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Report On

FCC and ISED Testing of the
Ericsson KRC 161 627/1 Radio 2219 B2 (1900 MHz) NR Base Station
in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 24, Industry
Canada RSS-GEN and Industry Canada RSS-133

COMMERCIAL-IN-CONFIDENCE

FCC: TA8AKRC161627-1

IC: 287AB-AS1616271

PREPARED BY

A handwritten signature in black ink, appearing to read 'D Fiedorowicz'.

Daria Fiedorowicz
Senior Administrator
(Technical)

APPROVED BY

A handwritten signature in black ink, appearing to read 'S Scarfe'.

Steve Scarfe
Authorised Signatory

DATED

17 June 2020

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June 2020



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SECTION 1

REPORT INFORMATION



1.1 REPORT DETAILS

Manufacturer	Ericsson
Address	Torshamnsgatan 23 Kista SE-16480 Stockholm Sweden
Product Name & Product Number	Radio 2219 B2 & KRC 161 627/1
IC Model Name	AS1616271
Serial Number(s)	D825905776
Software Version	CXP9013268/9 REV R78HT
Hardware Version	R1B
Test Specification/Issue/Date	FCC CFR 47 Part 2: 2019 FCC CFR 47 Part 24: 2019 Industry Canada RSS-GEN: Issue 5 March 2019 Amendment 1 Industry Canada RSS-133: Issue 6: January 2018 Amendment 1
Test Plan	Test Plan FCC&IC NR legacy 20Q2
Start of Test	10 June 2020
Finish of Test	10 June 2020
Name of Engineer(s)	Neil Rousell
Related Document(s)	KDB 971168 D01 v02r02 KDB 662911 D01 v02r01

ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate compliance with FCC CFR 47 Part 24. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

Neil Rousell



1.2 BRIEF SUMMARY OF RESULTS

A brief summary of results for each configuration, in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 24, Industry Canada RSS-GEN and Industry Canada RSS-133 is shown below.

Section	Specification Clause				Test Description	Result
	FCC CFR 47 Part 2	FCC CFR 47 Part 24	RSS-GEN	RSS-133		
2.1	2.1046	24.232	-	6.4	Maximum Peak Output Power and Peak to Average Ratio - Conducted	Pass
2.2	2.1049	24.238 (b)	6.7	6.5	Occupied Bandwidth	Pass
2.3	2.1051	24.238 (b)	-	6.5	Band Edge	Pass
2.4	2.1051	24.238 (a)	6.13	6.5	Transmitter Spurious Emissions	Pass

Measurement Uncertainty Decision Statement

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



1.3 CONFIGURATION DESCRIPTION

Configuration	RAT	No. Of carriers	Carrier Bandwidth	Carrier Frequency Configuration (MHz)		
				Bottom	Middle	Top
1	NR	1	5 MHz – SCS 15kHz	1932.5	-	1987.5
	NR	1	10 MHz – SCS 15kHz	1935.0	-	1985.0
	NR	1	15 MHz – SCS 15kHz	1937.5	-	1982.5
	NR	1	20 MHz – SCS 15kHz	1940.0		1980.0
	NR	1	20 MHz – SCS 60kHz	1940.0		1980.0
2	NR	2	20 MHz + 20 MHz SCS 15kHz using Carrier Aggregation	-	1950.0 + 1970.0	-



1.4 DECLARATION OF BUILD STATUS

MAIN EUT	
MANUFACTURING DESCRIPTION	Radio Unit
MANUFACTURER	Ericsson AB
PRODUCT NAME	Radio 2219 B2
PART NUMBER	KRC 161 627/1
IC Model Name	AS1616271
SERIAL NUMBER	D825905776
HARDWARE VERSION	R1B
SOFTWARE VERSION	CXP 901 3268/9 – R78HT
TRANSMITTER OPERATING RANGE	1930 - 1990 MHz
MODULATIONS	GSM: GMSK, AQPSK, 8PSK WCDMA: QPSK, 16QAM, 64QAM LTE & NR: QPSK, 16QAM, 64QAM, 256QAM
ITU DESIGNATION OF EMISSION	GSM: GMSK & AQPSK: 245KGXW, 245KG7W
	WCDMA 5 MHz BW channel: 5M00F9W
	LTE 1.4 MHz BW channel: 1M40F9W
	LTE 3 MHz BW channel: 3M00F9W
	LTE 5 MHz BW channel: 5M00F9W
	LTE 10 MHz BW channel: 10M0F9W
	LTE 15 MHz BW channel: 15M0F9W
	LTE 20 MHz BW channel: 20M0F9W
	NR 5 MHz BW channel: 5M00W7D
	NR 10 MHz BW channel: 10M0W7D
	NR 15 MHz BW channel: 15M0W7D
	NR 20 MHz BW channel: 20M0W7D
	NR 20+20 MHz CA channel: 40M0W7D
OUTPUT POWER (RMS) (W or dBm)	2 ports, 80W per port
FCC ID	TA8AKRC161627-1
IC ID	287AB-AS1616271
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	Base station radio

Supports NB-IoT inband for LTE

Signature 杨桦

Hua Yang

Date 2020-06-01

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

1.5 PRODUCT INFORMATION

1.5.1 Technical Description

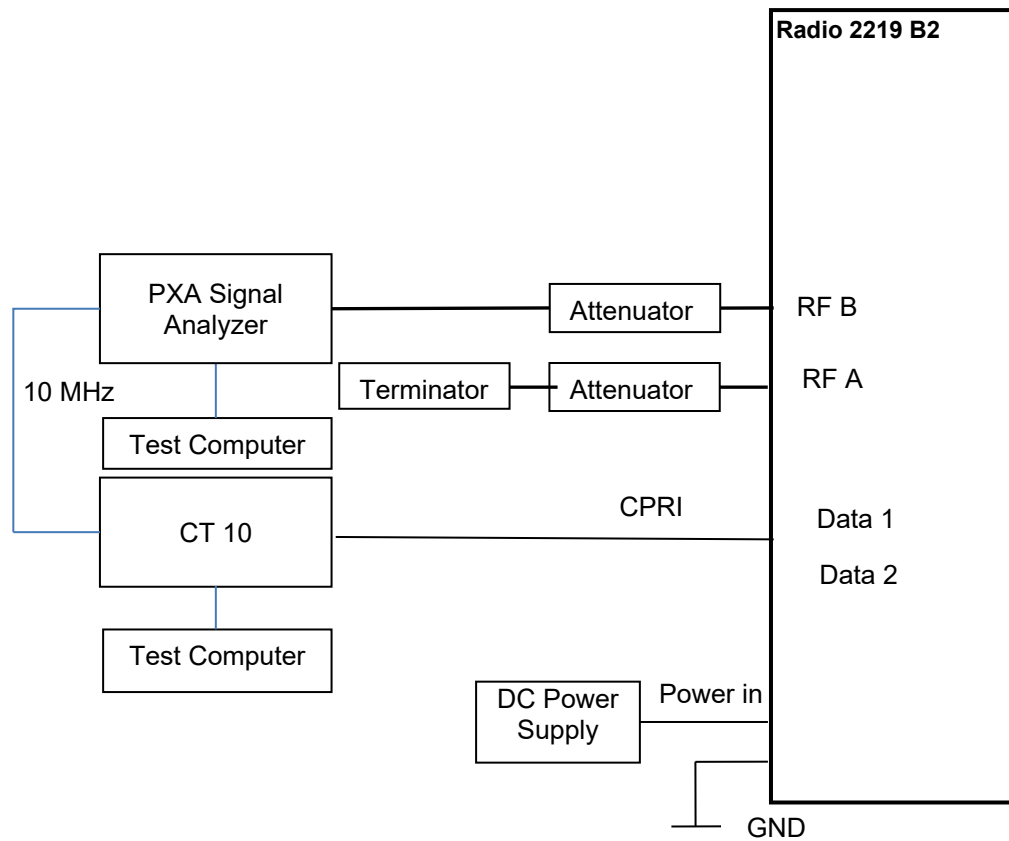
The Equipment Under Test (EUT) Radio 2219 B2 is an Ericsson AB Radio Unit working in the public mobile service 1900 MHz band which provides communication connections to 1900 MHz network. The Radio 2219 B2 operates from a -48V DC supply.

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



Equipment Under Test

1.6 TEST SETUP





1.7 TEST CONDITIONS

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

The EUT was powered from a -48V DC supply.

FCC Measurement Facility Registration Number
90987 Octagon House, Fareham Test Laboratory

ISED Accreditation
ISED#12669A Octagon House, Fareham Test Laboratory

Test Name	Name of Engineer(s)
Broadband Transmitting Power Limits	Neil Rousell
Occupied Bandwidth	Neil Rousell
Band Edge	Neil Rousell
Transmitter Spurious Emissions	Neil Rousell
Maximum Peak Output Power and Peak to Average Ratio - Conducted	Neil Rousell

1.8 DEVIATION FROM THE STANDARD

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

1.9 MODIFICATION RECORD

No modifications were made to the EUT during testing.



SECTION 2

TEST DETAILS



2.1 MAXIMUM PEAK OUTPUT POWER AND PEAK TO AVERAGE RATIO - CONDUCTED

2.1.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1046
FCC CFR 47 Part 24, Clause 24.232
Industry Canada RSS-133, Clause 6.4

2.1.2 Date of Test and Modification State

10 June 2020 - Modification State 0

2.1.3 Test Equipment Used

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

2.1.4 Environmental Conditions

Ambient Temperature 23.1°C
Relative Humidity 48.3%

2.1.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01, clause 5.2.1 and summed in accordance with FCC KDB 662911 D01.

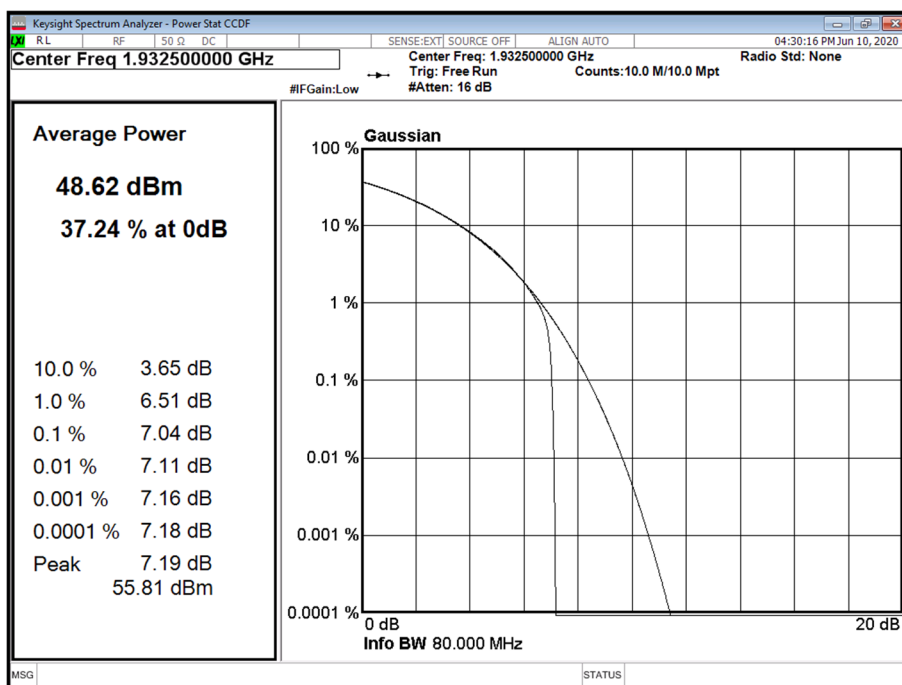
2.1.6 Test Results

Configuration 1

Maximum Output Power 49 dBm

Antenna	NR Modulation	NR Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position B		
			PAR (dB)	Average Power	
				dBm	dBm/MHz
A	QPSK	5.0 MHz 15 kHz SCS	7.04	48.59	42.64
A	QPSK	10.0 MHz 15 kHz SCS	-	48.65	-
A	QPSK	15.0 MHz 15 kHz SCS	-	48.68	-
A	QPSK	20.0 MHz 15 kHz SCS	-	48.71	-
A	QPSK	20.0 MHz 60 kHz SCS	-	48.83	-

Antenna A - NR Modulation QPSK - NR Carrier Bandwidth 5.0 MHz 15 kHz SCS - Channel Position B



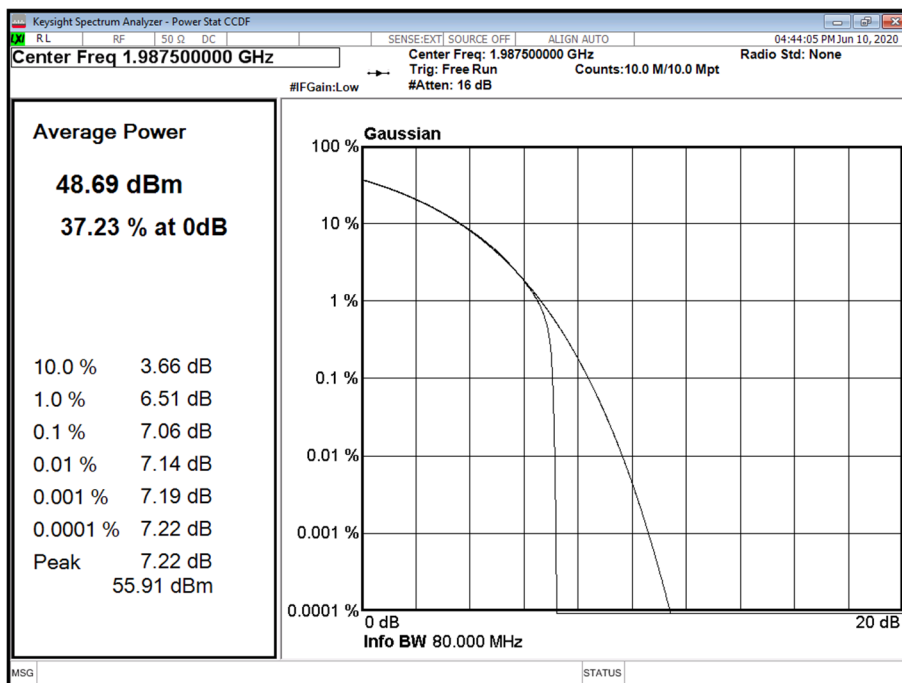
Configuration 1

Maximum Output Power 49 dBm

Antenna	NR Modulation	NR Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position T		
			PAR (dB)	Average Power	
				dBm	dBm/MHz
A	QPSK	5.0 MHz 15 kHz SCS	7.06	48.66	42.70
A	QPSK	10.0 MHz 15 kHz SCS	-	48.66	-
A	QPSK	15.0 MHz 15 kHz SCS	-	48.63	-
A	QPSK	20.0 MHz 15 kHz SCS	-	48.82	-
A	QPSK	20.0 MHz 60 kHz SCS	-	48.79	-



Antenna A - NR Modulation QPSK - NR Carrier Bandwidth 5.0 MHz 15 kHz SCS - Channel Position T



Configuration 2

Maximum Output Power 49 dBm

Antenna	NR Modulation	NR Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position M		
			PAR (dB)	Average Power	
				dBm	dBm/MHz
A	QPSK	20.0 + 20.0 MHz CA 15 kHz SCS	-	49.02	-

Limit	
Peak Power	≤ 1640 W/MHz or ≤ +62.15 dBm
Peak to Average Ratio	13 dB



2.2 OCCUPIED BANDWIDTH

2.2.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1049
FCC CFR 47 Part 24, Clause 24.238 (b)
Industry Canada RSS-GEN, Clause 6.7
Industry Canada RSS-133, Clause 6.5

2.2.2 Date of Test and Modification State

10 June 2020 - Modification State 0

2.2.3 Test Equipment Used

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

2.2.4 Environmental Conditions

Ambient Temperature 23.1°C
Relative Humidity 48.3%

2.2.5 Test Method

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

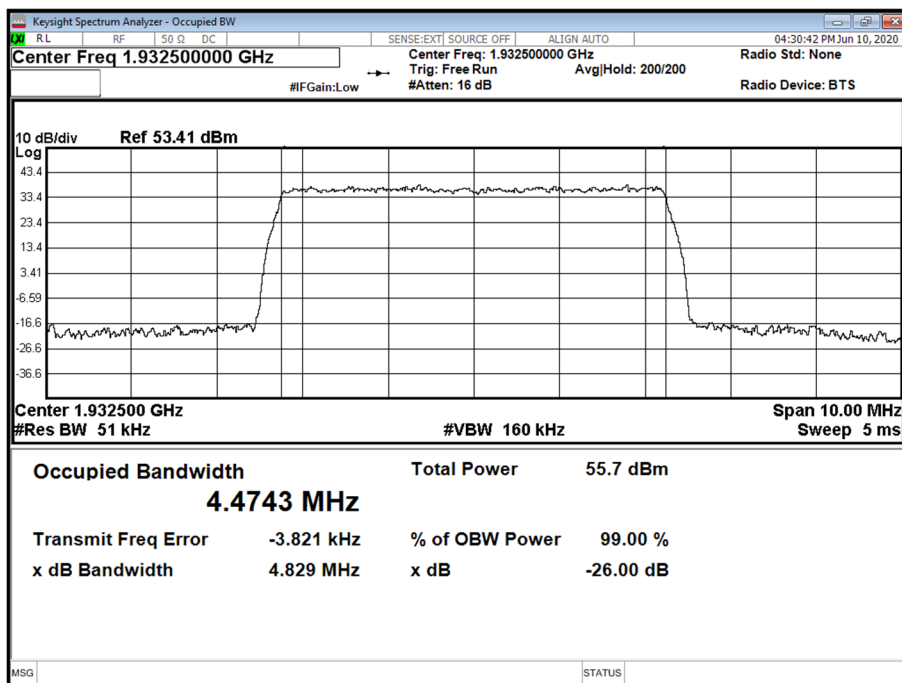
2.2.6 Test Results

Configuration 1

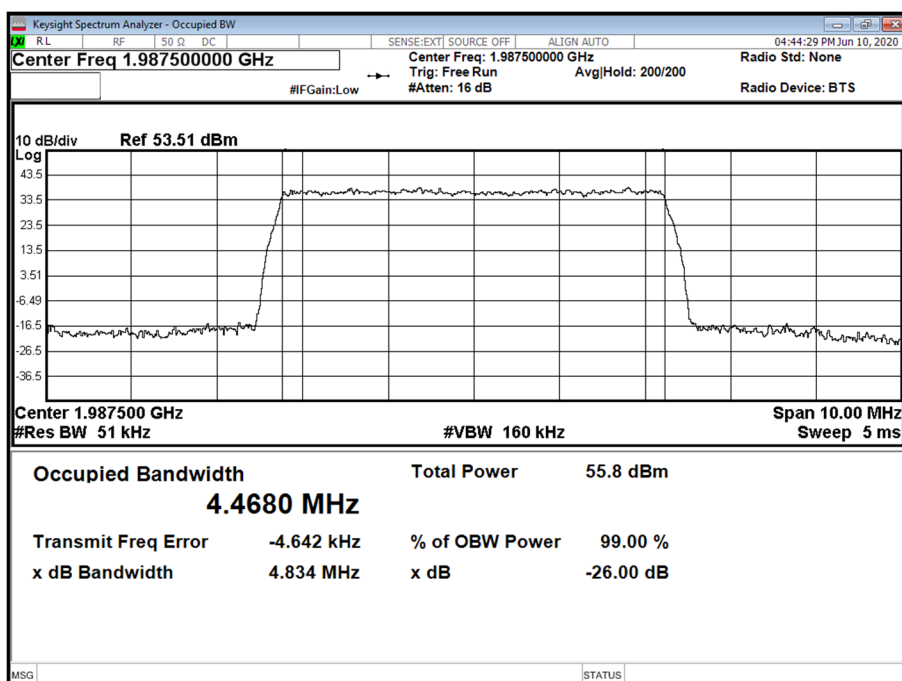
Maximum Output Power 49 dBm

Antenna	NR Modulation	NR Carrier Bandwidth	Result (KHz)			
			Channel Position B		Channel Position T	
			Occupied Bandwidth	-26 dB Bandwidth	Occupied Bandwidth	-26 dB Bandwidth
A	QPSK	5.0 MHz 15 kHz SCS	4,474.28	4,829.11	4,468.00	4,833.96
A	QPSK	10.0 MHz 15 kHz SCS	9,291.64	9,787.55	9,293.27	9,768.42
A	QPSK	15.0 MHz 15 kHz SCS	14,141.23	14,785.30	14,131.12	14,800.75
A	QPSK	20.0 MHz 15 kHz SCS	18,900.54	19,700.49	18,908.23	19,736.61
A	QPSK	20.0 MHz 60 kHz SCS	17,236.88	19,513.33	17,235.18	19,527.90

Antenna A - NR Modulation QPSK - NR Carrier Bandwidth 5.0 MHz 15 kHz SCS - Channel Position B

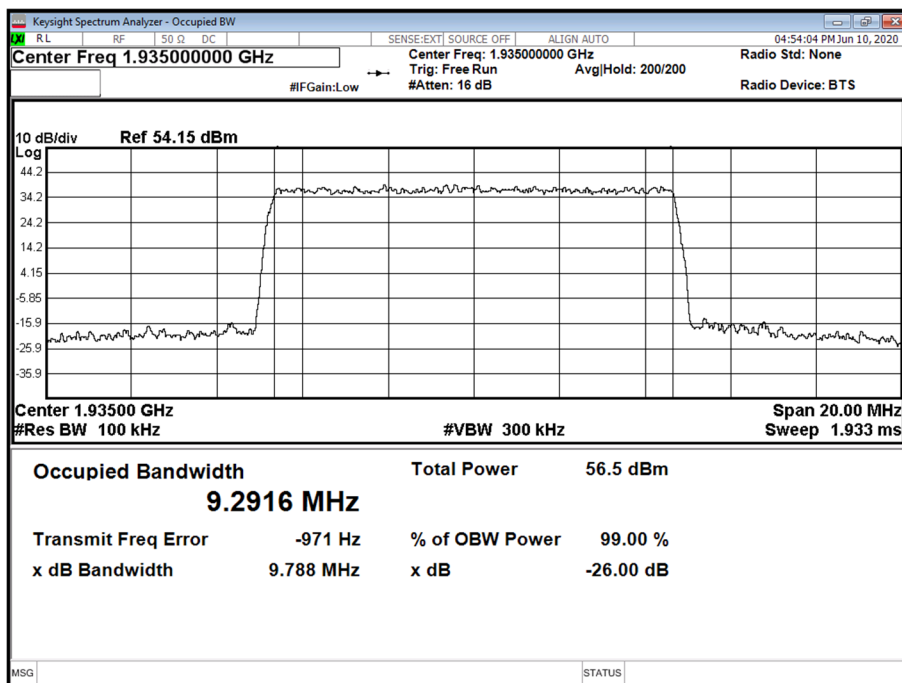


Antenna A - NR Modulation QPSK - NR Carrier Bandwidth 5.0 MHz 15 kHz SCS - Channel Position T

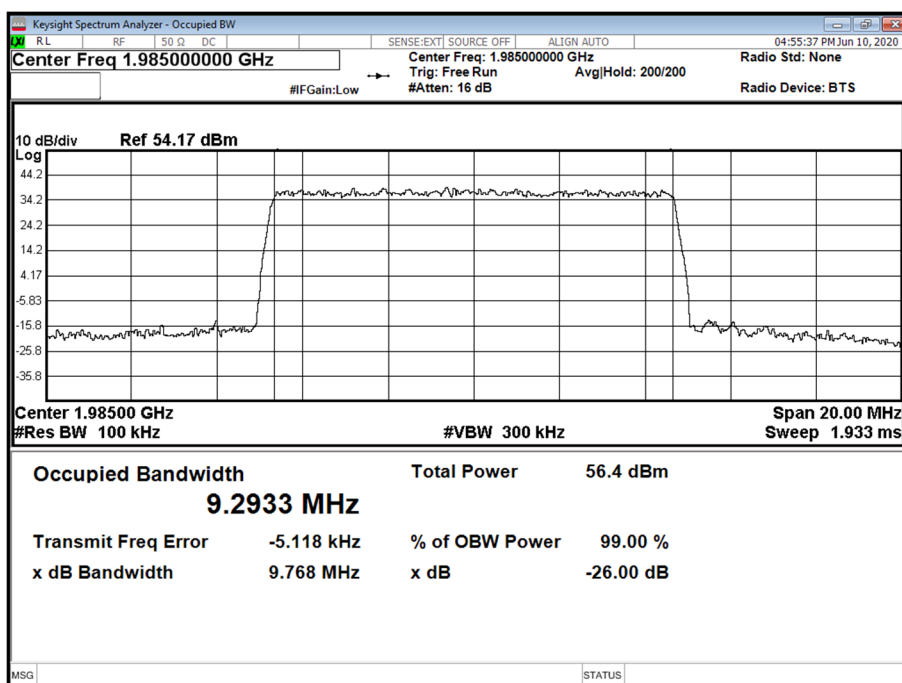




Antenna A - NR Modulation QPSK - NR Carrier Bandwidth 10.0 MHz 15 kHz SCS - Channel Position B

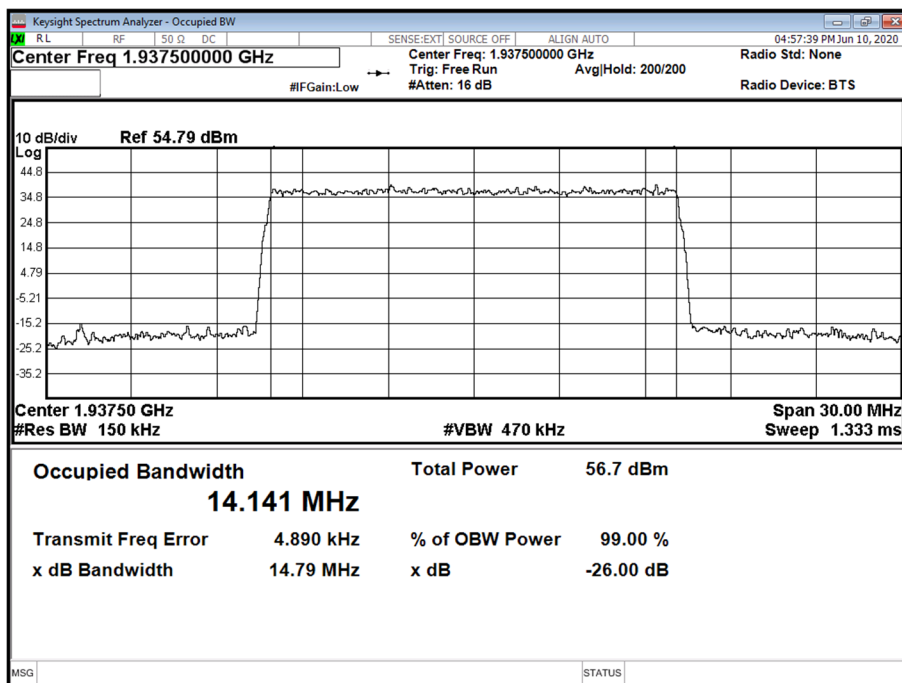


Antenna A - NR Modulation QPSK - NR Carrier Bandwidth 10.0 MHz 15 kHz SCS - Channel Position T

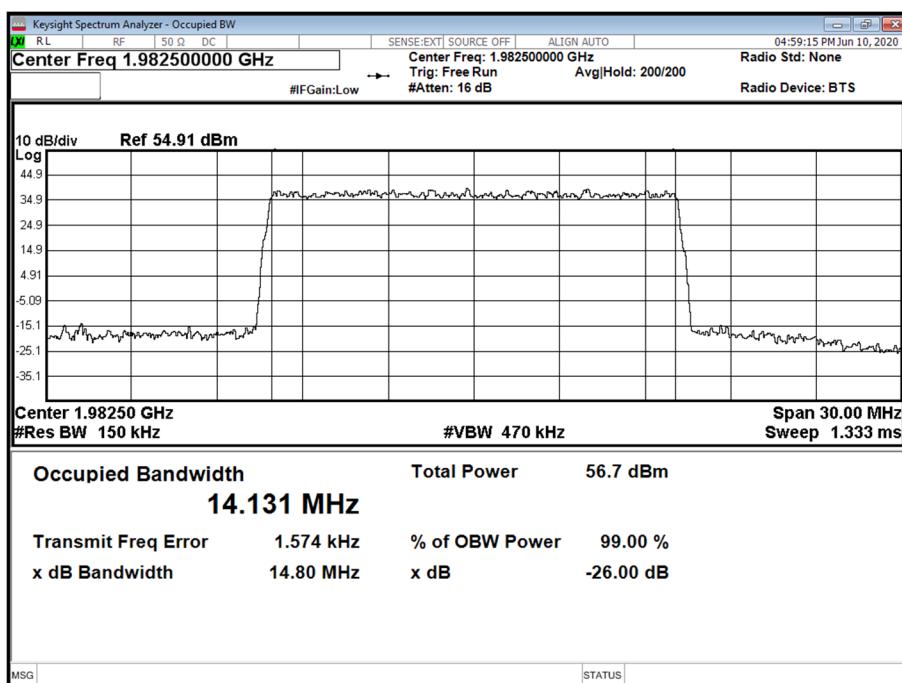




Antenna A - NR Modulation QPSK - NR Carrier Bandwidth 15.0 MHz 15 kHz SCS - Channel Position B

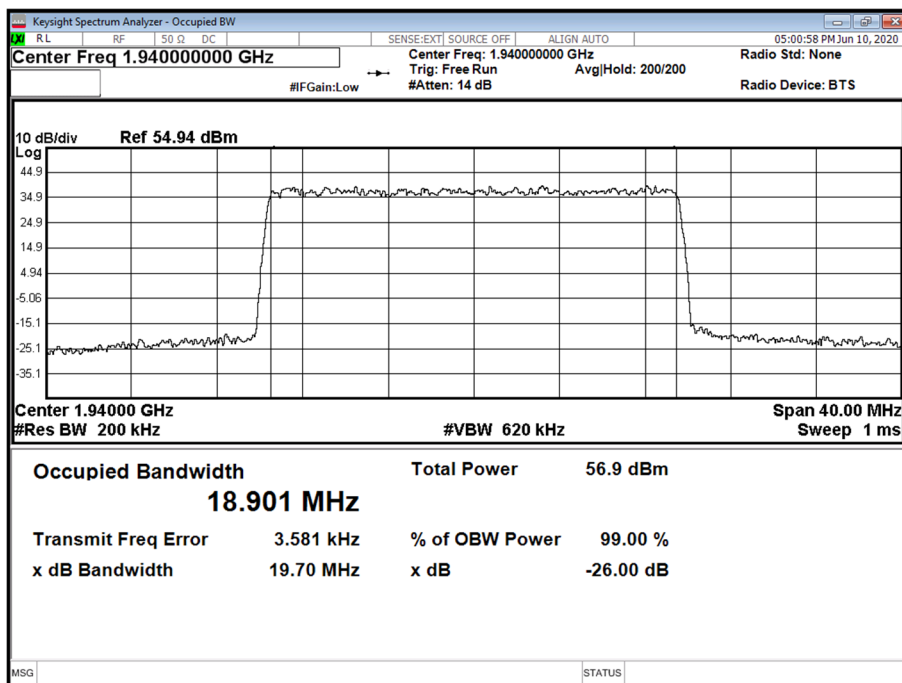


Antenna A - NR Modulation QPSK - NR Carrier Bandwidth 15.0 MHz 15 kHz SCS - Channel Position T

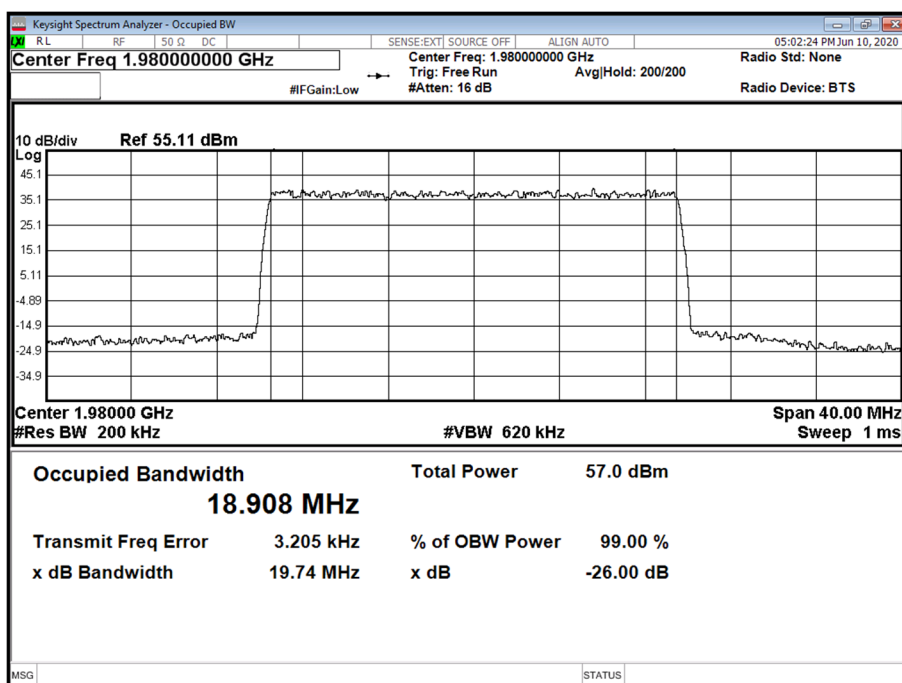




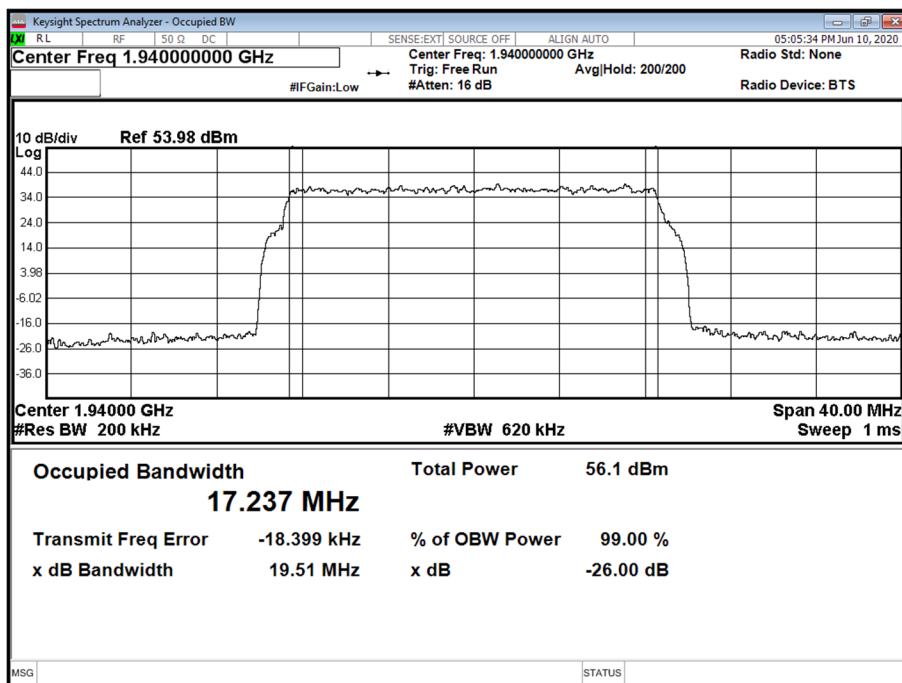
Antenna A - NR Modulation QPSK - NR Carrier Bandwidth 20.0 MHz 15 kHz SCS - Channel Position B



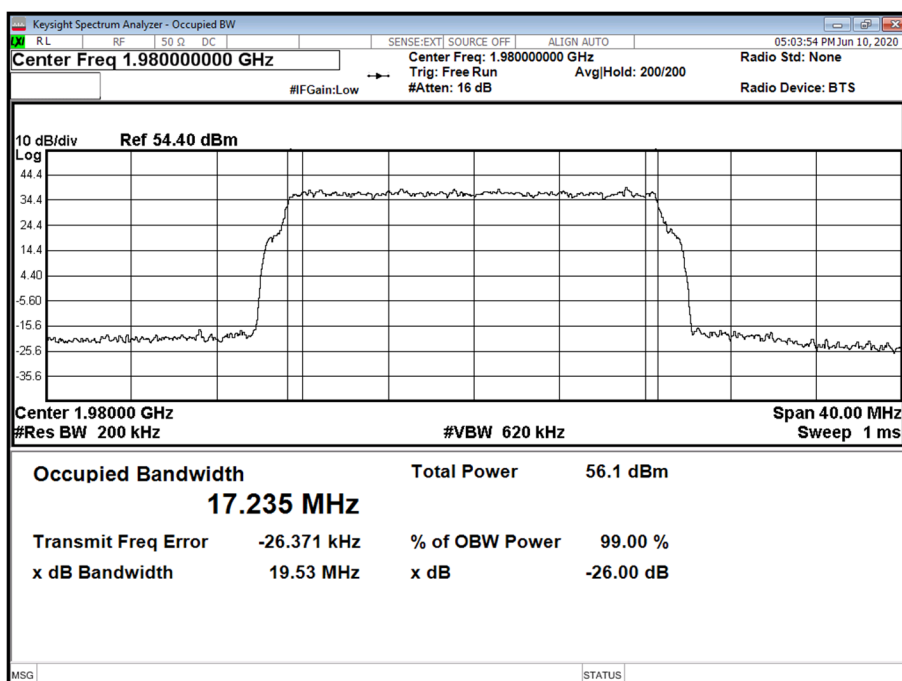
Antenna A - NR Modulation QPSK - NR Carrier Bandwidth 20.0 MHz 15 kHz SCS - Channel Position T



Antenna A - NR Modulation QPSK - NR Carrier Bandwidth 20.0 MHz 60 kHz SCS - Channel Position B



Antenna A - NR Modulation QPSK - NR Carrier Bandwidth 20.0 MHz 60 kHz SCS - Channel Position T





Configuration 2

Maximum Output Power 49 dBm

Antenna	NR Modulation	NR Carrier Bandwidth	Result (KHz)	
			Channel Position M	
			Occupied Bandwidth	-26 dB Bandwidth
A	QPSK	20.0 + 20.0 MHz CA 15 kHz SCS	38,770.56	40,015.55

Antenna A - NR Modulation QPSK - NR Carrier Bandwidth 20.0 + 20.0 MHz CA 15 kHz SCS - Channel Position M

