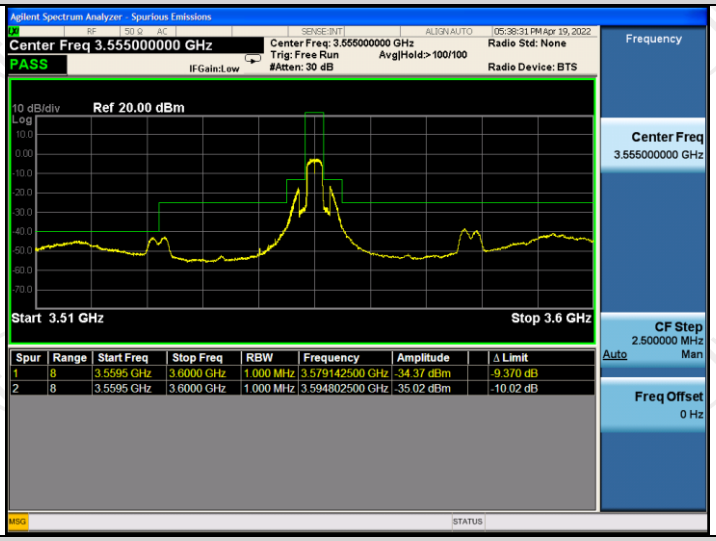
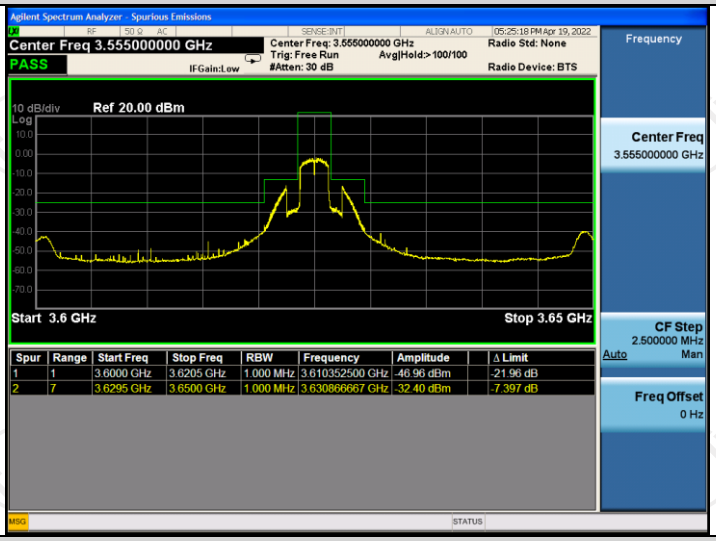
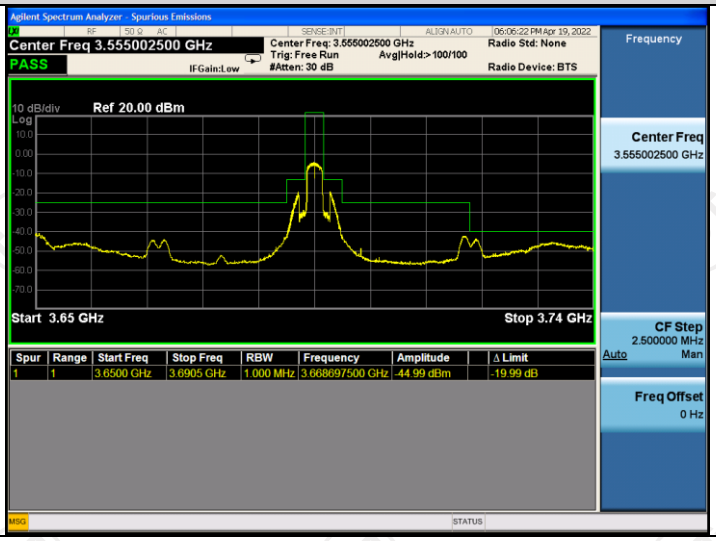
3MHz-OFDM-3555



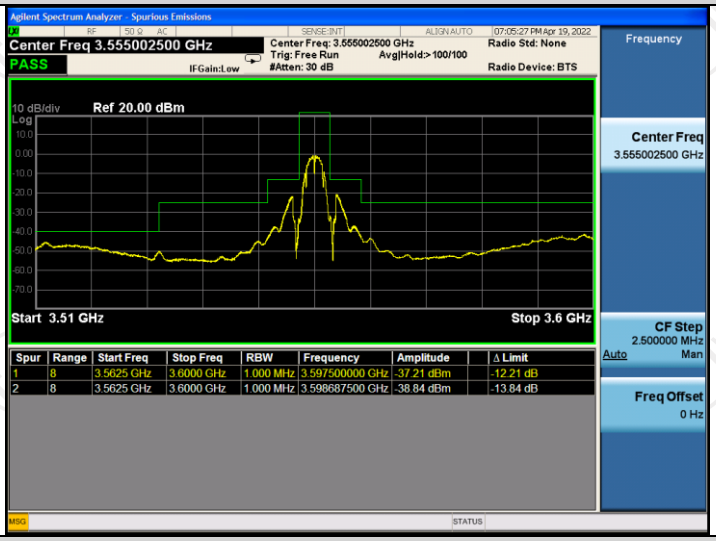
3MHz-OFDM-3625



3MHz-OFDM-3695

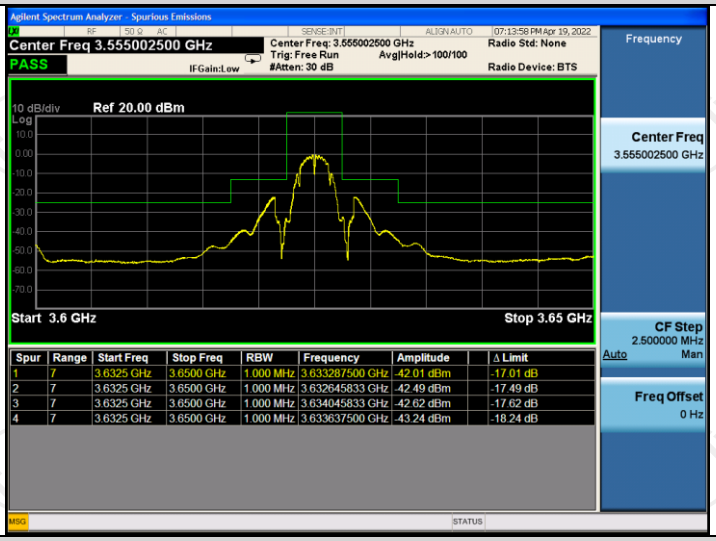


5MHz-DSSS-3555



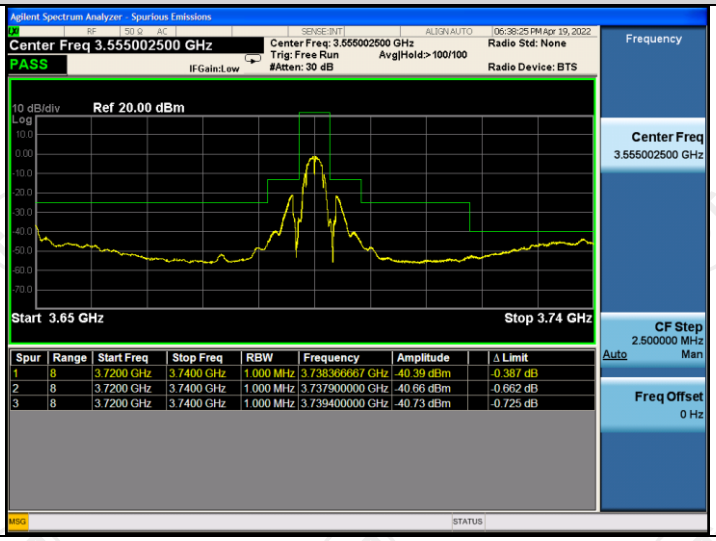
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	8	3.5625 GHz	3.6000 GHz	1.000 MHz	3.597500000 GHz	-37.21 dBm	-12.21 dB
2	8	3.5625 GHz	3.6000 GHz	1.000 MHz	3.598687500 GHz	-38.84 dBm	-13.84 dB

5MHz-DSSS-3625



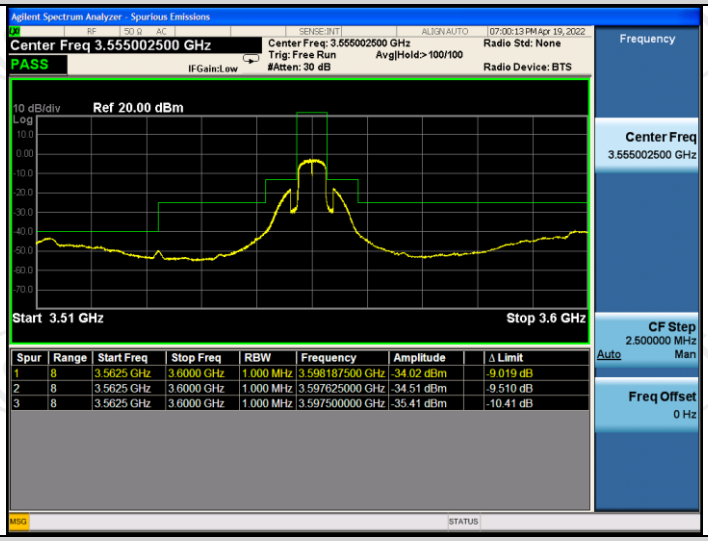
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	7	3.6325 GHz	3.6500 GHz	1.000 MHz	3.633287500 GHz	-42.01 dBm	-17.01 dB
2	7	3.6325 GHz	3.6500 GHz	1.000 MHz	3.632645833 GHz	-42.49 dBm	-17.49 dB
3	7	3.6325 GHz	3.6500 GHz	1.000 MHz	3.634045833 GHz	-42.62 dBm	-17.62 dB
4	7	3.6325 GHz	3.6500 GHz	1.000 MHz	3.633637500 GHz	-43.24 dBm	-18.24 dB

5MHz-DSSS-3695



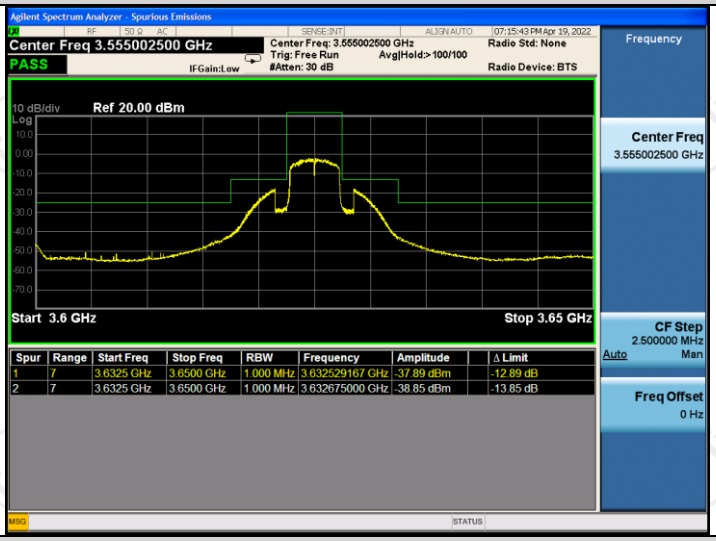
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	8	3.7200 GHz	3.7400 GHz	1.000 MHz	3.738366667 GHz	-40.39 dBm	-0.387 dB
2	8	3.7200 GHz	3.7400 GHz	1.000 MHz	3.737900000 GHz	-40.66 dBm	-0.662 dB
3	8	3.7200 GHz	3.7400 GHz	1.000 MHz	3.739400000 GHz	-40.73 dBm	-0.725 dB

5MHz-OFDM-3555



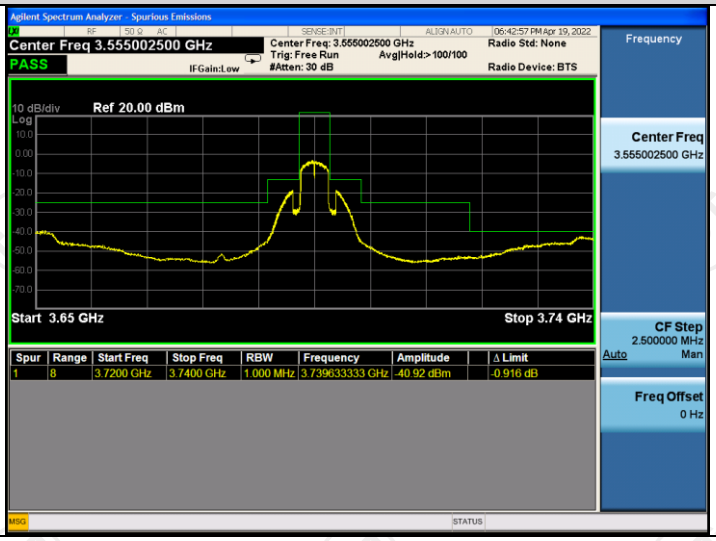
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	8	3.5625 GHz	3.6000 GHz	1.000 MHz	3.598187500 GHz	-34.02 dBm	-9.019 dB
2	8	3.5625 GHz	3.6000 GHz	1.000 MHz	3.597625000 GHz	-34.51 dBm	-9.510 dB
3	8	3.5625 GHz	3.6000 GHz	1.000 MHz	3.597500000 GHz	-35.41 dBm	-10.41 dB

5MHz-OFDM-3625



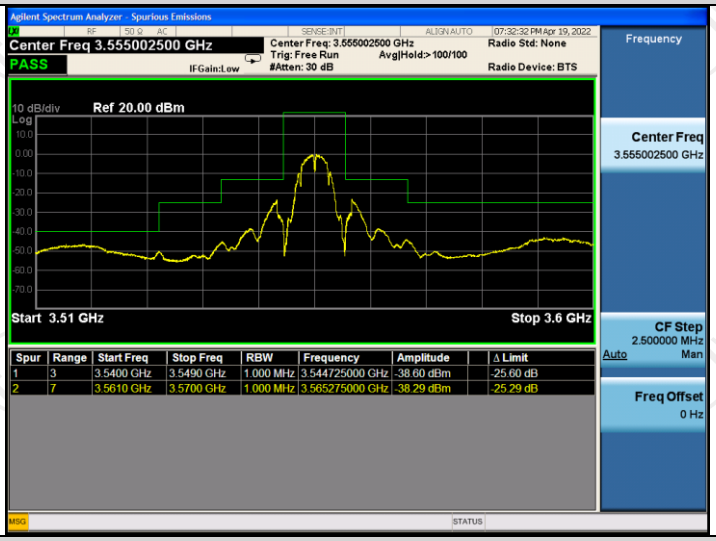
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	7	3.6325 GHz	3.6500 GHz	1.000 MHz	3.632529167 GHz	-37.89 dBm	-12.89 dB
2	7	3.6325 GHz	3.6500 GHz	1.000 MHz	3.632675000 GHz	-38.85 dBm	-13.85 dB

5MHz-OFDM-3695

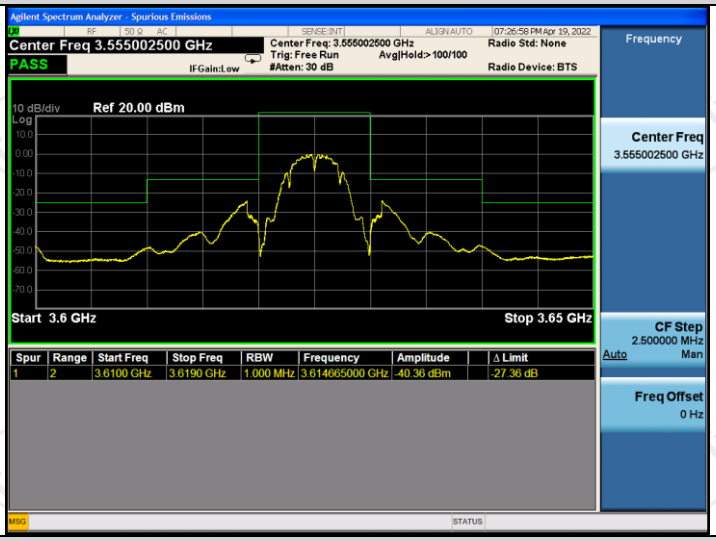


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	8	3.7200 GHz	3.7400 GHz	1.000 MHz	3.739633333 GHz	-40.92 dBm	-0.916 dB

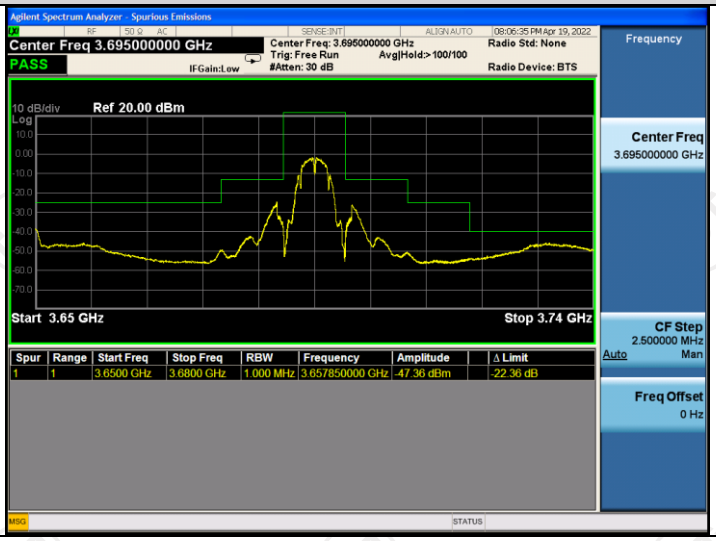
10MHz-DSSS-3555



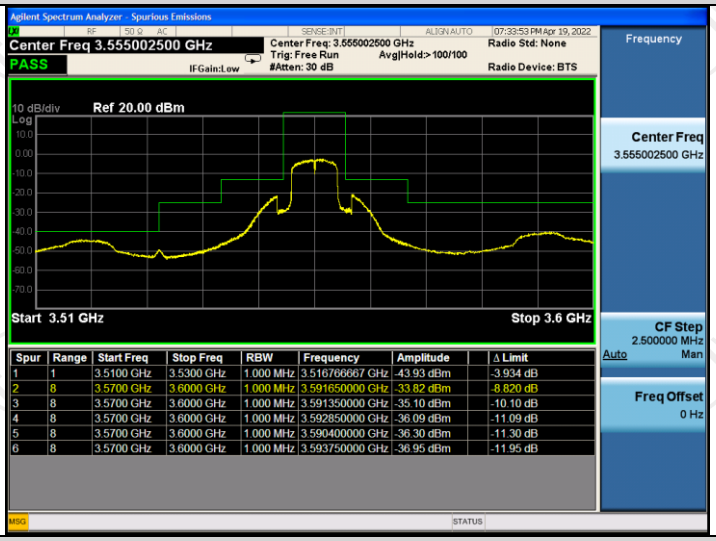
10MHz-DSSS-3625



10MHz-DSSS-3695

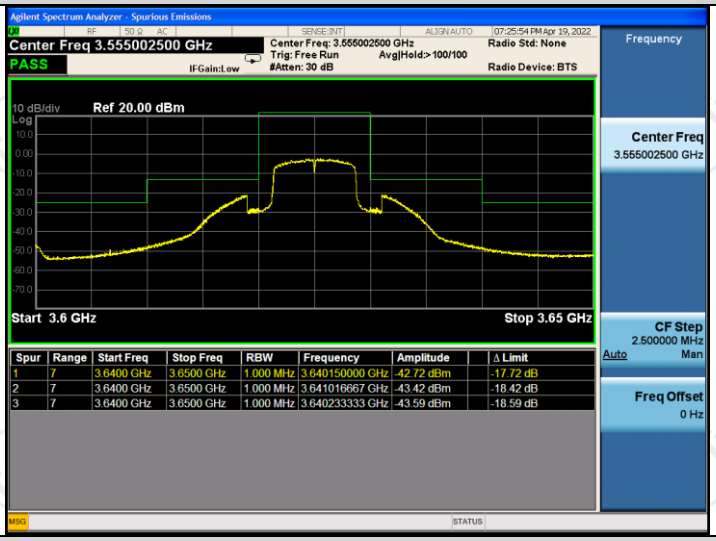


10MHz-OFDM-3555



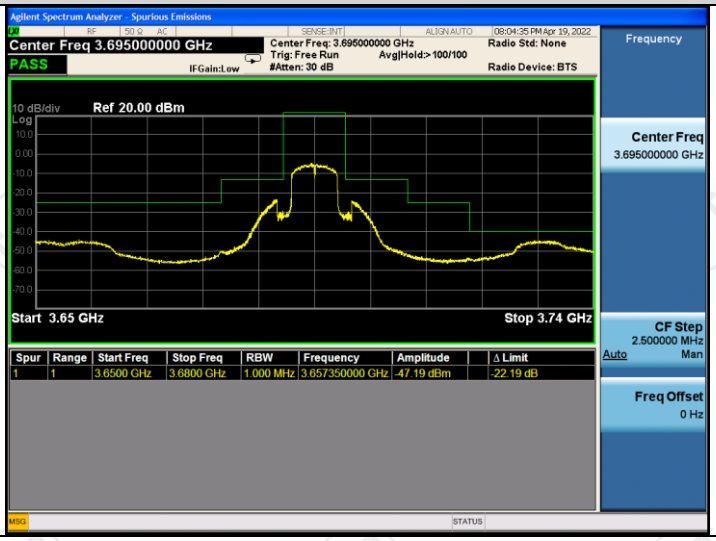
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	3.5100 GHz	3.5300 GHz	1.000 MHz	3.516766667 GHz	-43.93 dBm	-3.934 dB
2	8	3.5700 GHz	3.6000 GHz	1.000 MHz	3.591650000 GHz	-33.82 dBm	-8.820 dB
3	8	3.5700 GHz	3.6000 GHz	1.000 MHz	3.591350000 GHz	-35.10 dBm	-10.10 dB
4	8	3.5700 GHz	3.6000 GHz	1.000 MHz	3.592850000 GHz	-36.09 dBm	-11.09 dB
5	8	3.5700 GHz	3.6000 GHz	1.000 MHz	3.590400000 GHz	-36.30 dBm	-11.30 dB
6	8	3.5700 GHz	3.6000 GHz	1.000 MHz	3.593750000 GHz	-36.95 dBm	-11.95 dB

10MHz-OFDM-3625



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	7	3.6400 GHz	3.6500 GHz	1.000 MHz	3.640150000 GHz	-42.72 dBm	-17.72 dB
2	7	3.6400 GHz	3.6500 GHz	1.000 MHz	3.641016667 GHz	-43.42 dBm	-18.42 dB
3	7	3.6400 GHz	3.6500 GHz	1.000 MHz	3.640233333 GHz	-43.59 dBm	-18.59 dB

10MHz-OFDM-3695

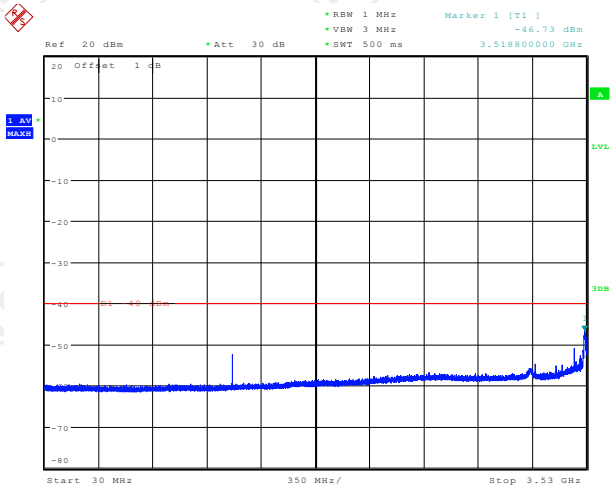


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	3.6500 GHz	3.6800 GHz	1.000 MHz	3.657350000 GHz	-47.19 dBm	-22.19 dB

Conducted Spurious Emission

Ant0

3MHz-DSSS-3555



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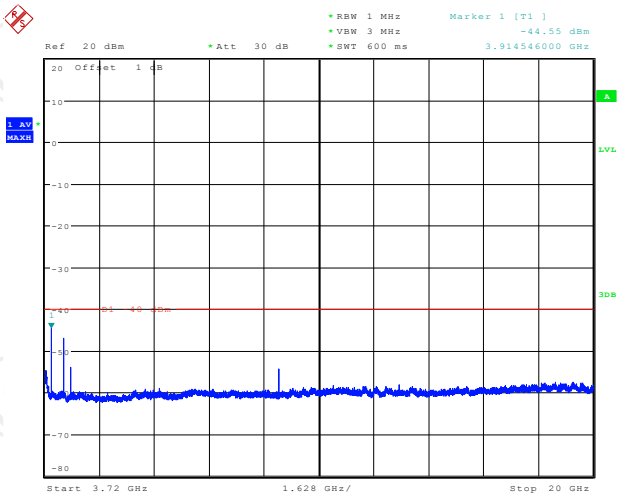

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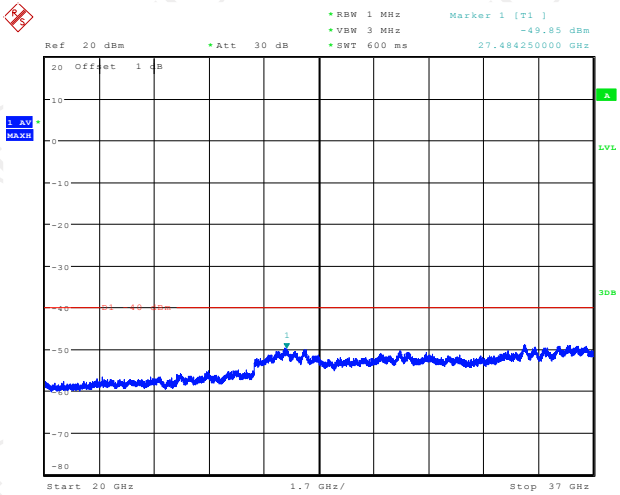

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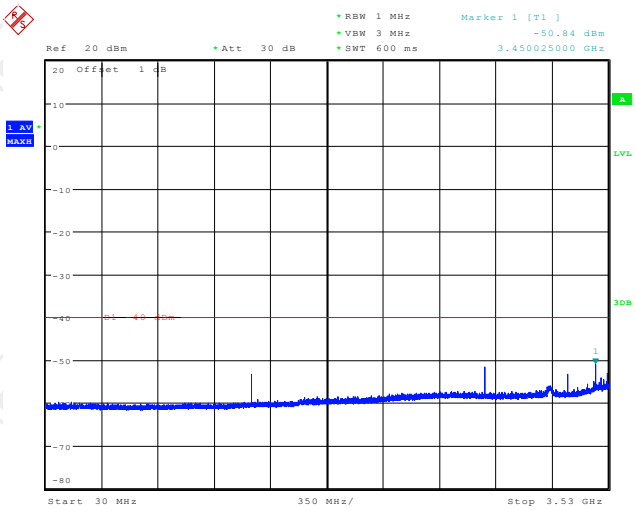
3MHz-DSSS-3625



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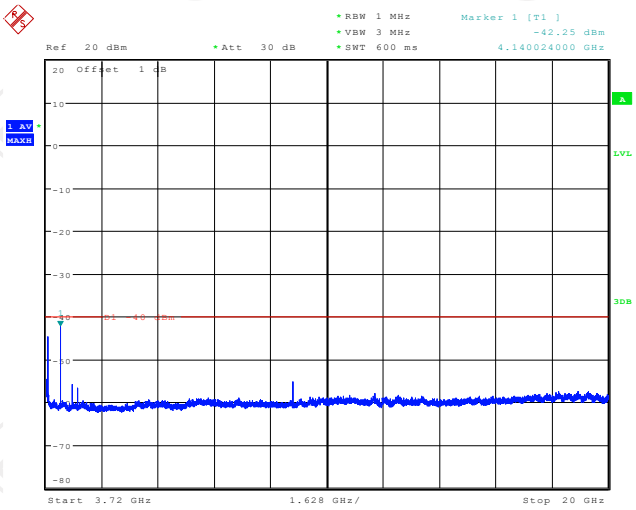

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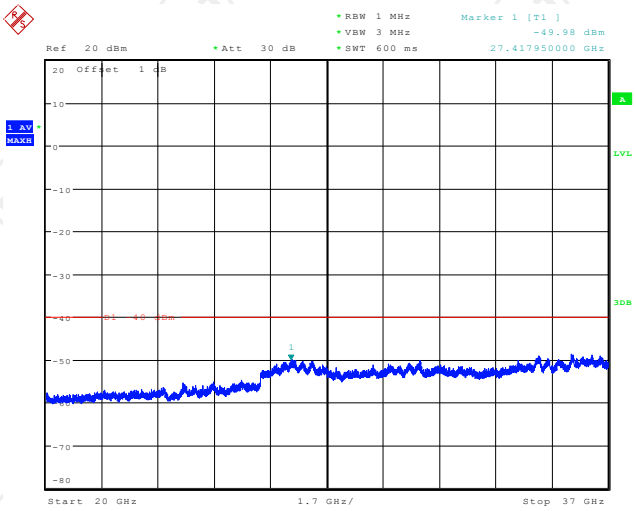

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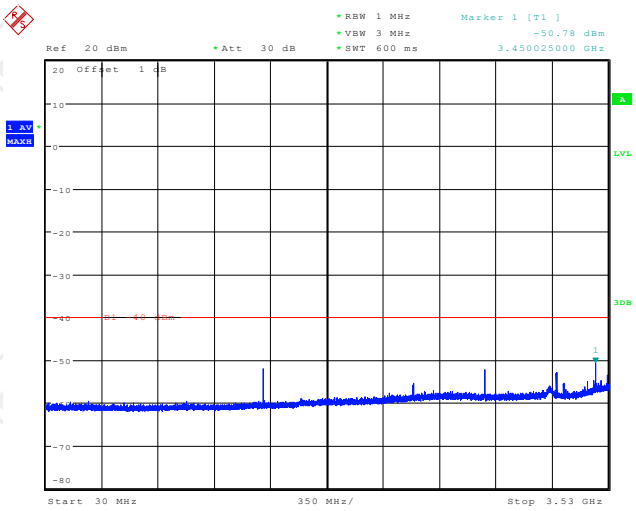
3MHz-DSSS-3695



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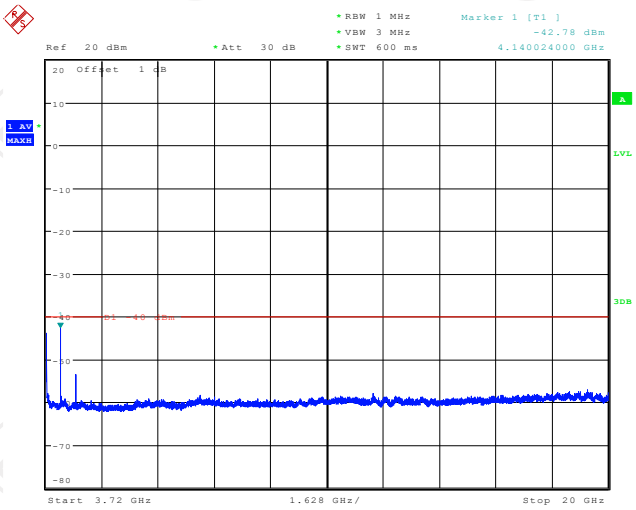

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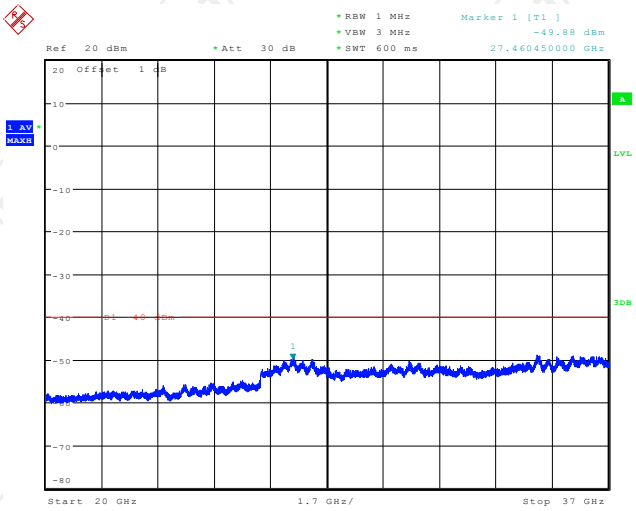

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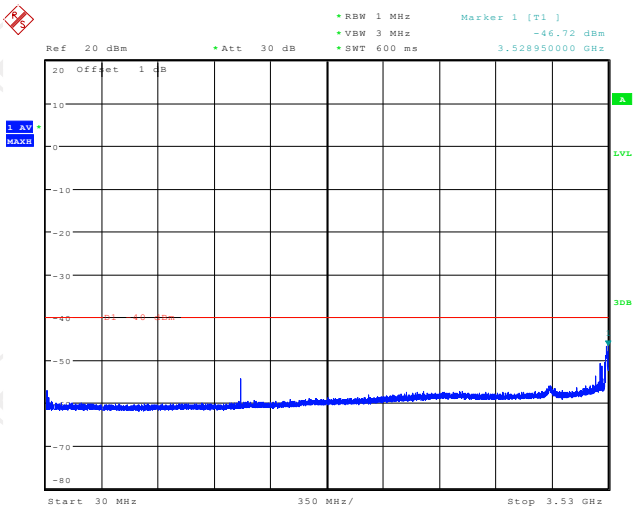
3MHz-OFDM-3555



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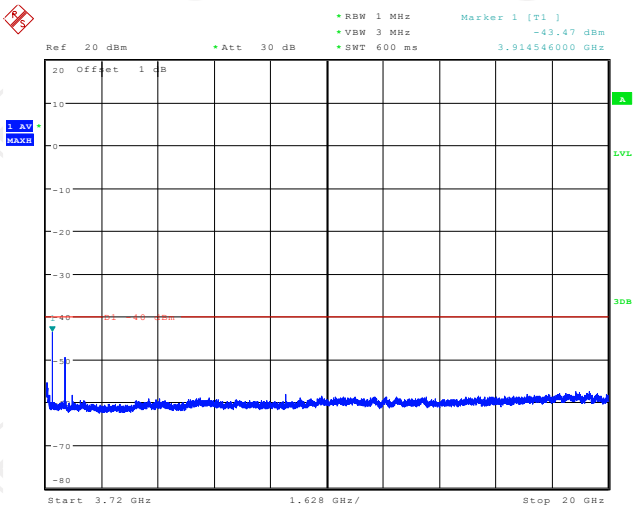

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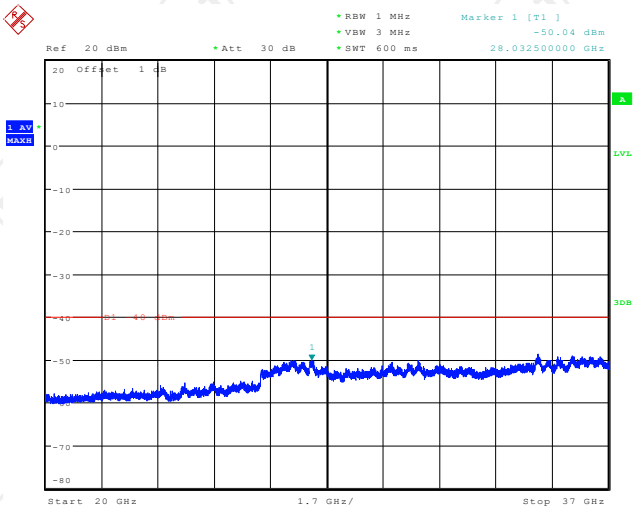

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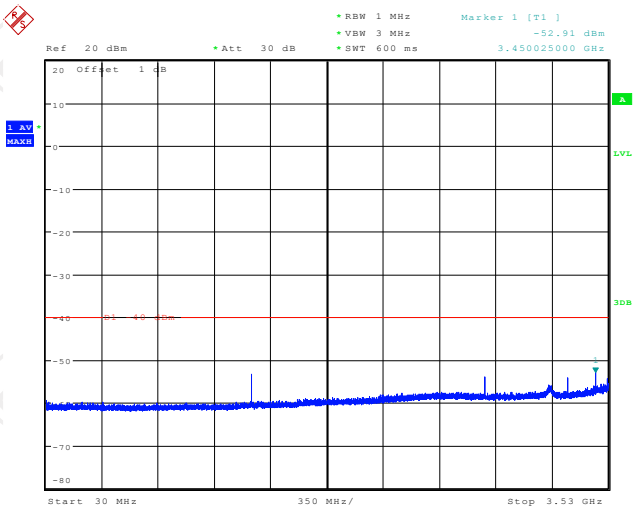
3MHz-OFDM-3625



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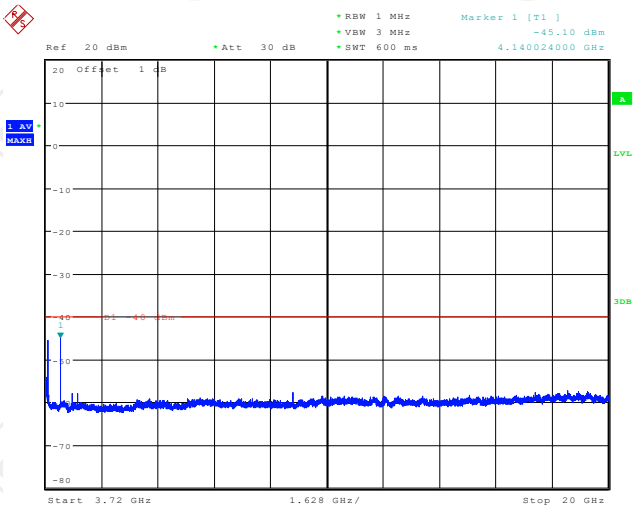

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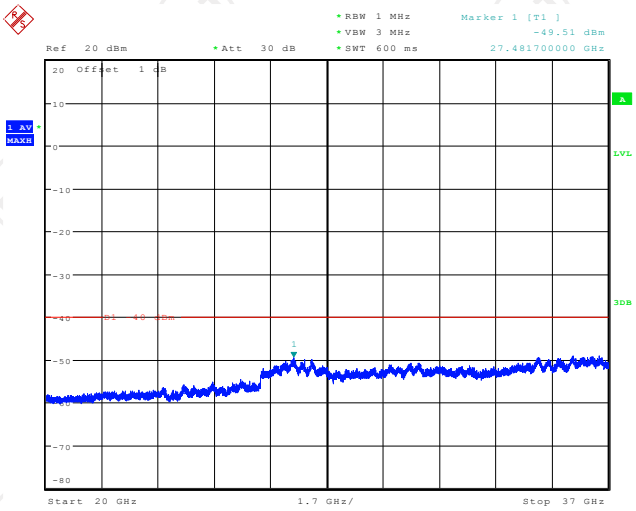

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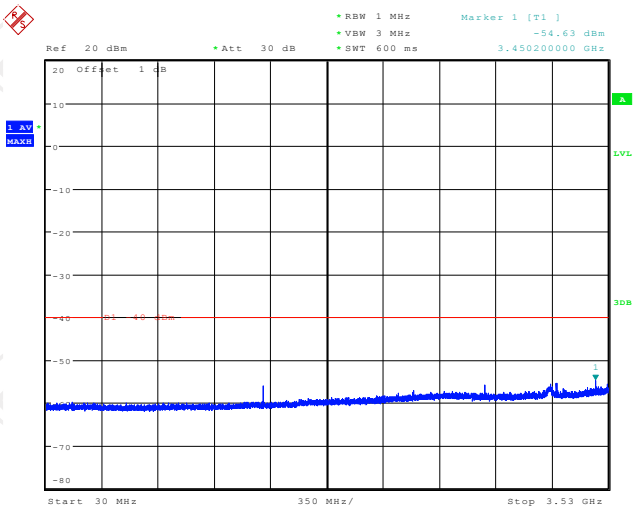
3MHz-OFDM-3695



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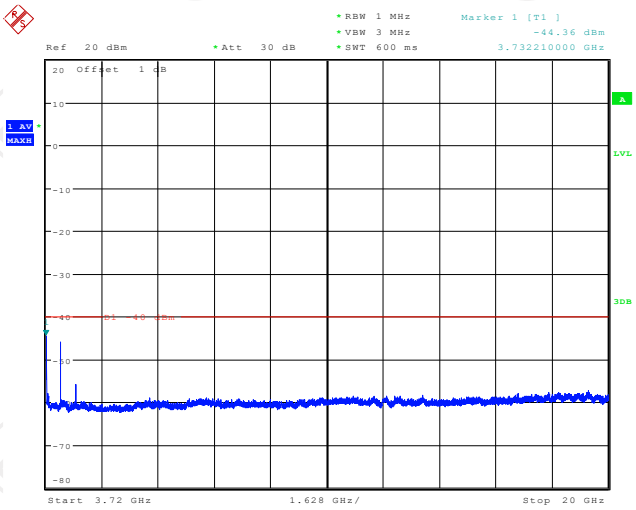

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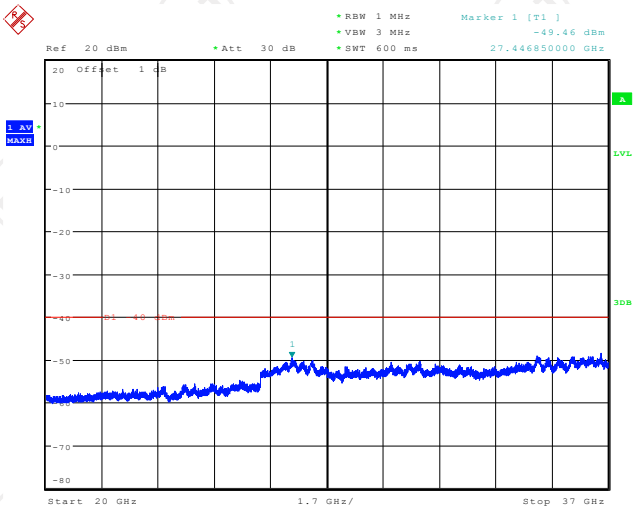

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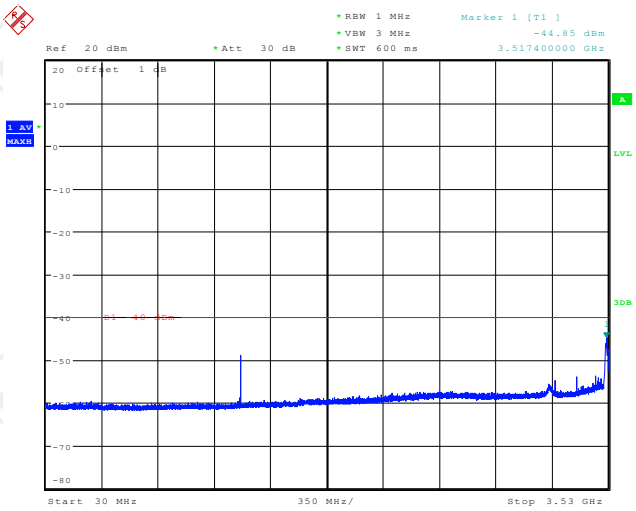
5MHz-DSSS-3555



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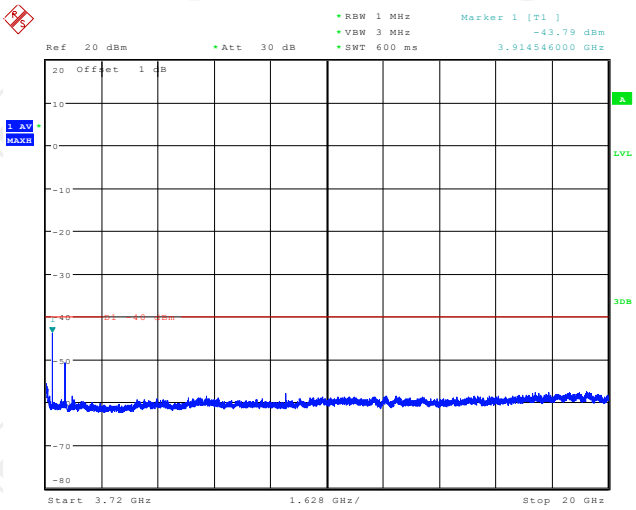

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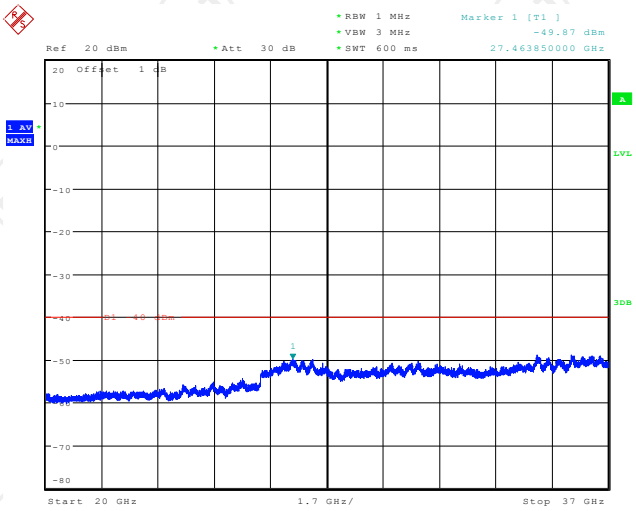

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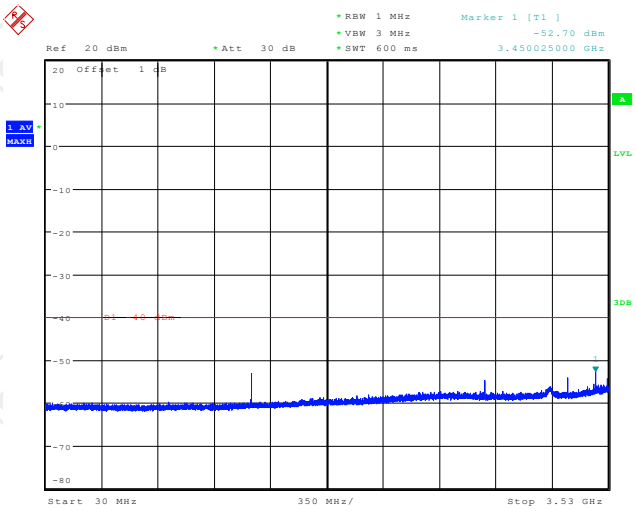
5MHz-DSSS-3625



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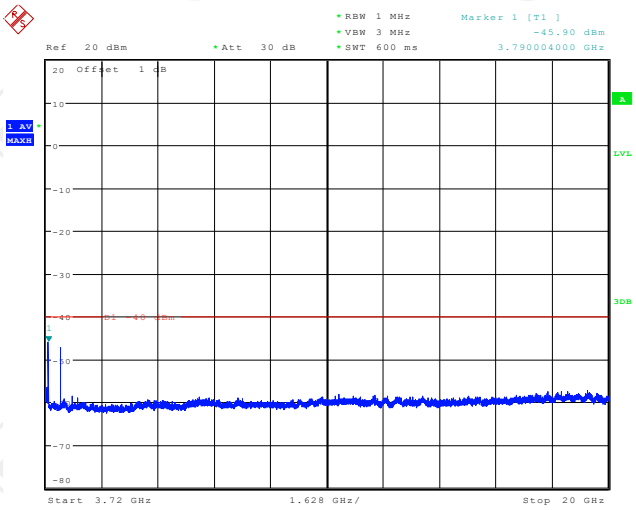

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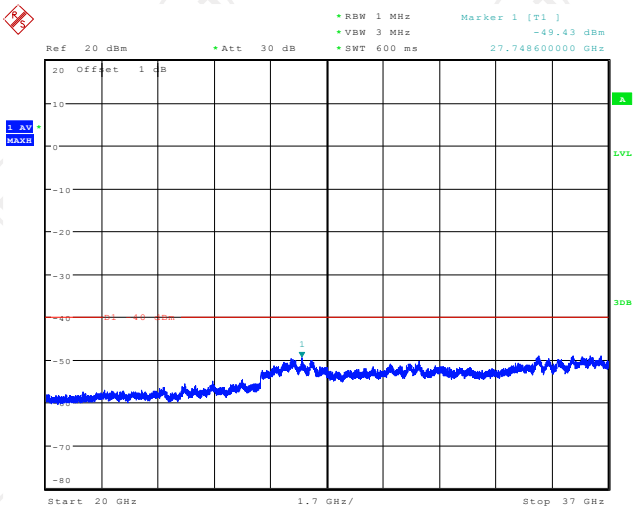

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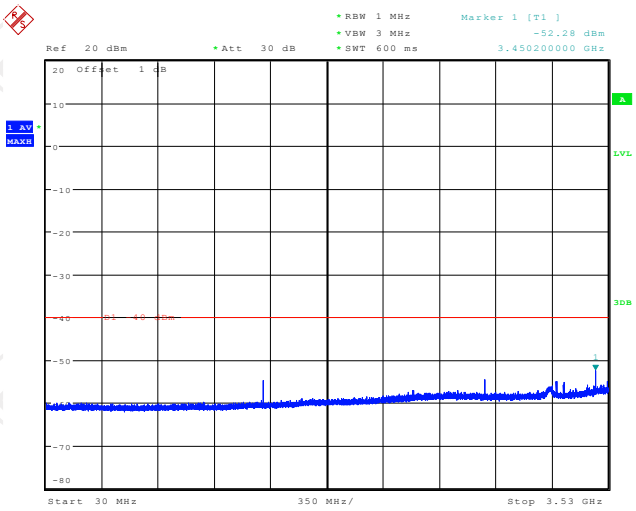
5MHz-DSSS-3695



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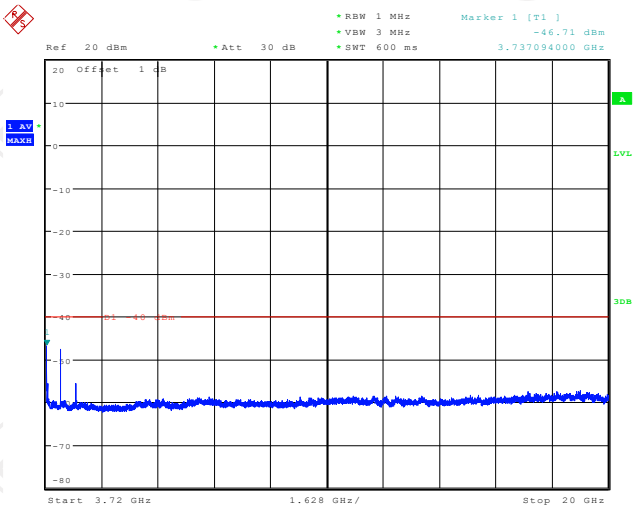

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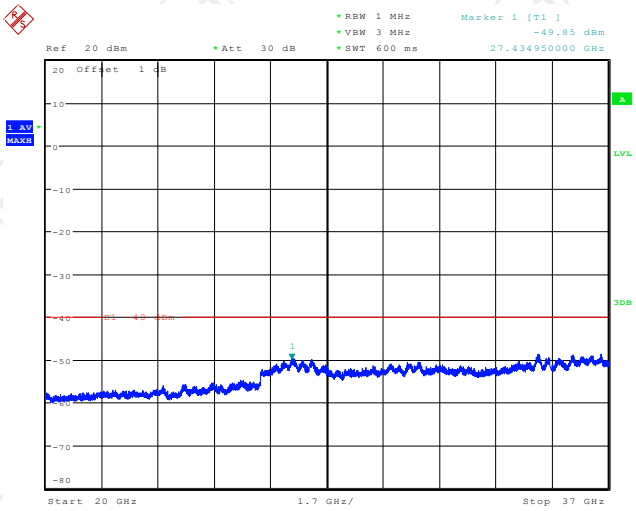

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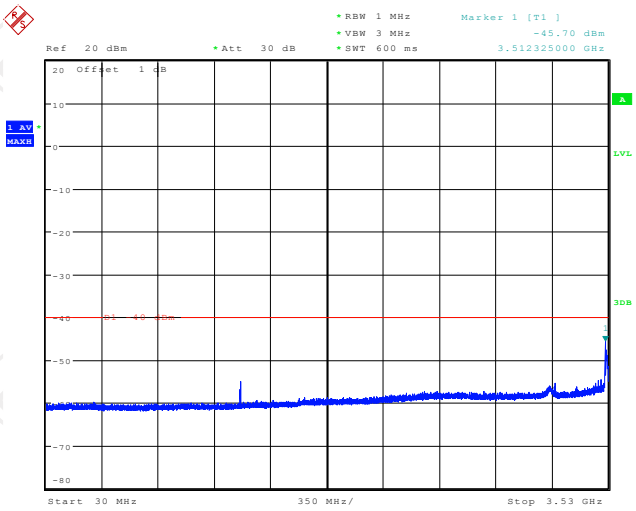
5MHz-OFDM-3555



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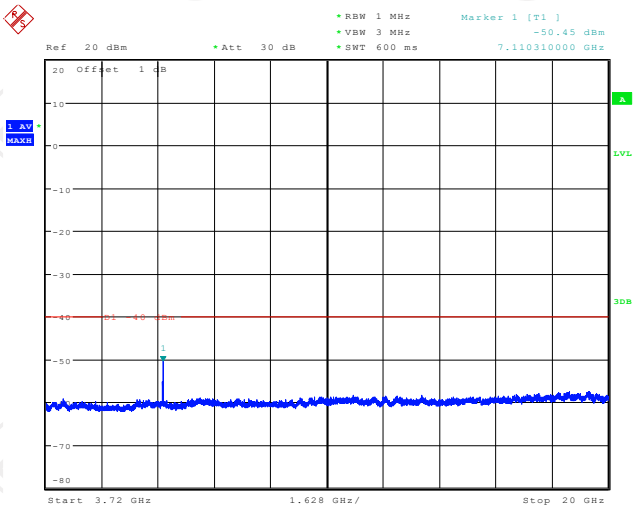

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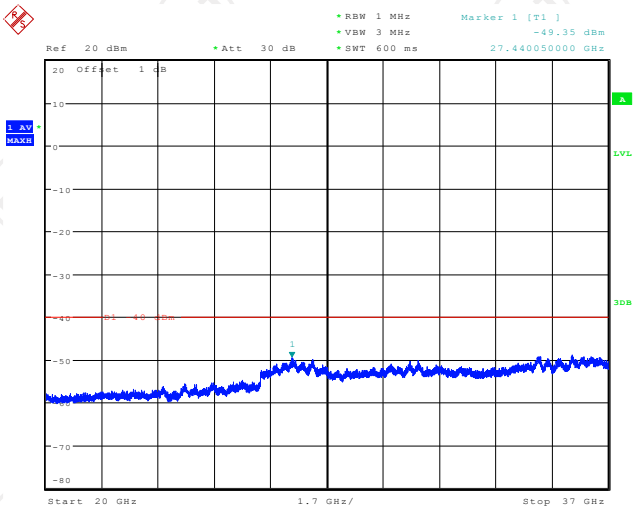

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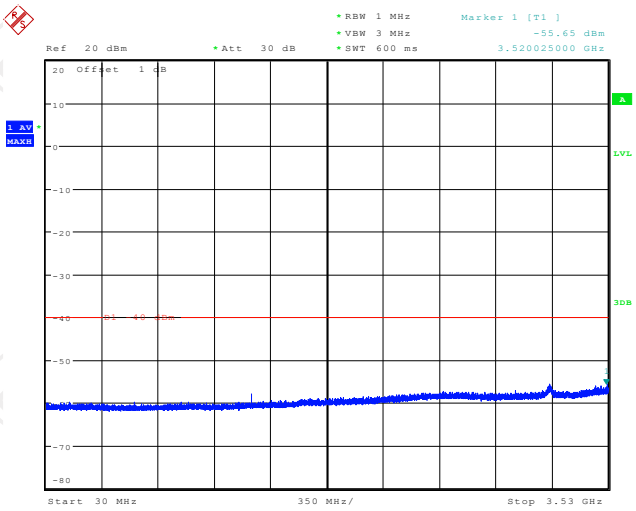
5MHz-OFDM-3625



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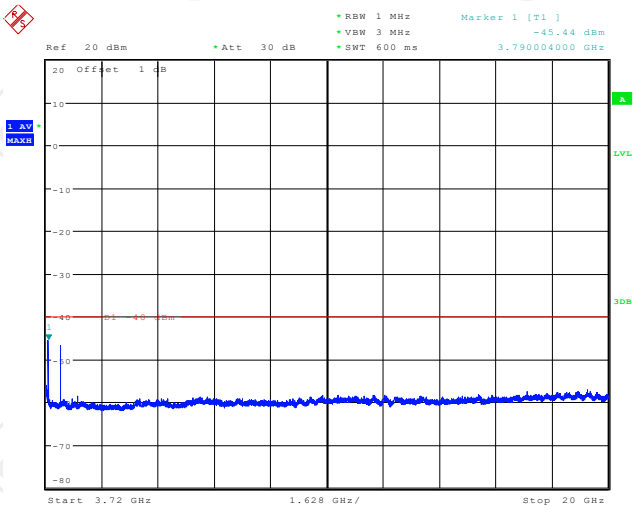

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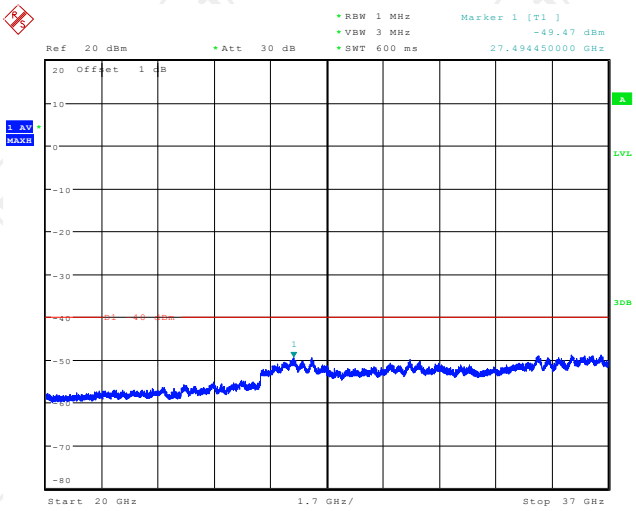

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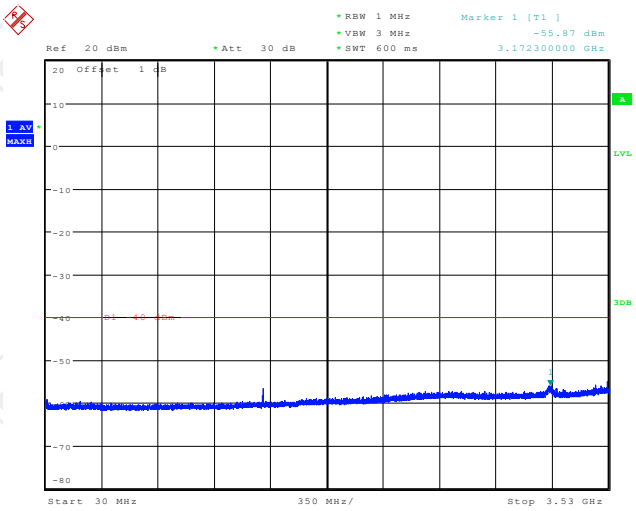
5MHz-OFDM-3695



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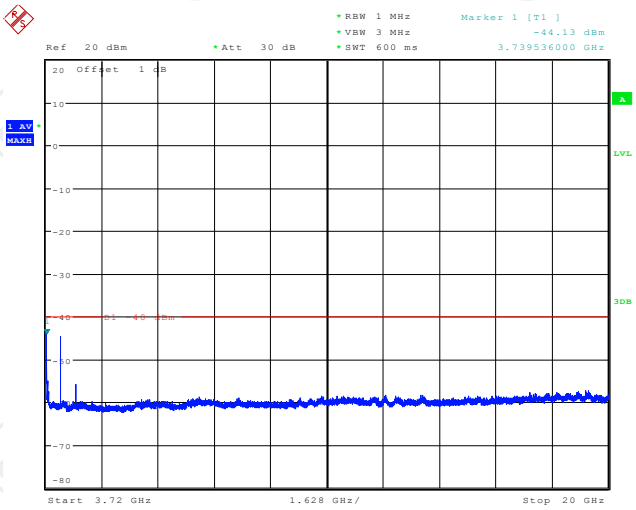

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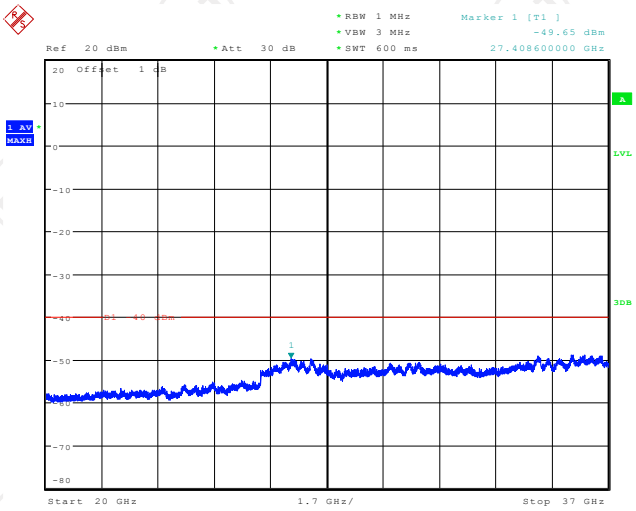

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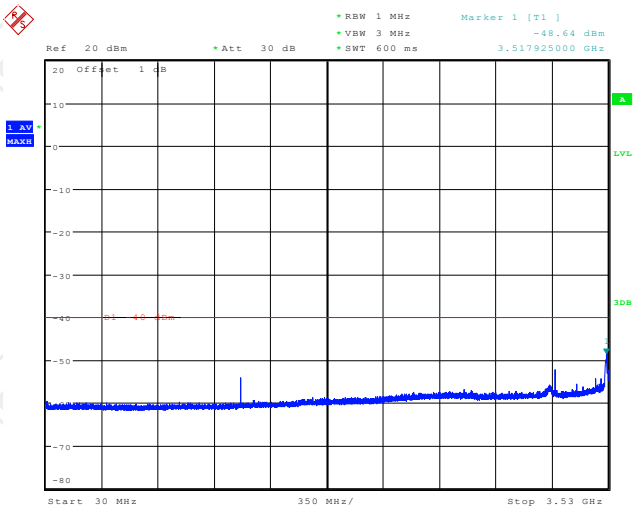
10MHz-DSSS-3555



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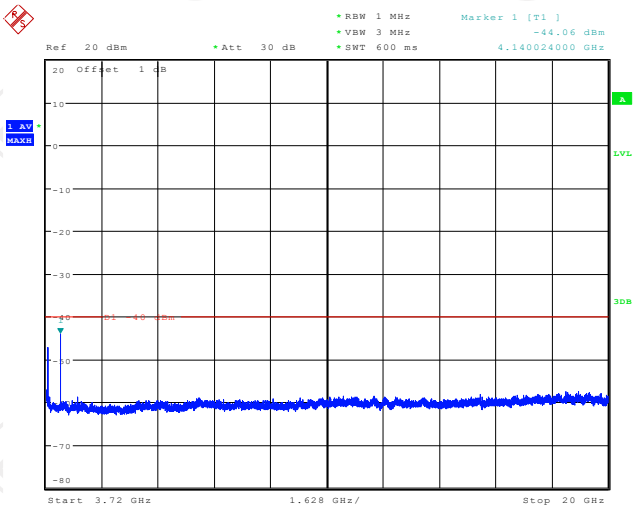

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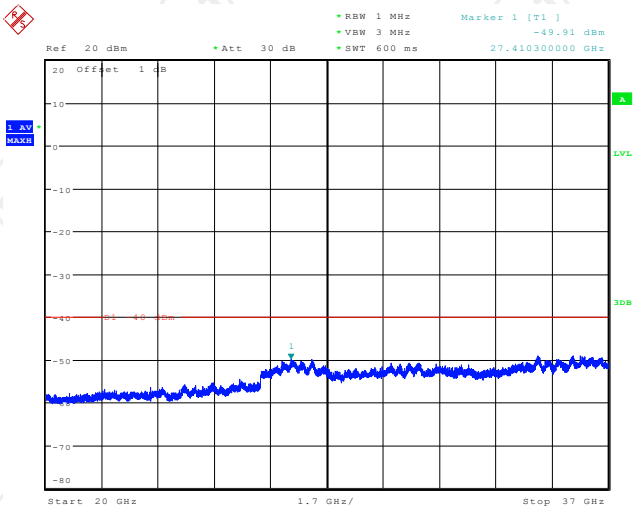

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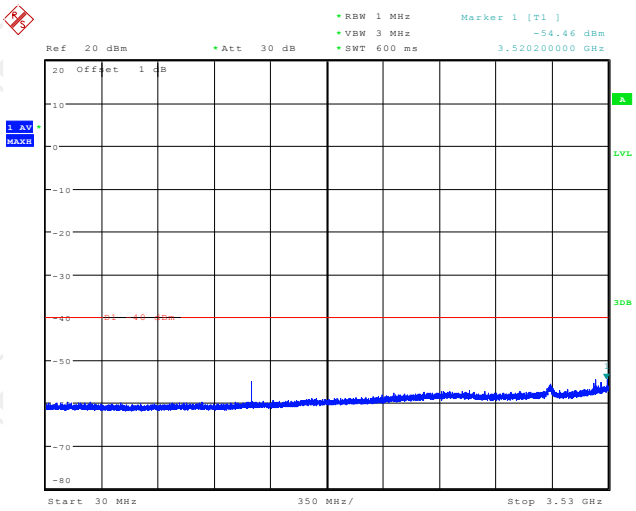

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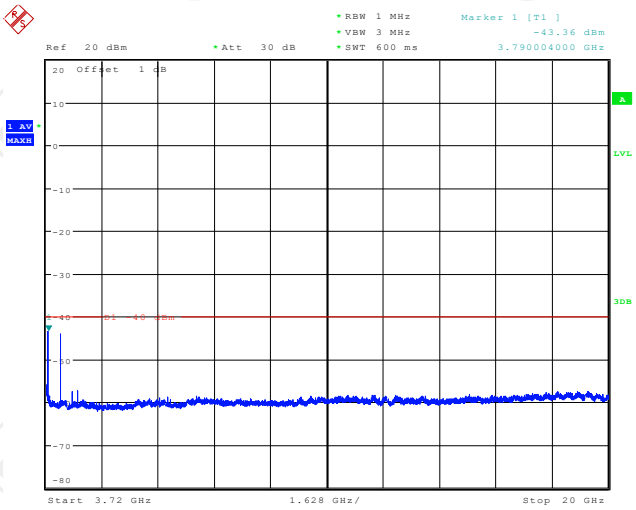

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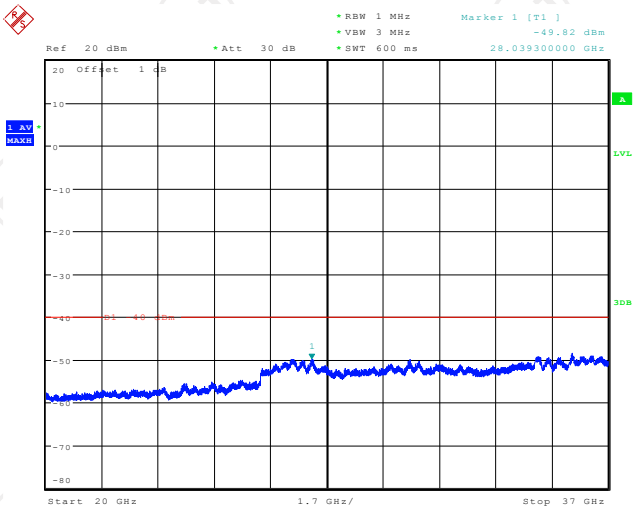

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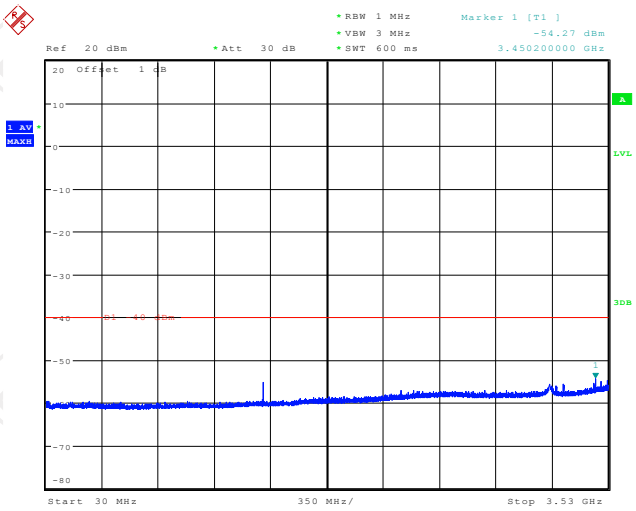
10MHz-DSSS-3695



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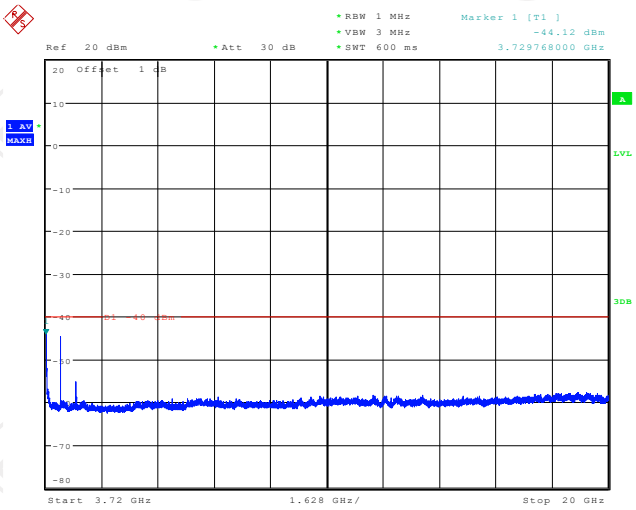

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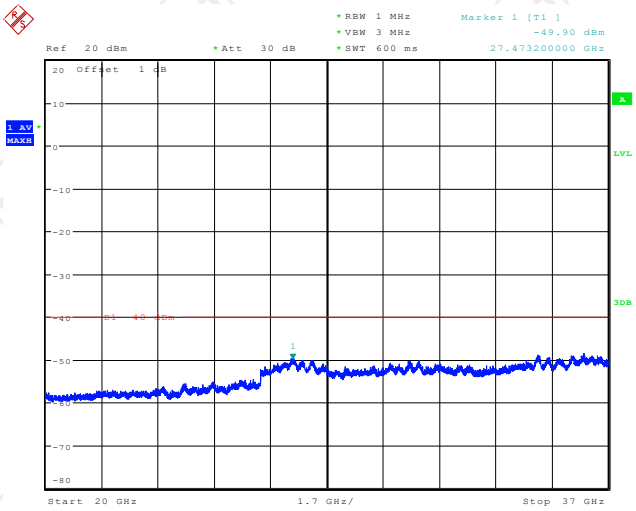

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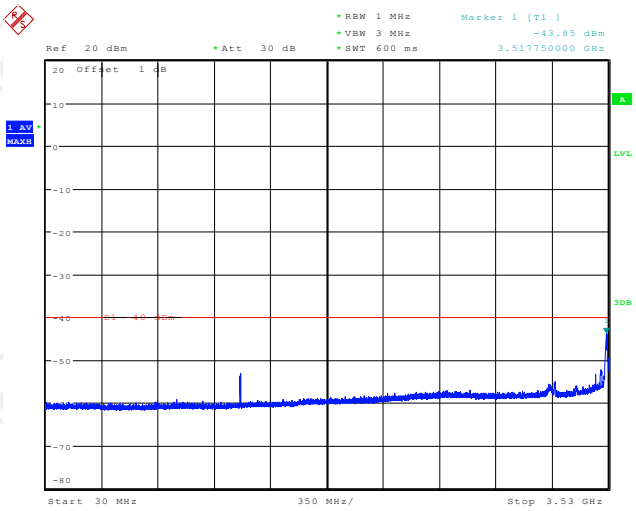
10MHz-OFDM-3555



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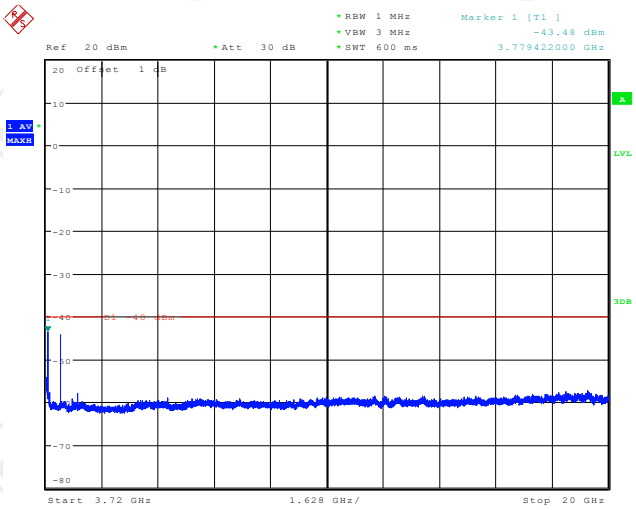

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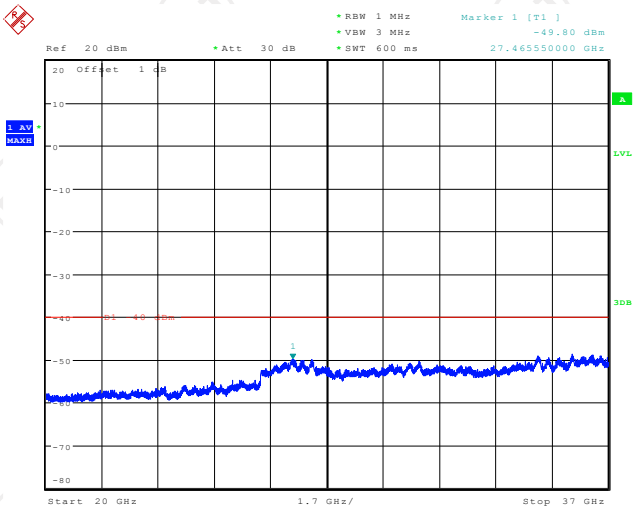

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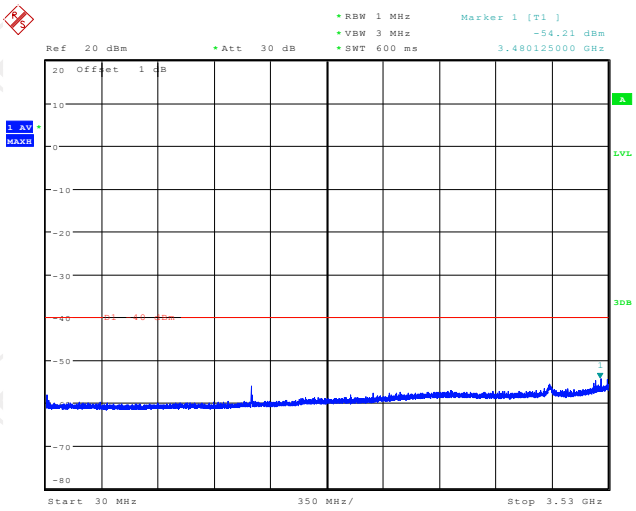
10MHz-OFDM-3625



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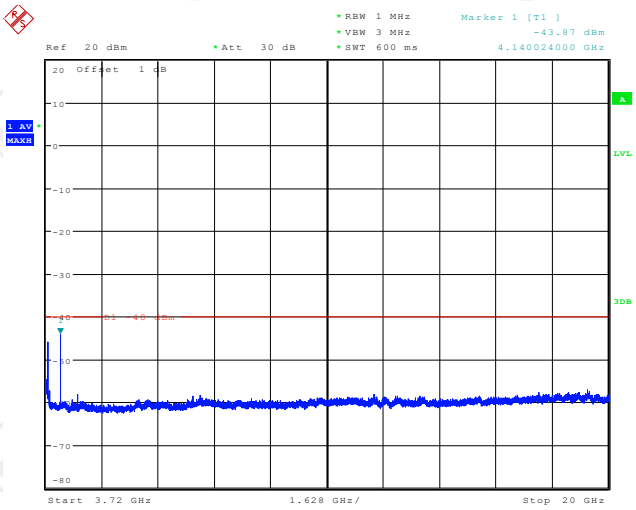

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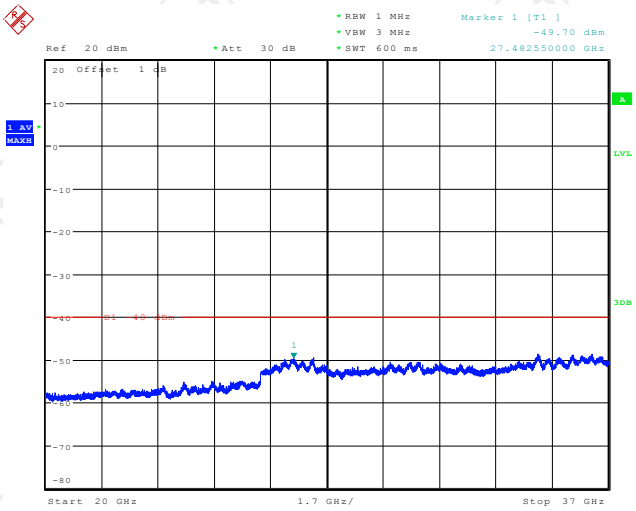

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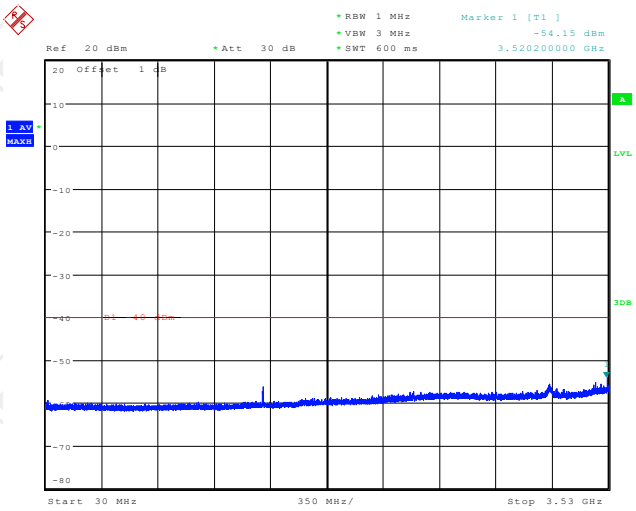
10MHz-OFDM-3695



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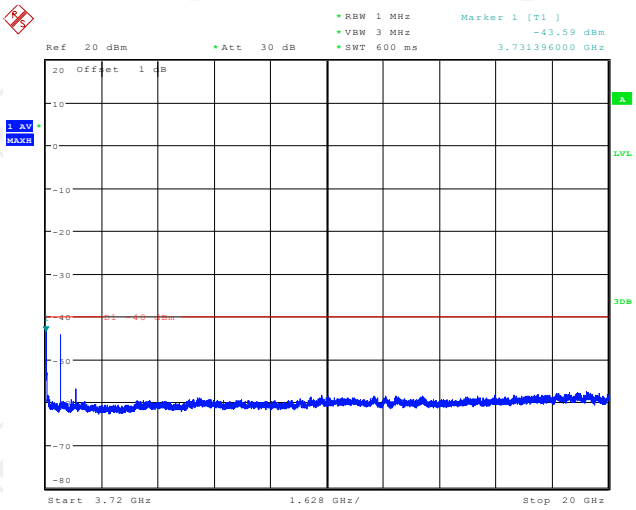

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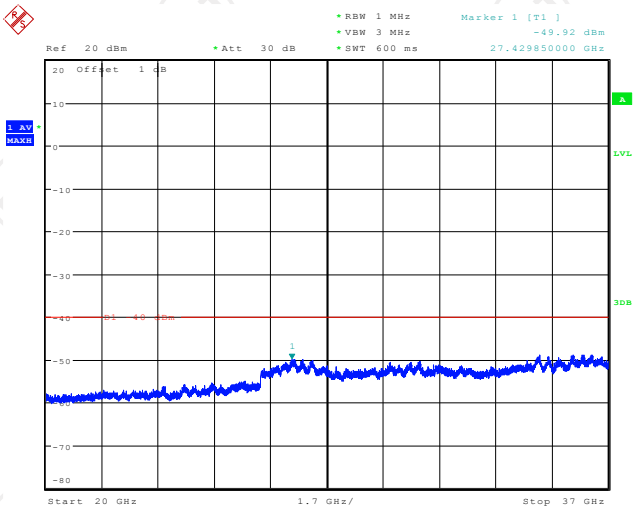

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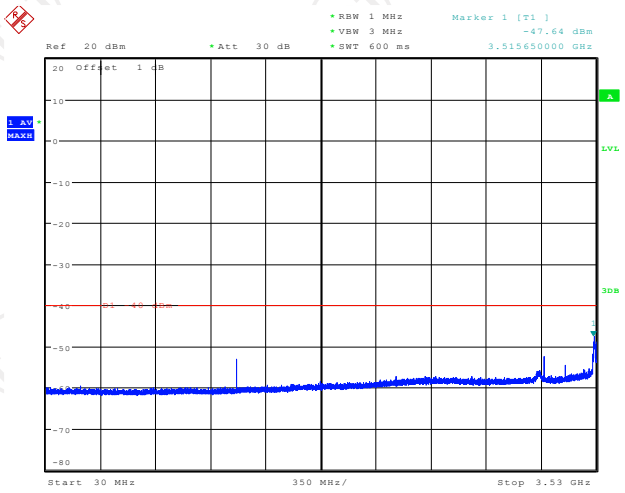
Ant1

3MHz-DSSS-3555



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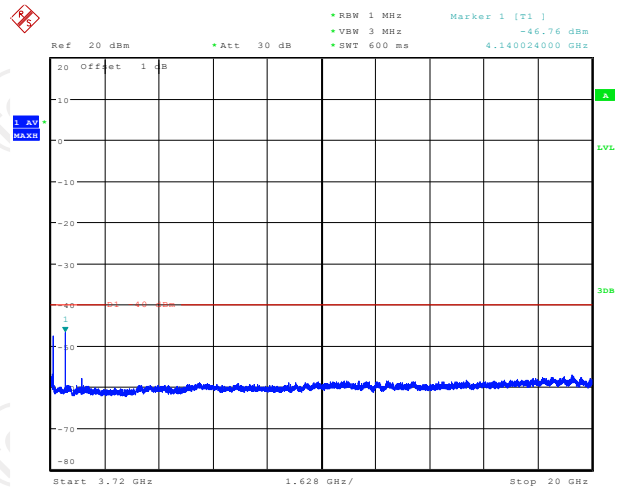

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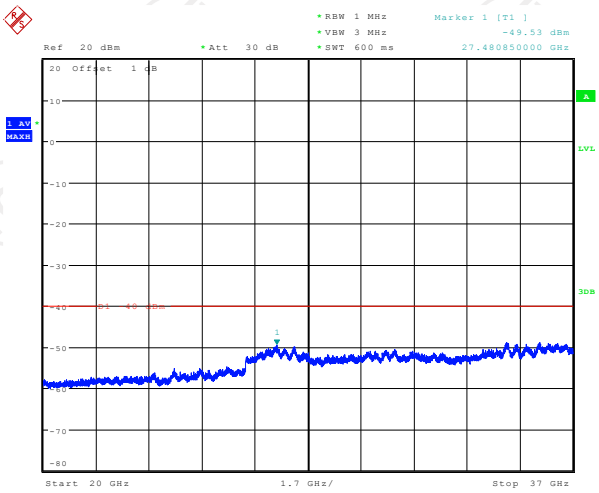

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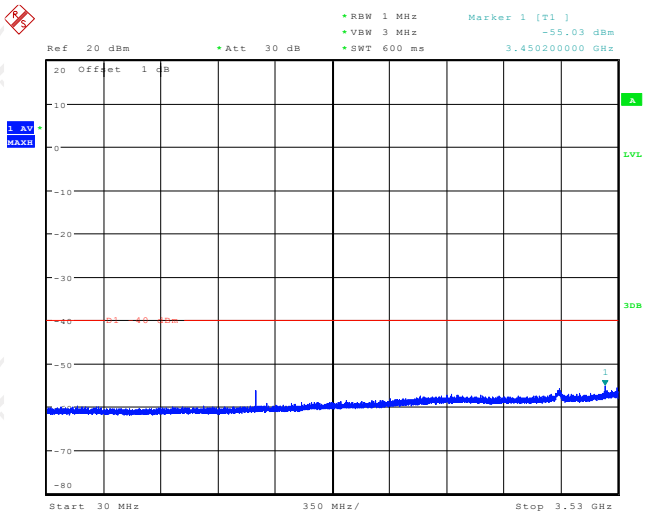
3MHz-DSSS-3625



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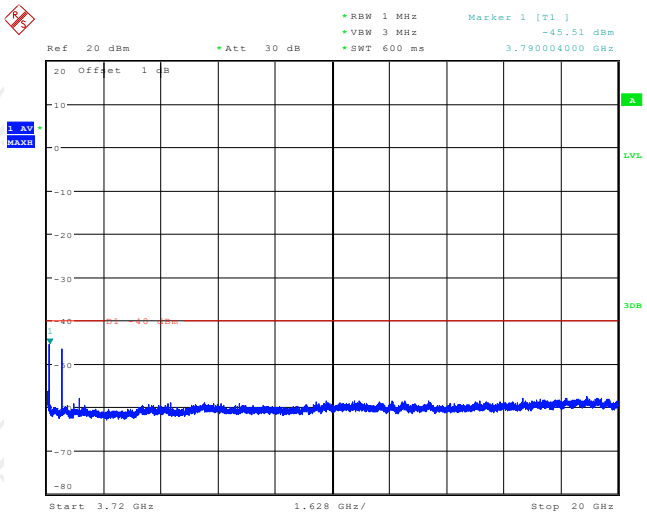

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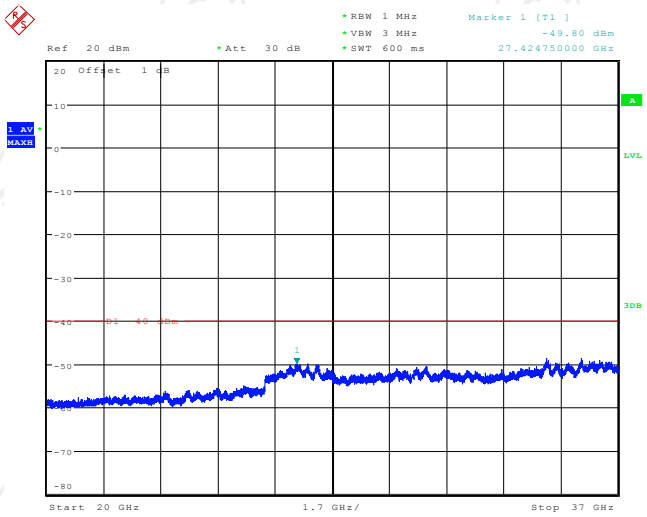

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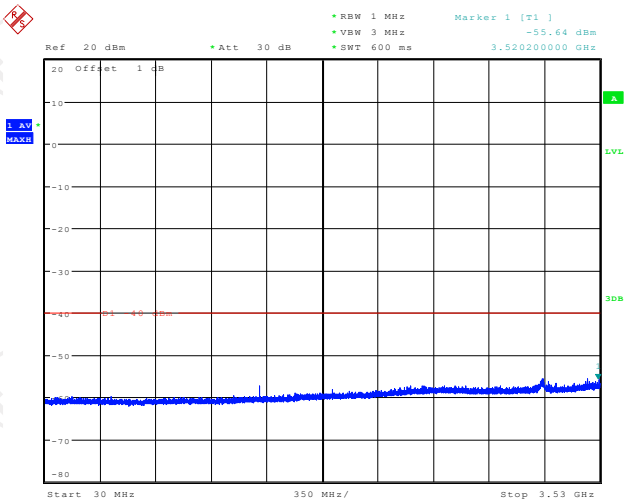
3MHz-DSSS-3695



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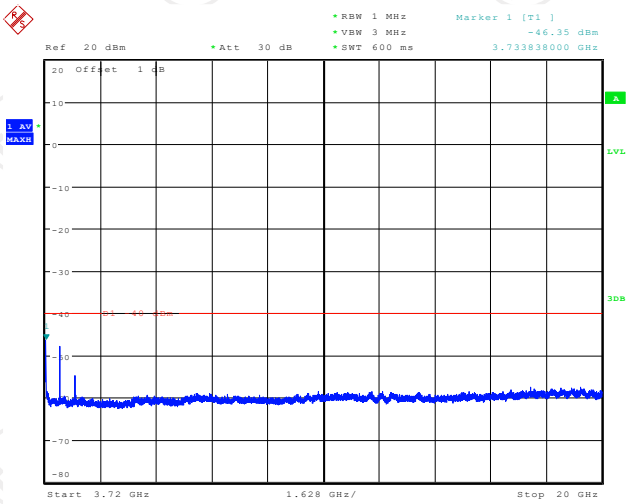

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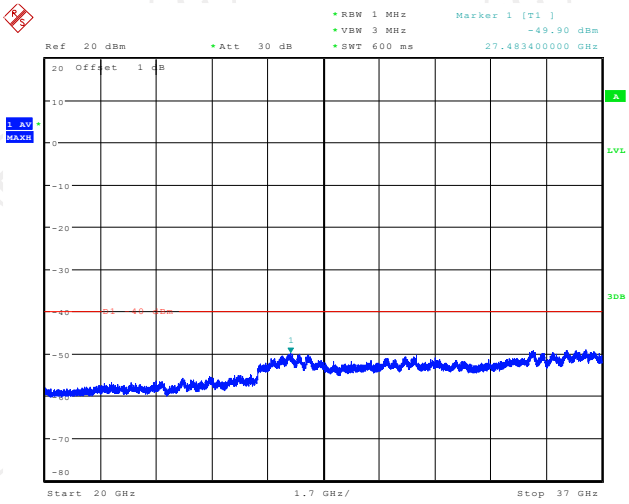

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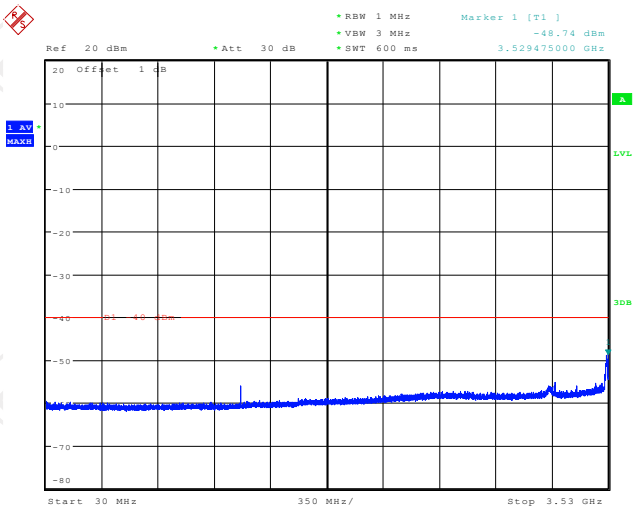
3MHz-OFDM-3555



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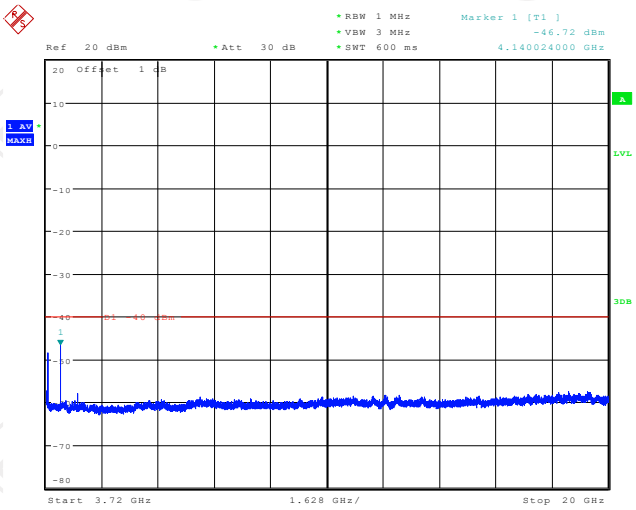

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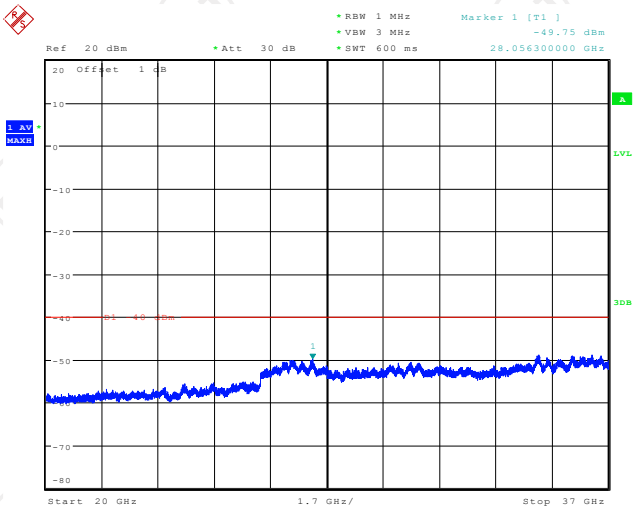

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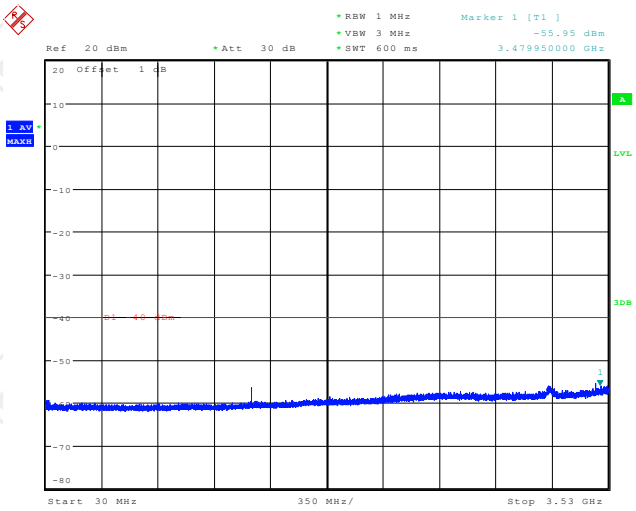
3MHz-OFDM-3625



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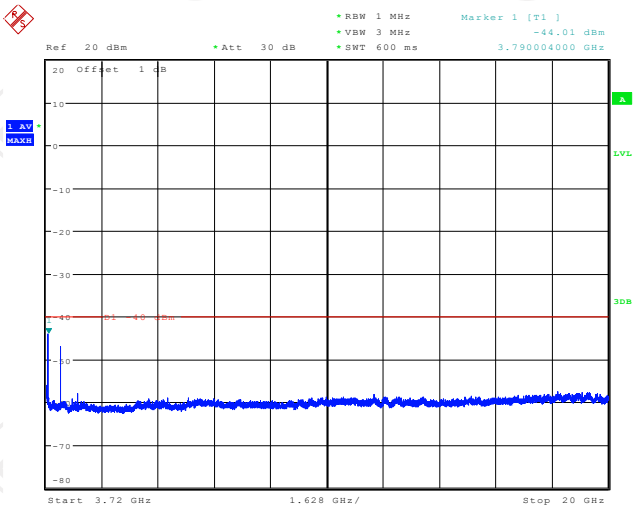

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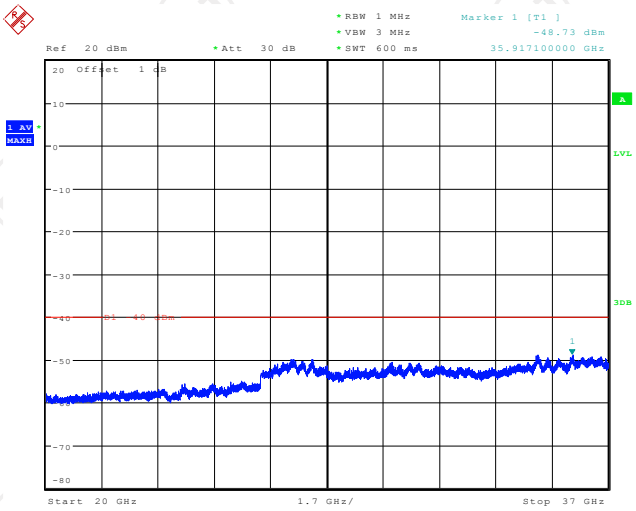

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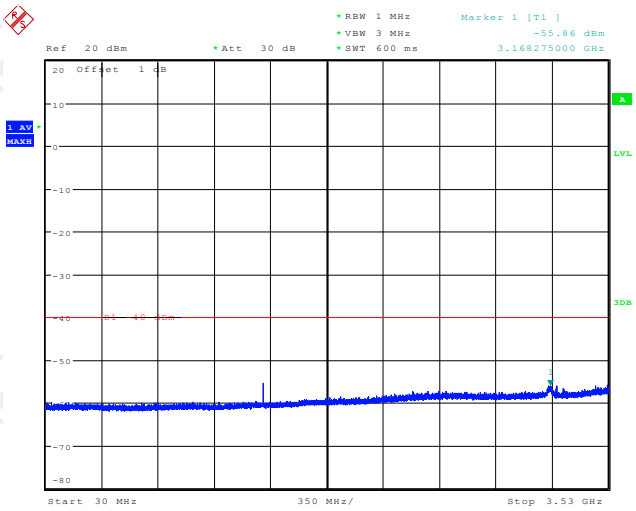
3MHz-OFDM-3695



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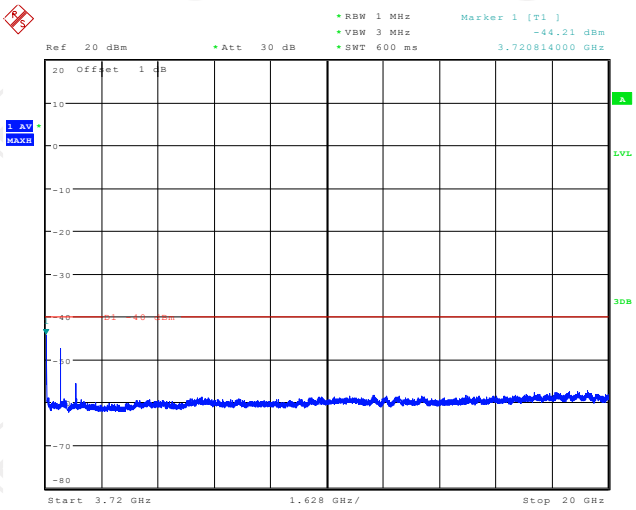

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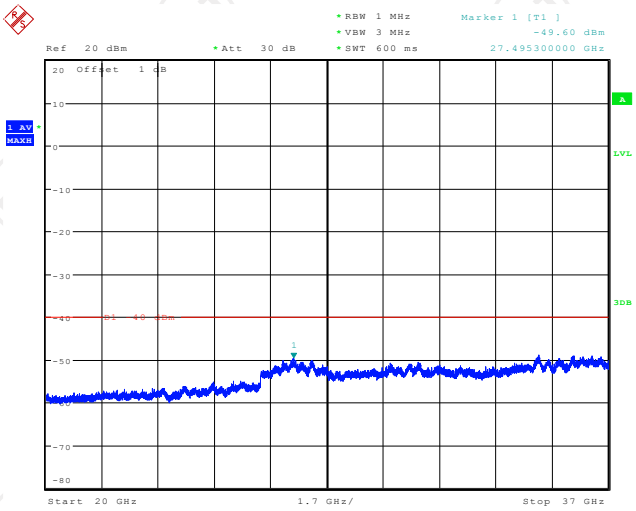

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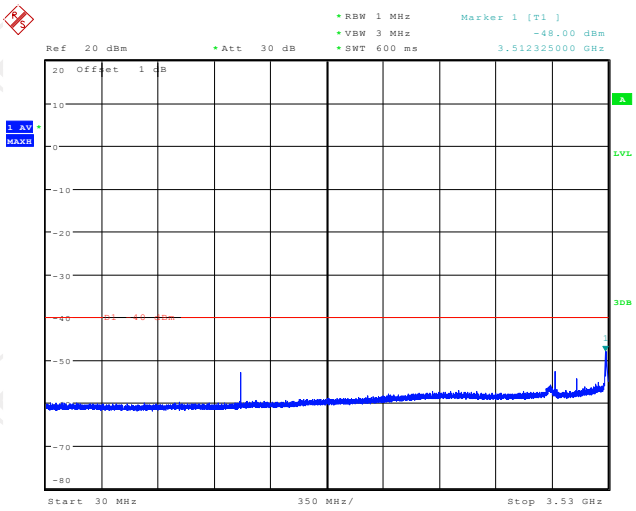
5MHz-DSSS-3555



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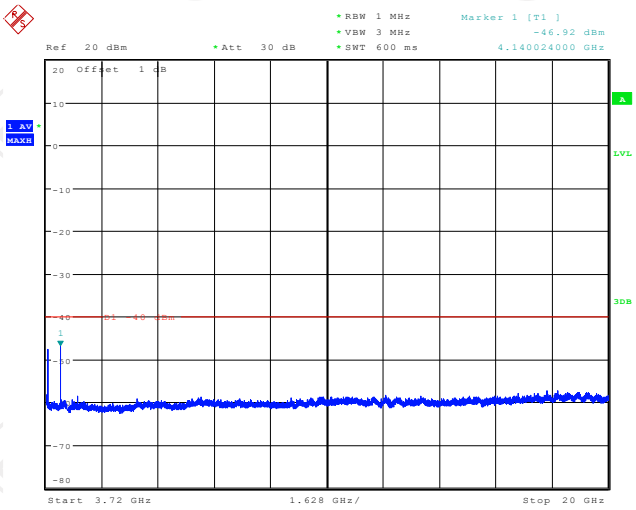

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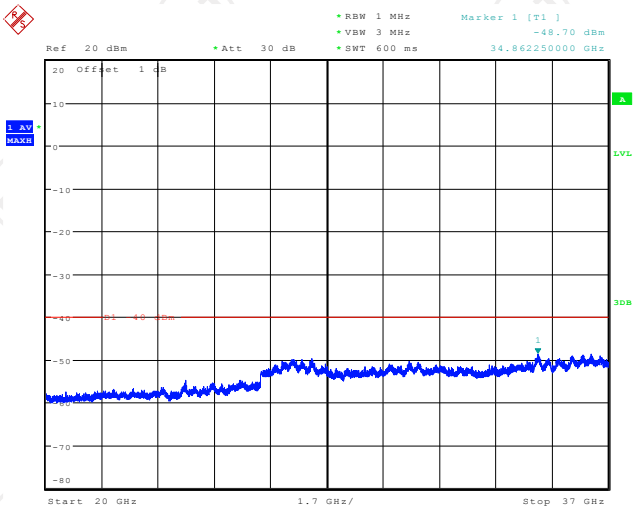

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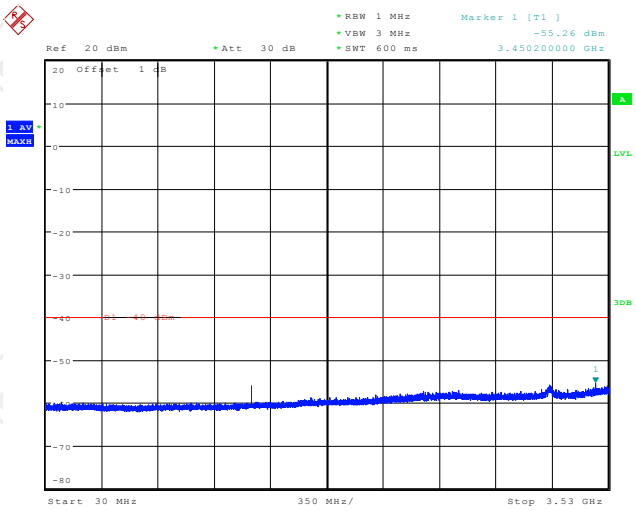
5MHz-DSSS-3625



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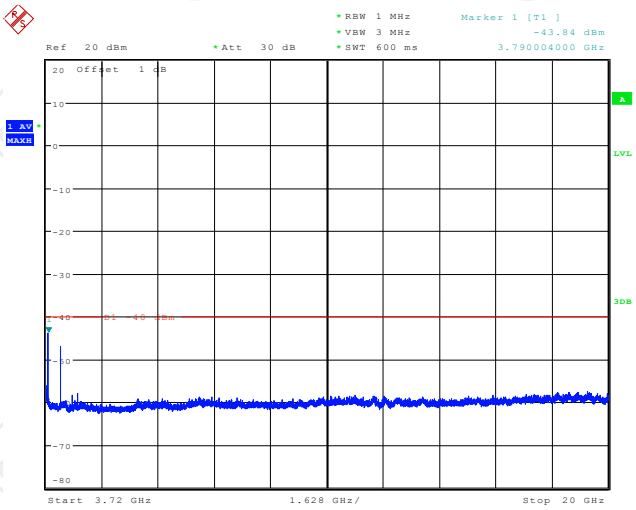

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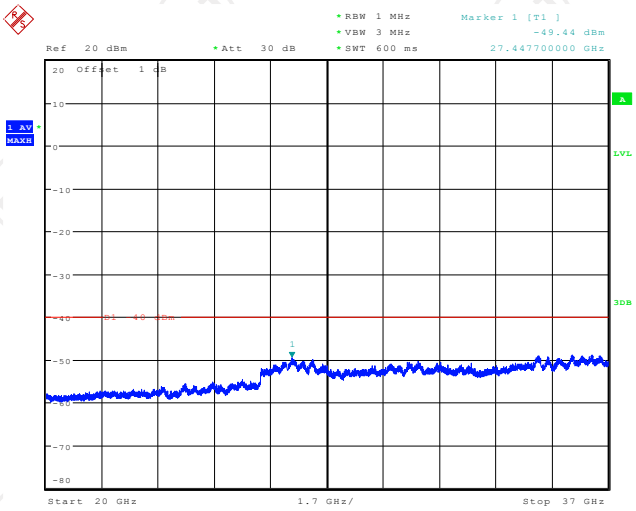

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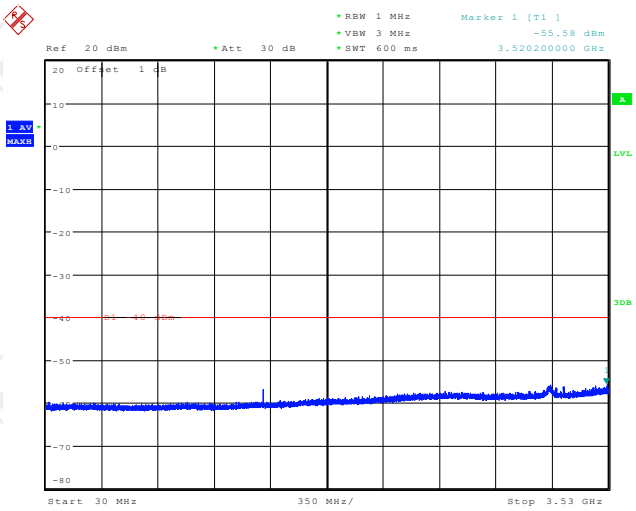

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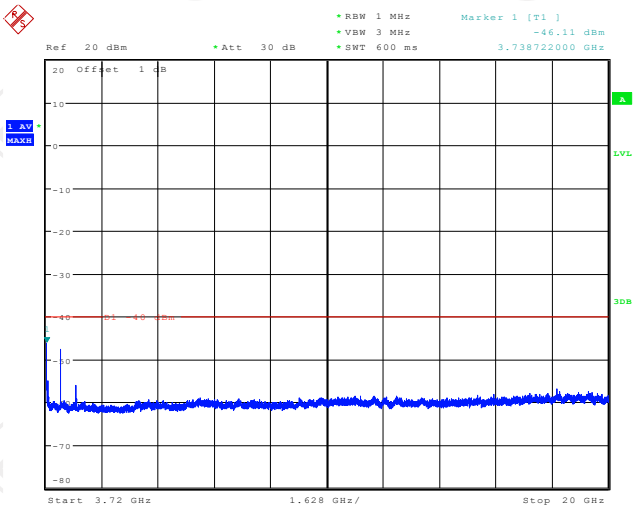

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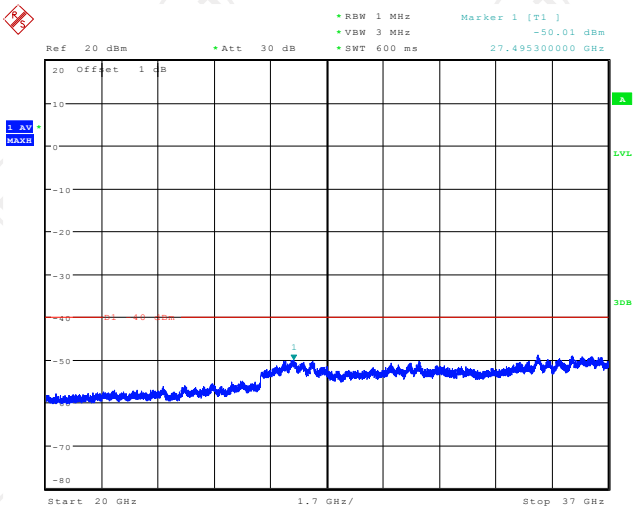

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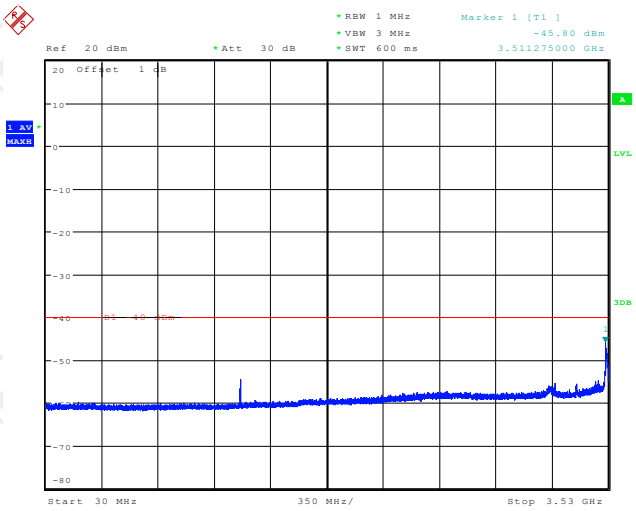
5MHz-OFDM-3555



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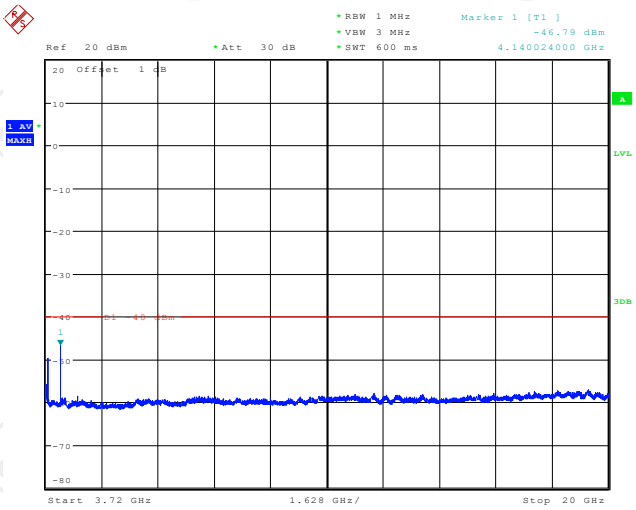

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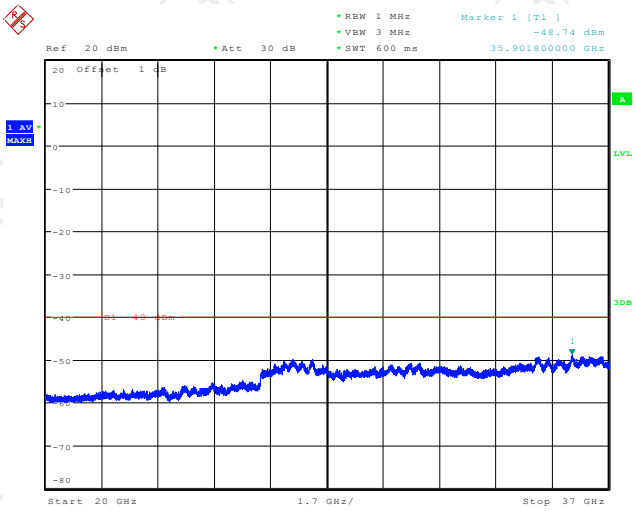

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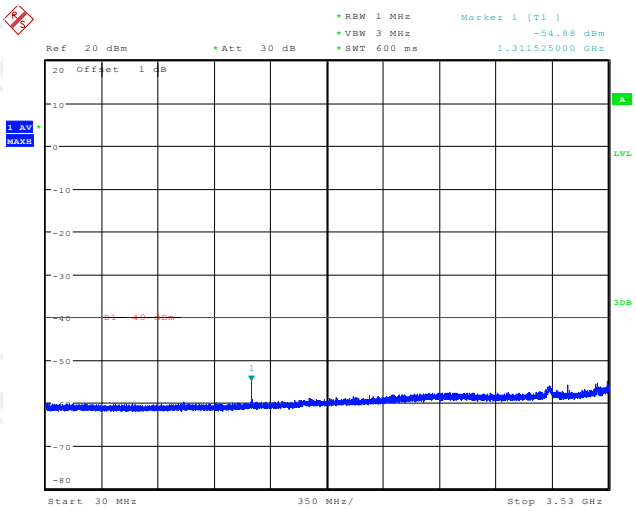
5MHz-OFDM-3625



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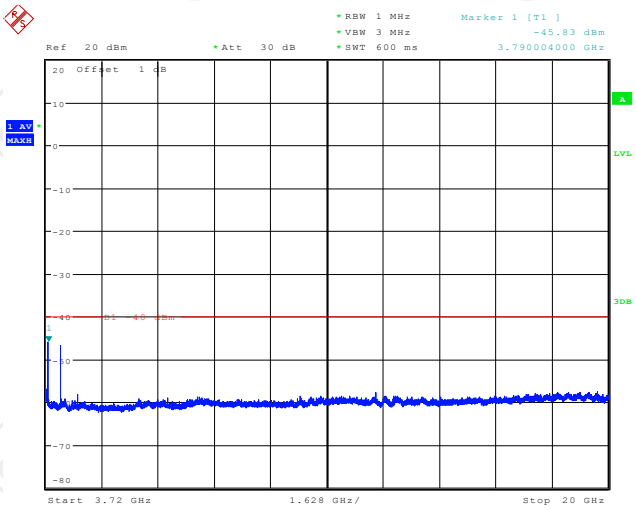

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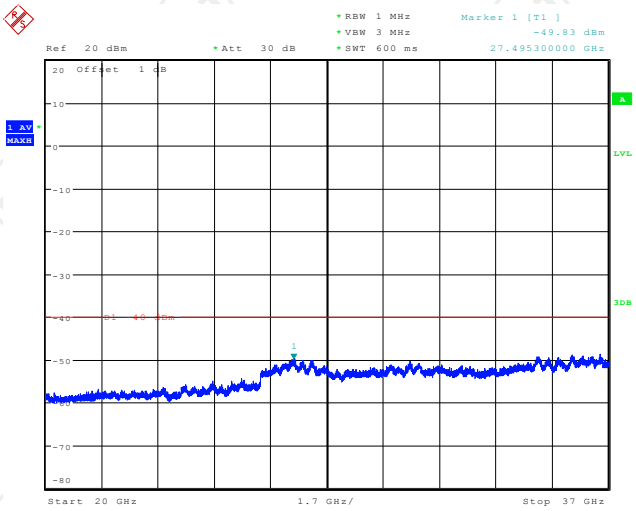

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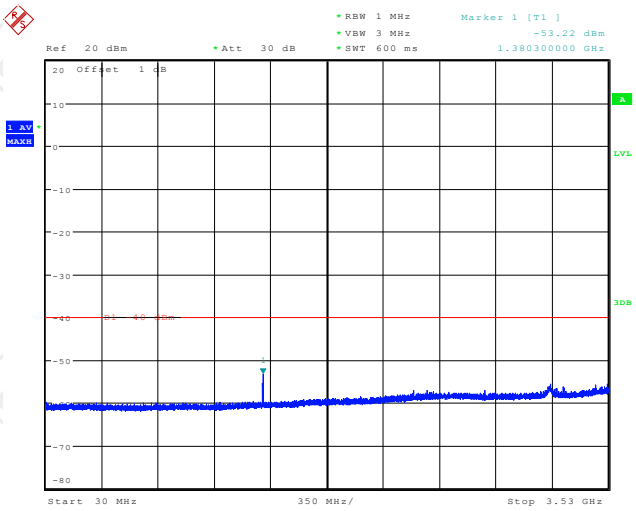
5MHz-OFDM-3695



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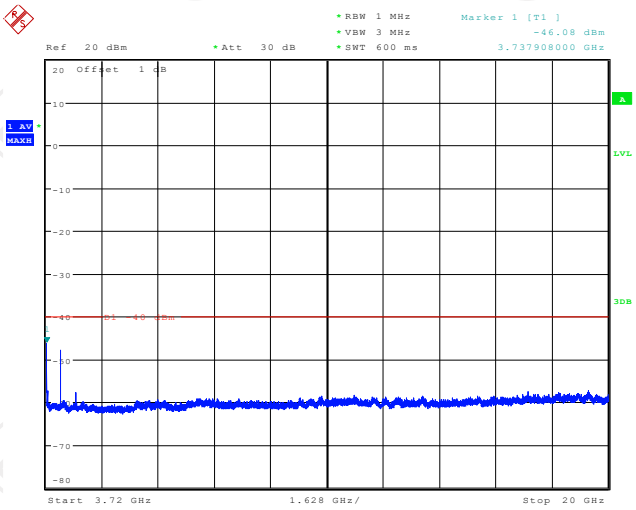

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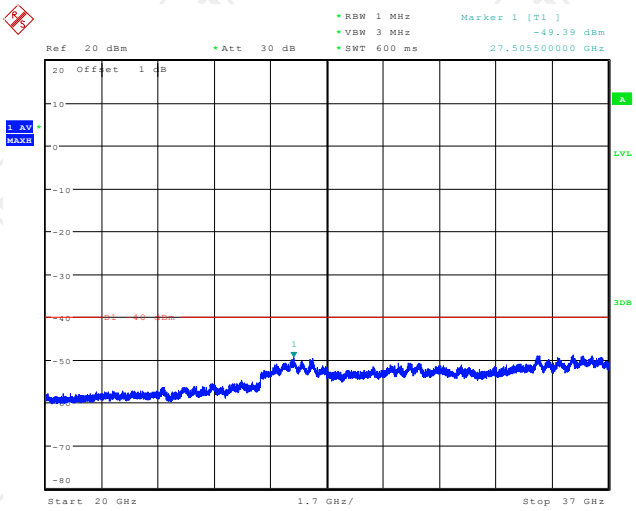

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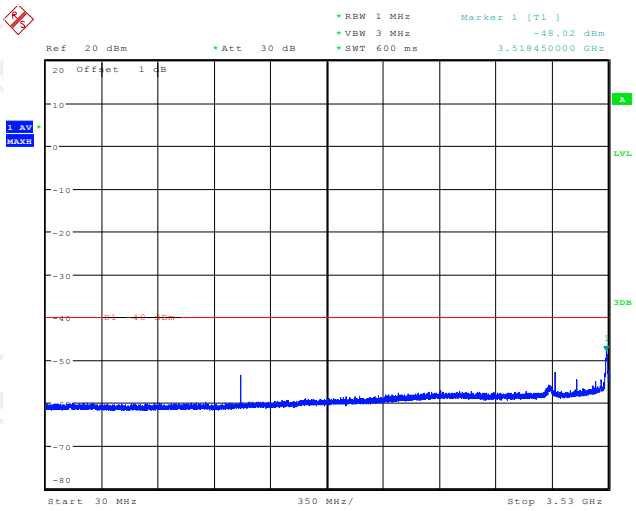
10MHz-DSSS-3555



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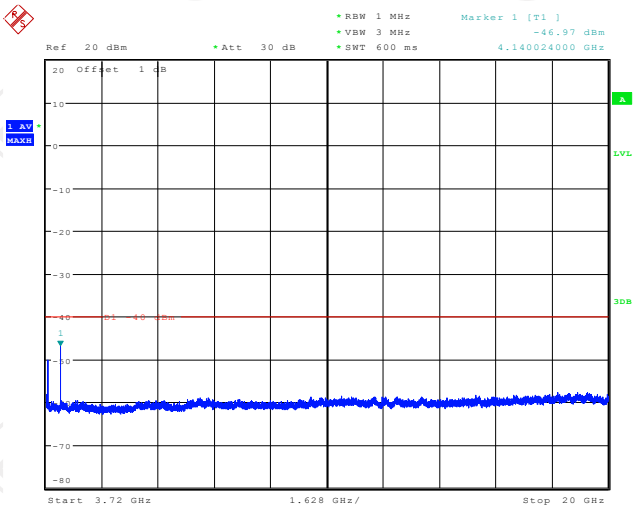

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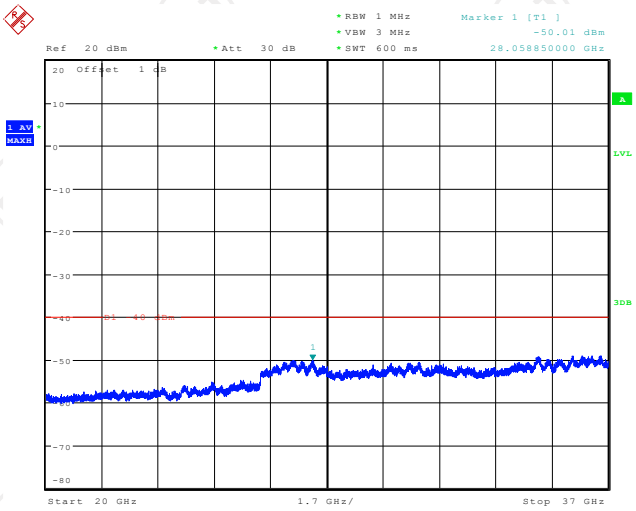

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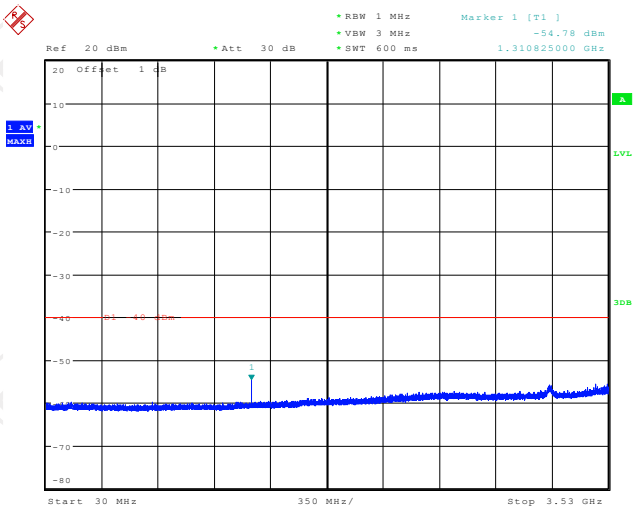
10MHz-DSSS-3625



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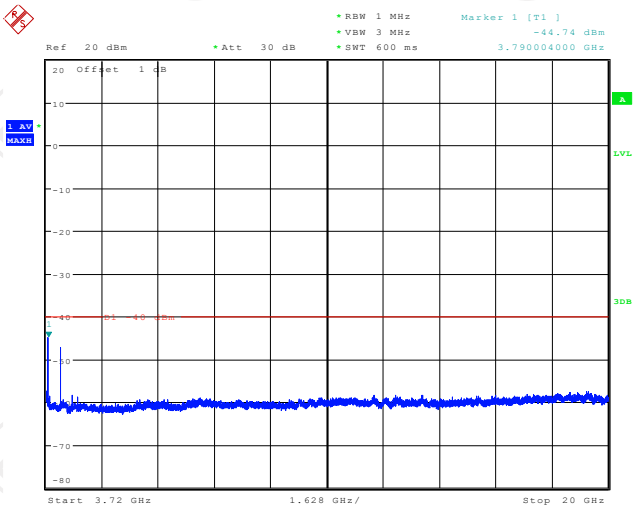

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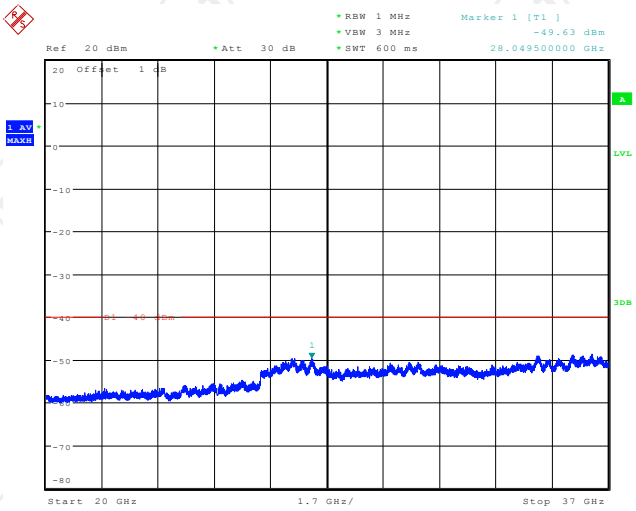

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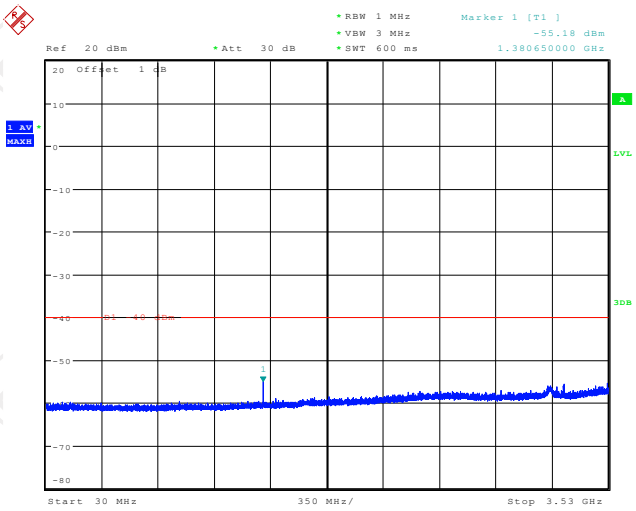
10MHz-DSSS-3695



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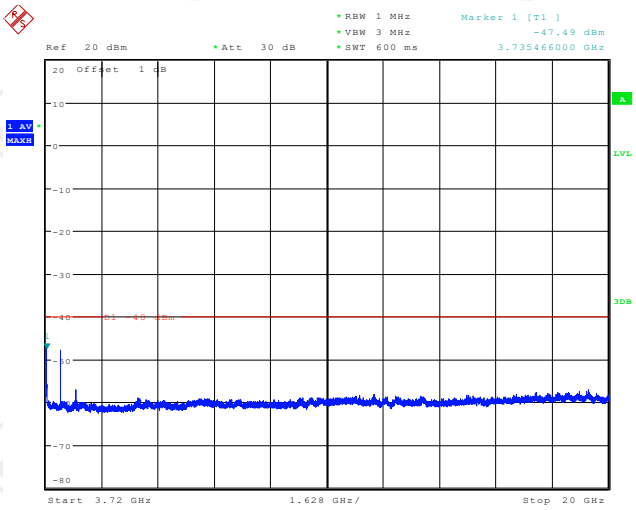

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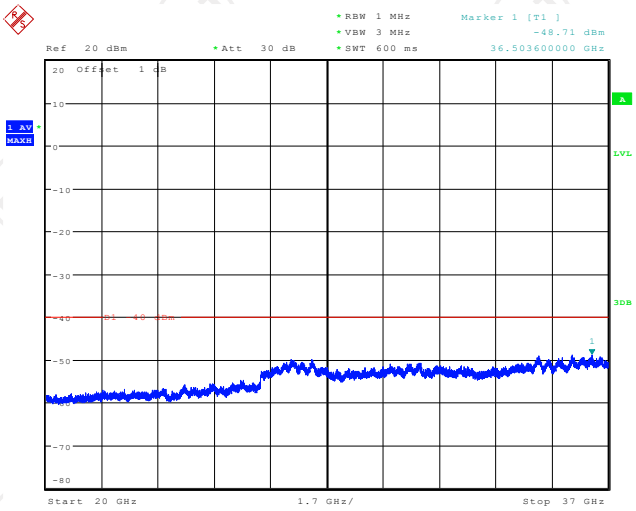

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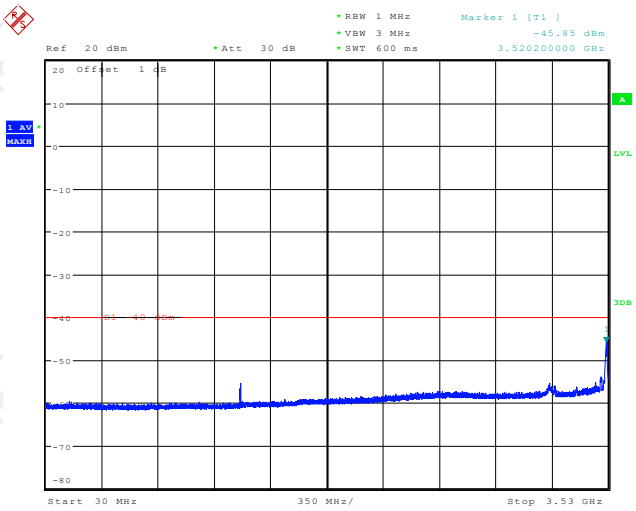
10MHz-OFDM-3555



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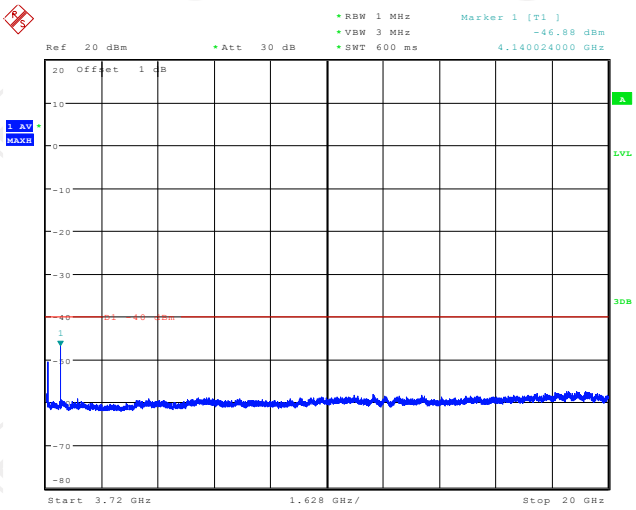

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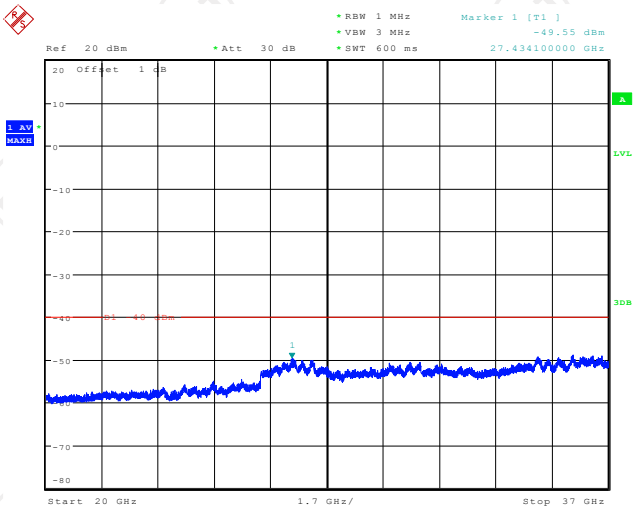

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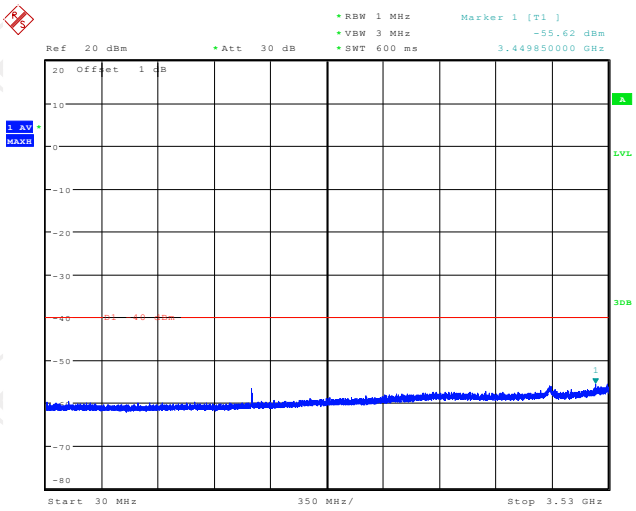
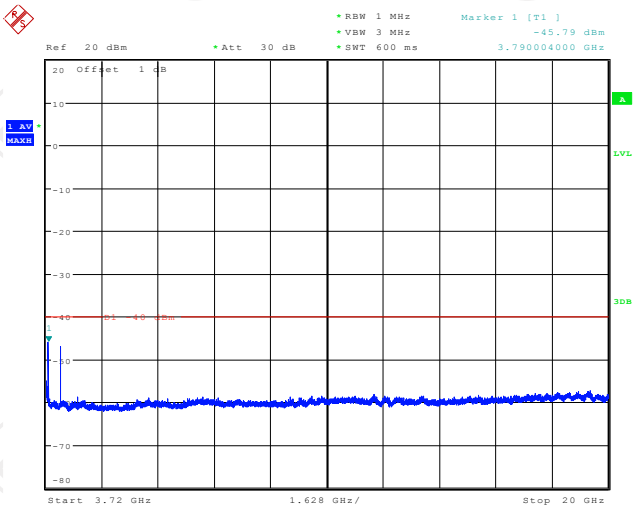
10MHz-OFDM-3625



Date: 17.APR.2022 14:21:49



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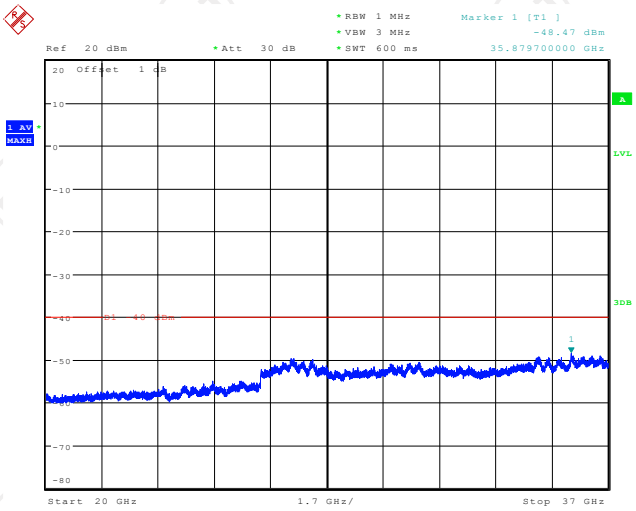

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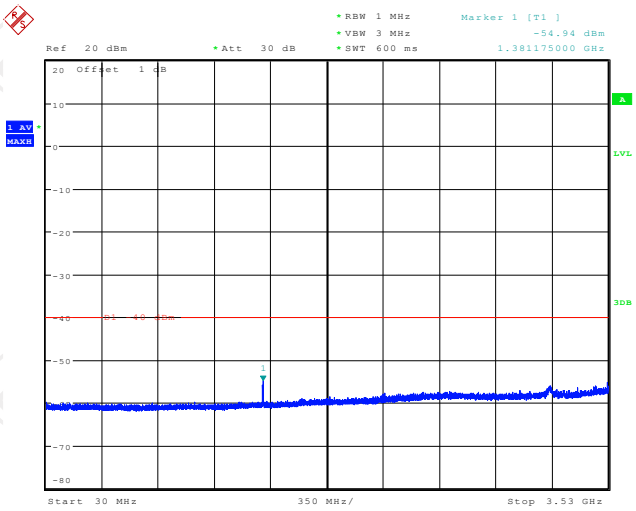
10MHz-OFDM-3695



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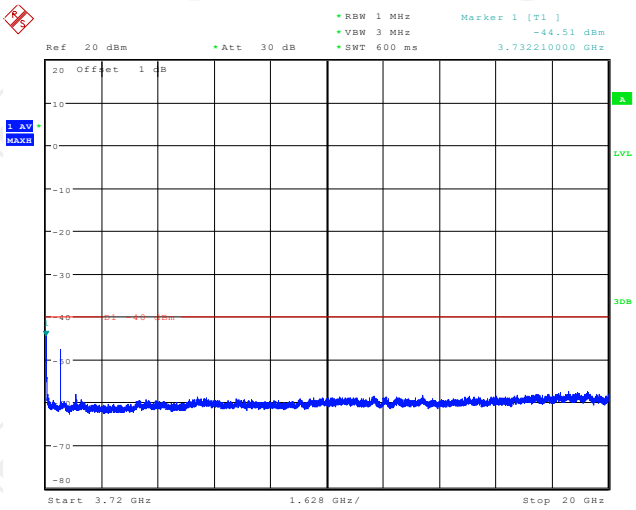

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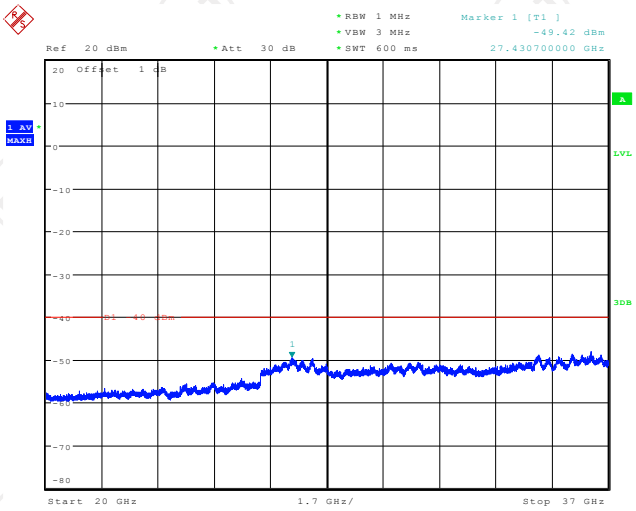

Date: 17.APR.2022 14:24:50

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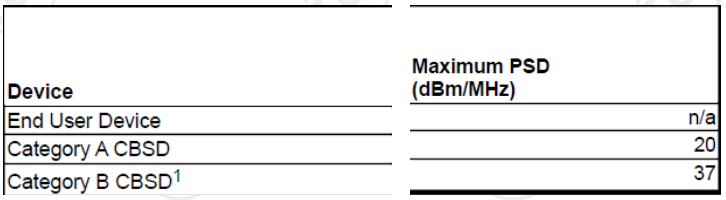
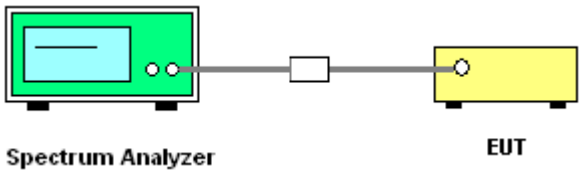
5.5. Power Spectral Density (PSD)

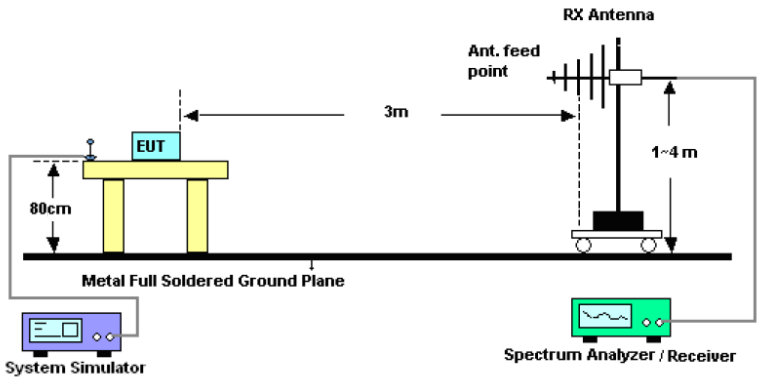
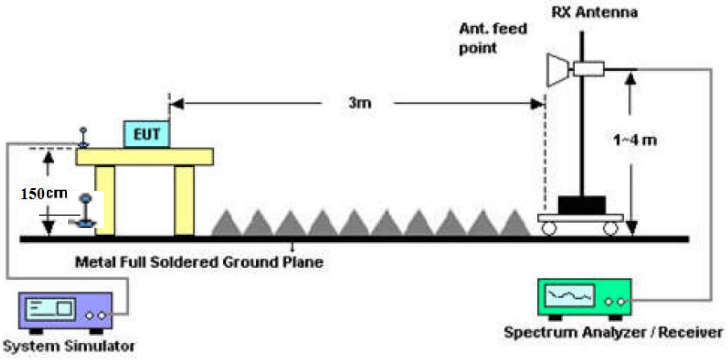
5.5.1. Test Specification

Test Requirement:	FCC part 96.41(b)(c)
Test Method:	FCC KDB 971168 D01v03r01
Limit:	
Test Setup:	
Test Procedure:	1. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW): 1MHz. Video bandwidth VBW ≥ 3 x RBW. Set the span to at least 2-3 times the OBW. 4. Detector = RMS, Sweep time = auto couple. 5. Employ trace averaging (RMS) mode over a minimum of 100 traces. Use the peak marker function to determine the maximum power level. 6. Measure and record the results in the test report.
Test results:	N/A

Device	Maximum PSD (dBm/MHz)
End User Device	n/a
Category A CBSD	20
Category B CBSD[1]	37

5.6. Field Strength of Spurious Radiation Measurement

5.6.1. Test Specification

Test Requirement:	FCC part 96.41
Test Method:	FCC KDB 971168 D01v03r01
Operation mode:	Refer to item 3.1
Limit:	-40dBm
Test setup:	For 30MHz~1GHz  Above 1GHz 
Test Procedure:	1. The testing follows FCC KDB 971168 D01v03r01 Section 6 and ANSI / TIA-603-D-2010 Section 2.2.12. 2. The EUT was placed on a rotatable wooden table 0.8 meters above the ground. 3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower. 4. The table was rotated 360 degrees to determine the position of the highest spurious emission. 5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations. 6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of

	maximum spurious emission. 7. A horn antenna was substituted in place of the EUT and was driven by a signal generator. 8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission. 9. Taking the record of output power at antenna port. 10. Repeat step 7 to step 8 for another polarization.
Test results:	PASS
Remark:	All bandwidth have been tested, but only the worst bandwidth 3MHz show in this test item.

5.6.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Universal Radio Communication Tester	R&S	CMU200	110188	Jul. 07, 2022
Spectrum Analyzer	R&S	FSQ40	200061	Jul. 07, 2022
Signal Generator	HP	83623B	3614A00396	Jul. 07, 2022
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 04, 2022
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 04, 2022
Broadband Antenna	Schwarzbeck	VULB9163	412	Sep. 04, 2022
Horn Antenna	Schwarzbeck	BBHA 9120D	1201	Sep. 04, 2022
Horn Antenna	Schwarzbeck	BBHA 9170	00956	Apr. 10, 2023
Coaxial cable	SKET	RC_DC18G-N	N/A	Apr. 08, 2022
Coaxial cable	SKET	RC-DC18G-N	N/A	Apr. 08, 2022
Coaxial cable	SKET	RC-DC40G-N	N/A	Jul. 07, 2022
Antenna Mast	Keleto	RE-AM	N/A	N/A
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

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5.6.3. Test Data

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dBμV/m)	Limit@3m (dBμV/m)
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--	--	--
--	--	--
--	--	--

Note: *1. Emission Level=Reading+ Cable loss+Antenna factor-Amp factor*

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement

Bandwidth	3MHz			Test channel:	Lowest
Mode:	DSSS			Temperature :	25°C
				Relative Humidity:	56%
Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.					
Frequency (MHz)	Spurious Emission			Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)	
3529.195	Vertical	-51.63	-1.54	-53.17	-40.00 PASS
3914.500	V	-57.21	0.86	-56.35	
7110.000	V	-67.52	9.20	-58.32	
3529.195	Horizontal	-47.62	-1.54	-49.16	
3914.500	H	-51.20	0.86	-50.34	
7110.000	H	-62.35	9.20	-53.15	

Bandwidth	3MHz			Test channel:	Middle
Mode:	DSSS			Temperature :	25°C
				Relative Humidity:	56%
Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.					
Frequency (MHz)	Spurious Emission			Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)	
3449.632	Vertical	-51.22	-1.69	-52.91	-40.00 PASS
4140.032	V	-56.83	1.86	-54.97	
7250.000	V	-66.92	9.26	-57.66	
3449.632	Horizontal	-47.36	-1.69	-49.05	
4140.032	H	-52.36	1.86	-50.50	
7250.000	H	-61.57	9.26	-52.31	

Bandwidth	3MHz			Test channel:	Highest
Mode:	DSSS			Temperature :	25°C
				Relative Humidity:	56%
Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.					
Frequency (MHz)	Spurious Emission			Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)	
2760.140	Vertical	-58.63	-2.67	-61.30	-40.00 PASS
4139.010	V	-55.14	1.85	-53.29	
7390.000	V	-66.32	9.26	-57.06	
2760.140	Horizontal	-54.36	-2.67	-57.03	
4139.010	H	-50.68	1.85	-48.83	
7390.000	H	-63.25	9.26	-53.99	

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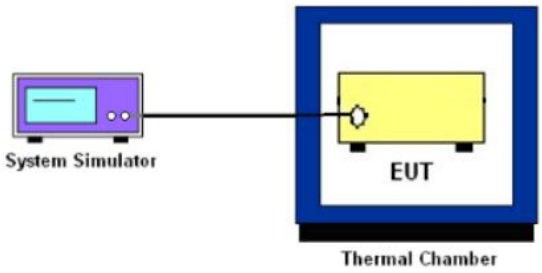
Bandwidth	3MHz				Test channel:	Lowest
Mode:	OFDM				Temperature :	25°C
					Relative Humidity:	56%
Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.						
Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
3456.340	Vertical	-56.32	-1.66	-57.98	-40.00	PASS
3527.620	V	-50.69	-1.54	-52.23		
7110.000	V	-68.35	9.20	-59.15		
3456.340	Horizontal	-50.44	-1.66	-52.10		
3527.620	H	-49.39	-1.54	-50.93		
7110.000	H	-66.46	9.20	-57.26		

Bandwidth	3MHz				Test channel:	Middle
Mode:	OFDM				Temperature :	25°C
					Relative Humidity:	56%
Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.						
Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
3450.326	Vertical	-52.33	-1.68	-54.01	-40.00	PASS
4025.360	V	-57.64	1.31	-56.33		
7250.000	V	-67.63	9.26	-58.37		
3450.326	Horizontal	-49.36	-1.68	-51.04		
4025.360	H	-57.01	1.31	-55.70		
7250.000	H	-65.57	9.26	-56.31		

Bandwidth	3MHz				Test channel:	Highest
Mode:	OFDM				Temperature :	25°C
					Relative Humidity:	56%
Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.						
Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
3721.210	Vertical	-55.36	-0.32	-55.68	-40.00	PASS
4630.340	V	-57.35	3.32	-54.03		
7390.000	V	-68.35	9.26	-59.09		
3721.210	Horizontal	-51.35	-0.32	-51.67		
4630.340	H	-55.83	3.32	-52.51		
7390.000	H	-66.33	9.26	-57.07		

5.7. Frequency Stability Measurement

5.7.1. Test Specification

Test Requirement:	FCC Part 2.1055 ;
Test Method:	FCC KDB 971168 D01v03r01
Operation mode:	Refer to item 3.1
Limit:	The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.
Test Setup:	
Test Procedure:	**Test Procedures for Temperature Variation** 1. The testing follows FCC KDB 971168 D01v03r01 Section 9.0. 2. The EUT was set up in the thermal chamber and connected with the system simulator. 3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute. 4. With power OFF, the temperature was raised in 10°C steps up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute. **Test Procedures for Voltage Variation** 1. The testing follows FCC KDB 971168 D01v03r01 Section 9.0. 2. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator. 3. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT. 4. The variation in frequency was measured for the worst case.
Test Result:	PASS
Remark:	All three channels of all modulations have been tested, but only the worst channel and the worst modulation show in this test item.

5.7.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100619	Jul. 07, 2022
Programable tempratuce and humidity chamber	JQ	MHU-80L	N/A	Jul. 07, 2022
DC power supply	Kingrang	KR3005K	N/A	Jul. 07, 2022
RF cable (9kHz-40GHz)	TCT	RE-04	N/A	Jul. 07, 2022
Antenna Connector	TCT	RFC-03	N/A	Jul. 07, 2022

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5.7.3. Test Data

Test Result of Temperature Variation

Temperature (°C)	Deviation (ppm)		
	3555 MHz	3625 MHz	3695 MHz
50	0.011	0.010	0.010
40	0.009	0.009	0.008
30	0.008	0.008	0.007
20	0.010	0.009	0.009
10	0.011	0.010	0.009
0	0.015	0.012	0.011
-10	0.010	0.009	0.008
-20	0.012	0.011	0.011
-30	0.014	0.013	0.012

Test Result of Voltage Variation

Voltage (Volt)	Deviation(ppm)		
	3555 MHz	3625 MHz	3695 MHz
42.0	0.015	0.014	0.014
12.0	0.009	0.009	0.009
5.5	0.008	0.008	0.007

Note: *The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.*

Appendix A: Photographs of Test Setup

Refer to the Appendix A

Appendix B: Photographs of EUT

Refer to the Appendix B

*****END OF REPORT*****