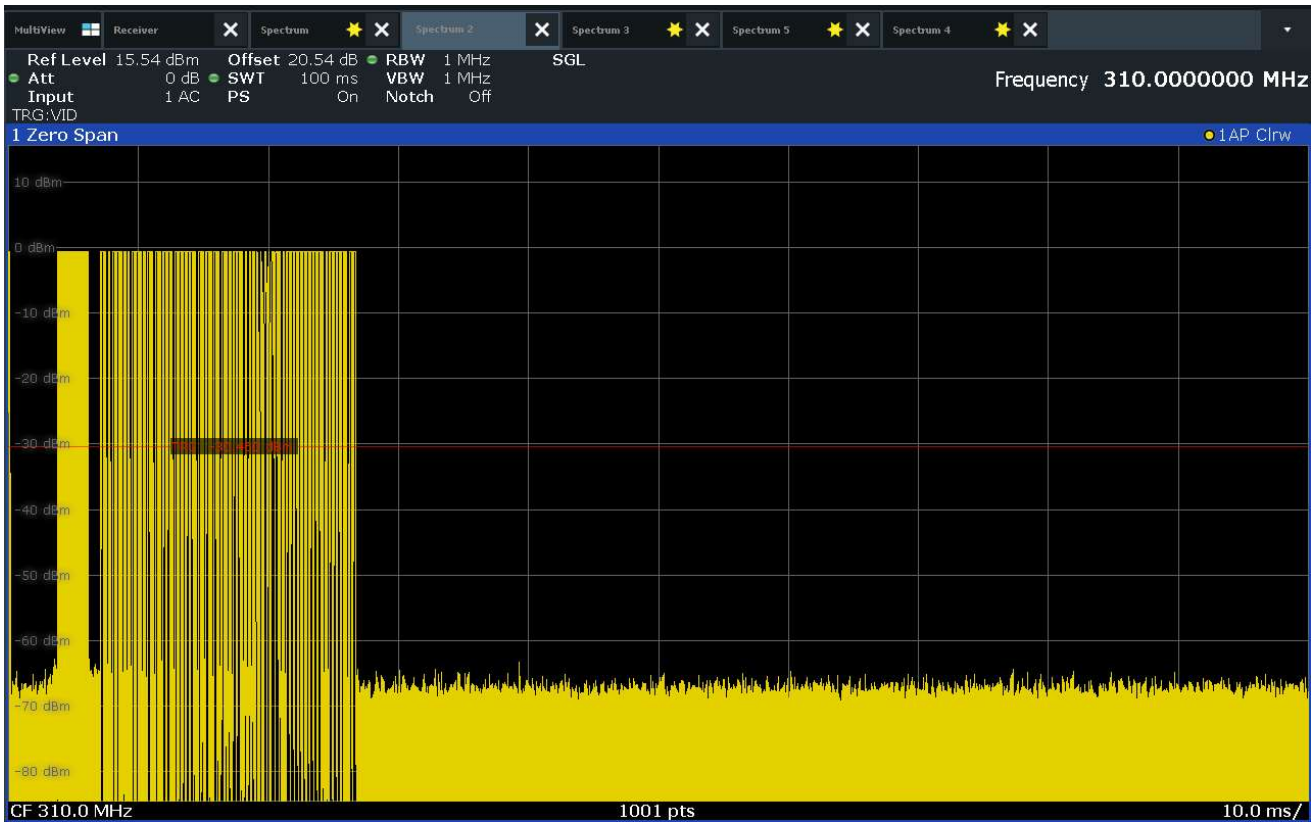
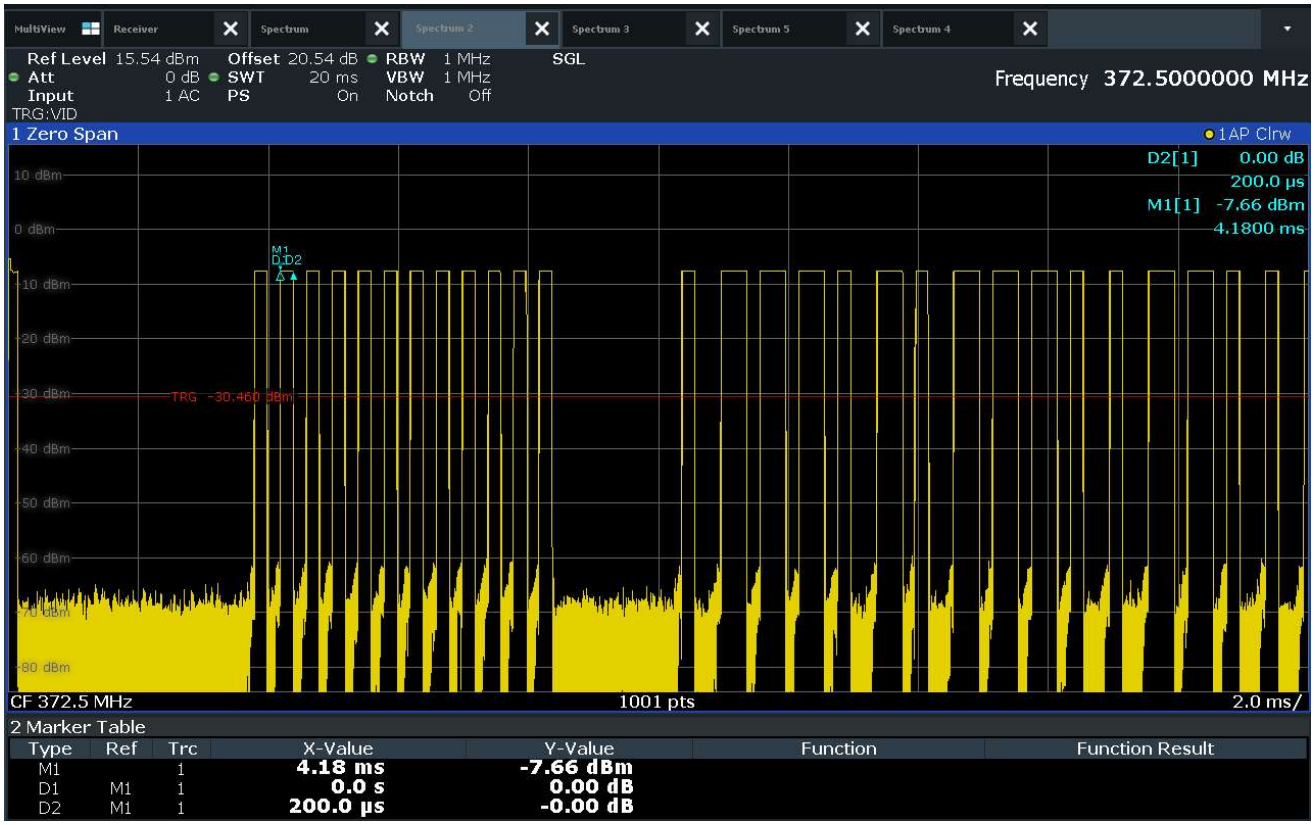
Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U13
Mode	Sommer Code
Frequency Tested	310MHz
Result	Pulse 2 = 0.2ms
Notes	

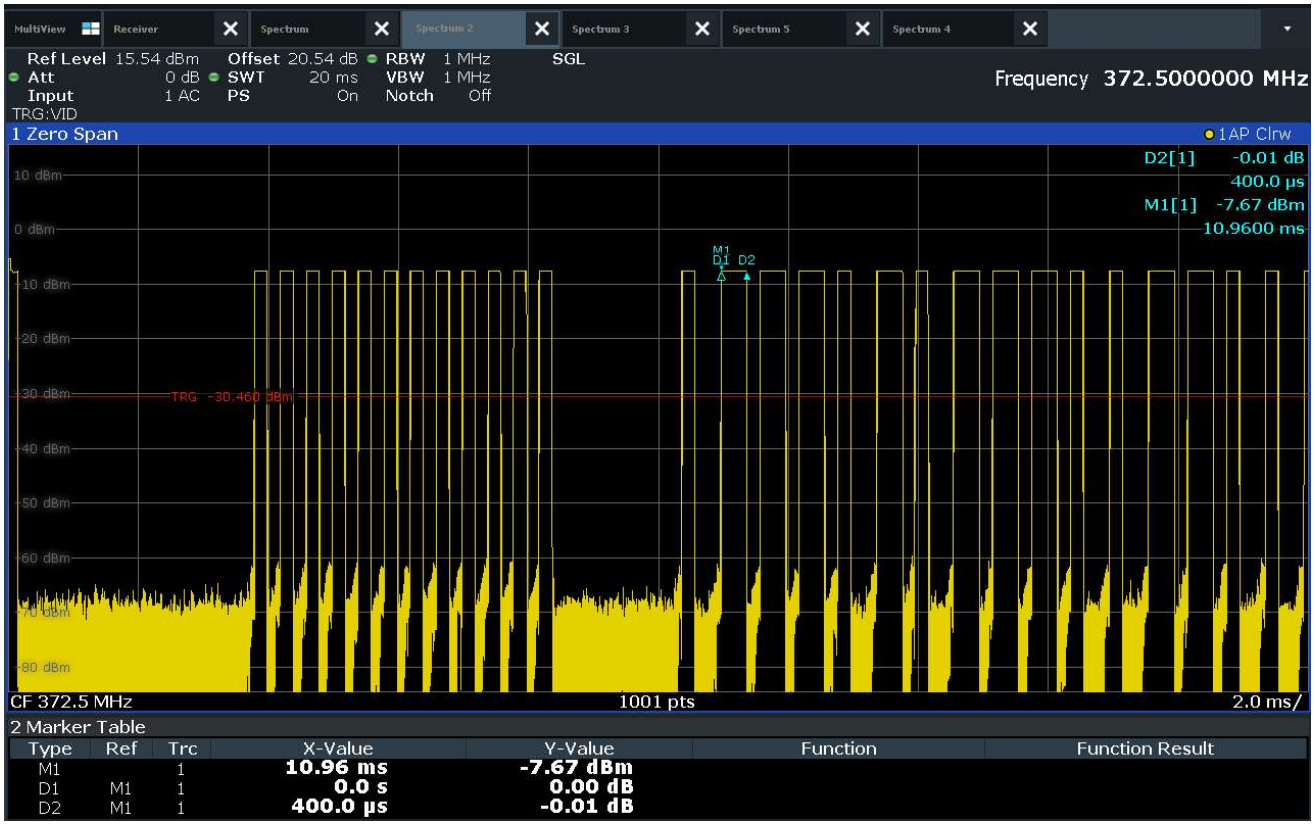
Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U13
Mode	Sommer Code
Frequency Tested	310MHz
Result	Duty Cycle = -18.56dB
Notes	Duty Cycle Factor Calculation: 38 × 0.1ms = 3.8ms 40 × 0.2ms = 8.0ms 3.8ms + 8.0ms = 11.8ms $\text{Duty Cycle Factor} = 20\log\left(\frac{11.8\text{ms}}{100\text{ms}}\right) = -18.56dB$



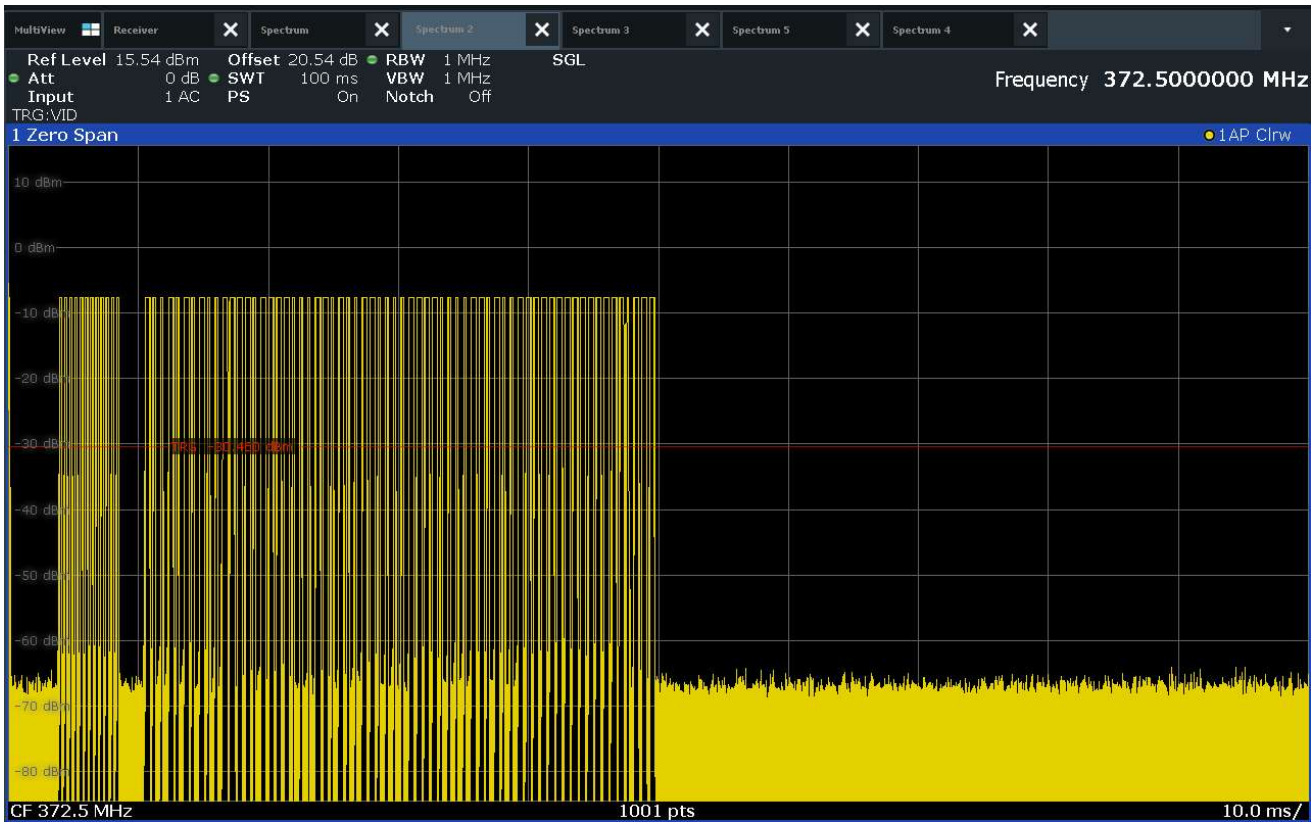
Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U13
Mode	Wayne-Dalton Code
Frequency Tested	372.5MHz
Result	Pulse 1 = 0.2ms
Notes	



Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U13
Mode	Wayne-Dalton Code
Frequency Tested	372.5MHz
Result	Pulse 2 = 0.4ms
Notes	



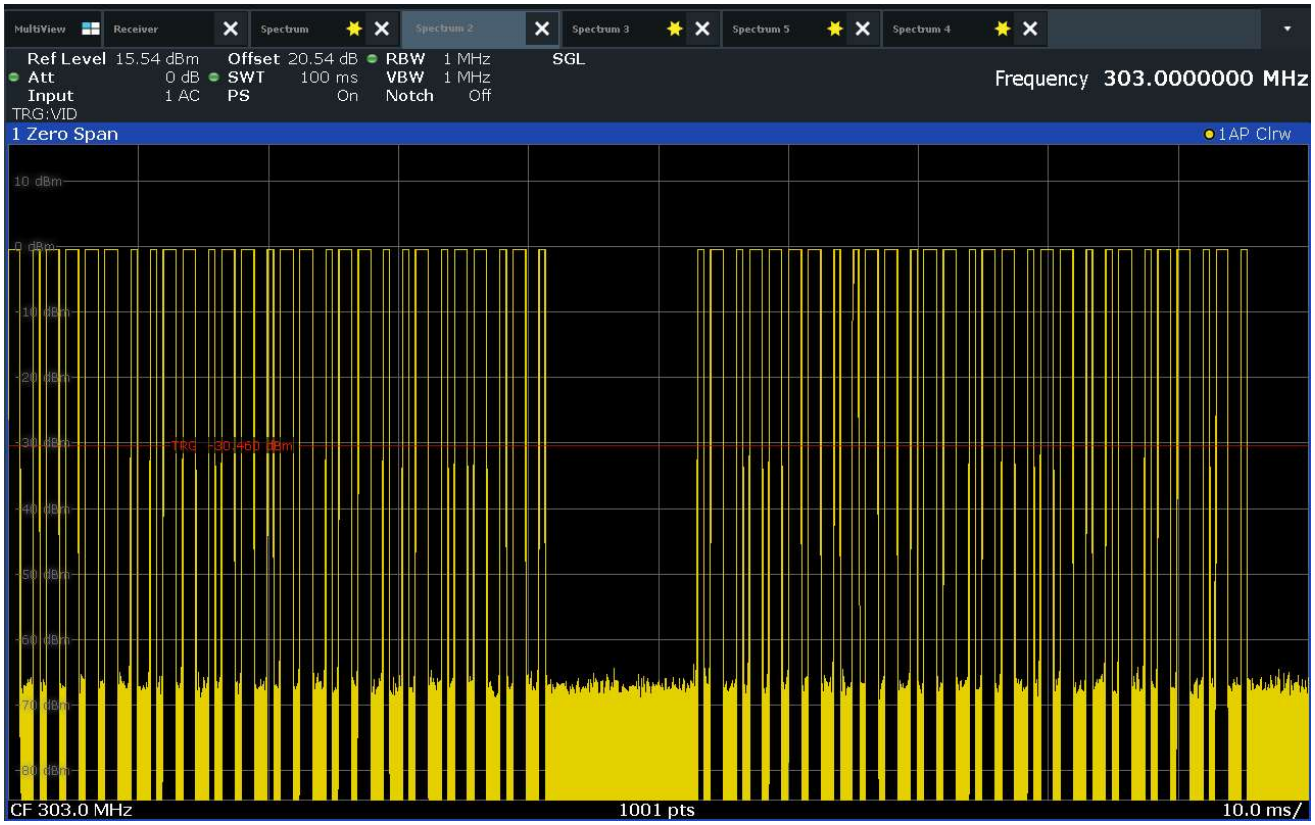
Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U13
Mode	Wayne-Dalton Code
Frequency Tested	372.5MHz
Result	Duty Cycle = -12.54dB
Notes	Duty Cycle Factor Calculation: 36 × 0.2ms = 7.2ms 41 × 0.4ms = 16.4ms 7.2ms + 16.4ms = 23.6ms $\text{Duty Cycle Factor} = 20\log\left(\frac{23.6\text{ms}}{100\text{ms}}\right) = -12.54dB$



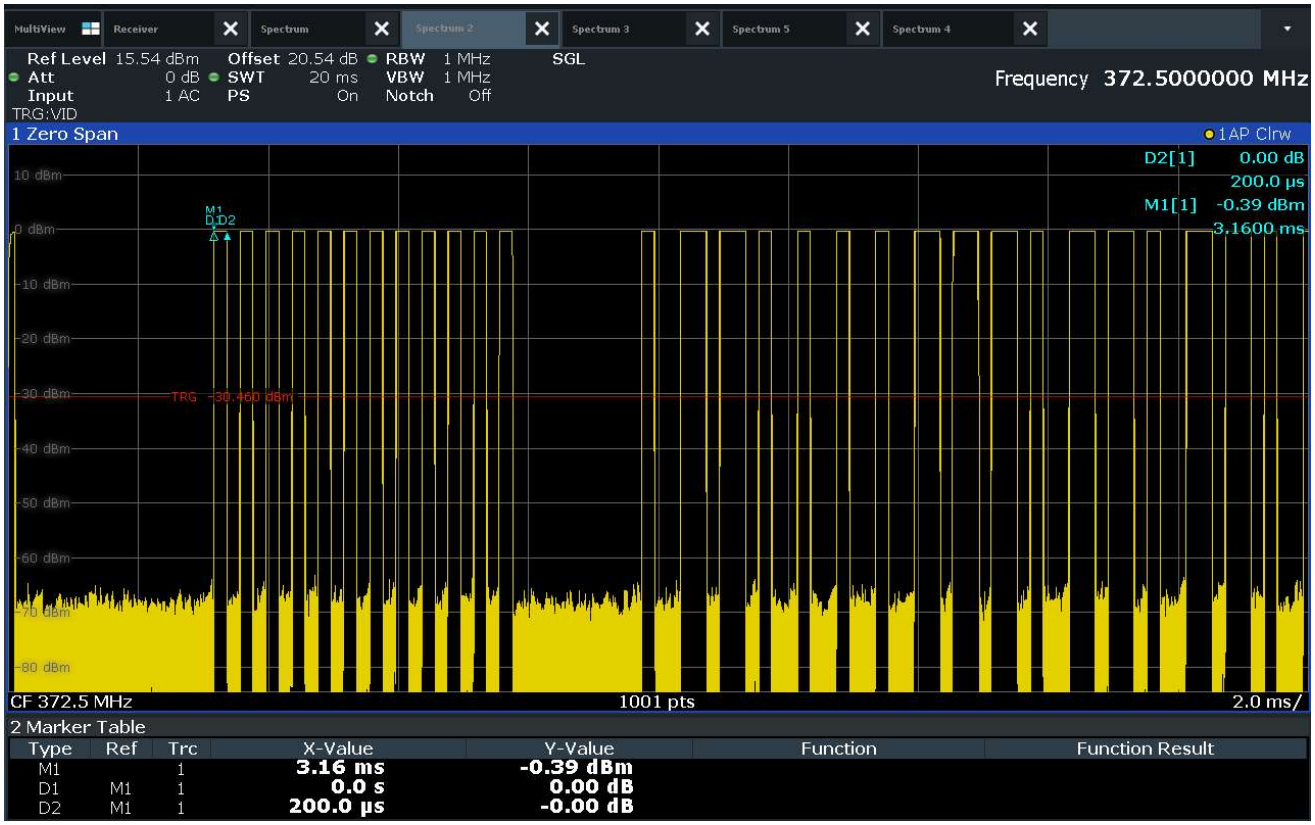
Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U12
Mode	Guardian XG Code
Frequency Tested	303MHz
Result	Pulse 1 = 0.5ms
Notes	

Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U12
Mode	Guardian XG Code
Frequency Tested	303MHz
Result	Pulse 2 = 1.0ms
Notes	

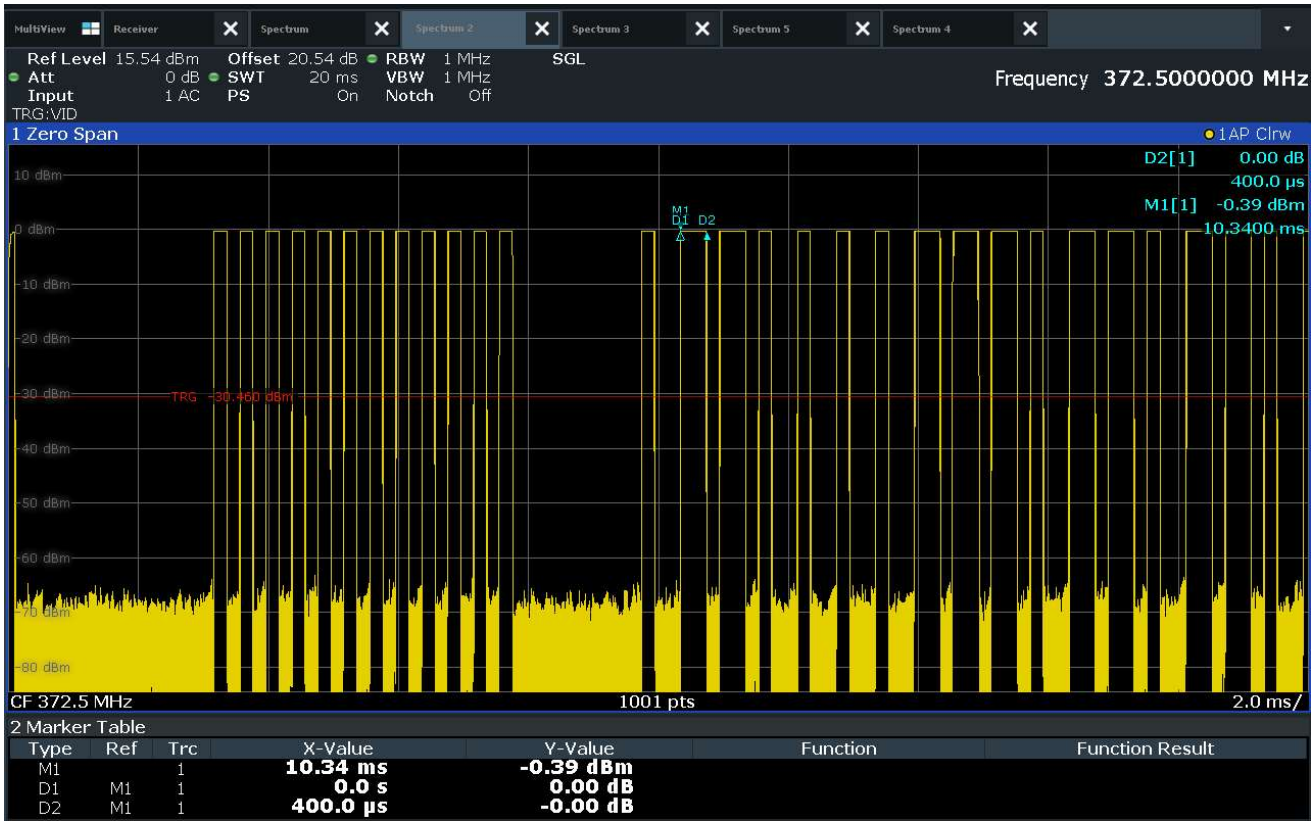
Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U12
Mode	Guardian XG Code
Frequency Tested	303MHz
Result	Duty Cycle = -6.8397dB
Notes	Duty Cycle Factor Calculation: 23 × 0.5ms = 11.5ms 34 × 1.0ms = 34.0ms 11.5ms + 34.0ms = 45.5ms $\text{Duty Cycle Factor} = 20\log\left(\frac{45.5\text{ms}}{100\text{ms}}\right) = -6.8397dB$



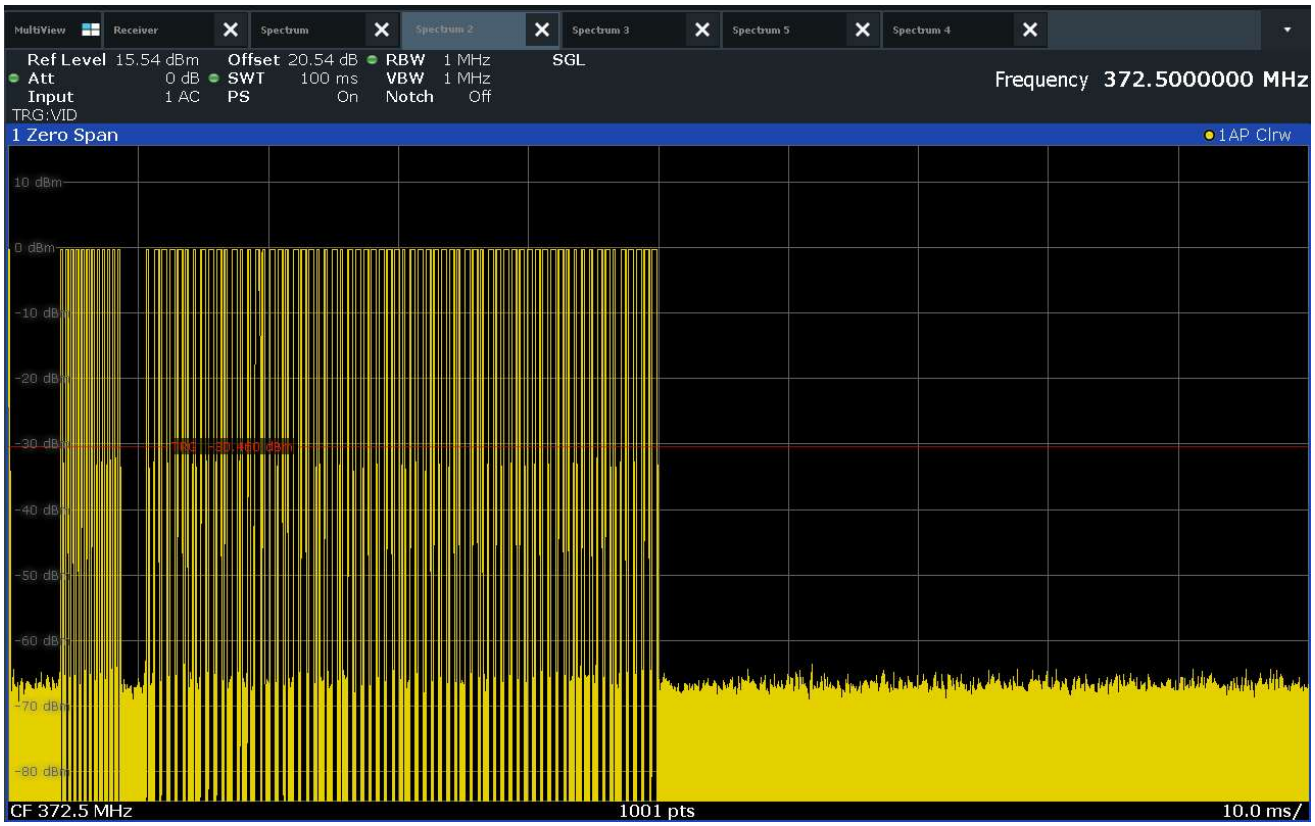
Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U14
Mode	Ryobi Code
Frequency Tested	372.5MHz
Result	Pulse 1 = 0.2ms
Notes	



Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U14
Mode	Ryobi Code
Frequency Tested	372.5MHz
Result	Pulse 2 = 0.4ms
Notes	



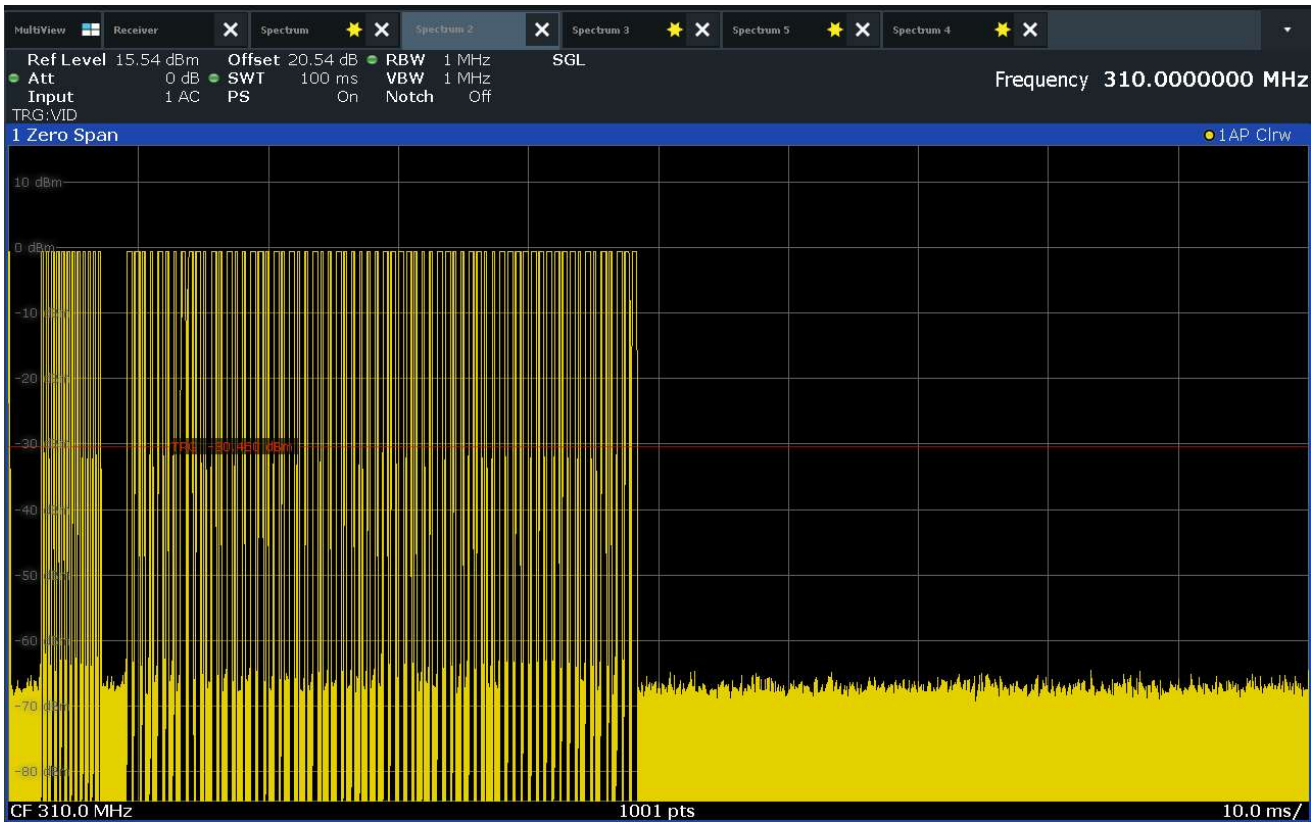
Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U14
Mode	Ryobi Code
Frequency Tested	372.5MHz
Result	Duty Cycle = -12.61dB
Notes	Duty Cycle Factor Calculation: 39 × 0.2ms = 7.8ms 39 × 0.4ms = 15.6ms 7.8ms + 15.6ms = 23.4ms $\text{Duty Cycle Factor} = 20\log\left(\frac{23.4\text{ms}}{100\text{ms}}\right) = -12.61dB$



Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U14
Mode	Stanley Secure Code
Frequency Tested	310MHz
Result	Pulse 1 = 0.2ms
Notes	

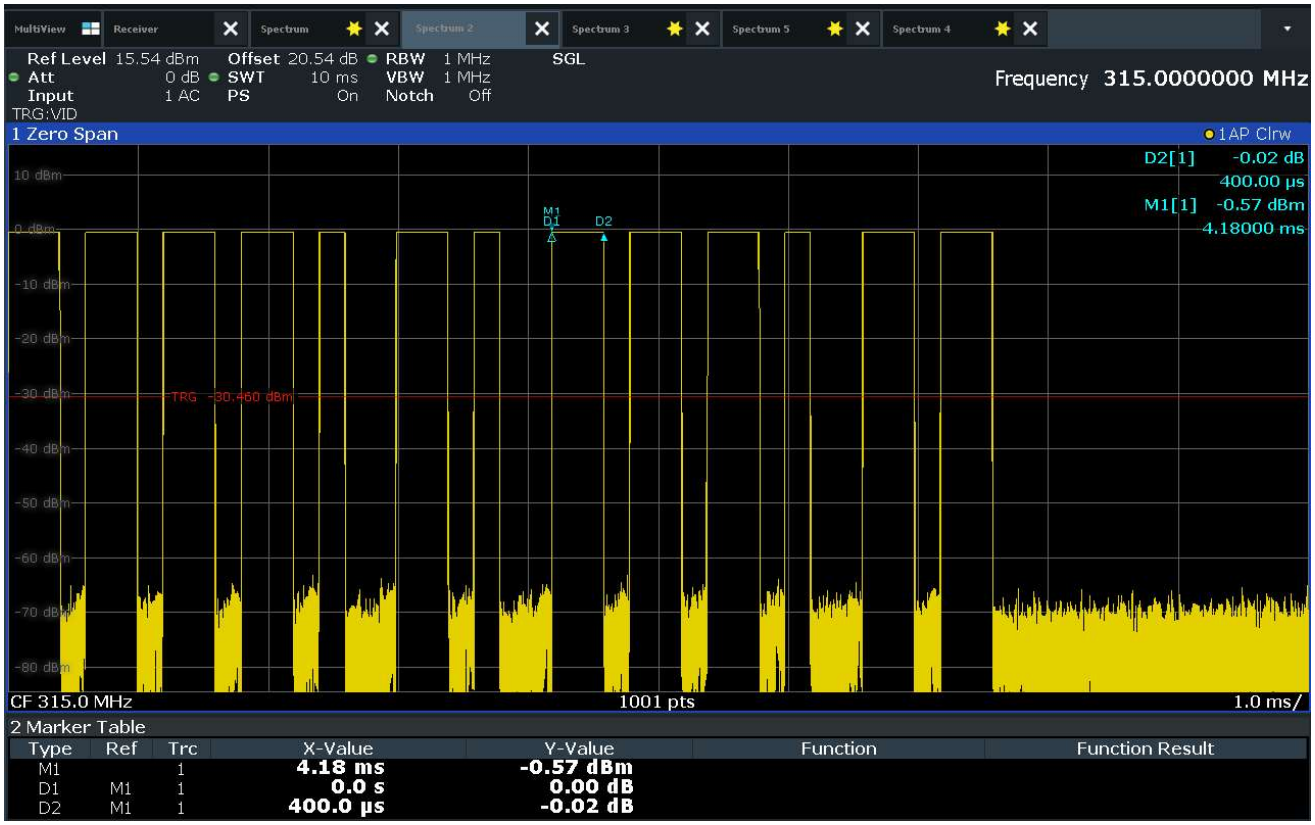
Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U14
Mode	Stanley Secure Code
Frequency Tested	310MHz
Result	Pulse 2 = 0.4ms
Notes	

Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U14
Mode	Stanley Secure Code
Frequency Tested	310MHz
Result	Duty Cycle = -12.61dB
Notes	Duty Cycle Factor Calculation: 39 × 0.2ms = 7.8ms 39 × 0.4ms = 15.6ms 7.8ms + 15.6ms = 23.4ms $\text{Duty Cycle Factor} = 20\log\left(\frac{23.4\text{ms}}{100\text{ms}}\right) = -12.61dB$

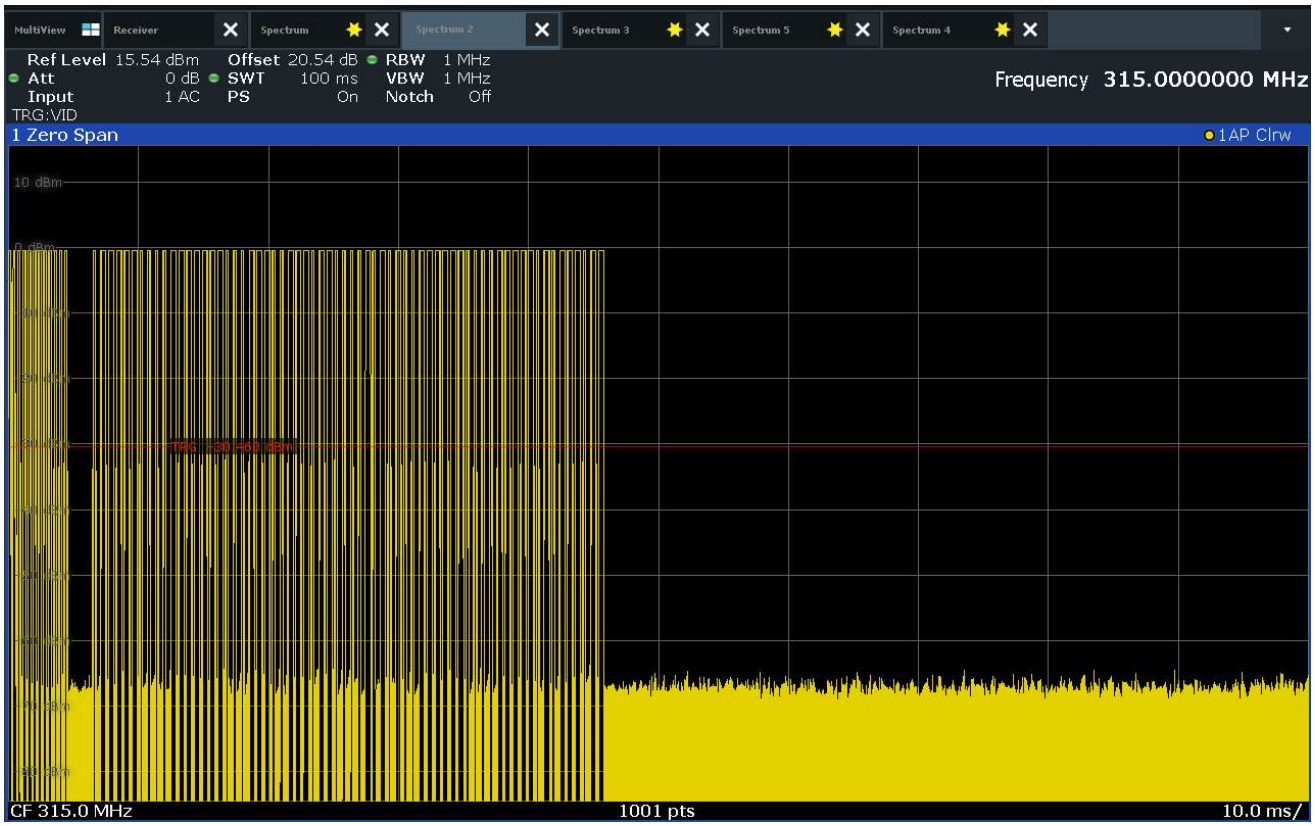


Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U8
Mode	Genie Code
Frequency Tested	315MHz
Result	Pulse 1 = 0.2ms
Notes	

Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U8
Mode	Genie Code
Frequency Tested	315MHz
Result	Pulse 2 = 0.4ms
Notes	



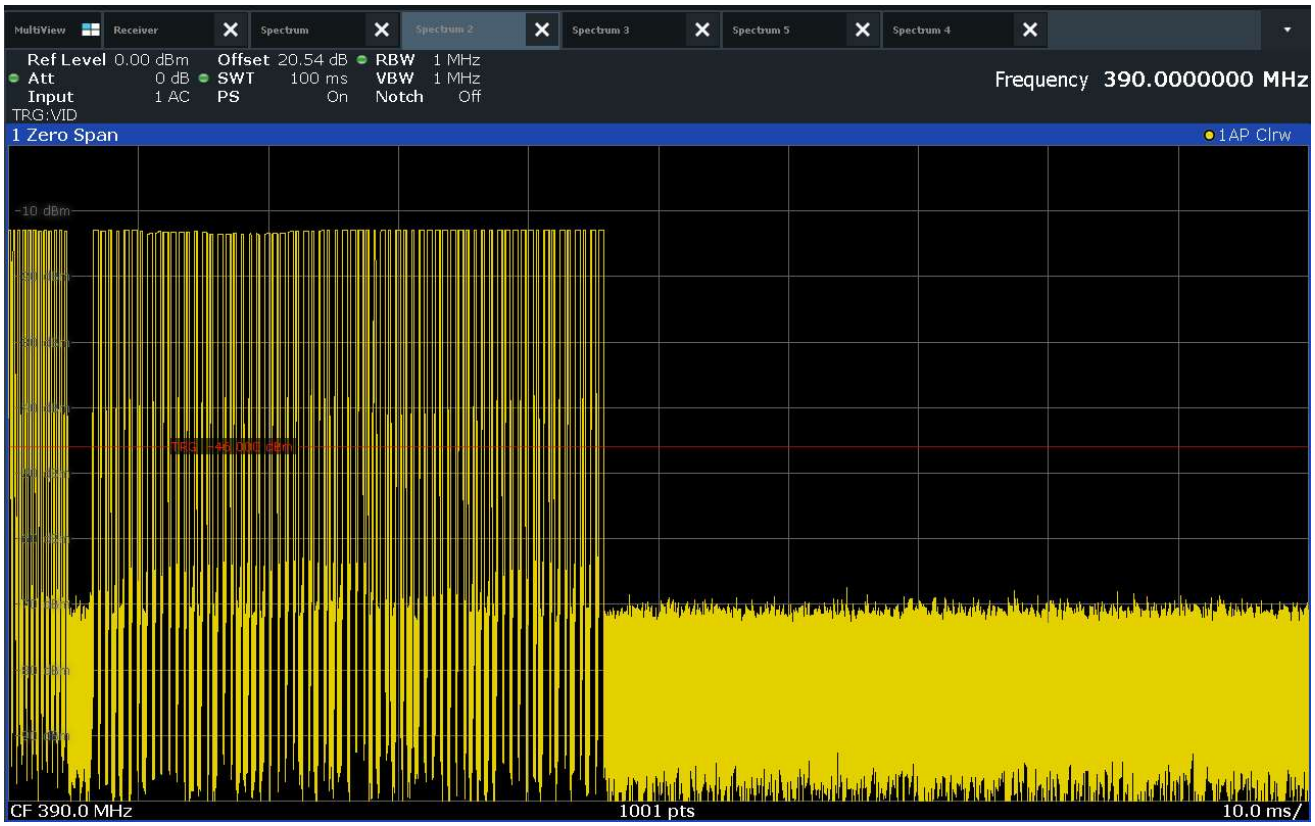
Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U8
Mode	Genie Code
Frequency Tested	315MHz
Result	Duty Cycle = -12.61dB
Notes	Duty Cycle Factor Calculation: 37 × 0.2ms = 7.4ms 40 × 0.4ms = 16.0ms 7.4ms + 16.0ms = 23.4ms $\text{Duty Cycle Factor} = 20\log\left(\frac{23.4\text{ms}}{100\text{ms}}\right) = -12.61dB$



Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U8
Mode	Genie Code
Frequency Tested	390MHz
Result	Pulse 1 = 0.2ms
Notes	

Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U8
Mode	Genie Code
Frequency Tested	390MHz
Result	Pulse 2 = 0.4ms
Notes	

Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U8
Mode	Genie Code
Frequency Tested	390MHz
Result	Duty Cycle = -13.07dB
Notes	Duty Cycle Factor Calculation: 45 × 0.2ms = 9.0ms 33 × 0.4ms = 13.2ms 9.0ms + 13.2ms = 22.2ms $\text{Duty Cycle Factor} = 20\log\left(\frac{22.2\text{ms}}{100\text{ms}}\right) = -13.07dB$



22. Occupied Bandwidth – 20dB

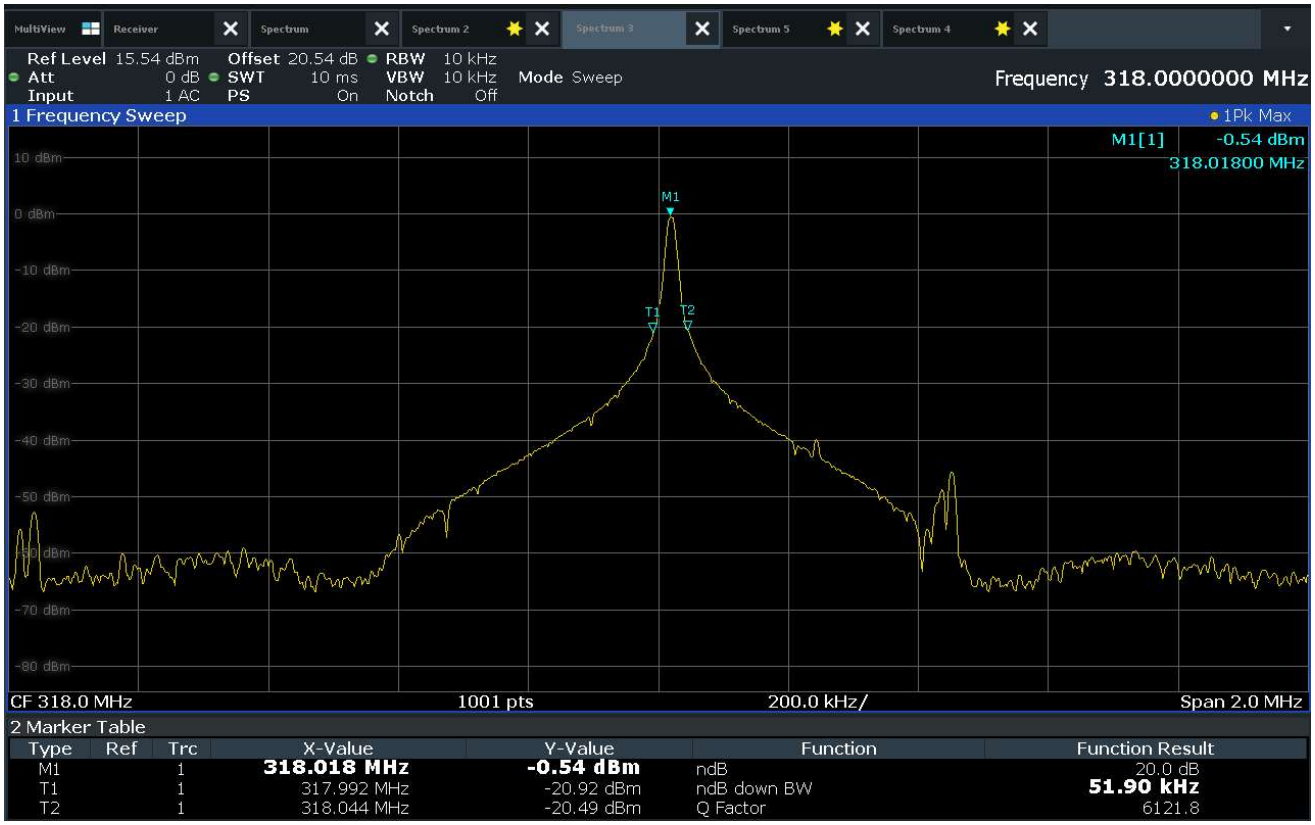
EUT Information	
Manufacturer	The Chamberlain Group LLC
Product	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U8, Sample U9, Sample U10, Sample U11, Sample U12, Sample U13, Sample U14
Mode	A Code, D Code, E Code, Linear Mega Code, Genie Code, Stanley Secure Code, Wayne-Dalton Code, Guardian XG Code, Sommer Code, Ryobi Code

Test Setup Details	
Setup Format	Tabletop
Measurement Method	Antenna Conducted
Type of Test Site	Tabletop
Notes	

Requirement
The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70MHz and below 900MHz. For devices operating above 900MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20dB down from the modulated carrier.

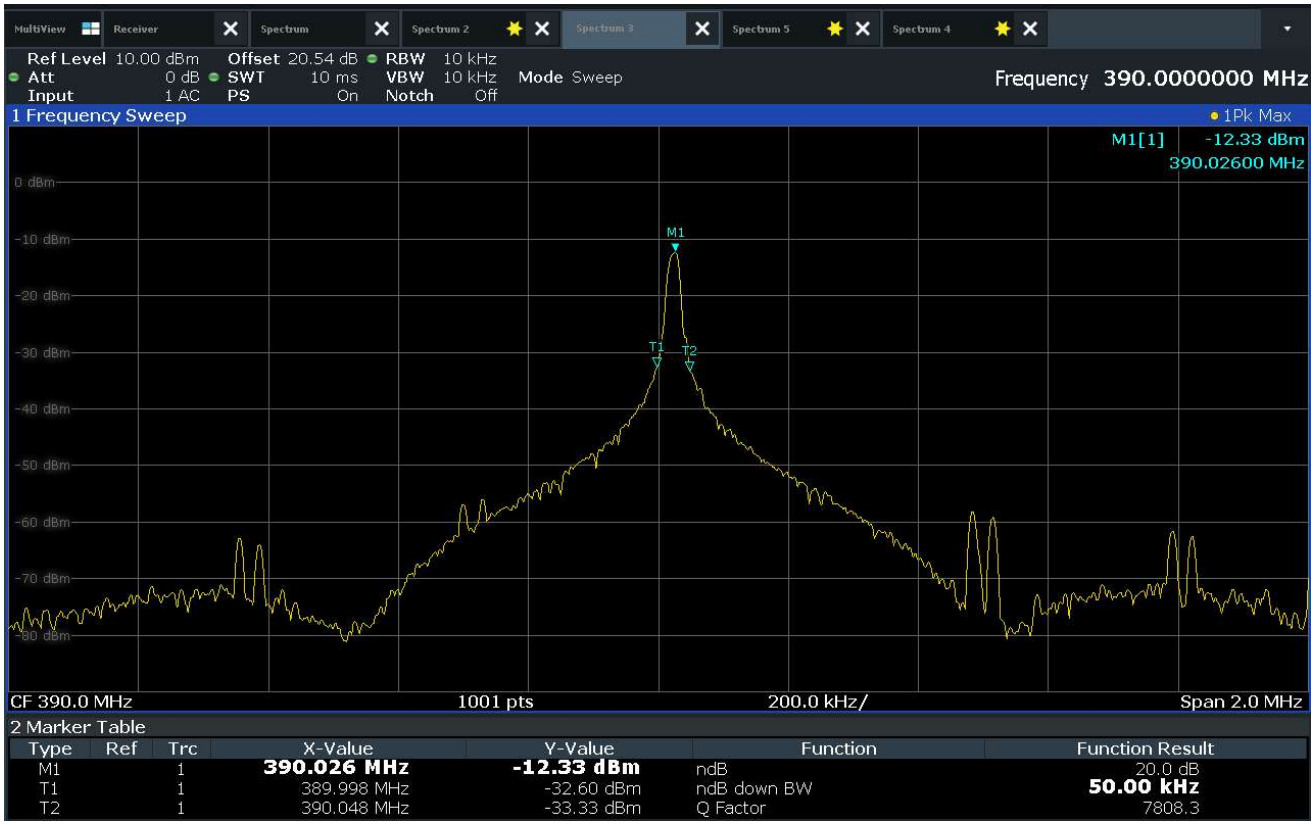
Procedure
1) The EUT was set to transmit continuously.
2) With an antenna positioned nearby, occupied bandwidth emissions were displayed on the receiver.
3) The resolution bandwidth was set to 10kHz, and span was set to 2MHz.
4) A screen capture was taken of the frequency spectrum near the carrier using a screen dump function on the receiver.

Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U12
Mode	Linear Mega Code
Frequency Tested	318MHz
Result	20dB BW = 51.9kHz
Notes	

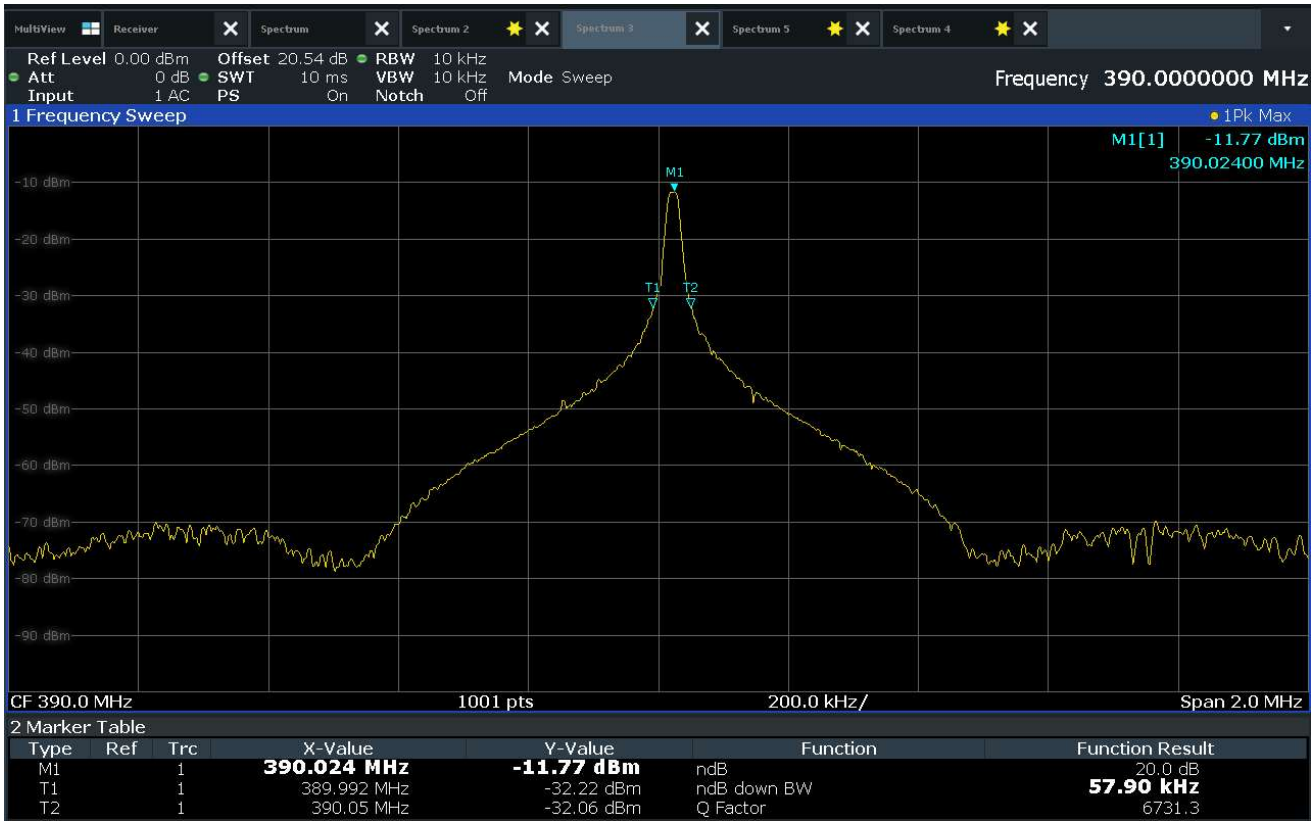


Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U9
Mode	D Code
Frequency Tested	315MHz
Result	20dB BW = 51.9kHz
Notes	

Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U9
Mode	D Code
Frequency Tested	390MHz
Result	20dB BW = 50.0kHz
Notes	

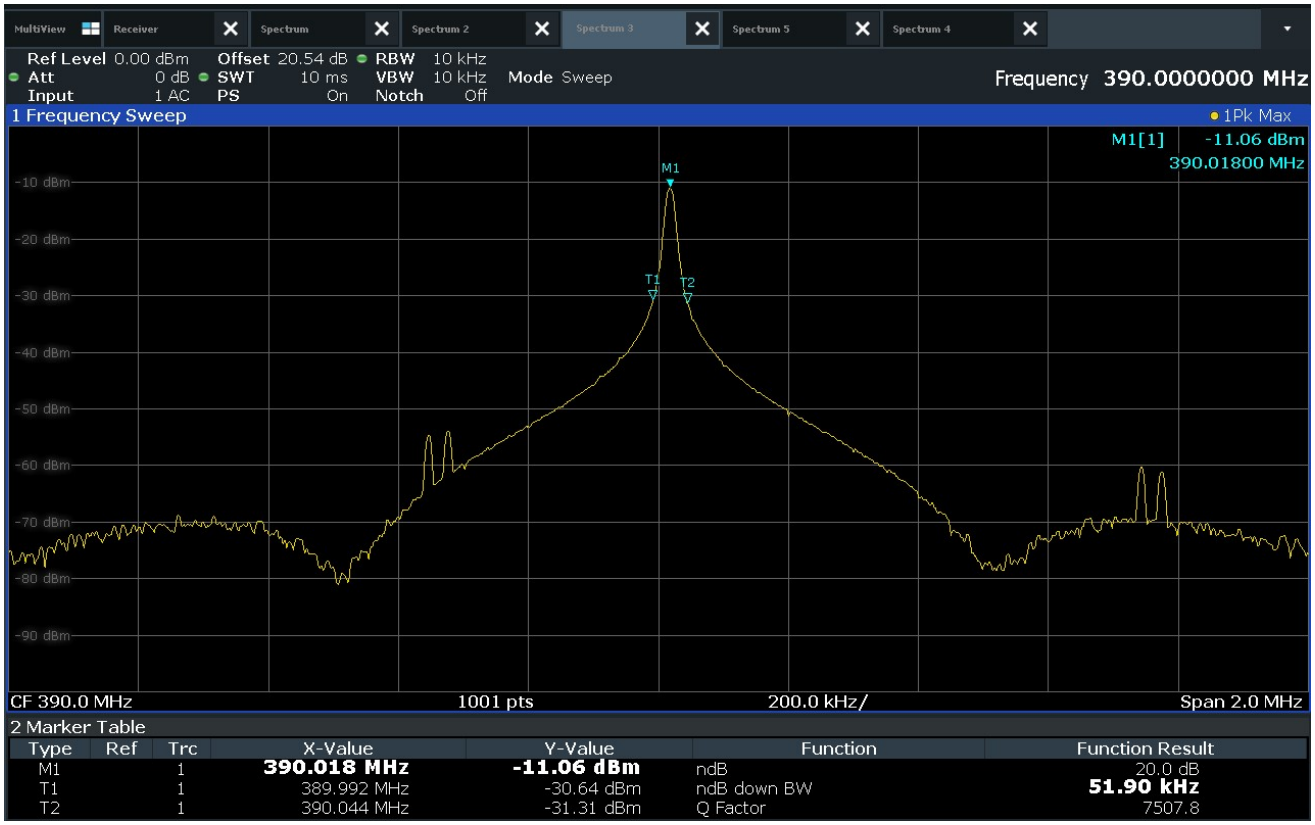


Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U10
Mode	A Code
Frequency Tested	390MHz
Result	20dB BW = 57.9kHz
Notes	



Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U11
Mode	E Code
Frequency Tested	315MHz
Result	20dB BW = 53.9kHz
Notes	

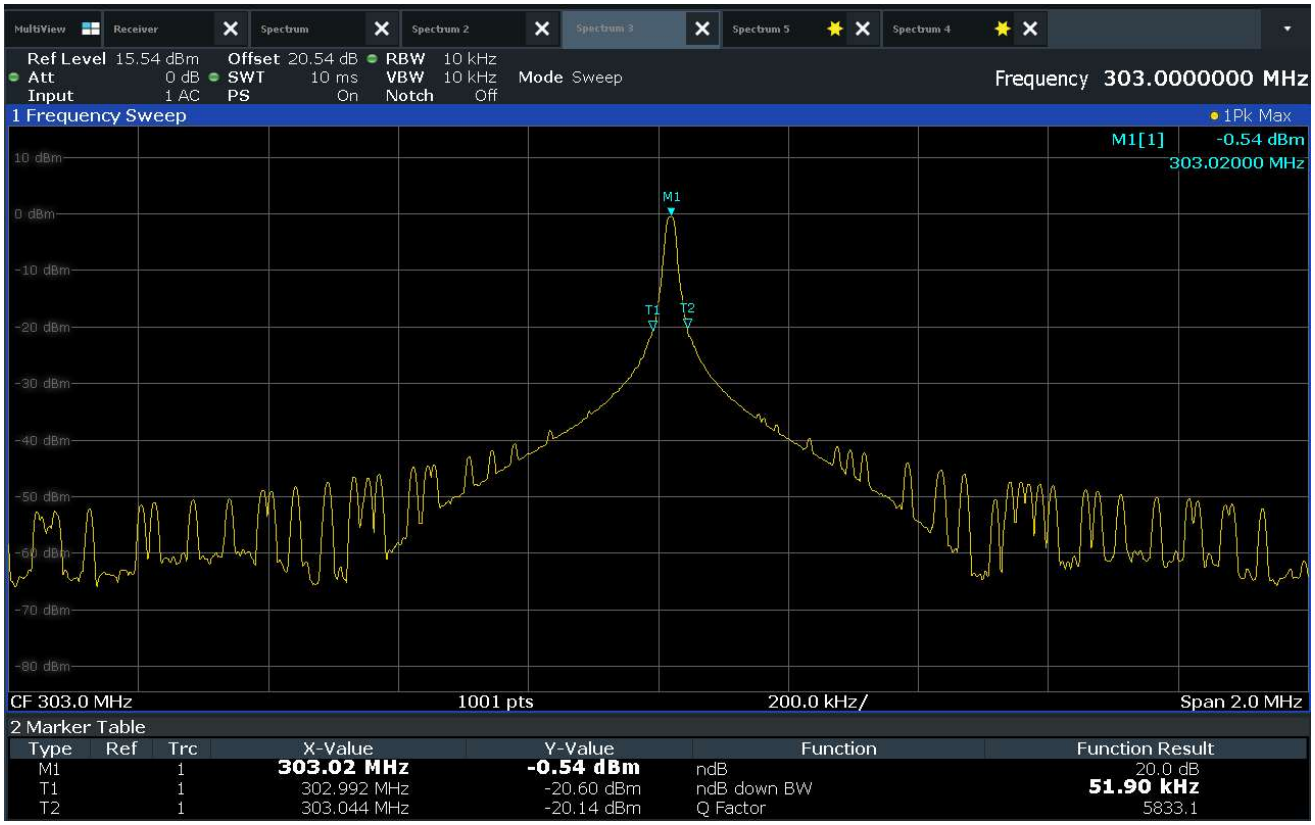
Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U11
Mode	E Code
Frequency Tested	315MHz
Result	20dB BW = 51.9kHz
Notes	



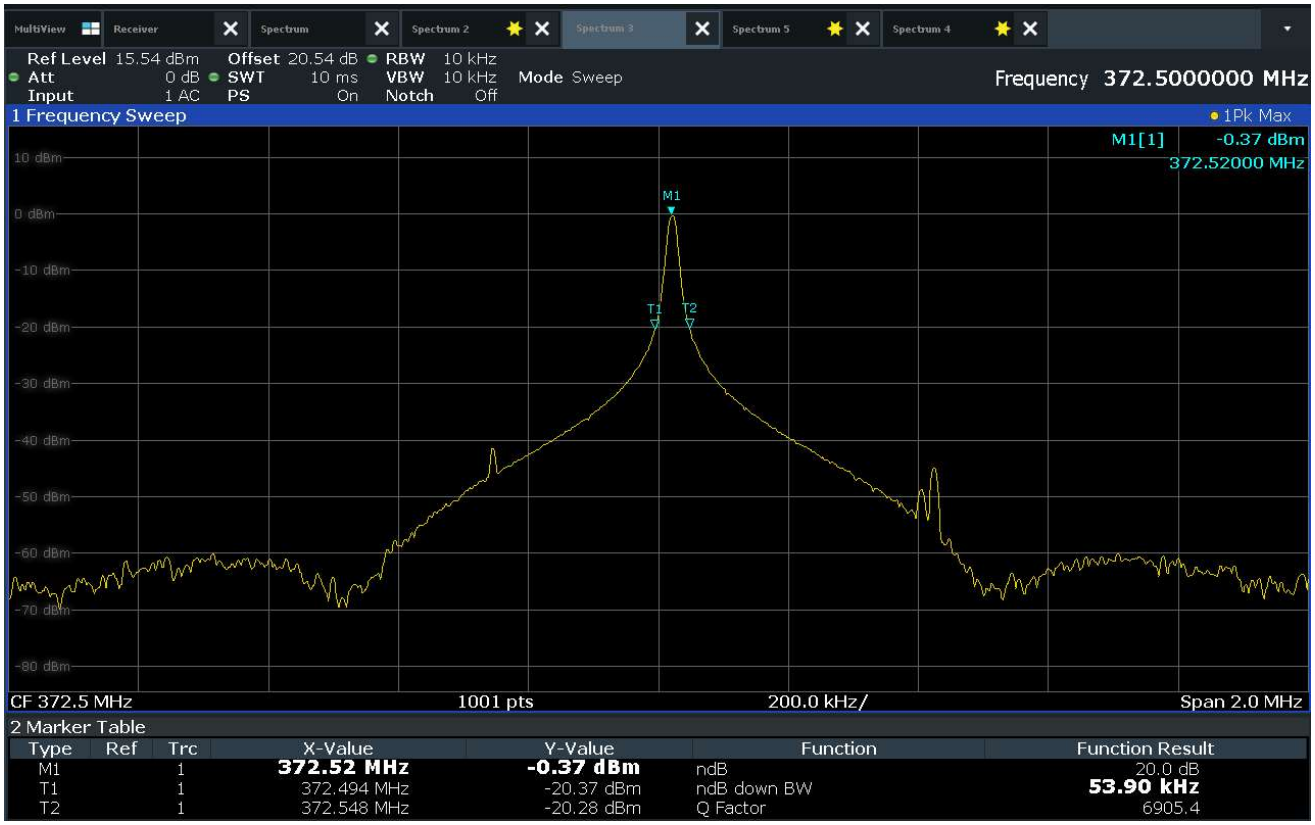
Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U13
Mode	Sommer Code
Frequency Tested	310MHz
Result	20dB BW = 53.9kHz
Notes	

Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U13
Mode	Wayne-Dalton Code
Frequency Tested	372.5MHz
Result	20dB BW = 53.9kHz
Notes	

Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U12
Mode	Guardian XG Code
Frequency Tested	303MHz
Result	20dB BW = 51.9kHz
Notes	



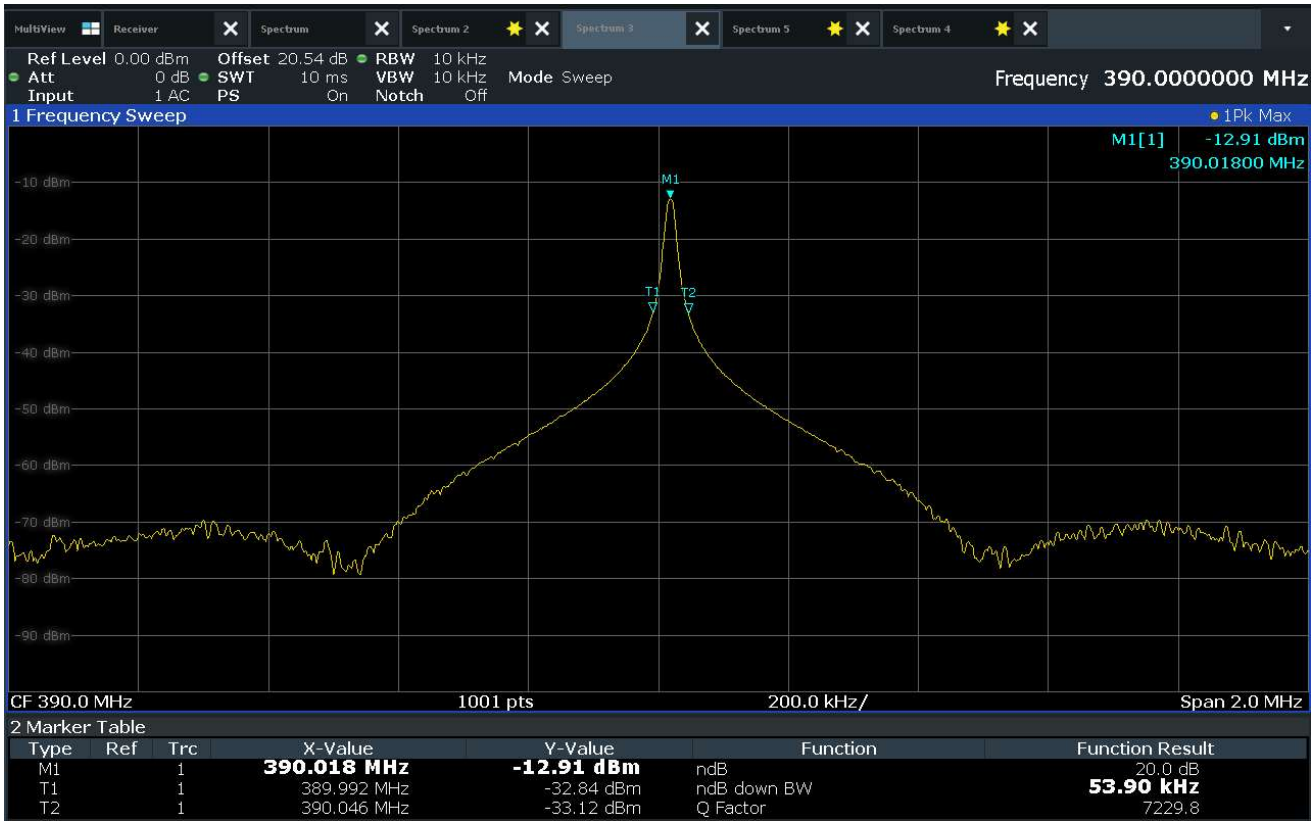
Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U14
Mode	Ryobi Code
Frequency Tested	372.5MHz
Result	20dB BW = 53.9kHz
Notes	



Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U14
Mode	Stanley Secure Code
Frequency Tested	310MHz
Result	20dB BW = 55.9kHz
Notes	

Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U8
Mode	Genie Code
Frequency Tested	315MHz
Result	20dB BW = 51.9kHz
Notes	

Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U8
Mode	Genie Code
Frequency Tested	390MHz
Result	20dB BW = 53.9kHz
Notes	



23. Occupied Bandwidth – 99%

EUT Information	
Manufacturer	The Chamberlain Group LLC
Product	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U8, Sample U9, Sample U10, Sample U11, Sample U12, Sample U13, Sample U14
Mode	A Code, D Code, E Code, Linear Mega Code, Genie Code, Stanley Secure Code, Wayne-Dalton Code, Guardian XG Code, Sommer Code, Ryobi Code

Test Setup Details	
Setup Format	Tabletop
Measurement Method	Antenna Conducted
Type of Test Site	Tabletop
Notes	

Requirement
Per RSS-210, Annex A, Section A.1.3, the occupied bandwidth (99% Bandwidth) of momentarily operated devices shall be less than or equal to 0.25% of the center frequency for devices operating between 70MHz and 900MHz. For devices operating above 900MHz, the occupied bandwidth shall be less than or equal to 0.5% of the center frequency.

Procedure
The antenna port of the EUT was connected to the spectrum analyzer through attenuation. The EUT was allowed to transmit continuously. The transmit channel was set separately to low, middle, and high channels. The resolution bandwidth (RBW) was set to 1% to 5% of the actual occupied / x dB bandwidth, the video bandwidth (VBW) was set 3 times greater than the RBW, and the span was set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency. The 'Max-Hold' function was engaged. The analyzer was allowed to scan until the envelope of the transmitter bandwidth was defined. The analyzer's display was plotted using a 'screen dump' utility.

Test Details	
Manufacturer	The Chamberlain Group LLC
EUT	Universal Remote
Model No.	900-16329-1/014D16329 Rev C
Serial No.	Sample U12
Mode	Linear Mega Code
Frequency Tested	318MHz
Result	99% OBW = 100.4kHz
Notes