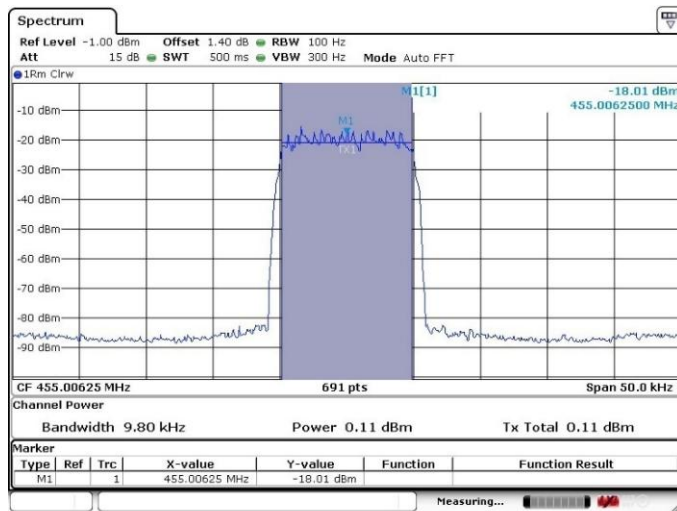
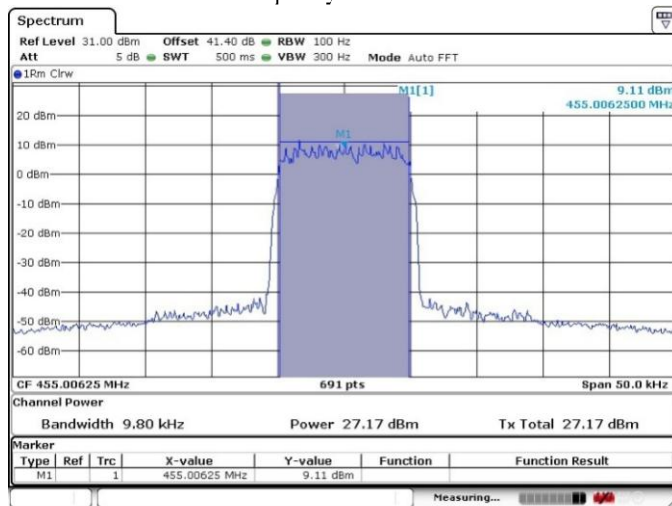


10.5.5.3.2.2. P25 Phase II(H-DQPSK) mode



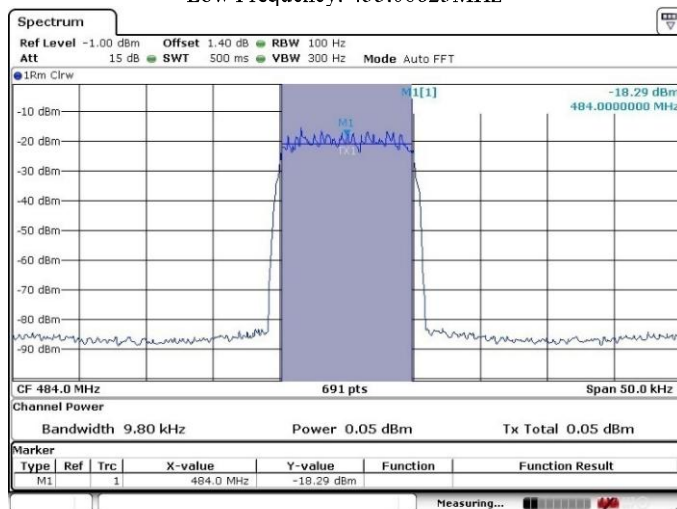
Date: 17.FEB.2024 09:25:22

Input signal
Low Frequency: 455.00625MHz



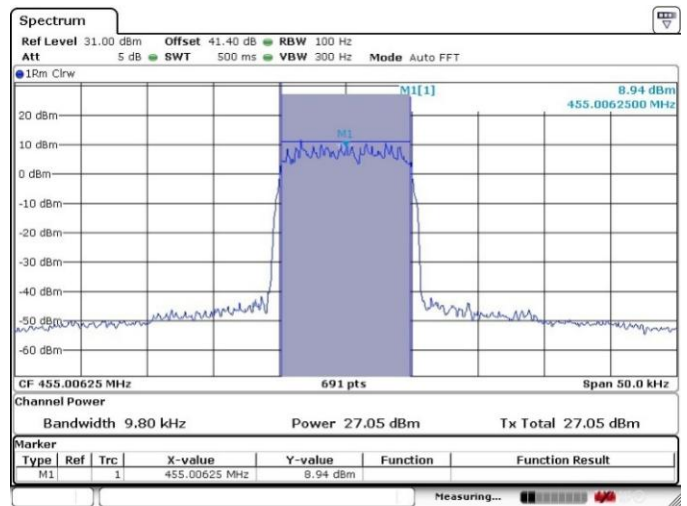
Date: 17.FEB.2024 14:56:23

With the input signal amplitude set 3 dB above the AGC threshold
Low Frequency: 455.00625MHz



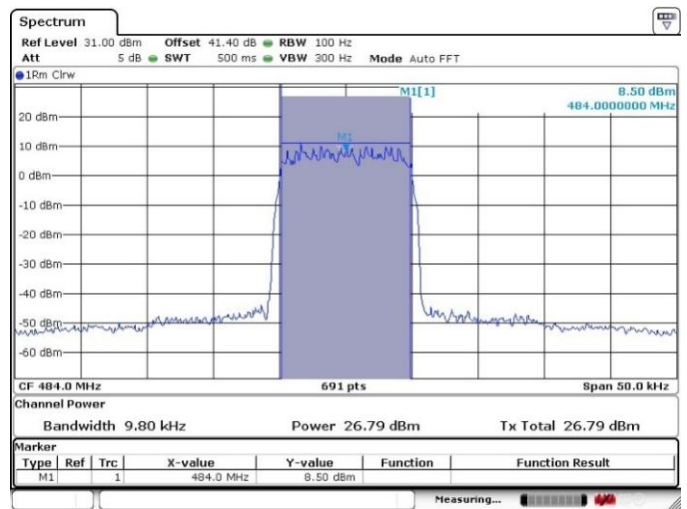
Date: 17.FEB.2024 09:25:45

Input signal
Middle Frequency: 484.0MHz



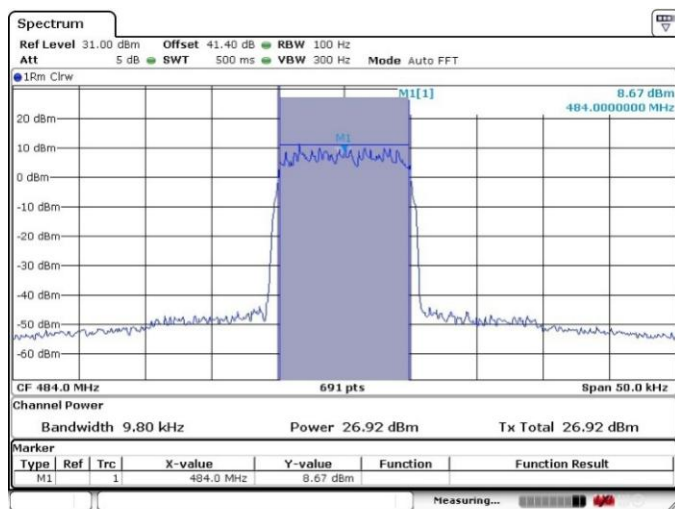
Date: 17.FEB.2024 14:56:08

With the input signal amplitude set the AGC threshold
Low Frequency: 455.00625MHz



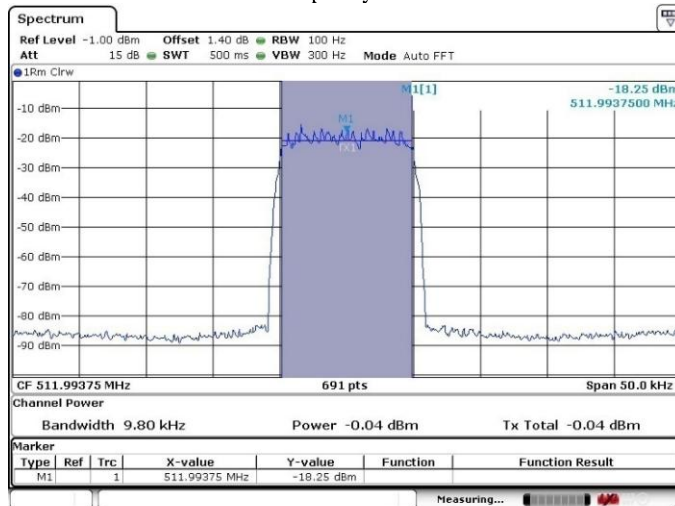
Date: 17.FEB.2024 14:52:21

With the input signal amplitude set the AGC threshold
Middle Frequency: 484.0MHz



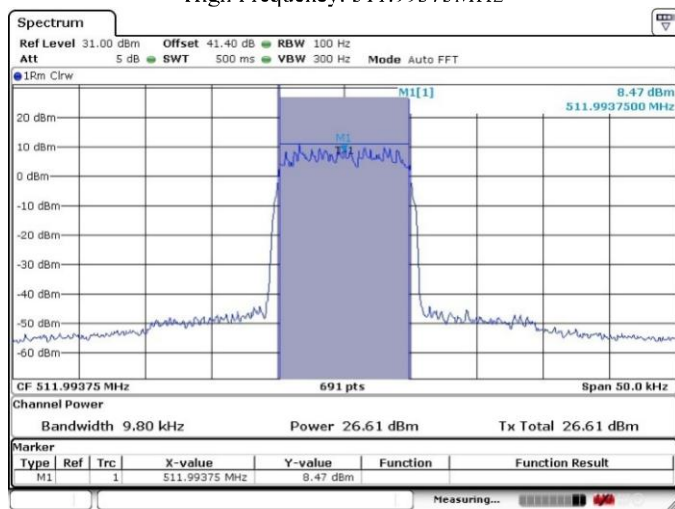
Date: 17.FEB.2024 14:52:39

With the input signal amplitude set 3 dB above the AGC threshold
Middle Frequency: 484.0MHz



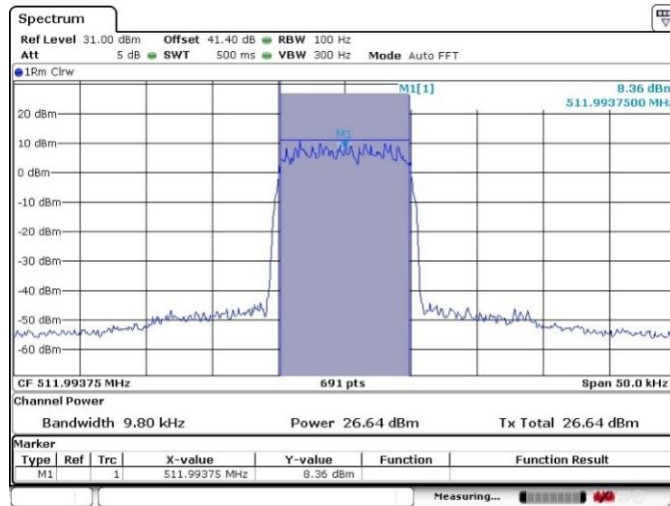
Date: 17.FEB.2024 09:26:14

Input signal
High Frequency: 511.99375MHz



Date: 17.FEB.2024 14:48:38

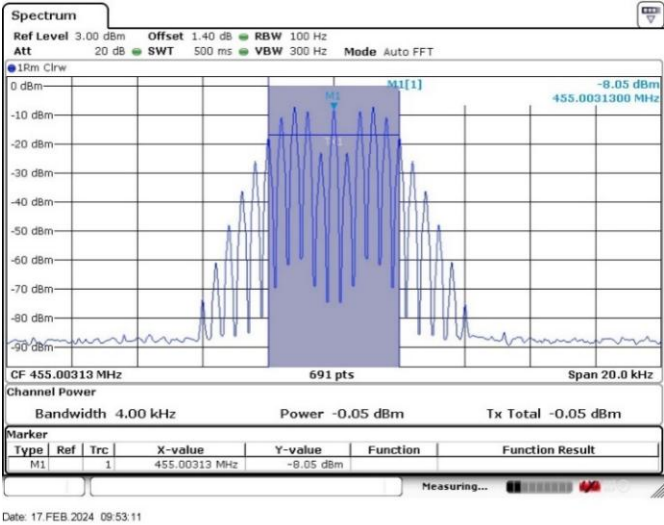
With the input signal amplitude set 3 dB above the AGC threshold
High Frequency: 511.99375MHz



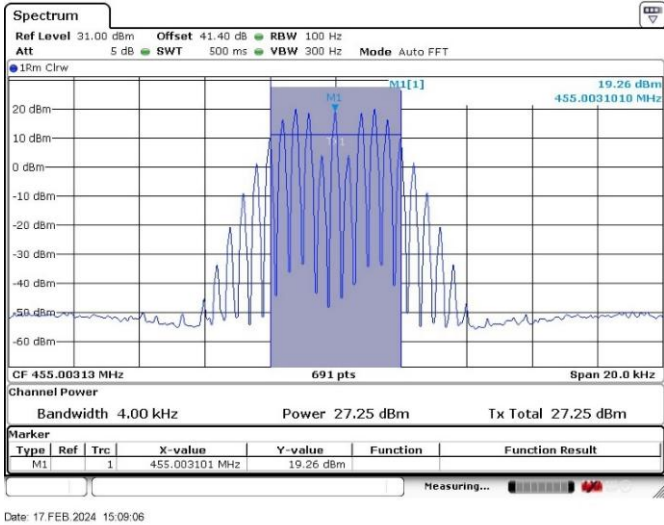
Date: 17.FEB.2024 14:48:11

With the input signal amplitude set the AGC threshold
High Frequency: 511.99375MHz

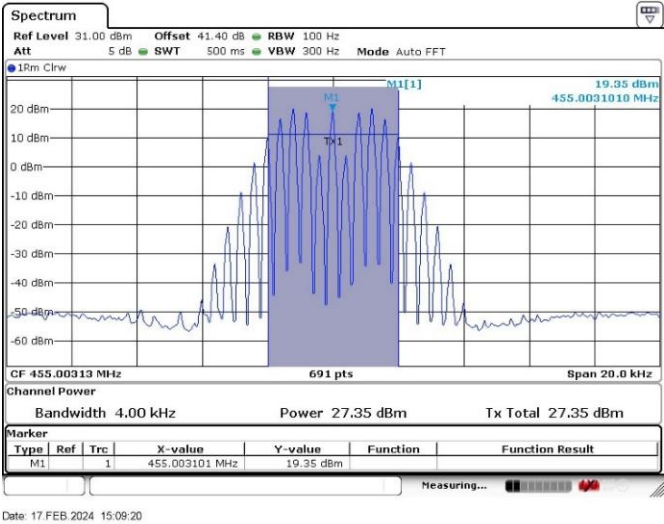
10.5.5.3.2.3. 6.25kHz Analog FM mode



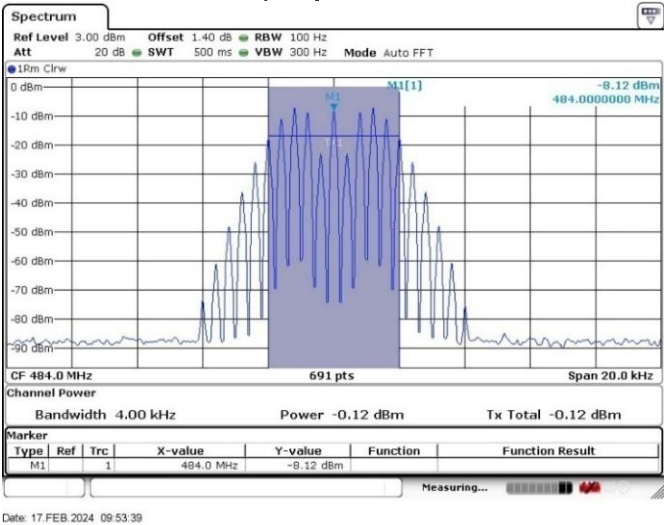
Input signal
Low Frequency: 455.00313MHz



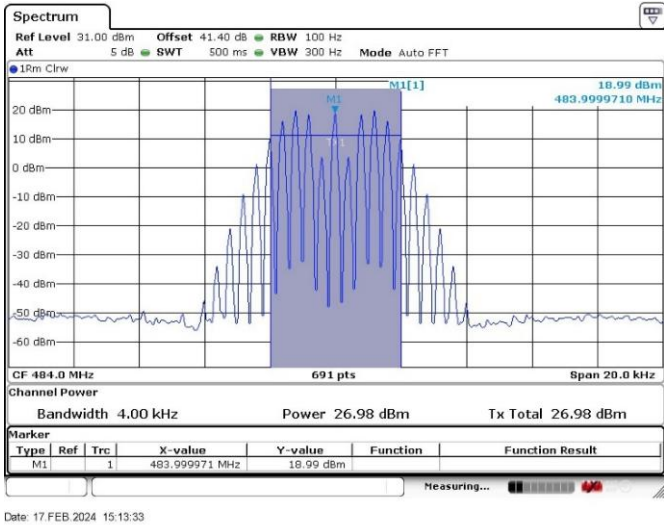
With the input signal amplitude set the AGC threshold
Low Frequency: 455.00313MHz



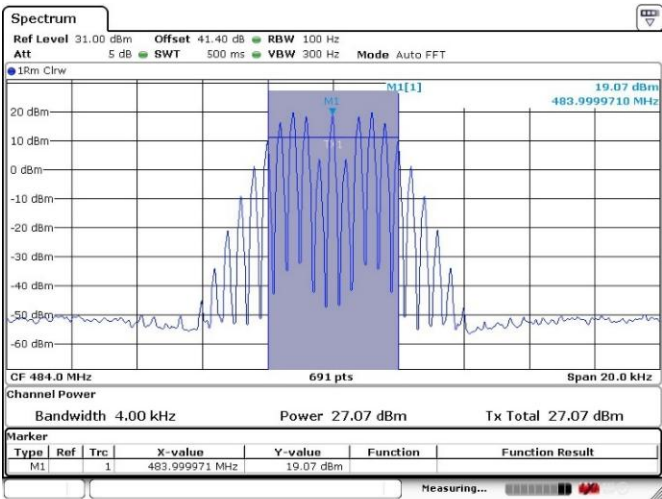
With the input signal amplitude set 3 dB above the AGC threshold
Low Frequency: 455.00313MHz



Input signal
Middle Frequency: 484.0MHz

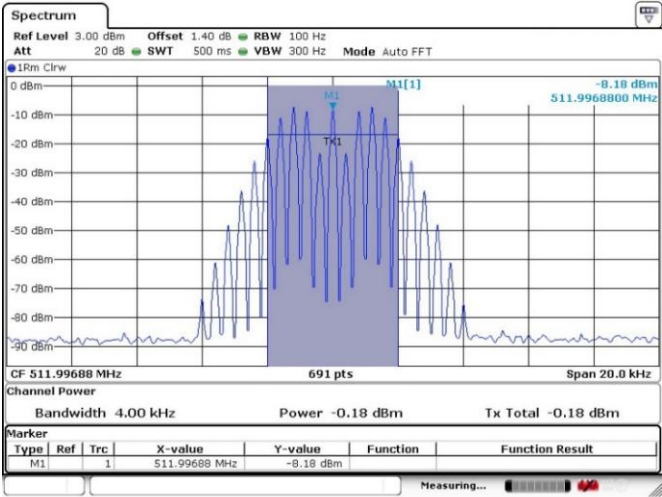


With the input signal amplitude set the AGC threshold
Middle Frequency: 484.0MHz



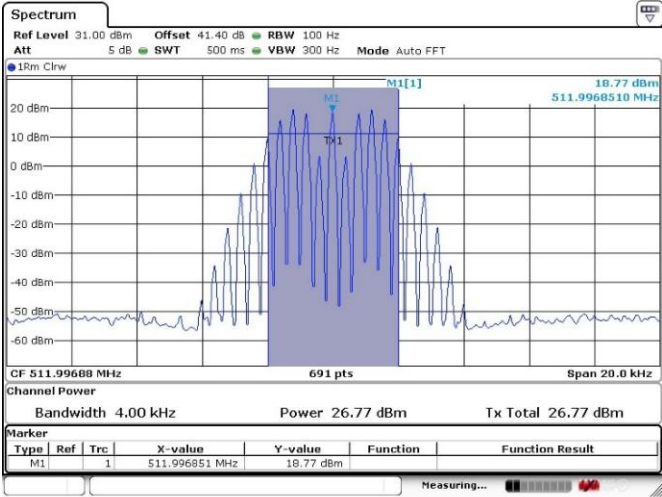
Date: 17 FEB 2024 15:13:50

With the input signal amplitude set 3 dB above the AGC threshold
Middle Frequency: 484.0MHz



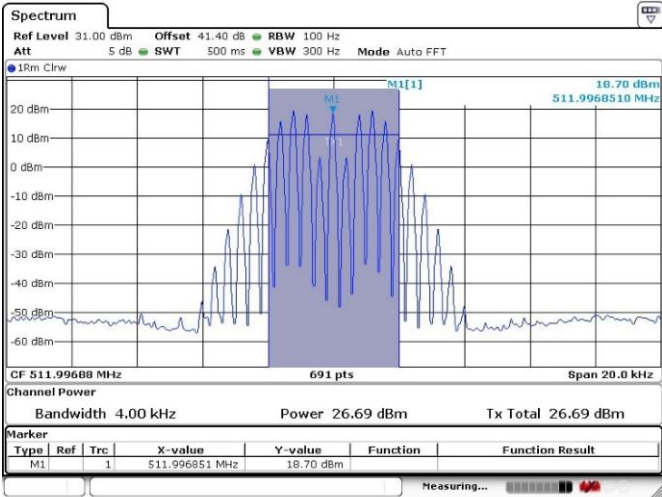
Date: 17 FEB 2024 09:54:10

Input signal
High Frequency: 511.99688MHz



Date: 17 FEB 2024 15:17:30

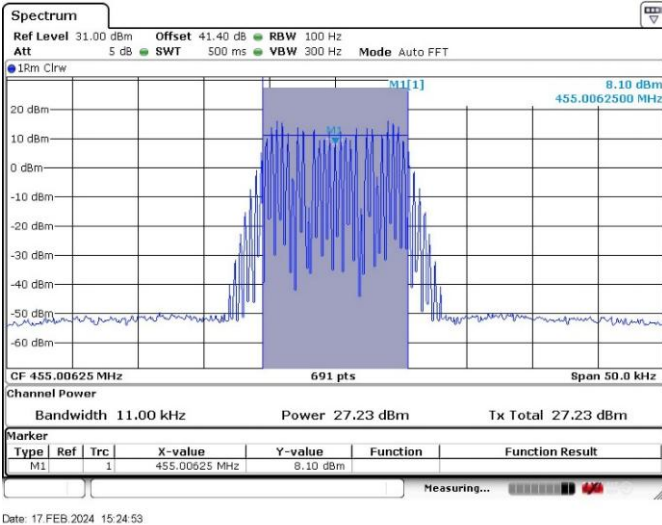
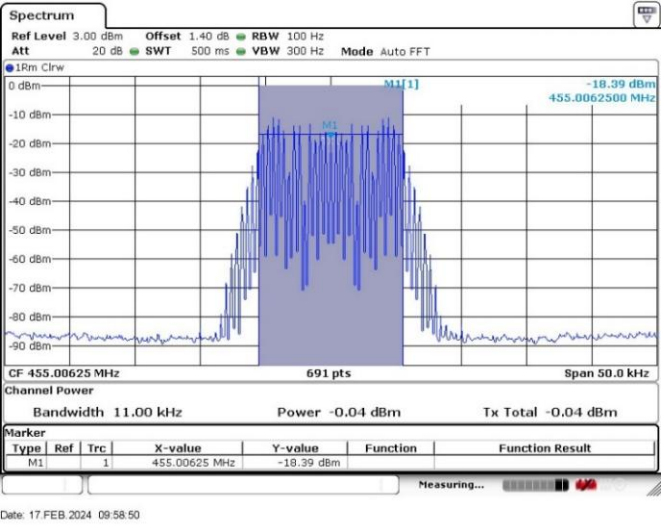
With the input signal amplitude set 3 dB above the AGC threshold
High Frequency: 511.99688MHz



Date: 17 FEB 2024 15:17:16

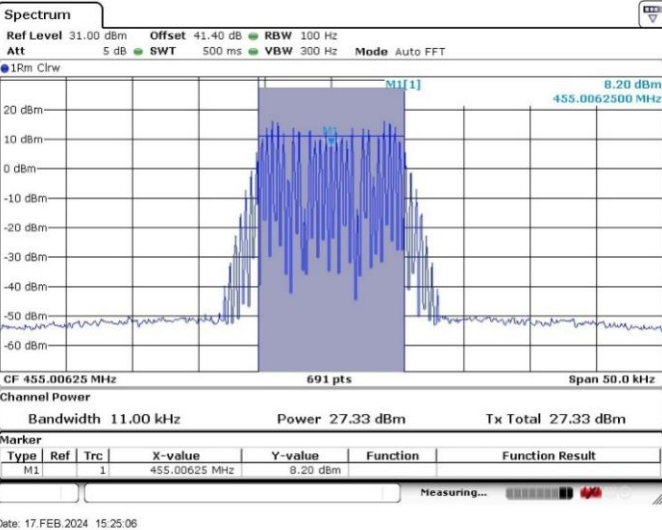
With the input signal amplitude set the AGC threshold
High Frequency: 511.99688MHz

10.5.5.3.2.4. 12.5kHz Analog FM mode

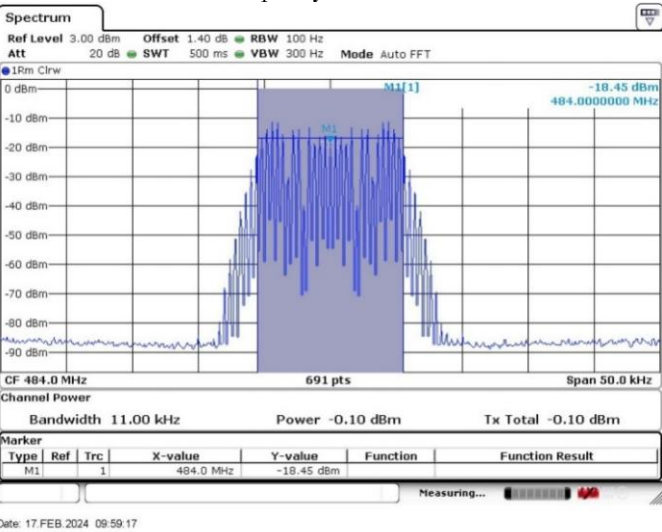


Input signal
Low Frequency: 455.00625MHz

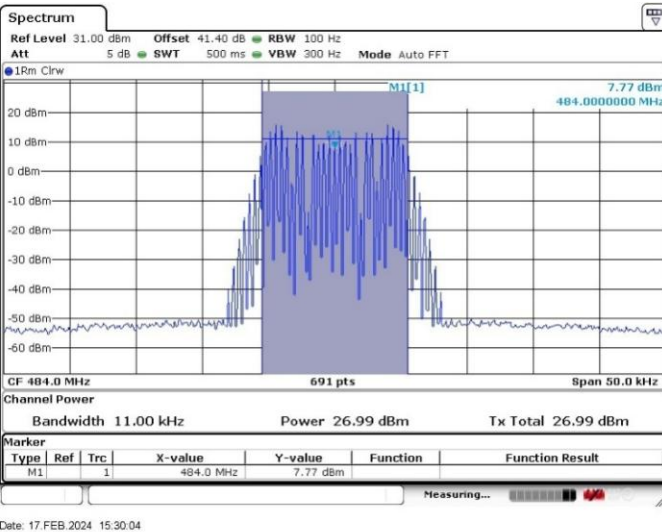
With the input signal amplitude set the AGC threshold
Low Frequency: 455.00625MHz



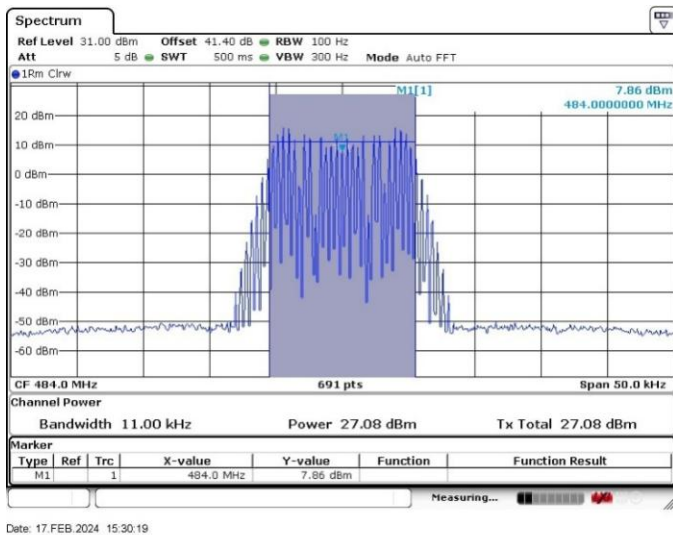
With the input signal amplitude set 3 dB above the AGC threshold
Low Frequency: 455.00625MHz



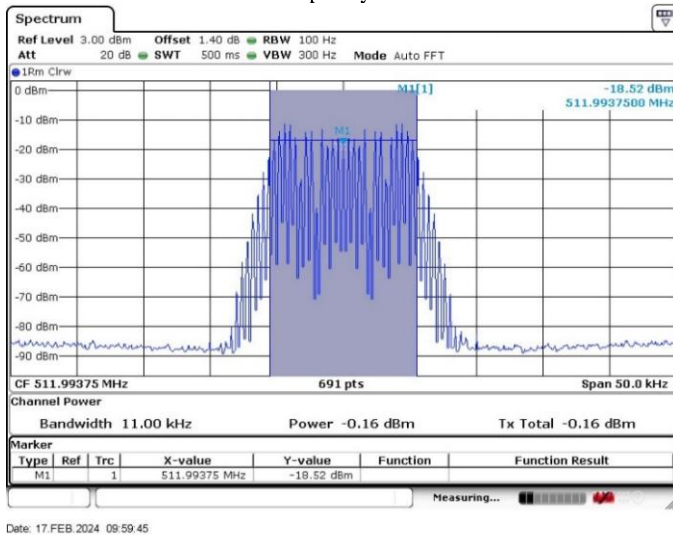
Input signal
Middle Frequency: 484.0MHz



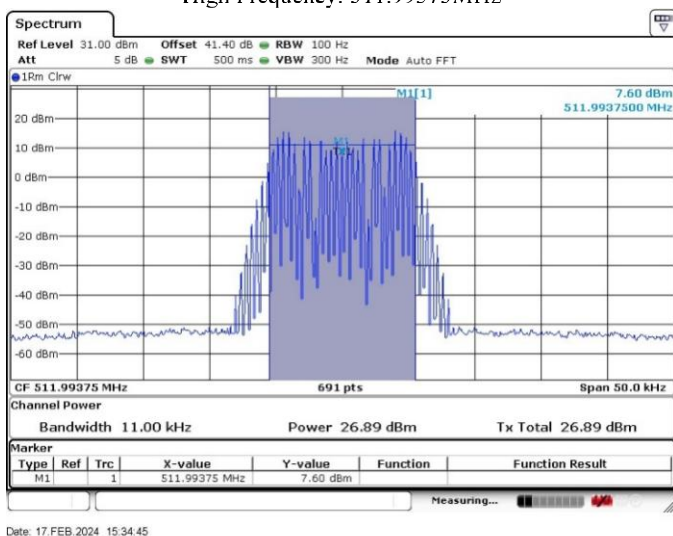
With the input signal amplitude set the AGC threshold
Middle Frequency: 484.0MHz



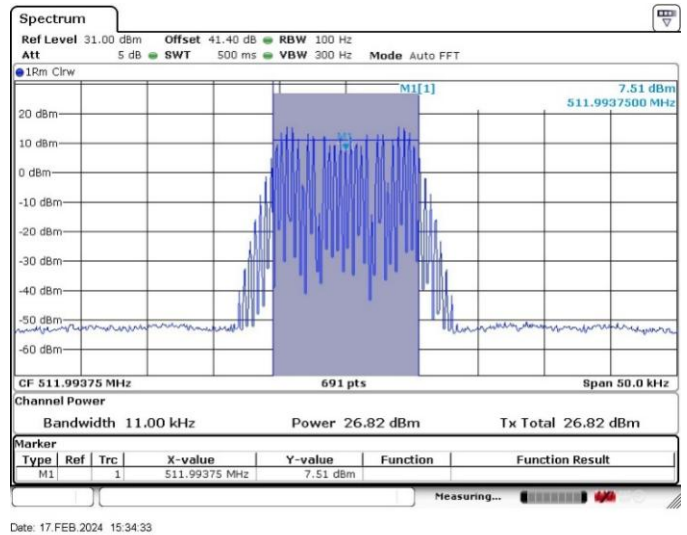
With the input signal amplitude set 3 dB above the AGC threshold
Middle Frequency: 484.0MHz



Input signal
High Frequency: 511.99375MHz

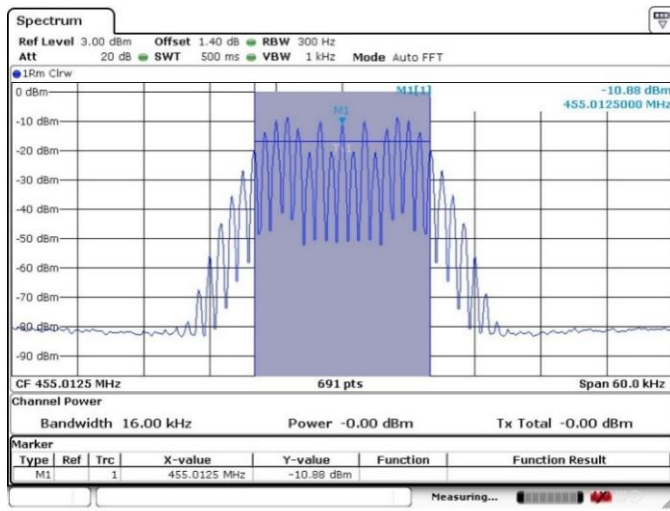


With the input signal amplitude set 3 dB above the AGC threshold
High Frequency: 511.99375MHz

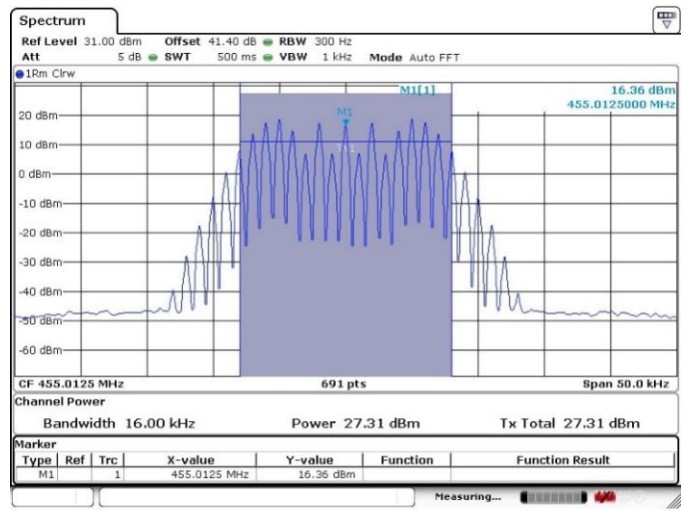


With the input signal amplitude set the AGC threshold
High Frequency: 511.99375MHz

10.5.5.3.2.5. 25kHz Analog FM mode



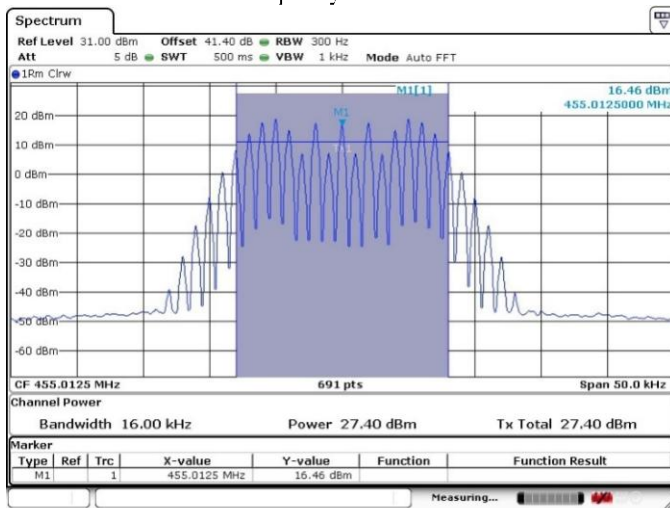
Date: 17.FEB.2024 10:03:44



Date: 17.FEB.2024 15:45:55

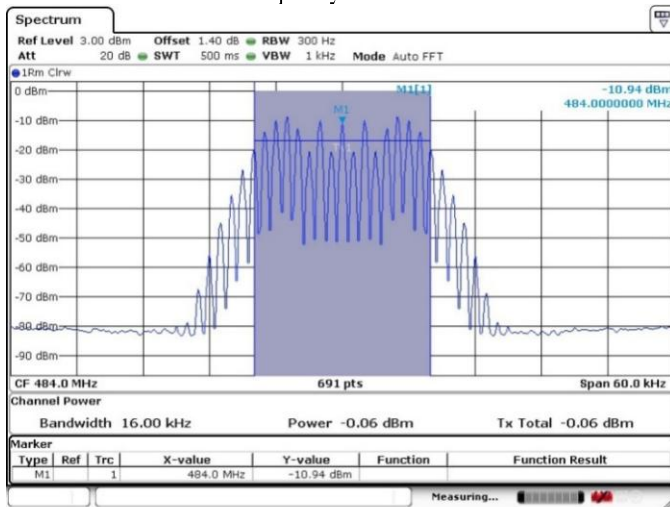
Input signal
Low Frequency: 455.0125MHz

With the input signal amplitude set the AGC threshold
Low Frequency: 455.0125MHz



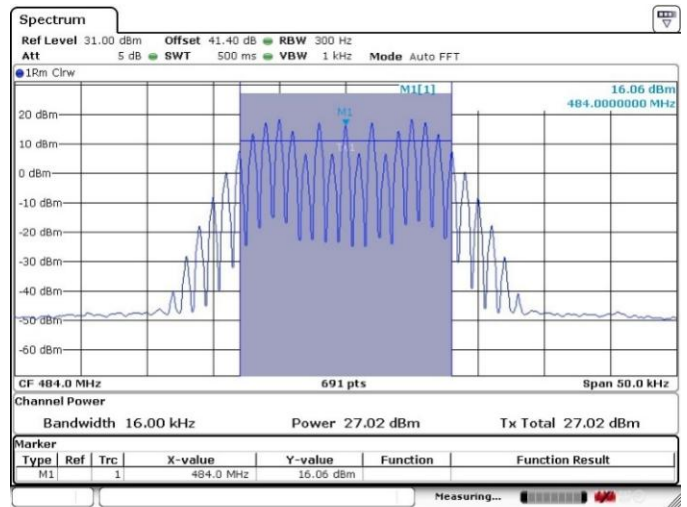
Date: 17.FEB.2024 15:46:08

With the input signal amplitude set 3 dB above the AGC threshold
Low Frequency: 455.0125MHz



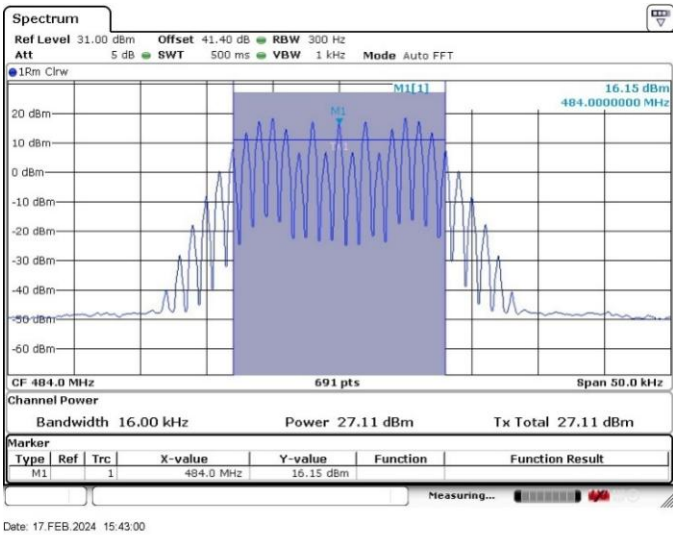
Date: 17.FEB.2024 10:04:03

Input signal
Middle Frequency: 484.0MHz

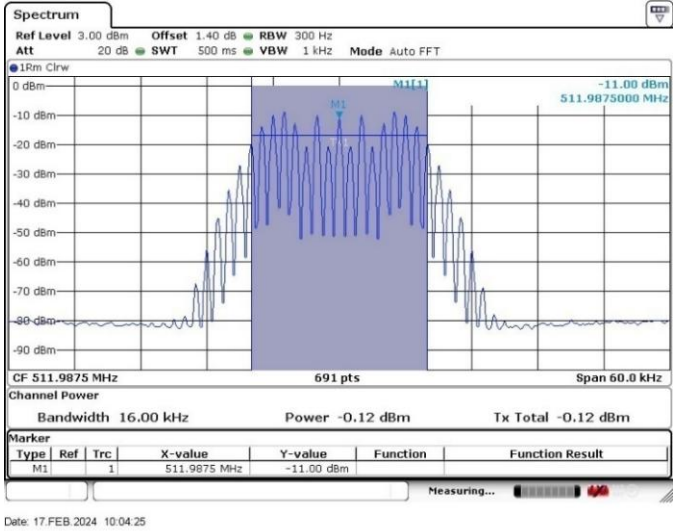


Date: 17.FEB.2024 15:42:47

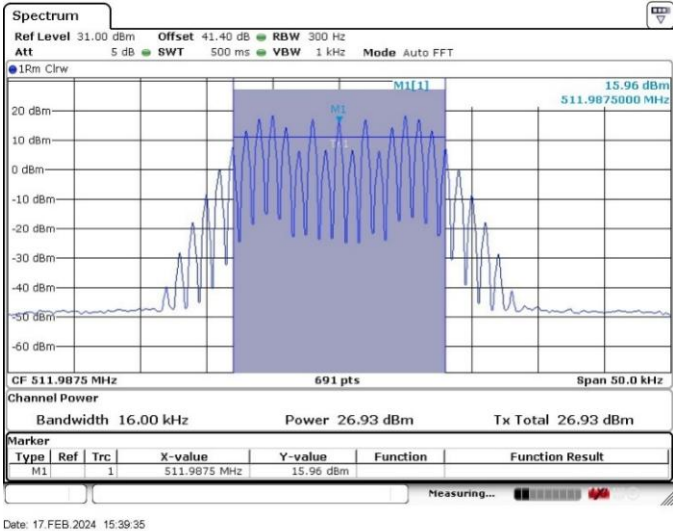
With the input signal amplitude set the AGC threshold
Middle Frequency: 484.0MHz



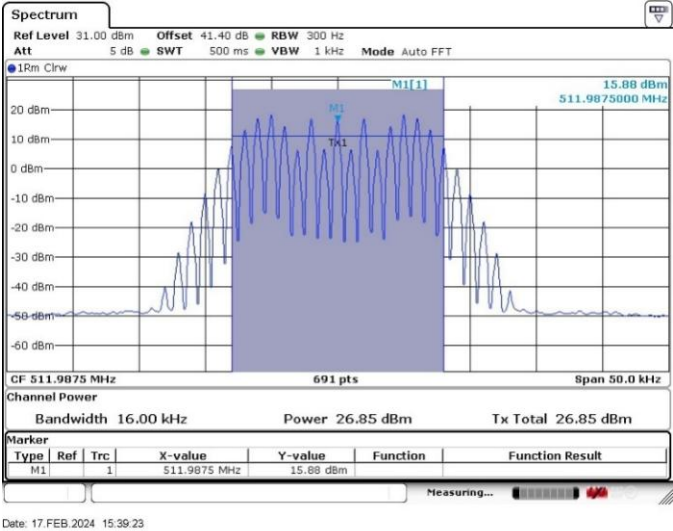
With the input signal amplitude set 3 dB above the AGC threshold
Middle Frequency: 484.0MHz



Input signal
High Frequency: 511.9875MHz



With the input signal amplitude set 3 dB above the AGC threshold
High Frequency: 511.9875MHz



With the input signal amplitude set the AGC threshold
High Frequency: 511.9875MHz

10.6. Mean power and amplifier/booster gain

Test requirement: KDB 935210 D05 clause 4.5
FCC PART 90.219 (e)(1)

Test Method: KDB 935210 D05 clause 4.5

10.6.1. Requirements

According to KDB 935210 D05 clause 4.5, the mean input and output power and the amplifier gain was measured by adjusting the internal gain control of the EUT to the maximum gain for which equipment certification is sought. Any EUT attenuation settings were set to their minimum value.

Input power levels (Downlink and Uplink) were set to maximum input ratings while confirming that the device is not capable of operating in saturation (Non-linear mode) at the rated input levels, including during the performance of the input/output power measurements.

FCC PART 90.219 (e)(1) requirement:

(e) Device Specifications. In addition to the general rules for equipment certification in §90.203(a)(2) and part 2, subpart J of this chapter, a signal booster must also meet the rules in this paragraph.

(1) The output power capability of a signal booster must be designed for deployments providing a radiated power not exceeding 5 Watts ERP for each retransmitted channel.

10.6.2. Test configuration

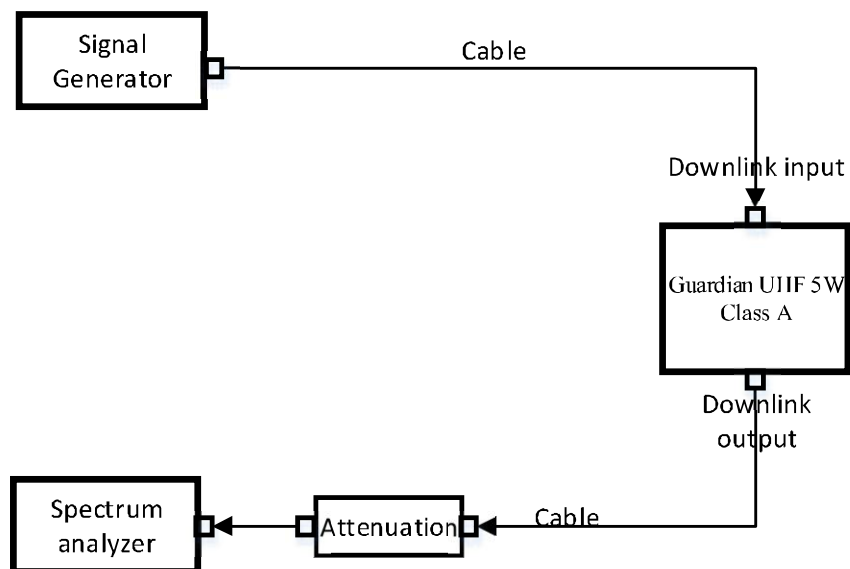


Figure 10.6-1 Downlink connection diagram

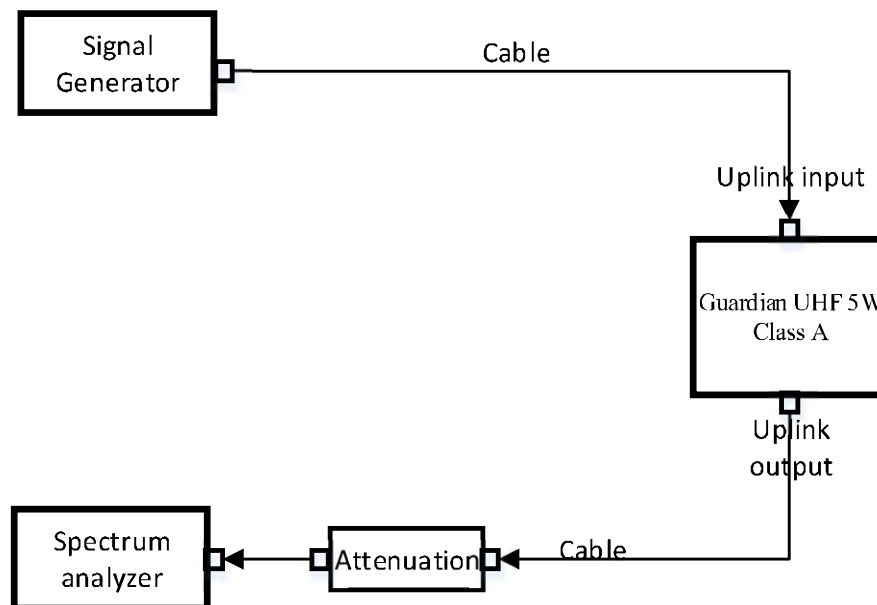


Figure 10.6-2 Uplink connection diagram

10.6.3. Test procedures

- a) Connect a signal generator to the input of the EUT.
- b) Configure to generate the AWGN (broadband) test signal.
- c) The frequency of the signal generator shall be set to the frequency f_0 as determined from 3.3.
- d) Connect a spectrum analyzer or power meter to the output of the EUT using appropriate attenuation as necessary.
- e) Set the signal generator output power to a level that produces an EUT output level that is just below the AGC threshold (see 3.2), but not more than 0.5 dB below.
- f) Measure and record the output power of the EUT; use 3.5.3 or 3.5.4 for power measurement.
- g) Remove the EUT from the measurement setup. Using the same signal generator settings, repeat the power measurement at the signal generator port, which was used as the input signal to the EUT, and record as the input power. EUT gain may be calculated as described in 3.5.5.
- h) Repeat steps f) and g) with input signal amplitude set to 3 dB above the AGC threshold level.
- i) Repeat steps e) to h) with the narrowband test signal.
- j) Repeat steps e) to i) for all frequency bands authorized for use by the EUT.

———— The following blanks ————

10.6.4. Test results

Test Date (yy-mm-dd): 2024-02-17

Normal condition: Temp: 25.9°C, Humid: 54%, Atmospheric Pressure:101kpa

Supply Voltage: DC +24V

10.6.4.1. Mean power and gain

10.6.4.1.1. P25 Phase I(C4FM) mode

Test link	Freq. (MHz)	Sig output power (dBm)	Input Cable Loss (dB)	Peak power (dBm)	Output Atten (dB)	Output Cable Loss (dB)	Output power (dBm)	Output power (W)	Gain (dB)
Down ⁽¹⁾	450.00625	-53.2	0.5	-5.1	40.0	1.4	36.3	4.3	90.0
Down ⁽²⁾	450.00625	-50.2	0.5	-5.0	40.0	1.4	36.4	4.4	87.1
Down ⁽¹⁾	479.0	-54.1	0.5	-4.8	40.0	1.4	36.6	4.6	91.2
Down ⁽²⁾	479.0	-51.1	0.5	-4.7	40.0	1.4	36.7	4.7	88.3
Down ⁽¹⁾	508.99375	-51.5	0.5	-5.6	40.0	1.4	35.8	3.8	87.8
Down ⁽²⁾	508.99375	-48.5	0.5	-6.2	40.0	1.4	35.2	3.3	84.2
Up ⁽¹⁾	455.00625	-62.4	0.5	-14.1	40.0	1.4	27.3	0.5	90.2
Up ⁽²⁾	455.00625	-59.4	0.5	-14.0	40.0	1.4	27.4	0.5	87.3
Up ⁽¹⁾	484.0	-62.1	0.5	-14.3	40.0	1.4	27.1	0.5	89.7
Up ⁽²⁾	484.0	-59.1	0.5	-14.4	40.0	1.4	27.0	0.5	86.6
Up ⁽¹⁾	511.99375	-59.7	0.5	-14.5	40.0	1.4	26.9	0.5	87.1
Up ⁽²⁾	511.99375	-56.7	0.5	-14.4	40.0	1.4	27.0	0.5	84.2

NOTE: ⁽¹⁾ Level is 0.5 dB below AGC threshold; ⁽²⁾ Level is 3dB above AGC threshold.

10.6.4.1.2. P25 Phase II(H-DQPSK) mode

Test link	Freq. (MHz)	Sig output power (dBm)	Input Cable Loss (dB)	Peak power (dBm)	Output Atten (dB)	Output Cable Loss (dB)	Output power (dBm)	Output power (W)	Gain (dB)
Down ⁽¹⁾	450.00625	-52.6	0.5	-5.3	40.0	1.4	36.1	4.1	89.2
Down ⁽²⁾	450.00625	-49.6	0.5	-5.3	40.0	1.4	36.1	4.1	86.2
Down ⁽¹⁾	479.0	-54.4	0.5	-5.0	40.0	1.4	36.4	4.4	91.3
Down ⁽²⁾	479.0	-51.4	0.5	-4.9	40.0	1.4	36.5	4.5	88.4
Down ⁽¹⁾	508.99375	-51.7	0.5	-5.8	40.0	1.4	35.6	3.6	87.8
Down ⁽²⁾	508.99375	-48.7	0.5	-6.3	40.0	1.4	35.1	3.2	84.3
Up ⁽¹⁾	455.00625	-62.7	0.5	-14.3	40.0	1.4	27.1	0.5	90.3

Up ⁽²⁾	455.00625	-59.7	0.5	-14.2	40.0	1.4	27.2	0.5	87.4
Up ⁽¹⁾	484.0	-62.4	0.5	-14.6	40.0	1.4	26.8	0.5	89.7
Up ⁽²⁾	484.0	-59.4	0.5	-14.5	40.0	1.4	26.9	0.5	86.8
Up ⁽¹⁾	511.99375	-60.0	0.5	-14.8	40.0	1.4	26.6	0.5	87.1
Up ⁽²⁾	511.99375	-57.0	0.5	-14.8	40.0	1.4	26.6	0.5	84.1

NOTE: ⁽¹⁾ Level is 0.5 dB below AGC threshold; ⁽²⁾ Level is 3dB above AGC threshold.

10.6.4.1.3. 6.25kHz Analog FM mode

Test link	Freq. (MHz)	Sig output power (dBm)	Input Cable Loss (dB)	Peak power (dBm)	Output Atten (dB)	Output Cable Loss (dB)	Output power (dBm)	Output power (W)	Gain (dB)
Down ⁽¹⁾	450.00313	-52.6	0.5	-5.2	40.0	1.4	36.2	4.2	89.3
Down ⁽²⁾	450.00313	-49.6	0.5	-5.2	40.0	1.4	36.2	4.2	86.3
Down ⁽¹⁾	479.0	-54.7	0.5	-4.9	40.0	1.4	36.5	4.5	91.7
Down ⁽²⁾	479.0	-51.7	0.5	-4.9	40.0	1.4	36.5	4.5	88.7
Down ⁽¹⁾	508.99688	-51.6	0.5	-5.7	40.0	1.4	35.7	3.7	87.8
Down ⁽²⁾	508.99688	-48.6	0.5	-5.6	40.0	1.4	35.8	3.8	84.9
Up ⁽¹⁾	455.00313	-62.5	0.5	-14.1	40.0	1.4	27.3	0.5	90.3
Up ⁽²⁾	455.00313	-59.5	0.5	-14.1	40.0	1.4	27.3	0.5	87.3
Up ⁽¹⁾	484.0	-62.5	0.5	-14.4	40.0	1.4	27.0	0.5	90.0
Up ⁽²⁾	484.0	-59.5	0.5	-14.3	40.0	1.4	27.1	0.5	87.1
Up ⁽¹⁾	511.99688	-58.2	0.5	-14.7	40.0	1.4	26.7	0.5	85.4
Up ⁽²⁾	511.99688	-55.2	0.5	-14.6	40.0	1.4	26.8	0.5	82.5

NOTE: ⁽¹⁾ Level is 0.5 dB below AGC threshold; ⁽²⁾ Level is 3dB above AGC threshold.

10.6.4.1.4. 12.5kHz Analog FM mode

Test link	Freq. (MHz)	Sig output power (dBm)	Input Cable Loss (dB)	Peak power (dBm)	Output Atten (dB)	Output Cable Loss (dB)	Output power (dBm)	Output power (W)	Gain (dB)
Down ⁽¹⁾	450.00625	-52.0	0.5	-5.3	40.0	1.4	36.1	4.1	88.6
Down ⁽²⁾	450.00625	-49.0	0.5	-5.3	40.0	1.4	36.1	4.1	85.6
Down ⁽¹⁾	479.0	-54.8	0.5	-4.9	40.0	1.4	36.5	4.5	91.8
Down ⁽²⁾	479.0	-51.8	0.5	-4.9	40.0	1.4	36.5	4.5	88.8
Down ⁽¹⁾	508.99375	-50.9	0.5	-5.6	40.0	1.4	35.8	3.8	87.2
Down ⁽²⁾	508.99375	-47.9	0.5	-5.5	40.0	1.4	35.9	3.9	84.3

Up ⁽¹⁾	455.00625	-62.6	0.5	-14.1	40.0	1.4	27.3	0.5	90.4
Up ⁽²⁾	455.00625	-59.6	0.5	-14.1	40.0	1.4	27.3	0.5	87.4
Up ⁽¹⁾	484.0	-62.5	0.5	-14.4	40.0	1.4	27.0	0.5	90.0
Up ⁽²⁾	484.0	-59.5	0.5	-14.3	40.0	1.4	27.1	0.5	87.1
Up ⁽¹⁾	511.99375	-60.1	0.5	-14.6	40.0	1.4	26.8	0.5	87.4
Up ⁽²⁾	511.99375	-57.1	0.5	-14.5	40.0	1.4	26.9	0.5	84.5

NOTE: ⁽¹⁾ Level is 0.5 dB below AGC threshold; ⁽²⁾ Level is 3dB above AGC threshold.

10.6.4.1.5. 25kHz Analog FM mode

Test link	Freq. (MHz)	Sig output power (dBm)	Input Cable Loss (dB)	Peak power (dBm)	Output Atten (dB)	Output Cable Loss (dB)	Output power (dBm)	Output power (W)	Gain (dB)
Down ⁽¹⁾	450.0125	-51.2	0.5	-5.2	40.0	1.4	36.2	4.2	87.9
Down ⁽²⁾	450.0125	-48.2	0.5	-5.2	40.0	1.4	36.2	4.2	84.9
Down ⁽¹⁾	479.0	-54.8	0.5	-4.8	40.0	1.4	36.6	4.6	91.9
Down ⁽²⁾	479.0	-51.8	0.5	-4.8	40.0	1.4	36.6	4.6	88.9
Down ⁽¹⁾	508.9875	-52.1	0.5	-5.6	40.0	1.4	35.8	3.8	88.4
Down ⁽²⁾	508.9875	-49.1	0.5	-5.6	40.0	1.4	35.8	3.8	85.4
Up ⁽¹⁾	455.0125	-62.5	0.5	-14.1	40.0	1.4	27.3	0.5	90.3
Up ⁽²⁾	455.0125	-59.5	0.5	-14.0	40.0	1.4	27.4	0.5	87.4
Up ⁽¹⁾	484.0	-62.5	0.5	-14.4	40.0	1.4	27.0	0.5	90.0
Up ⁽²⁾	484.0	-59.5	0.5	-14.3	40.0	1.4	27.1	0.5	87.1
Up ⁽¹⁾	511.9875	-60.1	0.5	-14.5	40.0	1.4	26.9	0.5	87.5
Up ⁽²⁾	511.9875	-57.1	0.5	-14.5	40.0	1.4	26.9	0.5	84.5

NOTE: ⁽¹⁾ Level is 0.5 dB below AGC threshold; ⁽²⁾ Level is 3dB above AGC threshold.

———— The following blanks ————

10.6.4.2. ERP Calculations

10.6.4.2.1. P25 Phase I(C4FM) mode

Test link	Freq. (MHz)	EUT Max. output power (dBm)	Max. Ant Gain(dBi)	Duty Cycle (%)	ERP (W)	ERP Limit (W)	AGC Mode
Down	450.00625	36.3	0	100	4.3	5.0	-0.5dB Below
	450.00625	36.4	0	100	4.4	5.0	+3.0dB above
	479.0	36.6	0	100	4.6	5.0	-0.5dB Below
	479.0	36.7	0	100	4.7	5.0	+3.0dB above
	508.99375	35.8	0	100	3.8	5.0	-0.5dB Below
	508.99375	35.2	0	100	3.3	5.0	+3.0dB above
Up	455.00625	27.3	9.0	100	4.3	5.0	-0.5dB Below
	455.00625	27.4	9.0	100	4.4	5.0	+3.0dB above
	484.0	27.1	9.0	100	4.1	5.0	-0.5dB Below
	484.0	27.0	9.0	100	4.0	5.0	+3.0dB above
	511.99375	26.9	9.0	100	3.9	5.0	-0.5dB Below
	511.99375	27.0	9.0	100	4.0	5.0	+3.0dB above

NOTE: The maximum external antenna gain is 0dbi by manufacturer declares.

10.6.4.2.2. P25 Phase II(H-DQPSK) mode

Test link	Freq. (MHz)	EUT Max. output power (dBm)	Max. Ant Gain(dBi)	Duty Cycle (%)	ERP (W)	ERP Limit (W)	AGC Mode
Down	450.00625	36.1	0	100	4.1	5.0	-0.5dB Below
	450.00625	36.1	0	100	4.1	5.0	+3.0dB above
	479.0	36.4	0	100	4.4	5.0	-0.5dB Below
	479.0	36.5	0	100	4.5	5.0	+3.0dB above
	508.99375	35.6	0	100	3.6	5.0	-0.5dB Below
	508.99375	35.1	0	100	3.2	5.0	+3.0dB above
Up	455.00625	27.1	9.0	100	4.1	5.0	-0.5dB Below
	455.00625	27.2	9.0	100	4.2	5.0	+3.0dB above
	484.0	26.8	9.0	100	3.8	5.0	-0.5dB Below
	484.0	26.9	9.0	100	3.9	5.0	+3.0dB above
	511.99375	26.6	9.0	100	3.6	5.0	-0.5dB Below
	511.99375	26.6	9.0	100	3.6	5.0	+3.0dB above

10.6.4.2.3. 6.25kHz Analog FM mode

Test link	Freq. (MHz)	EUT Max. output power (dBm)	Max. Ant Gain(dBi)	Duty Cycle (%)	ERP (W)	ERP Limit (W)	AGC Mode
Down	450.00313	36.2	0	100	4.2	5	-0.5dB Below
	450.00313	36.2	0	100	4.2	5	+3.0dB above
	479.0	36.5	0	100	4.5	5	-0.5dB Below
	479.0	36.5	0	100	4.5	5	+3.0dB above
	508.99688	35.7	0	100	3.7	5	-0.5dB Below
	508.99688	35.8	0	100	3.8	5	+3.0dB above
Up	455.00313	27.3	9.0	100	4.3	5	-0.5dB Below
	455.00313	27.3	9.0	100	4.3	5	+3.0dB above
	484.0	27.0	9.0	100	4.0	5	-0.5dB Below
	484.0	27.1	9.0	100	4.1	5	+3.0dB above
	511.99688	26.7	9.0	100	3.7	5	-0.5dB Below
	511.99688	26.8	9.0	100	3.8	5	+3.0dB above

10.6.4.2.4. 12.5kHz Analog FM mode

Test link	Freq. (MHz)	EUT Max. output power (dBm)	Max. Ant Gain(dBi)	Duty Cycle (%)	ERP (W)	ERP Limit (W)	AGC Mode
Down	450.00625	36.1	0	100	4.2	5.0	-0.5dB Below
	450.00625	36.1	0	100	4.2	5.0	+3.0dB above
	479.0	36.5	0	100	4.6	5.0	-0.5dB Below
	479.0	36.5	0	100	4.6	5.0	+3.0dB above
	508.99375	35.8	0	100	3.2	5.0	-0.5dB Below
	508.99375	35.9	0	100	3.2	5.0	+3.0dB above
Up	455.00625	27.3	9.0	100	4.3	5.0	-0.5dB Below
	455.00625	27.3	9.0	100	4.3	5.0	+3.0dB above
	484.0	27.0	9.0	100	4.0	5.0	-0.5dB Below
	484.0	27.1	9.0	100	4.1	5.0	+3.0dB above
	511.99375	26.8	9.0	100	3.8	5.0	-0.5dB Below
	511.99375	26.9	9.0	100	3.9	5.0	+3.0dB above