MEASUREMENT REPORT

FCC PART 24 & 27

FCC ID:	2AD8UAHFID01
Application:	Nokia Solutions and Networks, OY
Application Type:	Class II Permissive Change
Product:	AirScale Indoor Radio ASiR-pRRH
Model No.:	AHFID
Brand Name:	Nokia
FCC Rule Part(s):	Part 24 Subpart E, Part 27 Subpart L
Test Procedure(s):	ANSI C63.26-2015
Test Date:	October 23, 2020 ~ April 06, 2021

Reviewed By: Paddy Chen
(Paddy Chen)

Approved By:
(Chenz Ker)

Testing Laboratory
3261

The test results relate only to the samples tested.
This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.26-2015. Test results reported herein relate only to the item(s) tested.

Revision History

Report No.	Version	Description	Issue Date	Note
2006TW0002-U6	Rev. 01	Initial Report	06-15-2021	Valid

Note: This report is prepared for FCC Class II permissive supplement to MRT Original report No. 2006TW0002-U4, updated 5G NR n25 to n2 band and added related data.

CONTENTS

Description Page

General Information

Applicant:	Nokia Solutions and Networks, OY
Applicant Address:	2000 W. Lucent Lane, Naperville, Illinois, United States, 60563
Manufacturer:	Nokia Solutions and Networks, OY
Manufacturer Address:	2000 W. Lucent Lane, Naperville, Illinois, United States, 60563
Test Site:	MRT Technology (Taiwan) Co., Ltd
Test Site Address:	No. 38, Fuxing Second Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C)

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Fuxing Rd., Taoyuan, Taiwan (R.O.C)

- **MRT facility is a FCC registered (Reg. No. TW3261) test facility with the site description report on file and is designated by the FCC as an Accredited Test Film.**
- **MRT facility is an IC registered (MRT Reg. No. 21723-1) test laboratory with the site description on file at Industry Canada.**
- **MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (TAF) under the American Association for Laboratory Accreditation Program (TAF Cert. No. 3261) in EMC, Telecommunications and Radio testing for FCC, Industry Taiwan, EU and TELEC Rules.**

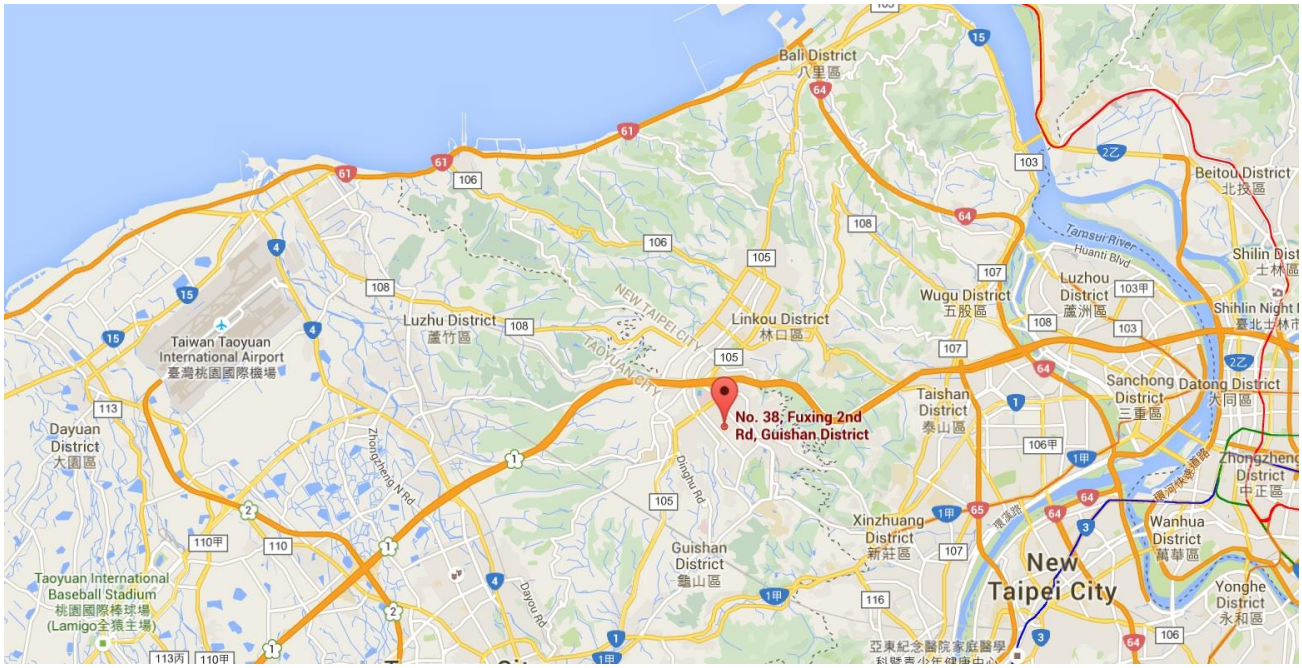
1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taoyuan City. These measurement tests were conducted at the MRT Technology (Taiwan) Co., Ltd. Facility located at No.38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan (R.O.C).



2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name:	AirScale Indoor Radio ASiR-pRRH
Model No.:	AHFID
Brand Name:	Nokia
Test Device Serial No.:	NH204300255
Hardware Version:	A102
Software Version:	FL18A
Voltage Range:	PoE: 52 ~ 57Vdc
Operating Band (s):	5G NR n2, n66
Modulation Type:	QPSK, 16QAM, 64QAM, 256QAM
T_X Frequency Range:	n2: 1930 ~ 1990 MHz; n66: 2110 ~ 2180 MHz
R_X Frequency Range:	n2: 1850 ~ 1910 MHz; n66: 1710 ~ 1780 MHz
Max EIRP Power:	n2: 5MHz: 32.88dBm; 10MHz: 32.66dBm; 15MHz: 32.58dBm 20MHz: 32.66dBm; 5 + 5MHz: 32.78dBm; 10 + 10MHz: 32.80dBm 15 + 15MHz: 32.73dBm; 20 + 20MHz: 32.77dBm
Emission Designator:	Refer to Section 2.2
Antenna Specification:	Refer to Section 2.3

2.2. Emission Designator

n2		QPSK			16QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
5	1932.5~1987.5	4M52G7D	--	1.9409	4M54W7D	--	1.7258
10	1935.0~1985.0	9M24G7D	--	1.8450	9M27W7D	--	1.8450
15	1937.5~1982.5	14M3G7D	--	1.8113	14M2W7D	--	1.7458
20	1940.0~1980.0	19M0G7D	--	1.8450	19M1W7D	--	1.8450
5 + 5	1935.0~1985.0	9M48G7D	--	1.8967	9M48W7D	--	1.7947
10 + 10	1940.0~1980.0	19M0G7D	--	1.9055	19M1W7D	--	1.7824
15 + 15	1945.0~1975.0	29M1G7D	--	1.7989	29M0W7D	--	1.8750
20 + 20	1950.0~ 1970.0	38M8G7D	--	1.8880	38M8W7D	--	1.8923
n2		64QAM			256QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
5	1932.5~1987.5	4M50W7D	--	1.6982	4M50W7D	--	1.8365
10	1935.0~1985.0	9M34W7D	--	1.8072	9M33W7D	--	1.7989
15	1937.5~1982.5	14M2W7D	--	1.8030	14M2W7D	--	1.7061
20	1940.0~1980.0	19M0W7D	--	1.8323	19M0W7D	--	1.6711
5 + 5	1935.0~1985.0	9M44W7D	--	1.7539	9M43W7D	--	1.8578
10 + 10	1940.0~1980.0	19M2W7D	--	1.6032	19M2W7D	--	1.8365
15 + 15	1945.0~1975.0	29M0W7D	--	1.7418	29M0W7D	--	1.7660
20 + 20	1950.0~ 1970.0	38M7W7D	--	1.7579	38M7W7D	--	1.7579

2.3. Description of Available Antennas

Band Support	Antenna Type	Model	Antenna Gain
n2	Omni Internal Antenna	6744	ANT 0: 4.4dBi ANT 1: 4.9dBi
n66			ANT 0: 5.5dBi ANT 1: 4.8dBi

2.4. Test Mode Detail

Test Item	Channel Bandwidth	Modulation
Equivalent Isotropically Radiated Power	5 MHz, 10 MHz 15 MHz, 20MHz	QPSK, 16QAM, 64QAM, 256QAM
Emission Bandwidth		QPSK, 16QAM, 64QAM, 256QAM
Band Edge Measurements		QPSK
Conducted Spurious Emissions		QPSK
Equivalent Isotropically Radiated Power	5 + 5 MHz, 10 +10 MHz, 15 + 15 MHz, 20 + 20 MHz	QPSK, 16QAM, 64QAM, 256QAM
Emission Bandwidth		QPSK, 16QAM, 64QAM, 256QAM
Band Edge Measurements		QPSK
Conducted Spurious Emissions		QPSK

Note: This report has assessed the typical multi-carrier mode (symmetry mode).

2.5. Test Methodology

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ANSI C63.26:2015
- FCC CFR 47 Part 2, Part 24, Part 27
- FCC KDB 971168 D01 v03r01: Power Meas License Digital Systems
- FCC KDB 412172 D01 v01r01: Determining ERP and EIRP

2.6. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

2.7. Test Environment Condition

Ambient Temperature	15 ~ 35°C
Relative Humidity	20 ~ 75%RH

3. TEST EQUIPMENT CALIBRATION DATE

Radiated Emissions

Instrument	Brand	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Broadband TRILOG Antenna	SCHWARZBECK	VULB 9162	MRTTWA00001	1 year	2021/10/05
Acitve Loop Antenna	SCHWARZBECK	FMZB 1519B	MRTTWA00002	1 year	2022/04/26
Broadband Hornantenna	SCHWARZBECK	BBHA 9120D	MRTTWA00003	1 year	2022/04/23
Breitband Hornantenna	SCHWARZBECK	BBHA 9170	MRTTWA00004	1 year	2022/04/23
Broadband Preamplifier	SCHWARZBECK	BBV 9718	MRTTWA00005	1 year	2022/04/23
Broadband Amplifier	SCHWARZBECK	BBV 9721	MRTTWA00006	1 year	2022/04/23
Signal Analyzer	R&S	FSV40	MRTTWA00007	1 year	2022/03/23
EMI Test Receiver	R&S	ESR3	MRTTWA00009	1 year	2022/03/24
EXA Signal Analyzer	KEYSIGHT	N9010A	MRTTWA00012	1 year	2021/11/02
EXA Signal Analyzer	KEYSIGHT	N9010B	MRTTWA00074	1 year	2021/07/14
Antenna Cable	HUBERSUHNER	SF106	MRTTWE00010	1 year	2021/06/16
Temperature/Humidity Meter	TFA	35.1078.10.IT	MRTTWA00032	1 year	2022/05/27

Conducted Test Equipment

Instrument	Brand	Type No.	Asset No.	Cali. Interval	Cali. Due Date
X-Series USB Peak and Average Power Sensor	KEYSIGHT	U2021XA	MRTTWA00014	1 year	2022/04/23
EXA Signal Analyzer	KEYSIGHT	N9010A	MRTTWA00012	1 year	2021/11/02
EXA Signal Analyzer	KEYSIGHT	N9010B	MRTTWA00074	1 year	2021/07/11
Temperature & Humidity Chamber	TEN BILLION	TTH-B3UP	MRTTWA00036	1 year	2022/06/09
Temperature/Humidity Meter	TFA	35.1078.10.IT	MRTTWA00033	1 year	2022/05/27

Software	Version	Function
EMI Software	V3	EMI Test Software

4. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Conducted Measurement
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 2.65dB
Radiated Emission Measurement
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 9kHz ~ 30MHz: 3.92dB 30MHz ~ 1GHz: 4.25dB 1GHz ~ 18GHz: 4.40dB

5. TEST RESULT

5.1. Summary

FCC Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1046; 24.232(a)(2)	Equivalent Isotropically Radiated Power	Refer to Section 5.2	Conducted & Radiated	Pass	Section 5.2
2.1049	Emission Bandwidth	Refer to Section 5.3	Conducted	Pass	Section 5.3
24.238(a)	Band Edge Measurements	Refer to Section 5.4		Pass	Section 5.4
2.1051; 24.238(a)	Conducted Spurious Emissions	Refer to Section 5.5		Pass	Section 5.5

Notes:

1) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
2) The Emission Bandwidth, Channel Band-edge, and Conducted Emission were presented the worst test data of modultation & antenna port in the test report.

5.2. Equivalent Isotropically Radiated Power Measurement

5.2.1.Test Limit

The Radiated Equivalent Isotropically Power shall be according to the specific rule Part 24.232(a)(2) that are limited to EIRP of 1640 watts/MHz when transmitting with an emission bandwidth greater than 1 MHz.

5.2.2.Test Procedures Used

KDB 971168 D01v03r01 - Section 5.2.4 & 5.8

ANSI C63.26-2015 - Section 5.2.4.2 & 5.2.7

5.2.3.Test Setting

Average Power Measurement

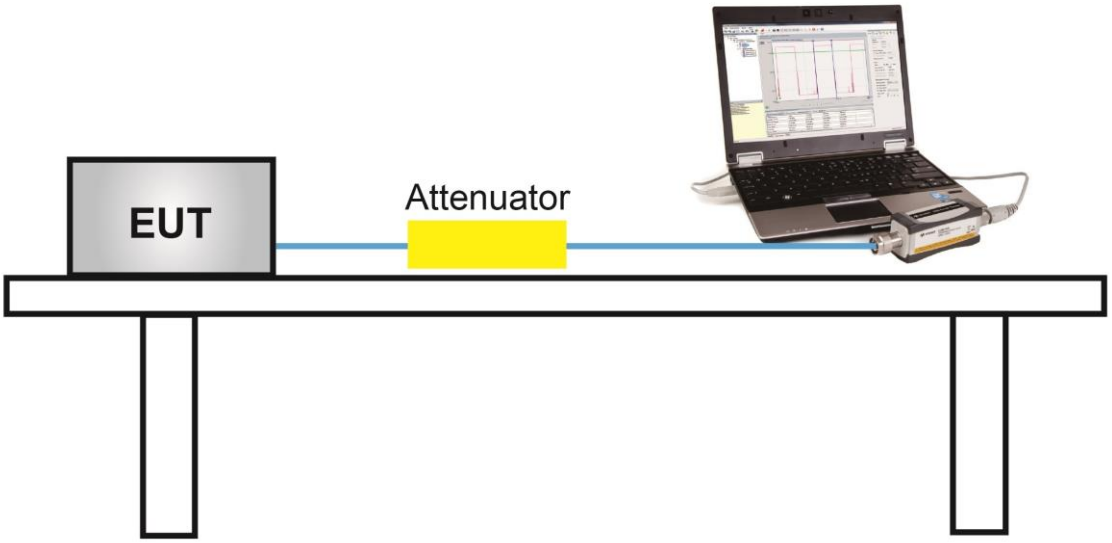
Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

Radiated Equivalent Isotropically Power Measurement

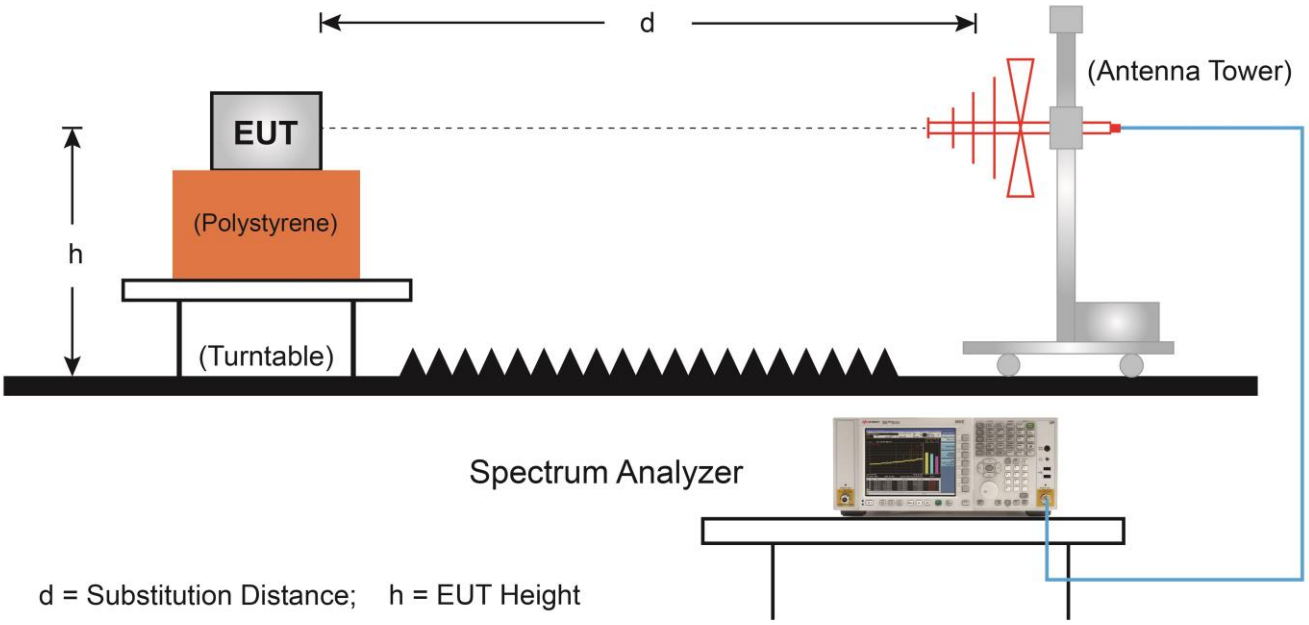
1. RBW ≥ OBW
2. VBW ≥ 3*RBW
3. Sweep time ≥ 10 × (number of points in sweep) × (transmission symbol period)
4. Detector = power averaging (rms)
5. Set sweep trigger to “free run”
6. If the EUT can be configured to transmit continuously, then set the trigger to free run
7. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time
8. The trace was allowed to stabilize
9. Use the peak marker function to determine the peak amplitude level.
10. EIRP = Output Power Level of S.G - T_X Cable Loss + Antenna Gain of Substitution Antenna.

5.2.4.Test Setup

Conducted Measurment of Output Power



Radiated Measurement of Equivalent Isotropically Radiated Power



5.2.5.Test Result

Product	AirScale Indoor Radio ASiR-pRRH	Test Engineer	Peter Xu
Test Site	SR2	Test Date	2020/11/13 ~ 2021/03/17
Test Configuration	n2 (Single Carrier)		

Frequency (MHz)	Channel Bandwidth (MHz)	Ant 0 Power (dBm)	Ant 1 Power (dBm)	Total Power (dBm)
QPSK				
1932.5	5	22.98	22.86	25.93
1960.0	5	23.24	23.01	26.14
1987.5	5	23.67	23.52	26.61
1935.0	10	23.26	23.28	26.28
1960.0	10	23.10	23.22	26.17
1985.0	10	24.14	23.59	26.88
1937.5	15	24.01	23.51	26.78
1960.0	15	23.70	23.21	26.47
1982.5	15	24.44	24.21	27.34
1940.0	20	23.79	23.59	26.70
1960.0	20	23.73	23.35	26.55
1980.0	20	24.05	23.54	26.81
16QAM				
1932.5	5	22.79	22.99	25.90
1960.0	5	23.29	22.98	26.15
1987.5	5	23.55	23.45	26.51
1935.0	10	23.18	23.24	26.22
1960.0	10	23.40	23.07	26.25
1985.0	10	24.18	23.54	26.88
1937.5	15	23.66	23.44	26.56
1960.0	15	23.13	23.45	26.30
1982.5	15	24.36	23.98	27.18
1940.0	20	23.82	23.62	26.73
1960.0	20	23.78	23.28	26.55
1980.0	20	24.09	23.52	26.82

Frequency (MHz)	Channel Bandwidth (MHz)	Ant 0 Power (dBm)	Ant 1 Power (dBm)	Total Power (dBm)
64QAM				
1932.5	5	23.12	22.82	25.98
1960.0	5	23.33	23.00	26.18
1987.5	5	23.53	23.42	26.49
1935.0	10	23.44	23.46	26.46
1960.0	10	23.53	23.15	26.35
1985.0	10	24.12	23.48	26.82
1937.5	15	23.77	23.57	26.68
1960.0	15	23.64	23.31	26.49
1982.5	15	24.31	24.32	27.33
1940.0	20	23.72	23.69	26.72
1960.0	20	23.80	23.46	26.64
1980.0	20	24.12	23.59	26.87
256QAM				
1932.5	5	23.11	23.09	26.11
1960.0	5	23.59	23.26	26.44
1987.5	5	23.84	23.73	26.80
1935.0	10	23.35	23.45	26.41
1960.0	10	23.59	23.28	26.45
1985.0	10	24.05	23.51	26.80
1937.5	15	23.10	23.41	26.27
1960.0	15	23.66	23.18	26.44
1982.5	15	24.11	23.98	27.06
1940.0	20	23.83	23.65	26.75
1960.0	20	23.88	23.71	26.81
1980.0	20	24.21	23.50	26.88

Product	AirScale Indoor Radio ASiR-pRRH	Test Engineer	Peter Xu
Test Site	SR2	Test Date	2020/11/13 ~ 2021/03/17
Test Configuration	n2 (Multi Carrier)		

Frequency (MHz)	Channel Bandwidth (MHz)	Ant 0 Power (dBm)	Ant 1 Power (dBm)	Total Power (dBm)
QPSK				
1932.5+1937.5	5+5	20.44	20.40	23.43
1957.5+1962.5	5+5	22.91	22.51	25.72
1982.5+1987.5	5+5	23.25	23.05	26.16
1935.0+1945.0	10+10	20.82	20.90	23.87
1955.0+1965.0	10+10	23.17	22.81	26.00
1975.0+1985.0	10+10	23.24	23.10	26.18
1937.5+1952.5	15+15	20.38	20.57	23.49
1952.5+1967.5	15+15	21.22	21.16	24.20
1967.5+1982.5	15+15	23.19	22.75	25.99
1940.0+1960.0	20+20	20.70	21.02	23.87
1950.0+1970.0	20+20	21.20	21.15	24.19
1960.0+1980.0	20+20	22.51	22.30	25.42
16QAM				
1932.5+1937.5	5+5	20.40	20.41	23.42
1957.5+1962.5	5+5	22.99	22.53	25.78
1982.5+1987.5	5+5	23.29	23.04	26.18
1935.0+1945.0	10+10	20.72	20.88	23.81
1955.0+1965.0	10+10	23.07	22.79	25.94
1975.0+1985.0	10+10	23.25	23.05	26.16
1937.5+1952.5	15+15	20.34	20.53	23.45
1952.5+1967.5	15+15	21.16	21.06	24.12
1967.5+1982.5	15+15	23.23	22.73	26.00
1940.0+1960.0	20+20	20.74	21.04	23.90
1950.0+1970.0	20+20	21.24	21.24	24.25
1960.0+1980.0	20+20	22.53	22.31	25.43

Frequency (MHz)	Channel Bandwidth (MHz)	Ant 0 Power (dBm)	Ant 1 Power (dBm)	Total Power (dBm)
64QAM				
1932.5+1937.5	5+5	20.56	20.57	23.58
1957.5+1962.5	5+5	23.11	22.67	25.91
1982.5+1987.5	5+5	23.40	23.20	26.31
1935.0+1945.0	10+10	20.91	20.96	23.95
1955.0+1965.0	10+10	23.16	22.97	26.08
1975.0+1985.0	10+10	23.37	23.13	26.26
1937.5+1952.5	15+15	20.43	20.62	23.54
1952.5+1967.5	15+15	21.28	21.15	24.23
1967.5+1982.5	15+15	23.34	22.86	26.12
1940.0+1960.0	20+20	20.82	21.13	23.99
1950.0+1970.0	20+20	21.28	21.23	24.27
1960.0+1980.0	20+20	22.62	22.33	25.49
256QAM				
1932.5+1937.5	5+5	20.48	20.51	23.51
1957.5+1962.5	5+5	23.02	22.58	25.82
1982.5+1987.5	5+5	23.36	23.15	26.27
1935.0+1945.0	10+10	20.83	20.87	23.86
1955.0+1965.0	10+10	23.14	22.90	26.03
1975.0+1985.0	10+10	23.25	23.01	26.14
1937.5+1952.5	15+15	20.39	20.61	23.51
1952.5+1967.5	15+15	21.24	21.12	24.19
1967.5+1982.5	15+15	23.25	22.78	26.03
1940.0+1960.0	20+20	20.80	21.16	23.99
1950.0+1970.0	20+20	21.26	21.27	24.28
1960.0+1980.0	20+20	22.78	22.41	25.61

Product	AirScale Indoor Radio ASiR-pRRH	Test Engineer	Peter Xu
Test Site	AC1	Test Date	2020/11/13 ~ 2021/03/17
Test Item	n2 (Single Carrier)		

Frequency (MHz)	Channel Bandwidth (MHz)	Reading Level (dBm)	Factor (dB)	EIRP (dBm)	Limit (dBm)
QPSK					
1932.5	5	26.95	4.97	31.92	< 62.15
1960.0	5	26.92	4.80	31.72	< 62.15
1987.5	5	27.07	5.81	32.88	< 62.15
1935.0	10	27.43	4.90	32.33	< 62.15
1960.0	10	26.65	4.80	31.45	< 62.15
1985.0	10	26.93	5.73	32.66	< 62.15
1937.5	15	27.73	4.84	32.57	< 62.15
1960.0	15	26.65	4.80	31.45	< 62.15
1982.5	15	26.95	5.63	32.58	< 62.15
1940.0	20	27.39	4.78	32.17	< 62.15
1960.0	20	26.85	4.80	31.65	< 62.15
1980.0	20	27.12	5.54	32.66	< 62.15
16QAM					
1932.5	5	26.97	4.97	31.94	< 62.15
1960.0	5	26.53	4.80	31.33	< 62.15
1987.5	5	26.56	5.81	32.37	< 62.15
1935.0	10	27.36	4.90	32.26	< 62.15
1960.0	10	26.73	4.80	31.53	< 62.15
1985.0	10	26.93	5.73	32.66	< 62.15
1937.5	15	27.51	4.84	32.35	< 62.15
1960.0	15	27.13	4.80	31.93	< 62.15
1982.5	15	26.79	5.63	32.42	< 62.15
1940.0	20	27.42	4.78	32.20	< 62.15
1960.0	20	26.85	4.80	31.65	< 62.15
1980.0	20	27.12	5.54	32.66	< 62.15

Frequency (MHz)	Channel Bandwidth (MHz)	Reading Level (dBm)	Factor (dB)	EIRP (dBm)	Limit (dBm)
64QAM					
1932.5	5	27.01	4.97	31.98	< 62.15
1960.0	5	26.57	4.80	31.37	< 62.15
1987.5	5	26.49	5.81	32.30	< 62.15
1935.0	10	27.61	4.90	32.51	< 62.15
1960.0	10	26.83	4.80	31.63	< 62.15
1985.0	10	26.84	5.73	32.57	< 62.15
1937.5	15	27.63	4.84	32.47	< 62.15
1960.0	15	26.48	4.80	31.28	< 62.15
1982.5	15	26.93	5.63	32.56	< 62.15
1940.0	20	27.42	4.78	32.20	< 62.15
1960.0	20	26.93	4.80	31.73	< 62.15
1980.0	20	27.09	5.54	32.63	< 62.15
256QAM					
1932.5	5	27.67	4.97	32.64	< 62.15
1960.0	5	26.70	4.80	31.50	< 62.15
1987.5	5	26.79	5.81	32.60	< 62.15
1935.0	10	27.14	4.90	32.04	< 62.15
1960.0	10	26.83	4.80	31.63	< 62.15
1985.0	10	26.82	5.73	32.55	< 62.15
1937.5	15	27.22	4.84	32.06	< 62.15
1960.0	15	26.60	4.80	31.40	< 62.15
1982.5	15	26.69	5.63	32.32	< 62.15
1940.0	20	27.45	4.78	32.23	< 62.15
1960.0	20	27.15	4.80	31.95	< 62.15
1980.0	20	26.57	5.54	32.11	< 62.15

Product	AirScale Indoor Radio ASiR-pRRH	Test Engineer	Peter Xu
Test Site	AC1	Test Date	2020/11/13 ~ 2021/03/17
Test Item	n2 (Multi Carrier)		

Frequency (MHz)	Channel Bandwidth (MHz)	Reading Level (dBm)	Factor (dB)	EIRP (dBm)	Limit (dBm)
QPSK					
1932.5 + 1937.5	5 + 5	26.63	4.90	31.53	< 62.15
1955.0 + 1960.0	5 + 5	28.08	4.70	32.78	< 62.15
1982.5 + 1987.5	5 + 5	26.30	5.73	32.03	< 62.15
1935.0 + 1945.0	10 + 10	27.58	4.78	32.36	< 62.15
1950.0 + 1960.0	10 + 10	28.19	4.61	32.80	< 62.15
1975.0 + 1985.0	10 + 10	26.62	5.54	32.16	< 62.15
1937.5 + 1952.5	15 + 15	27.86	4.66	32.52	< 62.15
1945.0 + 1960.0	15 + 15	27.60	4.52	32.12	< 62.15
1967.5 + 1982.5	15 + 15	27.19	5.36	32.55	< 62.15
1940.0 + 1960.0	20 + 20	28.21	4.55	32.76	< 62.15
1950.0 + 1970.0	20 + 20	27.94	4.80	32.74	< 62.15
1960.0 + 1980.0	20 + 20	26.87	5.17	32.04	< 62.15
16QAM					
1932.5 + 1937.5	5 + 5	26.73	4.90	31.63	< 62.15
1955.0 + 1960.0	5 + 5	27.84	4.70	32.54	< 62.15
1982.5 + 1987.5	5 + 5	26.32	5.73	32.05	< 62.15
1935.0 + 1945.0	10 + 10	26.47	4.78	31.25	< 62.15
1950.0 + 1960.0	10 + 10	27.90	4.61	32.51	< 62.15
1975.0 + 1985.0	10 + 10	26.52	5.54	32.06	< 62.15
1937.5 + 1952.5	15 + 15	27.74	4.66	32.40	< 62.15
1945.0 + 1960.0	15 + 15	28.21	4.52	32.73	< 62.15
1967.5 + 1982.5	15 + 15	26.61	5.36	31.97	< 62.15
1940.0 + 1960.0	20 + 20	28.22	4.55	32.77	< 62.15
1950.0 + 1970.0	20 + 20	27.72	4.80	32.52	< 62.15
1960.0 + 1980.0	20 + 20	26.89	5.17	32.06	< 62.15

Frequency (MHz)	Channel Bandwidth (MHz)	Reading Level (dBm)	Factor (dB)	EIRP (dBm)	Limit (dBm)
64QAM					
1932.5 + 1937.5	5 + 5	27.32	4.90	32.22	< 62.15
1955.0 + 1960.0	5 + 5	27.74	4.70	32.44	< 62.15
1982.5 + 1987.5	5 + 5	26.02	5.73	31.75	< 62.15
1935.0 + 1945.0	10 + 10	27.24	4.78	32.02	< 62.15
1950.0 + 1960.0	10 + 10	27.44	4.61	32.05	< 62.15
1975.0 + 1985.0	10 + 10	26.27	5.54	31.81	< 62.15
1937.5 + 1952.5	15 + 15	27.56	4.66	32.22	< 62.15
1945.0 + 1960.0	15 + 15	27.89	4.52	32.41	< 62.15
1967.5 + 1982.5	15 + 15	26.28	5.36	31.64	< 62.15
1940.0 + 1960.0	20 + 20	27.90	4.55	32.45	< 62.15
1950.0 + 1970.0	20 + 20	27.22	4.80	32.02	< 62.15
1960.0 + 1980.0	20 + 20	26.53	5.17	31.70	< 62.15
256QAM					
1932.5 + 1937.5	5 + 5	27.31	4.90	32.21	< 62.15
1955.0 + 1960.0	5 + 5	27.77	4.70	32.47	< 62.15
1982.5 + 1987.5	5 + 5	26.96	5.73	32.69	< 62.15
1935.0 + 1945.0	10 + 10	27.16	4.78	31.94	< 62.15
1950.0 + 1960.0	10 + 10	27.72	4.61	32.33	< 62.15
1975.0 + 1985.0	10 + 10	27.10	5.54	32.64	< 62.15
1937.5 + 1952.5	15 + 15	27.47	4.66	32.13	< 62.15
1945.0 + 1960.0	15 + 15	27.95	4.52	32.47	< 62.15
1967.5 + 1982.5	15 + 15	26.21	5.36	31.57	< 62.15
1940.0 + 1960.0	20 + 20	27.90	4.55	32.45	< 62.15
1950.0 + 1970.0	20 + 20	27.58	4.80	32.38	< 62.15
1960.0 + 1980.0	20 + 20	26.57	5.17	31.74	< 62.15

5.3. Emission Bandwidth

5.3.1.Test Limit

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

5.3.2.Test Procedure

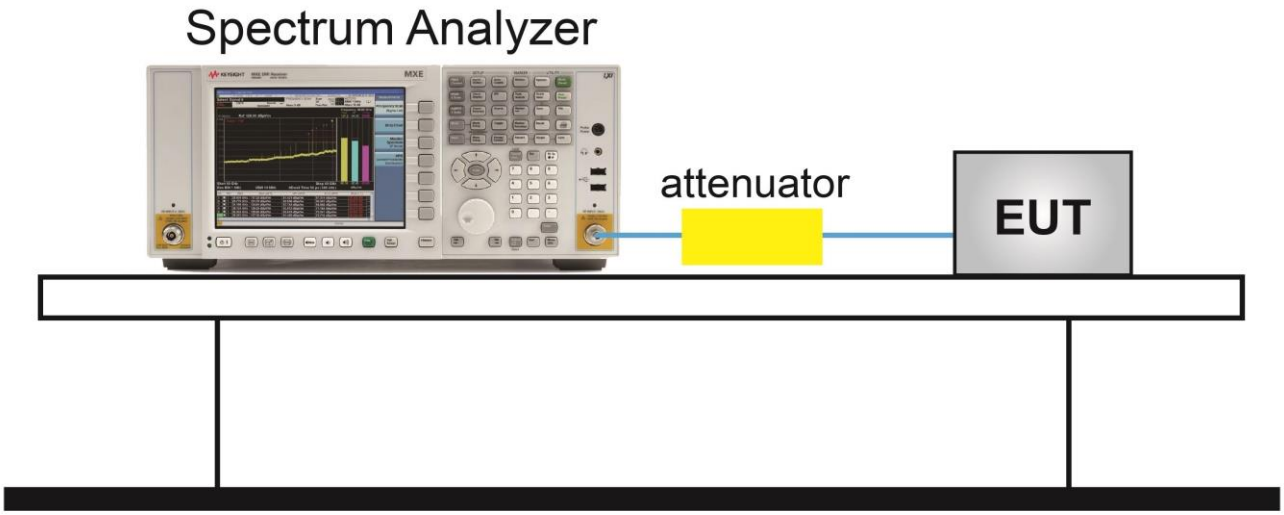
KDB 971168 D01v03r01 - Section 4.1 & 4.2

ANSI C63.26-2015 - Section 5.4.3 & 5.4.4

5.3.3.Test Setting

1. Set center frequency to the nominal EUT channel center frequency;
2. RBW = The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW;
3. VBW ≥ 3 × RBW;
4. Detector = Peak;
5. Trace mode = max hold;
6. Sweep = auto couple;
7. Allow the trace to stabilize;
8. The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target “−X dB” requirement, i.e., if the requirement calls for measuring the −26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 26 dB below the reference level

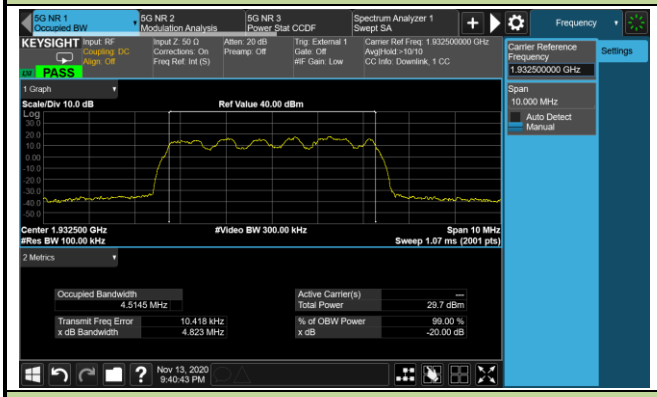
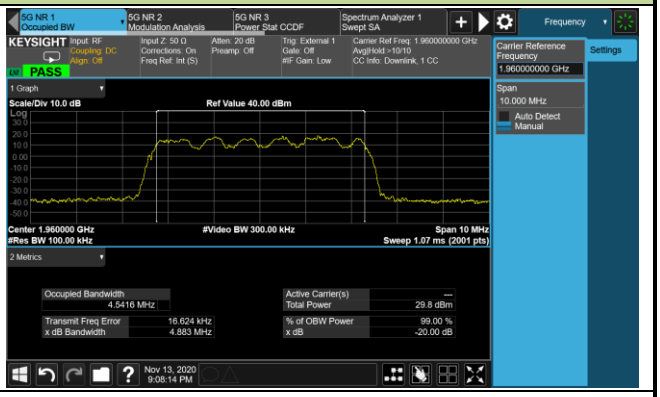
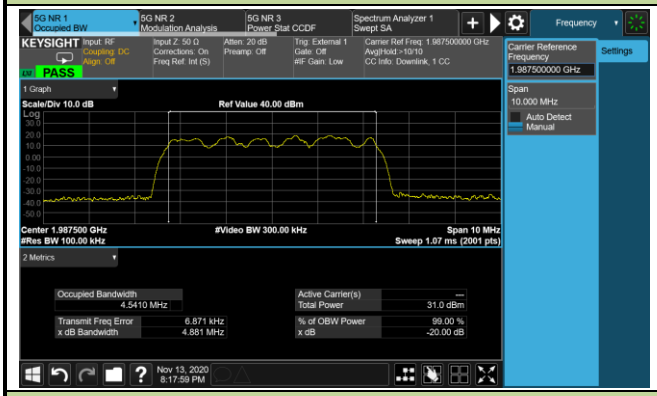
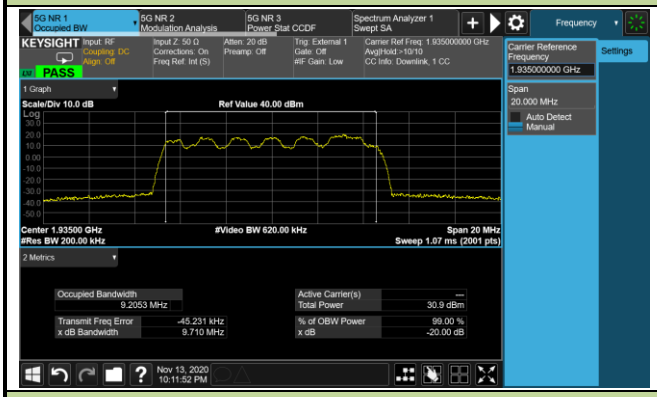
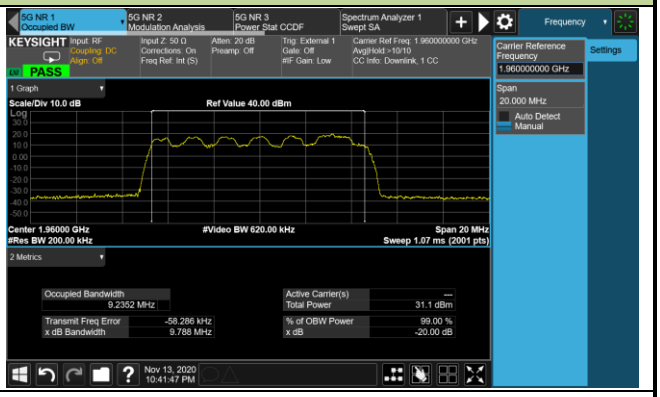
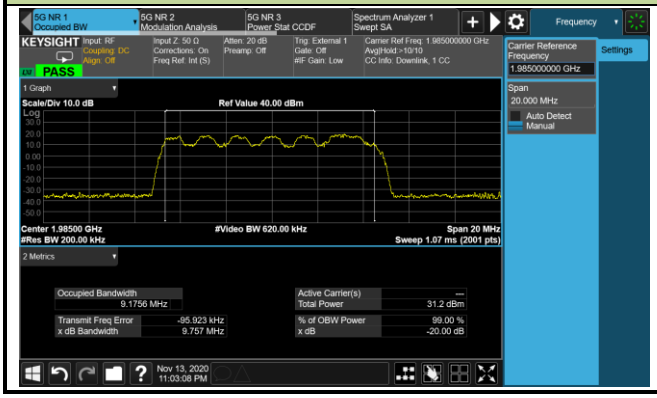
5.3.4.Test Setup

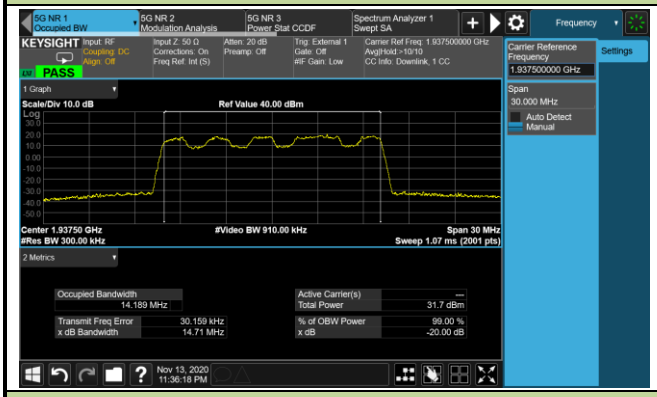
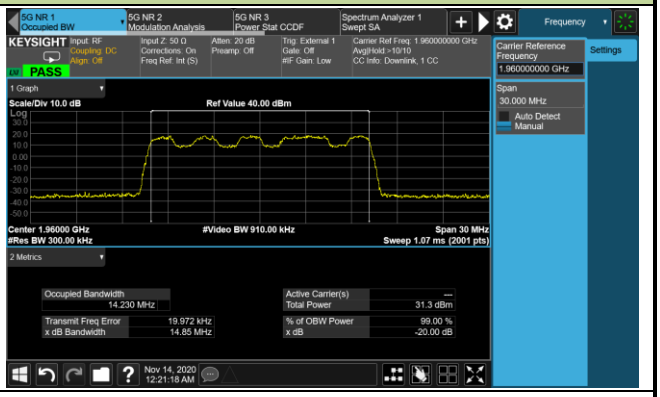
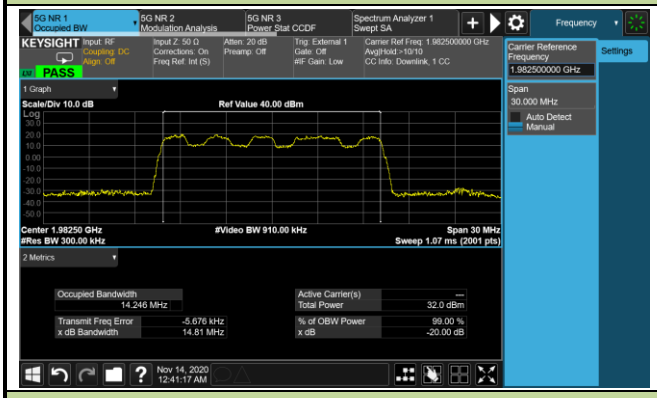


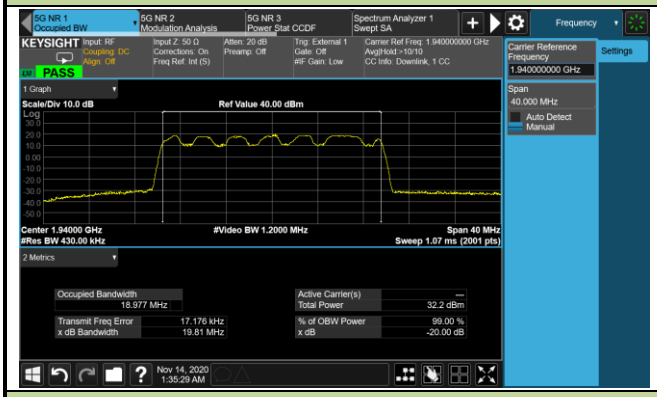
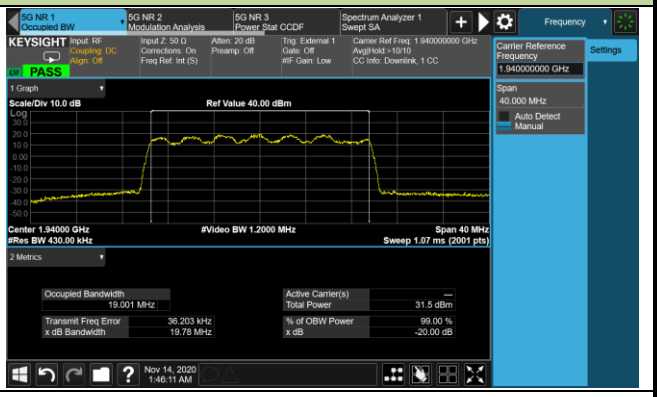
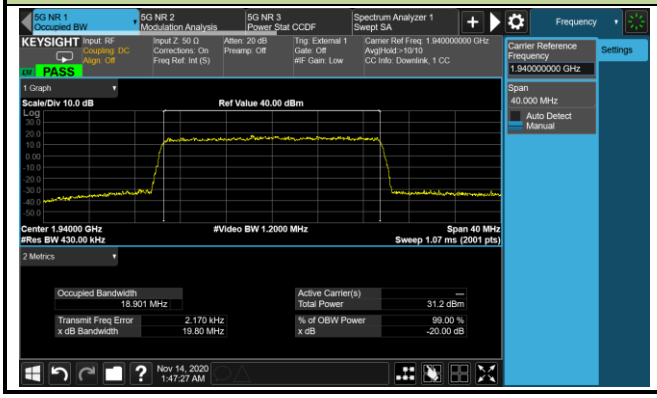
5.3.5.Test Result

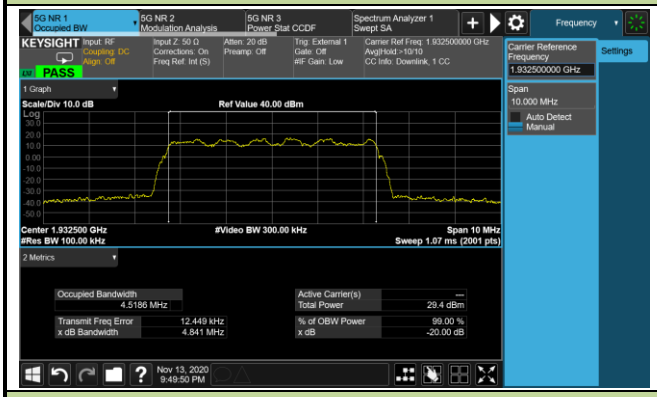
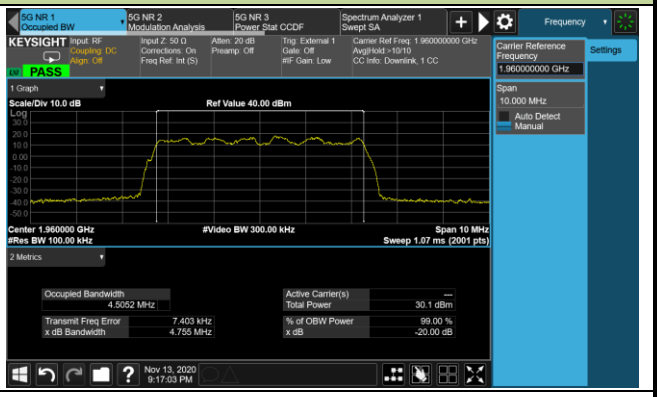
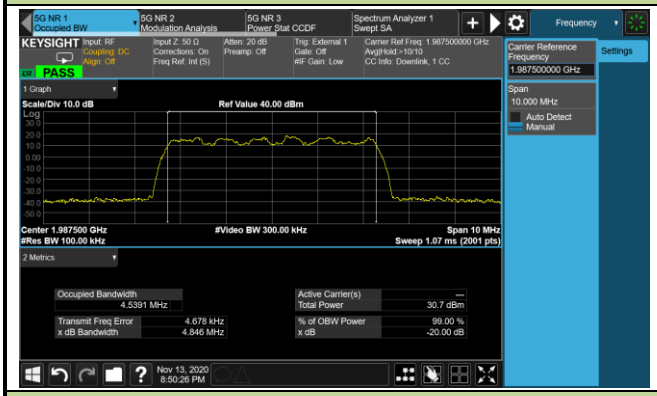
Product	AirScale Indoor Radio ASiR-pRRH	Test Engineer	Peter Xu
Test Site	SR2	Test Date	2020/11/16 ~ 2020/12/30
Test Configuration	n2 (Single Carrier)		

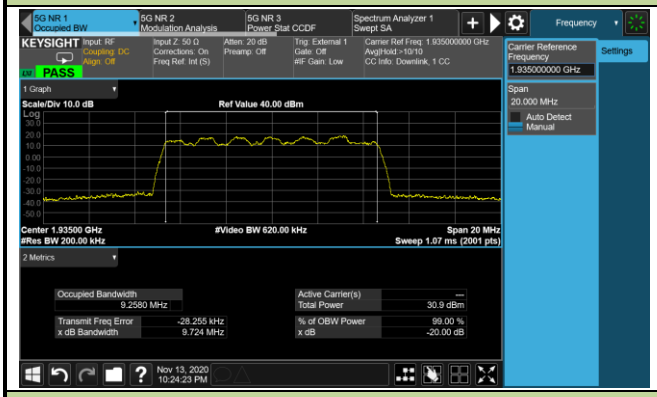
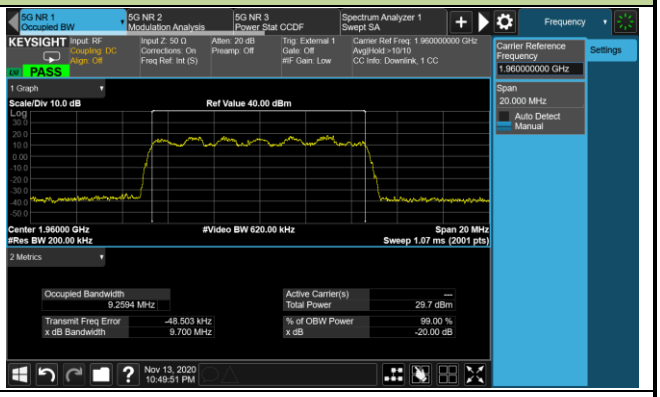
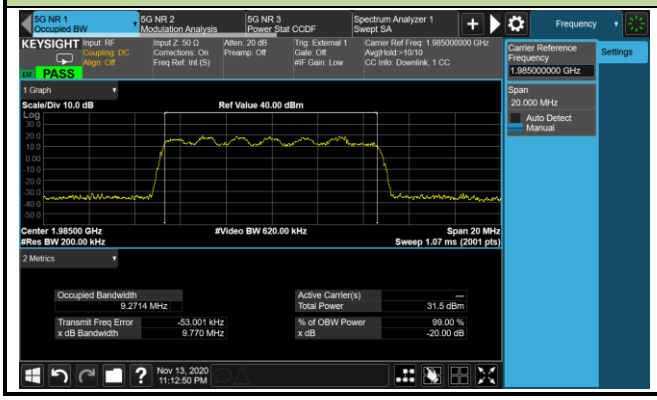
Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)	Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)
QPSK					
1932.5	5	4.52	1937.5	15	14.19
1960.0	5	4.54	1960.0	15	14.23
1987.5	5	4.54	1982.5	15	14.25
1935.0	10	9.21	1940.0	20	18.98
1960.0	10	9.24	1960.0	20	19.00
1985.0	10	9.18	1980.0	20	18.90
16QAM					
1932.5	5	4.52	1937.5	15	14.17
1960.0	5	4.51	1960.0	15	14.20
1987.5	5	4.54	1982.5	15	14.21
1935.0	10	9.26	1940.0	20	19.00
1960.0	10	9.26	1960.0	20	19.08
1985.0	10	9.27	1980.0	20	19.06
64QAM					
1932.5	5	4.50	1937.5	15	14.12
1960.0	5	4.50	1960.0	15	14.17
1987.5	5	4.51	1982.5	15	14.16
1935.0	10	9.32	1940.0	20	18.90
1960.0	10	9.34	1960.0	20	19.00
1985.0	10	9.34	1980.0	20	19.00
256QAM					
1932.5	5	4.50	1937.5	15	14.15
1960.0	5	4.49	1960.0	15	14.16
1987.5	5	4.48	1982.5	15	14.13
1935.0	10	9.28	1940.0	20	18.94
1960.0	10	9.31	1960.0	20	18.97
1985.0	10	9.33	1980.0	20	18.99

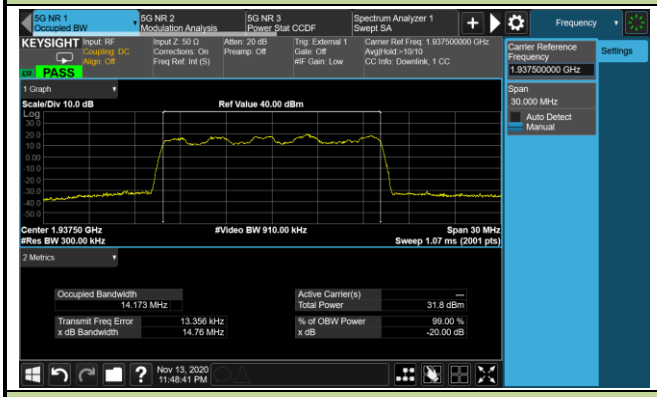
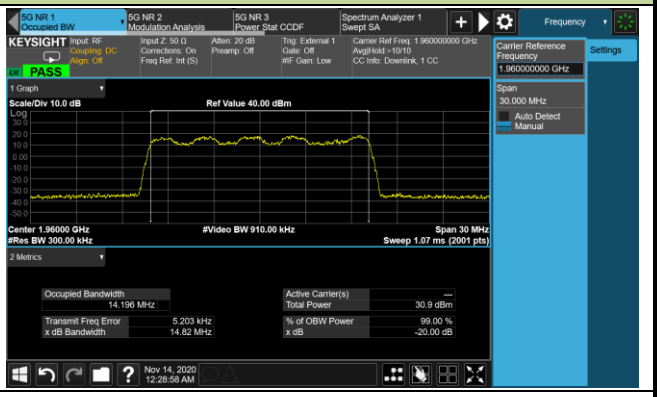
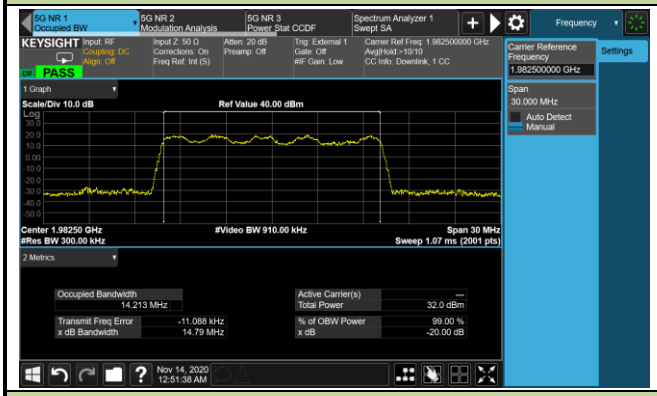
5MHz Channel Bandwidth - QPSK	
1932.5 MHz	1960.0 MHz
	
1987.5 MHz	
	
10MHz Channel Bandwidth - QPSK	
1935.0 MHz	1960.0 MHz
	
1985.0MHz	
	

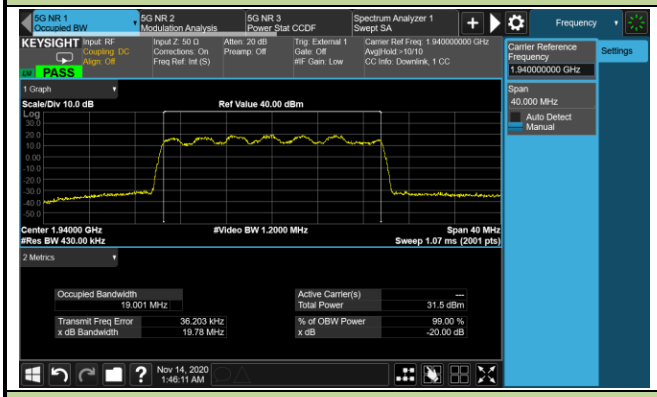
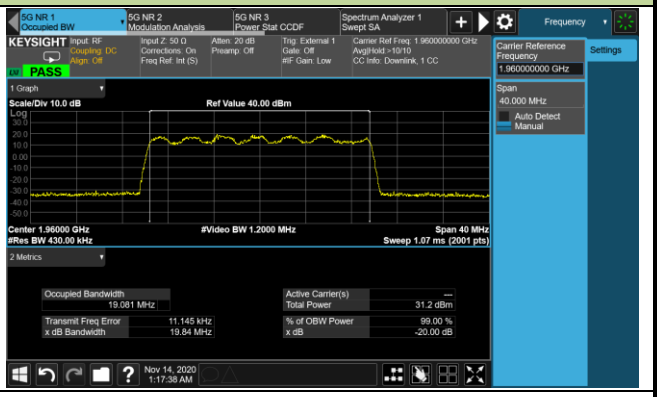
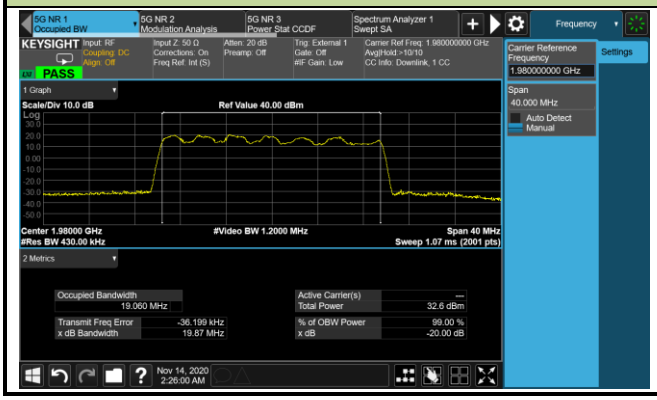
15MHz Channel Bandwidth - QPSK	
1937.5 MHz	1960.0 MHz
	
1982.5 MHz	
	

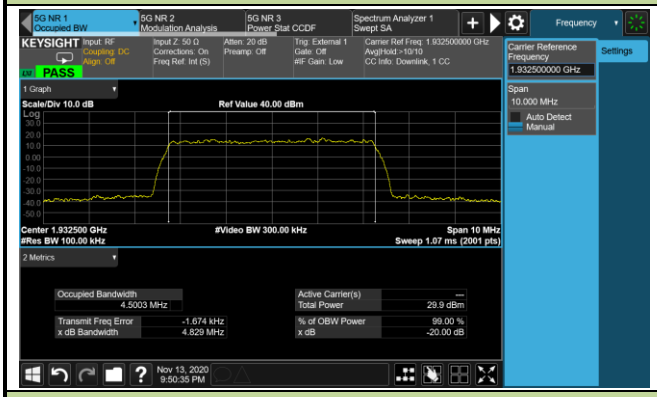
20MHz Channel Bandwidth - QPSK	
1940.0 MHz	1960.0 MHz
	
1980.0 MHz	
	

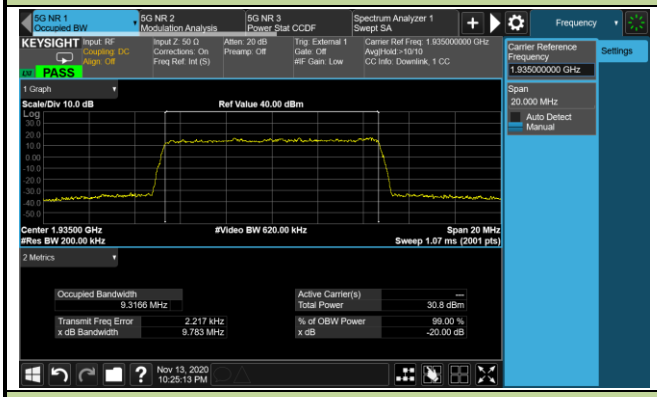
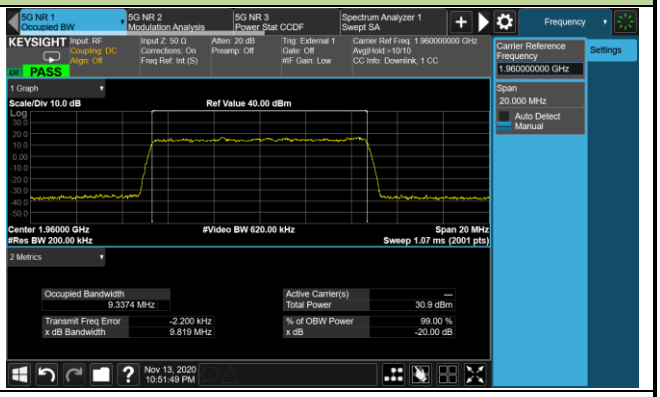
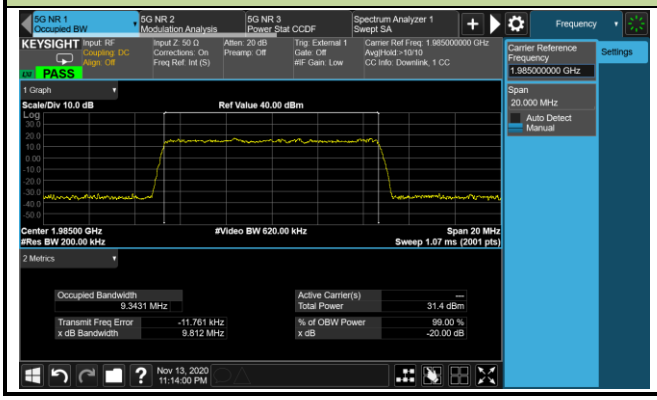
5MHz Channel Bandwidth - 16QAM	
1932.5 MHz	1960.0 MHz
	
1987.5 MHz	
	

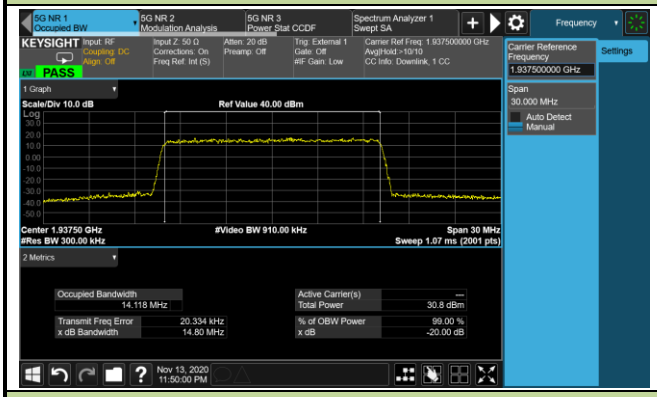
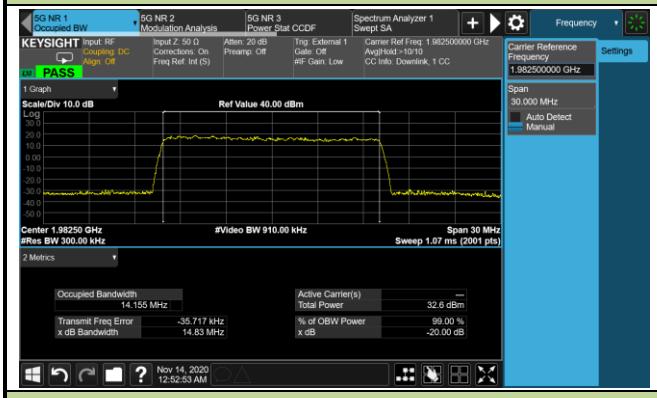
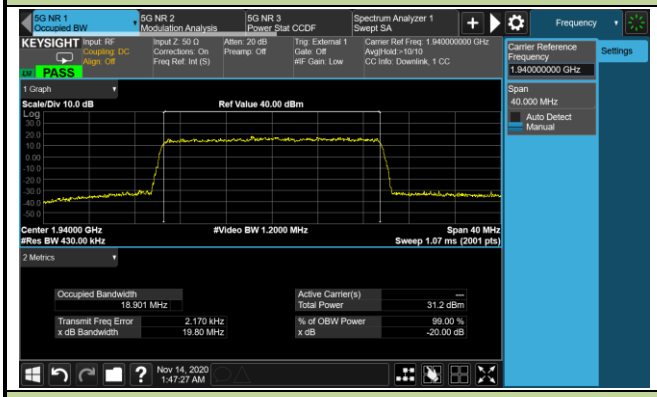
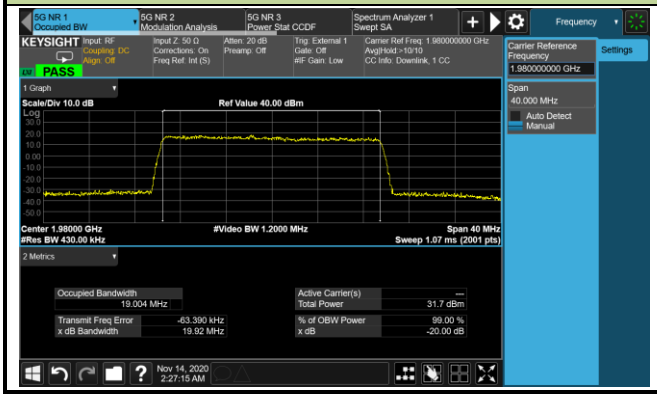
10MHz Channel Bandwidth - 16QAM	
1935.0 MHz	1960.0 MHz
	
1985.0MHz	
	

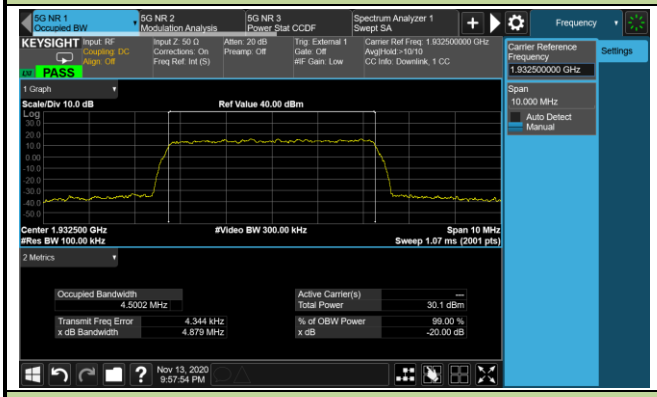
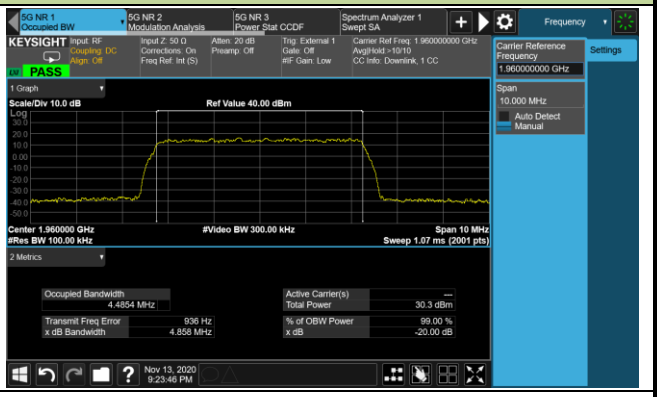
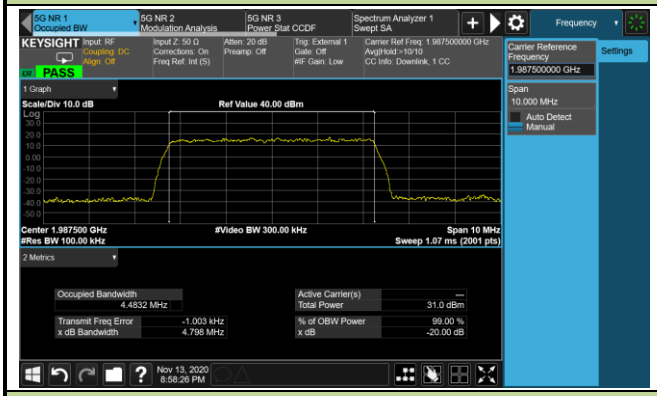
15MHz Channel Bandwidth - 16QAM	
1937.5 MHz	1960.0 MHz
	
1982.5 MHz	
	

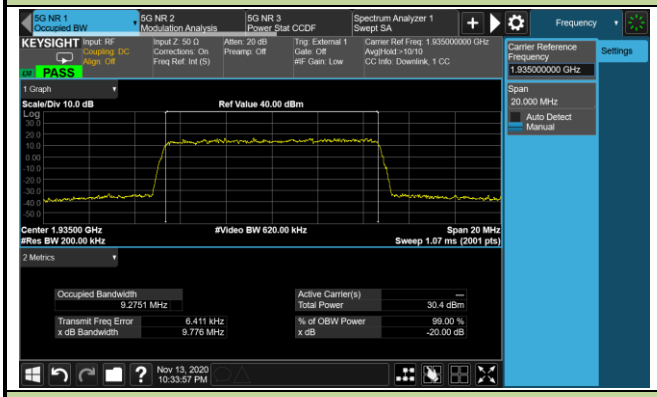
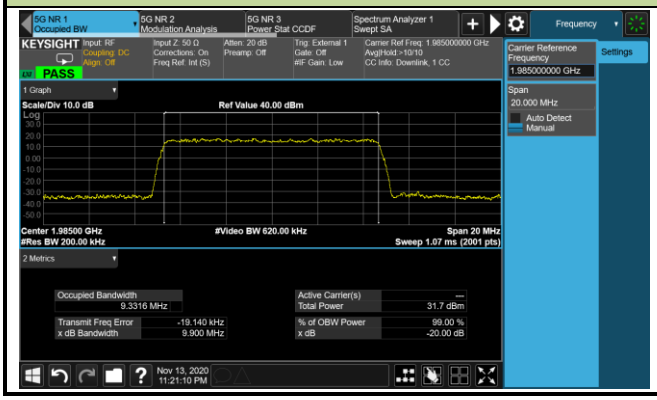
20MHz Channel Bandwidth - 16QAM	
1940.0 MHz	1960.0 MHz
	
1980.0 MHz	
	

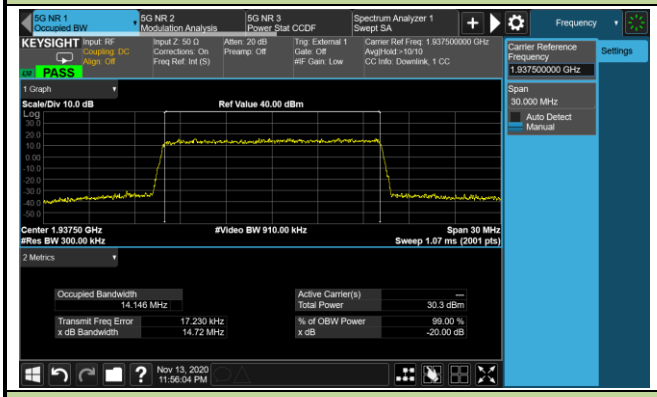
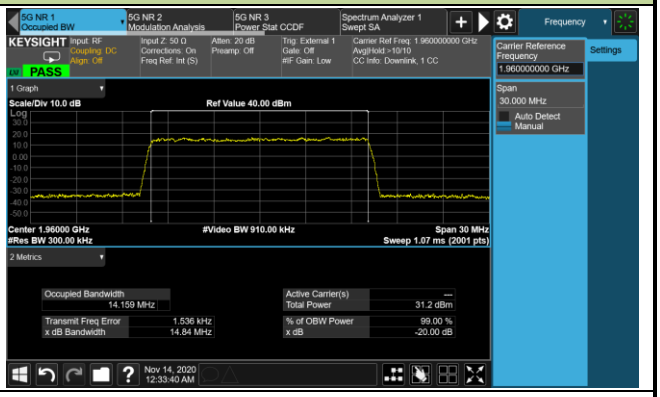
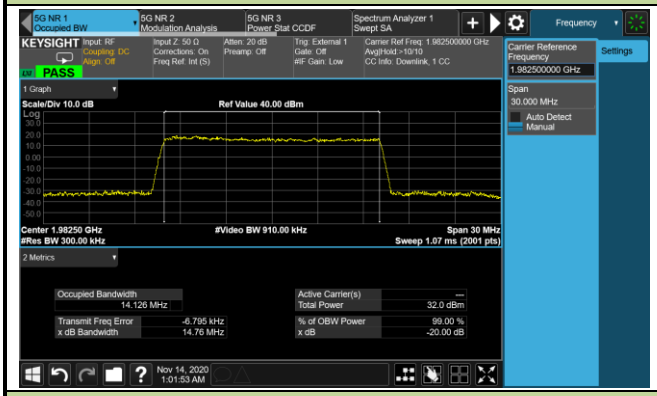
5MHz Channel Bandwidth - 64QAM	
1932.5 MHz	1960.0 MHz
	
1987.5 MHz	
	

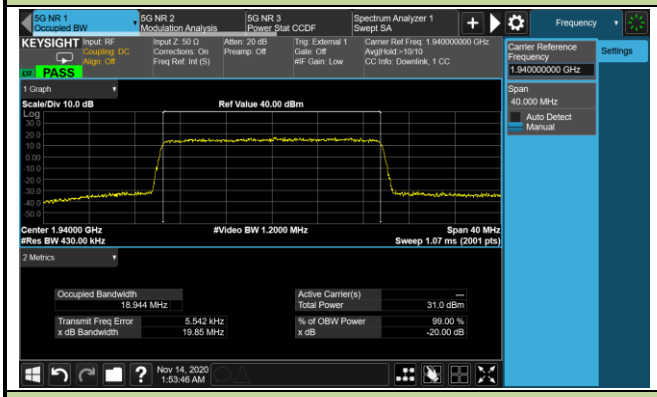
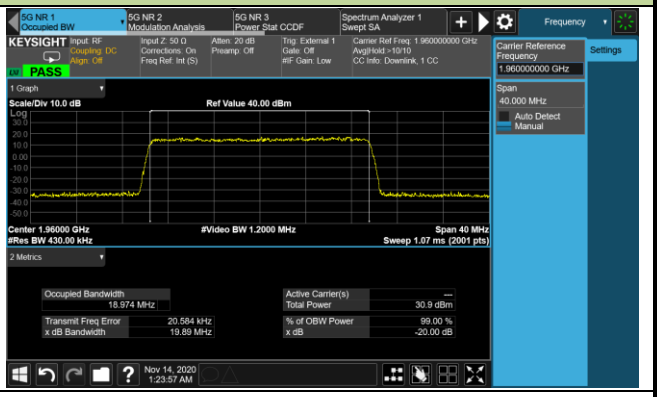
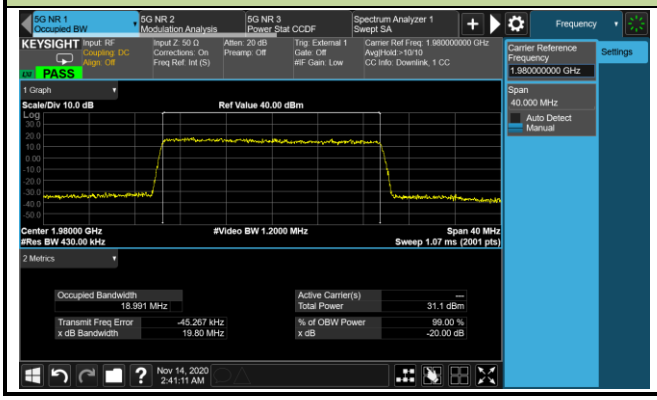
10MHz Channel Bandwidth - 64QAM	
1935.0 MHz	1960.0 MHz
	
1985.0MHz	
	

15MHz Channel Bandwidth - 64QAM	
1937.5 MHz	1960.0 MHz
	
1982.5 MHz	
	
20MHz Channel Bandwidth - 64QAM	
1940.0 MHz	1960.0 MHz
	
1980.0 MHz	
	

5MHz Channel Bandwidth - 256QAM	
1932.5 MHz	1960.0 MHz
	
1987.5 MHz	
	

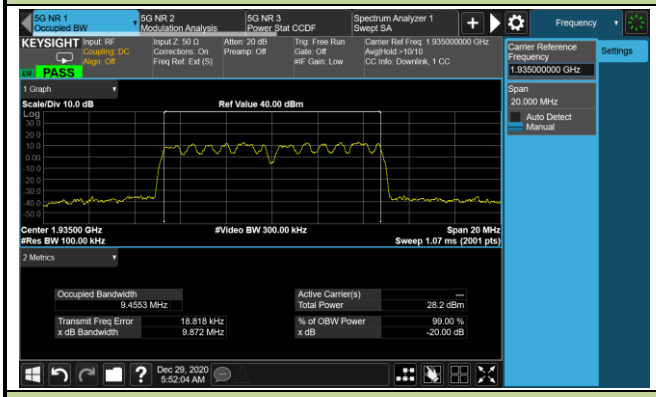
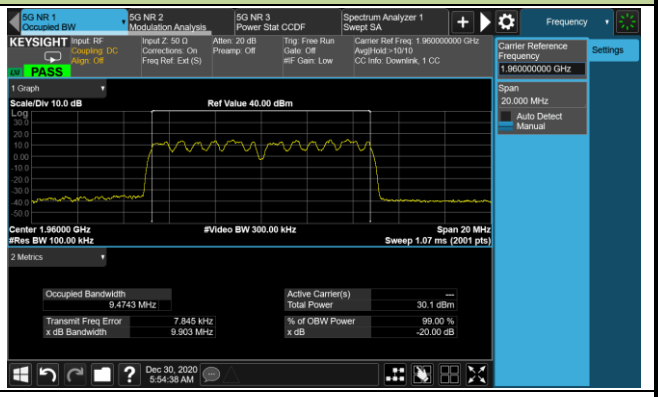
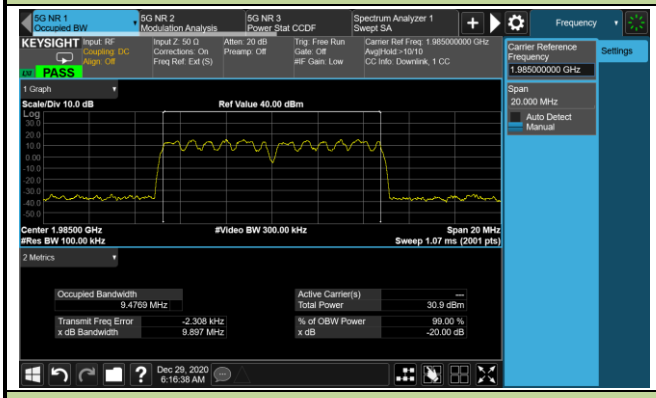
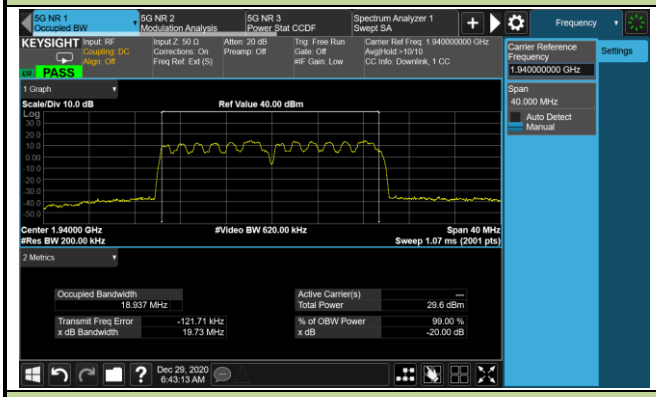
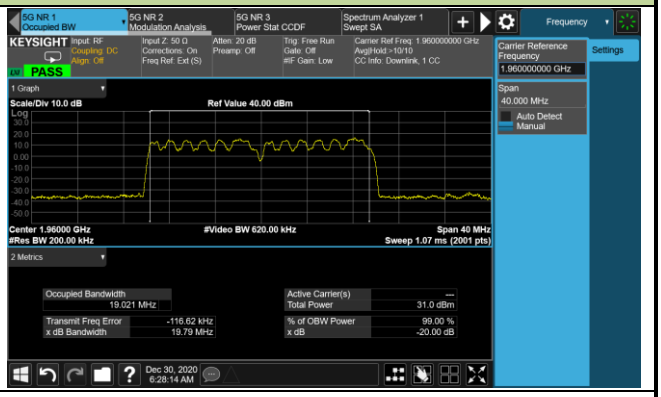
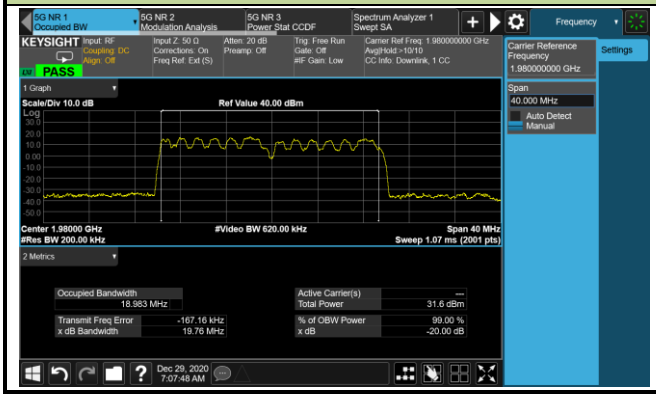
10MHz Channel Bandwidth - 256QAM	
1935.0 MHz	1960.0 MHz
	
1985.0MHz	
	

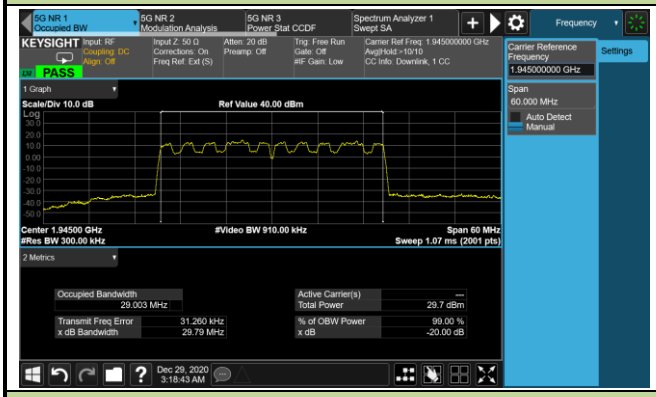
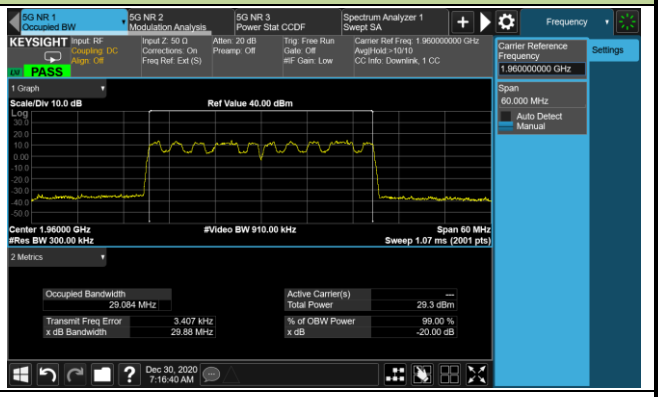
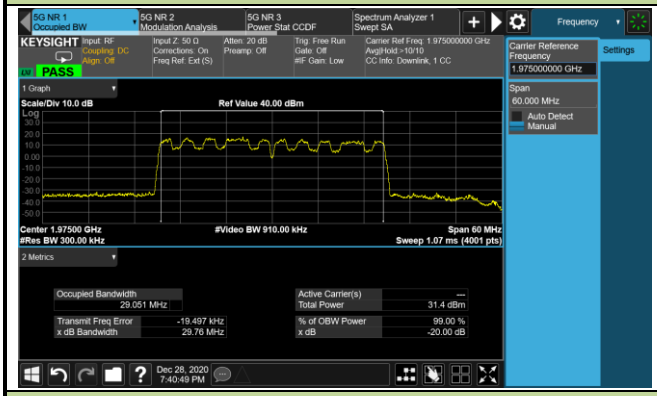
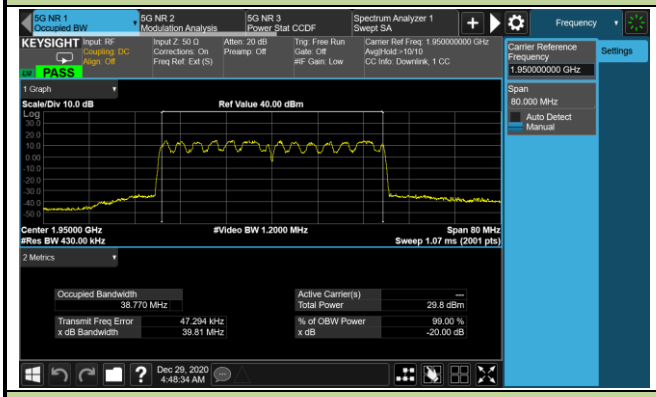
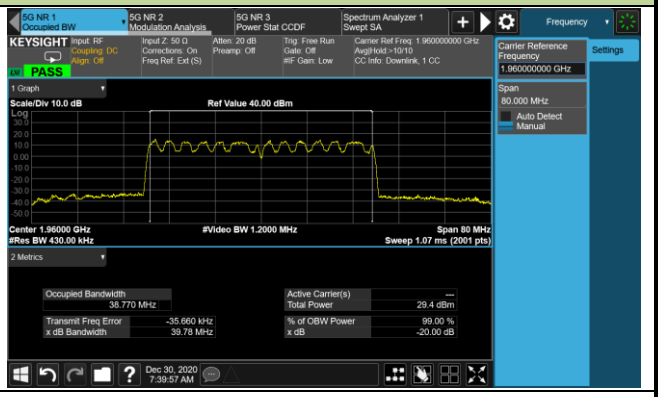
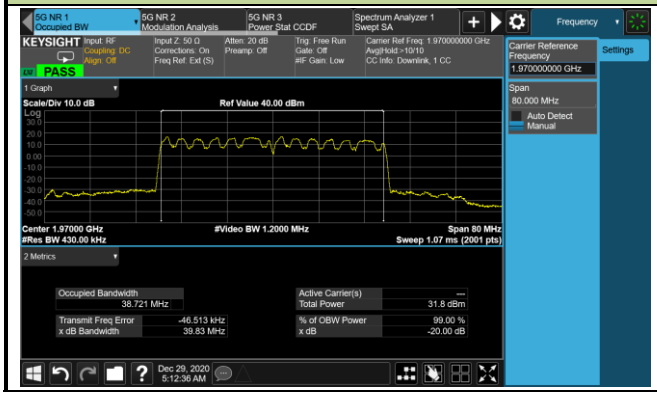
15MHz Channel Bandwidth - 256QAM	
1937.5 MHz	1960.0 MHz
	
1982.5 MHz	
	

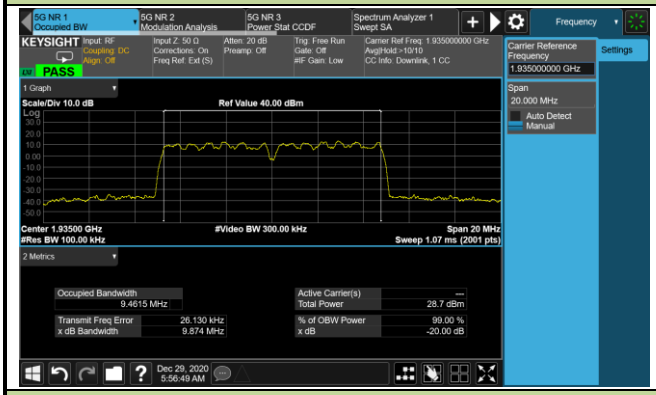
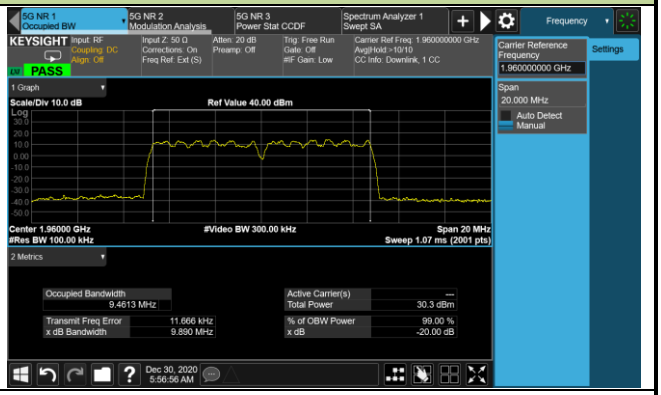
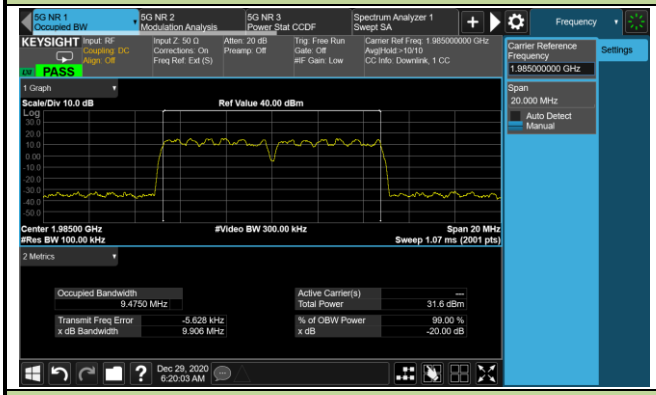
20MHz Channel Bandwidth - 256QAM	
1940.0 MHz	1960.0 MHz
	
1980.0 MHz	
	

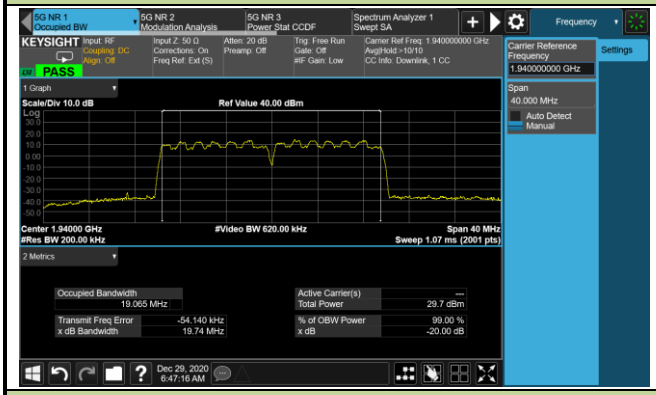
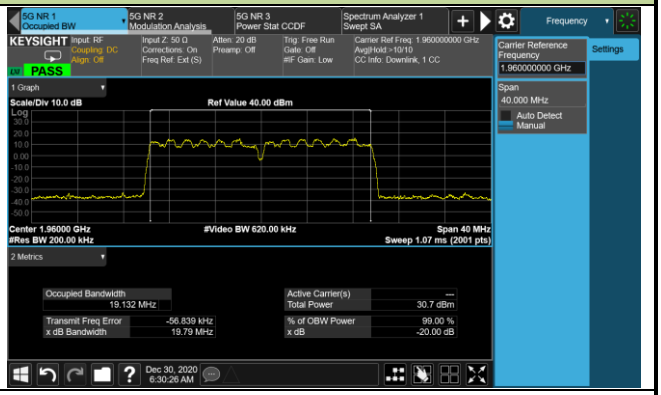
Product	AirScale Indoor Radio ASiR-pRRH	Test Engineer	Peter Xu
Test Site	SR2	Test Date	2020/11/16 ~ 2020/12/30
Test Configuration	n2 (Multi Carrier)		

Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)	Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)
QPSK					
1932.5+1937.5	5+5	9.46	1937.5+1952.5	15+15	29.00
1957.5+1962.5	5+5	9.47	1952.5+1967.5	15+15	29.08
1982.5+1987.5	5+5	9.48	1967.5+1982.5	15+15	29.05
1935.0+1945.0	10+10	18.94	1940.0+1960.0	20+20	38.77
1955.0+1965.0	10+10	19.02	1950.0+1970.0	20+20	38.77
1975.0+1985.0	10+10	18.98	1960.0+1980.0	20+20	38.72
16QAM					
1932.5+1937.5	5+5	9.46	1937.5+1952.5	15+15	28.97
1957.5+1962.5	5+5	9.46	1952.5+1967.5	15+15	29.04
1982.5+1987.5	5+5	9.48	1967.5+1982.5	15+15	29.00
1935.0+1945.0	10+10	19.07	1940.0+1960.0	20+20	38.78
1955.0+1965.0	10+10	19.13	1950.0+1970.0	20+20	38.80
1975.0+1985.0	10+10	19.10	1960.0+1980.0	20+20	38.74
64QAM					
1932.5+1937.5	5+5	9.43	1937.5+1952.5	15+15	28.91
1957.5+1962.5	5+5	9.44	1952.5+1967.5	15+15	28.99
1982.5+1987.5	5+5	9.44	1967.5+1982.5	15+15	28.91
1935.0+1945.0	10+10	19.16	1940.0+1960.0	20+20	38.72
1955.0+1965.0	10+10	19.24	1950.0+1970.0	20+20	38.73
1975.0+1985.0	10+10	19.23	1960.0+1980.0	20+20	38.66
256QAM					
1932.5+1937.5	5+5	9.42	1937.5+1952.5	15+15	28.94
1957.5+1962.5	5+5	9.43	1952.5+1967.5	15+15	28.96
1982.5+1987.5	5+5	9.43	1967.5+1982.5	15+15	28.94
1935.0+1945.0	10+10	19.10	1940.0+1960.0	20+20	38.69
1955.0+1965.0	10+10	19.18	1950.0+1970.0	20+20	38.65
1975.0+1985.0	10+10	19.18	1960.0+1980.0	20+20	38.64

5+5MHz Channel Bandwidth - QPSK	
1932.5+1937.5 MHz	1957.5+1962.5 MHz
	
1982.5+1987.5 MHz	
	
10+10MHz Channel Bandwidth - QPSK	
1935.0+1945.0 MHz	1955.0+1965.0 MHz
	
1975.0+1985.0MHz	
	

15+15MHz Channel Bandwidth - QPSK	
1937.5+1952.5MHz	1952.5+1967.5 MHz
	
1967.5+1982.5 MHz	
	
20+20MHz Channel Bandwidth - QPSK	
1940.0+1960.0 MHz	1950.0+1970.0 MHz
	
1960.0+1980.0 MHz	
	

5+5MHz Channel Bandwidth - 16QAM	
1932.5+1937.5 MHz	1957.5+1962.5 MHz
	
1982.5+1987.5 MHz	
	

10+10MHz Channel Bandwidth - 16QAM	
1935.0+1945.0 MHz	1955.0+1965.0 MHz
	
1975.0+1985.0MHz