

MEASUREMENT REPORT

FCC PART 27 Subpart M

FCC ID: 2AD8UAWHHC01

Application: Nokia Solutions and Networks, OY

Application Type: Certification

Product: AirScale Indoor Radio ASiR 5G-pRRH

Model No.: AWHHC

Brand Name: Nokia

FCC Rule Part(s): Part 27 Subpart M

Test Procedure(s): ANSI C63.26-2015, KDB 971168 D01v03r01

Test Date: June 29 ~ August 13, 2020

Reviewed:



(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.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Taiwan) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2005TW0005-U2	Rev. 01	Initial Report	07-24-2020	Invalid
2005TW0005-U2	Rev. 02	Added 40MHz test result	08-16-2020	Valid

Note: This report is prepared for FCC Class II permissive supplement to MRT Original "1909TW0102-U1" Report adding 5G NR 40MHz & 5G NR + LTE concurrent technology and related data

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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. 153292) 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.

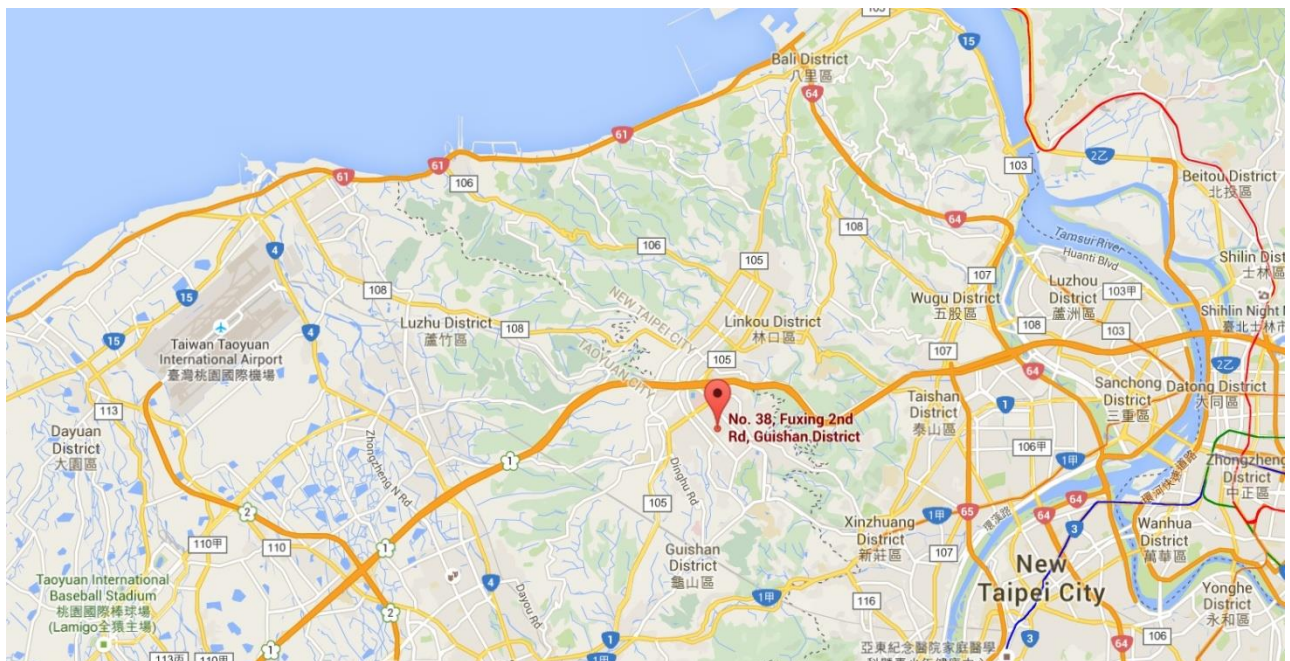
1. INTRODUCTION

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 Innovation, Science and Economic Development 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 5G-pRRH
Model No.:	AWHHC
Brand Name:	Nokia
Test Device Serial No.:	NH192400336
Hardware Version:	X22
Software Version:	474924A
Power Supply Rating	PoE (52 ~ 57Vdc)
Operating Band (s):	5G NR Band n41, LTE Band 41
Modulation Type:	QPSK, 16QAM, 64QAM, 256QAM
Tx Frequency Range:	2496 ~ 2690 MHz
Rx Frequency Range:	2496 ~ 2690 MHz
Max EIRP Power:	5G NR 40MHz: 2*2 MIMO: 36.93dBm; 4*4MIMO: 42.55dBm LTE20 + NR40: 42.71dBm; LTE20 + NR60: 42.62dBm LTE20 + NR100: 42.54dBm; LTE40 + NR40: 43.03dBm LTE40 + NR60: 43.02dBm; LTE40 + NR100: 42.95dBm LTE60 + NR40: 43.04dBm; LTE60 + NR60: 42.87dBm LTE60 + NR100: 42.76dBm; NR40 + LTE20: 42.50dBm NR40 + LTE40: 42.99dBm; NR40 + LTE60: LTE: 42.97dBm NR60 + LTE20: LTE: 42.53dBm; NR60 + LTE40: LTE: 42.97dBm NR60 + LTE60: LTE: 42.98dBm; NR100 + LTE20: LTE: 42.50dBm NR100 + LTE40: LTE: 42.98dBm; NR100 + LTE60: LTE: 42.85dBm
Emission Designator:	Refer to Section 2.2
Antenna Specification:	Refer to Section 2.3

2.2. Emission Designator

Bandwidth (MHz)	Modulation	Emission Designator	Bandwidth (MHz)	Modulation	Emission Designator
NR40	QPSK	37M9G7D	LTE20+NR40	QPSK	55M7G7D
	16QAM	37M9W7D		16QAM	55M8W7D
	64QAM	37M9W7D		64QAM	55M8W7D
	256QAM	37M8W7D		256QAM	55M7W7D
LTE20+NR60	QPSK	75M7G7D	LTE20+NR100	QPSK	115MG7D
	16QAM	75M8W7D		16QAM	115MW7D
	64QAM	75M7W7D		64QAM	115MW7D
	256QAM	75M6W7D		256QAM	115MW7D
LTE40+NR40	QPSK	75M7G7D	LTE40+NR60	QPSK	95M5G7D
	16QAM	75M5W7D		16QAM	95M6W7D
	64QAM	75M6W7D		64QAM	95M6W7D
	256QAM	75M6W7D		256QAM	95M6W7D
LTE40+NR100	QPSK	135MG7D	LTE60+NR40	QPSK	95M5G7D
	16QAM	135MW7D		16QAM	95M5W7D
	64QAM	135MW7D		64QAM	95M4W7D
	256QAM	135MW7D		256QAM	95M4W7D
LTE60+NR60	QPSK	116MG7D	LTE60+NR100	QPSK	155MG7D
	16QAM	115MW7D		16QAM	155MW7D
	64QAM	115MW7D		64QAM	155MW7D
	256QAM	115MW7D		256QAM	155MW7D
NR40+LTE20	QPSK	55M8G7D	NR40+LTE40	QPSK	75M7G7D
	16QAM	55M9W7D		16QAM	75M6W7D
	64QAM	55M7W7D		64QAM	75M6W7D
	256QAM	55M7W7D		256QAM	75M5W7D
NR40+LTE60	QPSK	95M5G7D	NR60+LTE20	QPSK	75M7G7D
	16QAM	95M4W7D		16QAM	75M7W7D
	64QAM	95M3W7D		64QAM	75M7W7D
	256QAM	95M4W7D		256QAM	75M6W7D
NR60+LTE40	QPSK	95M6G7D	NR60+LTE60	QPSK	115MG7D
	16QAM	95M5W7D		16QAM	115MW7D
	64QAM	95M5W7D		64QAM	115MW7D
	256QAM	95M7W7D		256QAM	115MW7D

Bandwidth (MHz)	Modulation	Emission Designator	Bandwidth (MHz)	Modulation	Emission Designator
NR100+LTE20	QPSK	115MG7D	NR100+LTE40	QPSK	137MG7D
	16QAM	115MW7D		16QAM	137MW7D
	64QAM	115MW7D		64QAM	137MW7D
	256QAM	115MW7D		256QAM	137MW7D
NR100+LTE60	QPSK	155MG7D			
	16QAM	155MW7D			
	64QAM	155MW7D			
	256QAM	155MW7D			

2.3. Description of Available Antennas

Band Support	Antenna Type	Model	Antenna Gain (dBi)	Directional Gain (dBi)	
				2*2 MIMO	4*4 MIMO
n41 Band & LTE Band 41	Directional Antenna	GI0804-06846	6.4	9.41	12.42

Note 1: This device supports both 2*2 Tx & 4*4 Tx modes of operation, configured by SW. When operating in 2*2 Tx mode, only Ant 0 & 1 transmit ports are actively transmitting.

Note 2: The transmit signals are correlated, the directional gain = $G_{ANT} + 10 \log (N_{ANT}/N_{SS})$ dBi, where NSS = the number of independent spatial streams of data and G_{ANT} is the antenna gain in dBi.

2.4. Test Mode

Test Item	Channel Bandwidth	Modulation
Equivalent Isotropically Radiated Power	LTE20+NR40, LTE40+NR40, LTE60+NR40, NR40+LTE20, NR40+LTE40, NR40+LTE60	QPSK, 16QAM, 64QAM, 256QAM
Emission Bandwidth	LTE20+NR60, LTE40+NR60, LTE60+NR60, NR60+LTE20; NR60+LTE40; NR60+LTE60,	QPSK, 16QAM, 64QAM, 256QAM
Band Edge Measurements	LTE20+NR100, LTE40+NR100, LTE60+NR100, NR100+LTE20; NR100+LTE40; NR100+LTE60	QPSK
Conducted Spurious Emissions	NR40	QPSK
Radiated Spurious Emissions		QPSK
Peak to Average Ratio		QPSK
Frequency Stability		QPSK

2.5. EMI Suppression Device(s)/Modifications

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

2.6. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase.

However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

3. TEST EQUIPMENT CALIBRATION DATE

Radiated Emissions

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Active Loop Antenna	SCHWARZBECK	FMZB 1519B	MRTTWA00002	1 year	2021/04/27
Broadband TRILOG Antenna	SCHWARZBECK	VULB 9162	MRTTWA00001	1 year	2021/06/03
Broadband Hornantenna	SCHWARZBECK	BBHA 9120D	MRTTWA00003	1 year	2021/04/24
Breitband Hornantenna	SCHWARZBECK	BBHA 9170	MRTTWA00004	1 year	2021/04/24
Broadband Preamplifier	SCHWARZBECK	BBV 9718	MRTTWA00005	1 year	2021/04/24
Broadband Amplifier	SCHWARZBECK	BBV 9721	MRTTWA00006	1 year	2021/04/24
Signal Analyzer	R&S	FSV40	MRTTWA00007	1 year	2021/03/24
EMI Test Receiver	R&S	ESR3	MRTTWA00009	1 year	2021/03/25
EXA Signal Analyzer	KEYSIGHT	N9010A	MRTTWA00012	1 year	2020/10/02
EXA Signal Analyzer	KEYSIGHT	N9010B	MRTTWA00074	1 year	2021/07/11
Antenna Cable	HUBERSUHNER	SF106	MRTTWE00010	1 year	2021/06/16
Temperature/Humidity Meter	TFA	35.1078.10.IT	MRTTWA00032	1 year	2021/05/29
Cable	Rosnol	K1K50-UP026 4-K1K50-4M	MRTTWE00012	1 year	2021/06/21

Conducted Test Equipment

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
X-Series USB Peak and Average Power Sensor	KEYSIGHT	U2021XA	MRTTWA00014	1 year	2021/04/24
X-Series USB Peak and Average Power Sensor	KEYSIGHT	U2021XA	MRTTWA00015	1 year	2021/03/26
Wideband Radio Communication Tester	R&S	CMW 500	MRTTWA00041	1 year	2021/01/07
EXA Signal Analyzer	KEYSIGHT	N9010A	MRTTWA00012	1 year	2020/10/02
EXA Signal Analyzer	KEYSIGHT	N9010B	MRTTWA00074	1 year	2021/07/11
Signal Analyzer	R&S	FSV40	MRTTWA00007	1 year	2021/03/24
DC Power Supply	GWINSTEK	SPS-606	MRTTWA00034	Check by TRUE RMS MULTIMETER	
TRUE RMS MULTIMETER	FLUKE	117	MRTTWA00022	1 year	2021/05/28
Temperature & Humidity Chamber	TEN BILLION	TTH-B3UP	MRTTWA00036	1 year	2021/06/09
Temperature/Humidity Meter	TFA	35.1078.10.IT	MRTTWA00033	1 year	2021/05/29

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% ($U=2U_c(y)$): 2.53dB
Radiated Emission Measurement
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 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; 27.50(h)	Equivalent Isotropically Radiated Power	Refer to Section 5.2	Conducted	Pass	Section 5.2
2.1049	Emission Bandwidth	Refer to Section 5.3		Pass	Section 5.3
2.1055; 27.54	Frequency Stability	Refer to Section 5.4		Pass	Section 5.4
2.1051; 27.53(m)	Band Edge Measurements	Refer to Section 5.5		Pass	Section 5.5
2.1046	Peak to Average Ratio	Refer to Section 5.6		Pass	Section 5.6
2.1051; 27.53(m)	Conducted Spurious Emissions	Refer to Section 5.7		Pass	Section 5.7
2.1053; 27.53(m)	Radiated Spurious Emissions	Refer to Section 5.8	Radiated	Pass	Section 5.8

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) Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports the worst case was found. Following model(s) was (were) selected for the final test as listed at section 2.3.

5.2. Equivalent Isotropically Radiated Power Measurement

5.2.1. Test Limit

According to the specific rule 27.50(h)(1), the following power limits shall apply in the BRS and EBS: Main, booster and base stations.(i) The maximum EIRP of a main, booster or base station shall not exceed $33 \text{ dBW} + 10\log(X/Y) \text{ dBW}$, where X is the actual channel width in MHz and Y is either 6 MHz if prior to transition or the station is in the MBS following transition or 5.5 MHz if the station is in the LBS and UBS following transition, except as provided in paragraph (h)(1)(ii) of this section.

160MHz Bandwidth: The EIRP limit = $33 + 30 + 10\log(160/5.5) = 77.64\text{dBm}$

140MHz Bandwidth: The EIRP limit = $33 + 30 + 10\log(140/5.5) = 77.06\text{dBm}$

120MHz Bandwidth: The EIRP limit = $33 + 30 + 10\log(120/5.5) = 76.39\text{dBm}$

100MHz Bandwidth: The EIRP limit = $33 + 30 + 10\log(100/5.5) = 75.60\text{dBm}$

80MHz Bandwidth: The EIRP limit = $33 + 30 + 10\log(80/5.5) = 74.63\text{dBm}$

60MHz Bandwidth: The EIRP limit = $33 + 30 + 10\log(60/5.5) = 73.38\text{dBm}$

40MHz Bandwidth: The EIRP limit = $33 + 30 + 10\log(40/5.5) = 71.62\text{dBm}$

5.2.2. Test Procedures Used

KDB 971168 D01v03r01 - Section 5.2.4 & 5.6

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.

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation (1) as follows:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_T$$

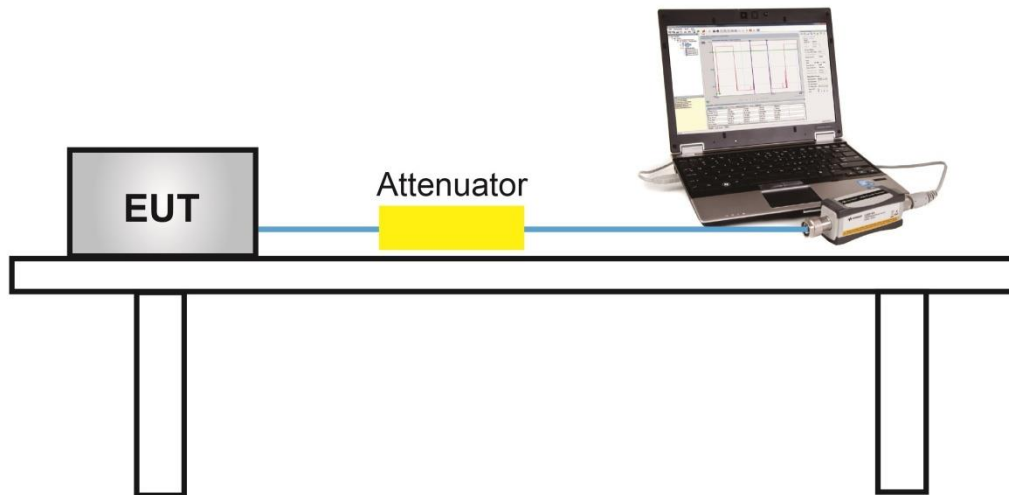
where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas} , e.g., dBm or dBW)

P_{Meas} measured transmitter output power or PSD, in dBm or dBW

G_T gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

5.2.4. Test Setup



5.2.5. Test Result

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Peter Xu
Test Site	SR2	Test Date	2020/07/24
Test Item	EIRP (2*2 Tx mode, 40MHz Bandwidth)		

Frequency (MHz)	Channel Bandwidth (MHz)	Ant 0 Power (dBm)	Ant 1 Power (dBm)	Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
QPSK							
2516.0	40	24.39	24.62	27.52	36.93	≤ 71.62	Pass
2593.0	40	24.33	24.06	27.21	36.62	≤ 71.62	Pass
2670.0	40	24.40	23.96	27.20	36.61	≤ 71.62	Pass
16QAM							
2516.0	40	24.28	23.96	27.13	36.54	≤ 71.62	Pass
2593.0	40	24.49	24.23	27.37	36.78	≤ 71.62	Pass
2670.0	40	23.89	24.11	27.01	36.42	≤ 71.62	Pass
64QAM							
2516.0	40	24.21	24.55	27.39	36.80	≤ 71.62	Pass
2593.0	40	24.19	24.25	27.23	36.64	≤ 71.62	Pass
2670.0	40	24.02	24.09	27.07	36.48	≤ 71.62	Pass
256QAM							
2516.0	40	24.43	24.27	27.36	36.77	≤ 71.62	Pass
2593.0	40	24.10	23.77	26.95	36.36	≤ 71.62	Pass
2670.0	40	24.11	23.89	27.01	36.42	≤ 71.62	Pass

Note 1: Total Power (dBm) = $10 \cdot \log\{10^{[ANT0 \text{ Power (dBm)} / 10]} + 10^{[ANT1 \text{ Power (dBm)} / 10]}\}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Peter Xu
Test Site	SR2	Test Date	2020/07/24
Test Item	EIRP (4*4 T _x mode, 40MHz Bandwidth)		

Frequency (MHz)	Channel Bandwidth (MHz)	Ant 0 Power (dBm)	Ant 1 Power (dBm)	Ant 2 Power (dBm)	Ant 3 Power (dBm)	Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
QPSK									
2516.0	40	24.02	24.25	23.96	24.19	30.13	42.55	≤ 71.62	Pass
2593.0	40	23.97	23.70	24.15	24.01	29.98	42.40	≤ 71.62	Pass
2670.0	40	24.03	23.60	23.52	23.59	29.71	42.13	≤ 71.62	Pass
16QAM									
2516.0	40	23.92	23.60	23.21	23.62	29.62	42.04	≤ 71.62	Pass
2593.0	40	24.12	23.87	23.62	23.27	29.75	42.17	≤ 71.62	Pass
2670.0	40	23.53	23.75	24.08	23.16	29.66	42.08	≤ 71.62	Pass
64QAM									
2516.0	40	23.85	24.18	23.57	23.57	29.82	42.24	≤ 71.62	Pass
2593.0	40	23.83	23.89	23.94	23.51	29.82	42.24	≤ 71.62	Pass
2670.0	40	23.66	23.73	23.67	24.09	29.81	42.23	≤ 71.62	Pass
256QAM									
2516.0	40	24.06	23.91	23.85	23.62	29.88	42.30	≤ 71.62	Pass
2593.0	40	23.74	23.41	23.69	23.58	29.63	42.05	≤ 71.62	Pass
2670.0	40	23.75	23.53	23.94	23.41	29.68	42.10	≤ 71.62	Pass

Note 1: Total Power (dBm) = $10 \cdot \log\{10^{[ANT\ 0\ Power\ (dBm) / 10]} + 10^{[ANT\ 1\ Power\ (dBm) / 10]} + 10^{[ANT\ 2\ Power\ (dBm) / 10]} + 10^{[ANT\ 3\ Power\ (dBm) / 10]}\}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/06/29
Test Configuration	LTE 20MHz + 5G NR 40MHz		
Test Channel	Bottom Channel: LTE 2506MHz, 5G NR 2535.99MHz Middle Channel: LTE 2573MHz, 5G NR 2602.98MHz Top Channel: LTE 2640MHz, 5G NR 2670MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	LTE Port Power (dBm)		5G NR Port Power (dBm)		Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
		Ant 2	Ant 3	Ant 0	Ant 1				
QPSK									
Bottom	20+40	23.75	23.64	24.58	24.12	30.06	42.48	≤ 73.38	Pass
Middle	20+40	23.95	24.22	24.34	24.15	30.19	42.61	≤ 73.38	Pass
Top	20+40	23.90	24.00	24.15	24.15	30.07	42.49	≤ 73.38	Pass
16QAM									
Bottom	20+40	23.79	23.60	24.34	24.25	30.03	42.45	≤ 73.38	Pass
Middle	20+40	23.88	24.16	24.56	24.42	30.28	42.70	≤ 73.38	Pass
Top	20+40	23.87	23.86	24.30	24.36	30.12	42.54	≤ 73.38	Pass
64QAM									
Bottom	20+40	23.73	23.65	24.36	24.32	30.05	42.47	≤ 73.38	Pass
Middle	20+40	23.95	24.20	24.55	24.35	30.29	42.71	≤ 73.38	Pass
Top	20+40	23.95	23.99	24.33	24.32	30.17	42.59	≤ 73.38	Pass
256QAM									
Bottom	20+40	23.73	23.76	24.30	24.25	30.04	42.46	≤ 73.38	Pass
Middle	20+40	23.98	24.23	24.50	24.25	30.26	42.68	≤ 73.38	Pass
Top	20+40	23.88	24.01	24.24	24.21	30.11	42.53	≤ 73.38	Pass

Note 1: Total Power (dBm) = $10 \cdot \log \{ 10^{\text{ANT0 Power (dBm)} / 10} + 10^{\text{ANT1 Power (dBm)} / 10} + 10^{\text{ANT2 Power (dBm)} / 10} + 10^{\text{ANT3 Power (dBm)} / 10} \}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/06/29
Test Configuration	LTE 20MHz + 5G NR 60MHz		
Test Channel	Bottom Channel: LTE 2506MHz, 5G NR 2545.98MHz Middle Channel: LTE 2563MHz, 5G NR 2602.98MHz Top Channel: LTE 2620MHz, 5G NR 2659.98MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	LTE Port Power (dBm)		5G NR Port Power (dBm)		Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
		Ant 2	Ant 3	Ant 0	Ant 1				
QPSK									
Bottom	20+60	23.72	23.75	24.09	24.14	29.95	42.37	≤ 74.63	Pass
Middle	20+60	23.97	24.12	24.21	24.13	30.13	42.55	≤ 74.63	Pass
Top	20+60	23.87	24.07	24.09	24.10	30.05	42.47	≤ 74.63	Pass
16QAM									
Bottom	20+60	23.72	23.69	24.23	24.23	30.00	42.42	≤ 74.63	Pass
Middle	20+60	23.93	24.06	24.39	24.10	30.14	42.56	≤ 74.63	Pass
Top	20+60	23.75	24.01	24.24	24.23	30.08	42.50	≤ 74.63	Pass
64QAM									
Bottom	20+60	23.63	23.66	24.15	24.22	29.94	42.36	≤ 74.63	Pass
Middle	20+60	24.00	24.21	24.33	24.18	30.20	42.62	≤ 74.63	Pass
Top	20+60	23.85	24.05	24.18	24.21	30.10	42.52	≤ 74.63	Pass
256QAM									
Bottom	20+60	23.72	23.75	24.12	24.14	29.96	42.38	≤ 74.63	Pass
Middle	20+60	23.96	24.19	24.30	24.14	30.17	42.59	≤ 74.63	Pass
Top	20+60	23.84	24.01	24.09	24.13	30.04	42.46	≤ 74.63	Pass

Note 1: Total Power (dBm) = $10 \cdot \log \{ 10^{[\text{ANT0 Power (dBm)} / 10]} + 10^{[\text{ANT1 Power (dBm)} / 10]} + 10^{[\text{ANT2 Power (dBm)} / 10]} + 10^{[\text{ANT3 Power (dBm)} / 10]} \}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/06/29
Test Configuration	LTE 20MHz + 5G NR 100MHz		
Test Channel	Bottom Channel: LTE 2506MHz, 5G NR 2565.99MHz Middle Channel: LTE 2543MHz, 5G NR 2602.98MHz Top Channel: LTE 2580MHz, 5G NR 2640MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	LTE Port Power (dBm)		5G NR Port Power (dBm)		Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
		Ant 2	Ant 3	Ant 0	Ant 1				
QPSK									
Bottom	20+100	23.79	23.63	24.11	24.05	29.92	42.34	≤ 76.39	Pass
Middle	20+100	23.83	24.02	24.18	24.08	30.05	42.47	≤ 76.39	Pass
Top	20+100	23.88	24.06	24.05	24.02	30.02	42.44	≤ 76.39	Pass
16QAM									
Bottom	20+100	23.73	23.52	24.21	24.11	29.92	42.34	≤ 76.39	Pass
Middle	20+100	24.09	23.98	24.27	24.07	30.12	42.54	≤ 76.39	Pass
Top	20+100	23.83	24.11	24.11	24.08	30.05	42.47	≤ 76.39	Pass
64QAM									
Bottom	20+100	23.77	23.74	24.15	23.99	29.94	42.36	≤ 76.39	Pass
Middle	20+100	24.02	23.92	24.17	23.95	30.04	42.46	≤ 76.39	Pass
Top	20+100	23.95	24.15	24.07	24.00	30.06	42.48	≤ 76.39	Pass
256QAM									
Bottom	20+100	23.74	23.72	24.12	23.96	29.91	42.33	≤ 76.39	Pass
Middle	20+100	24.05	24.02	24.18	23.97	30.08	42.50	≤ 76.39	Pass
Top	20+100	23.87	24.12	24.10	24.01	30.05	42.47	≤ 76.39	Pass

Note 1: Total Power (dBm) = $10 \cdot \log \{ 10^{\text{ANT0 Power (dBm)} / 10} + 10^{\text{ANT1 Power (dBm)} / 10} + 10^{\text{ANT2 Power (dBm)} / 10} + 10^{\text{ANT3 Power (dBm)} / 10} \}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/06/30
Test Configuration	LTE 20+20MHz + 5G NR 40MHz		
Test Channel	Bottom Channel: LTE 2506 + 2526MHz, 5G NR 2556MHz Middle Channel: LTE 2563 + 2583MHz, 5G NR 2613MHz Top Channel: LTE 2620 + 2640MHz, 5G NR 2670MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	LTE Port Power (dBm)		5G NR Port Power (dBm)		Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
		Ant 2	Ant 3	Ant 0	Ant 1				
QPSK									
Bottom	40+40	24.75	24.55	24.28	24.20	30.47	42.89	≤ 74.63	Pass
Middle	40+40	24.53	24.60	24.22	24.11	30.39	42.81	≤ 74.63	Pass
Top	40+40	24.57	24.85	24.07	24.08	30.43	42.85	≤ 74.63	Pass
16QAM									
Bottom	40+40	24.38	24.24	24.43	24.40	30.38	42.80	≤ 74.63	Pass
Middle	40+40	24.75	24.81	24.47	24.32	30.61	43.03	≤ 74.63	Pass
Top	40+40	24.66	24.88	24.23	24.27	30.54	42.96	≤ 74.63	Pass
64QAM									
Bottom	40+40	24.45	24.29	24.46	24.39	30.42	42.84	≤ 74.63	Pass
Middle	40+40	24.42	24.68	24.46	24.26	30.48	42.90	≤ 74.63	Pass
Top	40+40	24.37	24.53	24.24	24.28	30.38	42.80	≤ 74.63	Pass
256QAM									
Bottom	40+40	24.52	24.32	24.43	24.30	30.41	42.83	≤ 74.63	Pass
Middle	40+40	24.47	24.72	24.39	24.24	30.48	42.90	≤ 74.63	Pass
Top	40+40	24.35	24.49	24.18	24.10	30.30	42.72	≤ 74.63	Pass

Note 1: Total Power (dBm) = $10 \cdot \log \{ 10^{[\text{ANT 0 Power (dBm)} / 10]} + 10^{[\text{ANT 1 Power (dBm)} / 10]} + 10^{[\text{ANT 2 Power (dBm)} / 10]} + 10^{[\text{ANT 3 Power (dBm)} / 10]} \}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/06/30
Test Configuration	LTE 20+20MHz + 5G NR 60MHz		
Test Channel	Bottom Channel: LTE 2506 + 2526MHz, 5G NR 2565.99MHz Middle Channel: LTE 2553 + 2573MHz, 5G NR 2613MHz Top Channel: LTE 2600+ 2620MHz, 5G NR 2659.98MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	LTE Port Power (dBm)		5G NR Port Power (dBm)		Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
		Ant 2	Ant 3	Ant 0	Ant 1				
QPSK									
Bottom	40+60	24.80	24.61	24.25	24.18	30.49	42.91	≤ 75.60	Pass
Middle	40+60	24.56	24.72	24.21	24.07	30.42	42.84	≤ 75.60	Pass
Top	40+60	24.73	24.95	24.07	24.06	30.49	42.91	≤ 75.60	Pass
16QAM									
Bottom	40+60	24.73	24.58	24.34	24.25	30.50	42.92	≤ 75.60	Pass
Middle	40+60	24.75	24.93	24.31	24.28	30.60	43.02	≤ 75.60	Pass
Top	40+60	24.72	24.92	24.14	24.19	30.53	42.95	≤ 75.60	Pass
64QAM									
Bottom	40+60	24.61	24.35	24.33	24.24	30.41	42.83	≤ 75.60	Pass
Middle	40+60	24.51	24.63	24.35	24.12	30.43	42.85	≤ 75.60	Pass
Top	40+60	24.44	24.65	24.12	24.16	30.37	42.79	≤ 75.60	Pass
256QAM									
Bottom	40+60	24.52	24.37	24.22	24.20	30.35	42.77	≤ 75.60	Pass
Middle	40+60	24.55	24.76	24.24	24.13	30.45	42.87	≤ 75.60	Pass
Top	40+60	24.50	24.69	24.04	24.08	30.36	42.78	≤ 75.60	Pass

Note 1: Total Power (dBm) = $10 \cdot \log \{ 10^{[ANT0 \text{ Power (dBm)} / 10]} + 10^{[ANT1 \text{ Power (dBm)} / 10]} + 10^{[ANT2 \text{ Power (dBm)} / 10]} + 10^{[ANT3 \text{ Power (dBm)} / 10]} \}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/06/30
Test Configuration	LTE 20+20MHz + 5G NR 100MHz		
Test Channel	Bottom Channel: LTE 2506 + 2526MHz, 5G NR 2586MHz Middle Channel: LTE 2533 + 2553MHz, 5G NR 2613MHz Top Channel: LTE 2560+ 2580MHz, 5G NR 2640MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	LTE Port Power (dBm)		5G NR Port Power (dBm)		Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
		Ant 2	Ant 3	Ant 0	Ant 1				
QPSK									
Bottom	40+100	24.55	24.34	24.11	24.09	30.30	42.72	≤ 77.06	Pass
Middle	40+100	24.68	24.57	24.16	23.98	30.38	42.80	≤ 77.06	Pass
Top	40+100	24.82	25.00	24.08	24.02	30.52	42.94	≤ 77.06	Pass
16QAM									
Bottom	40+100	24.71	24.46	24.08	24.13	30.37	42.79	≤ 77.06	Pass
Middle	40+100	24.92	24.85	24.16	24.03	30.53	42.95	≤ 77.06	Pass
Top	40+100	24.78	24.90	24.09	24.11	30.51	42.93	≤ 77.06	Pass
64QAM									
Bottom	40+100	24.50	24.29	24.07	24.04	30.25	42.67	≤ 77.06	Pass
Middle	40+100	24.66	24.53	24.14	23.98	30.36	42.78	≤ 77.06	Pass
Top	40+100	24.50	24.66	24.01	24.02	30.33	42.75	≤ 77.06	Pass
256QAM									
Bottom	40+100	24.45	24.33	24.04	24.01	30.23	42.65	≤ 77.06	Pass
Middle	40+100	24.74	24.57	24.10	23.95	30.37	42.79	≤ 77.06	Pass
Top	40+100	24.56	24.75	23.95	23.94	30.34	42.76	≤ 77.06	Pass

Note 1: Total Power (dBm) = $10 \cdot \log \{ 10^{\lceil \text{ANT0 Power (dBm)} / 10 \rceil} + 10^{\lceil \text{ANT1 Power (dBm)} / 10 \rceil} + 10^{\lceil \text{ANT2 Power (dBm)} / 10 \rceil} + 10^{\lceil \text{ANT3 Power (dBm)} / 10 \rceil} \}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/07/01
Test Configuration	LTE 20+20+20MHz + 5G NR 40MHz		
Test Channel	Bottom Channel: LTE 2502 + 2526 + 2546MHz, 5G NR 2575.98MHz Middle Channel: LTE 2553 + 2573 + 2593MHz, 5G NR 2622.99MHz Top Channel: LTE 2600 + 2620+ 2640MHz, 5G NR 2670MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	LTE Port Power (dBm)		5G NR Port Power (dBm)		Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
		Ant 2	Ant 3	Ant 0	Ant 1				
QPSK									
Bottom	60+40	24.87	24.68	23.81	23.72	30.32	42.74	≤ 75.60	Pass
Middle	60+40	24.67	24.74	24.33	24.17	30.50	42.92	≤ 75.60	Pass
Top	60+40	24.55	24.81	24.09	24.02	30.40	42.82	≤ 75.60	Pass
16QAM									
Bottom	60+40	24.87	24.76	24.02	23.92	30.43	42.85	≤ 75.60	Pass
Middle	60+40	24.85	24.93	24.31	24.25	30.62	43.04	≤ 75.60	Pass
Top	60+40	24.67	24.78	24.26	24.15	30.49	42.91	≤ 75.60	Pass
64QAM									
Bottom	60+40	24.55	24.66	23.91	23.86	30.28	42.70	≤ 75.60	Pass
Middle	60+40	24.69	24.90	24.39	24.30	30.60	43.02	≤ 75.60	Pass
Top	60+40	24.72	24.78	24.23	24.20	30.51	42.93	≤ 75.60	Pass
256QAM									
Bottom	60+40	24.71	24.66	24.01	23.85	30.34	42.76	≤ 75.60	Pass
Middle	60+40	24.65	24.87	24.32	24.22	30.54	42.96	≤ 75.60	Pass
Top	60+40	24.75	24.80	24.15	24.08	30.48	42.90	≤ 75.60	Pass

Note 1: Total Power (dBm) = $10 \cdot \log \{ 10^{[\text{ANT0 Power (dBm)} / 10]} + 10^{[\text{ANT1 Power (dBm)} / 10]} + 10^{[\text{ANT2 Power (dBm)} / 10]} + 10^{[\text{ANT3 Power (dBm)} / 10]} \}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/07/01
Test Configuration	LTE 20+20+20MHz + 5G NR 60MHz		
Test Channel	Bottom Channel: LTE 2506 + 2526 + 2546MHz, 5G NR 2586MHz Middle Channel: LTE 2543 + 2563 + 2583MHz, 5G NR 2622.99MHz Top Channel: LTE 2580 + 2600+ 2620MHz, 5G NR 2659.98MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	LTE Port Power (dBm)		5G NR Port Power (dBm)		Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
		Ant 2	Ant 3	Ant 0	Ant 1				
QPSK									
Bottom	60+60	24.63	24.76	23.68	23.60	30.22	42.64	≤ 76.39	Pass
Middle	60+60	24.67	24.71	23.85	23.79	30.30	42.72	≤ 76.39	Pass
Top	60+60	24.85	24.96	23.75	23.56	30.35	42.77	≤ 76.39	Pass
16QAM									
Bottom	60+60	24.66	24.70	23.84	23.76	30.28	42.70	≤ 76.39	Pass
Middle	60+60	24.85	24.96	23.91	23.85	30.44	42.86	≤ 76.39	Pass
Top	60+60	24.97	24.99	23.65	23.71	30.40	42.82	≤ 76.39	Pass
64QAM									
Bottom	60+60	24.72	24.81	23.74	23.63	30.28	42.70	≤ 76.39	Pass
Middle	60+60	24.79	25.00	23.96	23.87	30.45	42.87	≤ 76.39	Pass
Top	60+60	24.88	24.93	23.59	23.55	30.31	42.73	≤ 76.39	Pass
256QAM									
Bottom	60+60	24.56	24.65	23.65	23.56	30.15	42.57	≤ 76.39	Pass
Middle	60+60	24.82	24.91	23.94	23.85	30.43	42.85	≤ 76.39	Pass
Top	60+60	24.88	24.95	23.66	23.57	30.33	42.75	≤ 76.39	Pass

Note 1: Total Power (dBm) = $10 \cdot \log \{ 10^{[\text{ANT0 Power (dBm)} / 10]} + 10^{[\text{ANT1 Power (dBm)} / 10]} + 10^{[\text{ANT2 Power (dBm)} / 10]} + 10^{[\text{ANT3 Power (dBm)} / 10]} \}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/07/01
Test Configuration	LTE 20+20+20MHz + 5G NR 100MHz		
Test Channel	Bottom Channel: LTE 2506 + 2526 + 2546MHz, 5G NR 2605.98MHz Middle Channel: LTE 2523 + 2543 + 2563MHz, 5G NR 2622.99MHz Top Channel: LTE 2540 + 2560+ 2580MHz, 5G NR 2640MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	LTE Port Power (dBm)		5G NR Port Power (dBm)		Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
		Ant 2	Ant 3	Ant 0	Ant 1				
QPSK									
Bottom	60+100	24.45	24.48	24.16	24.04	30.31	42.73	≤ 77.64	Pass
Middle	60+100	24.52	24.47	24.12	24.00	30.30	42.72	≤ 77.64	Pass
Top	60+100	24.42	24.59	24.09	24.02	30.31	42.73	≤ 77.64	Pass
16QAM									
Bottom	60+100	24.41	24.28	24.21	24.07	30.26	42.68	≤ 77.64	Pass
Middle	60+100	24.47	24.43	24.16	24.02	30.29	42.71	≤ 77.64	Pass
Top	60+100	23.87	24.07	23.95	24.04	30.00	42.42	≤ 77.64	Pass
64QAM									
Bottom	60+100	23.66	23.60	24.12	24.01	29.87	42.29	≤ 77.64	Pass
Middle	60+100	24.57	24.62	24.12	23.92	30.34	42.76	≤ 77.64	Pass
Top	60+100	23.85	24.01	24.00	23.95	29.97	42.39	≤ 77.64	Pass
256QAM									
Bottom	60+100	23.74	23.67	24.08	24.00	29.90	42.32	≤ 77.64	Pass
Middle	60+100	24.52	24.50	24.15	24.00	30.32	42.74	≤ 77.64	Pass
Top	60+100	23.86	23.98	23.99	23.95	29.97	42.39	≤ 77.64	Pass

Note 1: Total Power (dBm) = $10 \cdot \log \{ 10^{\text{ANT0 Power (dBm)} / 10} + 10^{\text{ANT1 Power (dBm)} / 10} + 10^{\text{ANT2 Power (dBm)} / 10} + 10^{\text{ANT3 Power (dBm)} / 10} \}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/06/29
Test Configuration	5G NR 40MHz + LTE 20MHz		
Test Channel	Bottom Channel: 5G NR 2516.01MHz, LTE 2546MHz Middle Channel: 5G NR 2583MHz, LTE 2613MHz Top Channel: 5G NR 2650.02MHz, LTE 2680MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	LTE Port Power (dBm)		5G NR Port Power (dBm)		Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
		Ant 2	Ant 3	Ant 0	Ant 1				
QPSK									
Bottom	40+20	23.81	23.89	24.02	23.98	29.95	42.37	≤ 73.38	Pass
Middle	40+20	23.86	23.95	23.98	23.88	29.94	42.36	≤ 73.38	Pass
Top	40+20	23.62	23.82	24.14	24.19	29.97	42.39	≤ 73.38	Pass
16QAM									
Bottom	40+20	23.79	23.88	23.84	23.95	29.89	42.31	≤ 73.38	Pass
Middle	40+20	23.79	23.87	23.84	23.82	29.85	42.27	≤ 73.38	Pass
Top	40+20	23.70	23.91	24.17	24.15	30.01	42.43	≤ 73.38	Pass
64QAM									
Bottom	40+20	23.71	23.94	23.81	23.89	29.86	42.28	≤ 73.38	Pass
Middle	40+20	23.81	23.82	23.88	23.79	29.85	42.27	≤ 73.38	Pass
Top	40+20	23.73	23.95	24.21	24.20	30.05	42.47	≤ 73.38	Pass
256QAM									
Bottom	40+20	23.78	23.79	23.88	23.91	29.86	42.28	≤ 73.38	Pass
Middle	40+20	23.65	23.74	23.79	23.81	29.77	42.19	≤ 73.38	Pass
Top	40+20	23.75	23.99	24.25	24.23	30.08	42.50	≤ 73.38	Pass

Note 1: Total Power (dBm) = $10 \cdot \log \{ 10^{[\text{ANT0 Power (dBm)} / 10]} + 10^{[\text{ANT1 Power (dBm)} / 10]} + 10^{[\text{ANT2 Power (dBm)} / 10]} + 10^{[\text{ANT3 Power (dBm)} / 10]} \}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/06/29
Test Configuration	5G NR 40MHz + LTE 20 + 20MHz		
Test Channel	Bottom Channel: 5G NR 2516.01MHz, LTE 2546 + 2566MHz Middle Channel: 5G NR 2573.01MHz, LTE 2603 + 2623MHz Top Channel: 5G NR 2630.01MHz, LTE 2660 + 2680MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	LTE Port Power (dBm)		5G NR Port Power (dBm)		Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
		Ant 2	Ant 3	Ant 0	Ant 1				
QPSK									
Bottom	40+40	24.34	24.47	24.05	23.98	30.24	42.66	≤ 74.63	Pass
Middle	40+40	24.66	24.77	24.24	24.22	30.50	42.92	≤ 74.63	Pass
Top	40+40	24.19	24.03	24.23	24.09	30.16	42.58	≤ 74.63	Pass
16QAM									
Bottom	40+40	23.89	24.23	24.17	24.16	30.14	42.56	≤ 74.63	Pass
Middle	40+40	24.67	24.70	24.42	24.38	30.57	42.99	≤ 74.63	Pass
Top	40+40	24.21	24.11	24.39	24.30	30.27	42.69	≤ 74.63	Pass
64QAM									
Bottom	40+40	24.26	24.58	24.17	24.16	30.32	42.74	≤ 74.63	Pass
Middle	40+40	24.67	24.69	24.39	24.33	30.54	42.96	≤ 74.63	Pass
Top	40+40	24.13	24.02	24.38	24.26	30.22	42.64	≤ 74.63	Pass
256QAM									
Bottom	40+40	24.29	24.59	24.11	24.05	30.29	42.71	≤ 74.63	Pass
Middle	40+40	24.59	24.66	24.33	24.35	30.51	42.93	≤ 74.63	Pass
Top	40+40	24.16	24.06	24.33	24.26	30.22	42.64	≤ 74.63	Pass

Note 1: Total Power (dBm) = $10 \cdot \log \{ 10^{[\text{ANT0 Power (dBm)} / 10]} + 10^{[\text{ANT1 Power (dBm)} / 10]} + 10^{[\text{ANT2 Power (dBm)} / 10]} + 10^{[\text{ANT3 Power (dBm)} / 10]} \}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/06/29
Test Configuration	5G NR 40MHz + LTE 20 + 20 + 20MHz		
Test Channel	Bottom Channel: 5G NR 2516.01MHz, LTE 2546 + 2566 + 2586MHz Middle Channel: 5G NR 2563.02MHz, LTE 2593 + 2613 + 2633MHz Top Channel: 5G NR 2610MHz, LTE 2640 + 2660 + 2680MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	LTE Port Power (dBm)		5G NR Port Power (dBm)		Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
		Ant 2	Ant 3	Ant 0	Ant 1				
QPSK									
Bottom	40+60	24.48	24.57	23.99	23.93	30.27	42.69	≤ 75.60	Pass
Middle	40+60	24.62	24.71	24.29	24.20	30.48	42.90	≤ 75.60	Pass
Top	40+60	24.38	24.39	24.29	24.11	30.31	42.73	≤ 75.60	Pass
16QAM									
Bottom	40+60	24.65	24.79	24.12	24.14	30.46	42.88	≤ 75.60	Pass
Middle	40+60	24.62	24.63	24.41	24.35	30.52	42.94	≤ 75.60	Pass
Top	40+60	24.34	24.34	24.43	24.29	30.37	42.79	≤ 75.60	Pass
64QAM									
Bottom	40+60	24.54	24.71	24.11	24.10	30.39	42.81	≤ 75.60	Pass
Middle	40+60	24.60	24.66	24.45	24.40	30.55	42.97	≤ 75.60	Pass
Top	40+60	24.66	24.71	24.45	24.24	30.54	42.96	≤ 75.60	Pass
256QAM									
Bottom	40+60	24.60	24.74	24.03	24.06	30.39	42.81	≤ 75.60	Pass
Middle	40+60	24.58	24.67	24.38	24.23	30.49	42.91	≤ 75.60	Pass
Top	40+60	24.36	24.36	24.42	24.22	30.36	42.78	≤ 75.60	Pass

Note 1: Total Power (dBm) = $10 \cdot \log \{ 10^{[\text{ANT0 Power (dBm)} / 10]} + 10^{[\text{ANT1 Power (dBm)} / 10]} + 10^{[\text{ANT2 Power (dBm)} / 10]} + 10^{[\text{ANT3 Power (dBm)} / 10]} \}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/07/01
Test Configuration	5G NR 60MHz + LTE 20MHz		
Test Channel	Bottom Channel: 5G NR 2526MHz, LTE 2566MHz Middle Channel: 5G NR 2583MHz, LTE 2623MHz Top Channel: 5G NR 2640MHz, LTE 2680MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	LTE Port Power (dBm)		5G NR Port Power (dBm)		Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
		Ant 2	Ant 3	Ant 0	Ant 1				
QPSK									
Bottom	60+20	23.93	24.13	24.01	23.89	30.01	42.43	≤ 74.63	Pass
Middle	60+20	23.80	24.04	24.24	24.19	30.09	42.51	≤ 74.63	Pass
Top	60+20	23.60	23.81	24.14	24.16	29.95	42.37	≤ 74.63	Pass
16QAM									
Bottom	60+20	23.88	24.07	24.06	24.09	30.05	42.47	≤ 74.63	Pass
Middle	60+20	24.05	24.00	24.38	23.79	30.08	42.50	≤ 74.63	Pass
Top	60+20	23.71	23.93	24.33	24.36	30.11	42.53	≤ 74.63	Pass
64QAM									
Bottom	60+20	23.85	24.07	23.93	24.03	29.99	42.41	≤ 74.63	Pass
Middle	60+20	23.77	23.96	24.29	24.32	30.11	42.53	≤ 74.63	Pass
Top	60+20	23.78	23.92	24.29	24.30	30.10	42.52	≤ 74.63	Pass
256QAM									
Bottom	60+20	23.89	24.07	24.02	23.98	30.01	42.43	≤ 74.63	Pass
Middle	60+20	23.75	23.95	24.22	24.23	30.06	42.48	≤ 74.63	Pass
Top	60+20	23.79	23.96	24.23	24.21	30.07	42.49	≤ 74.63	Pass

Note 1: Total Power (dBm) = $10 \cdot \log \{ 10^{[\text{ANT0 Power (dBm)} / 10]} + 10^{[\text{ANT1 Power (dBm)} / 10]} + 10^{[\text{ANT2 Power (dBm)} / 10]} + 10^{[\text{ANT3 Power (dBm)} / 10]} \}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/07/01
Test Configuration	5G NR 60MHz + LTE 20 + 20MHz		
Test Channel	Bottom Channel: 5G NR 2526MHz, LTE 2566 + 2586MHz Middle Channel: 5G NR 2573.01MHz, LTE 2613 + 2633MHz Top Channel: 5G NR 2620.02MHz, LTE 2660 + 2680MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	LTE Port Power (dBm)		5G NR Port Power (dBm)		Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
		Ant 2	Ant 3	Ant 0	Ant 1				
QPSK									
Bottom	60+40	24.78	25.03	24.03	24.01	30.51	42.93	≤ 75.60	Pass
Middle	60+40	24.67	24.82	23.90	23.88	30.36	42.78	≤ 75.60	Pass
Top	60+40	24.58	24.82	24.24	24.13	30.47	42.89	≤ 75.60	Pass
16QAM									
Bottom	60+40	24.79	25.01	24.09	24.16	30.55	42.97	≤ 75.60	Pass
Middle	60+40	24.64	24.83	24.18	24.12	30.47	42.89	≤ 75.60	Pass
Top	60+40	24.53	24.73	24.33	24.22	30.48	42.90	≤ 75.60	Pass
64QAM									
Bottom	60+40	24.81	24.99	24.02	23.94	30.49	42.91	≤ 75.60	Pass
Middle	60+40	24.65	24.87	24.03	24.05	30.44	42.86	≤ 75.60	Pass
Top	60+40	24.87	24.71	24.30	24.16	30.54	42.96	≤ 75.60	Pass
256QAM									
Bottom	60+40	24.74	24.92	23.99	24.01	30.46	42.88	≤ 75.60	Pass
Middle	60+40	24.30	24.47	23.94	23.92	30.18	42.60	≤ 75.60	Pass
Top	60+40	24.52	24.74	24.27	24.16	30.45	42.87	≤ 75.60	Pass

Note 1: Total Power (dBm) = $10 \cdot \log \{ 10^{[\text{ANT0 Power (dBm)} / 10]} + 10^{[\text{ANT1 Power (dBm)} / 10]} + 10^{[\text{ANT2 Power (dBm)} / 10]} + 10^{[\text{ANT3 Power (dBm)} / 10]} \}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/07/01
Test Configuration	5G NR 60MHz + LTE 20 + 20 + 20MHz		
Test Channel	Bottom Channel: 5G NR 2526MHz, LTE 2566 + 2586 + 2606MHz Middle Channel: 5G NR 2563.02MHz, LTE 2603 + 2623 + 2643MHz Top Channel: 5G NR 2600.01MHz, LTE 2640 + 2660 + 2680MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	LTE Port Power (dBm)		5G NR Port Power (dBm)		Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
		Ant 2	Ant 3	Ant 0	Ant 1				
QPSK									
Bottom	60+60	24.62	24.77	24.01	24.03	30.39	42.81	≤ 76.39	Pass
Middle	60+60	24.67	24.58	24.21	24.24	30.45	42.87	≤ 76.39	Pass
Top	60+60	24.52	24.62	24.31	24.28	30.46	42.88	≤ 76.39	Pass
16QAM									
Bottom	60+60	24.55	24.72	24.13	24.15	30.42	42.84	≤ 76.39	Pass
Middle	60+60	24.78	24.66	24.40	24.31	30.56	42.98	≤ 76.39	Pass
Top	60+60	24.67	24.66	24.25	24.33	30.50	42.92	≤ 76.39	Pass
64QAM									
Bottom	60+60	24.63	24.77	24.01	24.05	30.40	42.82	≤ 76.39	Pass
Middle	60+60	24.54	24.59	24.30	24.26	30.45	42.87	≤ 76.39	Pass
Top	60+60	24.43	24.55	24.38	24.29	30.43	42.85	≤ 76.39	Pass
256QAM									
Bottom	60+60	24.53	24.69	24.02	23.98	30.34	42.76	≤ 76.39	Pass
Middle	60+60	24.41	24.69	24.32	24.36	30.47	42.89	≤ 76.39	Pass
Top	60+60	24.51	24.54	24.36	24.32	30.45	42.87	≤ 76.39	Pass

Note 1: Total Power (dBm) = $10 \cdot \log \{ 10^{\lceil \text{ANT0 Power (dBm)} / 10 \rceil} + 10^{\lceil \text{ANT1 Power (dBm)} / 10 \rceil} + 10^{\lceil \text{ANT2 Power (dBm)} / 10 \rceil} + 10^{\lceil \text{ANT3 Power (dBm)} / 10 \rceil} \}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/07/02
Test Configuration	5G NR 100MHz + LTE 20MHz		
Test Channel	Bottom Channel: 5G NR 2546.01MHz, LTE 2606MHz Middle Channel: 5G NR 2583MHz, LTE 2643MHz Top Channel: 5G NR 2620.02MHz, LTE 2680MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	LTE Port Power (dBm)		5G NR Port Power (dBm)		Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
		Ant 2	Ant 3	Ant 0	Ant 1				
QPSK									
Bottom	100+20	23.84	23.99	23.91	23.98	29.95	42.37	≤ 76.39	Pass
Middle	100+20	23.82	23.93	24.15	24.13	30.03	42.45	≤ 76.39	Pass
Top	100+20	23.69	23.91	24.22	24.06	29.99	42.41	≤ 76.39	Pass
16QAM									
Bottom	100+20	23.81	23.97	24.06	24.15	30.02	42.44	≤ 76.39	Pass
Middle	100+20	23.78	23.88	24.32	24.22	30.08	42.50	≤ 76.39	Pass
Top	100+20	23.66	23.83	24.27	24.14	30.00	42.42	≤ 76.39	Pass
64QAM									
Bottom	100+20	23.88	24.04	23.93	24.14	30.02	42.44	≤ 76.39	Pass
Middle	100+20	23.79	23.90	24.20	24.14	30.03	42.45	≤ 76.39	Pass
Top	100+20	23.70	23.90	24.20	24.04	29.98	42.40	≤ 76.39	Pass
256QAM									
Bottom	100+20	23.89	24.02	23.95	24.12	30.02	42.44	≤ 76.39	Pass
Middle	100+20	23.81	23.86	24.15	24.13	30.01	42.43	≤ 76.39	Pass
Top	100+20	23.62	23.85	24.06	24.22	29.96	42.38	≤ 76.39	Pass

Note 1: Total Power (dBm) = $10 \cdot \log \{ 10^{\lceil \text{ANT0 Power (dBm)} / 10 \rceil} + 10^{\lceil \text{ANT1 Power (dBm)} / 10 \rceil} + 10^{\lceil \text{ANT2 Power (dBm)} / 10 \rceil} + 10^{\lceil \text{ANT3 Power (dBm)} / 10 \rceil} \}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/07/02
Test Configuration	5G NR 100MHz + LTE 20 + 20MHz		
Test Channel	Bottom Channel: 5G NR 2546.01MHz, LTE 2606 + 2626MHz Middle Channel: 5G NR 2573.01MHz, LTE 2633 + 2653MHz Top Channel: 5G NR 2600.01MHz, LTE 2660 + 2680MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	LTE Port Power (dBm)		5G NR Port Power (dBm)		Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
		Ant 2	Ant 3	Ant 0	Ant 1				
QPSK									
Bottom	100+40	24.87	24.91	23.99	24.09	30.51	42.93	≤ 77.06	Pass
Middle	100+40	24.35	24.56	24.23	24.12	30.34	42.76	≤ 77.06	Pass
Top	100+40	24.29	24.37	24.21	24.08	30.26	42.68	≤ 77.06	Pass
16QAM									
Bottom	100+40	24.63	24.84	24.16	24.16	30.48	42.90	≤ 77.06	Pass
Middle	100+40	24.61	24.75	24.25	24.11	30.46	42.88	≤ 77.06	Pass
Top	100+40	24.43	24.72	24.33	24.68	30.56	42.98	≤ 77.06	Pass
64QAM									
Bottom	100+40	24.35	24.59	23.92	24.02	30.25	42.67	≤ 77.06	Pass
Middle	100+40	24.48	24.45	24.20	24.12	30.34	42.76	≤ 77.06	Pass
Top	100+40	24.29	24.42	24.22	24.10	30.28	42.70	≤ 77.06	Pass
256QAM									
Bottom	100+40	24.42	24.60	23.92	23.96	30.26	42.68	≤ 77.06	Pass
Middle	100+40	24.36	24.41	24.16	24.03	30.26	42.68	≤ 77.06	Pass
Top	100+40	24.18	24.36	24.21	24.44	30.32	42.74	≤ 77.06	Pass

Note 1: Total Power (dBm) = $10 \cdot \log \{ 10^{[\text{ANT 0 Power (dBm)} / 10]} + 10^{[\text{ANT 1 Power (dBm)} / 10]} + 10^{[\text{ANT 2 Power (dBm)} / 10]} + 10^{[\text{ANT 3 Power (dBm)} / 10]} \}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/07/02
Test Configuration	5G NR 100MHz + LTE 20 + 20 + 20MHz		
Test Channel	Bottom Channel: 5G NR 2546.01MHz, LTE 2606 + 2626 + 2646MHz Middle Channel: 5G NR 2563.02MHz, LTE 2623 + 2643 + 2663MHz Top Channel: 5G NR 2580MHz, LTE 2640 + 2660 + 2680MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	LTE Port Power (dBm)		5G NR Port Power (dBm)		Total Power (dBm)	EIRP (dBm)	Limit (dBm)	Result
		Ant 2	Ant 3	Ant 0	Ant 1				
QPSK									
Bottom	100+60	23.93	23.77	24.08	24.2	30.02	42.44	≤ 77.64	Pass
Middle	100+60	24.66	24.75	24.16	24.03	30.43	42.85	≤ 77.64	Pass
Top	100+60	24.21	24.21	24.11	24.1	30.18	42.60	≤ 77.64	Pass
16QAM									
Bottom	100+60	23.78	23.72	24.02	24.08	29.92	42.34	≤ 77.64	Pass
Middle	100+60	24.48	24.58	24.21	24.11	30.37	42.79	≤ 77.64	Pass
Top	100+60	24.12	24.17	24.11	24.18	30.17	42.59	≤ 77.64	Pass
64QAM									
Bottom	100+60	23.79	23.78	23.92	24.02	29.90	42.32	≤ 77.64	Pass
Middle	100+60	24.55	24.58	24.11	24.02	30.34	42.76	≤ 77.64	Pass
Top	100+60	24.00	24.00	24.10	24.05	30.06	42.48	≤ 77.64	Pass
256QAM									
Bottom	100+60	23.82	23.77	23.90	23.97	29.89	42.31	≤ 77.64	Pass
Middle	100+60	23.72	23.87	24.13	23.93	29.94	42.36	≤ 77.64	Pass
Top	100+60	24.22	24.31	24.11	24.00	30.18	42.60	≤ 77.64	Pass

Note 1: Total Power (dBm) = $10 \cdot \log \{ 10^{\text{ANT0 Power (dBm)} / 10} + 10^{\text{ANT1 Power (dBm)} / 10} + 10^{\text{ANT2 Power (dBm)} / 10} + 10^{\text{ANT3 Power (dBm)} / 10} \}$ (dBm).

Note 2: EIRP (dBm) = Total Power (dBm) + Directional Gain (dBi).

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 Used

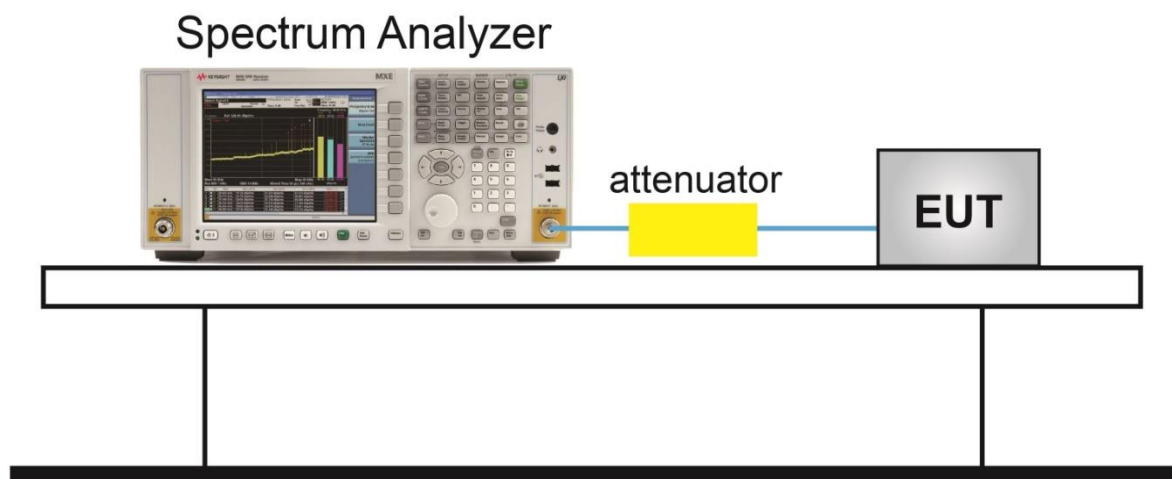
KDB 971168 D01v03r01 - Section 4.1 & 4.2

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 $\geq 3 \times$ 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



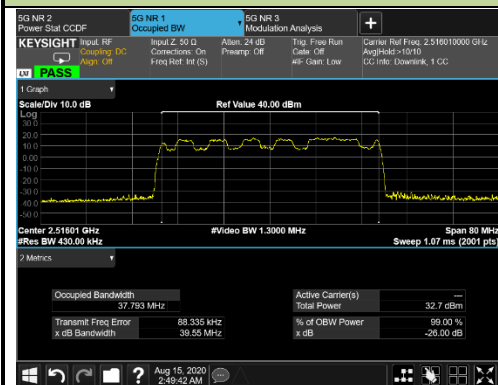
5.3.5. Test Result

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/08/14
Test Configuration	5G NR 40MHz		
Test Channel	Bottom Channel: 2516.01MHz; Middle Channel: 2592.99MHz Top Channel: 2670MHz		

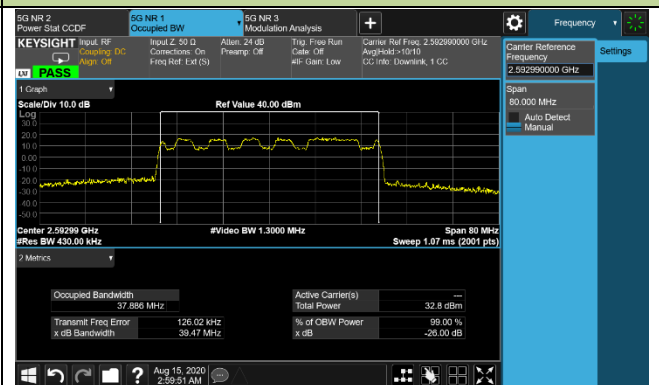
Modulation	Frequency (MHz)	Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Ant 0 / Ant 0+1+2+3				
QPSK	Bottom	40	39.55	37.79
	Middle	40	39.47	37.89
	Top	40	39.57	37.91
16QAM	Bottom	40	39.57	37.85
	Middle	40	39.56	37.86
	Top	40	39.60	37.93
64QAM	Bottom	40	39.62	37.83
	Middle	40	39.68	37.89
	Top	40	39.52	37.86
256QAM	Bottom	40	39.55	37.76
	Middle	40	39.50	37.81
	Top	40	39.59	37.78

Emission Bandwidth - QPSK

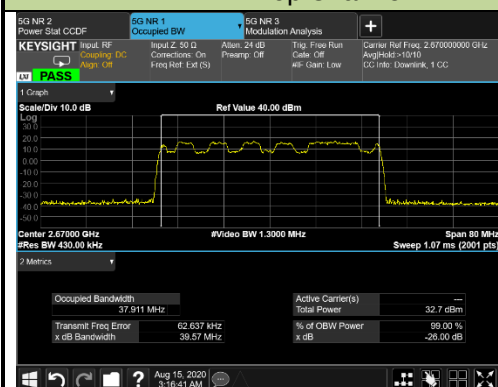
Bottom Channel



Middle Channel

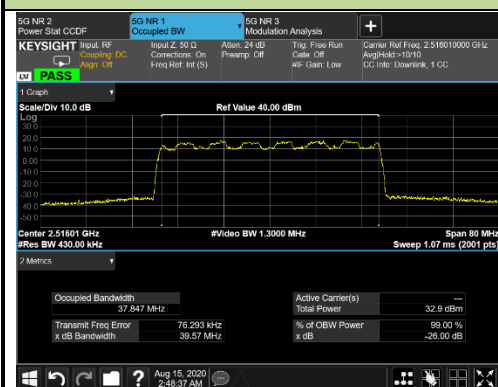


Top Channel

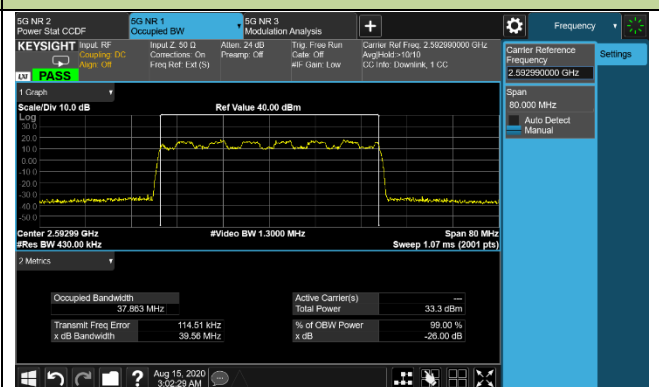


Emission Bandwidth - 16QAM

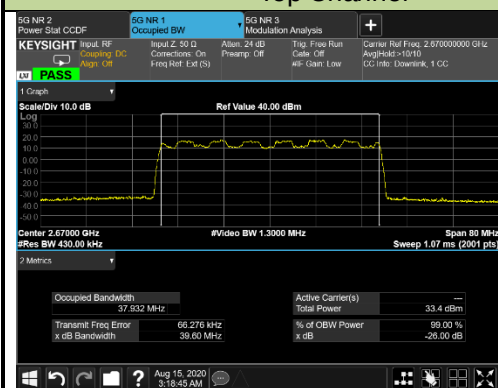
Bottom Channel



Middle Channel

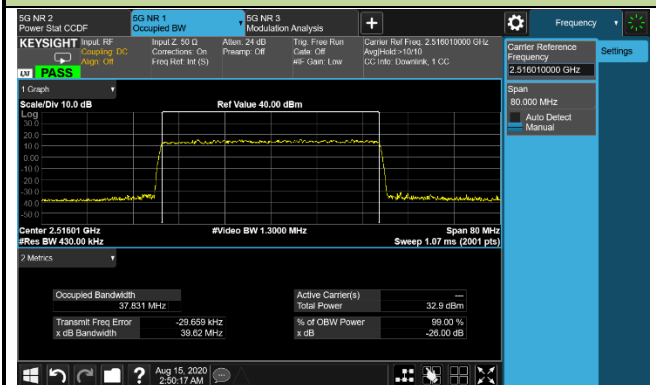


Top Channel

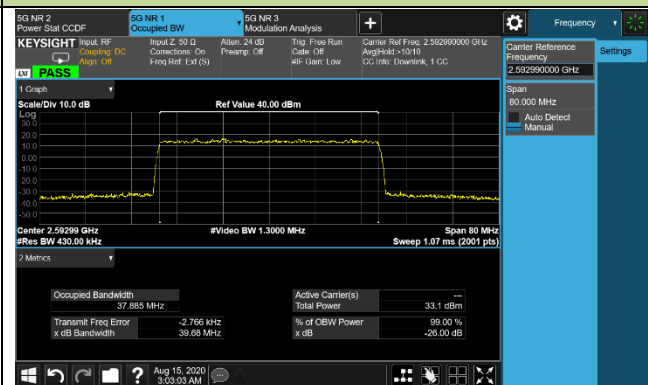


Emission Bandwidth - 64QAM

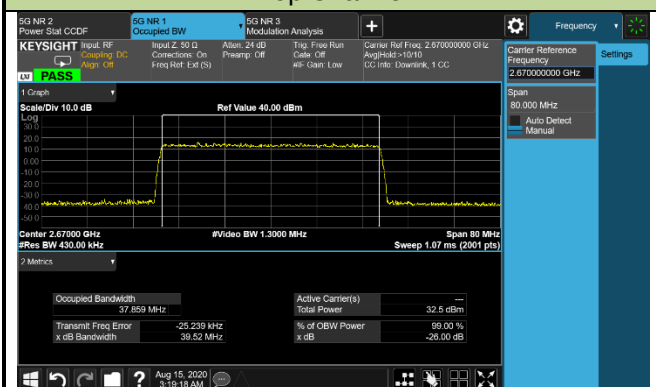
Bottom Channel



Middle Channel

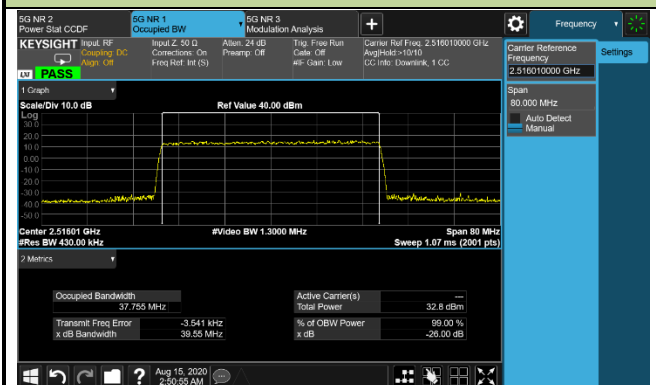


Top Channel

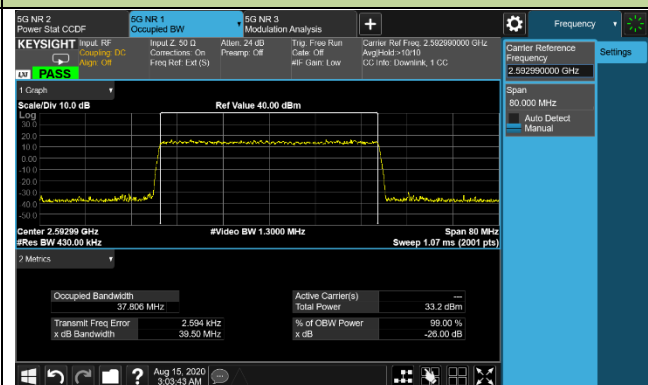


Emission Bandwidth - 256QAM

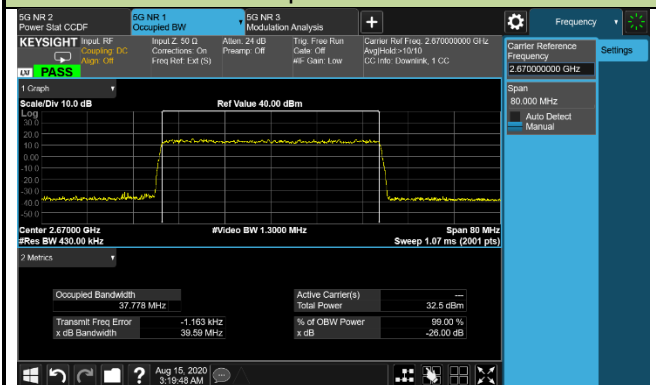
Bottom Channel



Middle Channel



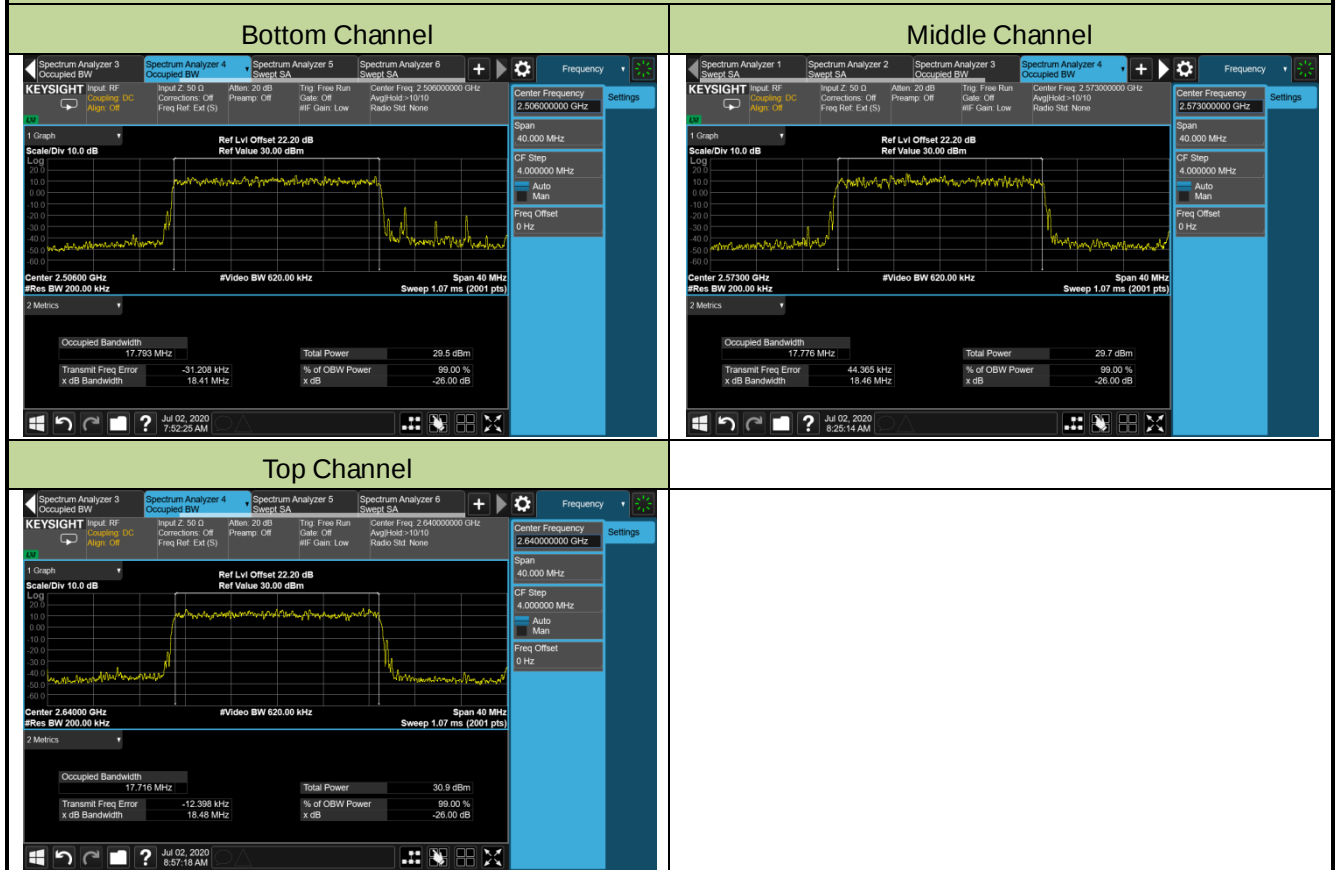
Top Channel



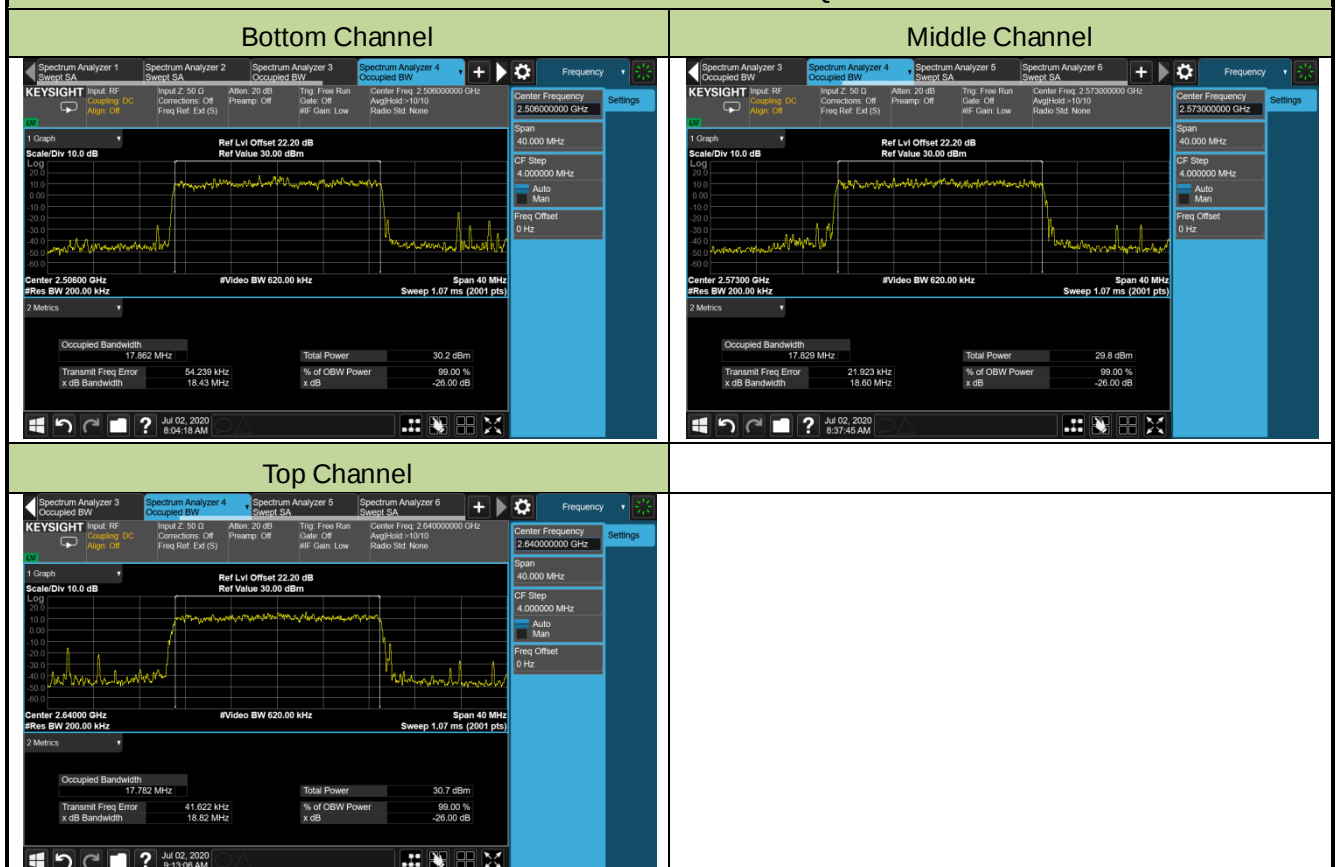
Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/07/02
Test Configuration	LTE 20MHz + 5G NR 40MHz		
Test Channel	Bottom Channel: LTE 2506MHz, 5G NR 2535.99MHz Middle Channel: LTE 2573MHz, 5G NR 2602.98MHz Top Channel: LTE 2640MHz, 5G NR 2670MHz		

Modulation	Frequency (MHz)	Bandwidth (MHz)	26dB Bandwidth (MHz)		Total 26dB Bandwidth (MHz)	99% Bandwidth (MHz)		Total 99% Bandwidth (MHz)
			LTE	5G NR		LTE	5G NR	
Ant 3 / Ant 2+3 (LTE) + Ant 0 / Ant 0+1 (5G NR)								
QPSK	Bottom	20+40	18.41	39.61	58.02	17.79	37.86	55.65
	Middle	20+40	18.46	39.71	58.17	17.78	37.96	55.74
	Top	20+40	18.48	39.74	58.22	17.72	37.85	55.57
16QAM	Bottom	20+40	18.43	39.66	58.09	17.86	37.95	55.81
	Middle	20+40	18.60	39.62	58.22	17.83	37.97	55.80
	Top	20+40	18.82	39.69	58.51	17.78	37.93	55.71
64QAM	Bottom	20+40	18.46	39.83	58.29	17.73	37.88	55.61
	Middle	20+40	18.48	39.83	58.31	17.86	37.90	55.76
	Top	20+40	18.80	39.67	58.47	17.81	37.88	55.69
256QAM	Bottom	20+40	18.67	39.56	58.23	17.92	37.77	55.69
	Middle	20+40	18.75	39.52	58.27	17.82	37.83	55.65
	Top	20+40	18.44	39.69	58.13	17.88	37.80	55.68

LTE Emission Bandwidth - QPSK

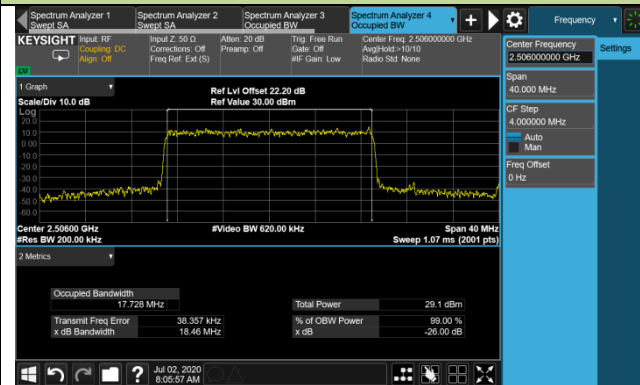


LTE Emission Bandwidth - 16QAM

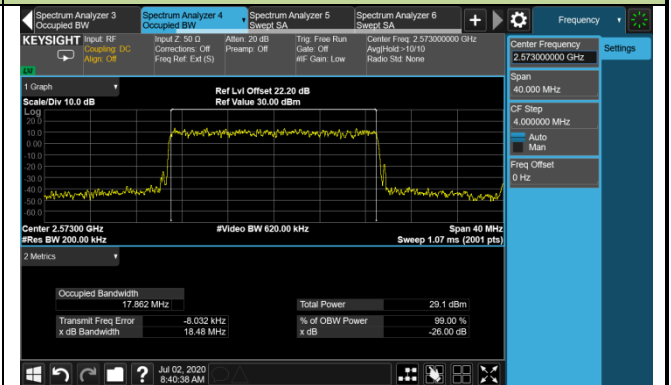


LTE Emission Bandwidth - 64QAM

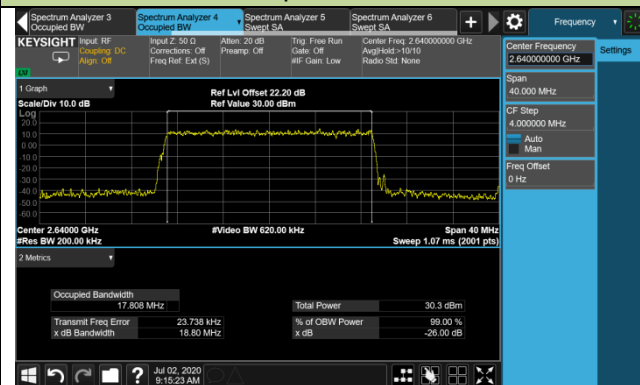
Bottom Channel



Middle Channel

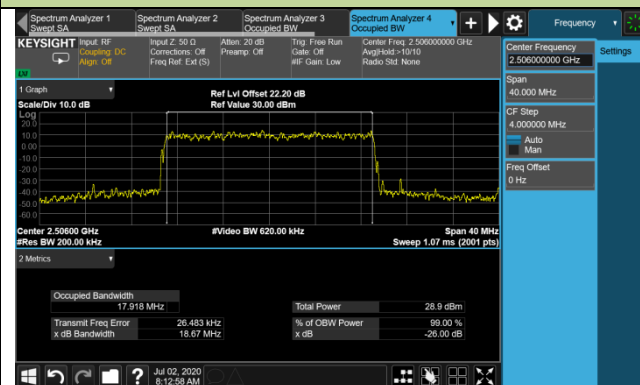


Top Channel

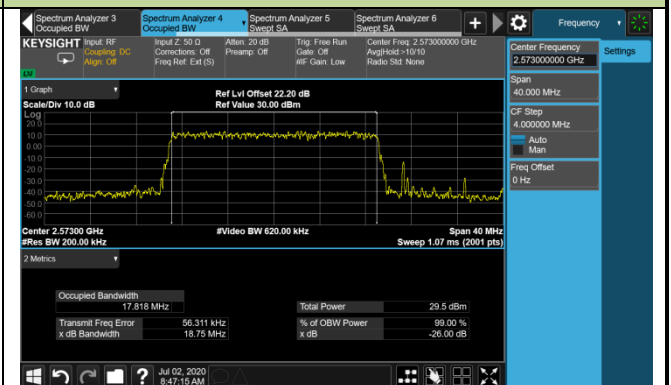


LTE Emission Bandwidth - 256QAM

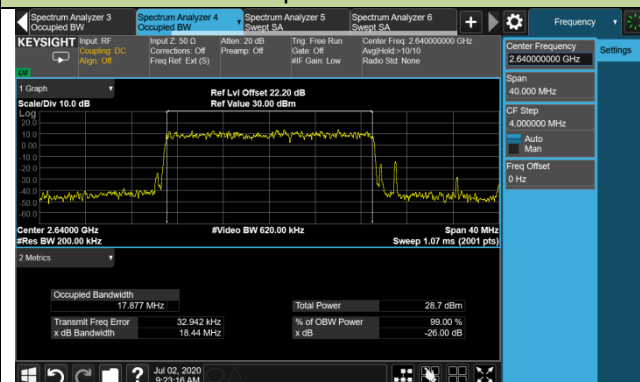
Bottom Channel



Middle Channel

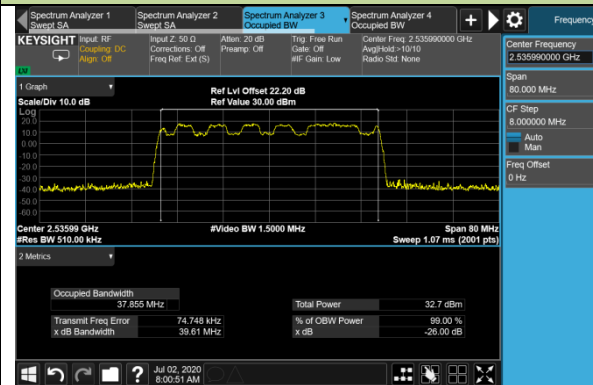


Top Channel

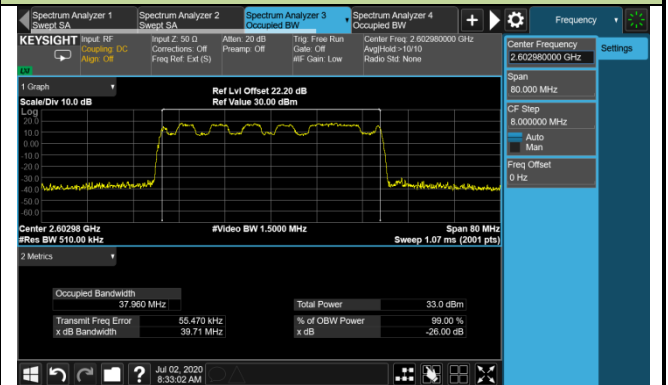


5G NR Emission Bandwidth - QPSK

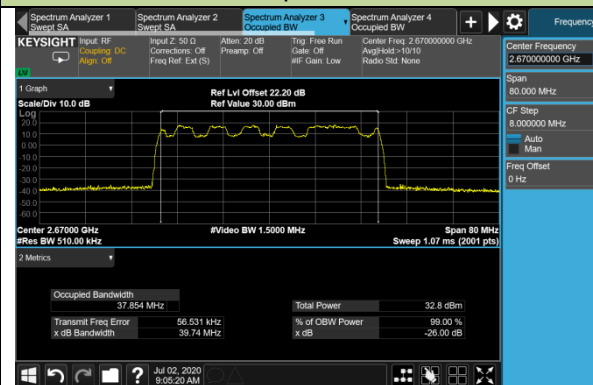
Bottom Channel



Middle Channel

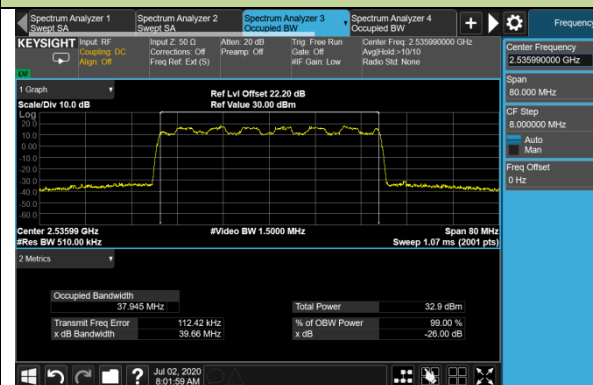


Top Channel

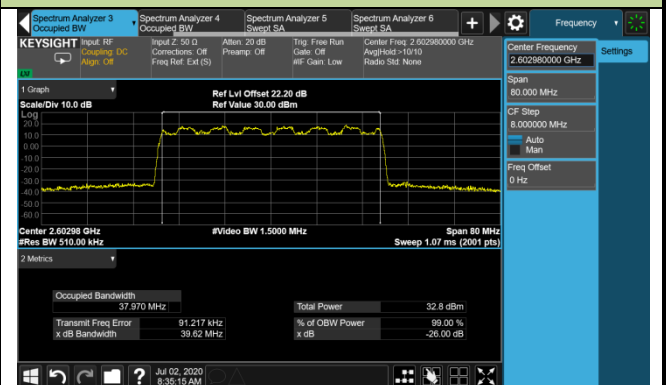


5G NR Emission Bandwidth - 16QAM

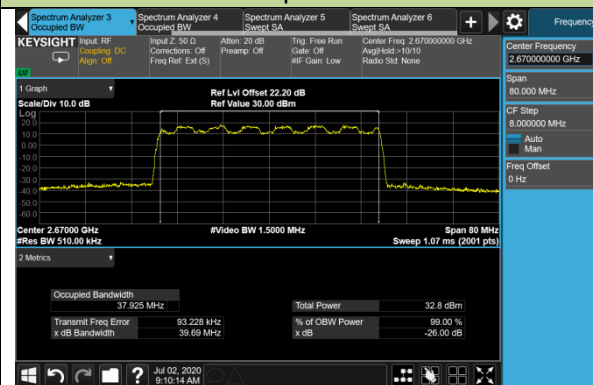
Bottom Channel



Middle Channel

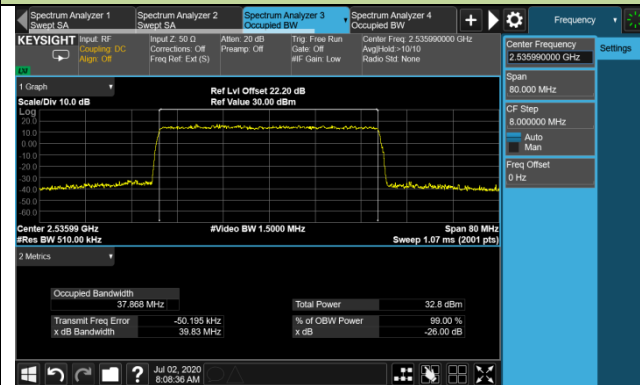


Top Channel

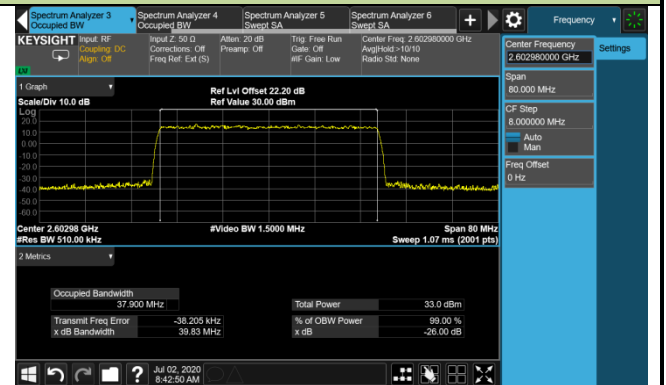


5G NR Emission Bandwidth - 64QAM

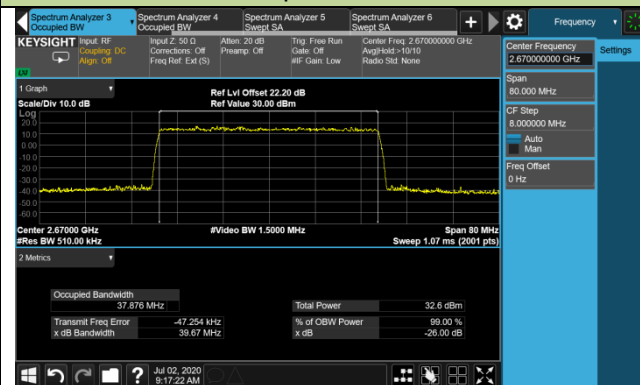
Bottom Channel



Middle Channel

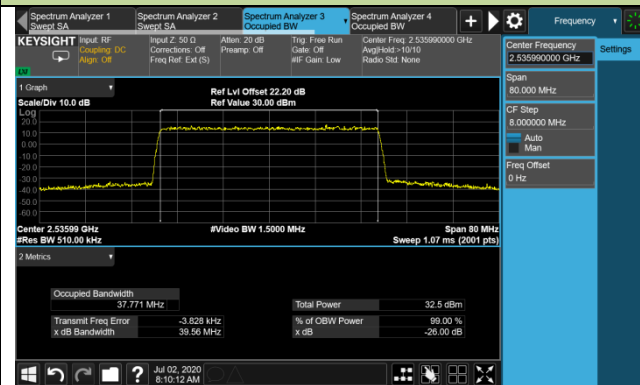


Top Channel

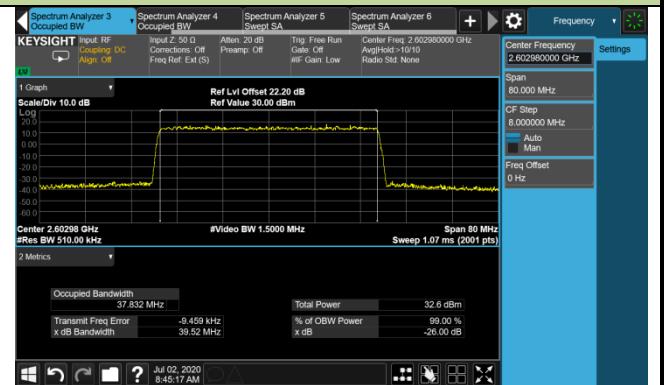


5G NR Emission Bandwidth - 256QAM

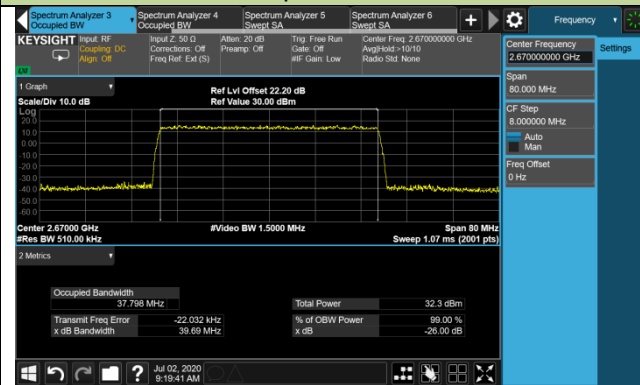
Bottom Channel



Middle Channel



Top Channel

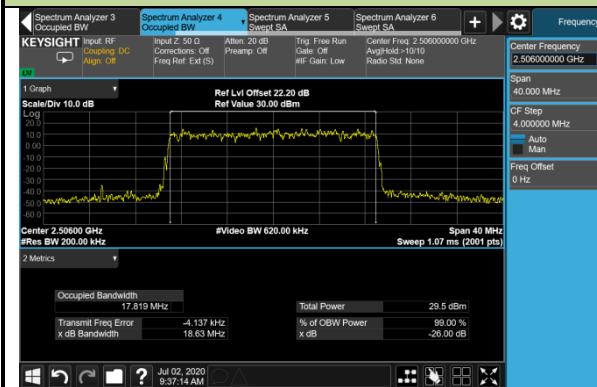


Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/07/02
Test Configuration	LTE 20MHz + 5G NR 60MHz		
Test Channel	Bottom Channel: LTE 2506MHz, 5G NR 2545.98MHz Middle Channel: LTE 2563MHz, 5G NR 2602.98MHz Top Channel: LTE 2620MHz, 5G NR 2659.98MHz		

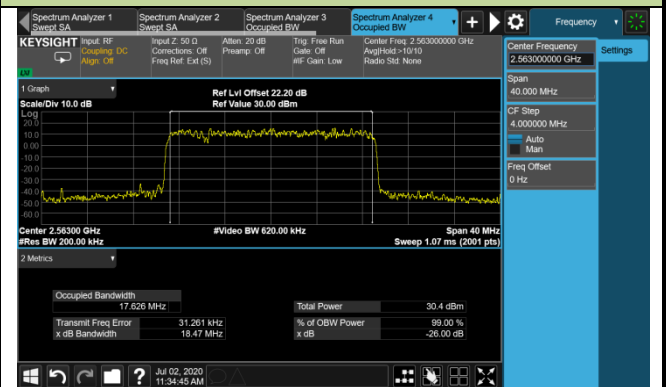
Modulation	Frequency (MHz)	Bandwidth (MHz)	26dB Bandwidth (MHz)		Total 26dB Bandwidth (MHz)	99% Bandwidth (MHz)		Total 99% Bandwidth (MHz)
			LTE	5G NR		LTE	5G NR	
Ant 3 / Ant 2+3 (LTE) + Ant 0 / Ant 0+1 (5G NR)								
QPSK	Bottom	20+60	18.63	59.79	78.42	17.82	57.87	75.69
	Middle	20+60	18.47	59.83	78.30	17.63	57.86	75.49
	Top	20+60	18.88	59.74	78.62	17.84	57.83	75.67
16QAM	Bottom	20+60	18.60	59.82	78.42	17.89	57.80	75.69
	Middle	20+60	18.50	59.83	78.33	17.88	57.88	75.76
	Top	20+60	18.69	59.92	78.61	17.88	57.87	75.75
64QAM	Bottom	20+60	18.81	59.77	78.58	17.83	57.71	75.54
	Middle	20+60	18.65	59.79	78.44	17.72	57.82	75.54
	Top	20+60	18.55	59.93	78.48	17.83	57.84	75.67
256QAM	Bottom	20+60	18.84	59.84	78.68	17.86	57.74	75.60
	Middle	20+60	18.89	59.88	78.77	17.88	57.73	75.61
	Top	20+60	18.97	59.86	78.83	17.86	57.72	75.58

LTE Emission Bandwidth - QPSK

Bottom Channel



Middle Channel

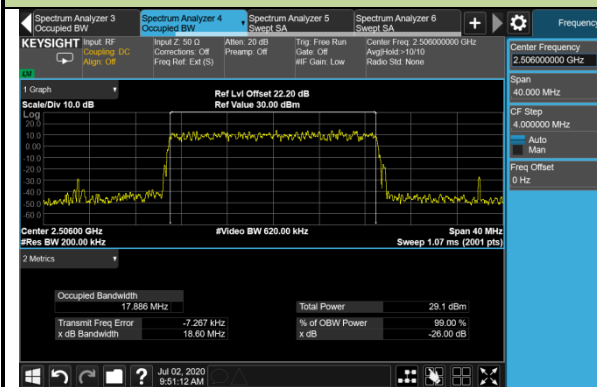


Top Channel

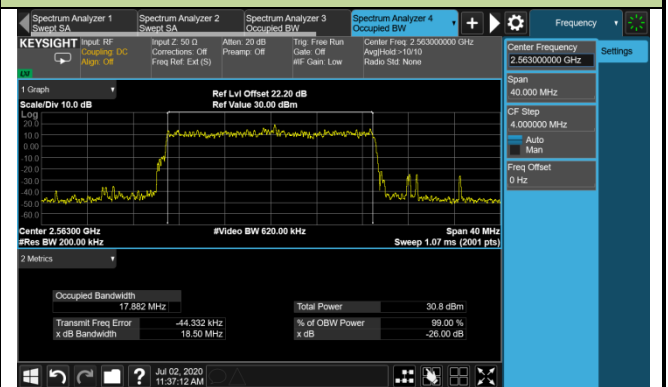


LTE Emission Bandwidth - 16QAM

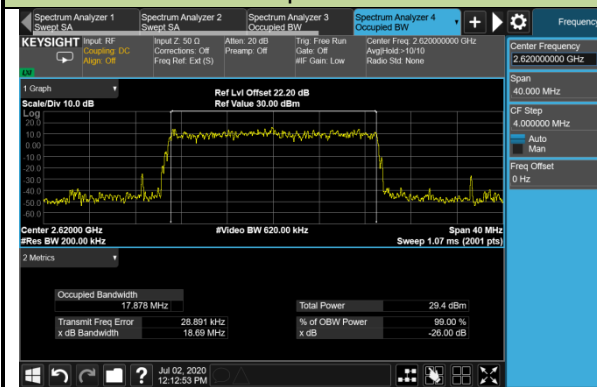
Bottom Channel



Middle Channel

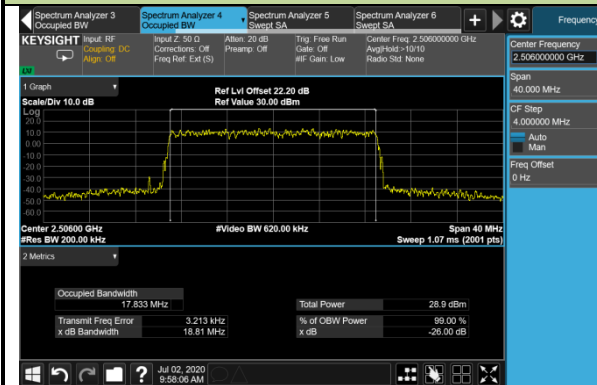


Top Channel

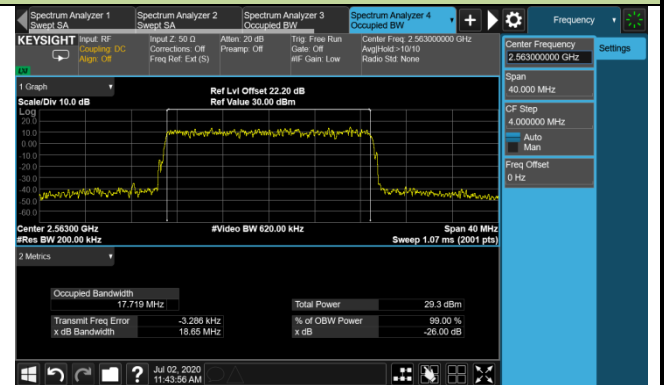


LTE Emission Bandwidth - 64QAM

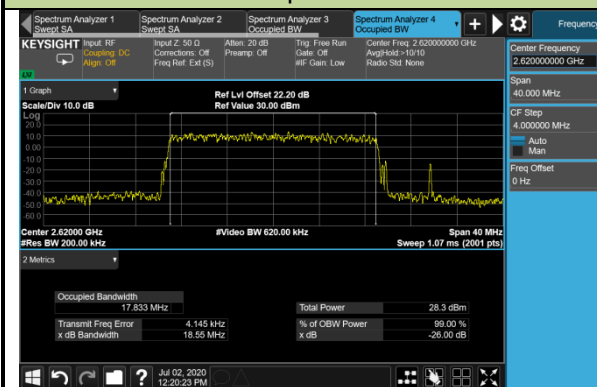
Bottom Channel



Middle Channel

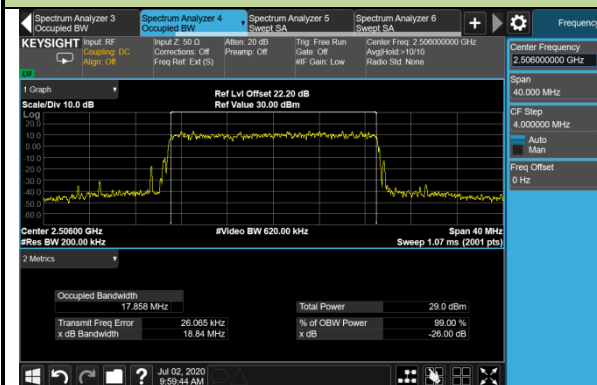


Top Channel

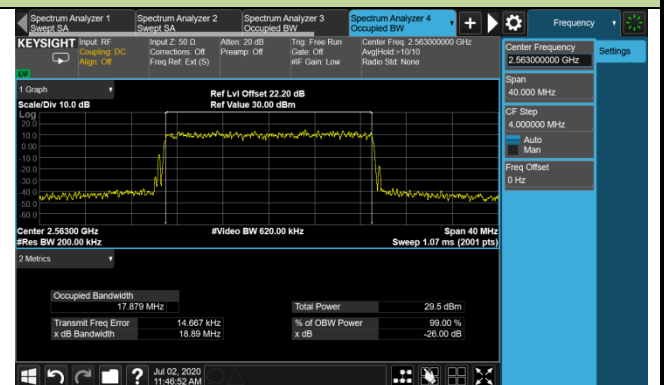


LTE Emission Bandwidth - 256QAM

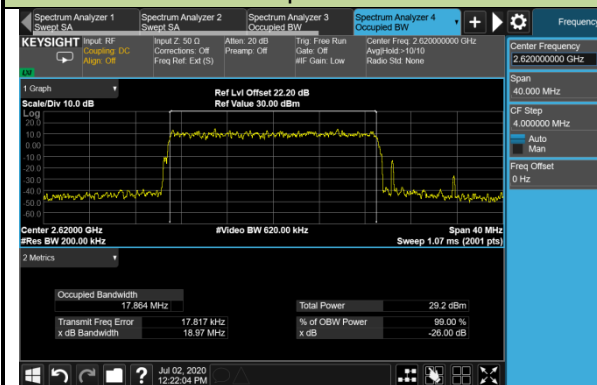
Bottom Channel



Middle Channel

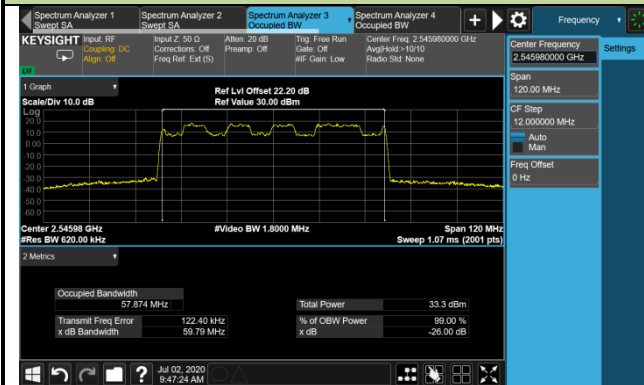


Top Channel

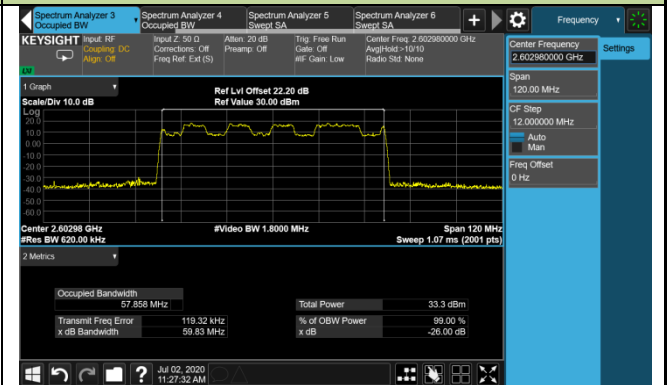


5G NR Emission Bandwidth - QPSK

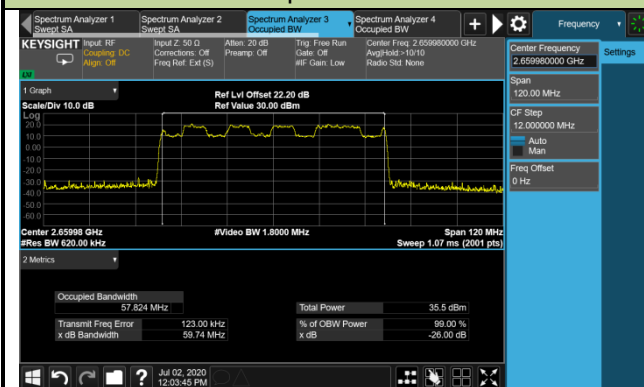
Bottom Channel



Middle Channel

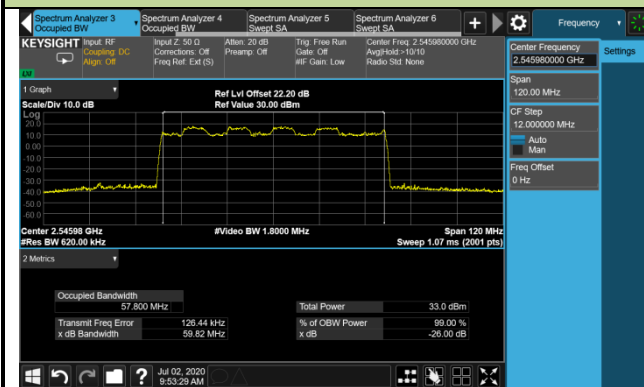


Top Channel

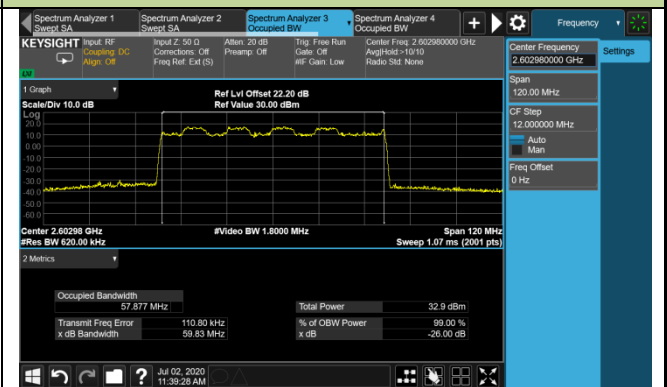


5G NR Emission Bandwidth - 16QAM

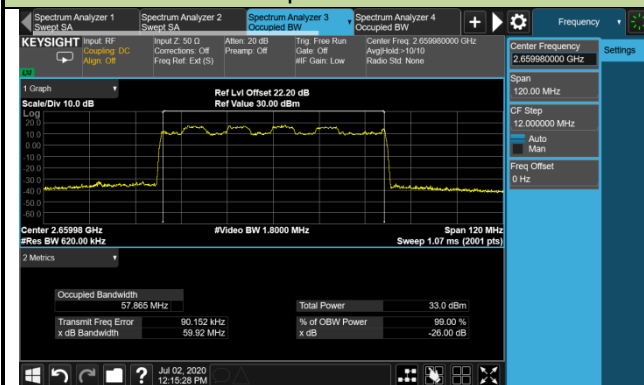
Bottom Channel



Middle Channel

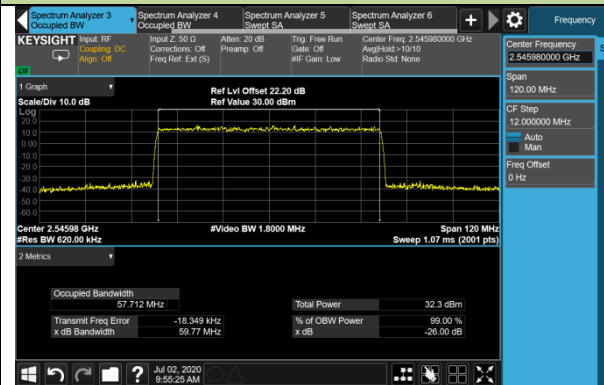


Top Channel

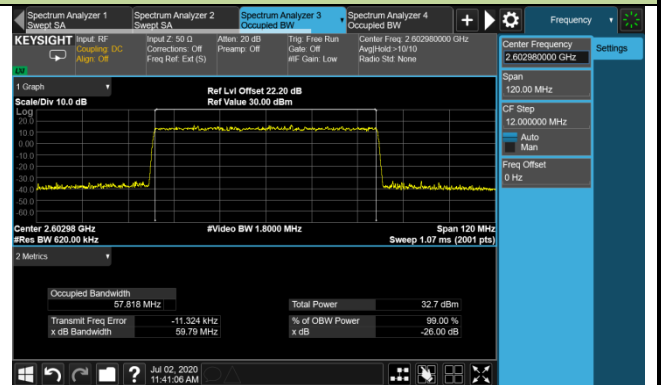


5G NR Emission Bandwidth - 64QAM

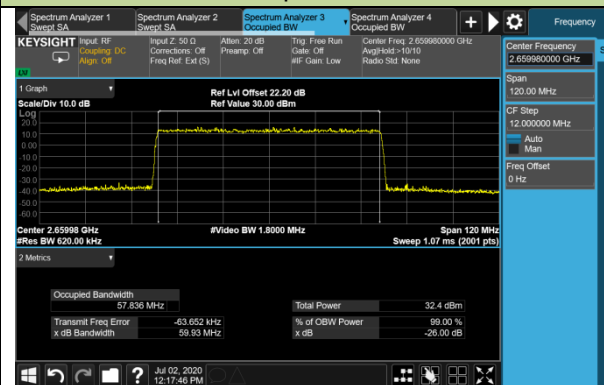
Bottom Channel



Middle Channel

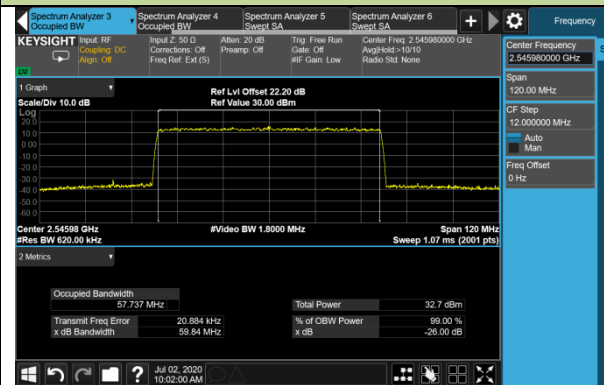


Top Channel

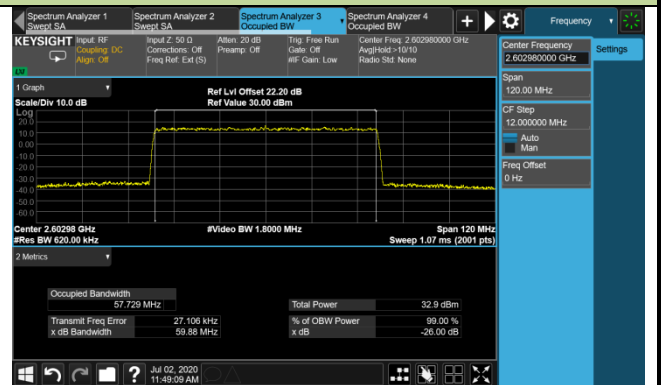


5G NR Emission Bandwidth - 256QAM

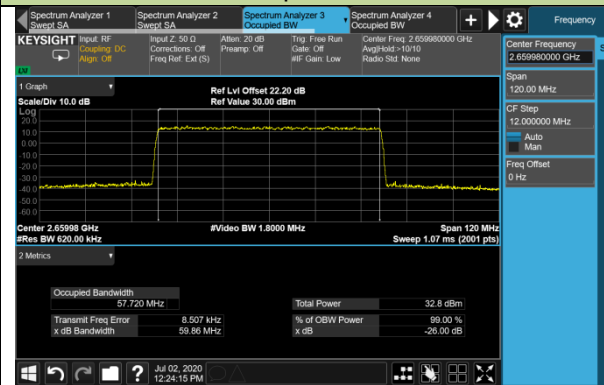
Bottom Channel



Middle Channel



Top Channel



Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Kevin Ker
Test Site	SR2	Test Date	2020/07/02
Test Configuration	LTE 20MHz + 5G NR 100MHz		
Test Channel	Bottom Channel: LTE 2506MHz, 5G NR 2565.99MHz Middle Channel: LTE 2543MHz, 5G NR 2602.98MHz Top Channel: LTE 2580MHz, 5G NR 2640MHz		

Modulation	Frequency (MHz)	Bandwidth (MHz)	26dB Bandwidth (MHz)		Total 26dB Bandwidth (MHz)	99% Bandwidth (MHz)		Total 99% Bandwidth (MHz)
			LTE	5G NR		LTE	5G NR	
Ant 3 / Ant 2+3 (LTE) + Ant 0 / Ant 0+1 (5G NR)								
QPSK	Bottom	20+100	18.54	100.4	118.94	17.80	97.03	114.83
	Middle	20+100	18.48	100.4	118.88	17.81	97.10	114.91
	Top	20+100	18.53	100.3	118.83	18.04	96.96	115.00
16QAM	Bottom	20+100	18.84	100.4	119.24	17.81	96.91	114.72
	Middle	20+100	18.45	100.4	118.85	17.79	96.74	114.53
	Top	20+100	18.42	100.4	118.82	17.78	96.87	114.65
64QAM	Bottom	20+100	18.82	100.5	119.32	17.88	97.14	115.02
	Middle	20+100	18.56	100.7	119.26	17.85	97.26	115.11
	Top	20+100	18.63	100.6	119.23	17.88	97.22	115.10
256QAM	Bottom	20+100	18.50	100.6	119.10	17.79	97.36	115.15
	Middle	20+100	18.77	100.7	119.47	17.90	97.38	115.28
	Top	20+100	18.59	100.5	119.09	17.88	97.41	115.29