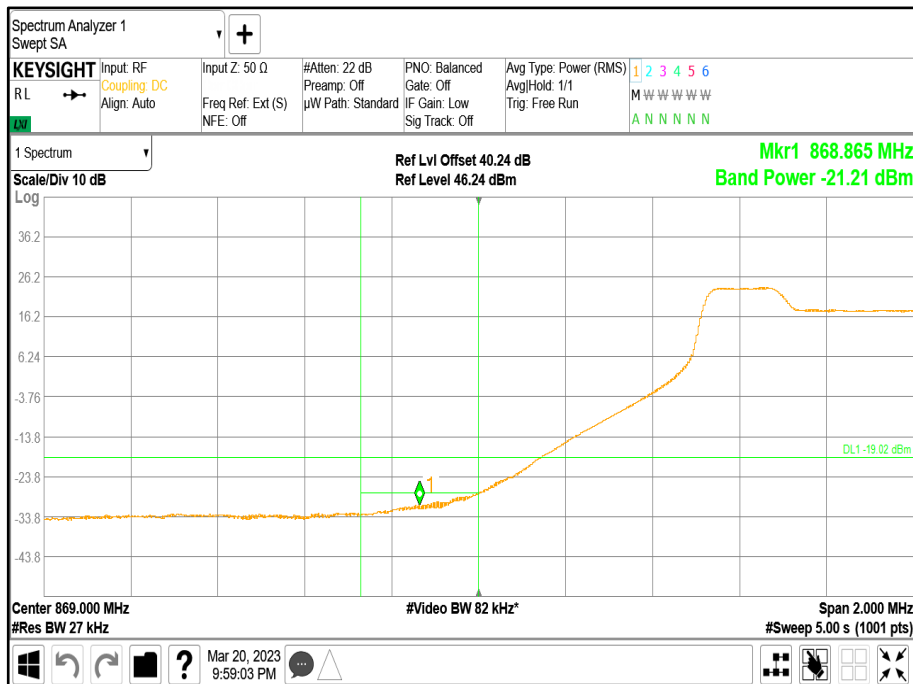




Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 20.0 MHz - Channel Position T



Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 25.0 MHz - Channel Position B





**Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 25.0 MHz - Channel Position T**



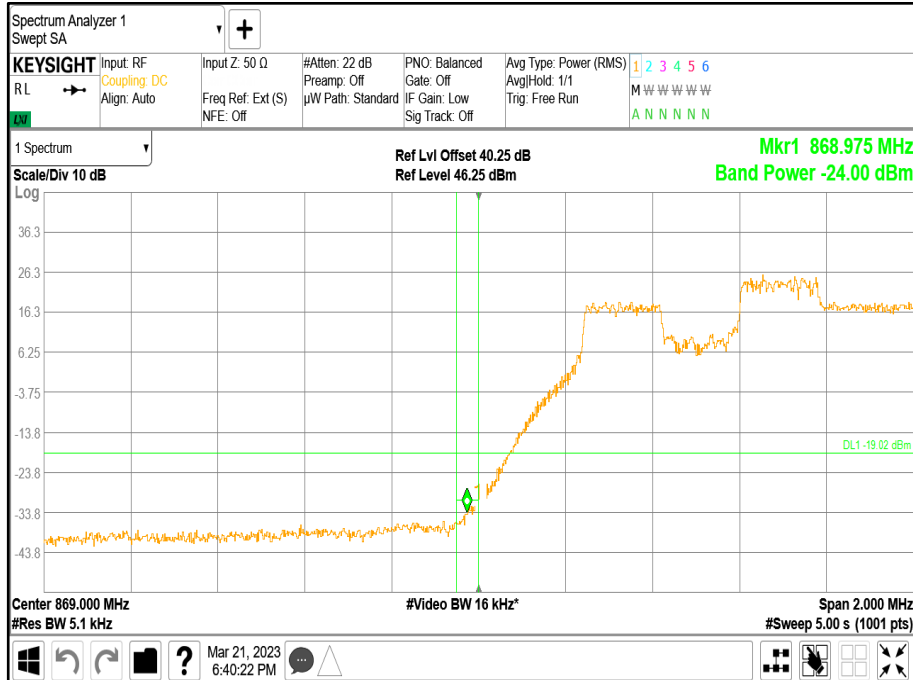
**Configuration 10**

Maximum Output Power 47.80 dBm

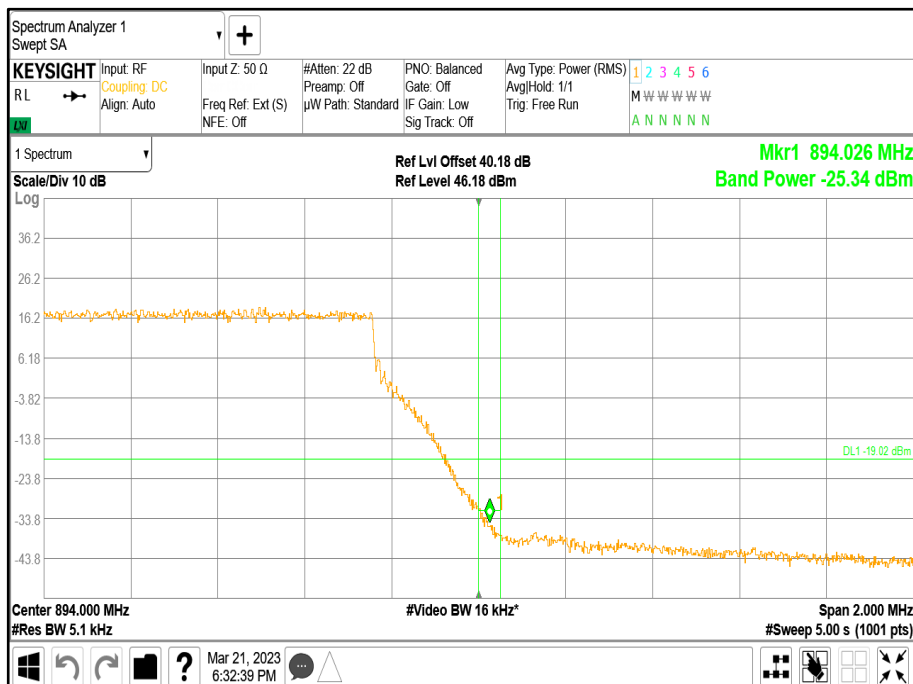
Antenna	LTE / NB-IoT IB Modulation	LTE / NB-IoT IB Carrier Bandwidth	Band Edge (MHz)	
			Channel Position B	Channel Position T
2	QPSK	5.0 MHz	871.5	891.5



Antenna 2 - LTE / NB-IoT IB Modulation QPSK - LTE / NB-IoT IB Carrier Bandwidth 5.0 MHz - Channel Position B



Antenna 2 - LTE / NB-IoT IB Modulation QPSK - LTE / NB-IoT IB Carrier Bandwidth 5.0 MHz - Channel Position T



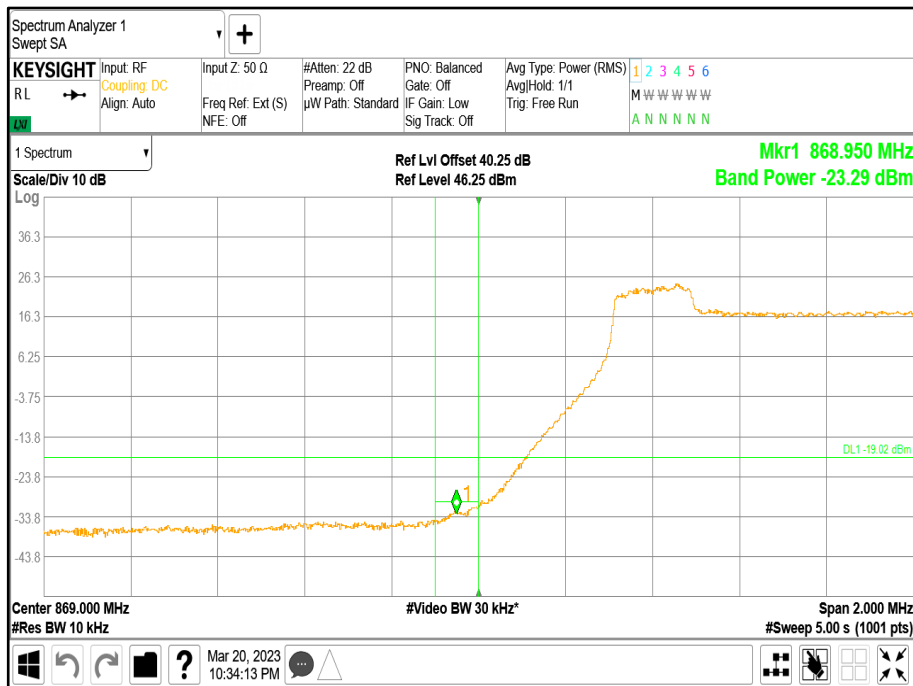


Configuration 11

Maximum Output Power 47.80 dBm

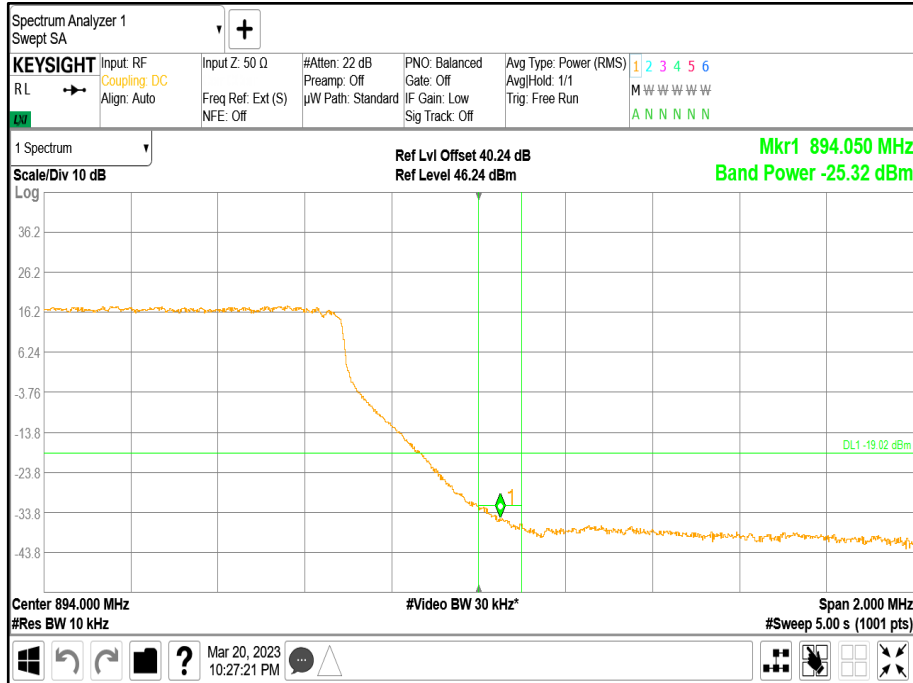
Antenna	LTE / NB-IOT GB Modulation	LTE / NB-IOT GB Carrier Bandwidth	Band Edge (MHz)	
			Channel Position B	Channel Position T
2	QPSK	10.0 MHz	874.0	889.0

Antenna 2 - LTE / NB-IOT GB Modulation QPSK - LTE / NB-IOT GB Carrier Bandwidth 10.0 MHz - Channel Position B





Antenna 2 - LTE / NB-IOT GB Modulation QPSK - LTE / NB-IOT GB Carrier Bandwidth 10.0 MHz - Channel Position T



Limit	-19 dBm
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## **2.4 TRANSMITTER SPURIOUS EMISSIONS**

### **2.4.1 Specification Reference**

FCC CFR 47 Part 22, Clause 22.917(b)  
ISED RSS-GEN, Clause 6.13  
ISED RSS-132, Clause 5.5  
FCC CFR 47 Part 2, Clause 2.1051

### **2.4.2 Date of Test and Modification State**

10, 14, 16, 20 and 21-March-2023 - Modification State 0

### **2.4.3 Test Equipment Used**

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

### **2.4.4 Environmental Conditions**

Ambient Temperature	22.0 - 22.8°C
Relative Humidity	37.8 - 39.6%

### **2.4.5 Test Method**

All measurements were made in accordance with FCC KDB 971168 D01, Clause 6.1.

Each antenna port has been declared as being equivalent, therefore measurements were made on one antenna port only. To account for this, the limit was tightened by  $10 * \text{Log}(N)$ , where N is equal to the number of MIMO antenna ports.

For the number of antenna ports, the limit was calculated as being  
 $-13 \text{ dBm} - 10 * \text{Log}(4) = -19 \text{ dBm}$

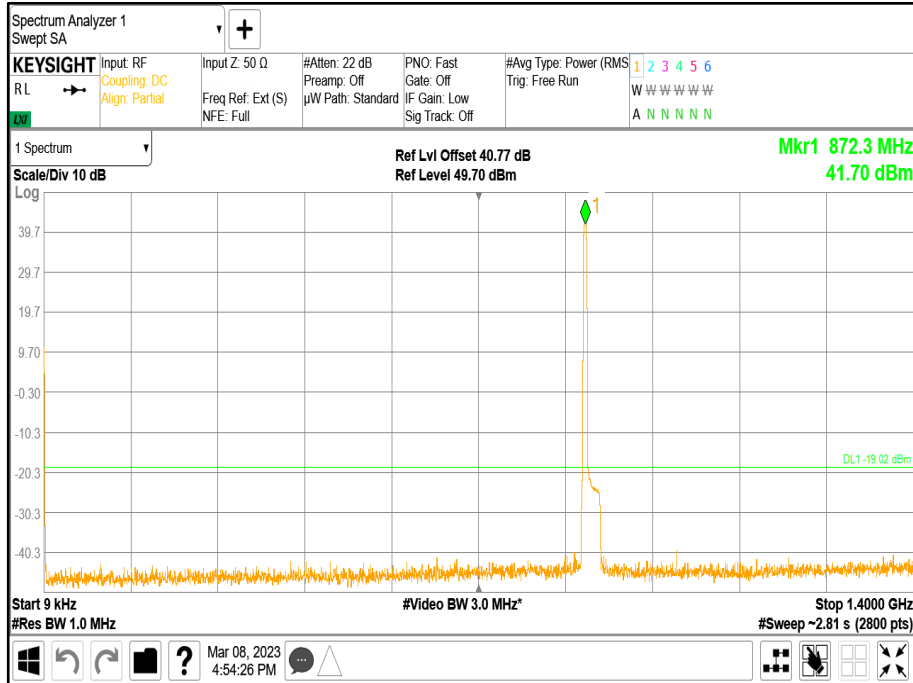
### **2.4.6 Test Results**

Configuration 1

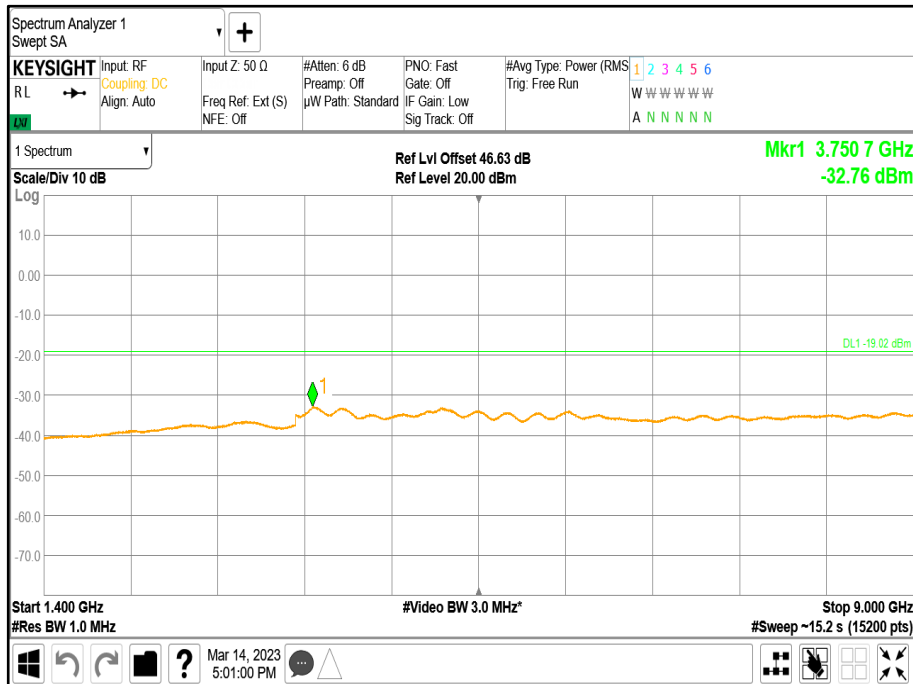
Maximum Output Power 47.80 dBm



Antenna 2 - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position B - Band 1 - Range 0.009 to 1400 MHz

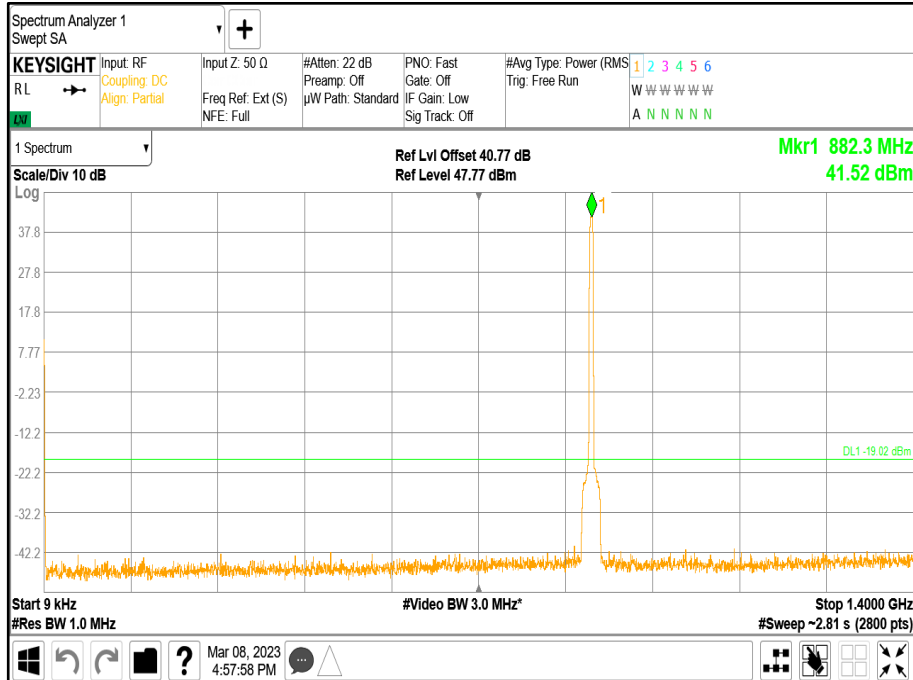


Antenna 2 - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position B - Band 2 - Range 1400 to 9000 MHz

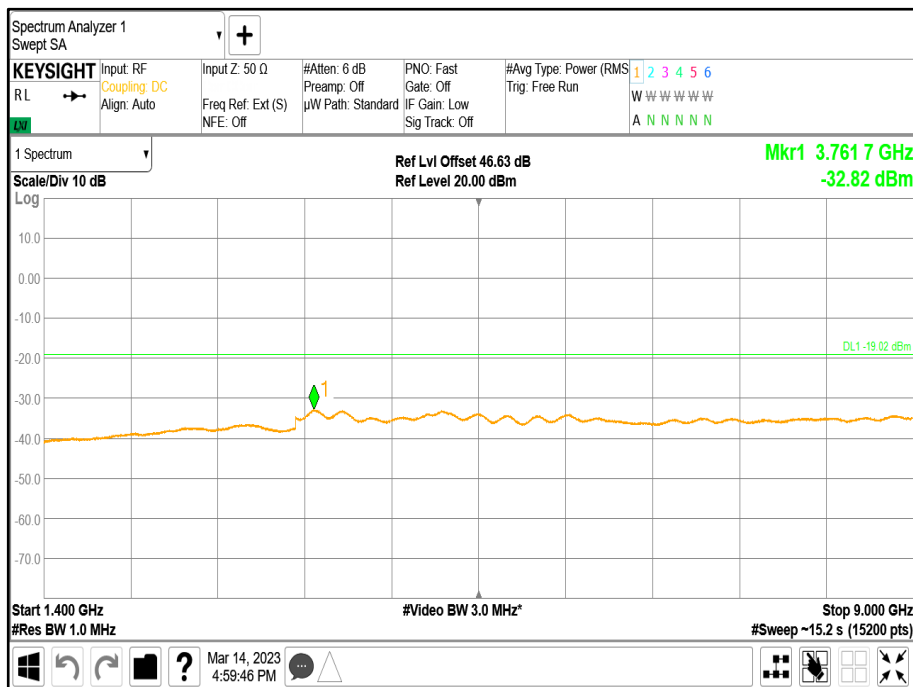




Antenna 2 - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position M - Band 1 - Range 0.009 to 1400 MHz



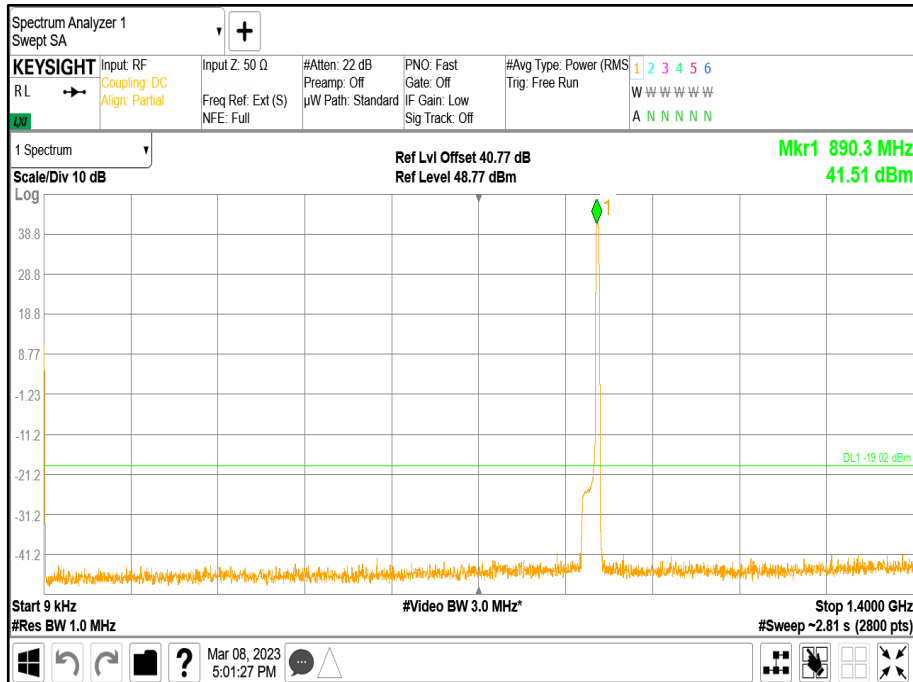
Antenna 2 - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position M - Band 2 - Range 1400 to 9000 MHz



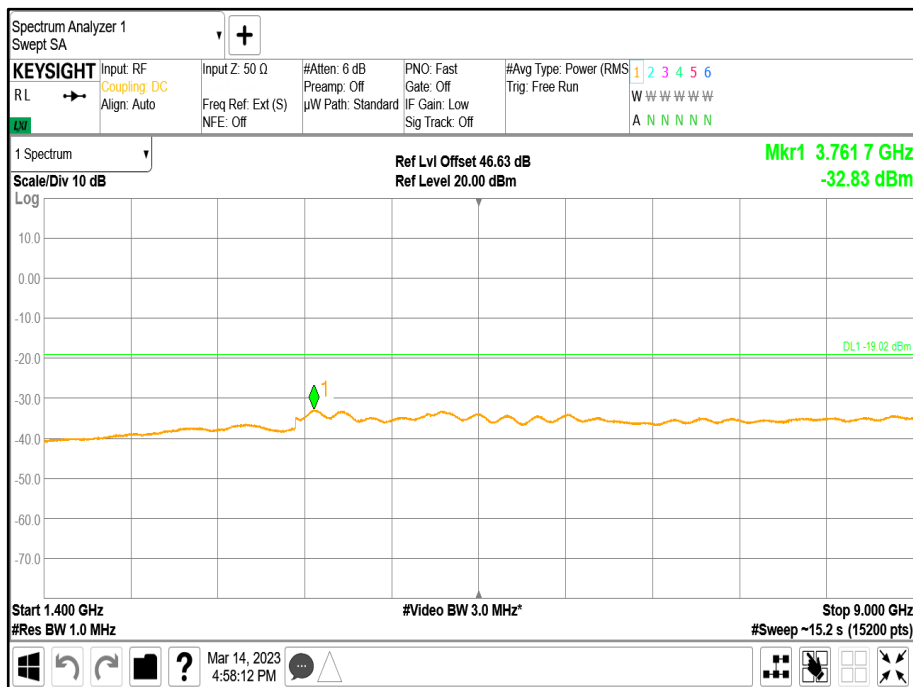




Antenna 2 - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position T - Band 1 - Range 0.009 to 1400 MHz

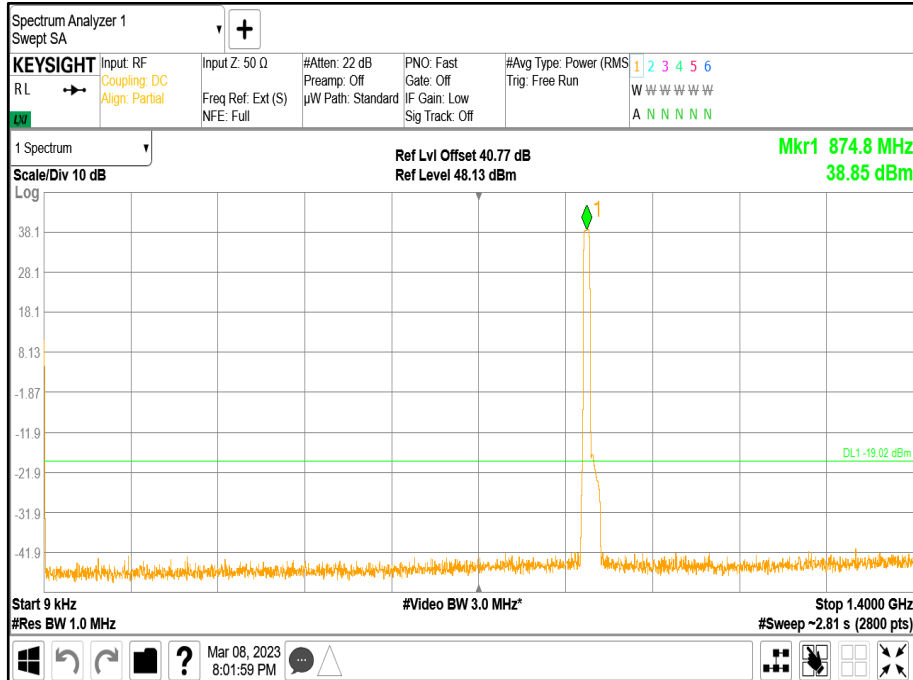


Antenna 2 - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position T - Band 2 - Range 1400 to 9000 MHz

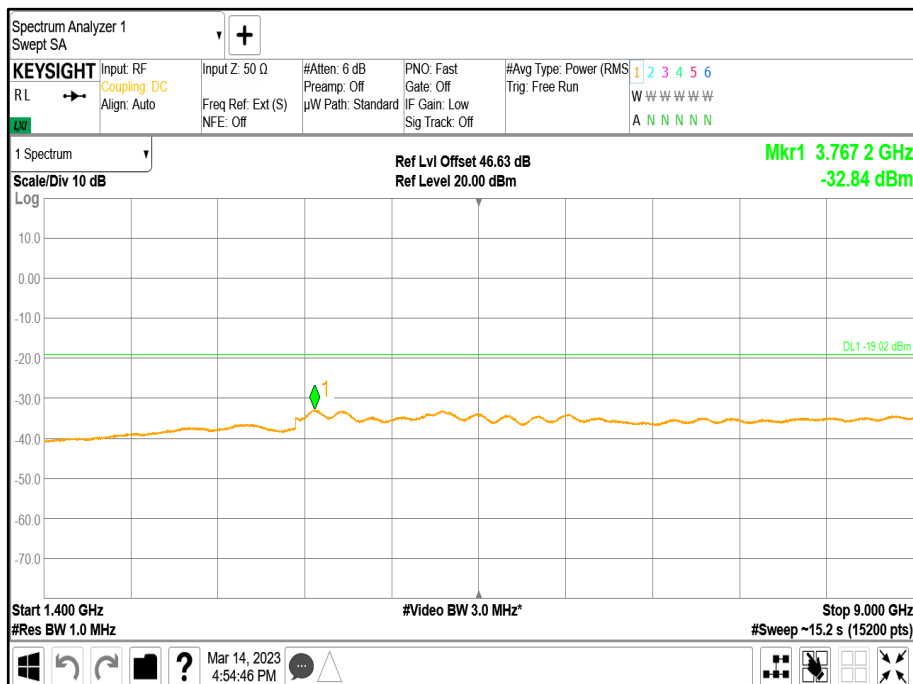




Antenna 2 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 1 - Range 0.009 to 1400 MHz

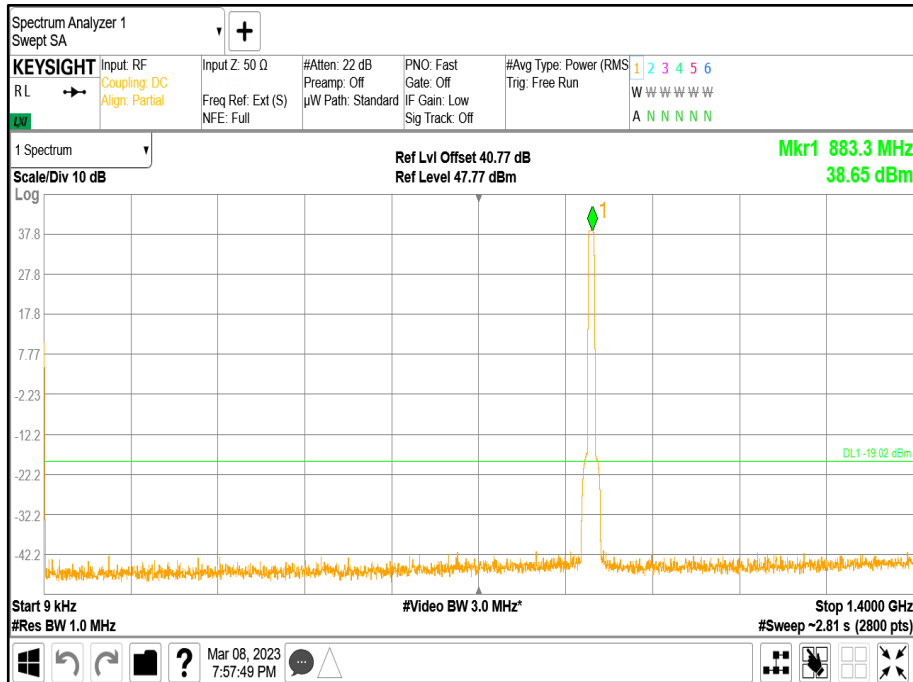


Antenna 2 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 2 - Range 1400 to 9000 MHz

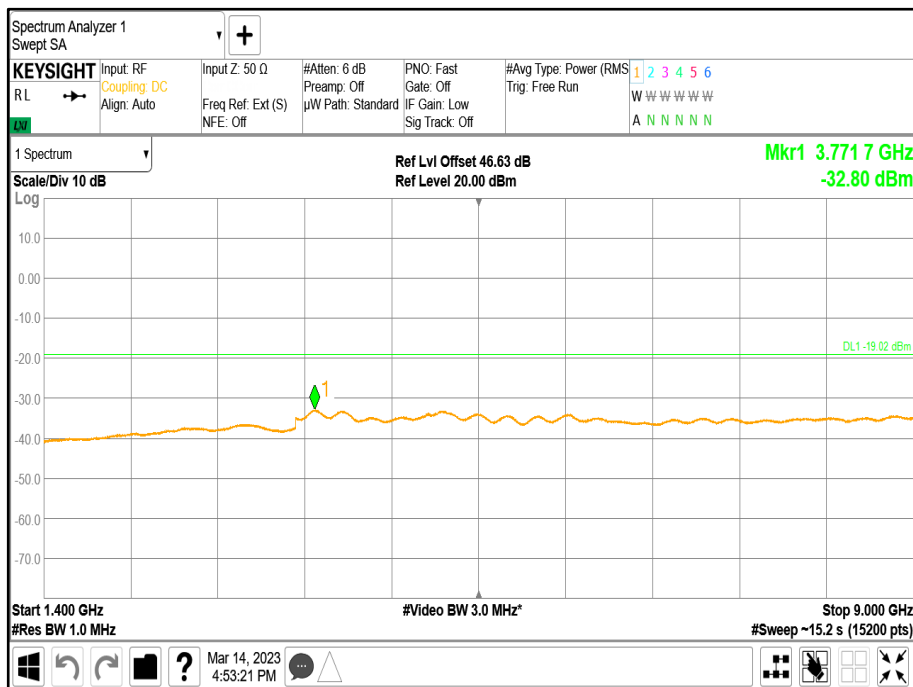




Antenna 2 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 1 - Range 0.009 to 1400 MHz

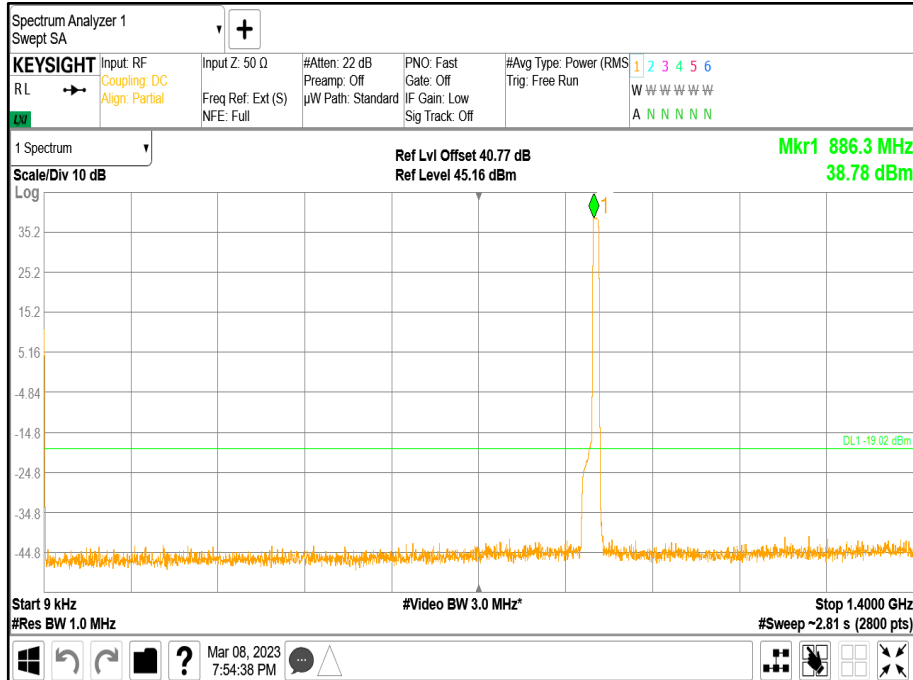


Antenna 2 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 2 - Range 1400 to 9000 MHz

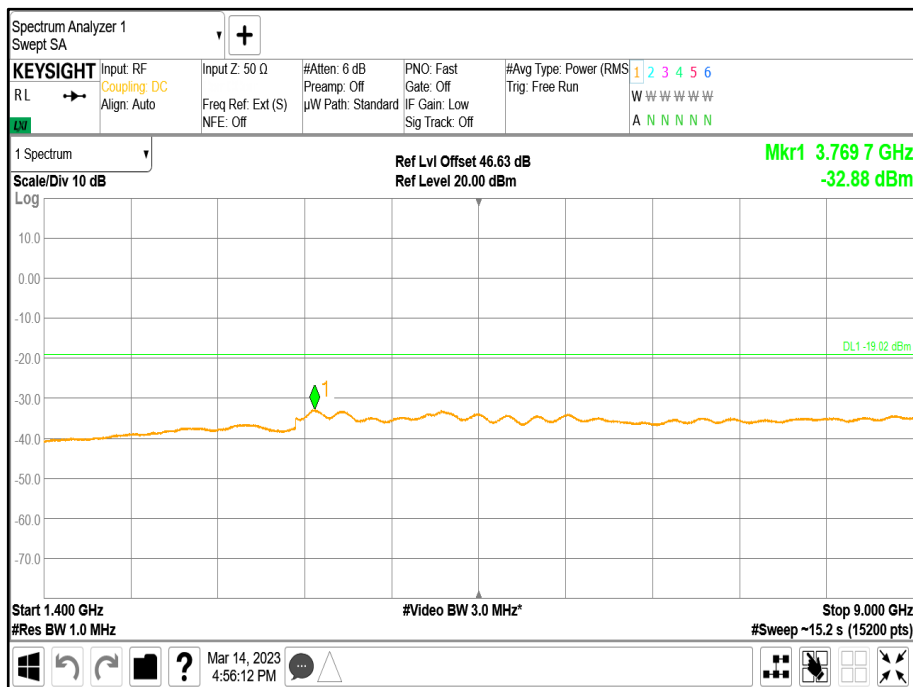




Antenna 2 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 1 - Range 0.009 to 1400 MHz



Antenna 2 - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 2 - Range 1400 to 9000 MHz

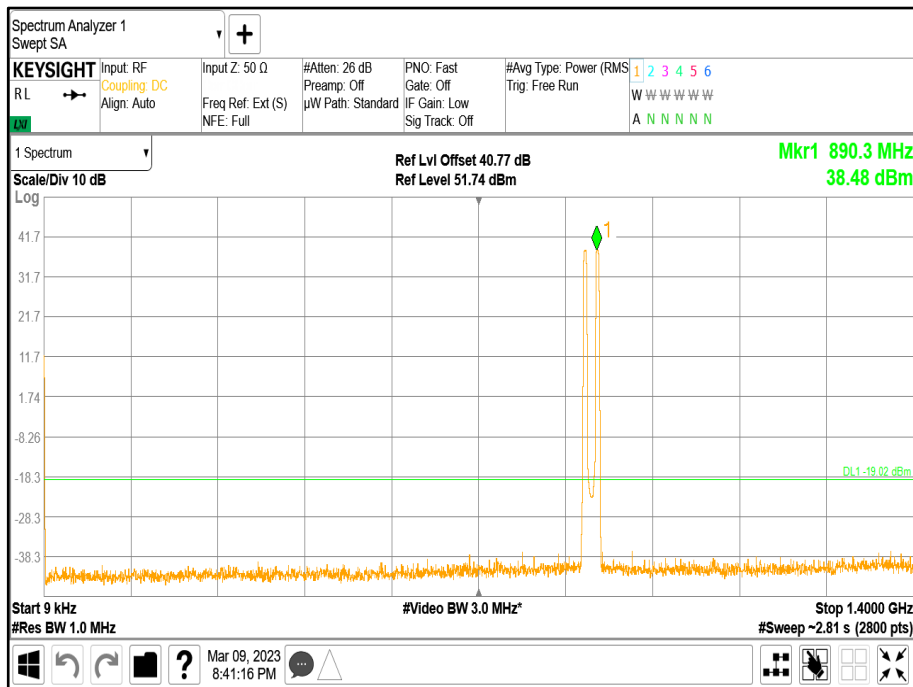




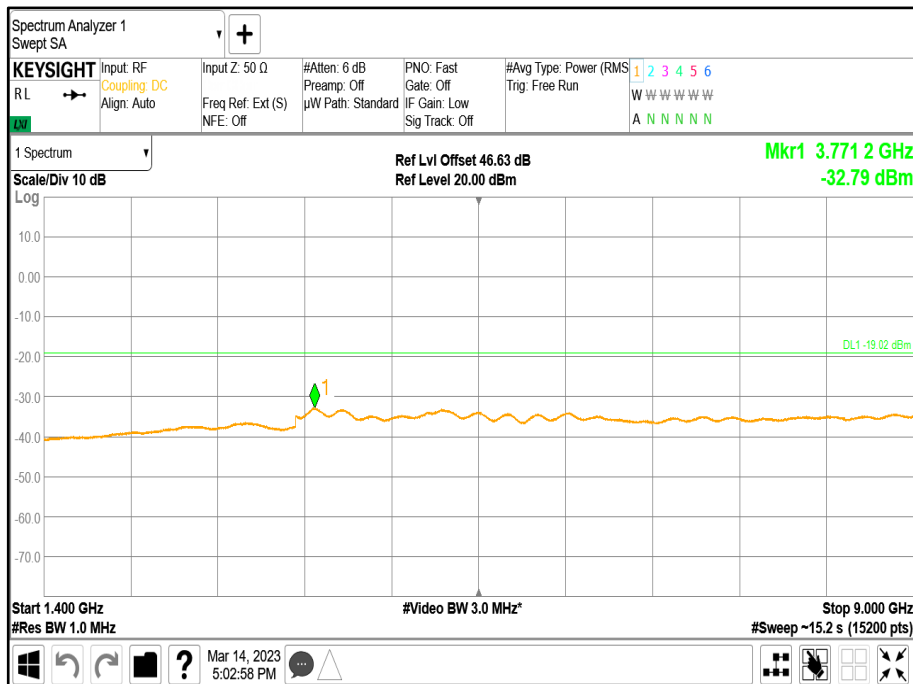
## Configuration 2

Maximum Output Power 47.80 dBm

Antenna 2 - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position M - Band 1 - Range 0.009 to 1400 MHz



Antenna 2 - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position M - Band 2 - Range 1400 to 9000 MHz

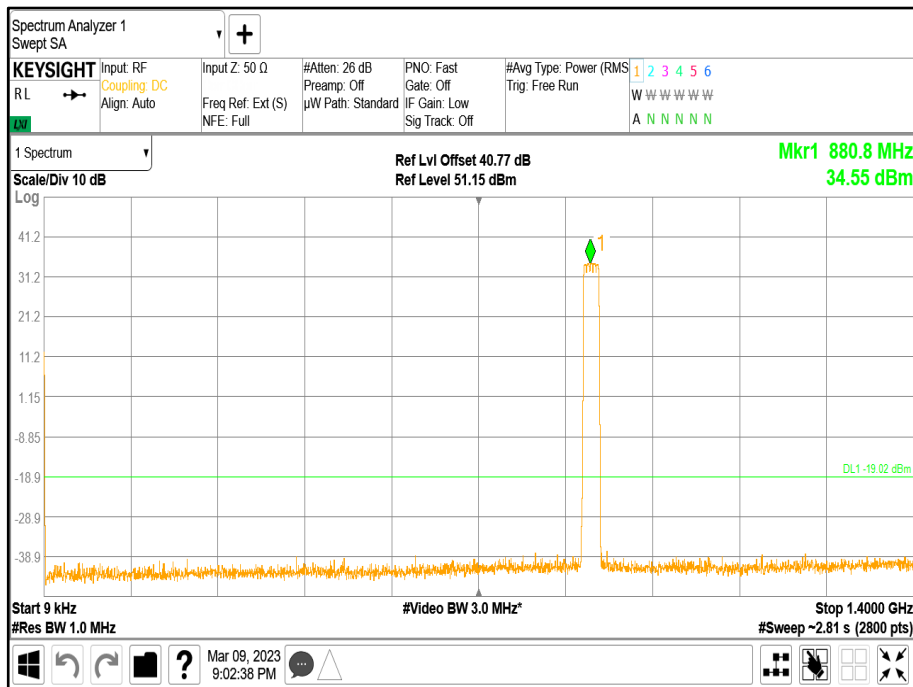




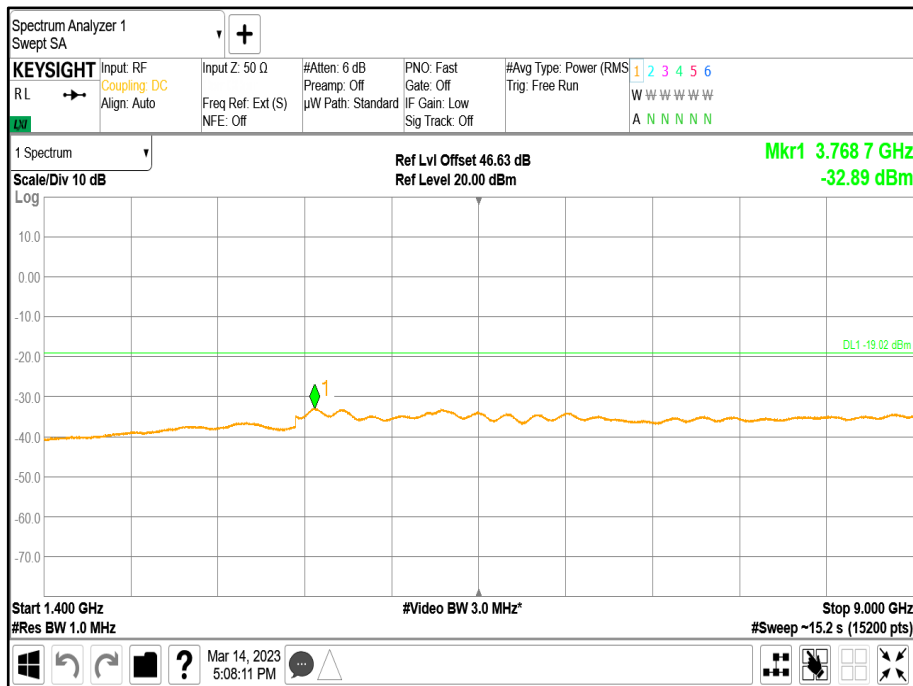
### Configuration 3

Maximum Output Power 47.80 dBm

Antenna 2 - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position M - Band 1 - Range 0.009 to 1400 MHz



Antenna 2 - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position M - Band 2 - Range 1400 to 9000 MHz

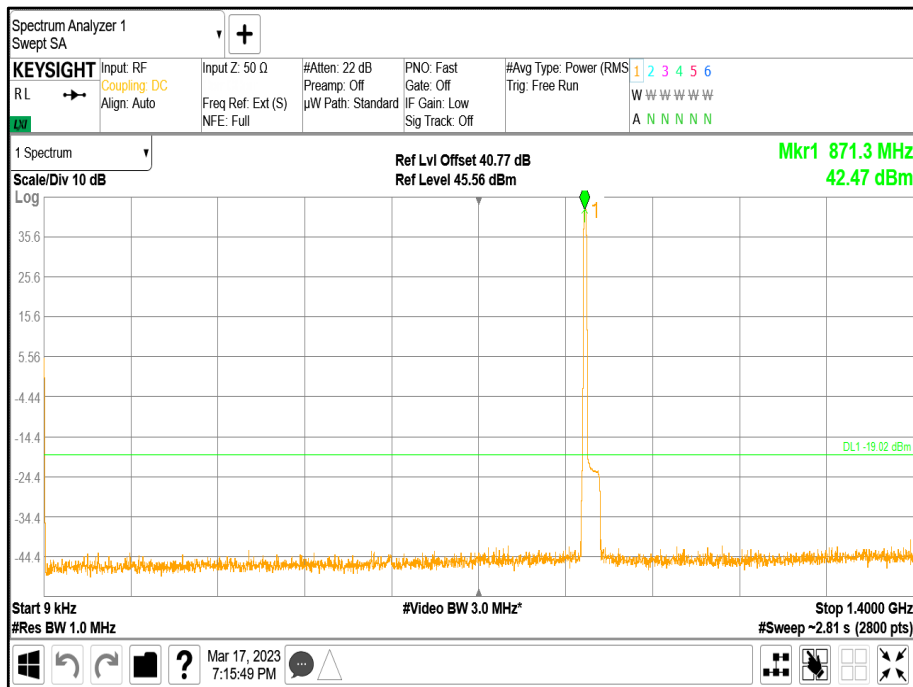




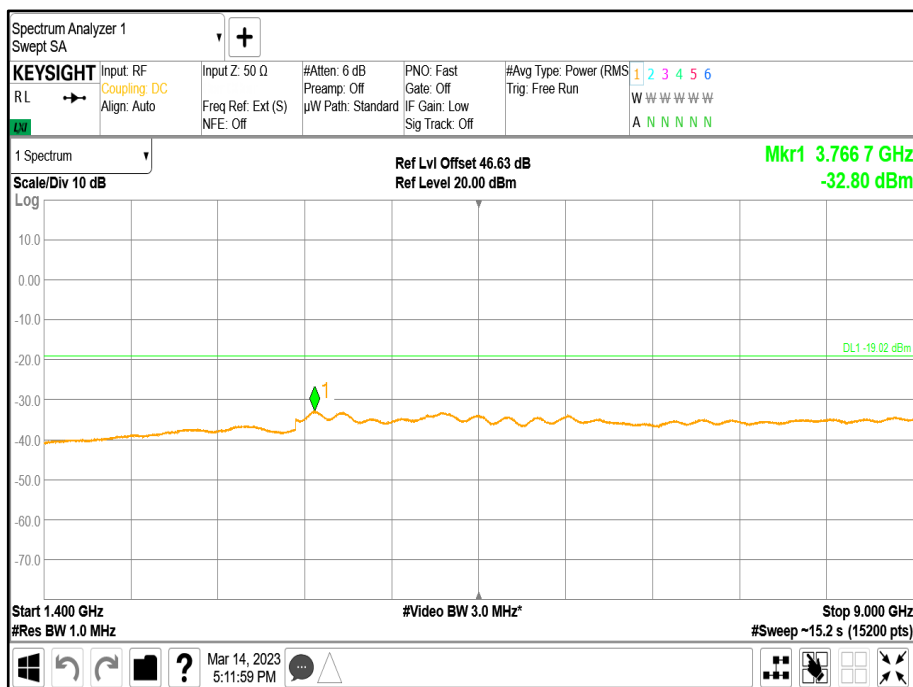
### Configuration 4

Maximum Output Power 47.80 dBm

Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 5.0 MHz 15 kHz SCS - Channel Position B - Band 1 - Range 0.009 to 1400 MHz

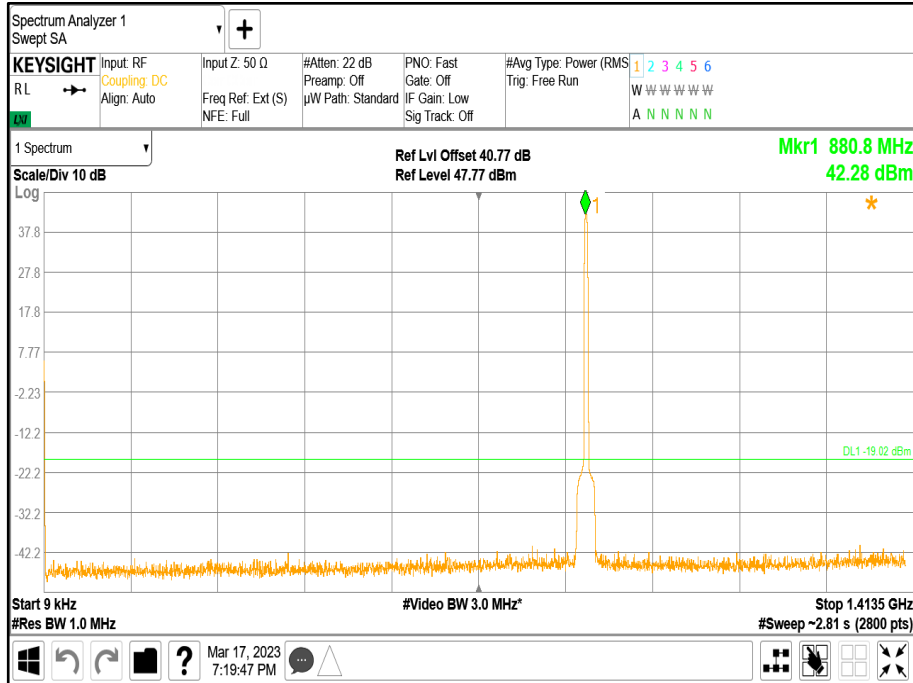


Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 5.0 MHz 15 kHz SCS - Channel Position B - Band 2 - Range 1400 to 9000 MHz

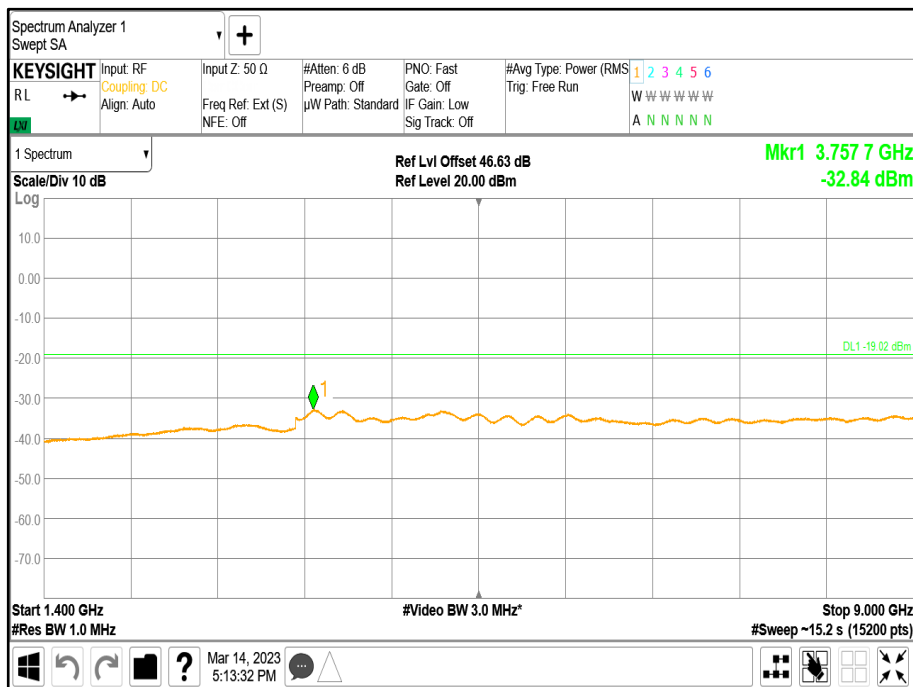




Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 5.0 MHz 15 kHz SCS - Channel Position M - Band 1 - Range 0.009 to 1400 MHz



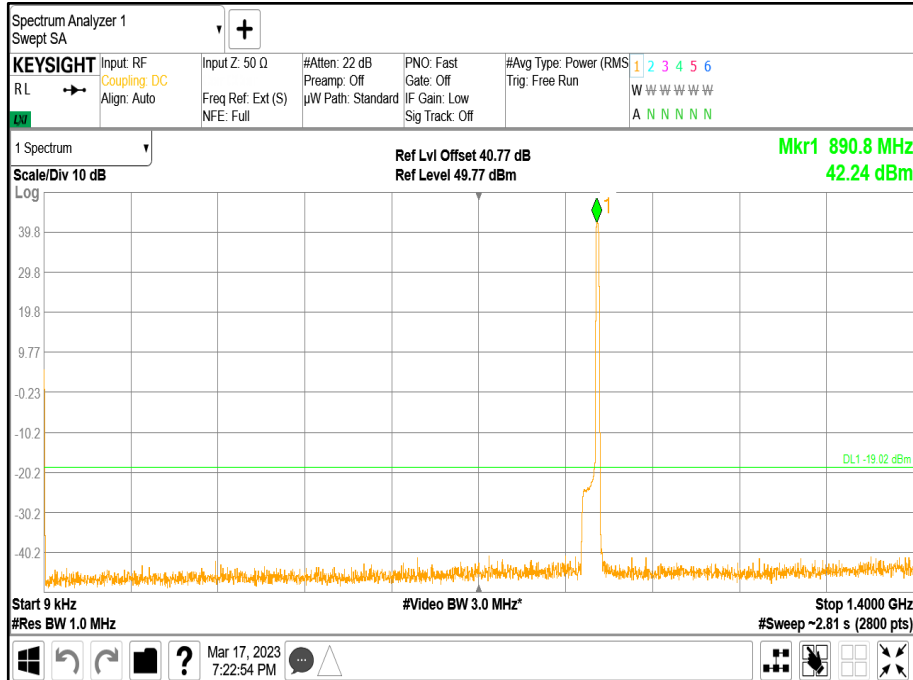
Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 5.0 MHz 15 kHz SCS - Channel Position M - Band 2 - Range 1400 to 9000 MHz



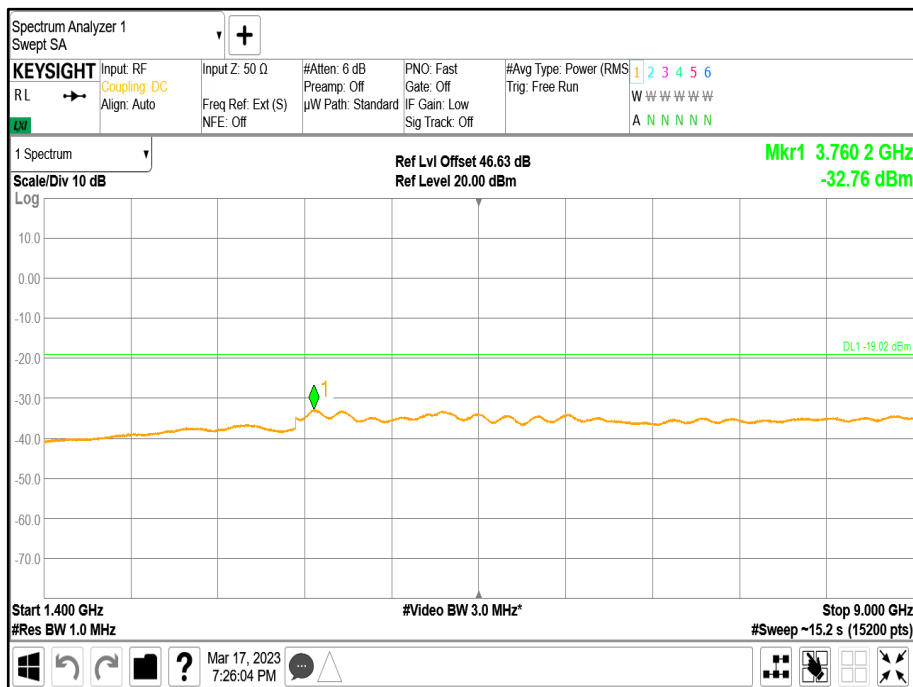




Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 5.0 MHz 15 kHz SCS - Channel Position T - Band 1 - Range 0.009 to 1400 MHz

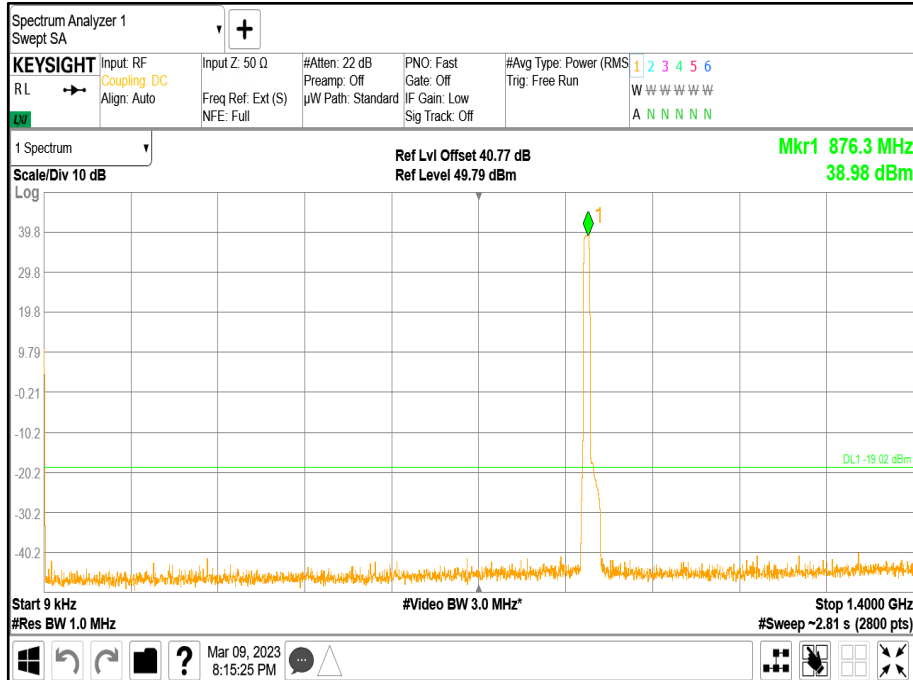


Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 5.0 MHz 15 kHz SCS - Channel Position T - Band 2 - Range 1400 to 9000 MHz

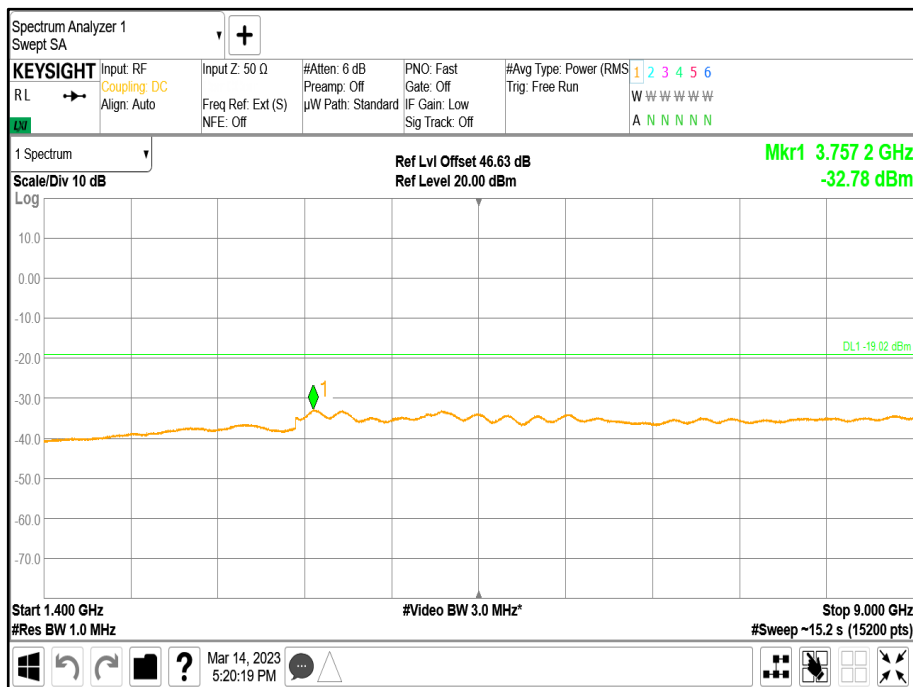




Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 10.0 MHz 30 kHz SCS - Channel Position B - Band 1 - Range 0.009 to 1400 MHz

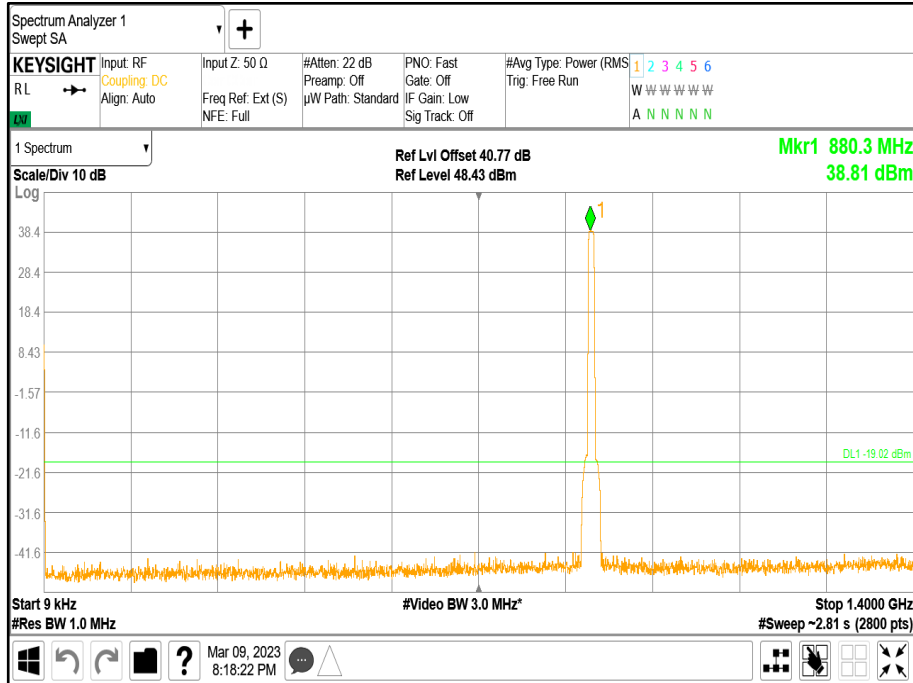


Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 10.0 MHz 30 kHz SCS - Channel Position B - Band 2 - Range 1400 to 9000 MHz

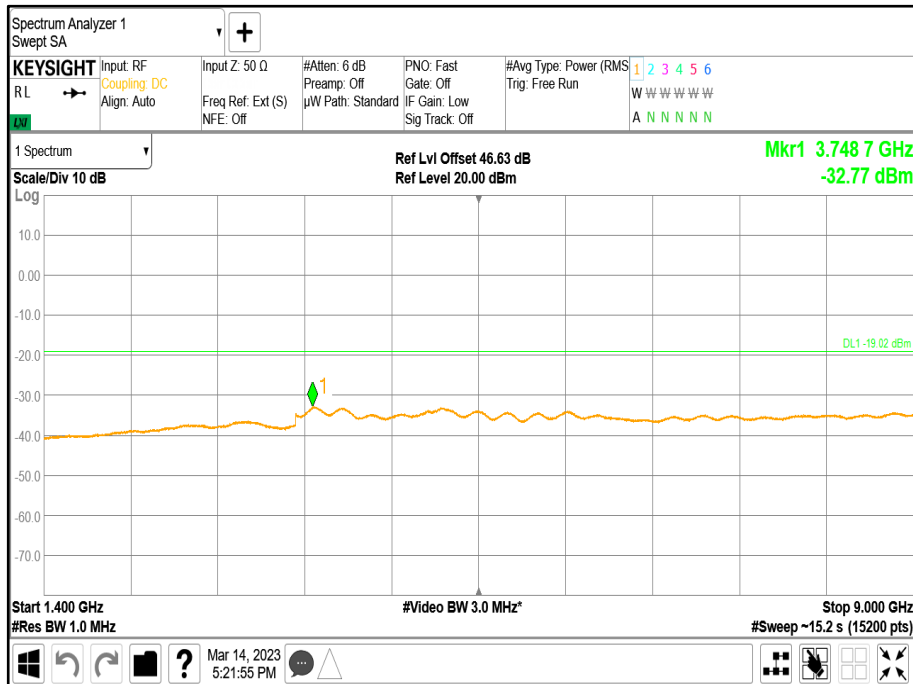




Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 10.0 MHz 30 kHz SCS - Channel Position M - Band 1 - Range 0.009 to 1400 MHz

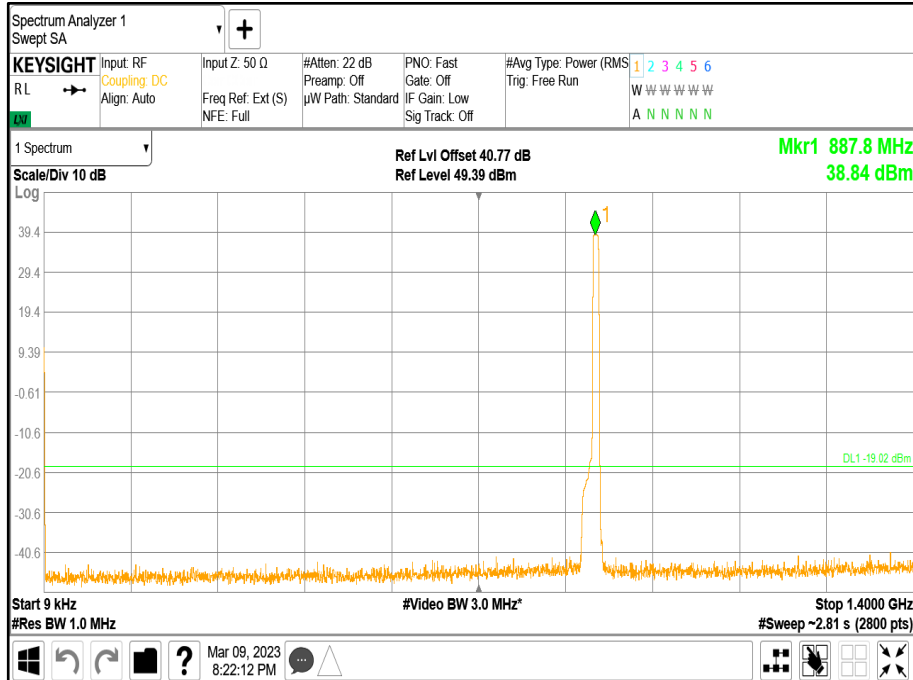


Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 10.0 MHz 30 kHz SCS - Channel Position M - Band 2 - Range 1400 to 9000 MHz

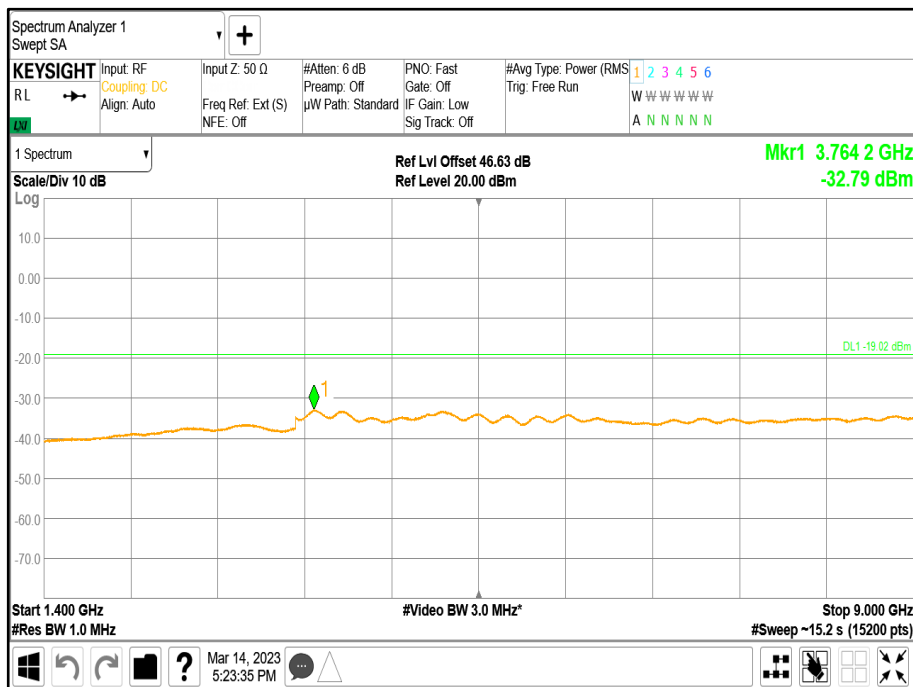




Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 10.0 MHz 30 kHz SCS - Channel Position T - Band 1 - Range 0.009 to 1400 MHz

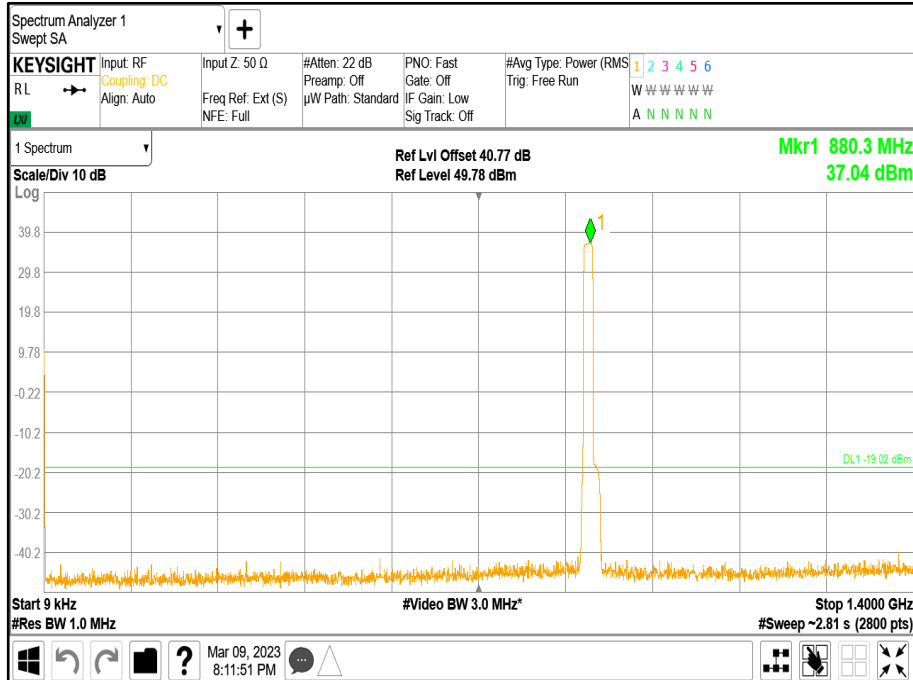


Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 10.0 MHz 30 kHz SCS - Channel Position T - Band 2 - Range 1400 to 9000 MHz

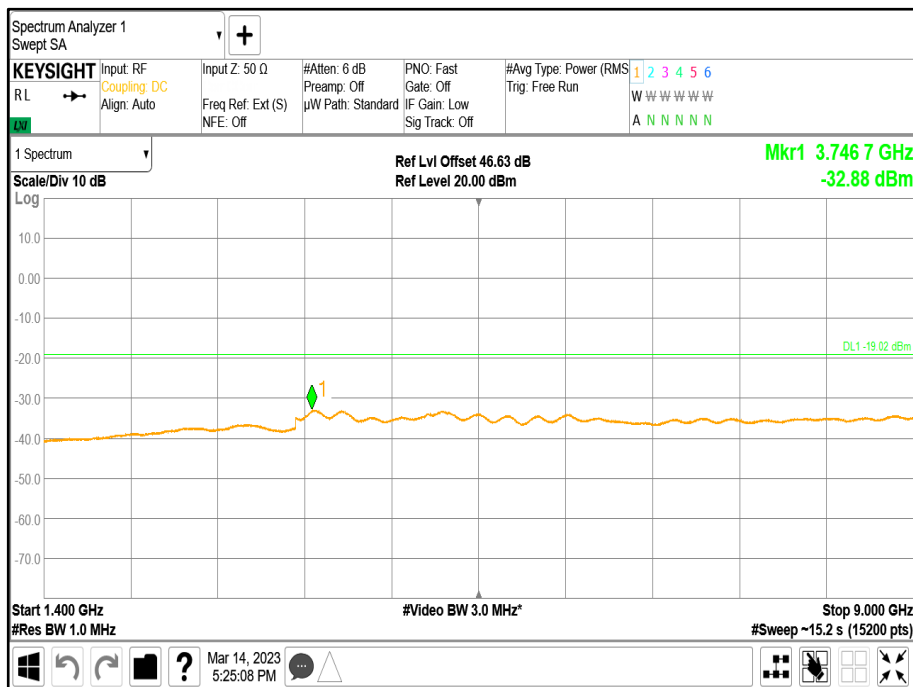




Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 15.0 MHz 30 kHz SCS - Channel Position B - Band 1 - Range 0.009 to 1400 MHz

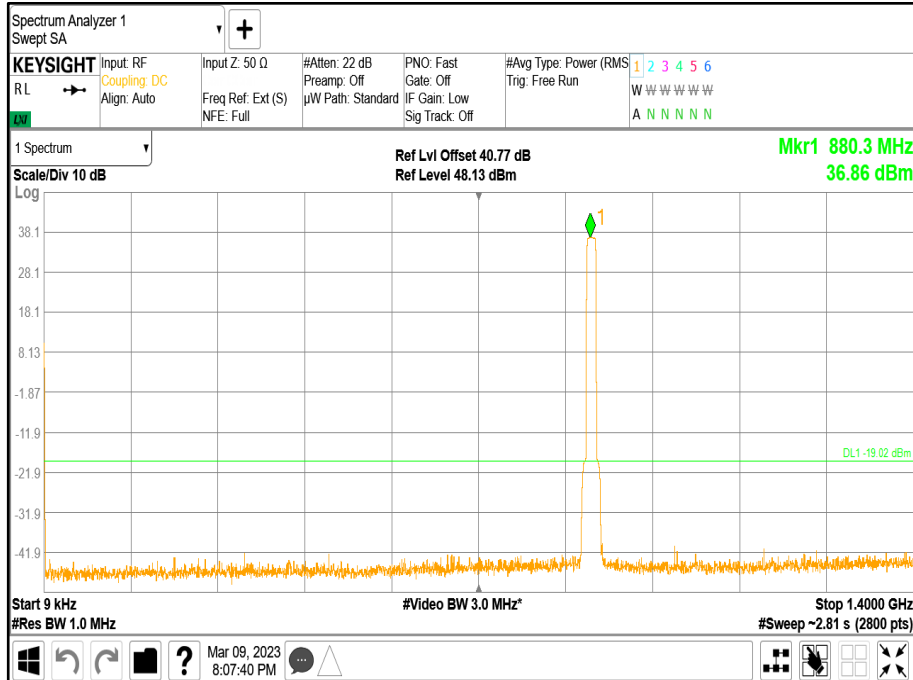


Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 15.0 MHz 30 kHz SCS - Channel Position B - Band 2 - Range 1400 to 9000 MHz

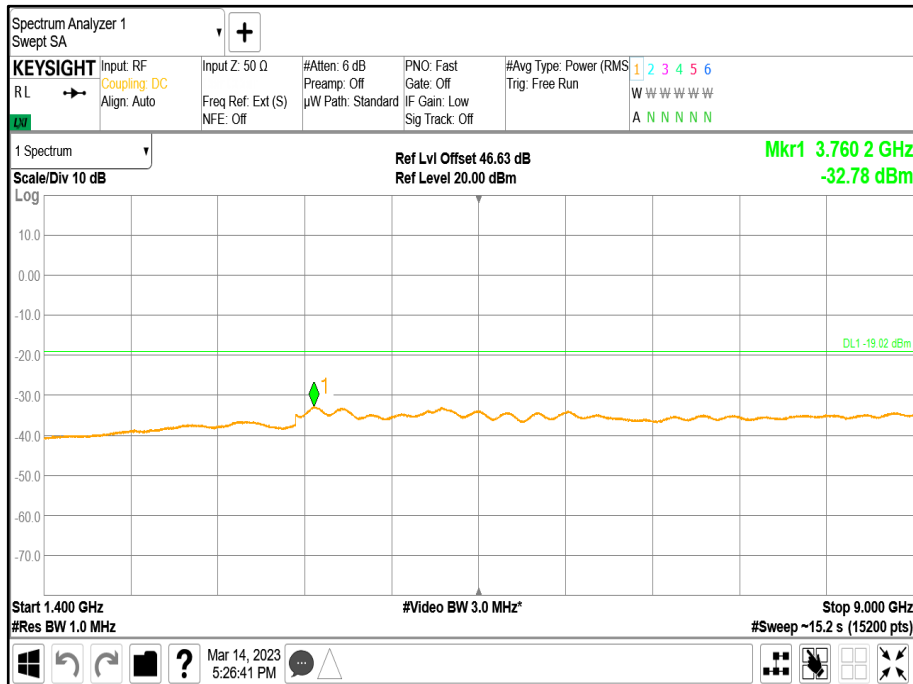




Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 15.0 MHz 30 kHz SCS - Channel Position M - Band 1 - Range 0.009 to 1400 MHz

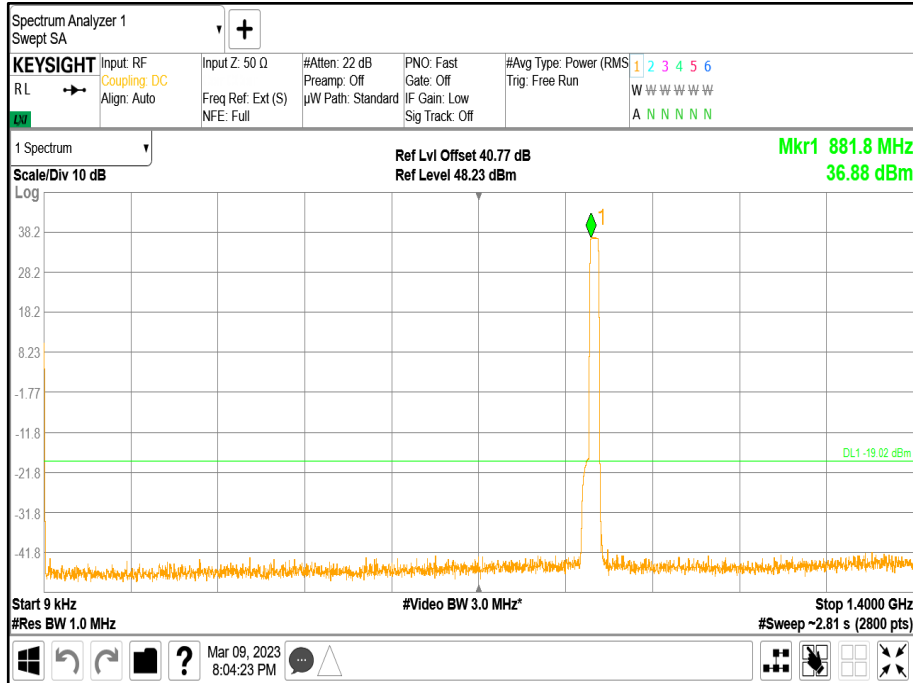


Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 15.0 MHz 30 kHz SCS - Channel Position M - Band 2 - Range 1400 to 9000 MHz

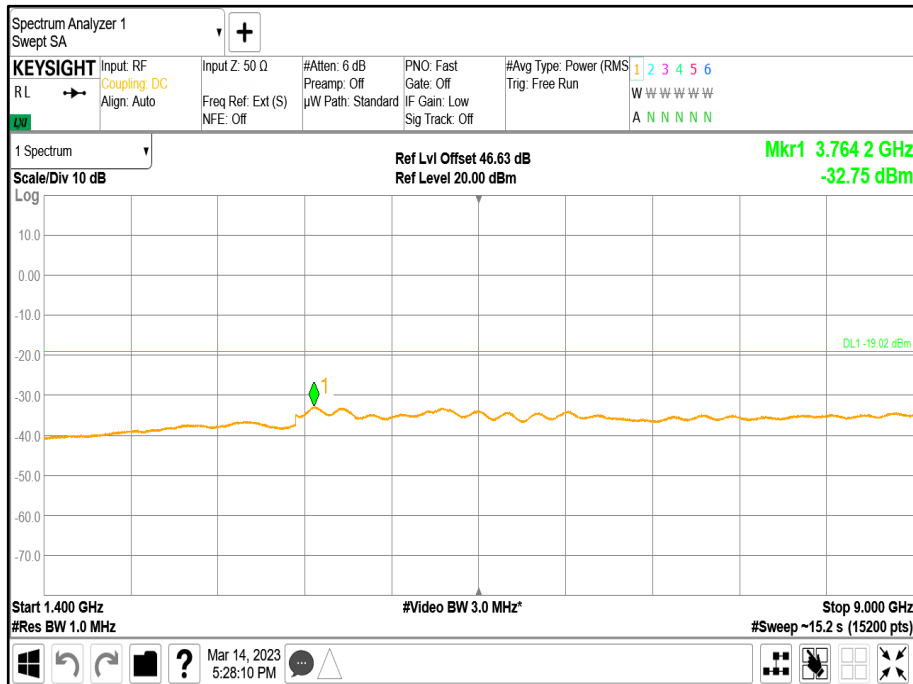




Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 15.0 MHz 30 kHz SCS - Channel Position T - Band 1 - Range 0.009 to 1400 MHz

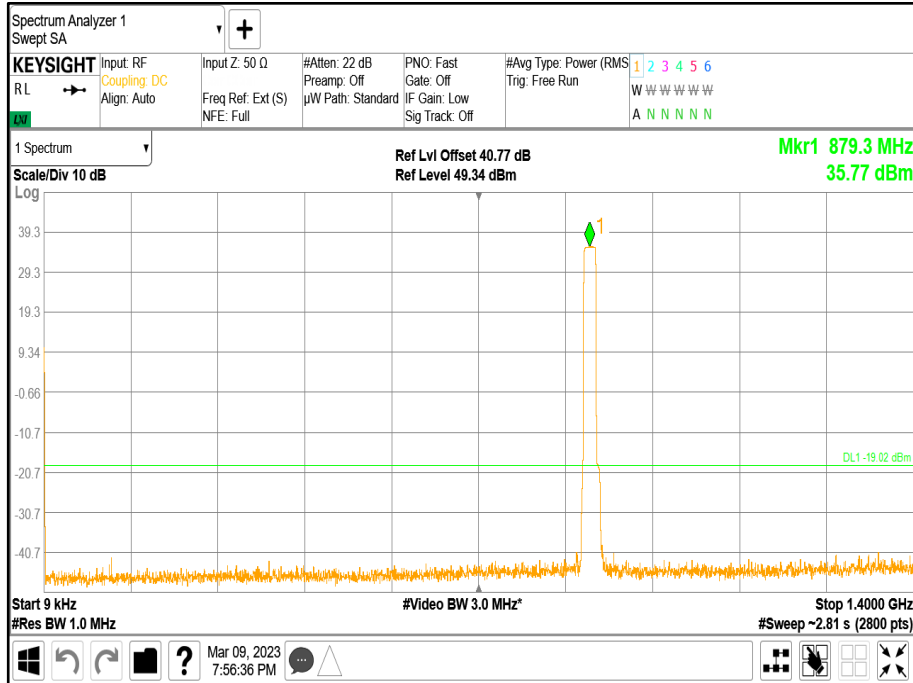


Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 15.0 MHz 30 kHz SCS - Channel Position T - Band 2 - Range 1400 to 9000 MHz

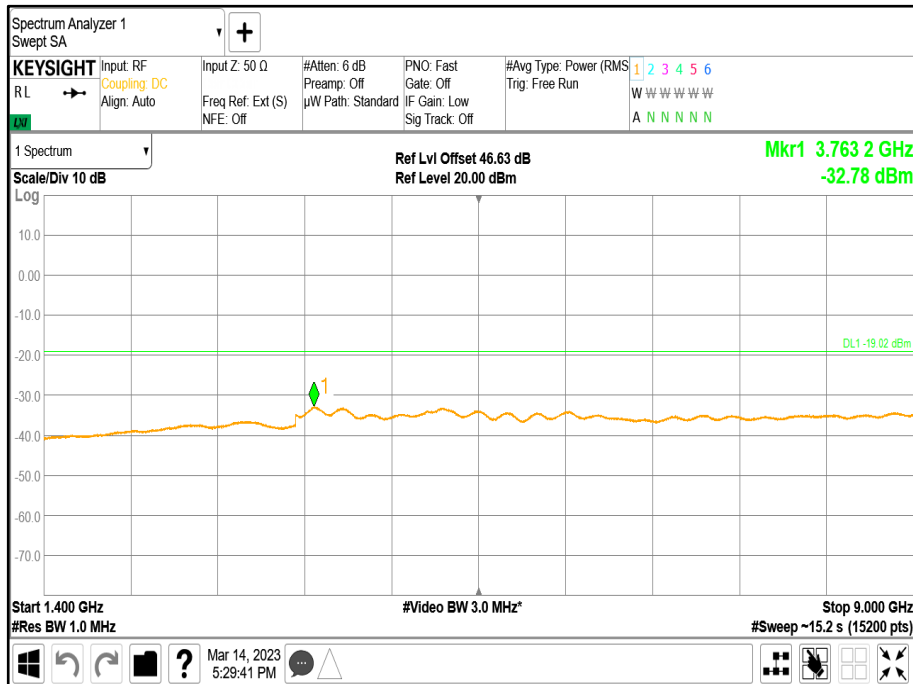




Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 20.0 MHz 30 kHz SCS - Channel Position B - Band 1 - Range 0.009 to 1400 MHz



Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 20.0 MHz 30 kHz SCS - Channel Position B - Band 2 - Range 1400 to 9000 MHz



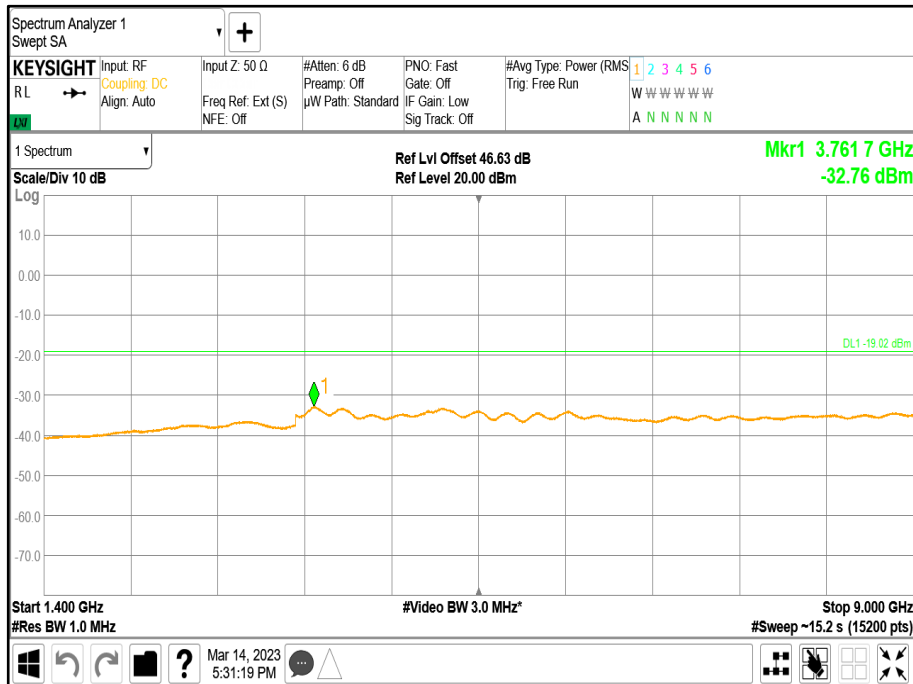




Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 20.0 MHz 30 kHz SCS - Channel Position M - Band 1 - Range 0.009 to 1400 MHz

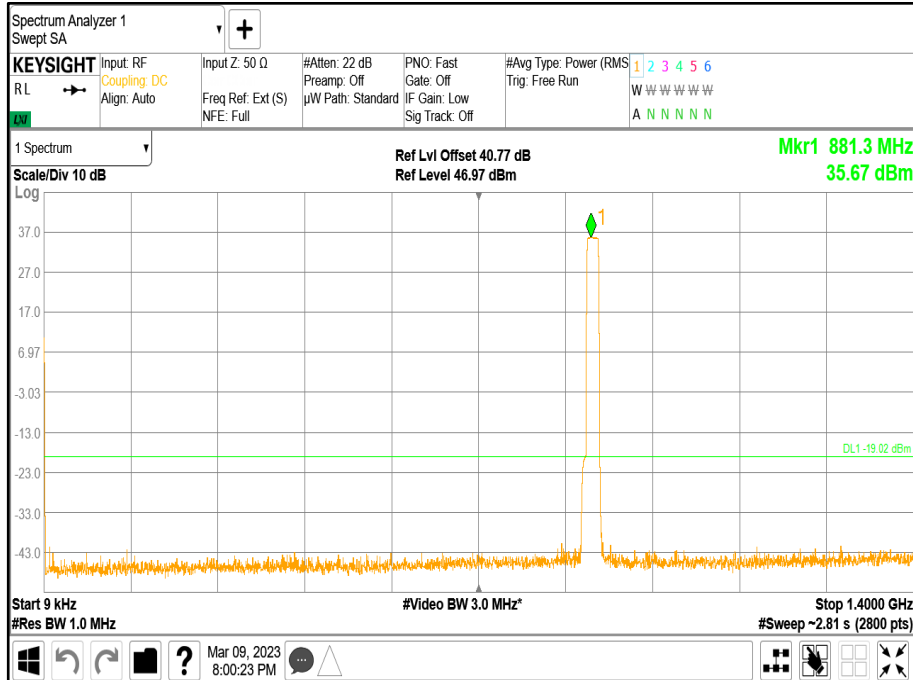


Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 20.0 MHz 30 kHz SCS - Channel Position M - Band 2 - Range 1400 to 9000 MHz

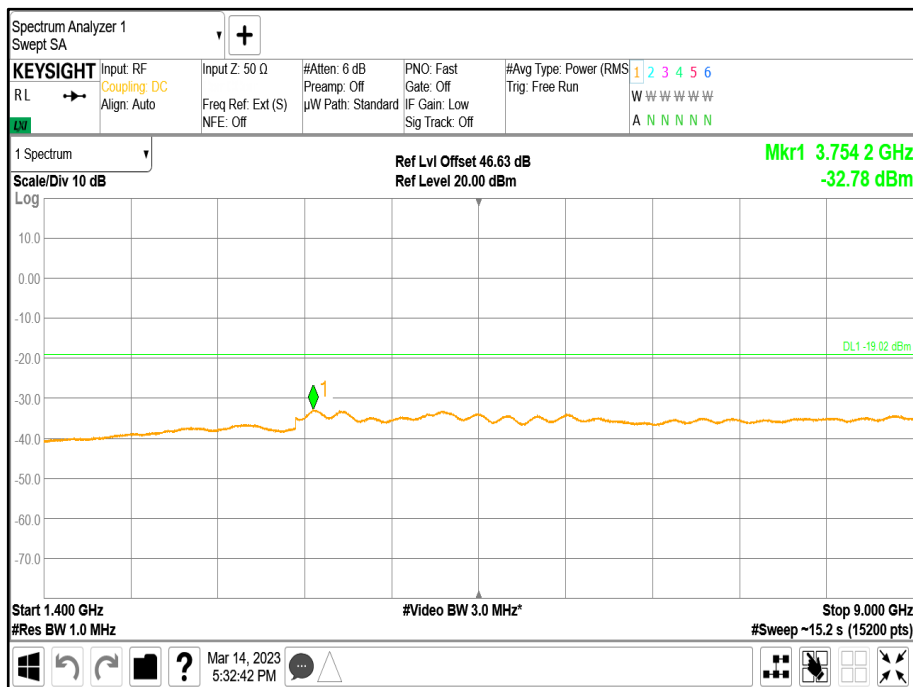




Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 20.0 MHz 30 kHz SCS - Channel Position T - Band 1 - Range 0.009 to 1400 MHz

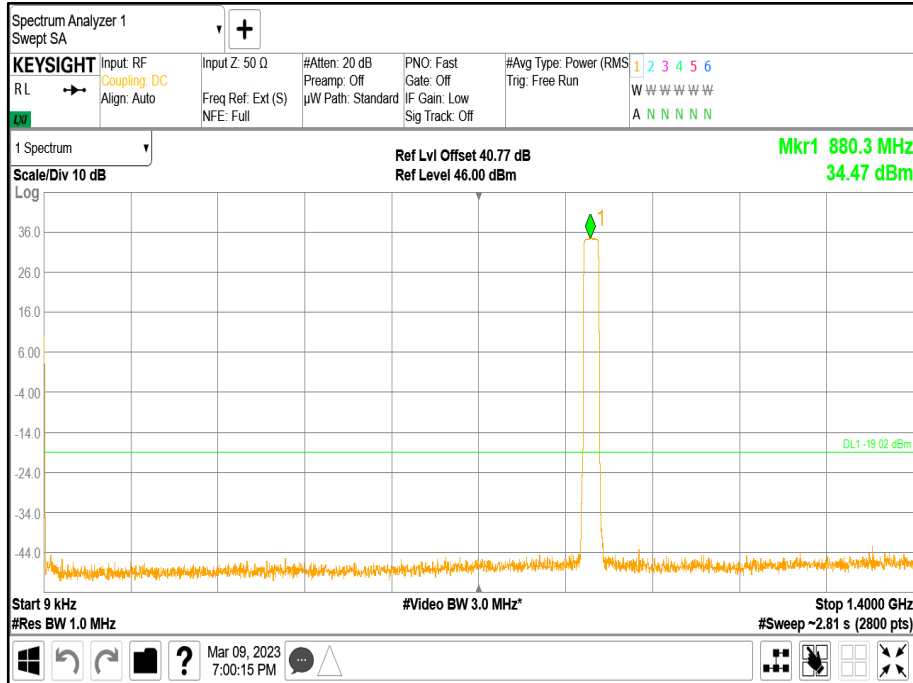


Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 20.0 MHz 30 kHz SCS - Channel Position T - Band 2 - Range 1400 to 9000 MHz

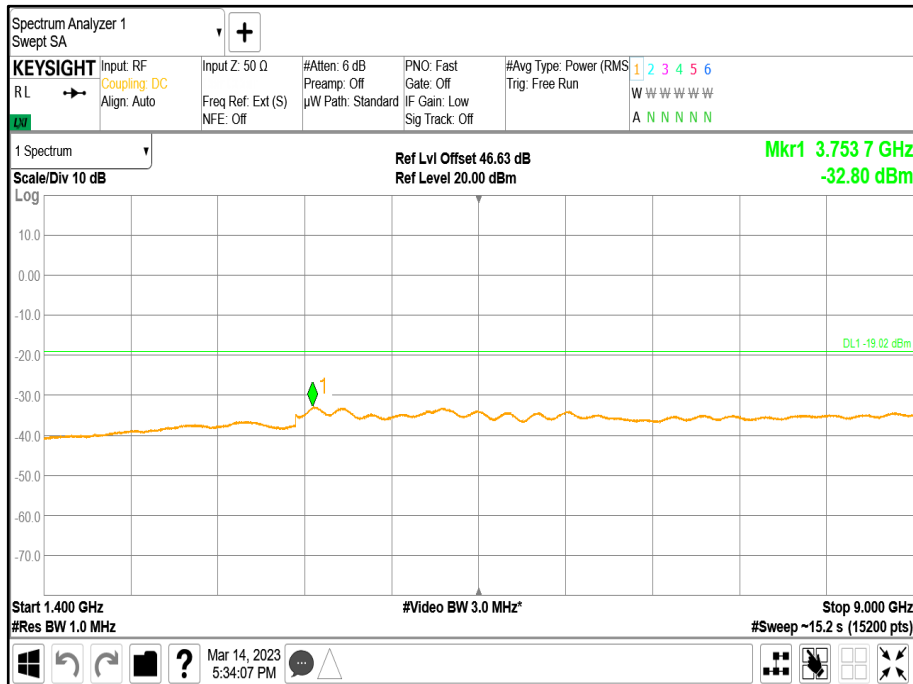




Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 25.0 MHz 30 kHz SCS - Channel Position B - Band 1 - Range 0.009 to 1400 MHz



Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 25.0 MHz 30 kHz SCS - Channel Position M - Band 2 - Range 1400 to 9000 MHz

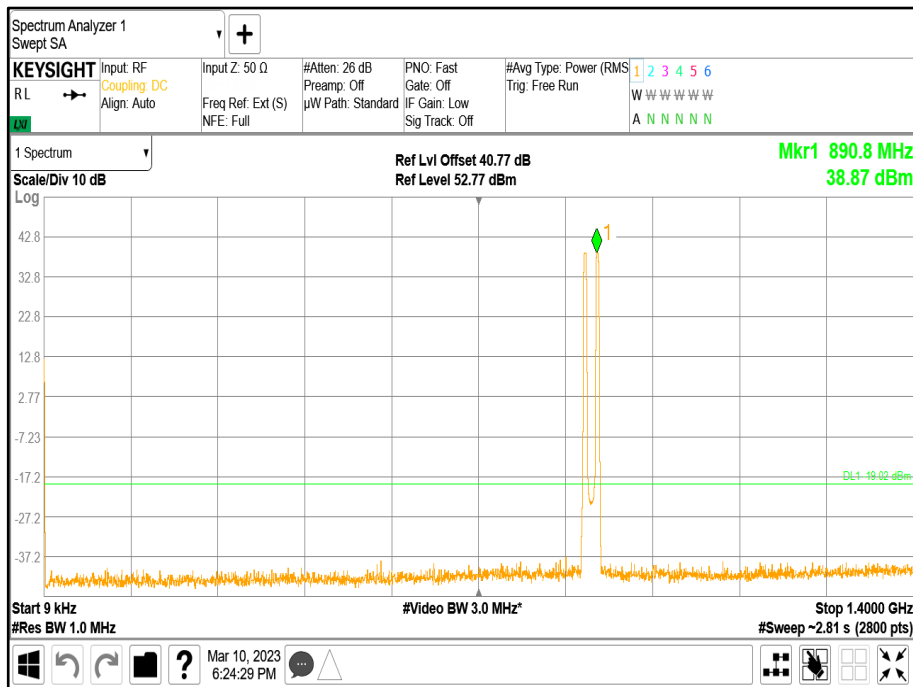




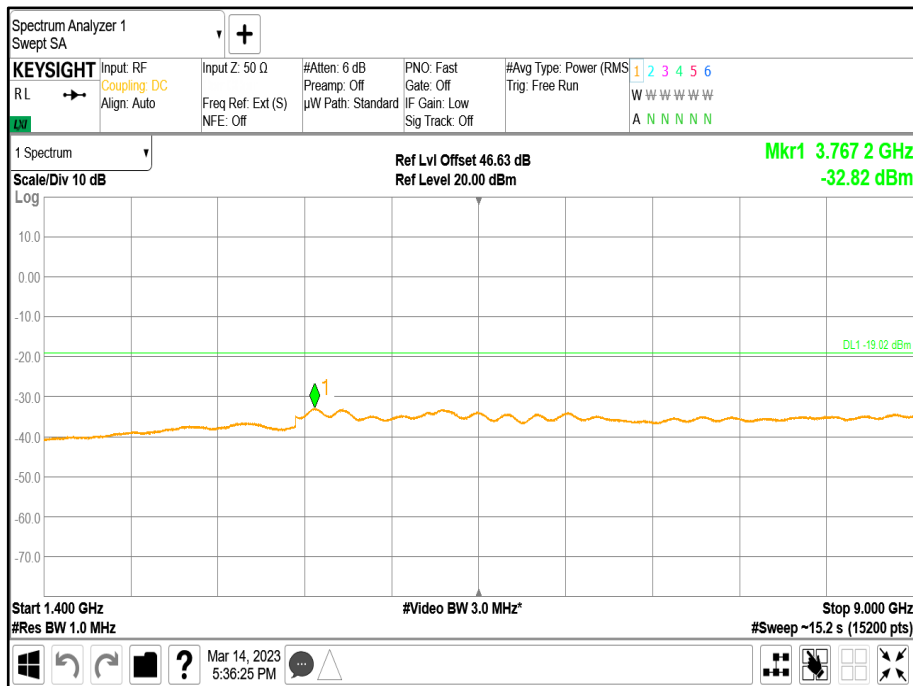
### Configuration 5

Maximum Output Power 47.80 dBm

Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 5.0 MHz 15 kHz SCS - Channel Position M - Band 1 - Range 0.009 to 1400 MHz



Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 5.0 MHz 15 kHz SCS - Channel Position M - Band 2 - Range 1400 to 9000 MHz

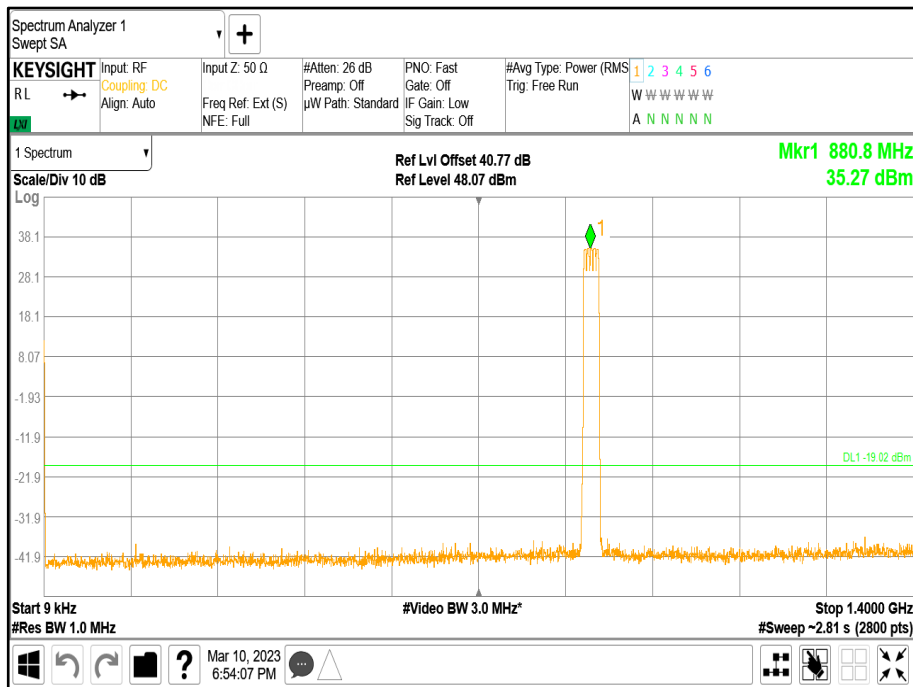




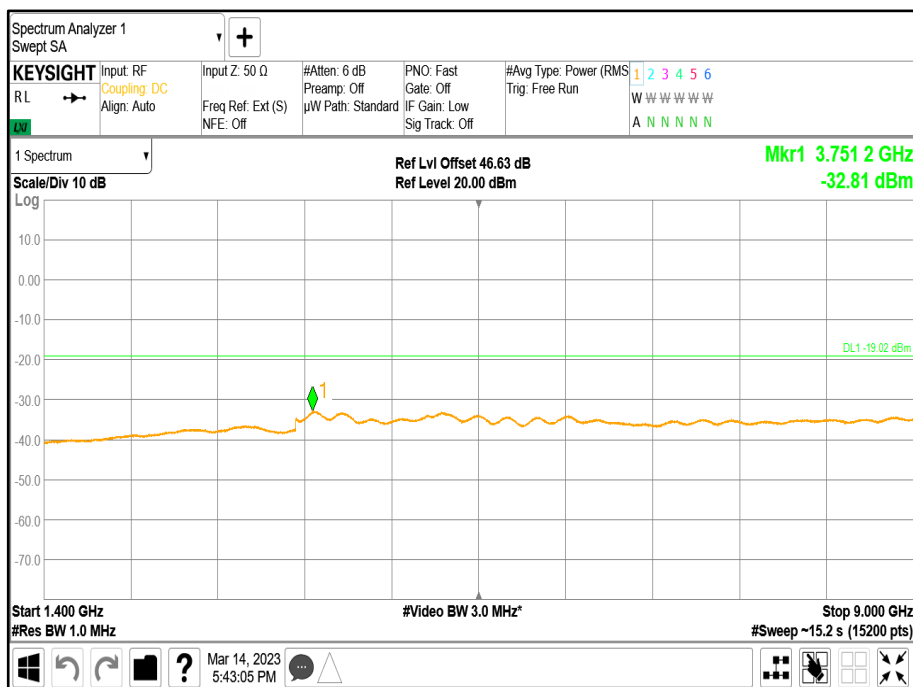
### Configuration 6

Maximum Output Power 47.80 dBm

Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 5.0 MHz 15 kHz SCS - Channel Position M - Band 1 - Range 0.009 to 1400 MHz



Antenna 2 - NR Modulation QPSK - NR Carrier Bandwidth 5.0 MHz 15 kHz SCS - Channel Position M - Band 2 - Range 1400 to 9000 MHz

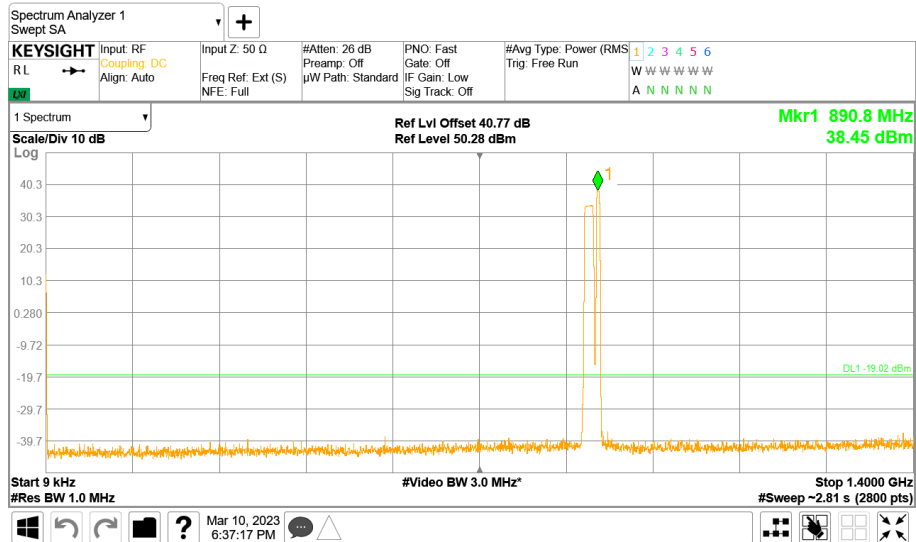




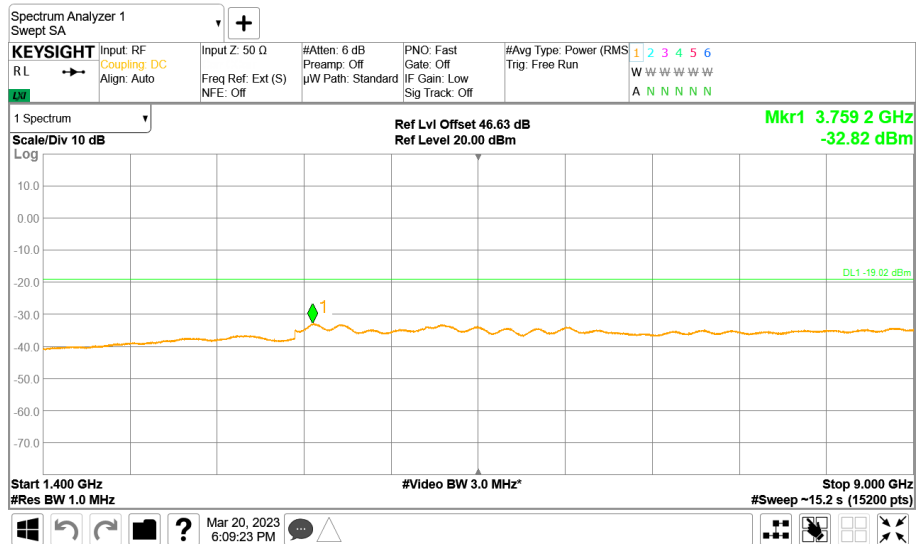
### Configuration 7

Maximum Output Power 47.80 dBm

Antenna 2 - LTE / NR Modulation QPSK / QPSK - LTE / NR Carrier Bandwidth 15.0 MHz / 5.0 MHz - Channel Position M - Band 1 - Range 0.009 to 1400 MHz



Antenna 2 - LTE / NR Modulation QPSK / QPSK - LTE / NR Carrier Bandwidth 15.0 MHz / 5.0 MHz - Channel Position M - Band 2 - Range 1400 to 9000 MHz

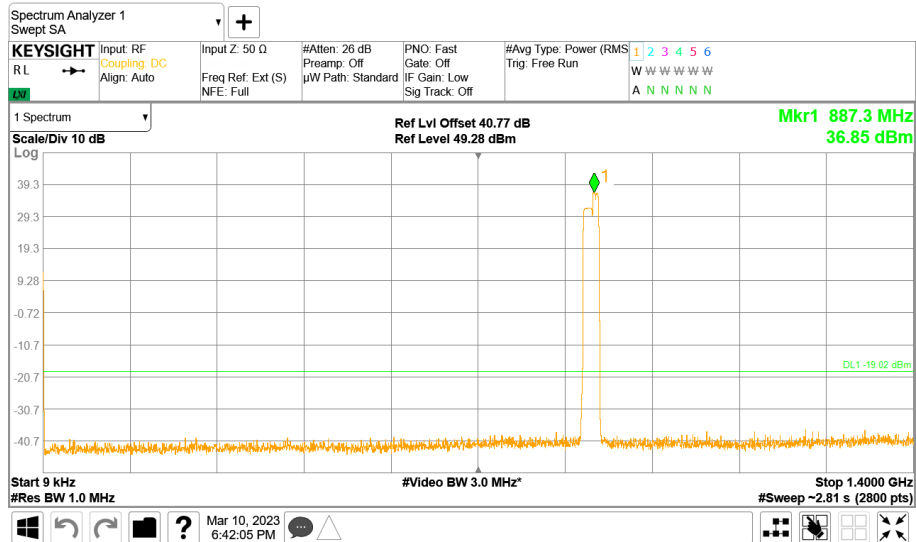




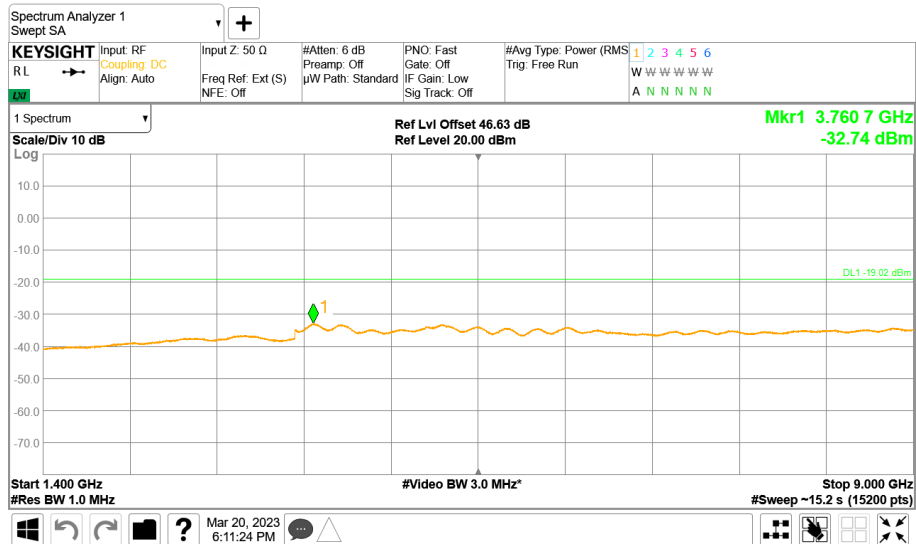
### Configuration 8

Maximum Output Power 47.80 dBm

Antenna 2 - LTE / NR Modulation QPSK / QPSK - LTE / NR Carrier Bandwidth 15.0 MHz / 5.0 MHz - Channel Position M - Band 1 - Range 0.009 to 1400 MHz



Antenna 2 - LTE / NR Modulation QPSK / QPSK - LTE / NR Carrier Bandwidth 15.0 MHz / 5.0 MHz - Channel Position M - Band 2 - Range 1400 to 9000 MHz

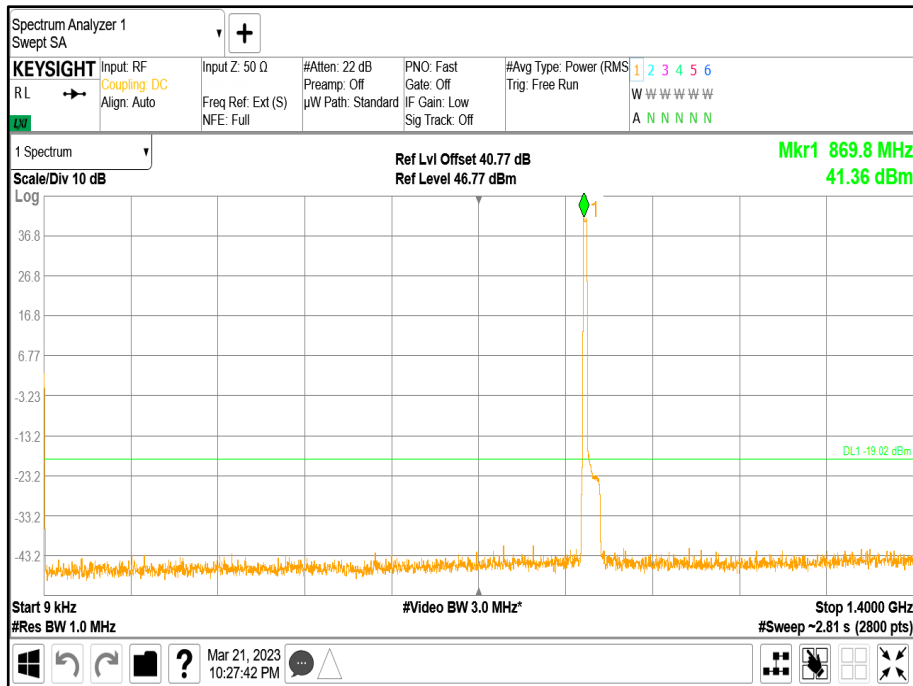




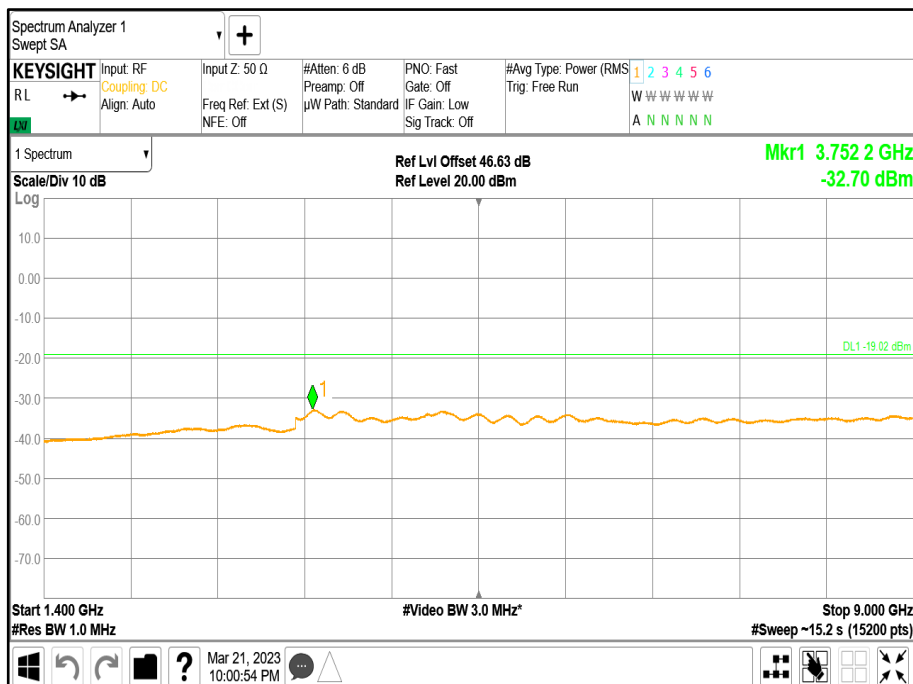
### Configuration 9

Maximum Output Power 47.80 dBm

Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 5.0 MHz - Channel Position B - Band 1 - Range 0.009 to 1400 MHz



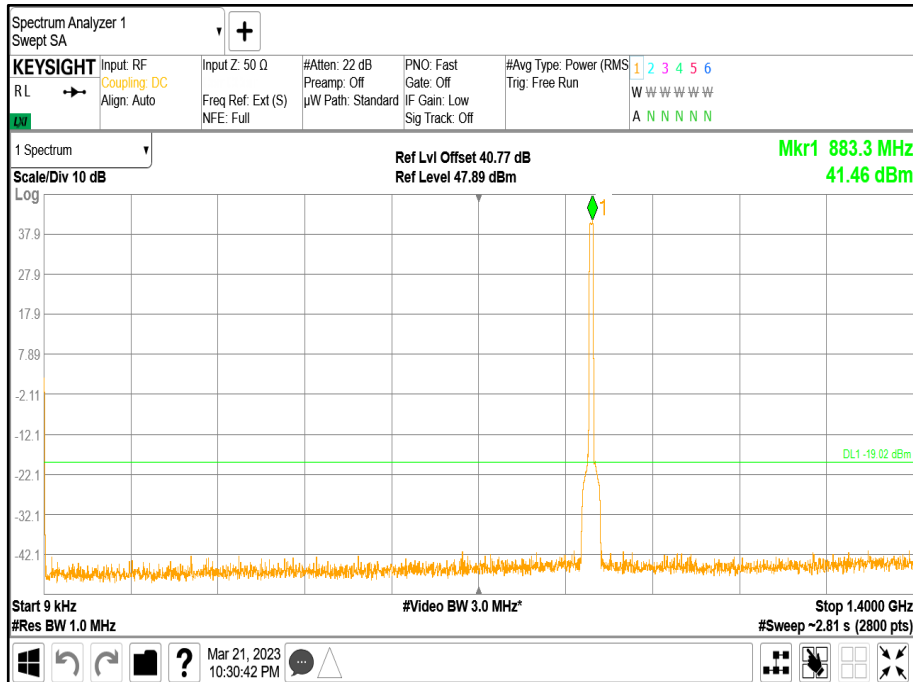
Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 5.0 MHz - Channel Position B - Band 2 - Range 1400 to 9000 MHz



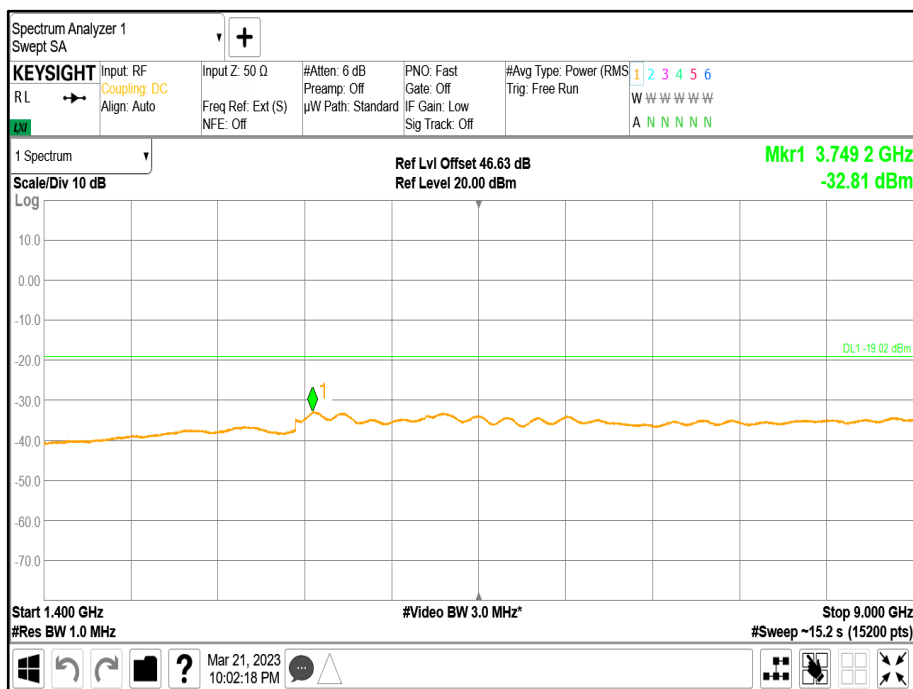




Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 5.0 MHz - Channel Position M - Band 1 - Range 0.009 to 1400 MHz

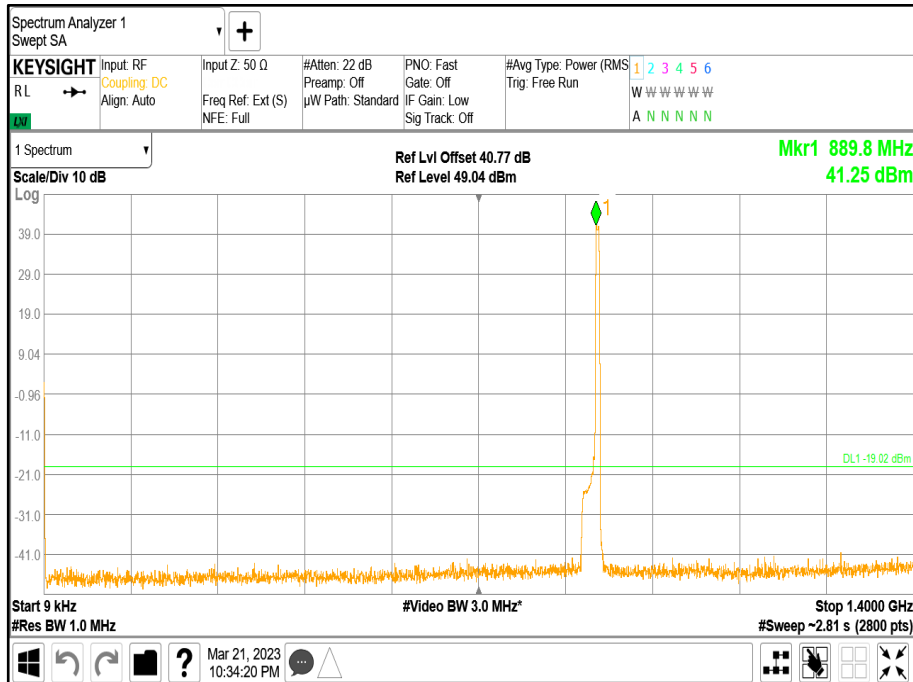


Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 5.0 MHz - Channel Position M - Band 2 - Range 1400 to 9000 MHz

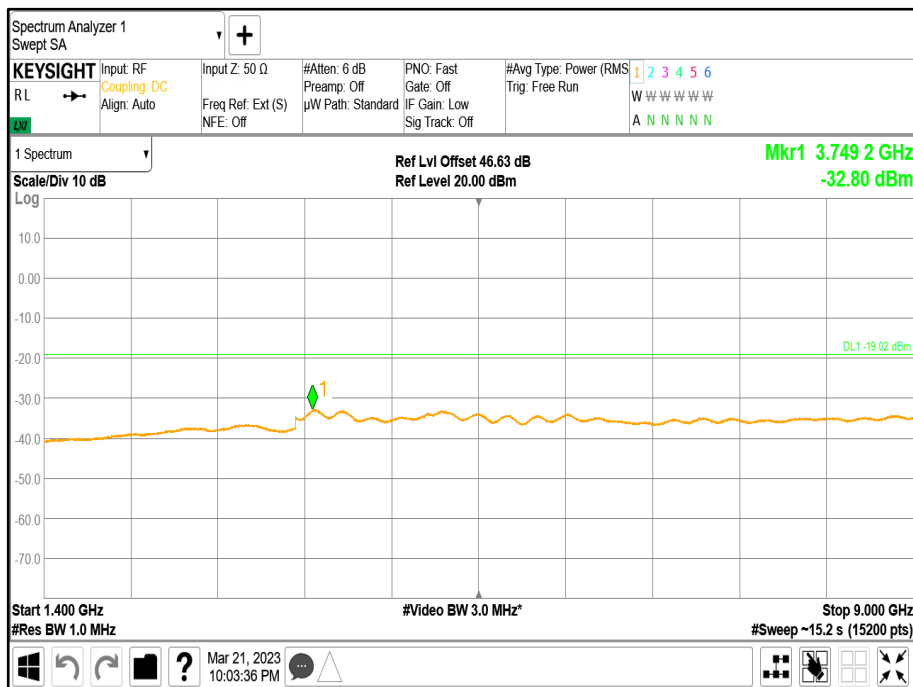




Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 5.0 MHz - Channel Position T - Band 1 - Range 0.009 to 1400 MHz

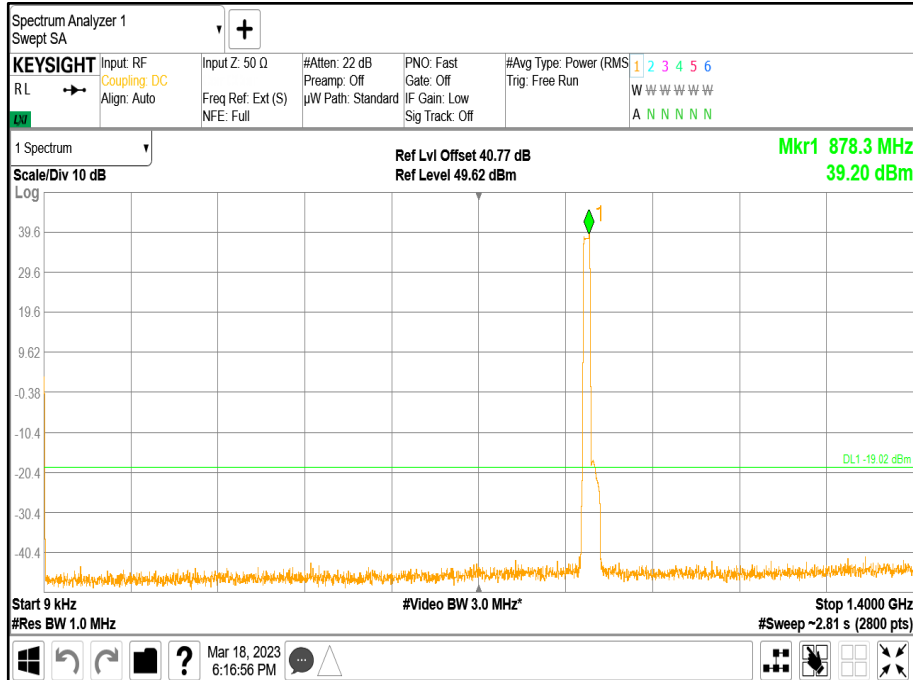


Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 5.0 MHz - Channel Position T - Band 2 - Range 1400 to 9000 MHz

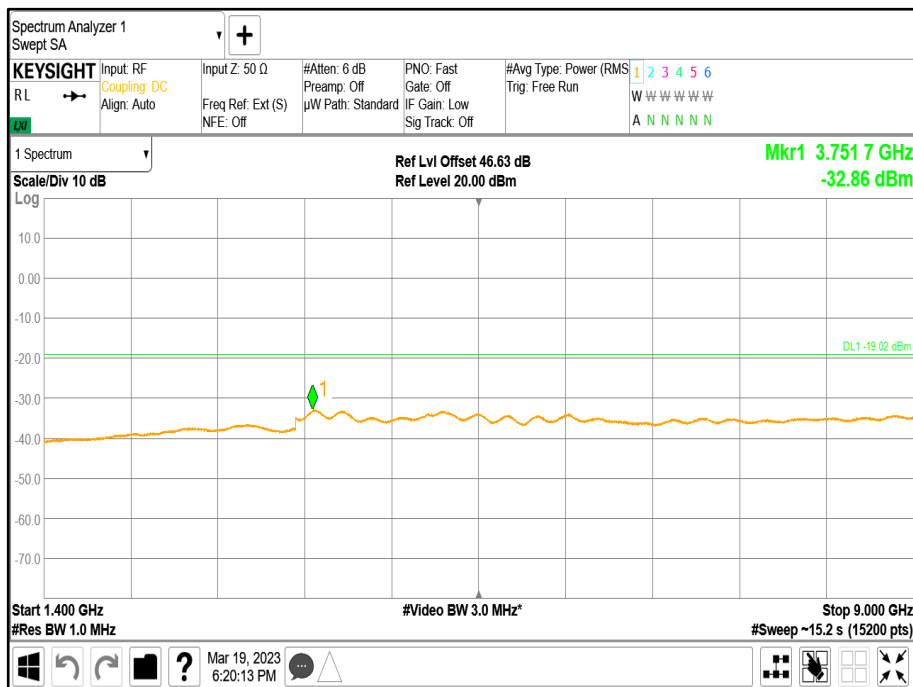




Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 10.0 MHz - Channel Position B - Band 1 - Range 0.009 to 1400 MHz

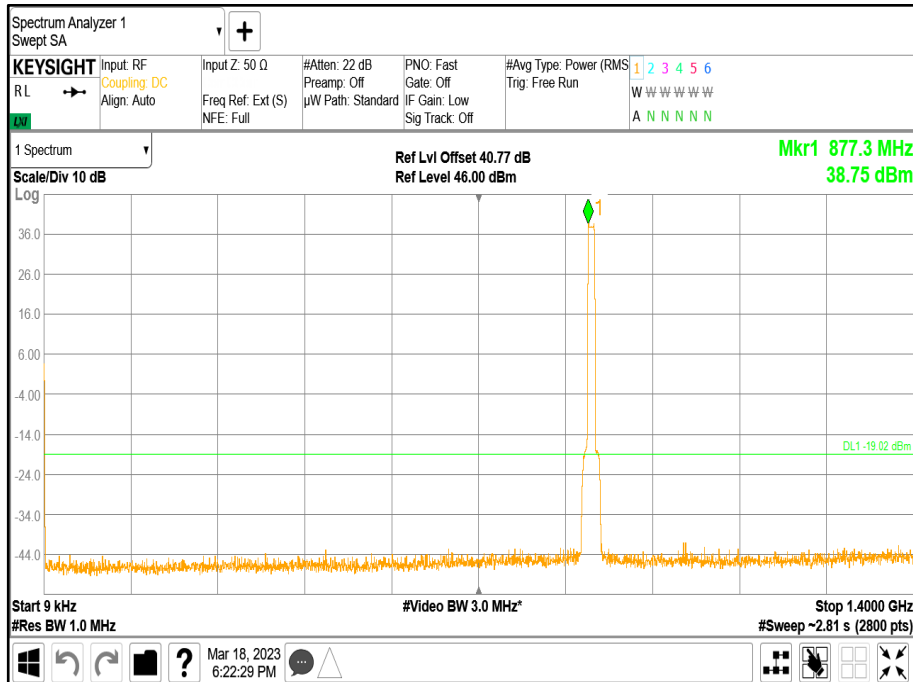


Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 10.0 MHz - Channel Position B - Band 2 - Range 1400 to 9000 MHz

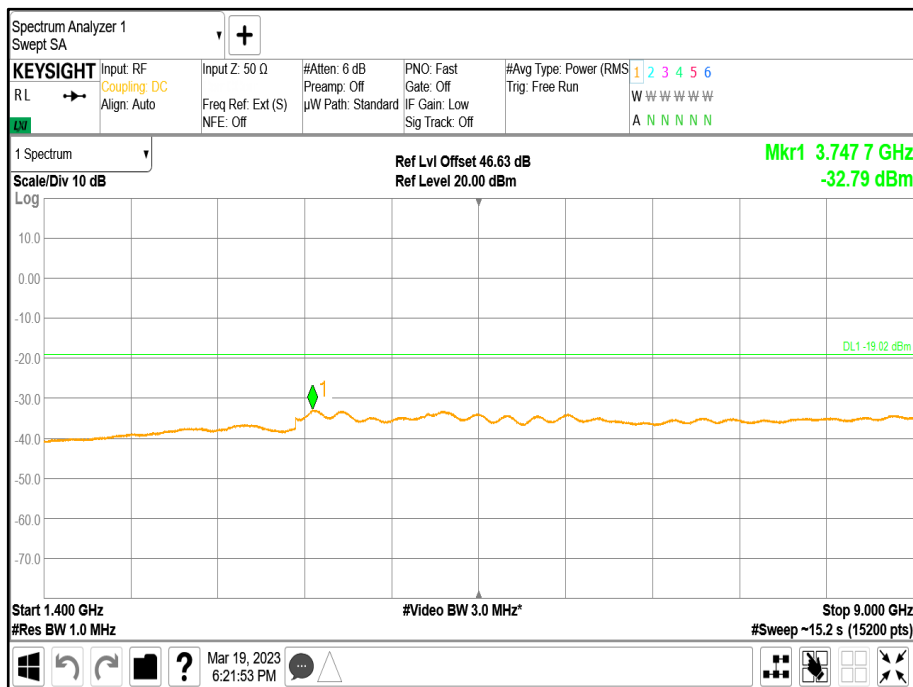




Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 10.0 MHz - Channel Position M - Band 1 - Range 0.009 to 1400 MHz

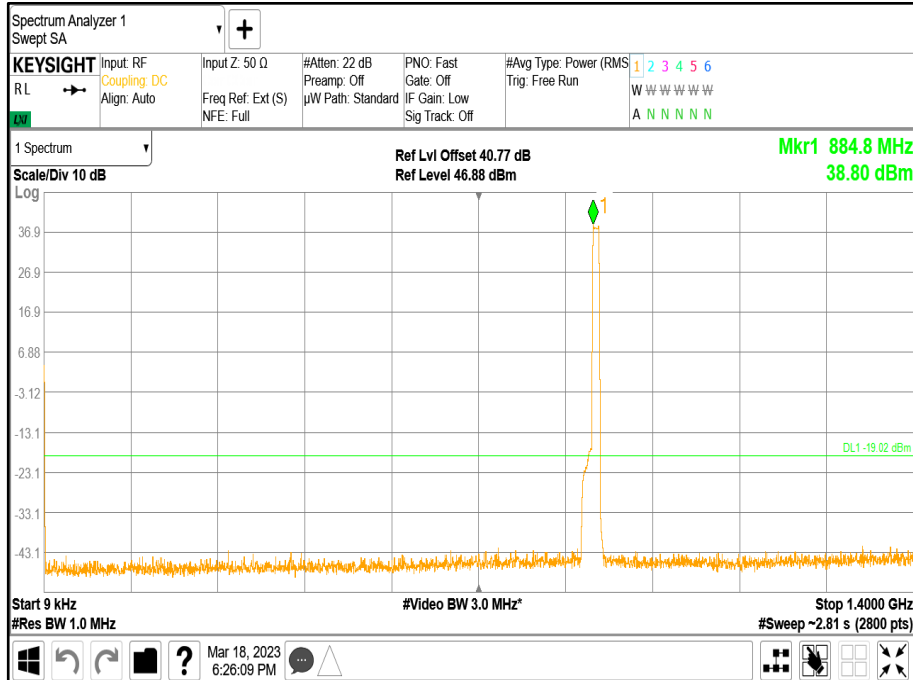


Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 10.0 MHz - Channel Position M - Band 2 - Range 1400 to 9000 MHz

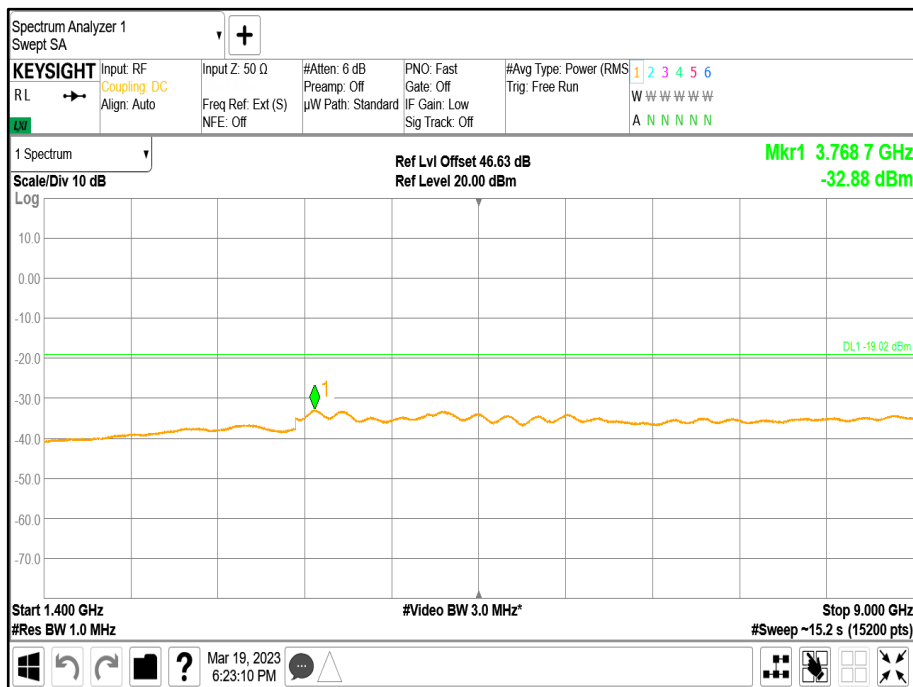




Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 10.0 MHz - Channel Position T - Band 1 - Range 0.009 to 1400 MHz

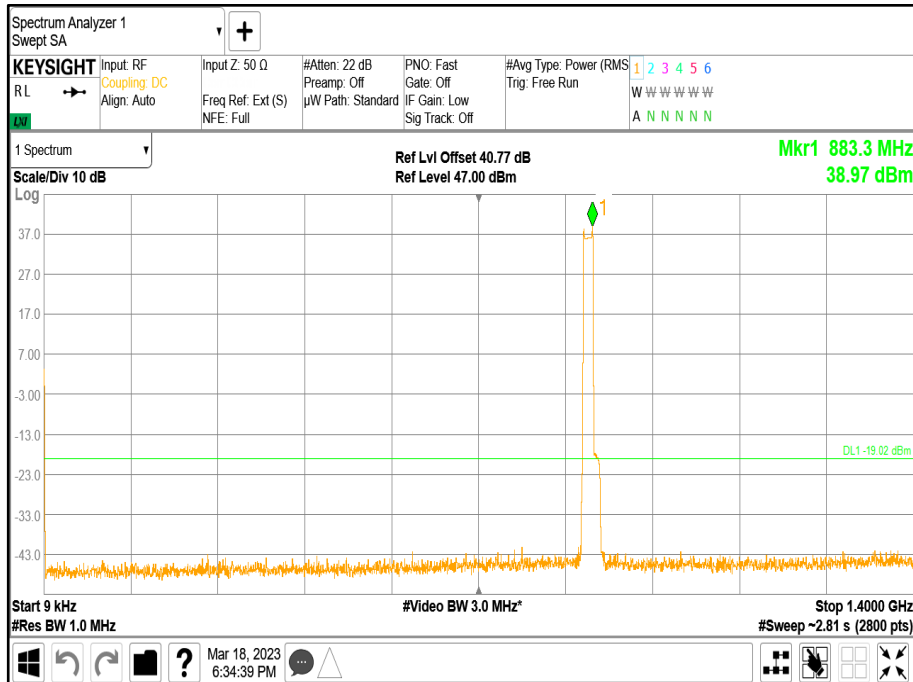


Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 10.0 MHz - Channel Position T - Band 2 - Range 1400 to 9000 MHz

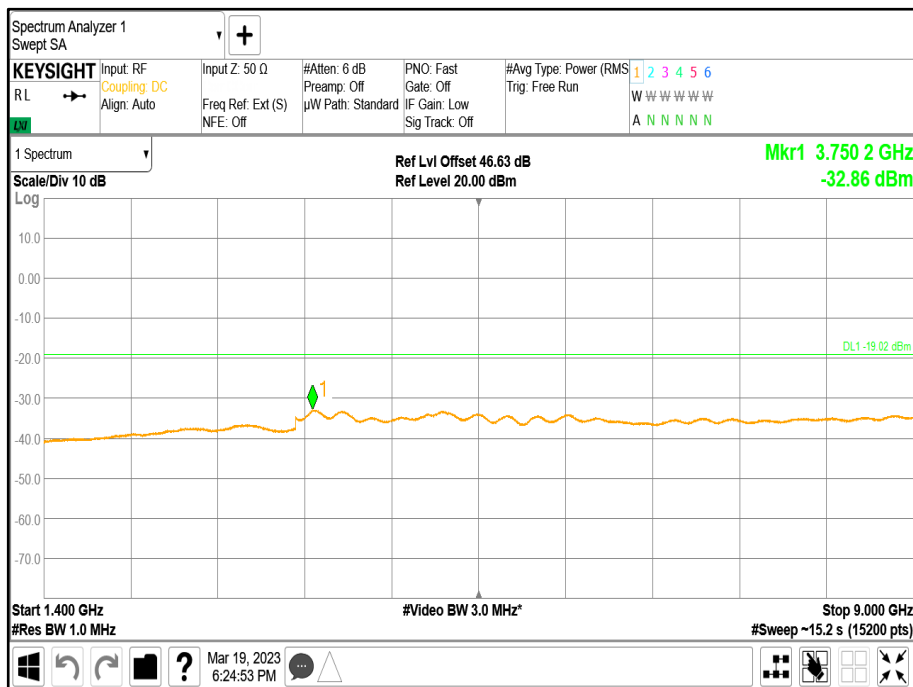




Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 15.0 MHz - Channel Position B - Band 1 - Range 0.009 to 1400 MHz

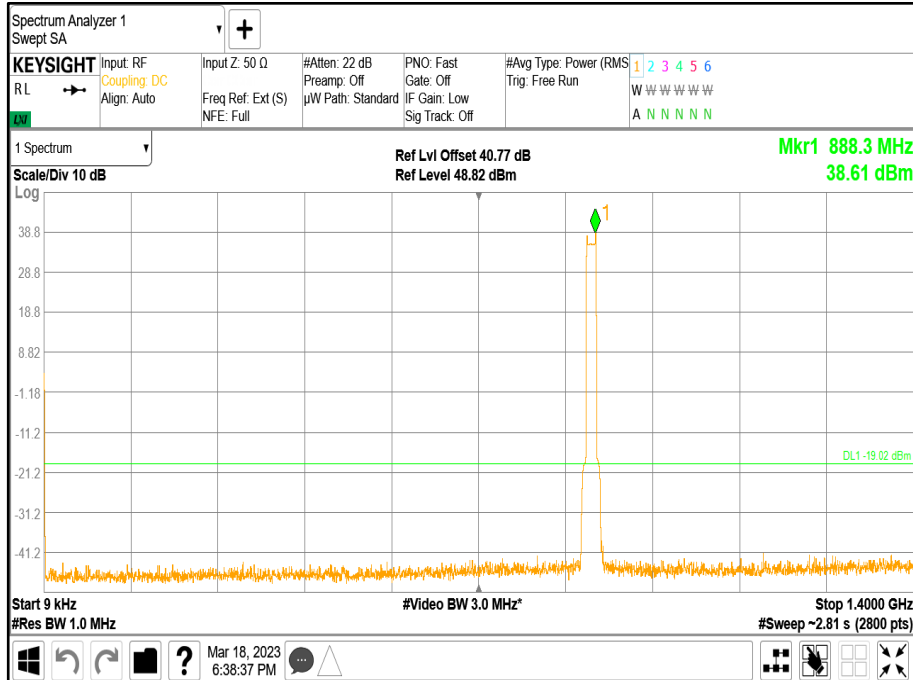


Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 15.0 MHz - Channel Position B - Band 2 - Range 1400 to 9000 MHz

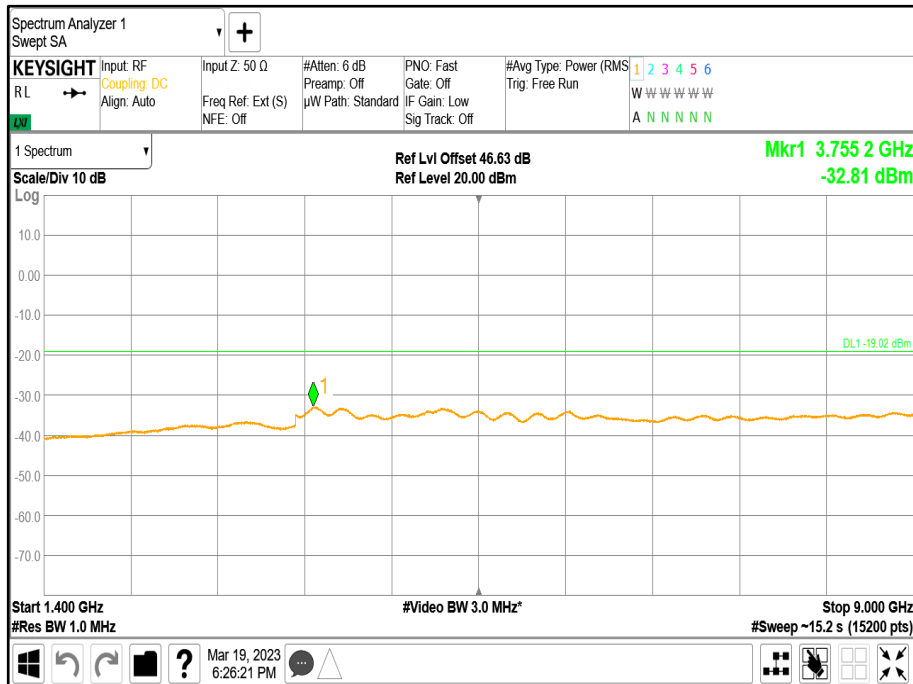




Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 15.0 MHz - Channel Position M - Band 1 - Range 0.009 to 1400 MHz

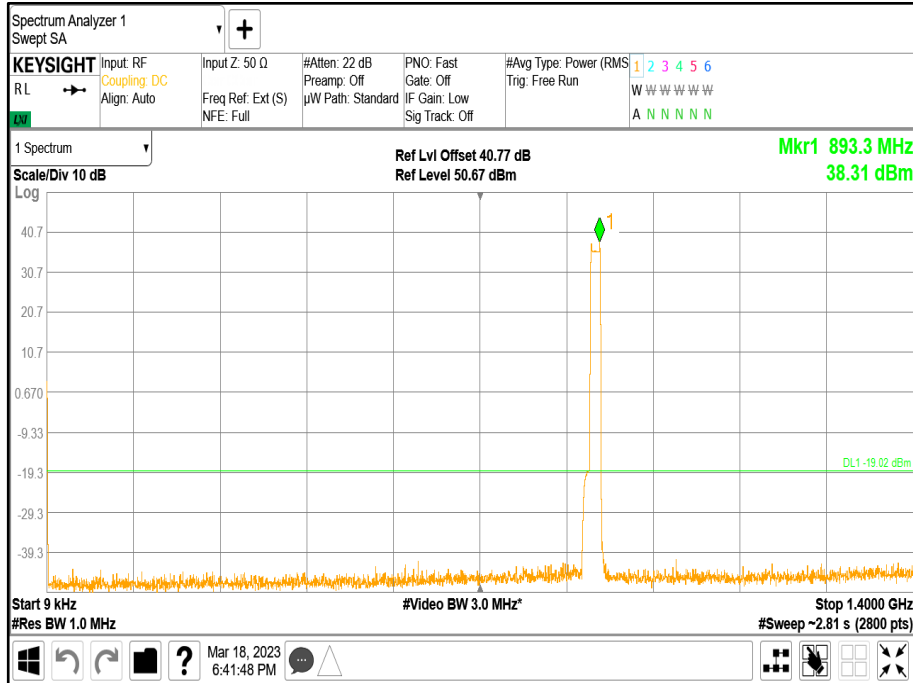


Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 15.0 MHz - Channel Position M - Band 2 - Range 1400 to 9000 MHz

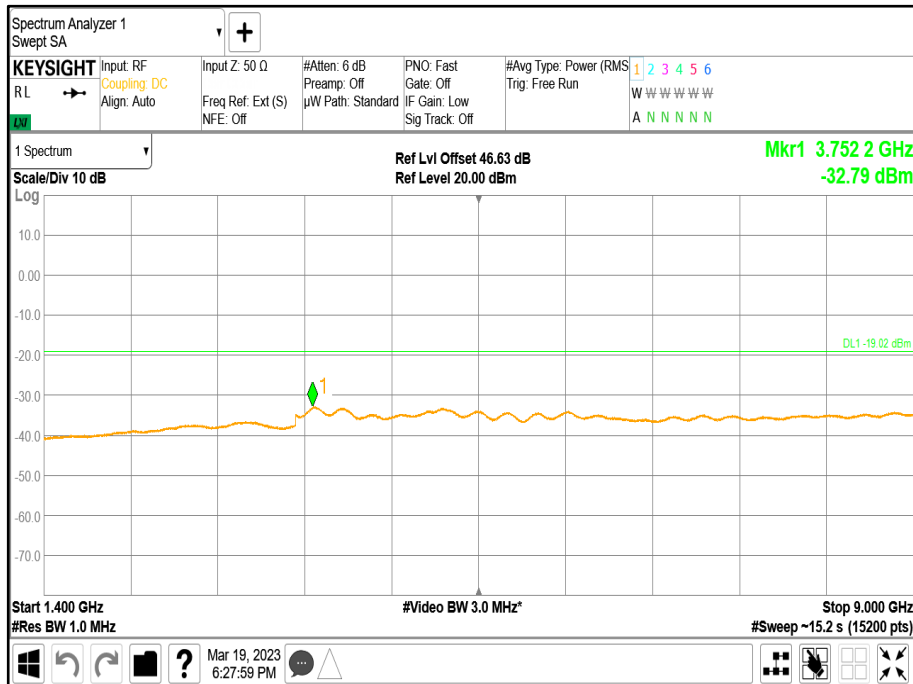




Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 15.0 MHz - Channel Position T - Band 1 - Range 0.009 to 1400 MHz



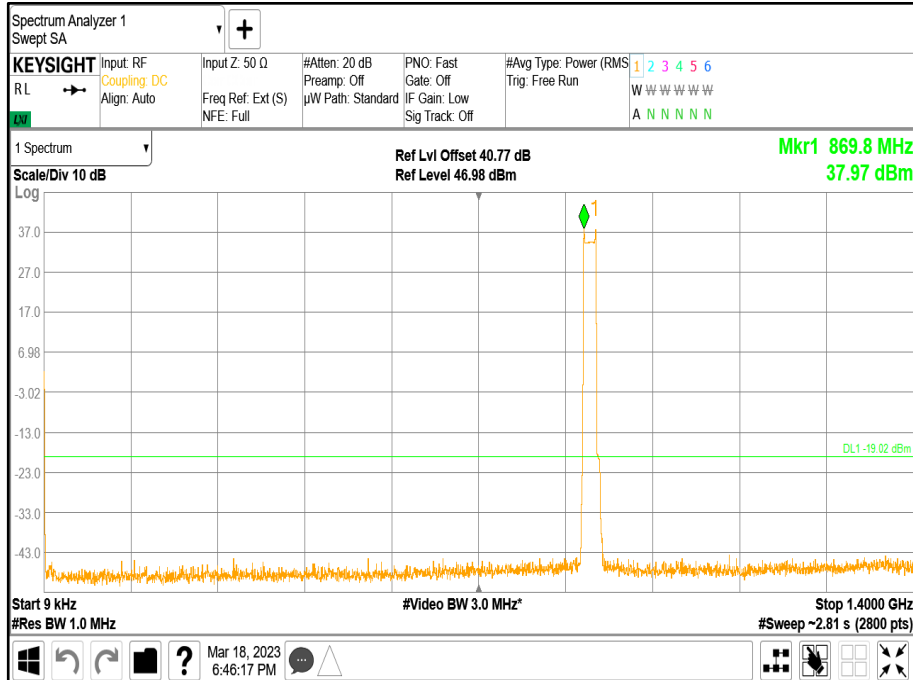
Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 15.0 MHz - Channel Position T - Band 2 - Range 1400 to 9000 MHz



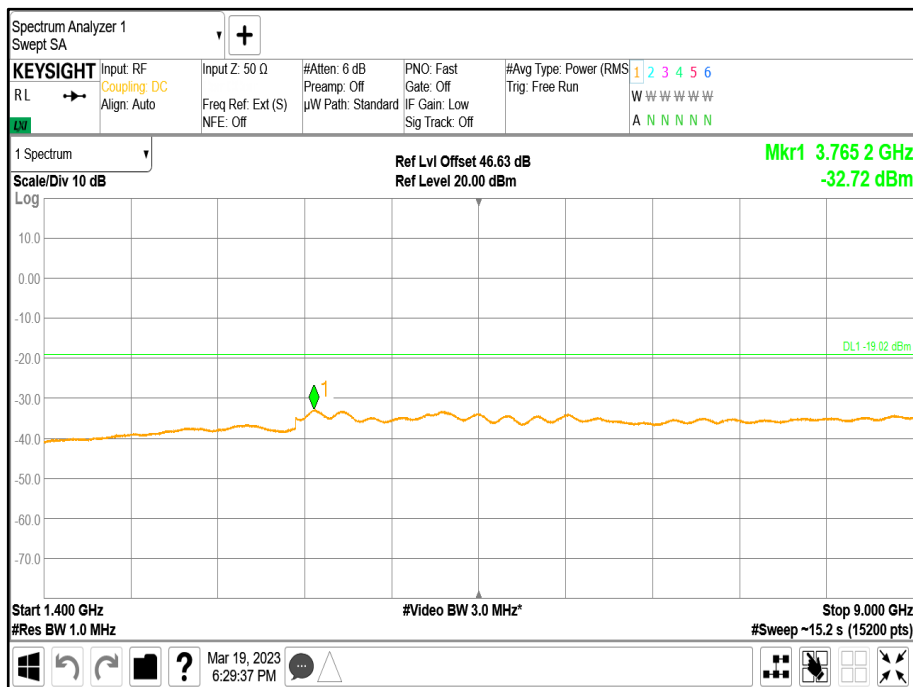




Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 20.0 MHz - Channel Position B - Band 1 - Range 0.009 to 1400 MHz

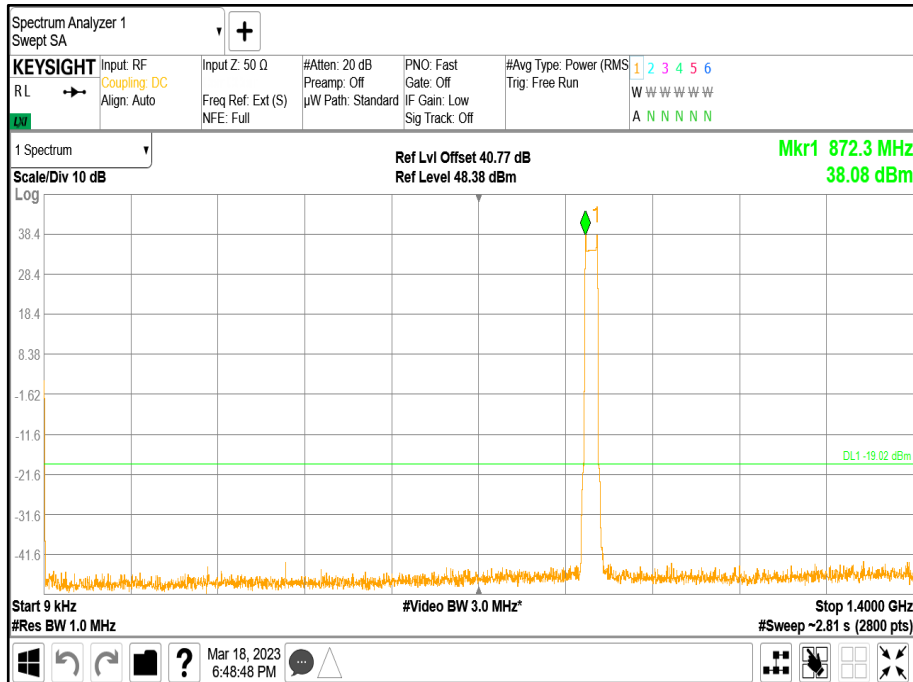


Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 20.0 MHz - Channel Position B - Band 2 - Range 1400 to 9000 MHz

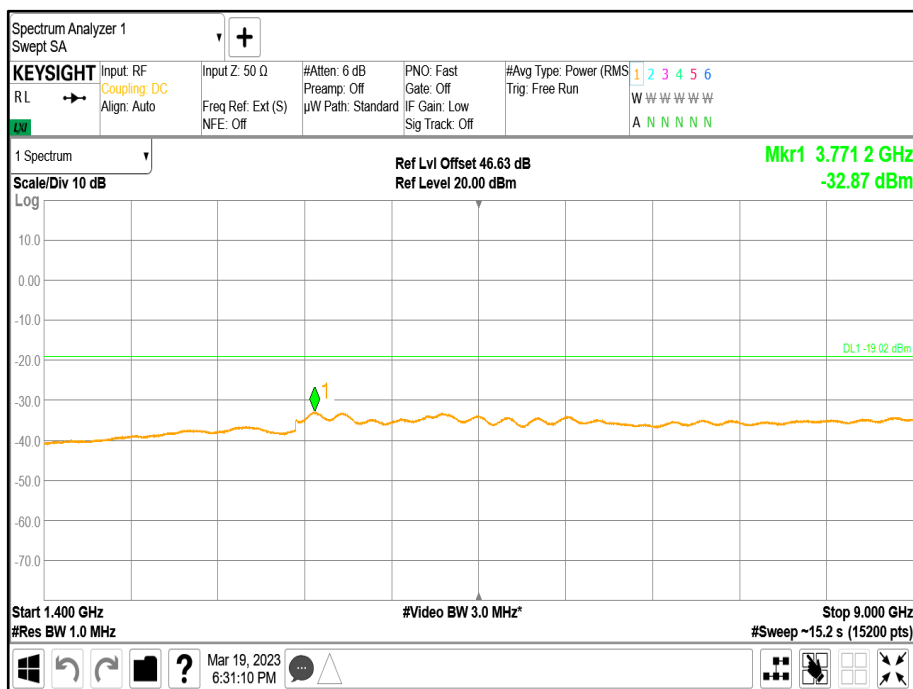




Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 20.0 MHz - Channel Position M - Band 1 - Range 0.009 to 1400 MHz

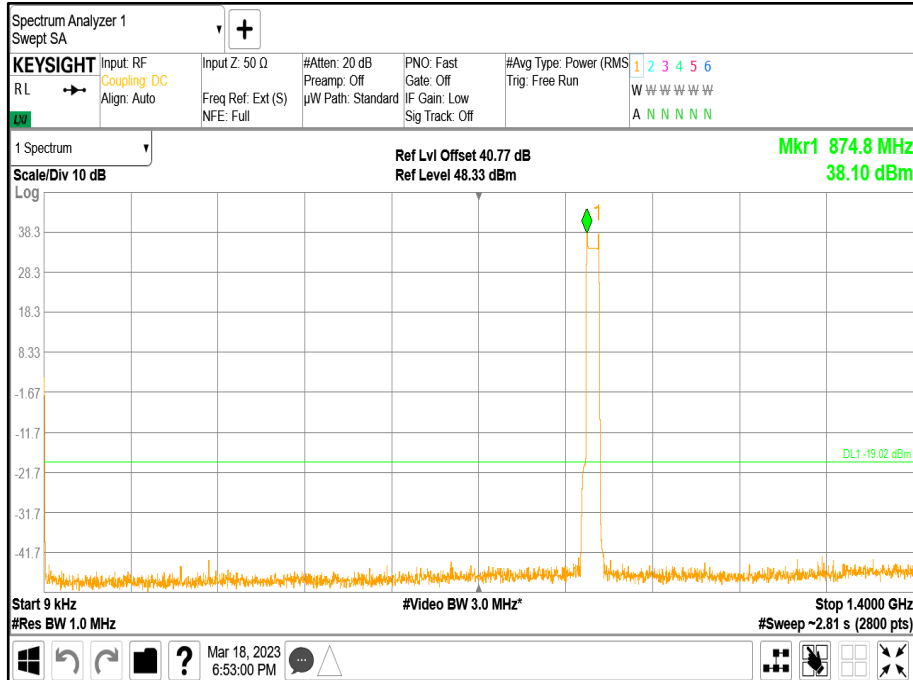


Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 20.0 MHz - Channel Position M - Band 2 - Range 1400 to 9000 MHz

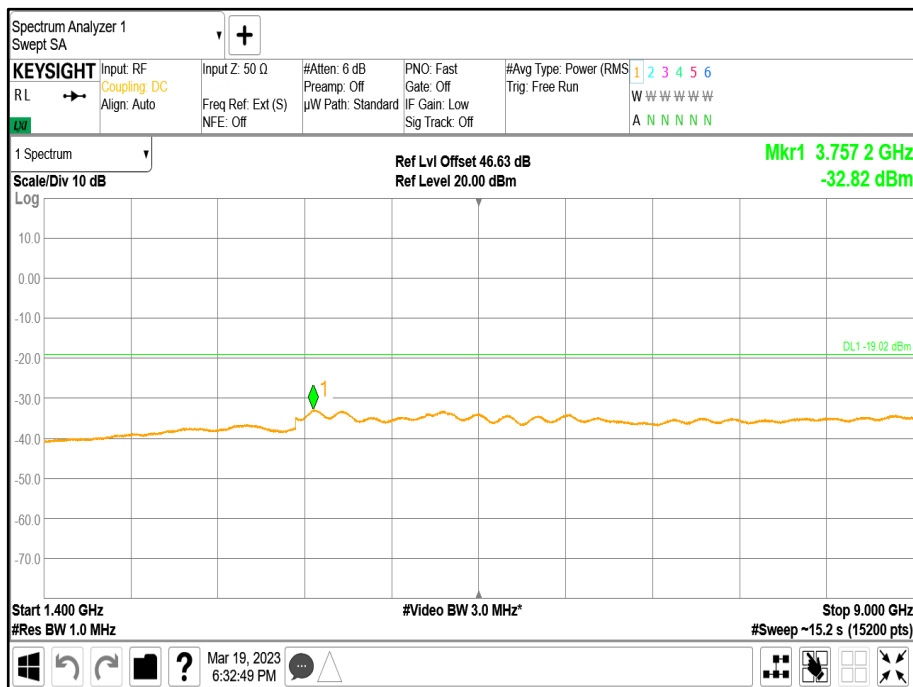




Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 20.0 MHz - Channel Position T - Band 1 - Range 0.009 to 1400 MHz

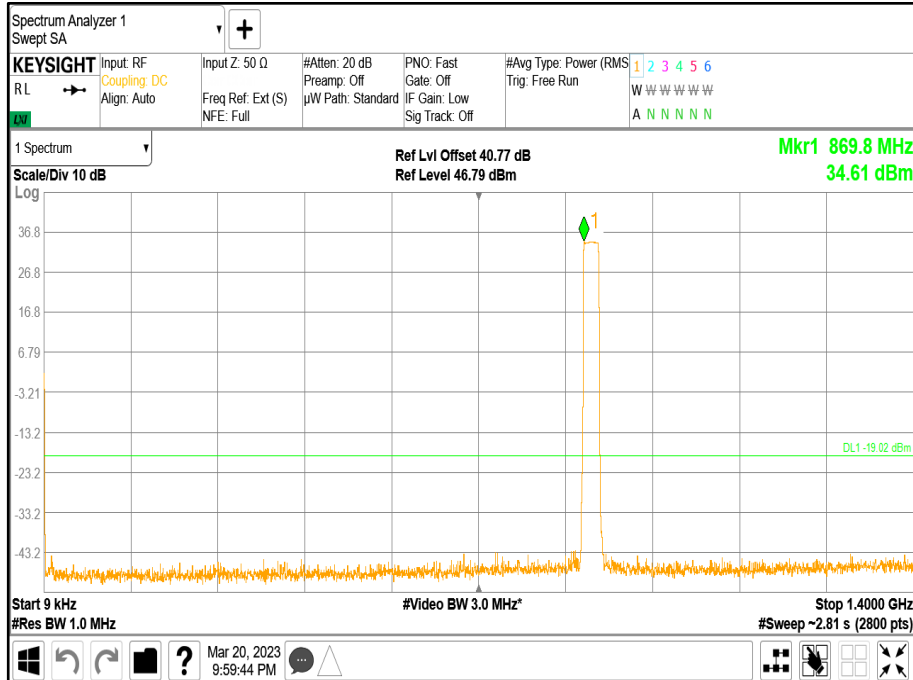


Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 20.0 MHz - Channel Position T - Band 2 - Range 1400 to 9000 MHz

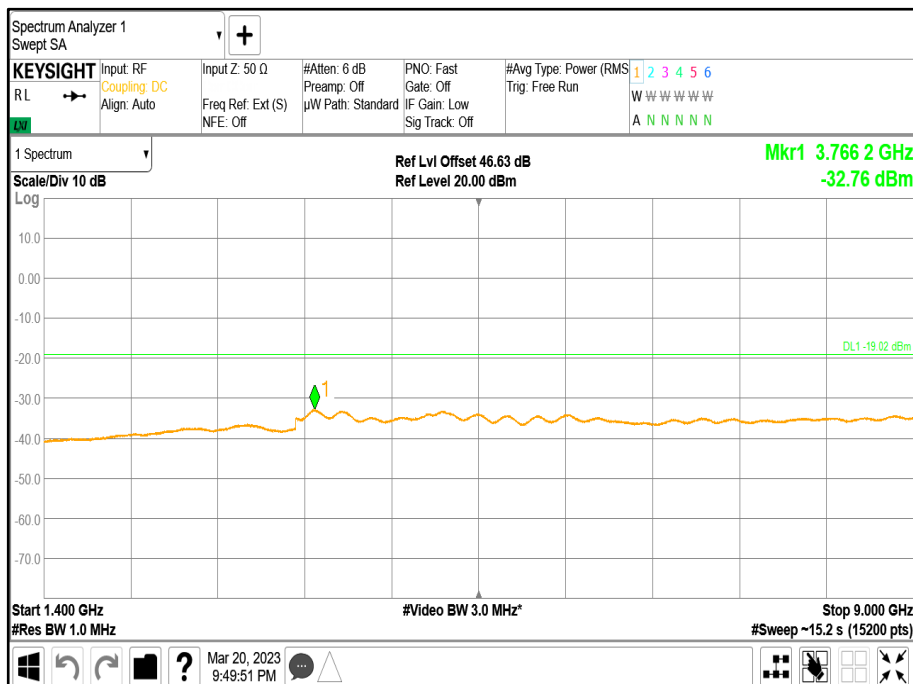




Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 25.0 MHz - Channel Position B - Band 1 - Range 0.009 to 1400 MHz

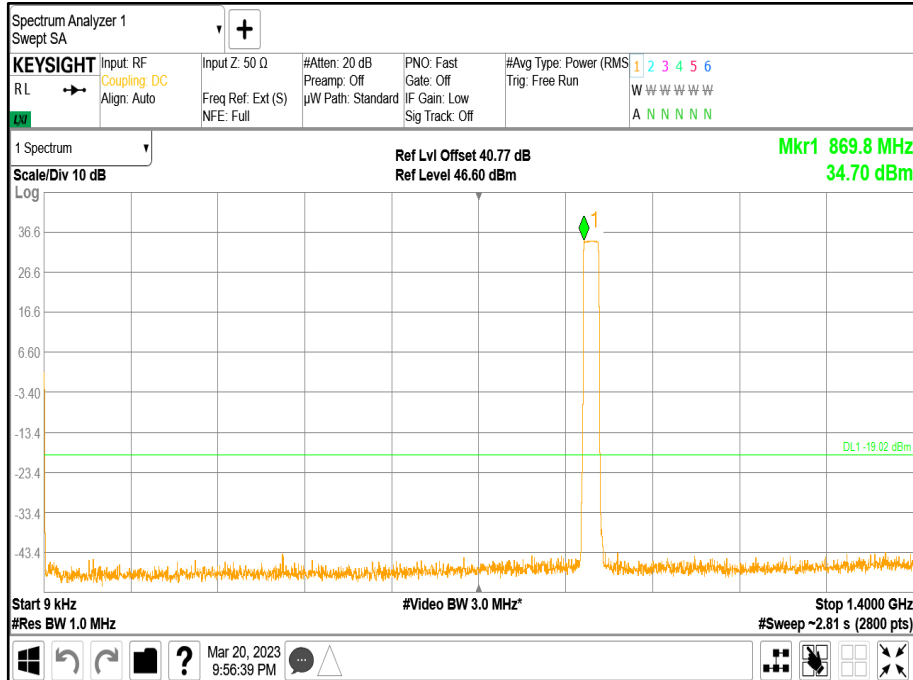


Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 25.0 MHz - Channel Position B - Band 2 - Range 1400 to 9000 MHz

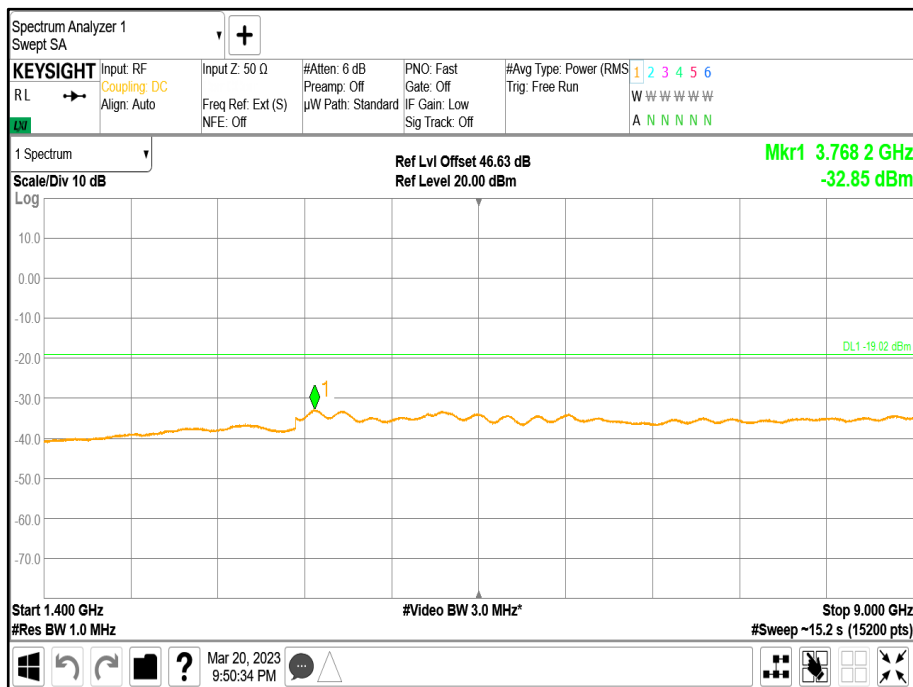




Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 25.0 MHz - Channel Position M - Band 1 - Range 0.009 to 1400 MHz

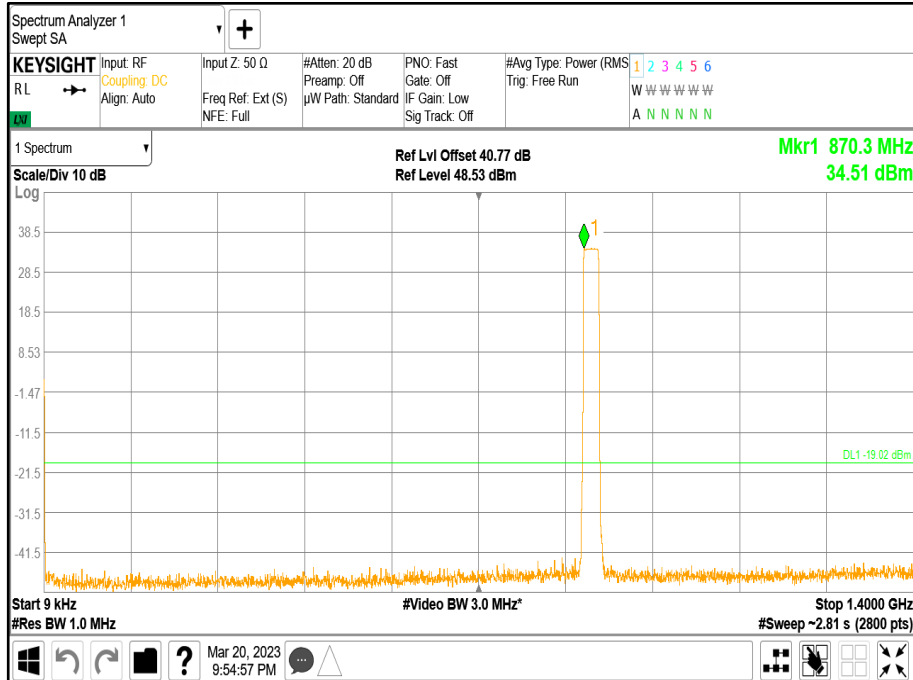


Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 25.0 MHz - Channel Position M - Band 2 - Range 1400 to 9000 MHz

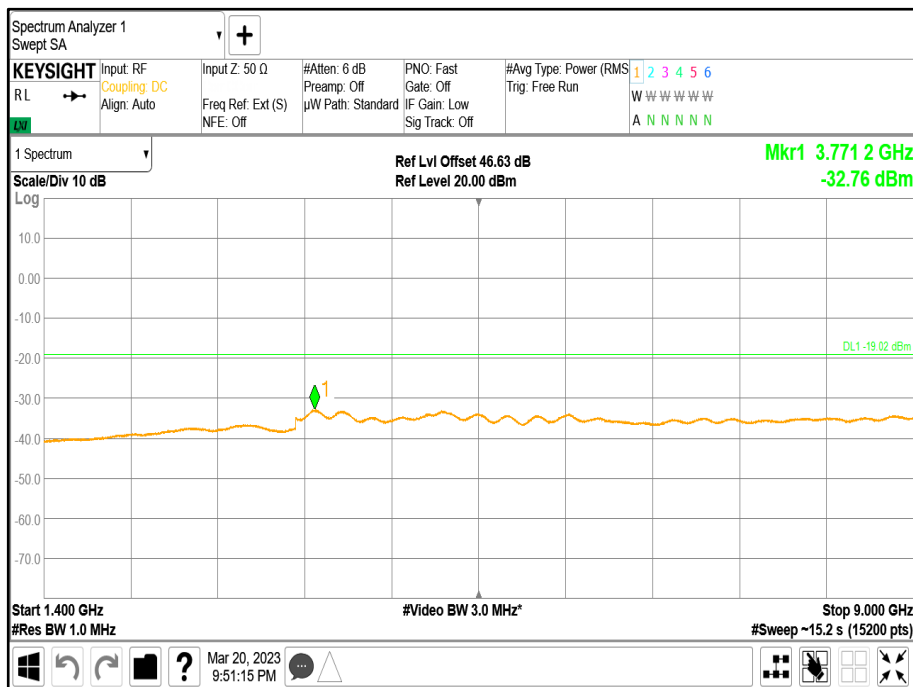




Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 25.0 MHz - Channel Position T - Band 1 - Range 0.009 to 1400 MHz



Antenna 2 - NB-IoT IB / NR Modulation QPSK - NB-IoT IB / NR Carrier Bandwidth 25.0 MHz - Channel Position T - Band 2 - Range 1400 to 9000 MHz

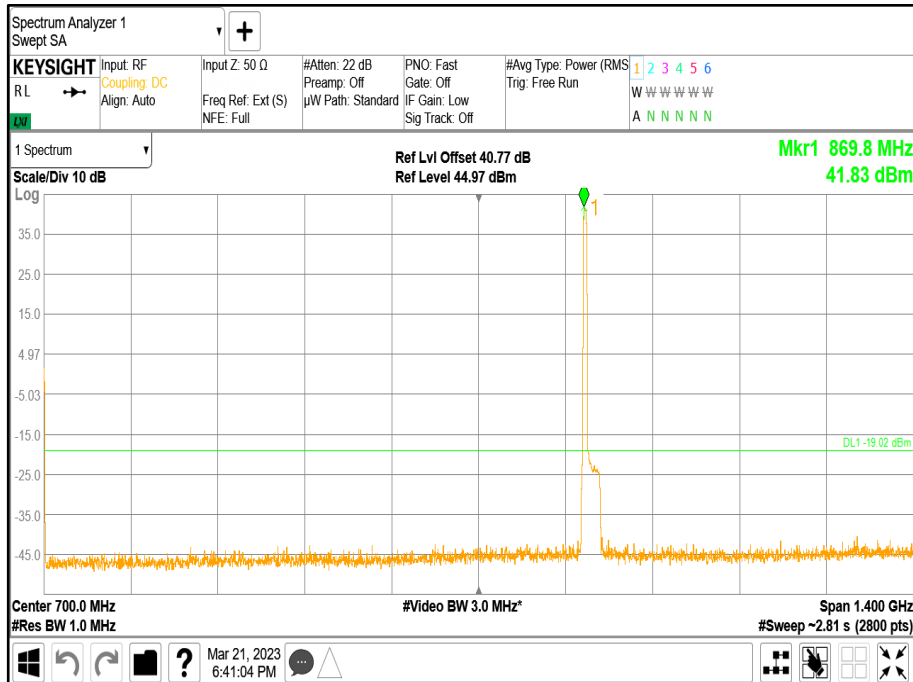


Configuration 10

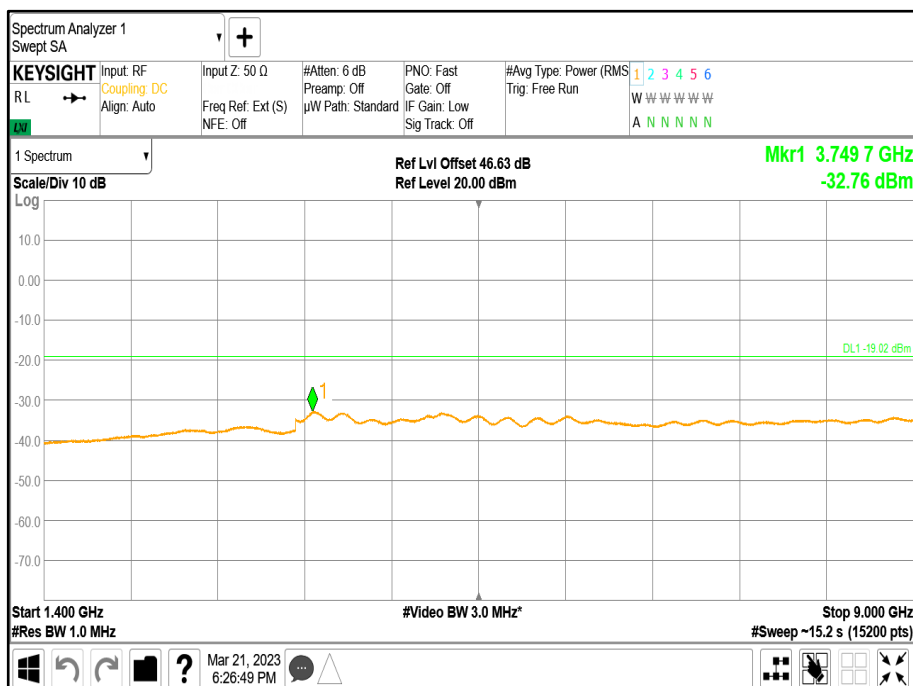
Maximum Output Power 47.80 dBm



Antenna 2 - LTE / NB-IoT IB Modulation QPSK - LTE / NB-IoT IB Carrier Bandwidth 5.00 MHz - Channel Position B - Band 1 - Range 0.009 to 1400 MHz

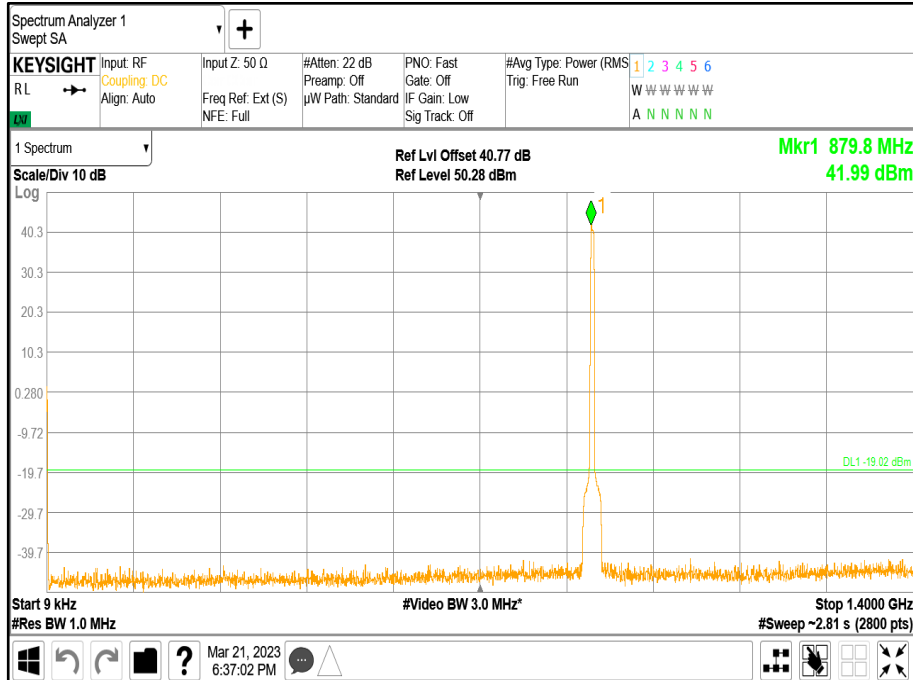


Antenna 2 - LTE / NB-IoT IB Modulation QPSK - LTE / NB-IoT IB Carrier Bandwidth 5.00 MHz - Channel Position B - Band 2 - Range 1400 to 9000 MHz

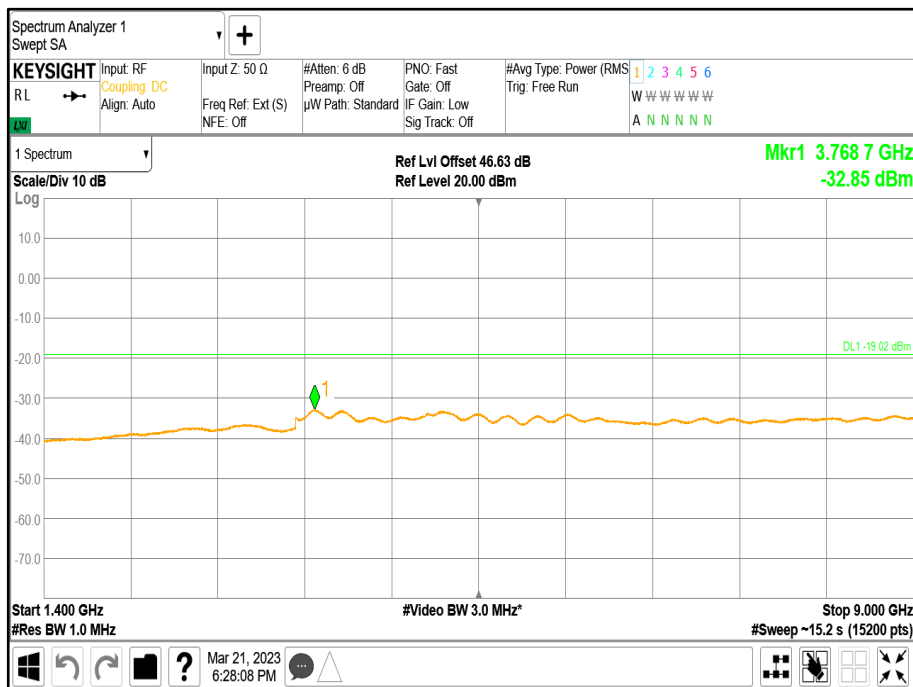




Antenna 2 - LTE / NB-IoT IB Modulation QPSK - LTE / NB-IoT IB Carrier Bandwidth 5.00 MHz - Channel Position M - Band 1 - Range 0.009 to 1400 MHz



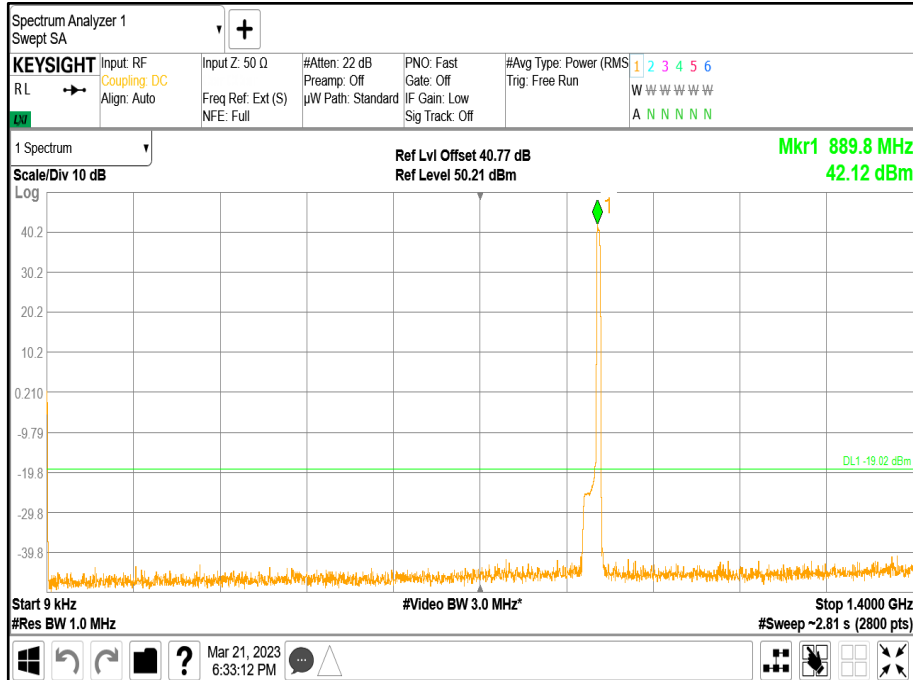
Antenna 2 - LTE / NB-IoT IB Modulation QPSK - LTE / NB-IoT IB Carrier Bandwidth 5.00 MHz - Channel Position M - Band 2 - Range 1400 to 9000 MHz



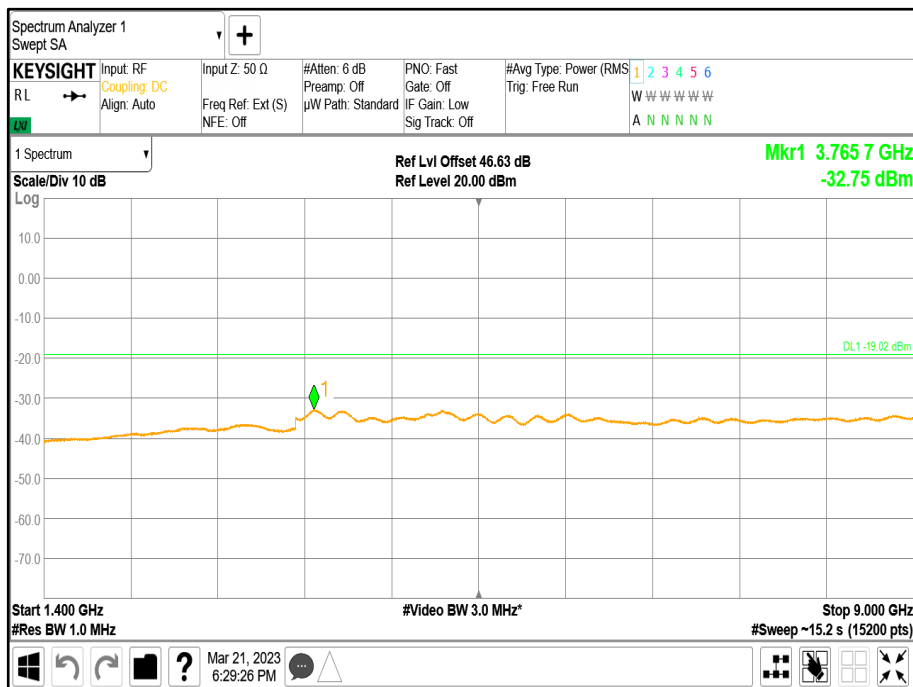




Antenna 2 - LTE / NB-IoT IB Modulation QPSK - LTE / NB-IoT IB Carrier Bandwidth 5.00 MHz - Channel Position T - Band 1 - Range 0.009 to 1400 MHz



Antenna 2 - LTE / NB-IoT IB Modulation QPSK - LTE / NB-IoT IB Carrier Bandwidth 5.00 MHz - Channel Position T - Band 2 - Range 1400 to 9000 MHz

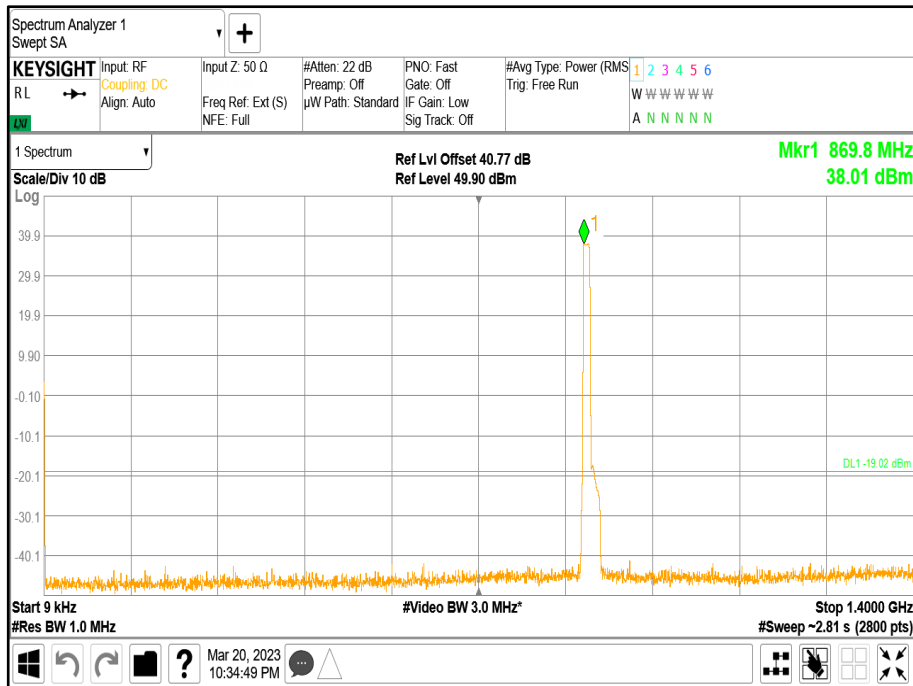




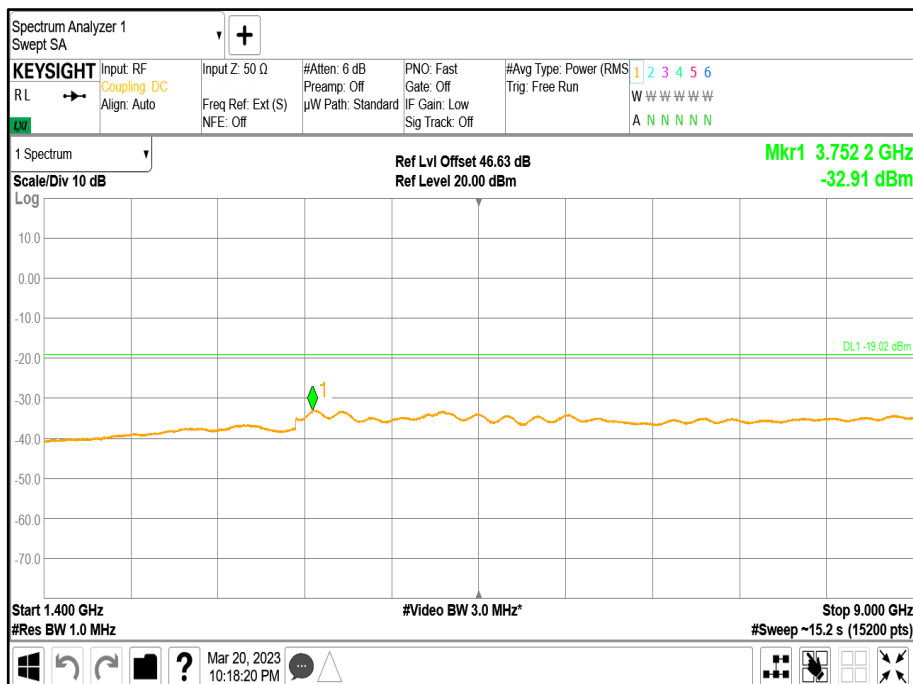
### Configuration 11

Maximum Output Power 47.80 dBm

Antenna 2 - LTE / NB-IOT GB Modulation QPSK - LTE / NB-IOT GB Carrier Bandwidth 10.0 MHz - Channel Position B - Band 1 - Range 0.009 to 1400 MHz

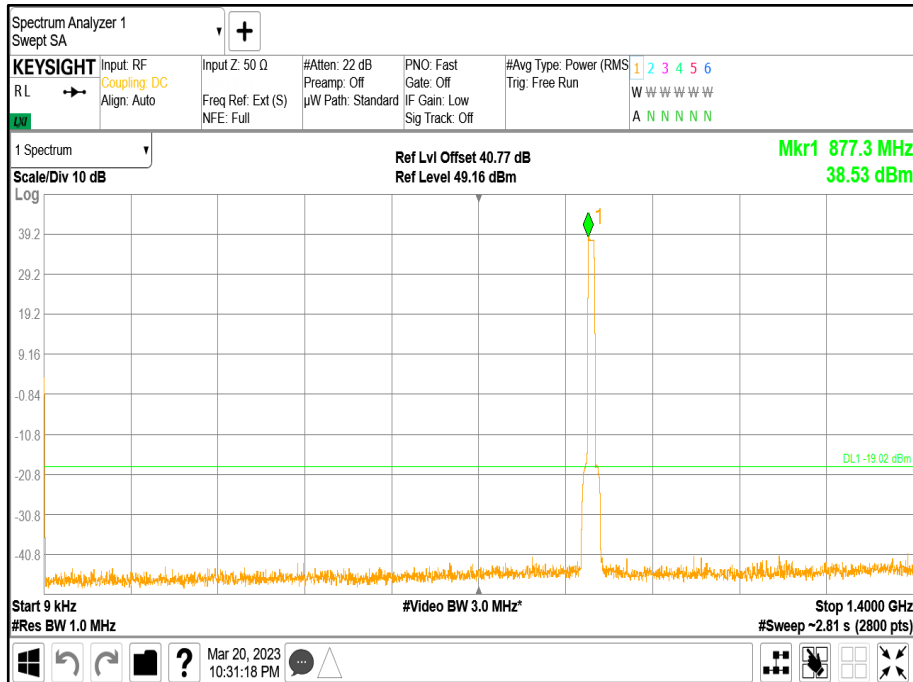


Antenna 2 - LTE / NB-IOT GB Modulation QPSK - LTE / NB-IOT GB Carrier Bandwidth 10.0 MHz - Channel Position B - Band 2 - Range 1400 to 9000 MHz

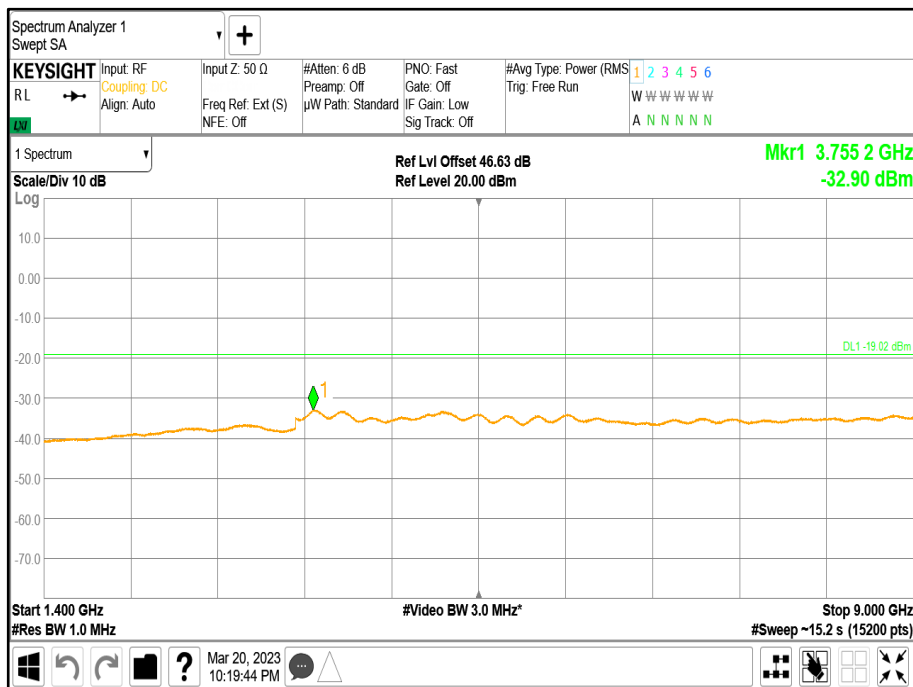




Antenna 2 - LTE / NB-IOT GB Modulation QPSK - LTE / NB-IOT GB Carrier Bandwidth 10.0 MHz - Channel Position M - Band 1 - Range 0.009 to 1400 MHz

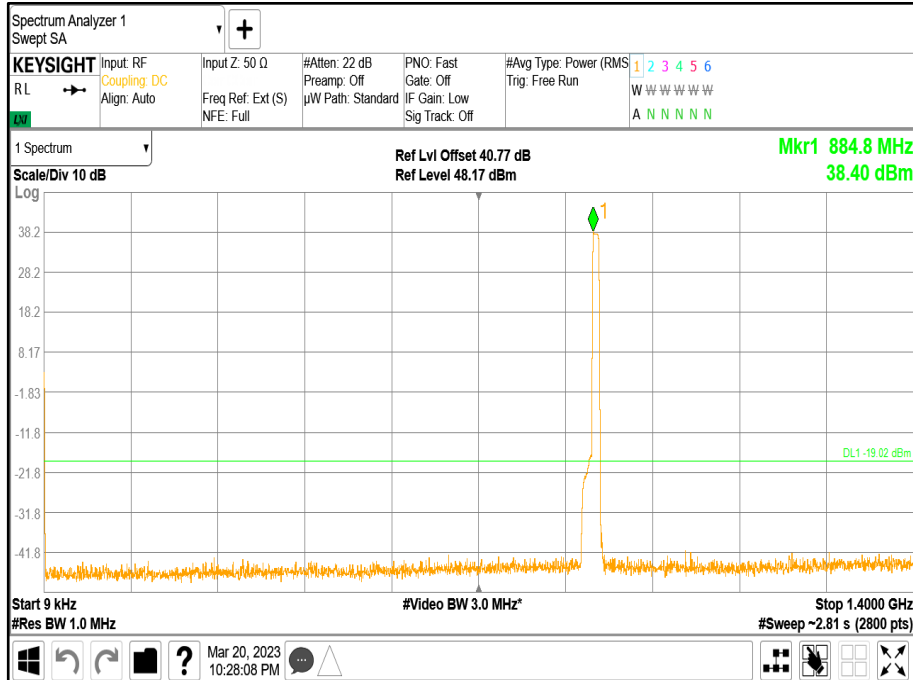


Antenna 2 - LTE / NB-IOT GB Modulation QPSK - LTE / NB-IOT GB Carrier Bandwidth 10.0 MHz - Channel Position M - Band 2 - Range 1400 to 9000 MHz

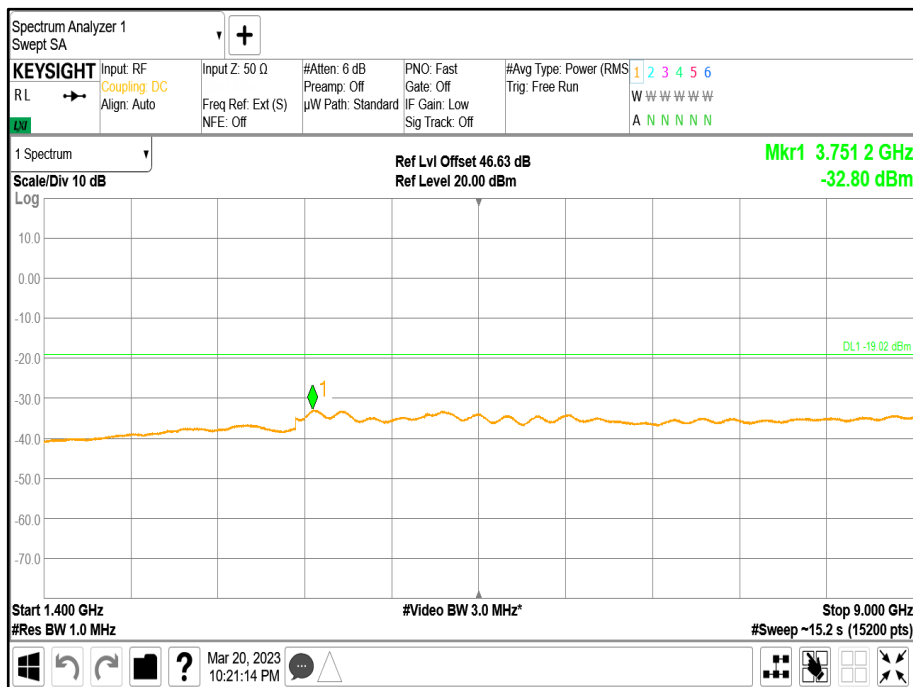




Antenna 2 - LTE / NB-IOT GB Modulation QPSK - LTE / NB-IOT GB Carrier Bandwidth 10.0 MHz - Channel Position T - Band 1 - Range 0.009 to 1400 MHz



Antenna 2 - LTE / NB-IOT GB Modulation QPSK - LTE / NB-IOT GB Carrier Bandwidth 10.0 MHz - Channel Position T - Band 2 - Range 1400 to 9000 MHz



Limit	-19dBm
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**2.5 FREQUENCY STABILITY**

**2.5.1 Specification Reference**

FCC CFR 47 Part 22, Clause 22.355  
 ISED RSS-GEN, Clause 6.11  
 ISED RSS-132, Clause 5.3  
 FCC CFR 47 Part 2, Clause 2.1055

**2.5.2 Date of Test and Modification State**

27-29-March-2023- Modification State 0

**2.5.3 Test Equipment Used**

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

**2.5.4 Environmental Conditions**

Ambient Temperature 20.8°C  
 Relative Humidity 38.6%

**2.5.5 Test Method**

All measurements were made in accordance with FCC KDB 971168 D01, Clause 9 and ANSI C63.26 Clause 5.6

**2.5.6 Test Results**

Configuration 1

Maximum Output Power 47.80 dBm

Temperature	Voltage	Frequency Error (Hz) Channel Position M
-30°C	-48.0 V DC	1.30
-20°C	-48.0 V DC	1.14
-10°C	-48.0 V DC	0.53
0°C	-48.0 V DC	1.54
+10°C	-48.0 V DC	1.50
+20°C	-40.8 V DC	1.65
+20°C	-48.0 V DC	1.23
+20°C	-55.2 V DC	0.64
+30°C	-48.0 V DC	0.74
+40°C	-48.0 V DC	0.96
+50°C	-48.0 V DC	0.93



Configuration 4

Maximum Output Power 47.80 dBm

Temperature	Voltage	Frequency Error (Hz) Channel Position M
-30°C	-48.0 V DC	0.87
-20°C	-48.0 V DC	0.86
-10°C	-48.0 V DC	0.97
0°C	-48.0 V DC	1.06
+10°C	-48.0 V DC	0.83
+20°C	-40.8 V DC	1.14
+20°C	-48.0 V DC	1.15
+20°C	-55.2 V DC	0.76
+30°C	-48.0 V DC	0.94
+40°C	-48.0 V DC	0.76
+50°C	-48.0 V DC	1.03

RSS-132 Limit 5.3

Limit	The frequency stability shall be sufficient to ensure that the occupied bandwidth stays within each of the sub-bands when tested at the temperature and supply voltage variations specified in RSS-Gen
-------	--

Frequency Tolerance FCC Part 22.355

Frequency range (MHz)	Limit (ppm)
25 to 50	20.0
50 to 450	5.0
450 to 512	2.5
821 to 896	1.5
928 to 929	5.0
929 to 960	1.5
2110 to 2220	10.0



### **SECTION 3**

#### **TEST EQUIPMENT USED**



### 3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
<b>Maximum Peak Output Power and Peak to Average Ratio - Conducted</b>					
ENA Network Analyzer	Keysight	E5080B	BAMS 1056688789	12	13-Nov-2023
Ecal Module	Keysight	N4693D	BAMS-1056688790	12	07-Nov-2023
Thermo Hygrobarometer	Rotronic Hygropalm	HP21	4410	12	30-Aug-2023
Power Supply	Keysight	N8738A	BAMS 1001643633	N/A	O/P Mon
Multimeter	FLUKE	79 SERIES II	3057	12	22-Aug-2023
Attenuator 10dB	Weinschel Associates	WA49-10-1001	A4246	N/A	O/P Mon
Attenuator 10dB	Weinschel Associates	WA49-10-1001	A4248	N/A	O/P Mon
Attenuator 10dB	Weinschel Associates	WA49-10-1001	A4249	N/A	O/P Mon
Attenuator 10dB	Weinschel Associates	WA49-10-1001	A4251	N/A	O/P Mon
PXA Signal Analyzer (2Hz-44GHz)	Keysight	N9030B	BAMS-1002016870	12	24-May-2023
Spectrum System	TUV SUD	N/A	5991	N/A	O/P Mon
<b>Occupied Bandwidth</b>					
ENA Network Analyzer	Keysight	E5080B	BAMS 1056688789	12	13-Nov-2023
Ecal Module	Keysight	N4693D	BAMS-1056688790	12	07-Nov-2023
Thermo Hygrobarometer	Rotronic Hygropalm	HP21	4410	12	30-Aug-2023
Power Supply	Keysight	N8738A	BAMS 1001643633	N/A	O/P Mon
Attenuator 40dB	Weinschel Associates	WA49-40-33	A1562	N/A	O/P Mon
Multimeter	FLUKE	79 SERIES II	3057	12	22-Aug-2023
PXA Signal Analyzer (2Hz-44GHz)	Keysight	N9030B	BAMS-1002016870	12	24-May-2023
<b>Band Edge</b>					
ENA Network Analyzer	Keysight	E5080B	BAMS 1056688789	12	13-Nov-2023
Ecal Module	Keysight	N4693D	BAMS-1056688790	12	07-Nov-2023
Thermo Hygrobarometer	Rotronic Hygropalm	HP21	4410	12	30-Aug-2023
Power Supply	Keysight	N8738A	BAMS 1001643633	N/A	O/P Mon
Attenuator 40dB	Weinschel Associates	WA49-40-33	A1562	N/A	O/P Mon
Multimeter	FLUKE	79 SERIES II	3057	12	22-Aug-2023
PXA Signal Analyzer (2Hz-44GHz)	Keysight	N9030B	BAMS-1002016870	12	24-May-2023
<b>Transmitter Spurious Emissions</b>					
Thermo Hygrobarometer	Rotronic Hygropalm	HP21	4410	12	30-Aug-2023
Power Supply	Keysight	N8738A	BAMS 1001643633	N/A	O/P Mon
Multimeter	FLUKE	79 SERIES II	3057	12	22-Aug-2023
Attenuator 40dB	API Weinschel Inc	49-40-33	SX813	N/A	O/P Mon
High Pass Filter (1.4GHz-15GHz)	WHK	WHK1.4/15G-10SS	SN7	N/A	O/P Mon





Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
PXA Signal Analyzer (2Hz-44GHz)	Keysight	N9030B	BAMS-1002016870	12	24-May-2023
ENA Network Analyzer	Keysight	E5080B	BAMS 1056688789	12	13-Nov-2023
Ecal Module	Keysight	N4693D	BAMS-1056688790	12	07-Nov-2023
Frequency Stability					
Signal & Spectrum Analyzer	R&S	FSW	BAMS-1001985308	12	26-Feb-2024
Thermo Hygro Barometer	RS PRO	1160	5824	12	19-Jul-2023
Thermometer	Fluke	51 II	3173	12	09-Dec-2023
Climatic Chamber	Vötschtechnik	VK112	BAMS-1002107718	N/A	O/P Mon
DC Power Supply	Agilent Technologies	N8738A	BAMS 1001478471	N/A	O/P Mon
Digital Multimeter	Fluke	79 SERIES II	3057	12	22-Aug-2023

TU – Traceability Unscheduled

N/A – Not Applicable

O/P Mon – Output Monitored with Calibrated Equipment



### 3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:-

Test Discipline	Frequency / Parameter	MU	MU Unit	
Conducted Maximum Peak Output Power- HP-VEE Software	729 MHz to 894 MHz	± 1.76	dB	
Conducted Emissions- HP-VEE Software	9 kHz to 9GHz	± 1.81	dB	
Frequency Stability - HP-VEE Software	729 MHz to 894 MHz	±26.276	Hz	
Occupied Bandwidth - HP-VEE Software or Spectrum	Up to 15 MHz Bandwidth (LTE)	5 MHz Bandwidth	±62556	Hz
		10 MHz Bandwidth	±67172	Hz
		15 MHz Bandwidth	±353783	Hz
	Up to 25 MHz Bandwidth (NR)	5 MHz Bandwidth	±62376	Hz
		10 MHz Bandwidth	±65818	Hz
		15 MHz Bandwidth	±67427	Hz
		20 MHz Bandwidth	±131634	Hz
		25 MHz Bandwidth	±163834	Hz
Band Edge- HP-VEE Software	729 MHz to 894 MHz	± 1.76	dB	

#### Measurement Uncertainty Decision Rule

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

Risk: The uncertainty of measurement about the measured result is negligible with regard to the final pass/fail decision. The measurement result can be directly compared with the test limit to determine conformance with the requirement (compare IEC Guide 115). The level of risk to falsely accept and falsely reject items is further described in ILAC-G8



### 3.3 MEASUREMENT SOFTWARE USED

List of measurement software versions used for testing.

Instrument	Manufacturer	Type No.	TE No.	Software Version
PXA Signal Analyser	Keysight	N9030B	BAMS-1002016870	A32.02
HP-VEE Software	TUV SUD	HP_VEE	N/A	A31.22



## **SECTION 5**

### **ACCREDITATION, DISCLAIMERS AND COPYRIGHT**



#### 4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



Accred. no. 10363  
Testing  
ISO/IEC 17025

This report relates only to the actual item/items tested.

Our Swedac Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our Swedac Accreditation.

Results of tests not covered by our Swedac Accreditation Schedule are marked NSA  
(Not Swedac Accredited).

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TÜV SÜD Sverige

Postal Address: Adelgatan 2, 211 22 Malmö, Sweden



## **ANNEX A**

### **MODULE LIST**



Configurations 1-11			
Product	Product No	R-State	Serial No
Radio 4490HP B5 B12A	KRC 161 981/3	R1B	E23E439818
CT-DU25	LPC102500/1	R3B	T01G522082
Software Version:	CXP2021113/1	Revision:	R16A470