Analyzer	R&S	FSW	BAMS 1001988511	12	16-Dec-2022
Thermo Hygro Barometer	RS PRO	1160	5824	12	19-Jul-2023
Thermometer	Fluke	51 K/J	2267	12	25-Jan-2023
Climatic Chamber	Vötsch	VCS 50017/S	BAMS 1001235892	-	O/P Mon
Power Supply	Keysight	N8738A	BAMS 1001643633	-	O/P Mon
Digital Multimeter	Fluke	79 SERIES II	3057	12	22-Aug-2023

N/A – Not Applicable O/P Mon – Output Monitored with Calibrated Equipment



3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:-

Test Discipline	Frequency / Parameter		MU	MU Unit
Conducted Maximum Peak Output Power- Spectrum	3550 MHz to 3700 MHz		±1.38	dB
Conducted Emissions- HP-VEE Software	9kHz to 37GHz		±1.83	dB
Frequency Stability - HP-VEE Software	3550 MHz to 3700 MHz		± 127	Hz
Occupied Bandwidth - Spectrum	Up to 20 MHz Bandwidth	10 MHz Bandwidth	± 96144	Hz
		20 MHz Bandwidth	± 190404	Hz
PSD - Spectrum	3550 MHz to 3700 MHz		±1.38	dB
Band Edge - HP-VEE Software	3550 MHz to 3700 MHz		±1.38	dB

Measurement Uncertainty Decision Rule

Determination of conformity with the specification limits is based on the results of the compliance measurement and does not take into account measurement instrumentation uncertainty as defined in ANSI C63.26:2015 Clause 1.3.

Risk: The uncertainty of measurement about the measured result is negligible with regard to the final pass/fail decision. The measurement result can be directly compared with the test limit to determine conformance with the requirement (compare IEC Guide 115). The level of risk to falsely accept and falsely reject items is further described in ILAC-G8



3.3 MEASUREMENT SOFTWARE USED

List of measurement software versions used for testing.

Instrument	Manufacturer	Type No.	TE No.	Software Version
PXA Signal Analyser (Spectrum)	Keysight	N9030B	BAMS-1002016870	2022 Update 2.0 Revision A.32.02
PXA Signal Analyser (HP-VEE SW)	Keysight	N9030B	BAMS 1002020934	2022 Update 1.0 Revision A.31.05
HP-VEE Software	TUV SUD	HP_VEE	N/A	V3.34
Spectrum	TUV SUD	SCU004	TE5991	1.4.1/1.6.1/1.8.0/1.8.1/1.8.2



SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



This report relates only to the actual item/items tested.

Our Swedac Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our Swedac Accreditation.

Results of tests not covered by our Swedac Accreditation Schedule are marked NSA (Not Swedac Accredited).

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ANNEX A

MODULE LIST

Configurations Module 1 (Spectrum)			
Product	Product No	R-State	Serial No	
CT-DU25	LPC102500/1	R3B	T01G522082	
AIR 3268 B48	KRD 901 254/3	R1B	E23E345114	
Software Version:	CXP2030039/7	Revision:	R35A89	
Configurations Module 2(F	CC software)			
Product	Product No	R-State	Serial No	
CT-DU25	LPC102500/1	R3B	T01G522634	
AIR 3268 B48	KRD 901 254/3	R1B	E23E352423	
Software Version:	CXP2030039/7	Revision:	R35A89	
Configurations Module 3 (Frequency Stability)				
Product	Product No	R-State	Serial No	
CT-DU25	LPC102500/1	R3B	T01G522634	
AIR 3268 B48	KRD 901 254/3	R1B	E23E352422	
Software Version:	CXP2030039/7	Revision:	R35A89	