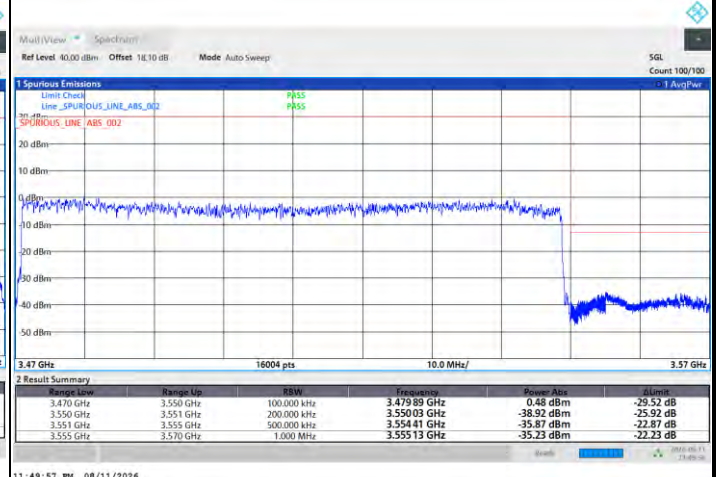
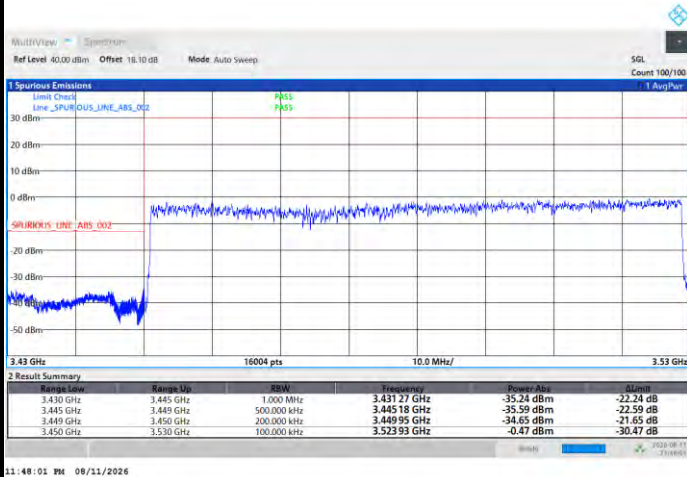




FR1 n77 / 80MHz / DFT-S OFDM / PI/2 BPSK

Lowest Band Edge / Full RB

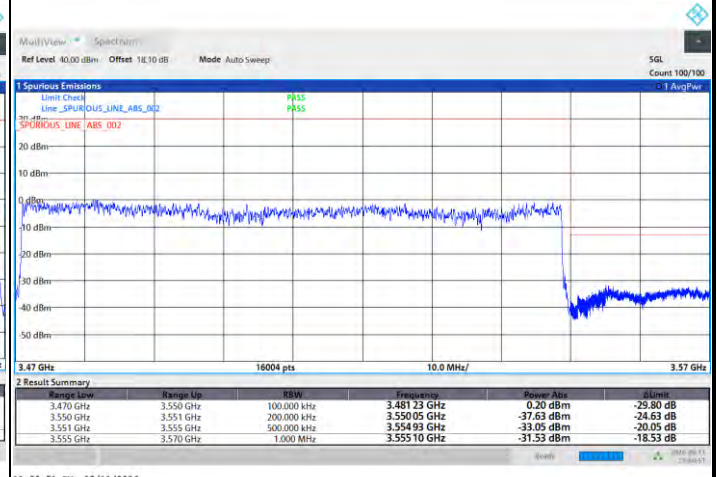
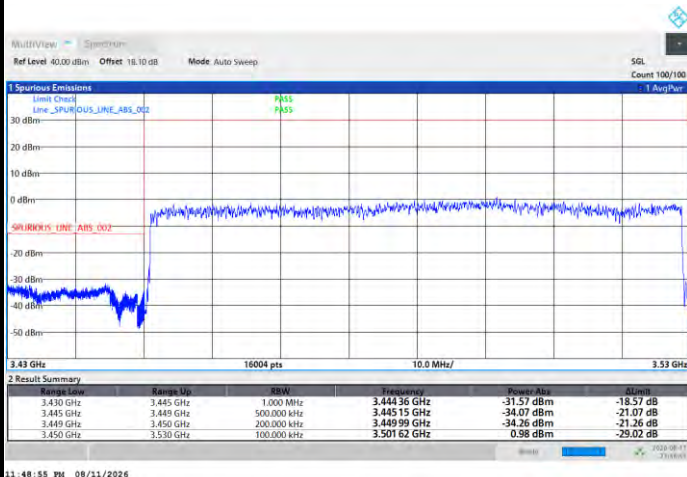
Highest Band Edge / Full RB



FR1 n77 / 80MHz / DFT-S OFDM / QPSK

Lowest Band Edge / Full RB

Highest Band Edge / Full RB

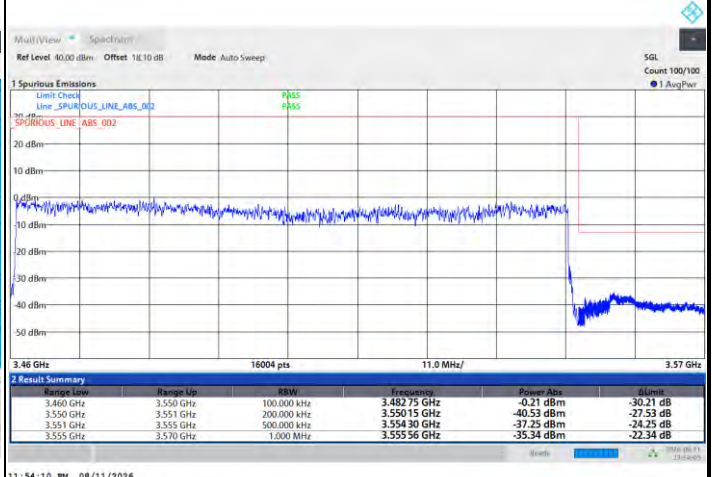
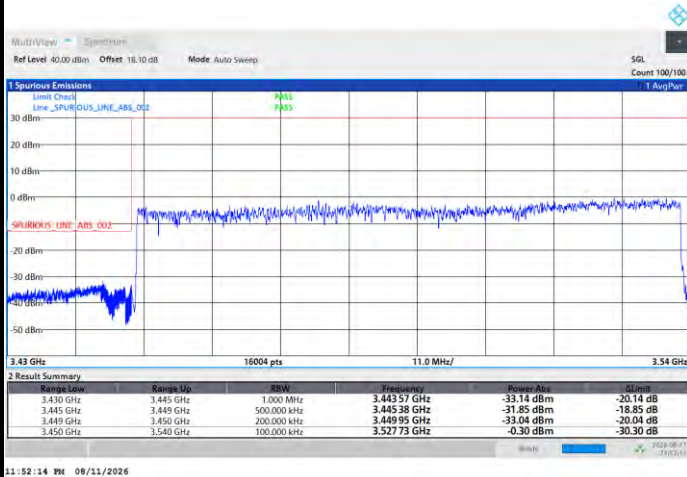




FR1 n77 / 90MHz / DFT-S OFDM / PI/2 BPSK

Lowest Band Edge / Full RB

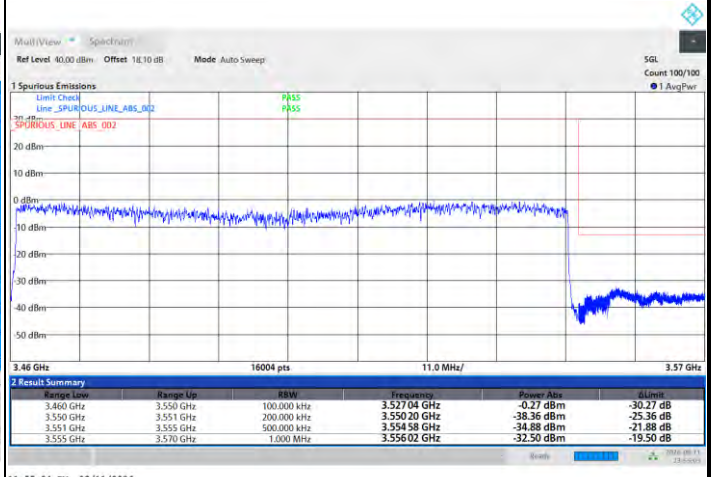
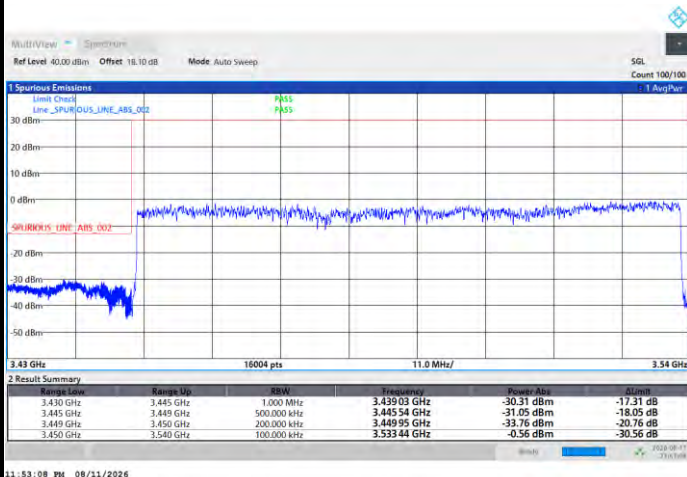
Highest Band Edge / Full RB



FR1 n77 / 90MHz / DFT-S OFDM / QPSK

Lowest Band Edge / Full RB

Highest Band Edge / Full RB

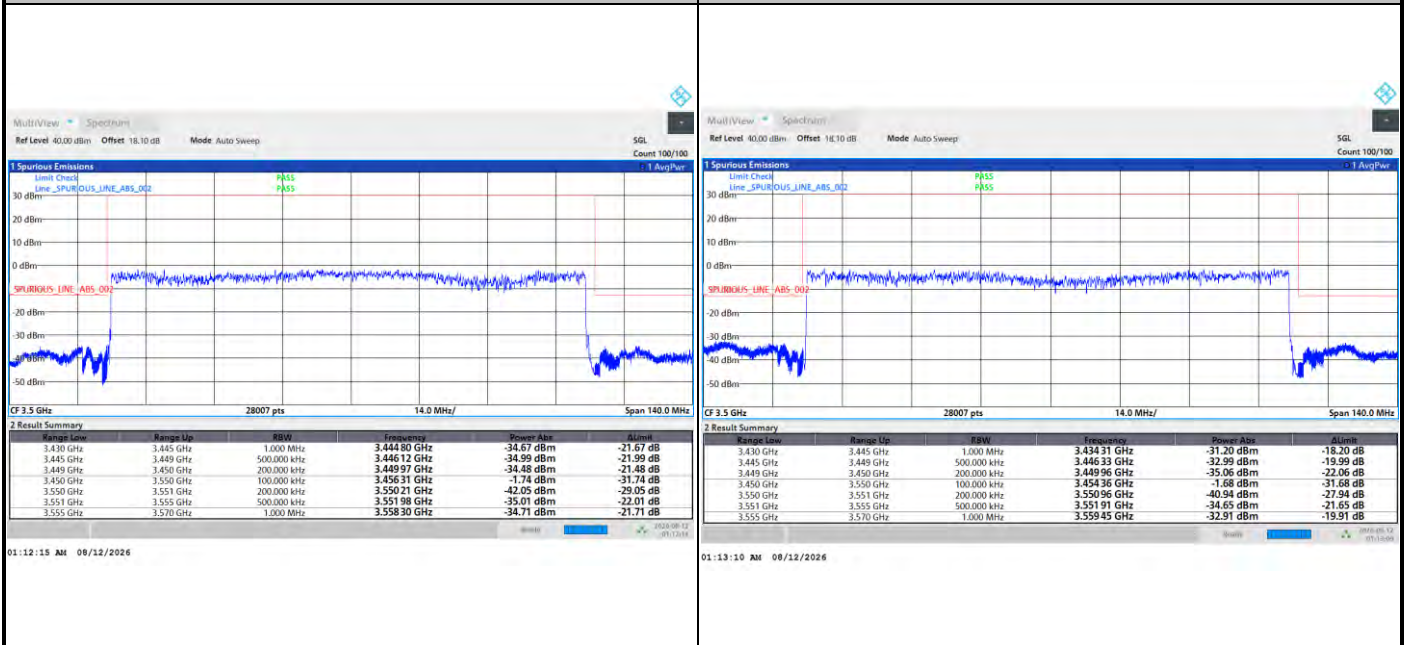




FR1 n77 / 100MHz / DFT-S OFDM

Middle Band Edge / Full RB / PI/2 BPSK

Middle Band Edge / Full RB / QPSK

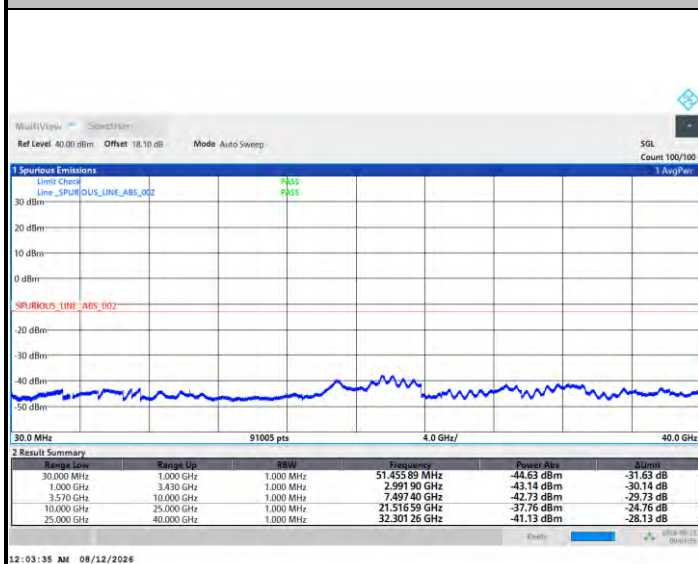




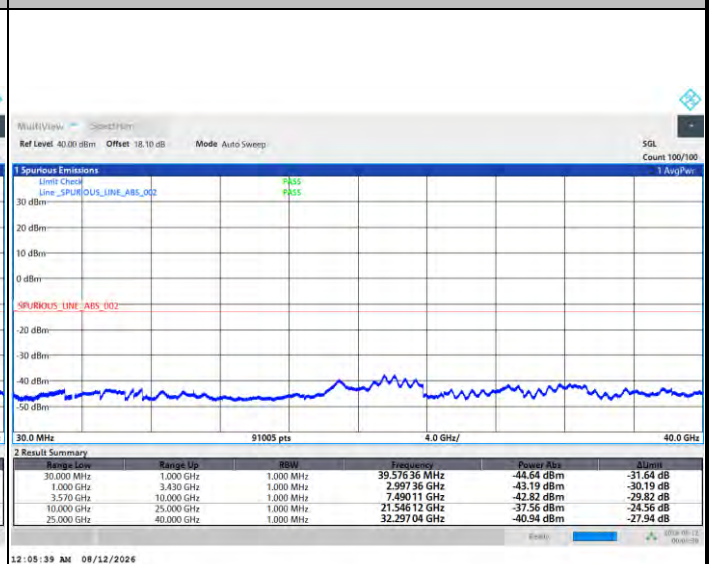
Conducted Spurious Emission

FR1 n77 / 10MHz / DFT-S OFDM / QPSK / 1RB1

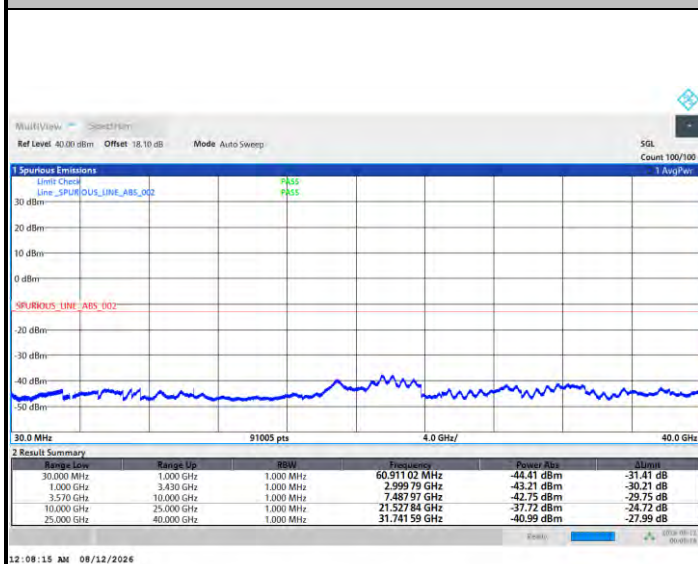
Lowest Channel



Middle Channel



Highest Channel



Frequency Stability

Test Conditions		FR1 n77 (BPSK) / Middle Channel 10M			
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Frequency Offset (Δf) (Hz)	Within Authorized Frequency Block(Hz)	Result
50	Normal Voltage	0.0006	-2.1	Yes	PASS
40	Normal Voltage	0.0022	-7.6	Yes	
30	Normal Voltage	0.0027	9.6	Yes	
20(Ref.)	Normal Voltage	0.0000	0	Yes	
10	Normal Voltage	0.0010	3.6	Yes	
0	Normal Voltage	0.0025	8.9	Yes	
-10	Normal Voltage	0.0006	-2	Yes	
-20	Normal Voltage	0.0001	-0.3	Yes	
-30	Normal Voltage	0.0014	-4.9	Yes	
20	Maximum Voltage	0.0011	-3.7	Yes	
20	Normal Voltage	0.0000	0	Yes	
20	Minimum Voltage	0.0029	10.3	Yes	

Note:

1. Normal Voltage = 120 V. ; Minimum Voltage = 102 V. ; Maximum Voltage = 138 V.
2. The frequency fundamental emissions stay within the authorized frequency block.
3. The frequency variation is sufficient to ensure that the occupied bandwidth of all operation channels stay within the operating frequency block or frequency block group.



Appendix B. Radiated Spurious Emission Test Data

Test Engineer :	Gerry Wei, Tim Lee, Wilson Wu	Relative Humidity(%):	52.5~56.1%
		Temperature(°C):	23.4 ~24.6 °C

B1.Summary of each worse mode

Mode	Band	Part	Ch	Freq (MHz)	Level (dBm)	Det	Ant Factor (dB)	Amp/Cbl (dB)	Filter (dB)	EIRPCF (dB)	Reading (dBuV)	Limit (dBm)	Margin (dB)	Pol	Ant
1	NR SA n25	Part 24E	L	7405	-46.22	RMS	36.48	-21.52	0.42	-95.23	33.63	-13.00	-33.22	H	1
2	NR SA n25 MIMO	Part 24E	L	7405	-46.00	RMS	36.48	-21.52	0.42	-95.23	33.85	-13.00	-33.00	V	1+7
3	NR SA n66	Part 27L	M	5208	-41.00	RMS	33.18	-23.41	0.59	-95.23	43.87	-13.00	-28.00	V	1
4	NR SA n66 MIMO	Part 27L	H	7045	-46.98	RMS	36.16	-21.73	0.42	-95.23	33.40	-13.00	-33.98	H	1+7
5	NR SA n71	Part 27N	L	1328	-29.52	RMS	25.68	-30.30	0.44	-95.23	69.89	-13.00	-16.52	V	1
6	NR SA n71 MIMO	Part 27N	H	1359	-28.31	RMS	25.71	-30.23	0.38	-95.23	71.06	-13.00	-15.31	V	1+7
7	EN-DC B66+n71	Part 27N	M	2015	-36.20	RMS	26.55	-28.44	0.37	-95.23	60.55	-13.00	-23.20	V	1+7
8	NR SA n41 PC2	Part 27M	L	7491	-34.11	RMS	36.30	-42.95	0.43	-95.23	67.34	-25.00	-9.11	V	7
9	NR SA n41 MIMO PC1.5	Part 27M	L	7491	-39.47	RMS	36.30	-42.95	0.43	-95.23	61.98	-25.00	-14.47	V	7+1
10	EN-DC B66+n41	Part 27M	M	7752	-39.06	RMS	36.51	-42.69	0.50	-95.23	61.85	-25.00	-14.06	H	1+7
11	NR SA n77 PC2	Part 27Q	M	10474	-34.03	RMS	38.60	-19.41	0.59	-95.23	41.42	-13.00	-21.03	V	1
12	NR SA n77 MIMO PC1.5	Part 27Q	M	10474	-35.26	RMS	38.60	-19.41	0.59	-95.23	40.19	-13.00	-22.26	H	1+7
13	NR SA n77 PC2	Part 27O	L	14805	-35.31	RMS	40.28	-15.44	0.39	-95.23	34.69	-13.00	-22.31	V	1
14	NR SA n77 MIMO PC1.5	Part 27O	L	14805	-35.27	RMS	40.28	-15.44	0.39	-95.23	34.73	-13.00	-22.27	V	1+7

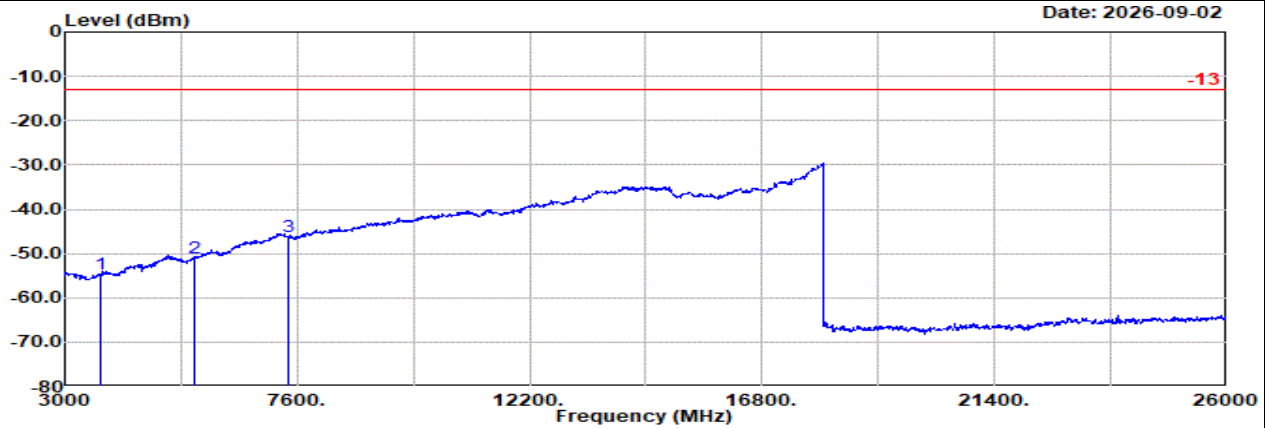


Ant. 1

Part 24E Mode 1

NR SA n25 20M Ch372000 1RB1 BPSK

L

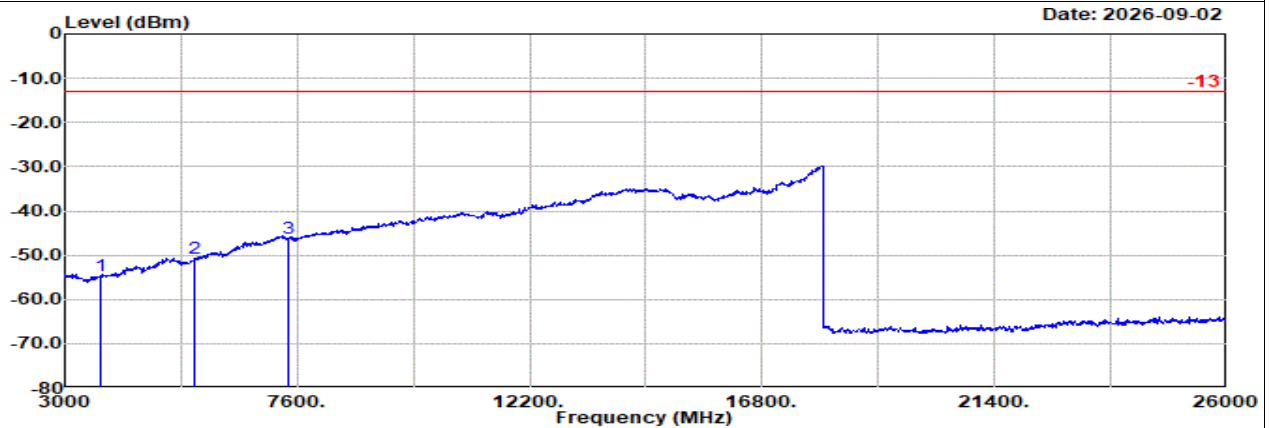


Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Horizontal

: NR SA n25 20M Ch372000 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb		Filter 1	EIRPCF		Readin g	Limit	Margin Pol	
	MHz	dBm			dB/m	dB		dB	dB			dB	dB
1	3702.00	-54.55	RMS		29.92	-25.38	0.99	-95.23		35.15	-13.00	-41.55	Horizontal
2	5551.00	-51.15	RMS		32.80	-22.96	0.57	-95.23		33.67	-13.00	-38.15	Horizontal
3	7405.00	-46.22	RMS		36.48	-21.52	0.42	-95.23		33.63	-13.00	-33.22	Horizontal



Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Vertical

: NR SA n25 20M Ch372000 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb		Filter 1	EIRPCF		Readin g	Limit	Margin Pol	
	MHz	dBm			dB/m	dB		dB	dB			dB	dB
1	3702.00	-54.75	RMS		29.92	-25.38	0.99	-95.23		34.95	-13.00	-41.75	Vertical
2	5551.00	-50.71	RMS		32.80	-22.96	0.57	-95.23		34.11	-13.00	-37.71	Vertical
3	7405.00	-46.31	RMS		36.48	-21.52	0.42	-95.23		33.54	-13.00	-33.31	Vertical

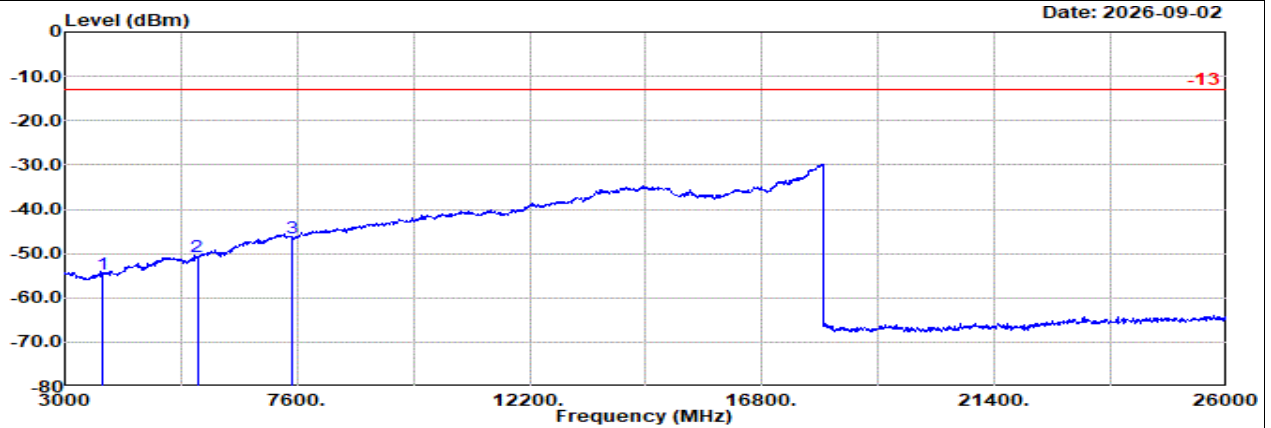


Ant. 1

Part 24E Mode 1

NR SA n25 20M Ch376500 1RB1 BPSK

M

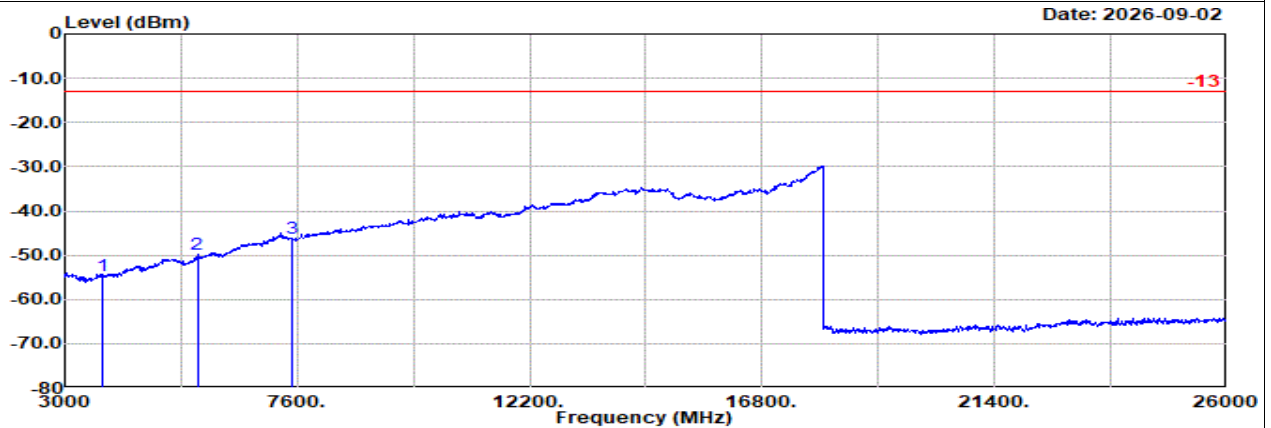


Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Horizontal

: NR SA n25 20M Ch376500 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb Filter 1		EIRPCF	Readin g	Limit	Margin Pol	
	MHz	dBm			dB/m	dB	dB			dB	dB
1	3747.00	-54.55	RMS	30.28	-25.31	0.97	-95.23	34.74	-13.00	-41.55	Horizontal
2	5621.00	-50.67	RMS	33.04	-22.88	0.54	-95.23	33.86	-13.00	-37.67	Horizontal
3	7495.00	-46.54	RMS	36.30	-21.47	0.43	-95.23	33.43	-13.00	-33.54	Horizontal



Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Vertical

: NR SA n25 20M Ch376500 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb Filter 1		EIRPCF	Readin g	Limit	Margin Pol	
	MHz	dBm			dB/m	dB	dB			dB	dB
1	3747.00	-54.72	RMS	30.28	-25.31	0.97	-95.23	34.57	-13.00	-41.72	Vertical
2	5621.00	-49.71	RMS	33.04	-22.88	0.54	-95.23	34.82	-13.00	-36.71	Vertical
3	7495.00	-46.29	RMS	36.30	-21.47	0.43	-95.23	33.68	-13.00	-33.29	Vertical

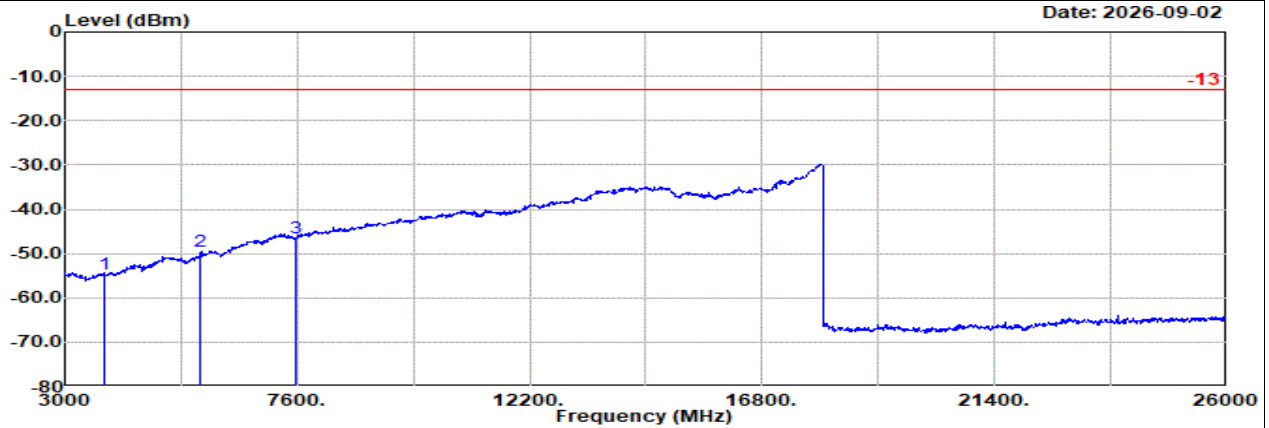


Ant. 1

Part 24E Mode 1

NR SA n25 20M Ch381000 1RB1 BPSK

H

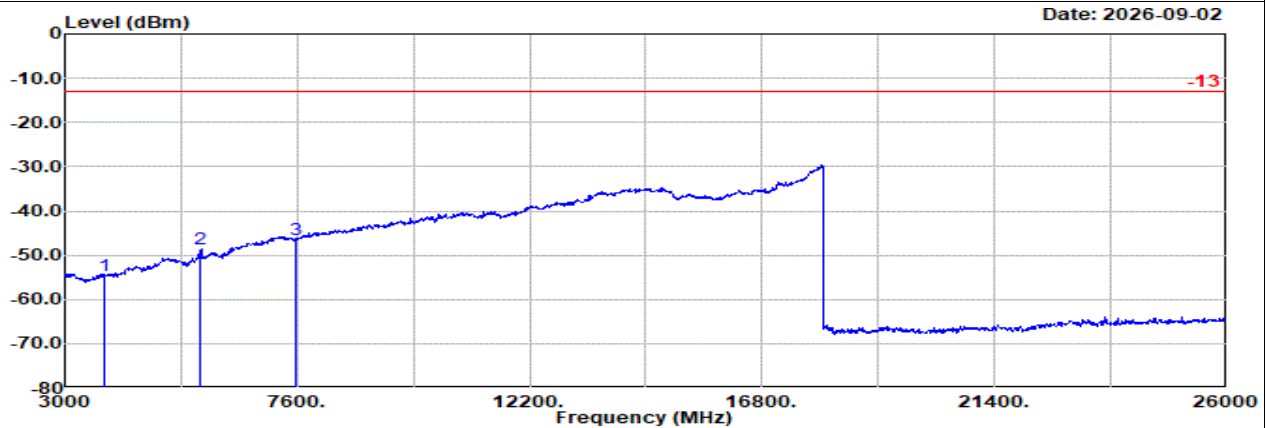


Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Horizontal

: NR SA n25 20M Ch381000 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Readin g	Limit	Margin Pol	
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB	
1	3792.00	-54.76	RMS	30.38	-25.23	0.94	-95.23	34.38	-13.00	-41.76	Horizontal	
2	5689.00	-49.36	RMS	33.33	-22.86	0.53	-95.23	34.87	-13.00	-36.36	Horizontal	
3	7585.00	-46.40	RMS	36.17	-21.42	0.44	-95.23	33.64	-13.00	-33.40	Horizontal	



Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Vertical

: NR SA n25 20M Ch381000 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Readin g	Limit	Margin Pol	
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB	
1	3792.00	-54.72	RMS	30.38	-25.23	0.94	-95.23	34.42	-13.00	-41.72	Vertical	
2	5689.00	-48.67	RMS	33.33	-22.86	0.53	-95.23	35.56	-13.00	-35.67	Vertical	
3	7585.00	-46.56	RMS	36.17	-21.42	0.44	-95.23	33.48	-13.00	-33.56	Vertical	

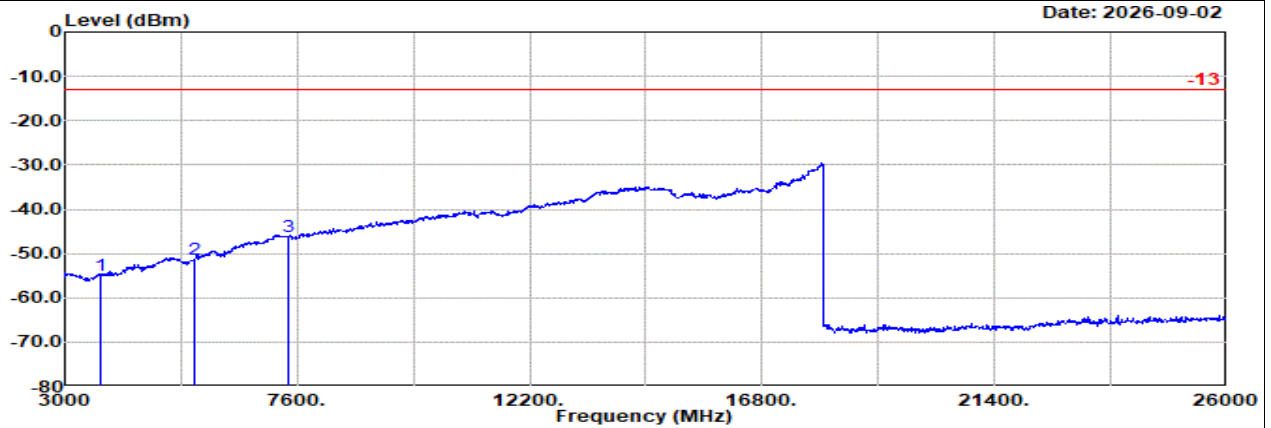


Ant. 1+7

Part 24E Mode 2

NR SA n25 MIMO 20M Ch372000 1RB1 QPSK

L

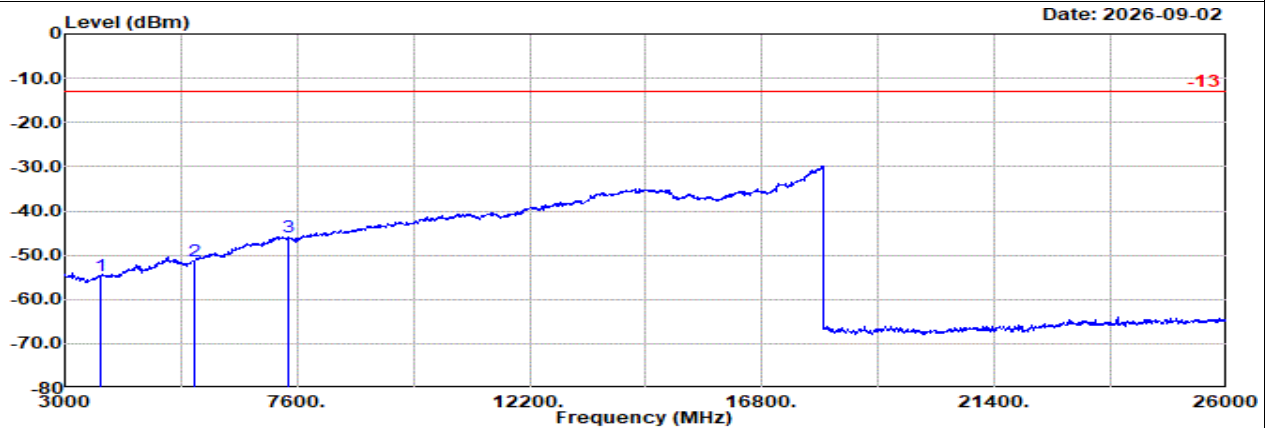


Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Horizontal

: NR SA n25 MIMO 20M Ch372000 1RB1 QPSK

	Freq Level		Detector	Ant Factor	Amp\Cb		Filter 1	EIRPCF		Reading	Limit	Margin		Pol
	MHz	dBm			dB/m	dB		dB	dB	dBuV	dBm	dB	dB	
1	3702.00	-55.05	RMS		29.92	-25.38	0.99	-95.23		34.65	-13.00	-42.05		Horizontal
2	5551.00	-51.46	RMS		32.80	-22.96	0.57	-95.23		33.36	-13.00	-38.46		Horizontal
3	7405.00	-46.19	RMS		36.48	-21.52	0.42	-95.23		33.66	-13.00	-33.19		Horizontal



Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Vertical

: NR SA n25 MIMO 20M Ch372000 1RB1 QPSK

	Freq Level		Detector	Ant Factor	Amp\Cb		Filter 1	EIRPCF		Reading	Limit	Margin		Pol
	MHz	dBm			dB/m	dB		dB	dB	dBuV	dBm	dB	dB	
1	3702.00	-54.60	RMS		29.92	-25.38	0.99	-95.23		35.10	-13.00	-41.60		Vertical
2	5551.00	-51.31	RMS		32.80	-22.96	0.57	-95.23		33.51	-13.00	-38.31		Vertical
3	7405.00	-46.00	RMS		36.48	-21.52	0.42	-95.23		33.85	-13.00	-33.00		Vertical

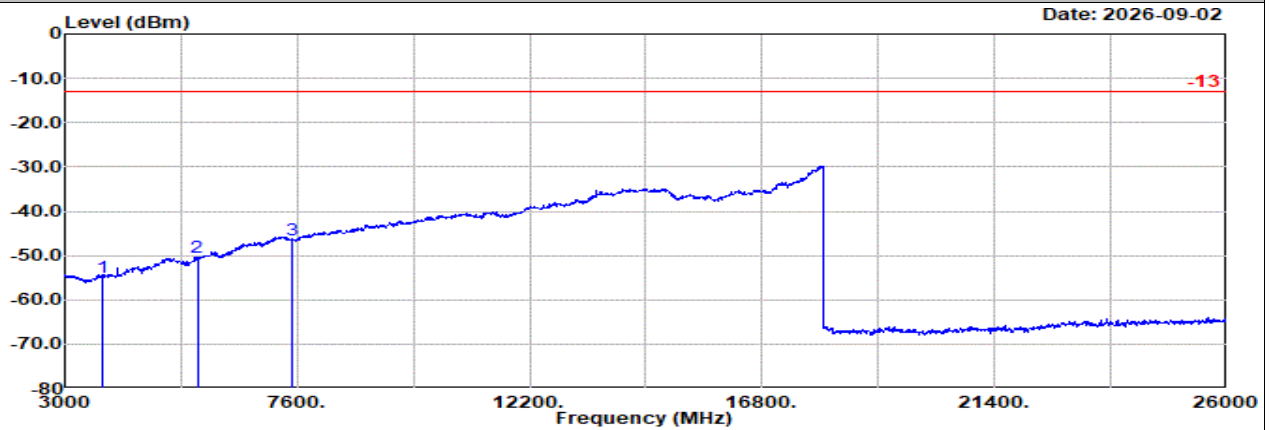


Ant. 1+7

Part 24E Mode 2

NR SA n25 MIMO 20M Ch376500 1RB1 QPSK

M

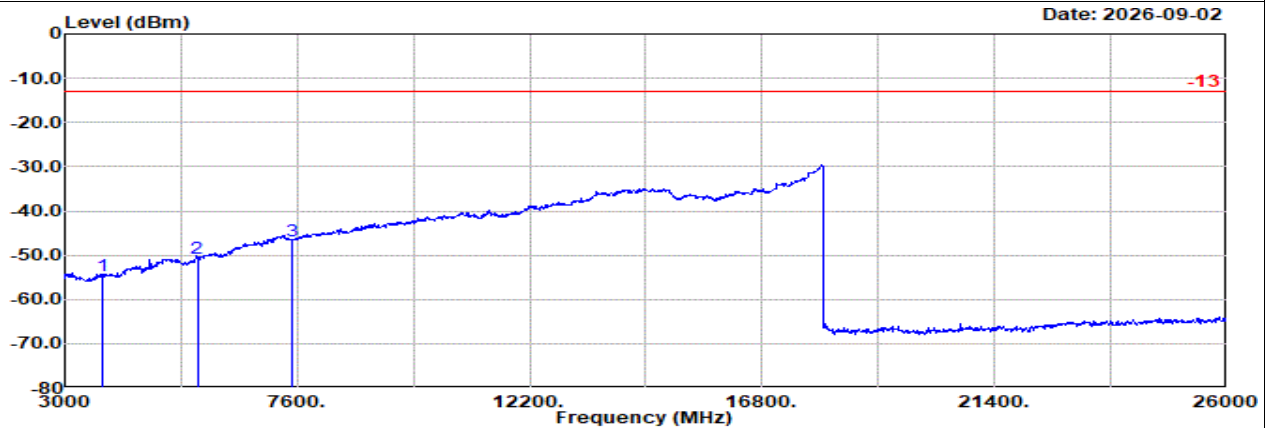


Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Horizontal

: NR SA n25 MIMO 20M Ch376500 1RB1 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Reading	Limit	Margin	Pol
					dB/m	dB						
	MHz	dBm					dB	dB	dBuV	dBm	dB	
1	3747.00	-54.81	RMS	30.28	-25.31	0.97	-95.23	34.48	-13.00	-41.81	Horizontal	
2	5621.00	-50.34	RMS	33.04	-22.88	0.54	-95.23	34.19	-13.00	-37.34	Horizontal	
3	7495.00	-46.64	RMS	36.30	-21.47	0.43	-95.23	33.33	-13.00	-33.64	Horizontal	



Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Vertical

: NR SA n25 MIMO 20M Ch376500 1RB1 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Reading	Limit	Margin	Pol
					dB/m	dB						
	MHz	dBm					dB	dB	dBuV	dBm	dB	
1	3747.00	-54.50	RMS	30.28	-25.31	0.97	-95.23	34.79	-13.00	-41.50	Vertical	
2	5621.00	-50.86	RMS	33.04	-22.88	0.54	-95.23	33.67	-13.00	-37.86	Vertical	
3	7495.00	-46.70	RMS	36.30	-21.47	0.43	-95.23	33.27	-13.00	-33.70	Vertical	

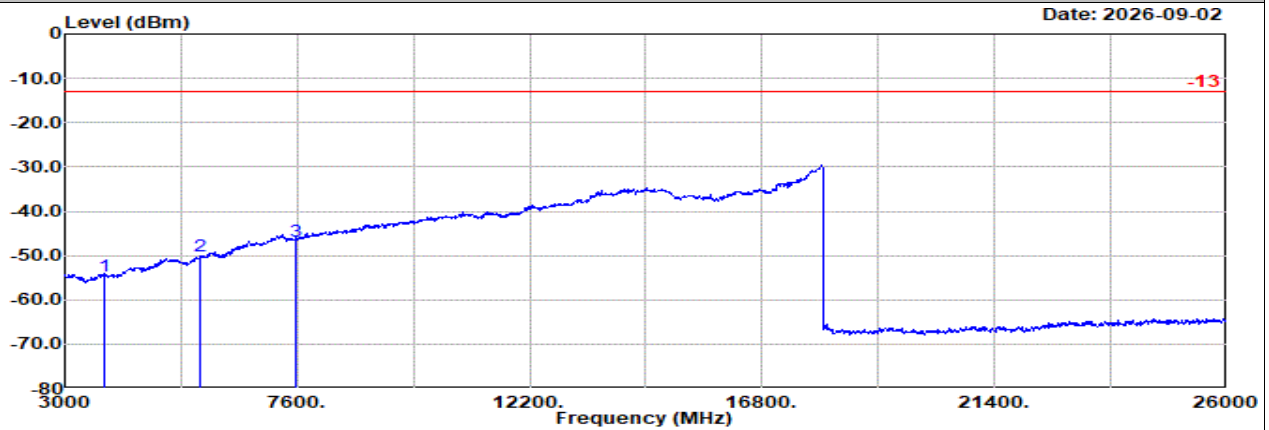


Ant. 1+7

Part 24E Mode 2

NR SA n25 MIMO 20M Ch381000 1RB1 QPSK

H

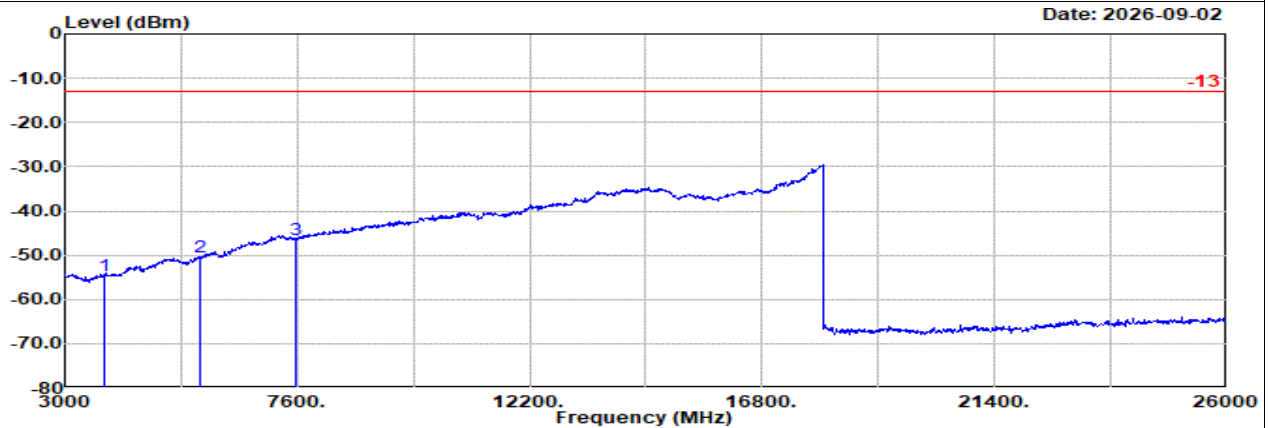


Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Horizontal

: NR SA n25 MIMO 20M Ch381000 1RB1 QPSK

	Freq	Level	Detector	Ant	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm		Factor	1	dB		dB	g		
1	3792.00	-54.72	RMS	30.38	-25.23	0.94	-95.23	34.42	-13.00	-41.72	Horizontal
2	5689.00	-49.98	RMS	33.33	-22.86	0.53	-95.23	34.25	-13.00	-36.98	Horizontal
3	7585.00	-46.65	RMS	36.17	-21.42	0.44	-95.23	33.39	-13.00	-33.65	Horizontal



Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Vertical

: NR SA n25 MIMO 20M Ch381000 1RB1 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb l	Filter	EIRPCF	Reading	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	3792.00	-54.53	RMS	30.38	-25.23	0.94	-95.23	34.61	-13.00	-41.53	Vertical
2	5689.00	-50.35	RMS	33.33	-22.86	0.53	-95.23	33.88	-13.00	-37.35	Vertical
3	7585.00	-46.61	RMS	36.17	-21.42	0.44	-95.23	33.43	-13.00	-33.61	Vertical

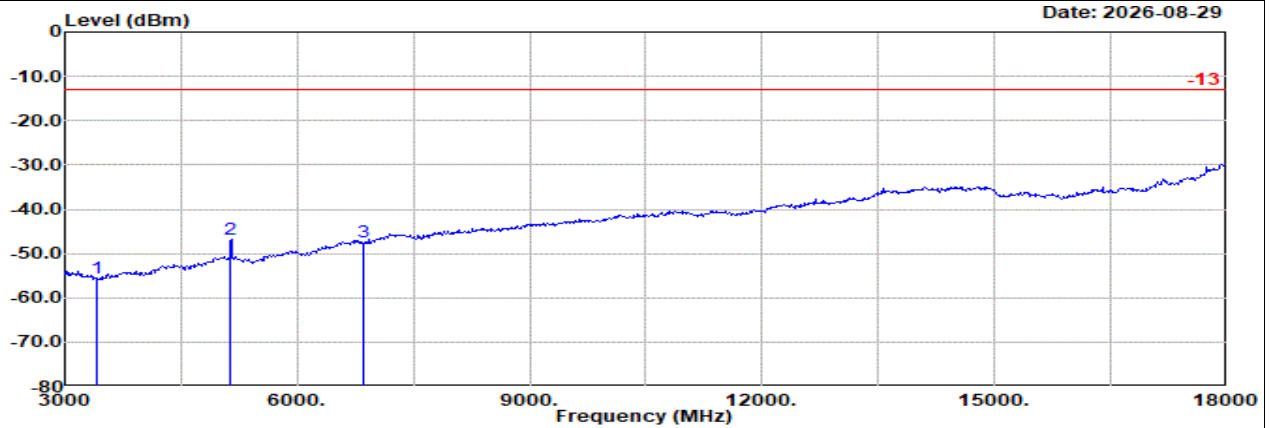


Ant. 1

Part 27L Mode 3

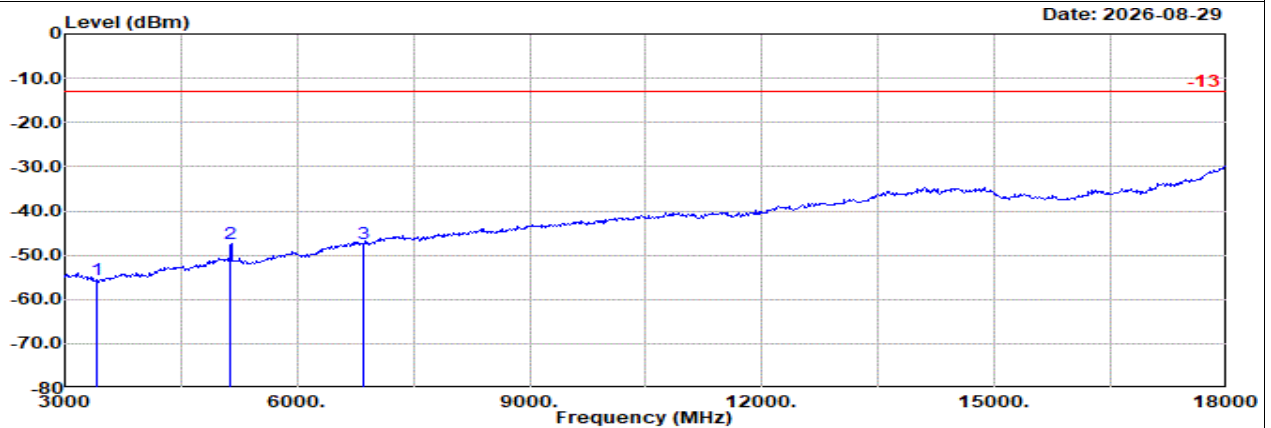
NR SA n66 20M Ch344000 1RB1 BPSK

L



Site : 03CH12-HY
Condition: -13 3m 9120D-01212 Horizontal
: NR SA n66 20M Ch344000 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Readin g	Limit		Margin	Pol
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB		
1	3423.00	-55.68	RMS		29.65	-25.88	1.23	-95.23	34.55	-13.00	-42.68	Horizontal	
2	5134.00	-46.83	RMS		33.17	-23.50	0.59	-95.23	38.14	-13.00	-33.83	Horizontal	
3	6845.00	-47.32	RMS		35.81	-21.91	0.48	-95.23	33.53	-13.00	-34.32	Horizontal	



Site : 03CH12-HY
Condition: -13 3m 9120D-01212 Vertical
: NR SA n66 20M Ch344000 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Readin g	Limit		Margin	Pol
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB		
1	3423.00	-55.56	RMS		29.65	-25.88	1.23	-95.23	34.67	-13.00	-42.56	Vertical	
2	5134.00	-47.40	RMS		33.17	-23.50	0.59	-95.23	37.57	-13.00	-34.40	Vertical	
3	6845.00	-47.39	RMS		35.81	-21.91	0.48	-95.23	33.46	-13.00	-34.39	Vertical	

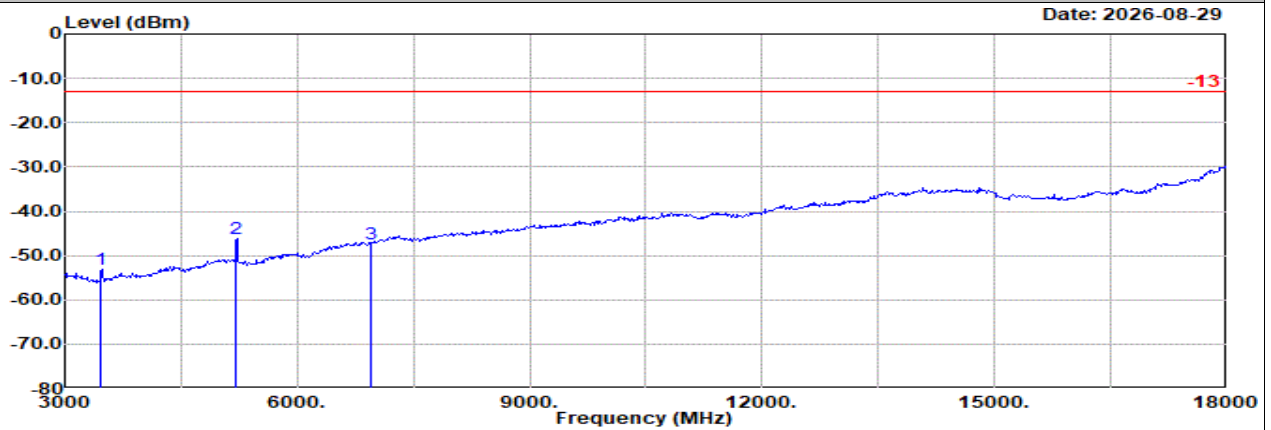


Ant. 1

Part 27L Mode 3

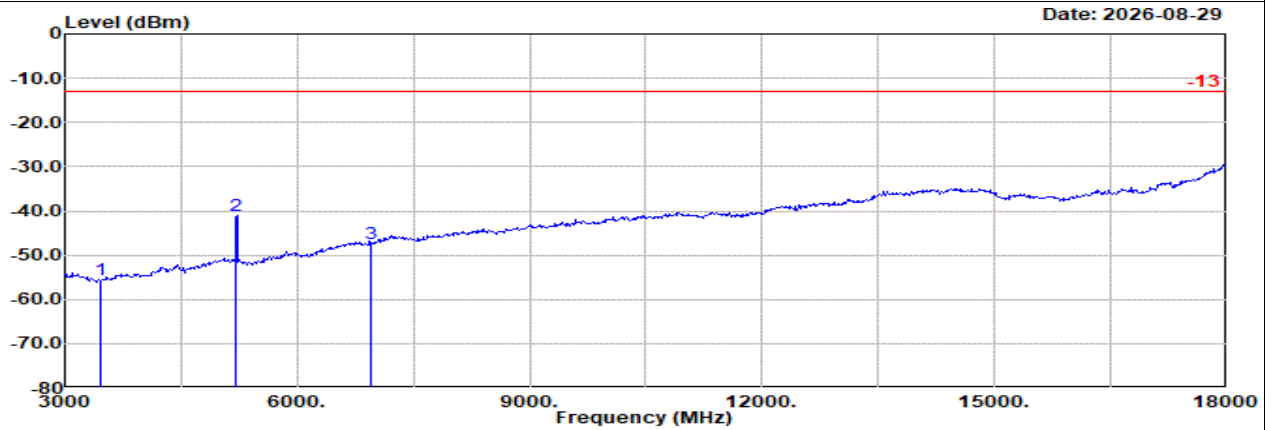
NR SA n66 20M Ch349000 1RB1 BPSK

M



Site : 03CH12-HY
Condition: -13 3m 9120D-01212 Horizontal
: NR SA n66 20M Ch349000 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb Filter 1		EIRPCF	Readin g	Limit		Margin	Pol
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB	
1	3472.00	-53.22	RMS	29.60	-25.81	1.18	-95.23	37.04	-13.00	-40.22	Horizontal	
2	5208.00	-46.06	RMS	33.18	-23.41	0.59	-95.23	38.81	-13.00	-33.06	Horizontal	
3	6945.00	-47.34	RMS	35.80	-21.81	0.45	-95.23	33.45	-13.00	-34.34	Horizontal	



Site : 03CH12-HY
Condition: -13 3m 9120D-01212 Vertical
: NR SA n66 20M Ch349000 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb Filter 1		EIRPCF	Readin g	Limit		Margin	Pol
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB	
1	3472.00	-55.50	RMS	29.60	-25.81	1.18	-95.23	34.76	-13.00	-42.50	Vertical	
2	5208.00	-41.00	RMS	33.18	-23.41	0.59	-95.23	43.87	-13.00	-28.00	Vertical	
3	6945.00	-47.54	RMS	35.80	-21.81	0.45	-95.23	33.25	-13.00	-34.54	Vertical	

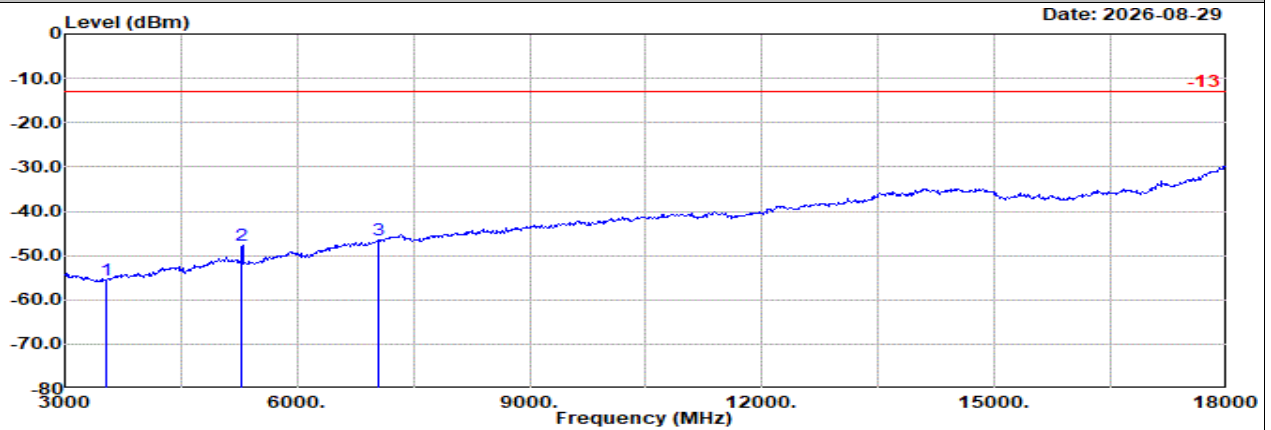


Ant. 1

Part 27L Mode 3

NR SA n66 20M Ch354000 1RB1 BPSK

H

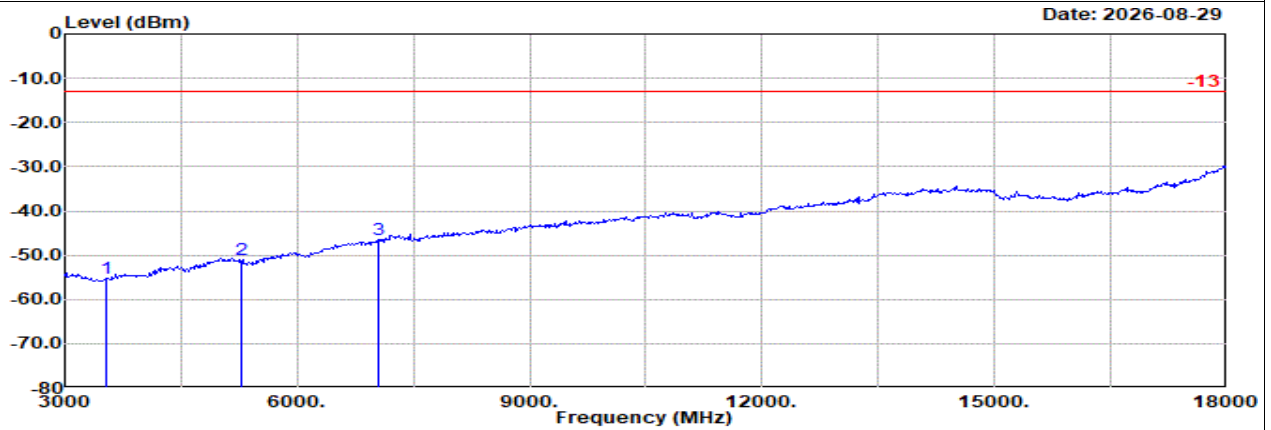


Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Horizontal

: NR SA n66 20M Ch354000 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb Filter 1		EIRPCF	Readin g	Limit		Margin	Pol
	MHz	dBm			dB/m	dB	dB		dBuV	dBm	dB	
1	3523.00	-55.50	RMS		29.65	-25.72	1.13	-95.23	34.67	-13.00	-42.50	Horizontal
2	5284.00	-47.80	RMS		33.03	-23.33	0.62	-95.23	37.11	-13.00	-34.80	Horizontal
3	7045.00	-46.51	RMS		36.16	-21.73	0.42	-95.23	33.87	-13.00	-33.51	Horizontal



Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Vertical

: NR SA n66 20M Ch354000 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb Filter 1		EIRPCF	Readin g	Limit		Margin	Pol
	MHz	dBm			dB/m	dB	dB		dBuV	dBm	dB	
1	3523.00	-55.13	RMS		29.65	-25.72	1.13	-95.23	35.04	-13.00	-42.13	Vertical
2	5284.00	-51.05	RMS		33.03	-23.33	0.62	-95.23	33.86	-13.00	-38.05	Vertical
3	7045.00	-46.44	RMS		36.16	-21.73	0.42	-95.23	33.94	-13.00	-33.44	Vertical

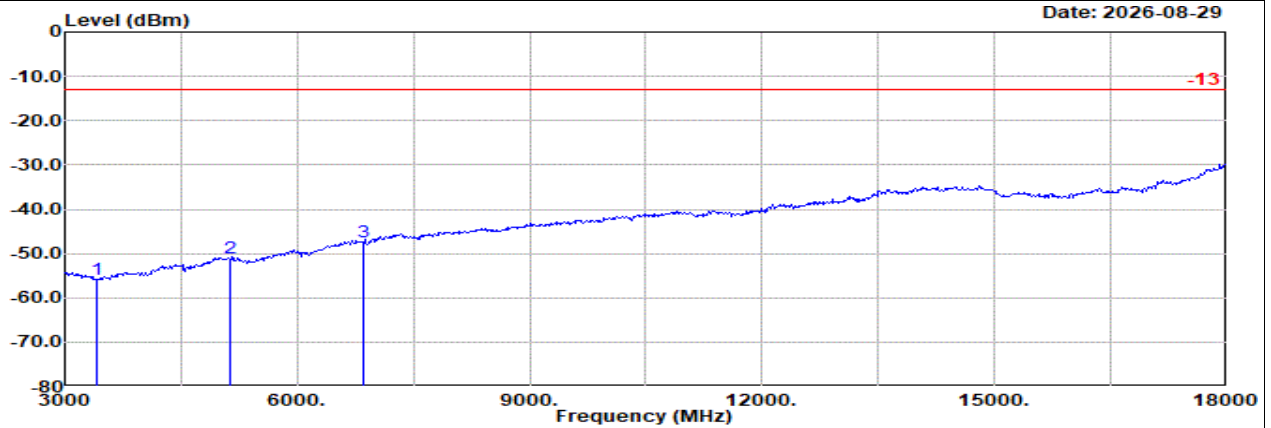


Ant. 1+7

Part 27L Mode 4

NR SA n66 MIMO 20M Ch344000 1RB1 QPSK

L

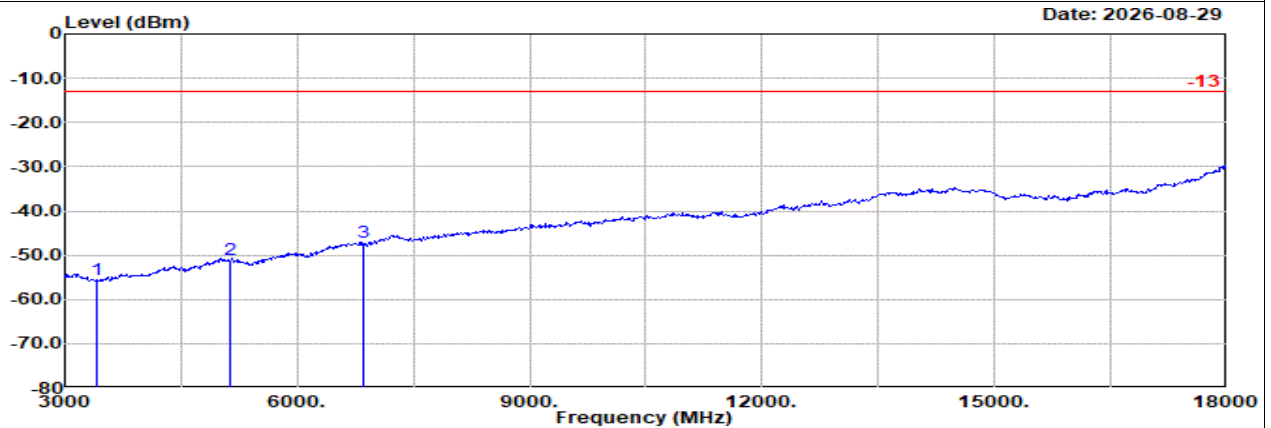


Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Horizontal

NR SA n66 MIMO 20M Ch344000 1RB1 QPSK

	Freq Level		Detector	Ant Factor	Amp\Cb Filter 1		EIRPCF	Reading	Limit	Margin	Pol
	MHz	dBm			dB/m	dB					
1	3423.00	-55.79	RMS	29.65	-25.88	1.23	-95.23	34.44	-13.00	-42.79	Horizontal
2	5134.00	-51.12	RMS	33.17	-23.50	0.59	-95.23	33.85	-13.00	-38.12	Horizontal
3	6845.00	-47.39	RMS	35.81	-21.91	0.48	-95.23	33.46	-13.00	-34.39	Horizontal



Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Vertical

NR SA n66 MIMO 20M Ch344000 1RB1 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb 1	Filter	EIRPCF	Reading	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	3423.00	-55.52	RMS	29.65	-25.88	1.23	-95.23	34.71	-13.00	-42.52	Vertical
2	5134.00	-51.07	RMS	33.17	-23.50	0.59	-95.23	33.90	-13.00	-38.07	Vertical
3	6845.00	-47.22	RMS	35.81	-21.91	0.48	-95.23	33.63	-13.00	-34.22	Vertical

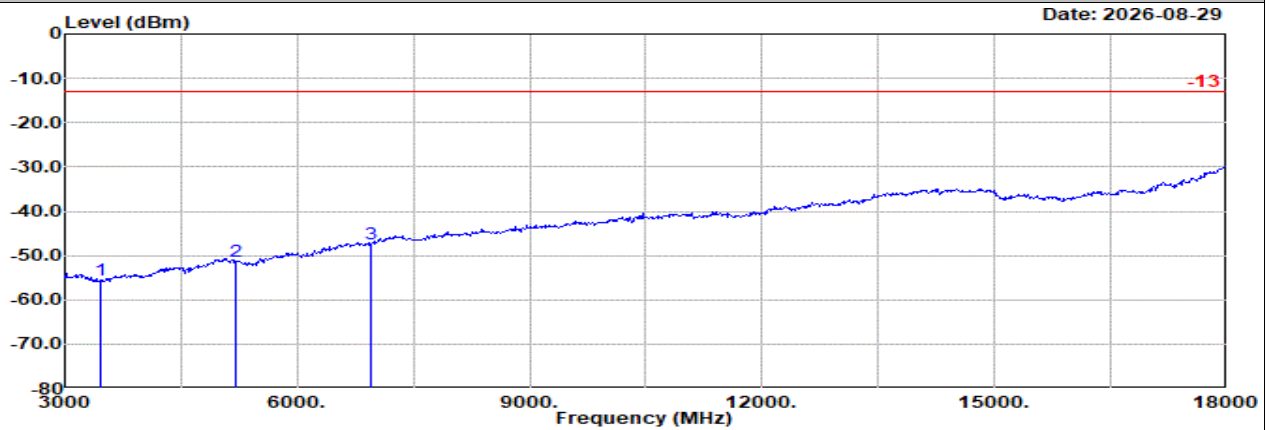


Ant. 1+7

Part 27L Mode 4

NR SA n66 MIMO 20M Ch349000 1RB1 QPSK

M

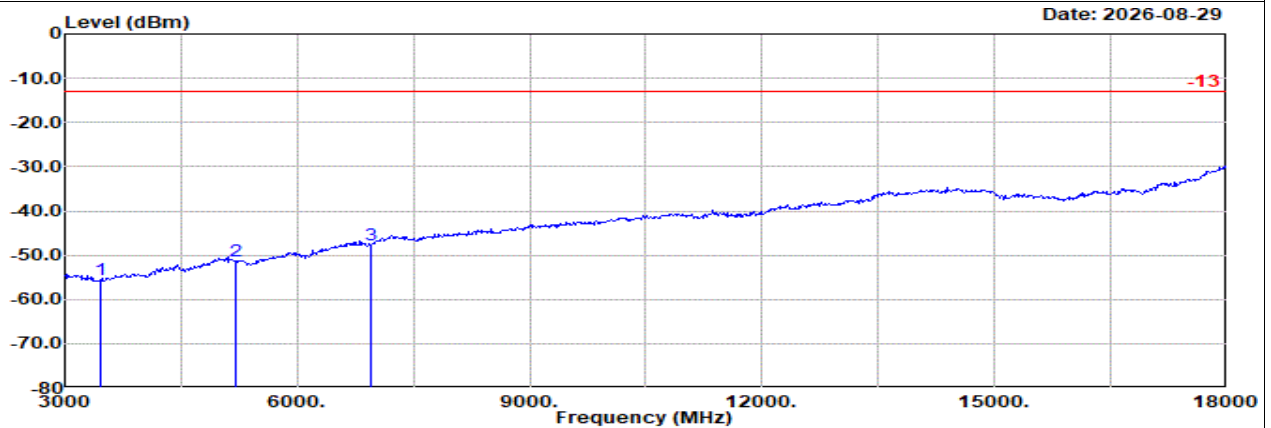


Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Horizontal

: NR SA n66 MIMO 20M Ch349000 1RB1 QPSK

	Freq Level		Detector	Ant Factor	Amp\Cb Filter 1		EIRPCF	Reading	Limit	Margin Pol	
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB
1	3472.00	-55.58	RMS	29.60	-25.81	1.18	-95.23	34.68	-13.00	-42.58	Horizontal
2	5208.00	-51.34	RMS	33.18	-23.41	0.59	-95.23	33.53	-13.00	-38.34	Horizontal
3	6945.00	-47.48	RMS	35.80	-21.81	0.45	-95.23	33.31	-13.00	-34.48	Horizontal



Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Vertical

: NR SA n66 MIMO 20M Ch349000 1RB1 QPSK

	Freq Level		Detector	Ant Factor	Amp\Cb Filter 1		EIRPCF	Reading	Limit	Margin Pol	
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB
1	3472.00	-55.52	RMS	29.60	-25.81	1.18	-95.23	34.74	-13.00	-42.52	Vertical
2	5208.00	-51.22	RMS	33.18	-23.41	0.59	-95.23	33.65	-13.00	-38.22	Vertical
3	6945.00	-47.79	RMS	35.80	-21.81	0.45	-95.23	33.00	-13.00	-34.79	Vertical

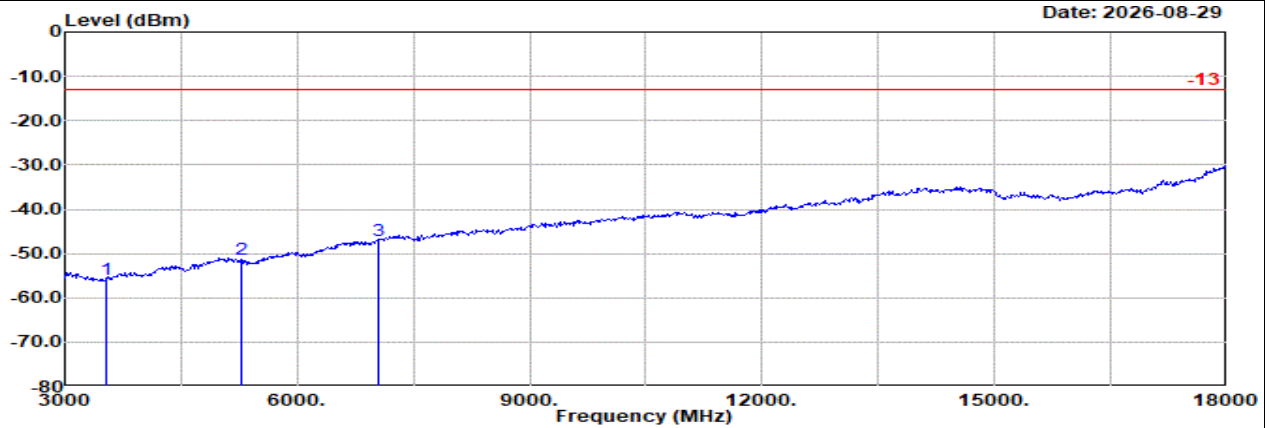


Ant. 1+7

Part 27L Mode 4

NR SA n66 MIMO 20M Ch354000 1RB1 QPSK

H

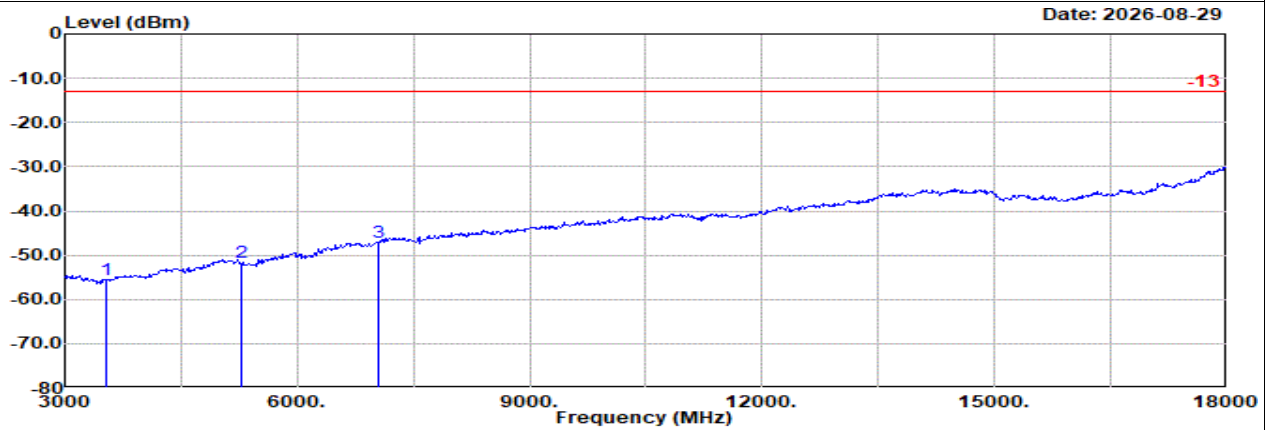


Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Horizontal

: NR SA n66 MIMO 20M Ch354000 1RB1 QPSK

	Freq Level		Detector	Ant Factor	Amp\Cb Filter 1		EIRPCF	Reading	Limit	Margin Pol	
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB
1	3523.00	-55.78	RMS		29.65	-25.72	1.13	-95.23	34.39	-13.00	-42.78 Horizontal
2	5284.00	-51.40	RMS		33.03	-23.33	0.62	-95.23	33.51	-13.00	-38.40 Horizontal
3	7045.00	-46.98	RMS		36.16	-21.73	0.42	-95.23	33.40	-13.00	-33.98 Horizontal



Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Vertical

: NR SA n66 MIMO 20M Ch354000 1RB1 QPSK

	Freq Level		Detector	Ant Factor	Amp\Cb Filter 1		EIRPCF	Reading	Limit	Margin Pol	
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB
1	3523.00	-55.43	RMS		29.65	-25.72	1.13	-95.23	34.74	-13.00	-42.43 Vertical
2	5284.00	-51.63	RMS		33.03	-23.33	0.62	-95.23	33.28	-13.00	-38.63 Vertical
3	7045.00	-47.11	RMS		36.16	-21.73	0.42	-95.23	33.27	-13.00	-34.11 Vertical

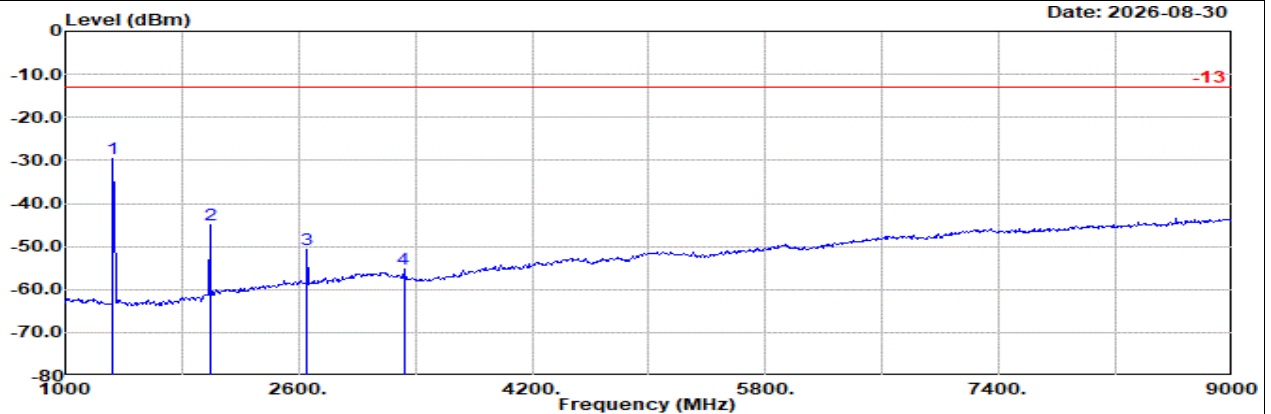


Ant. 1

Part 27N Mode 5

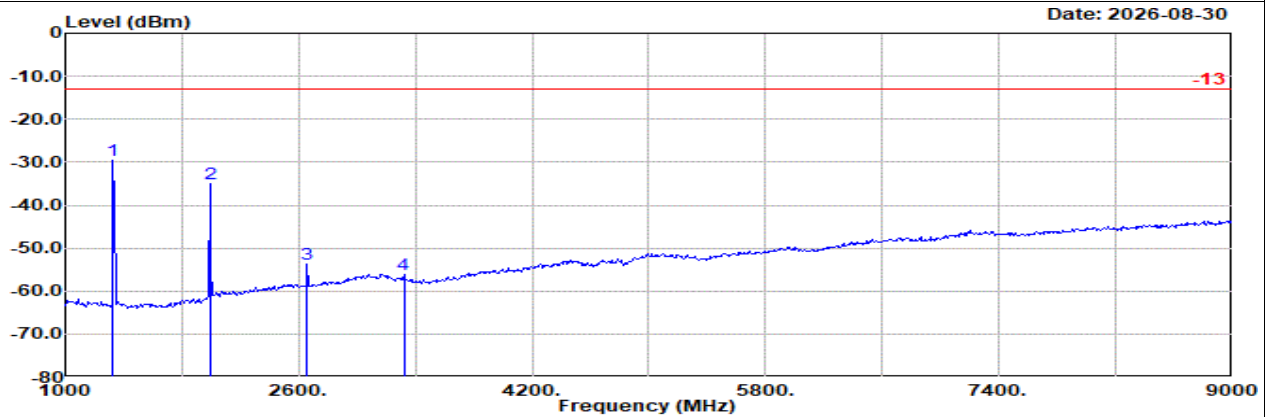
NR SA n71 20M Ch134600 1RB1 BPSK

L



Site : 03CH12-HY
Condition: -13 3m 9120D-01212 Horizontal
NR SA n71 20M Ch134600 1RB1 BPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm			dB	dB	dB	dBuV	dBm	dB	
1	1328.00	-29.54	RMS	25.68	-30.30	0.44	-95.23	69.87	-13.00	-16.54	Horizontal
2	1992.00	-44.99	RMS	26.40	-28.50	0.37	-95.23	51.97	-13.00	-31.99	Horizontal
3	2657.00	-50.82	RMS	28.10	-26.91	0.04	-95.23	43.18	-13.00	-37.82	Horizontal
4	3320.00	-55.12	RMS	29.74	-26.02	0.06	-95.23	36.33	-13.00	-42.12	Horizontal



Site : 03CH12-HY
Condition: -13 3m 9120D-01212 Vertical
NR SA n71 20M Ch134600 1RB1 BPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm			dB	dB	dB	dBuV	dBm	dB	
1	1328.00	-29.52	RMS	25.68	-30.30	0.44	-95.23	69.89	-13.00	-16.52	Vertical
2	1992.00	-34.90	RMS	26.40	-28.50	0.37	-95.23	62.06	-13.00	-21.90	Vertical
3	2657.00	-53.85	RMS	28.10	-26.91	0.04	-95.23	40.15	-13.00	-40.85	Vertical
4	3320.00	-56.20	RMS	29.74	-26.02	0.06	-95.23	35.25	-13.00	-43.20	Vertical

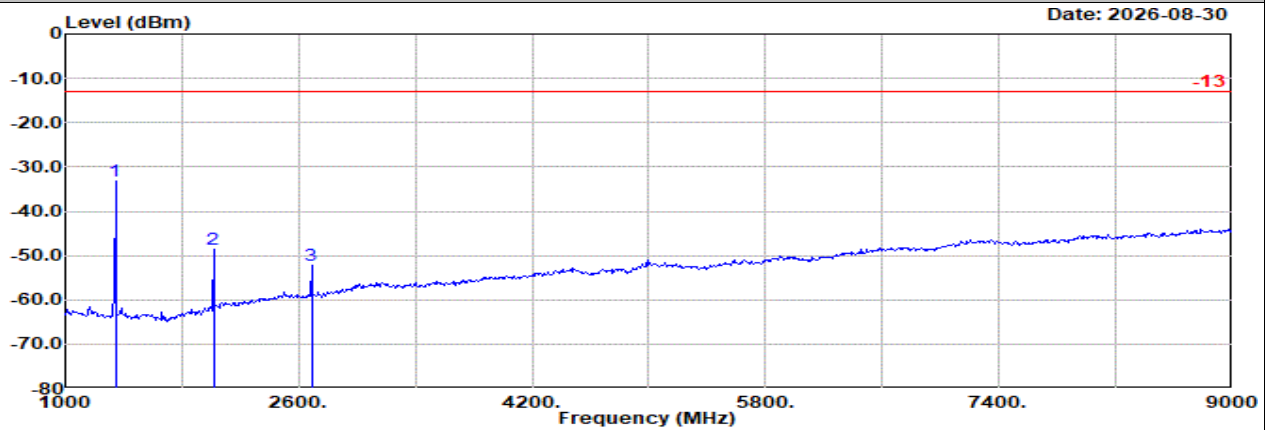


Ant. 1

Part 27N Mode 5

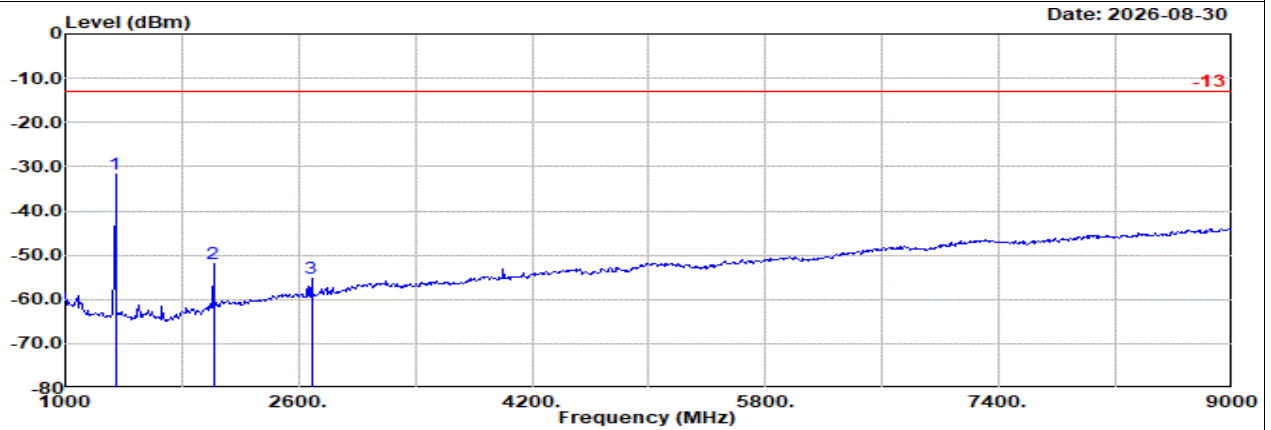
NR SA n71 20M Ch136100 1RB1 BPSK

M



Site : 03CH12-HY
Condition: -13 3m 9120D-01212 Horizontal
NR SA n71 20M Ch136100 1RB1 BPSK

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Reading	Limit	Margin Pol	
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	1343.00	-33.29	RMS	25.73	-30.27	0.41	-95.23	66.07	-13.00	-20.29 Horizontal
2	2015.00	-48.45	RMS	26.55	-28.44	0.37	-95.23	48.30	-13.00	-35.45 Horizontal
3	2687.00	-52.25	RMS	28.10	-26.87	0.04	-95.23	41.71	-13.00	-39.25 Horizontal



Site : 03CH12-HY
Condition: -13 3m 9120D-01212 Vertical
NR SA n71 20M Ch136100 1RB1 BPSK

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Reading	Limit	Margin Pol	
				Factor	1					
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	1343.00	-31.61	RMS	25.73	-30.27	0.41	-95.23	67.75	-13.00	-18.61 Vertical
2	2015.00	-52.03	RMS	26.55	-28.44	0.37	-95.23	44.72	-13.00	-39.03 Vertical
3	2687.00	-55.25	RMS	28.10	-26.87	0.04	-95.23	38.71	-13.00	-42.25 Vertical

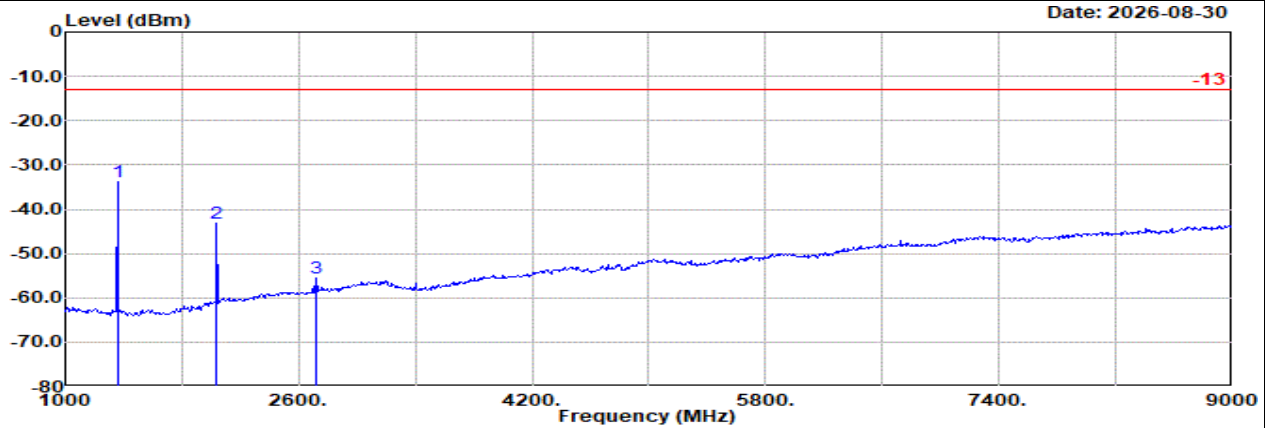


Ant. 1

Part 27N Mode 5

NR SA n71 20M Ch137600 1RB1 BPSK

H

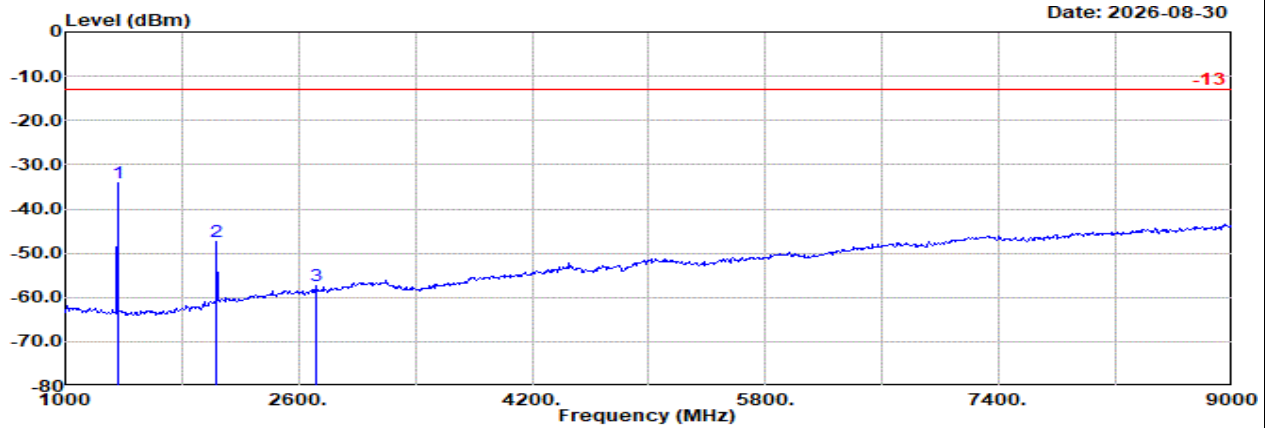


Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Horizontal

NR SA n71 20M Ch137600 1RB1 BPSK

	Freq	Level	Detector	Ant Amp\Cb		Filter	EIRPCF		Reading	Limit	Margin		Pol
				Factor	1		dB	dB					
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB		
1	1359.00	-33.86	RMS	25.71	-30.23	0.38	-95.23	65.51	-13.00	-20.86			Horizontal
2	2038.00	-43.05	RMS	26.88	-28.37	0.37	-95.23	53.30	-13.00	-30.05			Horizontal
3	2717.00	-55.54	RMS	28.27	-26.83	0.04	-95.23	38.21	-13.00	-42.54			Horizontal



Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Vertical

NR SA n71 20M Ch137600 1RB1 BPSK

	Freq	Level	Detector	Ant Amp\Cb		Filter	EIRPCF		Reading	Limit	Margin		Pol
				Factor	1		dB	dB					
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB		
1	1359.00	-34.14	RMS	25.71	-30.23	0.38	-95.23	65.23	-13.00	-21.14			Vertical
2	2038.00	-47.30	RMS	26.88	-28.37	0.37	-95.23	49.05	-13.00	-34.30			Vertical
3	2717.00	-57.29	RMS	28.27	-26.83	0.04	-95.23	36.46	-13.00	-44.29			Vertical

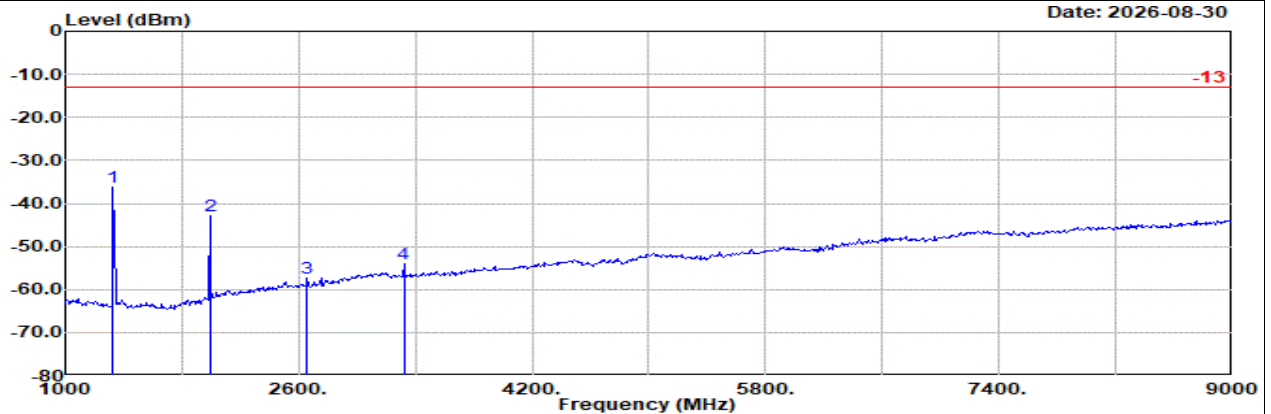


Ant. 1+7

Part 27N Mode 6

NR SA n71 MIMO 20M Ch134600 1RB1 QPSK

L

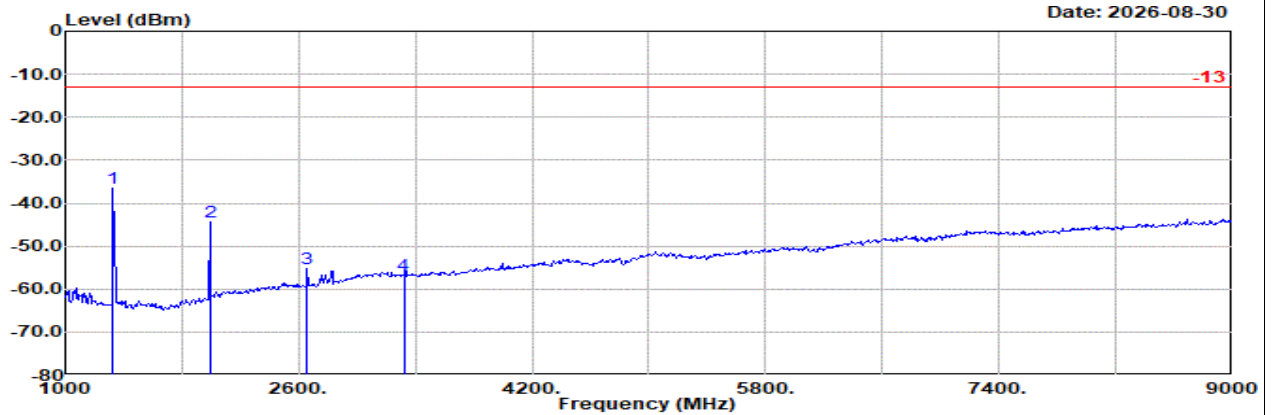


Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Horizontal

NR SA n71 MIMO 20M Ch134600 1RB1 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm			dB	dB	dB	dBuV	dBm	dB	
1	1328.00	-36.22	RMS	25.68	-30.30	0.44	-95.23	63.19	-13.00	-23.22	Horizontal
2	1992.00	-42.74	RMS	26.40	-28.50	0.37	-95.23	54.22	-13.00	-29.74	Horizontal
3	2657.00	-57.42	RMS	28.10	-26.91	0.04	-95.23	36.58	-13.00	-44.42	Horizontal
4	3320.00	-54.07	RMS	29.74	-26.02	0.06	-95.23	37.38	-13.00	-41.07	Horizontal



Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Vertical

NR SA n71 MIMO 20M Ch134600 1RB1 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm			dB	dB	dB	dBuV	dBm	dB	
1	1328.00	-36.61	RMS	25.68	-30.30	0.44	-95.23	62.80	-13.00	-23.61	Vertical
2	1992.00	-44.41	RMS	26.40	-28.50	0.37	-95.23	52.55	-13.00	-31.41	Vertical
3	2657.00	-55.36	RMS	28.10	-26.91	0.04	-95.23	38.64	-13.00	-42.36	Vertical
4	3320.00	-56.84	RMS	29.74	-26.02	0.06	-95.23	34.61	-13.00	-43.84	Vertical

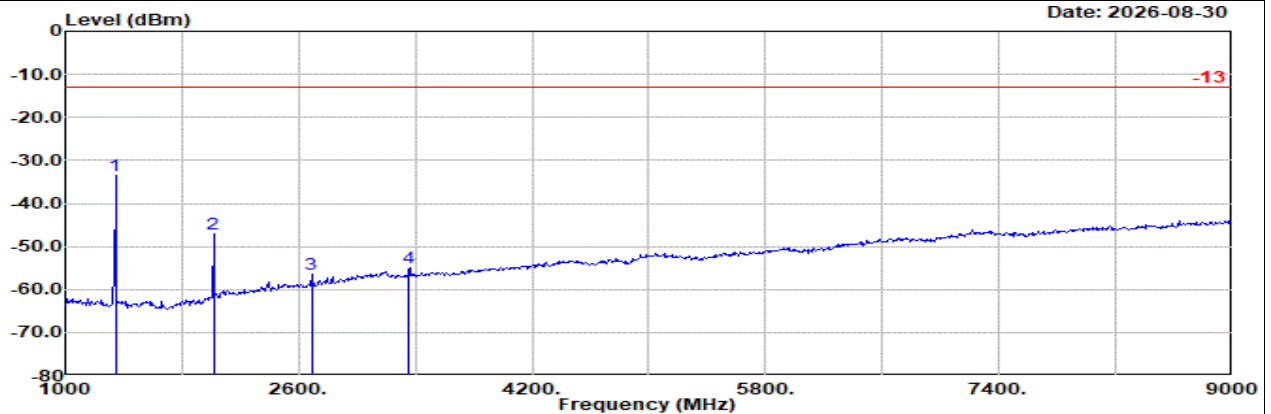


Ant. 1+7

Part 27N Mode 6

NR SA n71 MIMO 20M Ch136100 1RB1 QPSK

M

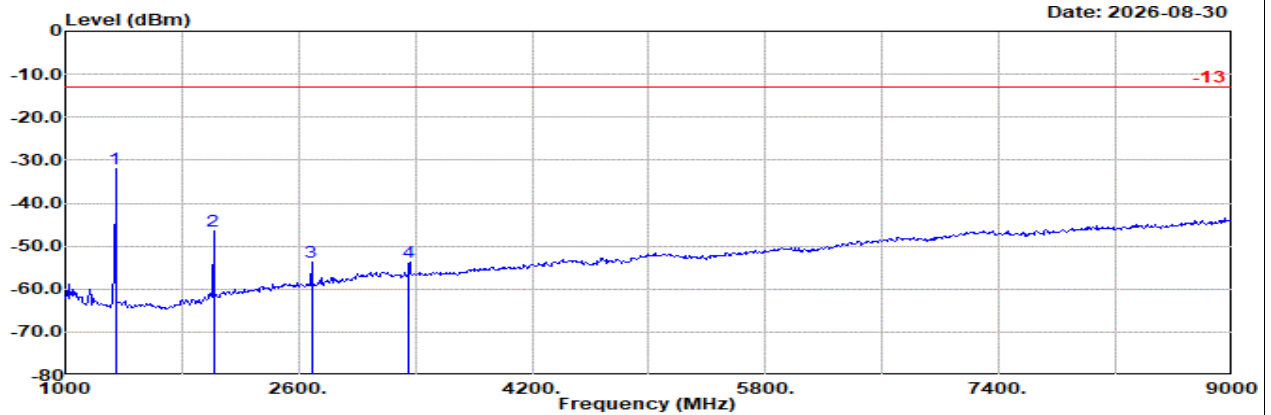


Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Horizontal

NR SA n71 MIMO 20M Ch136100 1RB1 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm			dB	dB	dB	dBuV	dBm	dB	
1	1343.00	-33.50	RMS	25.73	-30.27	0.41	-95.23	65.86	-13.00	-20.50	Horizontal
2	2015.00	-47.18	RMS	26.55	-28.44	0.37	-95.23	49.57	-13.00	-34.18	Horizontal
3	2687.00	-56.55	RMS	28.10	-26.87	0.04	-95.23	37.41	-13.00	-43.55	Horizontal
4	3358.00	-54.81	RMS	29.78	-25.97	0.07	-95.23	36.54	-13.00	-41.81	Horizontal



Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Vertical

NR SA n71 MIMO 20M Ch136100 1RB1 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm			dB	dB	dB	dBuV	dBm	dB	
1	1343.00	-32.03	RMS	25.73	-30.27	0.41	-95.23	67.33	-13.00	-19.03	Vertical
2	2015.00	-46.57	RMS	26.55	-28.44	0.37	-95.23	50.18	-13.00	-33.57	Vertical
3	2687.00	-53.72	RMS	28.10	-26.87	0.04	-95.23	40.24	-13.00	-40.72	Vertical
4	3358.00	-53.85	RMS	29.78	-25.97	0.07	-95.23	37.50	-13.00	-40.85	Vertical

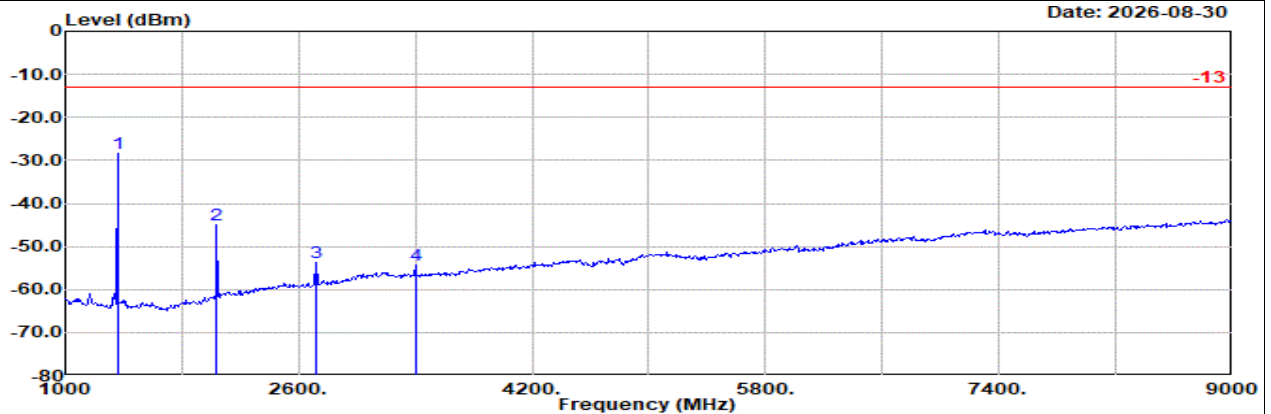


Ant. 1+7

Part 27N Mode 6

NR SA n71 MIMO 20M Ch137600 1RB1 QPSK

H

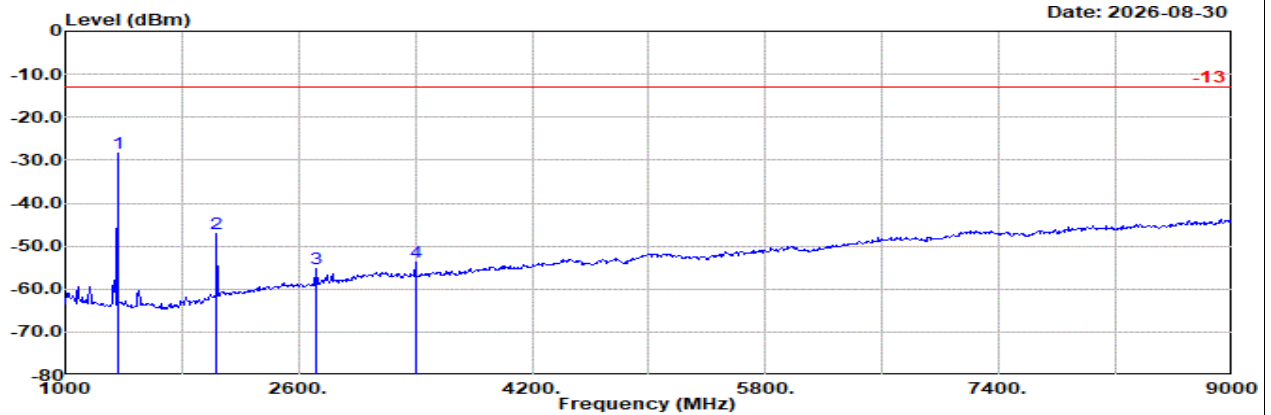


Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Horizontal

NR SA n71 MIMO 20M Ch137600 1RB1 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm			dB	dB	dB	dBuV	dBm	dB	
1	1359.00	-28.49	RMS	25.71	-30.23	0.38	-95.23	70.88	-13.00	-15.49	Horizontal
2	2038.00	-44.91	RMS	26.88	-28.37	0.37	-95.23	51.44	-13.00	-31.91	Horizontal
3	2717.00	-53.66	RMS	28.27	-26.83	0.04	-95.23	40.09	-13.00	-40.66	Horizontal
4	3398.00	-54.27	RMS	29.70	-25.92	0.08	-95.23	37.10	-13.00	-41.27	Horizontal



Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Vertical

NR SA n71 MIMO 20M Ch137600 1RB1 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm			dB	dB	dB	dBuV	dBm	dB	
1	1359.00	-28.31	RMS	25.71	-30.23	0.38	-95.23	71.06	-13.00	-15.31	Vertical
2	2038.00	-47.05	RMS	26.88	-28.37	0.37	-95.23	49.30	-13.00	-34.05	Vertical
3	2717.00	-55.31	RMS	28.27	-26.83	0.04	-95.23	38.44	-13.00	-42.31	Vertical
4	3398.00	-53.79	RMS	29.70	-25.92	0.08	-95.23	37.58	-13.00	-40.79	Vertical

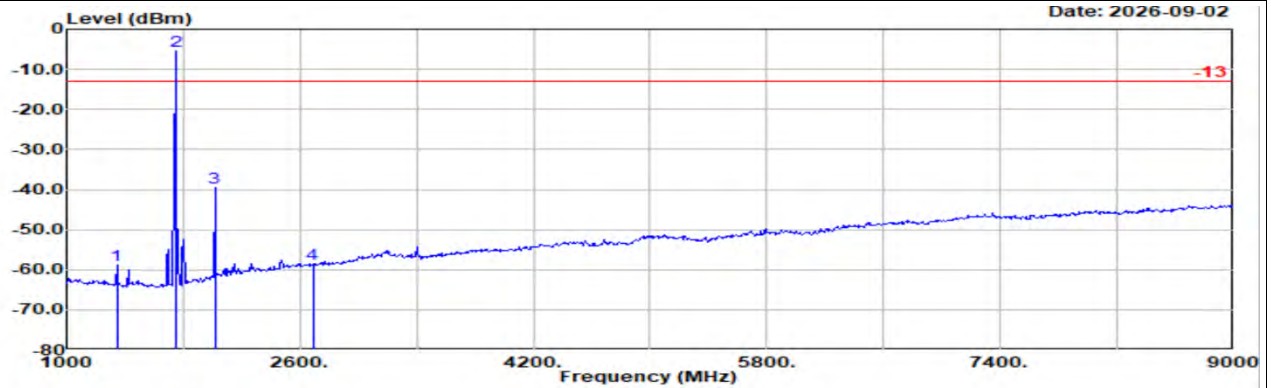


Ant. 1+7

Part 27N Mode 7

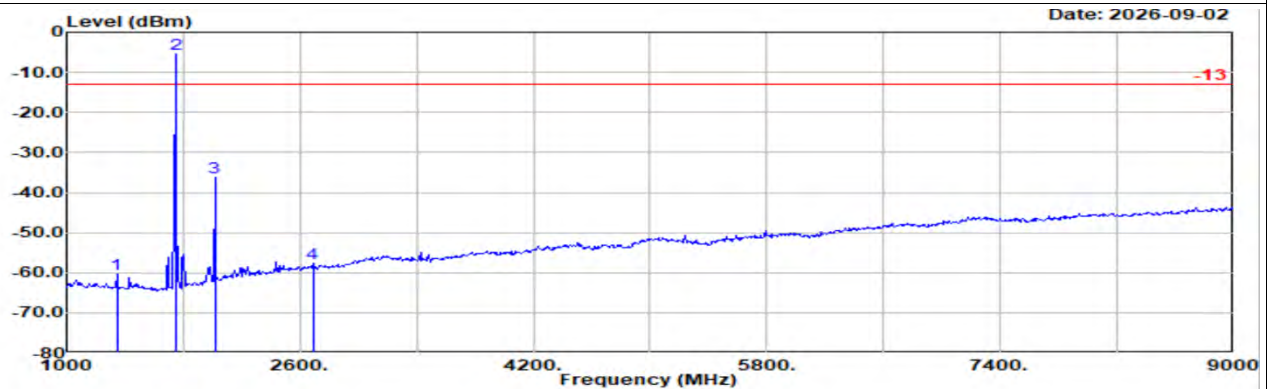
EN-DC B66+n71 10M + 20M Ch132322 1RB0 QPSK + Ch136100 1RB1 BPSK

M



Site : 03CH12-HY
Condition: -13 3m 9120D-01212 Horizontal
: LTE Band 66 10M CH132322 1RB0 QPSK
: NR SA n71 20M Ch136100 1RB1 BPSK
: #2 is fundamental signal which can be ignored.

	Freq	Level	Detector	Ant	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm		Factor	1			g		dB	
1	1343.00	-58.78	RMS	25.73	-30.27	0.41	-95.23	40.58	-13.00	-45.78	Horizontal
2	1744.00	-5.42	RMS	25.04	-29.12	0.38	-95.23	93.51	-----	-----	Horizontal
3	2015.00	-39.56	RMS	26.55	-28.44	0.37	-95.23	57.19	-13.00	-26.56	Horizontal
4	2687.00	-58.63	RMS	28.10	-26.87	0.04	-95.23	35.33	-13.00	-45.63	Horizontal



Site : 03CH12-HY
Condition: -13 3m 9120D-01212 Vertical
: LTE Band 66 10M CH132322 1RB0 QPSK
: NR SA n71 20M Ch136100 1RB1 BPSK
: #2 is fundamental signal which can be ignored.

	Freq	Level	Detector	Ant	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm		Factor	1			g		dB	
1	1343.00	-60.44	RMS	25.73	-30.27	0.41	-95.23	38.92	-13.00	-47.44	Vertical
2	1744.00	-5.53	RMS	25.04	-29.12	0.38	-95.23	93.40	-----	-----	Vertical
3	2015.00	-36.20	RMS	26.55	-28.44	0.37	-95.23	60.55	-13.00	-23.20	Vertical
4	2687.00	-57.70	RMS	28.10	-26.87	0.04	-95.23	36.26	-13.00	-44.70	Vertical

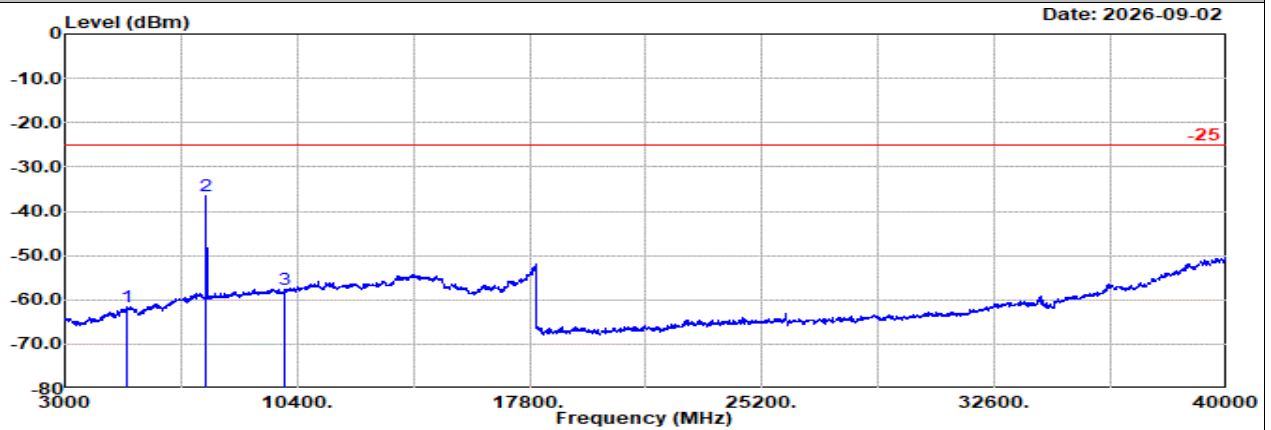


Ant. 7

Part 27M Mode 8

NR SA n41 PC2 20M Ch501204 1RB1 BPSK

L

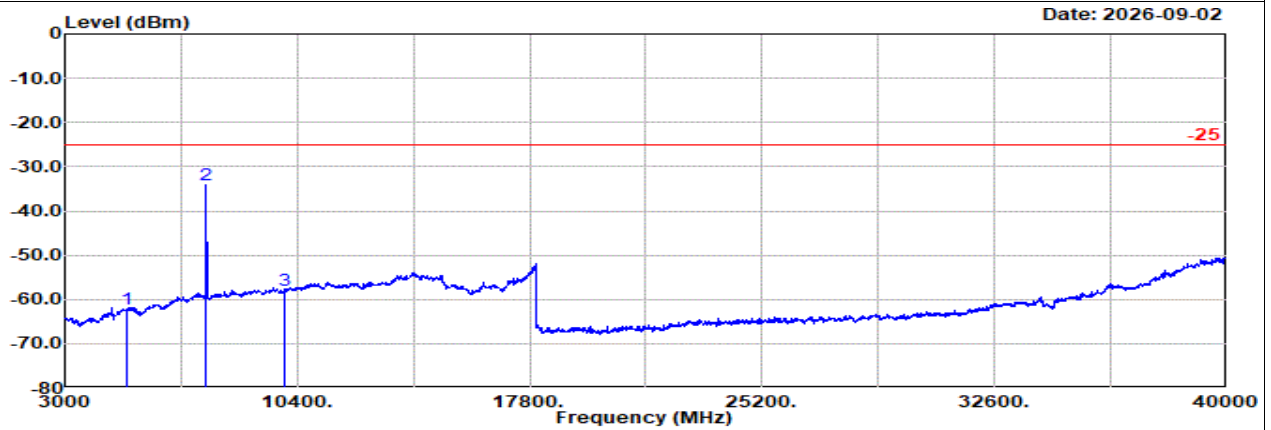


Site : 03CH12-HY

Condition: -25 1m BBHA9170_1223_260812 Horizontal

: SA NR n41 20M Ch501204 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB	
1	4994.00	-61.46	RMS	33.08	-44.86	0.58	-95.23	44.97	-25.00	-36.46	Horizontal	
2	7491.00	-36.54	RMS	36.30	-42.95	0.43	-95.23	64.91	-25.00	-11.54	Horizontal	
3	9989.00	-57.66	RMS	38.33	-40.61	0.30	-95.23	39.55	-25.00	-32.66	Horizontal	



Site : 03CH12-HY

Condition: -25 1m BBHA9170_1223_260812 Vertical

: SA NR n41 20M Ch501204 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB	
1	4994.00	-62.19	RMS	33.08	-44.86	0.58	-95.23	44.24	-25.00	-37.19	Vertical	
2	7491.00	-34.11	RMS	36.30	-42.95	0.43	-95.23	67.34	-25.00	-9.11	Vertical	
3	9989.00	-58.03	RMS	38.33	-40.61	0.30	-95.23	39.18	-25.00	-33.03	Vertical	

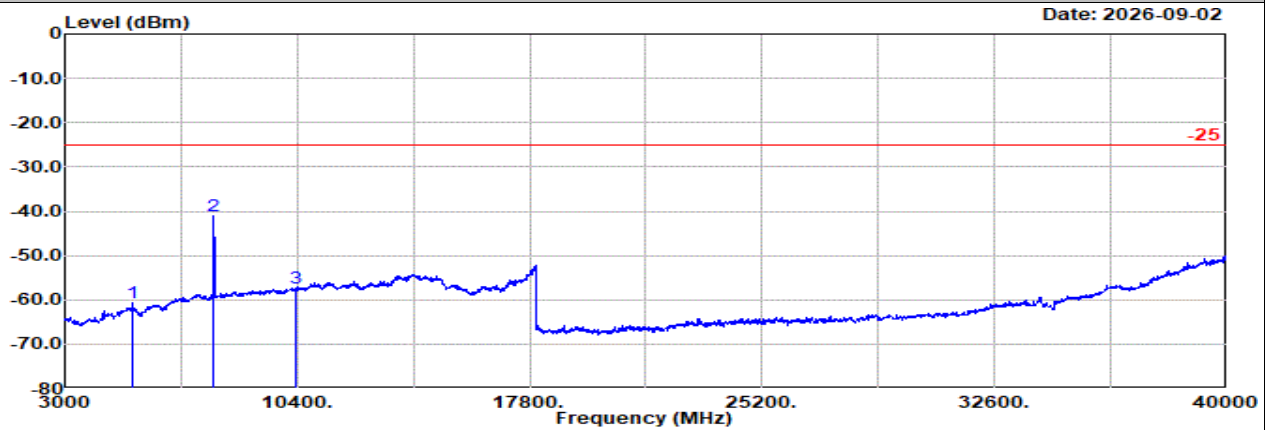


Ant. 7

Part 27M Mode 8

NR SA n41 PC2 20M Ch518598 1RB1 BPSK

M

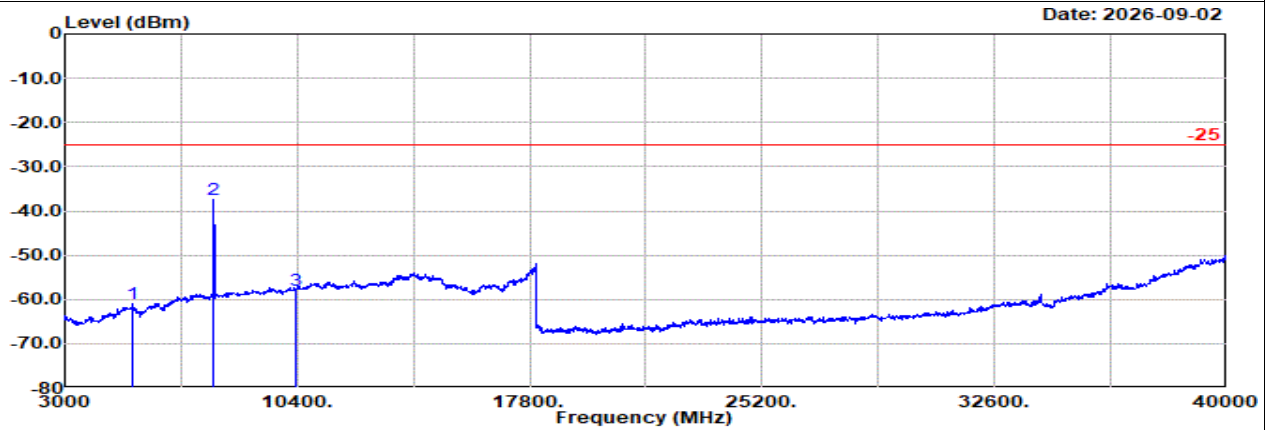


Site : 03CH12-HY

Condition: -25 1m BBHA9170_1223_260812 Horizontal

: SA NR n41 20M Ch518598 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb Filter 1		EIRPCF	Readin g	Limit		Margin	Pol
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB	
1	5168.00	-60.82	RMS	33.20	-44.68	0.59	-95.23	45.30	-25.00	-35.82	Horizontal	
2	7752.00	-41.16	RMS	36.51	-42.69	0.50	-95.23	59.75	-25.00	-16.16	Horizontal	
3	10337.00	-57.43	RMS	38.50	-40.10	0.35	-95.23	39.05	-25.00	-32.43	Horizontal	



Site : 03CH12-HY

Condition: -25 1m BBHA9170_1223_260812 Vertical

: SA NR n41 20M Ch518598 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb Filter 1		EIRPCF	Readin g	Limit		Margin	Pol
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB	
1	5168.00	-61.09	RMS	33.20	-44.68	0.59	-95.23	45.03	-25.00	-36.09	Vertical	
2	7752.00	-37.31	RMS	36.51	-42.69	0.50	-95.23	63.60	-25.00	-12.31	Vertical	
3	10337.00	-57.84	RMS	38.50	-40.10	0.35	-95.23	38.64	-25.00	-32.84	Vertical	

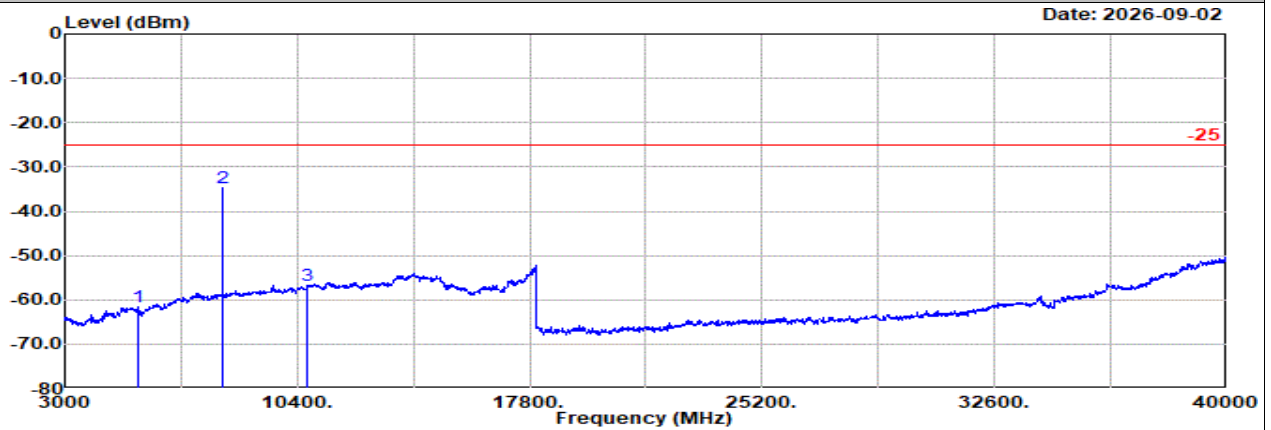


Ant. 7

Part 27M Mode 8

NR SA n41 PC2 20M Ch535998 1RB1 BPSK

H

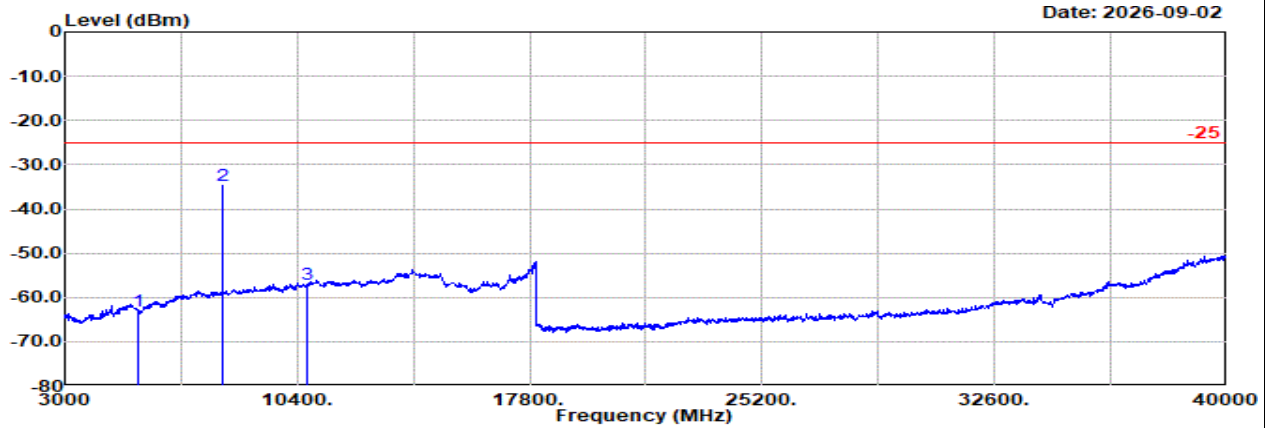


Site : 03CH12-HY

Condition: -25 1m BBHA9170_1223_260812 Horizontal

: SA NR n41 20M Ch535998 1RB1 BPSK

	Freq	Level	Detector	Ant		Filter	EIRPCF		Readin	Limit	Margin		Pol
				Factor	Amp\Cb		1						
	MHz	dBm											
1	5343.00	-61.49	RMS	32.91	-44.52	0.63	-95.23	44.72	-25.00	-36.49	Horizontal		
2	8014.00	-34.79	RMS	36.93	-42.49	0.45	-95.23	65.55	-25.00	-9.79	Horizontal		
3	10685.00	-56.82	RMS	38.97	-39.41	0.40	-95.23	38.45	-25.00	-31.82	Horizontal		



Site : 03CH12-HY

Condition: -25 1m BBHA9170_1223_260812 Vertical

: SA NR n41 20M Ch535998 1RB1 BPSK

	Freq	Level	Detector	Ant		Filter	EIRPCF		Readin	Limit	Margin		Pol
				Factor	Amp\Cb		1						
	MHz	dBm											
1	5343.00	-63.15	RMS	32.91	-44.52	0.63	-95.23	43.06	-25.00	-38.15	Vertical		
2	8014.00	-34.83	RMS	36.93	-42.49	0.45	-95.23	65.51	-25.00	-9.83	Vertical		
3	10685.00	-57.01	RMS	38.97	-39.41	0.40	-95.23	38.26	-25.00	-32.01	Vertical		

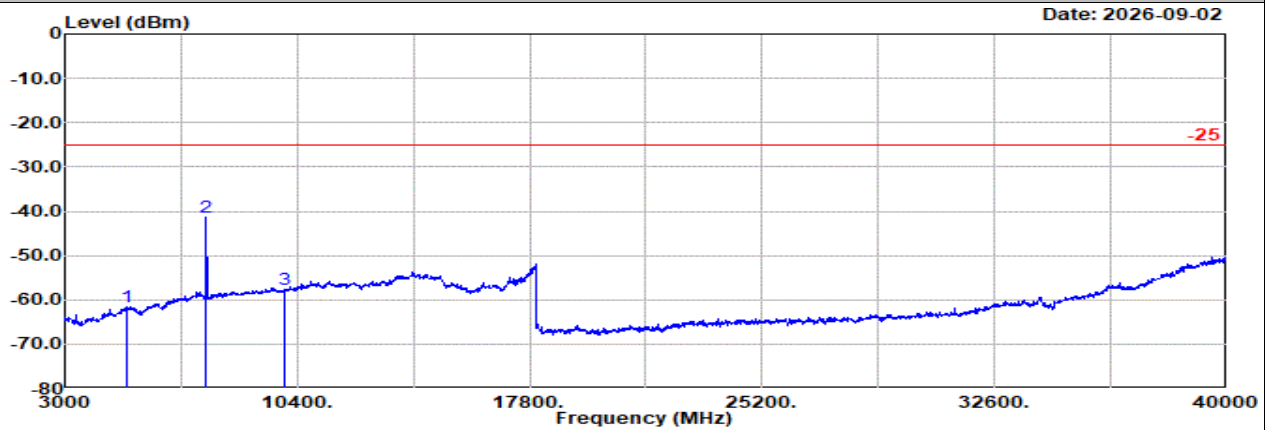


Ant. 7+1

Part 27M Mode 9

NR SA n41 MIMO PC1.5 20M Ch501204 1RB1 BPSK

L

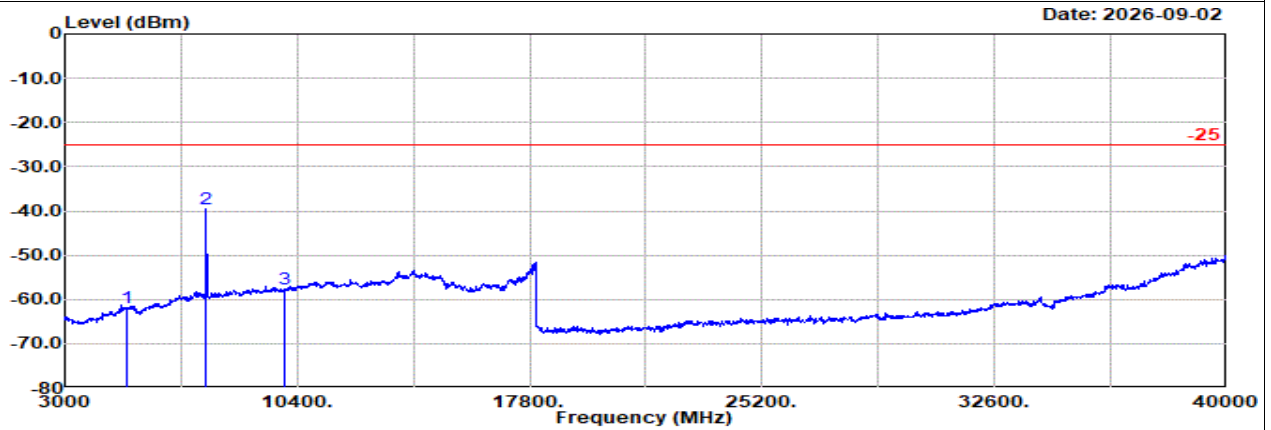


Site : 03CH12-HY

Condition: -25 1m BBHA9170_1223_260812 Horizontal

: SA NR n41 MIMO 20M Ch501204 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb Filter 1		EIRPCF	Reading	Limit	Margin Pol	
	MHz	dBm			dB/m	dB					
1	4994.00	-61.65	RMS	33.08	-44.86	0.58	-95.23	44.78	-25.00	-36.65	Horizontal
2	7491.00	-41.36	RMS	36.30	-42.95	0.43	-95.23	60.09	-25.00	-16.36	Horizontal
3	9989.00	-57.76	RMS	38.33	-40.61	0.30	-95.23	39.45	-25.00	-32.76	Horizontal



Site : 03CH12-HY

Condition: -25 1m BBHA9170_1223_260812 Vertical

: SA NR n41 MIMO 20M Ch501204 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb Filter 1		EIRPCF	Reading	Limit	Margin Pol	
	MHz	dBm			dB/m	dB					
1	4994.00	-61.90	RMS	33.08	-44.86	0.58	-95.23	44.53	-25.00	-36.90	Vertical
2	7491.00	-39.47	RMS	36.30	-42.95	0.43	-95.23	61.98	-25.00	-14.47	Vertical
3	9989.00	-57.66	RMS	38.33	-40.61	0.30	-95.23	39.55	-25.00	-32.66	Vertical

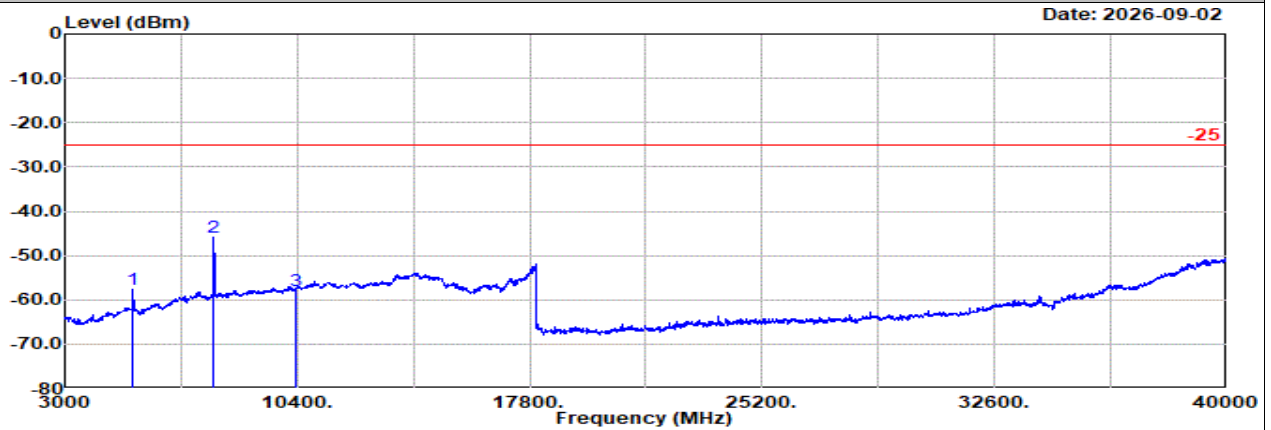


Ant. 7+1

Part 27M Mode 9

NR SA n41 MIMO PC1.5 20M Ch518598 1RB1 BPSK

M

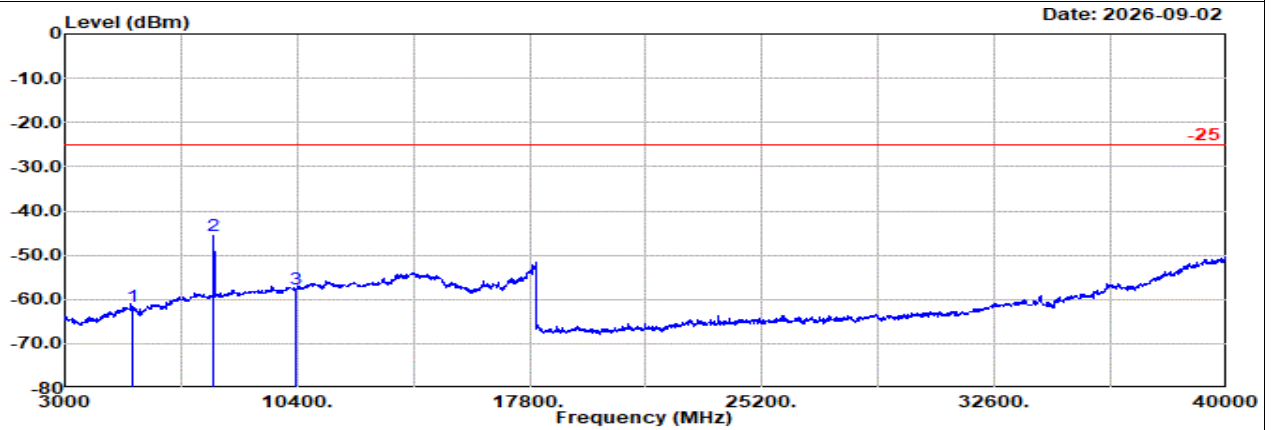


Site : 03CH12-HY

Condition: -25 1m BBHA9170_1223_260812 Horizontal

: SA NR n41 MIMO 20M Ch518598 1RB1 BPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Reading	Limit	Margin	Pol
					dB/m	dB			dBuV	dBm	dB	
1	5168.00	-57.65	RMS	33.20	-44.68	0.59	-95.23	48.47	-25.00	-32.65	Horizontal	
2	7752.00	-45.82	RMS	36.51	-42.69	0.50	-95.23	55.09	-25.00	-20.82	Horizontal	
3	10337.00	-57.91	RMS	38.50	-40.10	0.35	-95.23	38.57	-25.00	-32.91	Horizontal	



Site : 03CH12-HY

Condition: -25 1m BBHA9170_1223_260812 Vertical

: SA NR n41 MIMO 20M Ch518598 1RB1 BPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Reading	Limit	Margin	Pol
					dB/m	dB			dBuV	dBm	dB	
1	5168.00	-61.68	RMS	33.20	-44.68	0.59	-95.23	44.44	-25.00	-36.68	Vertical	
2	7752.00	-45.72	RMS	36.51	-42.69	0.50	-95.23	55.19	-25.00	-20.72	Vertical	
3	10337.00	-57.52	RMS	38.50	-40.10	0.35	-95.23	38.96	-25.00	-32.52	Vertical	

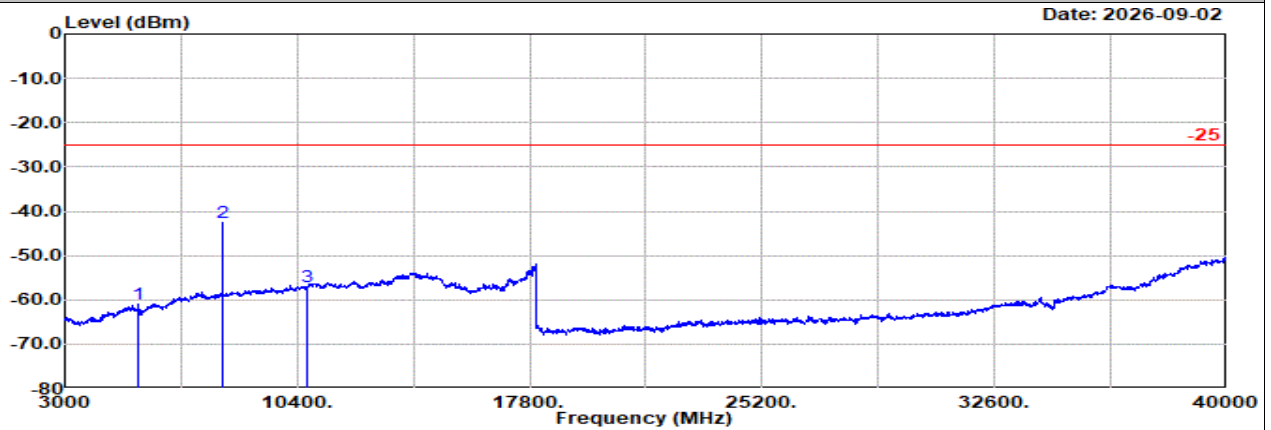


Ant. 7+1

Part 27M Mode 9

NR SA n41 MIMO PC1.5 20M Ch535998 1RB1 BPSK

H

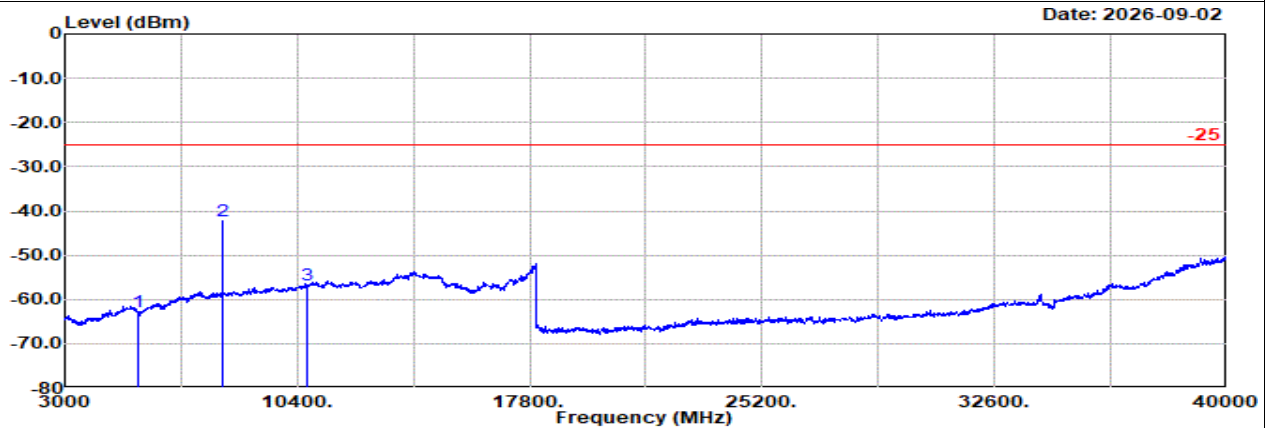


Site : 03CH12-HY

Condition: -25 1m BBHA9170_1223_260812 Horizontal

: SA NR n41 MIMO 20M Ch535998 1RB1 BPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb		Filter	EIRPCF		Reading	Limit	Margin		Pol
					dB/m	dB		dB	dB					
1	5343.00	-61.02	RMS	32.91	-44.52	0.63	-95.23	45.19	-25.00	-36.02	Horizontal			
2	8014.00	-42.42	RMS	36.93	-42.49	0.45	-95.23	57.92	-25.00	-17.42	Horizontal			
3	10685.00	-56.98	RMS	38.97	-39.41	0.40	-95.23	38.29	-25.00	-31.98	Horizontal			



Site : 03CH12-HY

Condition: -25 1m BBHA9170_1223_260812 Vertical

: SA NR n41 MIMO 20M Ch535998 1RB1 BPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb		Filter	EIRPCF		Reading	Limit	Margin		Pol
					dB/m	dB		dB	dB					
1	5343.00	-62.90	RMS	32.91	-44.52	0.63	-95.23	43.31	-25.00	-37.90	Vertical			
2	8014.00	-42.30	RMS	36.93	-42.49	0.45	-95.23	58.04	-25.00	-17.30	Vertical			
3	10685.00	-56.89	RMS	38.97	-39.41	0.40	-95.23	38.38	-25.00	-31.89	Vertical			

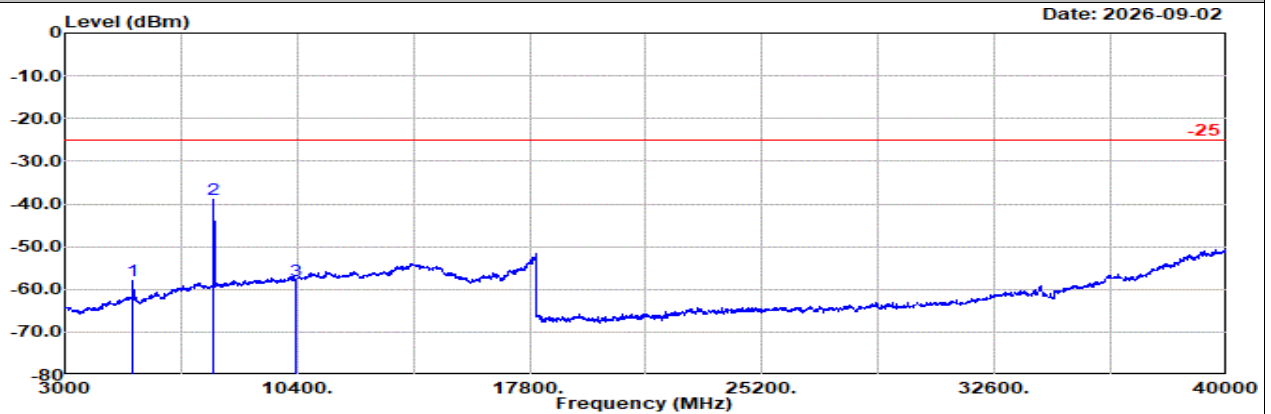


Ant. 1+7

Part 27M Mode 10

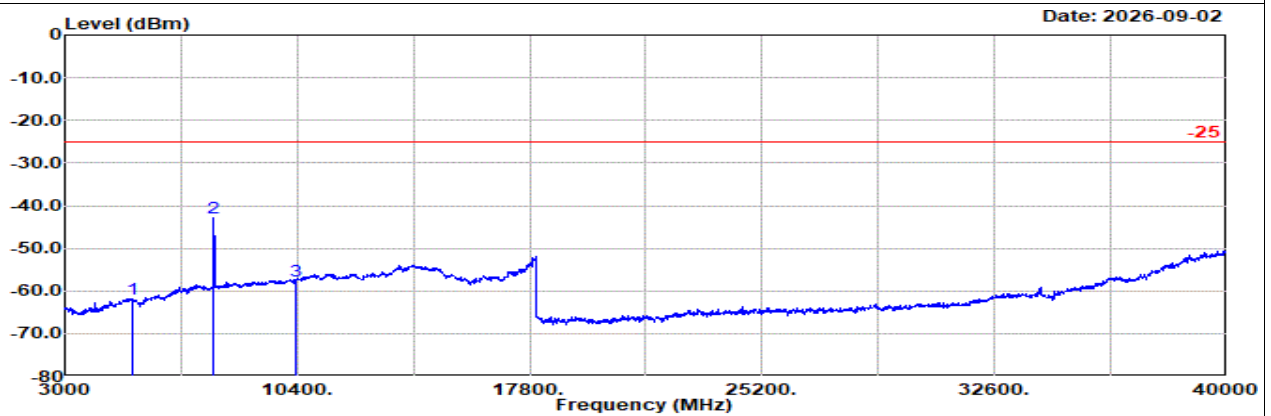
EN-DC B66+n41 10M + 20M Ch132322 1RB0 QPSK + Ch518598 1RB1 BPSK

M



Site : 03CH12-HY
Condition: -25 1m BBHA9170_1223_260812 Horizontal
: LTE Band B66 10M Ch132322 1RB0 QPSK
: NR SA n41 20M Ch518598 1RB1 BPSK

	Freq	Level	Detector	Ant Amp\Cb		Filter	EIRPCF		Readin	Limit	Margin	Pol
				Factor	1				g			
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB	
1	5168.00	-57.94	RMS	33.20	-44.68	0.59	-95.23	48.18	-25.00	-32.94	Horizontal	
2	7752.00	-39.06	RMS	36.51	-42.69	0.50	-95.23	61.85	-25.00	-14.06	Horizontal	
3	10337.00	-57.93	RMS	38.50	-40.10	0.35	-95.23	38.55	-25.00	-32.93	Horizontal	



Site : 03CH12-HY
Condition: -25 1m BBHA9170_1223_260812 Vertical
: LTE Band B66 10M Ch132322 1RB0 QPSK
: NR SA n41 20M Ch518598 1RB1 BPSK

	Freq	Level	Detector	Ant Amp\Cb		Filter	EIRPCF		Readin	Limit	Margin	Pol
				Factor	1				g			
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB	
1	5168.00	-61.81	RMS	33.20	-44.68	0.59	-95.23	44.31	-25.00	-36.81	Vertical	
2	7752.00	-42.95	RMS	36.51	-42.69	0.50	-95.23	57.96	-25.00	-17.95	Vertical	
3	10337.00	-57.73	RMS	38.50	-40.10	0.35	-95.23	38.75	-25.00	-32.73	Vertical	

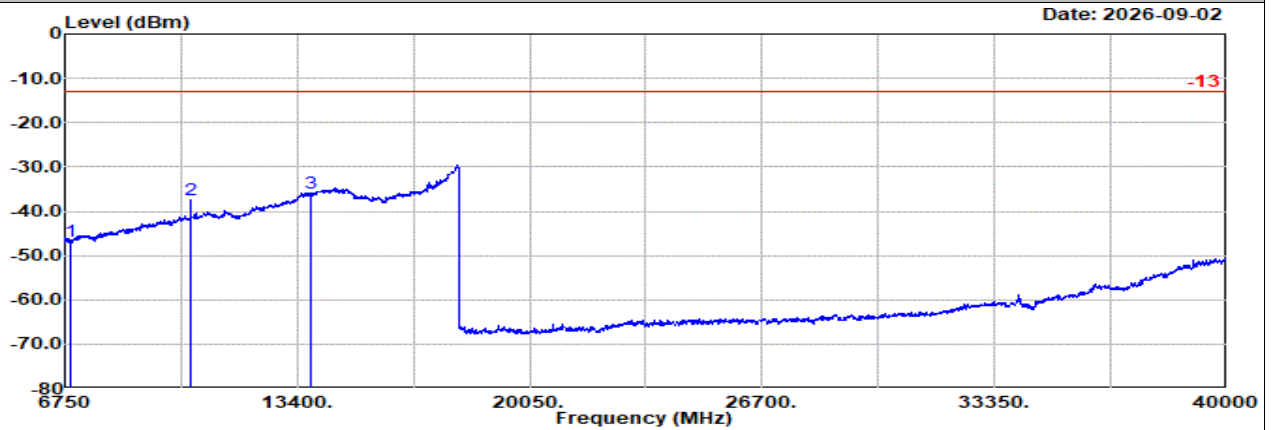


Ant. 1

Part 27Q Mode 11

NR SA n77 PC2 20M Ch630668 1RB1 BPSK

L

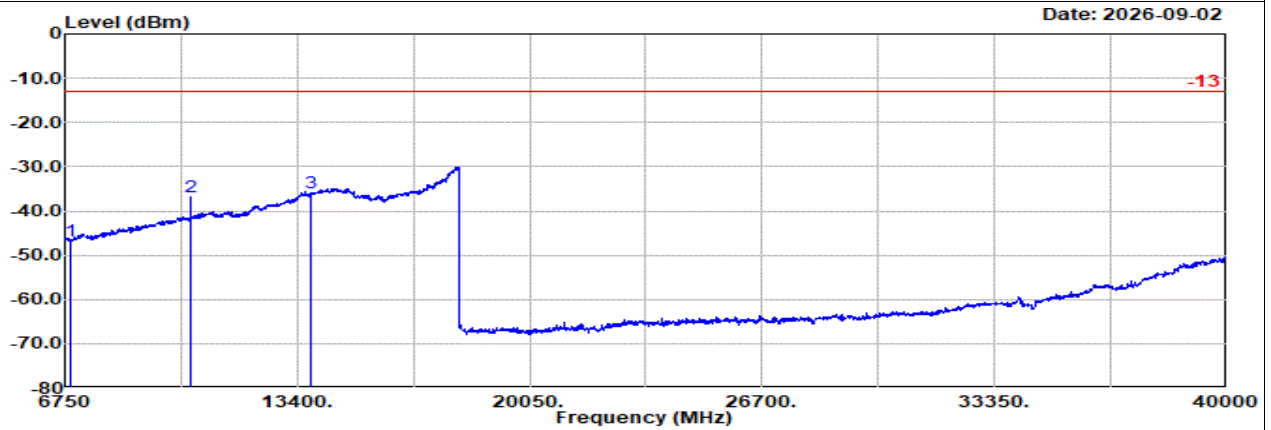


Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Horizontal

: NR Band 77 20M Ch630668 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb		Filter 1	EIRPCF	Readin g	Limit		Margin	Pol
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB		
1	6903.00	-46.72	RMS	35.80	-21.85	1.34	-95.23	33.22	-13.00	-33.72	Horizontal		
2	10354.00	-37.49	RMS	38.51	-19.56	0.59	-95.23	38.20	-13.00	-24.49	Horizontal		
3	13805.00	-36.00	RMS	40.29	-15.20	0.46	-95.23	33.68	-13.00	-23.00	Horizontal		



Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Vertical

: NR Band 77 20M Ch630668 1RB1 BPSK

	Freq Level		Detector	Ant Factor	Amp\Cb		Filter 1	EIRPCF	Readin g	Limit		Margin	Pol
	MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB		
1	6903.00	-46.76	RMS	35.80	-21.85	1.34	-95.23	33.18	-13.00	-33.76	Vertical		
2	10354.00	-36.90	RMS	38.51	-19.56	0.59	-95.23	38.79	-13.00	-23.90	Vertical		
3	13805.00	-35.96	RMS	40.29	-15.20	0.46	-95.23	33.72	-13.00	-22.96	Vertical		

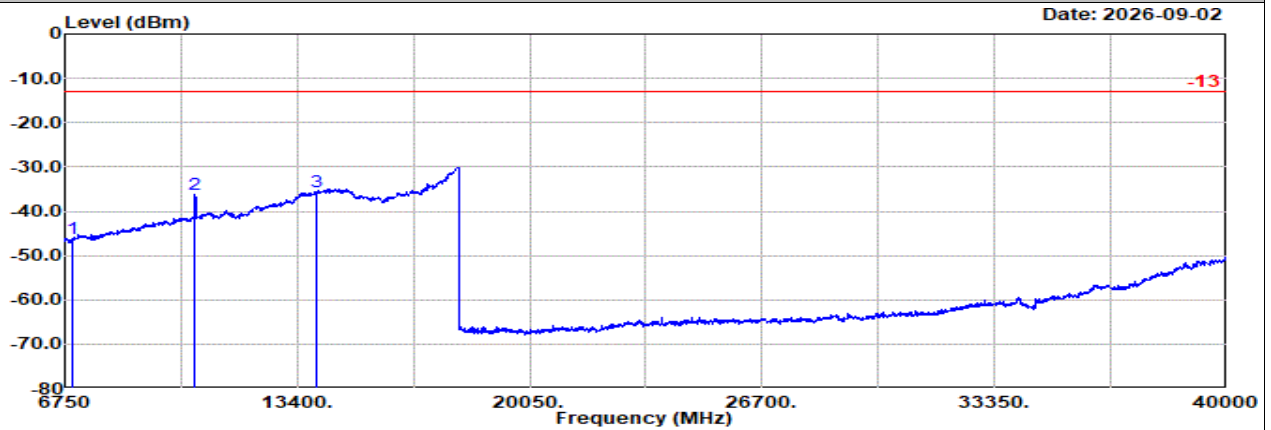


Ant. 1

Part 27Q Mode 11

NR SA n77 PC2 20M Ch633334 1RB1 BPSK

M

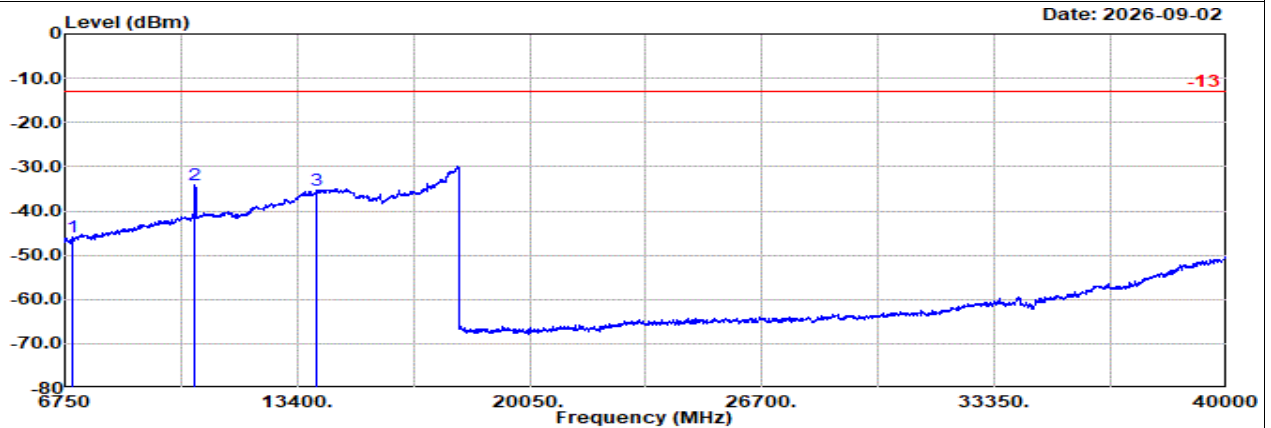


Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Horizontal

: NR Band 77 20M Ch633334 1RB1 BPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Readin	Limit	Margin	Pol
					dB/m	dB						
	MHz	dBm					dB	dB	dBuV	dBm	dB	
1	6983.00	-46.28	RMS	35.80	-21.77	1.27	-95.23	33.65	-13.00	-33.28	Horizontal	
2	10474.00	-36.09	RMS	38.60	-19.41	0.59	-95.23	39.36	-13.00	-23.09	Horizontal	
3	13965.00	-35.52	RMS	40.53	-15.34	0.45	-95.23	34.07	-13.00	-22.52	Horizontal	



Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Vertical

: NR Band 77 20M Ch633334 1RB1 BPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Readin	Limit	Margin	Pol
					dB/m	dB						
	MHz	dBm					dB	dB	dBuV	dBm	dB	
1	6983.00	-45.79	RMS	35.80	-21.77	1.27	-95.23	34.14	-13.00	-32.79	Vertical	
2	10474.00	-34.03	RMS	38.60	-19.41	0.59	-95.23	41.42	-13.00	-21.03	Vertical	
3	13965.00	-35.37	RMS	40.53	-15.34	0.45	-95.23	34.22	-13.00	-22.37	Vertical	

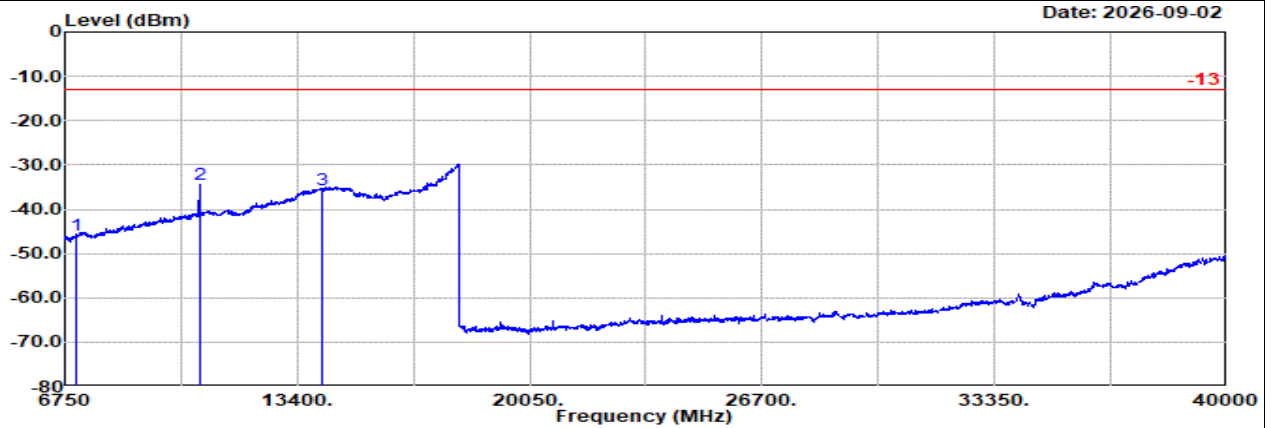


Ant. 1

Part 27Q Mode 11

NR SA n77 PC2 20M Ch636000 1RB1 BPSK

H

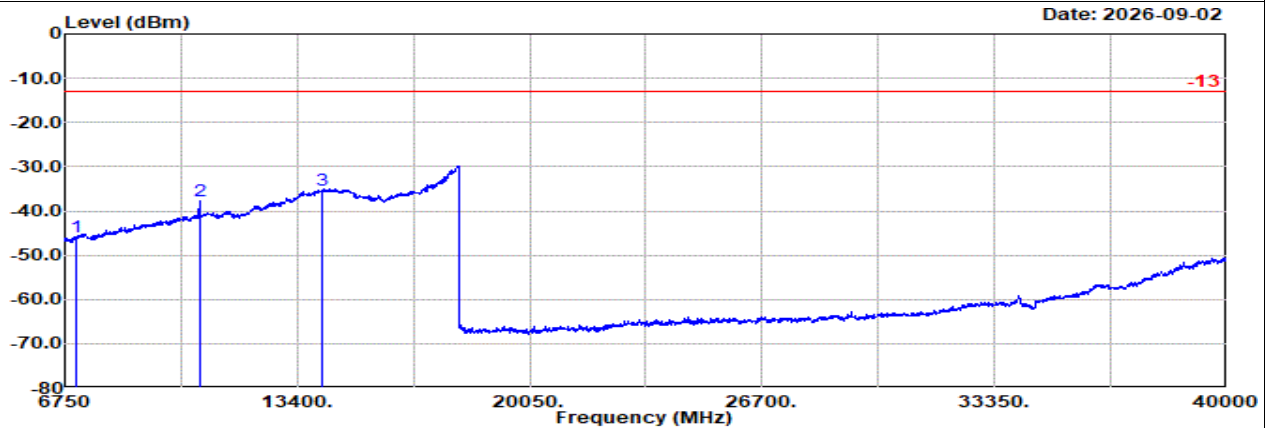


Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Horizontal

: NR Band 77 20M Ch636000 1RB1 BPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Readin	Limit	Margin		Pol
					dB/m	dB							
1	7063.00	-45.79	RMS		36.25	-21.73	1.16	-95.23	33.76	-13.00	-32.79		Horizontal
2	10594.00	-34.44	RMS		38.79	-19.24	0.59	-95.23	40.65	-13.00	-21.44		Horizontal
3	14125.00	-35.50	RMS		40.70	-15.35	0.44	-95.23	33.94	-13.00	-22.50		Horizontal



Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Vertical

: NR Band 77 20M Ch636000 1RB1 BPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Readin	Limit	Margin		Pol
					dB/m	dB							
1	7063.00	-45.93	RMS		36.25	-21.73	1.16	-95.23	33.62	-13.00	-32.93		Vertical
2	10594.00	-37.80	RMS		38.79	-19.24	0.59	-95.23	37.29	-13.00	-24.80		Vertical
3	14125.00	-35.47	RMS		40.70	-15.35	0.44	-95.23	33.97	-13.00	-22.47		Vertical

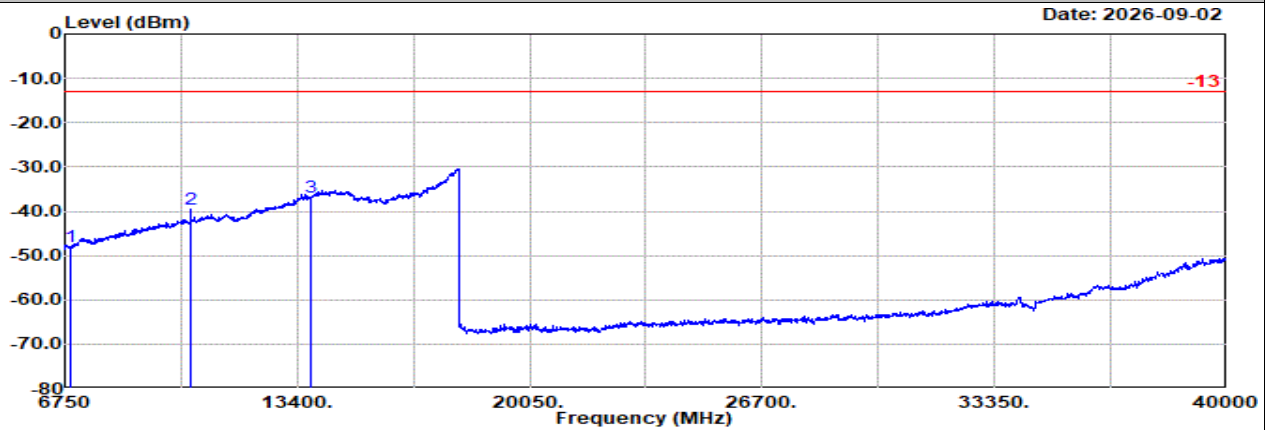


Ant. 1+7

Part 27Q Mode 12

NR SA n77 MIMO PC1.5 20M Ch630668 1RB1 BPSK

L

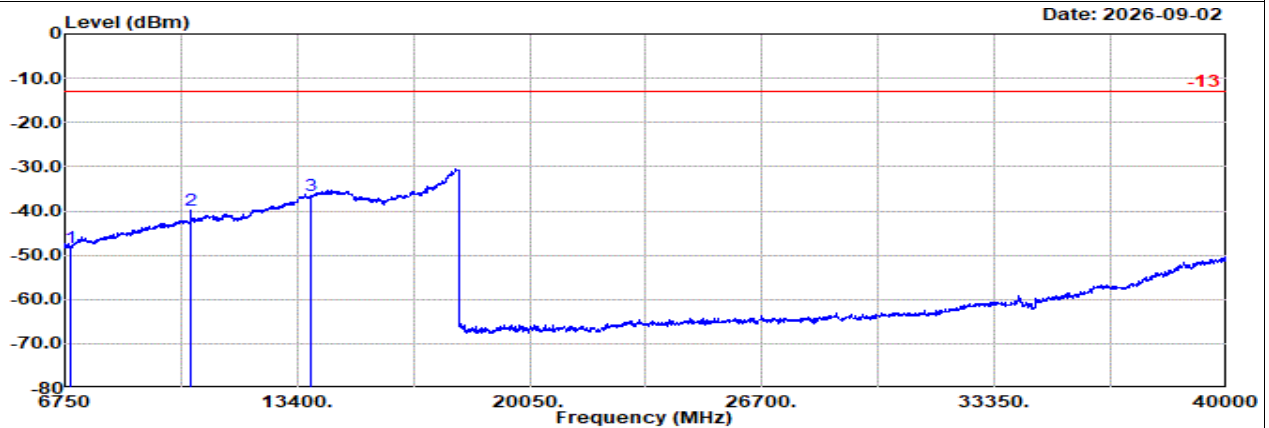


Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Horizontal

: NR Band 77 20M MIMO Ch630668 1RB1 BPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Reading	Limit	Margin Pol	
					dB/m	dB			dBuV	dBm		
1	6903.00	-48.04	RMS	35.80	-21.85	1.34	-95.23	31.90	-13.00	-35.04	Horizontal	
2	10354.00	-39.43	RMS	38.51	-19.56	0.59	-95.23	36.26	-13.00	-26.43	Horizontal	
3	13805.00	-36.69	RMS	40.29	-15.20	0.46	-95.23	32.99	-13.00	-23.69	Horizontal	



Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Vertical

: NR Band 77 20M MIMO Ch630668 1RB1 BPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Reading	Limit	Margin Pol	
					dB/m	dB			dBuV	dBm		
1	6903.00	-48.23	RMS	35.80	-21.85	1.34	-95.23	31.71	-13.00	-35.23	Vertical	
2	10354.00	-39.92	RMS	38.51	-19.56	0.59	-95.23	35.77	-13.00	-26.92	Vertical	
3	13805.00	-36.65	RMS	40.29	-15.20	0.46	-95.23	33.03	-13.00	-23.65	Vertical	

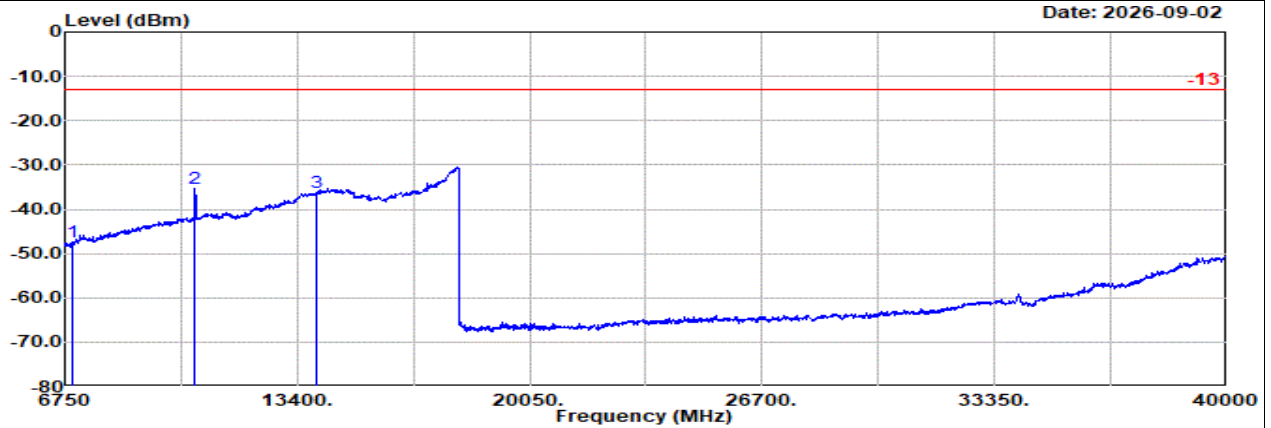


Ant. 1+7

Part 27Q Mode 12

NR SA n77 MIMO PC1.5 20M Ch633334 1RB1 BPSK

M

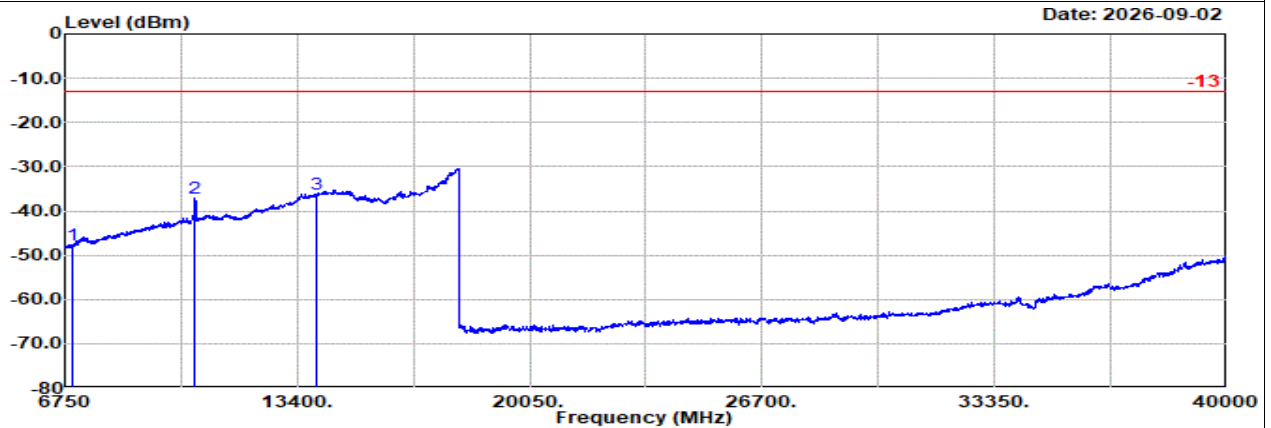


Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Horizontal

: NR Band 77 20M MIMO Ch633334 1RB1 BPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Reading	Limit	Margin Pol	
					dB/m	dB						
1	6983.00	-47.31	RMS	35.80	-21.77	1.27	-95.23	32.62	-13.00	-34.31	Horizontal	
2	10474.00	-35.26	RMS	38.60	-19.41	0.59	-95.23	40.19	-13.00	-22.26	Horizontal	
3	13965.00	-36.34	RMS	40.53	-15.34	0.45	-95.23	33.25	-13.00	-23.34	Horizontal	



Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Vertical

: NR Band 77 20M MIMO Ch633334 1RB1 BPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Reading	Limit	Margin Pol	
					dB/m	dB						
1	6983.00	-47.79	RMS	35.80	-21.77	1.27	-95.23	32.14	-13.00	-34.79	Vertical	
2	10474.00	-37.10	RMS	38.60	-19.41	0.59	-95.23	38.35	-13.00	-24.10	Vertical	
3	13965.00	-36.20	RMS	40.53	-15.34	0.45	-95.23	33.39	-13.00	-23.20	Vertical	

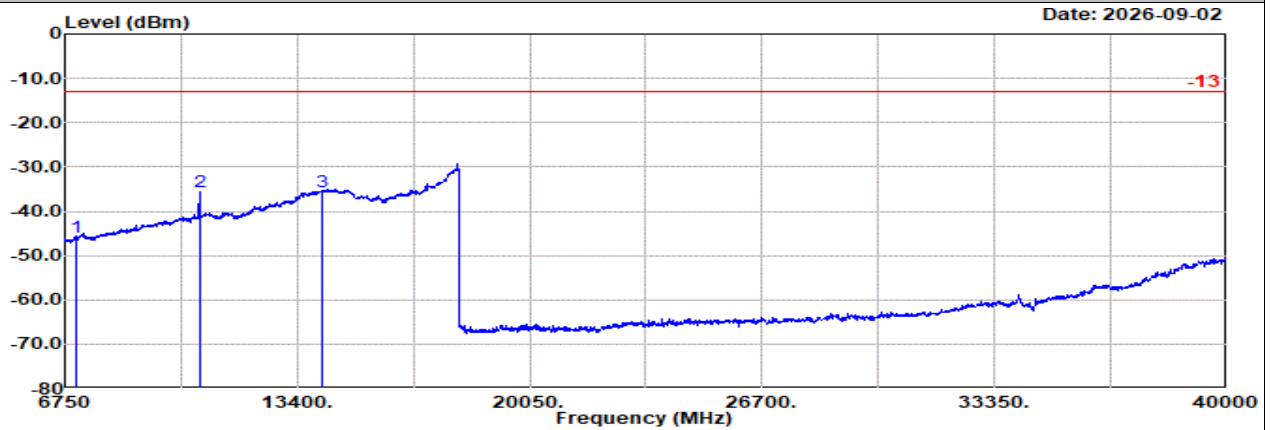


Ant. 1+7

Part 27Q Mode 12

NR SA n77 MIMO PC1.5 20M Ch636000 1RB1 BPSK

H

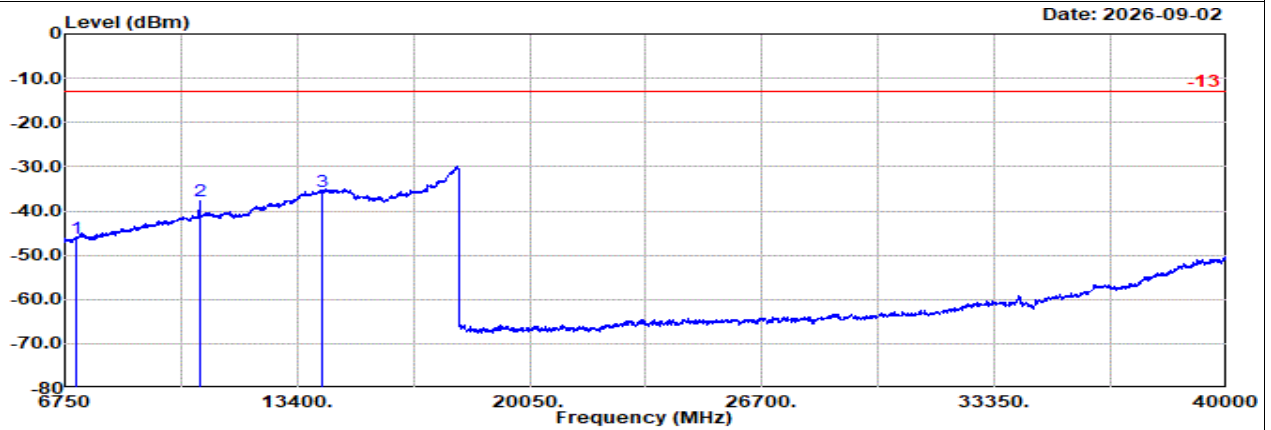


Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Horizontal

: NR Band 77 20M MIMO Ch636000 1RB1 BPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Reading	Limit	Margin Pol	
					dB/m	dB						
	MHz	dBm					dB	dB	dBuV	dBm	dB	
1	7063.00	-45.76	RMS	36.25	-21.73	1.16	-95.23	33.79	-13.00	-32.76	Horizontal	
2	10594.00	-35.73	RMS	38.79	-19.24	0.59	-95.23	39.36	-13.00	-22.73	Horizontal	
3	14125.00	-35.67	RMS	40.70	-15.35	0.44	-95.23	33.77	-13.00	-22.67	Horizontal	



Site : 03CH12-HY

Condition: -13 1m BBHA9170_1223_260812 Vertical

: NR Band 77 20M MIMO Ch636000 1RB1 BPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb		Filter	EIRPCF	Reading	Limit	Margin Pol	
					dB/m	dB						
	MHz	dBm					dB	dB	dBuV	dBm	dB	
1	7063.00	-46.05	RMS	36.25	-21.73	1.16	-95.23	33.50	-13.00	-33.05	Vertical	
2	10594.00	-37.65	RMS	38.79	-19.24	0.59	-95.23	37.44	-13.00	-24.65	Vertical	
3	14125.00	-35.56	RMS	40.70	-15.35	0.44	-95.23	33.88	-13.00	-22.56	Vertical	

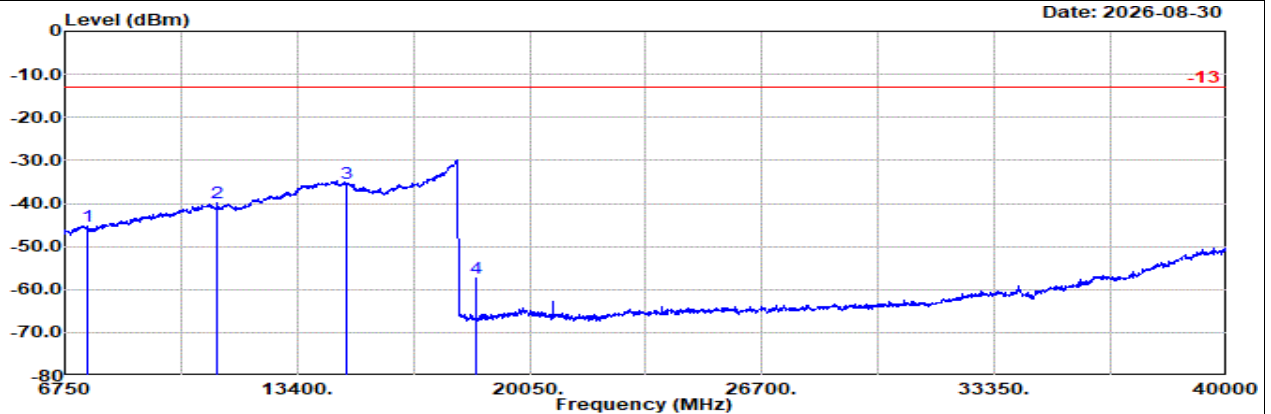


Ant. 1

Part 270 Mode 13

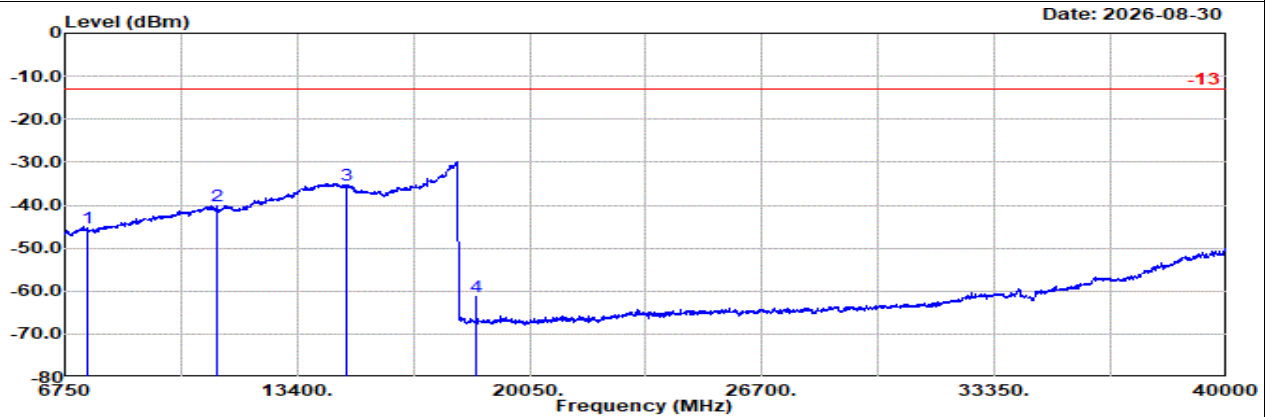
NR SA n77 PC2 20M Ch647334 1RB1 BPSK

L



Site : 03CH12-HY
Condition: -13 3m 9120D-01212 Horizontal
NR Band 77 20M Ch647334 1RB1 BPSK

Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
MHz	dBm									
1	7403.00	-45.40 RMS	36.49	-21.52	0.88	-95.23	33.98	-13.00	-32.40	Horizontal
2	11104.00	-39.97 RMS	38.79	-18.61	0.60	-95.23	34.48	-13.00	-26.97	Horizontal
3	14805.00	-35.31 RMS	40.28	-15.44	0.39	-95.23	34.69	-13.00	-22.31	Horizontal
4	18512.00	-57.31 RMS	37.80	-34.29	-9.54	-95.23	43.95	-13.00	-44.31	Horizontal



Site : 03CH12-HY
Condition: -13 3m 9120D-01212 Vertical
NR Band 77 20M Ch647334 1RB1 BPSK

Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
MHz	dBm									
1	7403.00	-45.23 RMS	36.49	-21.52	0.88	-95.23	34.15	-13.00	-32.23	Vertical
2	11104.00	-40.22 RMS	38.79	-18.61	0.60	-95.23	34.23	-13.00	-27.22	Vertical
3	14805.00	-35.31 RMS	40.28	-15.44	0.39	-95.23	34.69	-13.00	-22.31	Vertical
4	18512.00	-61.27 RMS	37.80	-34.29	-9.54	-95.23	39.99	-13.00	-48.27	Vertical

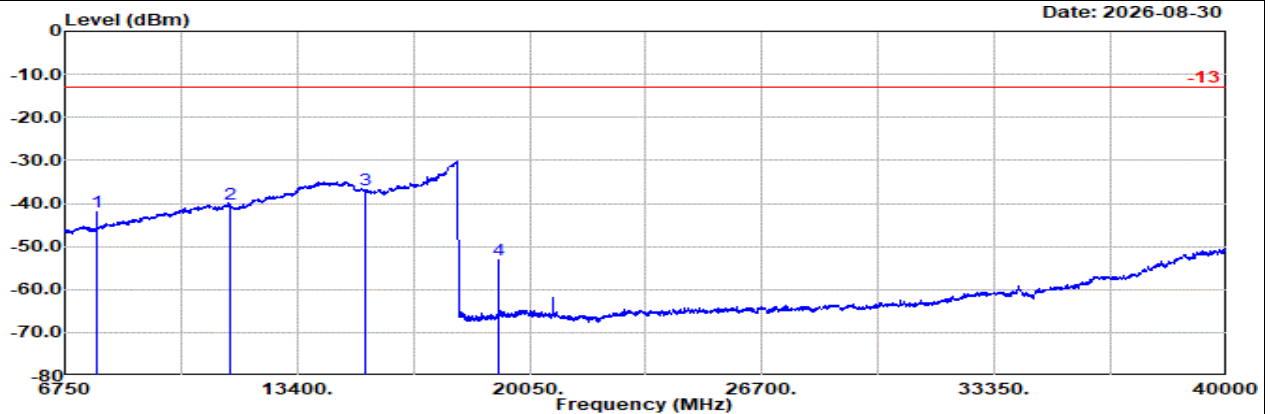


Ant. 1

Part 270 Mode 13

NR SA n77 PC2 20M Ch656000 1RB1 BPSK

M

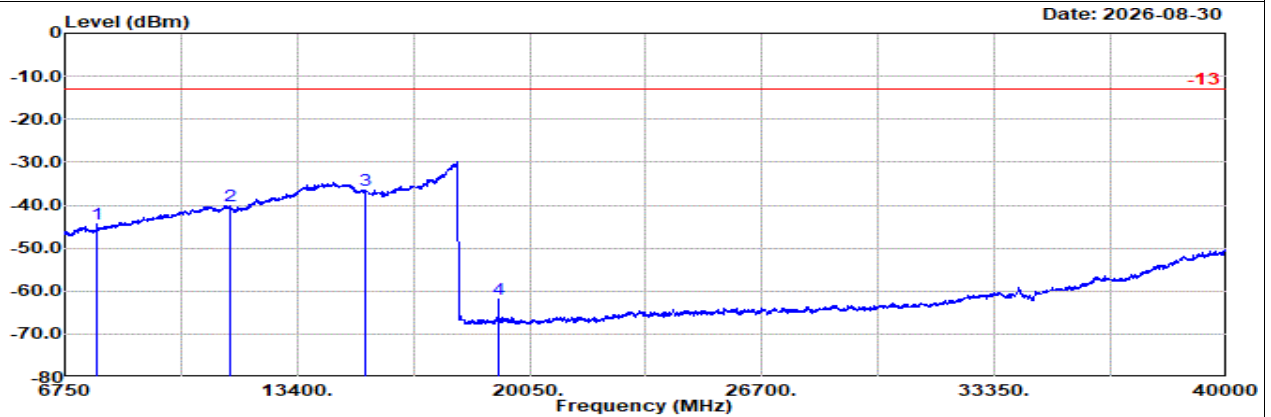


Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Horizontal

NR Band 77 20M Ch656000 1RB1 BPSK

Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
MHz	dBm									
1	7663.00	-42.04 RMS	36.30	-21.39	0.90	-95.23	37.38	-13.00	-29.04	Horizontal
2	11494.00	-40.12 RMS	39.09	-18.34	0.60	-95.23	33.76	-13.00	-27.12	Horizontal
3	15325.00	-36.88 RMS	38.65	-15.76	0.36	-95.23	35.10	-13.00	-23.88	Horizontal
4	19160.00	-53.26 RMS	37.90	-33.66	-9.54	-95.23	47.27	-13.00	-40.26	Horizontal



Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Vertical

NR Band 77 20M Ch656000 1RB1 BPSK

Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
MHz	dBm									
1	7663.00	-44.49 RMS	36.30	-21.39	0.90	-95.23	34.93	-13.00	-31.49	Vertical
2	11494.00	-40.18 RMS	39.09	-18.34	0.60	-95.23	33.70	-13.00	-27.18	Vertical
3	15325.00	-36.62 RMS	38.65	-15.76	0.36	-95.23	35.36	-13.00	-23.62	Vertical
4	19160.00	-61.86 RMS	37.90	-33.66	-9.54	-95.23	38.67	-13.00	-48.86	Vertical

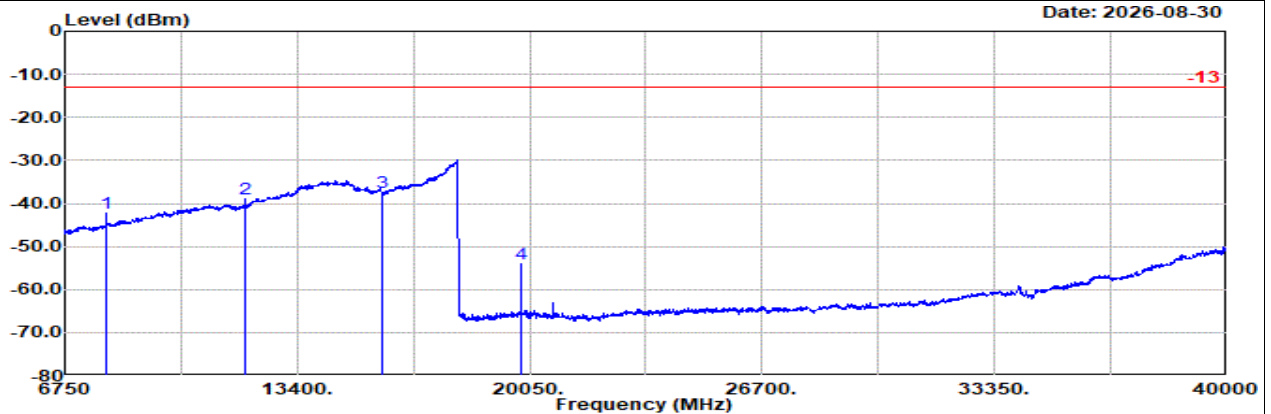


Ant. 1

Part 270 Mode 13

NR SA n77 PC2 20M Ch664666 1RB1 BPSK

H

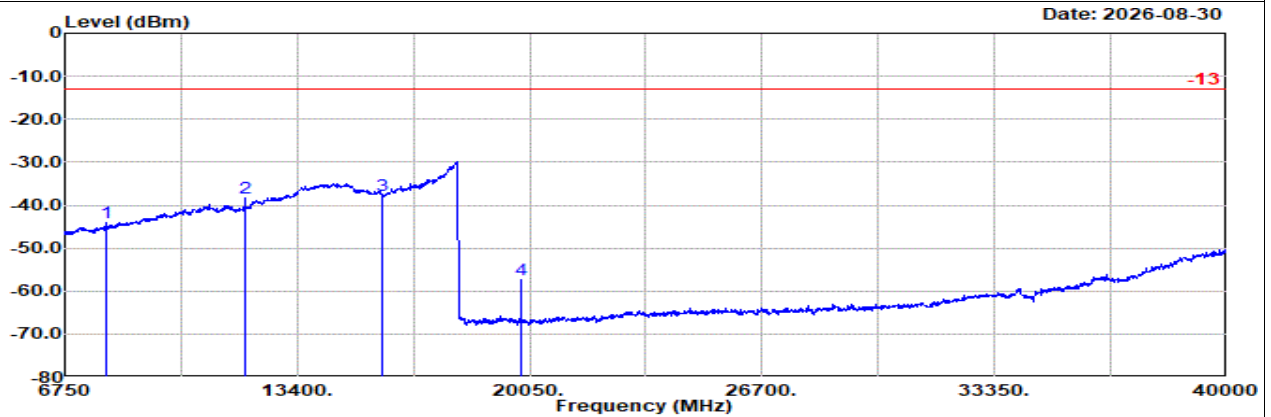


Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Horizontal

NR Band 77 20M Ch664666 1RB1 BPSK

Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
MHz	dBm									
1	7922.00	-42.19 RMS	36.90	-21.28	0.85	-95.23	36.57	-13.00	-29.19	Horizontal
2	11883.00	-39.02 RMS	38.57	-18.13	0.60	-95.23	35.17	-13.00	-26.02	Horizontal
3	15845.00	-37.47 RMS	37.72	-15.61	0.32	-95.23	35.33	-13.00	-24.47	Horizontal
4	19808.00	-53.98 RMS	37.98	-33.09	-9.54	-95.23	45.90	-13.00	-40.98	Horizontal



Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Vertical

NR Band 77 20M Ch664666 1RB1 BPSK

Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
MHz	dBm									
1	7922.00	-44.10 RMS	36.90	-21.28	0.85	-95.23	34.66	-13.00	-31.10	Vertical
2	11883.00	-38.46 RMS	38.57	-18.13	0.60	-95.23	35.73	-13.00	-25.46	Vertical
3	15845.00	-37.63 RMS	37.72	-15.61	0.32	-95.23	35.17	-13.00	-24.63	Vertical
4	19808.00	-57.25 RMS	37.98	-33.09	-9.54	-95.23	42.63	-13.00	-44.25	Vertical

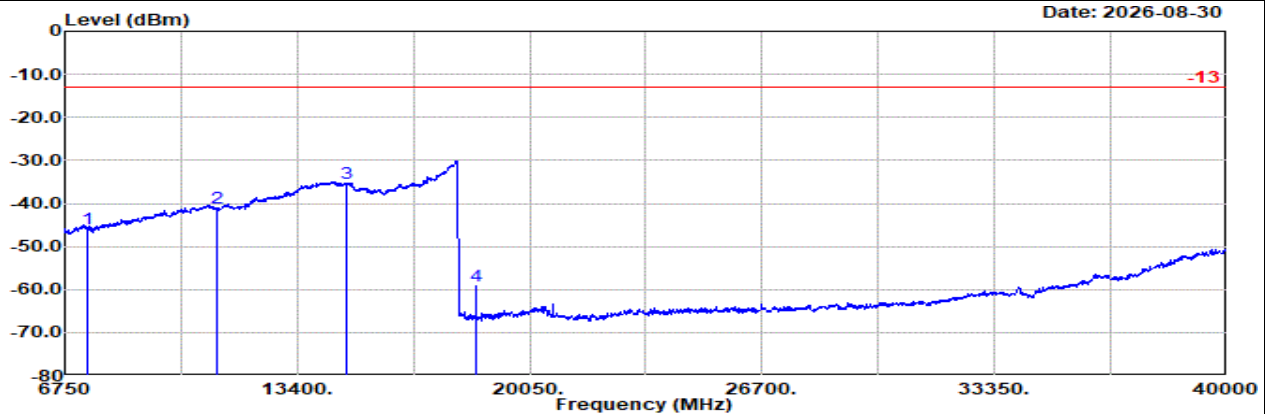


Ant. 1+7

Part 270 Mode 14

NR SA n77 MIMO PC1.5 20M Ch647334 1RB1 BPSK

L

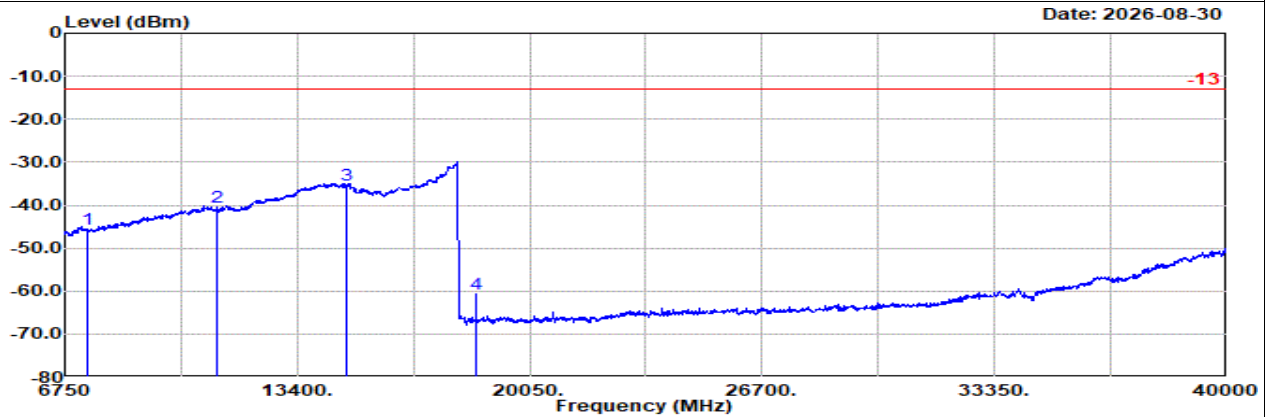


Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Horizontal

NR Band 77 MIMO 20M Ch647334 1RB1 QPSK

Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB
1	7403.00	-45.76 RMS	36.49	-21.52	0.88	-95.23	33.62	-13.00	-32.76	Horizontal
2	11104.00	-41.05 RMS	38.79	-18.61	0.60	-95.23	33.40	-13.00	-28.05	Horizontal
3	14805.00	-35.38 RMS	40.28	-15.44	0.39	-95.23	34.62	-13.00	-22.38	Horizontal
4	18506.00	-59.14 RMS	37.80	-34.29	-9.54	-95.23	42.12	-13.00	-46.14	Horizontal



Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Vertical

NR Band 77 MIMO 20M Ch647334 1RB1 QPSK

Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
MHz	dBm			dB/m	dB	dB	dB	dBuV	dBm	dB
1	7403.00	-45.72 RMS	36.49	-21.52	0.88	-95.23	33.66	-13.00	-32.72	Vertical
2	11104.00	-40.34 RMS	38.79	-18.61	0.60	-95.23	34.11	-13.00	-27.34	Vertical
3	14805.00	-35.27 RMS	40.28	-15.44	0.39	-95.23	34.73	-13.00	-22.27	Vertical
4	18506.00	-60.61 RMS	37.80	-34.29	-9.54	-95.23	40.65	-13.00	-47.61	Vertical

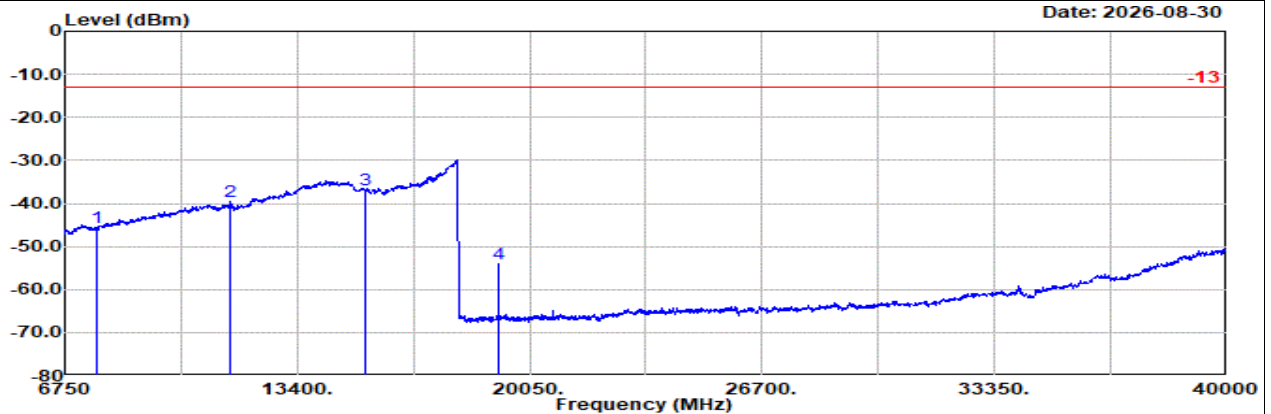


Ant. 1+7

Part 270 Mode 14

NR SA n77 MIMO PC1.5 20M Ch656000 1RB1 BPSK

M

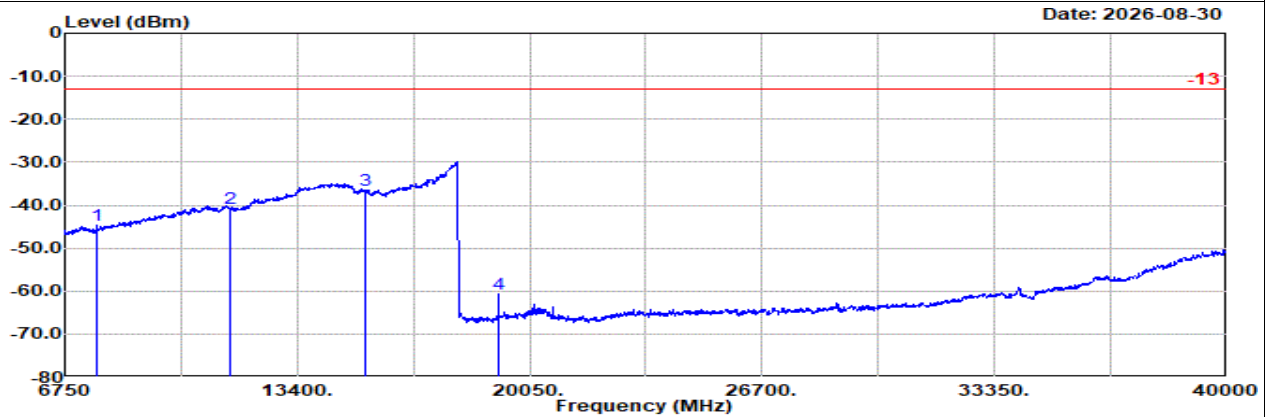


Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Horizontal

NR Band 77 MIMO 20M Ch656000 1RB1 QPSK

Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
MHz	dBm									
1	7663.00	-45.63 RMS	36.30	-21.39	0.90	-95.23	33.79	-13.00	-32.63	Horizontal
2	11494.00	-39.44 RMS	39.09	-18.34	0.60	-95.23	34.44	-13.00	-26.44	Horizontal
3	15325.00	-36.76 RMS	38.65	-15.76	0.36	-95.23	35.22	-13.00	-23.76	Horizontal
4	19156.00	-53.98 RMS	37.90	-33.67	-9.54	-95.23	46.56	-13.00	-40.98	Horizontal



Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Vertical

NR Band 77 MIMO 20M Ch656000 1RB1 QPSK

Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
MHz	dBm									
1	7663.00	-44.77 RMS	36.30	-21.39	0.90	-95.23	34.65	-13.00	-31.77	Vertical
2	11494.00	-40.60 RMS	39.09	-18.34	0.60	-95.23	33.28	-13.00	-27.60	Vertical
3	15325.00	-36.51 RMS	38.65	-15.76	0.36	-95.23	35.47	-13.00	-23.51	Vertical
4	19156.00	-60.81 RMS	37.90	-33.67	-9.54	-95.23	39.73	-13.00	-47.81	Vertical

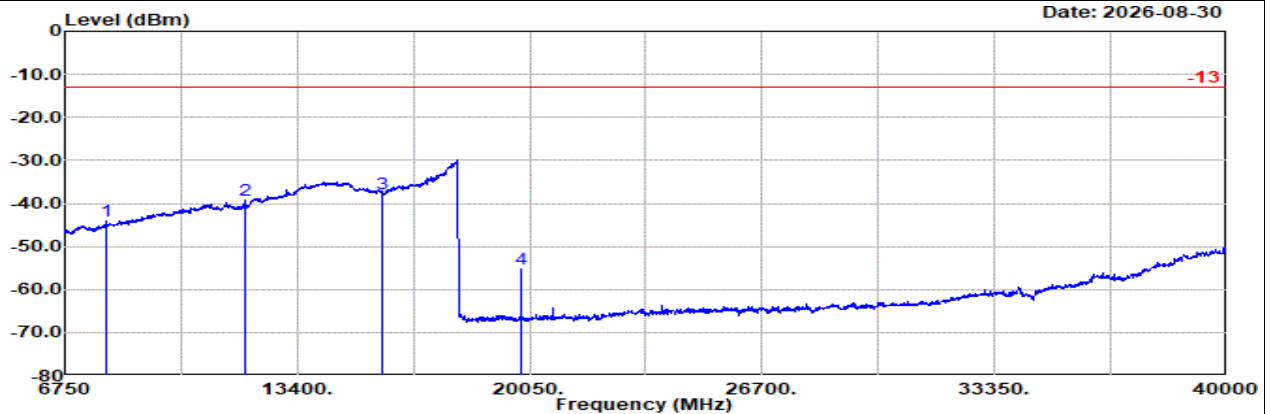


Ant. 1+7

Part 270 Mode 14

NR SA n77 MIMO PC1.5 20M Ch664666 1RB1 BPSK

H

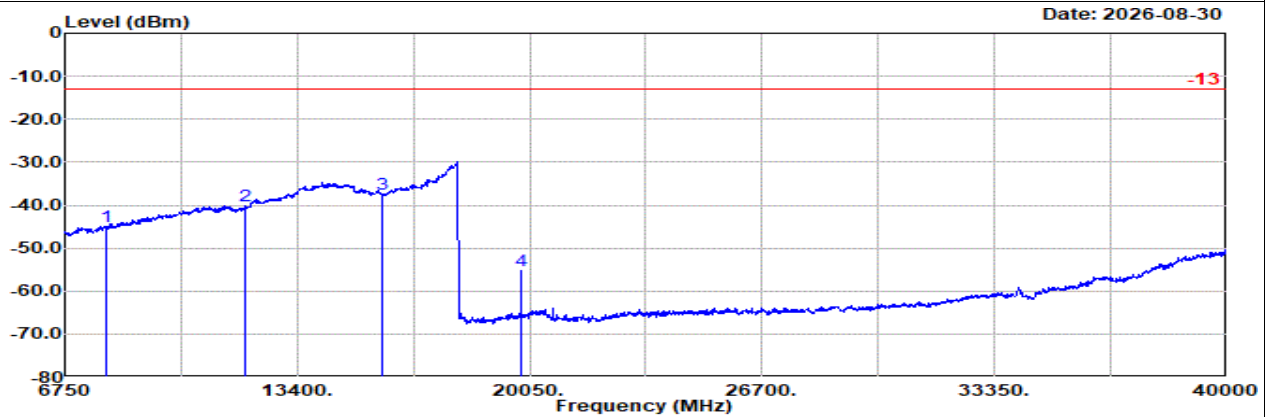


Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Horizontal

: NR Band 77 MIMO 20M Ch664666 1RB1 QPSK

Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
MHz	dBm			dB/m	dB	dB	dB	dBm	dB	
1	7922.00	-44.21 RMS	36.90	-21.28	0.85	-95.23	34.55	-13.00	-31.21	Horizontal
2	11883.00	-39.23 RMS	38.57	-18.13	0.60	-95.23	34.96	-13.00	-26.23	Horizontal
3	15845.00	-37.63 RMS	37.72	-15.61	0.32	-95.23	35.17	-13.00	-24.63	Horizontal
4	19806.00	-55.11 RMS	37.99	-33.09	-9.54	-95.23	44.76	-13.00	-42.11	Horizontal



Site : 03CH12-HY

Condition: -13 3m 9120D-01212 Vertical

: NR Band 77 MIMO 20M Ch664666 1RB1 QPSK

Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
MHz	dBm			dB/m	dB	dB	dB	dBm	dB	
1	7922.00	-44.99 RMS	36.90	-21.28	0.85	-95.23	33.77	-13.00	-31.99	Vertical
2	11883.00	-40.22 RMS	38.57	-18.13	0.60	-95.23	33.97	-13.00	-27.22	Vertical
3	15845.00	-37.40 RMS	37.72	-15.61	0.32	-95.23	35.40	-13.00	-24.40	Vertical
4	19806.00	-55.26 RMS	37.99	-33.09	-9.54	-95.23	44.61	-13.00	-42.26	Vertical

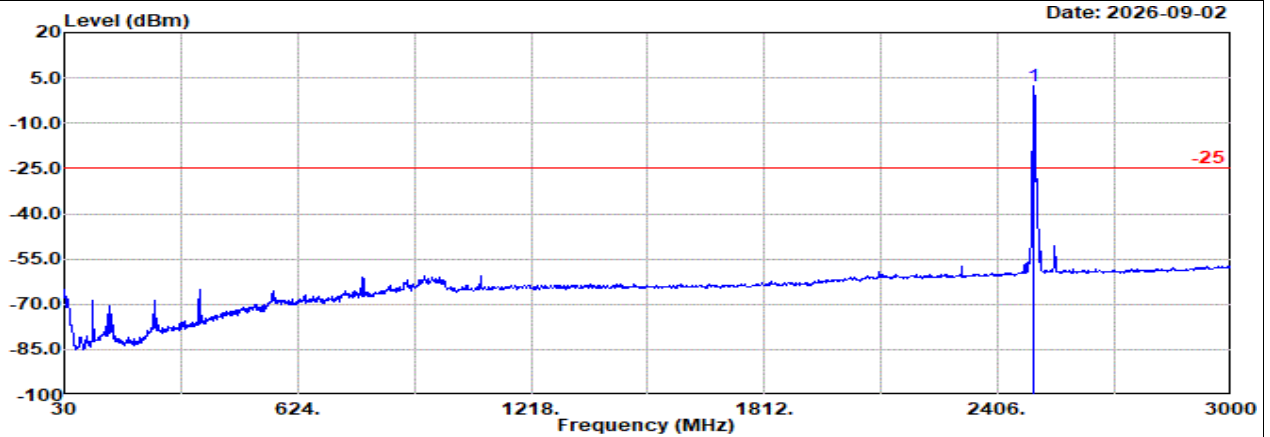


Ant. 7

Part 27M Mode 8

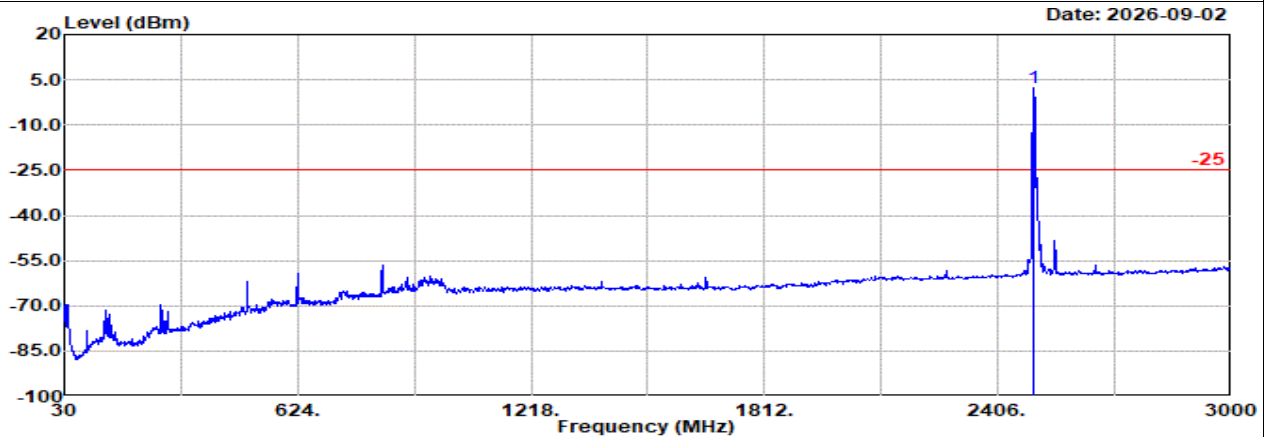
NR SA n41 PC2 20M Ch501204 1RB1 BPSK

L



Site : 03CH12-HY
Condition: -25 3m 9120D-01212 Horizontal
: NR SA n41 20M Ch501204 1RB1 BPSK
: #1 is fundamental signal which can be ignored.

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm			1			g			
1	2497.00	2.37	RMS	28.10	-27.14	0.00	-95.23	96.64	-25.00	27.37	Horizontal



Site : 03CH12-HY
Condition: -25 3m 9120D-01212 Vertical
: NR SA n41 20M Ch501204 1RB1 BPSK
: #1 is fundamental signal which can be ignored.

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
	MHz	dBm			1			g			
1	2497.00	2.32	RMS	28.10	-27.14	0.00	-95.23	96.59	-25.00	27.32	Vertical