Measurement report: Frequency stability (FCC/ISED)

No.1-5343/22-01-02MR_FCC-ISED1

July 01, 2023

Test Standard(s)	Systems FCC

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Authorized

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Lab Manager
Radio Labs

Table of Content

EUT Information

EUT DEFINITION

Manufacturer	Valeo GmbH
Type	CPD001
Serial Number	NI
Setup Number	1.0
Version SW	NI
Version FW	NI
Version HW	NI
Comment 1	
Comment 2	
Temperature [°C] Min	-40
Temperature [°C] Nom	20
Temperature [°C] Max	90
Voltage [V] Min	9
Voltage [V] Nom	14
Voltage [V] Max	18

Frequency stability over temperature & voltage

Test References

TC Start	03.05.2023 08:19:37
Ambit Temp [°C] | Humidity [rel%]	not enabled | not enabled
System Version	4.0.0.9
Test Specification	Systems FCC -
Test Method	
TC Version	0.0.1
My Description	Systems FCC Freq stability over temp/volt
Add. Information	

Test Parameter

Switched Path	none
Temp Variation enabled | Voltage Variation enabled	Yes No
Additional Information	

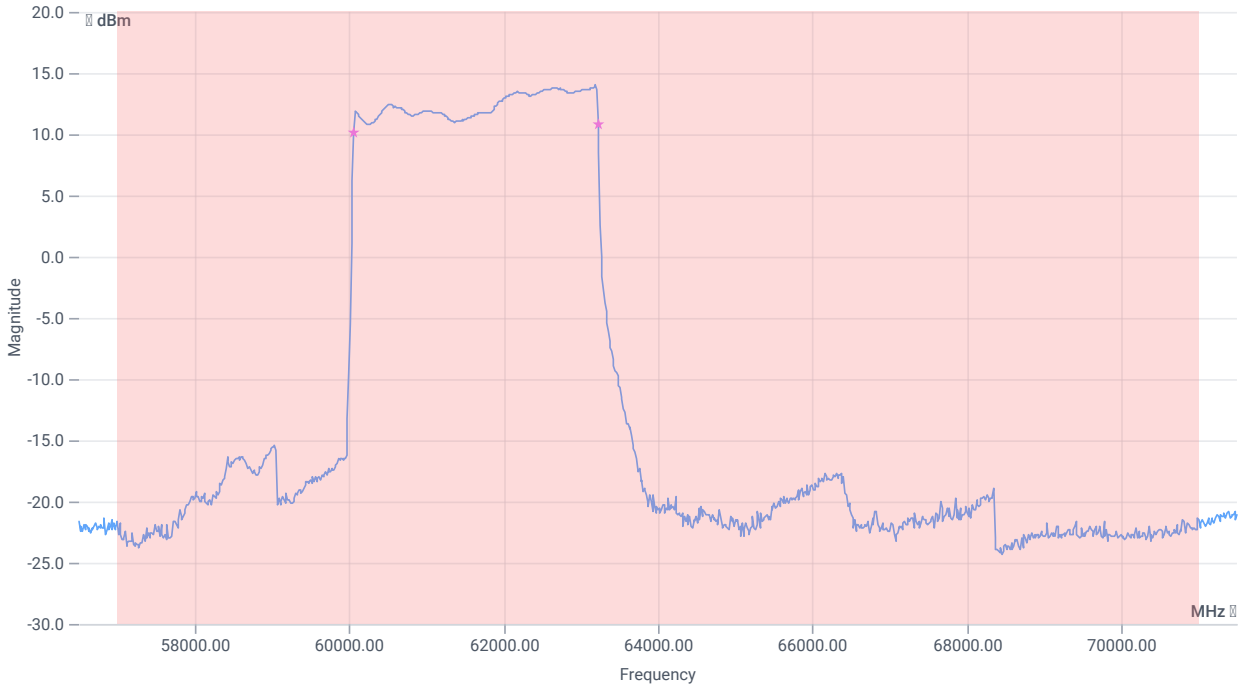
Test Equipment

Signal analyzer,Rohde&Schwarz,FSW-50,1331.5003K50/101332,5.20
Power supply,Agilent Technologies,N5767A,US26F7337F,A.05.06,REV:E
Climatic box,CTS T40/50,58566046820010,NI

Test for Temperature[°C]: -20 | Voltage [V]: 14

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	20.00 | 39 | 0
Start [MHz] | Stop [MHz]	56500.000 | 71500.000
RBW [MHz] | VBW [MHz]	50.000000 | 80.000000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	331000 | 1 | 1001 | SWE



Frequency stability

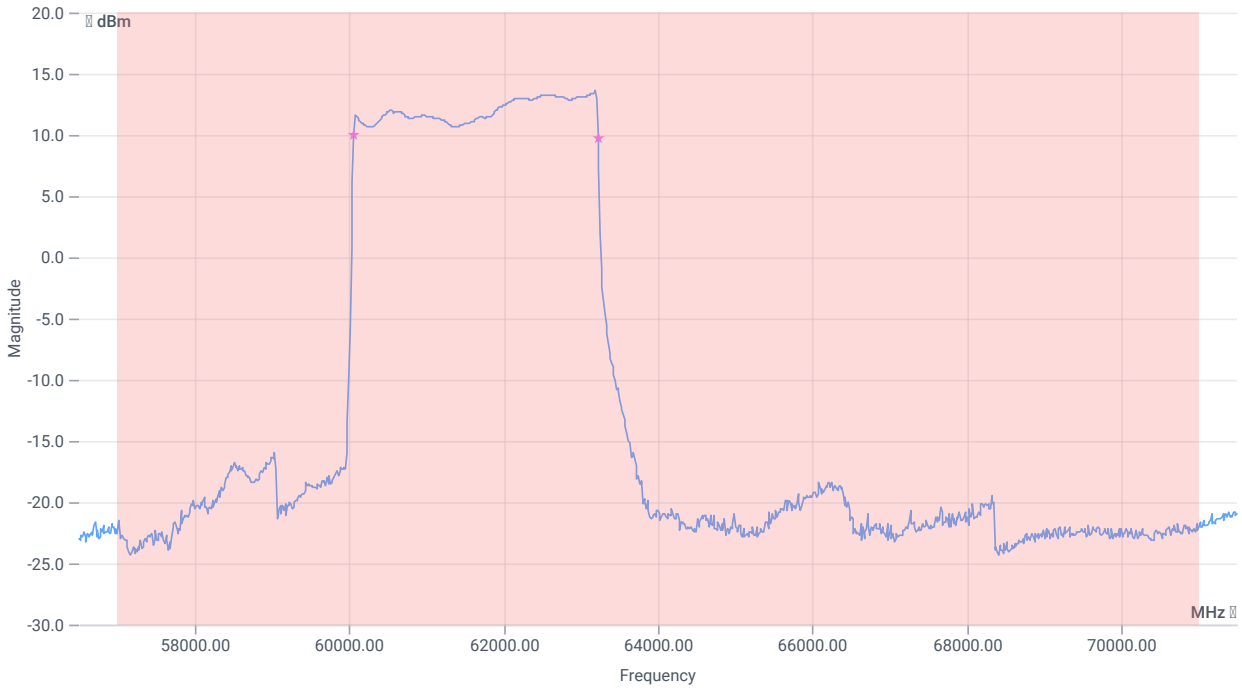
RESULT

TEST DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	---	---	3161.599	MHz	INFO
T1 99%	57000	---	60066.0730	MHz	PASS
T2 99%	---	71000	63227.6719	MHz	PASS

Test for Temperature[°C]: -10 | Voltage [V]: 14

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	20.00 | 39 | 0
Start [MHz] | Stop [MHz]	56500.000 | 71500.000
RBW [MHz] | VBW [MHz]	50.000000 | 80.000000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	331000 | 1 | 1001 | SWE



Frequency stability

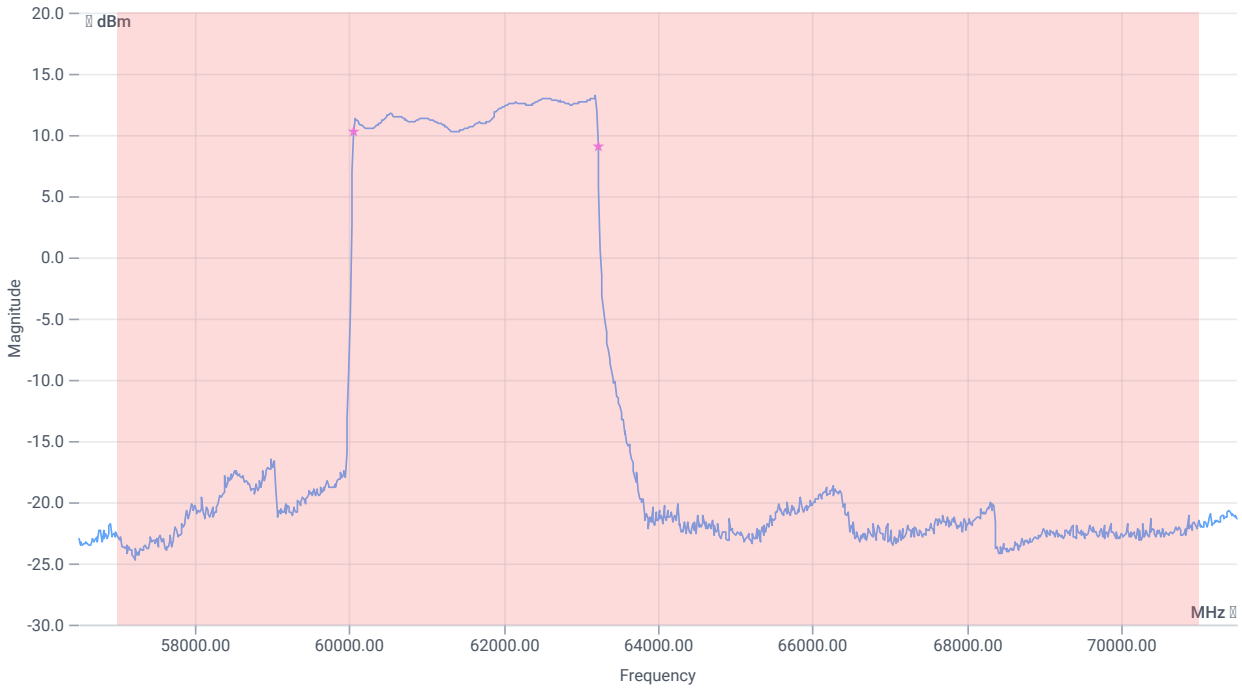
RESULT

TEST DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	---	---	3159.572	MHz	INFO
T1 99%	57000	---	60065.1525	MHz	PASS
T2 99%	---	71000	63224.7241	MHz	PASS

Test for Temperature[°C]: 0 | Voltage [V]: 14

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	20.00 | 39 | 0
Start [MHz] | Stop [MHz]	56500.000 | 71500.000
RBW [MHz] | VBW [MHz]	50.000000 | 80.000000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	331000 | 1 | 1001 | SWE



Frequency stability

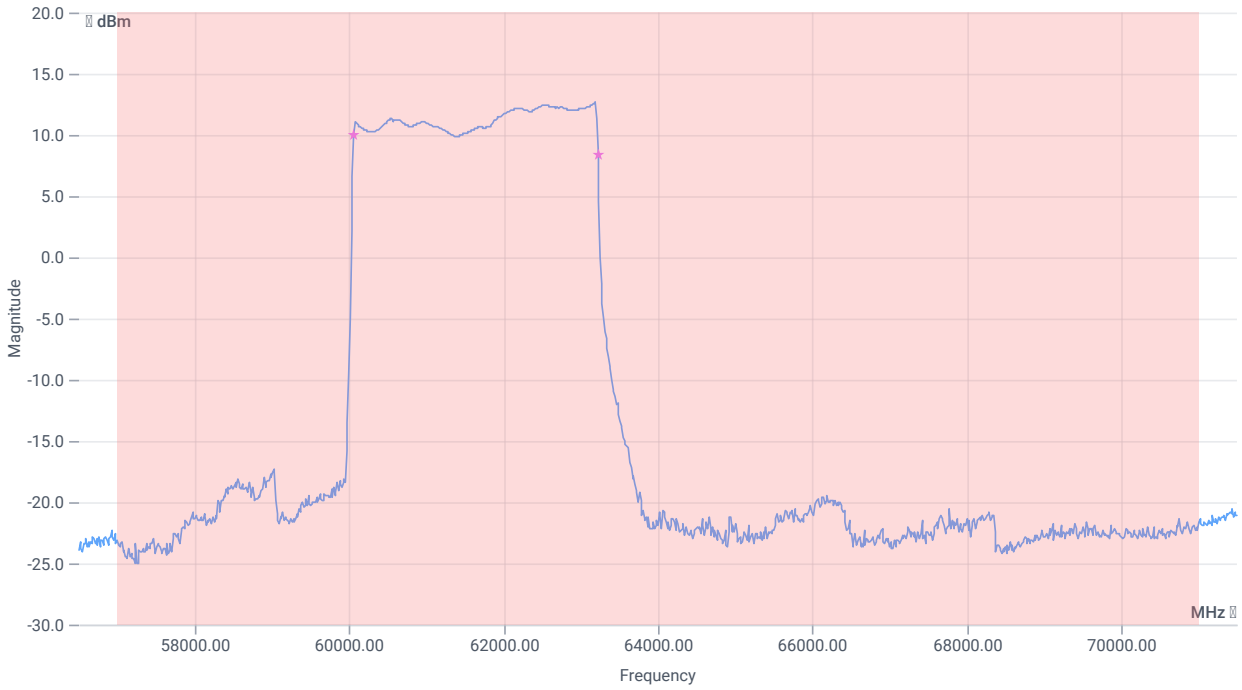
RESULT

TEST DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	---	---	3160.813	MHz	INFO
T1 99%	57000	---	60060.5000	MHz	PASS
T2 99%	---	71000	63221.3134	MHz	PASS

Test for Temperature[°C]: 10 | Voltage [V]: 14

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	20.00 | 39 | 0
Start [MHz] | Stop [MHz]	56500.000 | 71500.000
RBW [MHz] | VBW [MHz]	50.000000 | 80.000000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	331000 | 1 | 1001 | SWE



Frequency stability

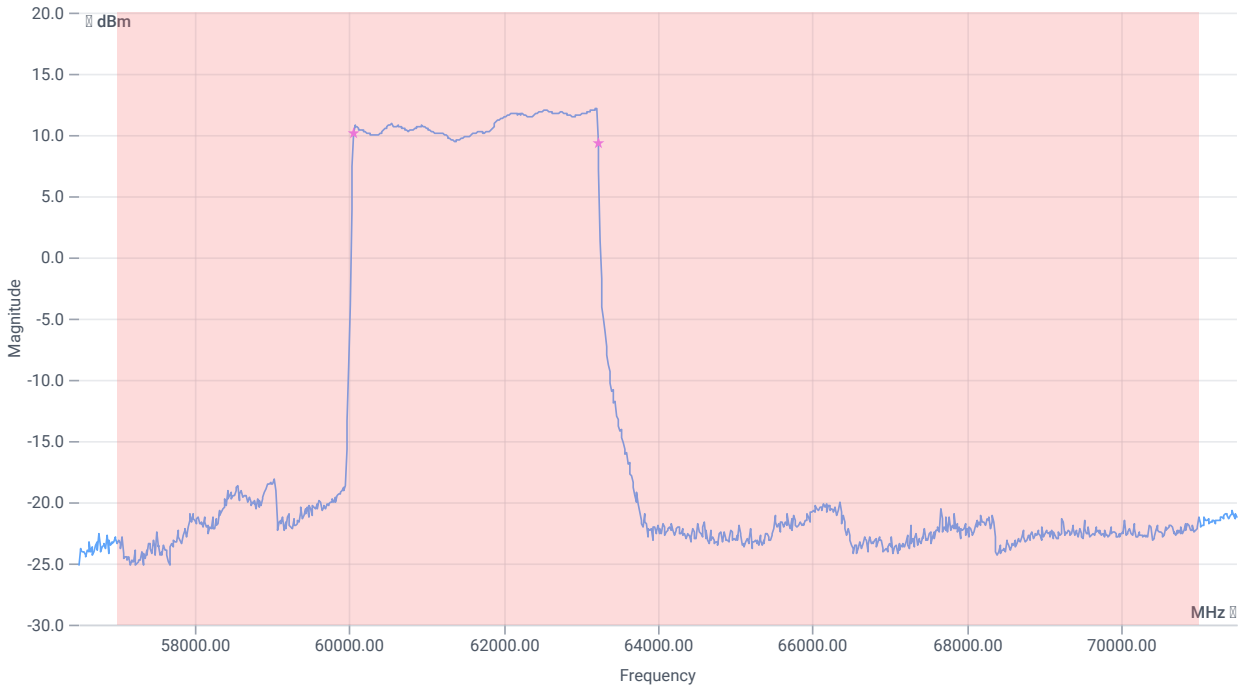
RESULT

TEST DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	---	---	3159.423	MHz	INFO
T1 99%	57000	---	60060.1383	MHz	PASS
T2 99%	---	71000	63219.5613	MHz	PASS

Test for Temperature[°C]: 20 | Voltage [V]: 14

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	20.00 | 39 | 0
Start [MHz] | Stop [MHz]	56500.000 | 71500.000
RBW [MHz] | VBW [MHz]	50.000000 | 80.000000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	331000 | 1 | 1001 | SWE



Frequency stability

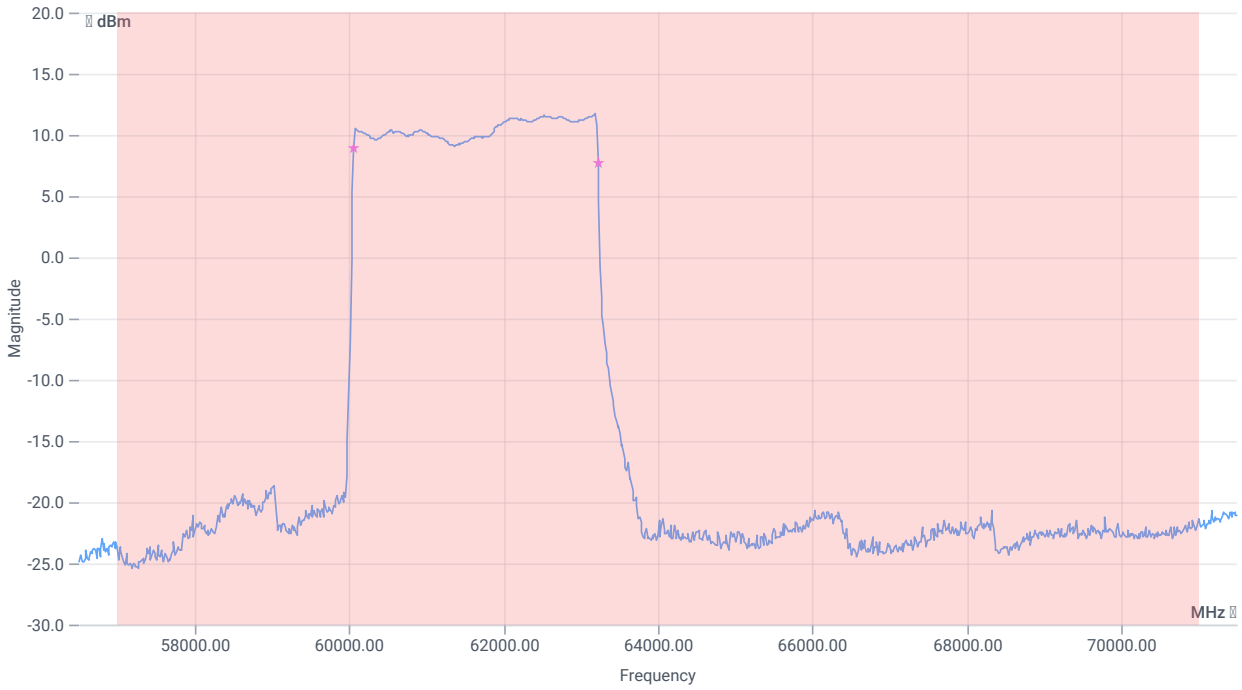
RESULT

TEST DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	---	---	3171.712	MHz	INFO
T1 99%	57000	---	60055.7348	MHz	PASS
T2 99%	---	71000	63227.4468	MHz	PASS

Test for Temperature[°C]: 30 | Voltage [V]: 14

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	20.00 | 39 | 0
Start [MHz] | Stop [MHz]	56500.000 | 71500.000
RBW [MHz] | VBW [MHz]	50.000000 | 80.000000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	331000 | 1 | 1001 | SWE



Frequency stability

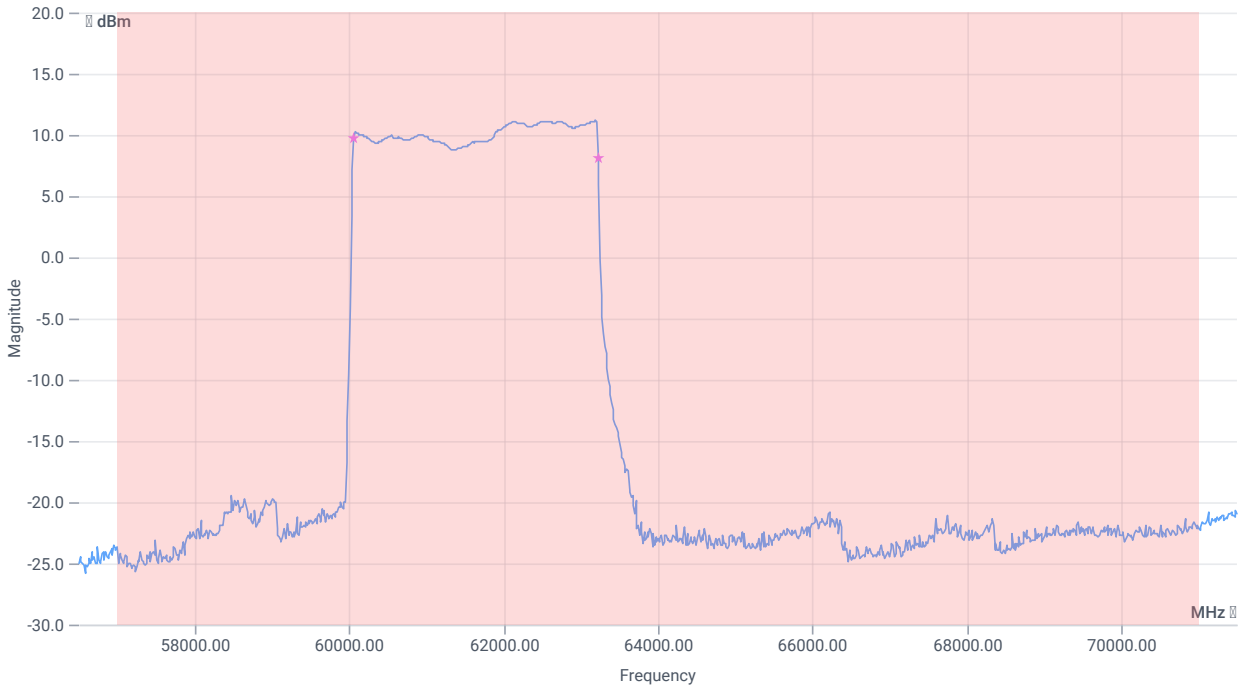
RESULT

TEST DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	---	---	3158.697	MHz	INFO
T1 99%	57000	---	60062.3889	MHz	PASS
T2 99%	---	71000	63221.0855	MHz	PASS

Test for Temperature[°C]: 40 | Voltage [V]: 14

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	20.00 | 39 | 0
Start [MHz] | Stop [MHz]	56500.000 | 71500.000
RBW [MHz] | VBW [MHz]	50.000000 | 80.000000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	331000 | 1 | 1001 | SWE



Frequency stability

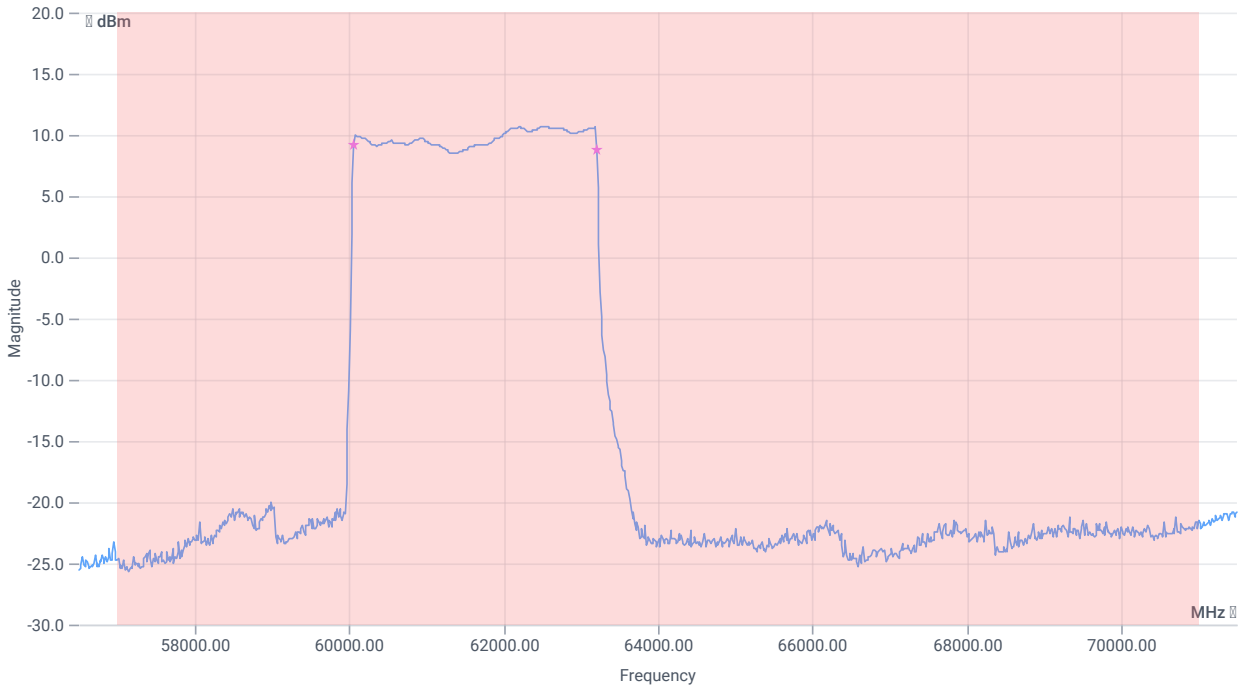
RESULT

TEST DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	---	---	3171.587	MHz	INFO
T1 99%	57000	---	60054.4370	MHz	PASS
T2 99%	---	71000	63226.0243	MHz	PASS

Test for Temperature[°C]: 50 | Voltage [V]: 14

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	20.00 | 39 | 0
Start [MHz] | Stop [MHz]	56500.000 | 71500.000
RBW [MHz] | VBW [MHz]	50.000000 | 80.000000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	331000 | 1 | 1001 | SWE



Frequency stability

RESULT

TEST DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	---	---	3156.494	MHz	INFO
T1 99%	57000	---	60056.6327	MHz	PASS
T2 99%	---	71000	63213.1268	MHz	PASS

Verdict
PASS

Frequency stability over temperature & voltage

Test References

TC Start	02.05.2023 15:37:49
Ambit Temp [°C] | Humidity [rel%]	not enabled | not enabled
System Version	4.0.0.9
Test Specification	Systems FCC -
Test Method	
TC Version	0.0.1
My Description	Systems FCC Freq stability over temp/volt
Add. Information	

Test Parameter

Switched Path	none
Temp Variation enabled | Voltage Variation enabled	No Yes
Additional Information	

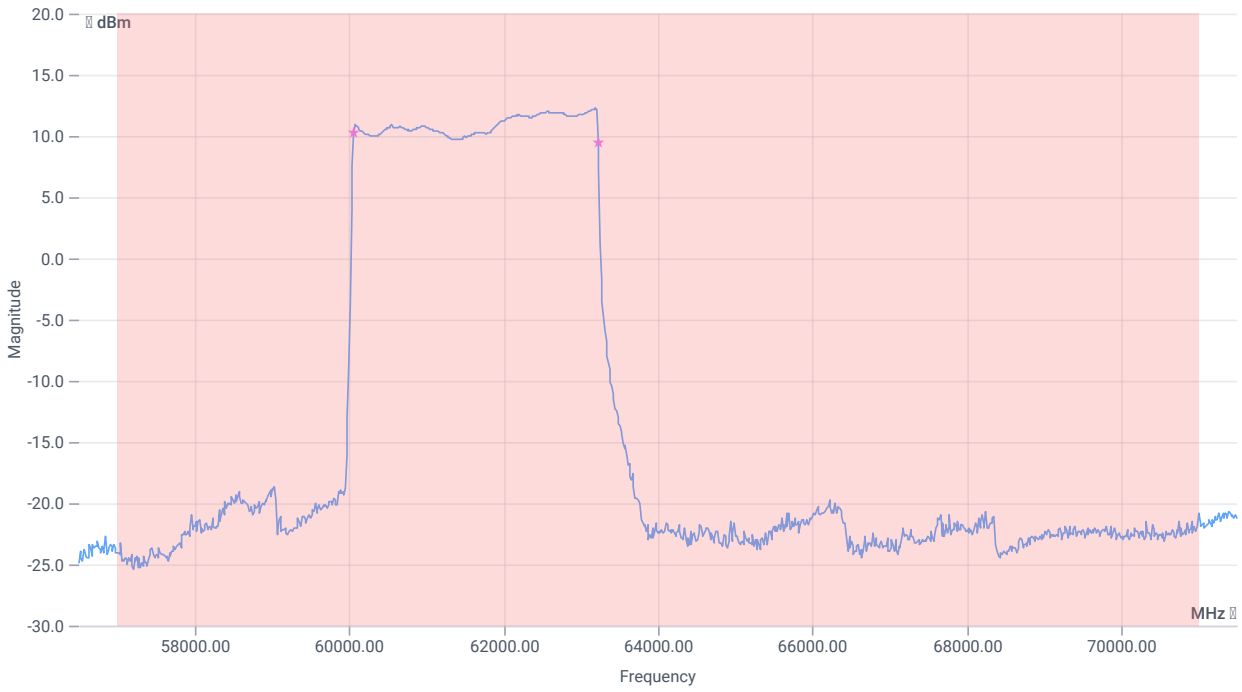
Test Equipment

Signal analyzer,Rohde&Schwarz,FSW-50,1331.5003K50/101332,5.20
Power supply,Agilent Technologies,N5767A,US26F7337F,A.05.06,REV:E
Climatic box,CTS T40/50,58566046820010,NI

Test for Temperature[°C]: 20 | Voltage [V]: 14

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	20.00 | 39 | 0
Start [MHz] | Stop [MHz]	56500.000 | 71500.000
RBW [MHz] | VBW [MHz]	50.000000 | 80.000000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	331000 | 1 | 1001 | SWE



Frequency stability

RESULT

TEST DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	---	---	3172.289	MHz	INFO

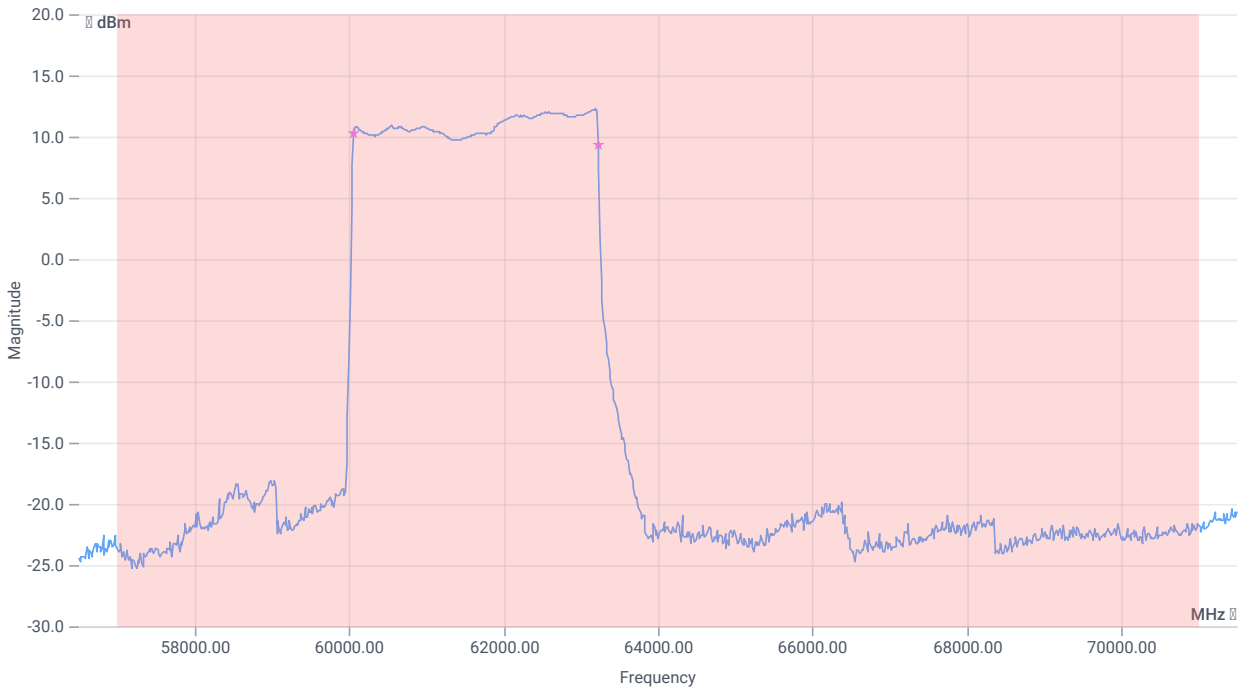
RESULT

TEST DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
T1 99%	57000	---	60055.5096	MHz	PASS
T2 99%	---	71000	63227.7983	MHz	PASS

Test for Temperature[°C]: 20 | Voltage [V]: 11.9

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	20.00 | 39 | 0
Start [MHz] | Stop [MHz]	56500.000 | 71500.000
RBW [MHz] | VBW [MHz]	50.000000 | 80.000000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	331000 | 1 | 1001 | SWE



Frequency stability

RESULT

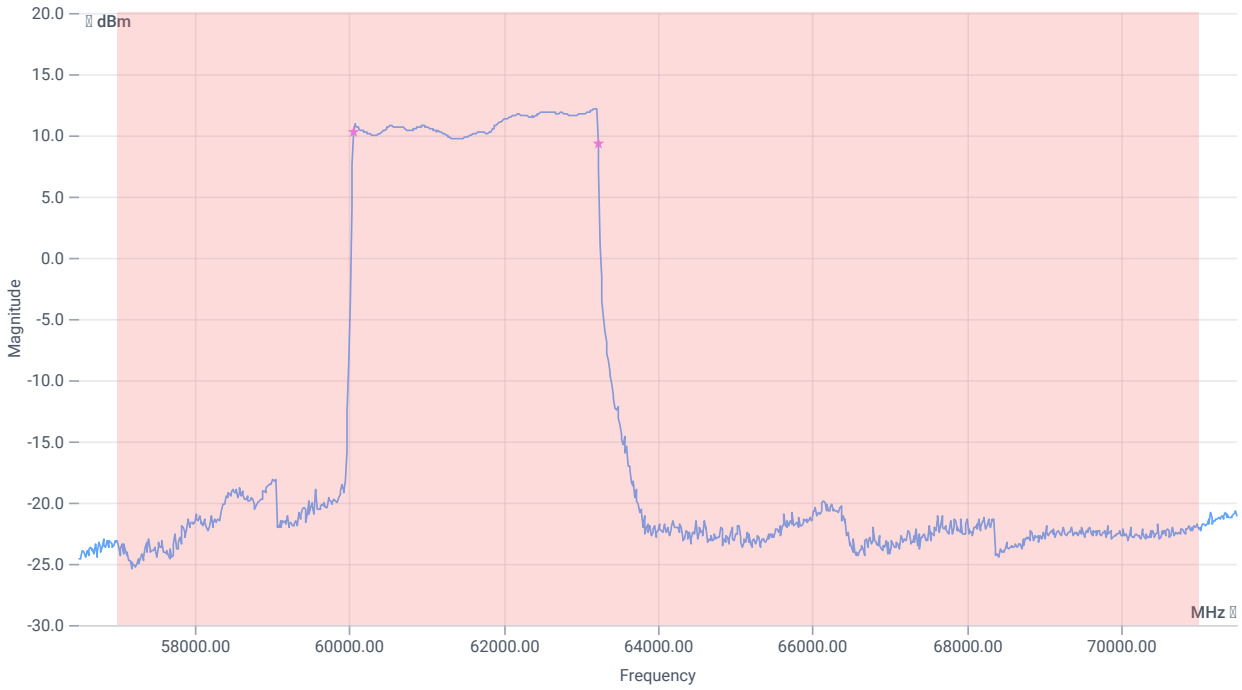
TEST DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	---	---	3172.684	MHz	INFO
T1 99%	57000	---	60055.0896	MHz	PASS
T2 99%	---	71000	63227.7736	MHz	PASS

Test for Temperature[°C]: 20 | Voltage [V]: 16.1

READ SA SETTINGS:

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	20.00 | 39 | 0
Start [MHz] | Stop [MHz]	56500.000 | 71500.000
RBW [MHz] | VBW [MHz]	50.000000 | 80.000000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	331000 | 1 | 1001 | SWE



Frequency stability

RESULT

TEST DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	---	---	3172.418	MHz	INFO
T1 99%	57000	---	60055.1870	MHz	PASS
T2 99%	---	71000	63227.6053	MHz	PASS

Verdict
PASS

Systems FCC # Bandwidth 20dB ~ 57000-71000 MHz

Test References

TC Start	02.05.2023 15:26:26
Ambit Temp [°C] | Humidity [rel%]	not enabled | not enabled
System Version	4.0.0.9
Test Specification	Systems FCC -
Test Method	
TC Version	0.0.1
My Description	Systems FCC Bandwidth 20dB
Add. Information	

Test Parameter

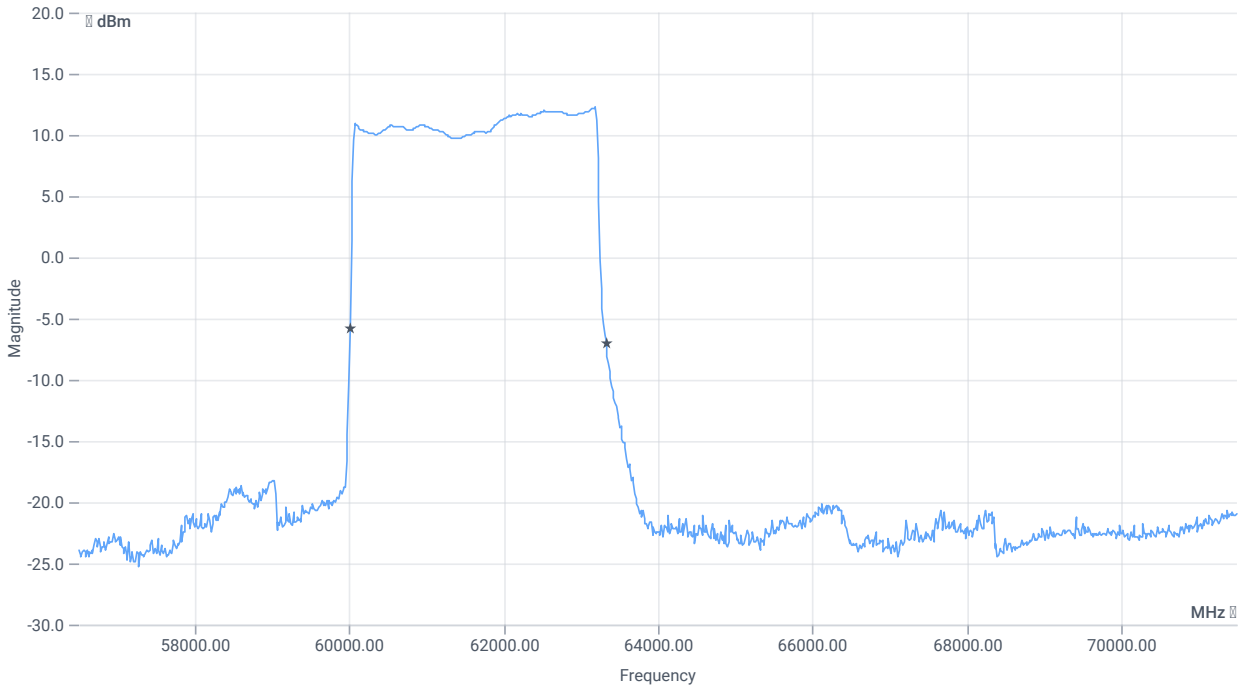
Switched Path	none
Temperature	nom
Voltage	nom
Additional Information	

Test Equipment

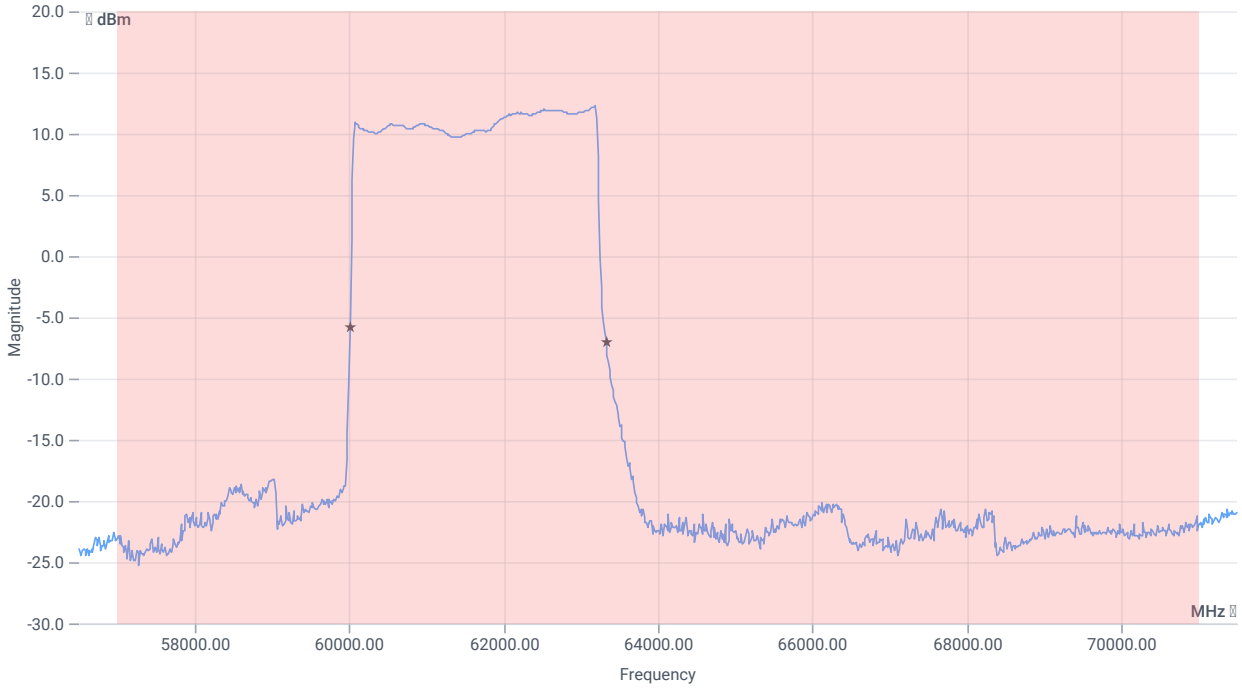
Signal analyzer,Rohde&Schwarz,FSW-50,1331.5003K50/101332,5.20
Power supply,Agilent Technologies,N5767A,US26F7337F,A.05.06,REV:E
Climatic box,CTS T40/50,58566046820010,NI

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	20.00 | 39 | 0
Start [MHz] | Stop [MHz]	56500.000 | 71500.000
RBW [MHz] | VBW [MHz]	50.000000 | 80.000000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	331000 | 1 | 1001 | SWE



BW 20dB



BW within Band 20dB

RESULT

TEST DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 20dB	---	---	3315	MHz	INFO
T1 20dB	57000.000000	---	60010.0000	MHz	PASS

RESULT

TEST DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
T2 20dB	---	71000.000000	63325.0000	MHz	PASS

Verdict

PASS

- END OF DOCUMENT -