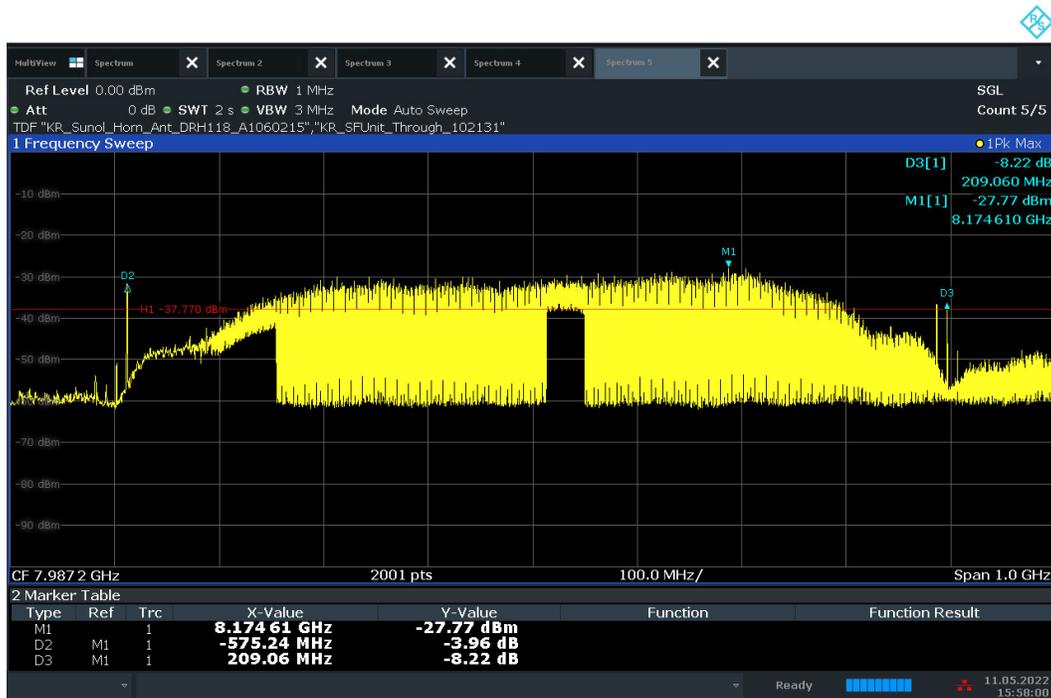


Plot 7-29. 10dBc Bandwidth – CH.9 – SP1 – Preamble 27



Plot 7-30. 10dBc Bandwidth – CH.9 – SP3 – Preamble 27

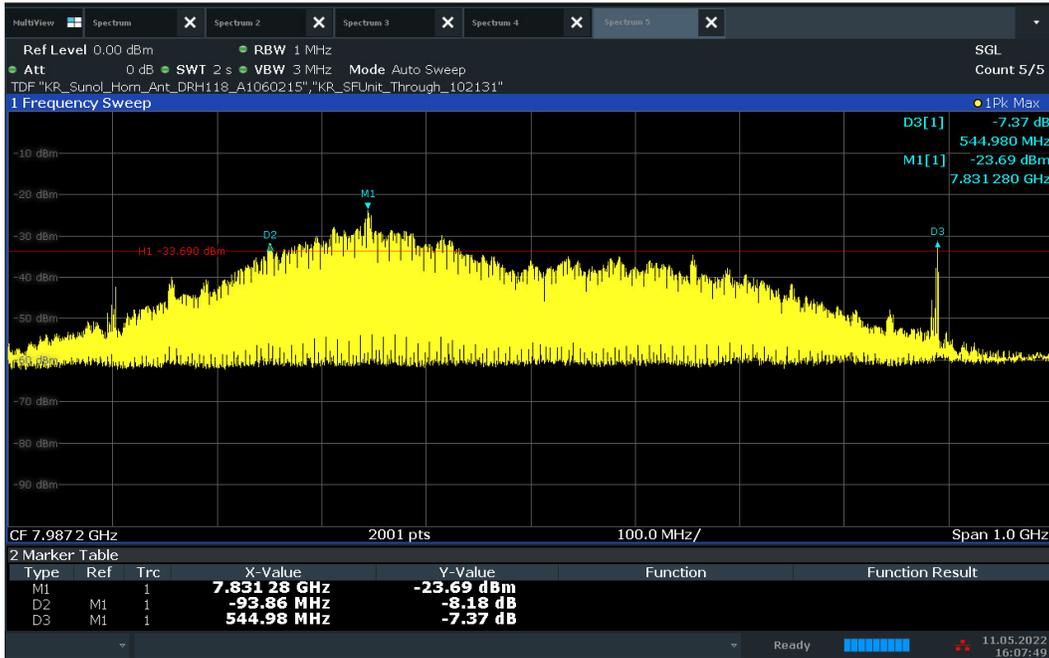
FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset		Page 27 of 71

Frequency [GHz]	Channel	Preamble ID	Config	Mode	FM [GHz]	FL [GHz]	FH [GHz]	Fc [GHz]	Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
8.0	9	9	SP0	BPRF	7.831	7.737	8.376	8.057	639	500	Pass
		9	SP1	BPRF	7.831	7.737	8.378	8.058	642	500	Pass
		9	SP3	BPRF	7.831	7.716	8.376	8.046	660	500	Pass
		10	SP0	BPRF	7.831	7.731	8.379	8.055	647	500	Pass
		10	SP1	BPRF	7.831	7.744	8.378	8.061	634	500	Pass
		10	SP3	BPRF	7.822	7.716	8.378	8.047	662	500	Pass
		11	SP0	BPRF	7.821	7.712	8.378	8.045	666	500	Pass
		11	SP1	BPRF	7.824	7.710	8.377	8.043	667	500	Pass
		11	SP3	BPRF	7.831	7.725	8.378	8.051	652	500	Pass
		12	SP0	BPRF	7.838	7.594	8.378	7.986	784	500	Pass
		12	SP1	BPRF	7.839	7.725	8.378	8.051	652	500	Pass
		12	SP3	BPRF	7.822	7.716	8.378	8.047	662	500	Pass
		27	SP0	HPRF	7.823	7.720	8.378	8.049	657	500	Pass
		27	SP1	HPRF	7.823	7.720	8.378	8.049	658	500	Pass
		27	SP3	HPRF	7.830	7.725	8.378	8.051	652	500	Pass

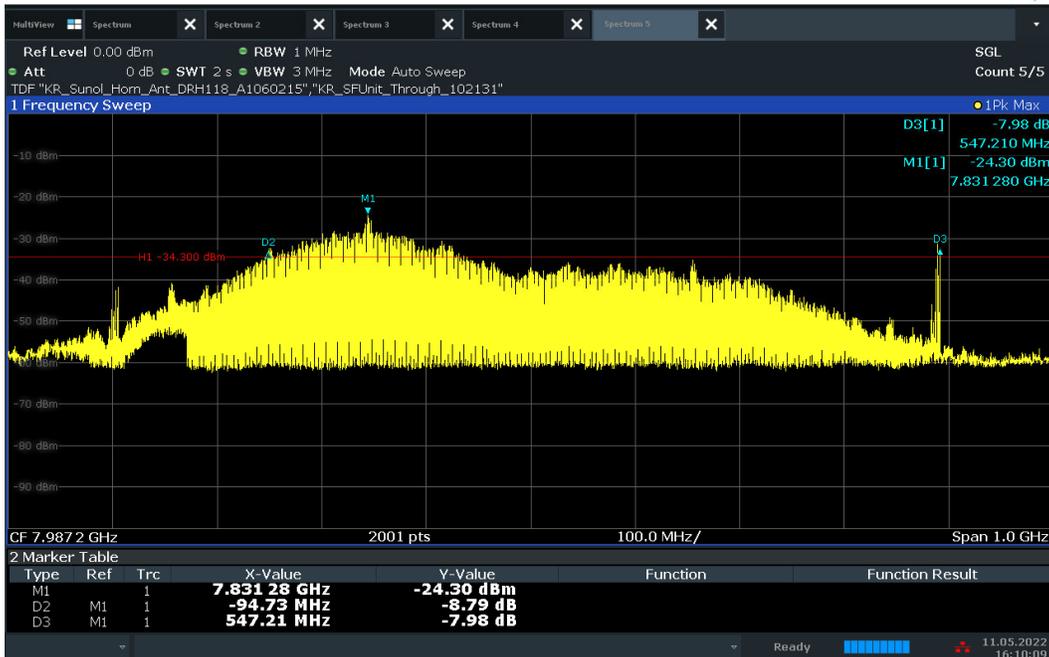
Table 7-3. UWB 10dBc Bandwidth Summary [ANT 2]

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset	Page 28 of 71

10dBc Bandwidth Results

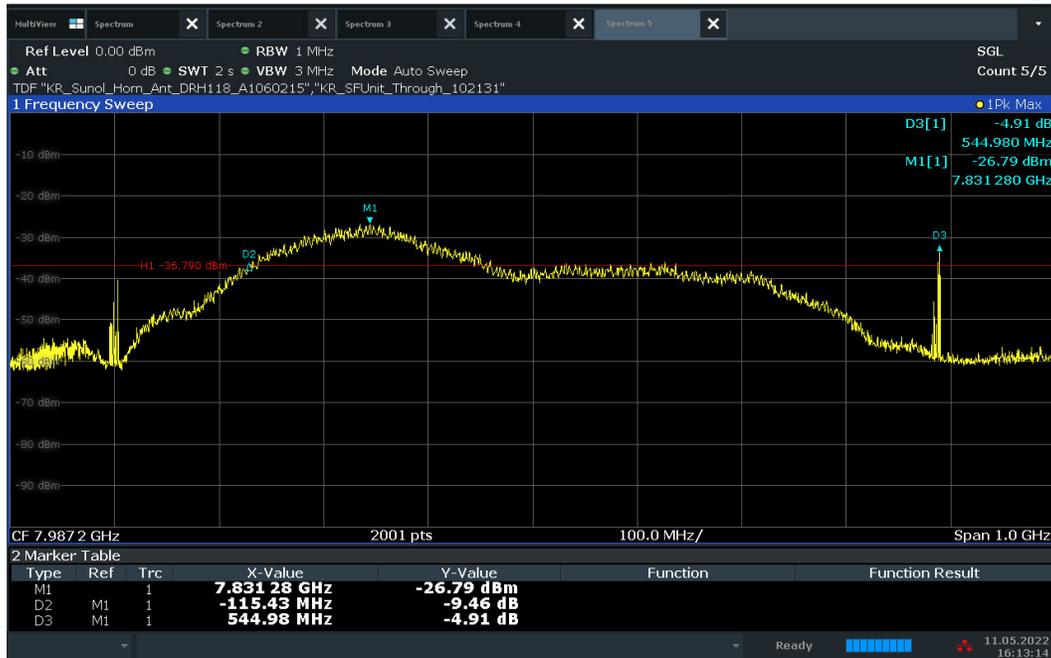


Plot 7-31. 10dBc Bandwidth – CH.9 - SP0 – Preamble 9



Plot 7-32. 10dBc Bandwidth – CH.9 – SP1 – Preamble 9

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset		Page 29 of 71



Plot 7-33. 10dBc Bandwidth – CH.9 – SP3 – Preamble 9

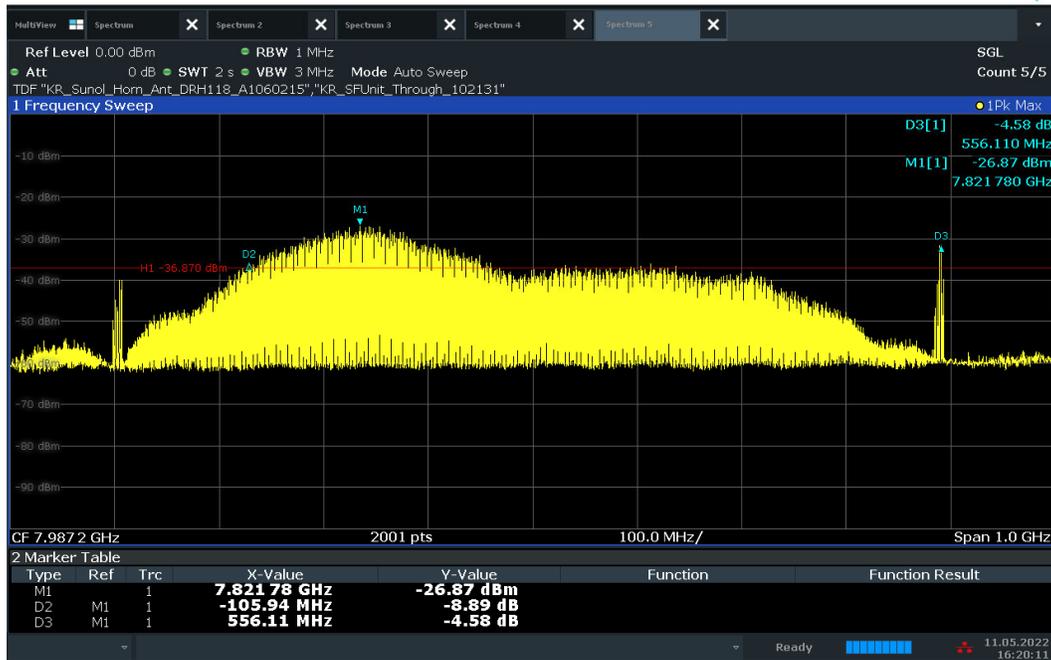


Plot 7-34. 10dBc Bandwidth – CH.9 - SP0 – Preamble 10

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset		Page 30 of 71

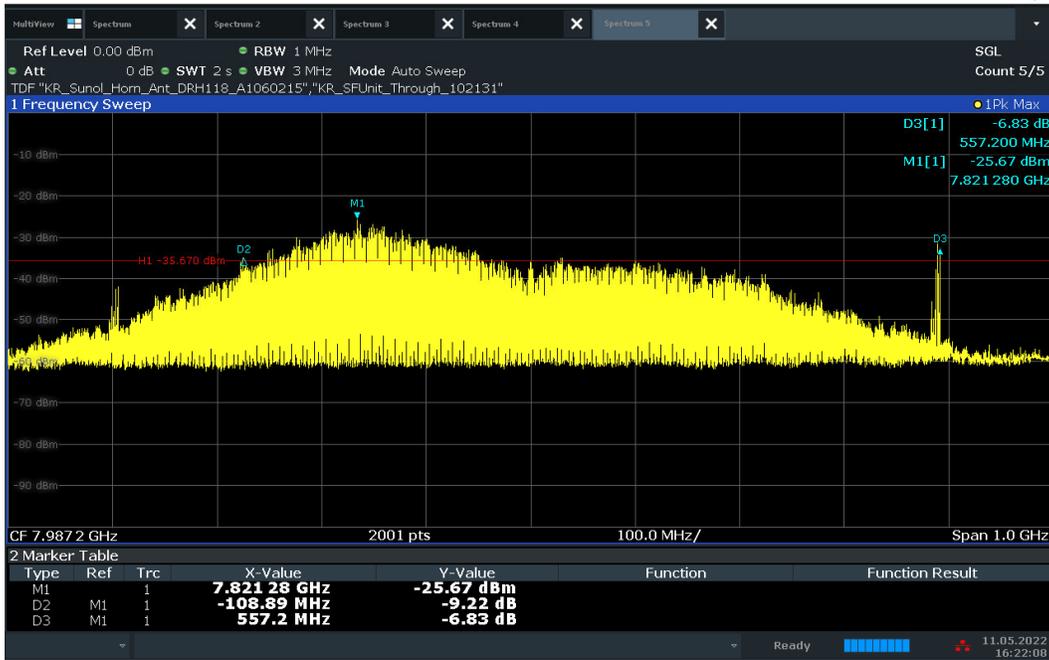


Plot 7-35. 10dBc Bandwidth – CH.9 – SP1 – Preamble 10

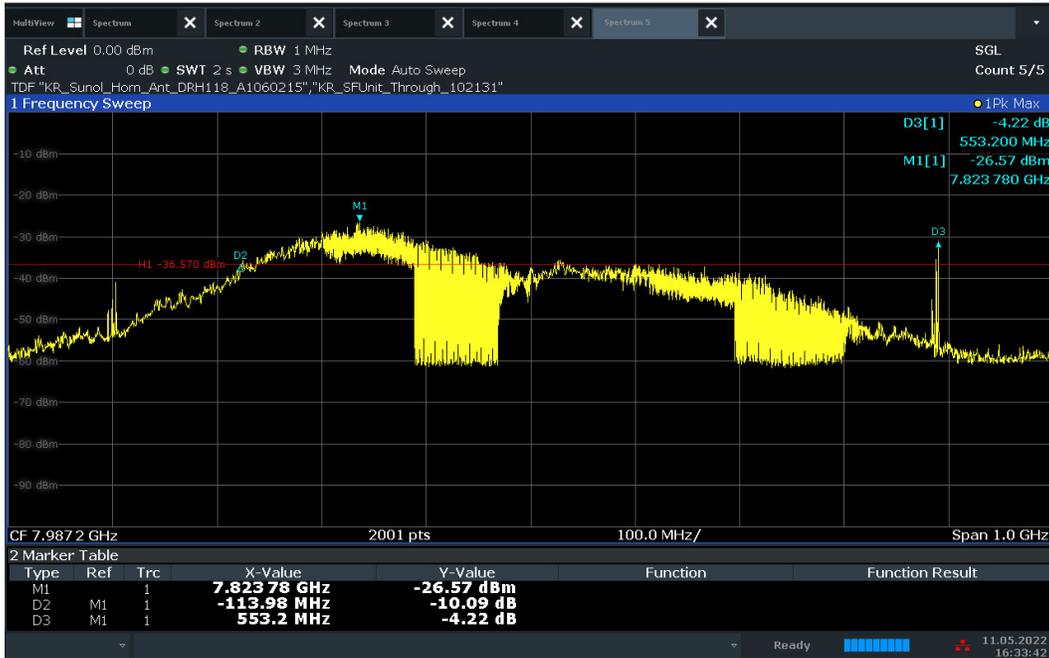


Plot 7-36. 10dBc Bandwidth – CH.9 – SP3 – Preamble 10

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset		Page 31 of 71

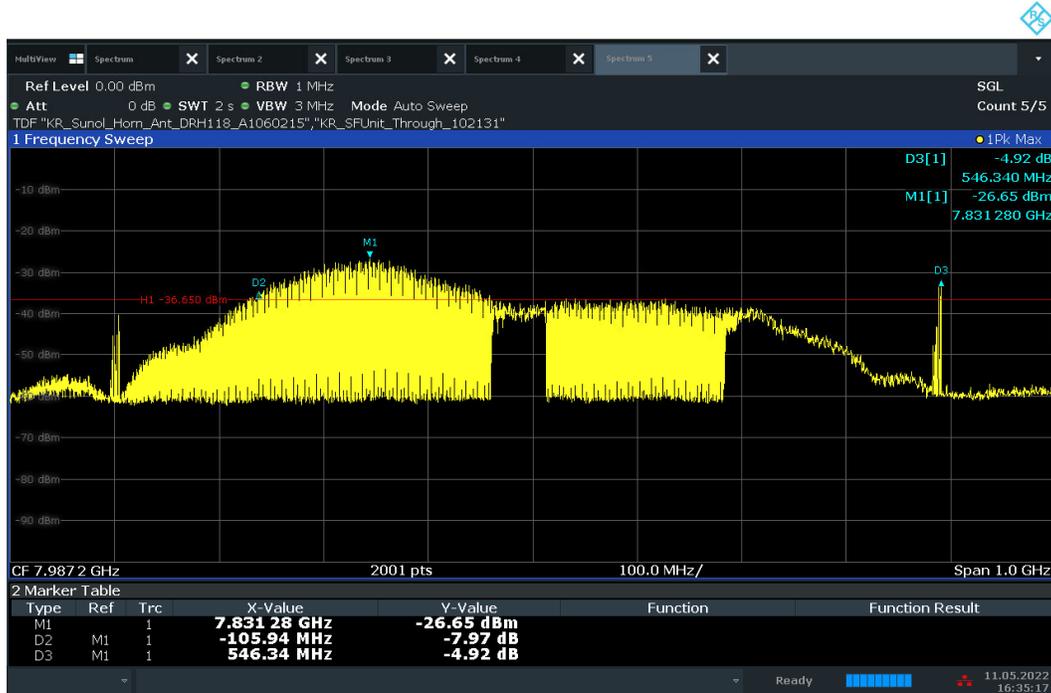


Plot 7-37. 10dBc Bandwidth – CH.9 - SP0 – Preamble 11

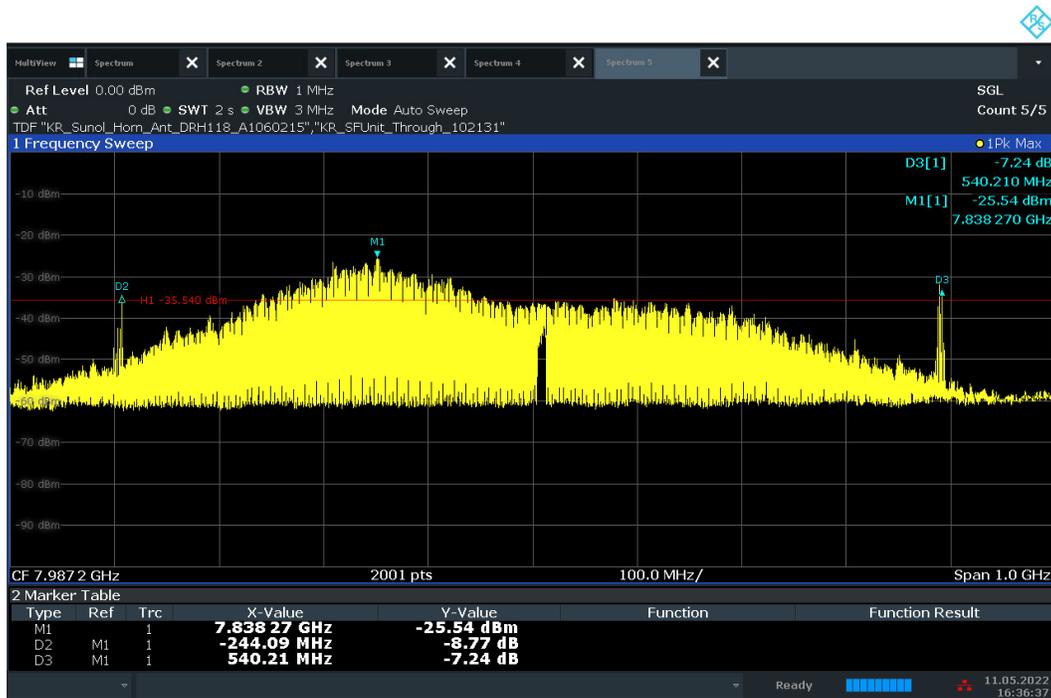


Plot 7-38. 10dBc Bandwidth – CH.9 – SP1 – Preamble 11

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset		Page 32 of 71

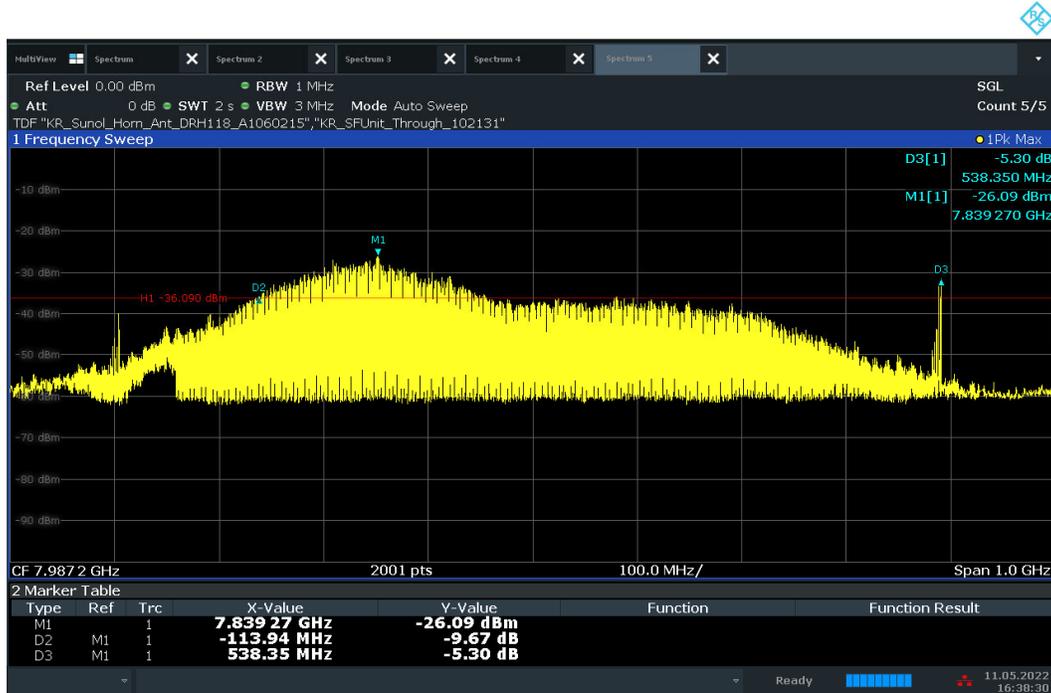


Plot 7-39. 10dBc Bandwidth – CH.9 – SP3 – Preamble 11

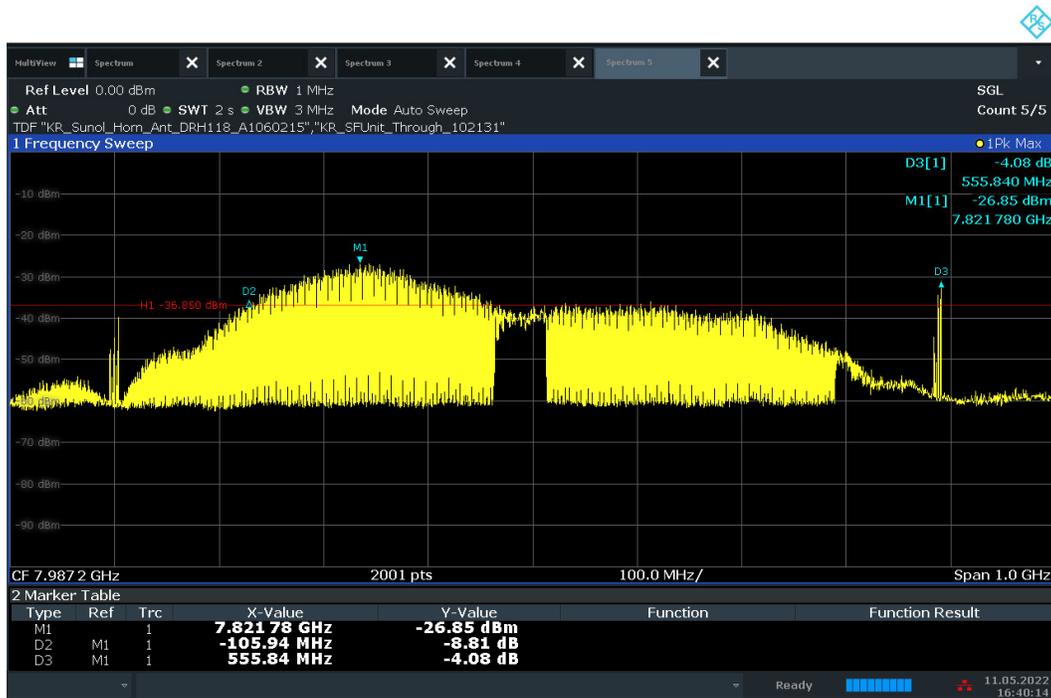


Plot 7-40. 10dBc Bandwidth – CH.9 - SP0 – Preamble 12

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset		Page 33 of 71

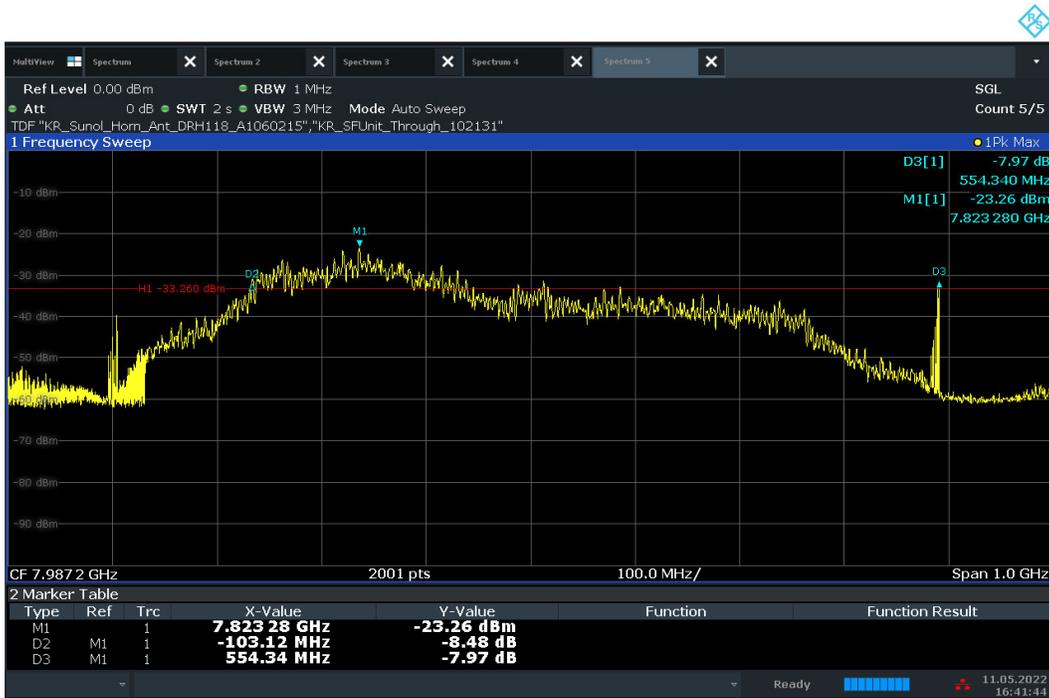


Plot 7-41. 10dBc Bandwidth – CH.9 – SP1 – Preamble 12

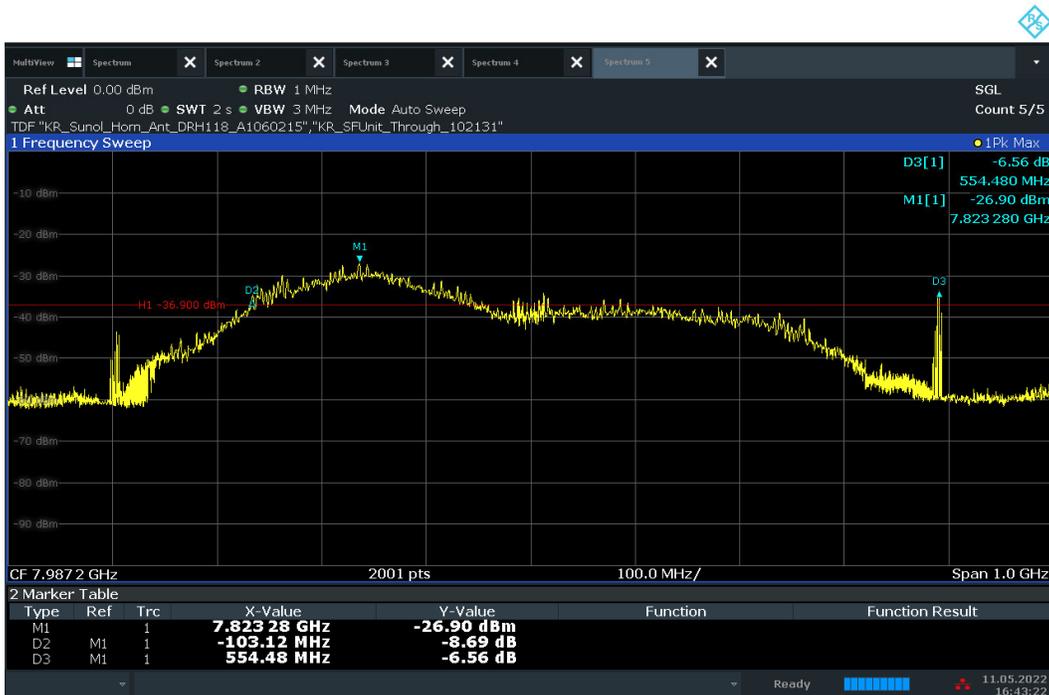


Plot 7-42. 10dBc Bandwidth – CH.9 – SP3 – Preamble 12

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset		Page 34 of 71

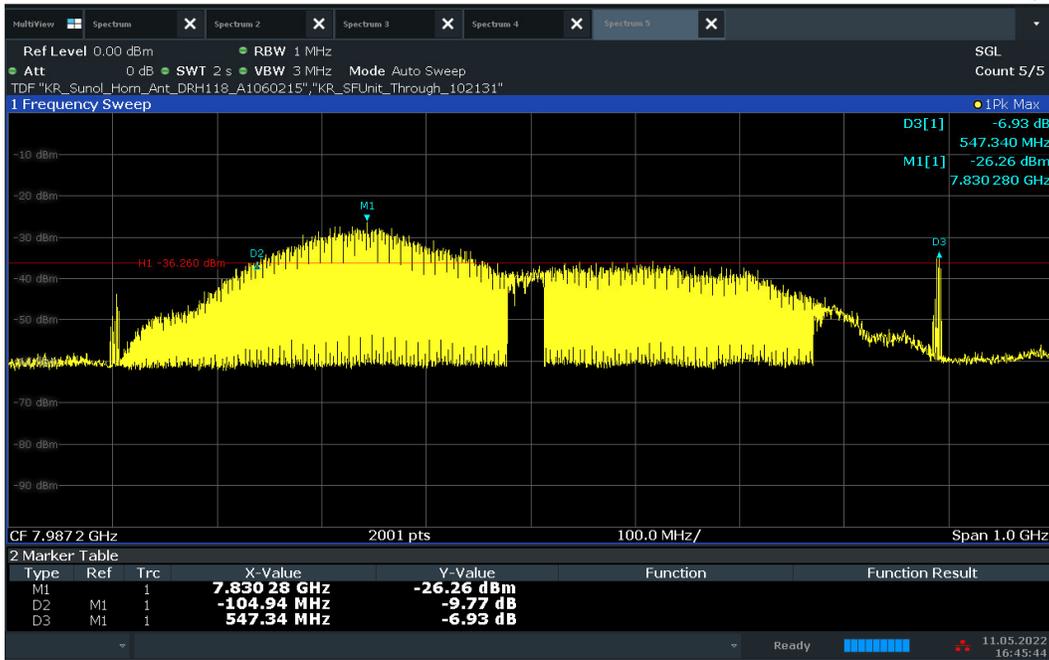


Plot 7-43. 10dBc Bandwidth – CH.9 - SP0 – Preamble 27



Plot 7-44. 10dBc Bandwidth – CH.9 – SP1 – Preamble 27

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset	Page 35 of 71	



Plot 7-45. 10dBc Bandwidth – CH.9 – SP3 – Preamble 27

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset		Page 36 of 71

7.3 Cessation Time

§15.519(a)(1)

Test Overview and Limit

§15.519(a)(1) A UWB device operating under the provisions of this section shall transmit only when it is sending information to an associated receiver. The UWB intentional radiator shall cease transmission within 10 seconds unless it receives an acknowledgment from the associated receiver that its transmission is being received an acknowledgment of reception must continue to be received by the UWB intentional radiator at least every 10 seconds or the UWB device must cease transmitting.

Test Settings

1. RBW = 1MHz
2. VBW = 3MHz
3. Span = 0 Span Mode
4. Sweep time shall be sufficient to demonstrate EUTs compliance with the rule part.
5. Vertical Markers are placed to indicate the point in which the receiver ceases acknowledging the EUT and the point 10s after.

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

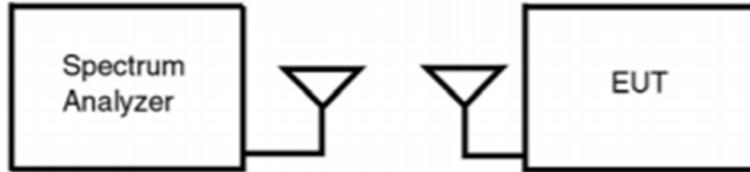
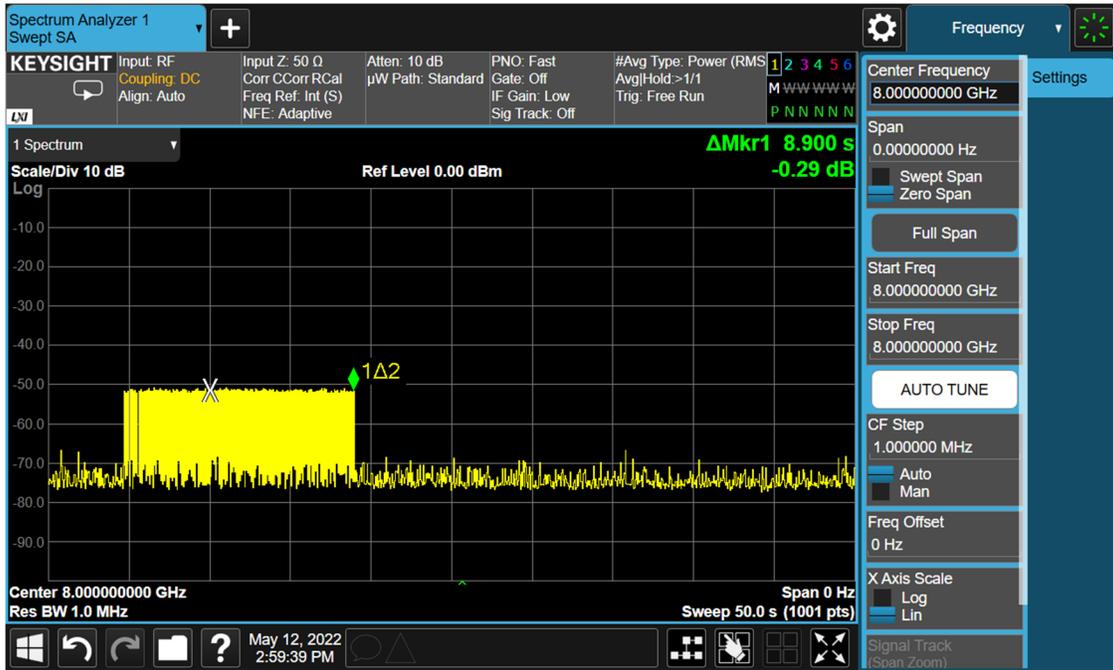


Figure 7-2. Test Instrument and Measurement Setup

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset	Page 37 of 71



Plot 7-46. Cessation Time Plot

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset	Page 38 of 71

7.4 Peak Power and Maximum Average Emissions

§15.519(e), §15.519(c)

Test Overview and Limit

15.519 (3)(e) There is a limit on the peak level of the emissions contained within a 50 MHz bandwidth centered on the frequency at which the highest radiated emission occurs, fM. That limit is 0 dBm EIRP.

15.519 (3)(c) The radiated emissions above 960 MHz from a device operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of 1 MHz:

Frequency in MHz	EIRP in dBm
3100 - 10600	-41.3

Table 7-4. Average EIRP Limit

Test Procedures Used

ANSI C63.10-2013

Test Settings

Peak:

1. Analyzer frequency set to the frequency of the radiated spurious emission of interest
2. RBW = 50MHz, VBW = 80MHz
3. Detector = Peak
4. Sweep time = auto coupled
5. Trace mode = max hold
6. Trace was allowed to stabilize

Average:

1. Analyzer frequency set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz, VBW = 3MHz
3. Detector = Average (RMS)
4. Sweep time = No more than 1ms integration period over measurement bin
5. Trace mode = max hold
6. Trace was allowed to stabilize

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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Test Note

All combinations of HPRF/BPRF, power mode, and preamble are investigated for average and peak EIRP measurements. Only the worst case combinations are reported for each channel and each antenna.

RESULTS – BPRF

ANT	CH	MODE	Preamble	DUT Configuration	Meas. Ant.	FM[GHz]	Peak Power (dBm/50MHz)	Peak Limit (dBm/50MHz)	Margin [dB]
1	5	SPO	9	OPEN	H	6.4705	-2.39	0	-2.39
	9	SPO	9	CLOSE	V	7.9942	-2.08	0	-2.08
2	9	SPO	9	OPEN	H	7.8228	-3.49	0	-3.49

Table 7-5. BPRF Highest Peak Power Results

ANT	CH	MODE	Preamble	DUT Configuration	Meas. Ant.	FM[GHz]	Average Power (dBm)	Average Limit (dBm)	Margin [dB]
1	5	SP1	12	OPEN	H	6.7120	-42.94	-41.3	-1.64
	9	SP3	9	CLOSE	V	8.1826	-42.82	-41.3	-1.52
2	9	SP3	9	OPEN	H	7.8233	-42.99	-41.3	-1.69

Table 7-6. BPRF Highest Average Power Results

Sample Calculation:

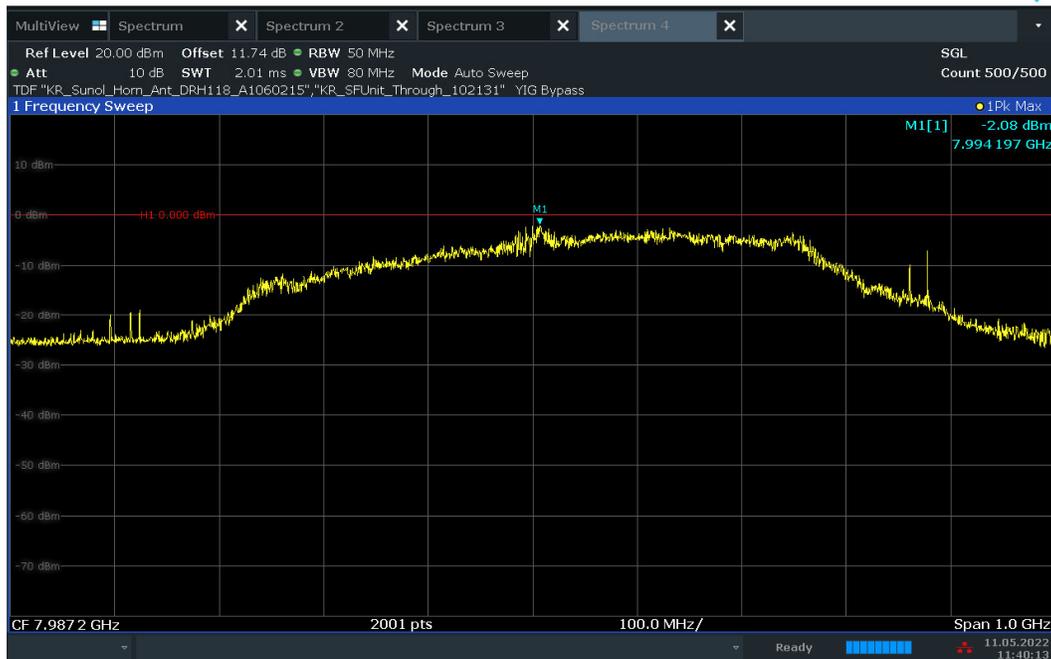
The raw radiated spurious level is converted to field strength in dBuV/m. Then, the EIRP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset	Page 40 of 71

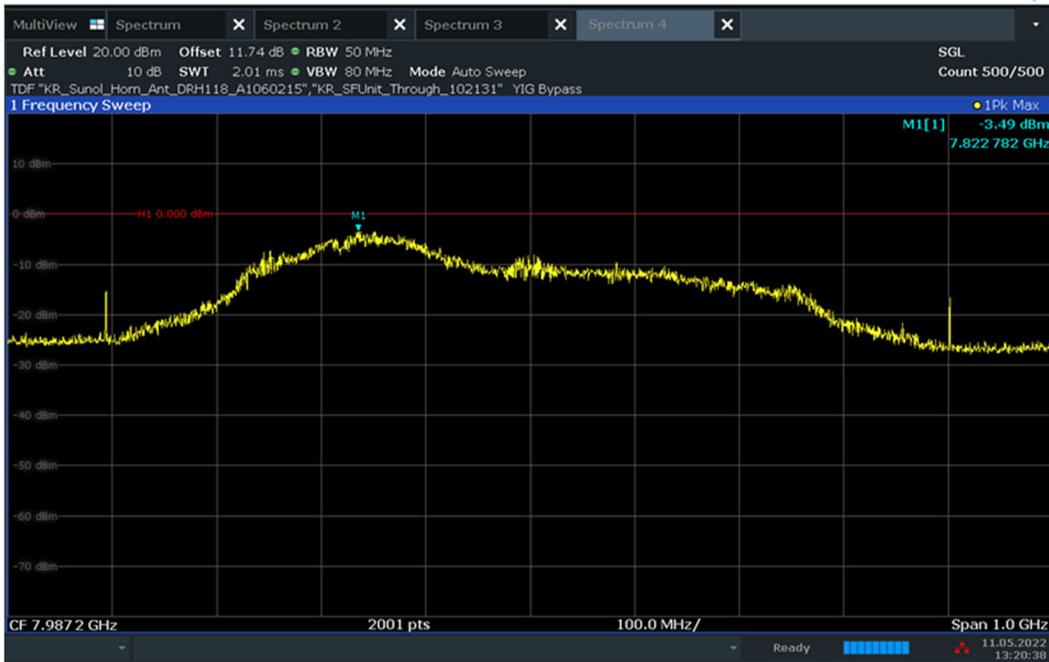


Plot 7-47. UWB Peak Power Measurement - ANT 1 - CH.5 – BPRF

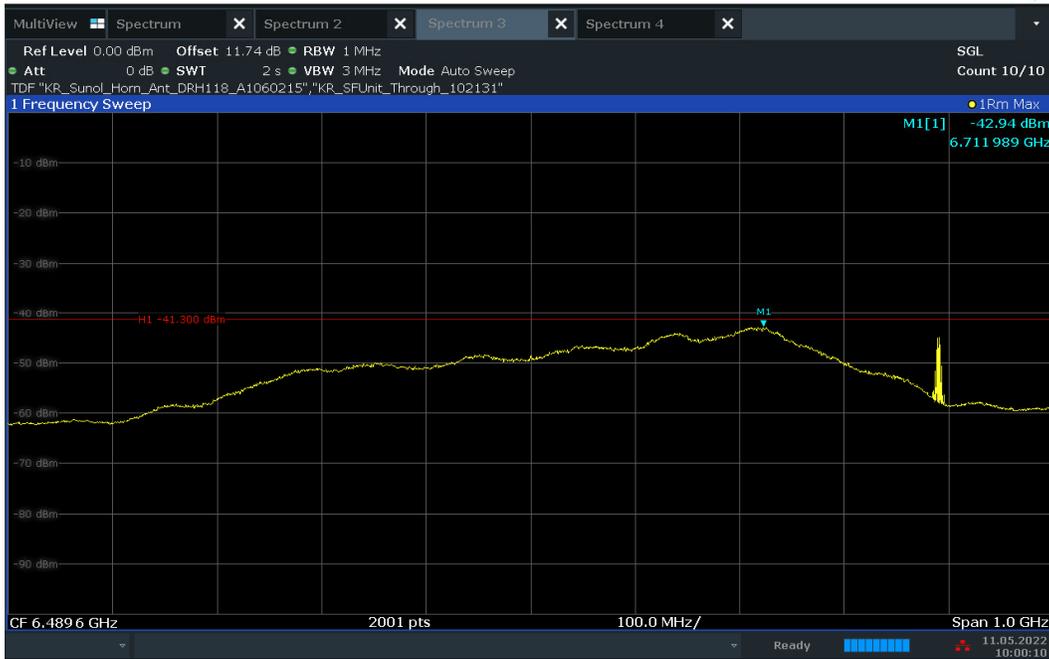


Plot 7-48. UWB Peak Power Measurement - ANT 1 - CH.9 – BPRF

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset	Page 41 of 71

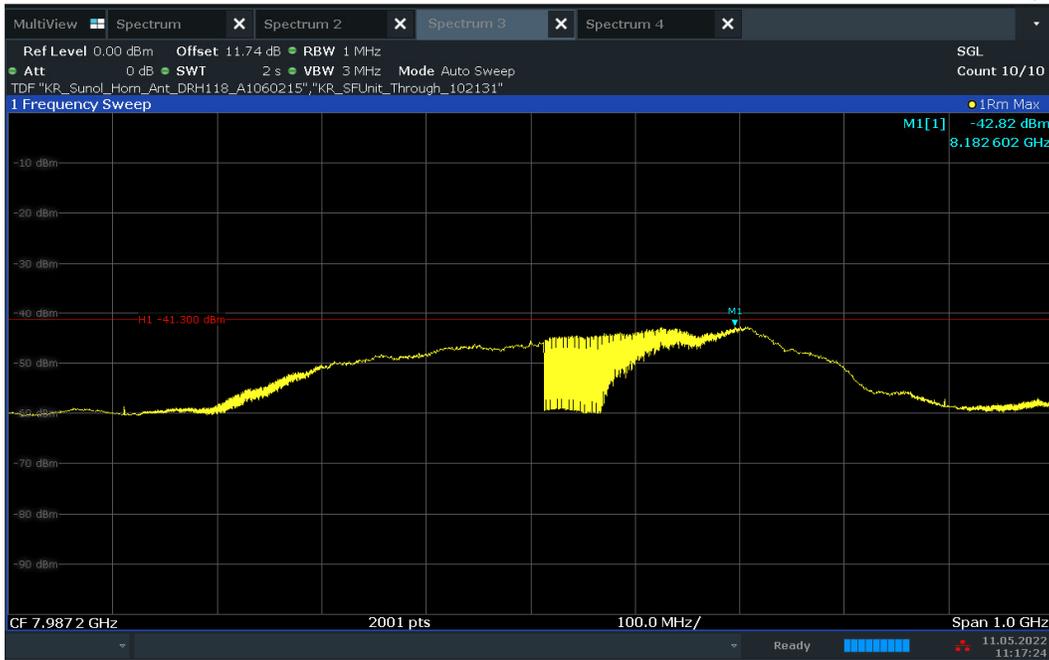


Plot 7-49. UWB Peak Power Measurement - ANT 2 - CH.9 – BPRF

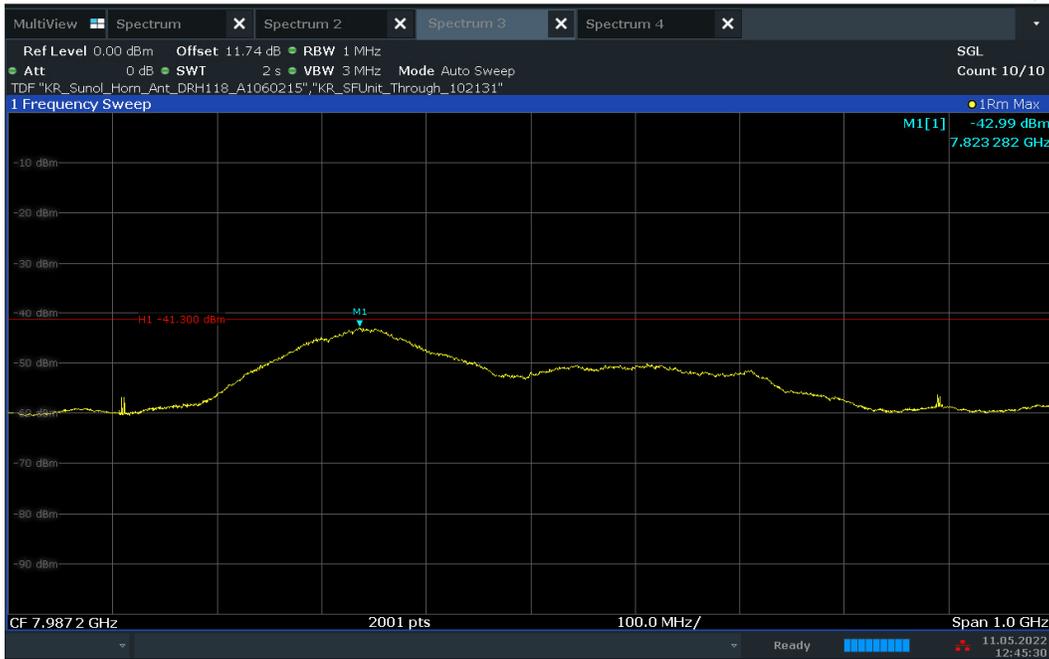


Plot 7-50. UWB Average Power Measurement - ANT 1 - CH.5 – BPRF

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset	Page 42 of 71



Plot 7-51. UWB Average Power Measurement - ANT 1 - CH.9 – BPRF



Plot 7-52. UWB Average Power Measurement - ANT 2 - CH.9 – BPRF

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset	Page 43 of 71

RESULTS – HPRF

ANT	CH	MODE	Preamble	DUT Configuration	Meas. Ant.	FM[GHz]	Peak Power (dBm/50MHz)	Peak Limit (dBm/50MHz)	Margin [dB]
1	5	SP0	27	OPEN	H	6.6175	-7.99	0	-7.99
	9	SP0	27	CLOSE	V	8.1121	-6.07	0	-6.07
2	9	SP0	27	OPEN	H	7.8578	-7.45	0	-7.45

Table 7-7. HPRF Highest Peak Power Results

ANT	CH	MODE	Preamble	DUT Configuration	Meas. Ant.	FM[GHz]	Average Power (dBm)	Average Limit (dBm)	Margin [dB]
1	5	SP3	27	OPEN	H	6.7035	-42.83	-41.3	-1.53
	9	SP3	27	CLOSE	V	7.8233	-43.07	-41.3	-1.77
2	9	SP3	27	OPEN	H	7.8268	-43.17	-41.3	-1.87

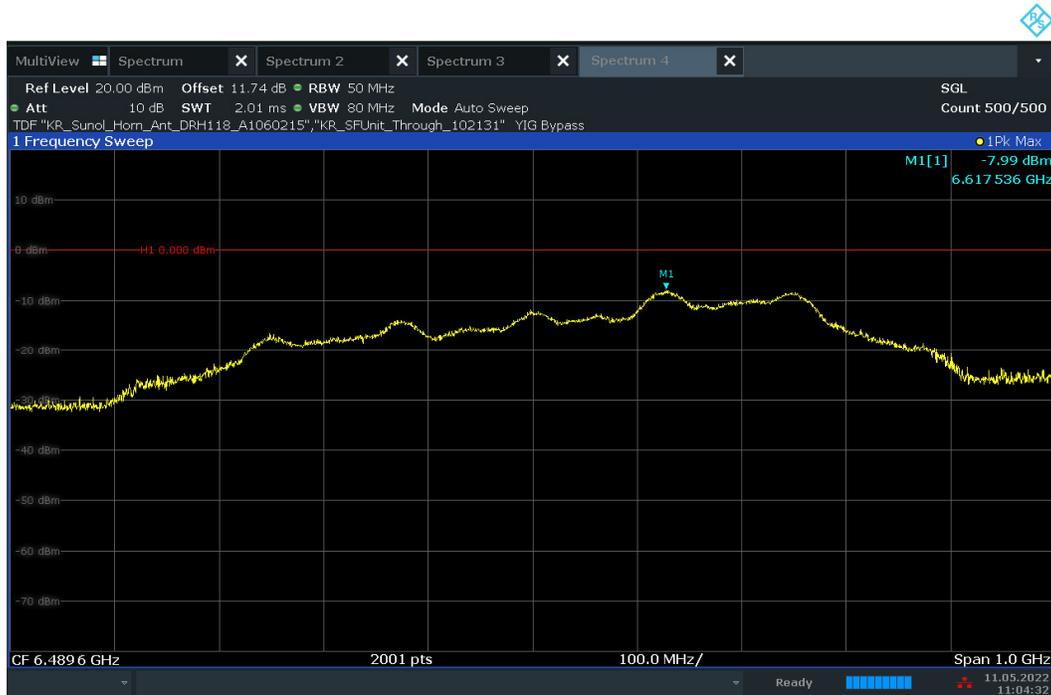
Table 7-8. HPRF Highest Average Power Results

Sample Calculation

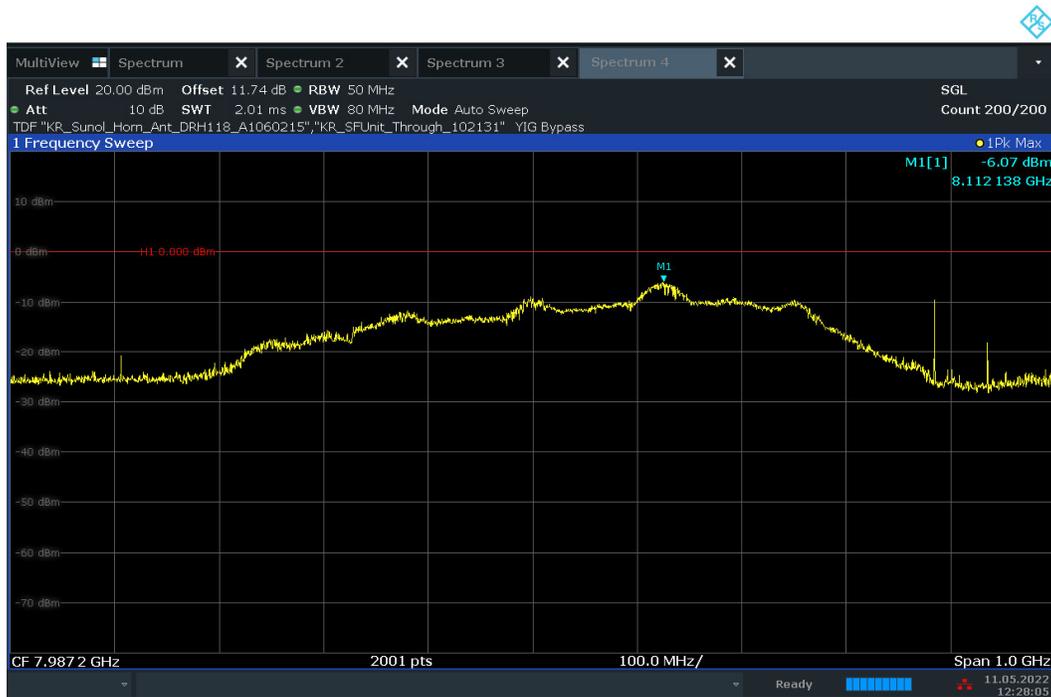
The raw radiated spurious level is converted to field strength in dBuV/m. Then, the EIRP level is calculated by applying the additional factors shown below for a test distance of 3 meter

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset	Page 44 of 71

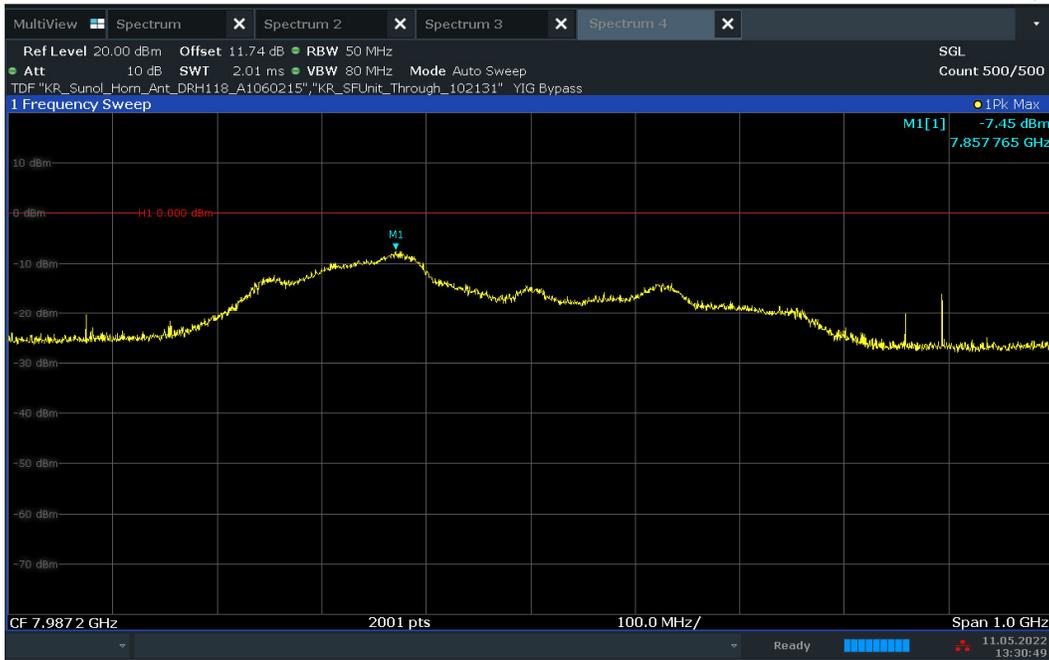


Plot 7-53. UWB Peak Power Measurement - ANT 1 - CH.5 – HPRF

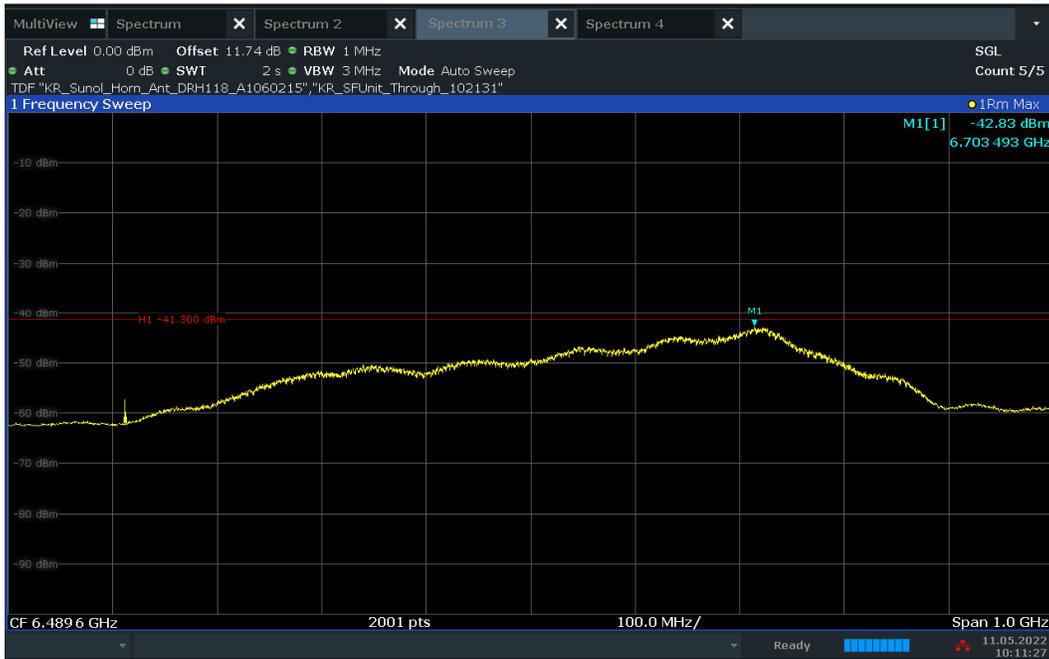


Plot 7-54. UWB Peak Power Measurement - ANT 1 - CH.9 – HPRF

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset	Page 45 of 71

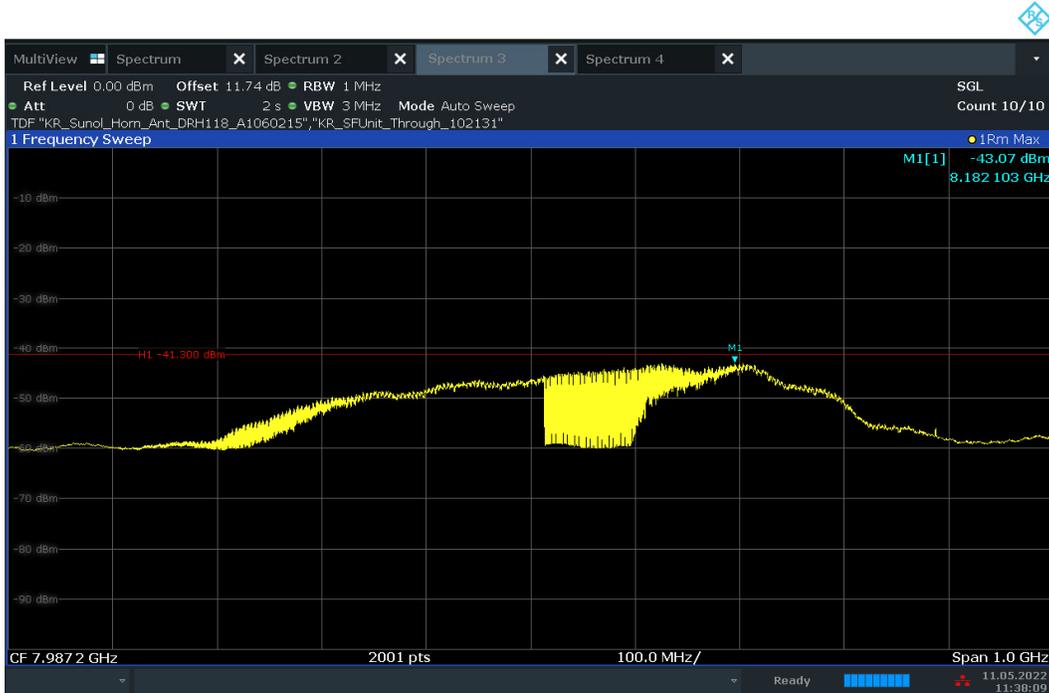


Plot 7-55. UWB Peak Power Measurement - ANT 2 - CH.9 – HPRF

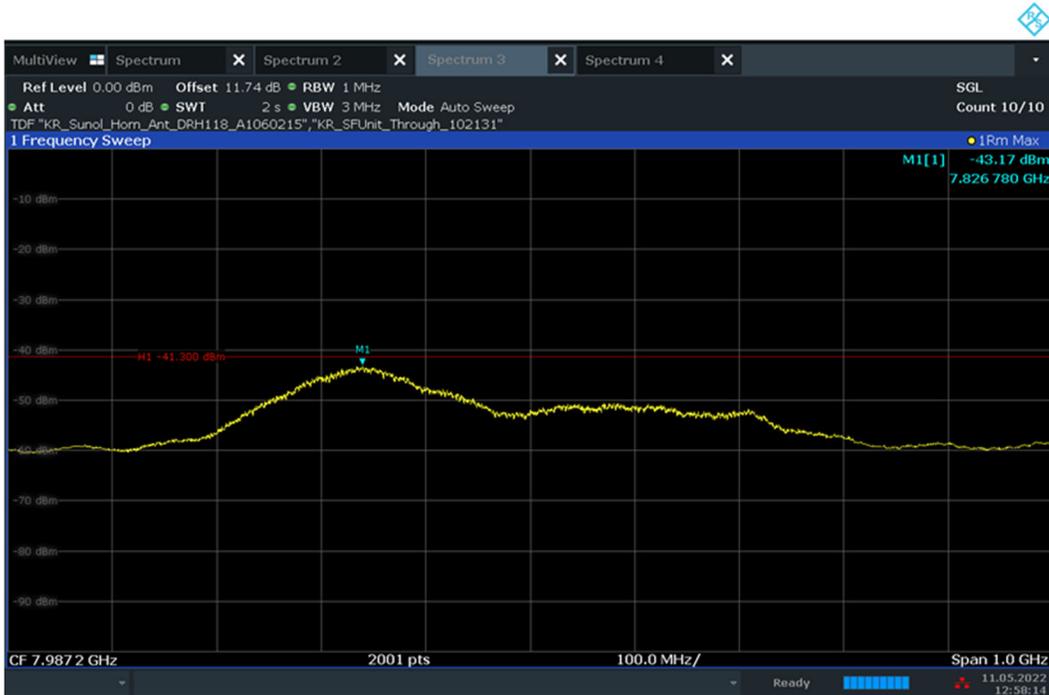


Plot 7-56. UWB Average Power Measurement - ANT 1 - CH.5 – HPRF

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset	Page 46 of 71



Plot 7-57. UWB Average Power Measurement - ANT 1 - CH.9 – HPRF



Plot 7-58. UWB Average Power Measurement - ANT 2 - CH.9 – HPRF

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset	Page 47 of 71

7.5 Radiated Measurement Data above 960MHz

§15.519 (c), §15.519(d), §15.209(a)

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at maximum power and at the appropriate frequencies. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

§15.519(c)

Frequency in MHz	EIRP in dBm
960-1610	-75.3
1610-1990	-63.3
1990-3100	-61.3
3100-10600	-41.3
Above 10600	-61.3

Table 7-9. Above 960MHz Average Limits

§15.519(d)

Frequency in MHz	EIRP in dBm
1164-1240	-85.3
1559-1610	-85.3

Table 7-10. Above 960MHz Average Limits

Test Procedures Used

ANSI C63.10-2013

Test Settings

Average EIRP Measurements

1. Analyzer frequency set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz (30kHz for emissions in the GPS bands)
3. VBW = 3MHz (100kHz for the emissions in the GPS bands)
4. Detector = RMS
5. Sweep time = No more than 1ms integration period over each measurement bin
6. Trace mode = Max hold
7. Trace was allowed to stabilize

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204010046-12.A3L	Test Dates: 05/12 – 06/08/2022	EUT Type: Portable Handset	Page 48 of 71

Test Setup

The EUT and measurement equipment were set up as shown test setup photos provided.

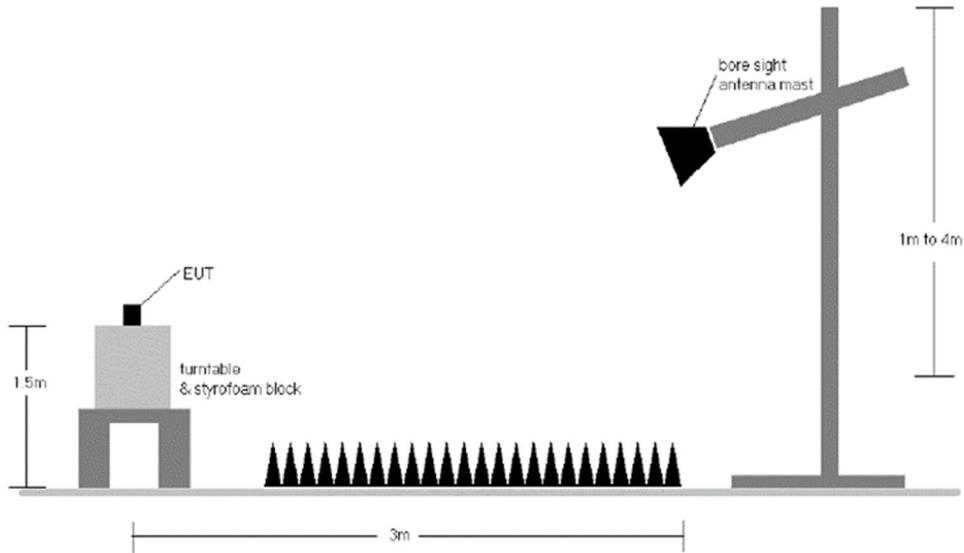


Figure 7-3. Radiated Test Setup > 1GHz

Test Notes

1. All modes of operation and settings (Preamble, Packet Type, etc) were investigated and the worst-case emissions are reported.
2. The RBW for measurements in the GPS Bands were reduced to 30kHz in order to prove compliance.
3. 1000 ~ 18000 MHz and above 18000 MHz pre-scan plots were conducted at 0.7 and 0.6 meter respectively. The plots are only for the purpose of spurious emission identification.
4. All final measurements were made at 0.7 meters.
5. All readings are calibrated by a signal generator with accuracy traceable to the National Institute of Standards and Technology (NIST).
6. AFCL (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB)

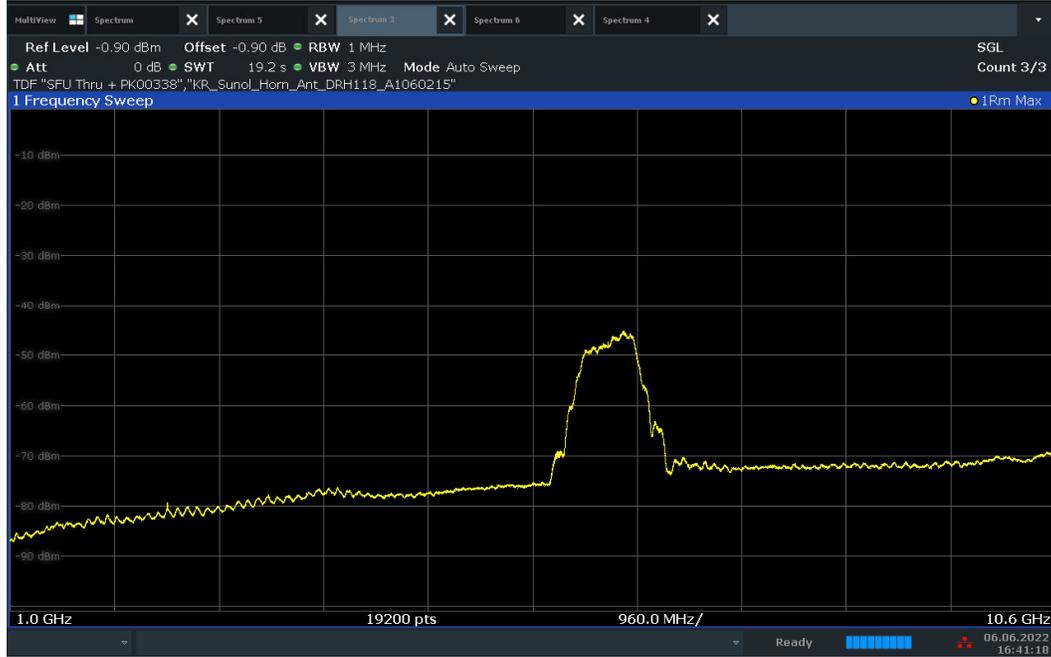
Sample Calculation

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the EIRP RSE level is calculated by applying the additional factors shown below for a test distance of 3 meter

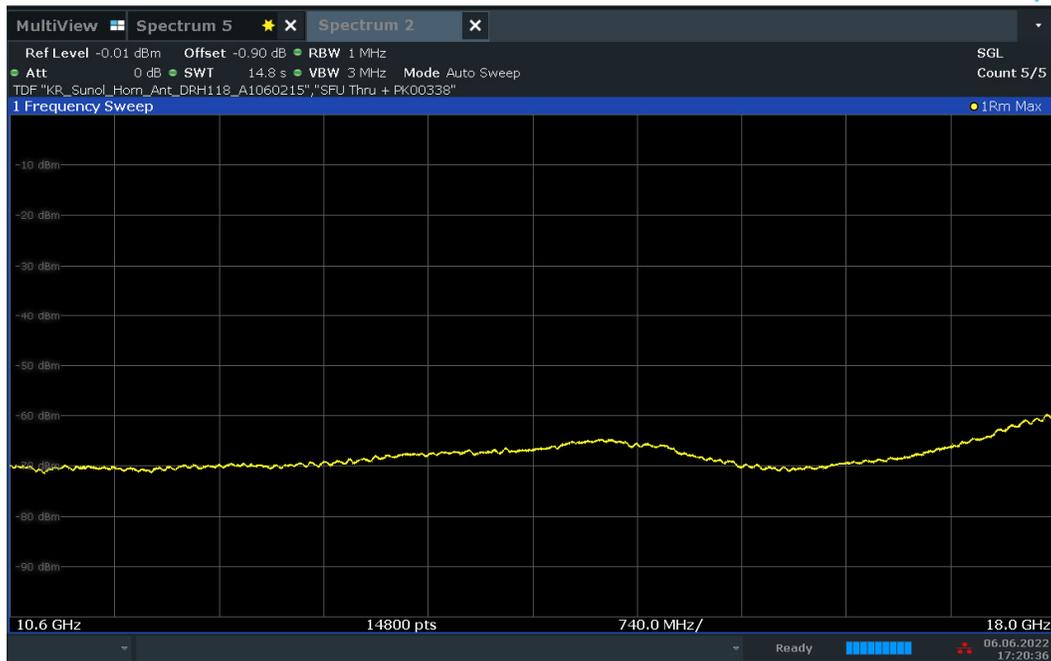
$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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Channel 5 ANTENNA 1:



Plot 7-59. Radiated Spurious Pre-Scan 1000 - 10600 MHz - CH.5 - ANT 1



Plot 7-60. Radiated Spurious Pre-Scan 10600 - 18000 MHz - CH.5 - ANT 1

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