



Radio Test Report

Airspan Communications Ltd

Aircreek 2.5

95.2320T02

47 CFR Part 24 Effective Date 1st October 2021
↳ 47CFR part 2J Effective Date 1st October 2021
TNB: Licensed Non-Broadcast Station Transmitter
Test Date: 7th December 2022 to 23rd March 2023
Report Number: 03-14011-2-23 Issue 01

The testing was carried out by RN Electronics Ltd, an independent test house, at their test facility located at:

R.N. Electronics Ltd.

Arnolds Court
Arnolds Farm Lane
Mountnessing
Essex
CM13 1UT
U.K.

www.RNelectronics.com

Telephone: +44 (0) 1277 352219
Email: sales@RNelectronics.com

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Arnolds Court, Arnolds Farm Lane, Mountnessing, Brentwood Essex, CM13 1UT

Certificate of Test 14011-1

The equipment noted below has been fully tested by R.N. Electronics Limited and, where appropriate, conforms to the relevant subpart of FCC Part 27. This is a certificate of test only and should not be confused with an equipment authorisation. Other standards may also apply.

Equipment:	Aircreek 2.5
Model Number:	95.2320T02
Unique Serial Number:	EA385301BFD0
Applicant:	Airspan Communications Ltd 33 Bath Road Slough, Berkshire SL1 3UF UK
Proposed FCC ID	O2J-AC25
Full measurement results are detailed in Report Number:	03-14011-1-23 Issue 01
Test Standards:	47 CFR Part 24 Effective Date 1st October 2021 ↳ 47CFR part 2J Effective Date 1st October 2021 TNB: Licensed Non-Broadcast Station Transmitter

NOTE:

Certain test requirements are subject to applicant's declaration. For details refer to section 3 of this report.

DEVIATIONS: No deviations have been applied.

This certificate relates only to the unit tested as identified by a unique serial number and in the condition at the time it was tested. It does not relate to any other similar equipment and performance of the product before or after the test cannot be guaranteed. Whilst every effort is made to assure quality of testing, type tests are not exhaustive and although no non-conformances may be found, this doesn't exclude the possibility of unit not meeting the intentions of the standard or the requirements of the Federal Regulations, particularly under different conditions to those during testing. Any compliance statements are made reliant on (a) the application of the product and use of the assigned band being acceptable to the FCC and (b) the modes of operation as instructed to us by the Customer based on their specific knowledge of the application and functionality of the EUT. Statements of compliance, where measurements were made, do not include the measurement uncertainty. The measurement uncertainty, where stated, is the expanded uncertainty based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

Date Of Test: 7th December 2022 to 23rd March 2023

Test Engineer:
Jack Chilvers

Jack Chilvers

Digitally signed by: Jack Chilvers
DN: CN = Jack Chilvers email = Jack.
Chilvers@kiwa.com C = GB O = RN
Electronics OU = RN Electronics
Date: 2023.04.24 13:10:56 Z

Approved By:
Radio Approvals Manager

Digitally signed by: Daniel Sims
DN: CN = Daniel Sims C = GB O = RN
Electronics Ltd
Date: 2023.04.24 12:36:01 Z

Customer
Representative:



File Name: Airspan Communications Ltd.14011-1 Issue 01

QMF21J - Issue 05 - RNE Issue 03; FCC Part 24 2021

1 Contents

1	Contents	3
2	Equipment under test (EUT)	4
2.1	Equipment specification	4
2.2	Configurations for testing	5
2.3	Functional description	6
2.4	Modes of operation.....	6
2.5	Emissions configuration	9
3	Summary of test results	11
4	Specifications	12
4.1	Relevant standards	12
4.2	Deviations	12
4.3	Tests at extremes of temperature & voltage	12
4.4	Test fixtures	12
5	Tests, methods and results.....	13
5.1	Spurious emissions at antenna terminals	13
5.2	RF Power Output.....	15
5.3	Frequency stability	31
5.4	Occupied Bandwidth	33
5.5	Field strength of spurious radiations	38
5.6	Band edge / spectrum mask additional emissions limitations.....	42
5.7	Modulation characteristics.....	52
6	Plots/Graphical results	53
6.1	Spurious emissions at the antenna terminals	53
6.2	RF Power Output.....	55
6.3	Occupied Bandwidth	127
6.4	Band Edge emissions	145
6.5	Frequency stability Band Edge emissions plots.....	153
7	Photographs.....	178
7.1	Radiated emission diagrams	178
8	Test equipment calibration list	179
9	Auxiliary and peripheral equipment.....	180
9.1	Customer supplied equipment.....	180
9.2	RN Electronics supplied equipment	180
10	Condition of the equipment tested	181
10.1	Modifications before test	181
10.2	Modifications during test.....	181
11	Description of test sites.....	182
12	Abbreviations and units.....	183

2 Equipment under test (EUT)

2.1 Equipment specification

Applicant	Airspan Communications Ltd 33 Bath Road Slough, Berkshire SL1 3UF UK	
Manufacturer of EUT	Airspan Communications Ltd	
Full Name of EUT	Aircreek 2.5	
Model Number of EUT	95.2320T02	
Serial Number of EUT	EA385301BFD0	
Date Received	7th December 2022	
Date of Test:	7th December 2022 to 23rd March 2023	
Purpose of Test	To demonstrate design compliance to the relevant rules of Chapter 47 of the Code of Federal Regulations.	
Date Report Issued	17th April 2023	
Main Function	RF data communications	
Information Specification	Height	210mm
	Width	320mm
	Depth	100mm
	Weight	<3kg
	Voltage	100-240V AC (5.5V DC)
	Current	2A
EUT Supplied PSU	Manufacturer	Dee Van Enterprise Co., Ltd
	Model number	DSA-60PFE-12
	Serial number	0
	Input voltage	100-240V AC 50-60Hz
	Input current	2.0A
	Output	+12.0V DC 5.0A

2.2 Configurations for testing

General Parameters	
EUT Normal use position	Table top
Choice of model(s) for type tests	Production Prototype
Antenna details	Dual Band/Dual Polar B66/B25, Dual Slant -45°, 6.5dBi gain
Antenna port	Internal ports available
Baseband Data port (yes/no)?	no
Highest Signal generated in EUT	1915 MHz
Lowest Signal generated in EUT	Not specified
Hardware Version (HVIN)	999-09-402
Software Version	V06475122_230306R
Firmware Version (FVIN)	TK-148288f d12bd0d9b0
Type of Equipment	eNB
Technology Type	LTE
Geo-location (yes/no)	No
TX Parameters	
Alignment range – transmitter	1710-1780 MHz (Band 66), 1850-1915 MHz (Band 25)
EUT Declared Modulation Parameters	QPSK, 16QAM, 64QAM
EUT Declared Power level	+23 dBm Max
EUT Declared Signal Bandwidths	5 MHz, 10 MHz, 15 MHz, 20 MHz
EUT Declared Channel Spacing's	5 MHz, 10 MHz, 15 MHz, 20 MHz
EUT Declared Duty Cycle	up to 100%
Unmodulated carrier available?	No
Declared frequency stability	+/- 0.1ppm
RX Parameters	
Alignment range – receiver	2110-2200 MHz (Band 66), 1930-1995 MHz (Band 25)
EUT Declared RX Signal Bandwidth	5 MHz, 10 MHz, 15 MHz, 20 MHz
Receiver Signal Level (RSL)	Not specified
Method of Monitoring Receiver BER	N/A
FCC Parameters	
FCC Transmitter Class	TNB: Licensed Non-Broadcast Station Transmitter

2.3 Functional description

4G UE RF LTE Module supporting LTE bands 66 and 25.

2.4 Modes of operation

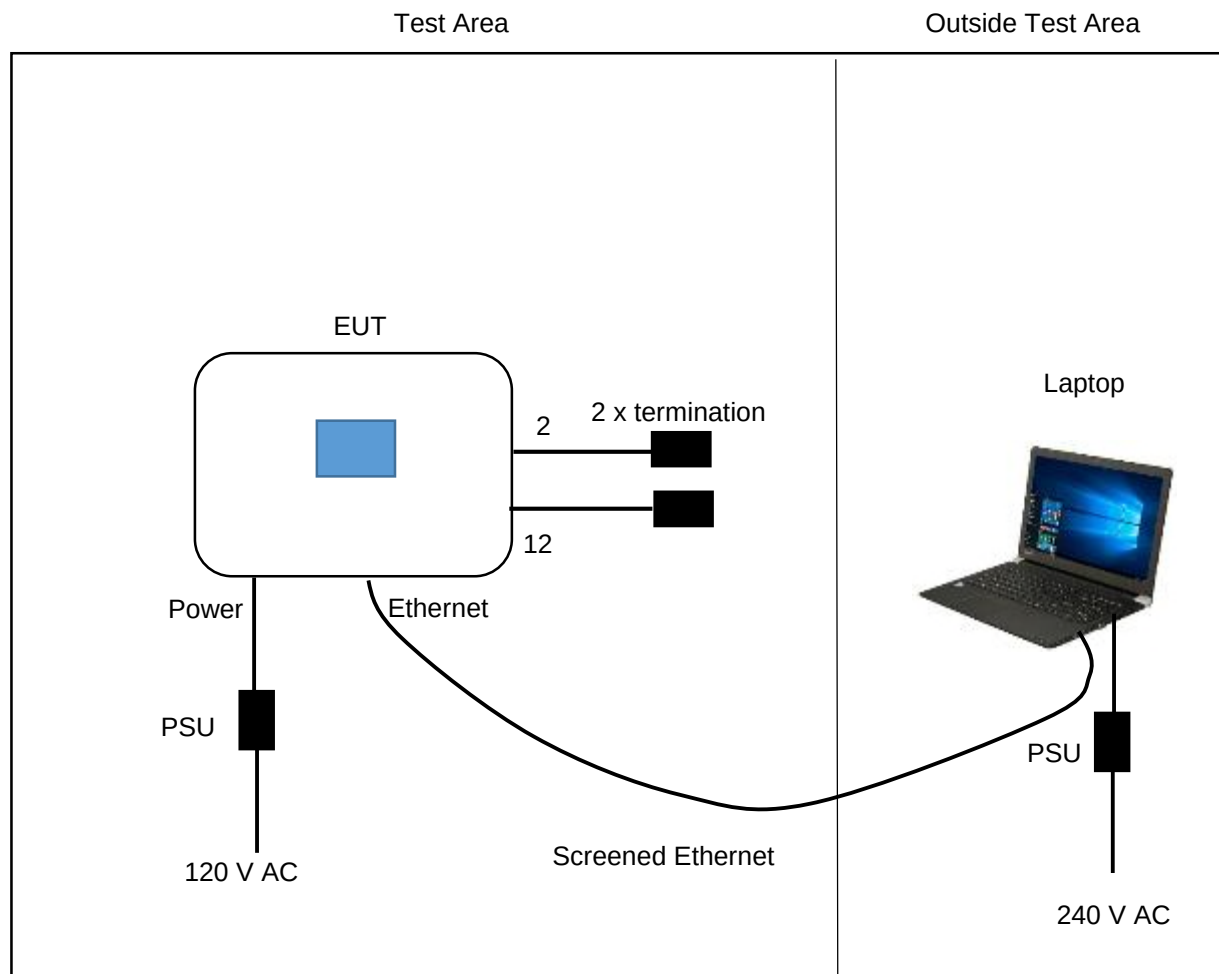
Mode Reference	Description	Used for testing
Mode 1	Low Channel, 5MHz BW, QPSK, 1%RB Lower	Yes
Mode 2	Low Channel, 5MHz BW, QPSK, 1%RB Upper	Yes
Mode 3	Low Channel, 5MHz BW, QPSK, 50%RB	Yes
Mode 4	Low Channel, 5MHz BW, QPSK, 100%RB	Yes
Mode 5	Mid Channel, 5MHz BW, QPSK, 1%RB Lower	Yes
Mode 6	Mid Channel, 5MHz BW, QPSK, 1%RB Upper	Yes
Mode 7	Mid Channel, 5MHz BW, QPSK, 50%RB	Yes
Mode 8	Mid Channel, 5MHz BW, QPSK, 100%RB	Yes
Mode 9	High Channel, 5MHz BW, QPSK, 1%RB Lower	Yes
Mode 10	High Channel, 5MHz BW, QPSK, 1%RB Upper	Yes
Mode 11	High Channel, 5MHz BW, QPSK, 50%RB	Yes
Mode 12	High Channel, 5MHz BW, QPSK, 100%RB	Yes
Mode 13	Low Channel, 5MHz BW, 16QAM, 1%RB Lower	Yes
Mode 14	Low Channel, 5MHz BW, 16QAM, 1%RB Upper	Yes
Mode 15	Low Channel, 5MHz BW, 16QAM, 50%RB	Yes
Mode 16	Low Channel, 5MHz BW, 16QAM, 100%RB	Yes
Mode 17	Mid Channel, 5MHz BW, 16QAM, 1%RB Lower	Yes
Mode 18	Mid Channel, 5MHz BW, 16QAM, 1%RB Upper	Yes
Mode 19	Mid Channel, 5MHz BW, 16QAM, 50%RB	Yes
Mode 20	Mid Channel, 5MHz BW, 16QAM, 100%RB	Yes
Mode 21	High Channel, 5MHz BW, 16QAM, 1%RB Lower	Yes
Mode 22	High Channel, 5MHz BW, 16QAM, 1%RB Upper	Yes
Mode 23	High Channel, 5MHz BW, 16QAM, 50%RB	Yes
Mode 24	High Channel, 5MHz BW, 16QAM, 100%RB	Yes
Mode 25	Low Channel, 5MHz BW, 64QAM, 1%RB Lower	Yes
Mode 26	Low Channel, 5MHz BW, 64QAM, 1%RB Upper	Yes
Mode 27	Low Channel, 5MHz BW, 64QAM, 50%RB	Yes
Mode 28	Low Channel, 5MHz BW, 64QAM, 100%RB	Yes
Mode 29	Mid Channel, 5MHz BW, 64QAM, 1%RB Lower	Yes
Mode 30	Mid Channel, 5MHz BW, 64QAM, 1%RB Upper	Yes
Mode 31	Mid Channel, 5MHz BW, 64QAM, 50%RB	Yes
Mode 32	Mid Channel, 5MHz BW, 64QAM, 100%RB	Yes
Mode 33	High Channel, 5MHz BW, 64QAM, 1%RB Lower	Yes
Mode 34	High Channel, 5MHz BW, 64QAM, 1%RB Upper	Yes
Mode 35	High Channel, 5MHz BW, 64QAM, 50%RB	Yes
Mode 36	High Channel, 5MHz BW, 64QAM, 100%RB	Yes
Mode 37	Low Channel, 10MHz BW, QPSK, 1%RB Lower	Yes
Mode 38	Low Channel, 10MHz BW, QPSK, 1%RB Upper	Yes
Mode 39	Low Channel, 10MHz BW, QPSK, 50%RB	Yes
Mode 40	Low Channel, 10MHz BW, QPSK, 100%RB	Yes
Mode 41	Mid Channel, 10MHz BW, QPSK, 1%RB Lower	Yes
Mode 42	Mid Channel, 10MHz BW, QPSK, 1%RB Upper	Yes
Mode 43	Mid Channel, 10MHz BW, QPSK, 50%RB	Yes
Mode 44	Mid Channel, 10MHz BW, QPSK, 100%RB	Yes
Mode 45	High Channel, 10MHz BW, QPSK, 1%RB Lower	Yes

File Name: Airspan Communications Ltd.14011-1 Issue 01

Mode 46	High Channel, 10MHz BW, QPSK, 1%RB Upper	Yes
Mode 47	High Channel, 10MHz BW, QPSK, 50%RB	Yes
Mode 48	High Channel, 10MHz BW, QPSK, 100%RB	Yes
Mode 49	Low Channel, 10MHz BW, 16QAM, 1%RB Lower	Yes
Mode 50	Low Channel, 10MHz BW, 16QAM, 1%RB Upper	Yes
Mode 51	Low Channel, 10MHz BW, 16QAM, 50%RB	Yes
Mode 52	Low Channel, 10MHz BW, 16QAM, 100%RB	Yes
Mode 53	Mid Channel, 10MHz BW, 16QAM, 1%RB Lower	Yes
Mode 54	Mid Channel, 10MHz BW, 16QAM, 1%RB Upper	Yes
Mode 55	Mid Channel, 10MHz BW, 16QAM, 50%RB	Yes
Mode 56	Mid Channel, 10MHz BW, 16QAM, 100%RB	Yes
Mode 57	High Channel, 10MHz BW, 16QAM, 1%RB Lower	Yes
Mode 58	High Channel, 10MHz BW, 16QAM, 1%RB Upper	Yes
Mode 59	High Channel, 10MHz BW, 16QAM, 50%RB	Yes
Mode 60	High Channel, 10MHz BW, 16QAM, 100%RB	Yes
Mode 61	Low Channel, 10MHz BW, 64QAM, 1%RB Lower	Yes
Mode 62	Low Channel, 10MHz BW, 64QAM, 1%RB Upper	Yes
Mode 63	Low Channel, 10MHz BW, 64QAM, 50%RB	Yes
Mode 64	Low Channel, 10MHz BW, 64QAM, 100%RB	Yes
Mode 65	Mid Channel, 10MHz BW, 64QAM, 1%RB Lower	Yes
Mode 66	Mid Channel, 10MHz BW, 64QAM, 1%RB Upper	Yes
Mode 67	Mid Channel, 10MHz BW, 64QAM, 50%RB	Yes
Mode 68	Mid Channel, 10MHz BW, 64QAM, 100%RB	Yes
Mode 69	High Channel, 10MHz BW, 64QAM, 1%RB Lower	Yes
Mode 70	High Channel, 10MHz BW, 64QAM, 1%RB Upper	Yes
Mode 71	High Channel, 10MHz BW, 64QAM, 50%RB	Yes
Mode 72	High Channel, 10MHz BW, 64QAM, 100%RB	Yes
Mode 73	Low Channel, 15MHz BW, QPSK, 1%RB Lower	Yes
Mode 74	Low Channel, 15MHz BW, QPSK, 1%RB Upper	Yes
Mode 75	Low Channel, 15MHz BW, QPSK, 50%RB	Yes
Mode 76	Low Channel, 15MHz BW, QPSK, 100%RB	Yes
Mode 77	Mid Channel, 15MHz BW, QPSK, 1%RB Lower	Yes
Mode 78	Mid Channel, 15MHz BW, QPSK, 1%RB Upper	Yes
Mode 79	Mid Channel, 15MHz BW, QPSK, 50%RB	Yes
Mode 80	Mid Channel, 15MHz BW, QPSK, 100%RB	Yes
Mode 81	High Channel, 15MHz BW, QPSK, 1%RB Lower	Yes
Mode 82	High Channel, 15MHz BW, QPSK, 1%RB Upper	Yes
Mode 83	High Channel, 15MHz BW, QPSK, 50%RB	Yes
Mode 84	High Channel, 15MHz BW, QPSK, 100%RB	Yes
Mode 85	Low Channel, 15MHz BW, 16QAM, 1%RB Lower	Yes
Mode 86	Low Channel, 15MHz BW, 16QAM, 1%RB Upper	Yes
Mode 87	Low Channel, 15MHz BW, 16QAM, 50%RB	Yes
Mode 88	Low Channel, 15MHz BW, 16QAM, 100%RB	Yes
Mode 89	Mid Channel, 15MHz BW, 16QAM, 1%RB Lower	Yes
Mode 90	Mid Channel, 15MHz BW, 16QAM, 1%RB Upper	Yes
Mode 91	Mid Channel, 15MHz BW, 16QAM, 50%RB	Yes
Mode 92	Mid Channel, 15MHz BW, 16QAM, 100%RB	Yes
Mode 93	High Channel, 15MHz BW, 16QAM, 1%RB Lower	Yes
Mode 94	High Channel, 15MHz BW, 16QAM, 1%RB Upper	Yes
Mode 95	High Channel, 15MHz BW, 16QAM, 50%RB	Yes
Mode 96	High Channel, 15MHz BW, 16QAM, 100%RB	Yes
Mode 97	Low Channel, 15MHz BW, 64QAM, 1%RB Lower	Yes
Mode 98	Low Channel, 15MHz BW, 64QAM, 1%RB Upper	Yes

Mode 99	Low Channel, 15MHz BW, 64QAM, 50%RB	Yes
Mode 100	Low Channel, 15MHz BW, 64QAM, 100%RB	Yes
Mode 101	Mid Channel, 15MHz BW, 64QAM, 1%RB Lower	Yes
Mode 102	Mid Channel, 15MHz BW, 64QAM, 1%RB Upper	Yes
Mode 103	Mid Channel, 15MHz BW, 64QAM, 50%RB	Yes
Mode 104	Mid Channel, 15MHz BW, 64QAM, 100%RB	Yes
Mode 105	High Channel, 15MHz BW, 64QAM, 1%RB Lower	Yes
Mode 106	High Channel, 15MHz BW, 64QAM, 1%RB Upper	Yes
Mode 107	High Channel, 15MHz BW, 64QAM, 50%RB	Yes
Mode 108	High Channel, 15MHz BW, 64QAM, 100%RB	Yes
Mode 109	Low Channel, 20MHz BW, QPSK, 1%RB Lower	Yes
Mode 110	Low Channel, 20MHz BW, QPSK, 1%RB Upper	Yes
Mode 111	Low Channel, 20MHz BW, QPSK, 50%RB	Yes
Mode 112	Low Channel, 20MHz BW, QPSK, 100%RB	Yes
Mode 113	Mid Channel, 20MHz BW, QPSK, 1%RB Lower	Yes
Mode 114	Mid Channel, 20MHz BW, QPSK, 1%RB Upper	Yes
Mode 115	Mid Channel, 20MHz BW, QPSK, 50%RB	Yes
Mode 116	Mid Channel, 20MHz BW, QPSK, 100%RB	Yes
Mode 117	High Channel, 20MHz BW, QPSK, 1%RB Lower	Yes
Mode 118	High Channel, 20MHz BW, QPSK, 1%RB Upper	Yes
Mode 119	High Channel, 20MHz BW, QPSK, 50%RB	Yes
Mode 120	High Channel, 20MHz BW, QPSK, 100%RB	Yes
Mode 121	Low Channel, 20MHz BW, 16QAM, 1%RB Lower	Yes
Mode 122	Low Channel, 20MHz BW, 16QAM, 1%RB Upper	Yes
Mode 123	Low Channel, 20MHz BW, 16QAM, 50%RB	Yes
Mode 124	Low Channel, 20MHz BW, 16QAM, 100%RB	Yes
Mode 125	Mid Channel, 20MHz BW, 16QAM, 1%RB Lower	Yes
Mode 126	Mid Channel, 20MHz BW, 16QAM, 1%RB Upper	Yes
Mode 127	Mid Channel, 20MHz BW, 16QAM, 50%RB	Yes
Mode 128	Mid Channel, 20MHz BW, 16QAM, 100%RB	Yes
Mode 129	High Channel, 20MHz BW, 16QAM, 1%RB Lower	Yes
Mode 130	High Channel, 20MHz BW, 16QAM, 1%RB Upper	Yes
Mode 131	High Channel, 20MHz BW, 16QAM, 50%RB	Yes
Mode 132	High Channel, 20MHz BW, 16QAM, 100%RB	Yes
Mode 133	Low Channel, 20MHz BW, 64QAM, 1%RB Lower	Yes
Mode 134	Low Channel, 20MHz BW, 64QAM, 1%RB Upper	Yes
Mode 135	Low Channel, 20MHz BW, 64QAM, 50%RB	Yes
Mode 136	Low Channel, 20MHz BW, 64QAM, 100%RB	Yes
Mode 137	Mid Channel, 20MHz BW, 64QAM, 1%RB Lower	Yes
Mode 138	Mid Channel, 20MHz BW, 64QAM, 1%RB Upper	Yes
Mode 139	Mid Channel, 20MHz BW, 64QAM, 50%RB	Yes
Mode 140	Mid Channel, 20MHz BW, 64QAM, 100%RB	Yes
Mode 141	High Channel, 20MHz BW, 64QAM, 1%RB Lower	Yes
Mode 142	High Channel, 20MHz BW, 64QAM, 1%RB Upper	Yes
Mode 143	High Channel, 20MHz BW, 64QAM, 50%RB	Yes
Mode 144	High Channel, 20MHz BW, 64QAM, 100%RB	Yes

2.5 Emissions configuration



The unit was powered from the AC/DC adapter supplied by the client. For conducted tests the internal antenna was disconnected and a UFL to SMA cable attached to the internal port(s). The unit was configured with test modes in software to allow permanent transmit modes of device on the top, middle and bottom channels utilising different combinations of QPSK, 16QAM and 64QAM modulations, along with 5, 10, 15 and 20 MHz Bandwidths as stated within section 2.4 of this report. Combinations of Resource Block settings ranging from 1RB to 50%RB up to the full 100%RB for each Bandwidth setting were also used to determine any worst cases for tests. The modes were set using the UE Control software provided by the client, using either the "script runner" tab or the "Test Tone" tab. All the modes were available through the pre-sets loaded in the software. The transmit mode was 100% continuous with modulation. Power target settings for each mode were also set in the software via a % number setting. In order for the EUT to comply with test limits the following target output powers were as stated below: -

5 MHz channel spacing maximum single port target power +17.00 dBm
10 MHz channel spacing maximum single port target power +21.00 dBm
15 MHz and 20 MHz channel spacing maximum single port target power +23.00 dBm

Radiated spurious emissions testing for all modes was carried out at a maximum target power of +23.00 dBm as a worst case regardless of channel/Bandwidth/Modulation or Resource Block settings.

Where antenna gain is added to results to demonstrate EIRP an antenna gain of 6.5 dBi was used as declared by the applicant. The unit also supports MIMO operation on two ports. Both RF ports are declared

as being identical, therefore for 2 port MIMO operation 3dB has been added to results where applicable per KDB 662911 D01 methodology.

2.5.1 Signal leads

Port Name	Cable Type	Connected
TXRX1	RF	Yes
RX2	RF	Yes
TXRX3	RF	Yes
RX4	RF	Yes
Ethernet	Screened CAT5E	Yes
Power	Two core DC jack	Yes

3 Summary of test results

The Aircreek 2.5, 95.2320T02 was tested for compliance to the following standard(s) :

47 CFR Part 24 Effective Date 1st October 2021
↳ 47CFR part 2J Effective Date 1st October 2021
TNB: Licensed Non-Broadcast Station Transmitter

Any compliance statements are made reliant on (a) the application of the product and use of the assigned band being acceptable to the FCC and (b) the modes of operation as instructed to us by the Customer based on their specific knowledge of the application and functionality of the EUT. Whilst every effort is made to assure quality of testing, type tests are not exhaustive and although no non-conformances may be found, this doesn't exclude the possibility of equipment not meeting the intentions of the standard or the essential requirements of the directive, particularly under different conditions to those during testing. Statements of compliance, where measurements were made, do not include the measurement uncertainty. The measurement uncertainty, where stated, is the expanded uncertainty based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Title	References	Results
Transmitter Tests		
1. Spurious emissions at antenna terminals	FCC Part 24 Clause 24.238 FCC Part 2 Clause 2.1051	PASSED ²
2. RF Power Output	FCC Part 24 Clause 24.232(c) FCC Part 2 Clause 2.1046	PASSED
3. Frequency stability	FCC Part 24 Clause 24.235 FCC Part 2 Clause 2.1055	PASSED
4. Occupied Bandwidth	FCC Part 24 Clause 24.235 FCC Part 2 Clause 2.1049	PASSED
5. Field strength of spurious radiations	FCC Part 24 Clause 24.238 FCC Part 2 Clause 2.1053	PASSED ²
6. Band edge / spectrum mask additional emissions limitations	FCC Part 24 Clause 24.238 FCC Part 2 Clause 2.1051	PASSED
7. Modulation characteristics	FCC Part 2 Clause 2.1047	Declaration ¹

¹ Manufacturer declaration, see modulation information provided in section 2.1 of this report.

² Spectrum investigated up to a frequency of 20GHz based on 10 times the highest channel/ signal generated in equipment of 1915 MHz.

4 Specifications

The tests were performed and operated in accordance with R.N. Electronics Ltd procedures and the relevant standards listed below.

4.1 Relevant standards

Ref.	Standard Number	Version	Description
4.1.1	FCC Part 24	2021	Personal Communications Services
4.1.2	47CFR part 2J	2021	Part 2 – Frequency Allocations and radio treaty matters; General rules and regulations
4.1.3	KDB 971168 D01 v03	2017	Federal Communications Commission Office of Engineering and Technology Laboratory Division; Measurement Guidance for Certification of Licensed Digital Transmitters
4.1.4	ANSI C63.26	2015	American National Standard for Compliance testing of transmitters used in Licensed radio services
4.1.5	KDB 662911 D01 v02r01	2013	Federal Communications Commission Office of Engineering and Technology Laboratory Division; Emissions Testing of Transmitters with Multiple Outputs in the Same Band

4.2 Deviations

No deviations were applied.

4.3 Tests at extremes of temperature & voltage

The following test conditions were used to simulate testing at nominal or extremes.

Temperature Test Conditions		Voltage Test Conditions	
T nominal	20 °C	V nominal	120V AC
T minimum	-30 °C	V minimum	102V AC
T maximum	50 °C	V maximum	138V AC

Extremes of voltage are based on nominal +/-15%.

Extremes of temperature are based upon FCC's requirements.

The ambient test conditions of humidity and pressure in the laboratory were as specified in each specific test section within this report

4.4 Test fixtures

In order to measure RF parameters at temperature extremes, the EUT was tested in a temperature controlled chamber as follows:

A permanent internal RF port was used for testing.

5 Tests, methods and results

5.1 Spurious emissions at antenna terminals

5.1.1 Test methods

Test Requirements:	FCC Part 24 Clause 24.238 [Reference 4.1.1 of this report]
Test Method:	FCC Part 24 Clause 24.238(b) [Reference 4.1.1 of this report]
	FCC Part 2 Clause 2.1051 [Reference 4.1.2 of this report]
Limits:	FCC Part 24 Clause 24.238(a) [Reference 4.1.1 of this report]

5.1.2 Configuration of EUT

The EUT was operated on a test bench. Measurements were made at the 50 ohm coaxial transmit / receive port. All test modes specified in section 2.4 were initially checked, 5MHz BW, QPSK mode with 1Resource Block (1RB) setting was found to be the worst case for emissions, therefore, the EUT was operated in Modes 1, 2, 5, 6, 9 and 10 for this test.

5.1.3 Test procedure

Tests were made in accordance with the Test Method noted above using the measuring equipment noted in the 'Test Equipment' Section at Site N. A complete scan of emissions from the lowest frequency generated/ used within the equipment up to 10 times the highest frequency generated/ used was made, to identify any signals within 20dB of the limits. Any identified spurious signals were measured in the required bandwidths.

5.1.4 Test equipment

H071, F075, F081

See Section 8 for more details

5.1.5 Test results

Temperature of test environment	21°C
Humidity of test environment	48%
Pressure of test environment	101kPa

Band	1850-1915 MHz
Power Level	17 dBm
Channel Spacing	5 MHz
Mod Scheme	QPSK 1RB
Low channel	1852.5 MHz

Spurious Frequency (MHz)	Measured Spurious Level (dBm)	Difference to Limit (dB)
No Spurious emissions found within 20 dB of limits.		

Plots
14011, PT24, Band 25, QPSK, 5MHz, 1RB, Port 1, 9-150 kHz
14011, PT24, Band 25, QPSK, 5MHz, 1RB, Port 1, 0.15-30 MHz
14011, PT24, Band 25, QPSK, 5MHz, 1RB, Port 1, 30-1847 MHz
14011, PT24, Band 25, QPSK, 5MHz, 1RB, Port 1, 1918-20000 MHz

Band	1850-1915 MHz
Power Level	17 dBm
Channel Spacing	5 MHz
Mod Scheme	QPSK 1RB
Mid channel	1882.5 MHz

Spurious Frequency (MHz)	Measured Spurious Level (dBm)	Difference to Limit (dB)
No Spurious emissions found within 20 dB of limits.		

Plots
14011, PT24, Band 25, QPSK, 5MHz, 1RB, Port 1, 9-150 kHz
14011, PT24, Band 25, QPSK, 5MHz, 1RB, Port 1, 0.15-30 MHz
14011, PT24, Band 25, QPSK, 5MHz, 1RB, Port 1, 30-1847 MHz
14011, PT24, Band 25, QPSK, 5MHz, 1RB, Port 1, 1918-20000 MHz

Band	1850-1915 MHz
Power Level	17 dBm
Channel Spacing	5 MHz
Mod Scheme	QPSK 1RB
High channel	1912.5 MHz

Spurious Frequency (MHz)	Measured Spurious Level (dBm)	Difference to Limit (dB)
No Spurious emissions found within 20 dB of limits.		

Plots
14011, PT24, Band 25, QPSK, 5MHz, 1RB, Port 1, 9-150 kHz
14011, PT24, Band 25, QPSK, 5MHz, 1RB, Port 1, 0.15-30 MHz
14011, PT24, Band 25, QPSK, 5MHz, 1RB, Port 1, 30-1847 MHz
14011, PT24, Band 25, QPSK, 5MHz, 1RB, Port 1, 1918-20000 MHz

The plots referred to in the above table may be found in section 6.

LIMITS:

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB (mean output power in watts) dB. = -13 dBm.

These results show that the EUT has PASSED this test.

The uncertainty gives a 95% confidence interval in the measurement. Expanded uncertainty (K=2) is as follows: ± 2.8 dB up to 26.5 GHz.

5.2 RF Power Output

5.2.1 Test methods

Test Requirements: FCC Part 24 Clause 24.232(c) [Reference 4.1.1 of this report]
Test Method: FCC Part 24 Clause 24.232(d)(e) [Reference 4.1.1 of this report]
FCC Part 2 Clause 2.1046 [Reference 4.1.2 of this report]
Limits: FCC Part 24 Clause 24.232(c) [Reference 4.1.1 of this report]

5.2.2 Configuration of EUT

The EUT was measured on a bench using a power meter & a spectrum analyser connected via a suitable coupler and attenuation to the internal RF port. The EUT was set to each mode and test signal in turn (see section 2.4) and highest power levels recorded.

5.2.3 Test procedure

Tests were made in accordance with the Test Method noted above using the measuring equipment listed in the 'Test Equipment' Section. Power meter reading stated is maximum power observed using an average power head. A PAPR measurement was also performed on the analyser and the trace data/screen image captured.

Measurements were made on a test bench in site N.

5.2.4 Test equipment

E291-2, E533, E622, E632, F072-2, F072-3, F075, F081, F391, H071

See Section 8 for more details

5.2.5 Test results

Temperature of test environment 20°C
Humidity of test environment 50%
Pressure of test environment 102kPa

Setup Table

Band	1850-1915 MHz
Power Level	17 dBm
Channel Spacing	5 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
Low channel	1852.5 MHz

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)	Peak to AV ratio (dB)	PK to AV Limit (dB)	PK to AV Margin (dB)
QPSK, 1%RB Lower	17.43	6.5	23.93	0.247	33	-9.07	6.3	13	-6.7
QPSK, 1%RB Upper	17.4	6.5	23.90	0.245	33	-9.1	6.29	13	-6.71
QPSK, 50%RB	17.14	6.5	23.64	0.231	33	-9.36	7.07	13	-5.93
QPSK, 100%RB	17.58	6.5	24.08	0.256	33	-8.92	7.39	13	-5.61
16QAM, 1%RB Lower	17.42	6.5	23.92	0.247	33	-9.08	7.62	13	-5.38
16QAM, 1%RB Upper	17.32	6.5	23.82	0.241	33	-9.18	7.58	13	-5.42
16QAM, 50%RB	17.14	6.5	23.64	0.231	33	-9.36	8.03	13	-4.97
16QAM, 100%RB	17.62	6.5	24.12	0.258	33	-8.88	8.58	13	-4.42
64QAM, 1%RB Lower	17.44	6.5	23.94	0.248	33	-9.06	6.97	13	-6.03
64QAM, 1%RB Upper	17.4	6.5	23.90	0.245	33	-9.1	7.13	13	-5.87
64QAM, 50%RB	17.13	6.5	23.63	0.231	33	-9.37	7.87	13	-5.13
64QAM, 100%RB	17.55	6.5	24.05	0.254	33	-8.95	8.39	13	-4.61

File Name: Airspan Communications Ltd.14011-1 Issue 01

Parameter setting	Plot filename/reference
QPSK, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, QPSK, 5 MHz, 1 RB Low, Low Chan, PWR setting 19
QPSK, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, QPSK, 5 MHz, 1 RB High, Low Chan, PWR setting 19
QPSK, 50%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 5 MHz, 50% RB, Low Chan, PWR setting 18
QPSK, 100%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 5 MHz, 100 RB Low, Low Chan, PWR setting 19
16QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 16 QAM, 5 MHz, 1 RB Low, Low Chan, PWR setting 19
16QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 16 QAM, 5 MHz, 1 RB High, Low Chan, PWR setting 19
16QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 5 MHz, 50% RB, Low Chan, PWR setting 18
16QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 5 MHz, 100 RB , Low Chan, PWR setting 19
64QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 64 QAM, 5 MHz, 1 RB Low, Low Chan, PWR setting 19
64QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 64 QAM, 5 MHz, 1 RB High, Low Chan, PWR setting 19
64QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 5 MHz, 50% RB, Low Chan, PWR setting 18
64QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 5 MHz, 100 RB, Low Chan, PWR setting 19

MIMO Calculation per KDB662911 D01:

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	+3dB for MIMO 2port (EIRP dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)
QPSK, 1%RB Lower	17.43	6.5	23.93	26.93	0.493	33	-6.07
QPSK, 1%RB Upper	17.4	6.5	23.90	26.90	0.490	33	-6.1
QPSK, 50%RB	17.14	6.5	23.64	26.64	0.461	33	-6.36
QPSK, 100%RB	17.58	6.5	24.08	27.08	0.511	33	-5.92
16QAM, 1%RB Lower	17.42	6.5	23.92	26.92	0.492	33	-6.08
16QAM, 1%RB Upper	17.32	6.5	23.82	26.82	0.481	33	-6.18
16QAM, 50%RB	17.14	6.5	23.64	26.64	0.461	33	-6.36
16QAM, 100%RB	17.62	6.5	24.12	27.12	0.515	33	-5.88
64QAM, 1%RB Lower	17.44	6.5	23.94	26.94	0.494	33	-6.06
64QAM, 1%RB Upper	17.4	6.5	23.90	26.90	0.490	33	-6.1
64QAM, 50%RB	17.13	6.5	23.63	26.63	0.460	33	-6.37
64QAM, 100%RB	17.55	6.5	24.05	27.05	0.507	33	-5.95

Setup Table

Band	1850-1915 MHz
Power Level	17 dBm
Channel Spacing	5 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
Mid channel	1882.5 MHz

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)	Peak to AV ratio (dB)	PK to AV Limit (dB)	PK to AV Margin (dB)
QPSK, 1%RB Lower	17.22	6.5	23.72	0.236	33	-9.28	6.33	13	-6.67
QPSK, 1%RB Upper	17.1	6.5	23.60	0.229	33	-9.4	6.3	13	-6.7
QPSK, 50%RB	17.53	6.5	24.03	0.253	33	-8.97	7.3	13	-5.7
QPSK, 100%RB	17.17	6.5	23.67	0.233	33	-9.33	7.5	13	-5.5
16QAM, 1%RB Lower	17.13	6.5	23.63	0.231	33	-9.37	7.43	13	-5.57
16QAM, 1%RB Upper	17.22	6.5	23.72	0.236	33	-9.28	8.12	13	-4.88
16QAM, 50%RB	17.65	6.5	24.15	0.260	33	-8.85	7.9	13	-5.1
16QAM, 100%RB	17.06	6.5	23.56	0.227	33	-9.44	8.1	13	-4.9
64QAM, 1%RB Lower	17.27	6.5	23.77	0.238	33	-9.23	7.95	13	-5.05
64QAM, 1%RB Upper	17.19	6.5	23.69	0.234	33	-9.31	6.89	13	-6.11
64QAM, 50%RB	17.57	6.5	24.07	0.255	33	-8.93	7.75	13	-5.25
64QAM, 100%RB	17.02	6.5	23.52	0.225	33	-9.48	8.65	13	-4.35
Parameter setting Plot filename/reference									
QPSK, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, QPSK, 5 MHz, 1 RB Low, Mid Chan, PWR setting 19								
QPSK, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, QPSK, 5 MHz, 1 RB High, Mid Chan, PWR setting 19								
QPSK, 50%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 5 MHz, 50% RB, Mid Chan, PWR setting 19								
QPSK, 100%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 5 MHz, 100 RB Low, Mid Chan, PWR setting 19								
16QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 16 QAM, 5 MHz, 1 RB Low, Mid Chan, PWR setting 19								
16QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 16 QAM, 5 MHz, 1 RB High, Mid Chan, PWR setting 19								
16QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 5 MHz, 50% RB, Mid Chan, PWR setting 19								
16QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 5 MHz, 100 RB , Mid Chan, PWR setting 19								
64QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 64 QAM, 5 MHz, 1 RB Low, Mid Chan, PWR setting 19								
64QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 64 QAM, 5 MHz, 1 RB High, Mid Chan, PWR setting 19								
64QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 5 MHz, 50% RB, Mid Chan, PWR setting 19								
64QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 5 MHz, 100 RB, Mid Chan, PWR setting 19								

MIMO Calculation per KDB662911 D01:

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	+3dB for MIMO 2port (EIRP dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)
QPSK, 1%RB Lower	17.22	6.5	23.72	26.72	0.470	33	-6.28
QPSK, 1%RB Upper	17.1	6.5	23.60	26.60	0.457	33	-6.4
QPSK, 50%RB	17.53	6.5	24.03	27.03	0.505	33	-5.97
QPSK, 100%RB	17.17	6.5	23.67	26.67	0.465	33	-6.33
16QAM, 1%RB Lower	17.13	6.5	23.63	26.63	0.460	33	-6.37
16QAM, 1%RB Upper	17.22	6.5	23.72	26.57	0.454	33	-6.43
16QAM, 50%RB	17.65	6.5	24.15	27.15	0.519	33	-5.85
16QAM, 100%RB	17.06	6.5	23.56	26.56	0.453	33	-6.44
64QAM, 1%RB Lower	17.27	6.5	23.77	26.77	0.475	33	-6.23
64QAM, 1%RB Upper	17.19	6.5	23.69	26.69	0.467	33	-6.31
64QAM, 50%RB	17.57	6.5	24.07	27.07	0.509	33	-5.93
64QAM, 100%RB	17.02	6.5	23.52	26.52	0.449	33	-6.48

Setup Table

Band	1850-1915 MHz
Power Level	17 dBm
Channel Spacing	5 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
High channel	1912.5 MHz

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)	Peak to AV ratio (dB)	PK to AV Limit (dB)	PK to AV Margin (dB)
QPSK, 1%RB Lower	17.83	6.5	24.33	0.271	33	-8.67	6.31	13	-6.69
QPSK, 1%RB Upper	17.65	6.5	24.15	0.260	33	-8.85	6.17	13	-6.83
QPSK, 50%RB	17.54	6.5	24.04	0.254	33	-8.96	7.35	13	-5.65
QPSK, 100%RB	17.44	6.5	23.94	0.248	33	-9.06	7.18	13	-5.82
16QAM, 1%RB Lower	17.2	6.5	23.70	0.234	33	-9.3	8.01	13	-4.99
16QAM, 1%RB Upper	17.69	6.5	24.19	0.262	33	-8.81	7.44	13	-5.56
16QAM, 50%RB	17.58	6.5	24.08	0.256	33	-8.92	7.55	13	-5.45
16QAM, 100%RB	17.62	6.5	24.12	0.258	33	-8.88	8.21	13	-4.79
64QAM, 1%RB Lower	17.01	6.5	23.51	0.224	33	-9.49	8.05	13	-4.95
64QAM, 1%RB Upper	17.85	6.5	24.35	0.272	33	-8.65	7.42	13	-5.58
64QAM, 50%RB	17.77	6.5	24.27	0.267	33	-8.73	7.62	13	-5.38
64QAM, 100%RB	17.7	6.5	24.20	0.263	33	-8.8	8.32	13	-4.68
Parameter setting Plot filename/reference									
QPSK, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, QPSK, 5 MHz, 1 RB Low, High Chan, PWR setting 20								
QPSK, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, QPSK, 5 MHz, 1 RB High, High Chan, PWR setting 19								
QPSK, 50%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 5 MHz, 50% RB, High Chan, PWR setting 19								
QPSK, 100%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 5 MHz, 100 RB Low, High Chan, PWR setting 19								
16QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 16 QAM, 5 MHz, 1 RB Low, High Chan, PWR setting 19								
16QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 16 QAM, 5 MHz, 1 RB High, High Chan, PWR setting 19								
16QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 5 MHz, 50% RB, High Chan, PWR setting 19								
16QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 5 MHz, 100 RB , High Chan, PWR setting 19								
64QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 64 QAM, 5 MHz, 1 RB Low, High Chan, PWR setting 19								
64QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 64 QAM, 5 MHz, 1 RB High, High Chan, PWR setting 19								
64QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 5 MHz, 50% RB, High Chan, PWR setting 19								
64QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 5 MHz, 100 RB, High Chan, PWR setting 19								

MIMO Calculation per KDB662911 D01:

File Name: Airspan Communications Ltd.14011-1 Issue 01

QMF21J - Issue 05 - RNE Issue 03; FCC Part 24 2021

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	+3dB for MIMO 2port (EIRP dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)
QPSK, 1%RB Lower	17.83	6.5	24.33	27.33	0.541	33	-5.67
QPSK, 1%RB Upper	17.65	6.5	24.15	27.15	0.519	33	-5.85
QPSK, 50%RB	17.54	6.5	24.04	27.04	0.506	33	-5.96
QPSK, 100%RB	17.44	6.5	23.94	26.94	0.494	33	-6.06
16QAM, 1%RB Lower	17.2	6.5	23.70	26.70	0.468	33	-6.3
16QAM, 1%RB Upper	17.69	6.5	24.19	27.19	0.524	33	-5.81
16QAM, 50%RB	17.58	6.5	24.08	27.08	0.511	33	-5.92
16QAM, 100%RB	17.62	6.5	24.12	27.12	0.515	33	-5.88
64QAM, 1%RB Lower	17.01	6.5	23.51	26.51	0.448	33	-6.49
64QAM, 1%RB Upper	17.85	6.5	24.35	27.35	0.543	33	-5.65
64QAM, 50%RB	17.77	6.5	24.27	27.27	0.533	33	-5.73
64QAM, 100%RB	17.7	6.5	24.20	27.20	0.525	33	-5.8

Setup Table

Band	1850-1915 MHz
Power Level	21 dBm
Channel Spacing	10 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
Low channel	1855 MHz

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)	Peak to AV ratio (dB)	PK to AV Limit (dB)	PK to AV Margin (dB)
QPSK, 1%RB Lower	21.19	6.5	27.69	0.587	33	-5.31	5.57	13	-7.43
QPSK, 1%RB Upper	21.17	6.5	27.67	0.585	33	-5.33	5.58	13	-7.42
QPSK, 50%RB	21.04	6.5	27.54	0.568	33	-5.46	5.75	13	-7.25
QPSK, 100%RB	21.1	6.5	27.60	0.575	33	-5.4	5.49	13	-7.51
16QAM, 1%RB Lower	21.21	6.5	27.71	0.590	33	-5.29	6.44	13	-6.56
16QAM, 1%RB Upper	21.18	6.5	27.68	0.586	33	-5.32	6.53	13	-6.47
16QAM, 50%RB	21.11	6.5	27.61	0.577	33	-5.39	6.27	13	-6.73
16QAM, 100%RB	21.08	6.5	27.58	0.573	33	-5.42	6.22	13	-6.78
64QAM, 1%RB Lower	21.2	6.5	27.70	0.589	33	-5.3	6.01	13	-6.99
64QAM, 1%RB Upper	21.19	6.5	27.69	0.587	33	-5.31	6	13	-7
64QAM, 50%RB	21.03	6.5	27.53	0.566	33	-5.47	6.36	13	-6.64
64QAM, 100%RB	21.01	6.5	27.51	0.564	33	-5.49	6.36	13	-6.64
Parameter setting Plot filename/reference									
QPSK, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, QPSK, 10 MHz, 1 RB Low, Low Chan								
QPSK, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, QPSK, 10 MHz, 1 RB High, Low Chan								
QPSK, 50%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 10 MHz, 50% RB Low, Low Chan								
QPSK, 100%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 10 MHz, 100 RB, Low Chan								
16QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 16 QAM, 10 MHz, 1 RB Low, Low Chan								
16QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 16 QAM, 10 MHz, 1 RB High, Low Chan								
16QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 10 MHz, 50% RB Low, Low Chan								
16QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 10 MHz, 100 RB, Low Chan								
64QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 64 QAM, 10 MHz, 1 RB Low, Low Chan								
64QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 64 QAM, 10 MHz, 1 RB High, Low Chan								
64QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 10 MHz, 50% RB Low, Low Chan								
64QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 10 MHz, 100 RB , Low Chan								

MIMO Calculation per KDB662911 D01:

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	+3dB for MIMO 2port (EIRP dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)
QPSK, 1%RB Lower	21.19	6.5	27.69	30.69	1.172	33	-2.31
QPSK, 1%RB Upper	21.17	6.5	27.67	30.67	1.167	33	-2.33
QPSK, 50%RB	21.04	6.5	27.54	30.54	1.132	33	-2.46
QPSK, 100%RB	21.1	6.5	27.60	30.60	1.148	33	-2.4
16QAM, 1%RB Lower	21.21	6.5	27.71	30.71	1.178	33	-2.29
16QAM, 1%RB Upper	21.18	6.5	27.68	30.68	1.169	33	-2.32
16QAM, 50%RB	21.11	6.5	27.61	30.61	1.151	33	-2.39
16QAM, 100%RB	21.08	6.5	27.58	30.58	1.143	33	-2.42
64QAM, 1%RB Lower	21.2	6.5	27.70	30.70	1.175	33	-2.3
64QAM, 1%RB Upper	21.19	6.5	27.69	30.69	1.172	33	-2.31
64QAM, 50%RB	21.03	6.5	27.53	30.53	1.130	33	-2.47
64QAM, 100%RB	21.01	6.5	27.51	30.51	1.125	33	-2.49

File Name: Airspan Communications Ltd.14011-1 Issue 01

Setup Table

Band	1850-1915 MHz
Power Level	21 dBm
Channel Spacing	10 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
Mid channel	1882.5 MHz

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)	Peak to AV ratio (dB)	PK to AV Limit (dB)	PK to AV Margin (dB)
QPSK, 1%RB Lower	21.23	6.5	27.73	0.593	33	-5.27	5.69	13	-7.31
QPSK, 1%RB Upper	21.19	6.5	27.69	0.587	33	-5.31	5.7	13	-7.3
QPSK, 50%RB	21.1	6.5	27.60	0.575	33	-5.4	5.85	13	-7.15
QPSK, 100%RB	21.13	6.5	27.63	0.579	33	-5.37	5.67	13	-7.33
16QAM, 1%RB Lower	21.31	6.5	27.81	0.604	33	-5.19	6.67	13	-6.33
16QAM, 1%RB Upper	21.27	6.5	27.77	0.598	33	-5.23	6.63	13	-6.37
16QAM, 50%RB	21.13	6.5	27.63	0.579	33	-5.37	6.39	13	-6.61
16QAM, 100%RB	21.1	6.5	27.60	0.575	33	-5.4	6.37	13	-6.63
64QAM, 1%RB Lower	21.31	6.5	27.81	0.604	33	-5.19	6.15	13	-6.85
64QAM, 1%RB Upper	21.35	6.5	27.85	0.610	33	-5.15	6.15	13	-6.85
64QAM, 50%RB	21.1	6.5	27.60	0.575	33	-5.4	6.49	13	-6.51
64QAM, 100%RB	21.08	6.5	27.58	0.573	33	-5.42	6.51	13	-6.49
Parameter setting Plot filename/reference									
QPSK, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, QPSK, 10 MHz, 1 RB Low, Mid Chan								
QPSK, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, QPSK, 10 MHz, 1 RB High, Mid Chan								
QPSK, 50%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 10 MHz, 50% RB Low, Mid Chan								
QPSK, 100%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 10 MHz, 100 RB, Mid Chan								
16QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 16 QAM, 10 MHz, 1 RB Low, Mid Chan								
16QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 16 QAM, 10 MHz, 1 RB High, Mid Chan								
16QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 10 MHz, 50% RB Low, Mid Chan								
16QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 10 MHz, 100 RB, Mid Chan								
64QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 64 QAM, 10 MHz, 1 RB Low, Mid Chan								
64QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 64 QAM, 10 MHz, 1 RB High, Mid Chan								
64QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 10 MHz, 50% RB Low, Mid Chan								
64QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 10 MHz, 100 RB , Mid Chan								

MIMO Calculation per KDB662911 D01:

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	+3dB for MIMO 2port (EIRP dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)
QPSK, 1%RB Lower	21.23	6.5	27.73	30.73	1.183	33	-2.27
QPSK, 1%RB Upper	21.19	6.5	27.69	30.69	1.172	33	-2.31
QPSK, 50%RB	21.1	6.5	27.60	30.60	1.148	33	-2.4
QPSK, 100%RB	21.13	6.5	27.63	30.63	1.156	33	-2.37
16QAM, 1%RB Lower	21.31	6.5	27.81	30.81	1.205	33	-2.19
16QAM, 1%RB Upper	21.27	6.5	27.77	30.77	1.194	33	-2.23
16QAM, 50%RB	21.13	6.5	27.63	30.63	1.156	33	-2.37
16QAM, 100%RB	21.1	6.5	27.60	30.60	1.148	33	-2.4
64QAM, 1%RB Lower	21.31	6.5	27.81	30.81	1.205	33	-2.19
64QAM, 1%RB Upper	21.35	6.5	27.85	30.85	1.216	33	-2.15
64QAM, 50%RB	21.1	6.5	27.60	30.60	1.148	33	-2.4
64QAM, 100%RB	21.08	6.5	27.58	30.58	1.143	33	-2.42

File Name: Airspan Communications Ltd.14011-1 Issue 01

Setup Table

Band	1850-1915 MHz
Power Level	21 dBm
Channel Spacing	10 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
High channel	1910 MHz

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)	Peak to AV ratio (dB)	PK to AV Limit (dB)	PK to AV Margin (dB)
QPSK, 1%RB Lower	21.61	6.5	28.11	0.647	33	-4.89	5.75	13	-7.25
QPSK, 1%RB Upper	21.57	6.5	28.07	0.641	33	-4.93	5.74	13	-7.26
QPSK, 50%RB	21.23	6.5	27.73	0.593	33	-5.27	5.97	13	-7.03
QPSK, 100%RB	21.28	6.5	27.78	0.600	33	-5.22	5.69	13	-7.31
16QAM, 1%RB Lower	21.59	6.5	28.09	0.644	33	-4.91	6.69	13	-6.31
16QAM, 1%RB Upper	21.57	6.5	28.07	0.641	33	-4.93	6.66	13	-6.34
16QAM, 50%RB	21.23	6.5	27.73	0.593	33	-5.27	6.5	13	-6.5
16QAM, 100%RB	21.31	6.5	27.81	0.604	33	-5.19	6.36	13	-6.64
64QAM, 1%RB Lower	21.63	6.5	28.13	0.650	33	-4.87	6.19	13	-6.81
64QAM, 1%RB Upper	21.73	6.5	28.23	0.665	33	-4.77	6.16	13	-6.84
64QAM, 50%RB	21.23	6.5	27.73	0.593	33	-5.27	6.57	13	-6.43
64QAM, 100%RB	21.4	6.5	27.90	0.617	33	-5.1	6.53	13	-6.47
Parameter setting Plot filename/reference									
QPSK, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, QPSK, 10 MHz, 1 RB Low, High Chan								
QPSK, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, QPSK, 10 MHz, 1 RB High, High Chan								
QPSK, 50%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 10 MHz, 50% RB Low, High Chan								
QPSK, 100%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 10 MHz, 100 RB, High Chan								
16QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 16 QAM, 10 MHz, 1 RB Low, High Chan								
16QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 16 QAM, 10 MHz, 1 RB High, High Chan								
16QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 10 MHz, 50% RB Low, High Chan								
16QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 10 MHz, 100 RB, High Chan								
64QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 64 QAM, 10 MHz, 1 RB Low, High Chan								
64QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 64 QAM, 10 MHz, 1 RB High, High Chan								
64QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 10 MHz, 50% RB Low, High Chan								
64QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 10 MHz, 100 RB , High Chan								

MIMO Calculation per KDB662911 D01:

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	+3dB for MIMO 2port (EIRP dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)
QPSK, 1%RB Lower	21.61	6.5	28.11	31.11	1.291	33	-1.89
QPSK, 1%RB Upper	21.57	6.5	28.07	31.07	1.279	33	-1.93
QPSK, 50%RB	21.23	6.5	27.73	30.73	1.183	33	-2.27
QPSK, 100%RB	21.28	6.5	27.78	30.78	1.197	33	-2.22
16QAM, 1%RB Lower	21.59	6.5	28.09	31.09	1.285	33	-1.91
16QAM, 1%RB Upper	21.57	6.5	28.07	31.07	1.279	33	-1.93
16QAM, 50%RB	21.23	6.5	27.73	30.73	1.183	33	-2.27
16QAM, 100%RB	21.31	6.5	27.81	30.81	1.205	33	-2.19
64QAM, 1%RB Lower	21.63	6.5	28.13	31.13	1.297	33	-1.87
64QAM, 1%RB Upper	21.73	6.5	28.23	31.23	1.327	33	-1.77
64QAM, 50%RB	21.23	6.5	27.73	30.73	1.183	33	-2.27
64QAM, 100%RB	21.4	6.5	27.90	30.90	1.230	33	-2.1

File Name: Airspan Communications Ltd.14011-1 Issue 01

Setup Table

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	15 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
Low channel	1857.5 MHz

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)	Peak to AV ratio (dB)	PK to AV Limit (dB)	PK to AV Margin (dB)
QPSK, 1%RB Lower	23.42	6.5	29.92	0.982	33	-3.08	6.02	13	-6.98
QPSK, 1%RB Upper	23.39	6.5	29.89	0.975	33	-3.11	6.01	13	-6.99
QPSK, 50%RB	23.32	6.5	29.82	0.959	33	-3.18	5.52	13	-7.48
QPSK, 100%RB	23.25	6.5	29.75	0.944	33	-3.25	5.58	13	-7.42
16QAM, 1%RB Lower	23.48	6.5	29.98	0.995	33	-3.02	6.18	13	-6.82
16QAM, 1%RB Upper	23.46	6.5	29.96	0.991	33	-3.04	6.12	13	-6.88
16QAM, 50%RB	23.32	6.5	29.82	0.959	33	-3.18	5.97	13	-7.03
16QAM, 100%RB	23.21	6.5	29.71	0.935	33	-3.29	5.97	13	-7.03
64QAM, 1%RB Lower	23.48	6.5	29.98	0.995	33	-3.02	5.74	13	-7.26
64QAM, 1%RB Upper	23.46	6.5	29.96	0.991	33	-3.04	5.79	13	-7.21
64QAM, 50%RB	23.25	6.5	29.75	0.944	33	-3.25	6.06	13	-6.94
64QAM, 100%RB	23.2	6.5	29.70	0.933	33	-3.3	6.07	13	-6.93
Parameter setting Plot filename/reference									
QPSK, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, QPSK, 15 MHz, 1 RB Low, Low Chan								
QPSK, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, QPSK, 15 MHz, 1 RB High, Low Chan								
QPSK, 50%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 15 MHz, 50% RB Low, Low Chan								
QPSK, 100%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 15 MHz, 100 RB , Low Chan								
16QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 16 QAM, 15 MHz, 1 RB Low, Low Chan								
16QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 16 QAM, 15 MHz, 1 RB High, Low Chan								
16QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 15 MHz, 50 RB Low, Low Chan								
16QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 15 MHz, 100 RB, Low Chan								
64QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 64 QAM, 15 MHz, 1 RB Low, Low Chan								
64QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 64 QAM, 15 MHz, 1 RB High, Low Chan								
64QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 15 MHz, 50% RB Low, Low Chan								
64QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 15 MHz, 100 RB , Low Chan								

MIMO Calculation per KDB662911 D01:

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	+3dB for MIMO 2port (EIRP dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)
QPSK, 1%RB Lower	23.42	6.5	29.92	32.92	1.959	33	-0.08
QPSK, 1%RB Upper	23.39	6.5	29.89	32.89	1.945	33	-0.11
QPSK, 50%RB	23.32	6.5	29.82	32.82	1.914	33	-0.18
QPSK, 100%RB	23.25	6.5	29.75	32.75	1.884	33	-0.25
16QAM, 1%RB Lower	23.48	6.5	29.98	32.98	1.986	33	-0.02
16QAM, 1%RB Upper	23.46	6.5	29.96	32.96	1.977	33	-0.04
16QAM, 50%RB	23.32	6.5	29.82	32.82	1.914	33	-0.18
16QAM, 100%RB	23.21	6.5	29.71	32.71	1.866	33	-0.29
64QAM, 1%RB Lower	23.48	6.5	29.98	32.98	1.986	33	-0.02
64QAM, 1%RB Upper	23.46	6.5	29.96	32.96	1.977	33	-0.04
64QAM, 50%RB	23.25	6.5	29.75	32.75	1.884	33	-0.25
64QAM, 100%RB	23.2	6.5	29.70	32.70	1.862	33	-0.3

File Name: Airspan Communications Ltd.14011-1 Issue 01

Setup Table

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	15 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
Mid channel	1882.5 MHz

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)	Peak to AV ratio (dB)	PK to AV Limit (dB)	PK to AV Margin (dB)
QPSK, 1%RB Lower	23.12	6.5	29.62	0.916	33	-3.38	5.34	13	-7.66
QPSK, 1%RB Upper	23.38	6.5	29.88	0.973	33	-3.12	5.45	13	-7.55
QPSK, 50%RB	23.09	6.5	29.59	0.910	33	-3.41	5.73	13	-7.27
QPSK, 100%RB	23.08	6.5	29.58	0.908	33	-3.42	5.93	13	-7.07
16QAM, 1%RB Lower	23.41	6.5	29.91	0.979	33	-3.09	6.13	13	-6.87
16QAM, 1%RB Upper	23.49	6.5	29.99	0.998	33	-3.01	6.14	13	-6.86
16QAM, 50%RB	23.09	6.5	29.59	0.910	33	-3.41	6.21	13	-6.79
16QAM, 100%RB	23.12	6.5	29.62	0.916	33	-3.38	6.28	13	-6.72
64QAM, 1%RB Lower	23.42	6.5	29.92	0.982	33	-3.08	5.74	13	-7.26
64QAM, 1%RB Upper	23.4	6.5	29.90	0.977	33	-3.1	5.79	13	-7.21
64QAM, 50%RB	23.13	6.5	29.63	0.918	33	-3.37	6.25	13	-6.75
64QAM, 100%RB	23.07	6.5	29.57	0.906	33	-3.43	6.36	13	-6.64
Parameter setting Plot filename/reference									
QPSK, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, QPSK, 15 MHz, 1 RB Low, Mid Chan								
QPSK, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, QPSK, 15 MHz, 1 RB High, Mid Chan								
QPSK, 50%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 15 MHz, 50% RB Low, Mid Chan								
QPSK, 100%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 15 MHz, 100 RB , Mid Chan								
16QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 16 QAM, 15 MHz, 1 RB Low, Mid Chan								
16QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 16 QAM, 15 MHz, 1 RB High, Mid Chan								
16QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 15 MHz, 50 RB Low, Mid Chan								
16QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 15 MHz, 100 RB, Mid Chan								
64QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 64 QAM, 15 MHz, 1 RB Low, Low Chan								
64QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 64 QAM, 15 MHz, 1 RB High, Mid Chan								
64QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 15 MHz, 50% RB Low, Mid Chan								
64QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 15 MHz, 100 RB , Mid Chan								

MIMO Calculation per KDB662911 D01:

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	+3dB for MIMO 2port (EIRP dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)
QPSK, 1%RB Lower	23.12	6.5	29.62	32.62	1.828	33	-0.38
QPSK, 1%RB Upper	23.38	6.5	29.88	32.88	1.941	33	-0.12
QPSK, 50%RB	23.09	6.5	29.59	32.59	1.816	33	-0.41
QPSK, 100%RB	23.08	6.5	29.58	32.58	1.811	33	-0.42
16QAM, 1%RB Lower	23.41	6.5	29.91	32.91	1.954	33	-0.09
16QAM, 1%RB Upper	23.49	6.5	29.99	32.99	2.000	33	-0.01
16QAM, 50%RB	23.09	6.5	29.59	32.59	1.816	33	-0.41
16QAM, 100%RB	23.12	6.5	29.62	32.62	1.828	33	-0.38
64QAM, 1%RB Lower	23.42	6.5	29.92	32.92	1.959	33	-0.08
64QAM, 1%RB Upper	23.4	6.5	29.90	32.90	1.950	33	-0.1
64QAM, 50%RB	23.13	6.5	29.63	32.63	1.832	33	-0.37
64QAM, 100%RB	23.07	6.5	29.57	32.57	1.807	33	-0.43

File Name: Airspan Communications Ltd.14011-1 Issue 01

Setup Table

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	15 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
High channel	1907.5 MHz

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)	Peak to AV ratio (dB)	PK to AV Limit (dB)	PK to AV Margin (dB)
QPSK, 1%RB Lower	23.14	6.5	29.64	0.920	33	-3.36	6.32	13	-6.68
QPSK, 1%RB Upper	23.15	6.5	29.65	0.923	33	-3.35	6.31	13	-6.69
QPSK, 50%RB	23.05	6.5	29.55	0.902	33	-3.45	5.72	13	-7.28
QPSK, 100%RB	23.08	6.5	29.58	0.908	33	-3.42	5.86	13	-7.14
16QAM, 1%RB Lower	23.44	6.5	29.94	0.986	33	-3.06	6.11	13	-6.89
16QAM, 1%RB Upper	23.42	6.5	29.92	0.982	33	-3.08	6.07	13	-6.93
16QAM, 50%RB	23.17	6.5	29.67	0.927	33	-3.33	6.13	13	-6.87
16QAM, 100%RB	23.14	6.5	29.64	0.920	33	-3.36	6.21	13	-6.79
64QAM, 1%RB Lower	23.46	6.5	29.96	0.991	33	-3.04	5.79	13	-7.21
64QAM, 1%RB Upper	23.43	6.5	29.93	0.984	33	-3.07	5.8	13	-7.2
64QAM, 50%RB	23.17	6.5	29.67	0.927	33	-3.33	6.19	13	-6.81
64QAM, 100%RB	23.16	6.5	29.66	0.925	33	-3.34	6.34	13	-6.66
Parameter setting Plot filename/reference									
QPSK, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, QPSK, 15 MHz, 1 RB Low, High Chan								
QPSK, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, QPSK, 15 MHz, 1 RB High, High Chan								
QPSK, 50%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 15 MHz, 50% RB Low, High Chan								
QPSK, 100%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 15 MHz, 100 RB , High Chan								
16QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 16 QAM, 15 MHz, 1 RB Low, High Chan								
16QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 16 QAM, 15 MHz, 1 RB High, High Chan								
16QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 15 MHz, 50 RB Low, High Chan								
16QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 15 MHz, 100 RB, High Chan								
64QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 64 QAM, 15 MHz, 1 RB Low, High Chan								
64QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 64 QAM, 15 MHz, 1 RB High, High Chan								
64QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 15 MHz, 50% RB Low, High Chan								
64QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 15 MHz, 100 RB , High Chan								

MIMO Calculation per KDB662911 D01:

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	+3dB for MIMO 2port (EIRP dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)
QPSK, 1%RB Lower	23.14	6.5	29.64	32.64	1.837	33	-0.36
QPSK, 1%RB Upper	23.15	6.5	29.65	32.65	1.841	33	-0.35
QPSK, 50%RB	23.05	6.5	29.55	32.55	1.799	33	-0.45
QPSK, 100%RB	23.08	6.5	29.58	32.58	1.811	33	-0.42
16QAM, 1%RB Lower	23.44	6.5	29.94	32.94	1.968	33	-0.06
16QAM, 1%RB Upper	23.42	6.5	29.92	32.92	1.959	33	-0.08
16QAM, 50%RB	23.17	6.5	29.67	32.67	1.849	33	-0.33
16QAM, 100%RB	23.14	6.5	29.64	32.64	1.837	33	-0.36
64QAM, 1%RB Lower	23.46	6.5	29.96	32.96	1.977	33	-0.04
64QAM, 1%RB Upper	23.43	6.5	29.93	32.93	1.963	33	-0.07
64QAM, 50%RB	23.17	6.5	29.67	32.67	1.849	33	-0.33
64QAM, 100%RB	23.16	6.5	29.66	32.66	1.845	33	-0.34

File Name: Airspan Communications Ltd.14011-1 Issue 01

Setup Table

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	20 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
Low channel	1860 MHz

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)	Peak to AV ratio (dB)	PK to AV Limit (dB)	PK to AV Margin (dB)
QPSK, 1%RB Lower	23.43	6.5	29.93	0.984	33	-3.07	5.93	13	-7.07
QPSK, 1%RB Upper	23.41	6.5	29.91	0.979	33	-3.09	5.94	13	-7.06
QPSK, 50%RB	23.37	6.5	29.87	0.971	33	-3.13	6.14	13	-6.86
QPSK, 100%RB	23.31	6.5	29.81	0.957	33	-3.19	6	13	-7
16QAM, 1%RB Lower	23.43	6.5	29.93	0.984	33	-3.07	6.08	13	-6.92
16QAM, 1%RB Upper	23.42	6.5	29.92	0.982	33	-3.08	6.14	13	-6.86
16QAM, 50%RB	23.34	6.5	29.84	0.964	33	-3.16	6	13	-7
16QAM, 100%RB	23.32	6.5	29.82	0.959	33	-3.18	5.88	13	-7.12
64QAM, 1%RB Lower	23.42	6.5	29.92	0.982	33	-3.08	5.68	13	-7.32
64QAM, 1%RB Upper	23.4	6.5	29.90	0.977	33	-3.1	5.7	13	-7.3
64QAM, 50%RB	23.41	6.5	29.91	0.979	33	-3.09	6.15	13	-6.85
64QAM, 100%RB	23.38	6.5	29.88	0.973	33	-3.12	6.01	13	-6.99
Parameter setting Plot filename/reference									
QPSK, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, QPSK, 20 MHz, 1 RB Low, Low Chan								
QPSK, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, QPSK, 20 MHz, 1 RB High, Low Chan								
QPSK, 50%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 20 MHz, 50% RB Low, Low Chan								
QPSK, 100%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 20 MHz, 100 RB, Low Chan								
16QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 16 QAM, 20 MHz, 1 RB Low, Low Chan								
16QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 16 QAM, 20 MHz, 1 RB High, Low Chan								
16QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 20 MHz, 50% RB Low, Low Chan								
16QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 20 MHz, 100 RB , Low Chan								
64QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 64 QAM, 20 MHz, 1 RB Low, Low Chan								
64QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 64 QAM, 20 MHz, 1 RB High, Low Chan								
64QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 20 MHz, 50% RB Low, Low Chan								
64QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 20 MHz, 100 RB, Low Chan								

MIMO Calculation per KDB662911 D01:

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	+3dB for MIMO 2port (EIRP dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)
QPSK, 1%RB Lower	23.43	6.5	29.93	32.93	1.963	33	-0.07
QPSK, 1%RB Upper	23.41	6.5	29.91	32.91	1.954	33	-0.09
QPSK, 50%RB	23.37	6.5	29.87	32.87	1.936	33	-0.13
QPSK, 100%RB	23.31	6.5	29.81	32.81	1.910	33	-0.19
16QAM, 1%RB Lower	23.43	6.5	29.93	32.93	1.963	33	-0.07
16QAM, 1%RB Upper	23.42	6.5	29.92	32.92	1.959	33	-0.08
16QAM, 50%RB	23.34	6.5	29.84	32.84	1.923	33	-0.16
16QAM, 100%RB	23.32	6.5	29.82	32.82	1.914	33	-0.18
64QAM, 1%RB Lower	23.42	6.5	29.92	32.92	1.959	33	-0.08
64QAM, 1%RB Upper	23.4	6.5	29.90	32.90	1.950	33	-0.1
64QAM, 50%RB	23.41	6.5	29.91	32.91	1.954	33	-0.09
64QAM, 100%RB	23.38	6.5	29.88	32.88	1.940	33	-0.12

File Name: Airspan Communications Ltd.14011-1 Issue 01

Setup Table

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	20 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
Mid channel	1882.5 MHz

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)	Peak to AV ratio (dB)	PK to AV Limit (dB)	PK to AV Margin (dB)
QPSK, 1%RB Lower	23.48	6.5	29.98	0.995	33	-3.02	5.04	13	-7.96
QPSK, 1%RB Upper	23.48	6.5	29.98	0.995	33	-3.02	5.02	13	-7.98
QPSK, 50%RB	23.32	6.5	29.82	0.959	33	-3.18	5.61	13	-7.39
QPSK, 100%RB	23.23	6.5	29.73	0.940	33	-3.27	5.65	13	-7.35
16QAM, 1%RB Lower	23.41	6.5	29.91	0.979	33	-3.09	5.61	13	-7.39
16QAM, 1%RB Upper	23.4	6.5	29.90	0.977	33	-3.1	5.59	13	-7.41
16QAM, 50%RB	23.34	6.5	29.84	0.964	33	-3.16	6.04	13	-6.96
16QAM, 100%RB	23.28	6.5	29.78	0.951	33	-3.22	6.22	13	-6.78
64QAM, 1%RB Lower	23.48	6.5	29.98	0.995	33	-3.02	5.54	13	-7.46
64QAM, 1%RB Upper	23.46	6.5	29.96	0.991	33	-3.04	5.53	13	-7.47
64QAM, 50%RB	23.32	6.5	29.82	0.959	33	-3.18	6.17	13	-6.83
64QAM, 100%RB	23.21	6.5	29.71	0.935	33	-3.29	6.34	13	-6.66
Parameter setting Plot filename/reference									
QPSK, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, QPSK, 20 MHz, 1 RB Low, Mid Chan								
QPSK, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, QPSK, 20 MHz, 1 RB High, Mid Chan								
QPSK, 50%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 20 MHz, 50% RB Low, Mid Chan								
QPSK, 100%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 20 MHz, 100 RB, Mid Chan								
16QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 16 QAM, 20 MHz, 1 RB Low, Mid Chan								
16QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 16 QAM, 20 MHz, 1 RB High, Mid Chan								
16QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 20 MHz, 50% RB Low, Mid Chan								
16QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 20 MHz, 100 RB , Mid Chan								
64QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 64 QAM, 20 MHz, 1 RB Low, Mid Chan								
64QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 64 QAM, 20 MHz, 1 RB High, Mid Chan								
64QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 20 MHz, 50% RB Low, Mid Chan								
64QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 20 MHz, 100 RB, Mid Chan								

MIMO Calculation per KDB662911 D01:

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	+3dB for MIMO 2port (EIRP dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)
QPSK, 1%RB Lower	23.48	6.5	29.98	32.98	1.986	33	-0.02
QPSK, 1%RB Upper	23.48	6.5	29.98	32.98	1.986	33	-0.02
QPSK, 50%RB	23.32	6.5	29.82	32.82	1.914	33	-0.18
QPSK, 100%RB	23.23	6.5	29.73	32.73	1.875	33	-0.27
16QAM, 1%RB Lower	23.41	6.5	29.91	32.91	1.954	33	-0.09
16QAM, 1%RB Upper	23.4	6.5	29.90	32.90	1.950	33	-0.1
16QAM, 50%RB	23.34	6.5	29.84	32.84	1.923	33	-0.16
16QAM, 100%RB	23.28	6.5	29.78	32.78	1.897	33	-0.22
64QAM, 1%RB Lower	23.48	6.5	29.98	32.98	1.986	33	-0.02
64QAM, 1%RB Upper	23.46	6.5	29.96	32.96	1.977	33	-0.04
64QAM, 50%RB	23.32	6.5	29.82	32.82	1.914	33	-0.18
64QAM, 100%RB	23.21	6.5	29.71	32.71	1.866	33	-0.29

File Name: Airspan Communications Ltd.14011-1 Issue 01

Setup Table

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	20 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
High channel	1905 MHz

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)	Peak to AV ratio (dB)	PK to AV Limit (dB)	PK to AV Margin (dB)
QPSK, 1%RB Lower	23.35	6.5	29.85	0.966	33	-3.15	5.47	13	-7.53
QPSK, 1%RB Upper	23.43	6.5	29.93	0.984	33	-3.07	5.52	13	-7.48
QPSK, 50%RB	23.38	6.5	29.88	0.973	33	-3.12	5.62	13	-7.38
QPSK, 100%RB	23.35	6.5	29.85	0.966	33	-3.15	6.24	13	-6.76
16QAM, 1%RB Lower	23.34	6.5	29.84	0.964	33	-3.16	5.76	13	-7.24
16QAM, 1%RB Upper	23.32	6.5	29.82	0.959	33	-3.18	5.76	13	-7.24
16QAM, 50%RB	23.33	6.5	29.83	0.962	33	-3.17	6.23	13	-6.77
16QAM, 100%RB	23.39	6.5	29.89	0.975	33	-3.11	6.14	13	-6.86
64QAM, 1%RB Lower	23.38	6.5	29.88	0.973	33	-3.12	5.96	13	-7.04
64QAM, 1%RB Upper	23.41	6.5	29.91	0.979	33	-3.09	6.05	13	-6.95
64QAM, 50%RB	23.38	6.5	29.88	0.973	33	-3.12	6.14	13	-6.86
64QAM, 100%RB	23.42	6.5	29.92	0.982	33	-3.08	6.24	13	-6.76
Parameter setting Plot filename/reference									
QPSK, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, QPSK, 20 MHz, 1 RB Low, High Chan								
QPSK, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, QPSK, 20 MHz, 1 RB High, High Chan								
QPSK, 50%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 20 MHz, 50% RB Low, High Chan								
QPSK, 100%RB	14011-1 PAPR,Band 25, Part 24, QPSK, 20 MHz, 100 RB, High Chan								
16QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 16 QAM, 20 MHz, 1 RB Low, High Chan								
16QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 16 QAM, 20 MHz, 1 RB High, High Chan								
16QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 20 MHz, 50% RB Low, High Chan								
16QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 16 QAM, 20 MHz, 100 RB , High Chan								
64QAM, 1%RB Lower	14011-1 PAPR,Band 25, Part 24, 64 QAM, 20 MHz, 1 RB Low, High Chan								
64QAM, 1%RB Upper	14011-1 PAPR,Band 25, Part 24, 64 QAM, 20 MHz, 1 RB High, High Chan								
64QAM, 50%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 20 MHz, 50% RB Low, High Chan								
64QAM, 100%RB	14011-1 PAPR,Band 25, Part 24, 64 QAM, 20 MHz, 100 RB, High Chan								

MIMO Calculation per KDB662911 D01:

Test Instance (e.g. modulation or Resource block)	Average Cond Power (dBm) TX Chain 1	Antenna Gain dBi	TX Power EIRP (dBm)	+3dB for MIMO 2port (EIRP dBm)	TX Power EIRP (W)	Power Limit (dBm) EIRP	Power Margin (dB)
QPSK, 1%RB Lower	23.35	6.5	29.85	32.85	1.928	33	-0.15
QPSK, 1%RB Upper	23.43	6.5	29.93	32.93	1.963	33	-0.07
QPSK, 50%RB	23.38	6.5	29.88	32.88	1.941	33	-0.12
QPSK, 100%RB	23.35	6.5	29.85	32.85	1.928	33	-0.15
16QAM, 1%RB Lower	23.34	6.5	29.84	32.84	1.923	33	-0.16
16QAM, 1%RB Upper	23.32	6.5	29.82	32.82	1.914	33	-0.18
16QAM, 50%RB	23.33	6.5	29.83	32.83	1.919	33	-0.17
16QAM, 100%RB	23.39	6.5	29.89	32.89	1.945	33	-0.11
64QAM, 1%RB Lower	23.38	6.5	29.88	32.88	1.941	33	-0.12
64QAM, 1%RB Upper	23.41	6.5	29.91	32.91	1.954	33	-0.09
64QAM, 50%RB	23.38	6.5	29.88	32.88	1.941	33	-0.12
64QAM, 100%RB	23.42	6.5	29.92	32.92	1.959	33	-0.08

File Name: Airspan Communications Ltd.14011-1 Issue 01

Any plots referred to in the above tables may be found in section 6.

LIMITS:

FCC Part 24 Clause 24.232(c)(d)

Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB. For two port MIMO results 3dB has been added to single port results in line with KDB662911 D01.

These results show that the EUT has PASSED this test.

The uncertainty gives a 95% confidence interval in the measurement. Expanded uncertainty (K=2) is as follows:
<± 1.0 dB

5.3 Frequency stability

5.3.1 Test methods

Test Requirements:	FCC Part 24 Clause 24.235 [Reference 4.1.1 of this report]
Test Method:	FCC Part 2 Clause 2.1055 [Reference 4.1.2 of this report]
Limits:	FCC Part 24 Clause 24.235 [Reference 4.1.1 of this report]

5.3.2 Configuration of EUT

The EUT was placed in a temperature controlled chamber and thermal balance was achieved before tests began. Measurements were made at the EUT 50 ohm port.
All test modes specified in section 2.4 were initially checked, 5MHz BW, QPSK mode with 1Resource Block (1RB) setting was found to be the worst case for emissions closest to the band edge, therefore, the EUT was operated in Modes 1, and 10 for 5MHz BW QPSK, Additional tests modes used for full test were modes 4 and 12 for 5 MHz QPSK full RB usage, covering upper and lower single Resource Block usage and full RB usage.

5.3.3 Test procedure

Tests were made in accordance with the Test Method noted above, using the measuring equipment listed in the 'Test Equipment' Section.

Temperature stability was achieved at each test level before taking measurements. No CW carrier was available for measurement, the EUT was digitally modulated, and test modes were controlled via a Base station communications test set in a closed loop configuration to obtain its frequency accuracy settings. The requirement is for the fundamental BW to stay within the operational Band. Therefore, the mean amplitude of the band edge emissions at the level of the applicable spurious emissions limit was measured on the upper & lower sides of the modulation envelope. This ensured the fundamental BW including any frequency drift remained within the Band. As the unit is capable of MIMO two port operation, the spurious band edge emissions limit of -16dBm/MHz was used to determine if the modulated signal remained within the band edges limits. Band Edge frequencies are 1850 MHz Lower and 1915 MHz Upper.

Tests were performed using Test Site N.

5.3.4 Test equipment

H071, F075, F081, N607, E623, E555

See Section 8 for more details

5.3.5 Test results

Temperature of test environment	20°C
Humidity of test environment	50%
Pressure of test environment	102kPa

Band	1850-1915 MHz
Power Level	17 dBm
Channel Spacing	5 MHz
Mod Scheme	QPSK 1RB
Low channel	Low Channel
High channel	High Channel

Test conditions		Frequency Reading (MHz) Low channel band edge	Frequency Reading (MHz) High channel band edge
-30°C	Volts Nominal (120)	1850.034000	1914.903000
-20°C	Volts Nominal (120)	1850.030000	1914.916000
-10°C	Volts Nominal (120)	1850.023000	1914.921000
0°C	Volts Nominal (120)	1850.016000	1914.180000
10°C	Volts Nominal (120)	1850.034000	1914.923000
20°C	Volts Minimum (102)	1850.051000	1914.930000
	Volts Nominal (120)	1850.065000	1914.909000

File Name: Airspan Communications Ltd.14011-1 Issue 01

	Volts Maximum (138)	1850.069000	1914.932000
30°C	Volts Nominal (120)	1850.040000	1914.954000
40°C	Volts Nominal (120)	1850.022000	1914.924000
50°C	Volts Nominal (120)	1850.036000	1914.934000
Closest Frequency point at -16dBm Band edge limits (MHz) over temperature range		1850.016000	1914.954000
Margin to Band edge (Hz)		16000	46000

Band	1850-1915 MHz
Power Level	17 dBm
Channel Spacing	5 MHz
Mod Scheme	QPSK 100RB
Low channel	Low Channel
High channel	High Channel

Test conditions		Frequency Reading (MHz) Low channel band edge	Frequency Reading (MHz) High channel band edge
-30°C	Volts Nominal (120)	1850.203000	1914.788000
-20°C	Volts Nominal (120)	1850.206000	1914.794000
-10°C	Volts Nominal (120)	1850.205000	1914.789000
0°C	Volts Nominal (120)	1850.208000	1914.794000
10°C	Volts Nominal (120)	1850.206000	1914.792000
20°C	Volts Minimum (102)	1850.205000	1914.789000
	Volts Nominal (120)	1850.208000	1914.790000
	Volts Maximum (138)	1850.204000	1914.789000
30°C	Volts Nominal (120)	1850.201000	1914.791000
40°C	Volts Nominal (120)	1850.205000	1914.790000
50°C	Volts Nominal (120)	1850.208000	1914.796000
Closest Frequency point at -16dBm Band edge limits (MHz) over temperature range		1850.201000	1914.796000
Margin to Band edge (Hz)		201000	204000

Analyser plots are shown in section 6.

LIMITS:

FCC Part 24.235: The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

These results show that the EUT has PASSED this test.

The uncertainty gives a 95% confidence interval in the measurement. Expanded uncertainty (K=2) is as follows:

<± 0.7 ppm

5.4 Occupied Bandwidth

5.4.1 Test methods

Test Requirements: FCC Part 24 Clause 24.235 [Reference 4.1.1 of this report]
Test Method: FCC Part 2 Clause 2.1049 [Reference 4.1.2 of this report]
Limits: FCC Part 24 Clause 24.235 [Reference 4.1.1 of this report]

5.4.2 Configuration of EUT

The EUT was operated on a test bench. Measurements were made at the 50 ohm coaxial transmit / receive port. The EUT was operated in all Full Resource Block BW modes listed in section 2.4

5.4.3 Test procedure

Tests were made in accordance with the Test Method noted above using the measuring equipment listed in the 'Test Equipment' Section. A RBW of 200kHz, 3x VBW, auto sweep time and max hold settings were used for the 99% bandwidth. The EUT was set to each Bandwidth/mod scheme in turn at Full Resource Block BW (see section 2.4) and 99% bandwidth recorded.
Tests were performed using Test Site N.

5.4.4 Test equipment

H071, F075, F081

See Section 8 for more details

5.4.5 Test results

Temperature of test environment 20°C
Humidity of test environment 50%
Pressure of test environment 102kPa

Band	1850-1915 MHz
Power Level	17 dBm
Channel Spacing	5 MHz
Mod Scheme	QPSK
Low channel	Low Channel
Mid channel	Middle Channel
High channel	High Channel

	Low channel	Mid channel	High channel
99 % Bandwidth (MHz)	4.6656	4.6393	4.6362
Nominal Temp & Volts			
Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts	14011-1 OBW,Band 25, Part 24, QPSK, 5 MHz, 100% RB , Low Chan	14011-1 OBW,Band 25, Part 24, QPSK, 5 MHz, 100% RB , Mid Chan	14011-1 OBW,Band 25, Part 24, QPSK, 5 MHz, 100% RB , High Chan
FLOW Worst case (MHz)	1850.196170	1880.174385	1910.176547
FHIGH Worst case (MHz)	1854.861770	1884.813685	1914.812747

Band	1850-1915 MHz
Power Level	21 dBm
Channel Spacing	10 MHz
Mod Scheme	QPSK
Low channel	Low Channel
Mid channel	Middle Channel
High channel	High Channel

File Name: Airspan Communications Ltd.14011-1 Issue 01

QMF21J - Issue 05 - RNE Issue 03; FCC Part 24 2021

	Low channel	Mid channel	High channel
99 % Bandwidth (MHz)	8.9872	8.9873	8.981
Nominal Temp & Volts			
Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts	14011-1 OBW,Band 25, Part 24, QPSK, 10 MHz, 100% RB , Low Chan	14011-1 OBW,Band 25, Part 24, QPSK, 10 MHz, 100% RB , Mid Chan	14011-1 OBW,Band 25, Part 24, QPSK, 10 MHz, 100% RB , High Chan
FLOW Worst case (MHz)	1850.527467	1878.020401	1905.483368
FHIGH Worst case (MHz)	1859.514667	1887.007701	1914.464368

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	15 MHz
Mod Scheme	QPSK
Low channel	Low Channel
Mid channel	Middle Channel
High channel	High Channel

	Low channel	Mid channel	High channel
99 % Bandwidth (MHz)	13.357	13.457	13.451
Nominal Temp & Volts			
Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts	14011-1 OBW,Band 25, Part 24, QPSK, 15 MHz, 100% RB , Low Chan	14011-1 OBW,Band 25, Part 24, QPSK, 15 MHz, 100% RB , Mid Chan	14011-1 OBW,Band 25, Part 24, QPSK, 15 MHz, 100% RB , High Chan
FLOW Worst case (MHz)	1850.850130	1875.802267	1900.741337
FHIGH Worst case (MHz)	1864.207130	1889.259267	1914.192337

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	20 MHz
Mod Scheme	QPSK
Low channel	Low Channel
Mid channel	Middle Channel
High channel	High Channel

	Low channel	Mid channel	High channel
99 % Bandwidth (MHz)	17.799	17.938	17.827
Nominal Temp & Volts			
Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts	14011-1 OBW,Band 25, Part 24, QPSK, 20 MHz, 100% RB , Low Chan	14011-1 OBW,Band 25, Part 24, QPSK, 20 MHz, 100% RB , Mid Chan	14011-1 OBW,Band 25, Part 24, QPSK, 20 MHz, 100% RB , High Chan
FLOW Worst case (MHz)	1851.144916	1873.565676	1896.056889
FHIGH Worst case (MHz)	1868.943916	1891.503676	1913.883889

Band	1850-1915 MHz
Power Level	17 dBm
Channel Spacing	5 MHz
Mod Scheme	16QAM
Low channel	Low Channel
Mid channel	Middle Channel
High channel	High Channel

	Low channel	Mid channel	High channel
99 % Bandwidth (MHz)	4.6776	4.6558	4.6986
Nominal Temp & Volts			
Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts	14011-1 OBW,Band 25, Part 24, 16 QAM, 5 MHz, 100% RB , Low Chan	14011-1 OBW,Band 25, Part 24, 16 QAM, 5 MHz, 100% RB , Mid Chan	14011-1 OBW,Band 25, Part 24, 16 QAM, 5 MHz, 100% RB , High Chan
FLOW Worst case (MHz)	1850.178324	1880.172015	1910.134823
FHIGH Worst case (MHz)	1854.855924	1884.827815	1914.833423

Band	1850-1915 MHz
Power Level	21 dBm
Channel Spacing	10 MHz
Mod Scheme	16QAM
Low channel	Low Channel
Mid channel	Middle Channel
High channel	High Channel

	Low channel	Mid channel	High channel
99 % Bandwidth (MHz)	8.9818	9.0008	8.9865
Nominal Temp & Volts			
Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts	14011-1 OBW,Band 25, Part 24, 16 QAM, 10 MHz, 100% RB , Low Chan	14011-1 OBW,Band 25, Part 24, 16 QAM, 10 MHz, 100% RB , Mid Chan	14011-1 OBW,Band 25, Part 24, 16 QAM, 10 MHz, 100% RB , High Chan
FLOW Worst case (MHz)	1850.546866	1878.012203	1905.493798
FHIGH Worst case (MHz)	1859.528666	1887.013003	1914.480298

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	15 MHz
Mod Scheme	16QAM
Low channel	Low Channel
Mid channel	Middle Channel
High channel	High Channel

	Low channel	Mid channel	High channel
99 % Bandwidth (MHz)	13.4	13.445	13.442
Nominal Temp & Volts			
Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts	14011-1 OBW,Band 25, Part 24, 16 QAM, 15 MHz, 100% RB , Low Chan	14011-1 OBW,Band 25, Part 24, 16 QAM, 15 MHz, 100% RB , Mid Chan	14011-1 OBW,Band 25, Part 24, 16 QAM, 15 MHz, 100% RB , High Chan
FLOW Worst case (MHz)	1850.830389	1875.806848	1900.754472
FHIGH Worst case (MHz)	1864.230389	1889.251848	1914.196472

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	20 MHz
Mod Scheme	16QAM
Low channel	Low Channel
Mid channel	Middle Channel
High channel	High Channel

	Low channel	Mid channel	High channel
99 % Bandwidth (MHz)	17.785	17.905	17.88
Nominal Temp & Volts			
Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts	14011-1 OBW,Band 25, Part 24, 16 QAM, 20 MHz, 100% RB , Low Chan	14011-1 OBW,Band 25, Part 24, 16 QAM, 20 MHz, 100% RB , Mid Chan	14011-1 OBW,Band 25, Part 24, 16 QAM, 20 MHz, 100% RB , High Chan
FLOW Worst case (MHz)	1851.151935	1873.580491	1896.046379
FHIGH Worst case (MHz)	1868.936935	1891.485491	1913.926379

Band	1850-1915 MHz
Power Level	17 dBm
Channel Spacing	5 MHz
Mod Scheme	64QAM
Low channel	Low Channel
Mid channel	Middle Channel
High channel	High Channel

	Low channel	Mid channel	High channel
99 % Bandwidth (MHz)	4.6255	4.6854	4.6333
Nominal Temp & Volts			
Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts	14011-1 OBW,Band 25, Part 24, 64 QAM, 5 MHz, 100% RB , Low Chan	14011-1 OBW,Band 25, Part 24, 64 QAM, 5 MHz, 100% RB , Mid Chan	14011-1 OBW,Band 25, Part 24, 64 QAM, 5 MHz, 100% RB , High Chan
FLOW Worst case (MHz)	1850.225271	1880.152144	1910.196151
FHIGH Worst case (MHz)	1854.850771	1884.837544	1914.829451

Band	1850-1915 MHz
Power Level	21 dBm
Channel Spacing	10 MHz
Mod Scheme	64QAM
Low channel	Low Channel
Mid channel	Middle Channel
High channel	High Channel

	Low channel	Mid channel	High channel
99 % Bandwidth (MHz)	8.9729	9.0283	8.9782
Nominal Temp & Volts			
Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts	14011-1 OBW,Band 25, Part 24, 64 QAM, 10 MHz, 100% RB , Low Chan	14011-1 OBW,Band 25, Part 24, 64 QAM, 10 MHz, 100% RB , Mid Chan	14011-1 OBW,Band 25, Part 24, 64 QAM, 10 MHz, 100% RB , High Chan
FLOW Worst case (MHz)	1850.554900	1877.962345	1905.520136
FHIGH Worst case (MHz)	1859.527800	1886.990645	1914.498336

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	15 MHz
Mod Scheme	64QAM
Low channel	Low Channel
Mid channel	Middle Channel
High channel	High Channel

	Low channel	Mid channel	High channel
99 % Bandwidth (MHz)	13.398	13.453	13.422
Nominal Temp & Volts			
Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts	14011-1 OBW,Band 25, Part 24, 64 QAM, 15 MHz, 100% RB , Low Chan	14011-1 OBW,Band 25, Part 24, 64 QAM, 15 MHz, 100% RB , Mid Chan	14011-1 OBW,Band 25, Part 24, 64 QAM, 15 MHz, 100% RB , High Chan
FLOW Worst case (MHz)	1850.783288	1875.761345	1900.788521
FHIGH Worst case (MHz)	1864.181288	1889.214345	1914.210521

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	20 MHz
Mod Scheme	64QAM
Low channel	Low Channel
Mid channel	Middle Channel
High channel	High Channel

	Low channel	Mid channel	High channel
99 % Bandwidth (MHz)	17.805	17.893	17.841
Nominal Temp & Volts			
Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts	14011-1 OBW,Band 25, Part 24, 64 QAM, 20 MHz, 100% RB , Low Chan	14011-1 OBW,Band 25, Part 24, 64 QAM, 20 MHz, 100% RB , Mid Chan	14011-1 OBW,Band 25, Part 24, 64 QAM, 20 MHz, 100% RB , High Chan
FLOW Worst case (MHz)	1851.165736	1873.569533	1896.012516
FHIGH Worst case (MHz)	1868.970736	1891.462533	1913.853516

Analyser plots for the 99% bandwidth can be found in Section 6 of this report.

LIMITS:

The bandwidth of the emission must be contained within the authorised frequency band.

These results show that the EUT has PASSED this test.

The uncertainty gives a 95% confidence interval in the measurement. Expanded uncertainty (K=2) is as follows:

$\leq \pm 1.9 \%$

5.5 Field strength of spurious radiations

5.5.1 Test methods

Test Requirements:	FCC Part 24 Clause 24.238 [Reference 4.1.1 of this report]
Test Method:	FCC Part 2 Clause 2.1053 [Reference 4.1.2 of this report]
Limits:	FCC Part 24 Clause 24.238(a) [Reference 4.1.1 of this report]

5.5.2 Configuration of EUT

The EUT was tested in an ALSE and ambient conditions were monitored. Three orthogonal planes were examined. All test modes specified in section 2.4 were initially checked, 5MHz BW, QPSK modulation with 1Resource Block (1RB) setting was found to be the worst case for emissions, therefore, the EUT was operated in Modes 1, 5, 10, 37, 41, 46, 73, 77, 82, 109, 113 and 118 for this test.

5.5.3 Test procedure

Tests were made in accordance with the Test Method noted above using the measuring equipment noted in the 'Test Equipment' Section at Site B & M. Peak field strength from the EUT was maximised by rotating it 360 degrees. Appropriate band-pass filters were used to ensure the fundamental did not distort the results. An RMS detector was used for final measurements.

25MHz - 1GHz.

The measuring antenna was scanned 1 - 4m in both Horizontal and Vertical polarisations. Substitution method was performed using tuned dipoles / a calibrated bi-conical antenna.

1GHz – 20GHz.

The measuring antenna was used in both Horizontal and Vertical polarisations. Substitution method was performed using standard gain horn antennas.

5.5.4 Test equipment

E654, E904, TMS78, TMS79, E642, E856, LPE364, E743, E268

See Section 8 for more details

5.5.5 Test results

Temperature of test environment	20°C
Humidity of test environment	50%
Pressure of test environment	100kPa

Setup Table

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	5 MHz
Mod Scheme	QPSK 1RB
Low channel	1852.5 MHz

Spurious Frequency (MHz)	Measured Spurious Level (dBm)	Difference to Limit (dB)	Antenna Polarisation	EUT Polarisation
No Spurious emissions found within 20 dB of limits.				

Setup Table

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	5 MHz
Mod Scheme	QPSK 1RB
Mid channel	Mid Chan 1882.5 MHz

File Name: Airspan Communications Ltd.14011-1 Issue 01

Spurious Frequency (MHz)	Measured Spurious Level (dBm)	Difference to Limit (dB)	Antenna Polarisation	EUT Polarisation
No Spurious emissions found within 20 dB of limits.				

Setup Table

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	5 MHz
Mod Scheme	QPSK 1RB
High channel	1912.5 MHz

Spurious Frequency (MHz)	Measured Spurious Level (dBm)	Difference to Limit (dB)	Antenna Polarisation	EUT Polarisation
No Spurious emissions found within 20 dB of limits.				

Setup Table

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	10 MHz
Mod Scheme	QPSK 1RB
Low channel	1855 MHz

Spurious Frequency (MHz)	Measured Spurious Level (dBm)	Difference to Limit (dB)	Antenna Polarisation	EUT Polarisation
No Spurious emissions found within 20 dB of limits.				

Setup Table

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	10 MHz
Mod Scheme	QPSK 1RB
Mid channel	1882.5 MHz

Spurious Frequency (MHz)	Measured Spurious Level (dBm)	Difference to Limit (dB)	Antenna Polarisation	EUT Polarisation
No Spurious emissions found within 20 dB of limits.				

Setup Table

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	10 MHz
Mod Scheme	QPSK 1RB
High channel	1910 MHz

Spurious Frequency (MHz)	Measured Spurious Level (dBm)	Difference to Limit (dB)	Antenna Polarisation	EUT Polarisation
No Spurious emissions found within 20 dB of limits.				

Setup Table

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	15 MHz
Mod Scheme	QPSK 1RB
Low channel	1857.5 MHz

Spurious Frequency (MHz)	Measured Spurious Level (dBm)	Difference to Limit (dB)	Antenna Polarisation	EUT Polarisation
No Spurious emissions found within 20 dB of limits.				

Setup Table

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	15 MHz
Mod Scheme	QPSK 1RB
Mid channel	1882.5 MHz

Spurious Frequency (MHz)	Measured Spurious Level (dBm)	Difference to Limit (dB)	Antenna Polarisation	EUT Polarisation
No Spurious emissions found within 20 dB of limits.				

Setup Table

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	15 MHz
Mod Scheme	QPSK 1RB
High channel	1907.5 MHz

Spurious Frequency (MHz)	Measured Spurious Level (dBm)	Difference to Limit (dB)	Antenna Polarisation	EUT Polarisation
No Spurious emissions found within 20 dB of limits.				

Setup Table

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	20 MHz
Mod Scheme	QPSK 1RB
Low channel	1860 MHz

Spurious Frequency (MHz)	Measured Spurious Level (dBm)	Difference to Limit (dB)	Antenna Polarisation	EUT Polarisation
No Spurious emissions found within 20 dB of limits.				

Setup Table

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	20 MHz
Mod Scheme	QPSK 1RB
Mid channel	1882.5 MHz

Spurious Frequency (MHz)	Measured Spurious Level (dBm)	Difference to Limit (dB)	Antenna Polarisation	EUT Polarisation
No Spurious emissions found within 20 dB of limits.				

Setup Table

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	20 MHz
Mod Scheme	QPSK 1RB
High channel	1905 MHz

Spurious Frequency (MHz)	Measured Spurious Level (dBm)	Difference to Limit (dB)	Antenna Polarisation	EUT Polarisation
No Spurious emissions found within 20 dB of limits.				

No Spurious emissions found within 20 dB of limits, for any test mode

LIMITS:

FCC Part 24 Clause 24.238(a)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. (-13 dBm)

These results show that the EUT has PASSED this test.

The uncertainty gives a 95% confidence interval in the measurement. Expanded uncertainty (K=2) is as follows:
30MHz - 1GHz ± 3.9 dB, 1 – 18 GHz ± 3.5 dB, 18 – 26.5 GHz ± 3.9 dB,

5.6 Band edge / spectrum mask additional emissions limitations

5.6.1 Test methods

Test Requirements:	FCC Part 24 Clause 24.238 [Reference 4.1.1 of this report]
Test Method:	FCC Part 24 Clause 24.238(b) [Reference 4.1.1 of this report]
Limits:	FCC Part 24 Clause 24.238(a) [Reference 4.1.1 of this report]

5.6.2 Configuration of EUT

The EUT was operated on a test bench. Measurements were made at the 50 ohm coaxial transmit / receive port. All test modes specified in section 2.4 were tested.

5.6.3 Test procedure

Tests were made in accordance with the Test Method noted above, using the measuring equipment listed in the 'Test Equipment' Section. A RBW of 1% of the EBW (emission bandwidth), 3x VBW, auto sweep time and max hold settings were used, per ANSI C63.26 methods to show the band edges. All modulation schemes / rates in combination with channel bandwidths and upper and lower channel frequencies were assessed and plotted. (See section 2.4 for mode details).
The EUT was tested in Site N.

5.6.4 Test equipment

E291-2, E533, E622, E632, F072-2, F072-3, F075, F081, F931, H071

See Section 8 for more details

5.6.5 Test results

Temperature of test environment	20°C
Humidity of test environment	50%
Pressure of test environment	102kPa

Band	1850-1915 MHz
Power Level	17 dBm
Channel Spacing	5 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
Low channel	1852.5 MHz

	Band edge result SISO Port 1 (dBm)	Plot reference Port 1	Band edge result MIMO Port 1+3dB summed (dBm)	SISO Port 1 (dB) Margin	MIMO 2 Port (dB) Margin
Low channel	-16.9	14011-1 Band Edge,Band 25, Part 24, QPSK, 5 MHz, 1 RB Low, Low Chan, PWR setting 19	-13.90	-3.9	-0.9
QPSK, 1%RB Low	-27.37	14011-1 Band Edge,Band 25, Part 24, QPSK, 5 MHz, 50% RB Low, Low Chan, PWR setting 18	-24.37	-14.37	-11.37
QPSK, 50%RB Low	-31.01	14011-1 Band Edge,Band 25, Part 24, QPSK, 5 MHz, 100% RB , Low Chan, PWR setting 18	-28.01	-18.01	-15.01
QPSK, 100%RB	-18.98	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 5 MHz, 1 RB Low, Low Chan, PWR setting 19	-15.98	-5.98	-2.98
16QAM, 1%RB Low	-26.06	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 5 MHz, 50% RB Low, Low Chan, PWR setting 18	-23.06	-13.06	-10.06
16QAM, 50%RB Low	-30.46	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 5 MHz, 100% RB, Low Chan, PWR setting 19	-27.46	-17.46	-7.46
16QAM, 100%RB	-17.08	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 5 MHz, 1 RB Low, Low Chan, PWR setting 19	-14.08	-4.08	-1.08
64QAM, 1%RB Low	-26.52	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 5 MHz, 50% RB Low, Low Chan, PWR setting 18	-23.52	-13.52	-10.52
64QAM, 50%RB Low	-30.62	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 5 MHz, 100% RB, Low Chan, PWR setting 19	-27.62	-17.62	-14.62
64QAM, 100%RB					

Band	1850-1915 MHz
Power Level	17 dBm
Channel Spacing	5 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
High channel	1912.5 MHz

High channel	Band edge result SISO Port 1 (dBm)	Plot reference Port 1	Band edge result MIMO Port 1+3dB summed (dBm)	SISO Port 1 (dB) Margin	MIMO 2 Port (dB) Margin
QPSK, 1%RB High	-18.33	14011-1 Band Edge,Band 25, Part 24, Qpsk, 5 MHz, 1 RB High, High Chan, PWR setting 19	-15.33	-5.33	-2.33
QPSK, 50%RB High	-28.3	14011-1 Band Edge,Band 25, Part 24, Qpsk, 5 MHz, 50% RB High, High Chan, PWR setting 19	-25.30	-15.3	-12.30
QPSK, 100%RB	-32.07	14011-1 Band Edge,Band 25, Part 24, Qpsk, 5 MHz, 100% RB, High Chan, PWR setting 19	-29.07	-19.07	-16.07
16QAM, 1%RB High	-16.56	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 5 MHz, 1 RB High, High Chan, PWR setting 19	-13.56	-3.56	-0.56
16QAM, 50%RB High	-27.06	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 5 MHz, 50% RB High, High Chan, PWR setting 19	-24.06	-14.06	-11.06
16QAM, 100%RB	-32.49	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 5 MHz, 100% RB, High Chan, PWR setting 19	-29.49	-19.49	-16.49
64QAM, 1%RB High	-18.97	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 5 MHz, 1 RB High, High Chan, PWR setting 19	-15.97	-5.97	-2.97
64QAM, 50%RB High	-25.64	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 5 MHz, 50% RB High, High Chan, PWR setting 19	-22.64	-12.64	-9.64
64QAM, 100%RB	-30.91	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 5 MHz, 100% RB, High Chan, PWR setting 19	-27.91	-17.91	-14.91

Band	1850-1915 MHz
Power Level	21 dBm
Channel Spacing	10 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
Low channel	1855 MHz

Low channel	Band edge result SISO Port 1 (dBm)	Plot reference Port 1	Band edge result MIMO Port 1+3dB summed (dBm)	SISO Port 1 (dB) Margin	MIMO 2 Port (dB) Margin
QPSK, 1%RB Low	-20.86	14011-1 Band Edge,Band 25, Part 24, QPSK, 10 MHz, 1 RB Low, Low Chan, PWR setting 18	-17.86	-7.86	-3.86
QPSK, 50%RB Low	-35.88	14011-1 Band Edge,Band 25, Part 24, QPSK, 10 MHz, 50% RB Low, Low Chan, PWR setting 18	-32.88	-22.88	-19.88
QPSK, 100%RB	-39.65	14011-1 Band Edge,Band 25, Part 24, QPSK, 10 MHz, 100% RB, Low Chan, PWR setting 18	-36.65	-26.65	-23.65
16QAM, 1%RB Low	-22.16	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 10 MHz, 1 RB Low, Low Chan, PWR setting 18	-19.16	-9.16	-6.16
16QAM, 50%RB Low	-35.41	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 10 MHz, 50% RB Low, Low Chan, PWR setting 18	-32.41	-22.41	-19.41
16QAM, 100%RB	-39.21	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 10 MHz, 100% RB , Low Chan, PWR setting 18	-36.21	-26.21	-23.21
64QAM, 1%RB Low	-23.21	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 10 MHz, 1 RB Low, Low Chan, PWR setting 18	-20.21	-10.21	-7.21
64QAM, 50%RB Low	-34.14	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 10 MHz, 50% RB Low, Low Chan, PWR setting 18	-31.14	-21.14	-18.14
64QAM, 100%RB	-38.34	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 10 MHz, 100% RB , Low Chan, PWR setting 18	-35.34	-25.34	-22.34

Band	1850-1915 MHz
Power Level	21 dBm
Channel Spacing	10 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
High channel	1910 MHz

High channel	Band edge result SISO Port 1 (dBm)	Plot reference Port 1	Band edge result MIMO Port 1+3dB summed (dBm)	SISO Port 1 (dB) Margin	MIMO 2 Port (dB) Margin
QPSK, 1%RB High	-26.1	14011-1 Band Edge,Band 25, Part 24, QPSK, 10 MHz, 1 RB High, High Chan, PWR setting 18	-23.10	-13.1	-10.10
QPSK, 50%RB High	-35.63	14011-1 Band Edge,Band 25, Part 24, QPSK, 10 MHz, 50% RB High, High Chan, PWR setting 19	-32.63	-22.63	-19.63
QPSK, 100%RB	-38.77	14011-1 Band Edge,Band 25, Part 24, QPSK, 10 MHz, 100% RB , High Chan, PWR setting 19	-35.77	-25.77	-22.77
16QAM, 1%RB High	-24.08	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 10 MHz, 1 RB High, High Chan, PWR setting 18	-21.08	-11.08	-8.08
16QAM, 50%RB High	-32.16	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 10 MHz, 50% RB High, High Chan, PWR setting 19	-29.16	-19.16	-16.16
16QAM, 100%RB	-39.75	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 10 MHz, 100% RB High, High Chan, PWR setting 19	-36.75	-26.75	-23.75
64QAM, 1%RB High	-22.08	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 10 MHz, 1 RB High, High Chan, PWR setting 18	-19.08	-9.08	-6.08
64QAM, 50%RB High	-35.78	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 10 MHz, 50% RB High, High Chan, PWR setting 19	-32.78	-22.78	-19.78
64QAM, 100%RB	-38.94	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 10 MHz, 100% RB , High Chan, PWR setting 19	-35.94	-25.94	-22.94

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	15 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
Low channel	1857.5 MHz

Low channel	Band edge result SISO Port 1 (dBm)	Plot reference Port 1	Band edge result MIMO Port 1+3dB summed (dBm)	SISO Port 1 (dB) Margin	MIMO 2 Port (dB) Margin
QPSK, 1%RB Low	-26.12	14011-1 Band Edge,Band 25, Part 24, QPSK, 15 MHz, 1 RB Low, Low Chan, PWR setting 18	-23.12	-13.12	-10.12
QPSK, 50%RB Low	-42.5	14011-1 Band Edge,Band 25, Part 24, QPSK, 15 MHz, 50% RB Low, Low Chan, PWR setting 18	-39.50	-29.5	-26.50
QPSK, 100%RB	-43.59	14011-1 Band Edge,Band 25, Part 24, QPSK, 15 MHz, 100% RB, Low Chan, PWR setting 18	-40.59	-30.59	-27.59
16QAM, 1%RB Low	-27.59	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 15 MHz, 1 RB Low, Low Chan, PWR setting 18	-24.59	-14.59	-11.59
16QAM, 50%RB Low	-39.57	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 15 MHz, 50% RB Low, Low Chan, PWR setting 18	-36.57	-26.57	-23.57
16QAM, 100%RB	-43.67	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 15 MHz, 100% RB , Low Chan, PWR setting 18	-40.67	-30.67	-27.67
64QAM, 1%RB Low	-29.5	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 15 MHz, 1 RB Low, Low Chan, PWR setting 18	-26.50	-16.5	-13.50
64QAM, 50%RB Low	-40.97	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 15 MHz, 50% RB Low, Low Chan, PWR setting 18	-37.97	-27.97	-24.97
64QAM, 100%RB	-43.44	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 15 MHz, 100% RB , Low Chan, PWR setting 18	-40.44	-30.44	-27.44

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	15 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
High channel	1907.5 MHz

High channel	Band edge result SISO Port 1 (dBm)	Plot reference Port 1	Band edge result MIMO Port 1+3dB summed (dBm)	SISO Port 1 (dB) Margin	MIMO 2 Port (dB) Margin
QPSK, 1%RB High	-29.23	14011-1 Band Edge,Band 25, Part 24, QPSK, 15 MHz, 1 RB High, High Chan, PWR setting 18	-26.23	-16.23	-13.23
QPSK, 50%RB High	-45.15	14011-1 Band Edge,Band 25, Part 24, QPSK, 15 MHz, 50% RB High, High Chan, PWR setting 19	-42.15	-32.15	-29.15
QPSK, 100%RB	-42.95	14011-1 Band Edge,Band 25, Part 24, QPSK, 15 MHz, 100% RB , High Chan, PWR setting 19	-39.95	-29.95	-26.95
16QAM, 1%RB High	-26.23	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 15 MHz, 1 RB High, High Chan, PWR setting 18	-23.23	-13.23	-10.23
16QAM, 50%RB High	-43.33	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 15 MHz, 50% RB High, High Chan, PWR setting 19	-40.33	-30.33	-27.33
16QAM, 100%RB	-41.54	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 15 MHz, 100% RB , High Chan, PWR setting 19	-38.54	-28.54	-25.54
64QAM, 1%RB High	-25.95	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 15 MHz, 1 RB High, High Chan, PWR setting 18	-22.95	-12.95	-9.95
64QAM, 50%RB High	-42.6	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 15 MHz, 50% RB High, High Chan, PWR setting 19	-39.60	-29.6	-26.60
64QAM, 100%RB	-42.94	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 15 MHz, 100% RB , High Chan, PWR setting 19	-39.94	-29.94	-26.94

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	20 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
Low channel	1860 MHz

Low channel	Band edge result SISO Port 1 (dBm)	Plot reference Port 1	Band edge result MIMO Port 1+3dB summed (dBm)	SISO Port 1 (dB) Margin	MIMO 2 Port (dB) Margin
QPSK, 1%RB Low	-32.07	14011-1 Band Edge,Band 25, Part 24, QPSK, 20 MHz, 1 RB Low, Low Chan, PWR setting 18	-29.07	-19.07	-16.07
QPSK, 50%RB Low	-44.92	14011-1 Band Edge,Band 25, Part 24, QPSK, 20 MHz, 50% RB Low, Low Chan, PWR setting 18	-41.92	-31.92	-28.92
QPSK, 100%RB	-45.57	14011-1 Band Edge,Band 25, Part 24, QPSK, 20 MHz, 100% RB Low, Low Chan, PWR setting 18	-42.57	-32.57	-29.57
16QAM, 1%RB Low	-33.68	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 20 MHz, 1 RB Low, Low Chan, PWR setting 18	-30.68	-20.68	-17.68
16QAM, 50%RB Low	-44.41	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 20 MHz, 50% RB Low, Low Chan, PWR setting 18	-41.41	-31.41	-28.41
16QAM, 100%RB	-47.51	14011-1 Band Edge,Band 25, Part 24, 16 QAM, 20 MHz, 100% RB Low, Low Chan, PWR setting 18	-44.51	-34.51	-31.51
64QAM, 1%RB Low	-31.1	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 20 MHz, 1 RB Low, Low Chan, PWR setting 18	-28.10	-18.1	-15.10
64QAM, 50%RB Low	-43.93	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 20 MHz, 50% RB Low, Low Chan, PWR setting 18	-40.93	-30.93	-27.93
64QAM, 100%RB	-45.93	14011-1 Band Edge,Band 25, Part 24, 64 QAM, 20 MHz, 100% RB , Low Chan, PWR setting 18	-42.93	-32.93	-29.93

Band	1850-1915 MHz
Power Level	23 dBm
Channel Spacing	20 MHz
Mod Scheme	QPSK, 16 QAM & 64 QAM
High channel	1905 MHz

High channel	Band edge result SISO Port 1 (dBm)	Plot reference Port 1	Band edge result MIMO Port 1+3dB summed (dBm)	SISO Port 1 (dB) Margin	MIMO 2 Port (dB) Margin
QPSK, 1%RB High	-33.12	14011-2 Band Edge,Band 66, Part 27, QPSK, 20 MHz, 1 RB High, High Chan, PWR setting 18	-30.12	-20.12	-17.12
QPSK, 50%RB High	-45.07	14011-2 Band Edge,Band 66, Part 27, QPSK, 20 MHz, 50% RB High, High Chan, PWR setting 18	-42.07	-32.07	-29.07
QPSK, 100%RB	-47.19	14011-2 Band Edge,Band 66, Part 27, QPSK, 20 MHz, 100% RB , High Chan, PWR setting 18	-44.19	-34.19	-31.19
16QAM, 1%RB High	-33.86	14011-2 Band Edge,Band 66, Part 27, 16 QAM, 20 MHz, 1 RB High, High Chan, PWR setting 18	-30.86	-20.86	-17.86
16QAM, 50%RB High	-43.31	14011-2 Band Edge,Band 66, Part 27, 16 QAM, 20 MHz, 50% RB High, High Chan, PWR setting 18	-40.31	-30.31	-27.31
16QAM, 100%RB	-46.74	14011-2 Band Edge,Band 66, Part 27, 16 QAM, 20 MHz, 100% RB , High Chan, PWR setting 18	-43.74	-33.74	-30.74
64QAM, 1%RB High	-34.33	14011-2 Band Edge,Band 66, Part 27, 64 QAM, 20 MHz, 1 RB High, High Chan, PWR setting 18	-31.33	-21.33	-18.33
64QAM, 50%RB High	-43.89	14011-2 Band Edge,Band 66, Part 27, 64 QAM, 20 MHz, 50% RB High, High Chan, PWR setting 18	-40.89	-30.89	-27.89
64QAM, 100%RB	-47.16	14011-2 Band Edge,Band 66, Part 27, 64 QAM, 20 MHz, 100% RB , High Chan, PWR setting 18	-44.16	-34.16	-31.16

The plots referred to in the above table may be found in section 6.

LIMITS:

FCC Part 24 Clause 24.238(a)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. (-13 dBm)

These results show that the EUT has PASSED this test.

File Name: Airspan Communications Ltd.14011-1 Issue 01

The uncertainty gives a 95% confidence interval in the measurement. Expanded uncertainty (K=2) is as follows:
 ± 2.8 dB up to 26.5 GHz.

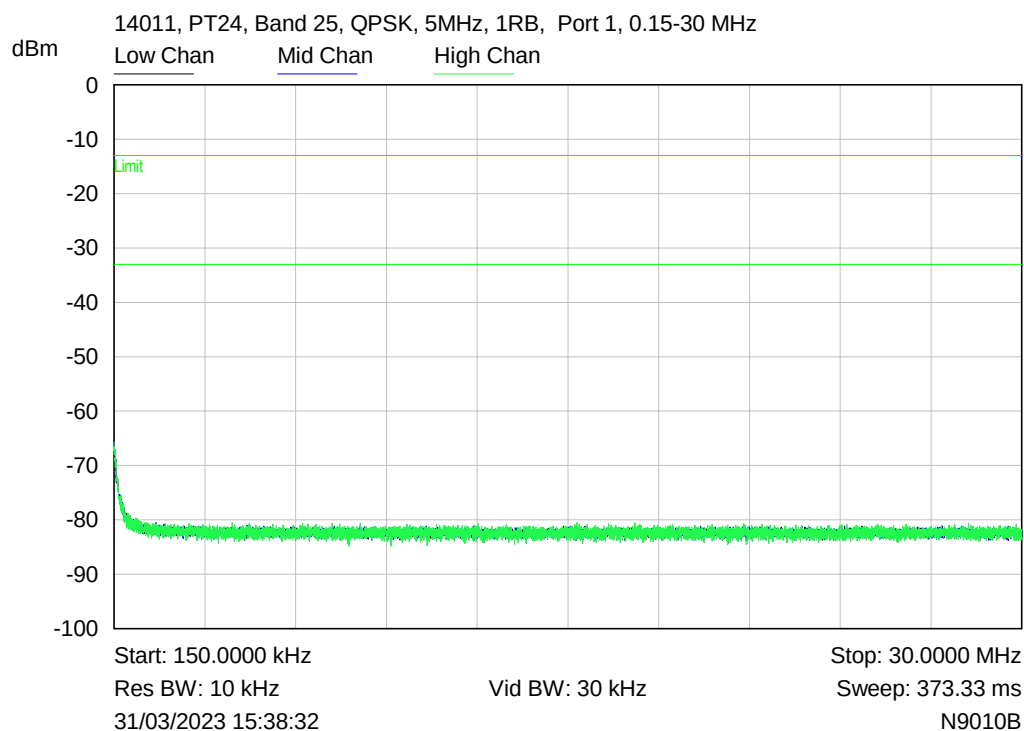
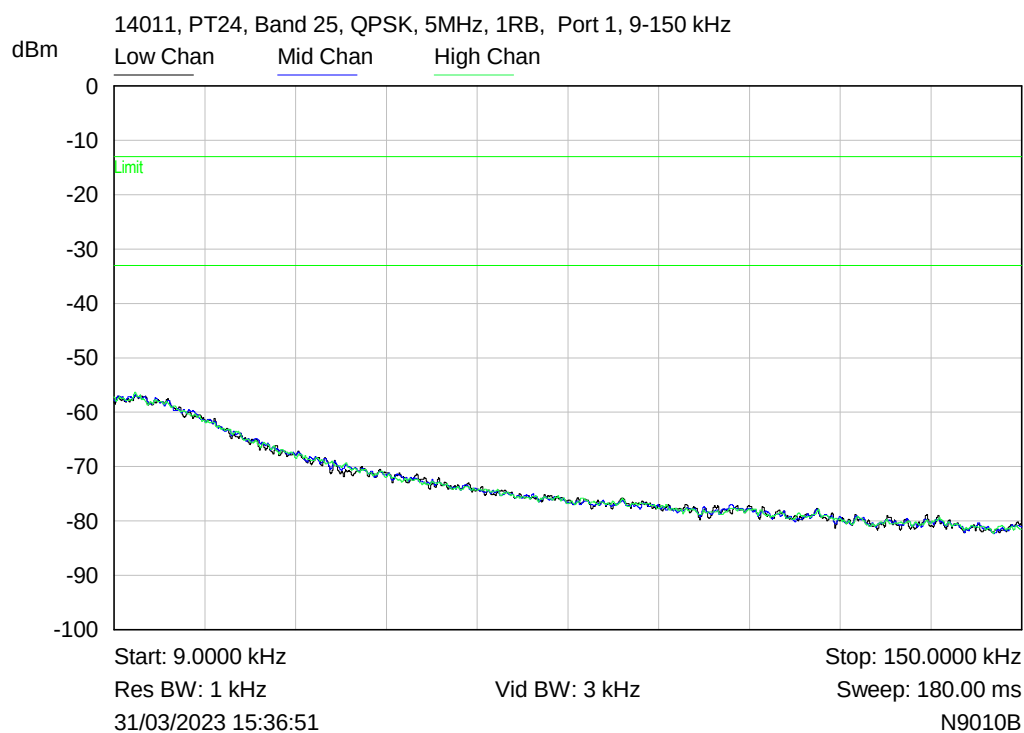
5.7 Modulation characteristics

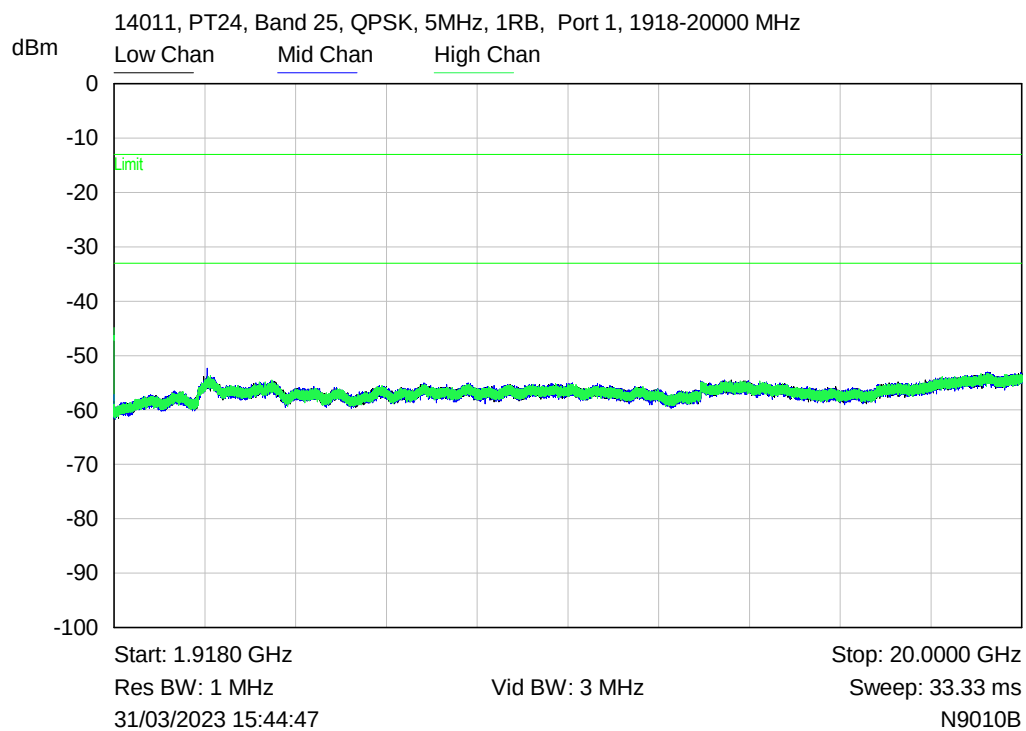
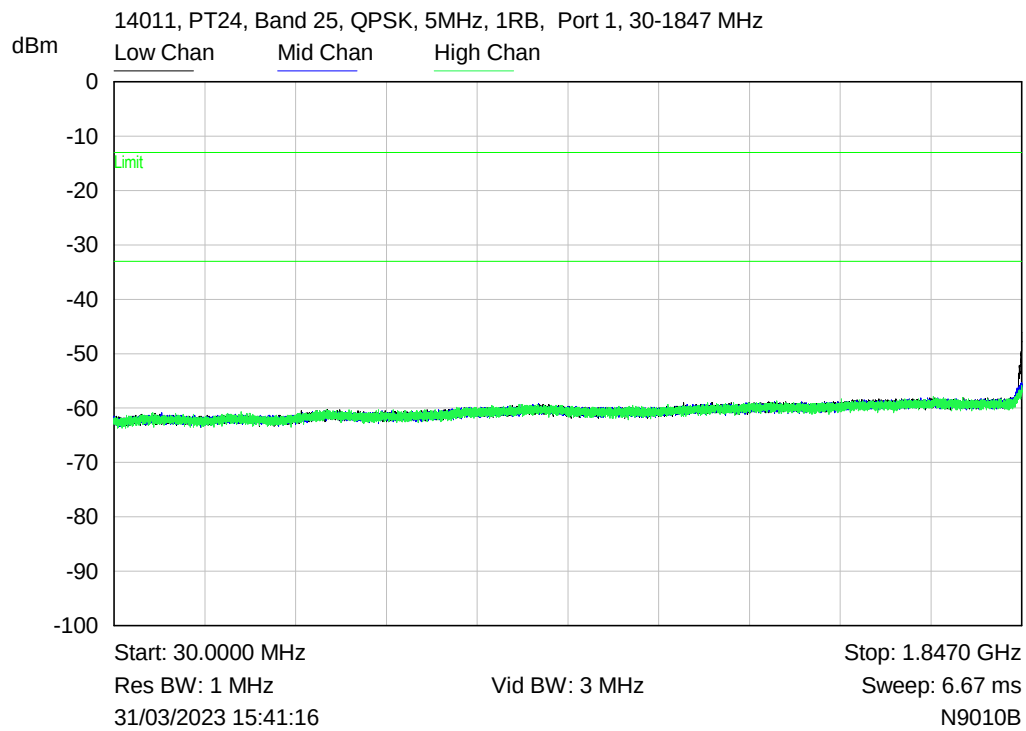
NOT APPLICABLE: Manufacturer declaration, see modulation information provided in section 2.1 of this report.

6 Plots/Graphical results

6.1 Spurious emissions at the antenna terminals

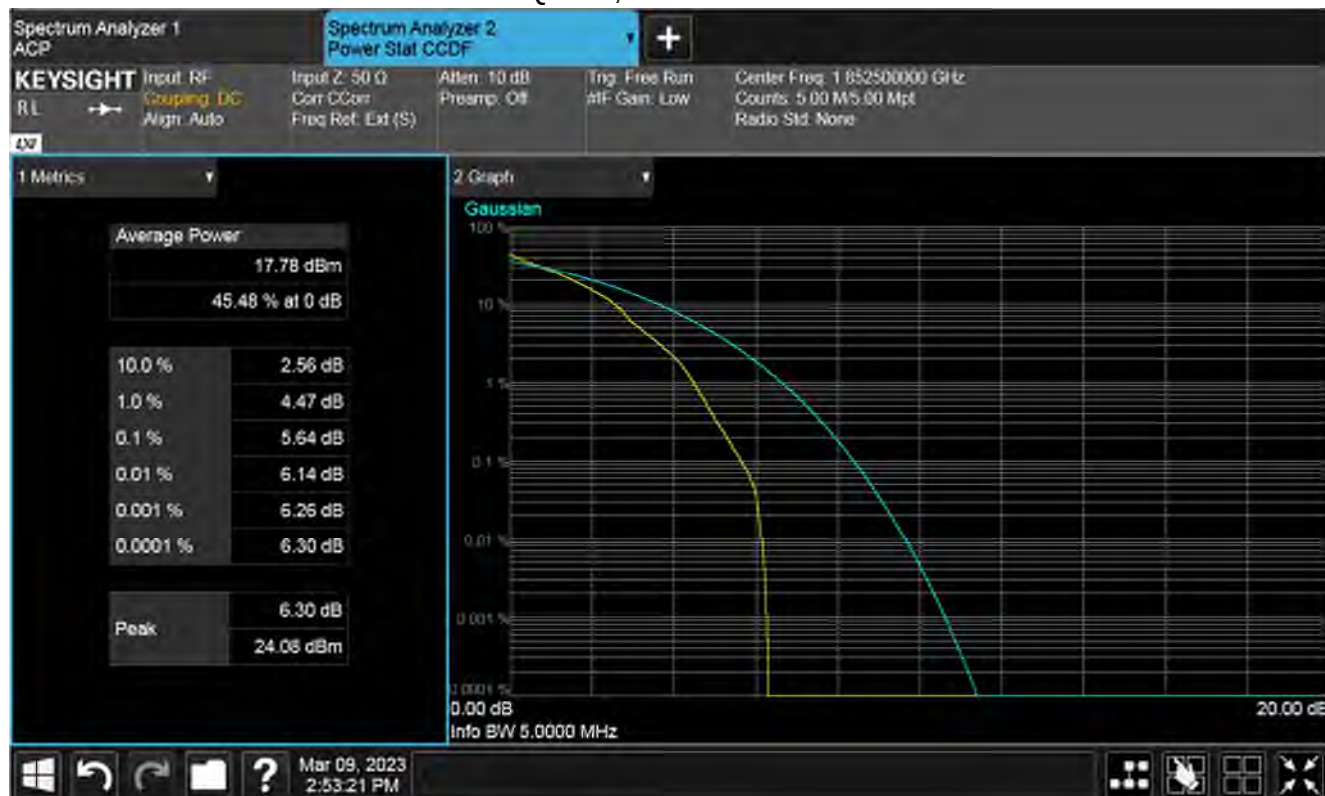
RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation QPSK, Low, Mid and High Channels



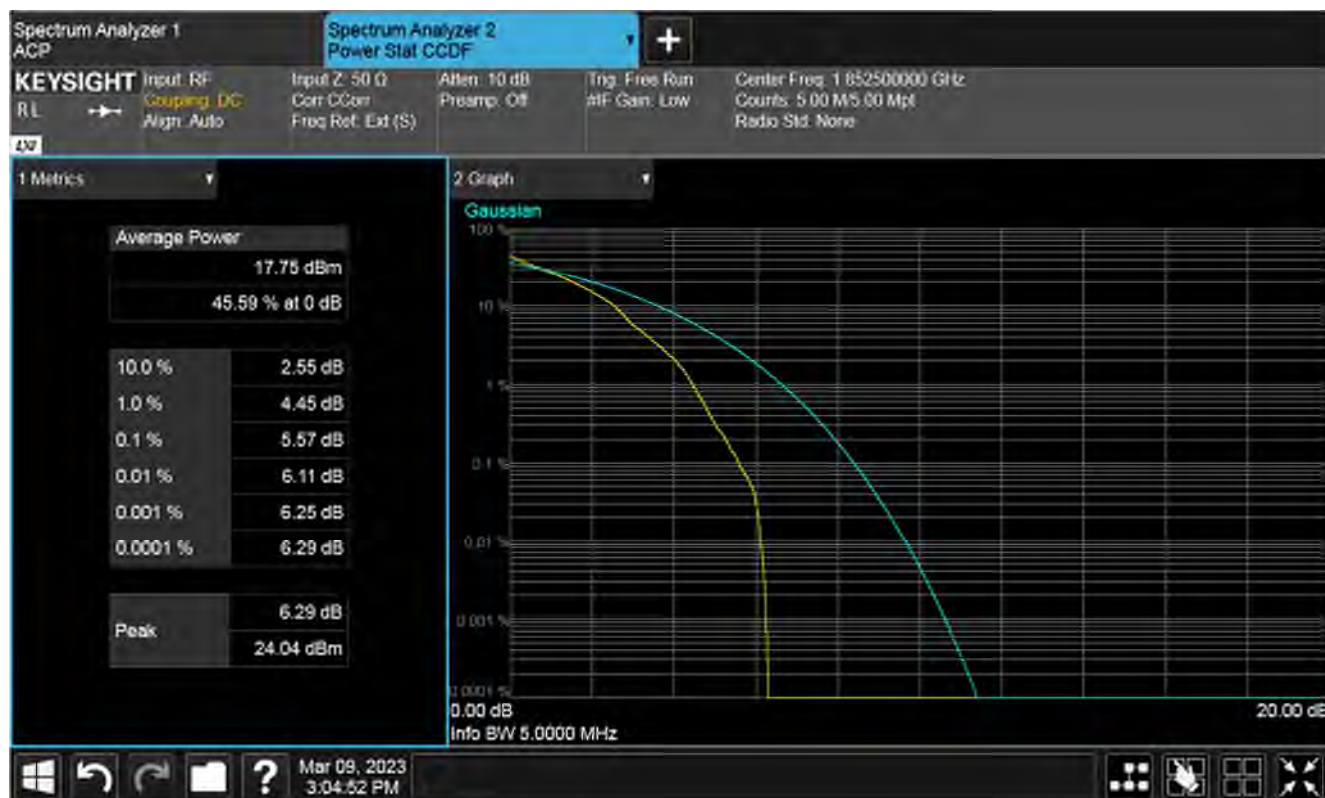


6.2 RF Power Output

RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation QPSK, Low Channel



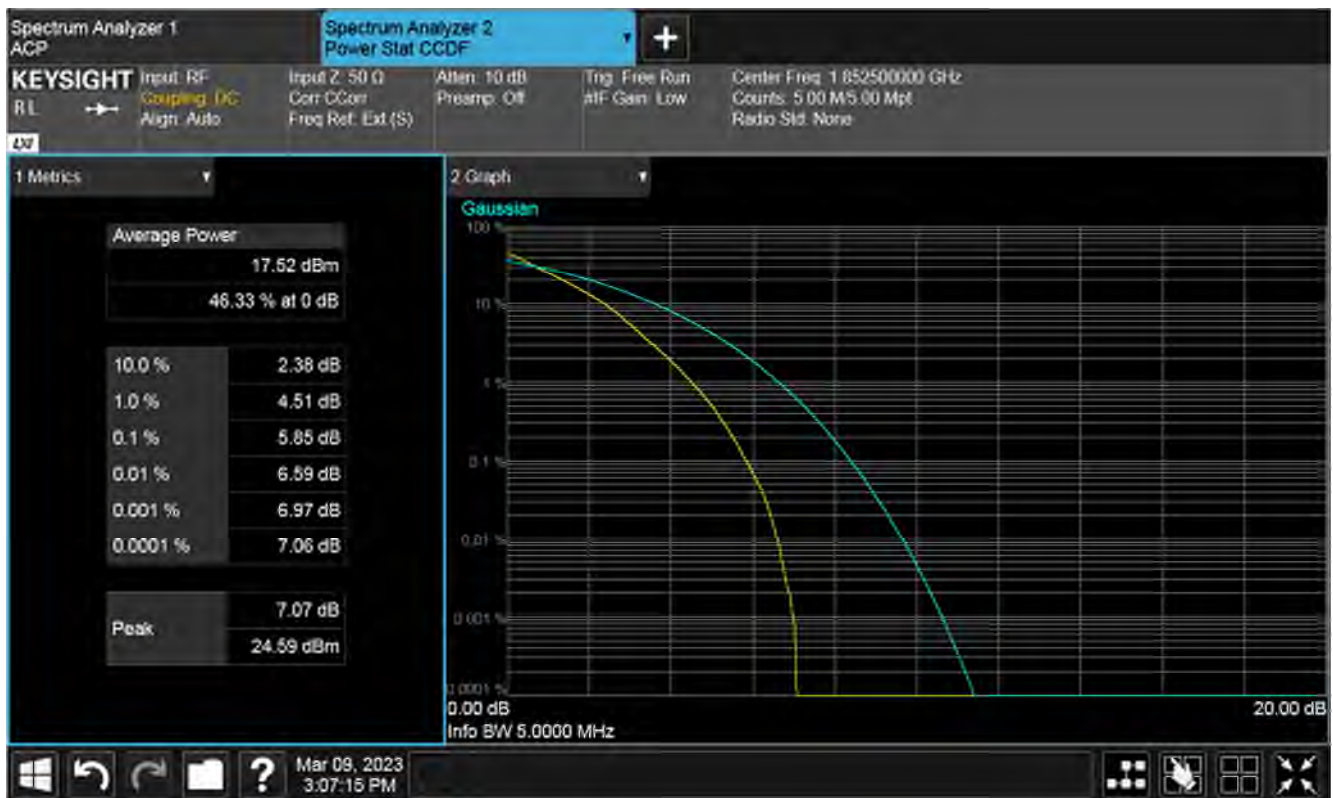
Plot of PAPR Low 1RB, low channel



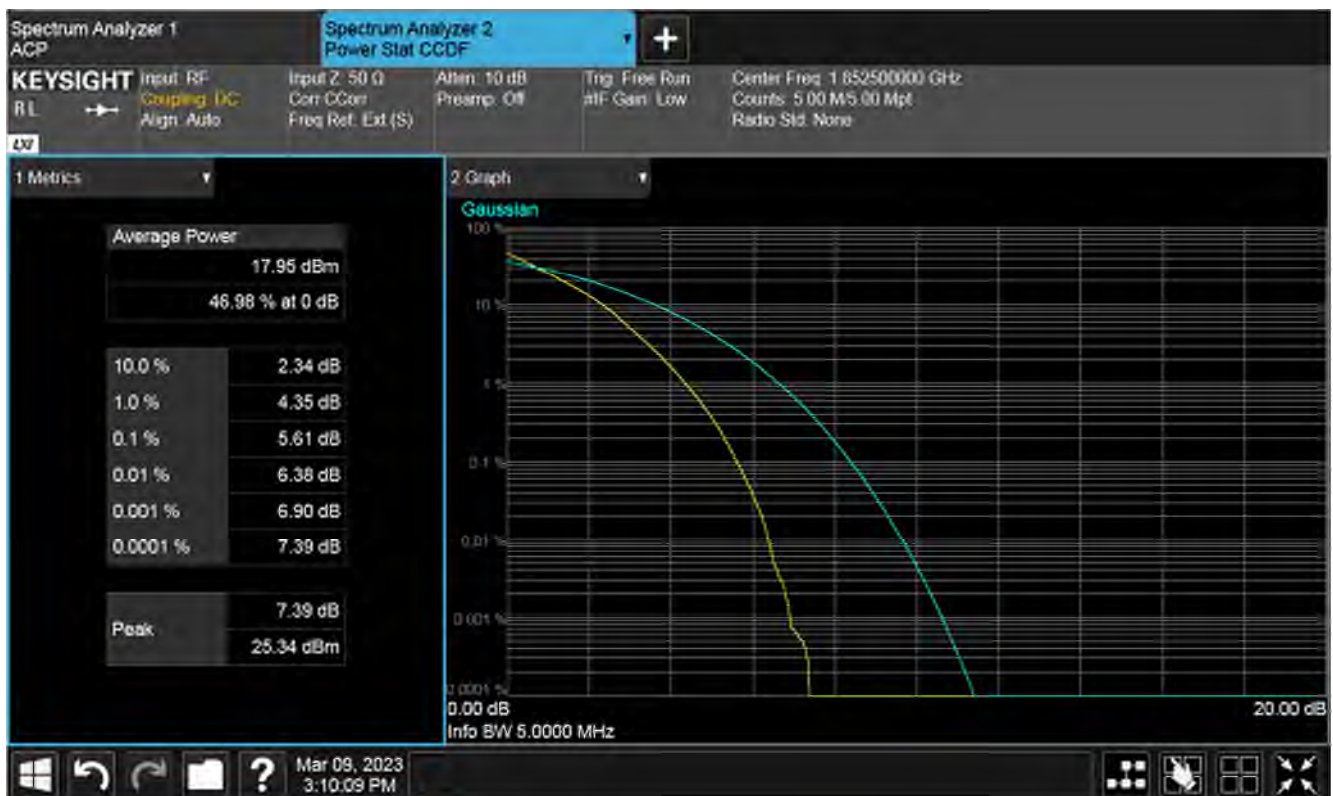
Plot of PAPR High 1RB, low channel

File Name: Airspan Communications Ltd.14011-1 Issue 01

QMF21J - Issue 05 - RNE Issue 03; FCC Part 24 2021

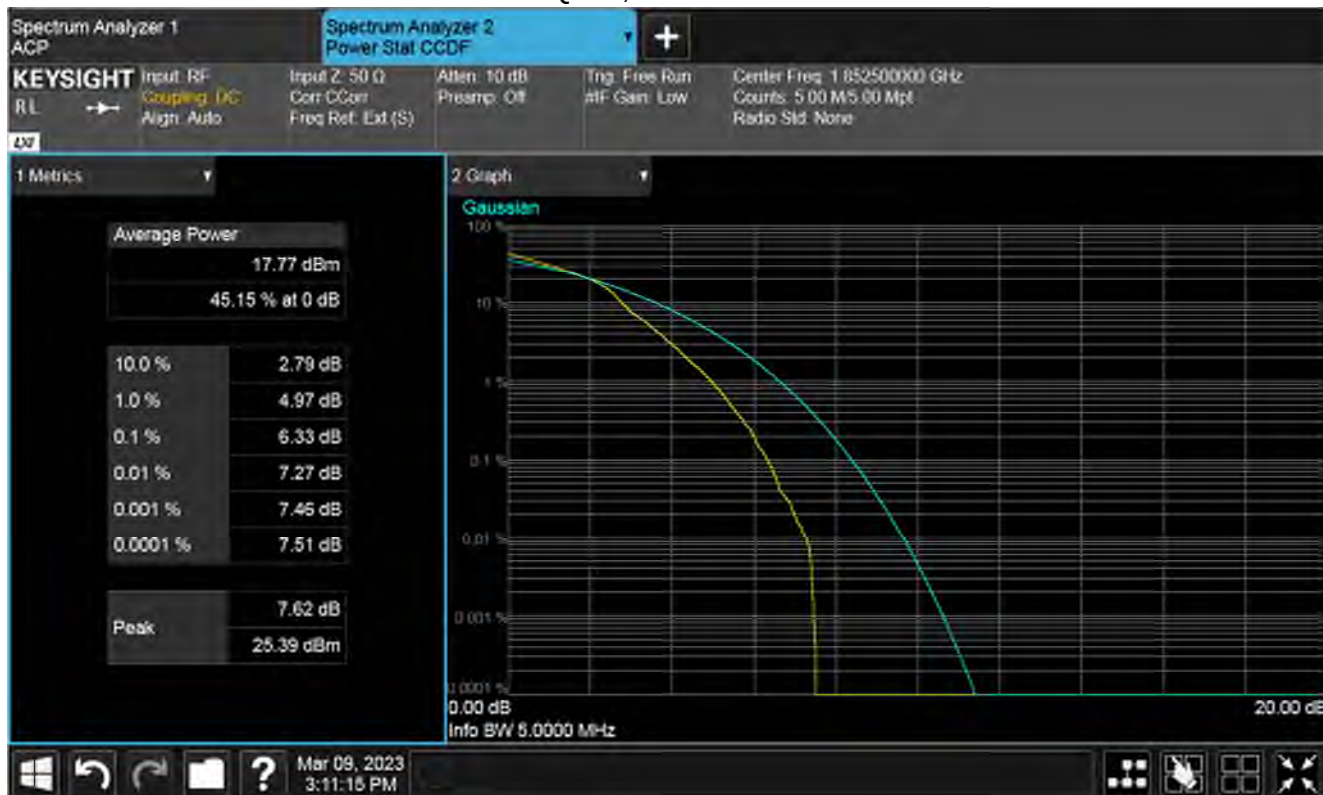


Plot of PAPR 50%RB, low channel

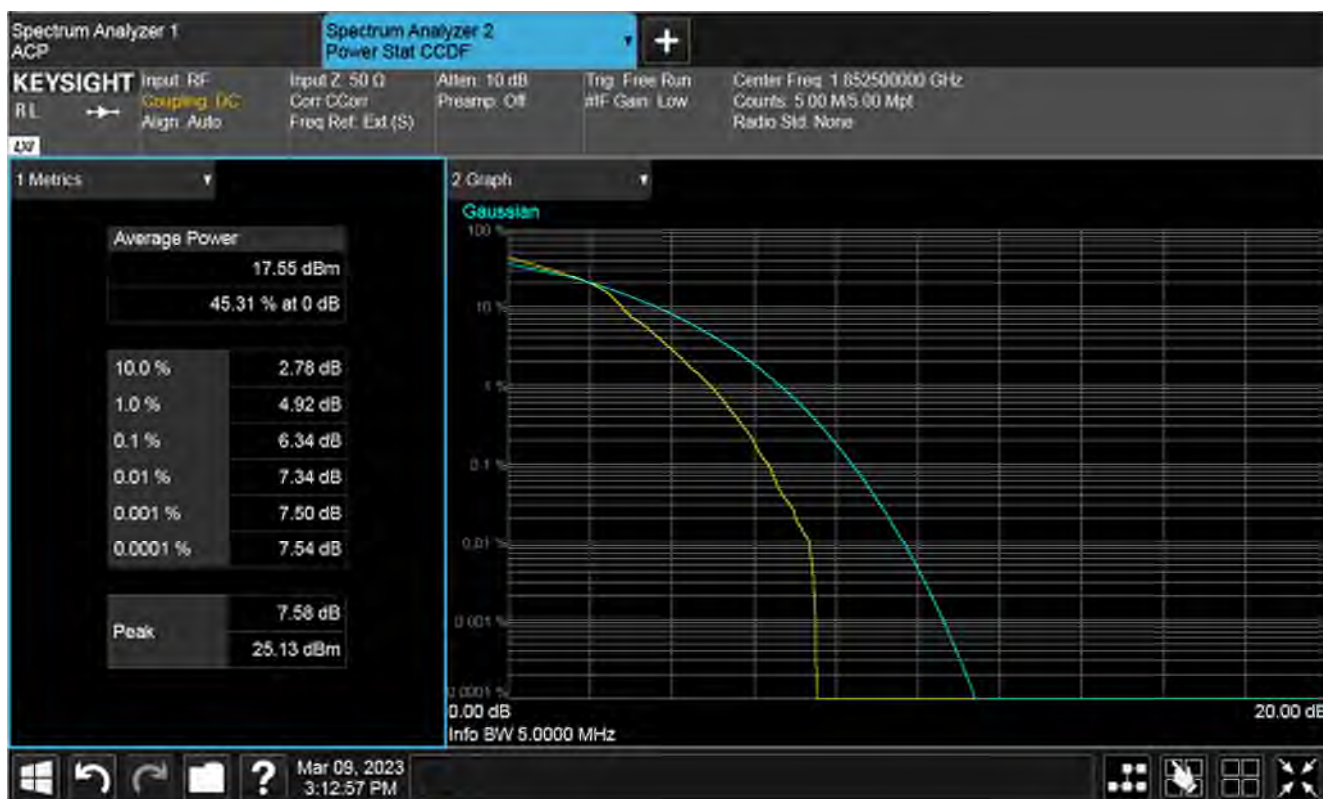


Plot of PAPR 100%RB, low channel

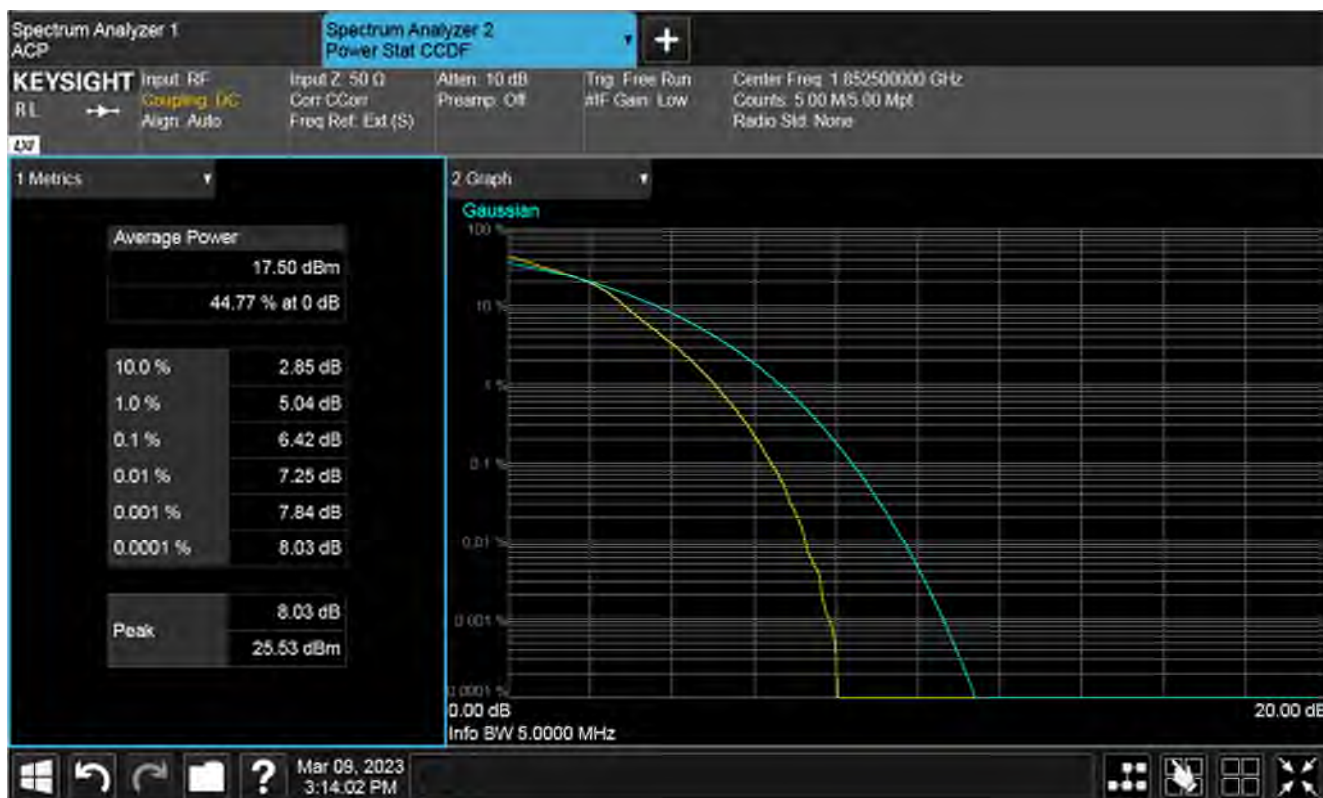
RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation 16QAM, Low Channel



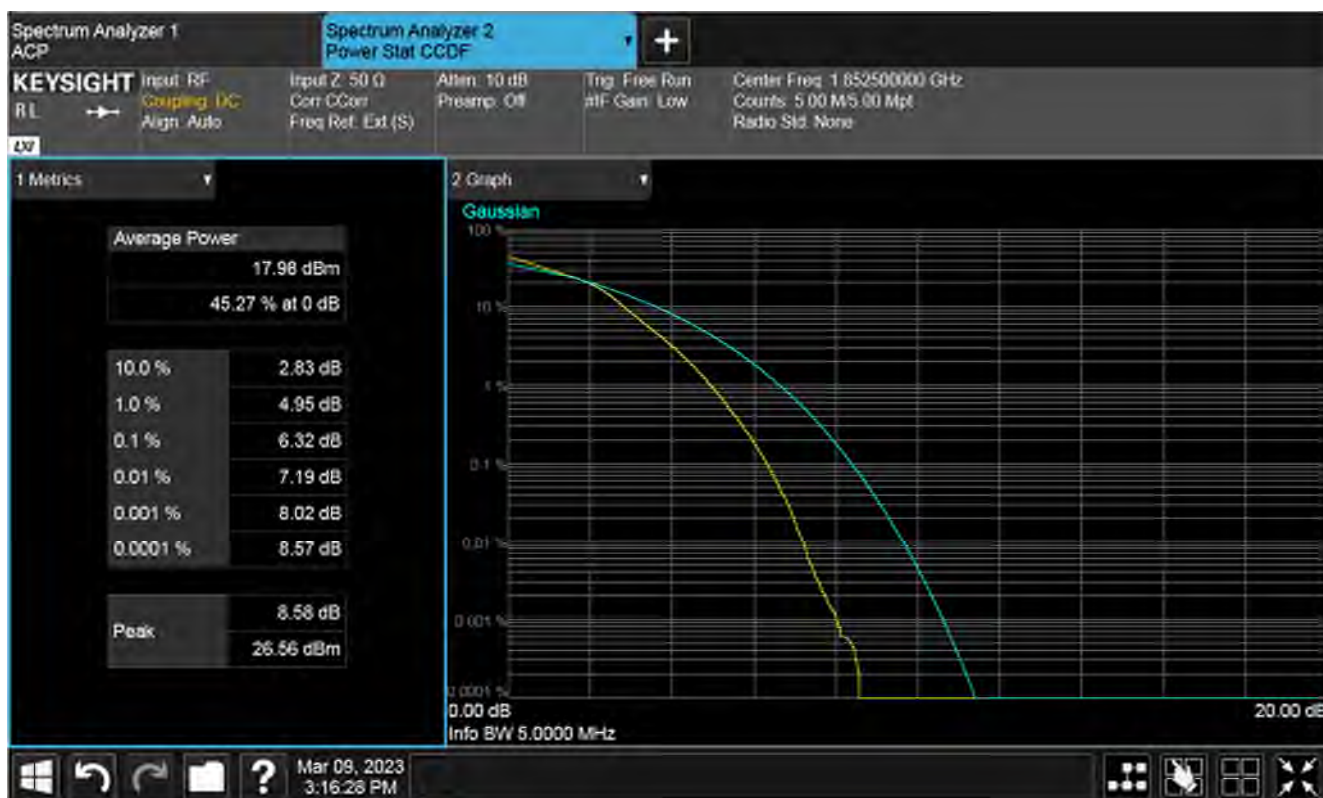
Plot of PAPR Low 1RB, low channel



Plot of PAPR High 1RB, low channel



Plot of PAPR 50%RB, low channel



Plot of PAPR 100%RB, low channel

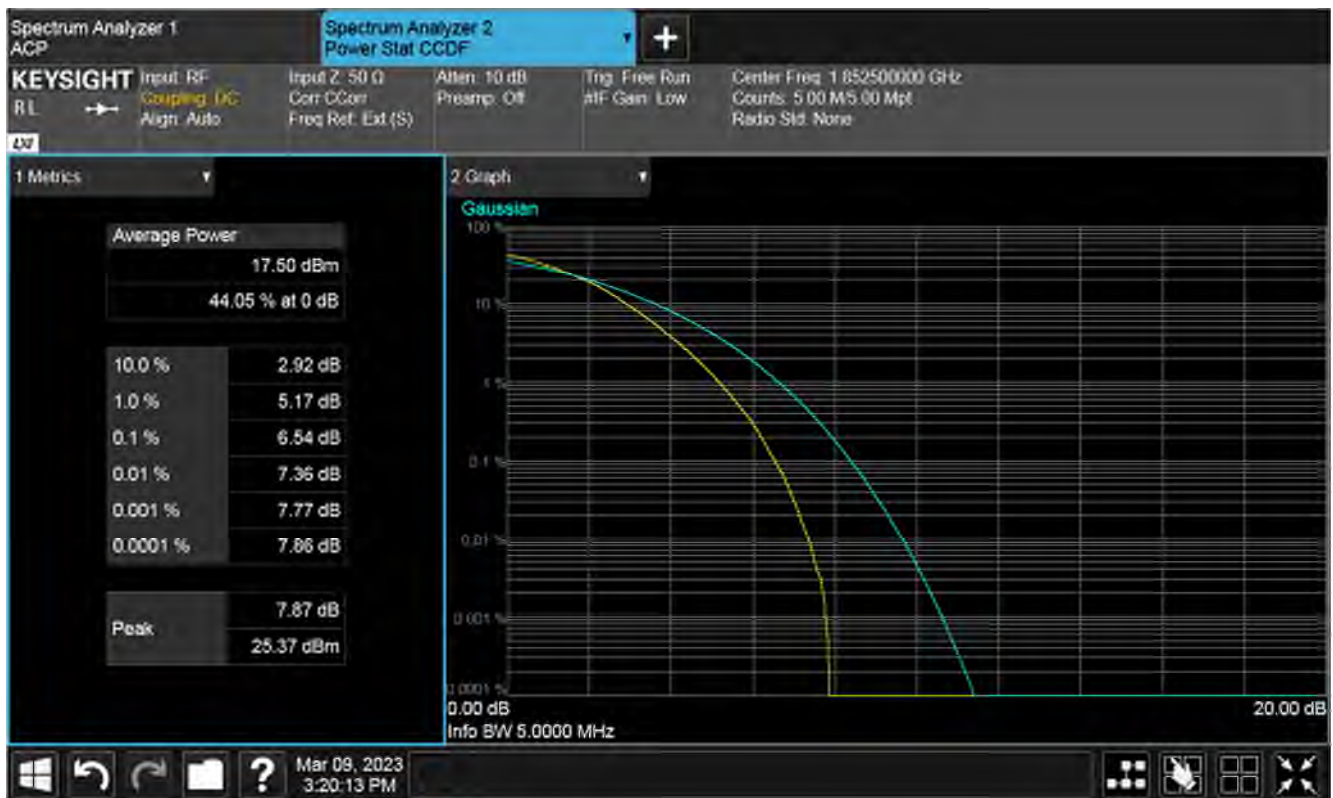
RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation 64QAM, Low Channel



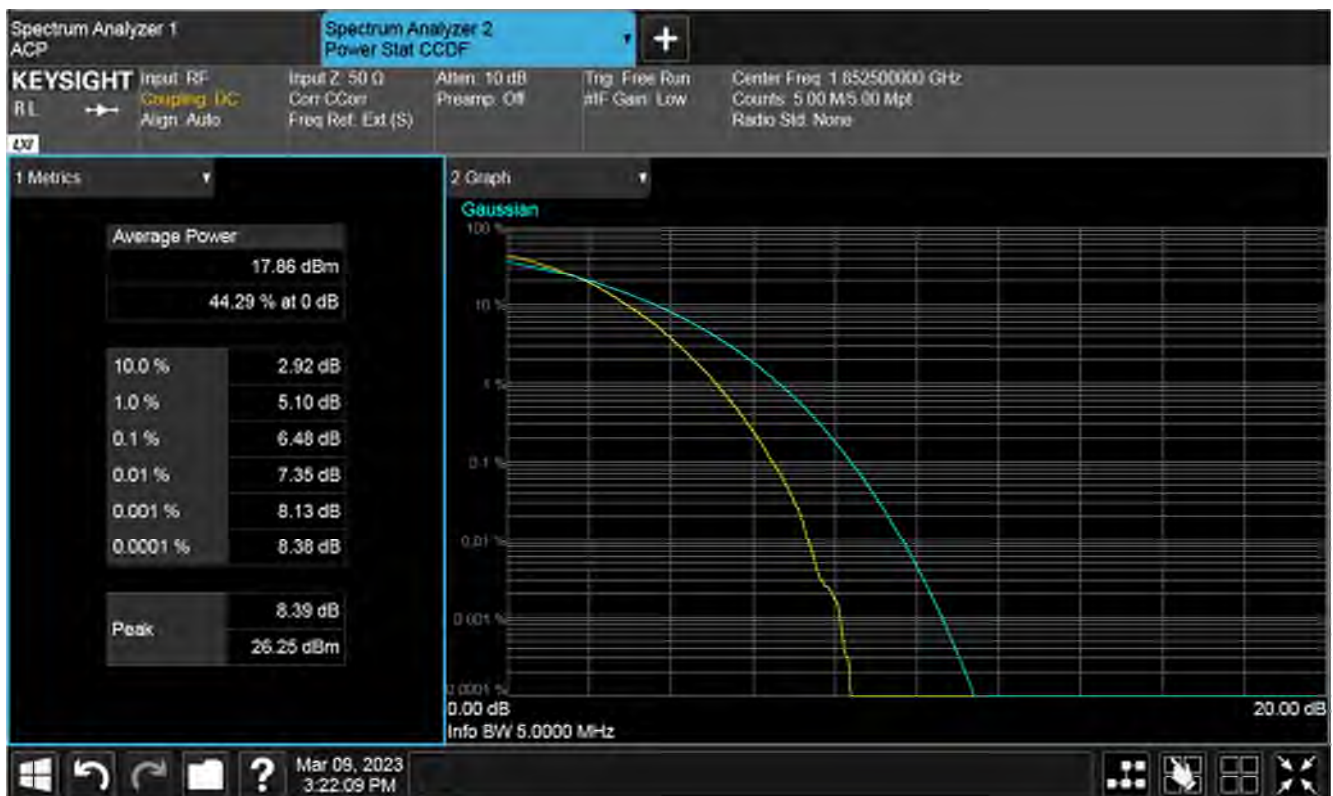
Plot of PAPR Low 1RB, low channel



Plot of PAPR High 1RB, low channel

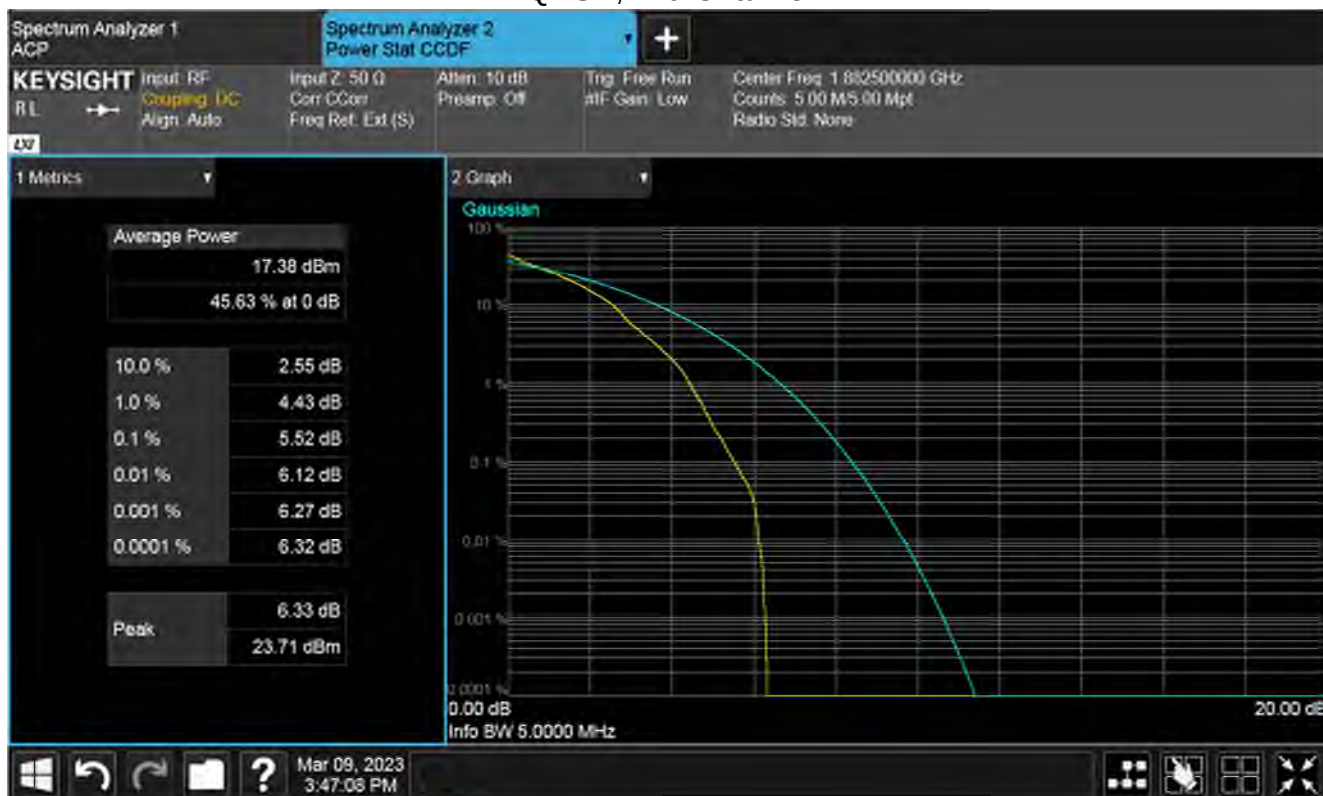


Plot of PAPR 50%RB, low channel

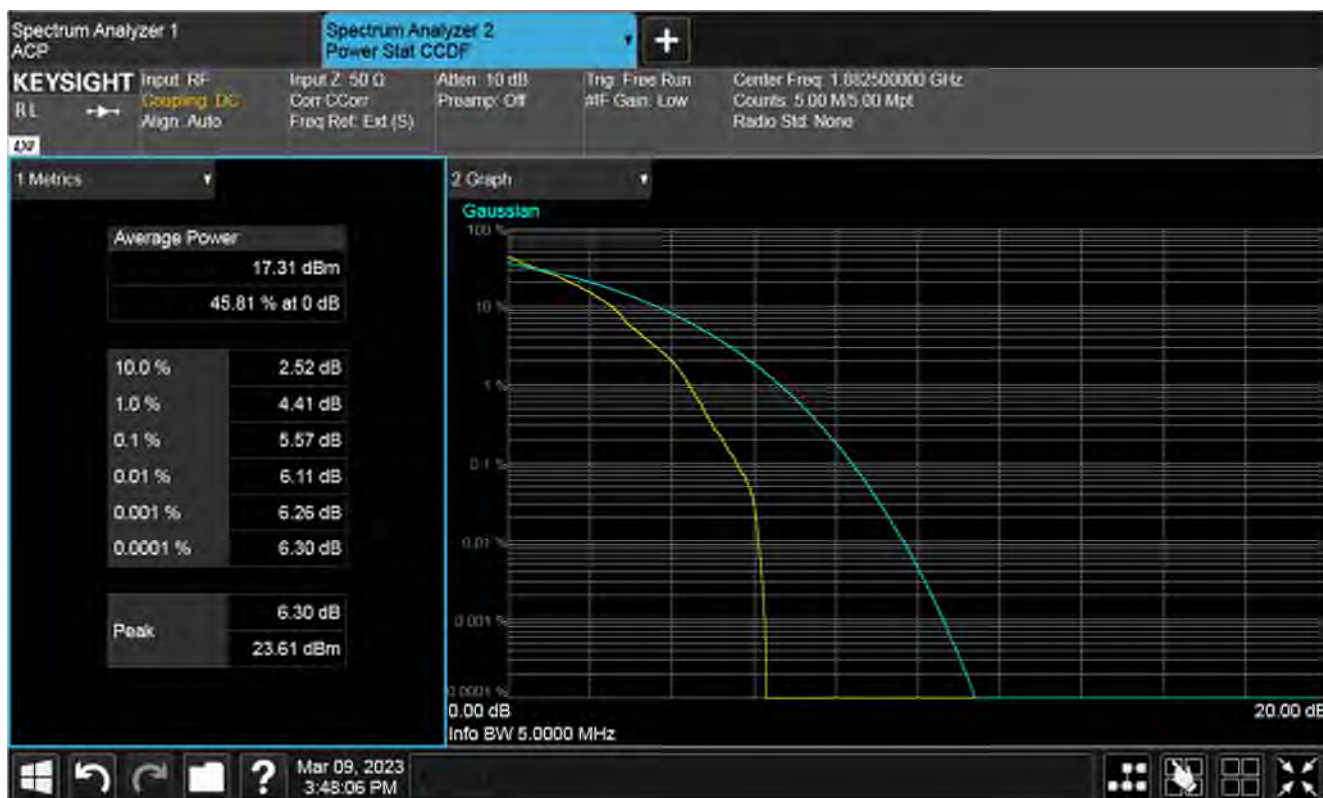


Plot of PAPR 100%RB, low channel

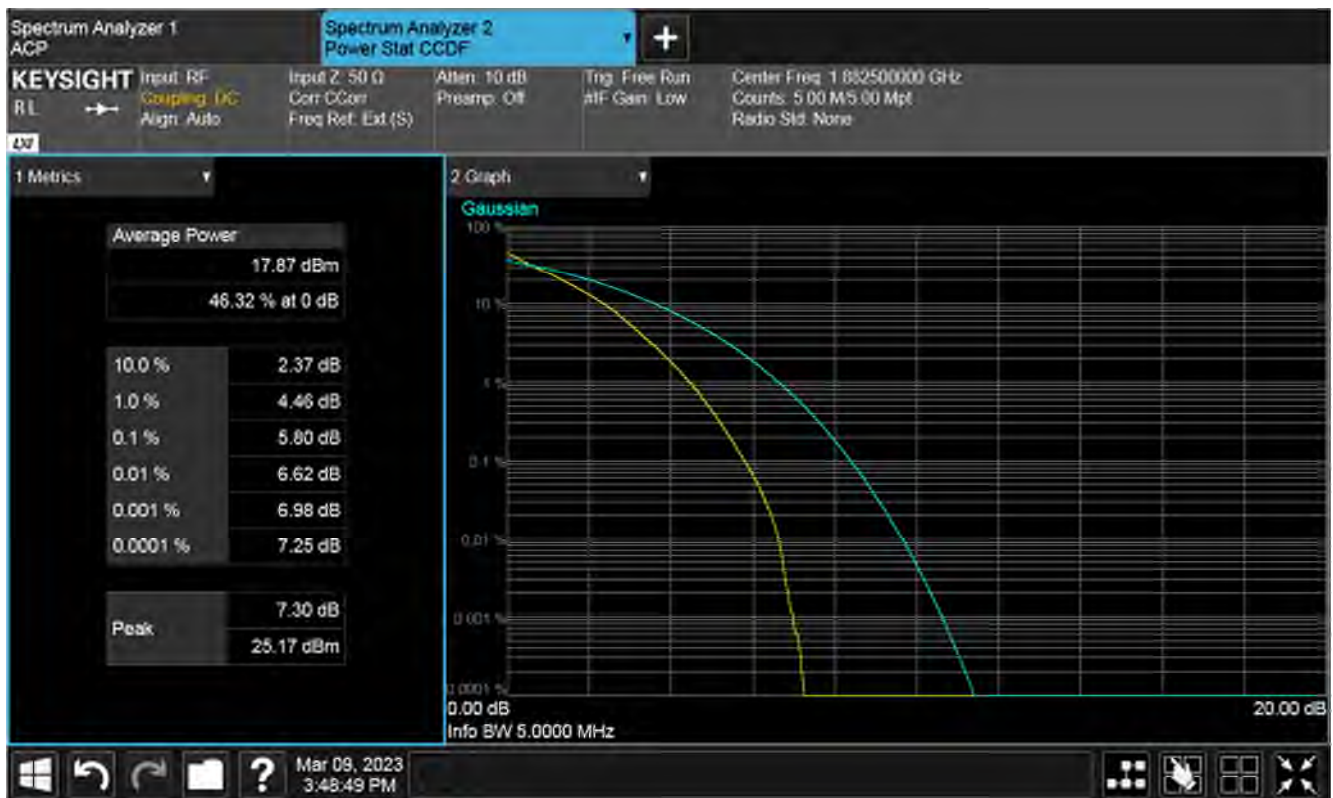
RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation QPSK, Mid Channel



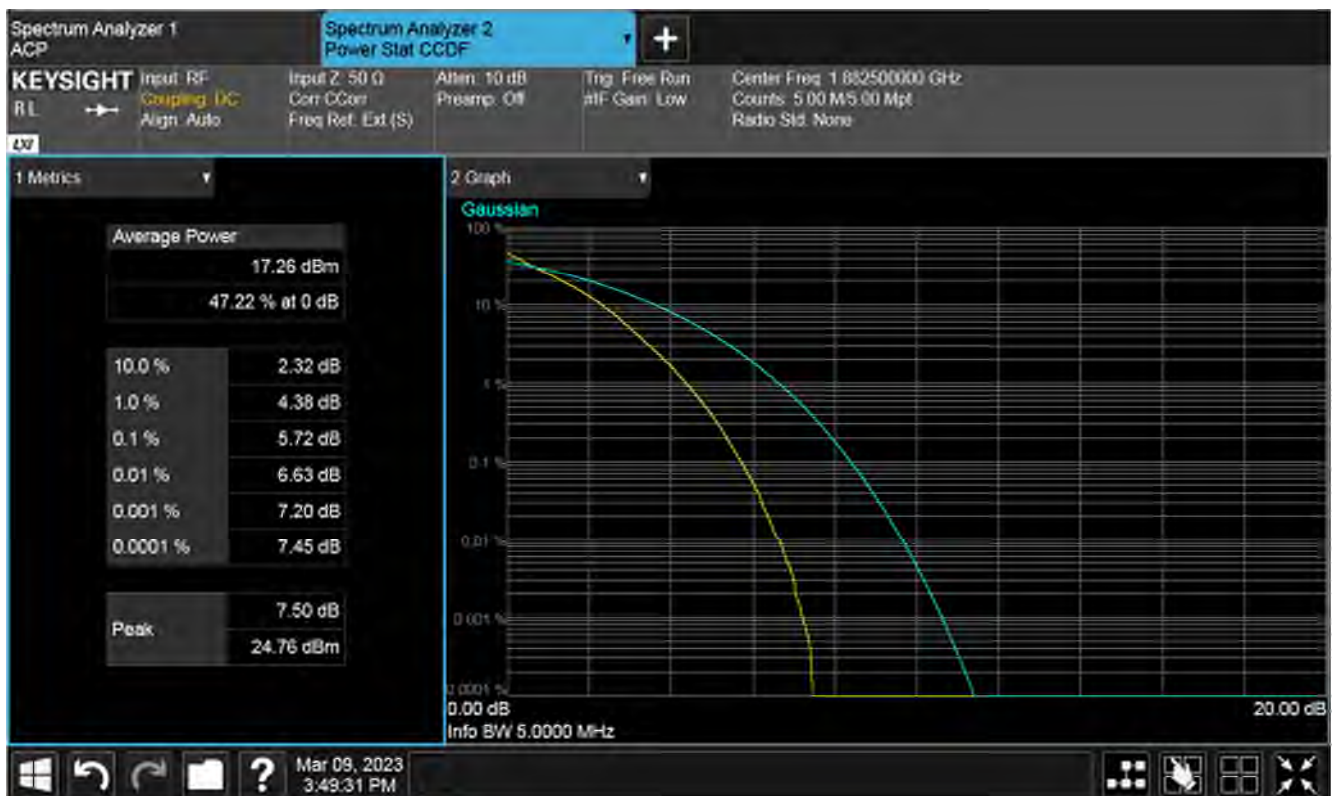
Plot of PAPR Low 1RB, Mid channel



Plot of PAPR High 1RB, Mid channel

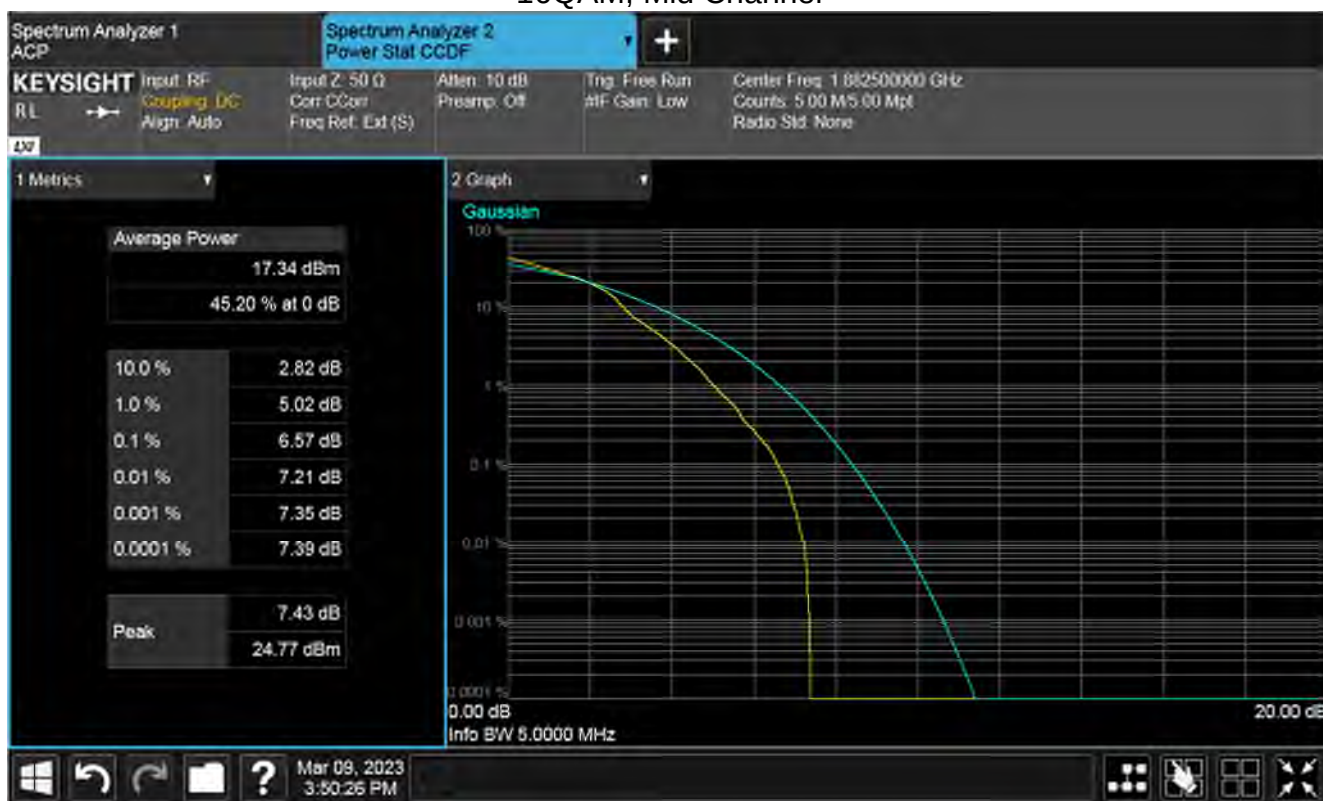


Plot of PAPR 50%RB, Mid channel

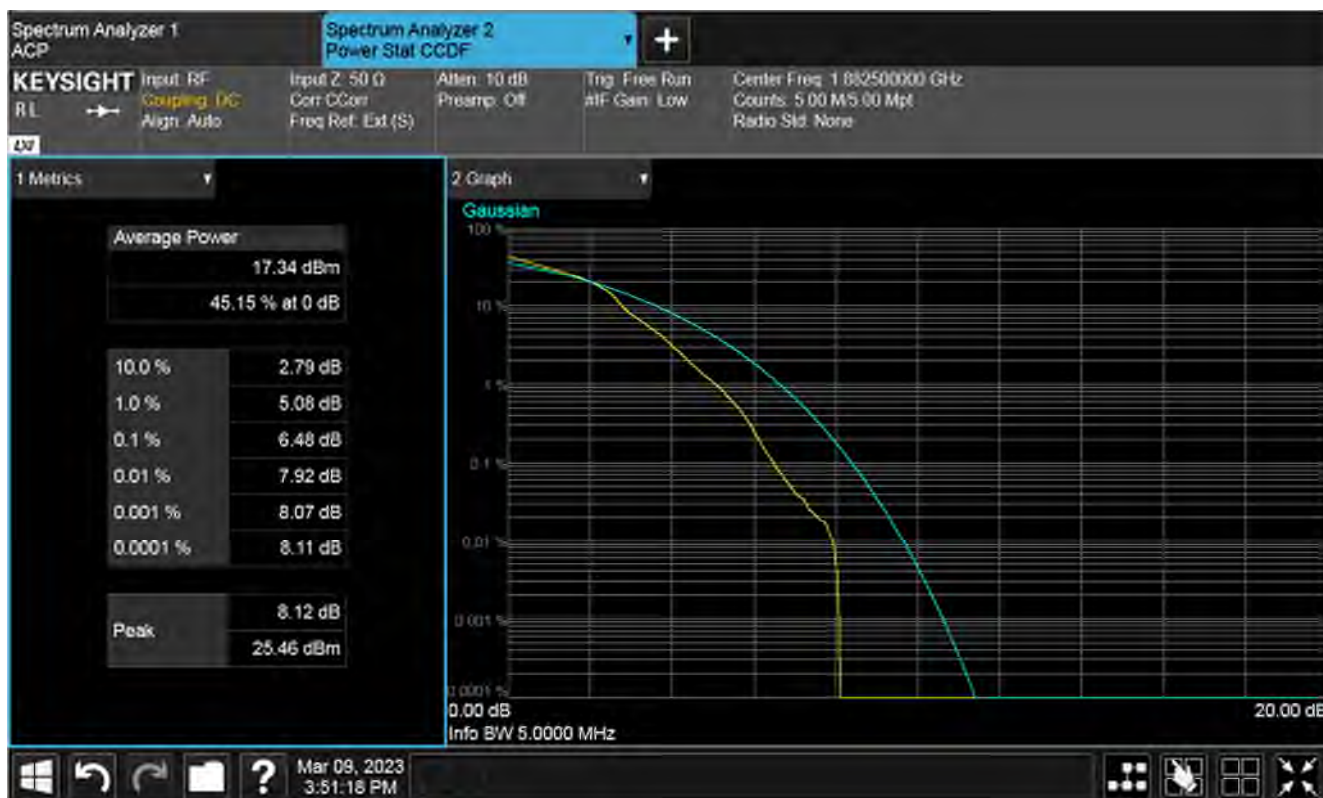


Plot of PAPR 100%RB, Mid channel

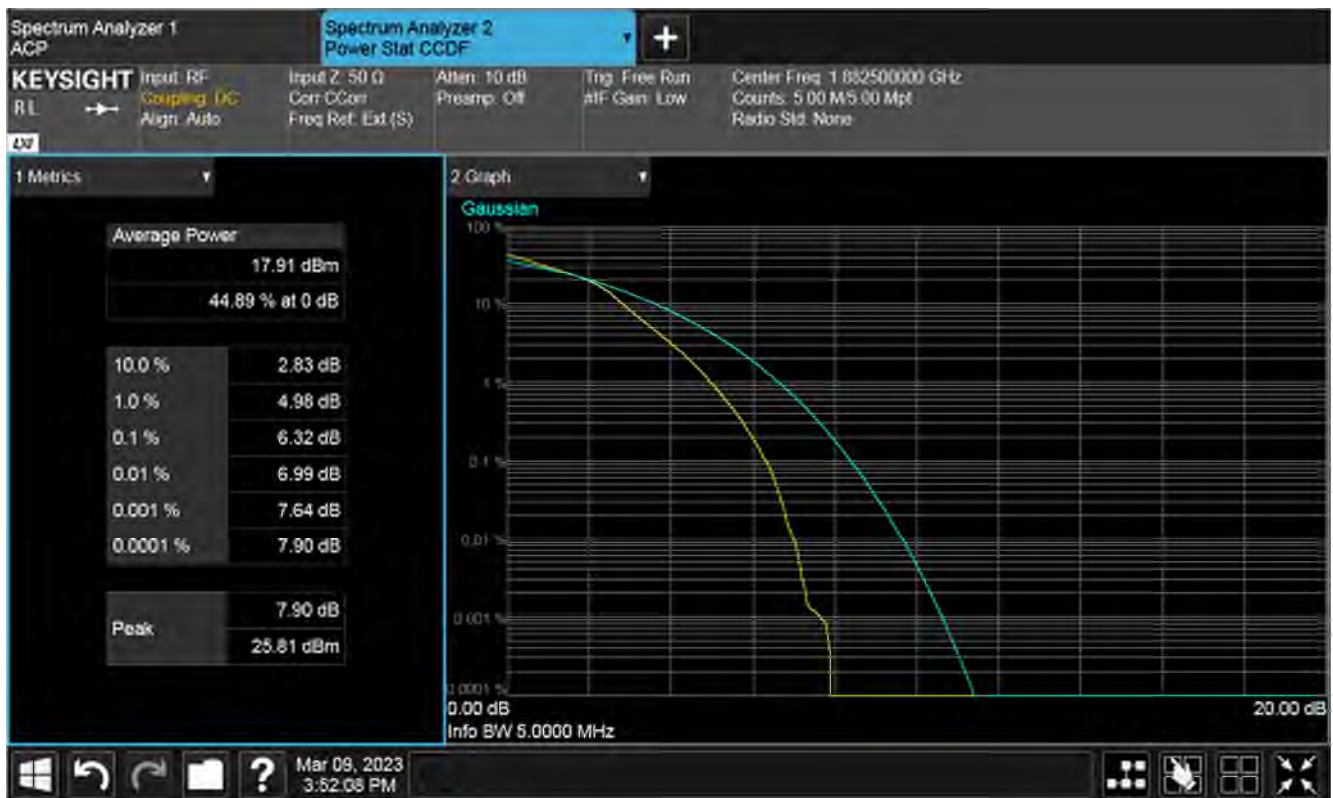
RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation 16QAM, Mid Channel



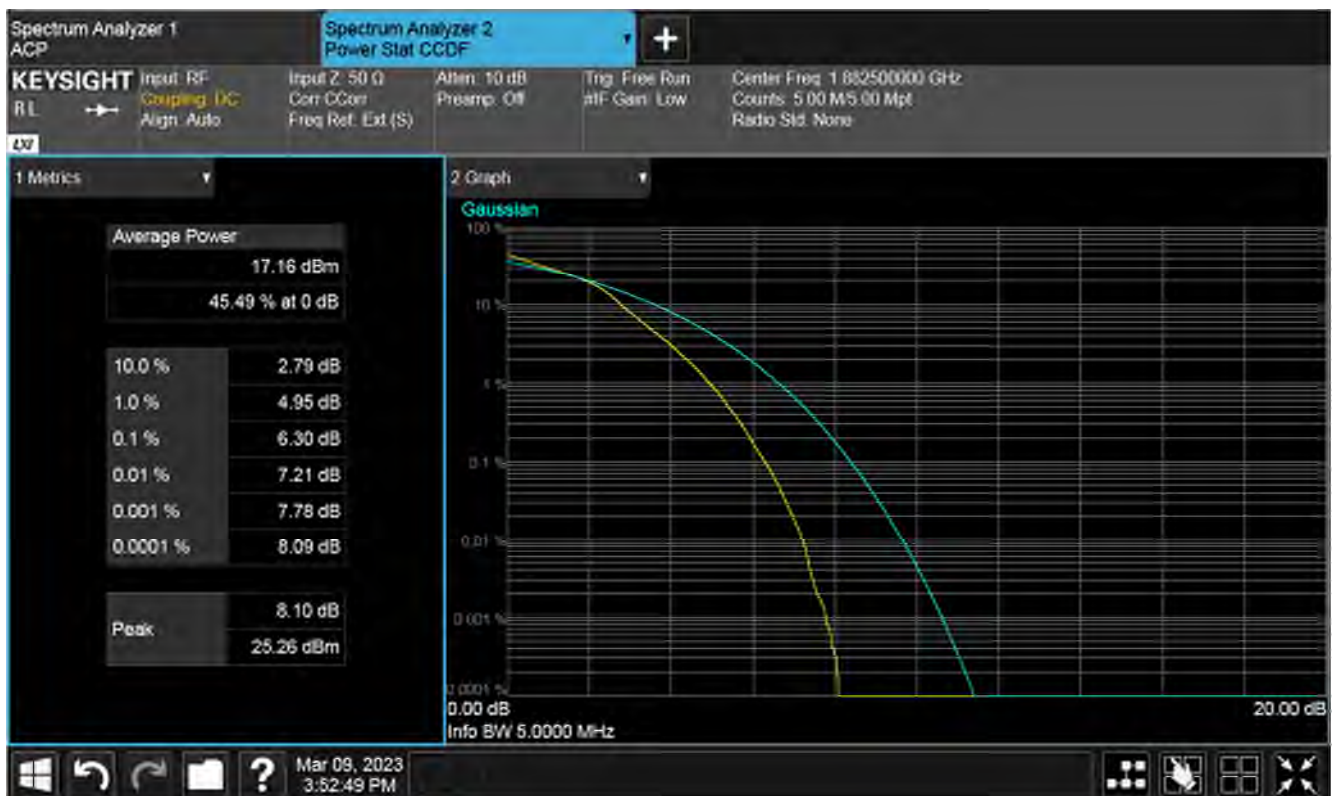
Plot of PAPR Low 1RB, Mid channel



Plot of PAPR High 1RB, Mid channel



Plot of PAPR 50%RB, Mid channel



Plot of PAPR 100%RB, Mid channel

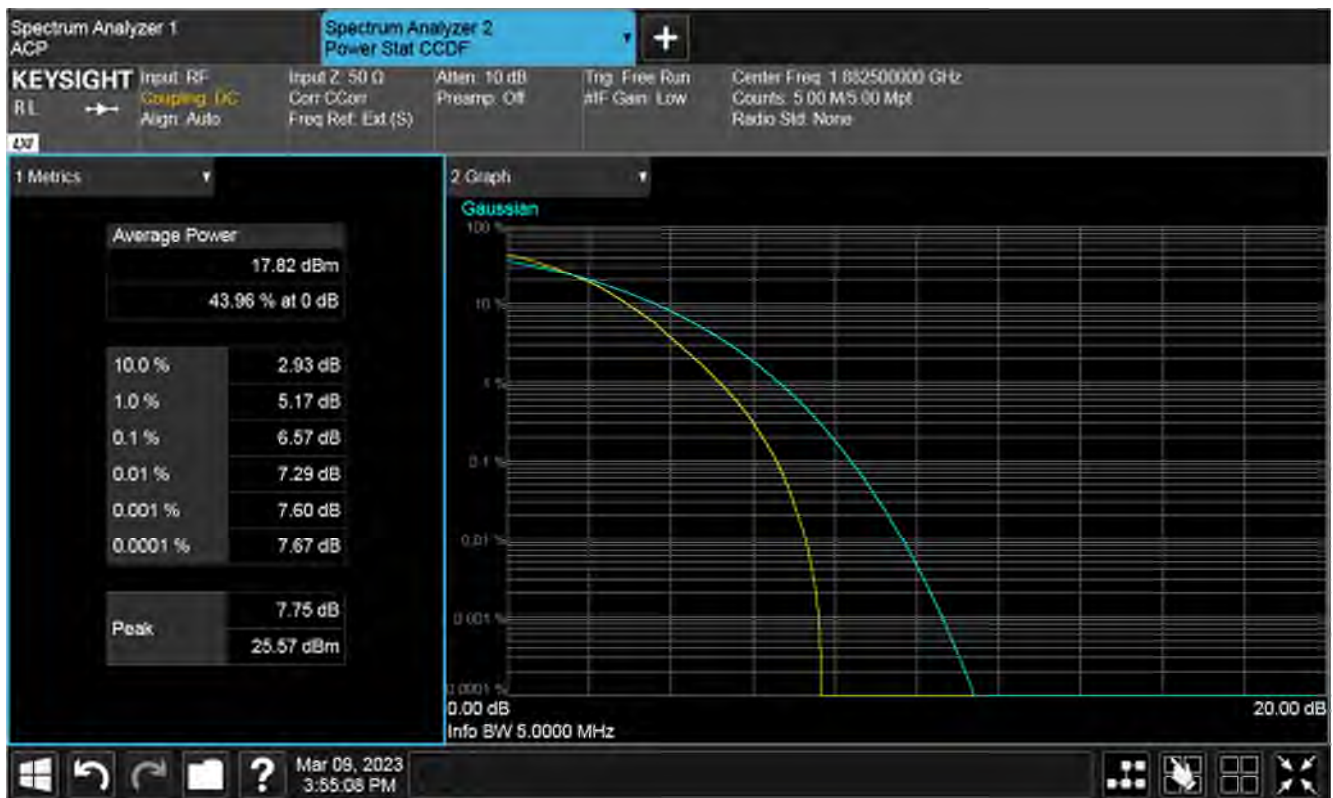
RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation 64QAM, Channel Mid Channel



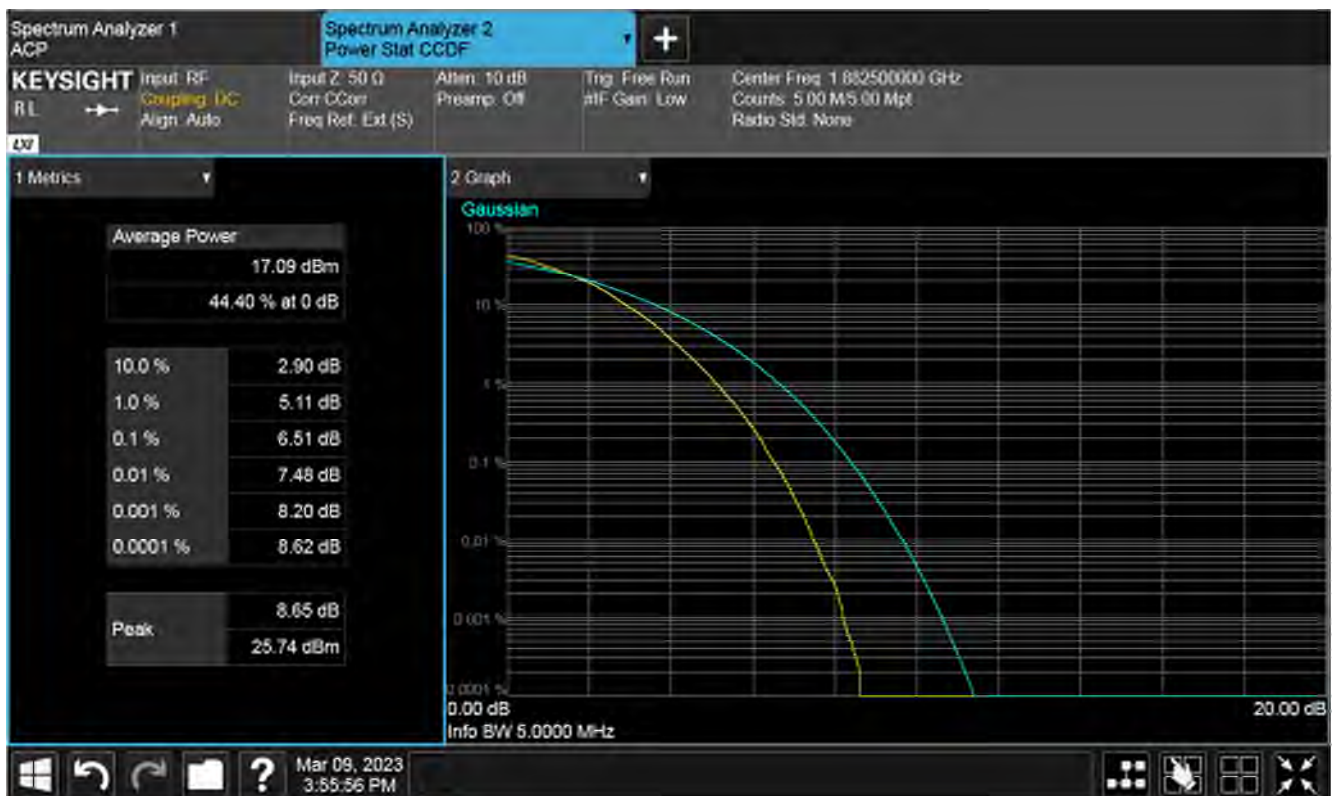
Plot of PAPR Low 1RB, Mid channel



Plot of PAPR High 1RB, Mid channel

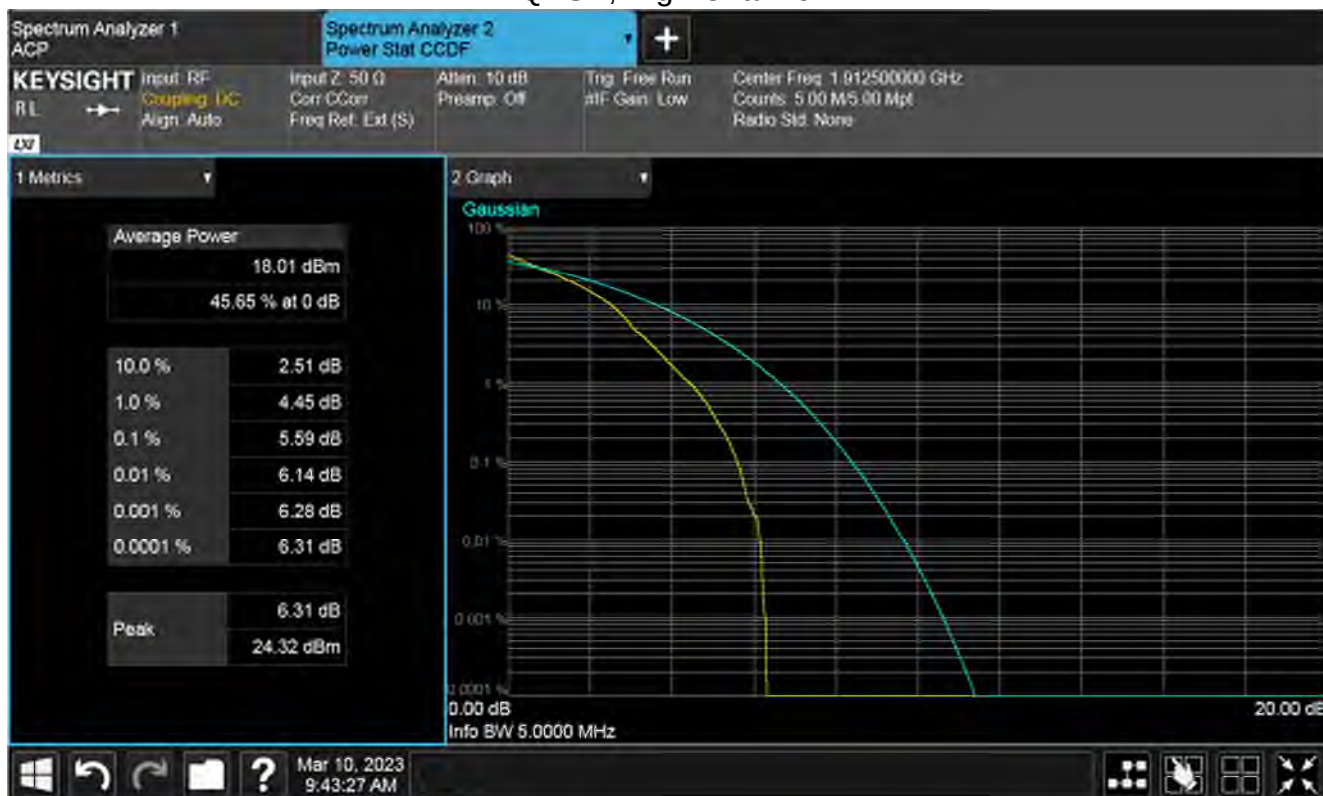


Plot of PAPR 50%RB, Mid channel

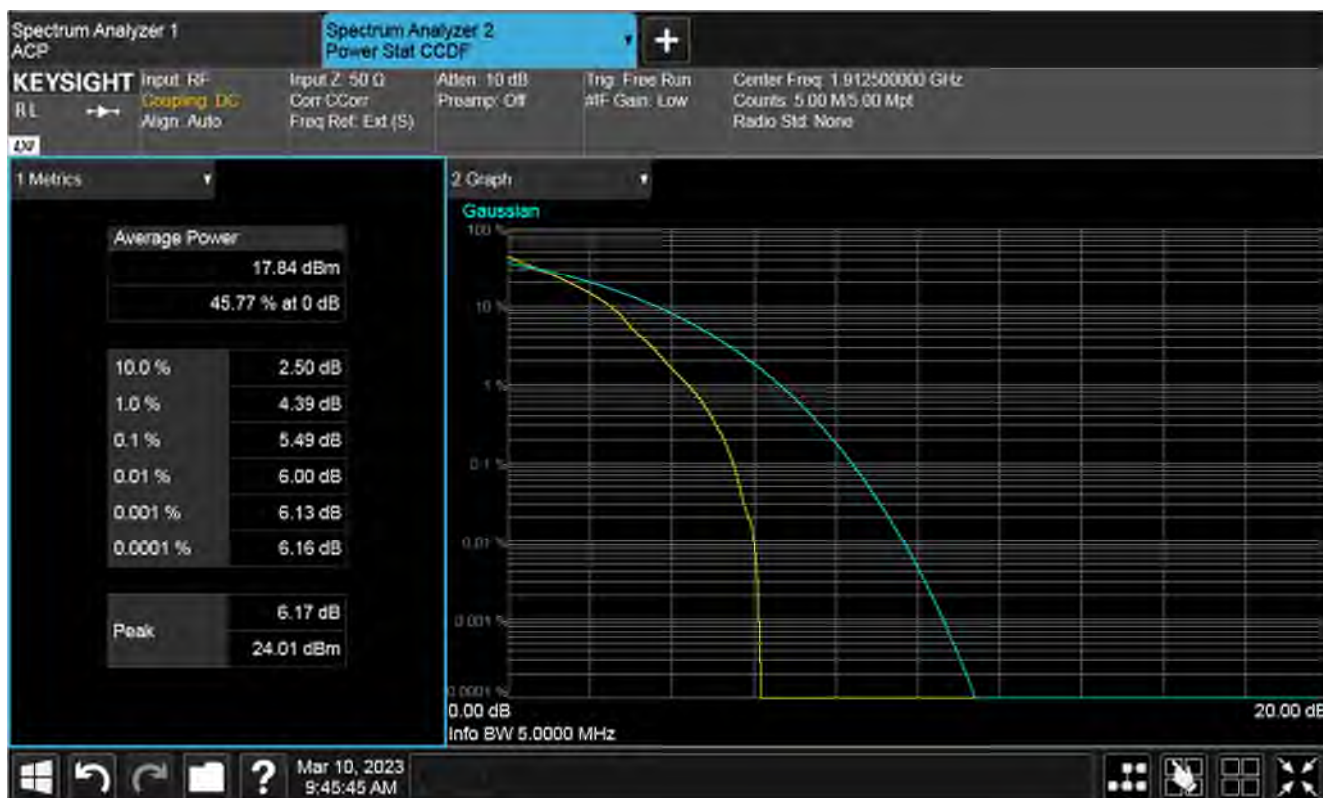


Plot of PAPR 100%RB, Mid channel

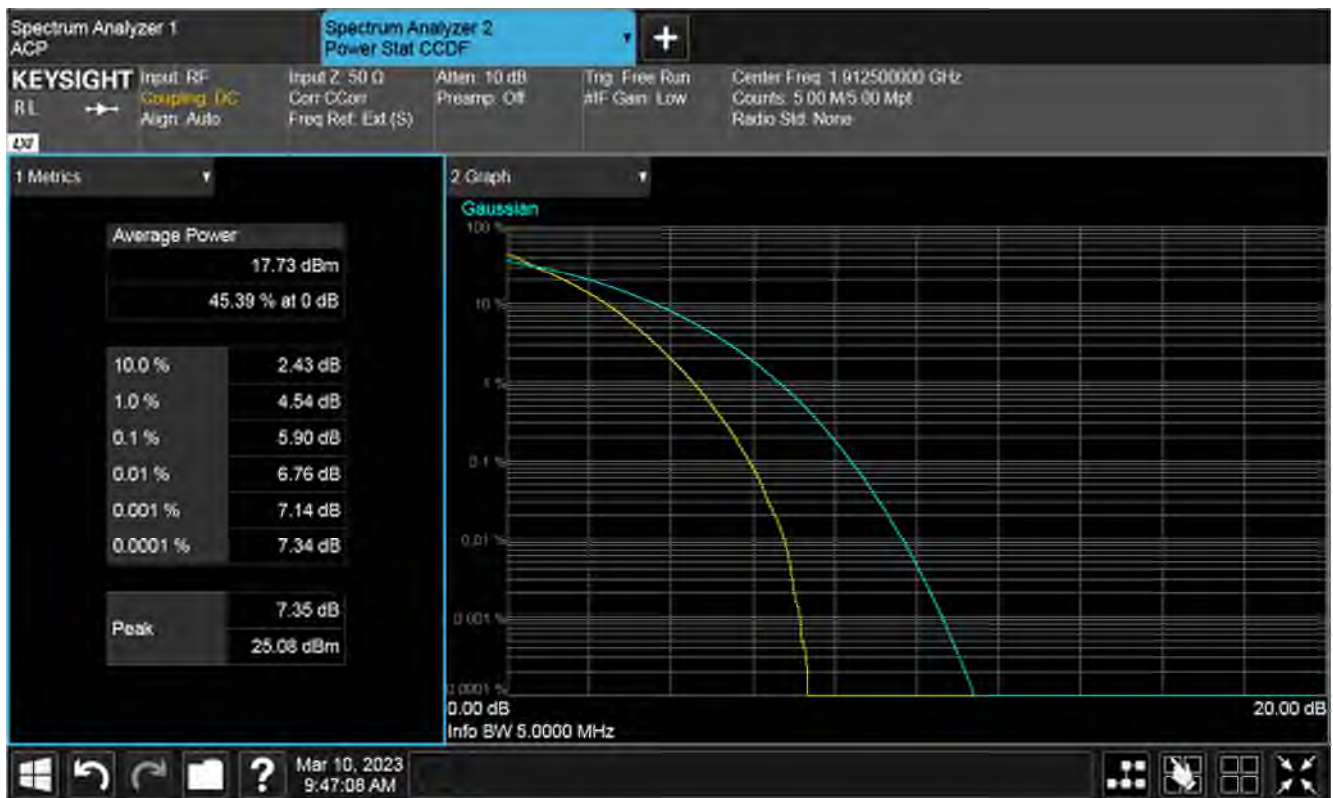
RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation QPSK, High Channel



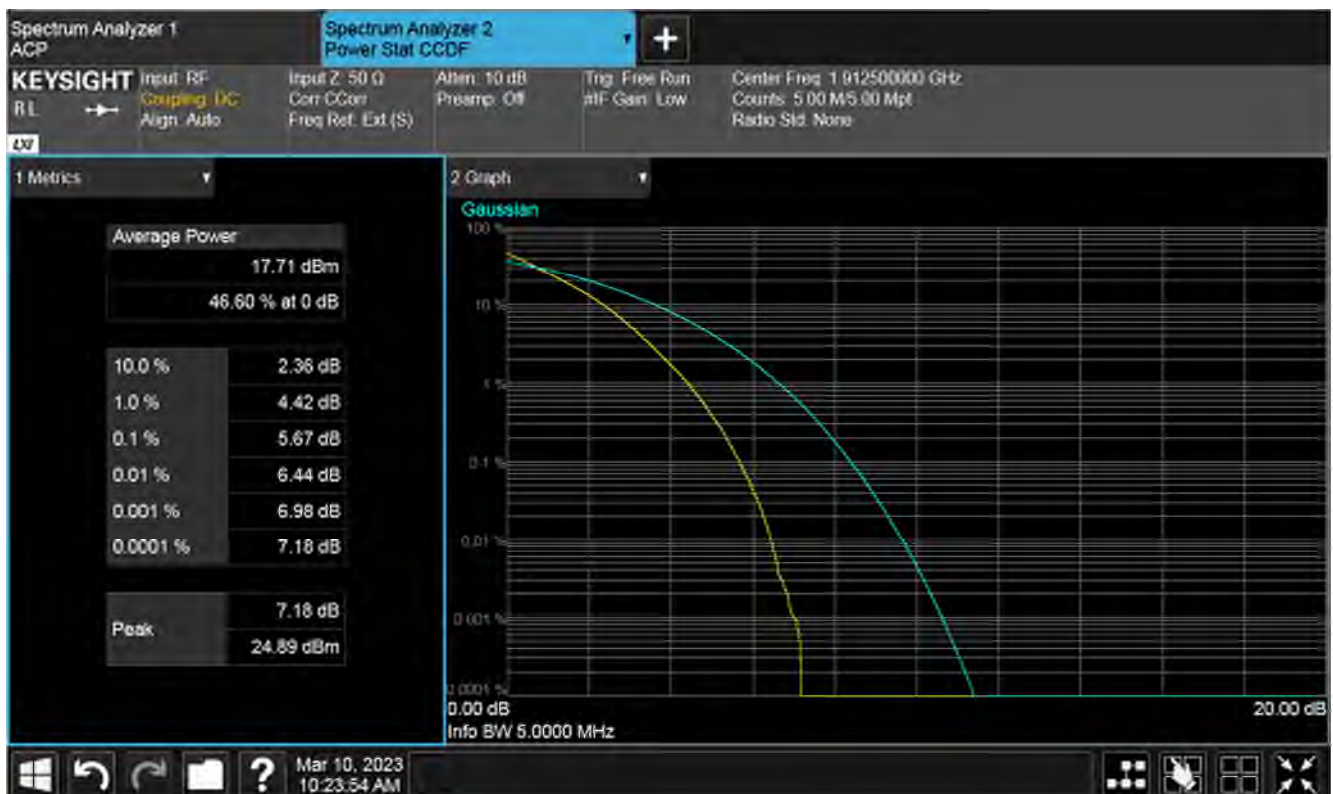
Plot of PAPR Low 1RB, High channel



Plot of PAPR High 1RB, High channel

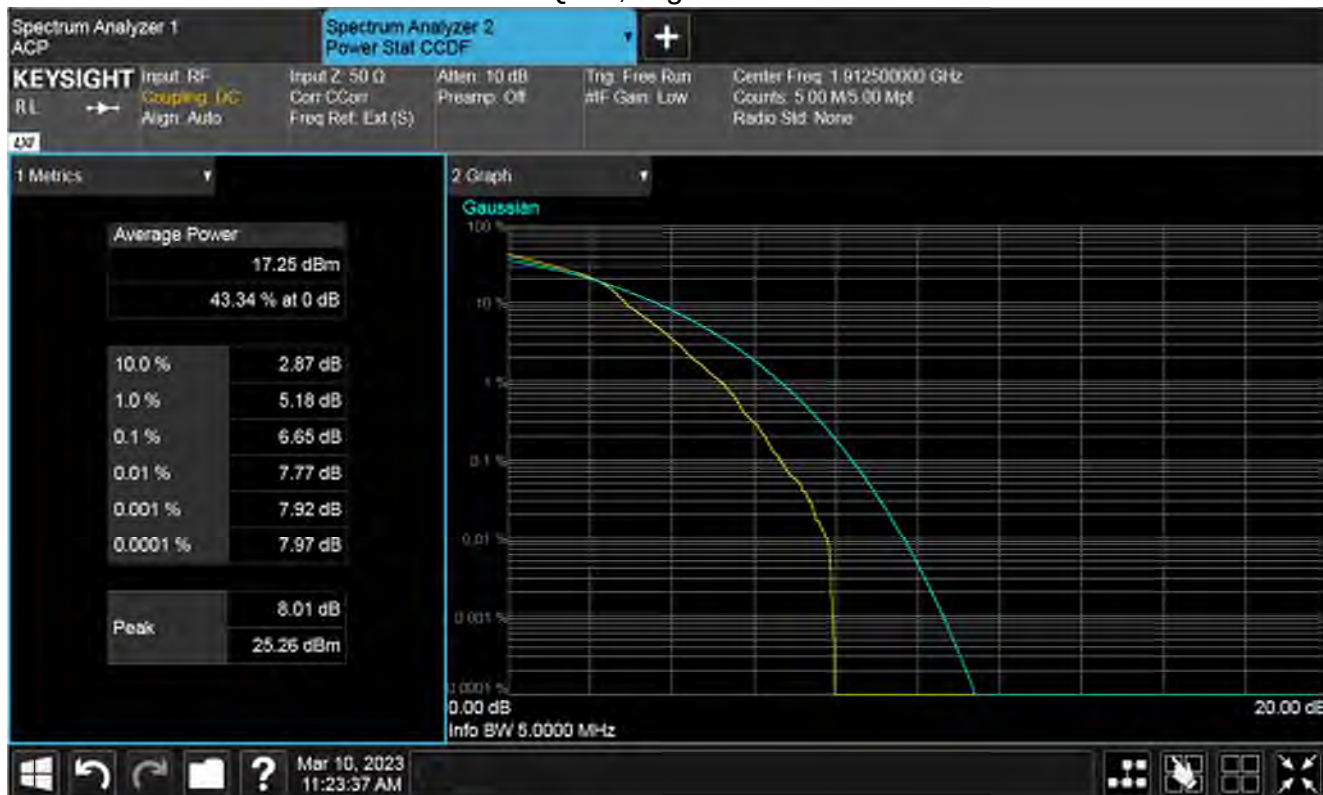


Plot of PAPR 50%RB, High channel

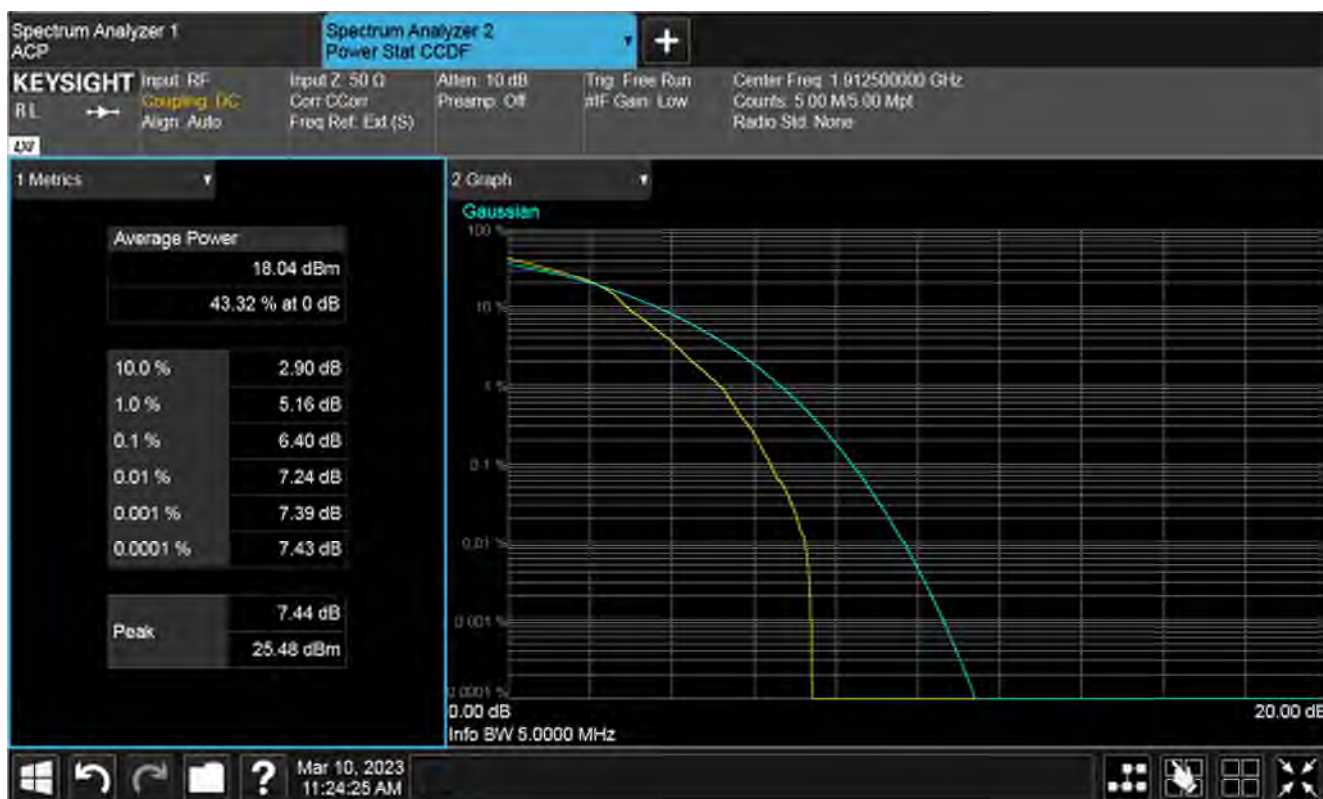


Plot of PAPR 100%RB, High channel

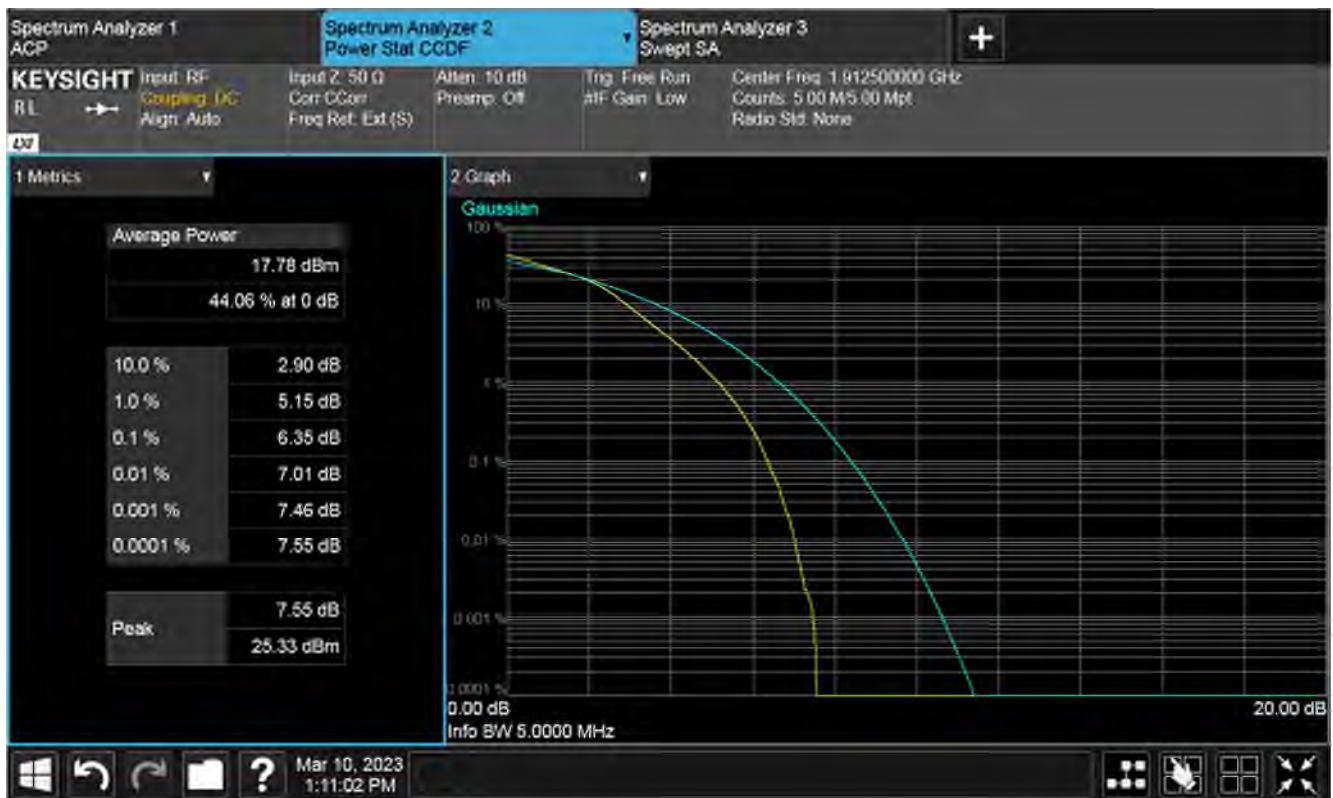
RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation 16QAM, High Channel



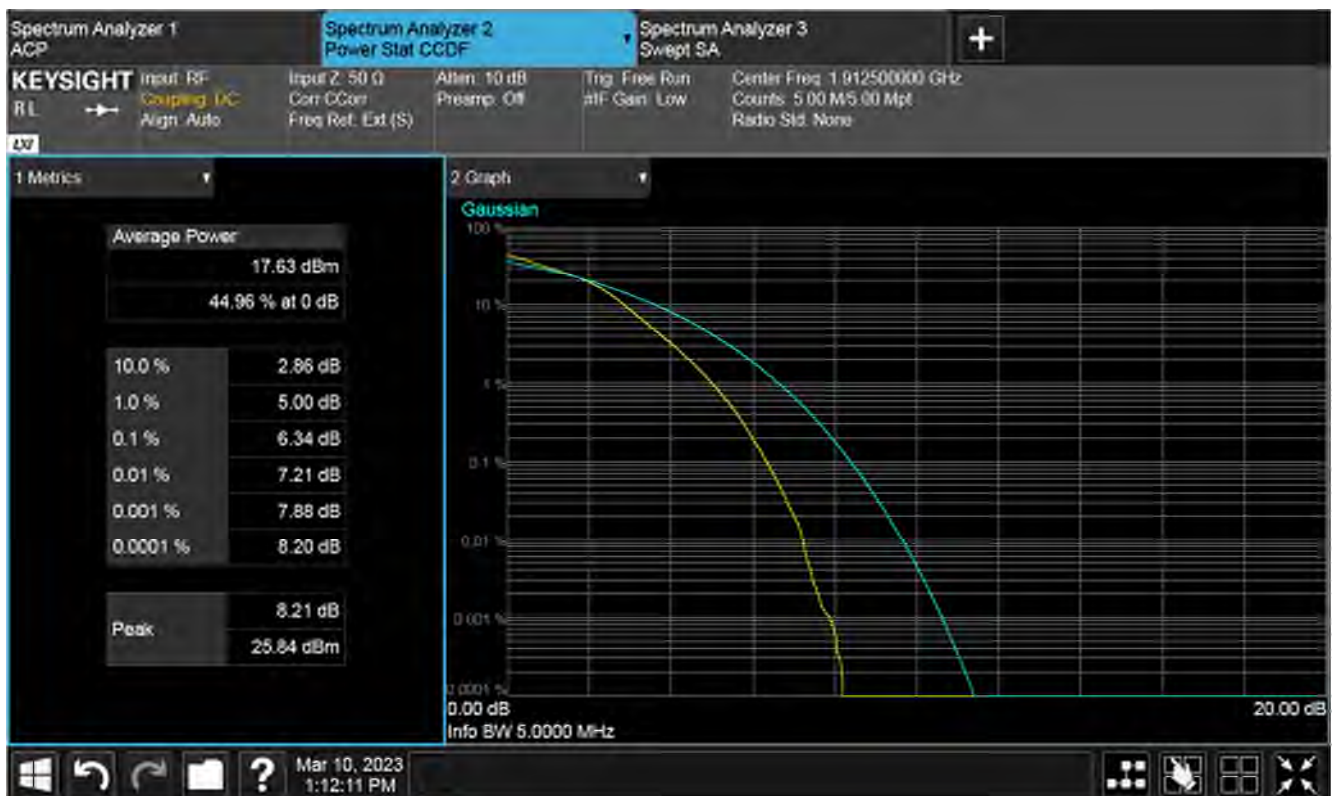
Plot of PAPR Low 1RB, High channel



Plot of PAPR High 1RB, High channel



Plot of PAPR 50%RB, High channel

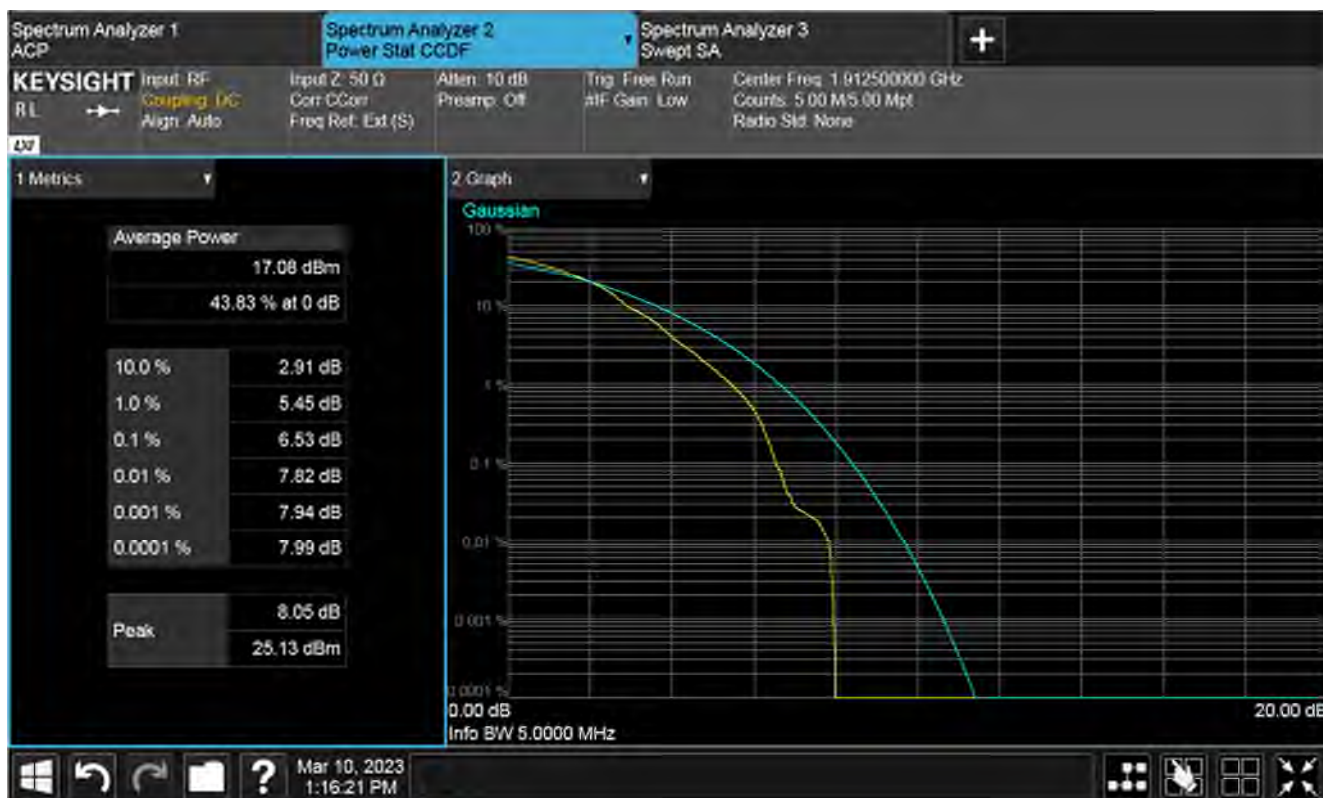


Plot of PAPR 100%RB, High channel

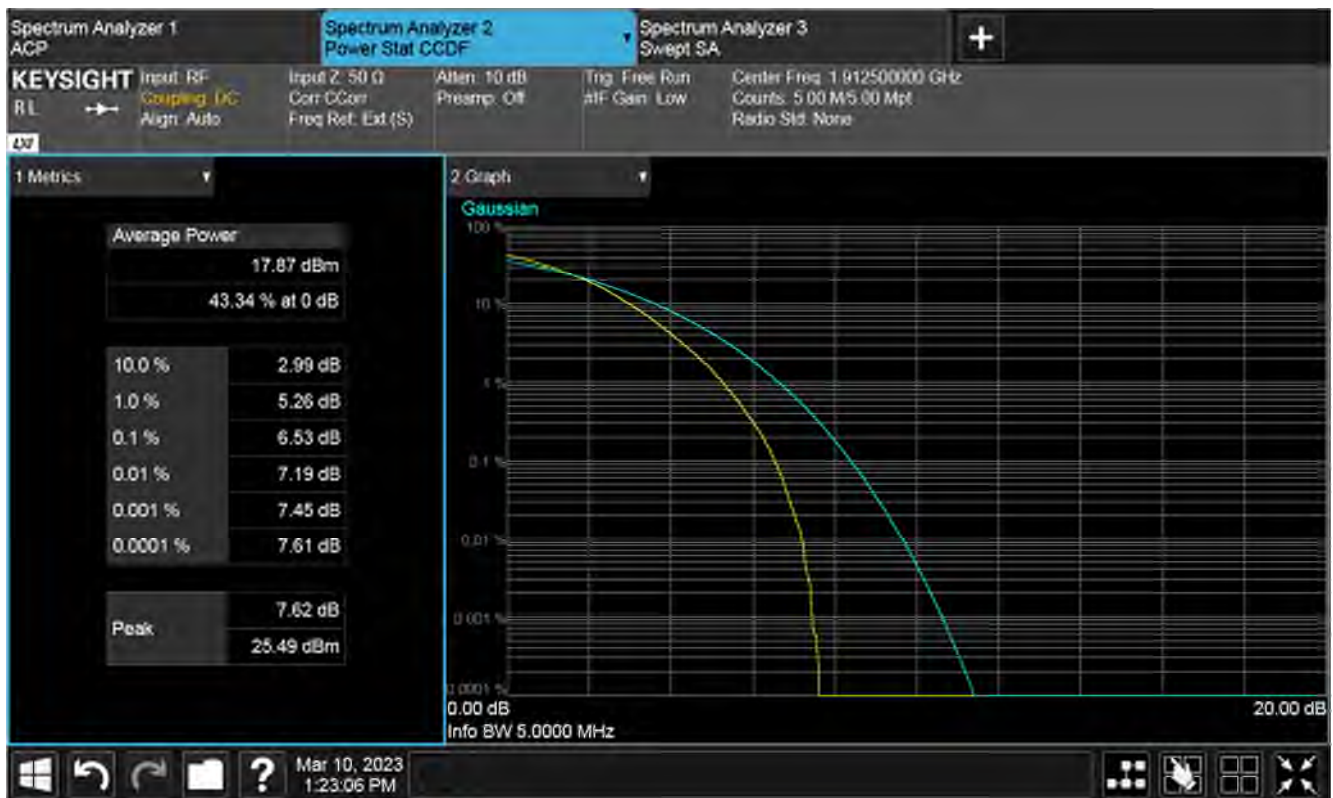
RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation 64QAM, High Channel



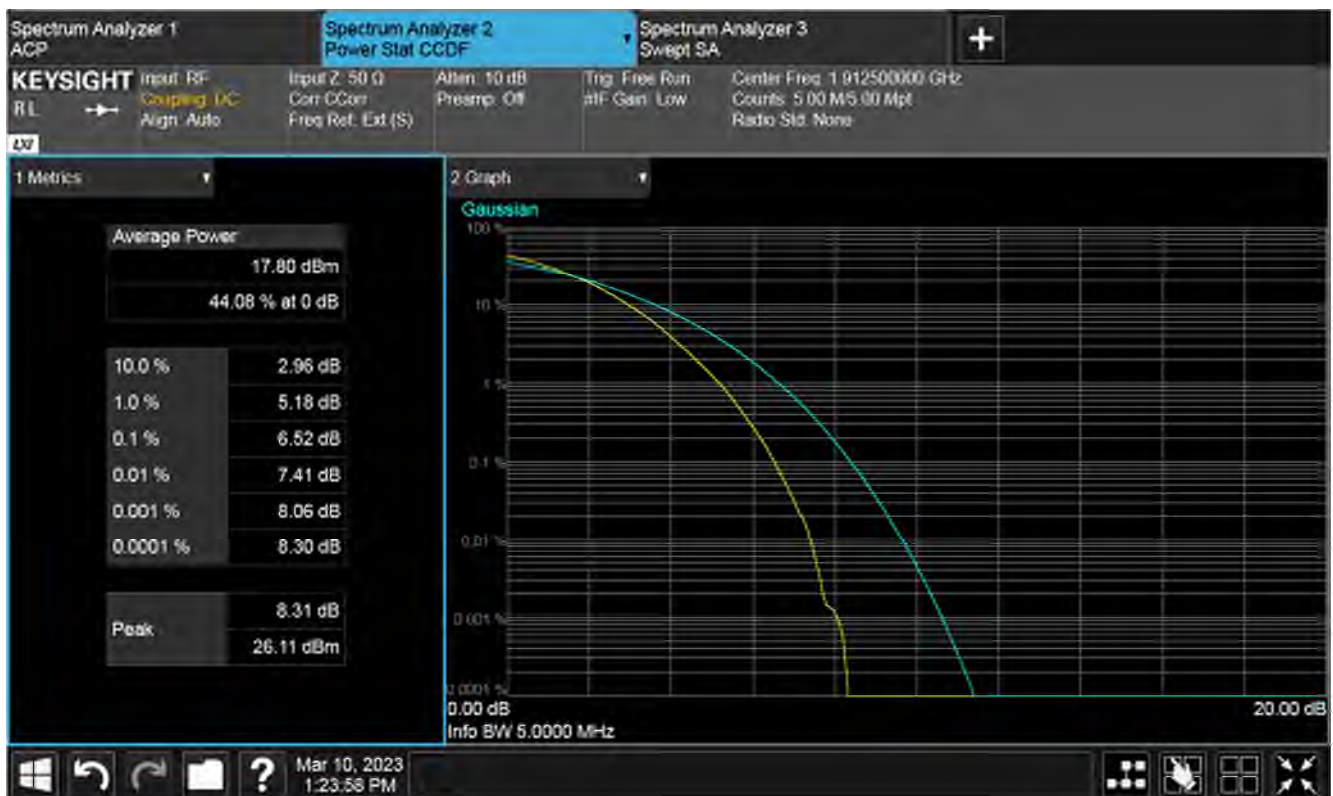
Plot of PAPR Low 1RB, High channel



Plot of PAPR High 1RB, High channel



Plot of PAPR 50%RB, High channel



Plot of PAPR 100%RB, High channel

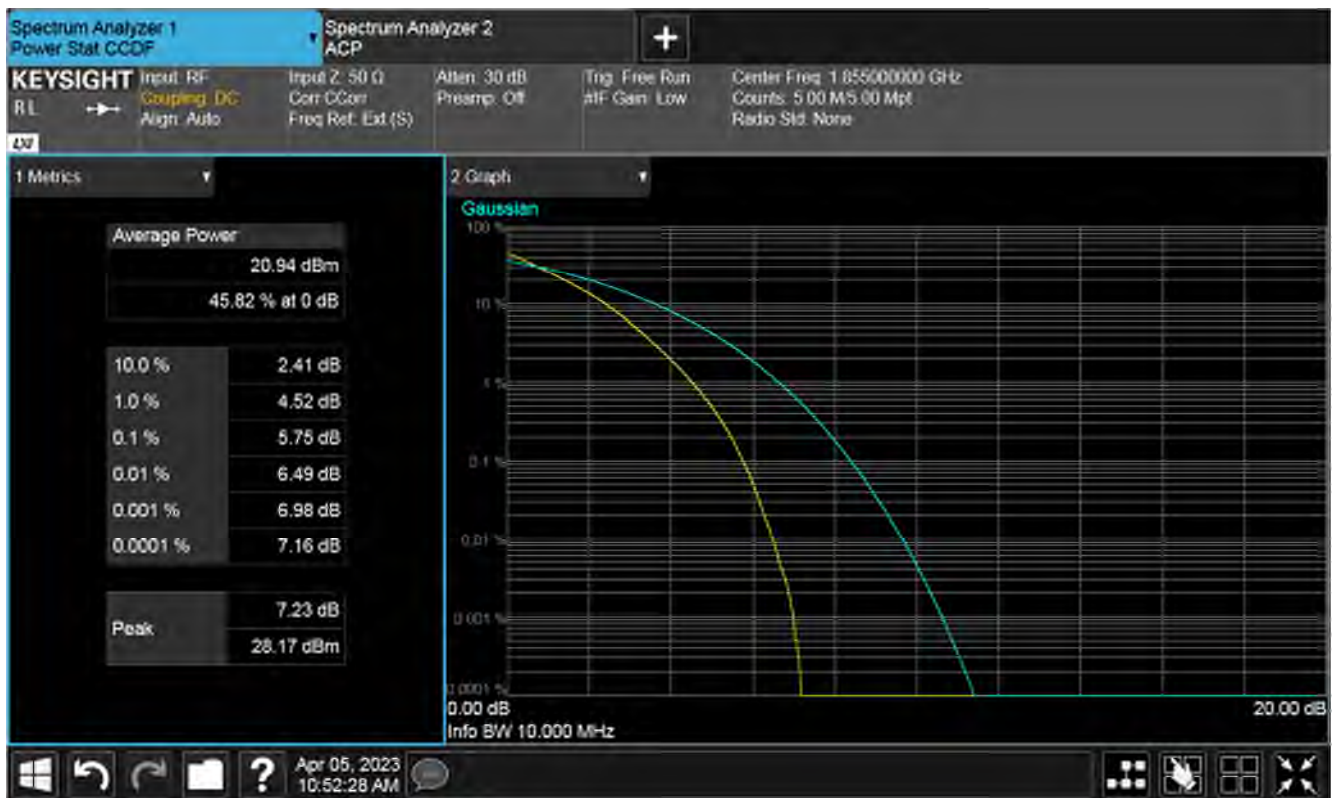
RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz,
Modulation QPSK, Low Channel



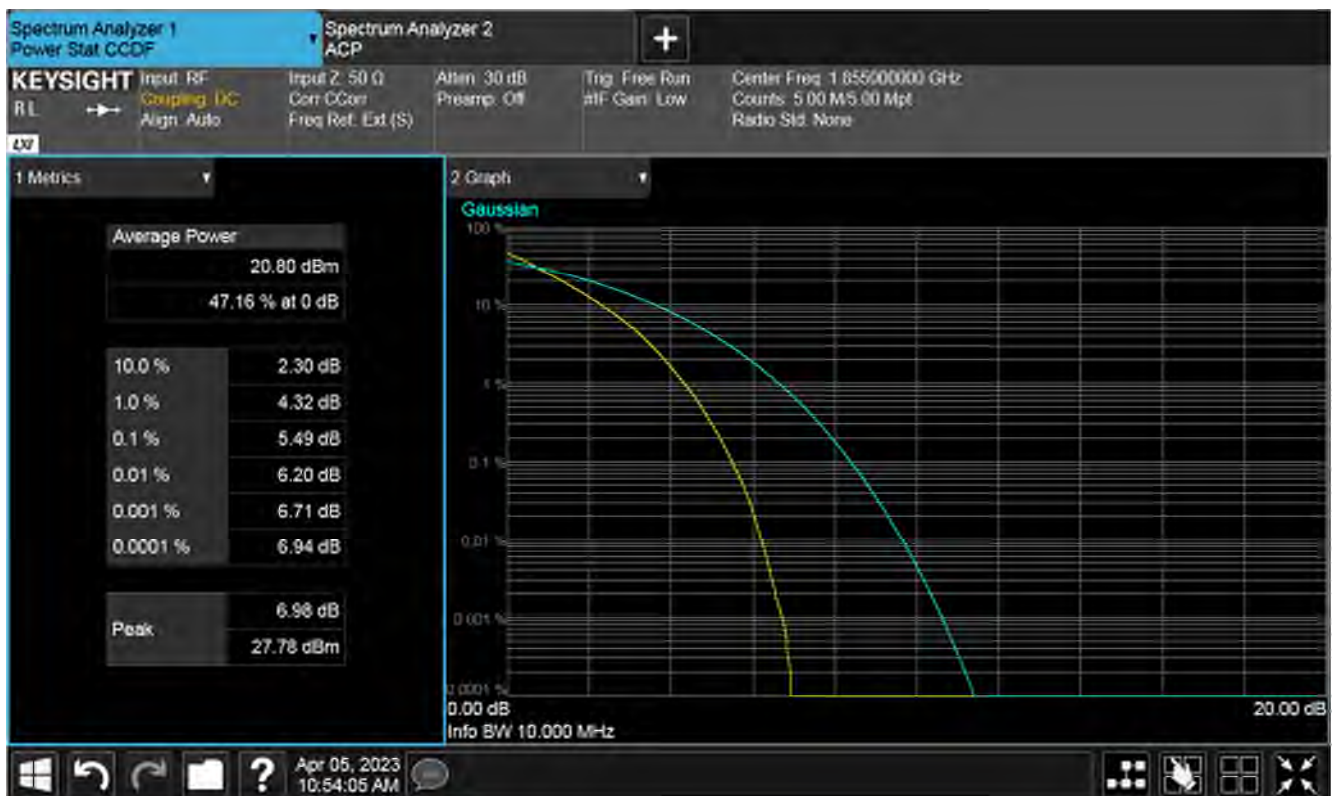
Plot of PAPR Low 1RB, low channel



Plot of PAPR High 1RB, low channel



Plot of PAPR 50%RB, low channel



Plot of PAPR 100%RB, low channel

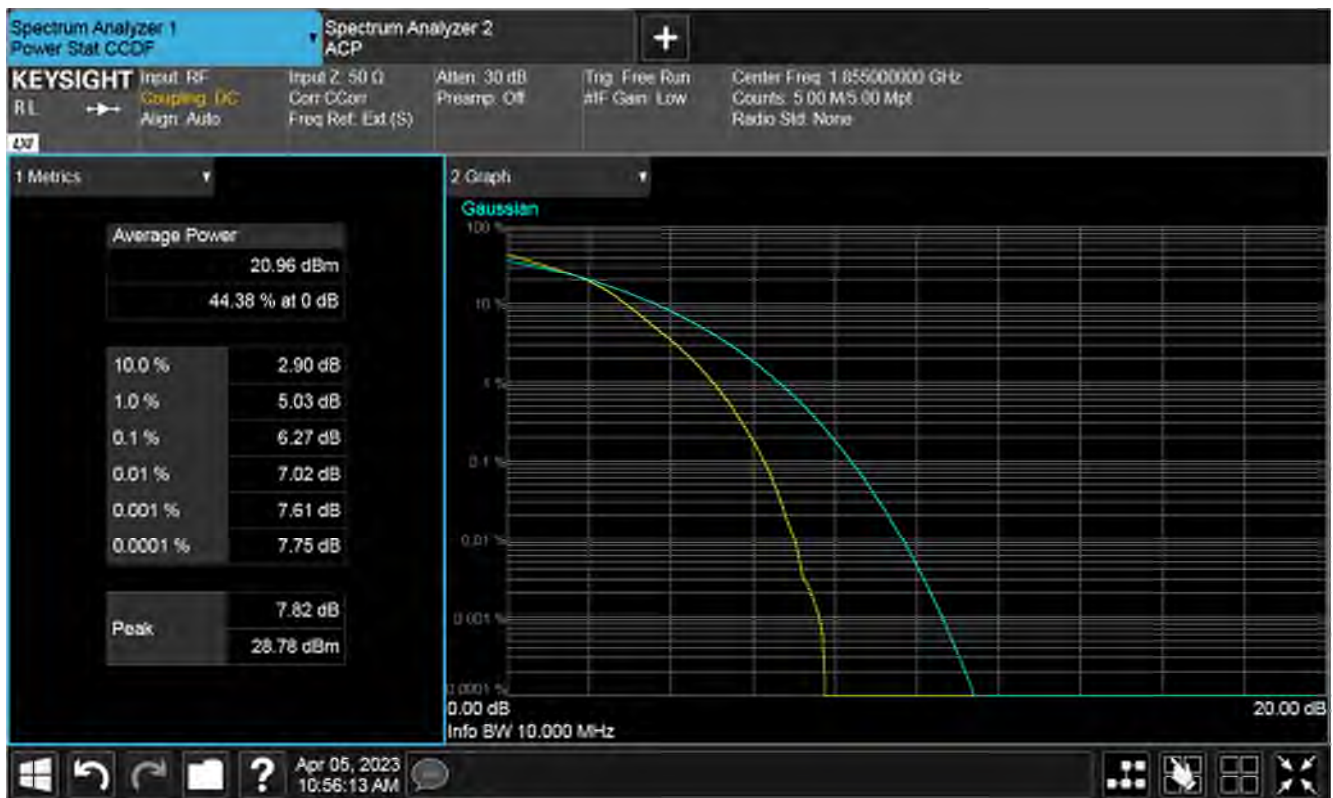
RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz,
Modulation 16QAM, Low Channel



Plot of PAPR Low 1RB, low channel



Plot of PAPR High 1RB, low channel



Plot of PAPR 50%RB, low channel



Plot of PAPR 100%RB, low channel

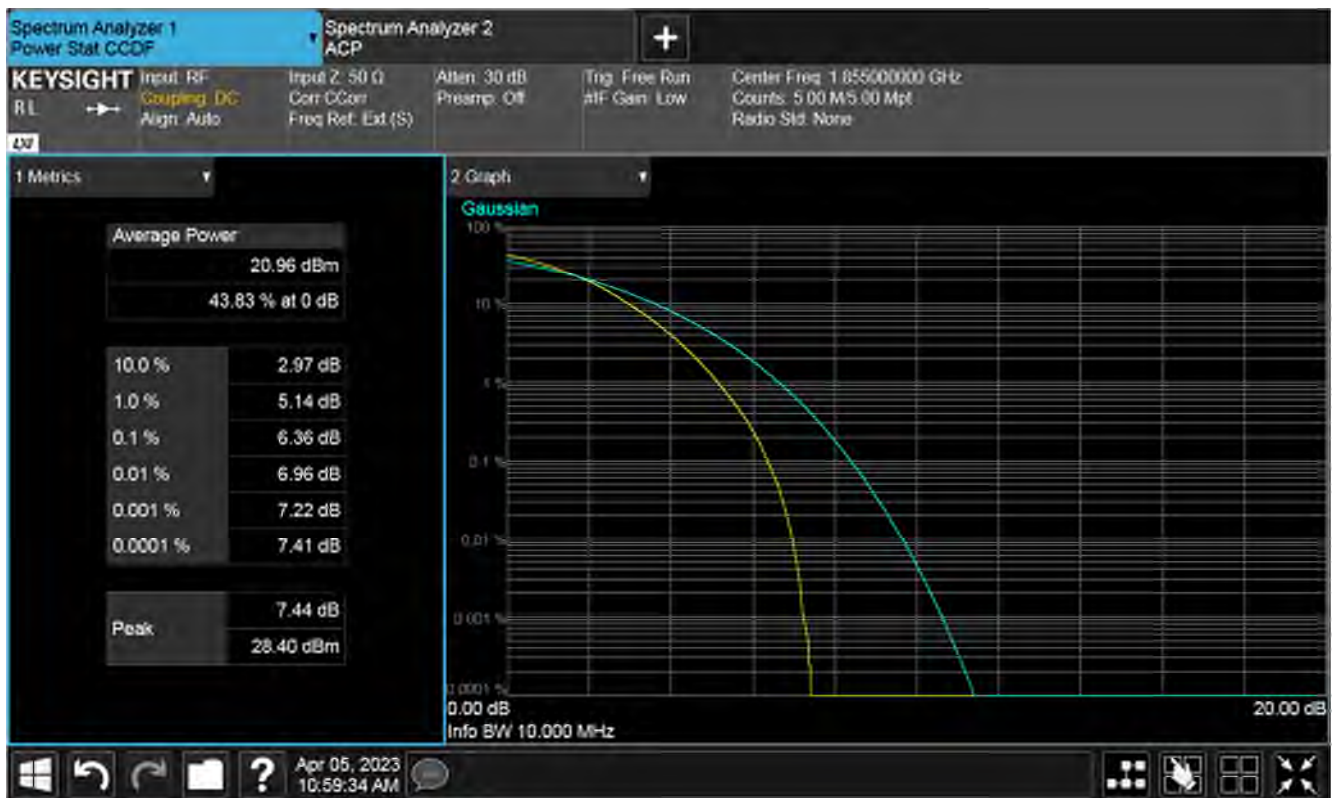
RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz,
Modulation 64QAM, Low Channel



Plot of PAPR Low 1RB, low channel



Plot of PAPR High 1RB, low channel



Plot of PAPR 50%RB, low channel



Plot of PAPR 100%RB, low channel

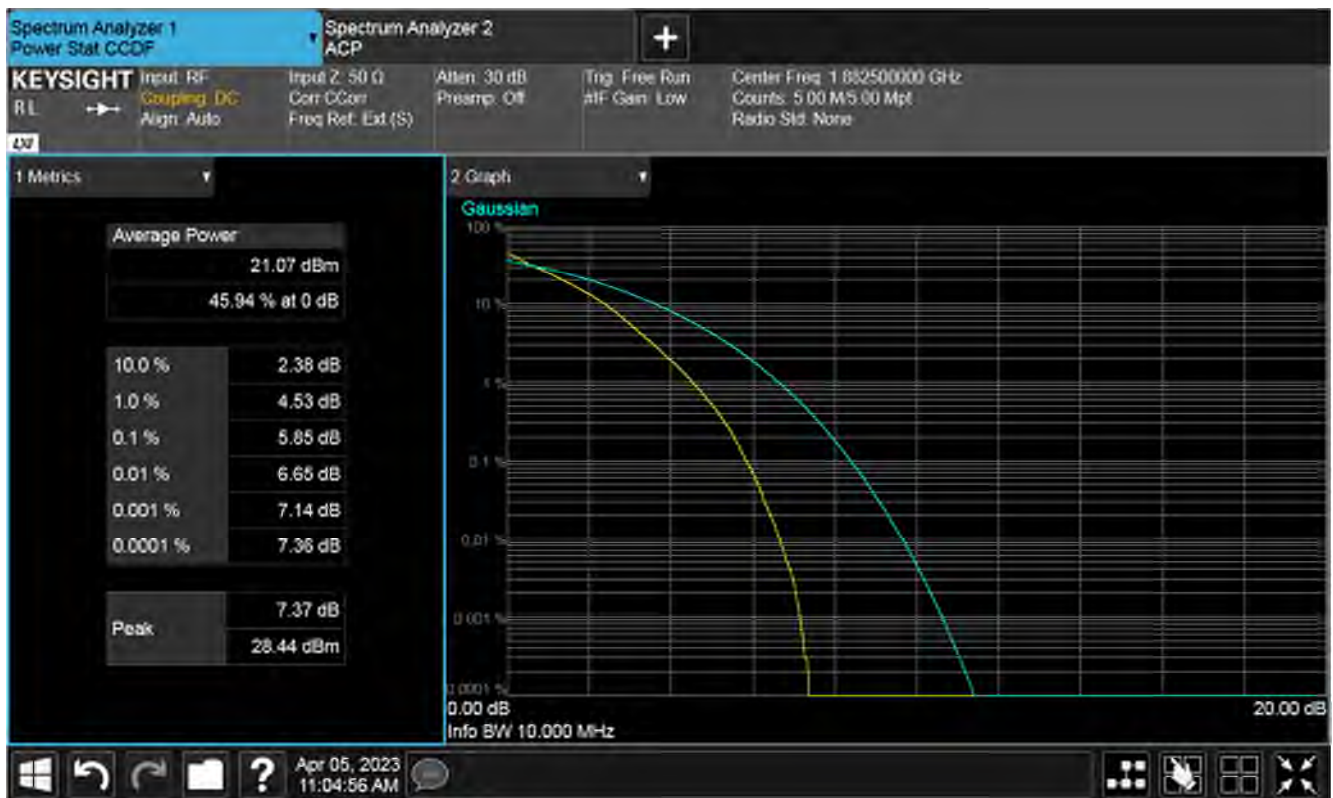
RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz,
Modulation QPSK, Mid Channel



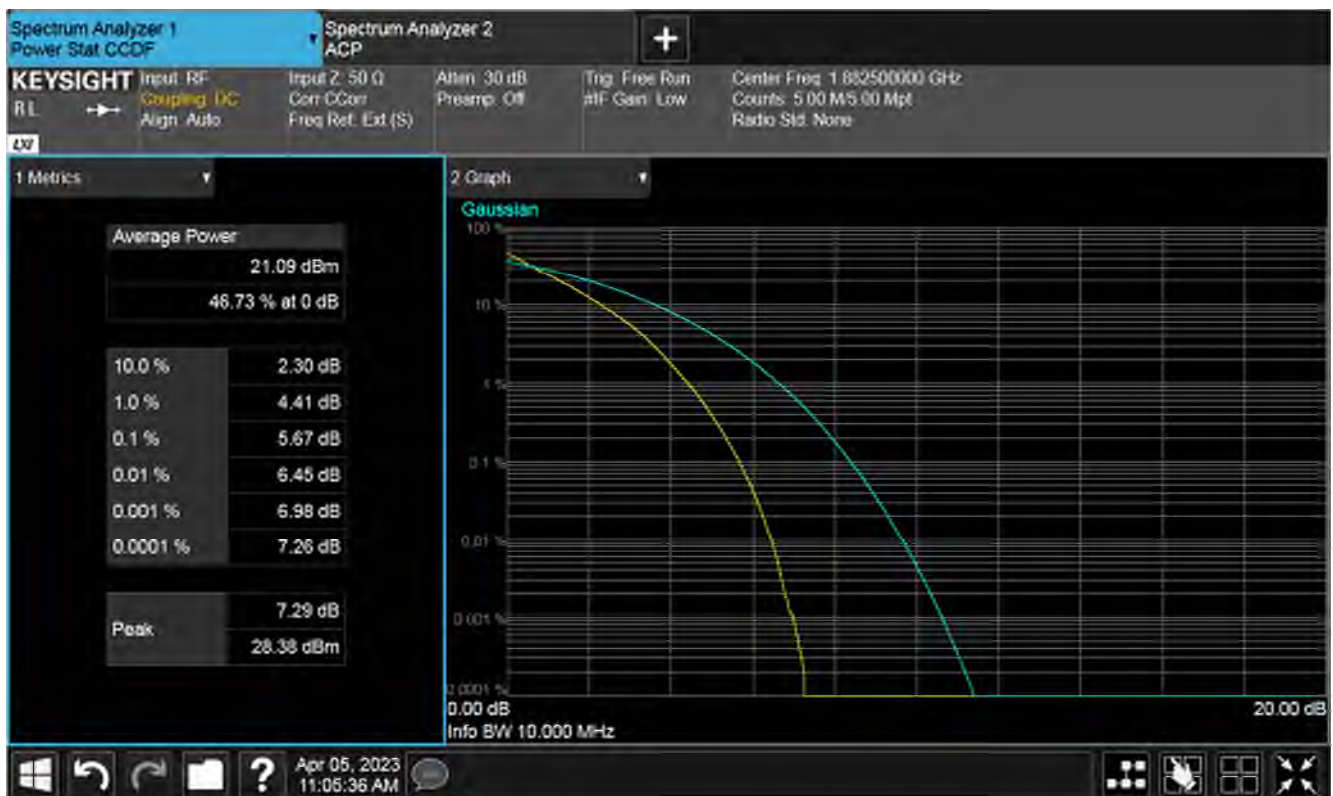
Plot of PAPR Low 1RB, Mid channel



Plot of PAPR High 1RB, Mid channel



Plot of PAPR 50%RB, Mid channel



Plot of PAPR 100%RB, Mid channel

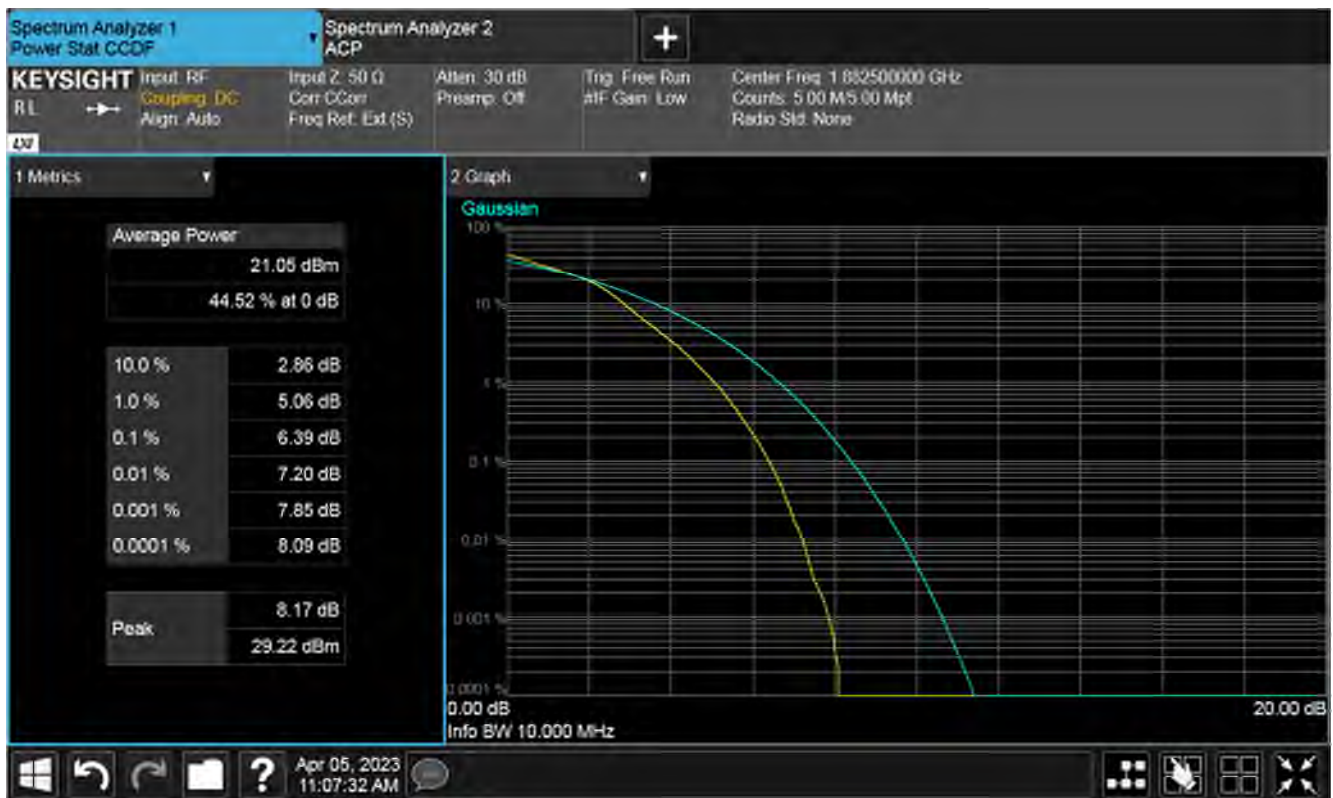
RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz,
Modulation 16QAM, Mid Channel



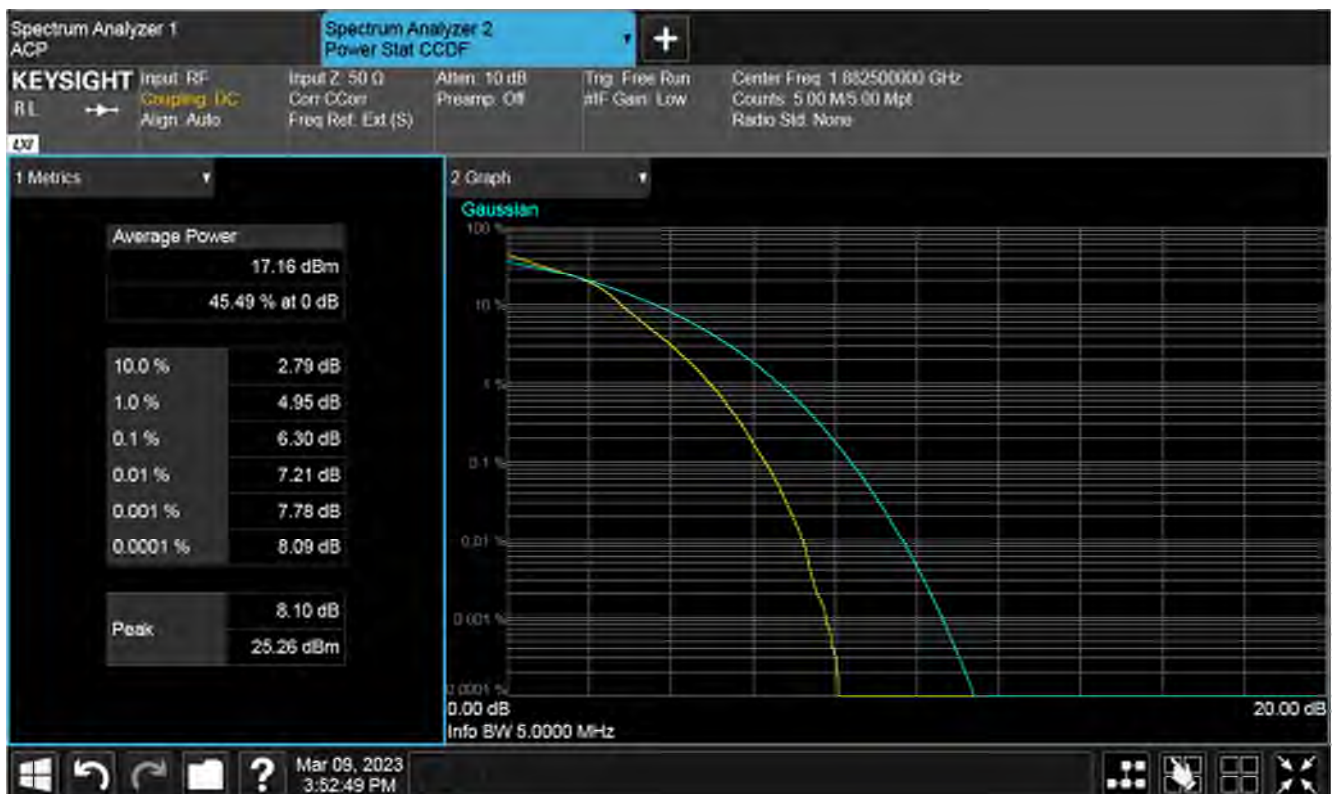
Plot of PAPR Low 1RB, Mid channel



Plot of PAPR High 1RB, Mid channel



Plot of PAPR 50%RB, Mid channel



Plot of PAPR 100%RB, Mid channel

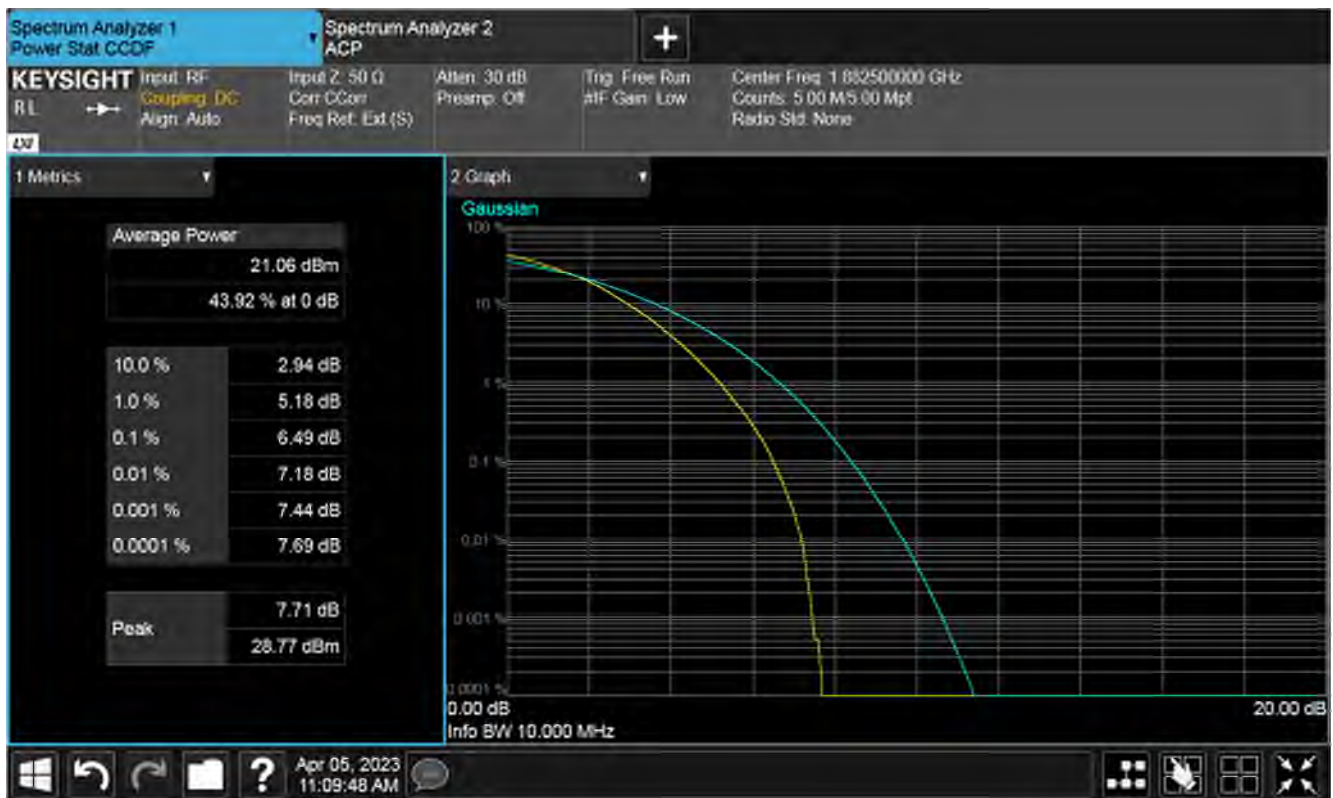
RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz,
Modulation 64QAM, Mid Channel



Plot of PAPR Low 1RB, Mid channel



Plot of PAPR High 1RB, Mid channel



Plot of PAPR 50%RB, Mid channel

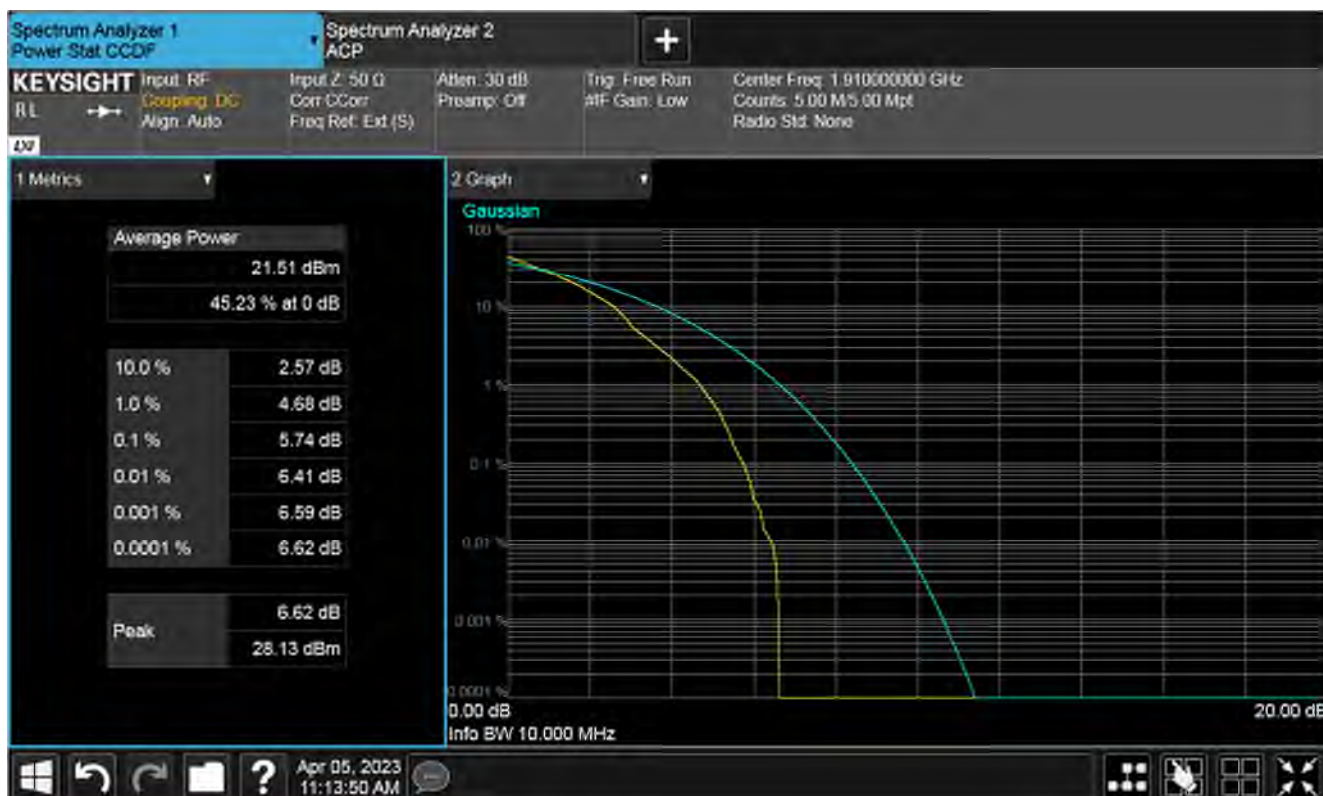


Plot of PAPR 100%RB, Mid channel

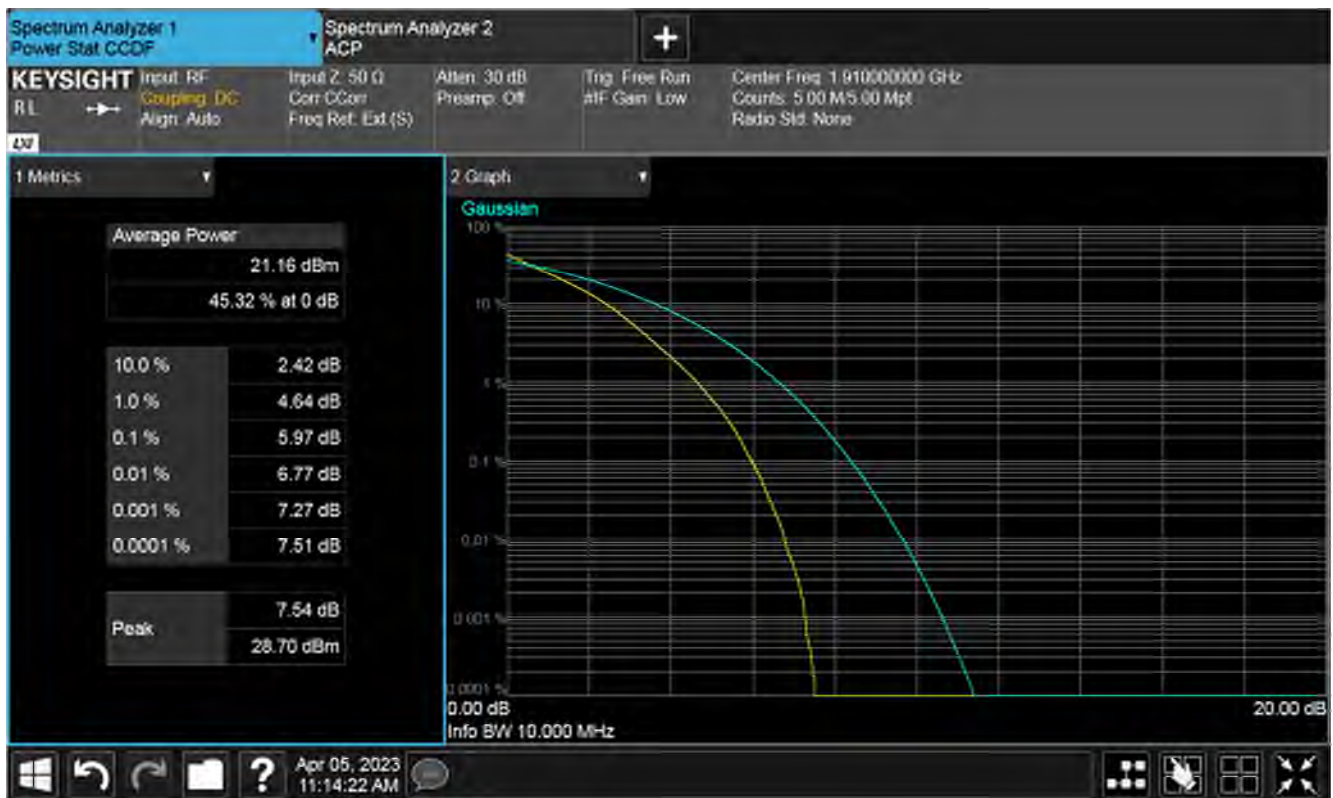
RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz,
Modulation QPSK, High Channel



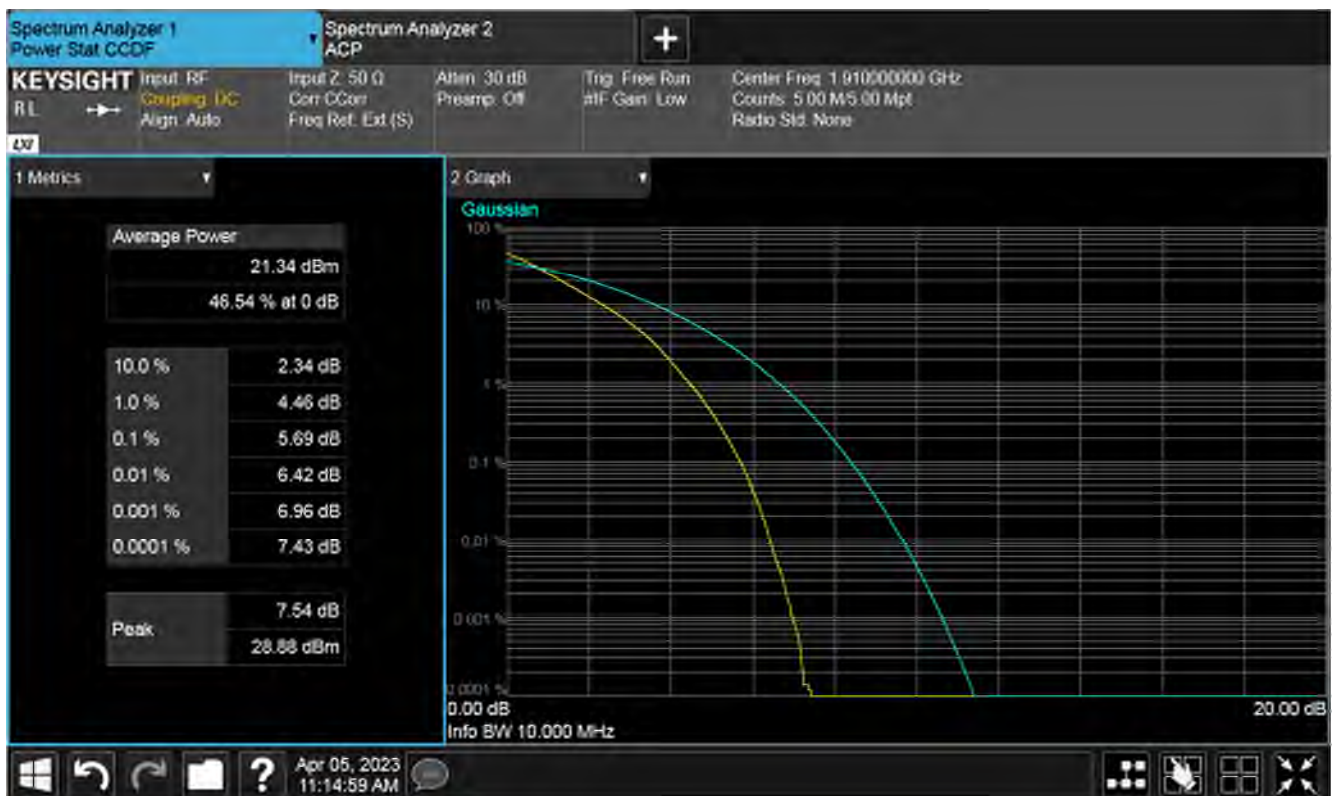
Plot of PAPR Low 1RB, High channel



Plot of PAPR High 1RB, High channel



Plot of PAPR 50%RB, High channel



Plot of PAPR 100%RB, High channel

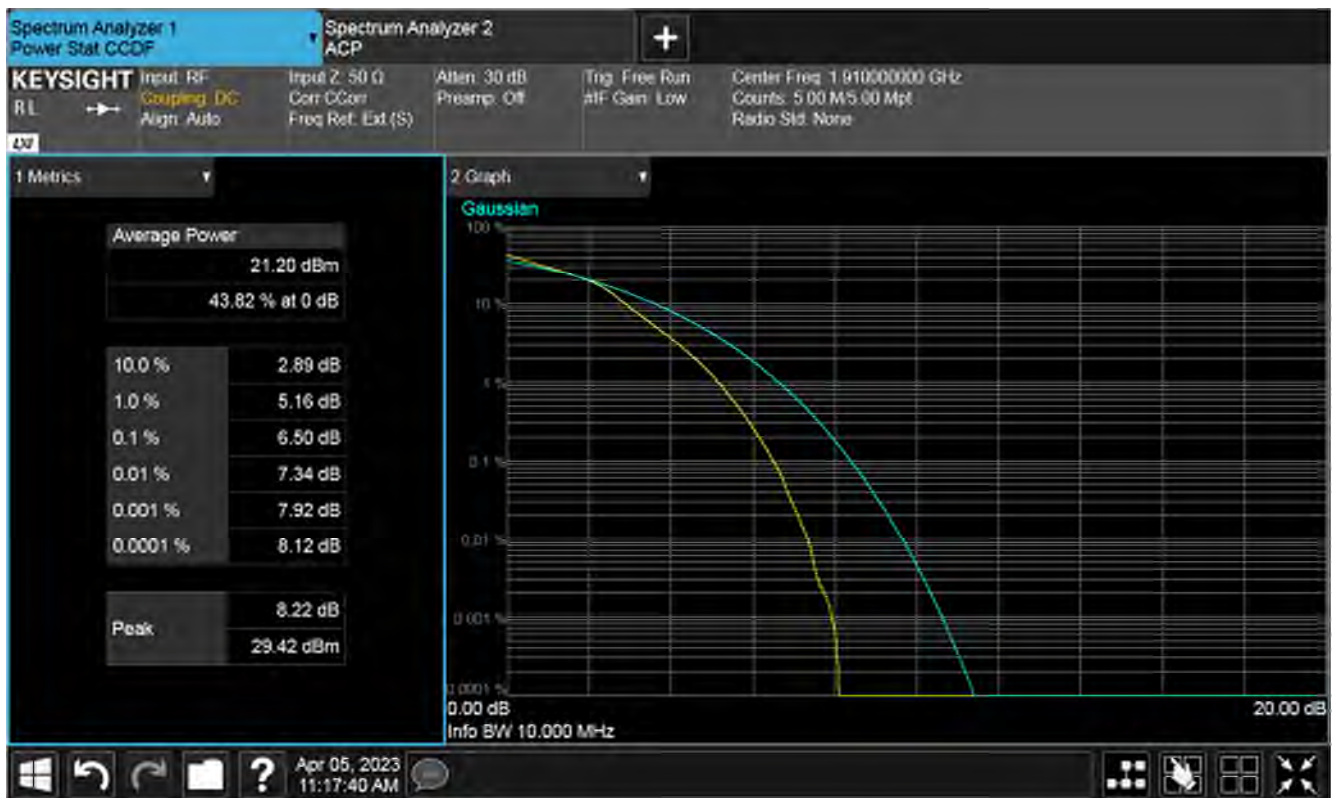
RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz,
Modulation 16QAM, High Channel



Plot of PAPR Low 1RB, High channel



Plot of PAPR High 1RB, High channel



Plot of PAPR 50%RB, High channel



Plot of PAPR 100%RB, High channel

RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz,
Modulation 64QAM, High Channel



Plot of PAPR Low 1RB, High channel



Plot of PAPR High 1RB, High channel



Plot of PAPR 50%RB, High channel



Plot of PAPR 100%RB, High channel

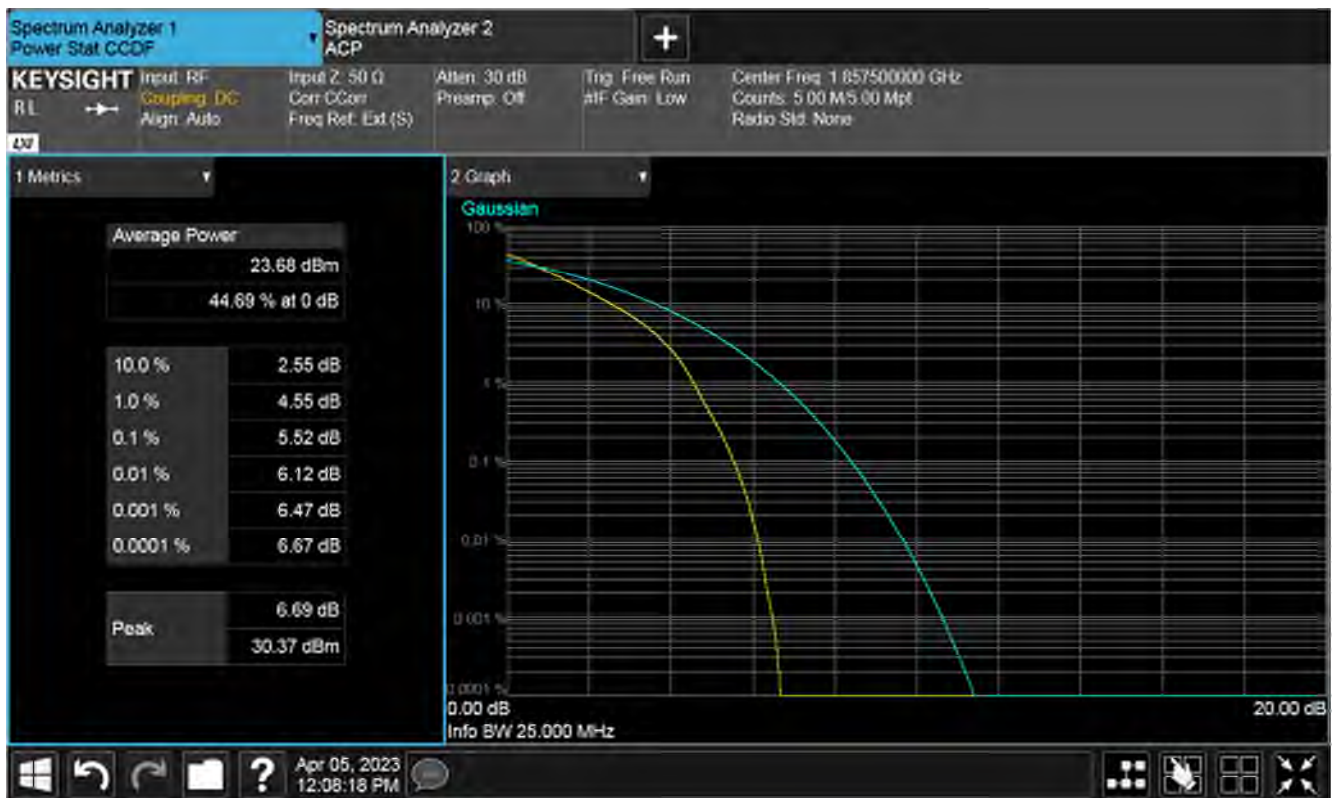
RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 15 MHz,
Modulation QPSK, Low Channel



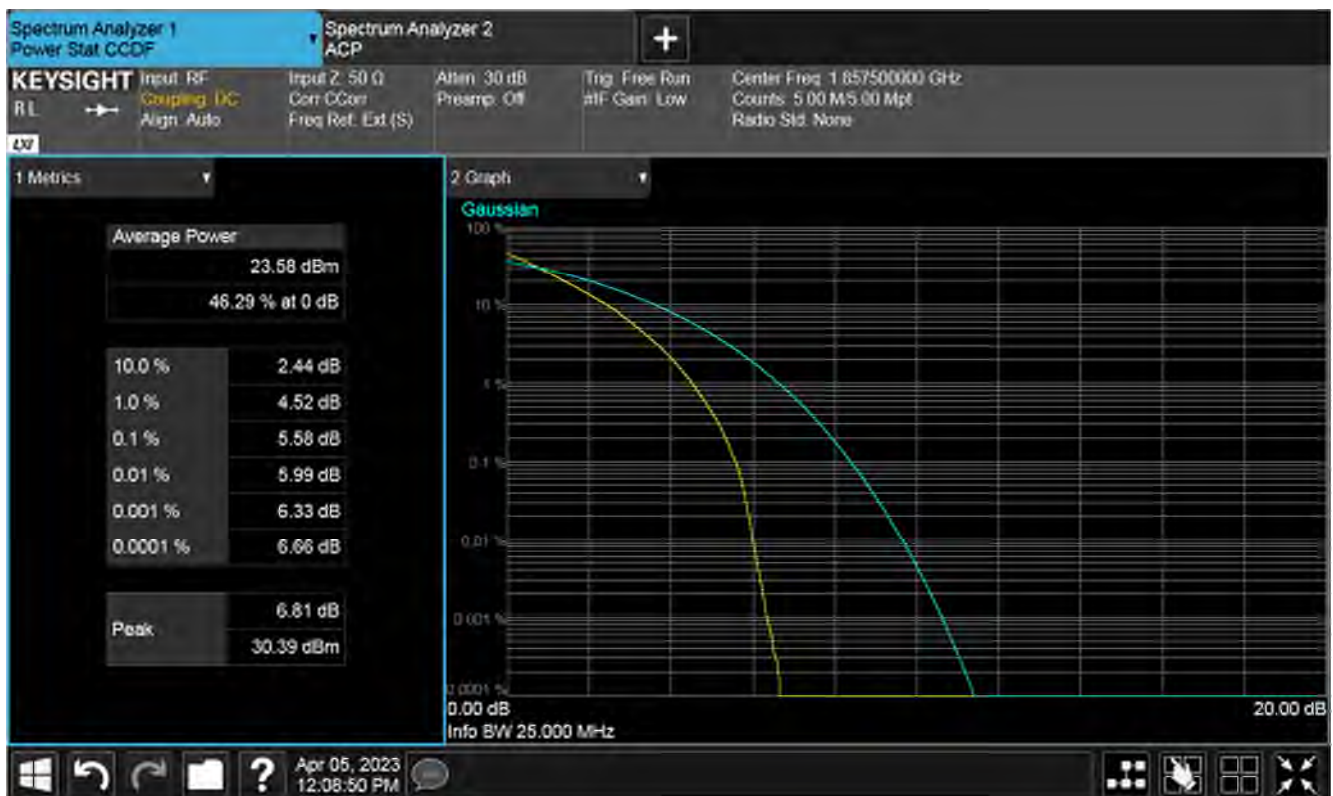
Plot of PAPR Low 1RB, low channel



Plot of PAPR High 1RB, low channel



Plot of PAPR 50%RB, low channel



Plot of PAPR 100%RB, low channel

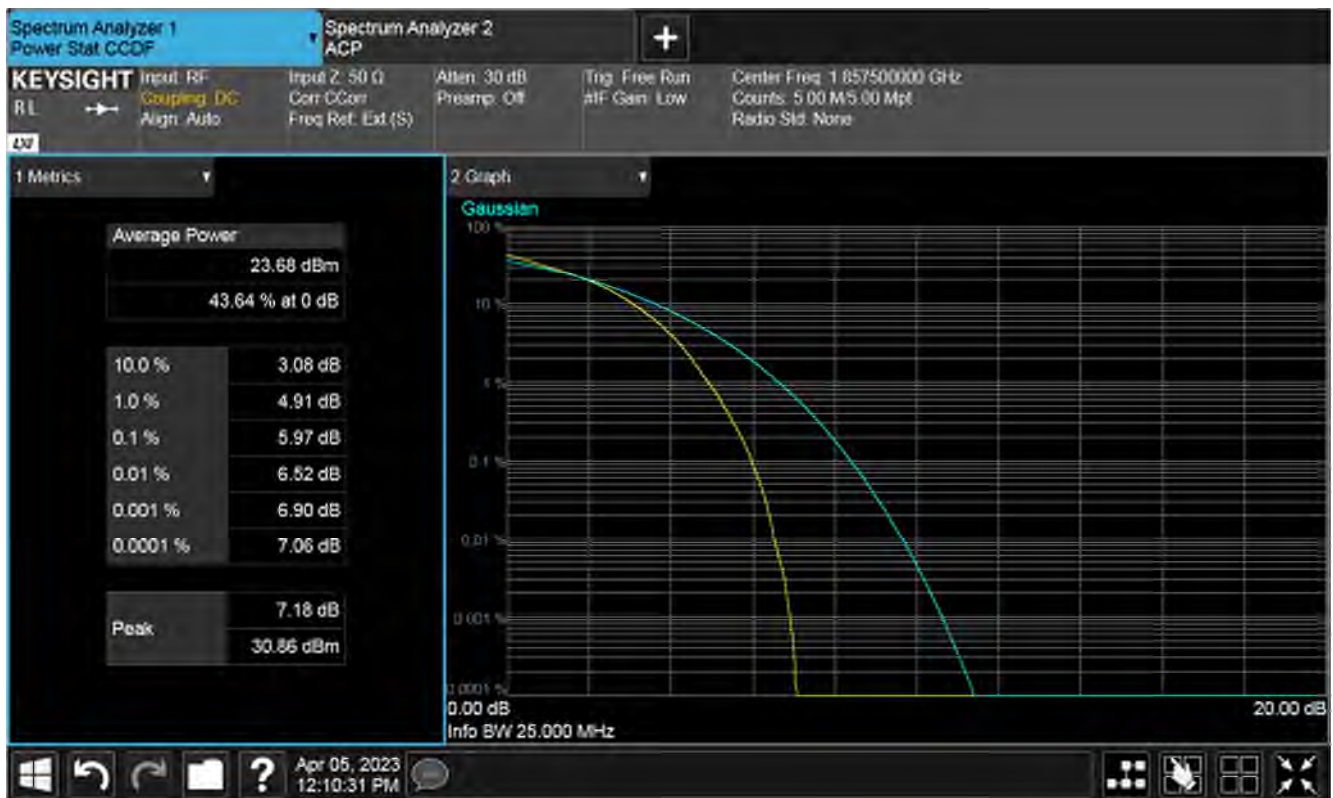
RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 15 MHz,
Modulation 16QAM, Low Channel



Plot of PAPR Low 1RB, low channel



Plot of PAPR High 1RB, low channel

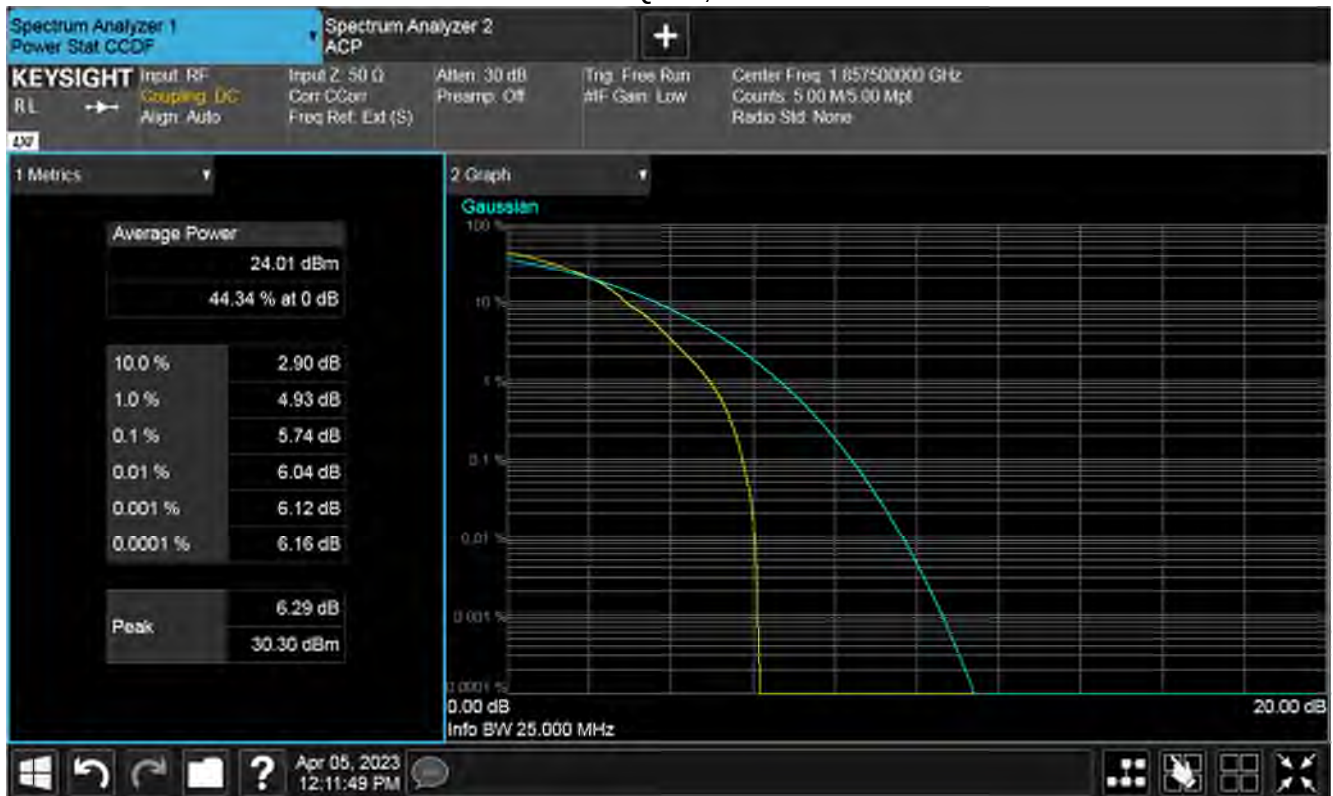


Plot of PAPR 50%RB, low channel



Plot of PAPR 100%RB, low channel

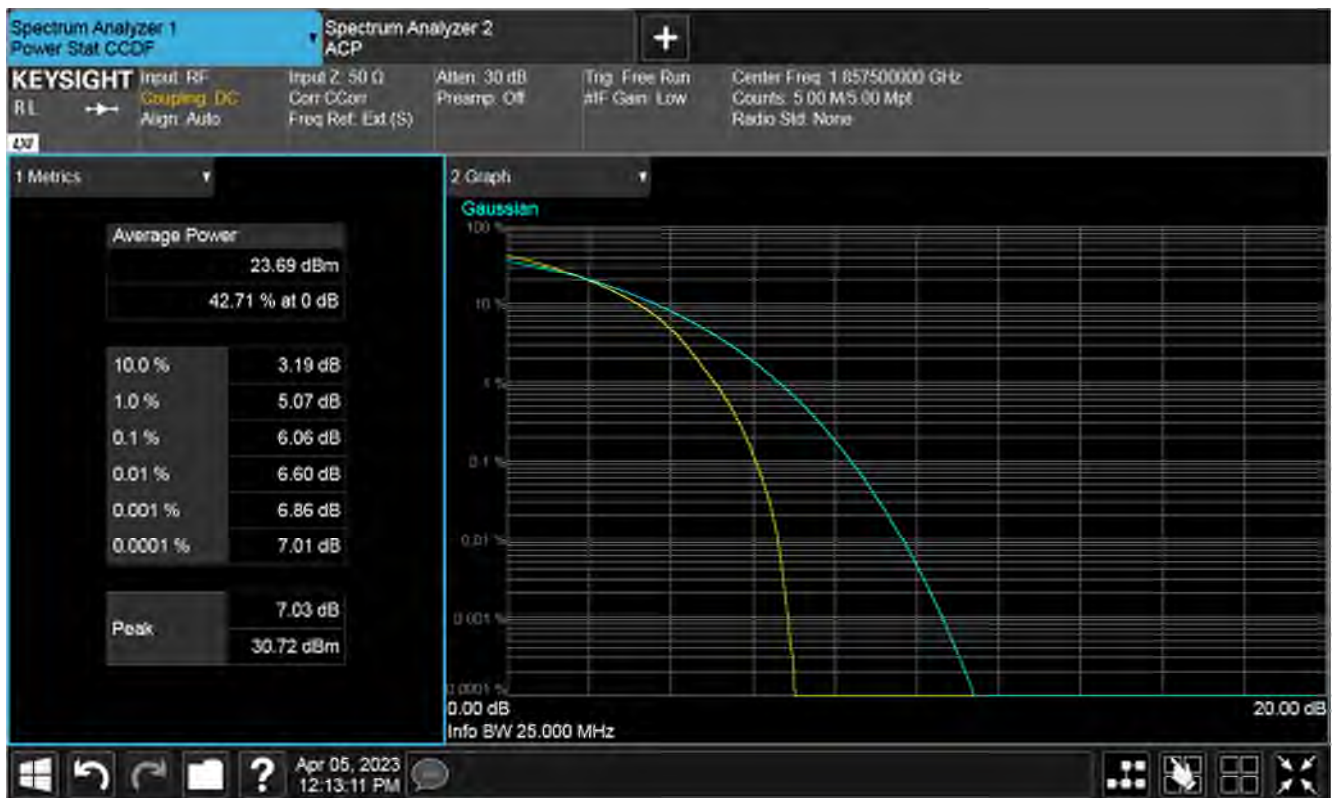
RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 15 MHz,
Modulation 64QAM, Low Channel



Plot of PAPR Low 1RB, low channel



Plot of PAPR High 1RB, low channel



Plot of PAPR 50%RB, low channel



Plot of PAPR 100%RB, low channel

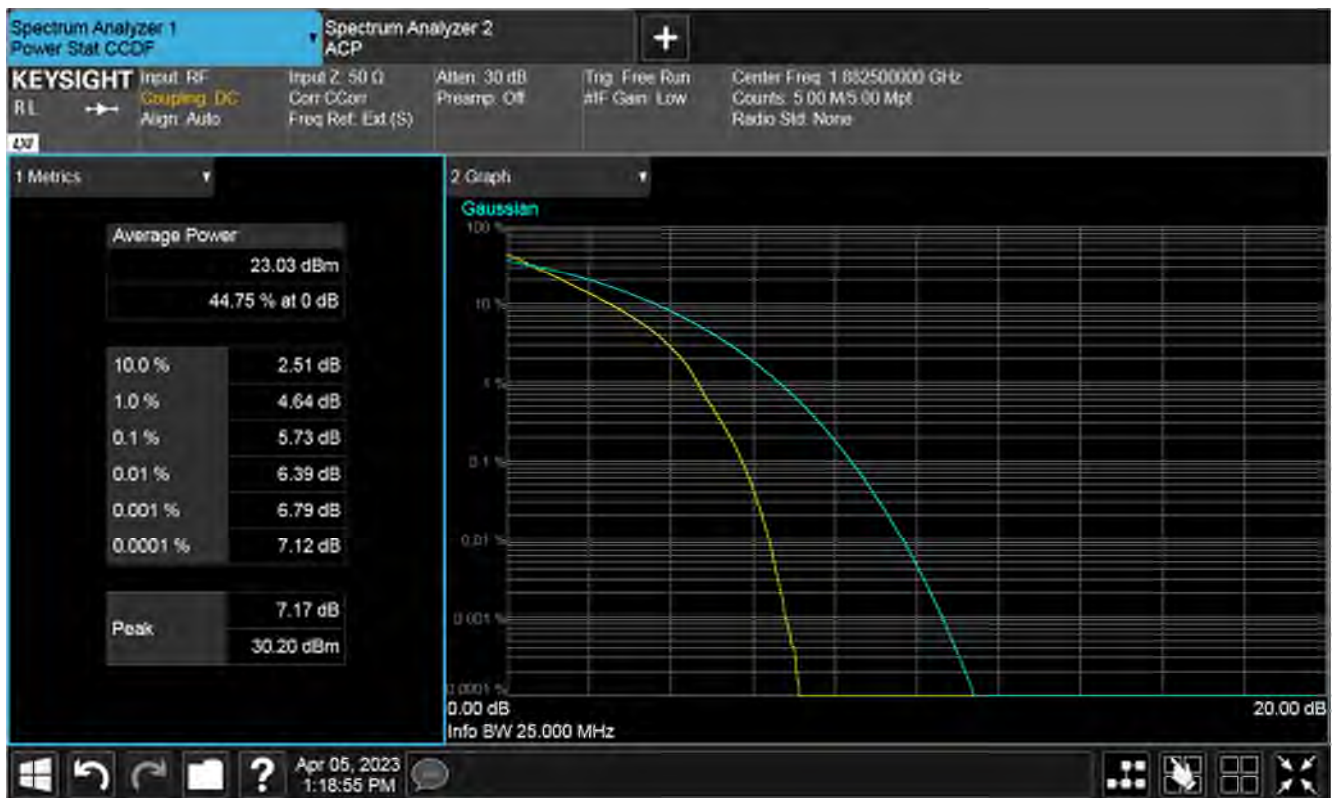
RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 15 MHz,
Modulation QPSK, Mid Channel



Plot of PAPR Low 1RB, Mid channel



Plot of PAPR High 1RB, Mid channel



Plot of PAPR 50%RB, Mid channel



Plot of PAPR 100%RB, Mid channel

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 15 MHz,
Modulation 16QAM, Mid Channel



Plot of PAPR Low 1RB, Mid channel



Plot of PAPR High 1RB, Mid channel



Plot of PAPR 50%RB, Mid channel

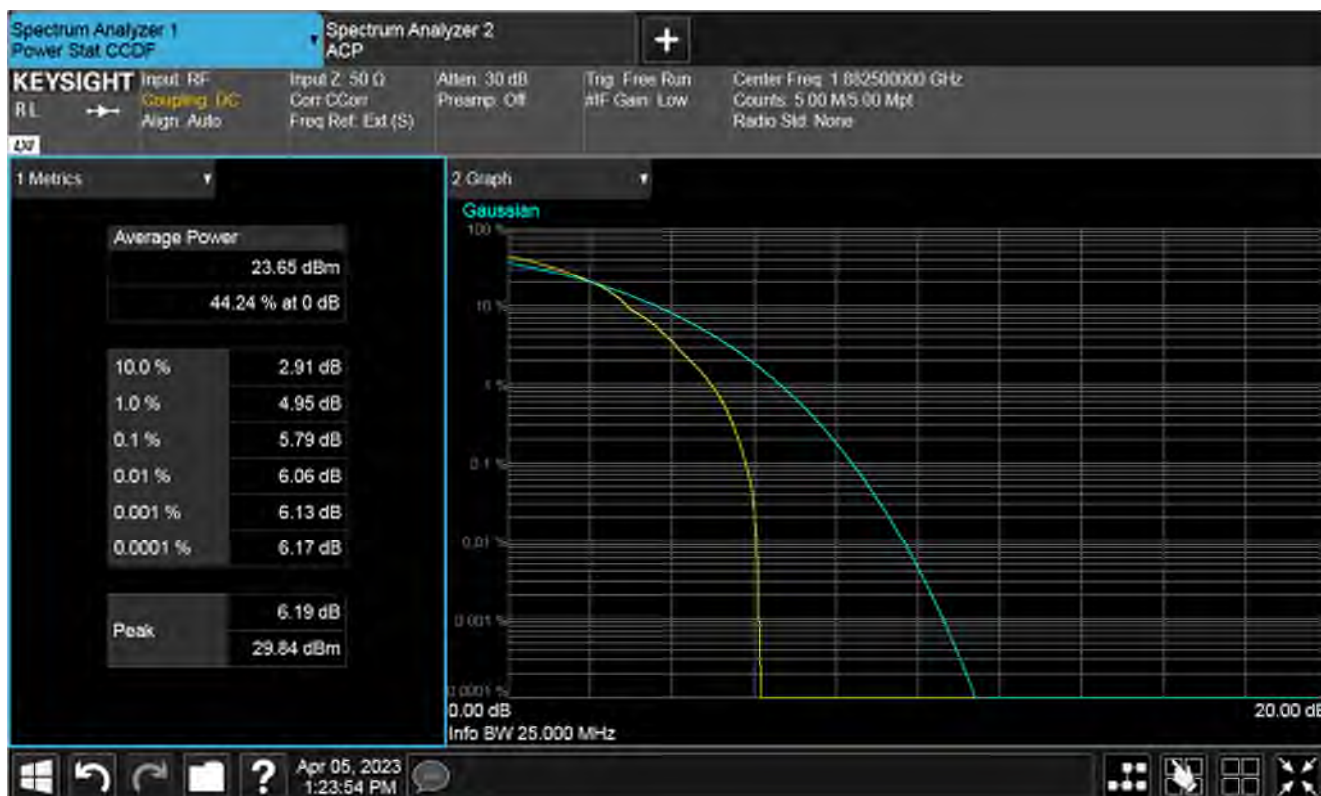


Plot of PAPR 100%RB, Mid channel

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 15 MHz,
Modulation 64QAM, Mid Channel



Plot of PAPR Low 1RB, Mid channel



Plot of PAPR High 1RB, Mid channel



Plot of PAPR 50%RB, Mid channel



Plot of PAPR 100%RB, Mid channel

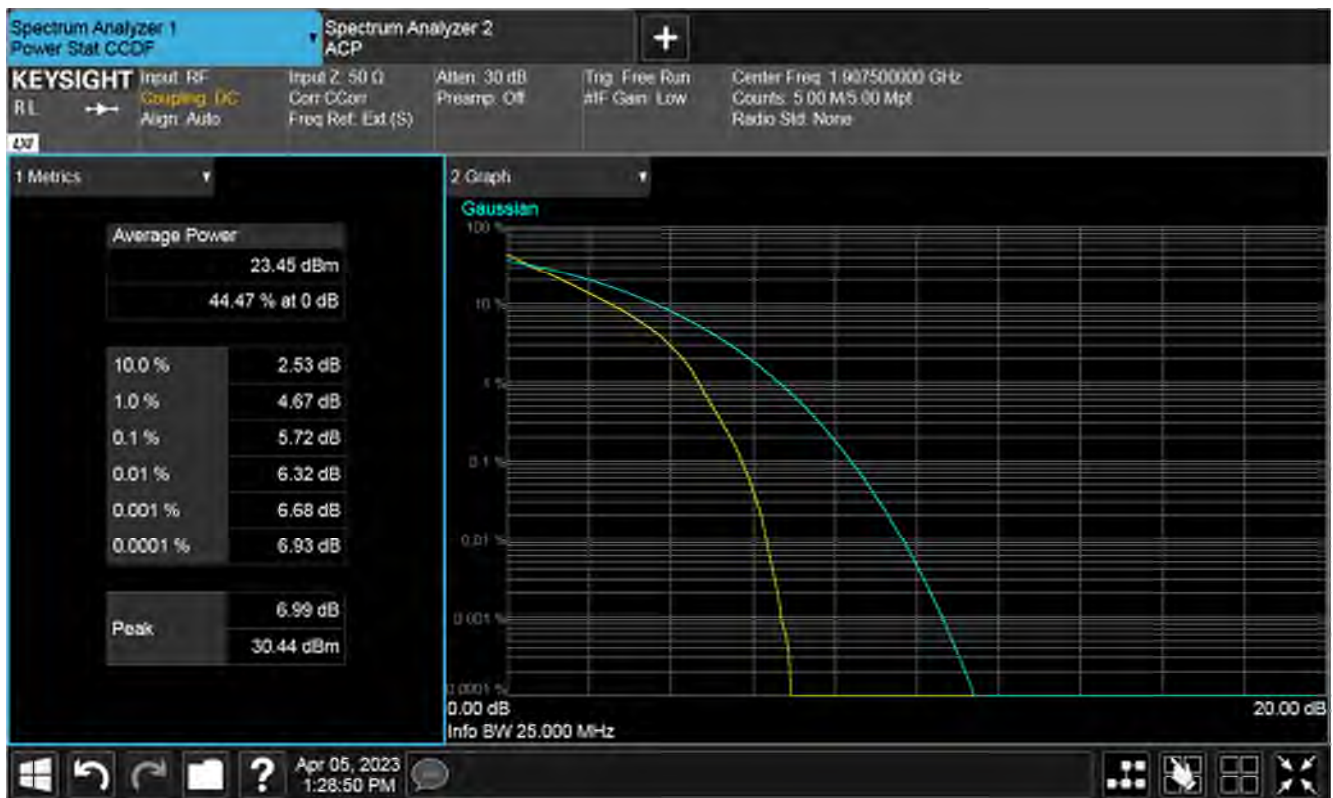
RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 15 MHz,
Modulation QPSK, High Channel



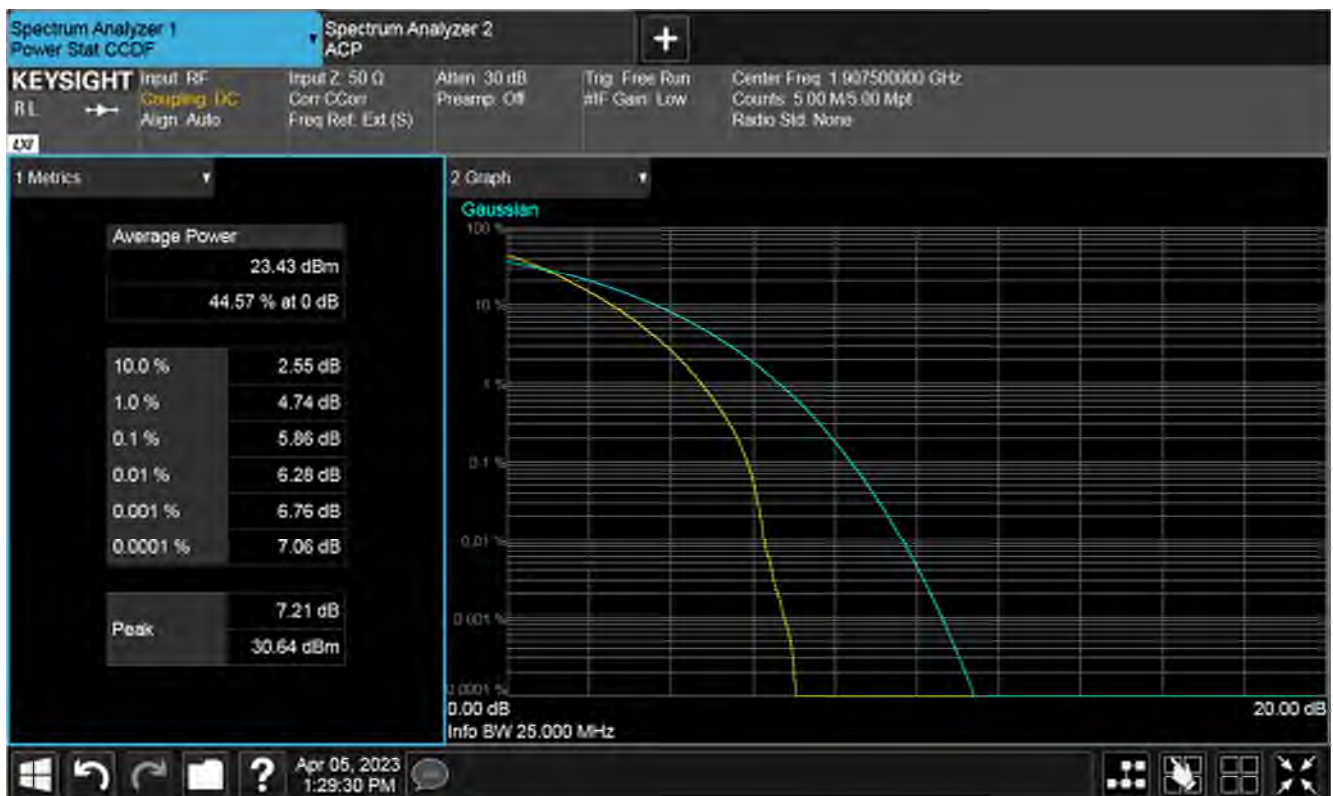
Plot of PAPR Low 1RB, High channel



Plot of PAPR High 1RB, High channel



Plot of PAPR 50%RB, High channel



Plot of PAPR 100%RB, High channel

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 15 MHz,
Modulation 16QAM, High Channel



Plot of PAPR Low 1RB, High channel



Plot of PAPR High 1RB, High channel



Plot of PAPR 50%RB, High channel

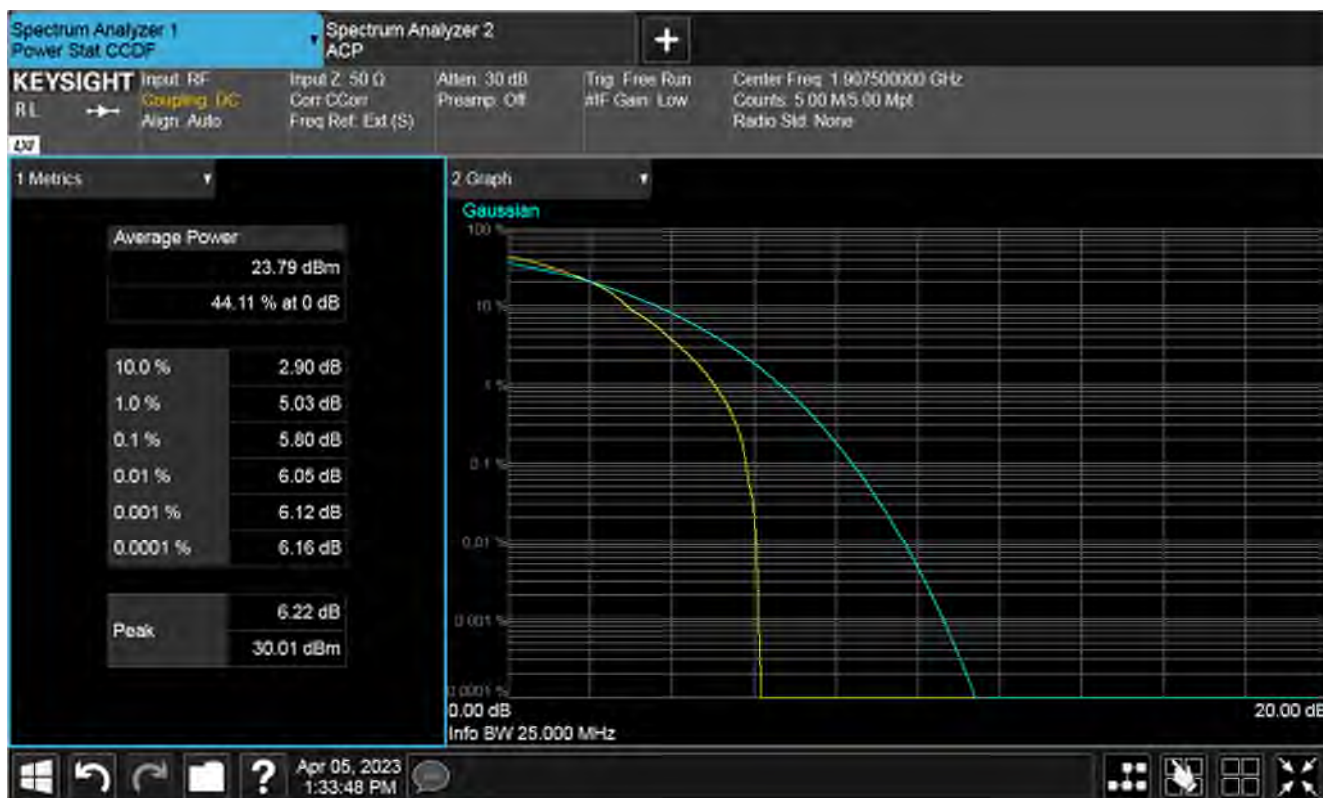


Plot of PAPR 100%RB, High channel

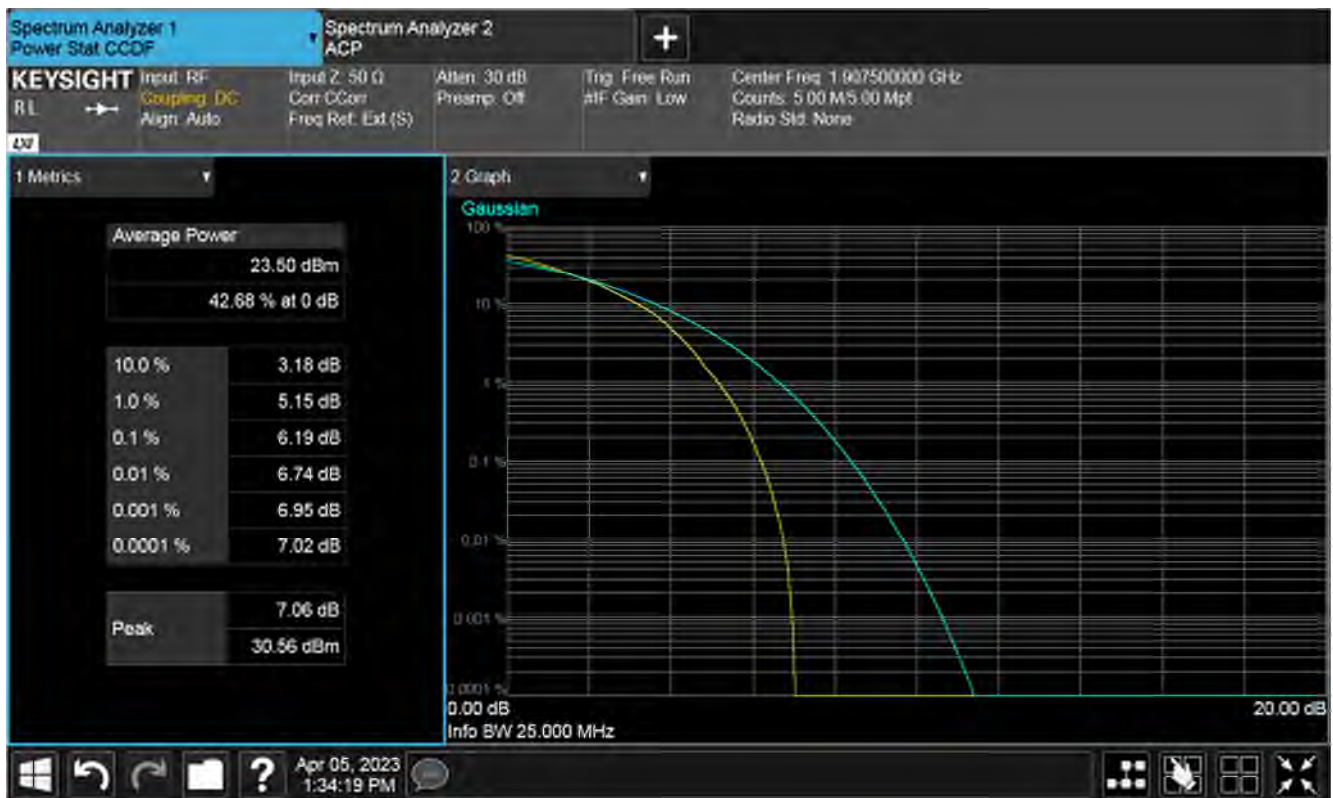
RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 15 MHz,
Modulation 64QAM, High Channel



Plot of PAPR Low 1RB, High channel



Plot of PAPR High 1RB, High channel



Plot of PAPR 50%RB, High channel



Plot of PAPR 100%RB, High channel

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 20 MHz,
Modulation QPSK, Low Channel



Plot of PAPR Low 1RB, Low channel



Plot of PAPR High 1RB, Low channel



Plot of PAPR 50%RB, Low channel



Plot of PAPR 100%RB, Low channel

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 20 MHz,
Modulation 16QAM, Low Channel



Plot of PAPR Low 1RB, Low channel



Plot of PAPR High 1RB, Low channel



Plot of PAPR 50%RB, Low channel

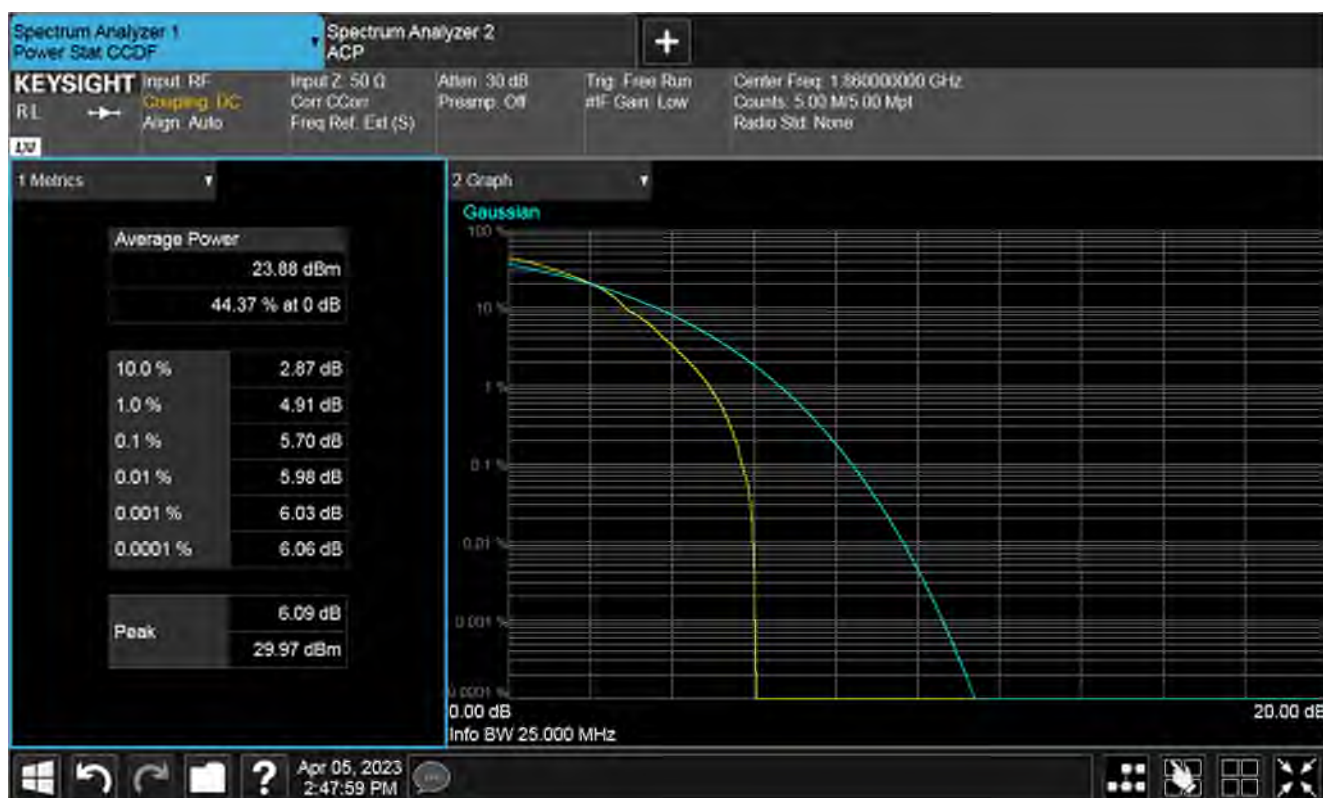


Plot of PAPR 100%RB, Low channel

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 20 MHz,
Modulation 64QAM, Low Channel



Plot of PAPR Low 1RB, Low channel



Plot of PAPR High 1RB, Low channel



Plot of PAPR 50%RB, Low channel



Plot of PAPR 100%RB, Low channel

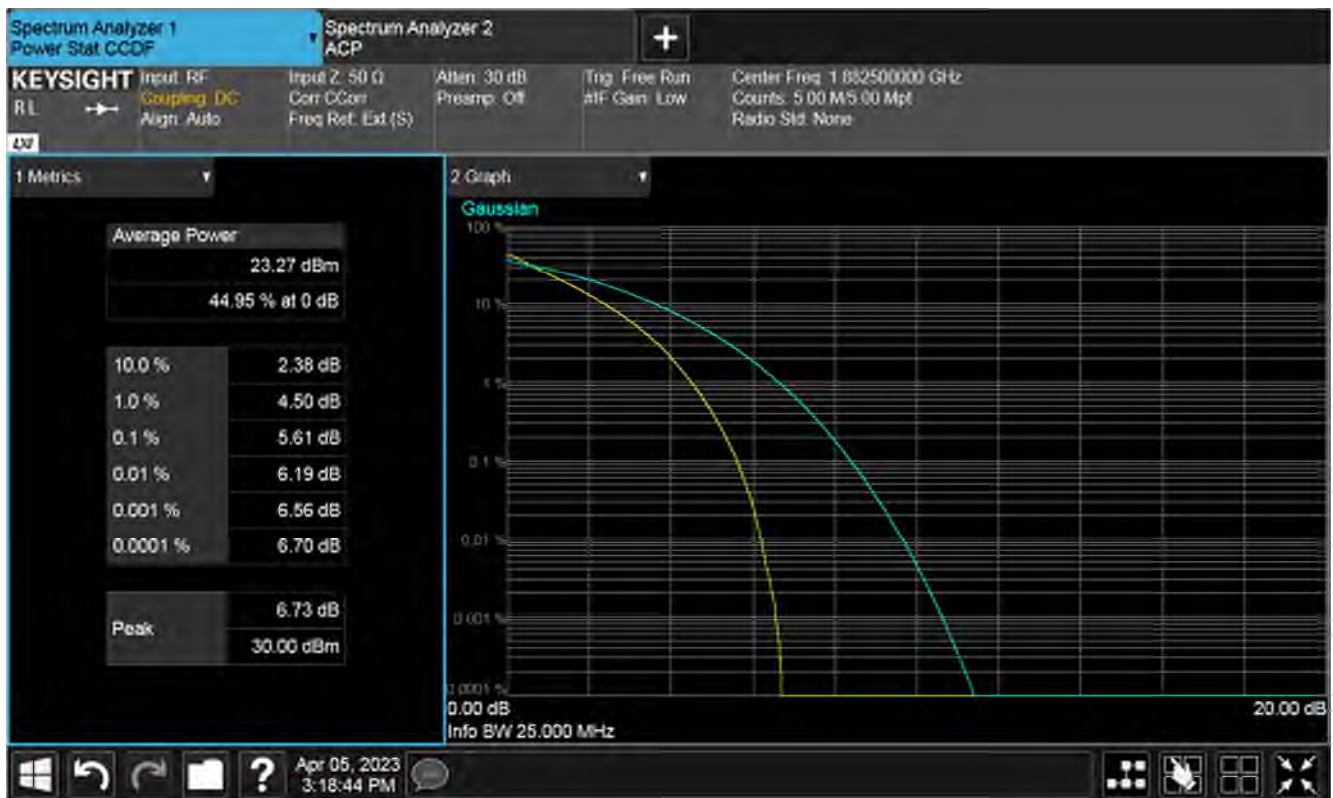
RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 20 MHz,
Modulation QPSK, Mid Channel



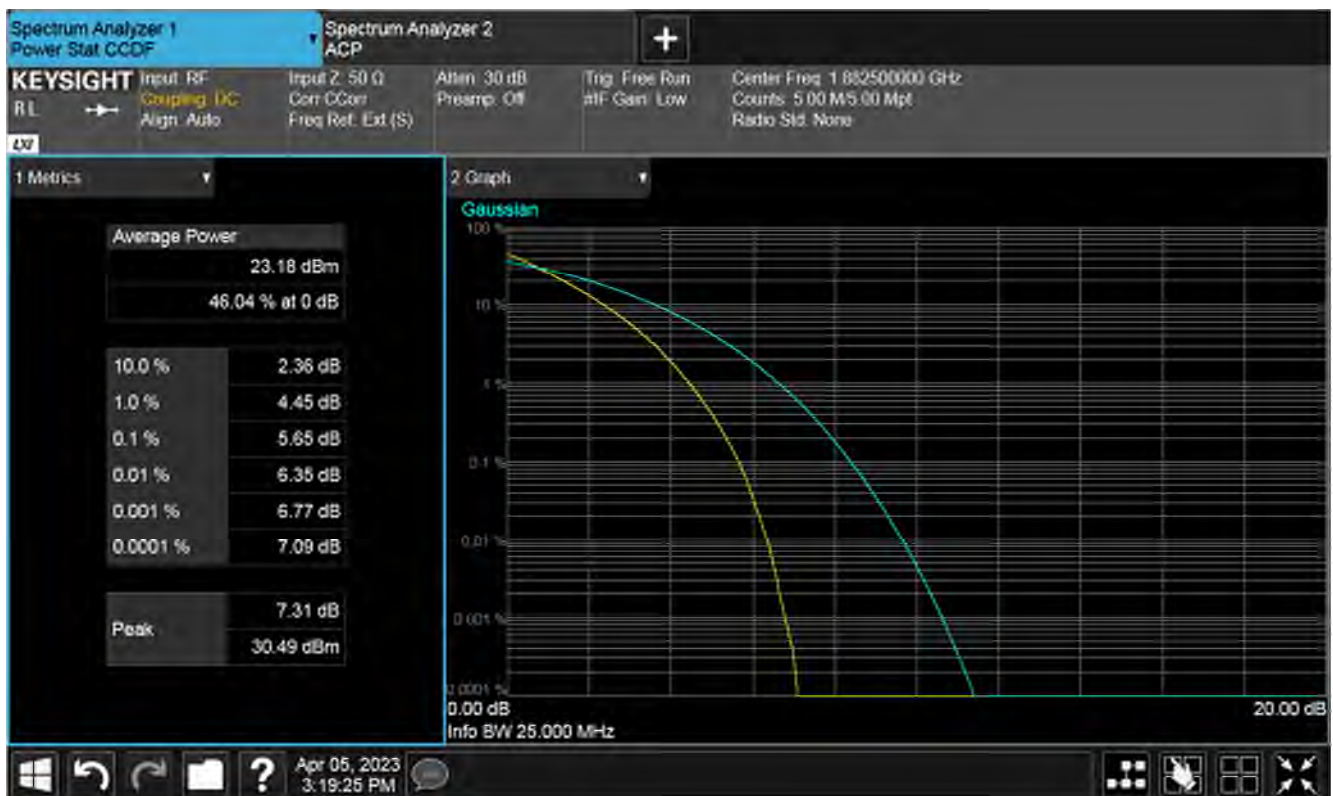
Plot of PAPR Low 1RB, Mid channel



Plot of PAPR High 1RB, Mid channel



Plot of PAPR 50%RB, Mid channel



Plot of PAPR 100%RB, Mid channel

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 20 MHz,
Modulation 16QAM, Mid Channel



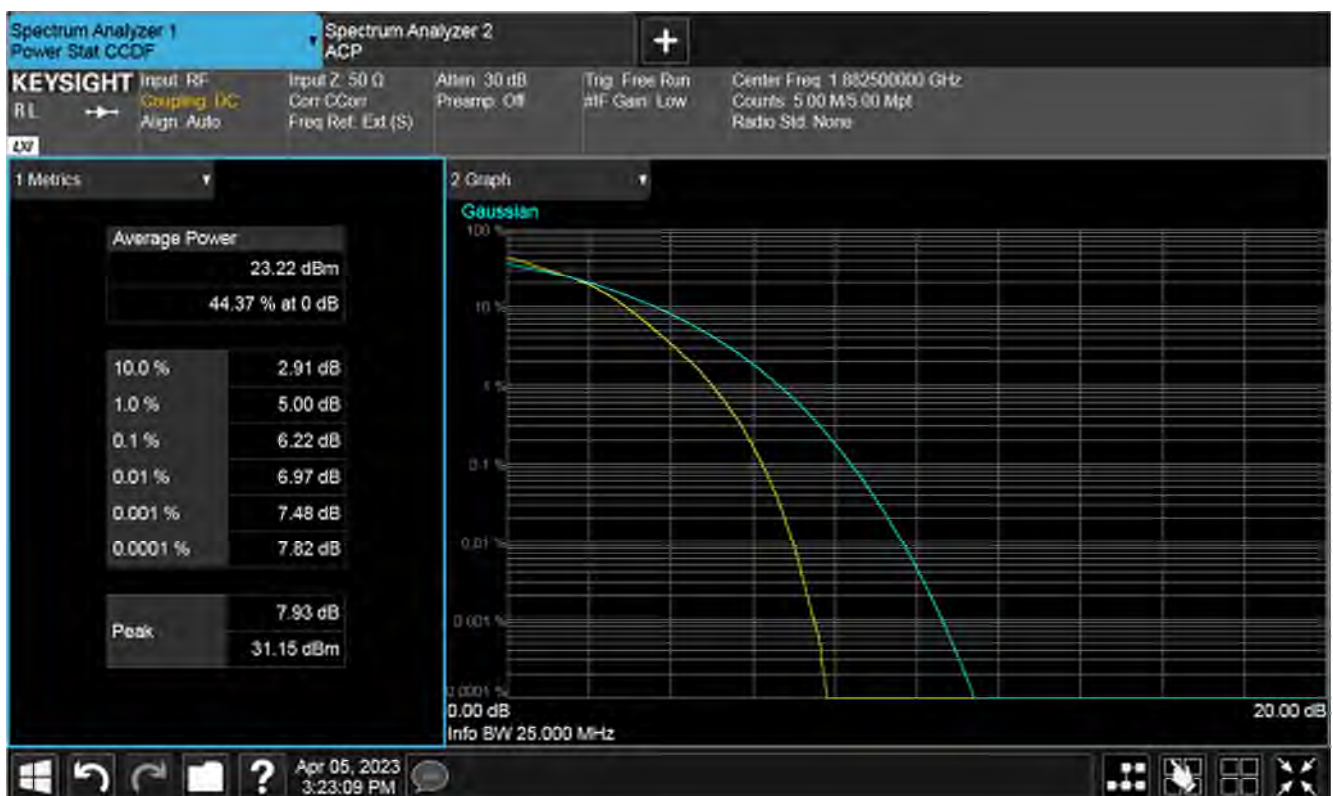
Plot of PAPR Low 1RB, Mid channel



Plot of PAPR High 1RB, Mid channel



Plot of PAPR 50%RB, Mid channel



Plot of PAPR 100%RB, Mid channel

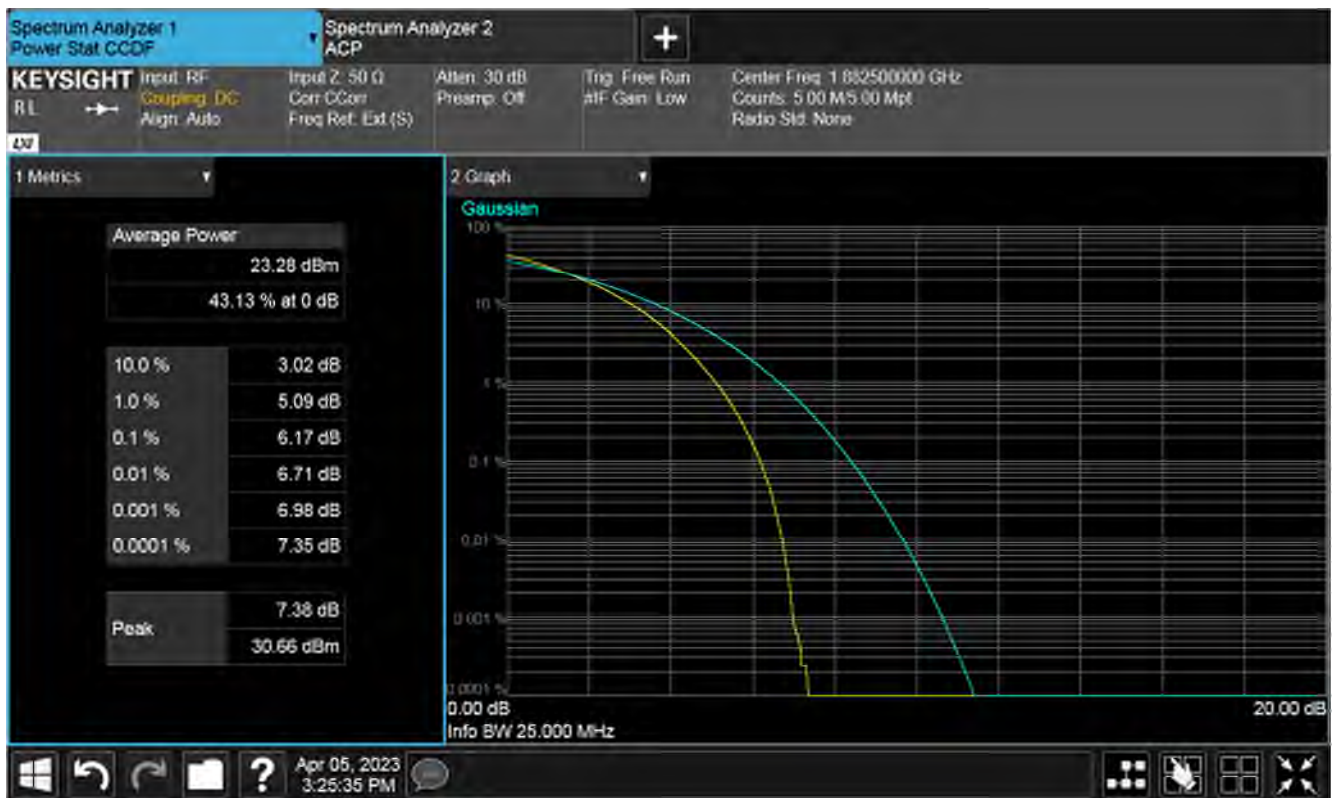
RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 20 MHz,
Modulation 64QAM, Mid Channel



Plot of PAPR Low 1RB, Mid channel



Plot of PAPR High 1RB, Mid channel



Plot of PAPR 50%RB, Mid channel



Plot of PAPR 100%RB, Mid channel

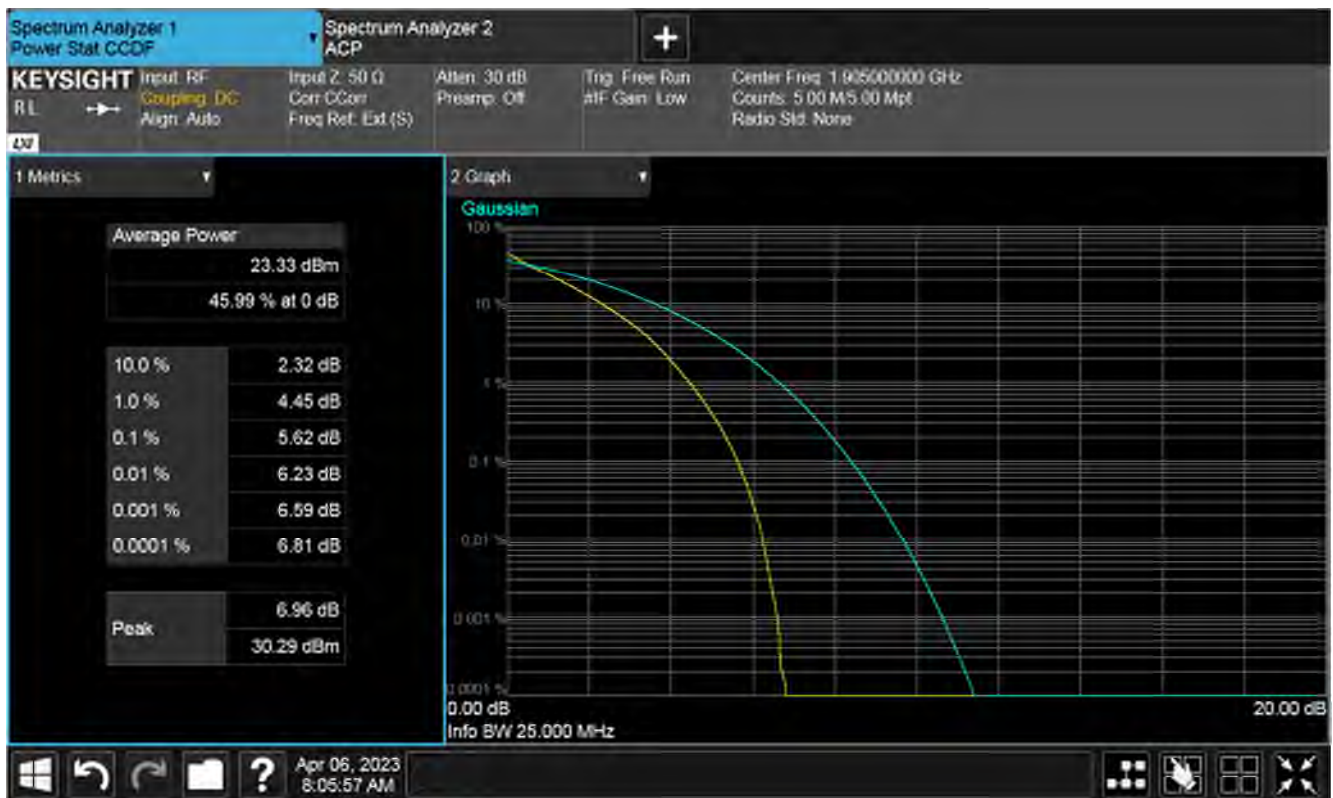
RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 20 MHz,
Modulation QPSK, High Channel



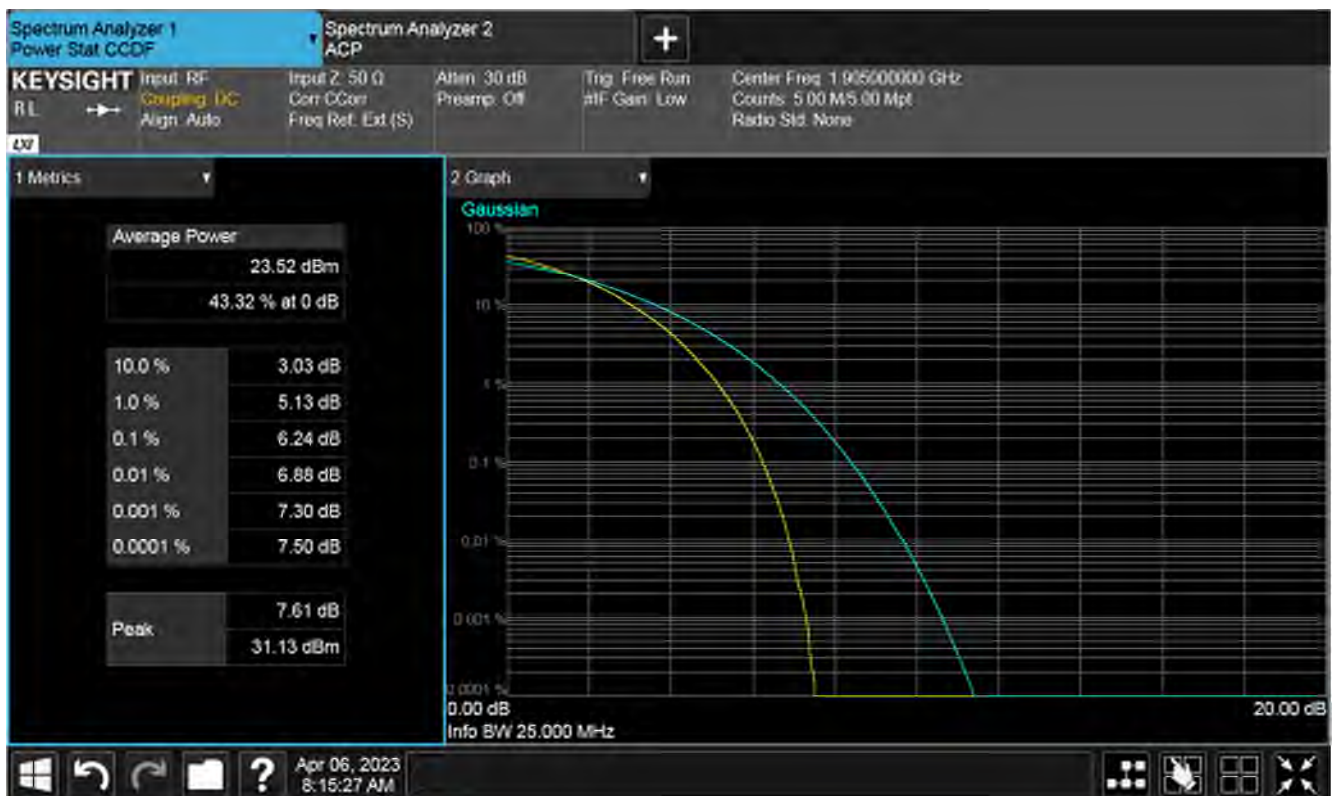
Plot of PAPR Low 1RB, High channel



Plot of PAPR High 1RB, High channel



Plot of PAPR 50%RB, High channel



Plot of PAPR 100%RB, High channel

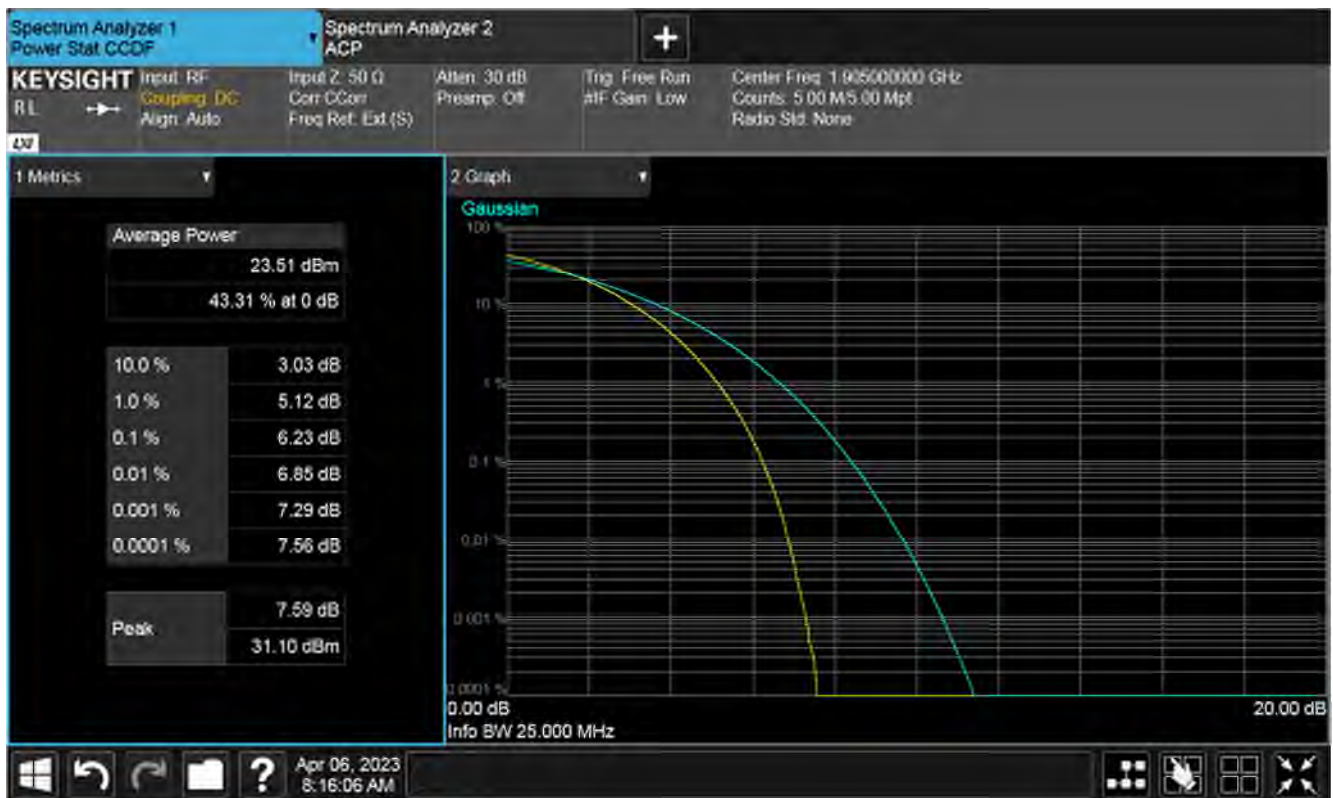
RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 20 MHz,
Modulation 16QAM, High Channel



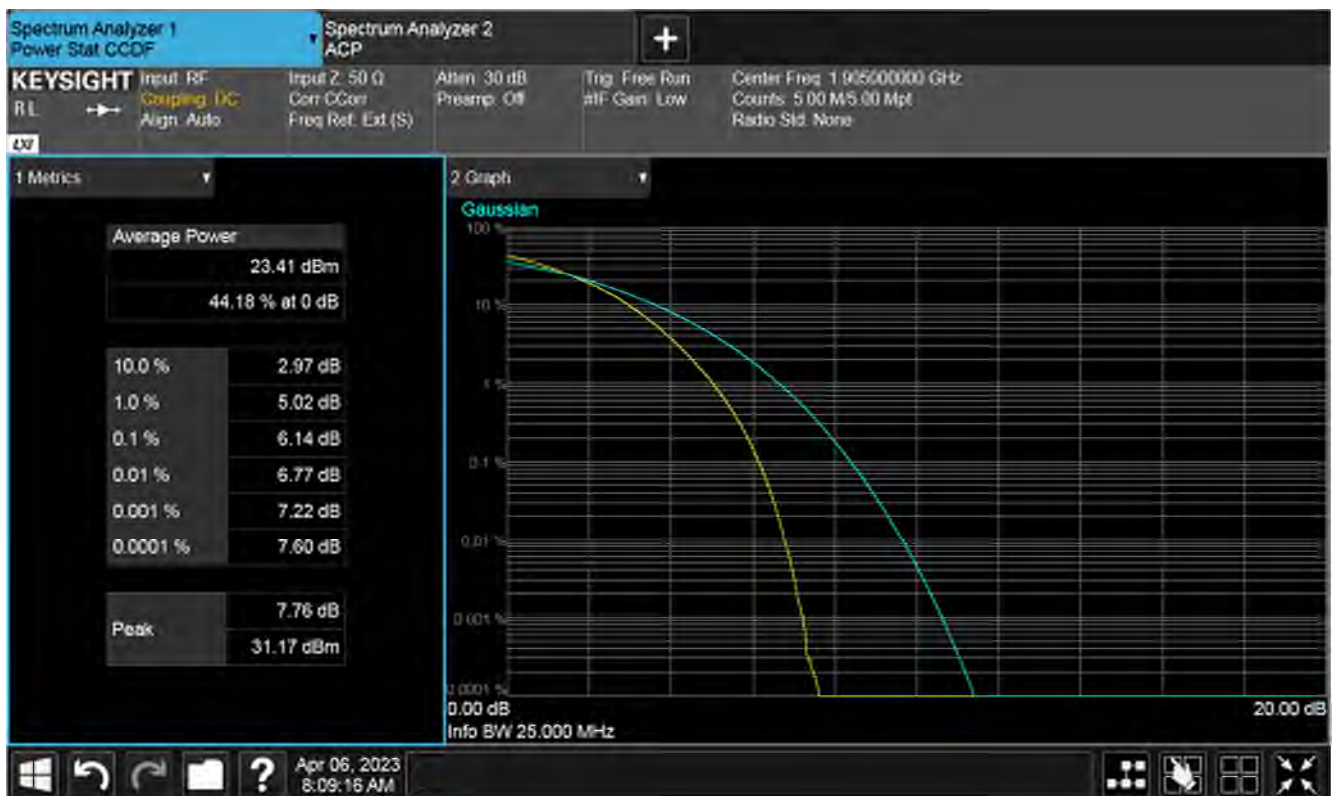
Plot of PAPR Low 1RB, High channel



Plot of PAPR High 1RB, High channel

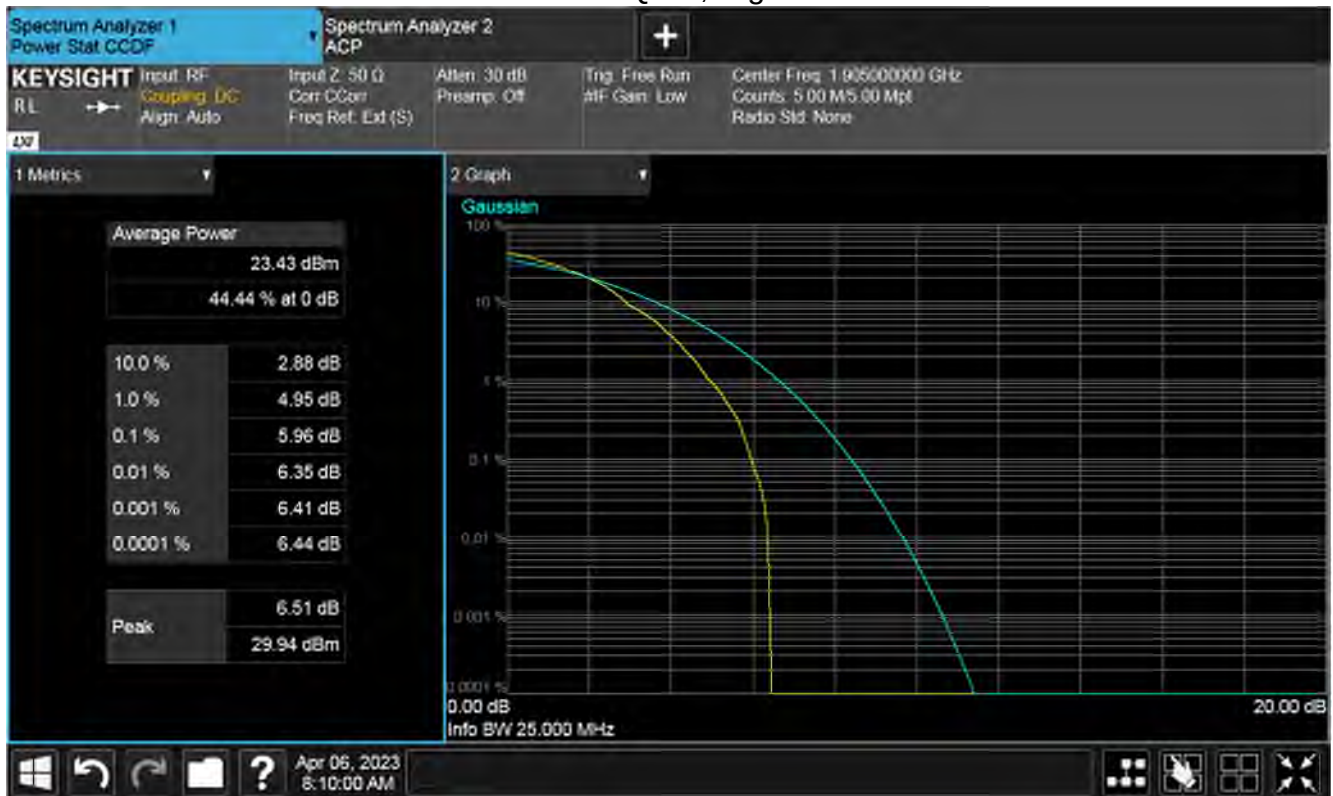


Plot of PAPR 50%RB, High channel

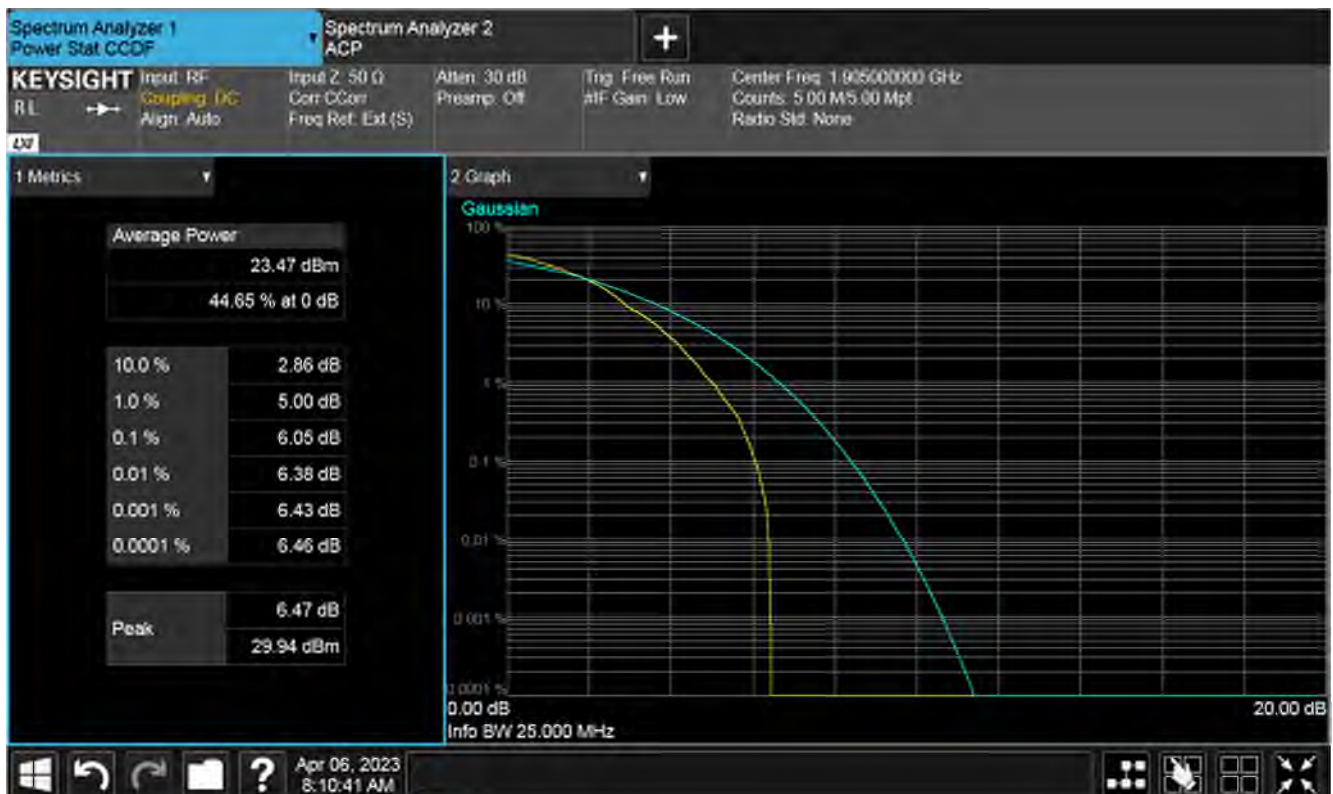


Plot of PAPR 100%RB, High channel

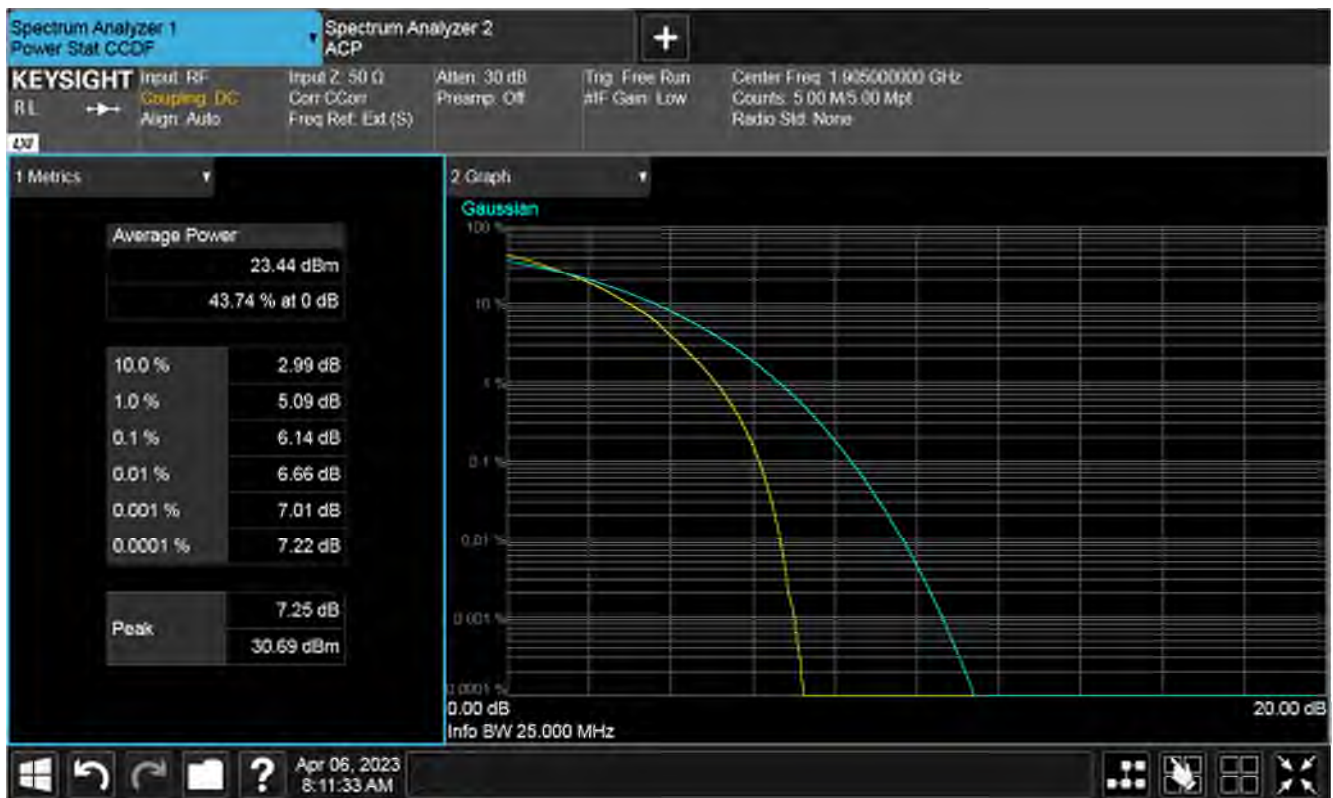
RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 20 MHz,
Modulation 64QAM, High Channel



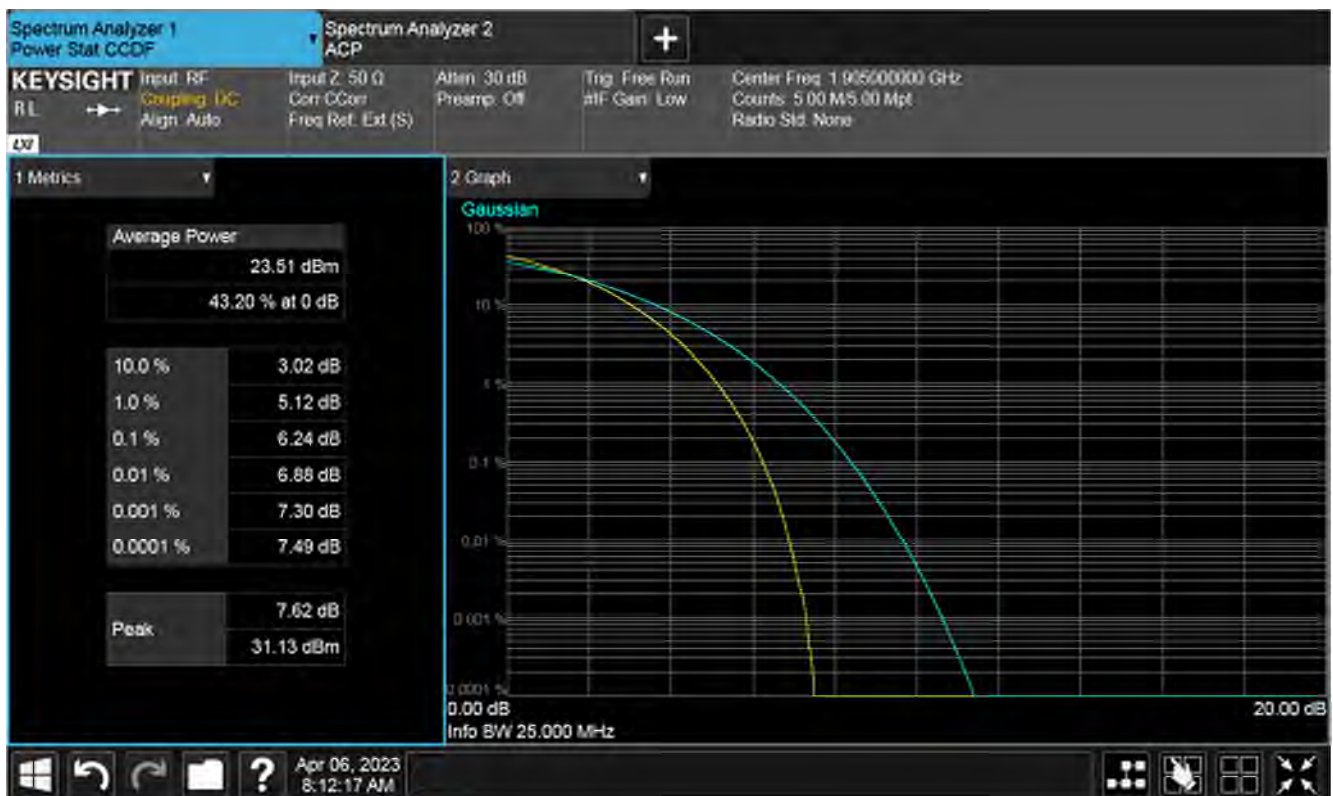
Plot of PAPR Low 1RB, High channel



Plot of PAPR High 1RB, High channel



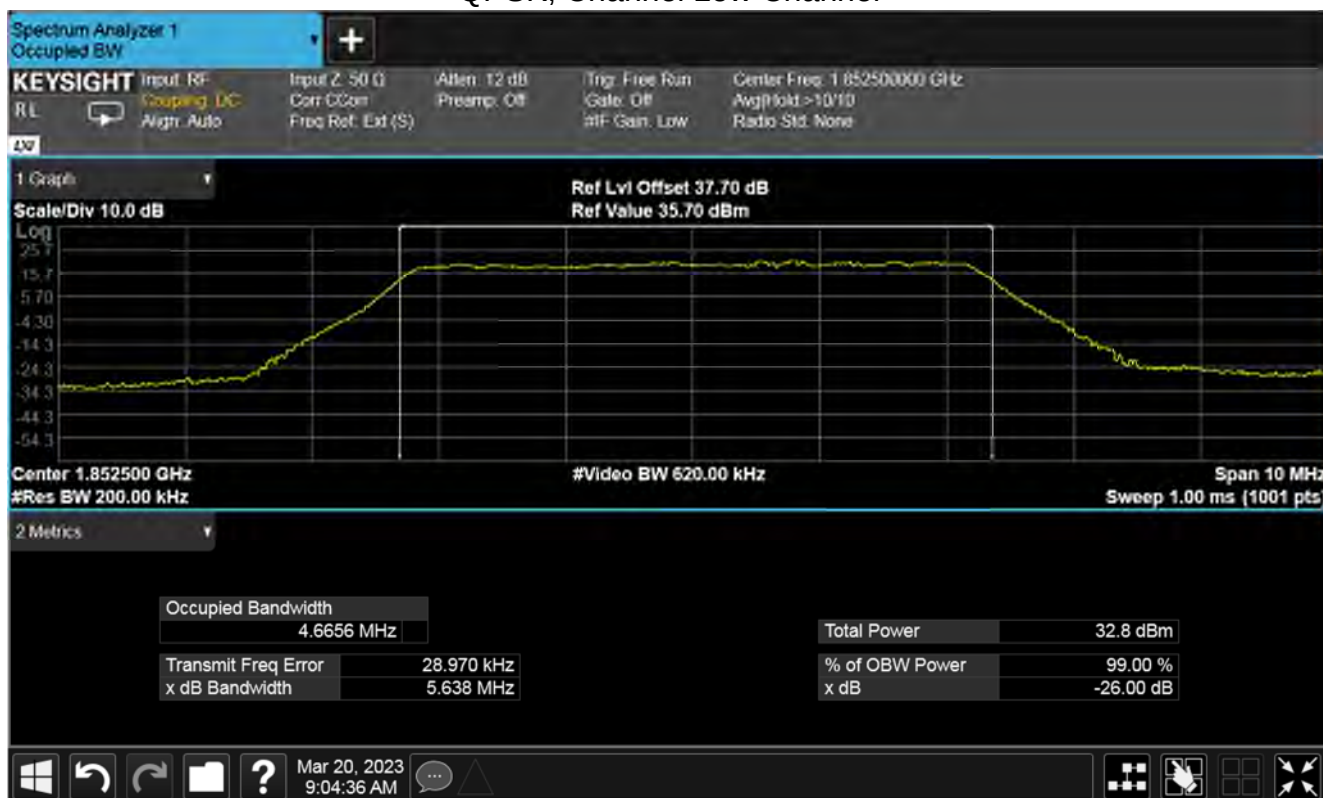
Plot of PAPR 50%RB, High channel



Plot of PAPR 100%RB, High channel

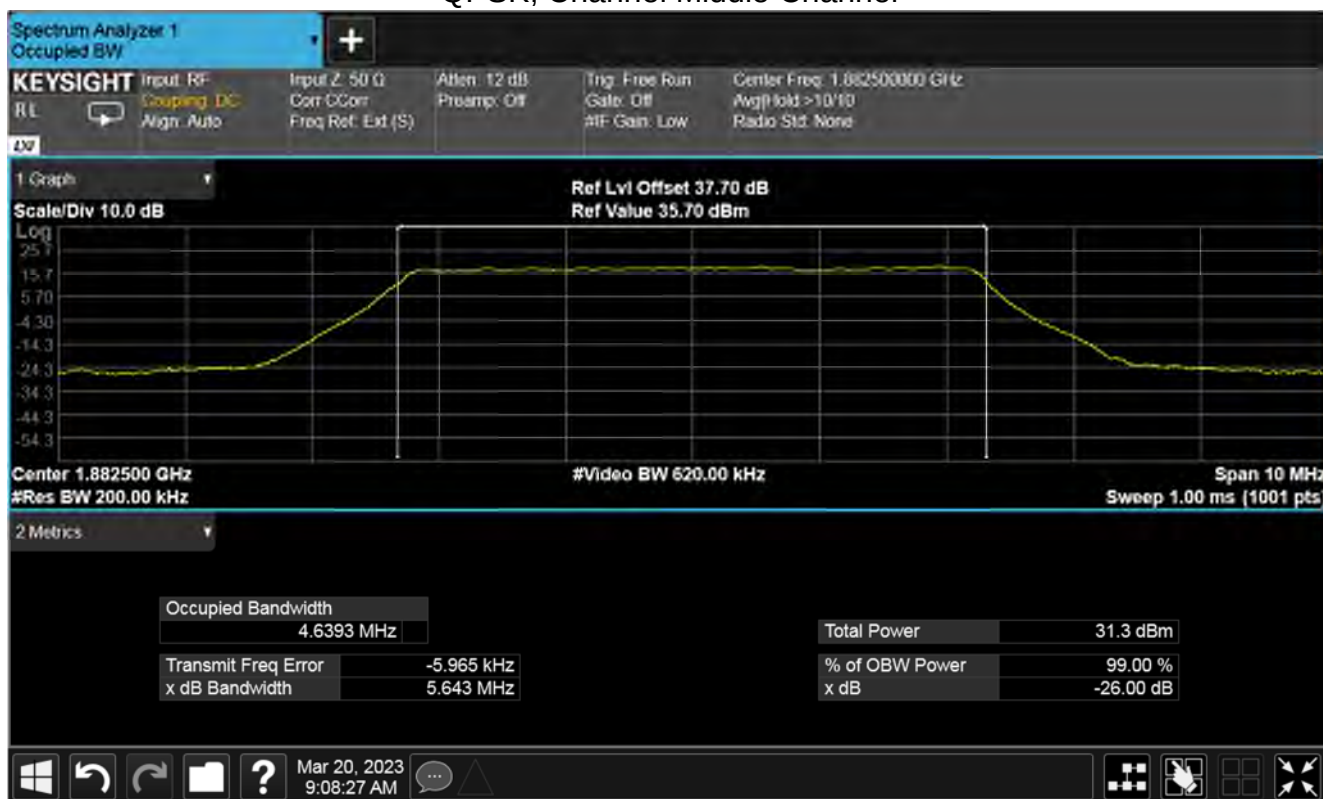
6.3 Occupied Bandwidth

RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation QPSK, Channel Low Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation QPSK, Channel Middle Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

File Name: Airspan Communications Ltd.14011-1 Issue 01

RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation QPSK, Channel High Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz, Modulation QPSK, Channel Low Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz,
Modulation QPSK, Channel Middle Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz,
Modulation QPSK, Channel High Channel



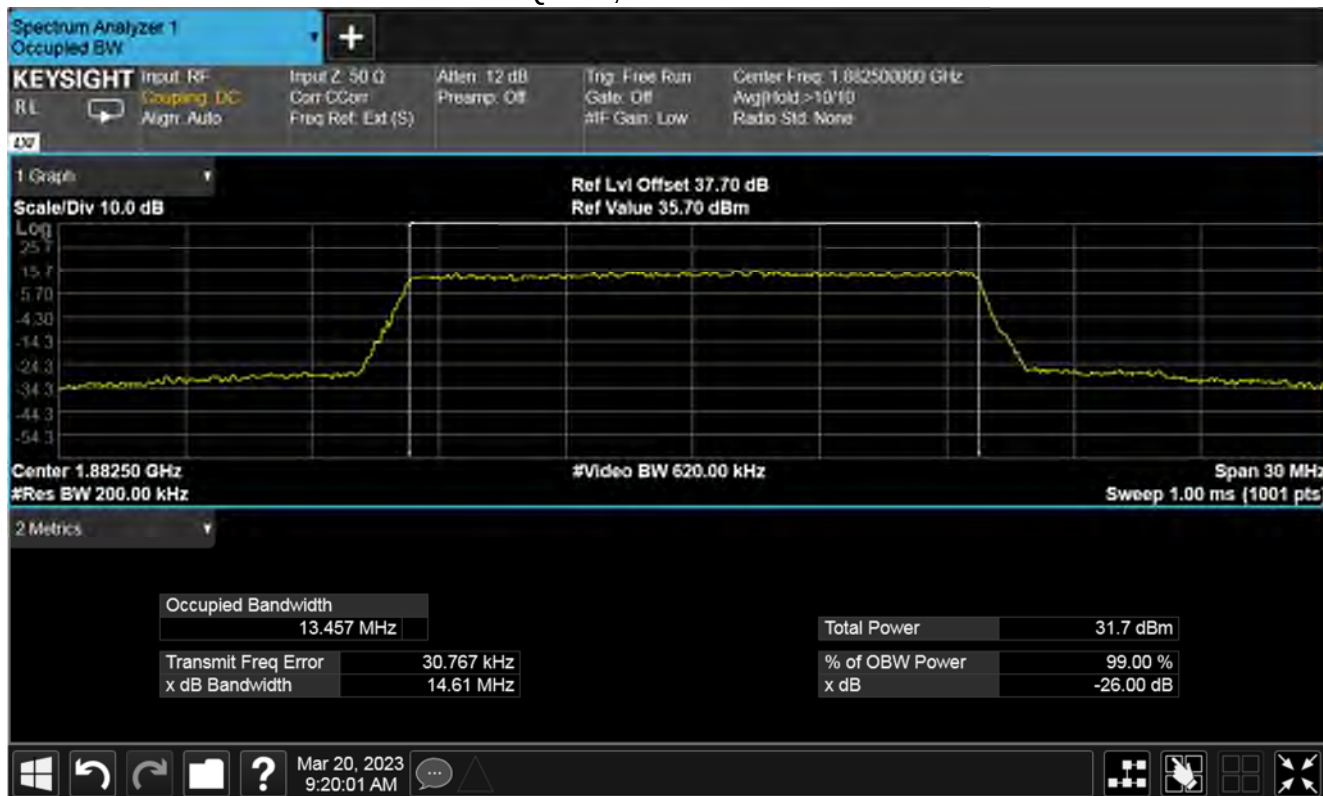
Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 15 MHz,
Modulation QPSK, Channel Low Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 15 MHz,
Modulation QPSK, Channel Middle Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 15 MHz,
Modulation QPSK, Channel High Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 20 MHz,
Modulation QPSK, Channel Low Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 20 MHz,
Modulation QPSK, Channel Middle Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 20 MHz,
Modulation QPSK, Channel High Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation 16QAM, Channel Low Channel



RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation 16QAM, Channel Middle Channel



File Name: Airspan Communications Ltd.14011-1 Issue 01

QMF21J - Issue 05 - RNE Issue 03; FCC Part 24 2021

RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation 16QAM, Channel High Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz, Modulation 16QAM, Channel Low Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

File Name: Airspan Communications Ltd.14011-1 Issue 01

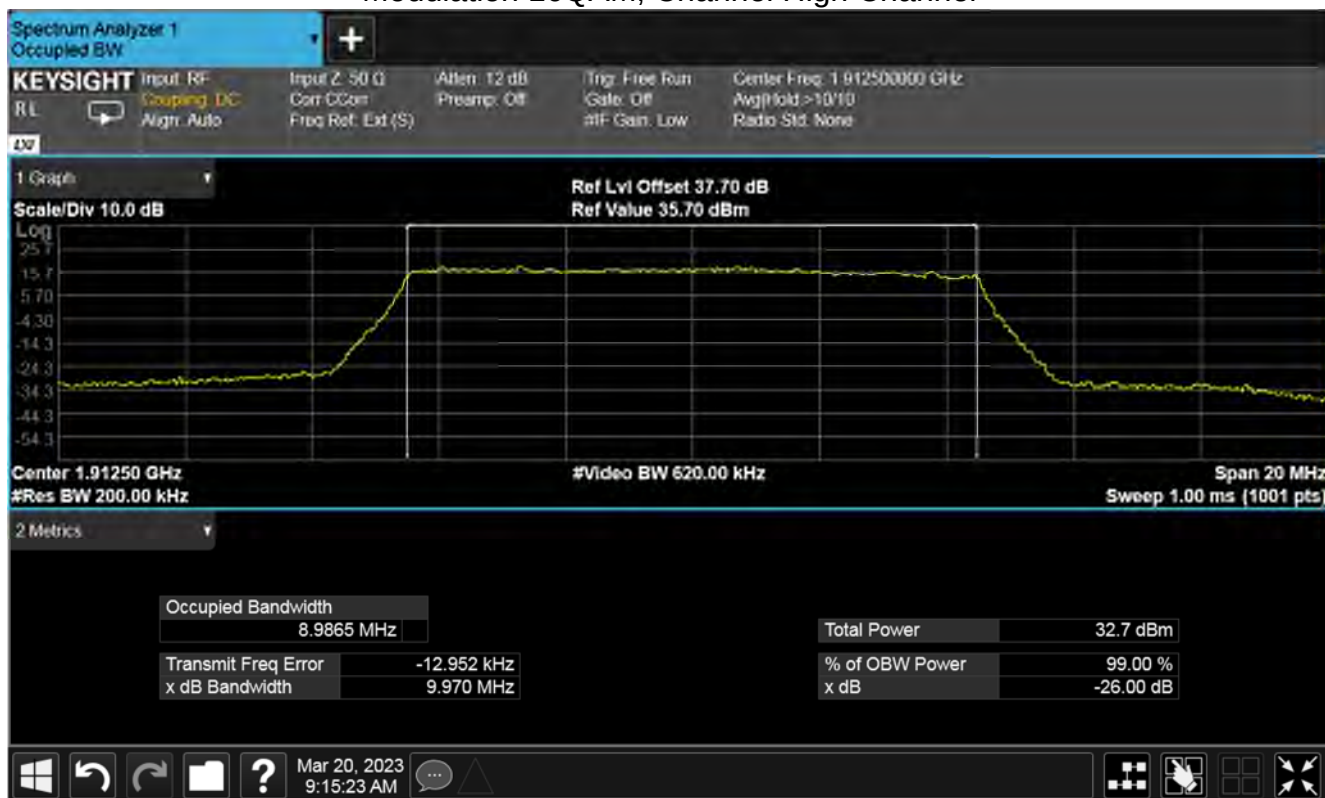
QMF21J - Issue 05 - RNE Issue 03; FCC Part 24 2021

RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz,
Modulation 16QAM, Channel Middle Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz,
Modulation 16QAM, Channel High Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

File Name: Airspan Communications Ltd.14011-1 Issue 01

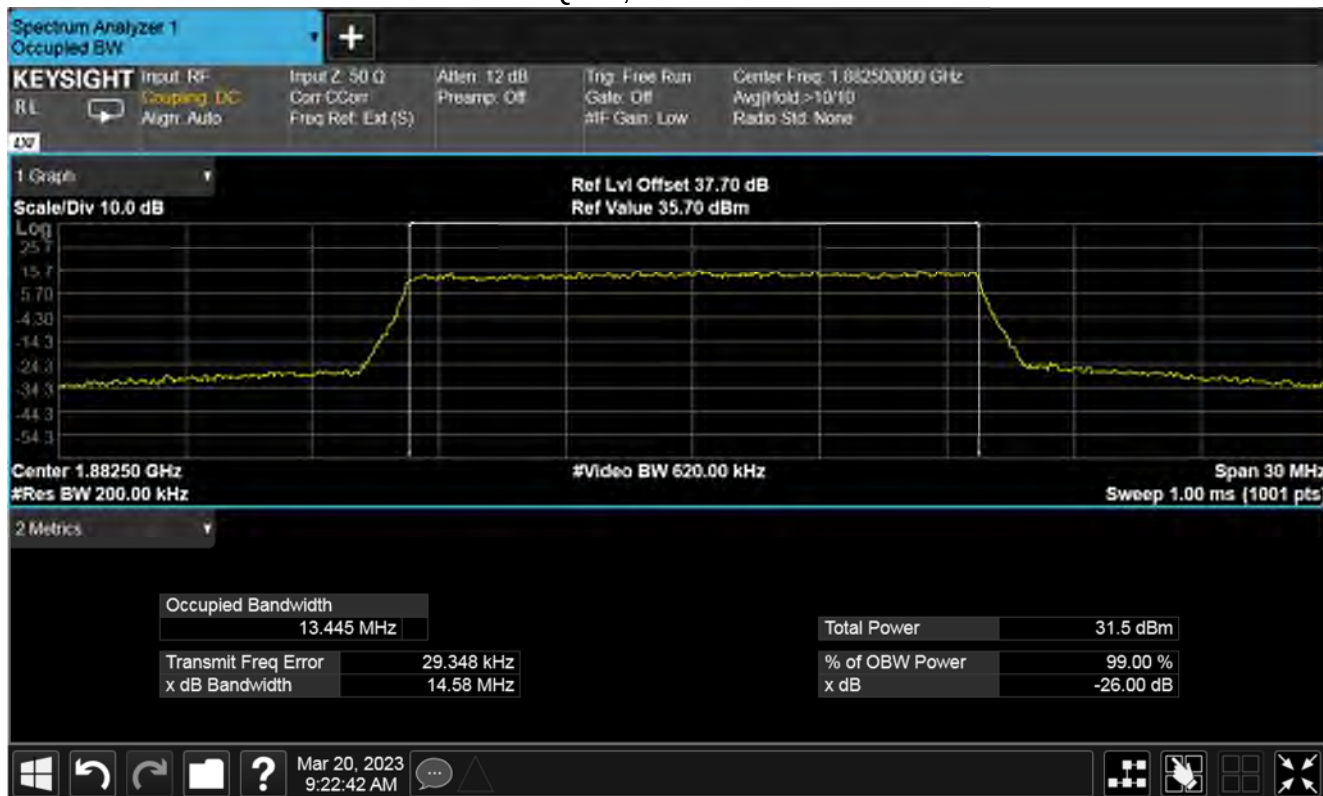
QMF21J - Issue 05 - RNE Issue 03; FCC Part 24 2021

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 15 MHz,
Modulation 16QAM, Channel Low Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 15 MHz,
Modulation 16QAM, Channel Middle Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 15 MHz,
Modulation 16QAM, Channel High Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 20 MHz,
Modulation 16QAM, Channel Low Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 20 MHz,
Modulation 16QAM, Channel Middle Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 20 MHz,
Modulation 16QAM, Channel High Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation 64QAM, Channel Low Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation 64QAM, Channel Middle Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

File Name: Airspan Communications Ltd.14011-1 Issue 01

QMF21J - Issue 05 - RNE Issue 03; FCC Part 24 2021

RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation 64QAM, Channel High Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz, Modulation 64QAM, Channel Low Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

File Name: Airspan Communications Ltd.14011-1 Issue 01

QMF21J - Issue 05 - RNE Issue 03; FCC Part 24 2021

RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz,
Modulation 64QAM, Channel Middle Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz,
Modulation 64QAM, Channel High Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 15 MHz,
Modulation 64QAM, Channel Low Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 15 MHz,
Modulation 64QAM, Channel Middle Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 15 MHz,
Modulation 64QAM, Channel High Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 20 MHz,
Modulation 64QAM, Channel Low Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 20 MHz,
Modulation 64QAM, Channel Middle Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

RF Parameters: Band 1850-1915 MHz, Power 23 dBm, Channel Spacing 20 MHz,
Modulation 64QAM, Channel High Channel



Plot for 99 % Bandwidth (MHz) Nominal Temp & Volts

6.4 Band Edge emissions

NOTE: Only QPSK 5MHz and 10MHz plots are included in report for Band Edge to minimise report size.

RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation QPSK, Low Channel



Plot of Lower Band Edge 1RB Low



Plot of Lower Band Edge 50%RB Low



Plot of Lower Band Edge 100%RB Low

RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation QPSK, High Channel



Plot of Upper Band Edge 1RB High



Plot of Upper Band Edge 50%RB High

File Name: Airspan Communications Ltd.14011-1 Issue 01

QMF21J - Issue 05 - RNE Issue 03; FCC Part 24 2021



Plot of Upper Band Edge 100%RB

RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz,
Modulation QPSK, Low Channel



Plot of Lower Band Edge 1RB Low



Plot of Lower Band Edge 50%RB Low



Plot of Lower Band Edge 100%RB Low

RF Parameters: Band 1850-1915 MHz, Power 21 dBm, Channel Spacing 10 MHz,
Modulation QPSK, High Channel



Plot of Upper Band Edge 1RB High



Plot of Upper Band Edge 50%RB High

File Name: Airspan Communications Ltd.14011-1 Issue 01

QMF21J - Issue 05 - RNE Issue 03; FCC Part 24 2021



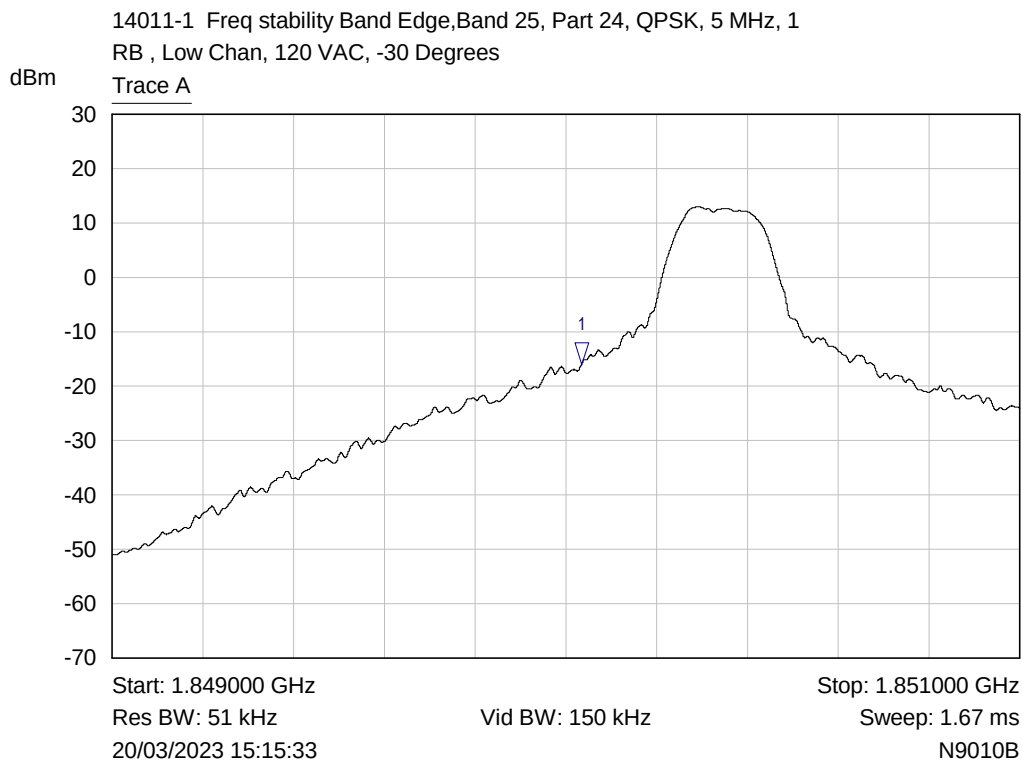
Plot of Upper Band Edge 100%RB

6.5 Frequency stability Band Edge emissions plots

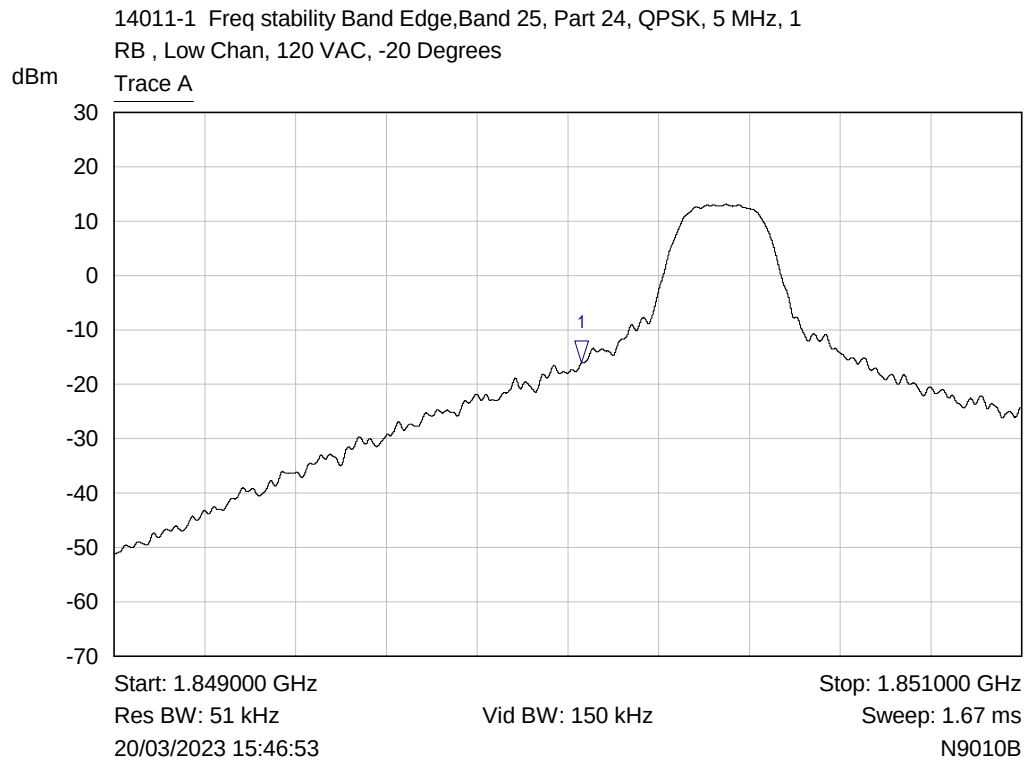
NOTE: Only QPSK 5MHz and 20MHz plots are included in report for Band Edge to minimise report size.

RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation QPSK, Low Channel

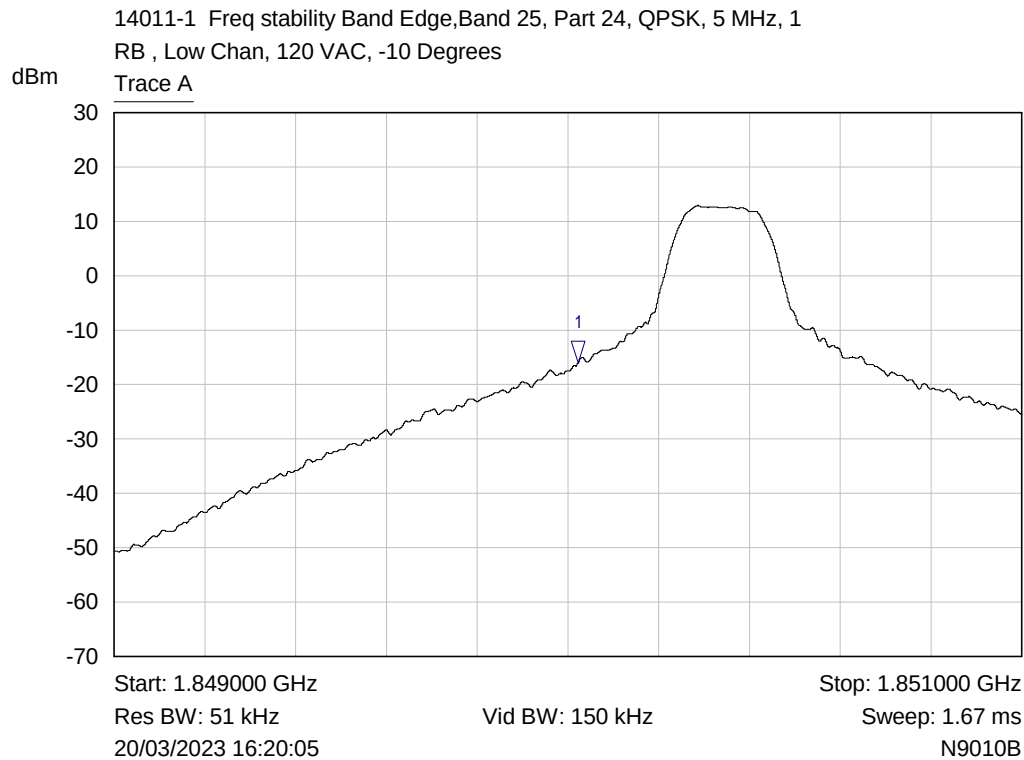
Plot of Lower Band Edge 1RB Low



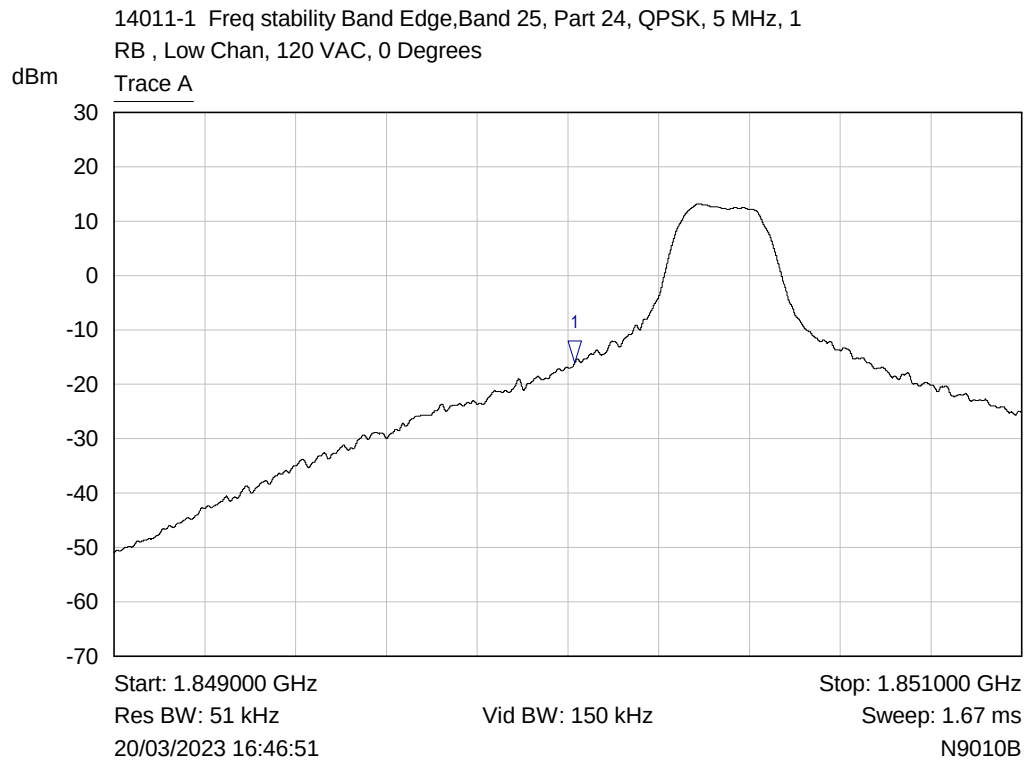
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.850034 GHz	-16.00 dBm	



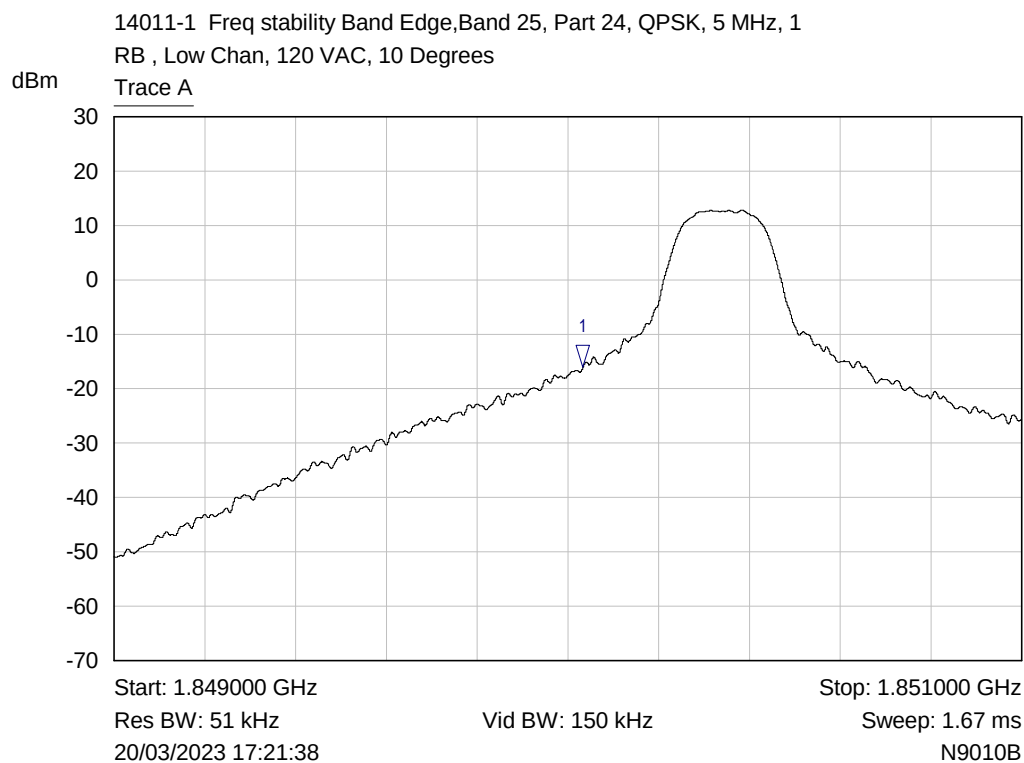
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	1.850030 GHz	-16.00 dBm	



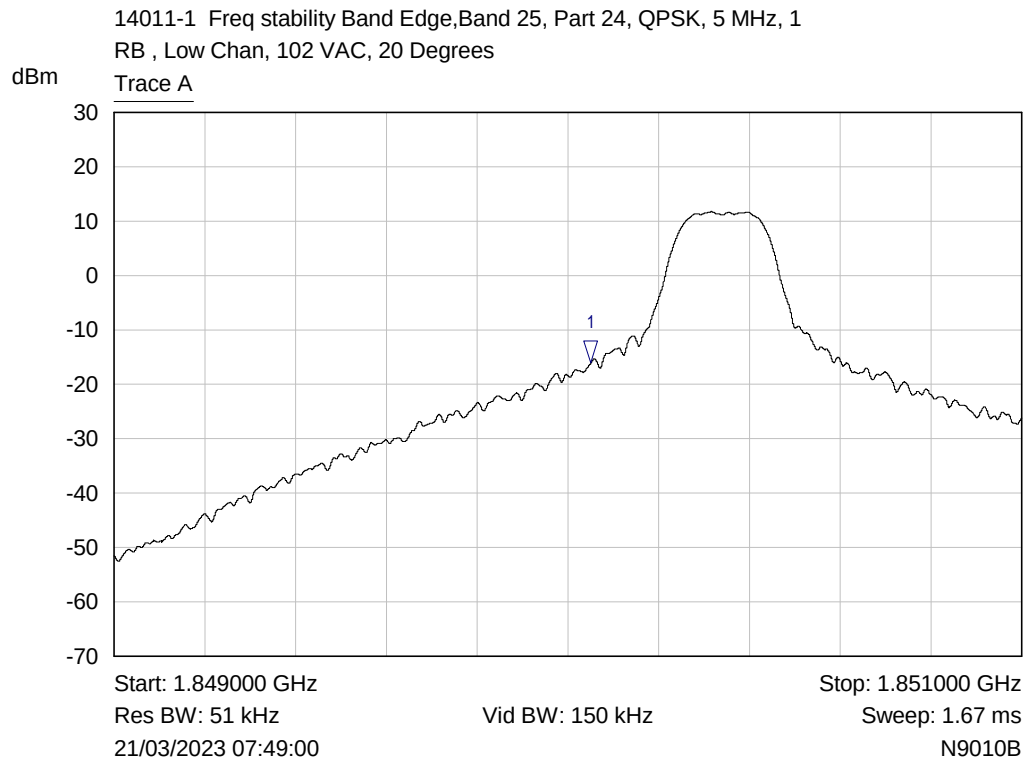
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	1.850023 GHz	-16.00 dBm	



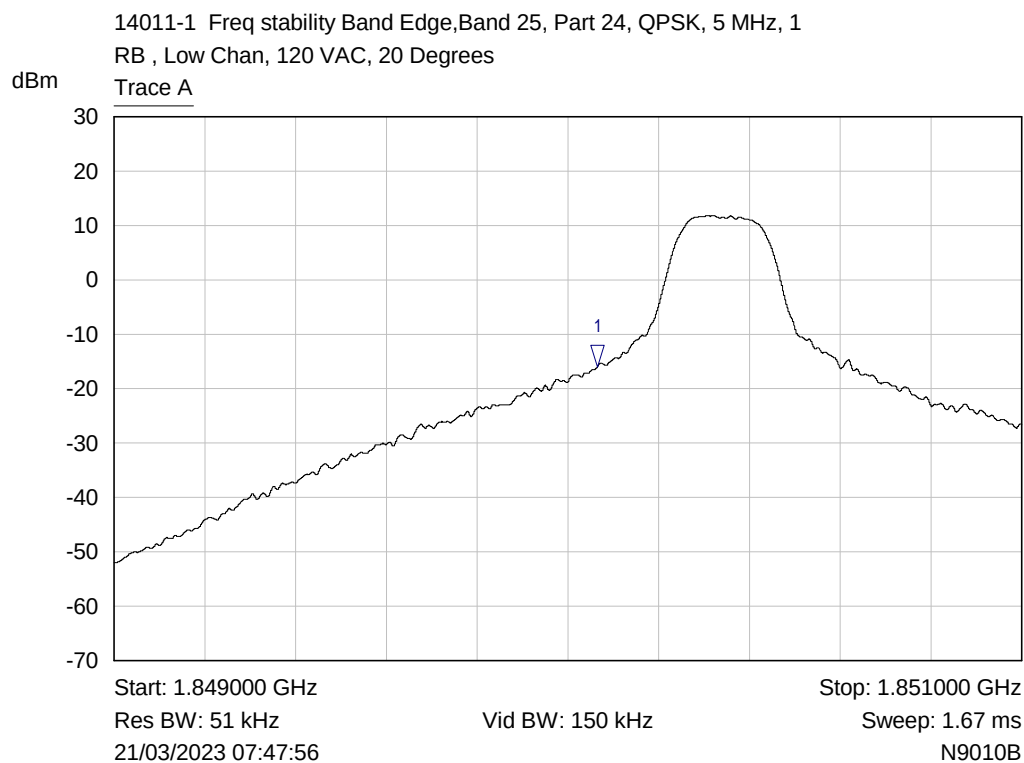
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.850016 GHz	-16.00 dBm	



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.850034 GHz	-16.00 dBm	



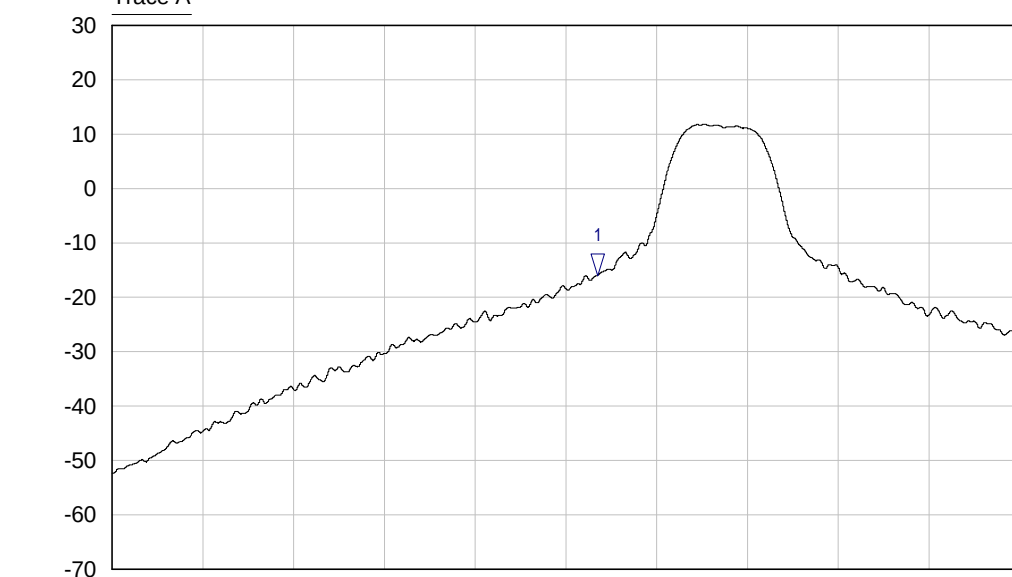
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	1.850051 GHz	-16.00 dBm	



Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	1.850065 GHz	-16.00 dBm	

14011-1 Freq stability Band Edge,Band 25, Part 24, QPSK, 5 MHz, 1
RB , Low Chan, 138 VAC, 20 Degrees

Trace A



Start: 1.849000 GHz

Res BW: 51 kHz

21/03/2023 07:50:05

Vid BW: 150 kHz

Stop: 1.851000 GHz

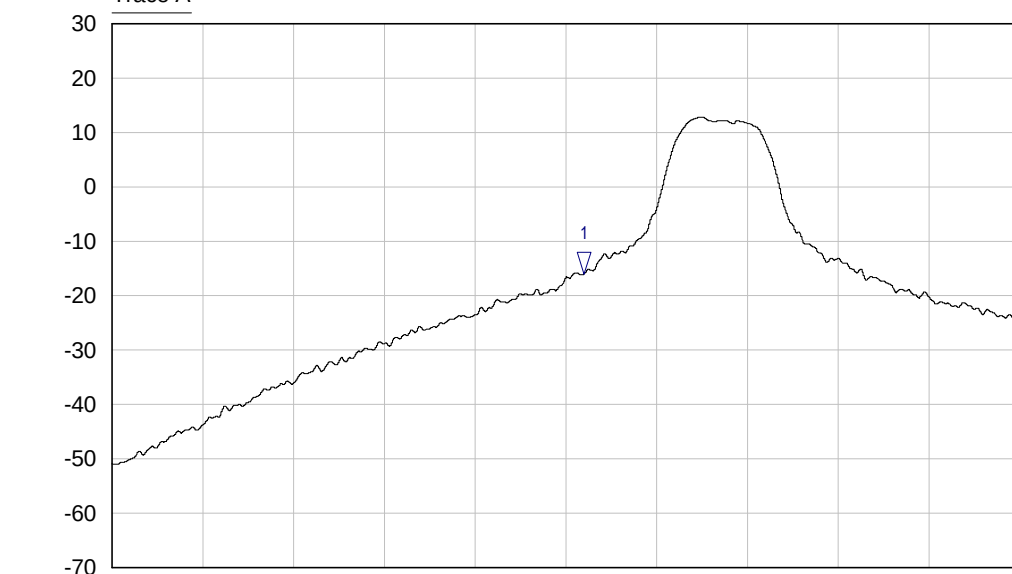
Sweep: 1.67 ms

N9010B

Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	1.850069 GHz	-16.00 dBm	

14011-1 Freq stability Band Edge,Band 25, Part 24, QPSK, 5 MHz, 1
RB , Low Chan, 120 VAC, 30 Degrees

Trace A



Start: 1.849000 GHz

Res BW: 51 kHz

21/03/2023 08:26:00

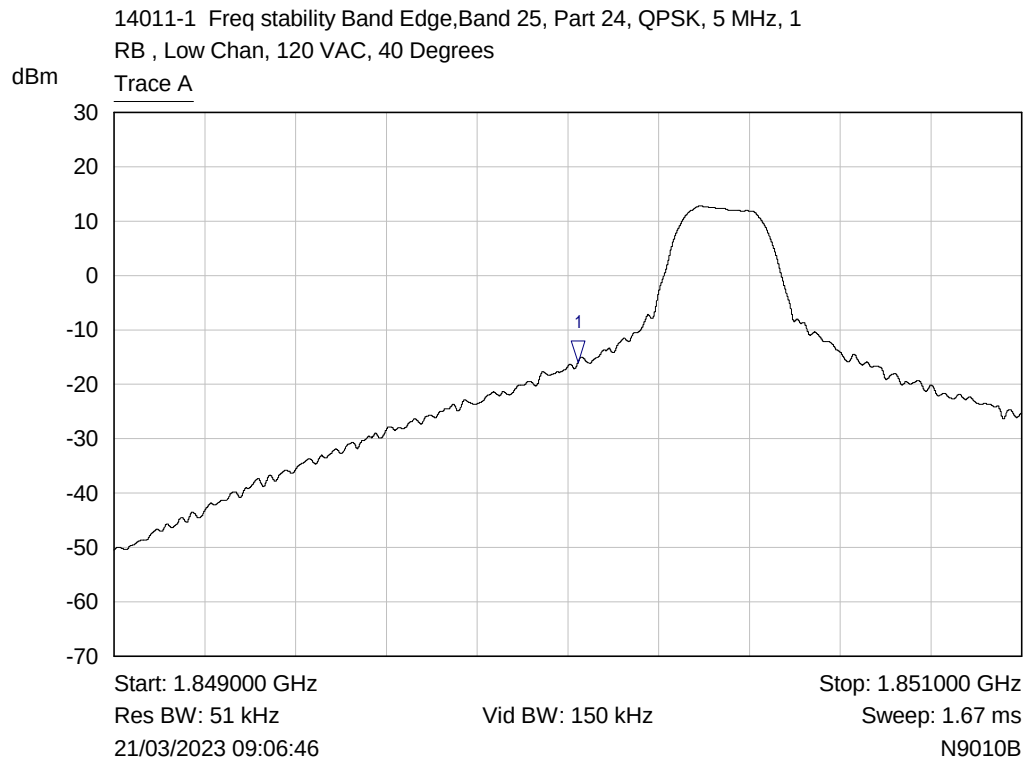
Vid BW: 150 kHz

Stop: 1.851000 GHz

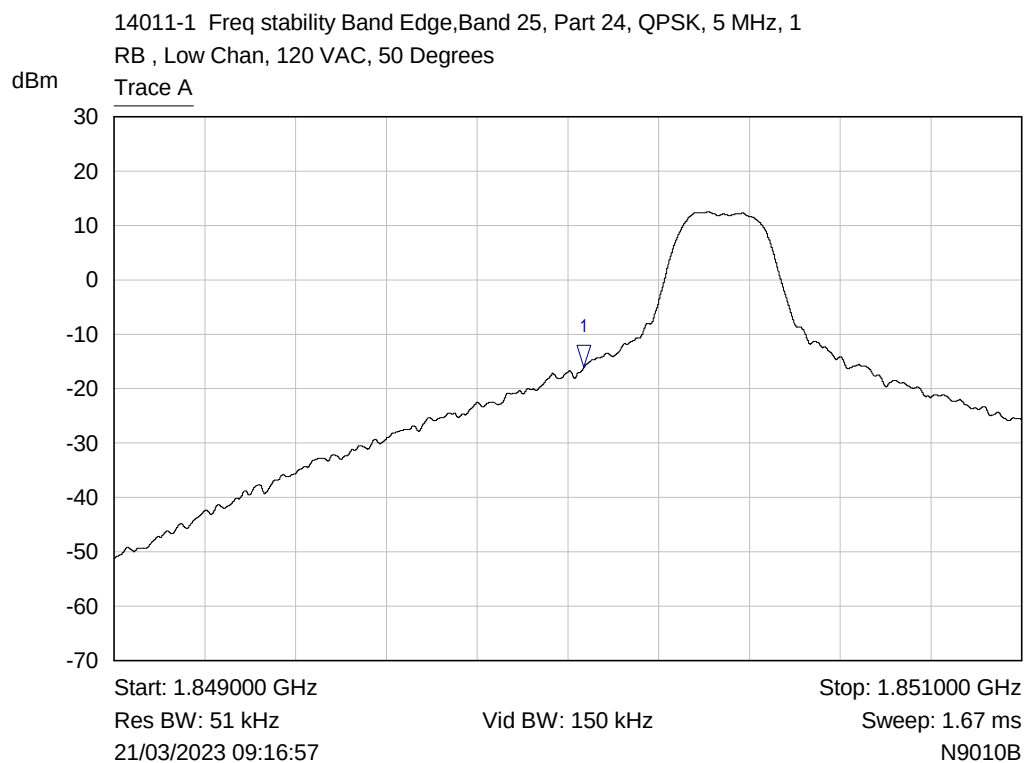
Sweep: 1.67 ms

N9010B

Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	1.850040 GHz	-16.00 dBm	



Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	1.850022 GHz	-16.00 dBm	

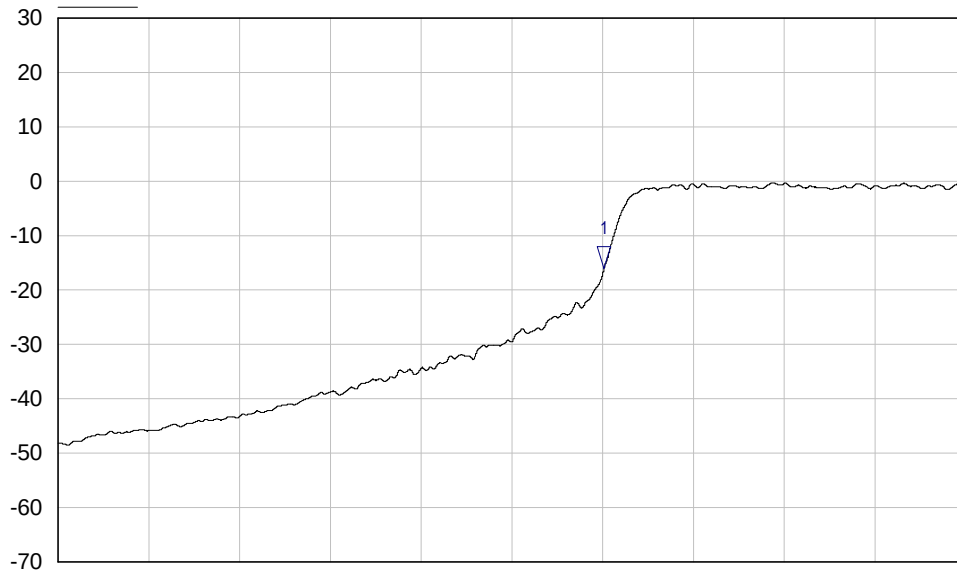


Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	1.850036 GHz	-16.00 dBm	

Plot of Lower Band Edge 100%RB

14011-1 Freq stability Band Edge,Band 25, Part 24, QPSK, 5 MHz,
100 RB , Low Chan, 120 VAC, -30 Degrees

dBm
Trace A



Start: 1.849000 GHz

Stop: 1.851000 GHz

Res BW: 51 kHz

Vid BW: 150 kHz

Sweep: 1.67 ms

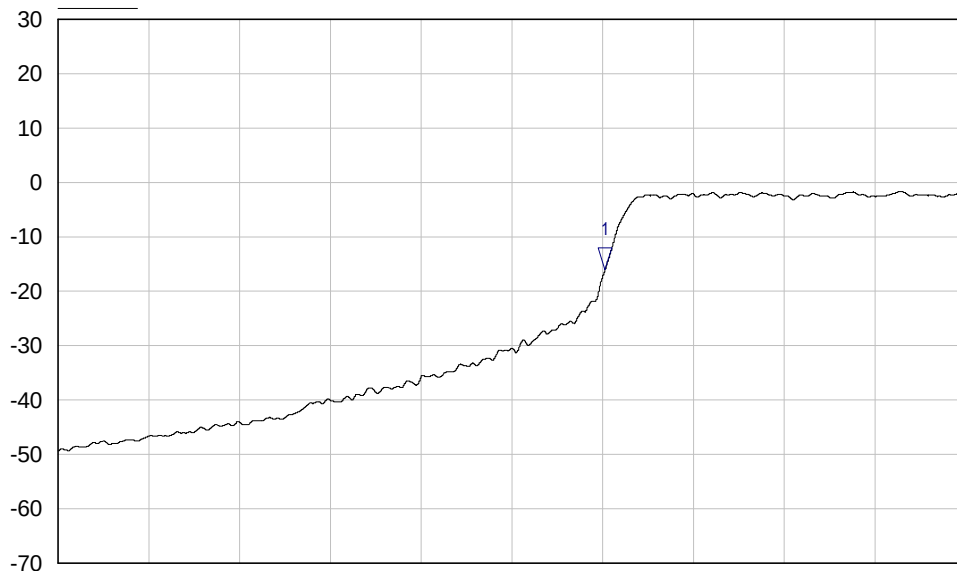
20/03/2023 15:18:26

N9010B

Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.850203 GHz	-16.00 dBm	

14011-1 Freq stability Band Edge,Band 25, Part 24, QPSK, 5 MHz,
100 RB , Low Chan, 120 VAC, -20 Degrees

dBm
Trace A



Start: 1.849000 GHz

Stop: 1.851000 GHz

Res BW: 51 kHz

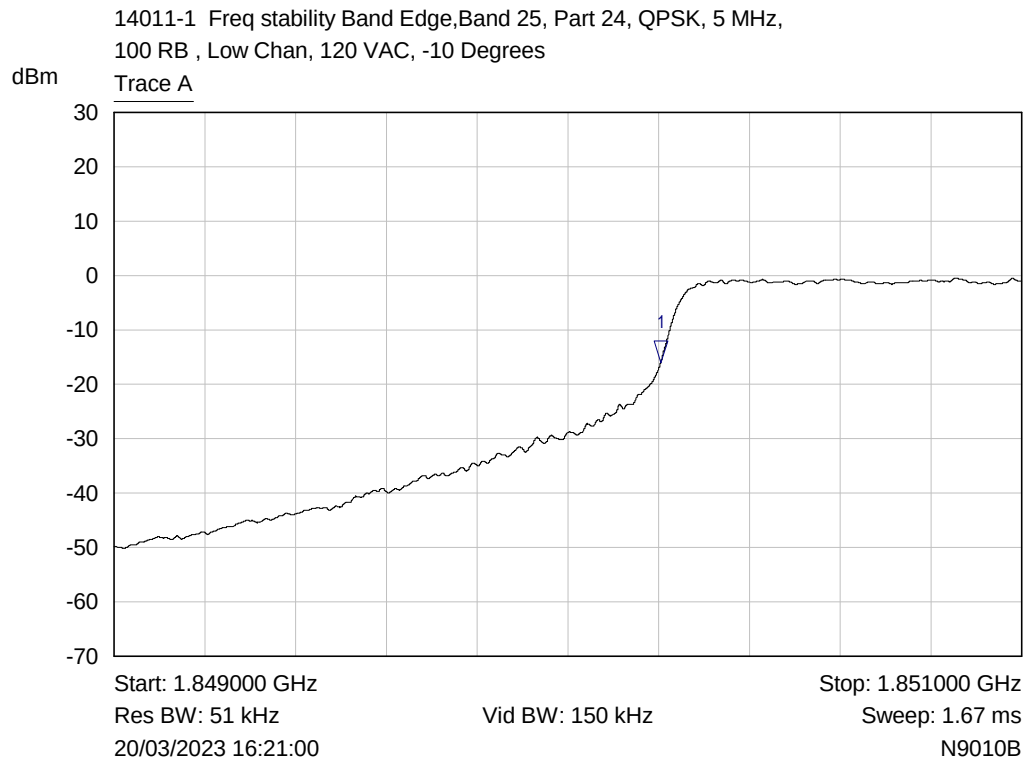
Vid BW: 150 kHz

Sweep: 1.67 ms

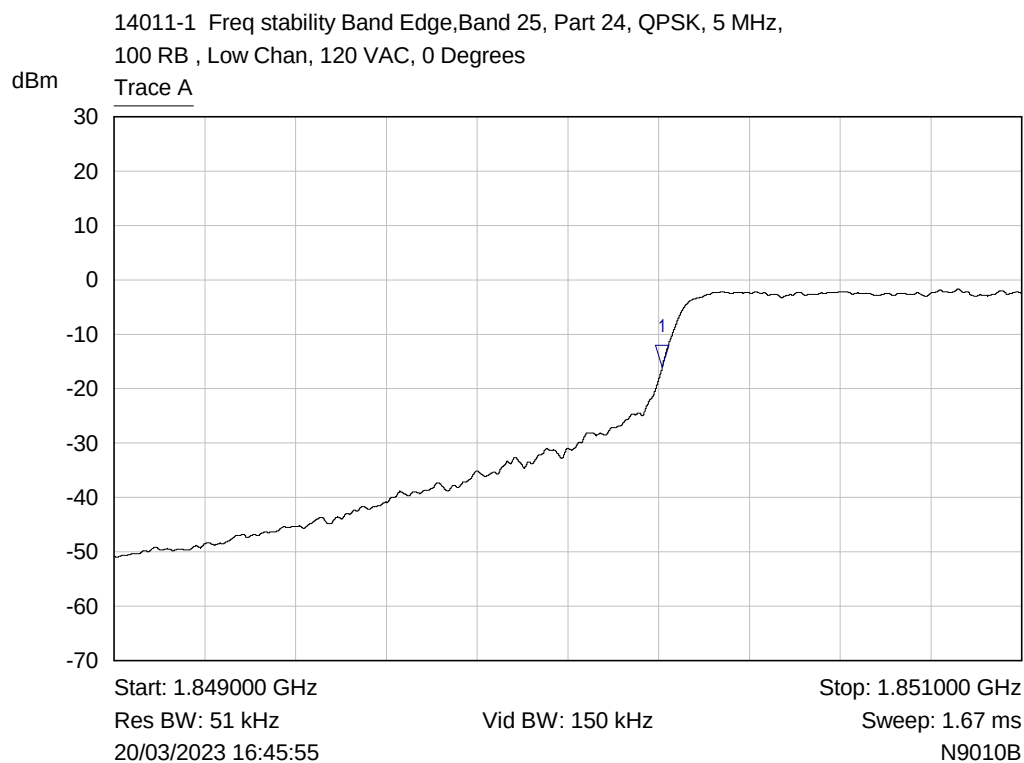
20/03/2023 15:46:01

N9010B

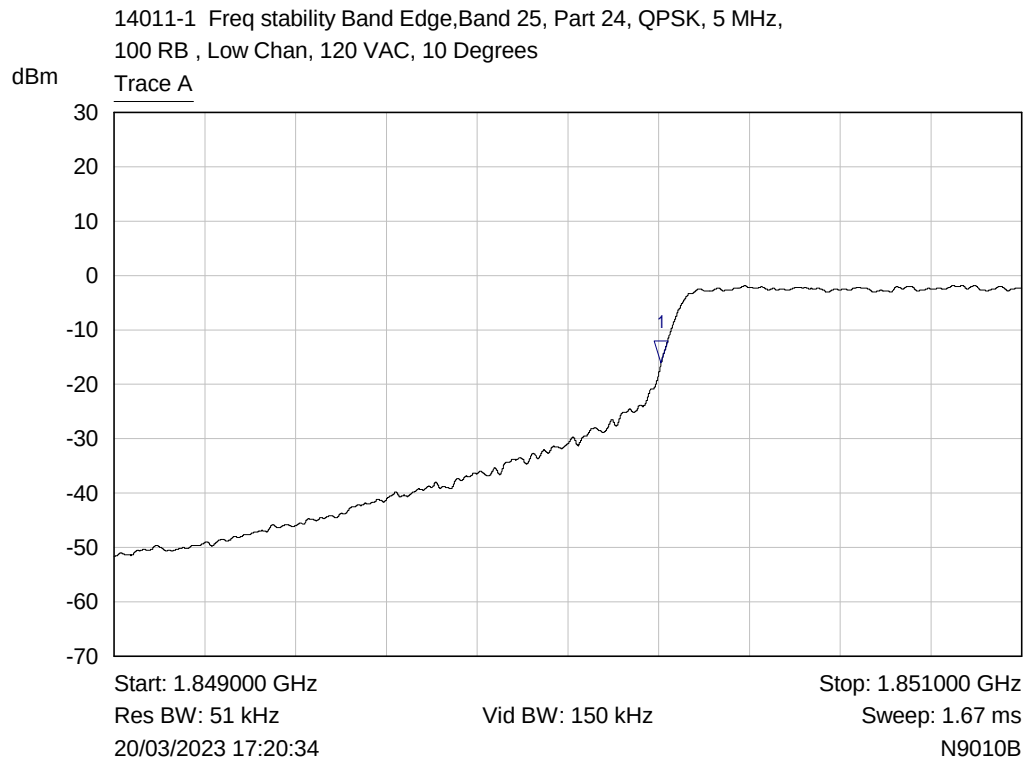
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.850206 GHz	-16.00 dBm	



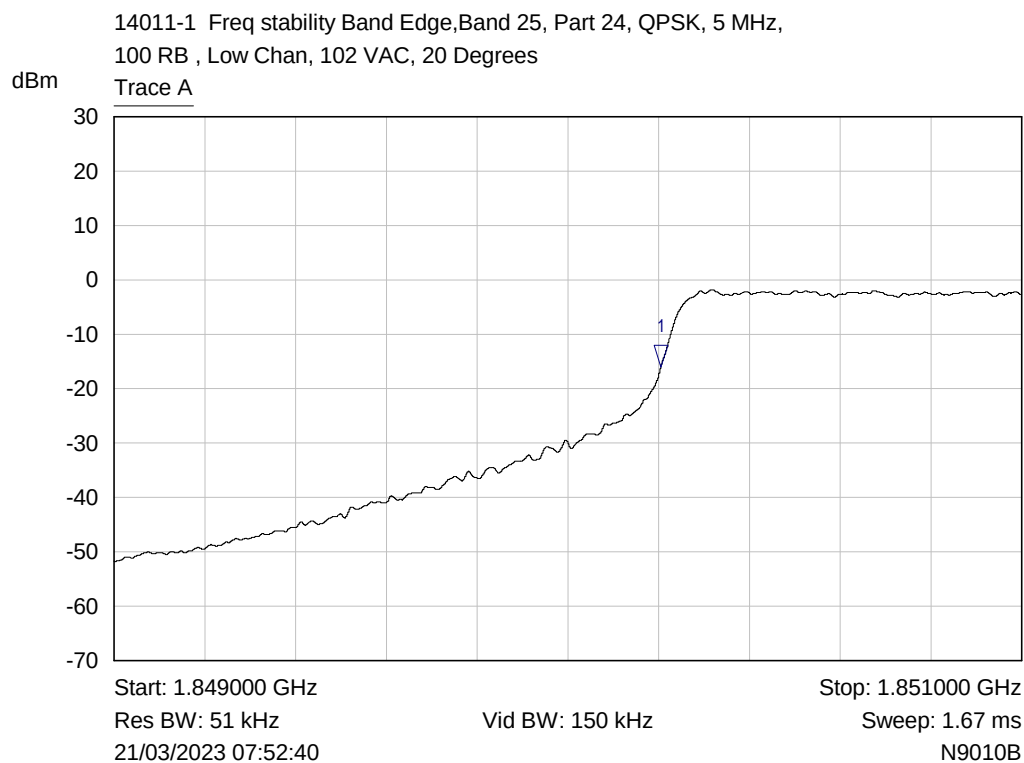
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	1.850205 GHz	-16.00 dBm	



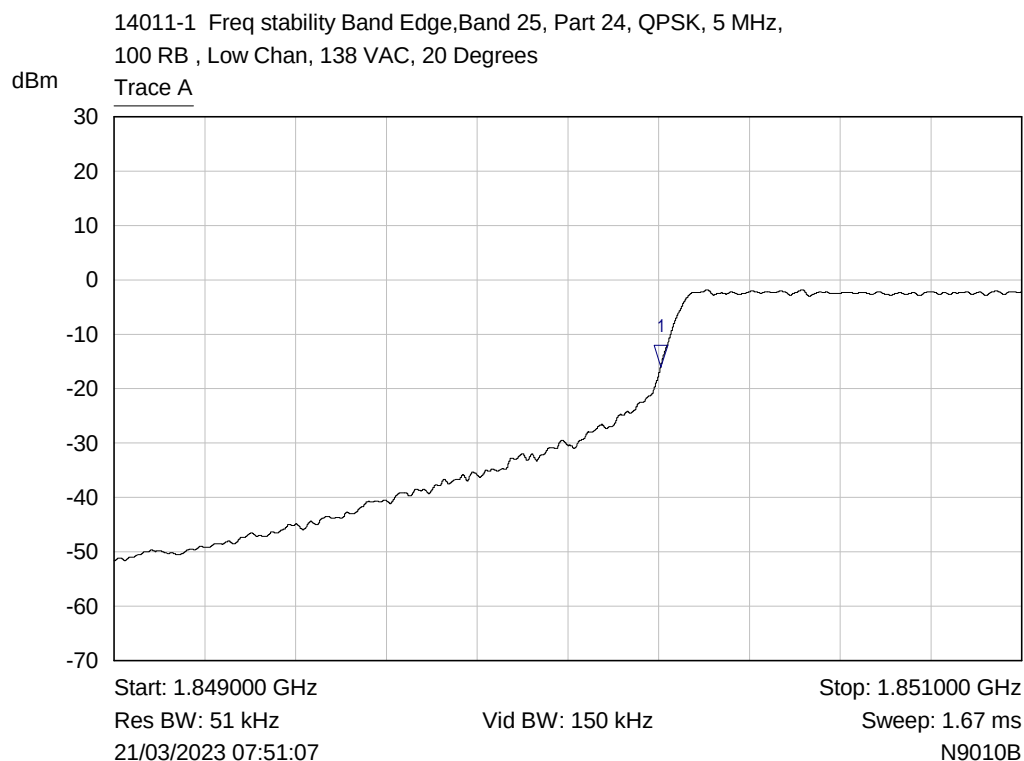
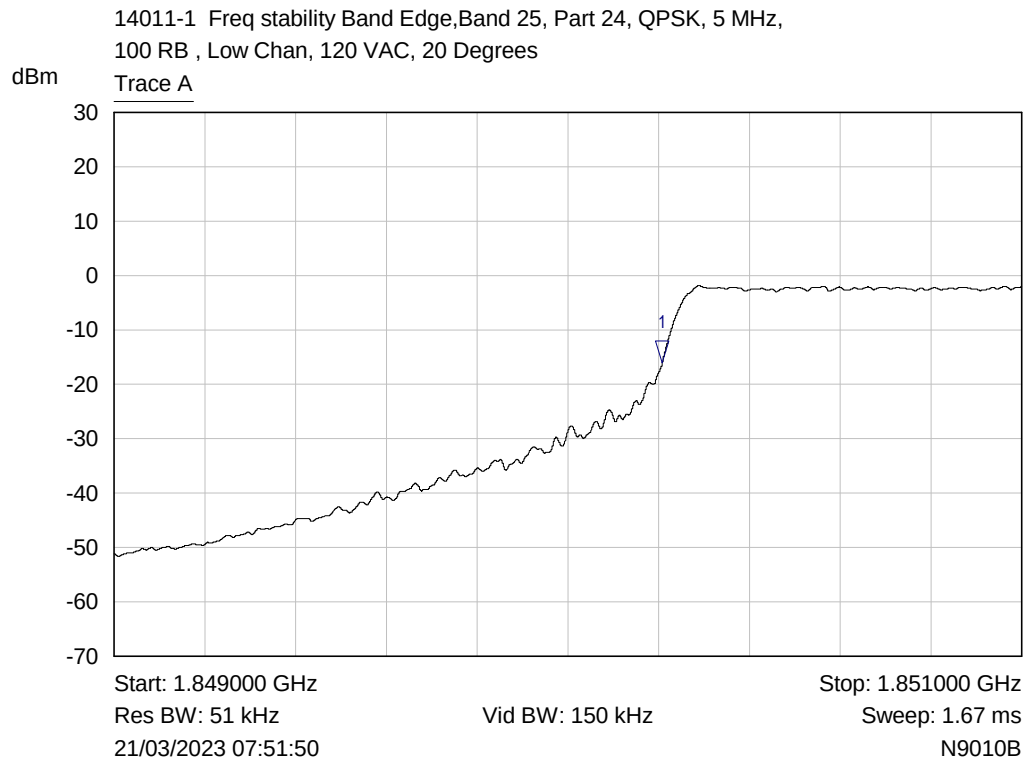
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	1.850208 GHz	-16.00 dBm	

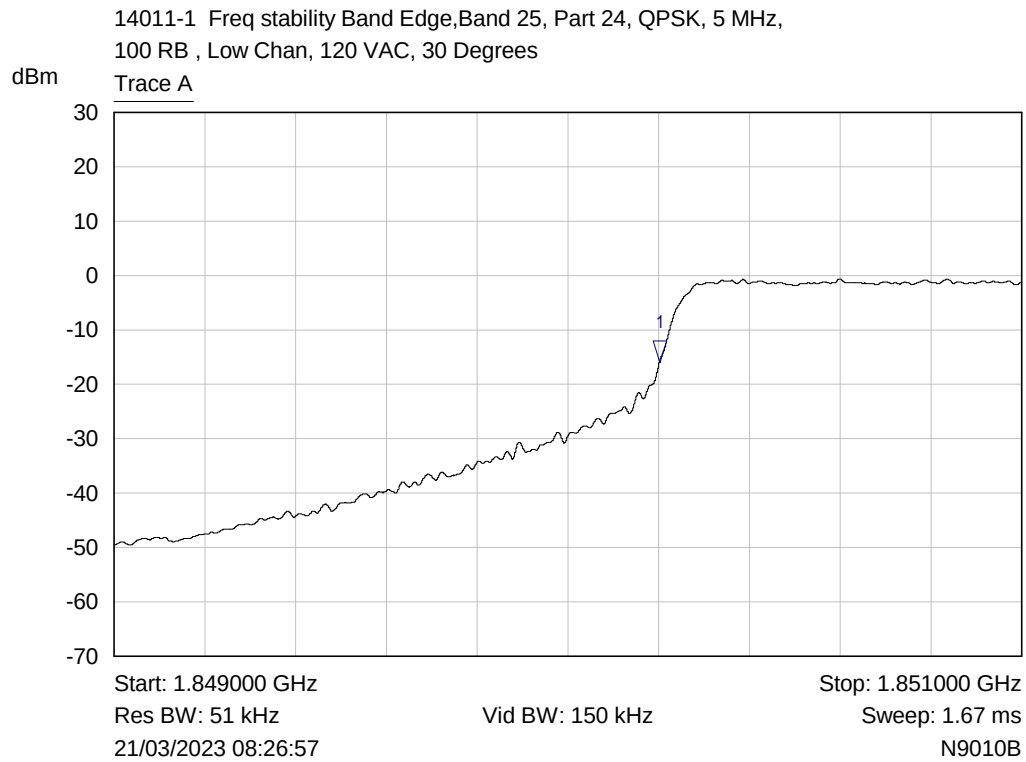


Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.850206 GHz	-16.00 dBm	

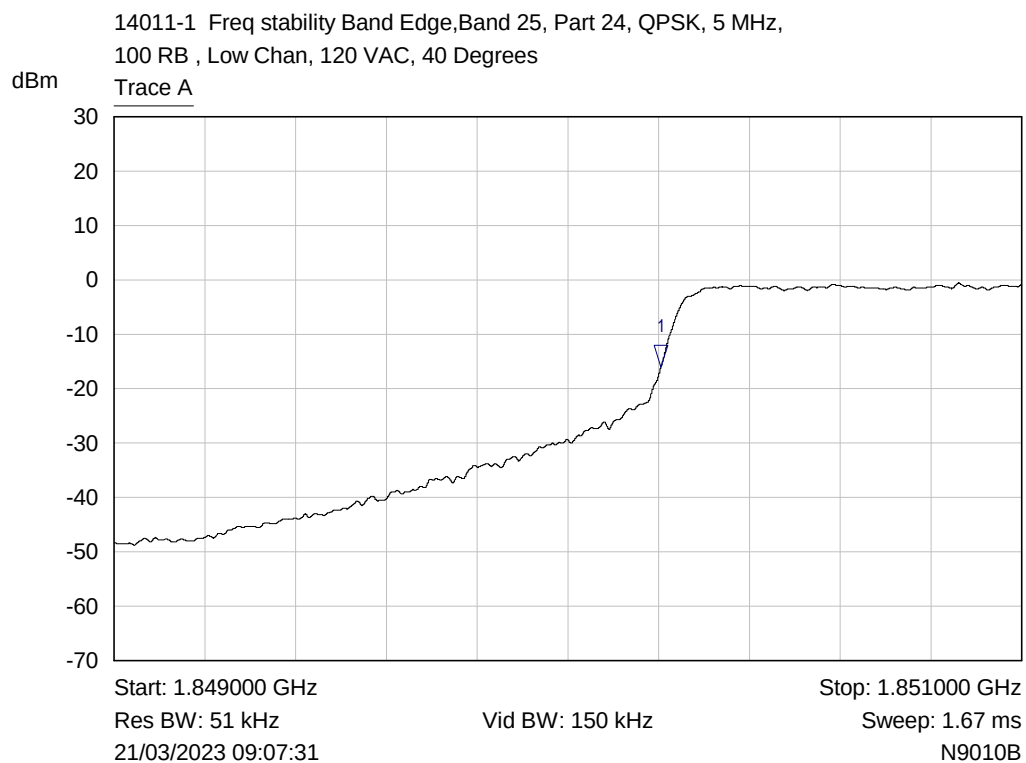


Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.850205 GHz	-16.00 dBm	

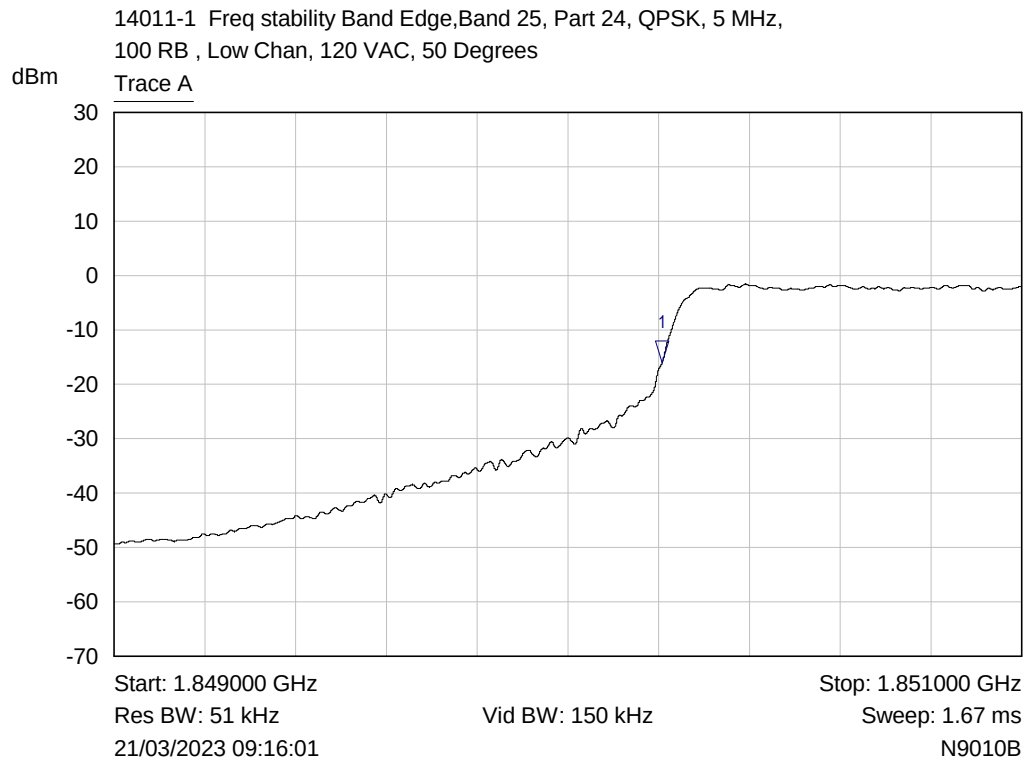




Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.850201 GHz	-16.00 dBm	



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.850205 GHz	-16.00 dBm	



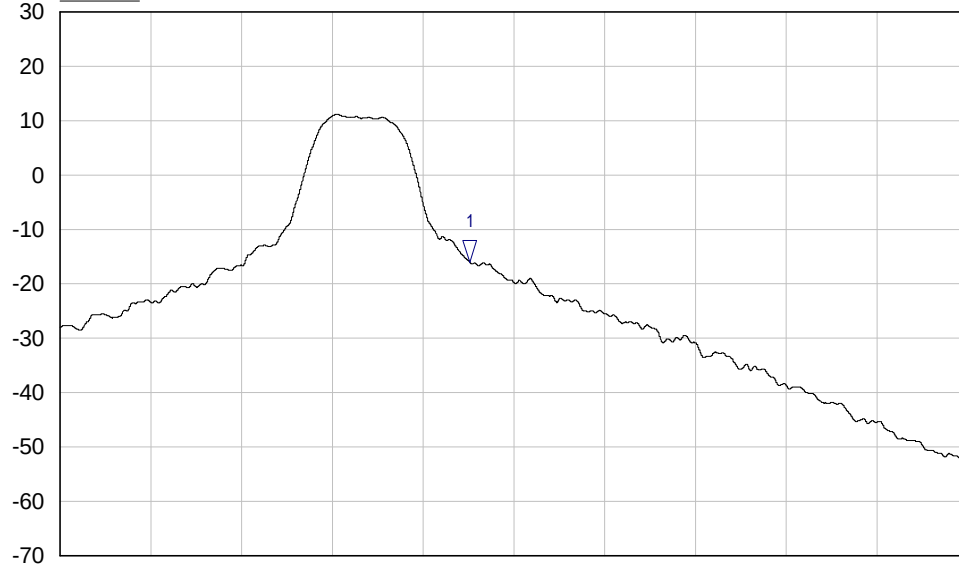
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	1.850208 GHz	-16.00 dBm	

RF Parameters: Band 1850-1915 MHz, Power 17 dBm, Channel Spacing 5 MHz, Modulation QPSK, High Channel

Plot of Upper Band Edge 1RB High

14011-1 Freq stability Band Edge,Band 25, Part 24, QPSK, 5 MHz, 1
RB , High Chan, 120 VAC, -30 Degrees

dBm
Trace A



Start: 1.914000 GHz

Stop: 1.916000 GHz

Res BW: 51 kHz

Vid BW: 150 kHz

Sweep: 1.67 ms

20/03/2023 15:33:19

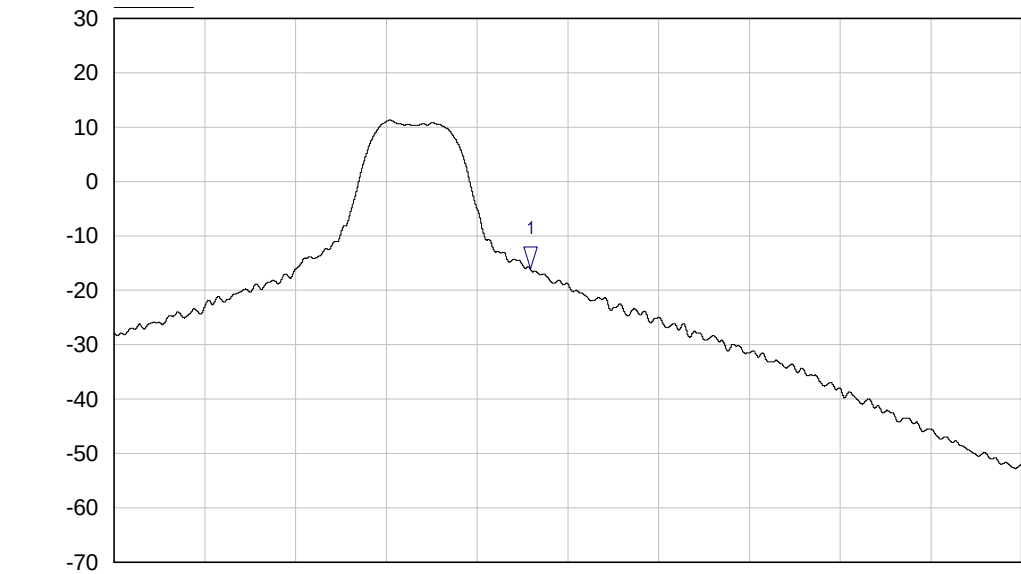
N9010B

Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.914903 GHz	-16.00 dBm	

14011-1 Freq stability Band Edge,Band 25, Part 24, QPSK, 5 MHz, 1

RB , High Chan, 120 VAC, -20 Degrees

Trace A



Start: 1.914000 GHz

Res BW: 51 kHz

20/03/2023 15:37:35

Vid BW: 150 kHz

Stop: 1.916000 GHz

Sweep: 1.67 ms

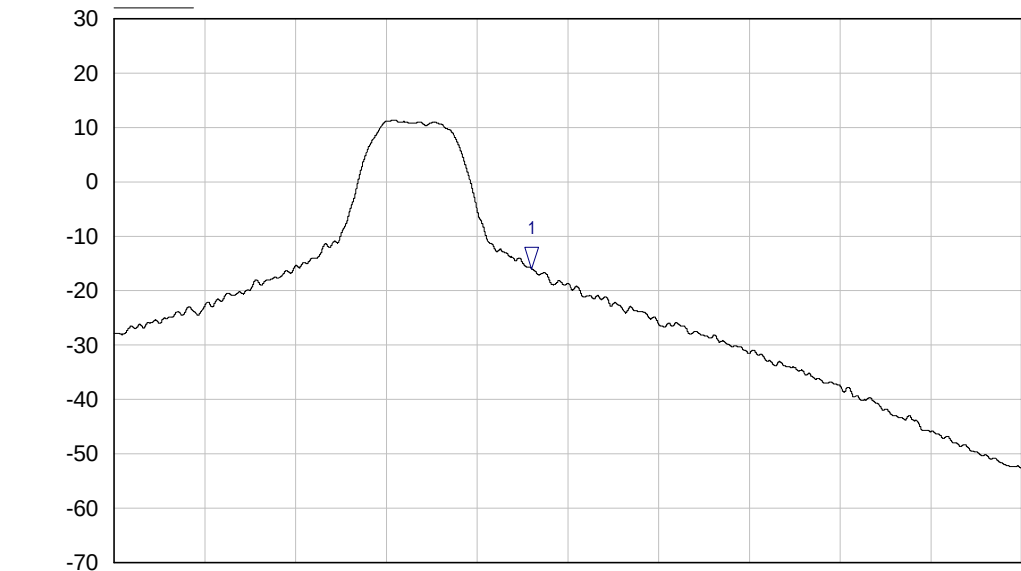
N9010B

Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.914916 GHz	-16.00 dBm	

14011-1 Freq stability Band Edge,Band 25, Part 24, QPSK, 5 MHz, 1

RB , High Chan, 120 VAC, -10 Degrees

Trace A



Start: 1.914000 GHz

Res BW: 51 kHz

20/03/2023 16:27:57

Vid BW: 150 kHz

Stop: 1.916000 GHz

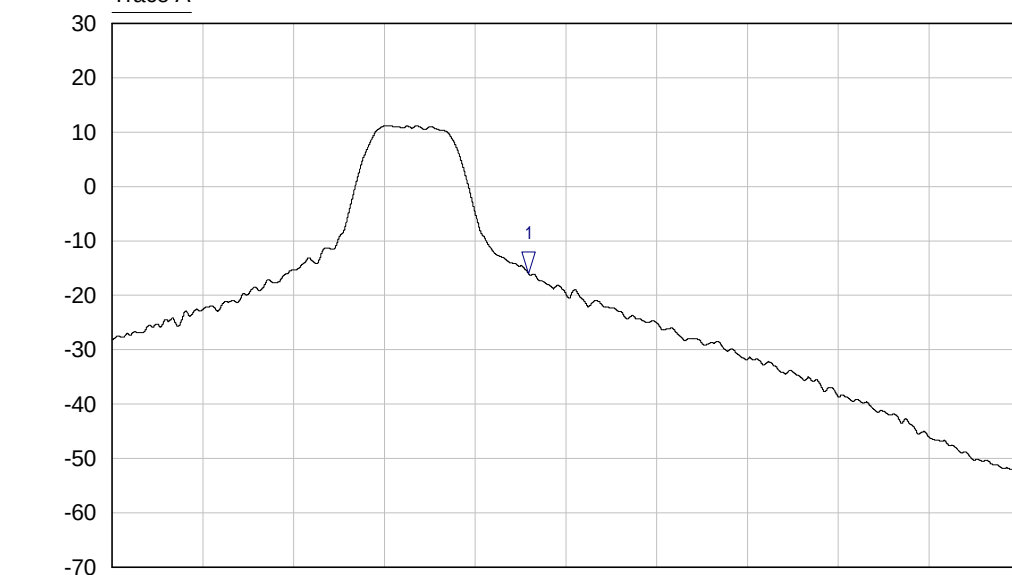
Sweep: 1.67 ms

N9010B

Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.914921 GHz	-16.00 dBm	

14011-1 Freq stability Band Edge,Band 25, Part 24, QPSK, 5 MHz, 1
RB , High Chan, 120 VAC, 0 Degrees

Trace A



Start: 1.914000 GHz

Res BW: 51 kHz

20/03/2023 16:39:05

Vid BW: 150 kHz

Stop: 1.916000 GHz

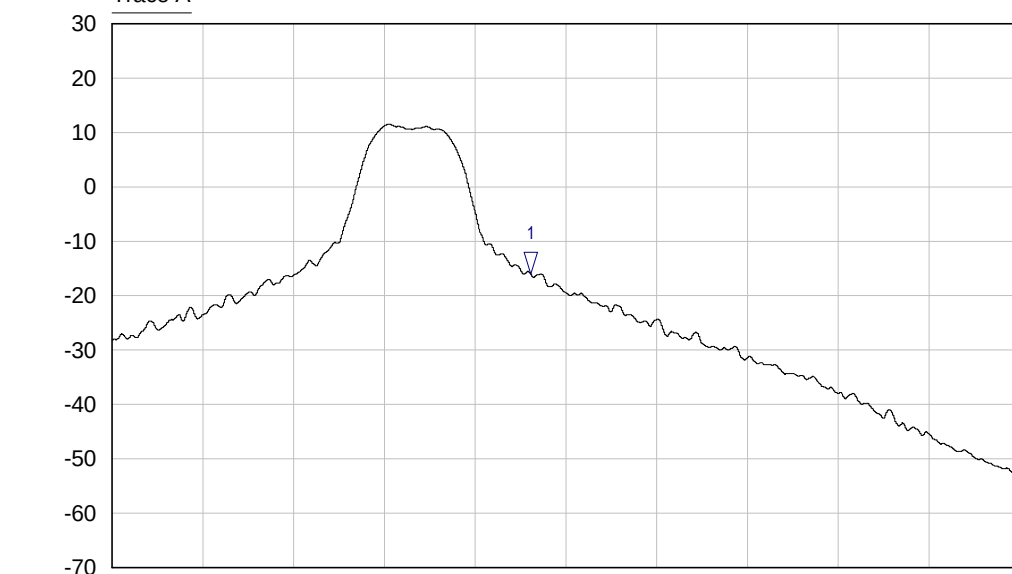
Sweep: 1.67 ms

N9010B

Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.914918 GHz	-16.00 dBm	

14011-1 Freq stability Band Edge,Band 25, Part 24, QPSK, 5 MHz, 1
RB , High Chan, 120 VAC, 10 Degrees

Trace A



Start: 1.914000 GHz

Res BW: 51 kHz

20/03/2023 17:14:12

Vid BW: 150 kHz

Stop: 1.916000 GHz

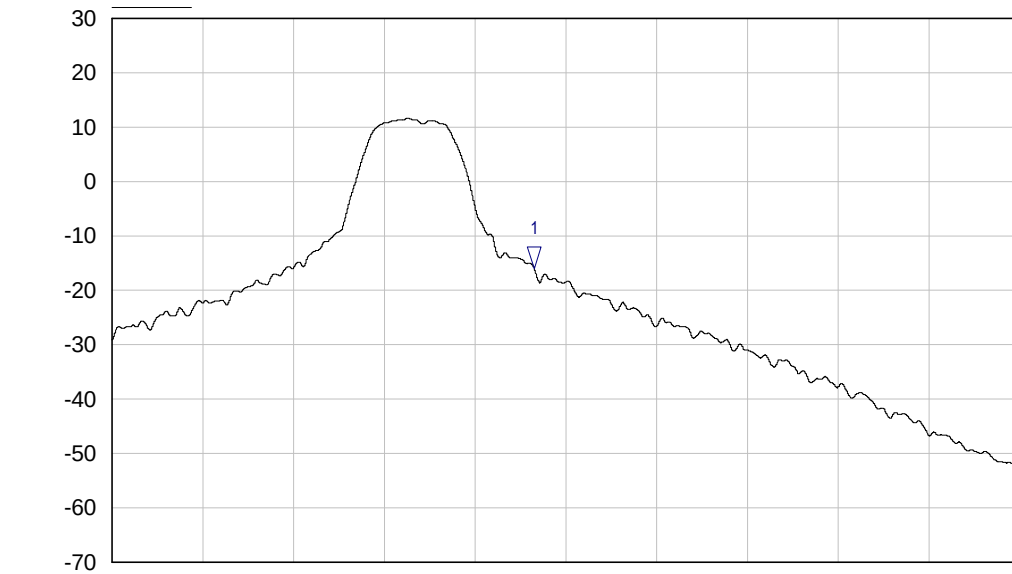
Sweep: 1.67 ms

N9010B

Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.914923 GHz	-16.00 dBm	

14011-1 Freq stability Band Edge,Band 25, Part 24, QPSK, 5 MHz, 1
RB , High Chan, 102 VAC, 20 Degrees

Trace A



Start: 1.914000 GHz

Res BW: 51 kHz

21/03/2023 08:01:05

Vid BW: 150 kHz

Stop: 1.916000 GHz

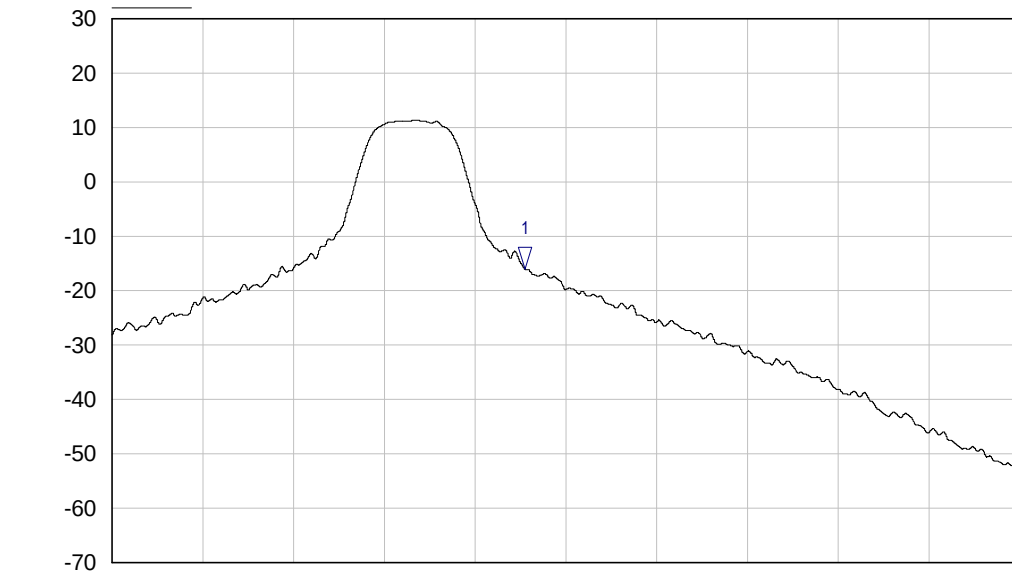
Sweep: 1.67 ms

N9010B

Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	1.914930 GHz	-16.00 dBm	

14011-1 Freq stability Band Edge,Band 25, Part 24, QPSK, 5 MHz, 1
RB , High Chan, 120 VAC, 20 Degrees

Trace A



Start: 1.914000 GHz

Res BW: 51 kHz

21/03/2023 08:00:29

Vid BW: 150 kHz

Stop: 1.916000 GHz

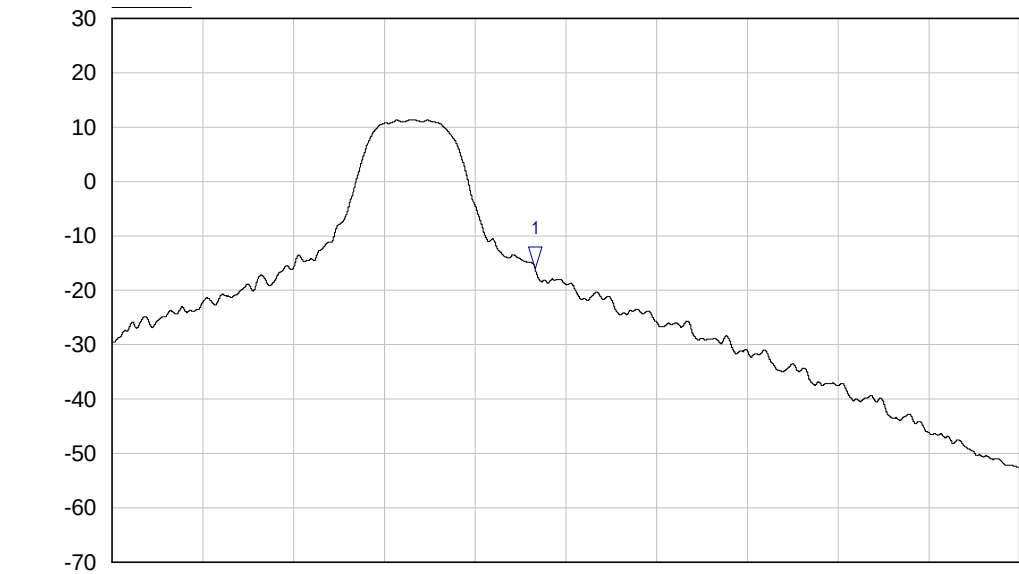
Sweep: 1.67 ms

N9010B

Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	1.914909 GHz	-16.00 dBm	

14011-1 Freq stability Band Edge,Band 25, Part 24, QPSK, 5 MHz, 1
RB , High Chan, 138 VAC, 20 Degrees

Trace A



Start: 1.914000 GHz

Res BW: 51 kHz

21/03/2023 07:59:38

Vid BW: 150 kHz

Stop: 1.916000 GHz

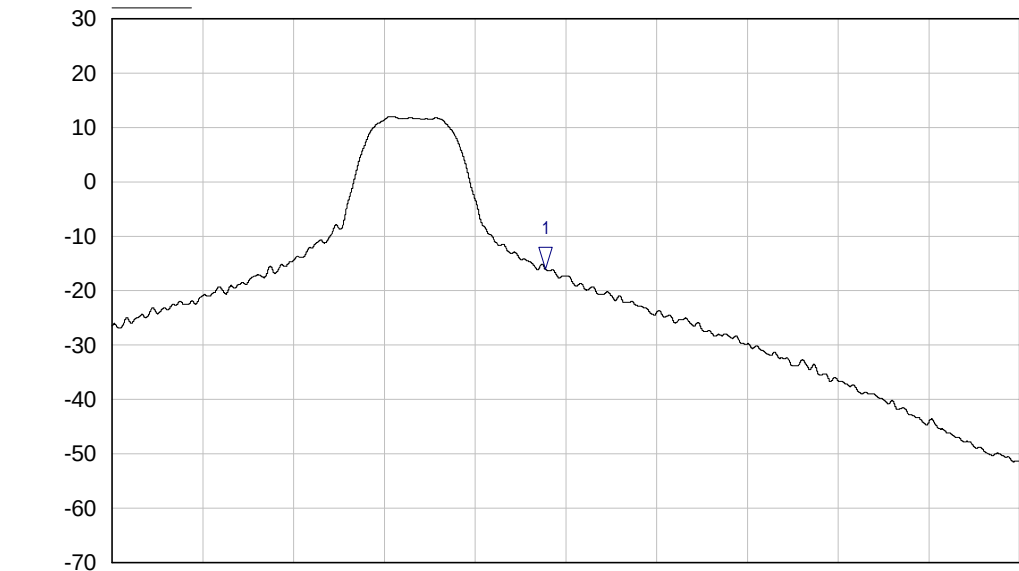
Sweep: 1.67 ms

N9010B

Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	1.914932 GHz	-16.00 dBm	

14011-1 Freq stability Band Edge,Band 25, Part 24, QPSK, 5 MHz, 1
RB , High Chan, 120 VAC, 30 Degrees

Trace A



Start: 1.914000 GHz

Res BW: 51 kHz

21/03/2023 08:28:50

Vid BW: 150 kHz

Stop: 1.916000 GHz

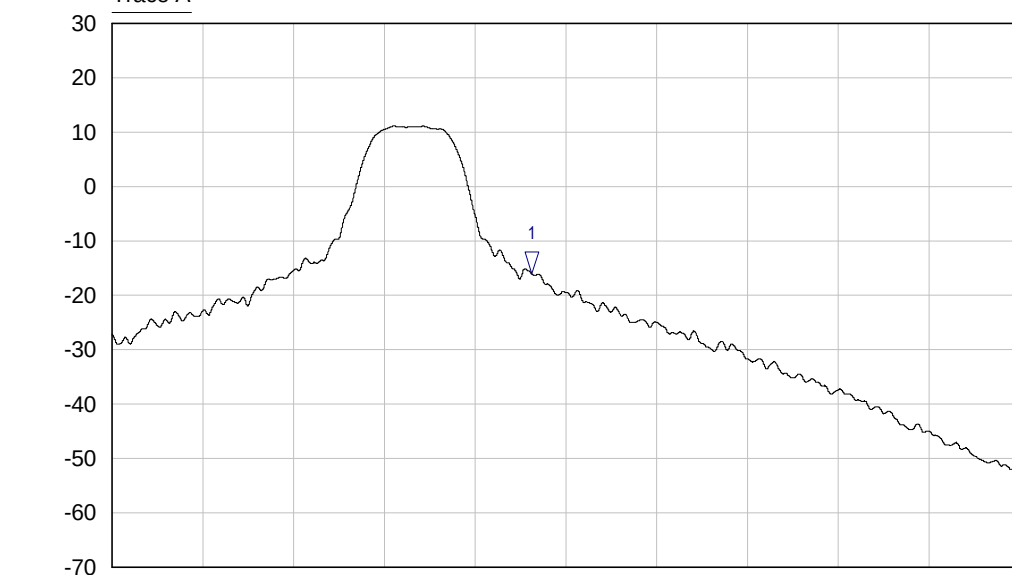
Sweep: 1.67 ms

N9010B

Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	1.914954 GHz	-16.00 dBm	

14011-1 Freq stability Band Edge,Band 25, Part 24, QPSK, 5 MHz, 1
RB , High Chan, 120 VAC, 40 Degrees

Trace A



Start: 1.914000 GHz

Res BW: 51 kHz

21/03/2023 09:05:18

Vid BW: 150 kHz

Stop: 1.916000 GHz

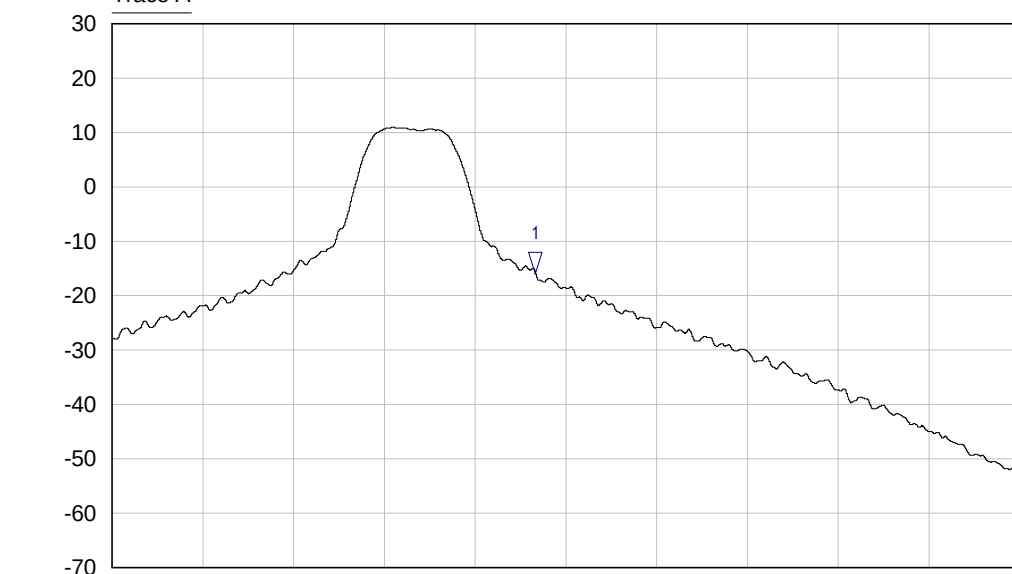
Sweep: 1.67 ms

N9010B

Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.914924 GHz	-16.00 dBm	

14011-1 Freq stability Band Edge,Band 25, Part 24, QPSK, 5 MHz, 1
RB , High Chan, 120 VAC, 50 Degrees

Trace A



Start: 1.914000 GHz

Res BW: 51 kHz

21/03/2023 09:18:11

Vid BW: 150 kHz

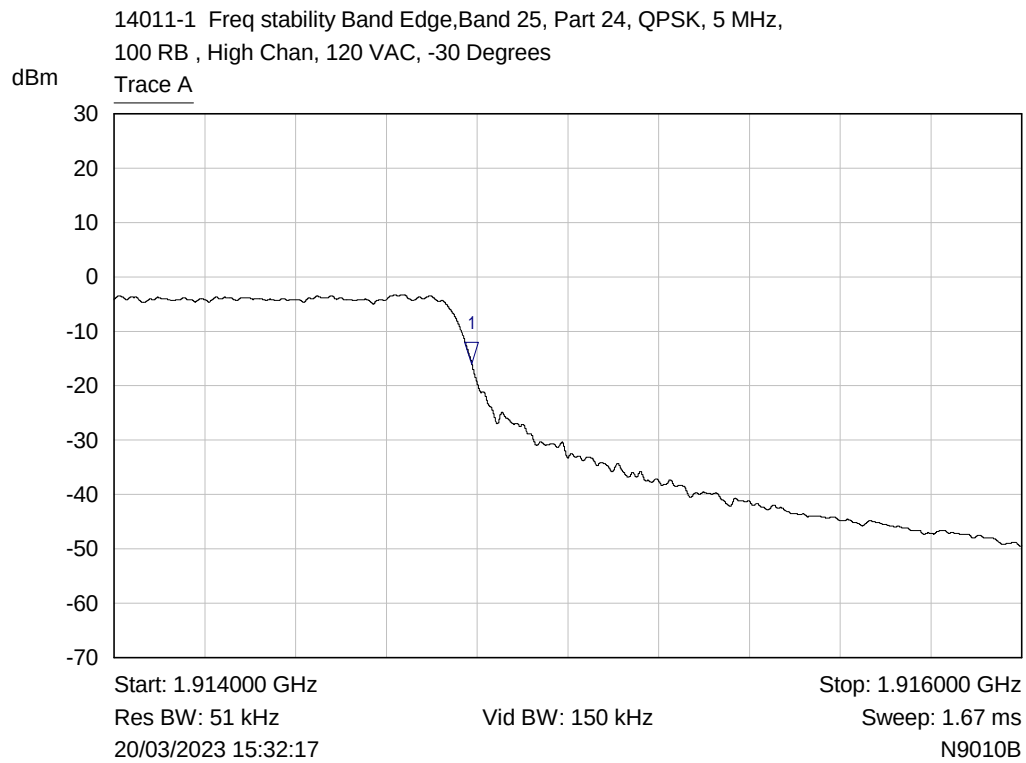
Stop: 1.916000 GHz

Sweep: 1.67 ms

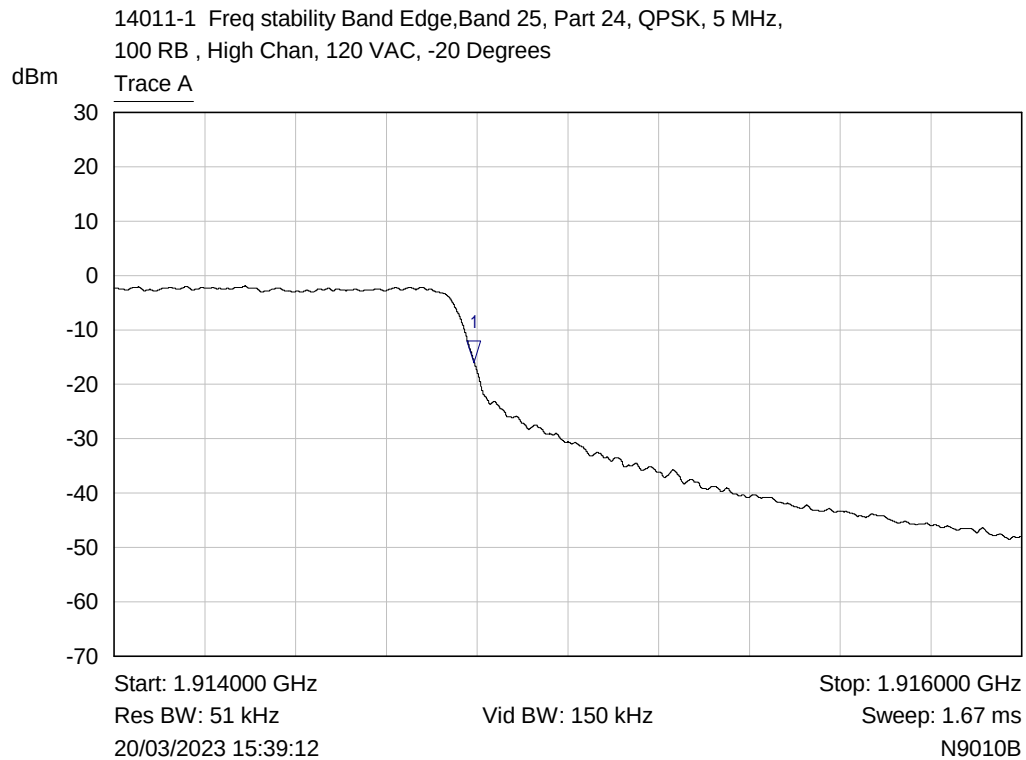
N9010B

Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.914934 GHz	-16.00 dBm	

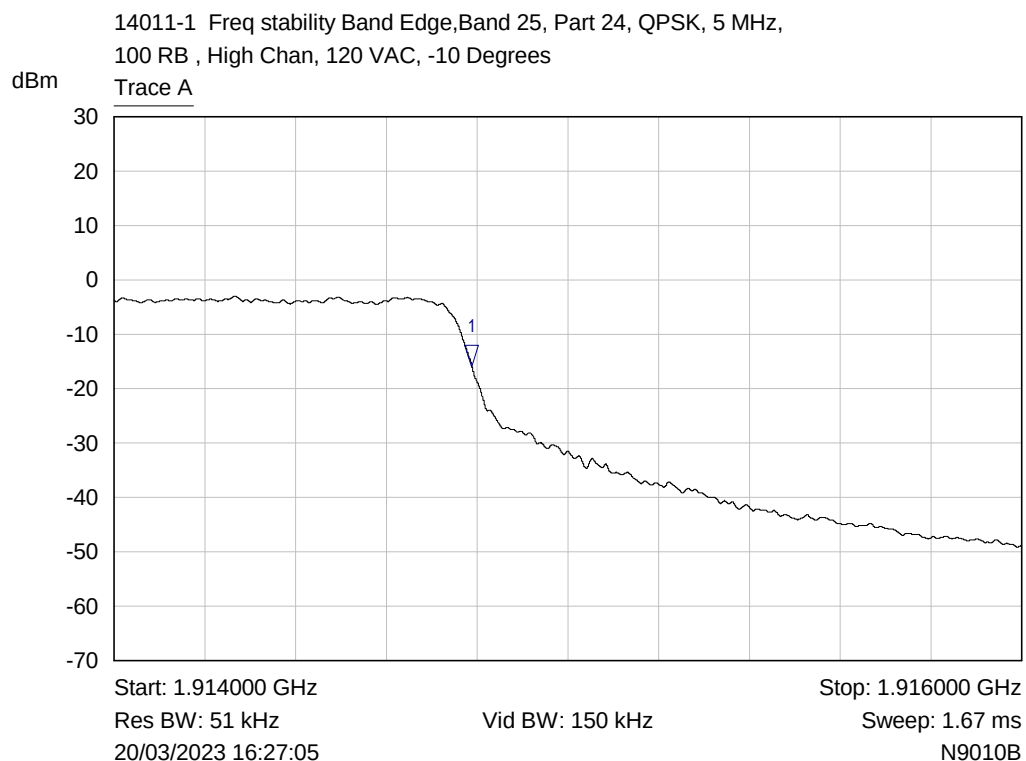
Plot of Upper Band Edge 100%RB



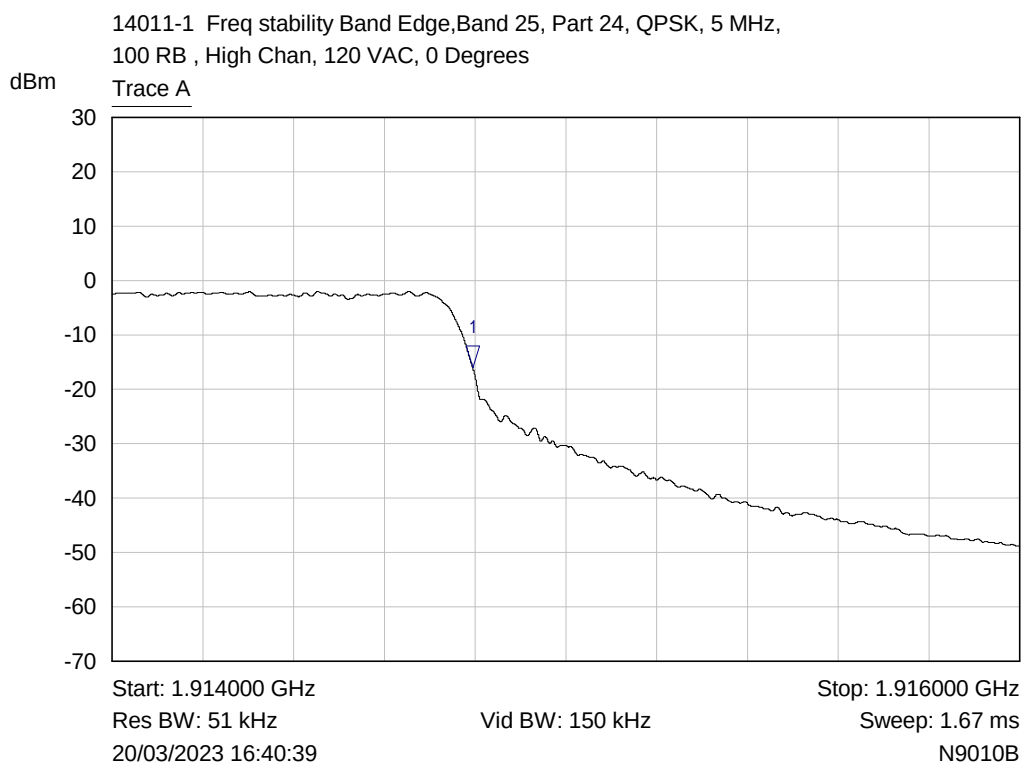
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.914788 GHz	-16.00 dBm	



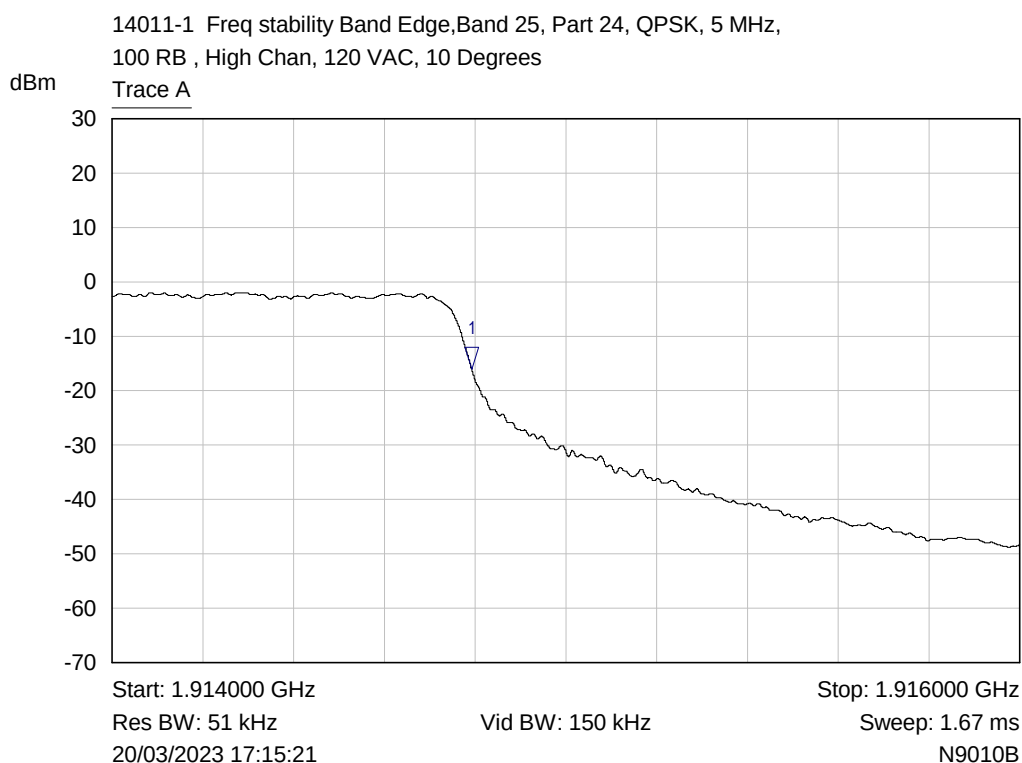
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.914794 GHz	-16.00 dBm	



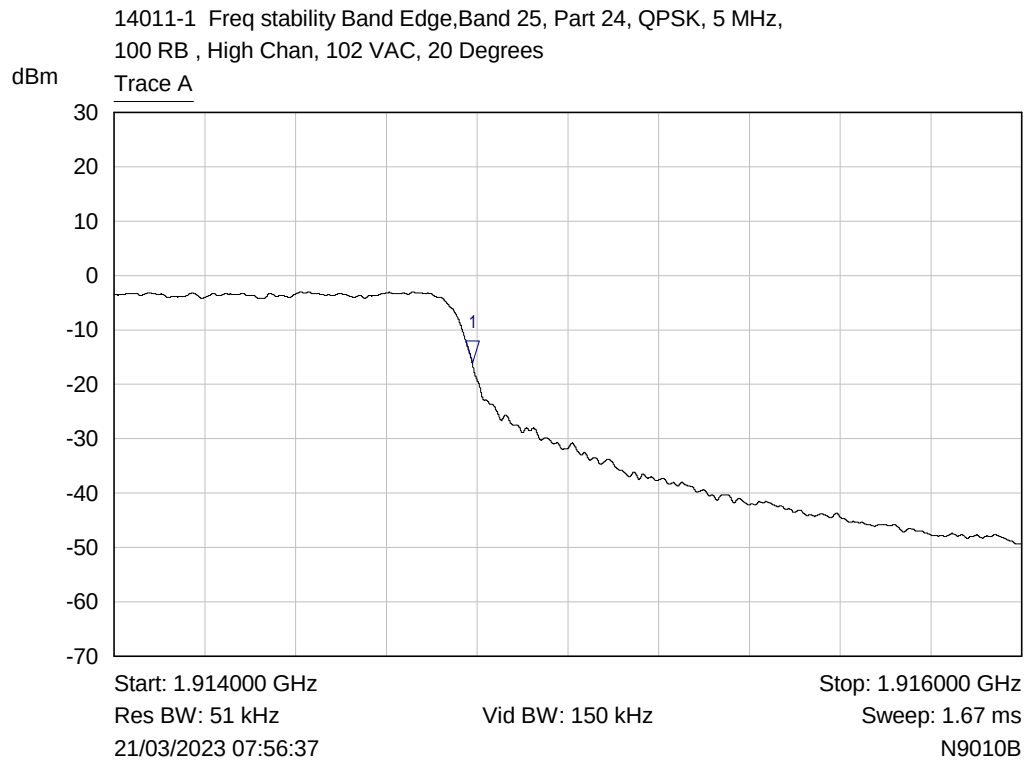
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.914789 GHz	-16.00 dBm	



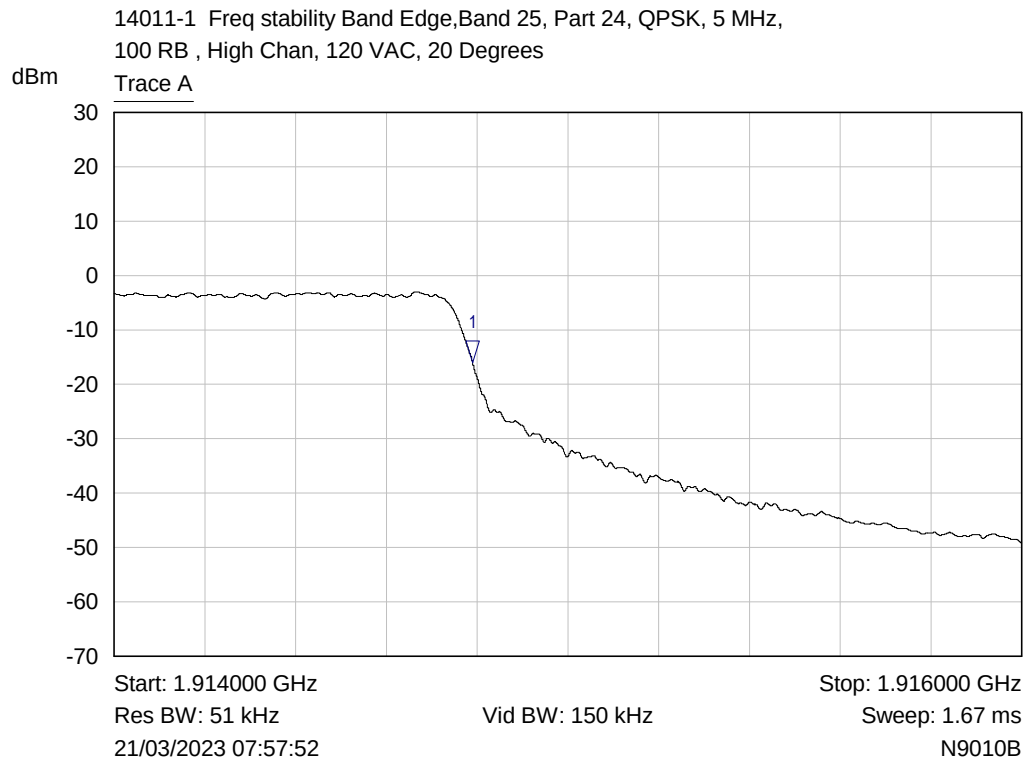
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.914794 GHz	-16.00 dBm	



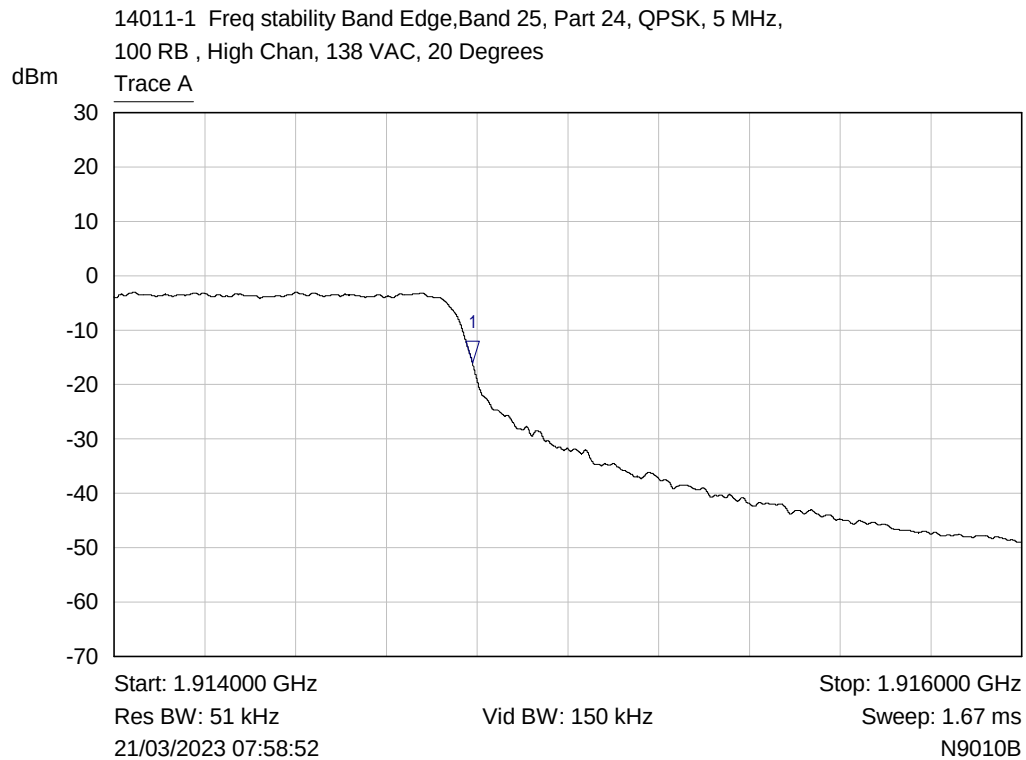
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.914792 GHz	-16.00 dBm	



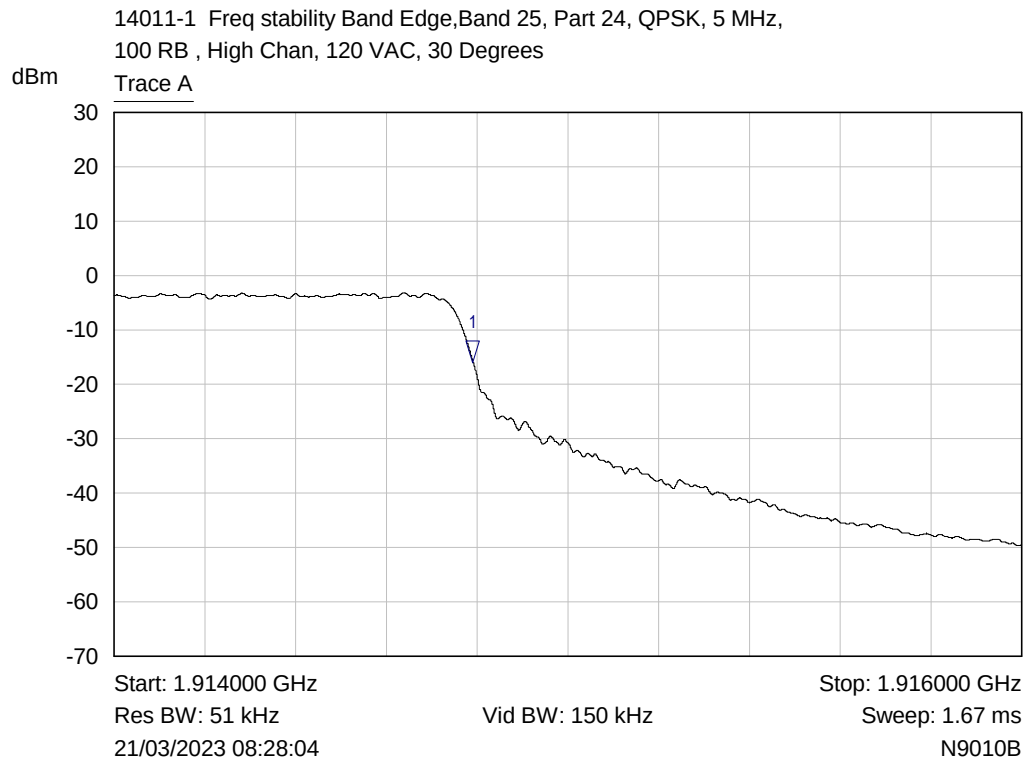
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.914789 GHz	-16.00 dBm	



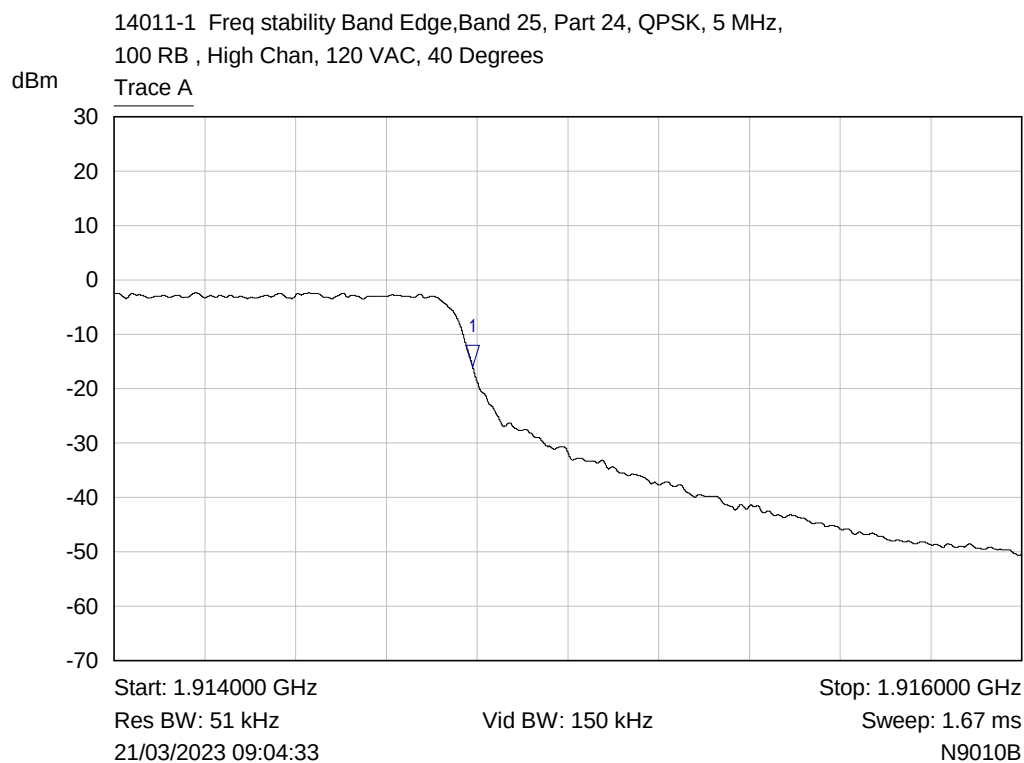
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.914790 GHz	-16.00 dBm	



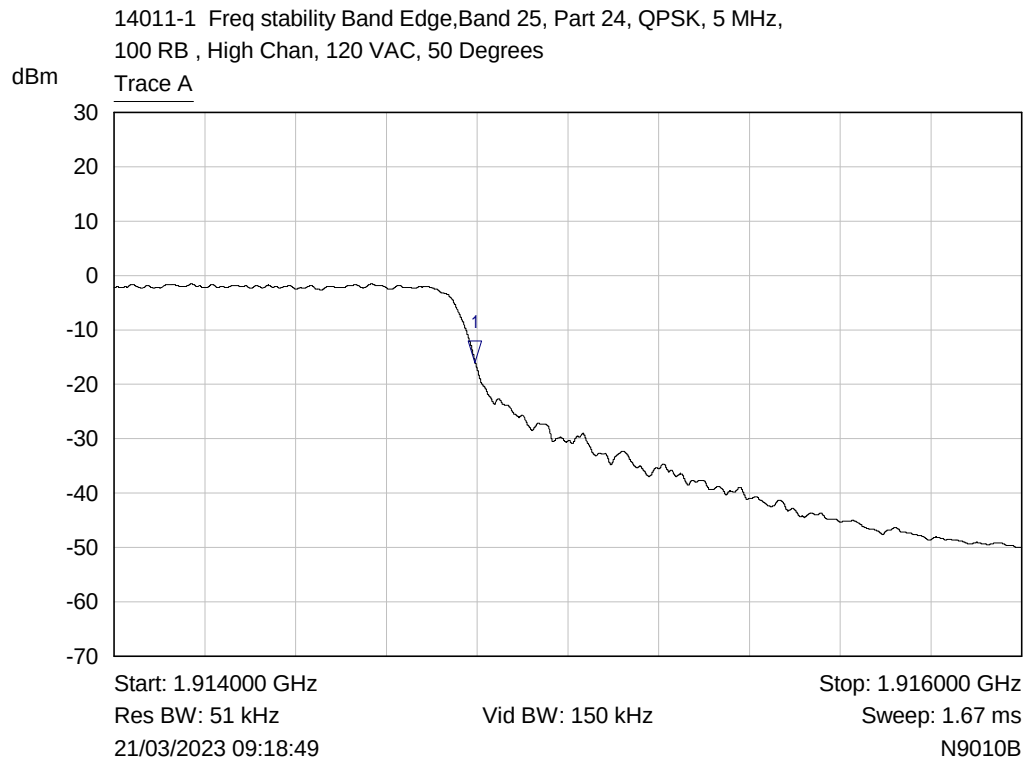
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.914789 GHz	-16.00 dBm	



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.914791 GHz	-16.00 dBm	



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.914790 GHz	-16.00 dBm	



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	1.914796 GHz	-16.00 dBm	

7 Photographs

No photographs included in report at client's request.

7.1 Radiated emission diagrams

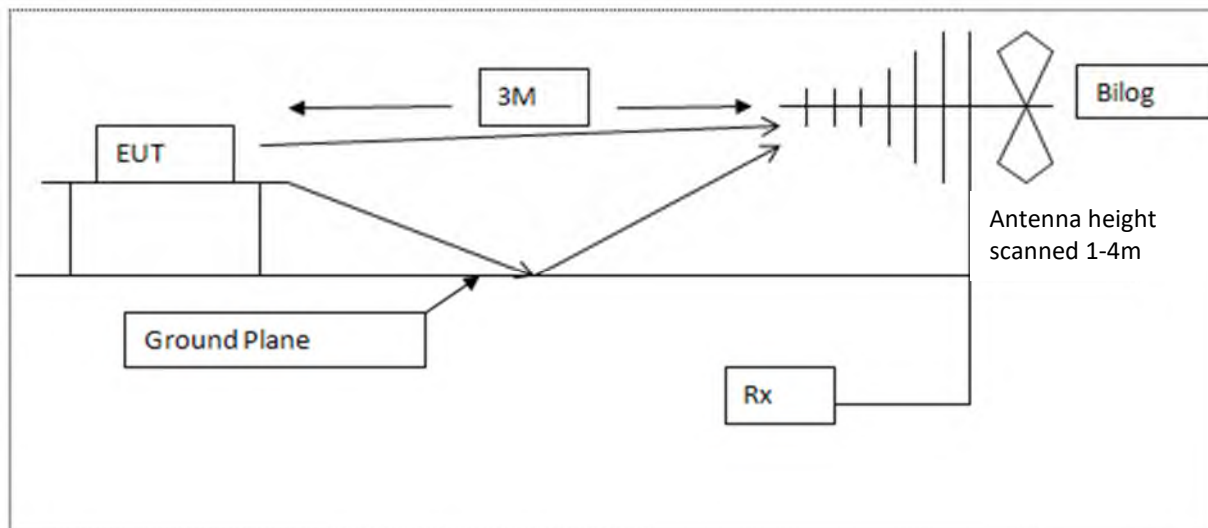


Diagram of the radiated emissions test setup 30 - 1000 MHz

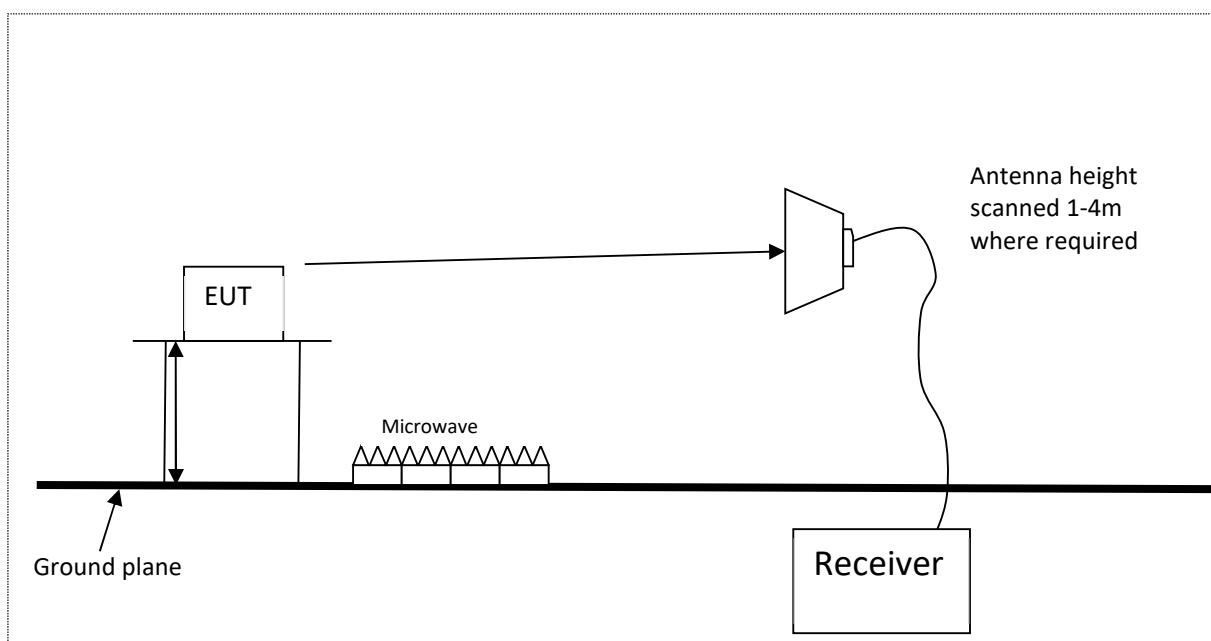


Diagram of the radiated emissions test setup above 1GHz

8 Test equipment calibration list

The following is a list of the test equipment used by R.N. Electronics Ltd to test the unit detailed within this report. In line with our procedures, the equipment was within calibration for the period during which testing was carried out.

RN No.	Model No.	Description	Manufacturer	Calibration date	Cal period
E268	BHA9118	Horn Antenna 1 – 18 GHz	Schaffner	02-Apr-2022	12 months
E291-2	6960B	RF Power Meter	Marconi Instruments	30-Nov-2022	24 months
E428	HF906	Horn Antenna 1 – 18 GHz	Rohde & Schwarz	02-Apr 2022	12 months
E533	N5182A	Signal Generator 6 GHz MXG	Agilent Technologies	07-Dec-2022	36 months
E555	CMV 5E-1	Variac 5A	Carroll & Meynell Ltd	19-Dec-2022	12 months
E622	2610	Directional Coupler 1 - 26.5GHz	Krytar	07-Jul-2022	12 months
E623	72-7715	Thermometer	Tenma	05-Apr 2022	12 months
E632	6934	Power Sensor 10MHz - 40GHz	IFR	15-Dec-2021	24 months
E642	E440A	PSA 3 Hz – 26.5 GHz	Agilent Technologies	09-Dec 2022	24 months
E654	MW221	Cable N Type to SMA Blue 2m (B)	Junflon	11-Oct 2022	12 months
E743	2017 4/2dB	Attenuator 4/2dB 30-1000MHz	RN Electronics Ltd	#15-Mar-2023	12 months
E856	N9039A	9 kHz – 1 GHz RF Filter Section	Agilent Technologies	06-Dec 2022	12 months
E904	5086-7805	Pre-Amplifier 1GHz – 26.5GHz	Hewlett Packard	04-Mar 2022	12 months
F072-2	794-2891	UFL to SMA cable set	RS Components	13-Dec 2022	12 months
F072-3	794-2891	UFL to SMA cable set	RS Components	13-Dec 2022	12 months
F075	AA18-10H	Attenuator SMA 10dB 18GHz	AtlanTecRF	19-Aug-2022	12 months
F081	AA18-20H	Attenuator SMA 20dB 18GHz	AtlanTecRF	19-Aug-2022	12 months
F391	R404131000	Termination N type 4GHz	Radiall	11-Nov 2022	12 months
H071	N9010B	EXA Signal Analyser 10 Hz to 44 GHz	Keysight Technologies	12-Dec-2022	24 months
LPE364	CBL6112A	Antenna BiLog 30MHz – 2GHz	Chase Electronics Ltd	28-Mar-2022	24 months
N607	HSGDW-50B	Environmental Oven	Shanghai Hasuc Instrument Manufacture Co., Ltd	-	-
TMS78	3160-08	Horn Std Gain 12.4 – 18 GHz	ETS Systems	30-Sep 2022	12 months
TMS79	3160-09	Horn Std Gain 18 – 26.5 GHz	ETS Systems	25-May 2022	12 months

Equipment was within calibration dates for tests and has been re-calibrated since/during date of tests.

9 Auxiliary and peripheral equipment

9.1 Customer supplied equipment

Item No.	Model No.	Description	Manufacturer	Serial No.
1	CMW500	CMW500 communications Tester	Rhode & Schwarz	Airspan 007157

9.2 RN Electronics supplied equipment

RN No.	Model No.	Description	Manufacturer	Serial No
F391	R404131000	Termination N type 4GHz	Radiall	
I257	R830-13C	Laptop Toshiba Portege	Toshiba	9C086680H

10 Condition of the equipment tested

In order for the EUT to produce the results shown within this report the following modifications, if any, were implemented.

10.1 Modifications before test

No modifications were made before test by RN Electronics Ltd.

10.2 Modifications during test

Radiated spurious emissions testing was carried out at +23 dBm (single port) for all modulation schemes. After these tests it was determined that to comply with Band edge/block edge emissions requirements for some Bandwidths/schemes and RB settings the power had to be reduced. For 5 MHz bandwidth modulation schemes this was reduced from +23 dBm to +17 dBm (single port). RF output power for all 10 MHz bandwidth modulation schemes was reduced from +23 dBm to +21 dBm (single port). RF output power for all 15 MHz and 20 MHz modulation schemes remained at +23 dBm (single port).

11 Description of test sites

Site A	Radio Laboratory and Anechoic Chamber
Site B	Semi-Anechoic Chamber and Control Room FCC Registration No. 293246, ISED Registration No. 5612A-4
Site C	Transient Laboratory
Site D	Screened Room (Conducted Immunity)
Site E	Screened Room (Control Room for Site D)
Site F	Screened Room (Conducted Emissions)
Site G	Screened Room (Control Room for Site H)
Site H	3m Semi-Anechoic Chamber (indoor OATS) FCC Registration No. 293246, ISED Registration No. 5612A-2, VCCI Registration No. 4065
Site J	Transient Laboratory
Site K	Screened Room (Control Room for Site M)
Site M	3m Semi-Anechoic Chamber (indoor OATS) FCC Registration No. 293246, ISED Registration No. 5612A-3
Site N	Radio Laboratory
Site Q	Fully-Anechoic Chamber
Site OATS 3m and 10m Open Area Test Site	FCC Registration No. 293246, ISED Registration No. 5612A-1
Site R	Screened Room (Conducted Immunity)
Site S	Safety Laboratory
Site T	Transient Laboratory

RN Electronics CAB identifier as issued by Innovation, Science and Economic Development Canada is UK0002

RN Electronics CAB identifier as issued by FCC is UK0015

12 Abbreviations and units

%	Percent	dBμV	decibels relative to 1μV
λ	Wavelength	dBμV/m	decibels relative to 1μV/m
μA/m	microAmps per metre	dBc	decibels relative to Carrier
μV	microVolts	dBd	decibels relative to dipole gain
μW	microWatts	dBi	decibels relative to isotropic gain
AC	Alternating Current	dBm	decibels relative to 1mW
ACK	ACKnowledgement	dBm	decibels relative to 1mW
ACP	Adjacent Channel Power	dBm	decibels relative to 1mW
AFA	Adaptive Frequency Agility	DC	Direct Current
ALSE	Absorber Lined Screened Enclosure	DFS	Dynamic Frequency Selection
AM	Amplitude Modulation	DMO	Dynamic Modulation Order
Amb	Ambient	DSSS	Direct Sequence Spread Spectrum
ANSI	American National Standards Institute	DTA	Digital Transmission Analyser
ATPC	Automatic Transmit Power Control	EIRP	Equivalent Isotropic Radiated Power
AVG	Average	emf	electromotive force
AWGN	Additive White Gaussian Noise	ERC	European Radiocommunications Committee
BER	Bit Error Rate	ERP	Effective Radiated Power
BPSK	Binary Phase Shift Keying	ETSI	European Telecommunications Standards Institute
BT	Bluetooth	EU	European Union
BLE	Bluetooth Low Energy	EUT	Equipment Under Test
BW	Bandwidth	FCC	Federal Communications Commission
°C	Degrees Celsius	FER	Frame Error Rate
C/I	Carrier / Interferer	FHSS	Frequency Hopping Spread Spectrum
CAC	Channel Availability Check	FM	Frequency Modulation
CCA	Clear Channel Assessment	FSK	Frequency Shift Keying
CEPT	European Conference of Postal and Telecommunications Administrations	FSS	Fixed Satellite Service
CFR	Code of Federal Regulations	g	Grams
CISPR	Comité International Spécial des Perturbations Radioélectriques	GHz	GigaHertz
cm	centimetre	GNSS	Global Navigation Satellite System
COFDM	Coherent OFDM	GPS	Global Positioning System
COT	Channel Occupancy Time	Hz	Hertz
CS	Channel Spacing	IEEE	Institute of Electrical and Electronics Engineers
CW	Continuous Wave	IF	Intermediate Frequency
DAA	Detect And Avoid	ISED	Innovation Science and Economic Development
dB	decibels	ITU	International Telecommunications Union
dBμA/m	decibels relative to 1μA/m	KDB	Knowledge DataBase

kg	kilogram	pW	picoWatts
kHz	kiloHertz	QAM	Quadrature Amplitude Modulation
kPa	Kilopascal	QP	Quasi Peak
LBT	Listen Before Talk	QPSK	Quadrature Phase Shift Keying
LISN	Line Impedance Stabilisation Network	RBW	Resolution Band Width
LNA	Low Noise Amplifier	RED	Radio Equipment Directive
LNB	Low Noise Block	R&TTE	Radio and Telecommunication Terminal Equipment
LO	Local Oscillator	Ref	Reference
m	metre	RF	Radio Frequency
mA	milliAmps	RFC	Remote Frequency Control
max	maximum	RFID	Radio Frequency IDentification
Mbit/s	MegaBits per second	RLAN	Radio Local Area Network
MCS	Modulation and Coding Scheme	RMS	Root Mean Square
MHz	MegaHertz	RNSS	Radio Navigation Satellite Service
mic	Microphone	RSL	Received Signal Level
MIMO	Multiple Input, Multiple Output	RSSI	Received Signal Strength Indicator
min	minimum	RTP	Room Temperature and Pressure
mm	millimetres	RTPC	Remote Transmit Power Control
ms	milliseconds	Rx	Receiver
mW	milliWatts	s	Seconds
NA	Not Applicable	SINAD	Signal to Noise And Distortion
NFC	Near Field Communications	SRD	Short Range Device
nom	Nominal	Tx	Transmitter
nW	nanoWatt	UKAS	United Kingdom Accreditation Service
OATS	Open Area Test Site	UKCA	United Kingdom Conformity Assessed
OBW	Occupied Band Width	UKRER	United Kingdom Radio Equipment Regulations
OCW	Occupied Channel Width	UHF	Ultra High Frequency
OFDM	Orthogonal Frequency Division Multiplexing	U-NII	Unlicensed National Information Infrastructure
OOB	Out Of Band	USB	Universal Serial Bus
ppm	Parts per million	UWB	Ultra Wide Band
PER	Packet Error Rate	V	Volts
PK	Peak	V/m	Volts per metre
PMR	Private Mobile Radio	VBW	Video Band Width
PRBS	Pseudo Random Bit Sequence	VHF	Very High Frequency
PRF	Pulse Repitition Frequency	VSAT	Very Small Aperture Terminal
PSD	Power Spectral Density	W	Watts
PSU	Power Supply Unit		

===== END OF TEST REPORT =====