

Measurements Results

No.1-3180/21-01-02_Annex_Frequency Stability

Test logging

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Document authorized:

Test/s performed:

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EUT Information

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EUT Information

EUT DEFINITION

Manufacturer	ifm electronic gmbh
Type	R1D200 (TR23)
Serial Number	000000000097
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	85
Voltage [V] Min	10
Voltage [V] Nom	24
Voltage [V] Max	30

Test References

TC Start	15.03.2023 18:25:11
Ambit Temp [°C] Humidity [rel%]	not enabled not enabled
System Version	4.0.0.0
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 Yes
Additional Information	

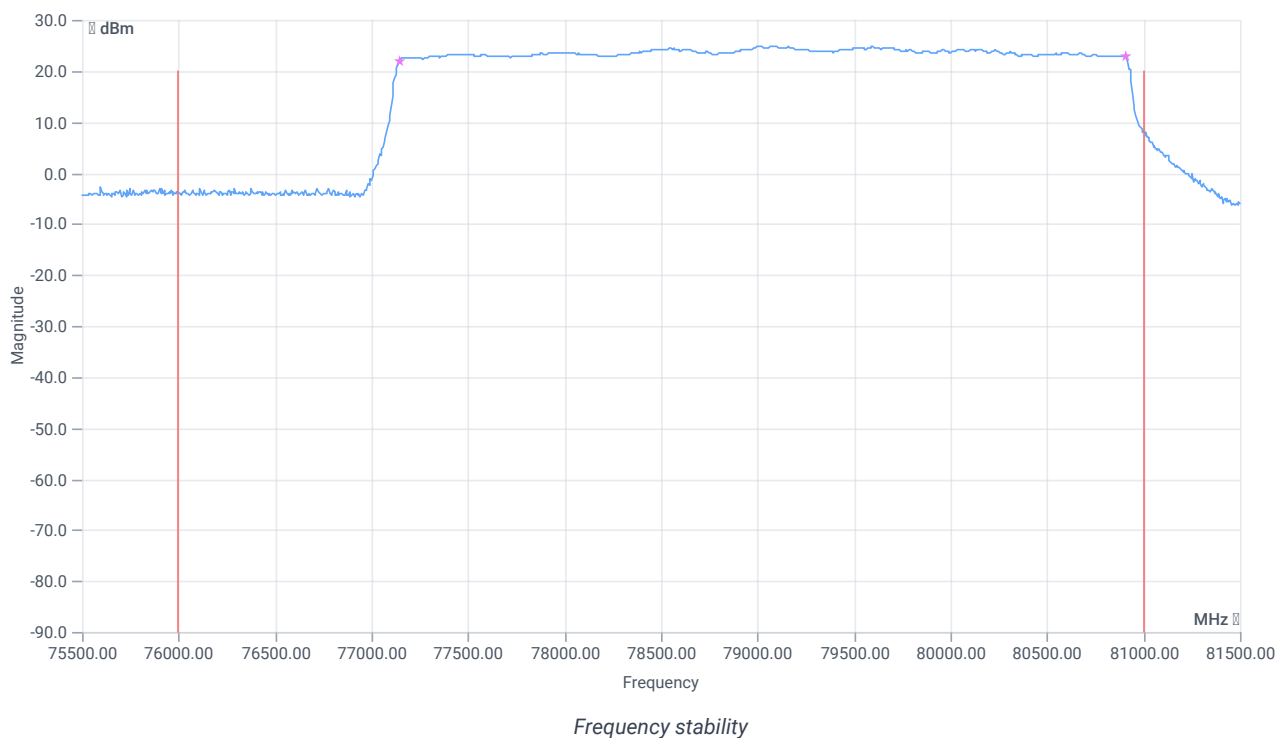
Test Equipment

Signal analyzer,Rohde&Schwarz,FSW-50,1331.5003K50/101560,5.00SP3
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]: 24

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	35.00 53.6 0
Start [MHz] Stop [MHz]	75500.000 81500.000
RBW [MHz] VBW [MHz]	50.000000 80.000000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	100000 1 1001 SWE



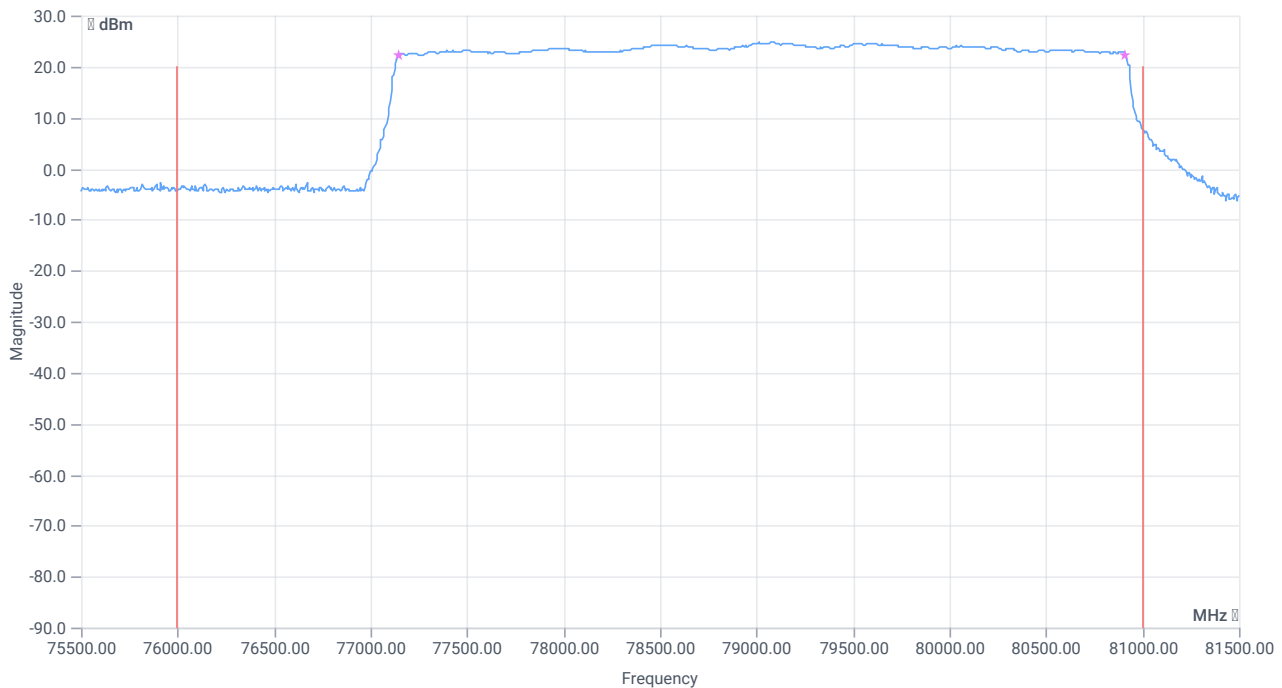
RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	3764.853	MHz	INFO
T1 99%	76000	---	77146.3678	MHz	PASS
T2 99%	---	81000	80911.2208	MHz	PASS

Test for Temperature[°C]: 20 | Voltage [V]: 20.4

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	35.00 53.6 0
Start [MHz] Stop [MHz]	75500.000 81500.000
RBW [MHz] VBW [MHz]	50.000000 80.000000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	100000 1 1001 SWE



Frequency stability

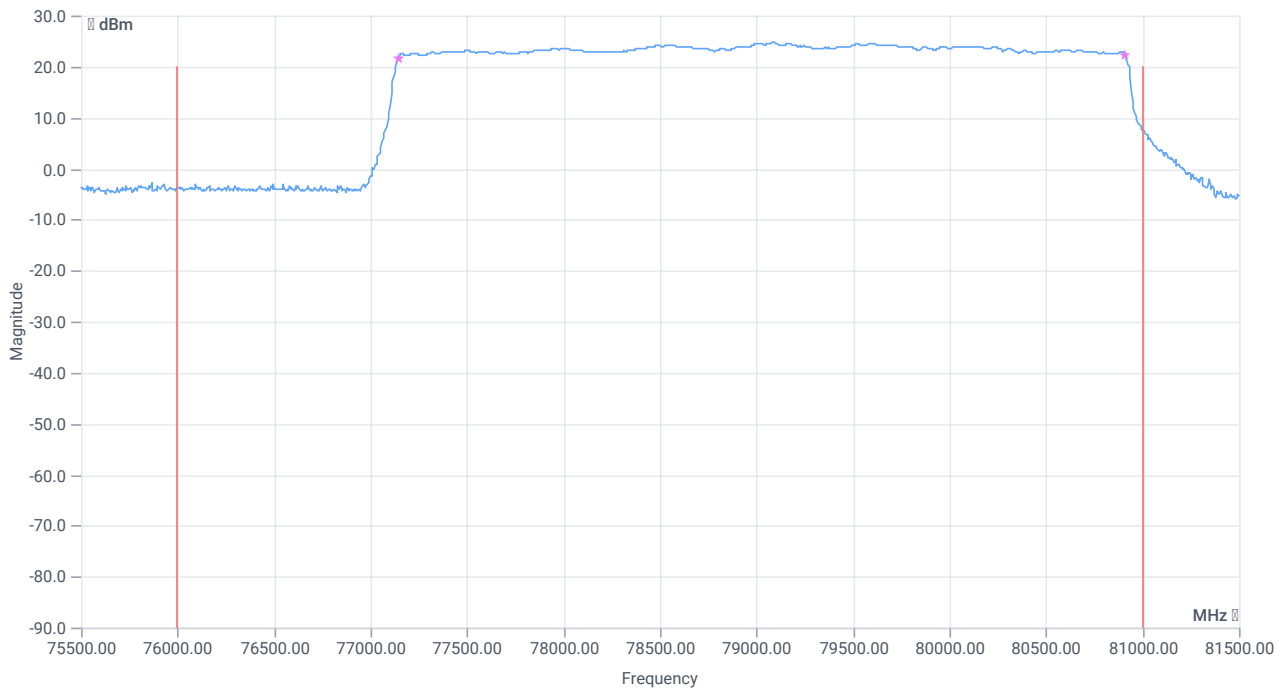
RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	3765.738	MHz	INFO
T1 99%	76000	---	77144.9911	MHz	PASS
T2 99%	---	81000	80910.7292	MHz	PASS

Test for Temperature[°C]: 20 | Voltage [V]: 27.6

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	35.00 53.6 0
Start [MHz] Stop [MHz]	75500.000 81500.000
RBW [MHz] VBW [MHz]	50.000000 80.000000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	100000 1 1001 SWE



Frequency stability

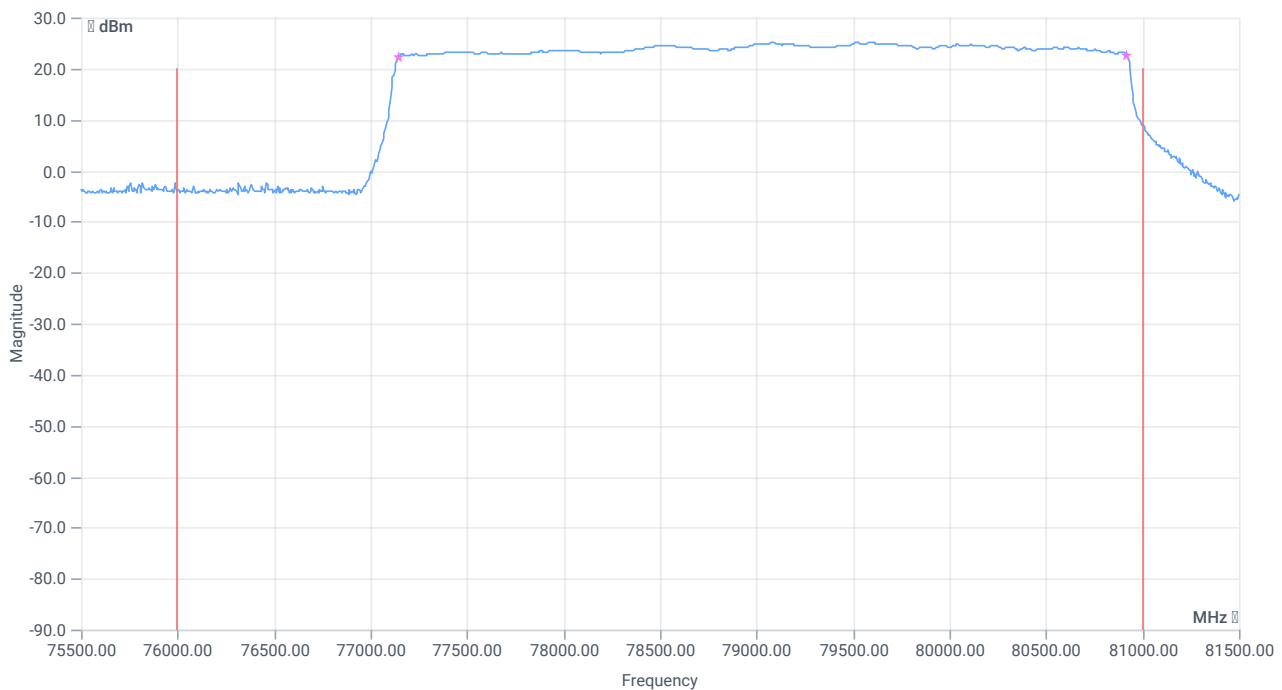
RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	3762.627	MHz	INFO
T1 99%	76000	---	77147.9425	MHz	PASS
T2 99%	---	81000	80910.5693	MHz	PASS

Test for Temperature[°C]: -20 | Voltage [V]: 24

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	35.00 53.6 0
Start [MHz] Stop [MHz]	75500.000 81500.000
RBW [MHz] VBW [MHz]	50.000000 80.000000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	100000 1 1001 SWE



Frequency stability

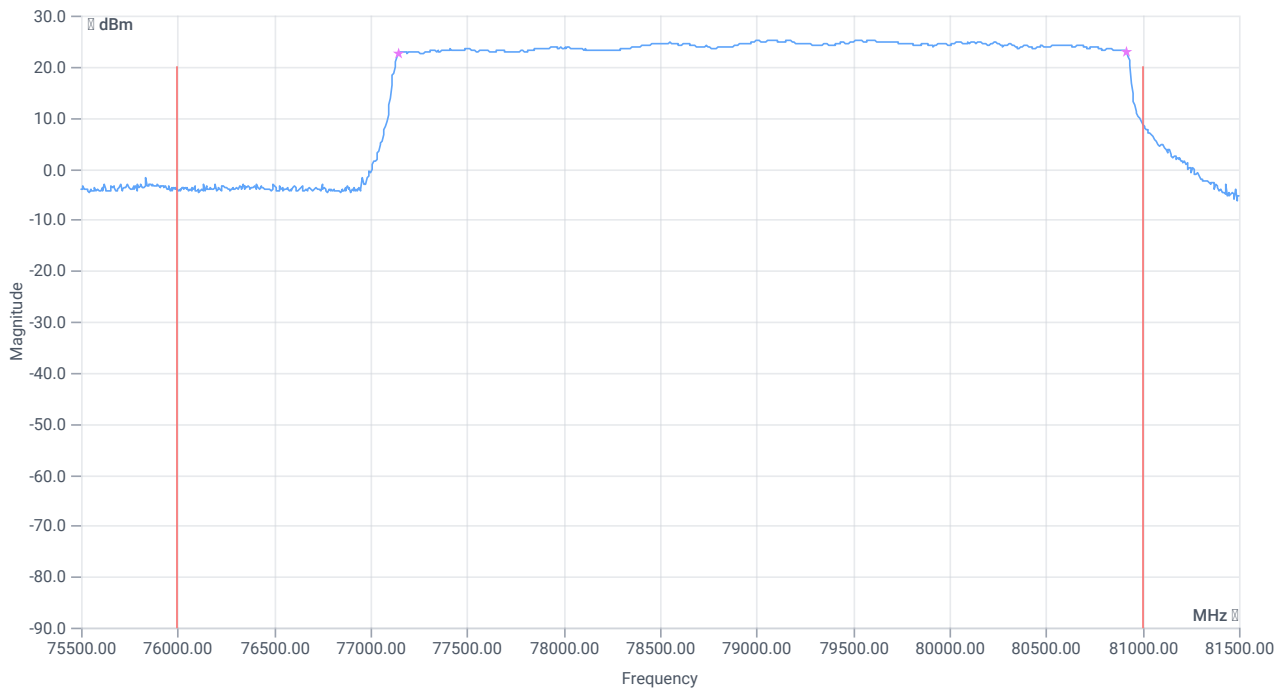
RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	3770.320	MHz	INFO
T1 99%	76000	---	77146.0884	MHz	PASS
T2 99%	---	81000	80916.4086	MHz	PASS

Test for Temperature[°C]: -10 | Voltage [V]: 24

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	35.00 53.6 0
Start [MHz] Stop [MHz]	75500.000 81500.000
RBW [MHz] VBW [MHz]	50.000000 80.000000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	100000 1 1001 SWE



Frequency stability

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	3770.002	MHz	INFO
T1 99%	76000	---	77145.8524	MHz	PASS
T2 99%	---	81000	80915.8542	MHz	PASS

Test References

TC Start	16.03.2023 10:05:14
Ambit Temp [°C] Humidity [rel%]	not enabled not enabled
System Version	4.0.0.0
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

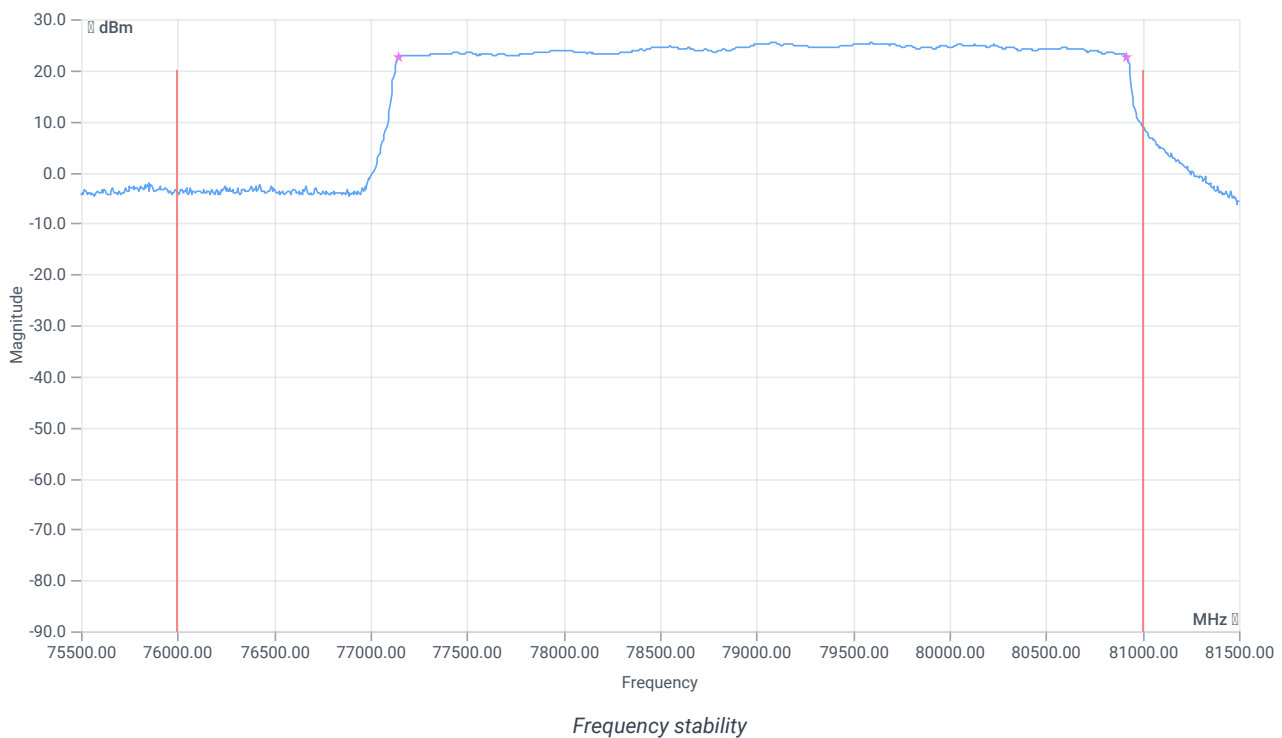
Signal analyzer,Rohde&Schwarz,FSW-50,1331.5003K50/101560,5.00SP3

Power supply,Agilent Technologies,N5767A,US26F7337F,A.05.06,REV:E

Test for Temperature[°C]: 0 | Voltage [V]: 24

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	35.00 53.6 0
Start [MHz] Stop [MHz]	75500.000 81500.000
RBW [MHz] VBW [MHz]	50.000000 80.000000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	100000 1 1001 SWE



RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	3766.260	MHz	INFO
T1 99%	76000	---	77147.6229	MHz	PASS
T2 99%	---	81000	80913.8829	MHz	PASS

Verdict

PASS

Test References

TC Start	16.03.2023 10:16:09
Ambit Temp [°C] Humidity [rel%]	not enabled not enabled
System Version	4.0.0.0
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	

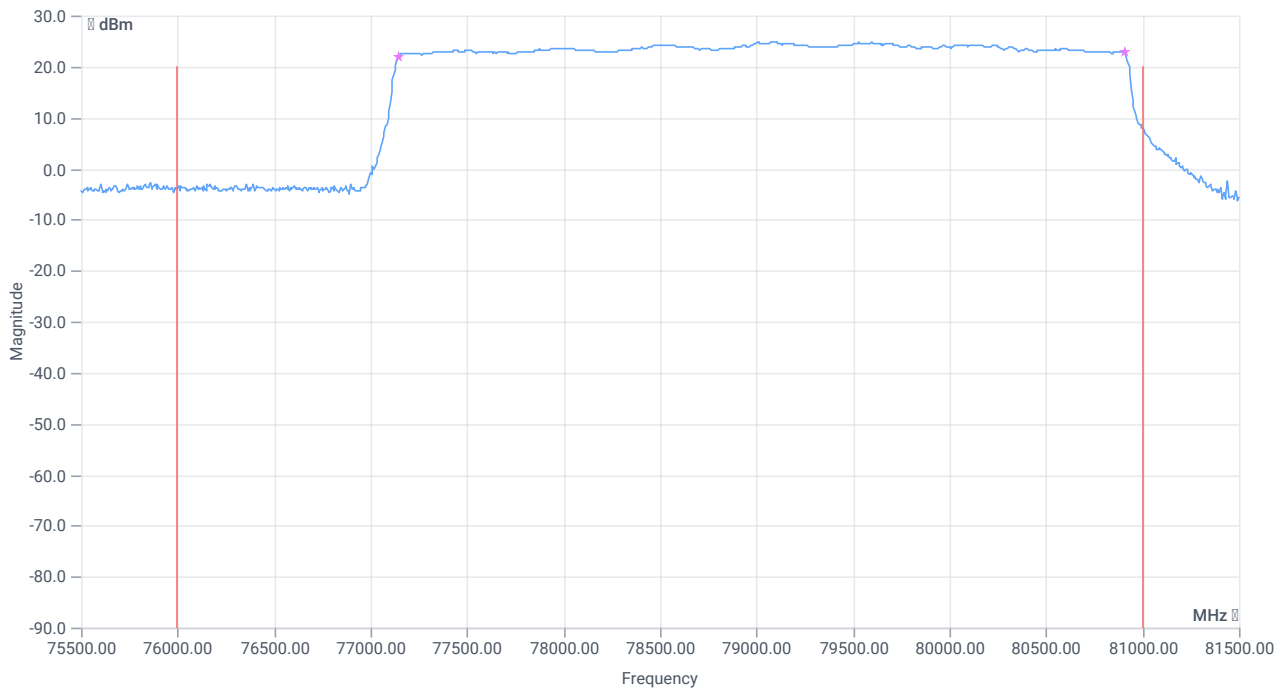
Test Equipment

Signal analyzer,Rohde&Schwarz,FSW-50,1331.5003K50/101560,5.00SP3
Power supply,Agilent Technologies,N5767A,US26F7337F,A.05.06,REV:E
Climatic box,CTS T40/50,58566046820010,NI

Test for Temperature[°C]: 10 | Voltage [V]: 24

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	35.00 53.6 0
Start [MHz] Stop [MHz]	75500.000 81500.000
RBW [MHz] VBW [MHz]	50.000000 80.000000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	100000 1 1001 SWE



Frequency stability

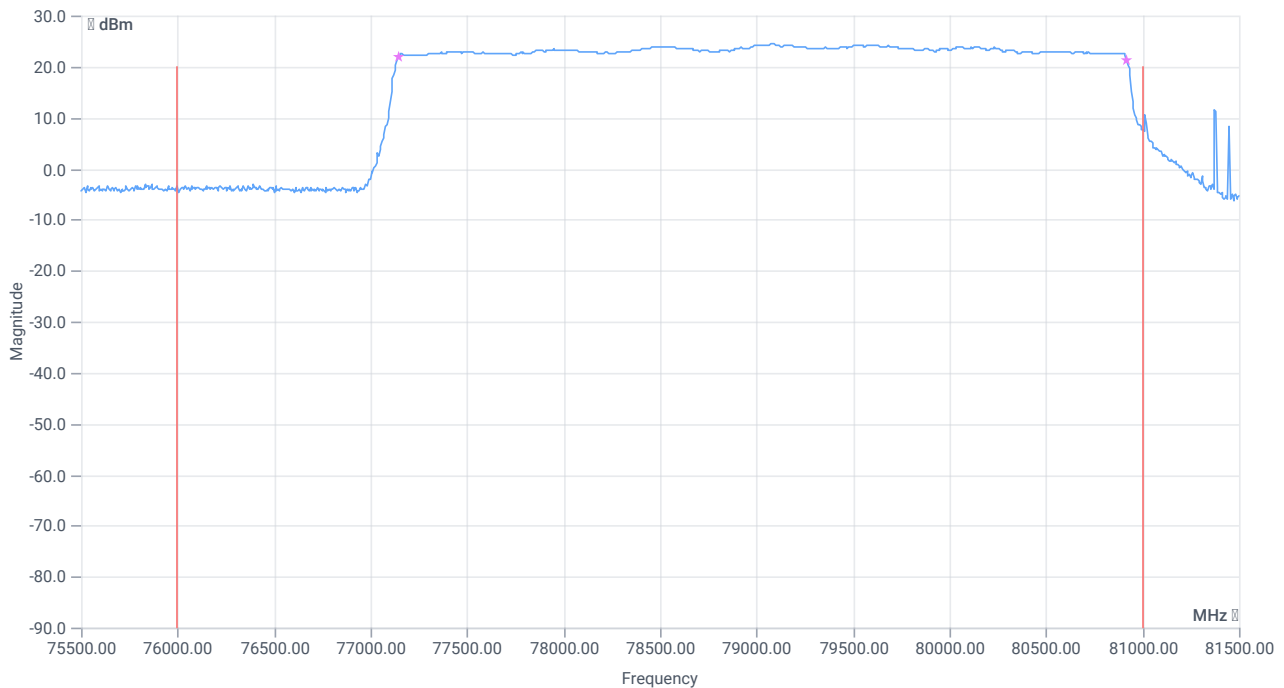
RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	3764.565	MHz	INFO
T1 99%	76000	---	77146.8934	MHz	PASS
T2 99%	---	81000	80911.4580	MHz	PASS

Test for Temperature[°C]: 20 | Voltage [V]: 24

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	35.00 53.6 0
Start [MHz] Stop [MHz]	75500.000 81500.000
RBW [MHz] VBW [MHz]	50.000000 80.000000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	100000 1 1001 SWE



Frequency stability

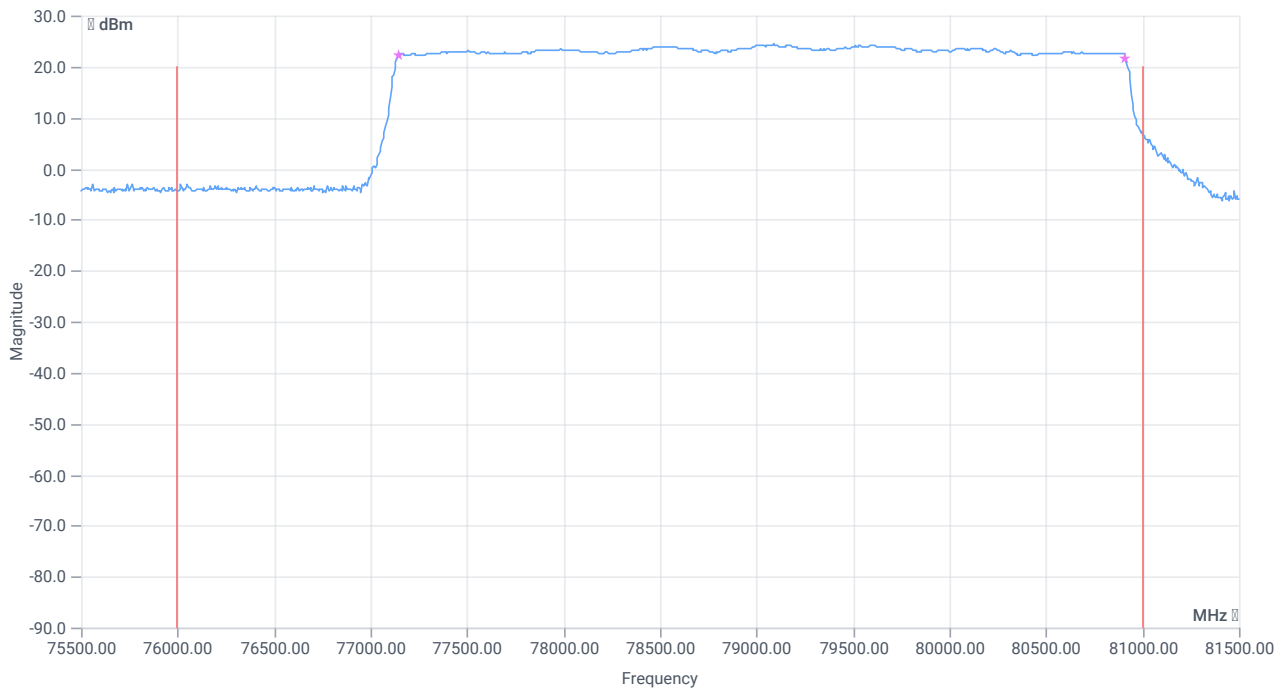
RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	3768.158	MHz	INFO
T1 99%	76000	---	77144.7838	MHz	PASS
T2 99%	---	81000	80912.9413	MHz	PASS

Test for Temperature[°C]: 30 | Voltage [V]: 24

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	35.00 53.6 0
Start [MHz] Stop [MHz]	75500.000 81500.000
RBW [MHz] VBW [MHz]	50.000000 80.000000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	100000 1 1001 SWE



Frequency stability

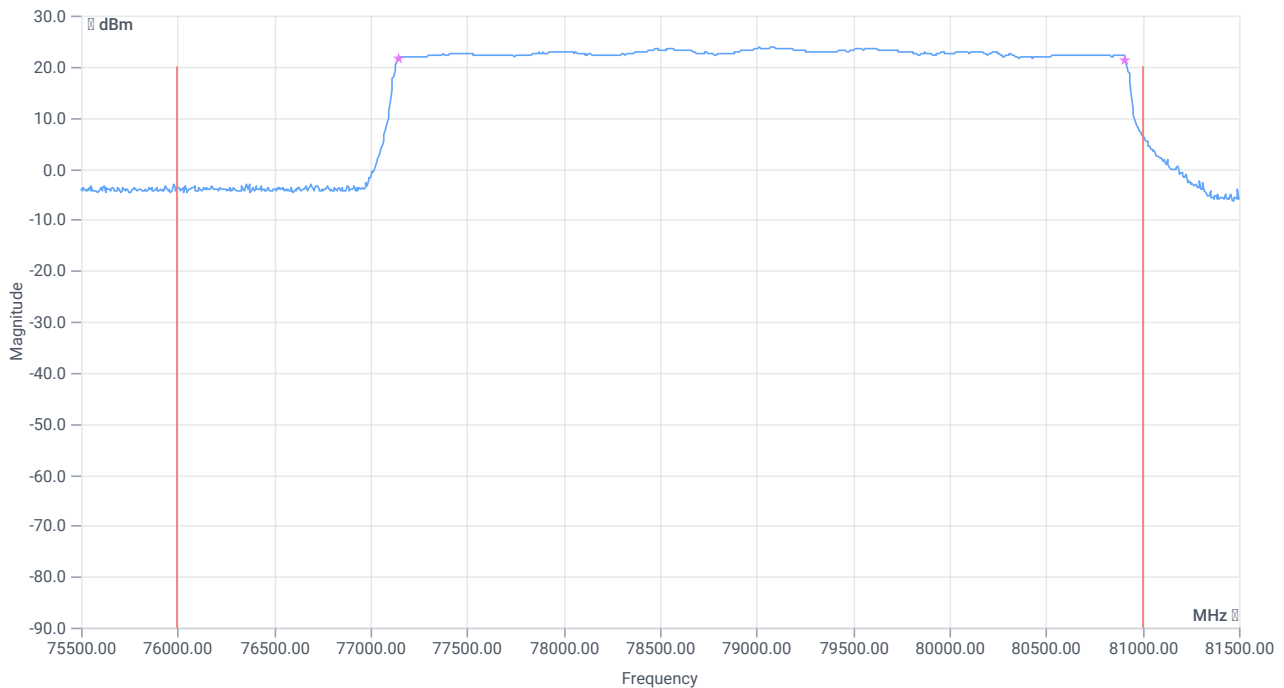
RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	3765.581	MHz	INFO
T1 99%	76000	---	77142.6100	MHz	PASS
T2 99%	---	81000	80908.1911	MHz	PASS

Test for Temperature[°C]: 40 | Voltage [V]: 24

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	35.00 53.6 0
Start [MHz] Stop [MHz]	75500.000 81500.000
RBW [MHz] VBW [MHz]	50.000000 80.000000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	100000 1 1001 SWE



Frequency stability

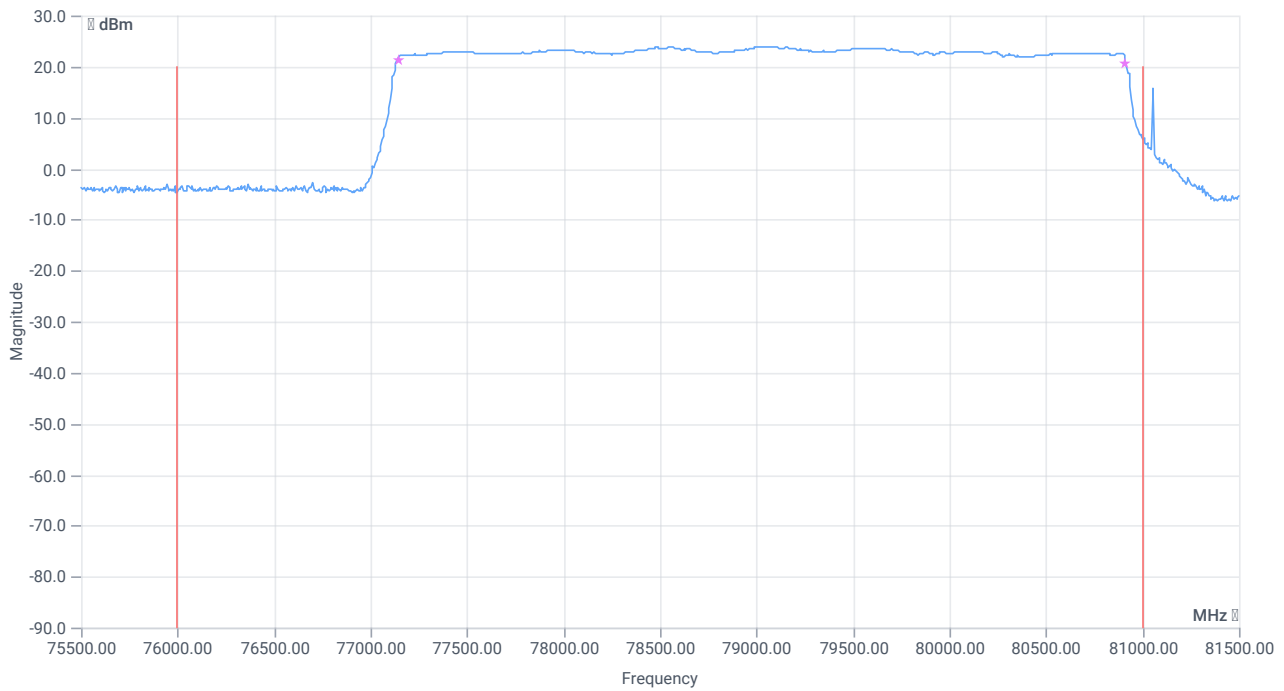
RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	3765.589	MHz	INFO
T1 99%	76000	---	77142.5004	MHz	PASS
T2 99%	---	81000	80908.0890	MHz	PASS

Test for Temperature[°C]: 50 | Voltage [V]: 24

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	35.00 53.6 0
Start [MHz] Stop [MHz]	75500.000 81500.000
RBW [MHz] VBW [MHz]	50.000000 80.000000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	100000 1 1001 SWE



Frequency stability

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	3765.039	MHz	INFO
T1 99%	76000	---	77141.8745	MHz	PASS
T2 99%	---	81000	80906.9131	MHz	PASS

Verdict

PASS

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