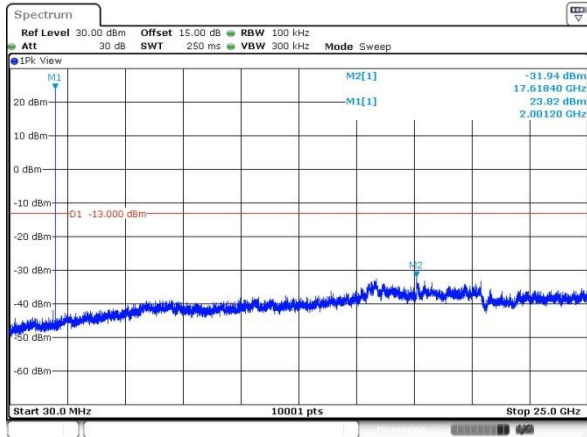




Conducted Spurious Emission

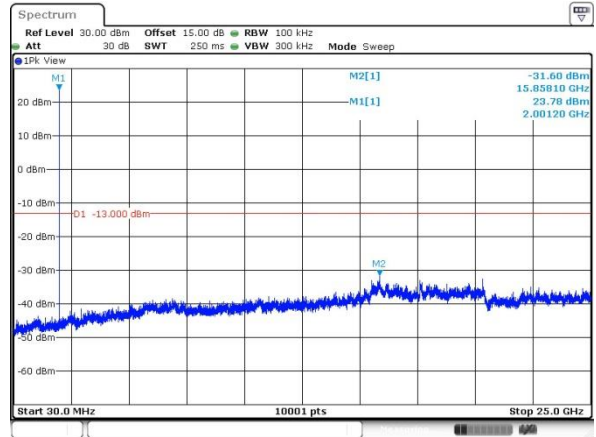
Band 23 SCS3.75kHz

Lowest Channel / 1SC1 / BPSK



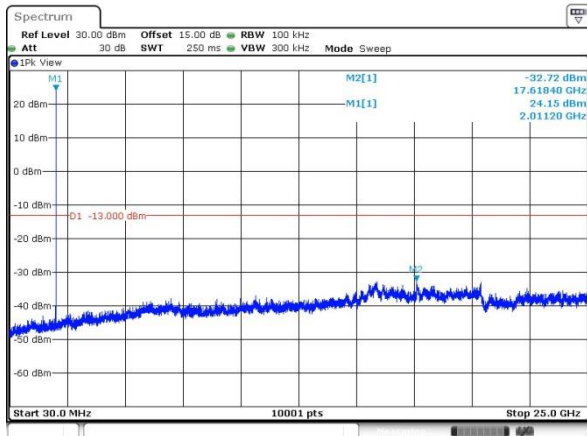
Date: 2-JAN-2023 13:13:08

Lowest Channel / 1SC1 / QPSK



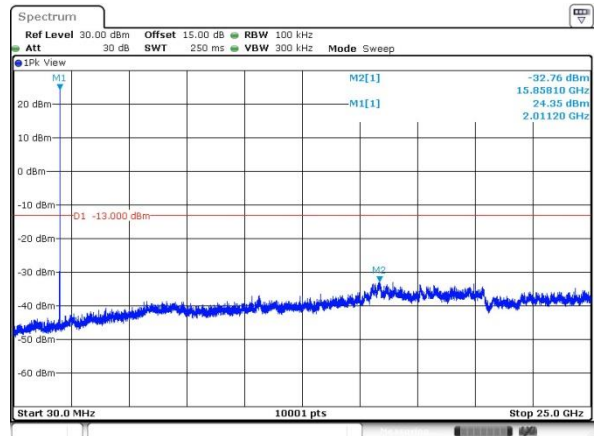
Date: 2-JAN-2023 13:14:03

Middle Channel / 1SC1 / BPSK



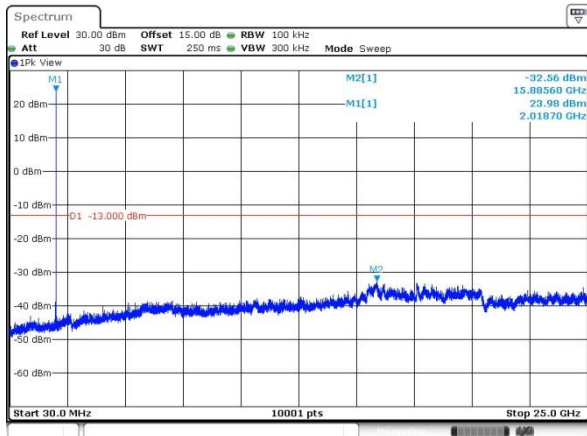
Date: 2-JAN-2023 13:20:12

Middle Channel / 1SC1 / QPSK



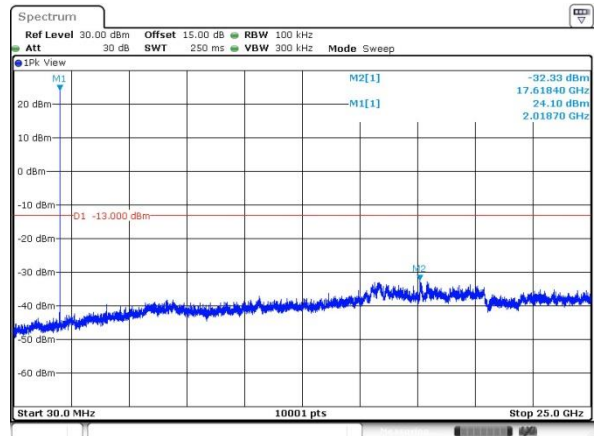
Date: 2-JAN-2023 13:19:13

Highest Channel / 1SC1 / BPSK



Date: 2-JAN-2023 15:14:20

Highest Channel / 1SC1 / QPSK

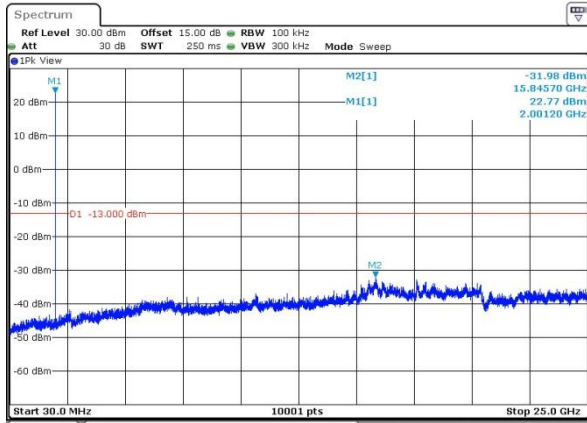


Date: 2-JAN-2023 15:12:58



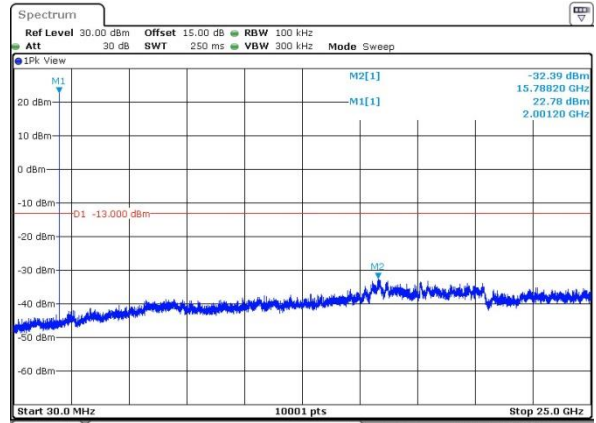
Band 23 SCS15kHz

Lowest Channel / 1SC1 / BPSK



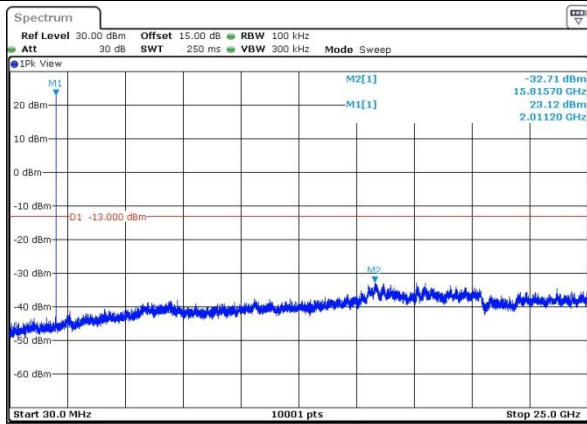
Date: 2-JAN-2023 13:11:39

Lowest Channel / 1SC1 / QPSK



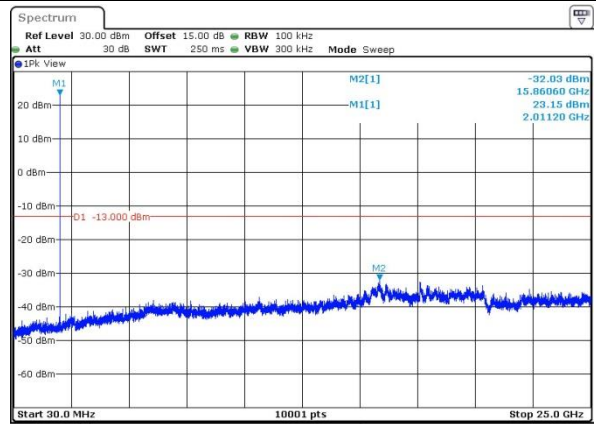
Date: 2-JAN-2023 13:10:27

Middle Channel / 1SC1 / BPSK



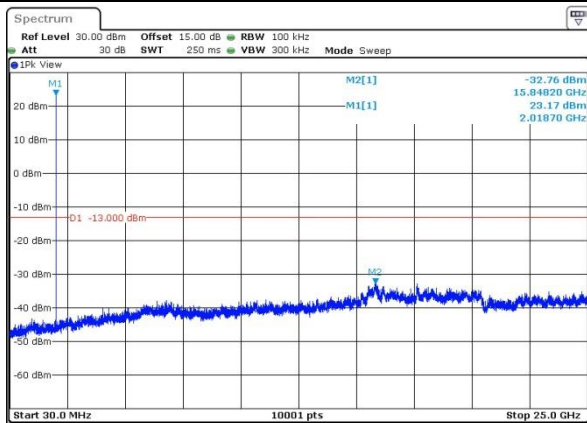
Date: 2-JAN-2023 13:29:33

Middle Channel / 1SC1 / QPSK



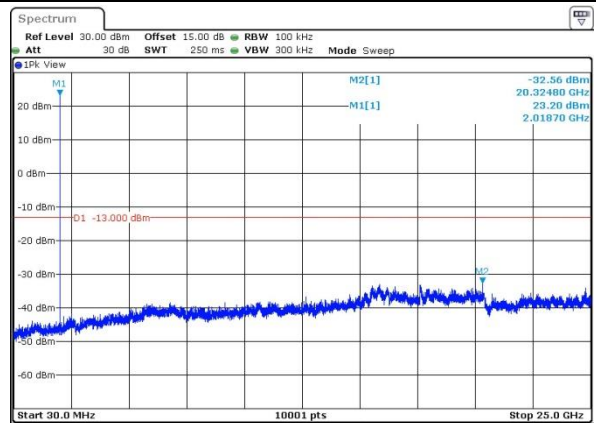
Date: 2-JAN-2023 13:30:26

Highest Channel / 1SC1 / BPSK



Date: 2-JAN-2023 15:16:05

Highest Channel / 1SC1 / QPSK



Date: 2-JAN-2023 15:17:12

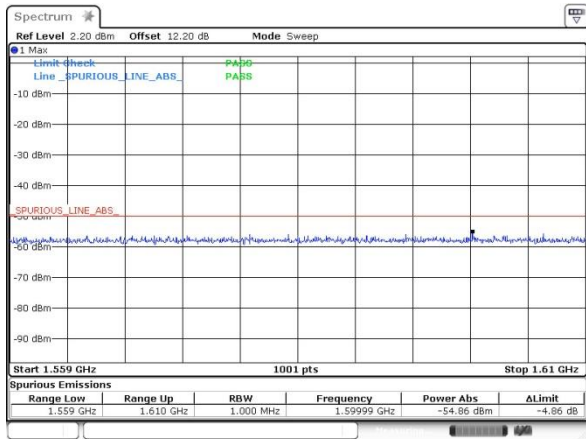


Emission limits for protection of aeronautical service

Band 23 SCS3.75kHz

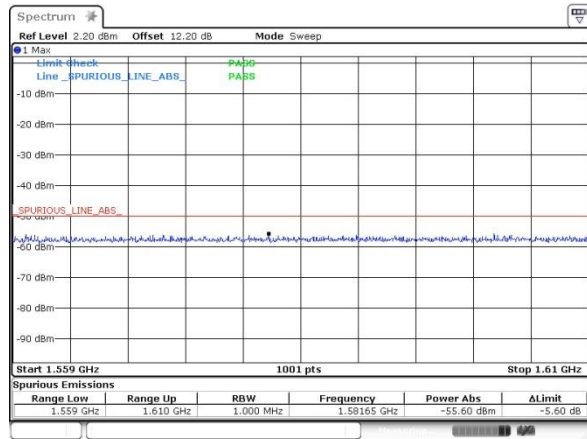
BPSK

Lowest Channel / 1SC1 Carrier off



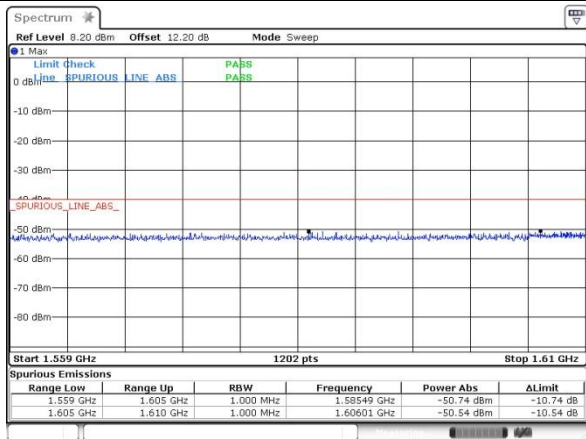
Date: 6.JAN.2023 19:23:25

Middle Channel / 1SC1 Carrier off



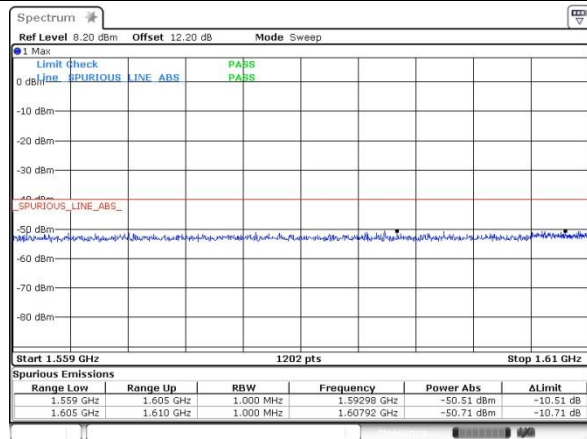
Date: 6.JAN.2023 20:23:02

Lowest Channel / 1SC1 Carrier on

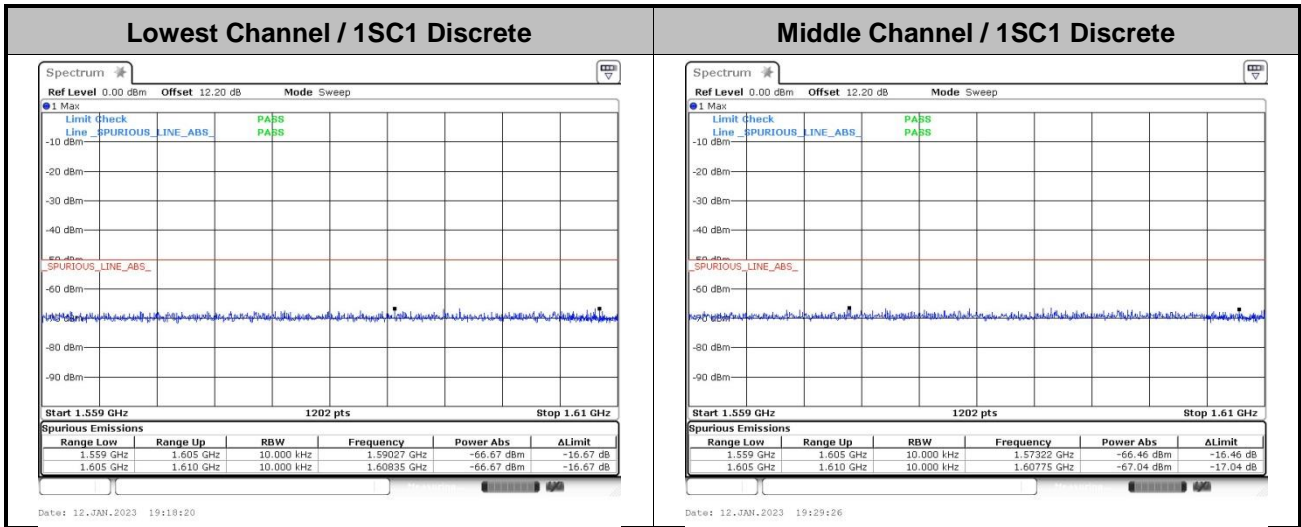


Date: 6.JAN.2023 19:21:39

Middle Channel / 1SC1 Carrier on



Date: 6.JAN.2023 20:23:32



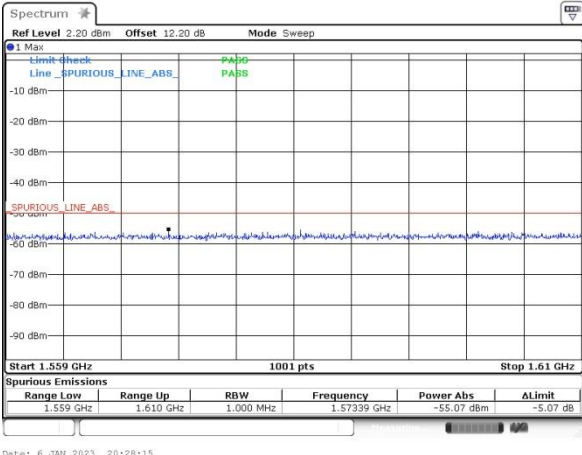


Band 23 SCS3.75kHz

BPSK

Highest Channel / 1SC1 Carrier off

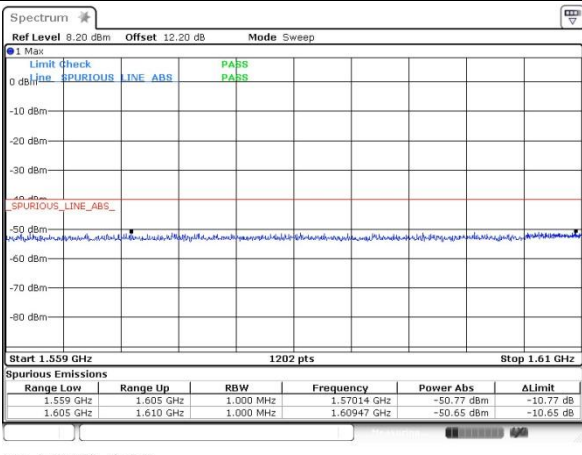
N/A



Date: 6 JAN 2023 20:28:15

Highest Channel / 1SC1 Carrier on

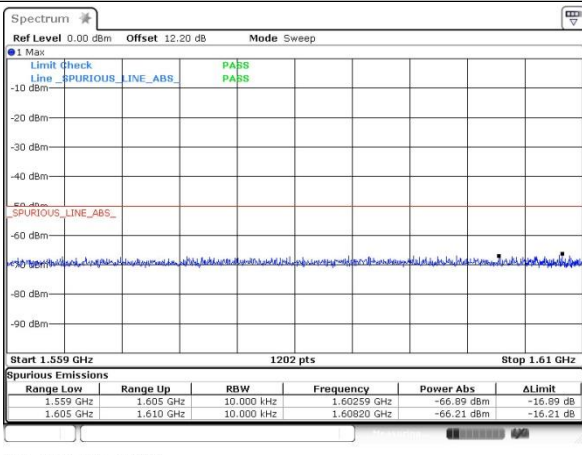
N/A



Date: 6 JAN 2023 20:27:57

Highest Channel / 1SC1 Discrete

N/A



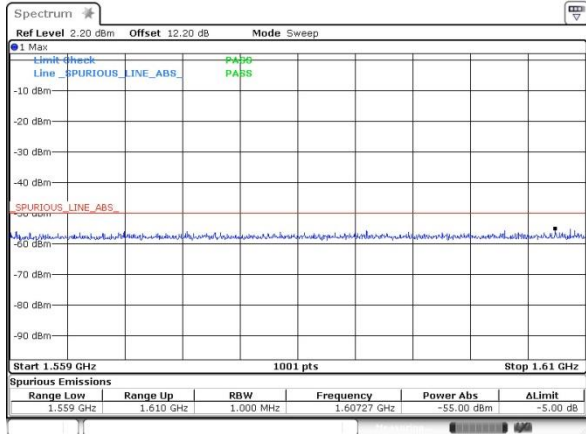
Date: 12 JAN 2023 19:32:45



Band 23 SCS15kHz

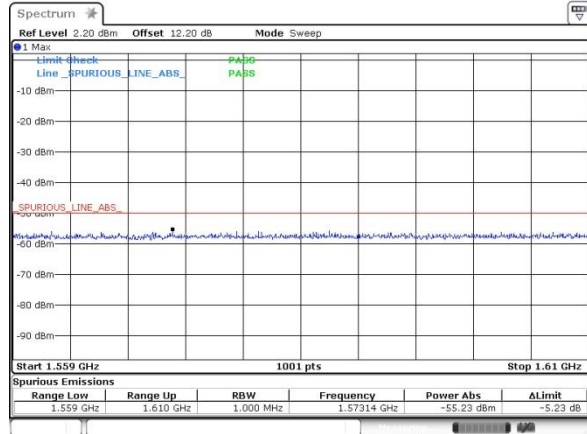
BPSK

Lowest Channel / 1SC1 Carrier off



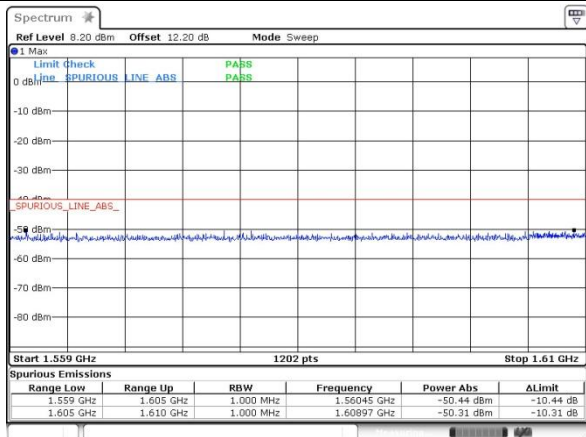
Date: 6 JAN 2023 19:49:50

Middle Channel / 1SC1 Carrier off



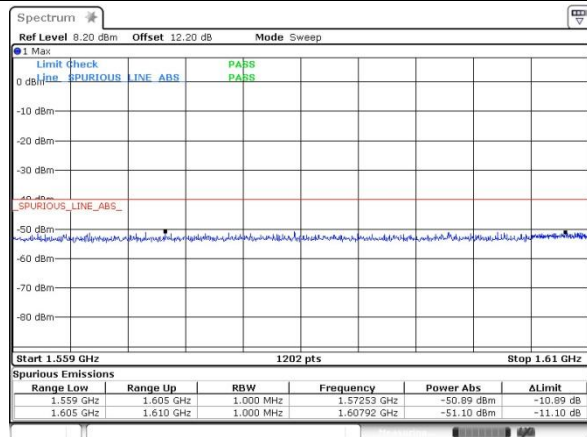
Date: 6 JAN 2023 20:06:17

Lowest Channel / 1SC1 Carrier on



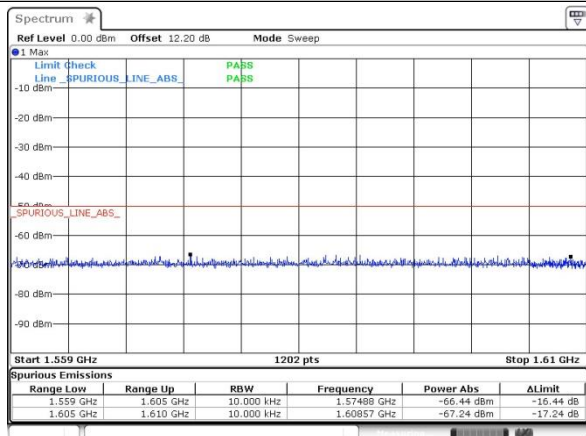
Date: 6 JAN 2023 19:50:15

Middle Channel / 1SC1 Carrier on



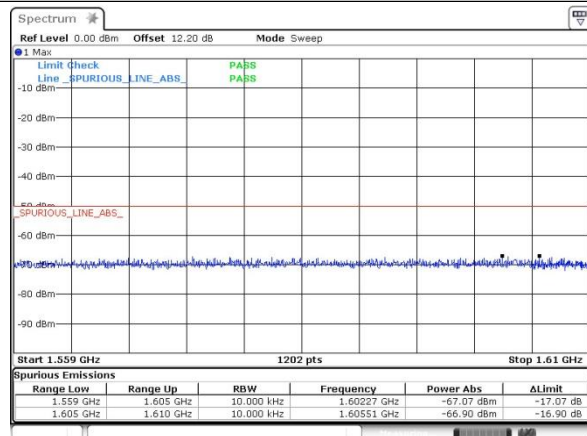
Date: 6 JAN 2023 20:05:54

Lowest Channel / 1SC1 Discrete



Date: 12 JAN 2023 20:02:21

Middle Channel / 1SC1 Discrete



Date: 12 JAN 2023 19:58:38

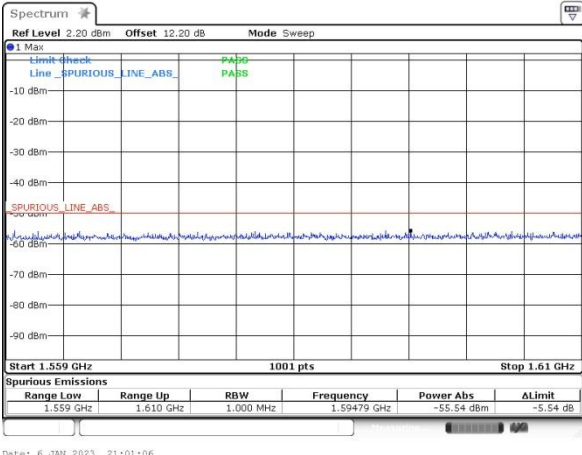


Band 23 SCS15kHz

BPSK

Highest Channel / 1SC1 Carrier off

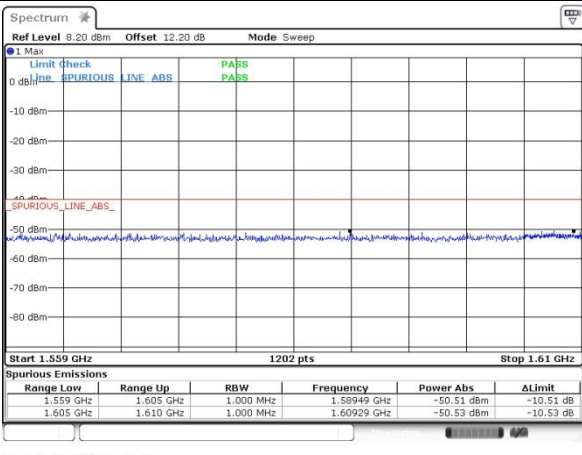
N/A



Date: 6_JAN_2023 21:01:06

Highest Channel / 1SC1 Carrier on

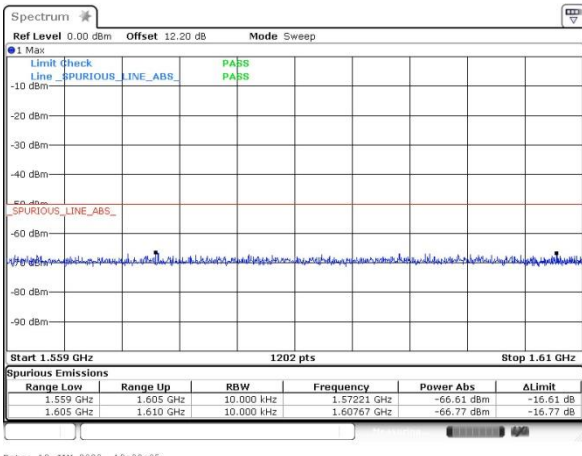
N/A



Date: 6_JAN_2023 21:01:27

Highest Channel / 1SC1 Discrete

N/A



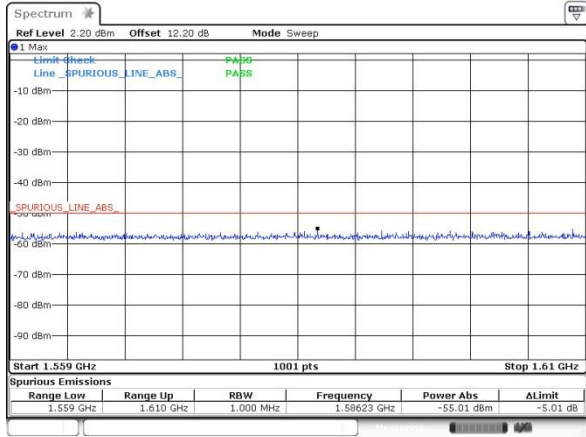
Date: 12_JAN_2023 19:39:05



Band 23 SCS3.75kHz

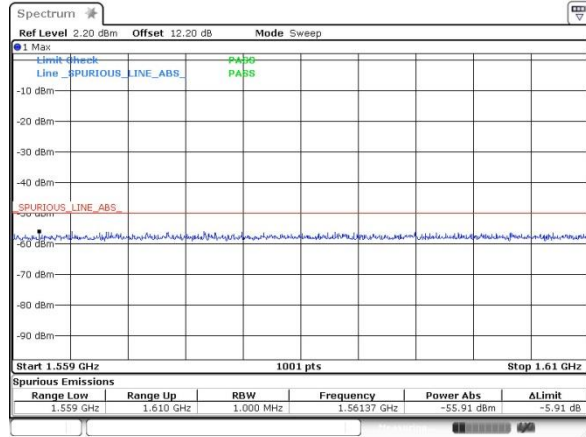
QPSK

Lowest Channel / 1SC1 Carrier off



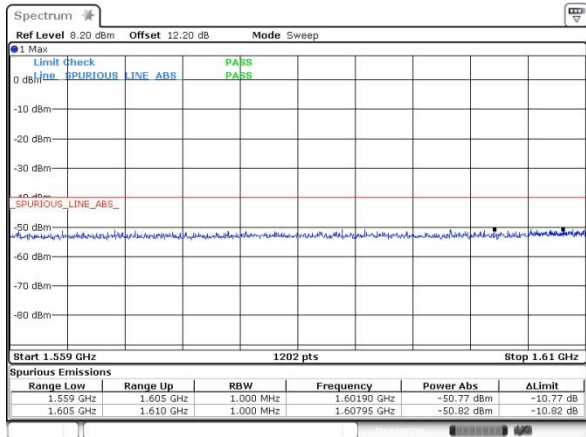
Date: 6 JAN 2023 18:41:09

Middle Channel / 1SC1 Carrier off



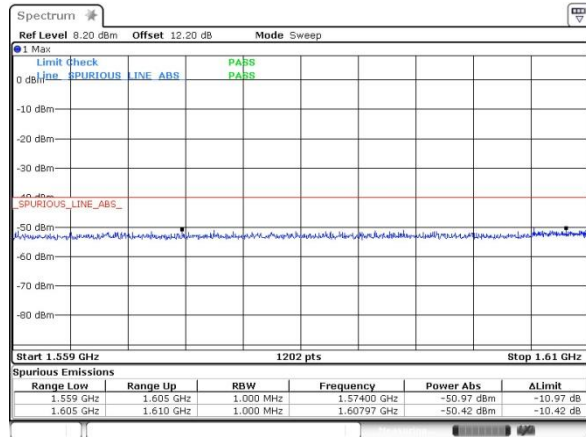
Date: 6 JAN 2023 20:18:50

Lowest Channel / 1SC1 Carrier on



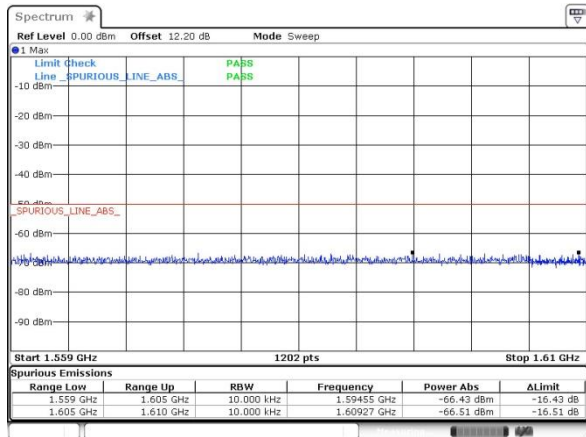
Date: 6 JAN 2023 18:38:44

Middle Channel / 1SC1 Carrier on



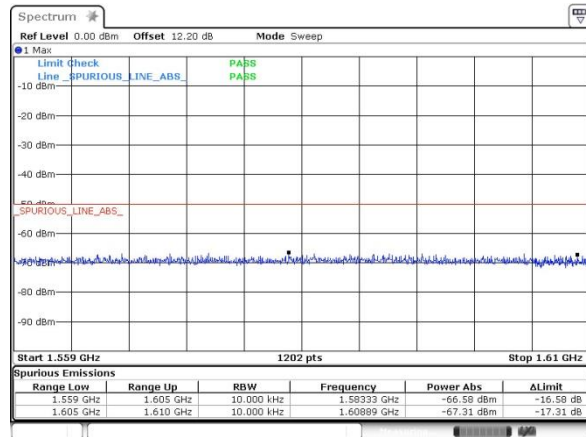
Date: 6 JAN 2023 20:18:34

Lowest Channel / 1SC1 Discrete



Date: 12 JAN 2023 19:24:55

Middle Channel / 1SC1 Discrete



Date: 12 JAN 2023 19:29:00

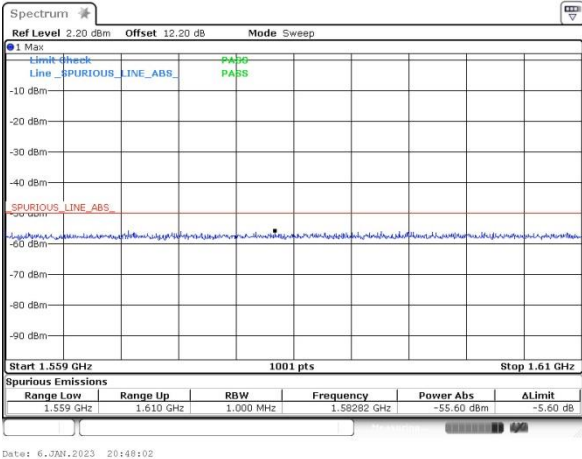


Band 23 SCS3.75kHz

QPSK

Highest Channel / 1SC1 Carrier off

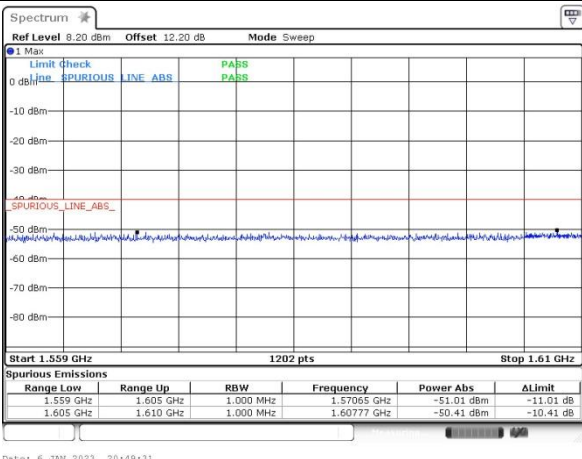
N/A



Date: 6_JAN_2023 20:48:02

Highest Channel / 1SC1 Carrier on

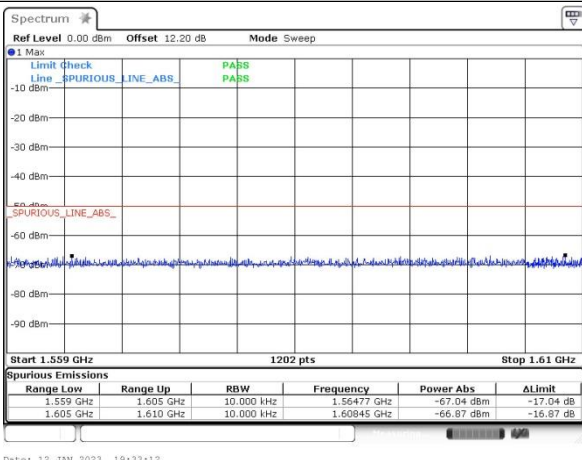
N/A



Date: 6_JAN_2023 20:49:31

Highest Channel / 1SC1 Discrete

N/A



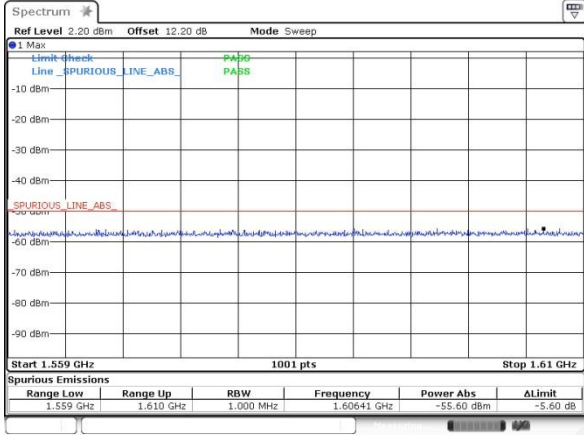
Date: 12_JAN_2023 19:33:12



Band 23 SCS15kHz

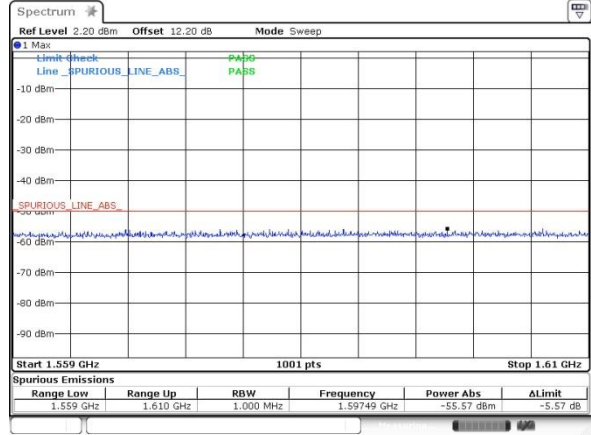
QPSK

Lowest Channel / 1SC1 Carrier off



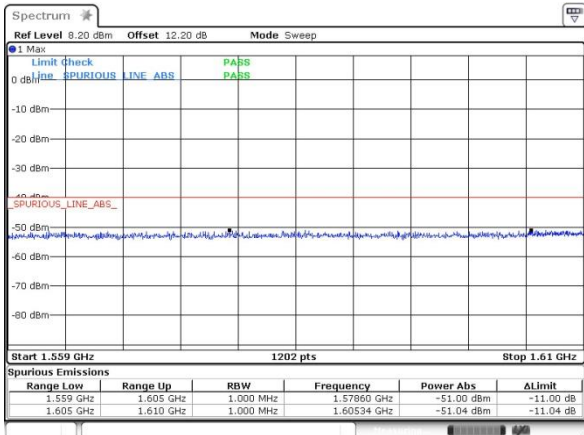
Date: 6 JAN 2023 19:34:37

Middle Channel / 1SC1 Carrier off



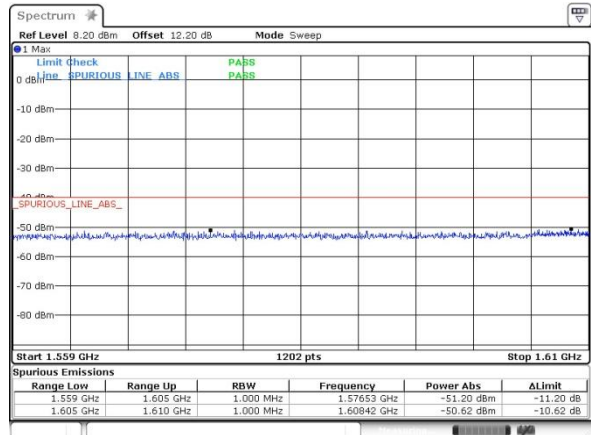
Date: 6 JAN 2023 20:09:04

Lowest Channel / 1SC1 Carrier on



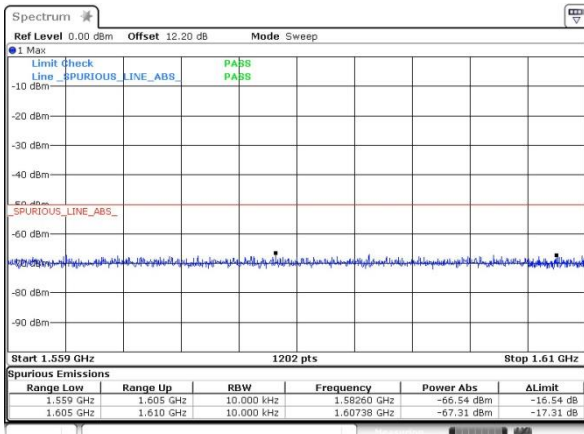
Date: 6 JAN 2023 19:35:10

Middle Channel / 1SC1 Carrier on



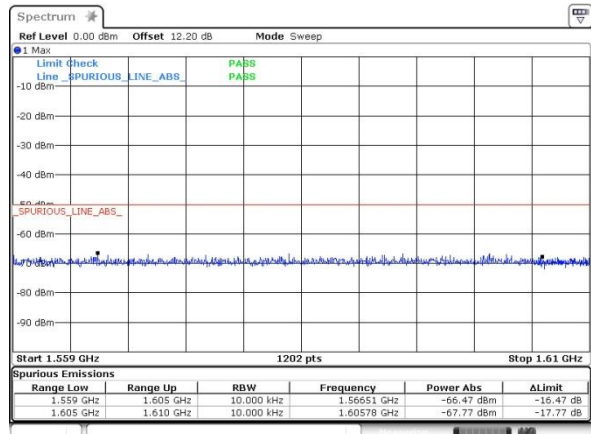
Date: 6 JAN 2023 20:09:29

Lowest Channel / 1SC1 Discrete



Date: 12 JAN 2023 20:03:14

Middle Channel / 1SC1 Discrete



Date: 12 JAN 2023 19:57:44

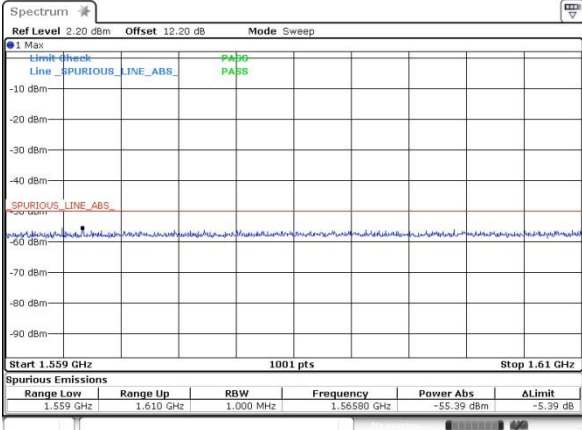


Band 23 SCS15kHz

QPSK

Highest Channel / 1SC1 Carrier off

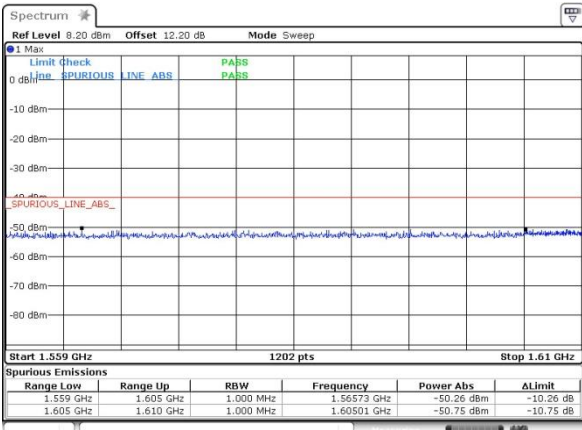
N/A



Date: 6. JAN. 2023 20:52:21

Highest Channel / 1SC1 Carrier on

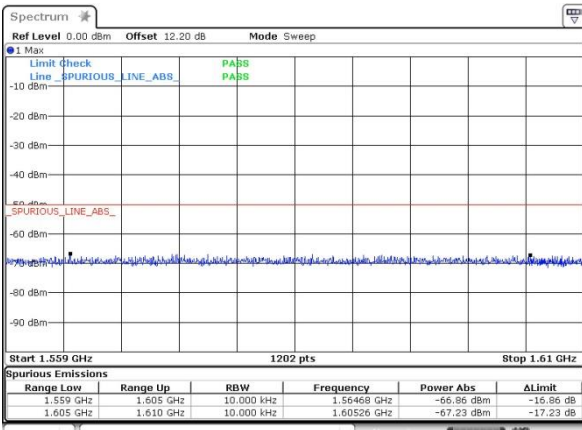
N/A



Date: 6. JAN. 2023 20:52:52

Highest Channel / 1SC1 Discrete

N/A



Date: 12. JAN. 2023 19:40:36



Frequency Stability

Test Conditions		Band 23(QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	SCS 15kHz	10ppm
		Deviation (ppm)	Result
50	Normal Voltage	0.0002	PASS
40	Normal Voltage	0.0000	
30	Normal Voltage	0.0012	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0002	
0	Normal Voltage	0.0006	
-10	Normal Voltage	0.0007	
-20	Normal Voltage	0.0005	
-30	Normal Voltage	0.0002	
20	Maximum Voltage	0.0007	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0012	

Note: Normal Voltage =3.87 V. ; Battery End Point (BEP) =3.6 V. ; Maximum Voltage =4.4 V.



NTN Band 255

Output power

Band 255 SCS3.75kHz							Limit	
Test Frequency (MHz)	SC Size	Conducted Power (dBm)		Antenna Gain (dBi)		EIRP Power (dBm)		Result
		BPSK	QPSK	BPSK	QPSK	BPSK	QPSK	
1626.7	1SC1	22.23	22.45	-2.7		19.53	19.75	PASS
	1SC46	22.27	22.29	-2.7		19.57	19.59	
1643.3	1SC1	23.06	23.26	-2.7		20.36	20.56	
	1SC46	23.08	23.16	-2.7		20.38	20.46	
1659.9	1SC1	22.76	22.81	-2.7		20.06	20.11	
	1SC46	22.79	22.77	-2.7		20.09	20.07	

Band 255 SCS15kHz							Limit	
Test Frequency (MHz)	SC Size	Conducted Power (dBm)		Antenna Gain (dBi)		EIRP Power (dBm)		Result
		BPSK	QPSK	BPSK	QPSK	BPSK	QPSK	
1626.7	1SC1	22.37	22.45	-2.7		19.67	19.75	PASS
	1SC10	22.45	22.46	-2.7		19.75	19.76	
	3SC0	-	21.10	-2.7		-	18.4	
	3SC9	-	21.17	-2.7		-	18.47	
	6SC0	-	20.83	-2.7		-	18.13	
	6SC6	-	20.58	-2.7		-	17.88	
	12SC0	-	20.28	-2.7		-	17.58	
1643.3	1SC1	23.24	23.24	-2.7		20.54	20.54	
	1SC10	23.21	23.23	-2.7		20.51	20.53	
	3SC0	-	22.13	-2.7		-	19.43	
	3SC9	-	22.14	-2.7		-	19.44	
	6SC0	-	21.50	-2.7		-	18.8	
	6SC6	-	21.52	-2.7		-	18.82	
1659.9	12SC0	-	21.10	-2.7		-	18.4	
	1SC1	22.84	22.85	-2.7		20.14	20.15	
	1SC10	22.95	22.93	-2.7		20.25	20.23	
	3SC0	-	22.41	-2.7		-	19.71	
	3SC9	-	22.54	-2.7		-	19.84	
	6SC0	-	21.87	-2.7		-	19.17	
	6SC6	-	21.72	-2.7		-	19.02	
	12SC0	-	21.02	-2.7		-	18.32	



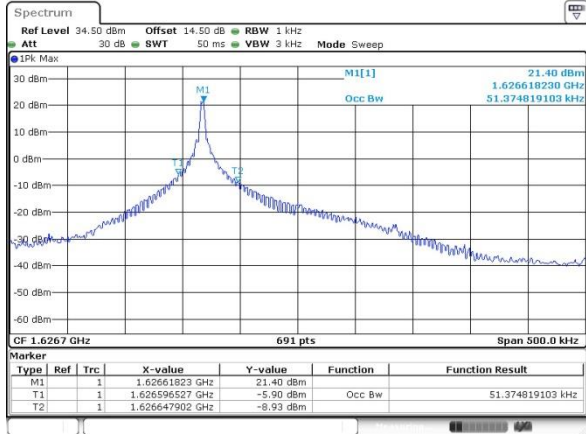
Occupied Bandwidth

Mode	Band 255 : 99%OBW(kHz)									
SCS	3.75kHz		15kHz							
Mod.	BPSK	QPSK	BPSK	QPSK	QPSK	QPSK	QPSK			
SC Size	1SC1	1SC1	1SC1	1SC1	3SC0	6SC0	12SC0			
Lowest CH	51.375	52.098	116.498	110.709	107.815	139.653	180.897			
Middle CH	51.375	51.375	117.945	110.709	107.091	133.864	180.897			
Highest CH	50.651	52.098	118.669	110.709	108.538	136.035	180.897			



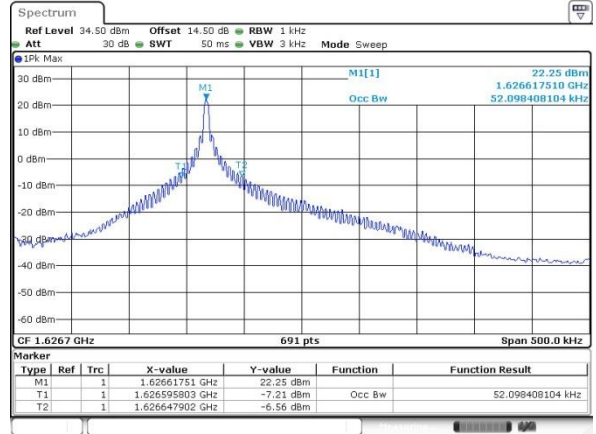
Band 255 SCS3.75KHz

Lowest Channel / 1SC1 / BPSK



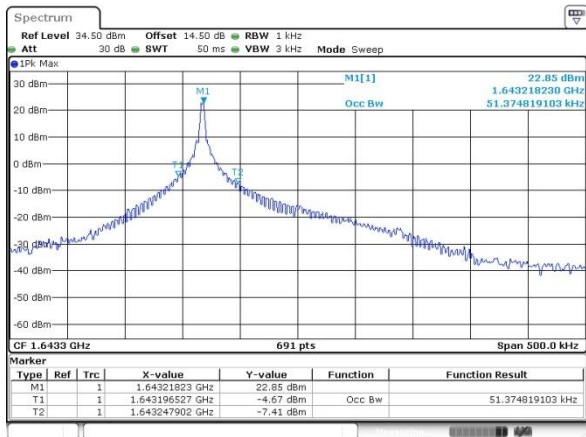
Date: 13.JAN.2023 11:44:11

Lowest Channel / 1SC1 / QPSK



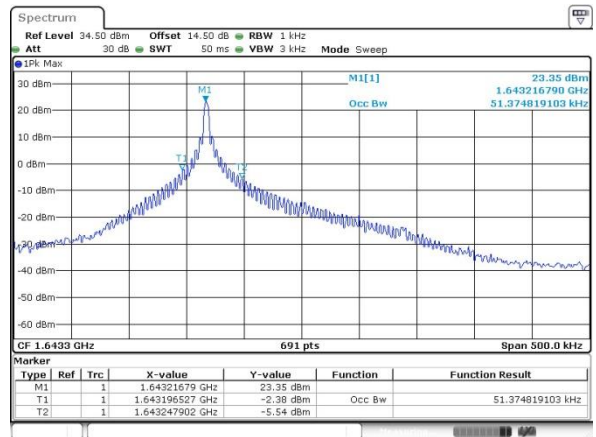
Date: 13.JAN.2023 11:42:10

Middle Channel / 1SC1 / BPSK



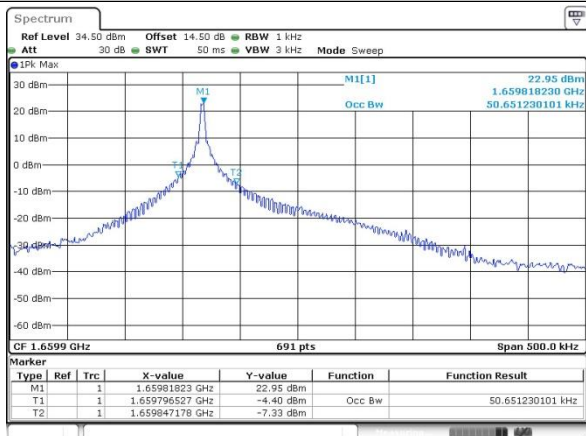
Date: 13.JAN.2023 11:46:59

Middle Channel / 1SC1 / QPSK



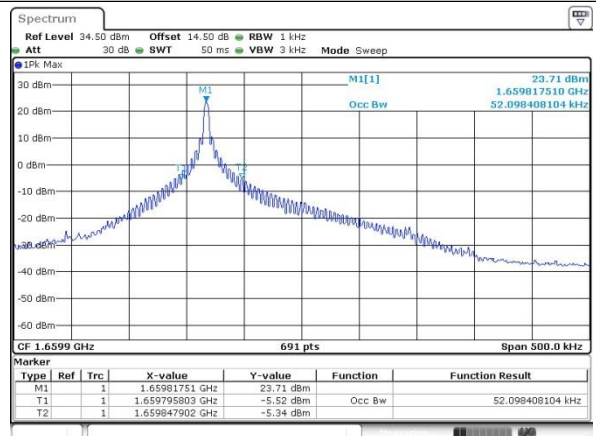
Date: 13.JAN.2023 11:47:41

Highest Channel / 1SC1 / BPSK



Date: 13.JAN.2023 11:56:11

Highest Channel / 1SC1 / QPSK

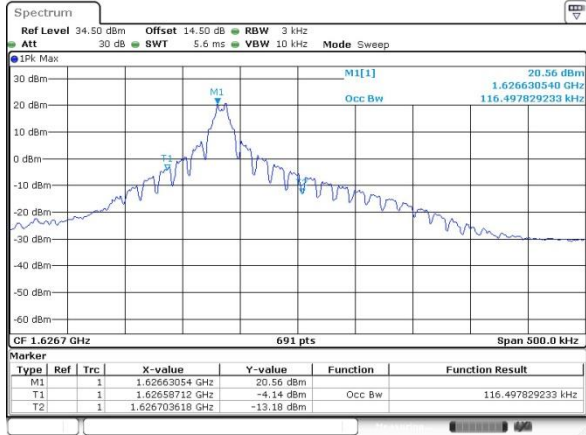


Date: 13.JAN.2023 11:55:32

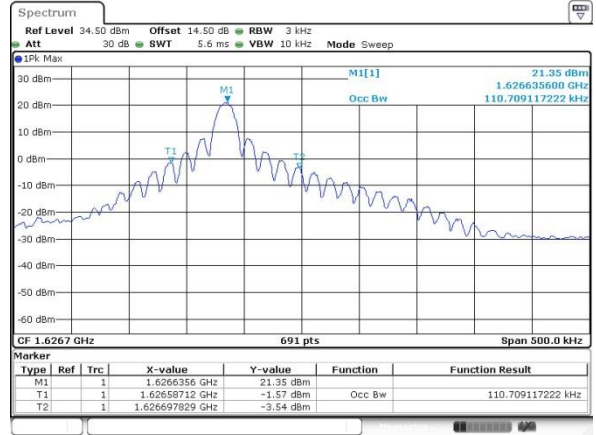


Band 255 SCS15KHz

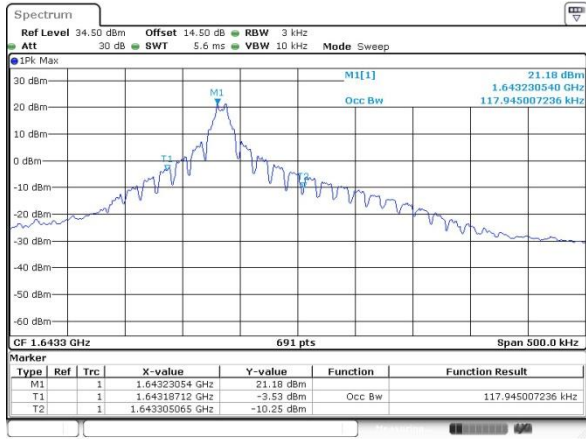
Lowest Channel / 1SC1 / BPSK



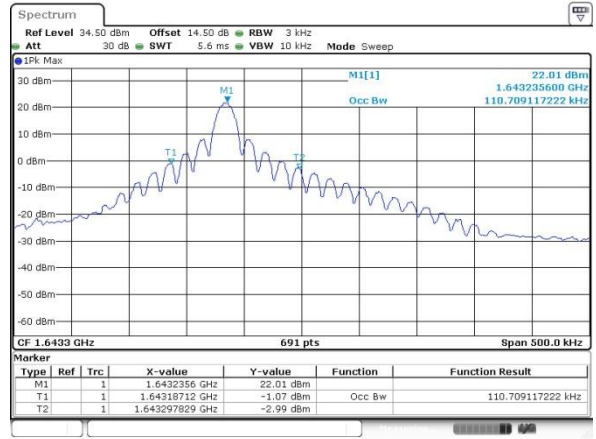
Lowest Channel / 1SC1 / QPSK



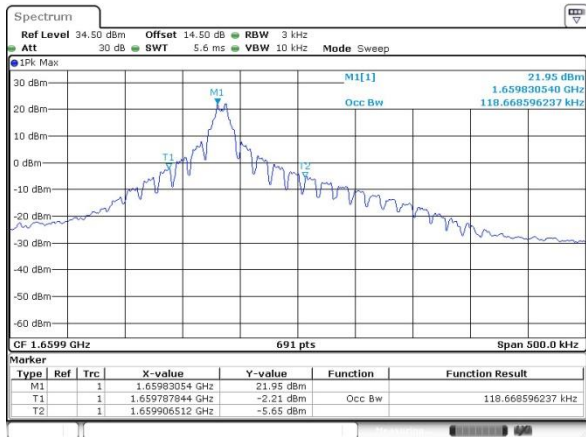
Middle Channel / 1SC1 / BPSK



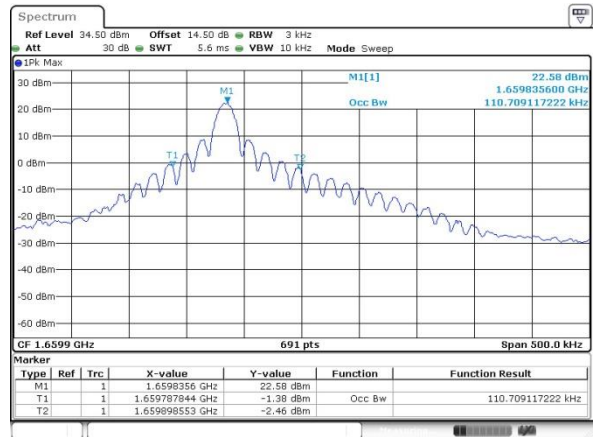
Middle Channel / 1SC1 / QPSK



Highest Channel / 1SC1 / BPSK



Highest Channel / 1SC1 / QPSK

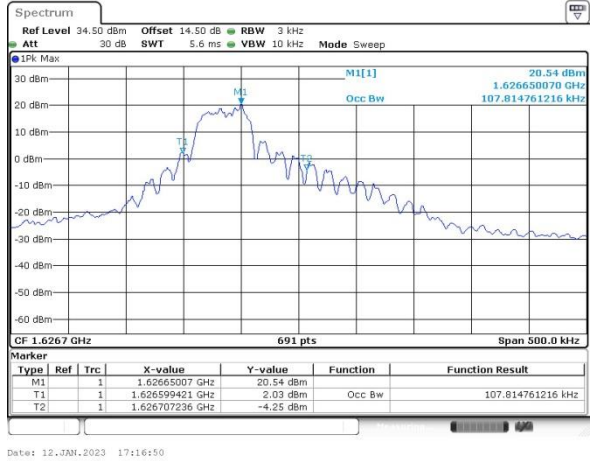




Band 255 SCS15KHz

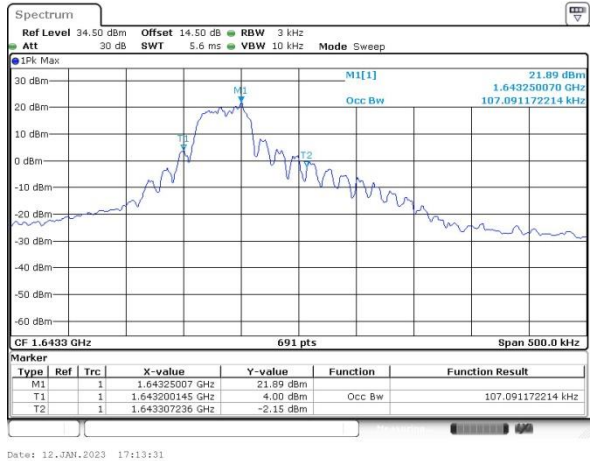
N/A

Lowest Channel / 3SC0 / QPSK



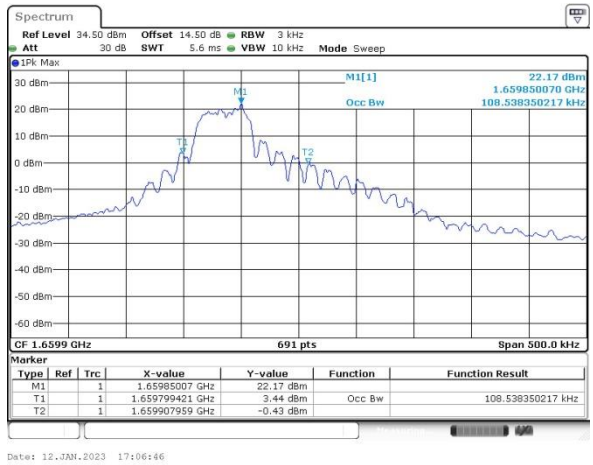
N/A

Middle Channel / 3SC0 / QPSK



N/A

Highest Channel / 3SC0 / QPSK





Band 255 SCS15KHz

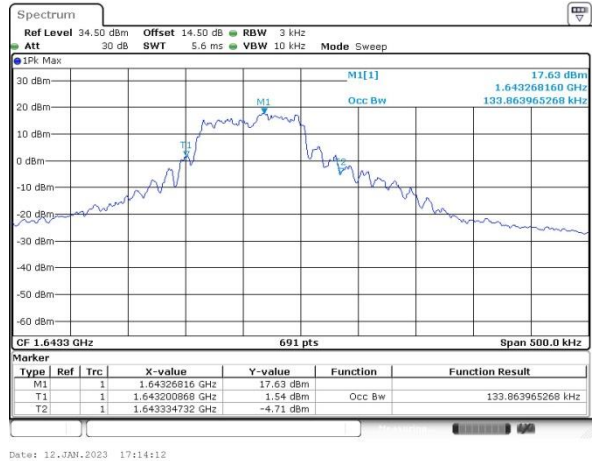
N/A

Lowest Channel / 6SC0 / QPSK



N/A

Middle Channel / 6SC0 / QPSK



N/A

Highest Channel / 6SC0 / QPSK





Band 255 SCS15KHz																													
N/A	Lowest Channel / 12SC0 / QPSK																												
-	<p>Spectrum Ref Level 34.50 dBm Offset 14.50 dB RBW 3 kHz Att 30 dB SWT 5.6 ms VBW 10 kHz Mode Sweep</p> <p>1PK Max 13.19 dBm 1.626704340 GHz 180.897250362 kHz</p> <p>CF 1.6267 GHz 691 pts Span 500.0 kHz</p> <table border="1"> <thead> <tr> <th>Type</th> <th>Ref</th> <th>Trc</th> <th>X-value</th> <th>Y-value</th> <th>Function</th> <th>Function Result</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>1</td> <td></td> <td>1.62670434 GHz</td> <td>13.19 dBm</td> <td></td> <td></td> </tr> <tr> <td>T1</td> <td>1</td> <td></td> <td>1.626610999 GHz</td> <td>2.83 dBm</td> <td>Occ Bw</td> <td>180.897250362 kHz</td> </tr> <tr> <td>T2</td> <td>1</td> <td></td> <td>1.626791896 GHz</td> <td>3.96 dBm</td> <td></td> <td></td> </tr> </tbody> </table> <p>Date: 31.DEC.2022 16:02:55</p>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		1.62670434 GHz	13.19 dBm			T1	1		1.626610999 GHz	2.83 dBm	Occ Bw	180.897250362 kHz	T2	1		1.626791896 GHz	3.96 dBm		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																							
M1	1		1.62670434 GHz	13.19 dBm																									
T1	1		1.626610999 GHz	2.83 dBm	Occ Bw	180.897250362 kHz																							
T2	1		1.626791896 GHz	3.96 dBm																									
N/A	Middle Channel / 12SC0 / QPSK																												
-	<p>Spectrum Ref Level 34.50 dBm Offset 14.50 dB RBW 3 kHz Att 30 dB SWT 5.6 ms VBW 10 kHz Mode Sweep</p> <p>1PK Max 13.80 dBm 1.643304340 GHz 180.897250362 kHz</p> <p>CF 1.6433 GHz 691 pts Span 500.0 kHz</p> <table border="1"> <thead> <tr> <th>Type</th> <th>Ref</th> <th>Trc</th> <th>X-value</th> <th>Y-value</th> <th>Function</th> <th>Function Result</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>1</td> <td></td> <td>1.64330434 GHz</td> <td>13.80 dBm</td> <td></td> <td></td> </tr> <tr> <td>T1</td> <td>1</td> <td></td> <td>1.643210999 GHz</td> <td>3.45 dBm</td> <td>Occ Bw</td> <td>180.897250362 kHz</td> </tr> <tr> <td>T2</td> <td>1</td> <td></td> <td>1.643391896 GHz</td> <td>4.79 dBm</td> <td></td> <td></td> </tr> </tbody> </table> <p>Date: 31.DEC.2022 16:14:37</p>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		1.64330434 GHz	13.80 dBm			T1	1		1.643210999 GHz	3.45 dBm	Occ Bw	180.897250362 kHz	T2	1		1.643391896 GHz	4.79 dBm		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																							
M1	1		1.64330434 GHz	13.80 dBm																									
T1	1		1.643210999 GHz	3.45 dBm	Occ Bw	180.897250362 kHz																							
T2	1		1.643391896 GHz	4.79 dBm																									
N/A	Highest Channel / 12SC0 / QPSK																												
-	<p>Spectrum Ref Level 34.50 dBm Offset 14.50 dB RBW 3 kHz Att 30 dB SWT 5.6 ms VBW 10 kHz Mode Sweep</p> <p>1PK Max 14.25 dBm 1.659904340 GHz 180.897250362 kHz</p> <p>CF 1.6599 GHz 691 pts Span 500.0 kHz</p> <table border="1"> <thead> <tr> <th>Type</th> <th>Ref</th> <th>Trc</th> <th>X-value</th> <th>Y-value</th> <th>Function</th> <th>Function Result</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>1</td> <td></td> <td>1.65990434 GHz</td> <td>14.25 dBm</td> <td></td> <td></td> </tr> <tr> <td>T1</td> <td>1</td> <td></td> <td>1.659810999 GHz</td> <td>3.98 dBm</td> <td>Occ Bw</td> <td>180.897250362 kHz</td> </tr> <tr> <td>T2</td> <td>1</td> <td></td> <td>1.659991896 GHz</td> <td>5.11 dBm</td> <td></td> <td></td> </tr> </tbody> </table> <p>Date: 31.DEC.2022 16:37:01</p>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		1.65990434 GHz	14.25 dBm			T1	1		1.659810999 GHz	3.98 dBm	Occ Bw	180.897250362 kHz	T2	1		1.659991896 GHz	5.11 dBm		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																							
M1	1		1.65990434 GHz	14.25 dBm																									
T1	1		1.659810999 GHz	3.98 dBm	Occ Bw	180.897250362 kHz																							
T2	1		1.659991896 GHz	5.11 dBm																									

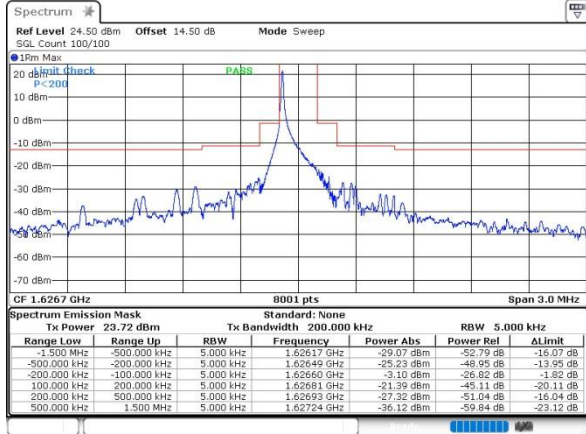


MASK

Band 23 SCS3.75kHz

Lowest Channel / 1SC1 / BPSK

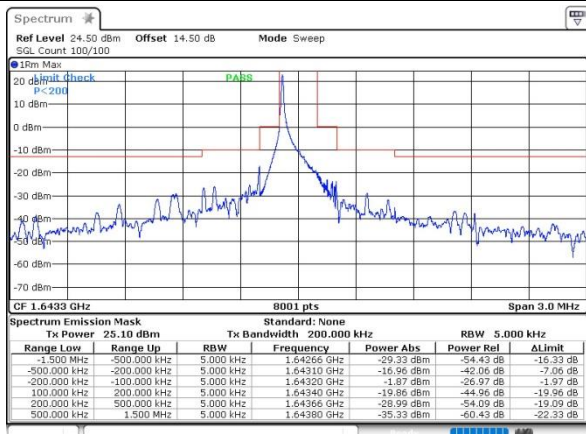
N/A



Date: 3, JAN, 2023 11:00:20

Middle Channel / 1SC1 / BPSK

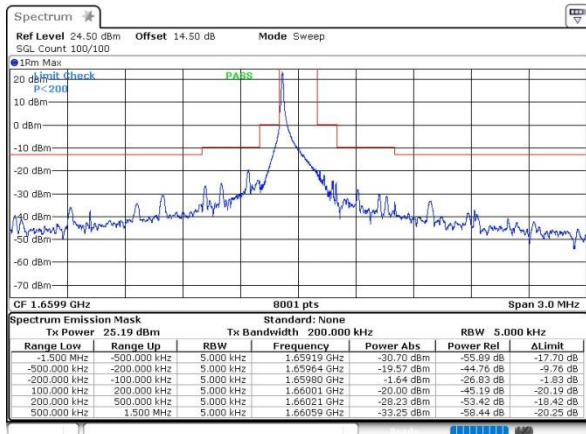
N/A



Date: 3, JAN, 2023 10:32:16

Highest Channel / 1SC1 / BPSK

N/A

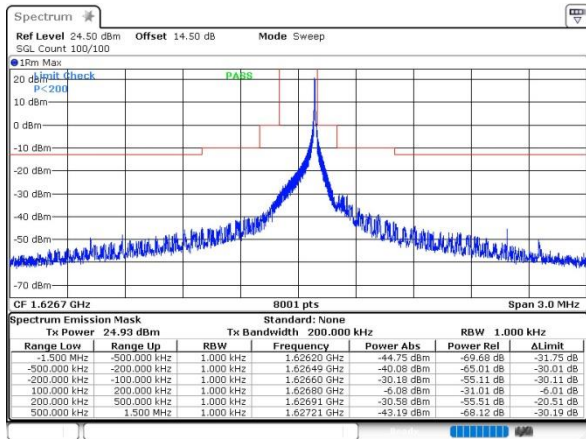


Date: 3, JAN, 2023 10:56:50



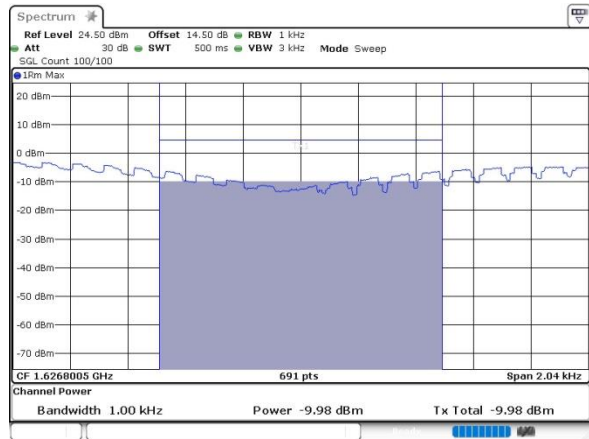
Band 23 SCS3.75kHz

Lowest Channel / 1SC46 / BPSK



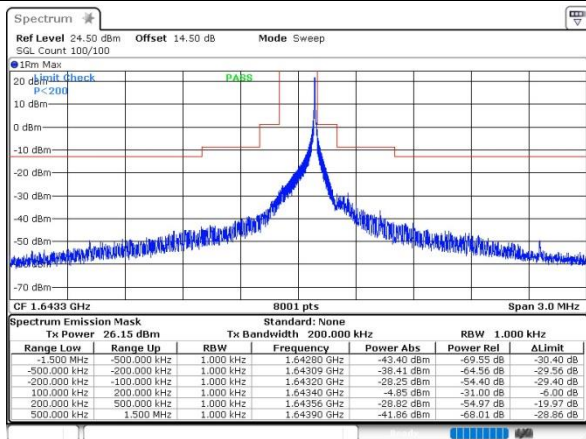
Date: 4.JAN.2023 10:59:34

Lowest Channel / 1SC46 / BPSK-CP



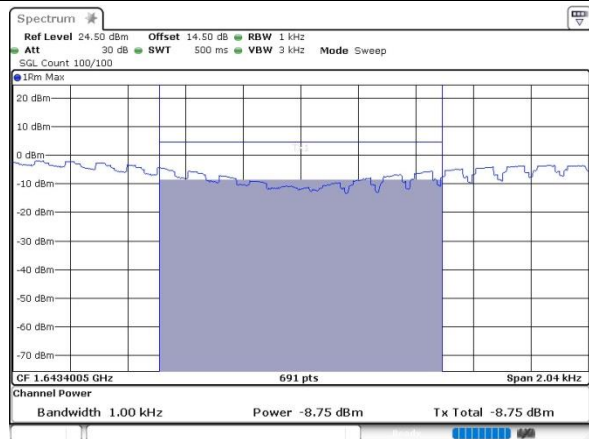
Date: 4.JAN.2023 11:01:11

Middle Channel / 1SC46 / BPSK



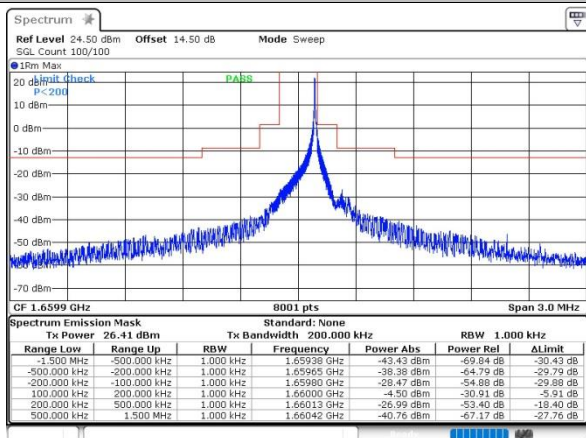
Date: 4.JAN.2023 11:06:52

Middle Channel / 1SC46 / BPSK-CP



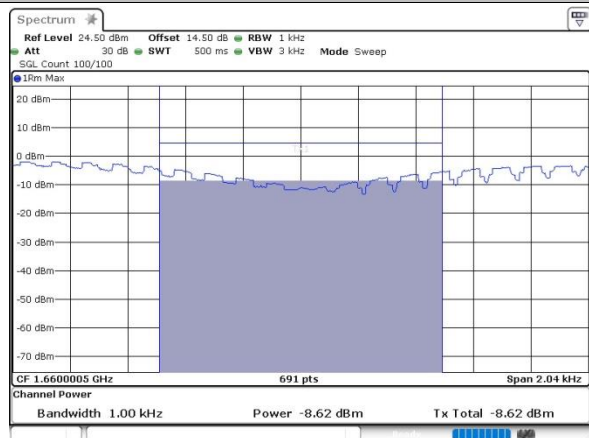
Date: 4.JAN.2023 11:11:28

Highest Channel / 1SC46 / BPSK



Date: 4.JAN.2023 11:16:28

Highest Channel / 1SC46 / BPSK-CP



Date: 4.JAN.2023 11:18:43

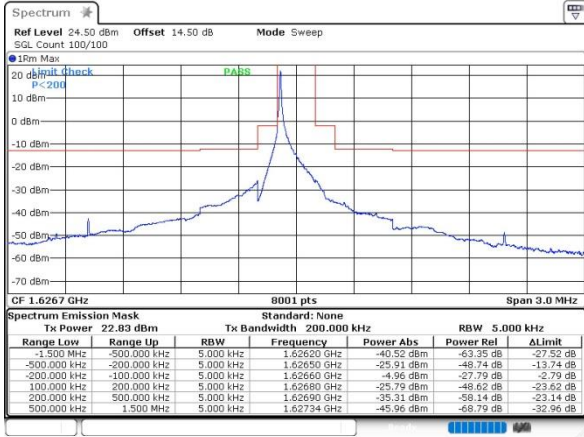
Remark: The above results of RBW 1kHz corrected by 10log(4kHz/1kHz) is passed.



Band 255 SCS3.75kHz

Lowest Channel / 1SC1 / QPSK

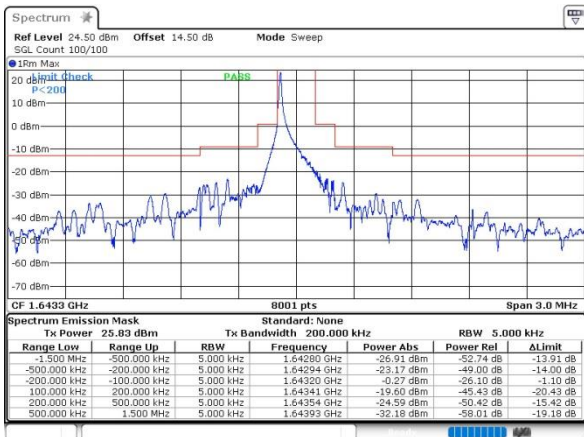
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Date: 6 JUN 2023 15:10:22

Middle Channel / 1SC1 / QPSK

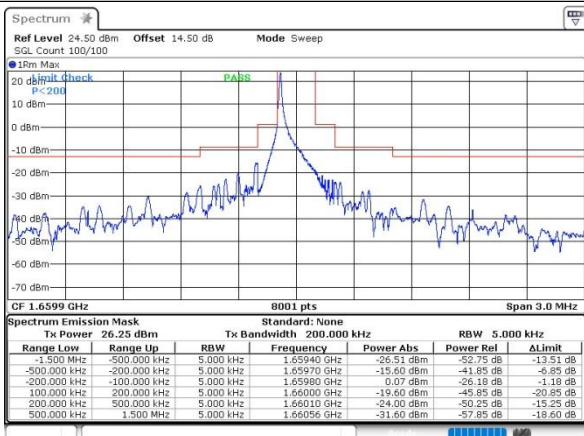
N/A



Date: 6 JUN 2023 15:14:49

Highest Channel / 1SC1 / QPSK

N/A

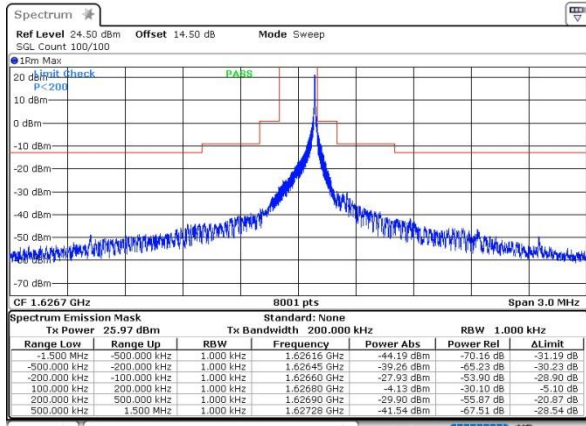


Date: 6 JUN 2023 15:44:33



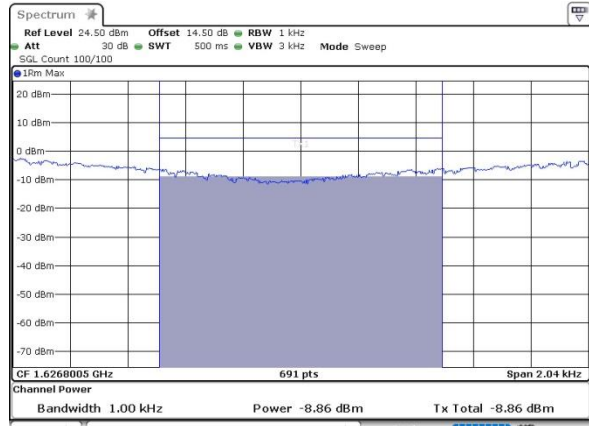
Band 255 SCS3.75kHz

Lowest Channel / 1SC46 / QPSK



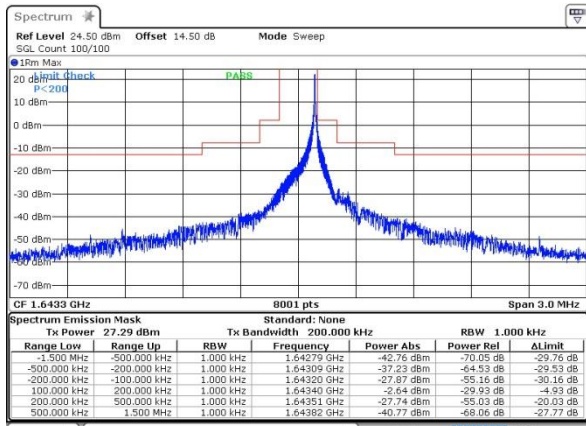
Date: 6.JAN.2023 15:05:37

Lowest Channel / 1SC46 / QPSK-CP



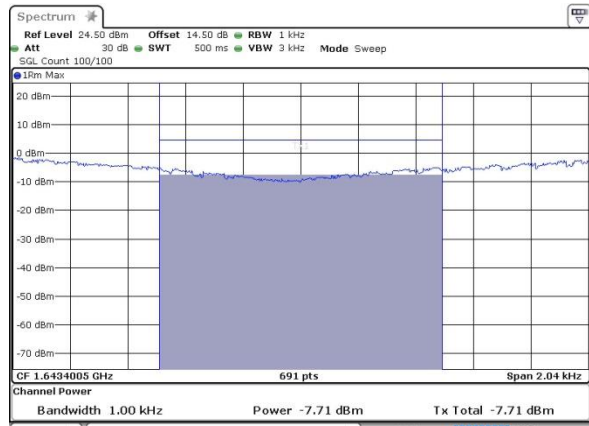
Date: 6.JAN.2023 15:07:41

Middle Channel / 1SC46 / QPSK



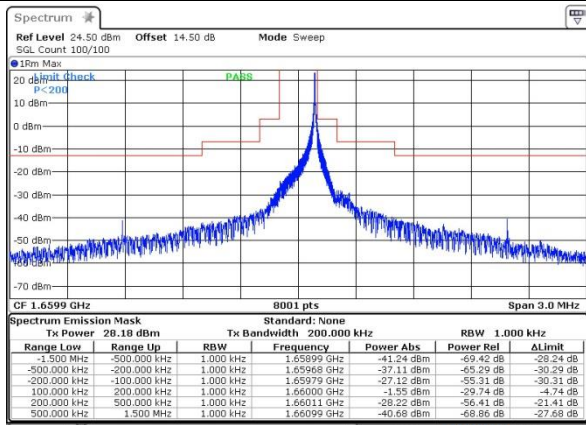
Date: 6.JAN.2023 15:26:47

Middle Channel / 1SC46 / QPSK-CP



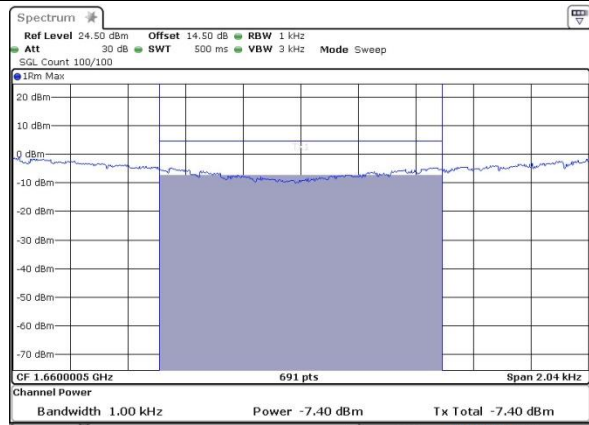
Date: 6.JAN.2023 15:29:01

Highest Channel / 1SC46 / QPSK



Date: 6.JAN.2023 16:02:47

Highest Channel / 1SC46 / QPSK-CP



Date: 6.JAN.2023 16:04:47

Remark: The above results of RBW 1kHz corrected by 10log(4kHz/1kHz) is passed.