Ericsson AB

RF TEST REPORT

Report Type:
RF report

PRODUCT NAME:
Radio 2212 B2 B25

REPORT NUMBER:
230900811SHA-001

ISSUE DATE:
September 19, 2023

DOCUMENT CONTROL NUMBER:
TTRFFCC Part 24_V1 © 2018 Intertek

Intertek Testing Services Shanghai
Building No.86, 1198 Qinzhou Road (North)
Caohejing Development Zone
Shanghai 200233, China

Telephone: 86 21 6127 8200
www.intertek.com

Total Quality. Assured.

TEST REPORT

Report no.: 230900811SHA-001

Applicant:	Ericsson AB
	Isafjordsgatan 10 SE-164 80 Stockholm 16480 Sweden
Manufacturer:	Ericsson AB
	Isafjordsgatan 10 SE-164 80 Stockholm 16480 Sweden
FCC ID:	TA8FKRC161688
IC:	287AB-FS161688

SUMMARY:

The equipment is tested according to the following standard(s) or Specification:

FCC CFR 47 Part 24: PERSONAL COMMUNICATIONS SERVICES

ISED RSS-133 Issue 6: 2 GHz Personal Communications Services

PREPARED BY:	**REVIEWED BY:**
Victor Yang	Jackson Huang
Project Engineer Victor Yang	Reviewer Jackson Huang

Total Quality. Assured.

TEST REPORT

Content

Total Quality. Assured.

TEST REPORT

Revision History

Report No.	Version	Description	Issued Date
230900811SHA-001	Rev. 01	Initial issue of report	September 19, 2023

Measurement result summary

TEST ITEM	FCC REFERANCE	IC REFERANCE	RESULT
Max Output Power and Peak to Average Power Ratio and EIRP	24.232(a) 2.1046	RSS-133 6.4	Pass
Occupied Bandwidth	24.238(b) 2.1049	RSS-GEN 6.6	Pass
Unwanted Emissions at Band Edge	24.238(b) 2.1051	RSS-133 6.5	Pass
Conducted Unwanted Emission	24.238(b) 2.1051	RSS-133 6.5	Pass

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Description:	Remote Radio Unit
Product name:	Radio 2212 B2 B25
Product number:	KRC 161 688/1, KRC 161 688/3
HVIN	FS1616881, FS1616883
Serial Number(s)	CF8A332456
Rating:	-48V DC
Software Version:	PIS: CXP9013268/15_R96AV, UP: CXP9024418/15_R83A04
Hardware Version:	R5L
Sample received date:	September 13, 2023
Date of test:	September 13, 2023

1.2 Technical Specification

Frequency Range:	B2: TX: 1930-1990 MHz, RX: 1850-1910 MHz B25: TX: 1930-1995 MHz, RX: 1850-1915 MHz
Number of Antenna ports:	2 TX/RX
Supported RAT:	SR/MR: GSM, LTE, WCDMA, CDMA, NR for B2 SR/MR: LTE, WCDMA, NR for B25
Max RF bandwidth (IBW):	B2: 60 MHZ; B25: 65 MHz
Supported Number of Carriers:	Maximum 6 carriers per port
Supported modulation:	GSM: GMSK, 8PSK, AQPSK WCDMA: QPSK, 16QAM, 64QAM NR/LTE: QPSK, 16QAM, 64QAM, 256QAM
Supported Channel Bandwidth:	WCDMA: 5MHz LTE: 1.4, 3, 5, 10, 15, 20 MHz NR: 5, 10, 15, 20, 25, 30, 35, 40 MHz
Declaration output power:	Maximum 80W per port

1.3 Description of Test Facility

Name:	Intertek Testing Services Shanghai
Address 1:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Address 2:	No. 5 Lize East Street, Ericsson Tower, Chaoyang District, Beijing 100102 P.R.C.
Telephone:	+86 21 61278200
Telefax:	+86 21 54262353
The test facility is recognized, certified, or accredited by these organizations:	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab CAB identifier.: CN0014
	A2LA Accreditation Lab Certificate Number: 3309.02

2 TEST SPECIFICATIONS

2.1 Related documents

FCC Part 24 (2021)
FCC Part 2 (2021)
ISED RSS-133 issue 6 January 2018
ANSI C63.26:2015
KDB 971168 D01 v03r01
KDB 662911 D01 v02r01
SRSP-510

2.2 Product Information

The Equipment Under Test (EUT) is an Ericsson Radio Unit working in the wireless communications services 1930-1995MHz which provides communication connections to network in GSM/WCDMA/CDMA/LTE/NR modes and MSR modes. The Radio 2212 B2 B25 operates from a -48V DC.

EUT has 2 variants. KRC 161 688/1 without NEBS cover; KRC 161 688/3 with NEBS cover. We test KRC 161 688/1 as typical model and list the worst data.

The EUT includes 2 TX/RX ports and it can be configured to transmit in MIMO mode, and MIMO mode was used for measurements as the worst configuration. The complete testing was performed with the EUT transmitting at maximum RF power unless otherwise stated.

A full technical description can be found in the Manufacturer’s documentation.

2.3 Configuration Description

The following settings were used to represent all traffic scenarios. The output power was measured on the bottom, middle and top channel of all applicable antenna ports. By measuring the output power of QPSK, 16QAM, 64QAM, 256QAM on one of the antenna ports, it was determined that QPSK for NR was the worst-case modulation schemes and were used for all testing.
Complete testing was carried out on the worst-case antenna port which was established as being the highest output power from the 4 measured ports on worst case modulation scheme. This antenna port was Port A for all modes.
The settings below were used for all measurements unless otherwise noted:

NR

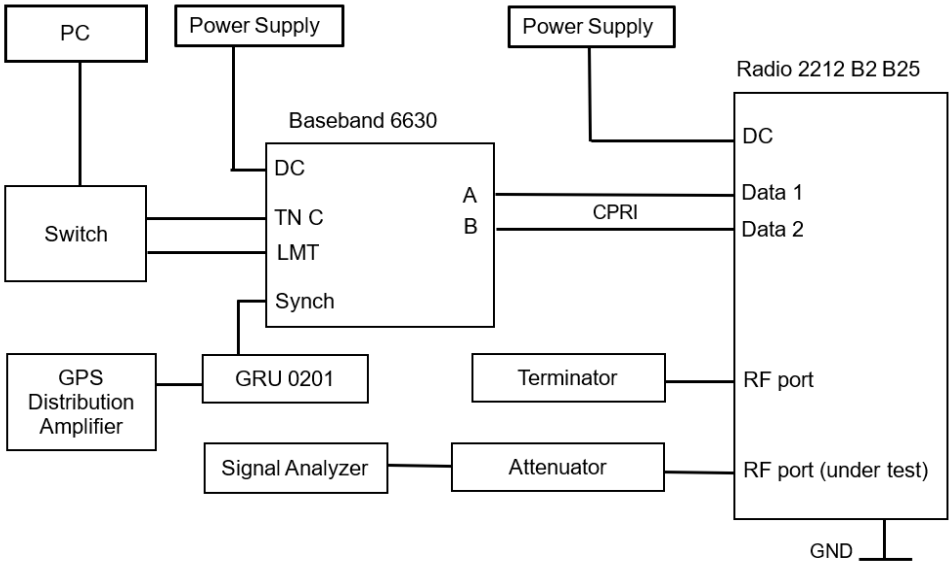
Configuration	No. of Carriers	NR Carrier Bandwidth (MHz)	Carrier Frequency Configuration (MHz)		
			Bottom	Middle	Top
NR-1C	1NR	35	1947.5	1962.5	1977.5

NR

Configuration	No. of Carriers	NR Carrier Bandwidth (MHz)	Carrier Frequency Configuration (MHz)		
			Bottom	Middle	Top
NR-1C-BE	1NR	35	1947.5	-	1977.5

2.4 Test Setup

Conducted Measurement:



No.	Auxiliary Equipment	Product Number / Model Type	Version
1	PC	PowerEdge R230	-
2	Baseband 6630	KDU 137 848/1	R2H
3	GRU 02 01	NCD 901 41/1	R1D
4	GPS Distribution Amplifier	58536A	-
5	Switch	LS-S5024E-CN	-
6	Terminator	TF150/11081908	-

Proper Attenuator will be chosen to use in relative test case. And the cable loss of specified Attenuator with connect cable will be calibrated before test for relative frequency range and the worst reading will be used as offset in the relative test case.

2.5 Test environment condition:

Test items	Temperature	Humidity
Max Output Power and Peak to Average Power Ratio and EIRP	23°C	54% RH
Occupied Bandwidth		
Unwanted Emissions at Band Edge		
Conducted Unwanted Emission		

2.6 Instrument list

RF test					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	PXA Signal Analyzer	Keysight	N9030A	EC1046	2024.4.7
☒	Humiture meter	托普	CEEC-WR16H-50W	EC1053	2024.2.21
☒	DC Power Supply	Keysight	N8737A	US23B3304A	N/A
☒	40dB Attenuator	Aeroflex	57-40-33	SK389	N/A
☒	40dB Attenuator	SHX	2.92TS50	21041401	N/A
☒	Network Analyzer	Keysight	E5071C	MY46631193	2023.10.17
☒	Network Analyzer	R&S	ZNA43	100948	2024.3.15

2.7 Measurement uncertainty

The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	Measurement uncertainty
Maximum output power	0.73dB
Occupied Bandwidth	0.88%
Unwanted Emissions at Band Edge	3.03dB
Conducted Unwanted Emission	3.03dB

3 Maximum Output Power and Peak to Average Power Ratio and EIRP

Test result: Pass

3.1 Limit

Output Power: Base stations with an emission bandwidth greater than 1 MHz are limited to 1640 watts/MHz equivalent isotopically radiated power (EIRP) with an antenna height up to 300 meters HAAT

Peak to Average Ratio: ≤13 dB

3.2 Measurement Procedure

The EUT was configured to transmit on maximum power and proper modulation. The transmitter power shall be measured in terms of a root-mean-square (RMS) average value. In case of the EUT was configured to MIMO mode, since the EUT transmits on all antennas simultaneously in the same frequency range, using the Measure-and-Sum approach, the output power at all antennas were tested, and the total output power were then summed mathematically in linear power units according to FCC KDB 662911 D01.

A peak to average ratio measurement is performed at the conducted ports of the EUT for single carrier for single RAT mode. The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) was used and 0.1% probability value recorded.

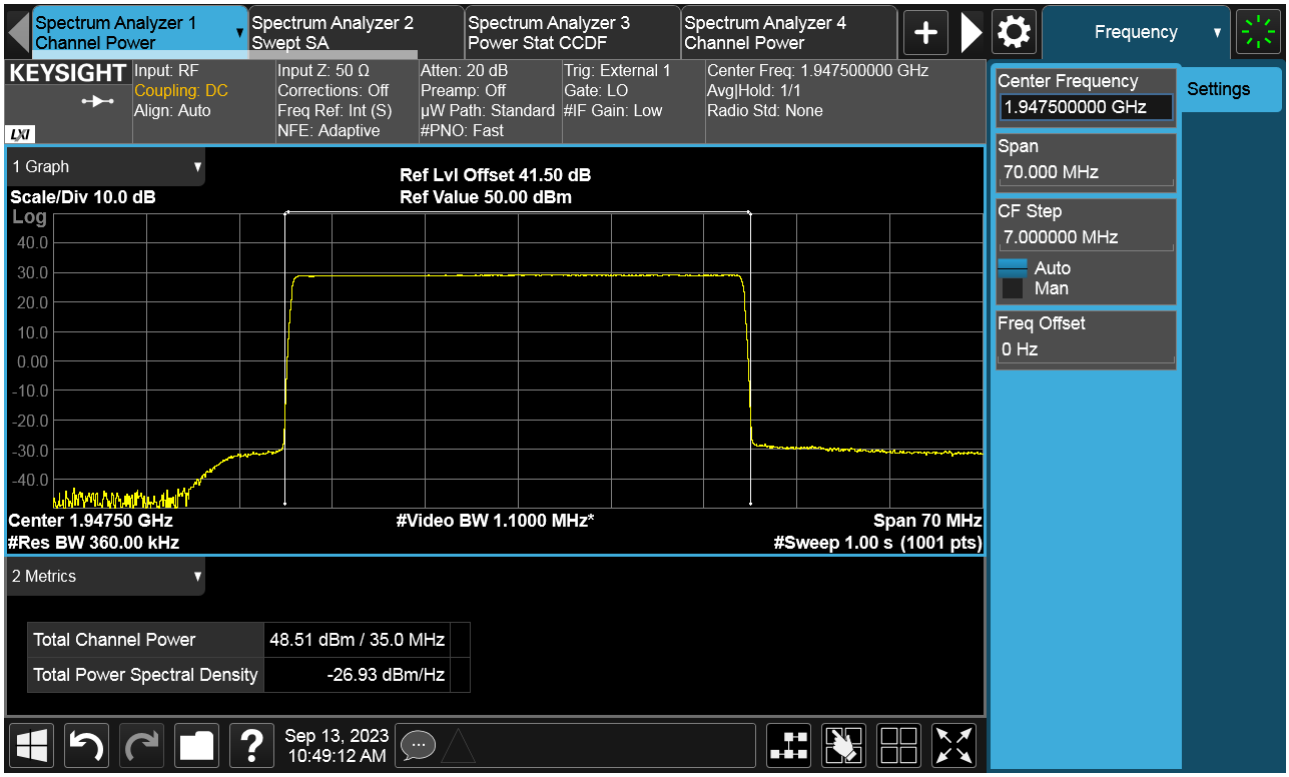
3.3 Measurement result

NR mode:

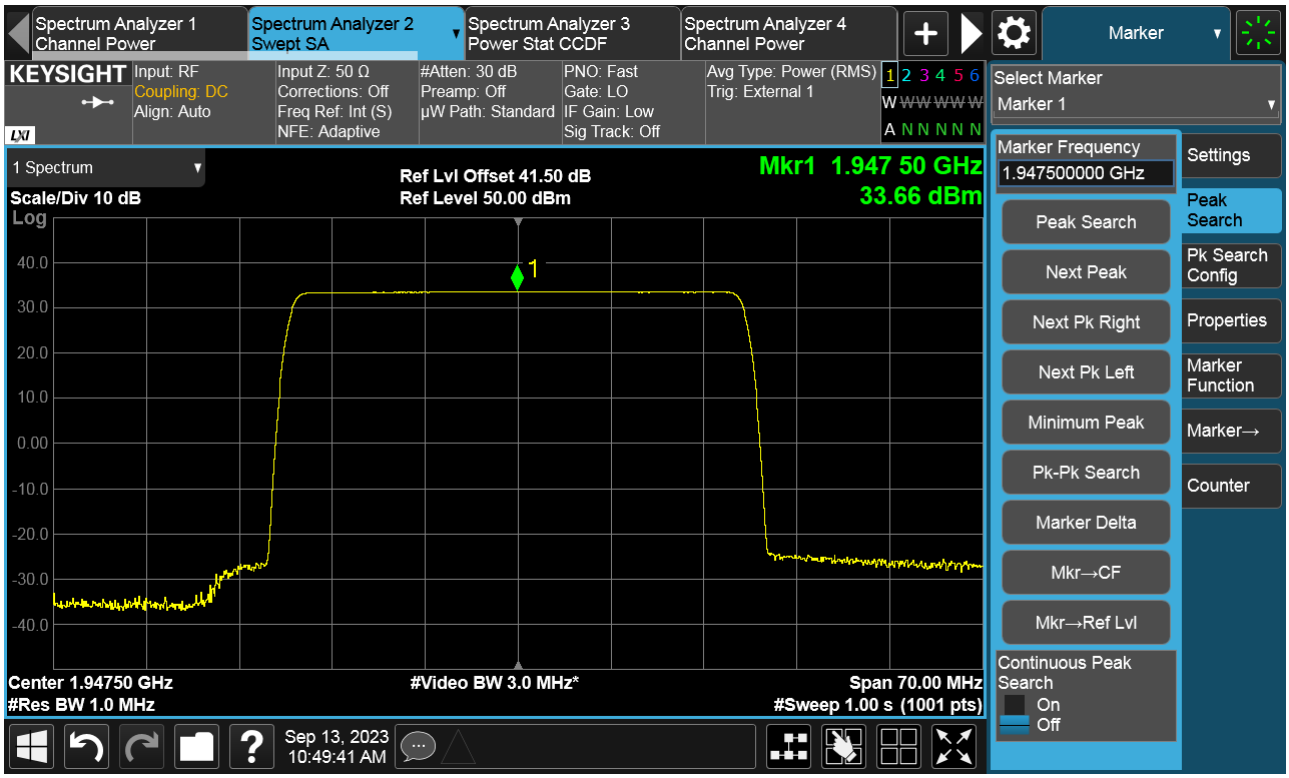
NR-1C

Antenna Port	NR Modulation	NR Carrier Bandwidth (MHz)	Output power / Peak-to-Average Ratio (PAR)								
			Channel position B			Channel position M			Channel position T		
			Power (dBm)	Power (dBm /MHz)	PAR (dB)	Power (dBm)	Power (dBm /MHz)	PAR (dB)	Power (dBm)	Power (dBm /MHz)	PAR (dB)
A	QPSK	35	48.51	33.66	7.65	48.59	33.68	7.23	48.51	33.65	7.45
B	QPSK	35	48.36	33.54	7.68	48.49	33.63	7.24	48.44	33.60	7.44
Total conducted power			51.45	36.61	-	51.55	36.67	-	51.49	36.64	-
EIRP limit			-	62.15	13.00	-	62.15	13.00	-	62.15	13.00
Max antenna gain			-	25.54	-	-	25.48	-	-	25.51	-

Channel position B



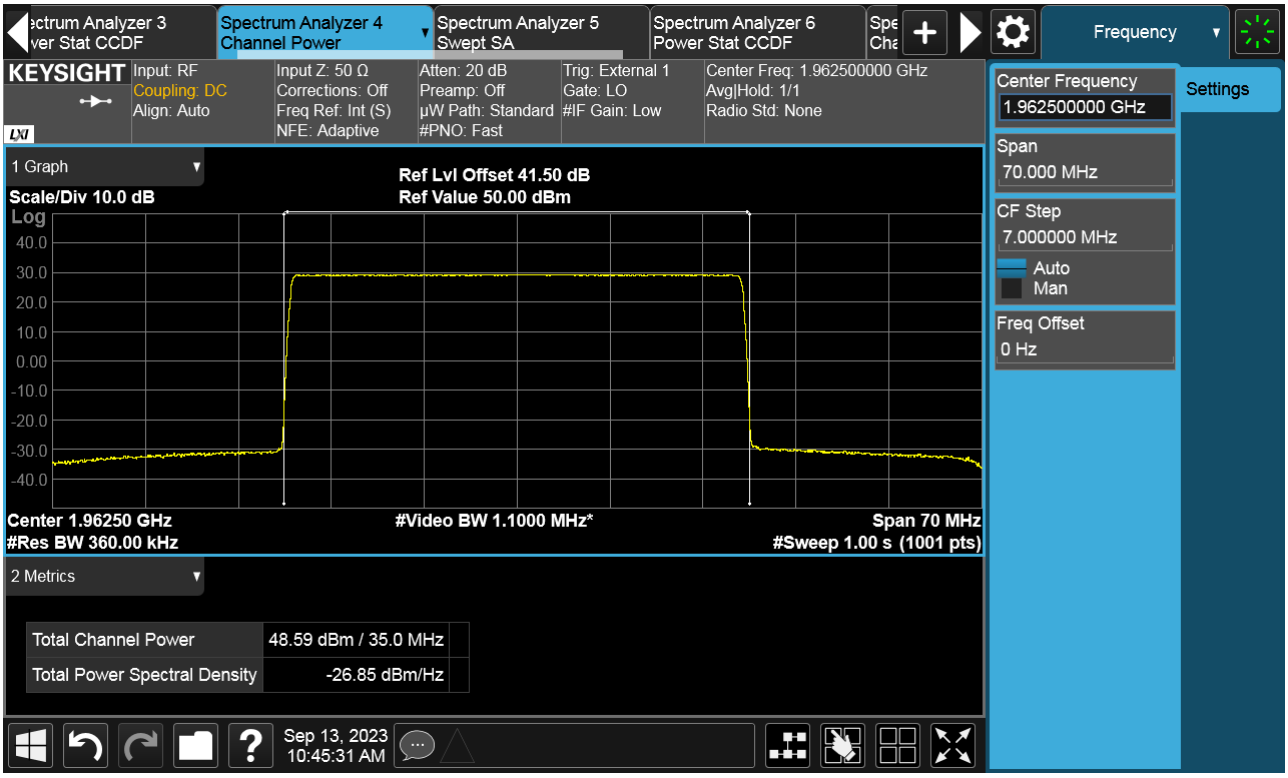
TEST REPORT

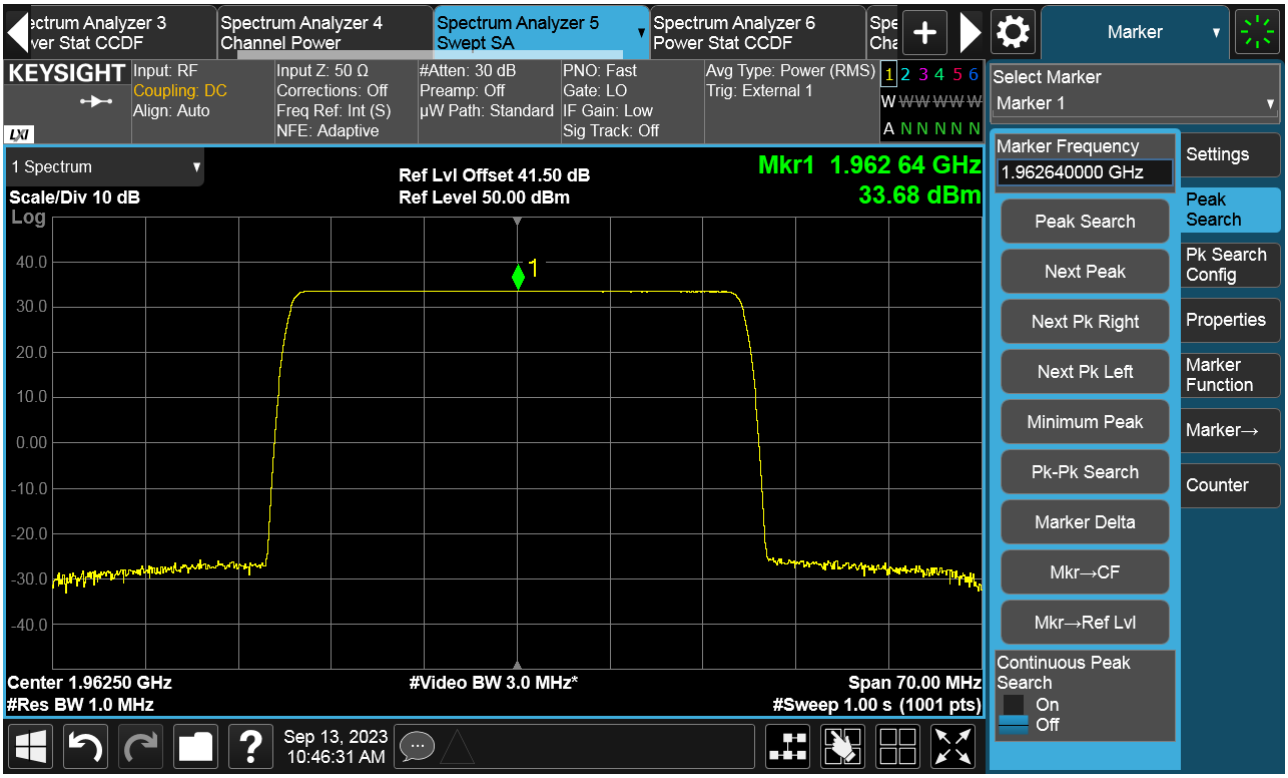

Spectrum Analyzer 1
Channel Power
Spectrum Analyzer 2
Swept SA
Spectrum Analyzer 3
Power Stat CCDF
Spectrum Analyzer 4
Channel Power
Marker
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
NFE: Adaptive
#Atten: 30 dB
Preamp: Off
µW Path: Standard
PNO: Fast
Gate: LO
IF Gain: Low
Sig Track: Off
Avg Type: Power (RMS)
Trig: External 1
Select Marker
Marker 1
1 Spectrum
Scale/Div 10 dB
Ref Lvl Offset 41.50 dB
Ref Level 50.00 dBm
Mkr1 1.947 50 GHz
33.66 dBm
Log
40.0
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
Center 1.94750 GHz
#Res BW 1.0 MHz
#Video BW 3.0 MHz*
Span 70.00 MHz
#Sweep 1.00 s (1001 pts)
Marker Frequency
1.947500000 GHz
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Minimum Peak
Pk-Pk Search
Marker Delta
Mkr→CF
Mkr→Ref Lvl
Continuous Peak Search
On
Off
Settings
Peak Search
Pk Search Config
Properties
Marker Function
Marker→
Counter
Sep 13, 2023
10:49:41 AM


Spectrum Analyzer 1
Channel Power
Spectrum Analyzer 2
Swept SA
Spectrum Analyzer 3
Power Stat CCDF
Spectrum Analyzer 4
Channel Power
Frequency
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
Atten: 28 dB
Preamp: Off
µW Path: Standard
Trig: External 1
#IF Gain: Low
Center Freq: 1.947500000 GHz
Counts: 10.0 M/10.0 Mpt
Radio Std: None
1 Metrics
Average Power
48.45 dBm
37.18 % at 0 dB
10.0 % 3.66 dB
1.0 % 6.44 dB
0.1 % 7.65 dB
0.01 % 8.35 dB
0.001 % 8.84 dB
0.0001 % 9.13 dB
Peak 9.47 dB
57.92 dBm
2 Graph
Gaussian
100 %
10 %
1 %
0.1 %
0.01 %
0.001 %
0.0001 %
0.00 dB
20.00 dB
Info BW 35.000 MHz
Center Frequency
1.947500000 GHz
CF Step
5.000000 MHz
Auto
Man
Freq Offset
0 Hz
Settings
Sep 13, 2023
10:50:08 AM

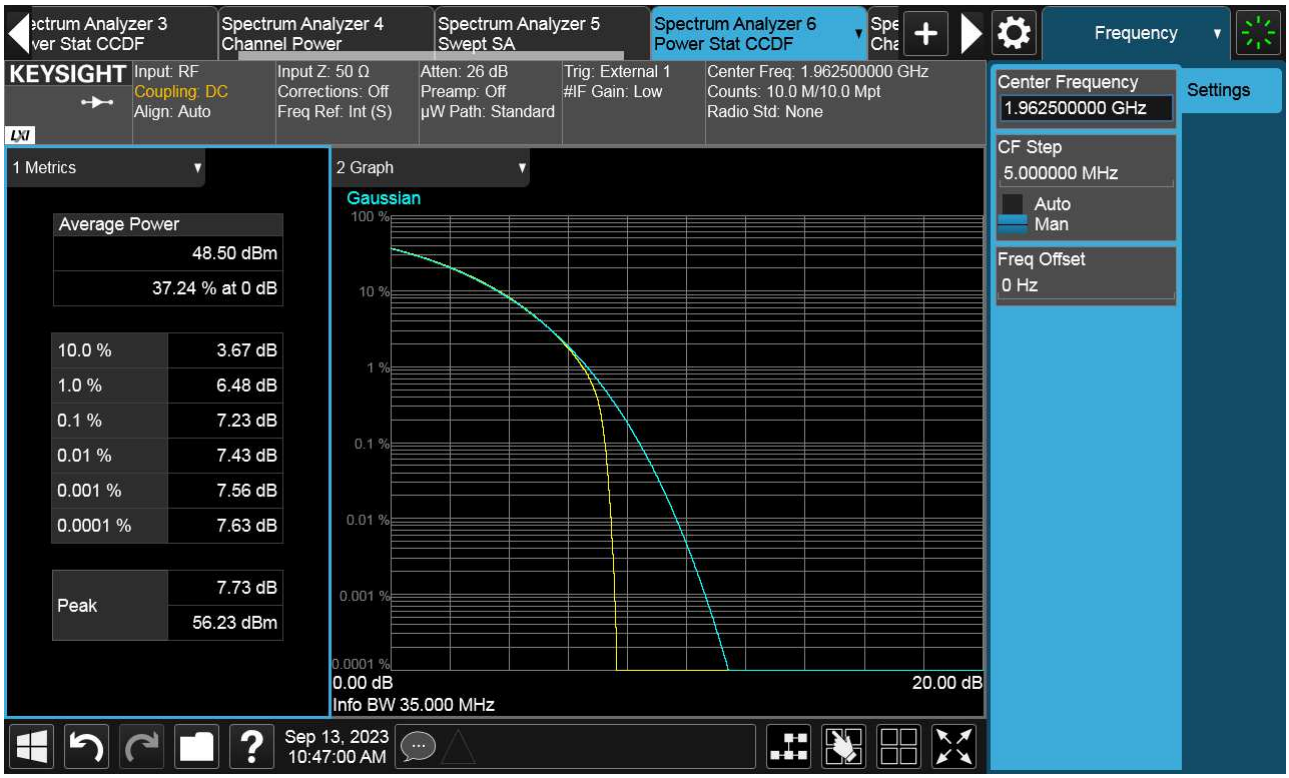
TEST REPORT

Channel position M



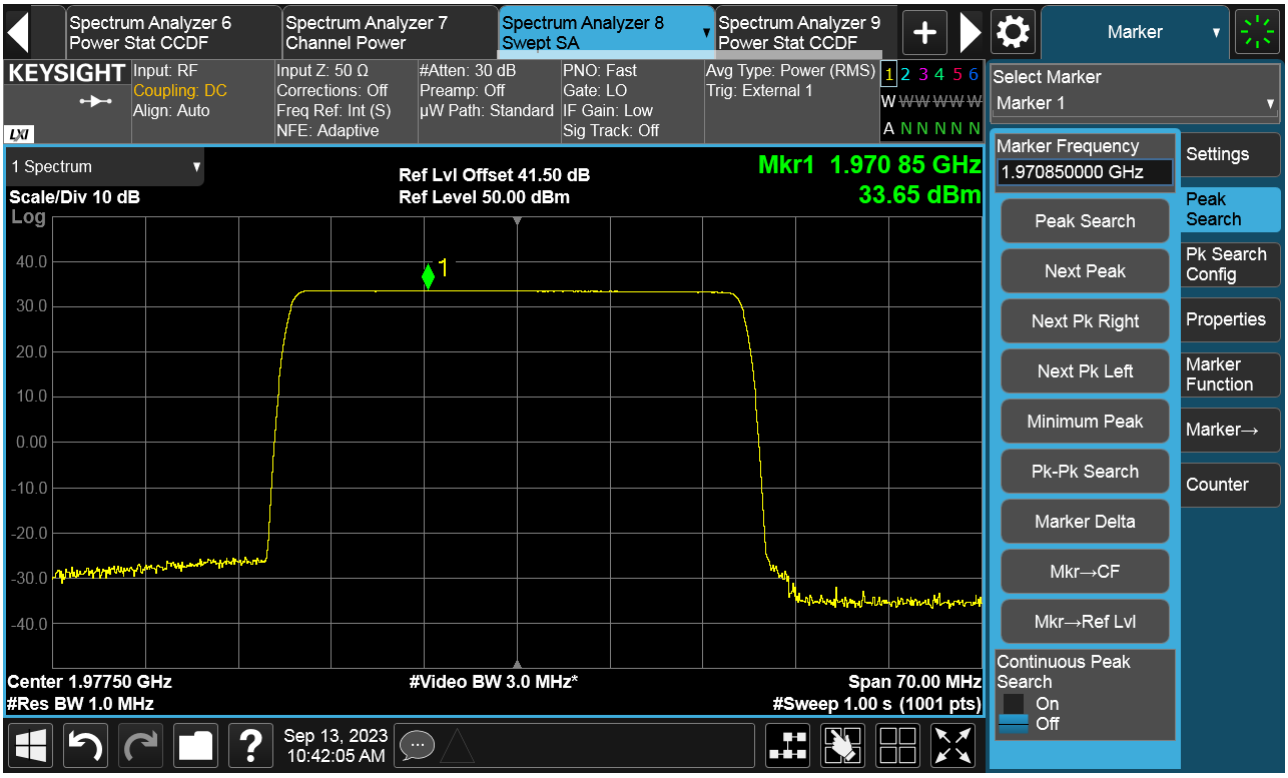


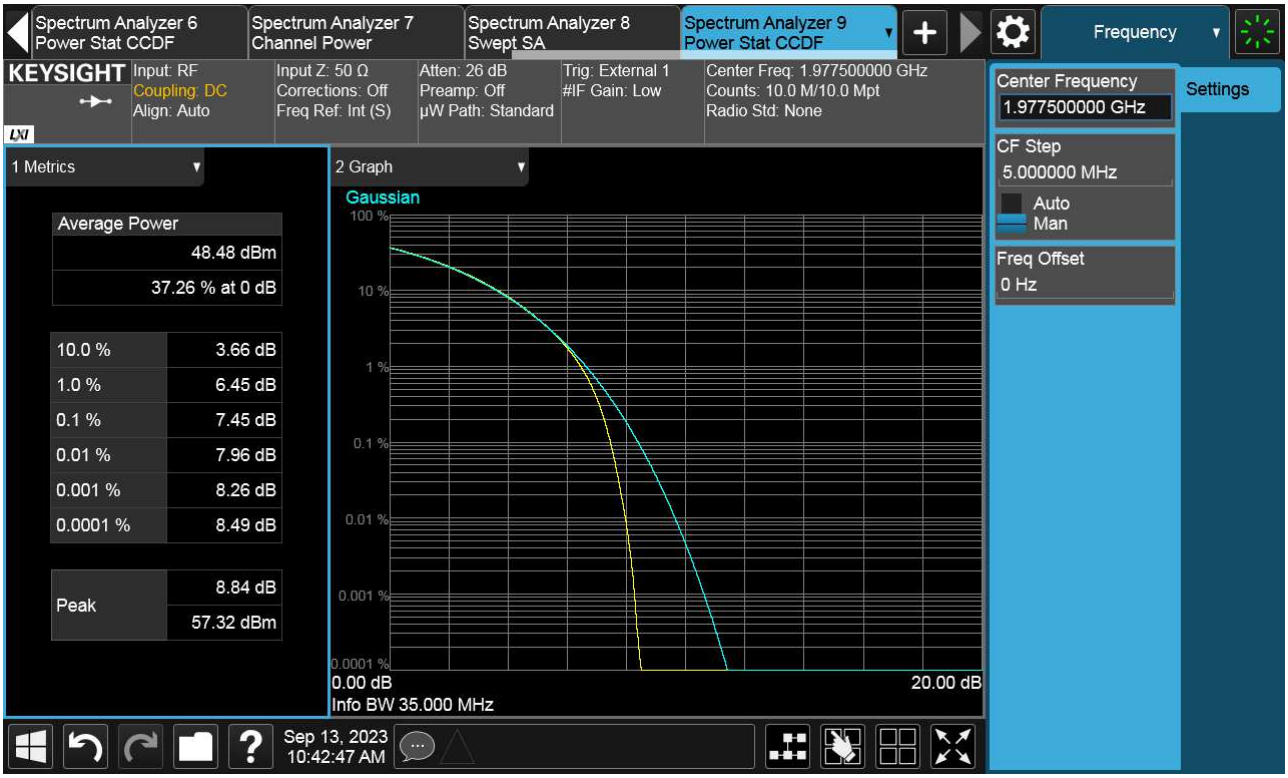
TEST REPORT



Channel position T

TEST REPORT


Spectrum Analyzer 6
Power Stat CCDF
Spectrum Analyzer 7
Channel Power
Spectrum Analyzer 8
Swept SA
Spectrum Analyzer 9
Power Stat CCDF
Marker
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
NFE: Adaptive
#Atten: 30 dB
Preamp: Off
µW Path: Standard
PNO: Fast
Gate: LO
IF Gain: Low
Sig Track: Off
Avg Type: Power (RMS)
Trig: External 1
Select Marker
Marker 1
1 Spectrum
Scale/Div 10 dB
Ref Lvl Offset 41.50 dB
Ref Level 50.00 dBm
Mkr1 1.970 85 GHz
33.65 dBm
Log
40.0
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
Center 1.97750 GHz
#Res BW 1.0 MHz
#Video BW 3.0 MHz*
Span 70.00 MHz
#Sweep 1.00 s (1001 pts)
Marker Frequency
1.970850000 GHz
Settings
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Minimum Peak
Pk-Pk Search
Marker Delta
Mkr→CF
Mkr→Ref Lvl
Pk Search Config
Properties
Marker Function
Marker→
Counter
Continuous Peak Search
On
Off
Sep 13, 2023
10:42:05 AM


Spectrum Analyzer 6
Power Stat CCDF
Spectrum Analyzer 7
Channel Power
Spectrum Analyzer 8
Swept SA
Spectrum Analyzer 9
Power Stat CCDF
Frequency
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
Atten: 26 dB
Preamp: Off
µW Path: Standard
Trig: External 1
#IF Gain: Low
Center Freq: 1.977500000 GHz
Counts: 10.0 M/10.0 Mpt
Radio Std: None
1 Metrics
Average Power
48.48 dBm
37.26 % at 0 dB
10.0 % 3.66 dB
1.0 % 6.45 dB
0.1 % 7.45 dB
0.01 % 7.96 dB
0.001 % 8.26 dB
0.0001 % 8.49 dB
Peak 8.84 dB
57.32 dBm
2 Graph
Gaussian
100 %
10 %
1 %
0.1 %
0.01 %
0.001 %
0.0001 %
0.00 dB
20.00 dB
Info BW 35.000 MHz
Center Frequency
1.977500000 GHz
Settings
CF Step
5.000000 MHz
Auto
Man
Freq Offset
0 Hz
Sep 13, 2023
10:42:47 AM

4 Occupied Bandwidth

Test result: Pass

4.1 Measurement Procedure

The EUT was set to transmit at maximum power and testing was carried out on bottom, middle and top channels. Using the Occupied Bandwidth measurement function in the spectrum analyzer, the 26dB bandwidth was measured in accordance with FCC KDB 971168 D01 Clause 4.2.

The measurement method is from KDB 971168 4.2:
a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation product s including the emission skirts (i.e., two to five times the OBW).
b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
c) Set the reference level of the instrument as required to keep the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope must be at least 10log (OBW / RBW) below the reference level.
d) Set the detection mode to peak, and the trace mode to max hold.
e) Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

4.2 Measurement result

NR-1C

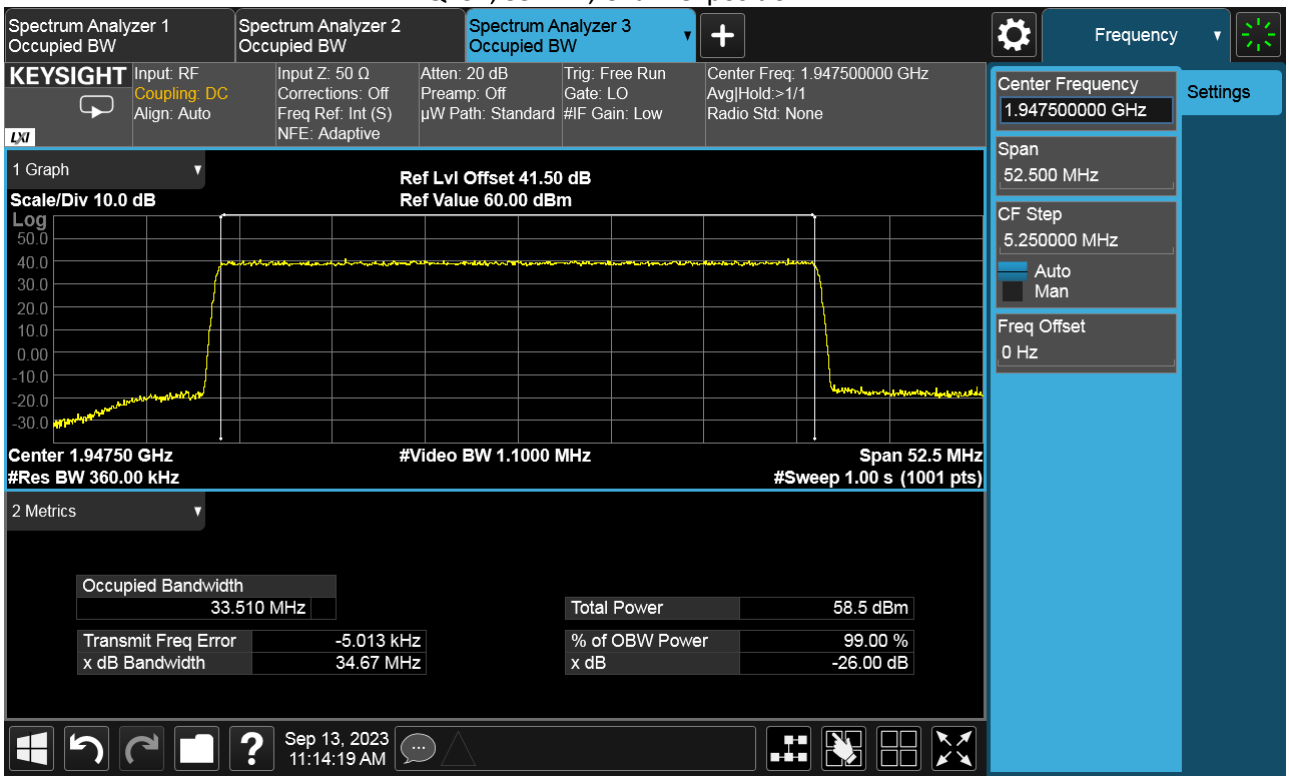
99% Occupied Bandwidth

Antenna Port	Modulation	Bandwidth	Occupied Bandwidth (MHz)		
			Channel Position B	Channel Position M	Channel Position T
A	QPSK	35MHz	33.510	33.513	33.500

-26dBc Occupied Bandwidth

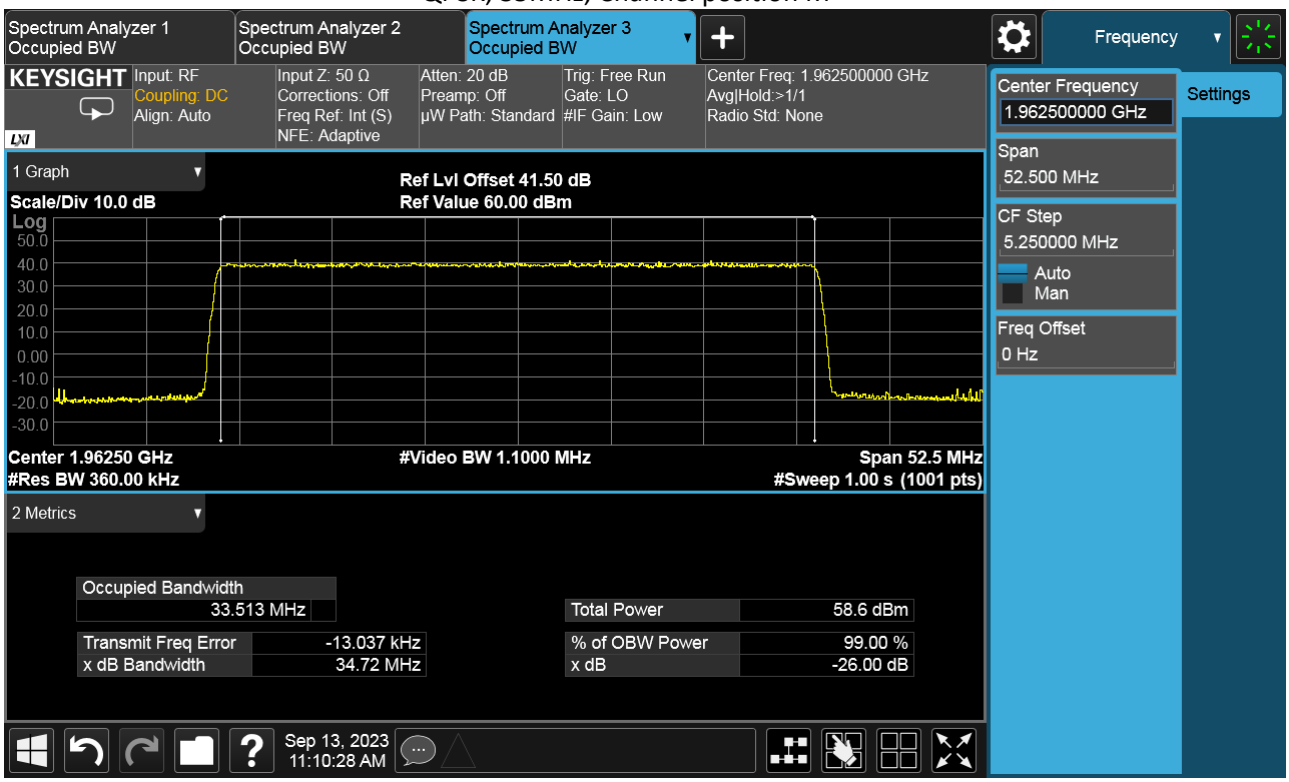
Antenna Port	Modulation	Bandwidth	Occupied Bandwidth (MHz)		
			Channel Position B	Channel Position M	Channel Position T
A	QPSK	35MHz	34.67	34.72	34.71

QPSK, 35MHz, Channel position B

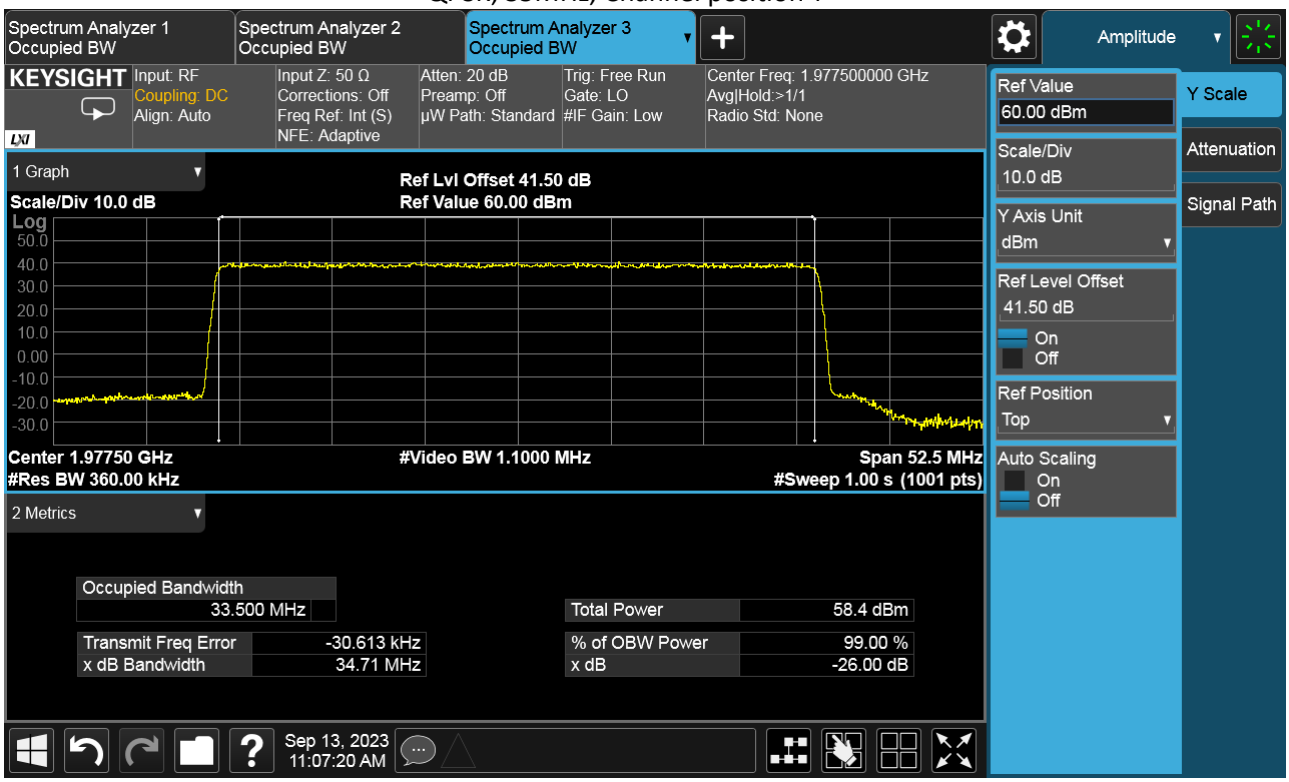


TEST REPORT

QPSK, 35MHz, Channel position M



QPSK, 35MHz, Channel position T



5 Unwanted Emissions at Band Edge

Test result: **Pass**

5.1 Limit

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

5.2 Measurement Procedure

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

For MIMO mode configurations, the limit was adjusted with a correction of -3.01dB [10Log(1/2)] by using the Measure and Add 10Log(N) dB technique according to KDB 662911 D01 Multiple Transmitter Output accounting for simultaneous transmission from antenna ports . Then the limit was adjusted to -16.01dBm.

In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed and a RBW of 1MHz for measurements of emissions > 1MHz away from the band edges.

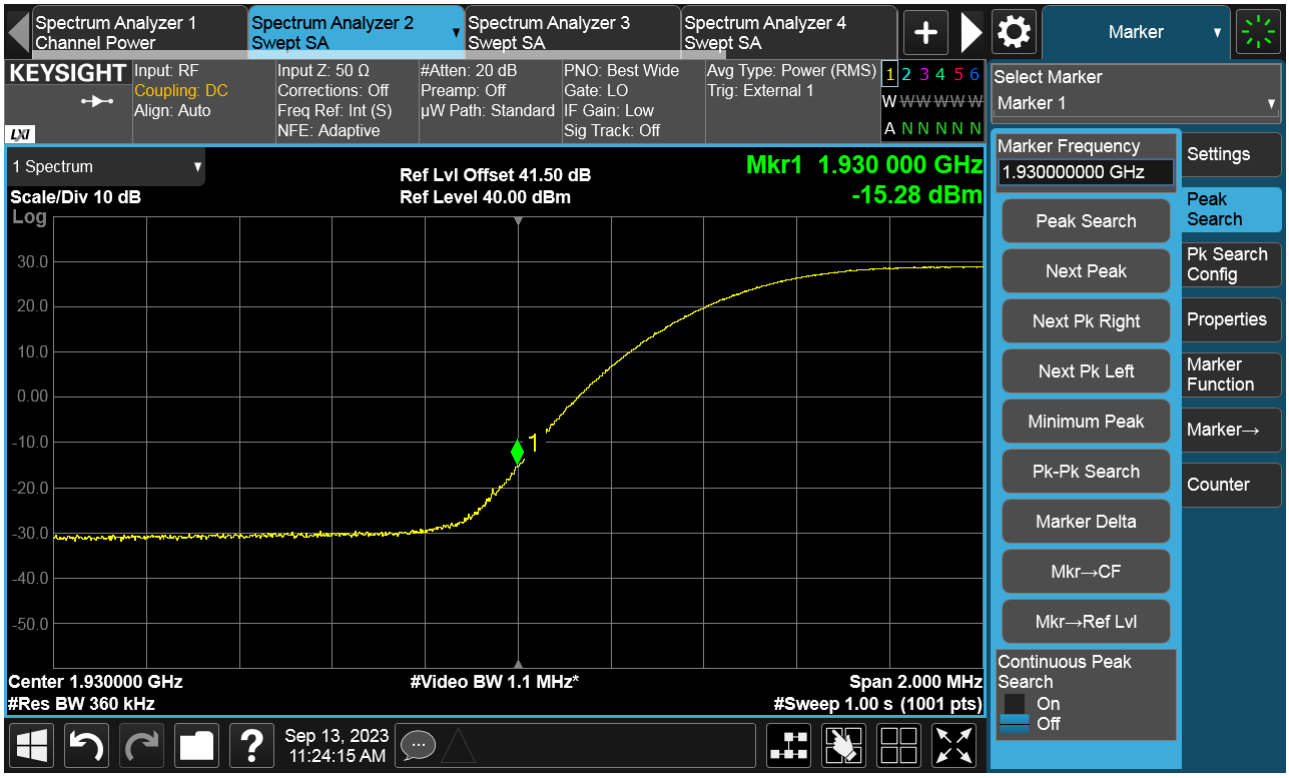
Spectrum analyzer detector was set as RMS.

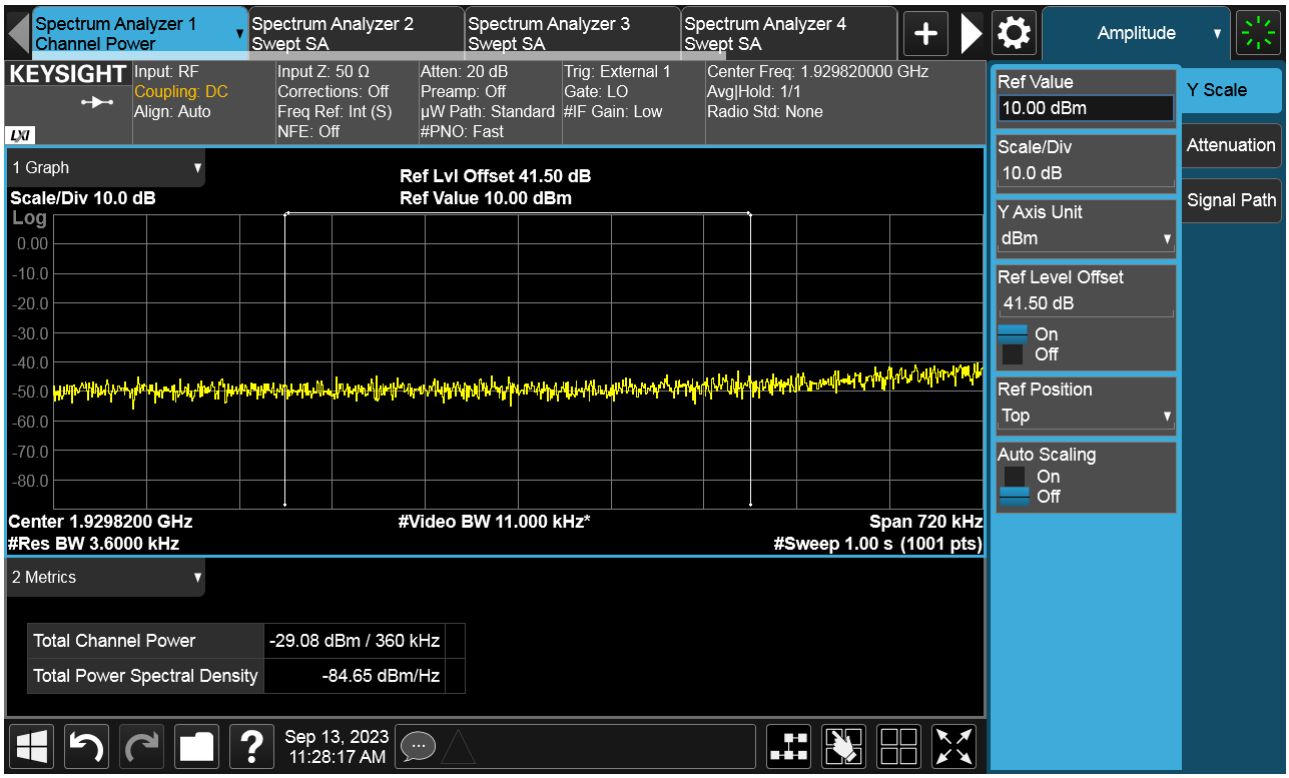
5.3 Measurement result

NR-1C-BE

Antenna Port	Channel Position	Modulation	Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
A	B	QPSK	35	360	-16.01
A	T	QPSK	35	360	-16.01

Channel Position B





Channel Position T

6 Conducted Unwanted Emission

Test result: **Pass**

6.1 Limit

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

6.2 Measurement Procedure

In accordance with FCC rules, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

The spurious emissions from the antenna terminal were measured. The transmitter output power was attenuated using an attenuator and the frequency spectrum investigated from 9kHz to 20GHz. The resolution bandwidth of 1MHz was employed for frequency band 9kHz to 20GHz. The spectrum analyzer detector was set to RMS.

For MIMO mode configurations, the limit was adjusted with a correction of -3.01dB [10Log(1/2)] by using the Measure and Add 10Log(N) dB technique according to KDB 662911 D01 Multiple Transmitter Output accounting for simultaneous transmission from antenna ports. Then the limit was adjusted to -19.02dBm.

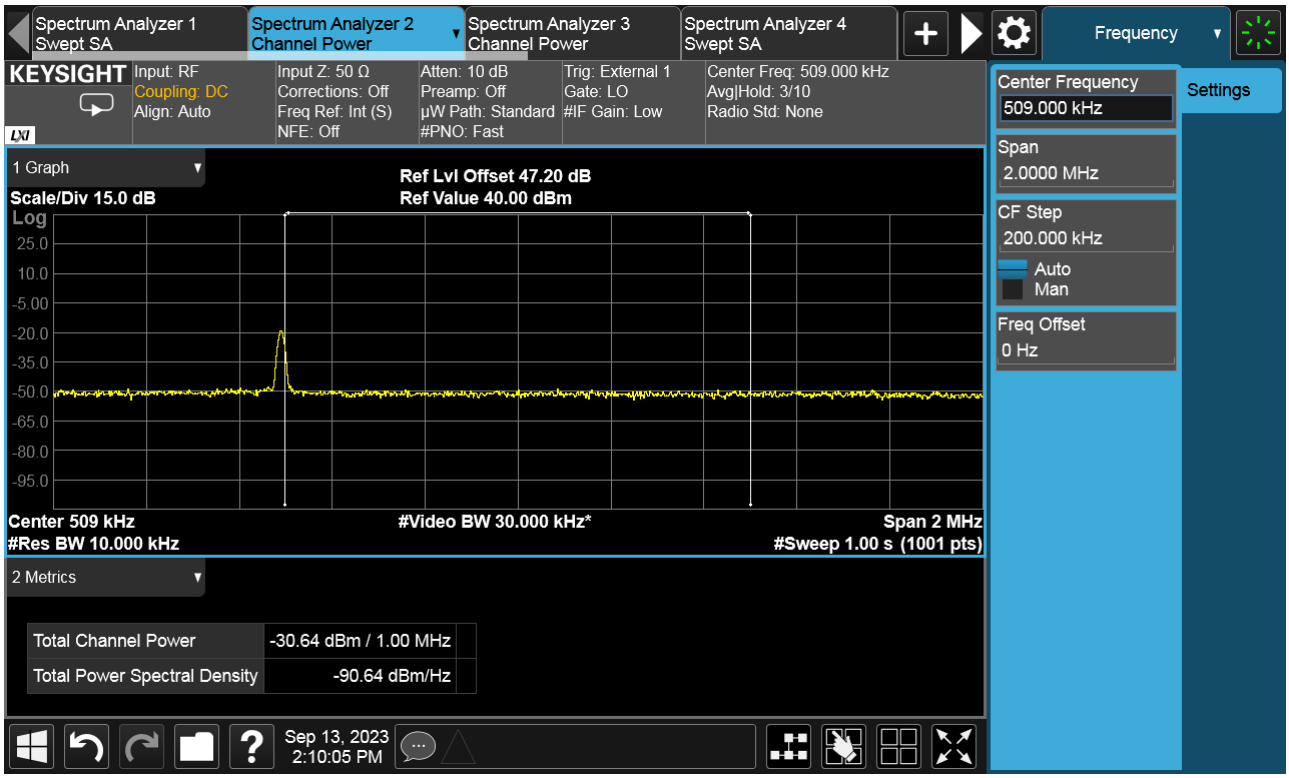
6.3 Measurement result

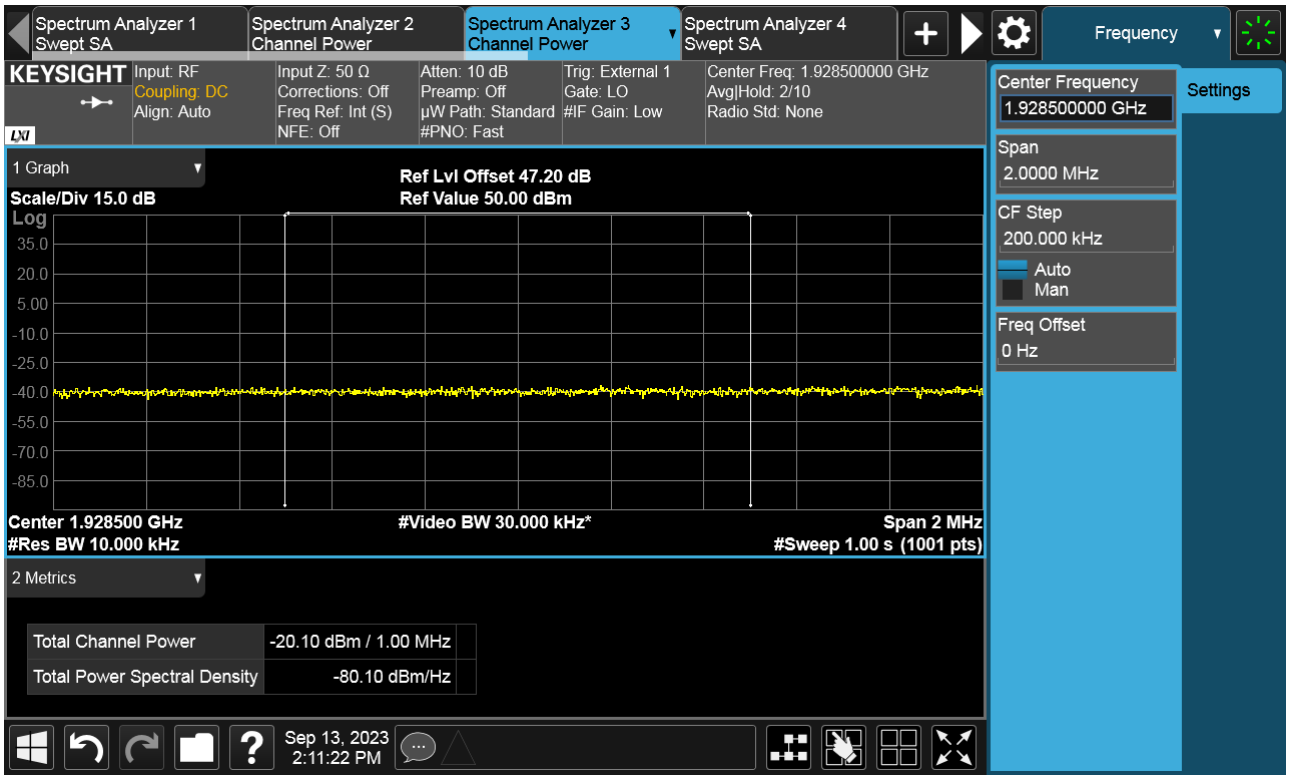
NR-1C

Antenna Port	Channel Position	Modulation	Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
A	B	QPSK	35	1000	-16.01
A	M	QPSK	35	1000	-16.01
A	T	QPSK	35	1000	-16.01

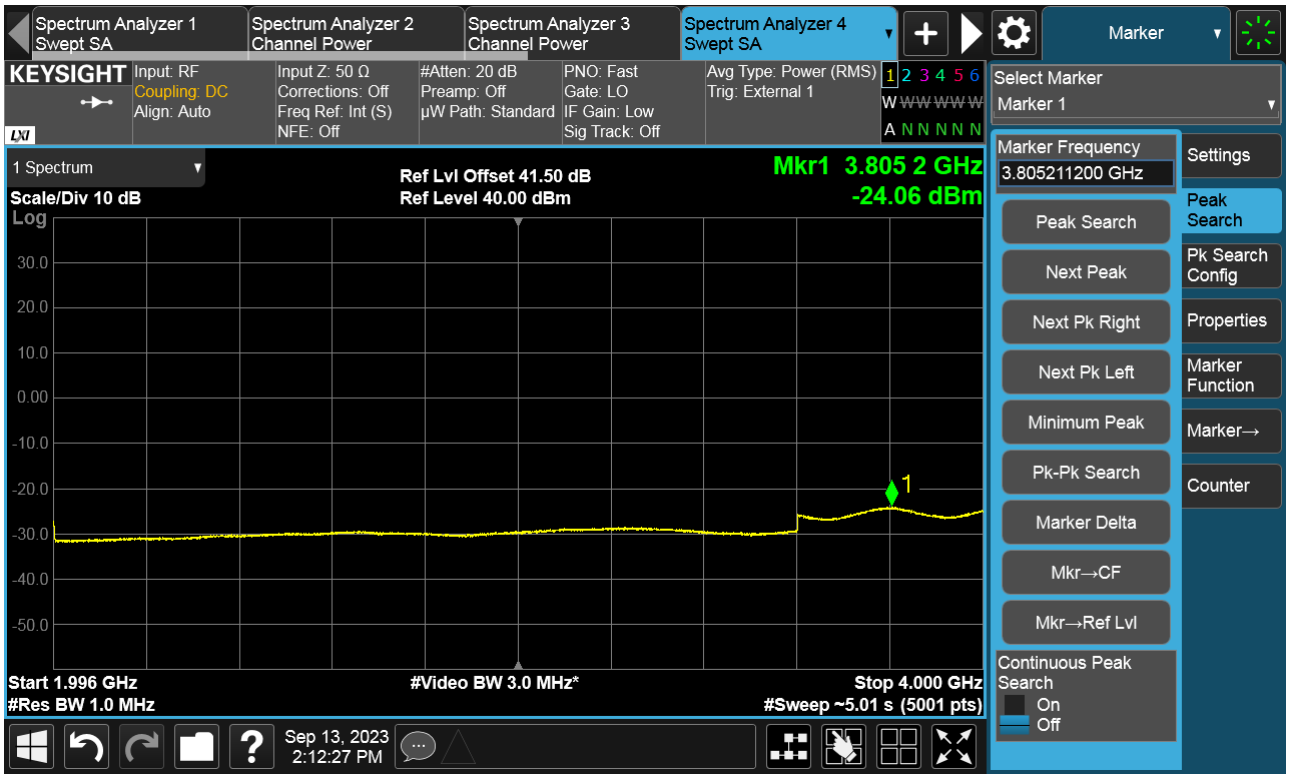
Channel Position B

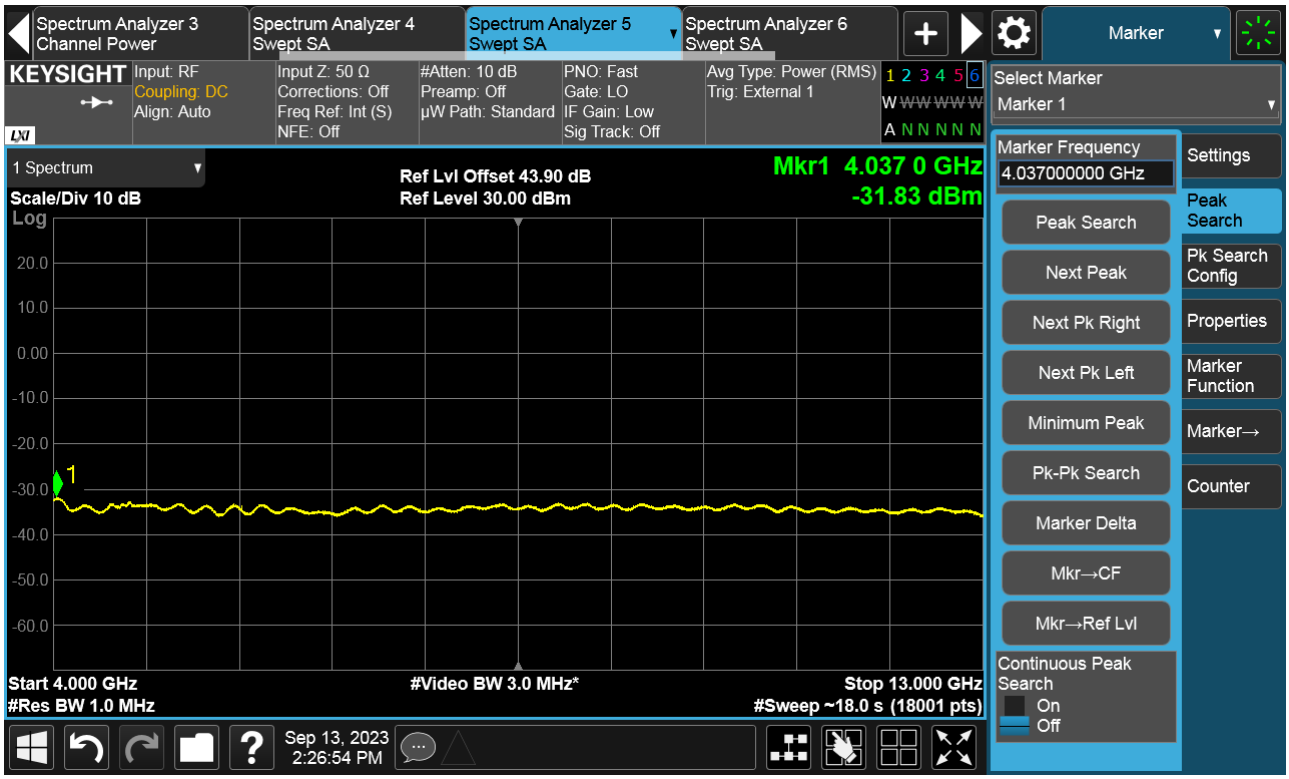
TEST REPORT


Spectrum Analyzer 1
Swept SA
Spectrum Analyzer 2
Channel Power
Spectrum Analyzer 3
Channel Power
Spectrum Analyzer 4
Swept SA
Frequency
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
NFE: Off
Atten: 10 dB
Preamp: Off
µW Path: Standard
#PNO: Fast
Trig: External 1
Gate: LO
#IF Gain: Low
Center Freq: 509.000 kHz
Avg|Hold: 3/10
Radio Std: None
Center Frequency
509.000 kHz
Settings
Span
2.0000 MHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
1 Graph
Ref Lvl Offset 47.20 dB
Scale/Div 15.0 dB
Ref Value 40.00 dBm
Log
25.0
10.0
-5.00
-20.0
-35.0
-50.0
-65.0
-80.0
-95.0
Center 509 kHz
#Res BW 10.000 kHz
#Video BW 30.000 kHz*
Span 2 MHz
#Sweep 1.00 s (1001 pts)
2 Metrics
Total Channel Power
-30.64 dBm / 1.00 MHz
Total Power Spectral Density
-90.64 dBm/Hz
Sep 13, 2023
2:10:05 PM

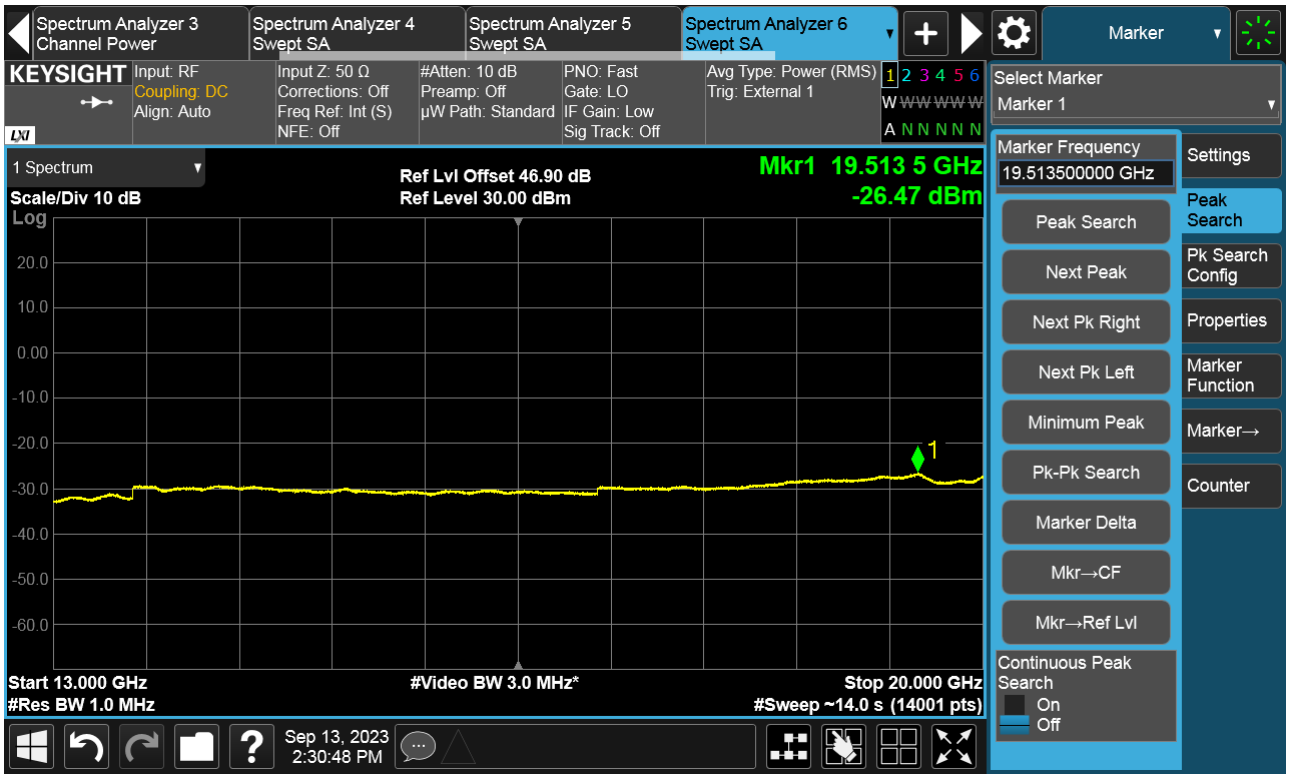

Spectrum Analyzer 1
Swept SA
Spectrum Analyzer 2
Channel Power
Spectrum Analyzer 3
Channel Power
Spectrum Analyzer 4
Swept SA
Frequency
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
NFE: Off
Atten: 10 dB
Preamp: Off
µW Path: Standard
#PNO: Fast
Trig: External 1
Gate: LO
#IF Gain: Low
Center Freq: 1.928500000 GHz
Avg|Hold: 2/10
Radio Std: None
Center Frequency
1.928500000 GHz
Settings
Span
2.0000 MHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
1 Graph
Ref Lvl Offset 47.20 dB
Scale/Div 15.0 dB
Ref Value 50.00 dBm
Log
35.0
20.0
5.00
-10.0
-25.0
-40.0
-55.0
-70.0
-85.0
Center 1.928500 GHz
#Res BW 10.000 kHz
#Video BW 30.000 kHz*
Span 2 MHz
#Sweep 1.00 s (1001 pts)
2 Metrics
Total Channel Power
-20.10 dBm / 1.00 MHz
Total Power Spectral Density
-80.10 dBm/Hz
Sep 13, 2023
2:11:22 PM

TEST REPORT

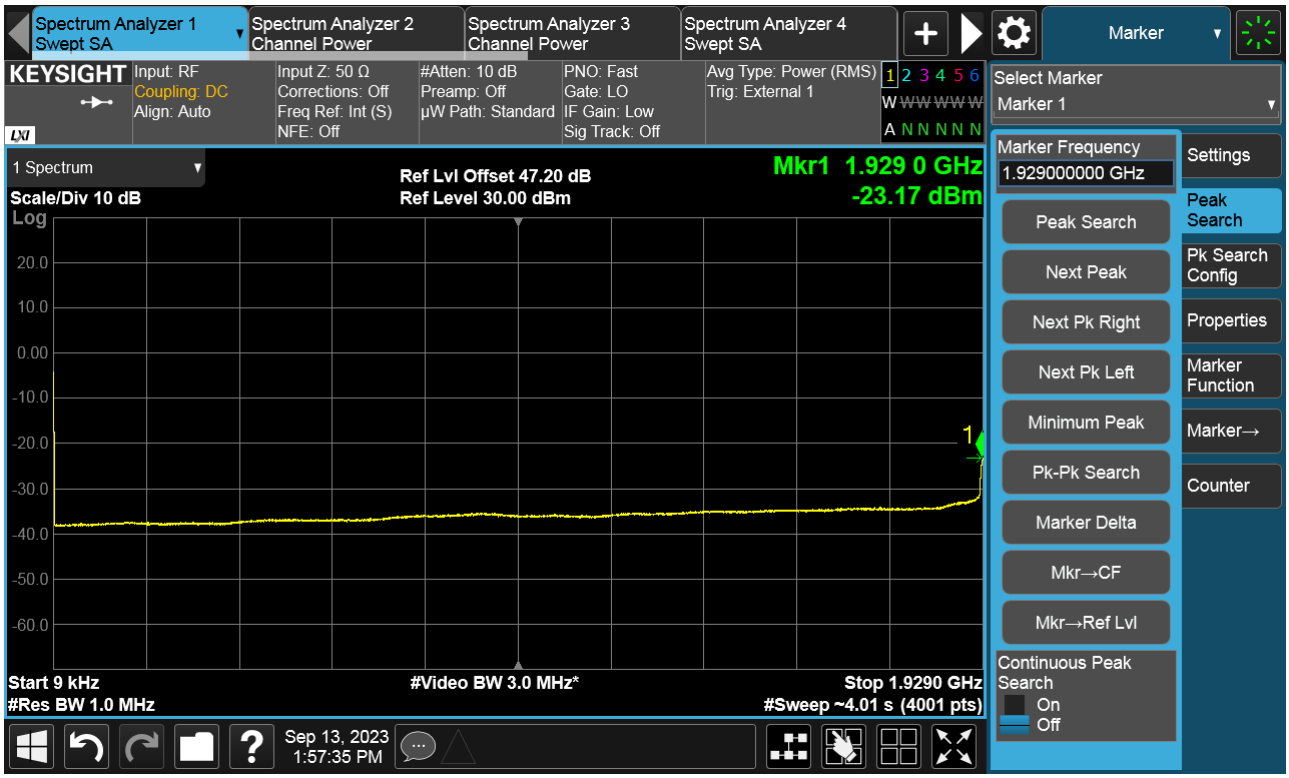

Spectrum Analyzer 1 Swept SA
Spectrum Analyzer 2 Channel Power
Spectrum Analyzer 3 Channel Power
Spectrum Analyzer 4 Swept SA
Marker
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
NFE: Off
#Atten: 20 dB
Preamp: Off
µW Path: Standard
PNO: Fast
Gate: LO
IF Gain: Low
Sig Track: Off
Avg Type: Power (RMS)
Trig: External 1
Select Marker
Marker 1
1 Spectrum
Ref Lvl Offset 41.50 dB
Ref Level 40.00 dBm
Mkr1 3.805 2 GHz
-24.06 dBm
Scale/Div 10 dB
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Start 1.996 GHz
#Res BW 1.0 MHz
#Video BW 3.0 MHz*
Stop 4.000 GHz
#Sweep ~5.01 s (5001 pts)
Marker Frequency
3.805211200 GHz
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Minimum Peak
Pk-Pk Search
Marker Delta
Mkr→CF
Mkr→Ref Lvl
Continuous Peak Search
On
Off
Settings
Peak Search
Pk Search Config
Properties
Marker Function
Marker→
Counter
Sep 13, 2023
2:12:27 PM


Spectrum Analyzer 3 Channel Power
Spectrum Analyzer 4 Swept SA
Spectrum Analyzer 5 Swept SA
Spectrum Analyzer 6 Swept SA
Marker
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
NFE: Off
#Atten: 10 dB
Preamp: Off
µW Path: Standard
PNO: Fast
Gate: LO
IF Gain: Low
Sig Track: Off
Avg Type: Power (RMS)
Trig: External 1
Select Marker
Marker 1
1 Spectrum
Ref Lvl Offset 43.90 dB
Ref Level 30.00 dBm
Mkr1 4.037 0 GHz
-31.83 dBm
Scale/Div 10 dB
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Start 4.000 GHz
#Res BW 1.0 MHz
#Video BW 3.0 MHz*
Stop 13.000 GHz
#Sweep ~18.0 s (18001 pts)
Marker Frequency
4.037000000 GHz
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Minimum Peak
Pk-Pk Search
Marker Delta
Mkr→CF
Mkr→Ref Lvl
Continuous Peak Search
On
Off
Settings
Peak Search
Pk Search Config
Properties
Marker Function
Marker→
Counter
Sep 13, 2023
2:26:54 PM

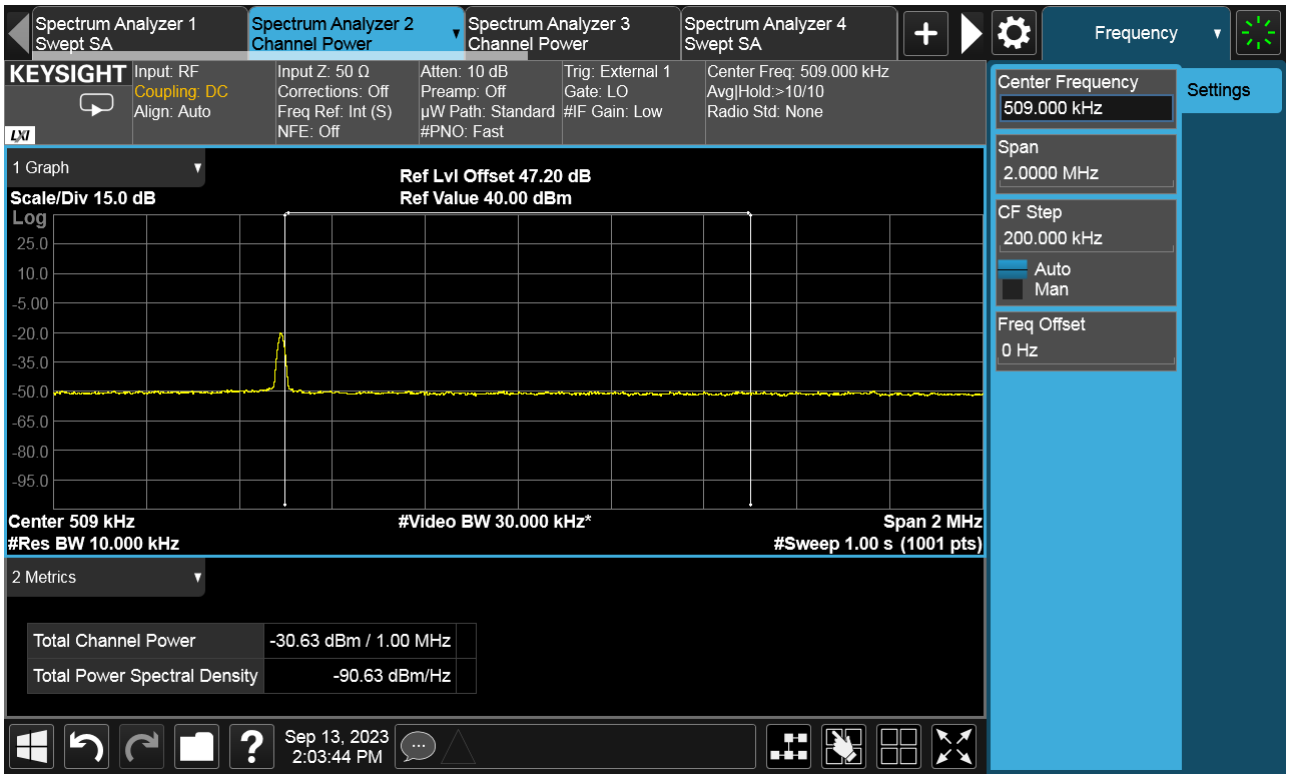
TEST REPORT



Channel Position M

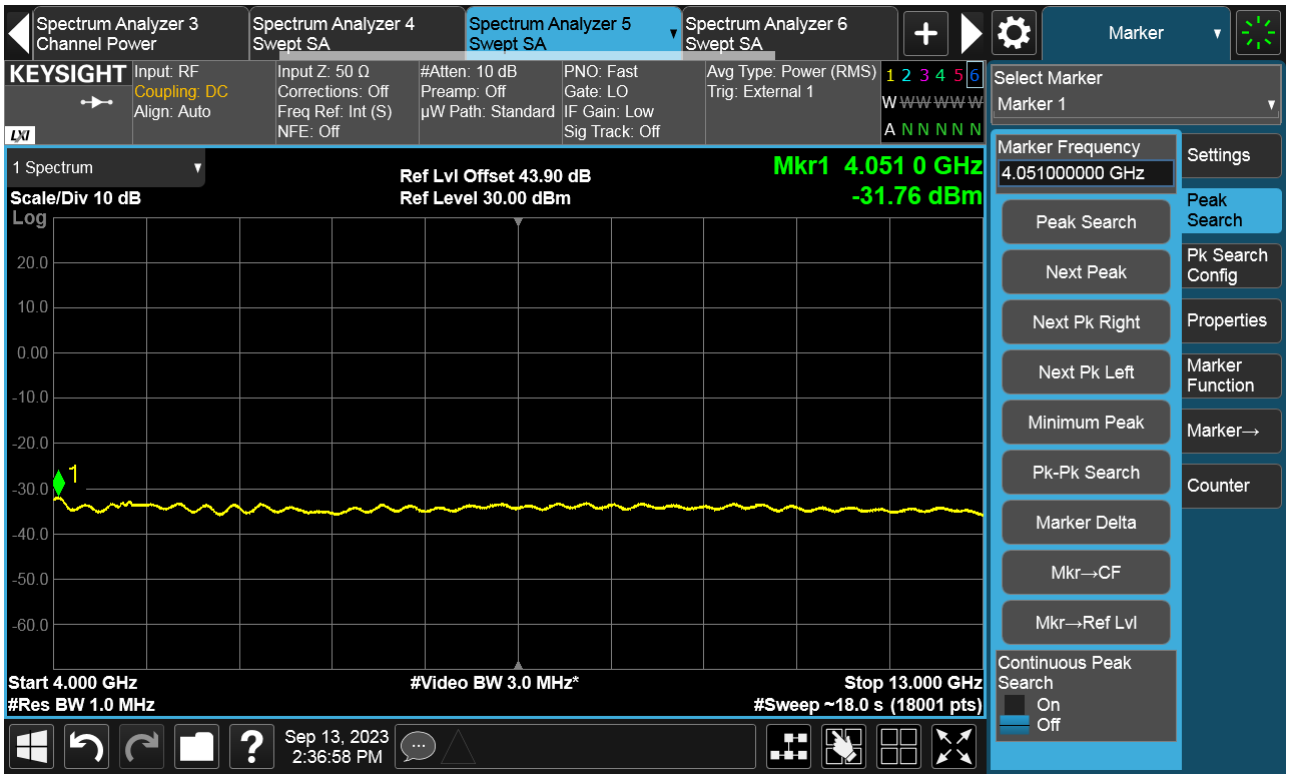


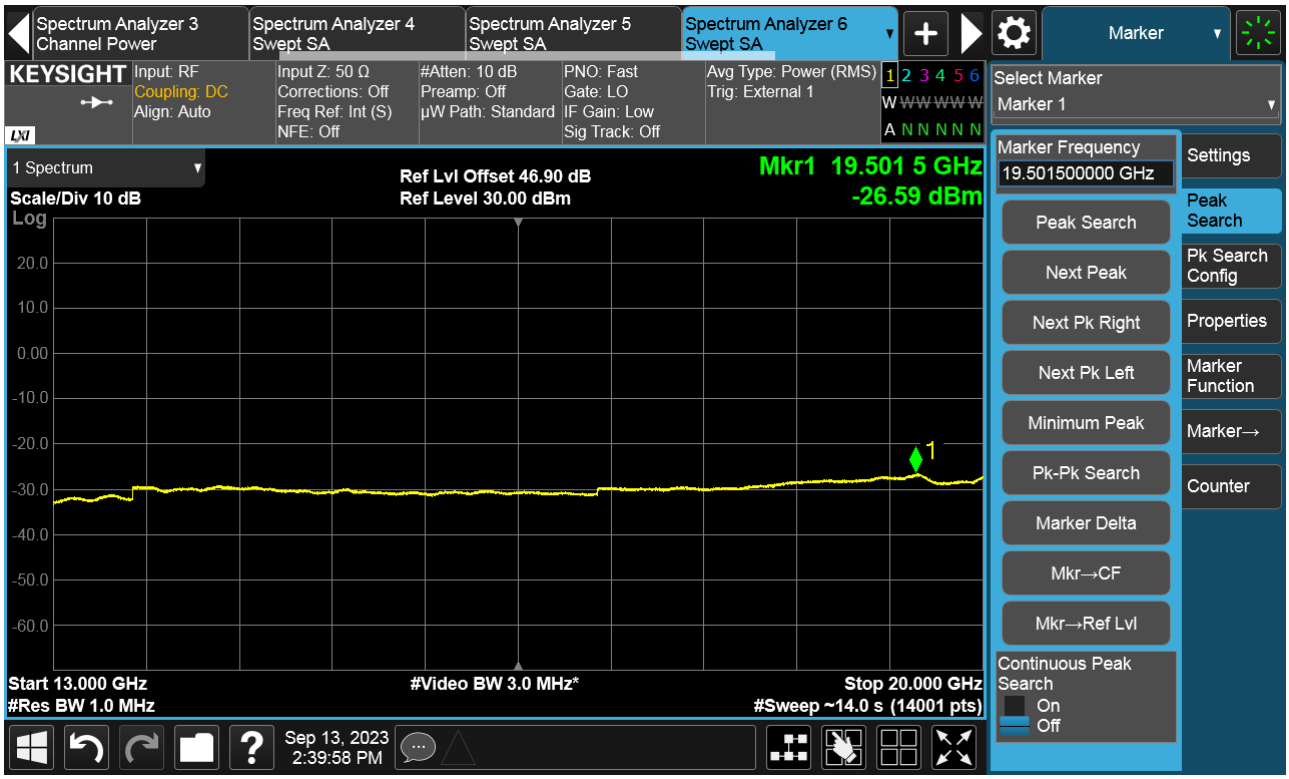
TEST REPORT


Spectrum Analyzer 1
Swept SA
Spectrum Analyzer 2
Channel Power
Spectrum Analyzer 3
Channel Power
Spectrum Analyzer 4
Swept SA
Frequency
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
NFE: Off
Atten: 10 dB
Preamp: Off
µW Path: Standard
#PNO: Fast
Trig: External 1
Gate: LO
#IF Gain: Low
Center Freq: 509.000 kHz
Avg|Hold:>10/10
Radio Std: None
1 Graph
Ref Lvl Offset 47.20 dB
Ref Value 40.00 dBm
Scale/Div 15.0 dB
Log
25.0
10.0
-5.00
-20.0
-35.0
-50.0
-65.0
-80.0
-95.0
Center 509 kHz
#Res BW 10.000 kHz
#Video BW 30.000 kHz*
Span 2 MHz
#Sweep 1.00 s (1001 pts)
2 Metrics
Total Channel Power
-30.63 dBm / 1.00 MHz
Total Power Spectral Density
-90.63 dBm/Hz
Sep 13, 2023
2:03:44 PM
Center Frequency
509.000 kHz
Settings
Span
2.0000 MHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz


Spectrum Analyzer 1
Swept SA
Spectrum Analyzer 2
Channel Power
Spectrum Analyzer 3
Channel Power
Spectrum Analyzer 4
Swept SA
Marker
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
NFE: Off
#Atten: 20 dB
Preamp: Off
µW Path: Standard
PNO: Fast
Gate: LO
IF Gain: Low
Sig Track: Off
Avg Type: Power (RMS)
Trig: External 1
1 Spectrum
Ref Lvl Offset 41.50 dB
Ref Level 40.00 dBm
Mkr1 3.810 0 GHz
-24.15 dBm
Scale/Div 10 dB
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Start 1.996 GHz
#Res BW 1.0 MHz
#Video BW 3.0 MHz*
Stop 4.000 GHz
#Sweep ~5.01 s (5001 pts)
Sep 13, 2023
2:07:33 PM
Select Marker
Marker 1
Marker Frequency
3.810020800 GHz
Settings
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Minimum Peak
Pk-Pk Search
Marker Delta
Mkr→CF
Mkr→Ref Lvl
Pk Search Config
Properties
Marker Function
Marker→
Counter
Continuous Peak Search
On
Off

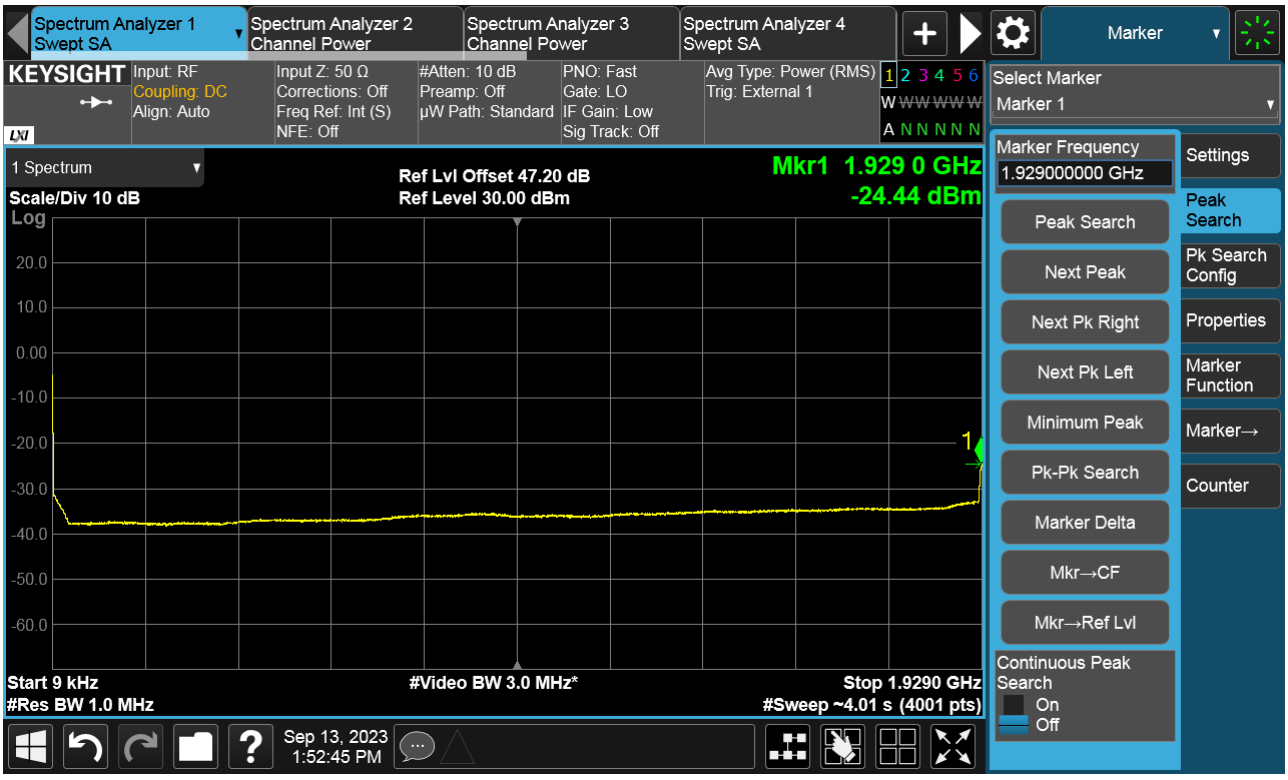
TEST REPORT

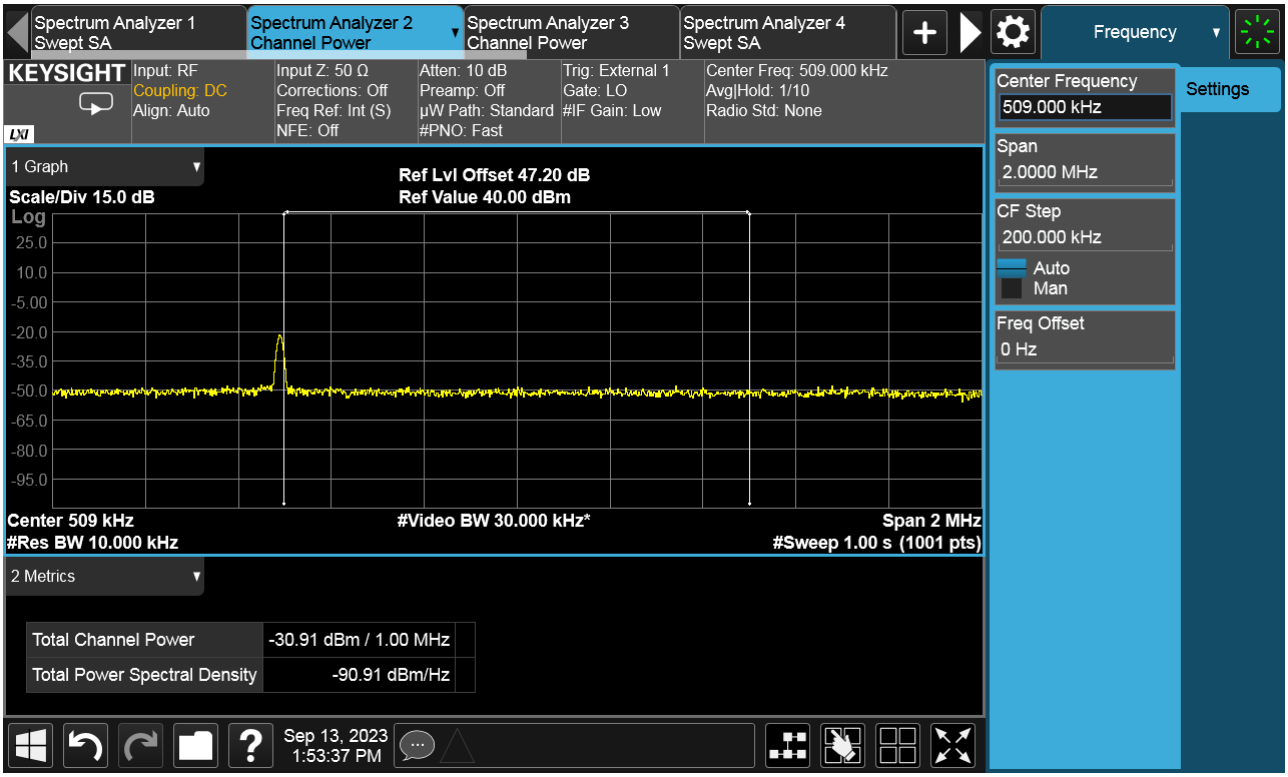

Spectrum Analyzer 3
Channel Power
Spectrum Analyzer 4
Swept SA
Spectrum Analyzer 5
Swept SA
Spectrum Analyzer 6
Swept SA
Marker
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
NFE: Off
#Atten: 10 dB
Preamp: Off
µW Path: Standard
PNO: Fast
Gate: LO
IF Gain: Low
Sig Track: Off
Avg Type: Power (RMS)
Trig: External 1
Select Marker
Marker 1
1 Spectrum
Ref Lvl Offset 43.90 dB
Ref Level 30.00 dBm
Mkr1 4.051 0 GHz
-31.76 dBm
Scale/Div 10 dB
Log
Marker Frequency
4.051000000 GHz
Settings
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Minimum Peak
Pk-Pk Search
Marker Delta
Mkr→CF
Mkr→Ref Lvl
Pk Search Config
Properties
Marker Function
Marker→
Counter
Continuous Peak Search
On
Off
Start 4.000 GHz
#Res BW 1.0 MHz
#Video BW 3.0 MHz*
Stop 13.000 GHz
#Sweep ~18.0 s (18001 pts)
Sep 13, 2023
2:36:58 PM


Spectrum Analyzer 3
Channel Power
Spectrum Analyzer 4
Swept SA
Spectrum Analyzer 5
Swept SA
Spectrum Analyzer 6
Swept SA
Marker
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
NFE: Off
#Atten: 10 dB
Preamp: Off
µW Path: Standard
PNO: Fast
Gate: LO
IF Gain: Low
Sig Track: Off
Avg Type: Power (RMS)
Trig: External 1
Select Marker
Marker 1
1 Spectrum
Ref Lvl Offset 46.90 dB
Ref Level 30.00 dBm
Mkr1 19.501 5 GHz
-26.59 dBm
Scale/Div 10 dB
Log
Marker Frequency
19.501500000 GHz
Settings
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Minimum Peak
Pk-Pk Search
Marker Delta
Mkr→CF
Mkr→Ref Lvl
Pk Search Config
Properties
Marker Function
Marker→
Counter
Continuous Peak Search
On
Off
Start 13.000 GHz
#Res BW 1.0 MHz
#Video BW 3.0 MHz*
Stop 20.000 GHz
#Sweep ~14.0 s (14001 pts)
Sep 13, 2023
2:39:58 PM

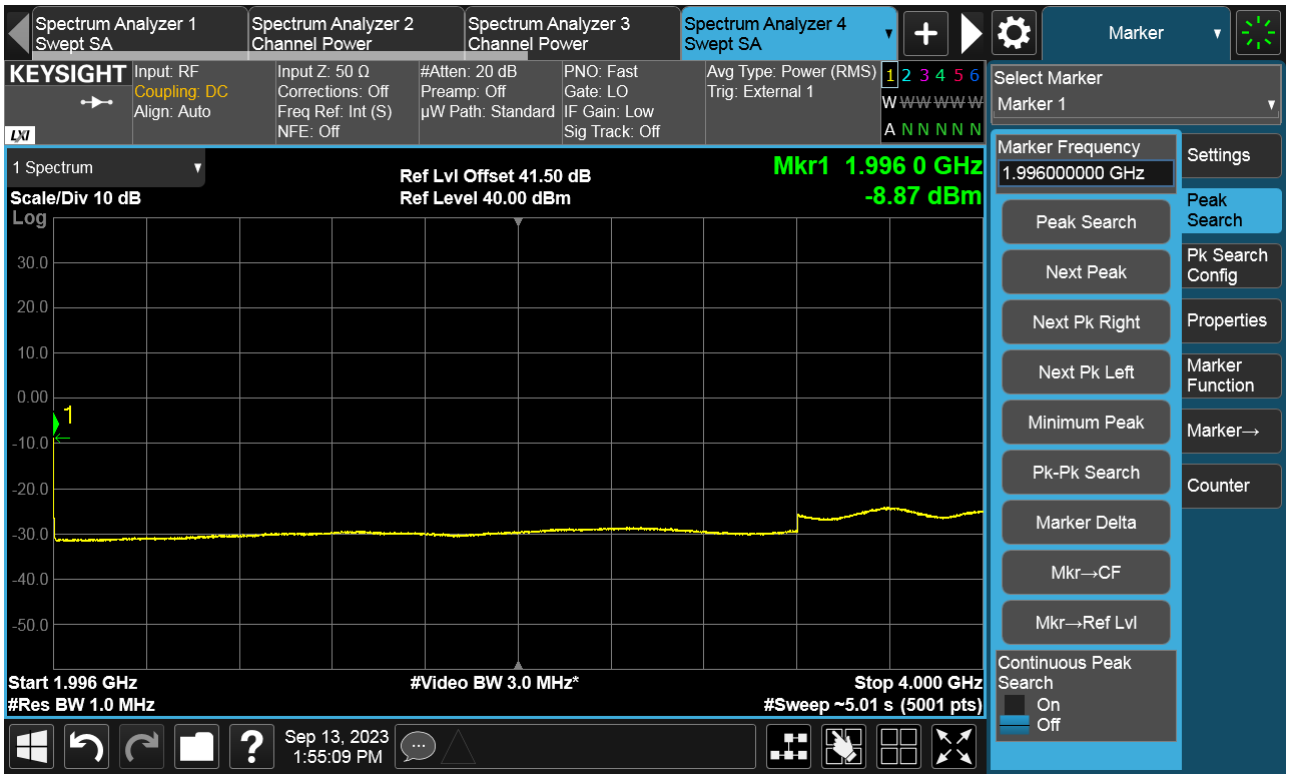
TEST REPORT

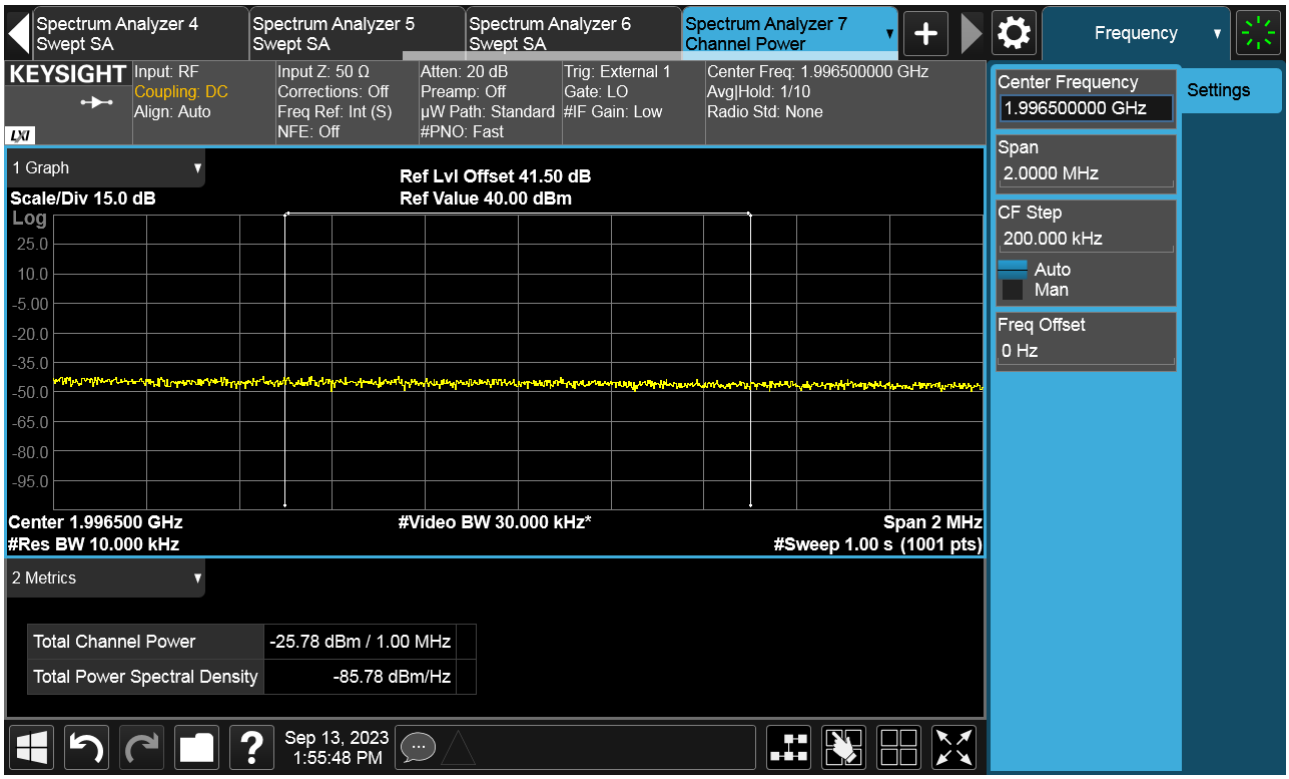
Channel Position T



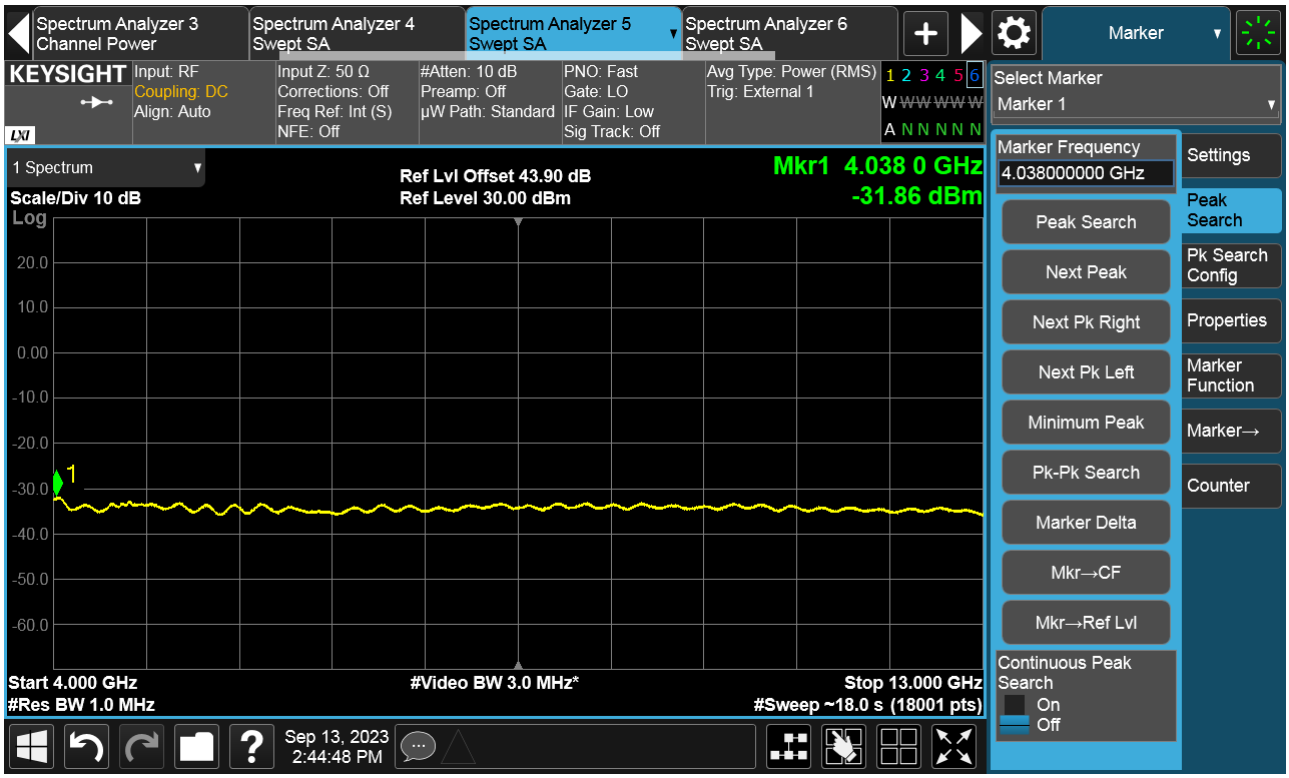


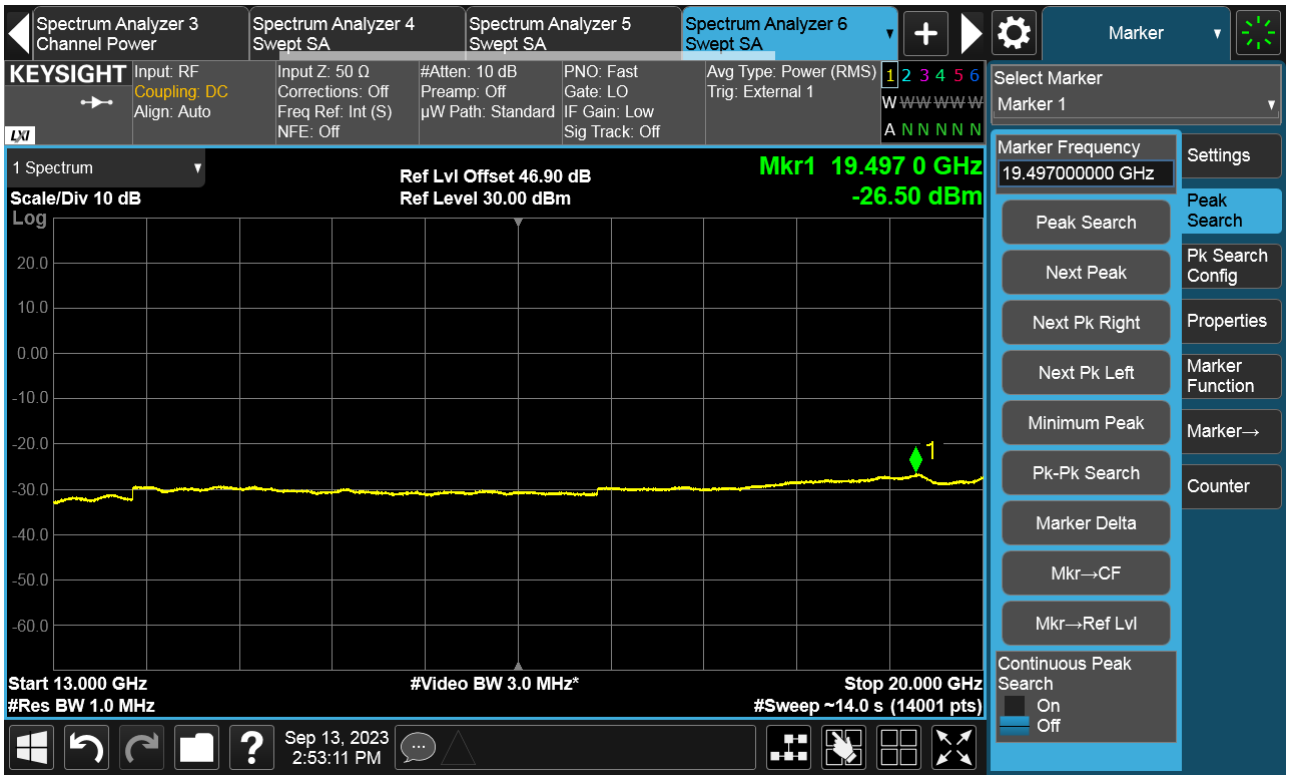
TEST REPORT


Spectrum Analyzer 1 Swept SA
Spectrum Analyzer 2 Channel Power
Spectrum Analyzer 3 Channel Power
Spectrum Analyzer 4 Swept SA
Marker
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
NFE: Off
#Atten: 20 dB
Preamp: Off
µW Path: Standard
PNO: Fast
Gate: LO
IF Gain: Low
Sig Track: Off
Avg Type: Power (RMS)
Trig: External 1
Select Marker
Marker 1
1 Spectrum
Ref Lvl Offset 41.50 dB
Ref Level 40.00 dBm
Mkr1 1.996 0 GHz
-8.87 dBm
Scale/Div 10 dB
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Start 1.996 GHz
#Res BW 1.0 MHz
#Video BW 3.0 MHz*
Stop 4.000 GHz
#Sweep ~5.01 s (5001 pts)
Marker Frequency
1.996000000 GHz
Settings
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Minimum Peak
Pk-Pk Search
Marker Delta
Mkr→CF
Mkr→Ref Lvl
Pk Search Config
Properties
Marker Function
Marker→
Counter
Continuous Peak Search
On
Off
Sep 13, 2023
1:55:09 PM


Spectrum Analyzer 4 Swept SA
Spectrum Analyzer 5 Swept SA
Spectrum Analyzer 6 Swept SA
Spectrum Analyzer 7 Channel Power
Frequency
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
NFE: Off
Atten: 20 dB
Preamp: Off
µW Path: Standard
#PNO: Fast
Trig: External 1
Gate: LO
#IF Gain: Low
Center Freq: 1.996500000 GHz
Avg|Hold: 1/10
Radio Std: None
1 Graph
Ref Lvl Offset 41.50 dB
Ref Value 40.00 dBm
Scale/Div 15.0 dB
Log
25.0
10.0
-5.00
-20.0
-35.0
-50.0
-65.0
-80.0
-95.0
Center 1.996500 GHz
#Res BW 10.000 kHz
#Video BW 30.000 kHz*
Span 2 MHz
#Sweep 1.00 s (1001 pts)
2 Metrics
Total Channel Power
-25.78 dBm / 1.00 MHz
Total Power Spectral Density
-85.78 dBm/Hz
Center Frequency
1.996500000 GHz
Settings
Span
2.0000 MHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
Sep 13, 2023
1:55:48 PM

TEST REPORT





********** END **********