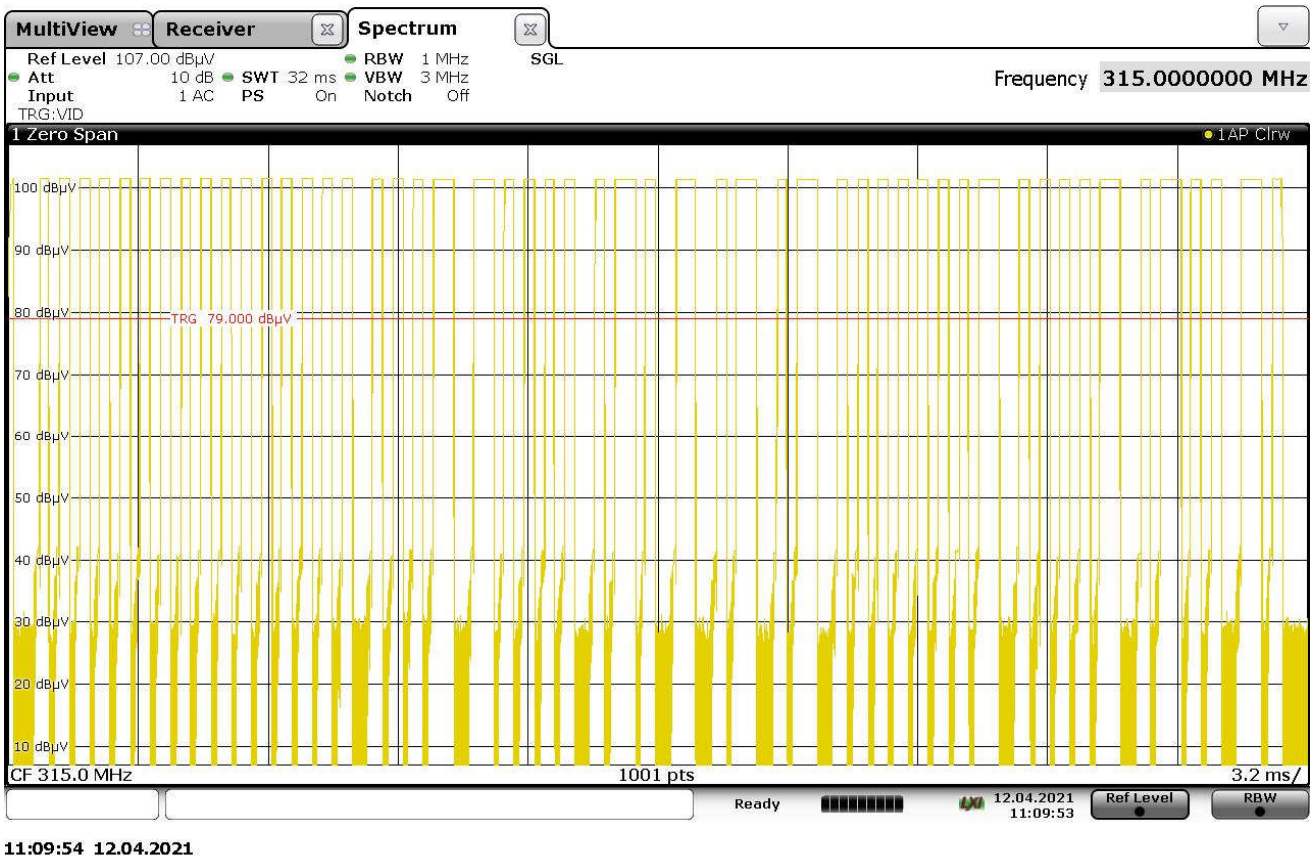
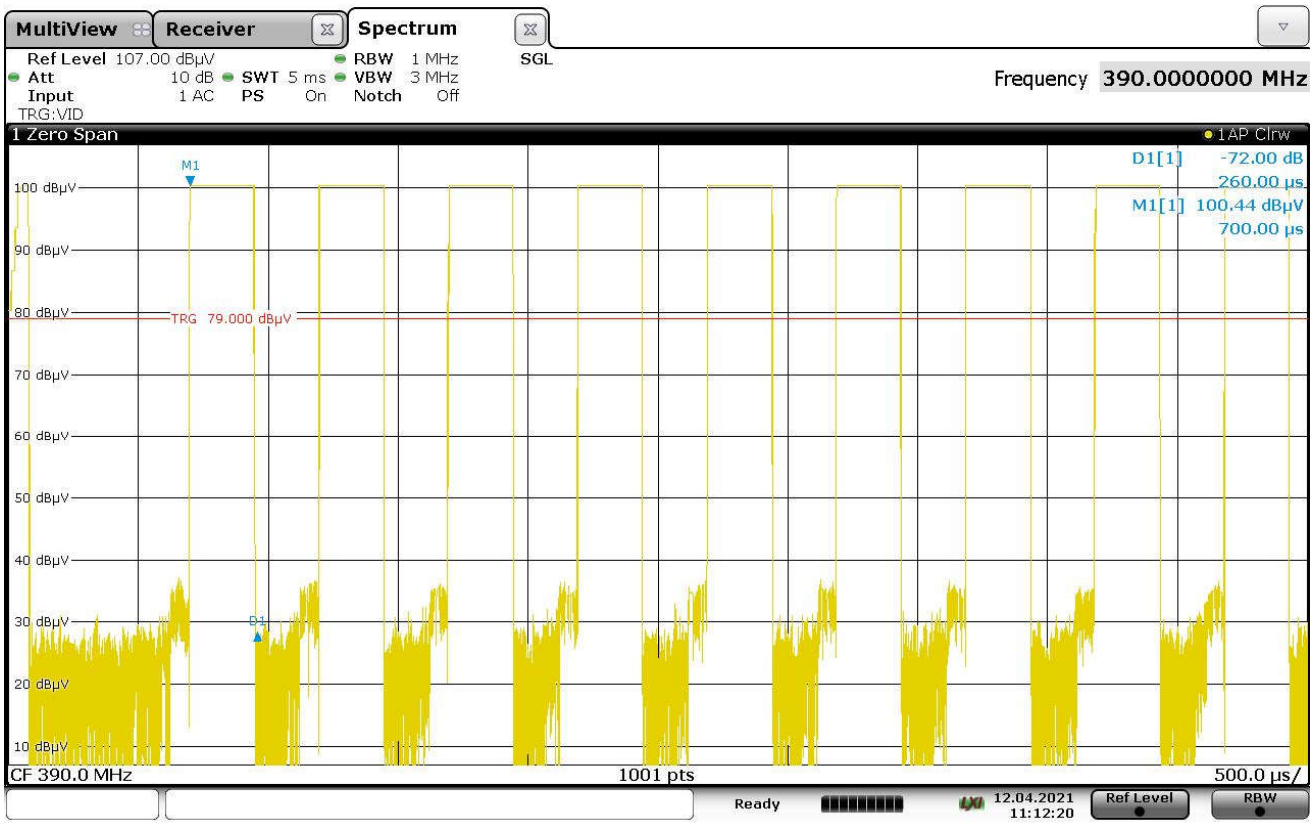
Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G893LM
S/N	Continuous
Mode	Periodic Transmission
Carrier Frequency	315MHz
Parameters	Duty Cycle
Notes	None



On time = (42 short pulses x 260usec/short pulse) + (10 long pulses x 520usec/long pulse) = 16.12msec

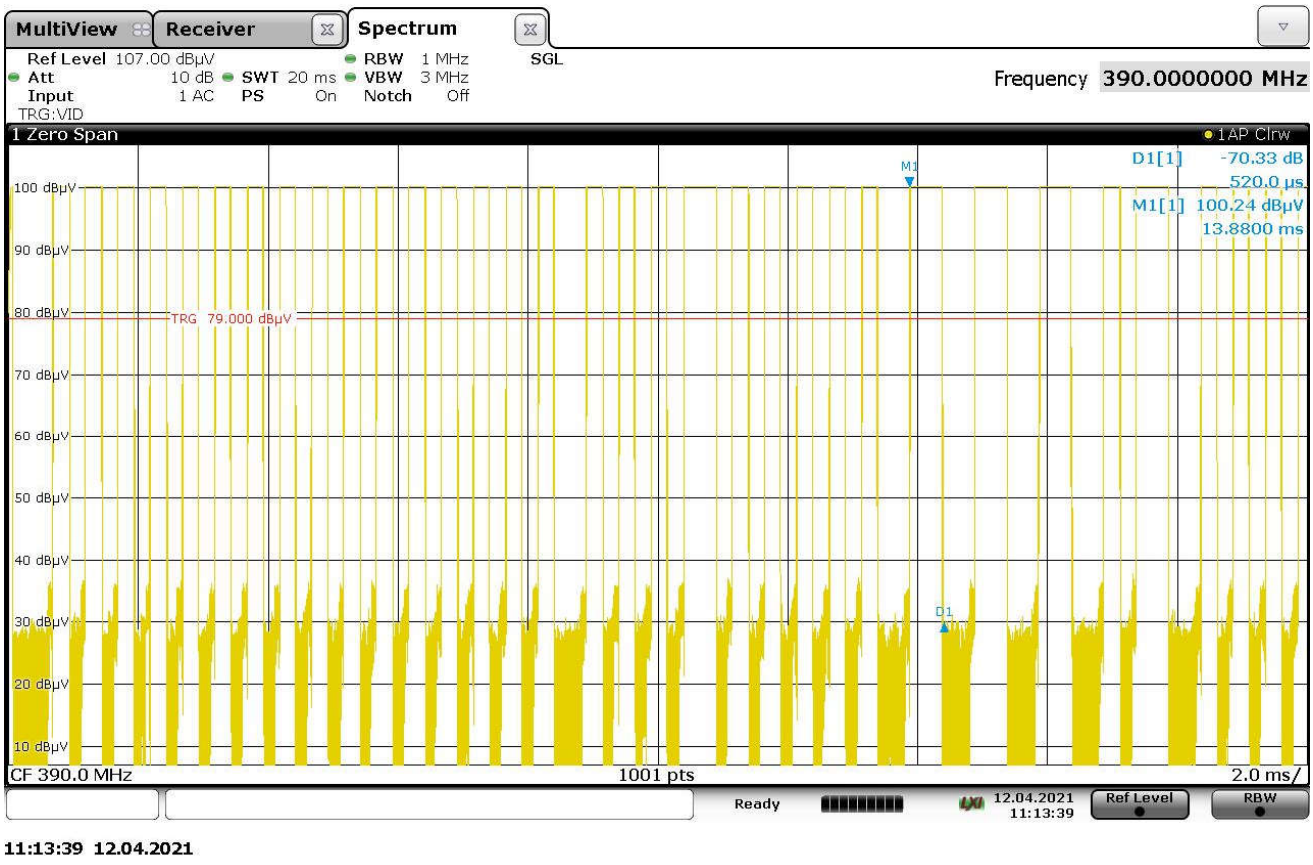
$$\text{Duty Cycle Factor} = 20\log\left(\frac{15.49msec}{(100\text{msec})}\right) = -15.9\text{dB}$$

Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G893LM
S/N	Continuous
Mode	Periodic Transmission
Carrier Frequency	390MHz
Parameters	Short Pulse = 260usec
Notes	None



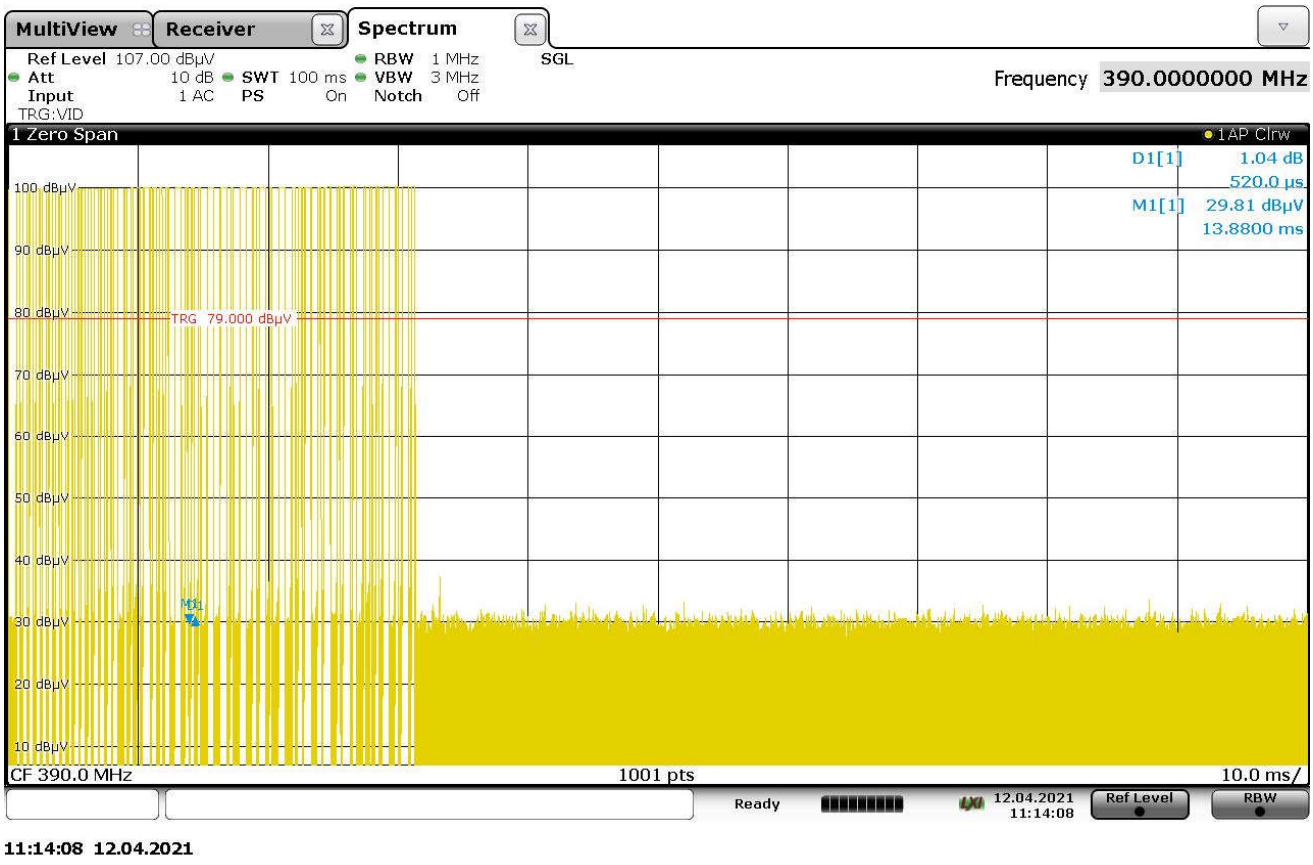
11:12:21 12.04.2021

Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G893LM
S/N	Continuous
Mode	Periodic Transmission
Carrier Frequency	390MHz
Parameters	Long Pulse = 520usec
Notes	None



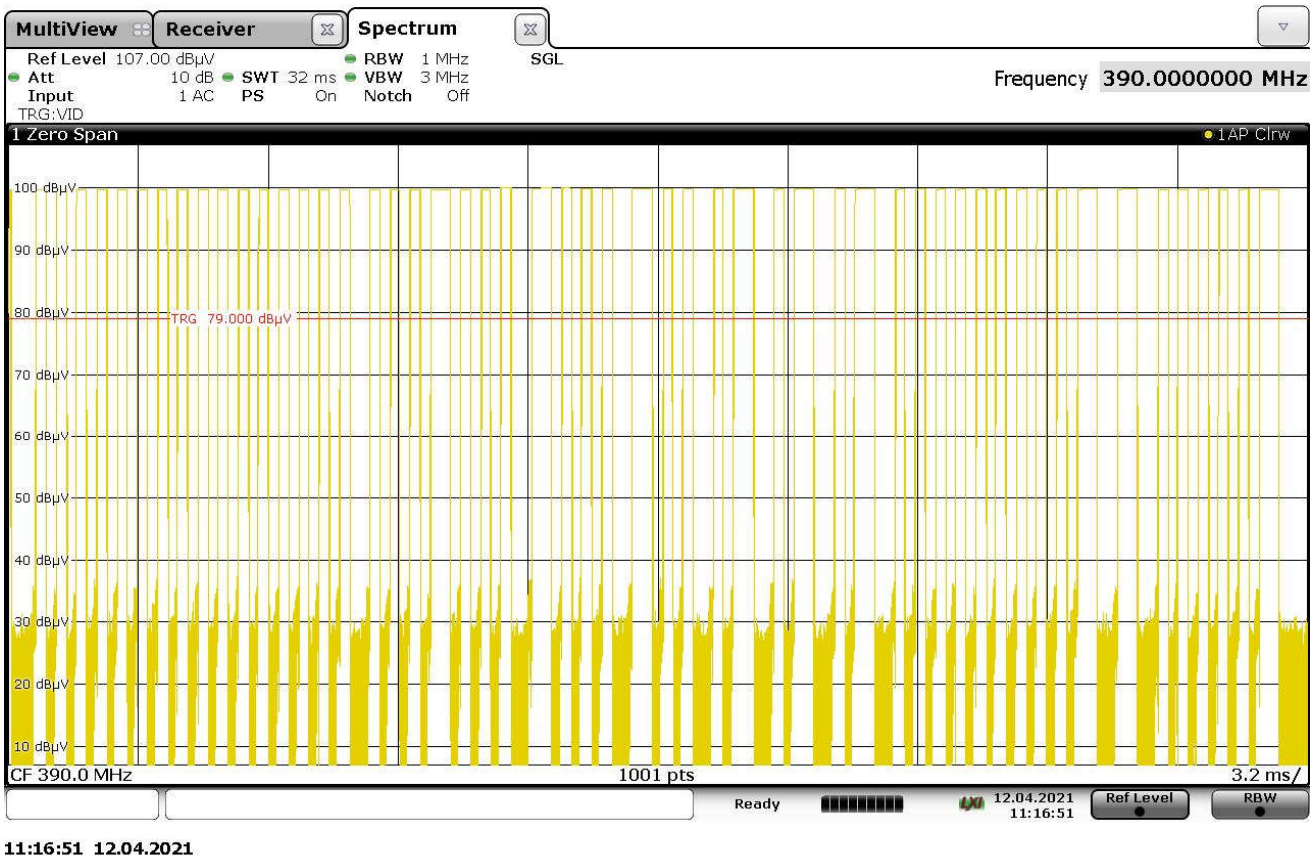
11:13:39 12.04.2021

Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G893LM
S/N	Continuous
Mode	Periodic Transmission
Carrier Frequency	390MHz
Parameters	100msec
Notes	None



11:14:08 12.04.2021

Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G893LM
S/N	Continuous
Mode	Periodic Transmission
Carrier Frequency	390MHz
Parameters	Duty Cycle
Notes	None



11:16:51 12.04.2021

On time = (44 short pulses x 260usec/short pulse) + (9 long pulses x 520usec/long pulse) = 16.12msec

$$\text{Duty Cycle Factor} = 20\log\left(\frac{21.56msec}{(100\text{msec})}\right) = -15.85\text{dB}$$

22. Spurious Radiated Emissions

Test Information	
Manufacturer	Chamberlain Group, Inc.
Product	Door and Gate Operator
Model	G891LM and G893LM
Serial No	None Assigned
Mode	Continuous Transmission
Test Date	March 24, 2021 to April 15, 2021

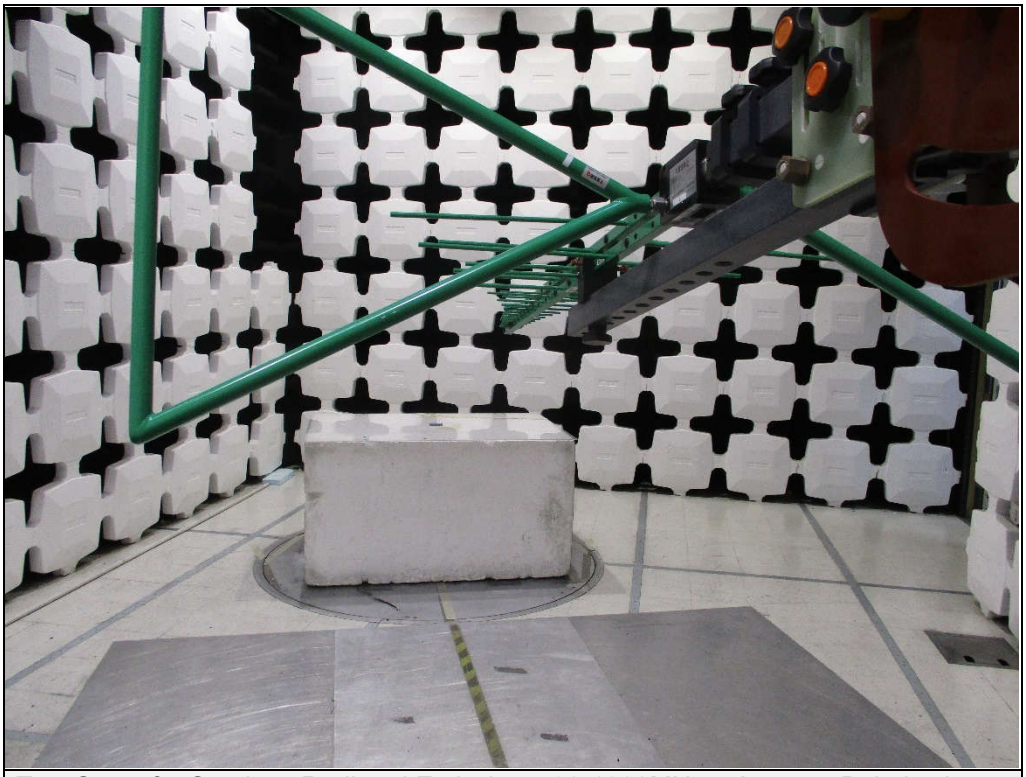
Test Setup Details	
Setup Format	Tabletop
Height of Support	NA
Type of Test Site	Semi-Anechoic Chamber
Notes	None

Measurement Uncertainty	
Measurement Type	Expanded Measurement Uncertainty
Radiated disturbance (electric field strength on an open area test site or alternative test site) (30 MHz – 1000 MHz)	4.3
Radiated disturbance (electric field strength on an open area test site or alternative test site) (1 GHz – 6 GHz)	3.1
Radiated disturbance (electric field strength on an open area test site or alternative test site) (6 GHz – 18 GHz)	3.2
Radiated disturbance (electric field strength on an open area test site or alternative test site) (18 GHz – 26.5 GHz)	3.3
Radiated disturbance (electric field strength on an open area test site or alternative test site) (26.5 GHz – 40 GHz)	3.4

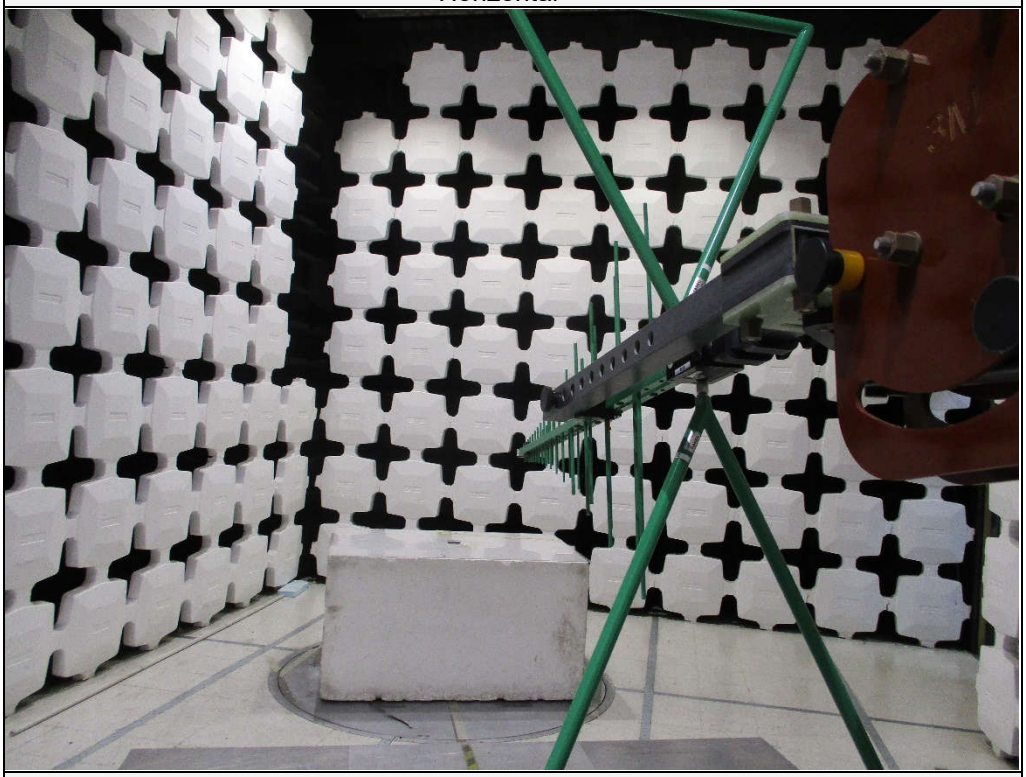
Requirements		
The EUT must comply with the requirements of FCC "Code of Federal Regulations Title 47", Part 15, Subpart C, Section 15.205 et seq. as well as the requirements of the RSS-GEN specification Section 8.10.		
Carrier Frequency (MHz)	Field Strength of Carrier (µV/m)	Field Strength of Spurious Emissions (µV/m)
40.66-40.70	2250	225
70-130	1250	125
130-174	1250 to 3750*	125 to 375*
174-260	3750	375
260-470	3750 to 12500*	375 to 1250*
Above 470	12500	1250

*Linear interpolations

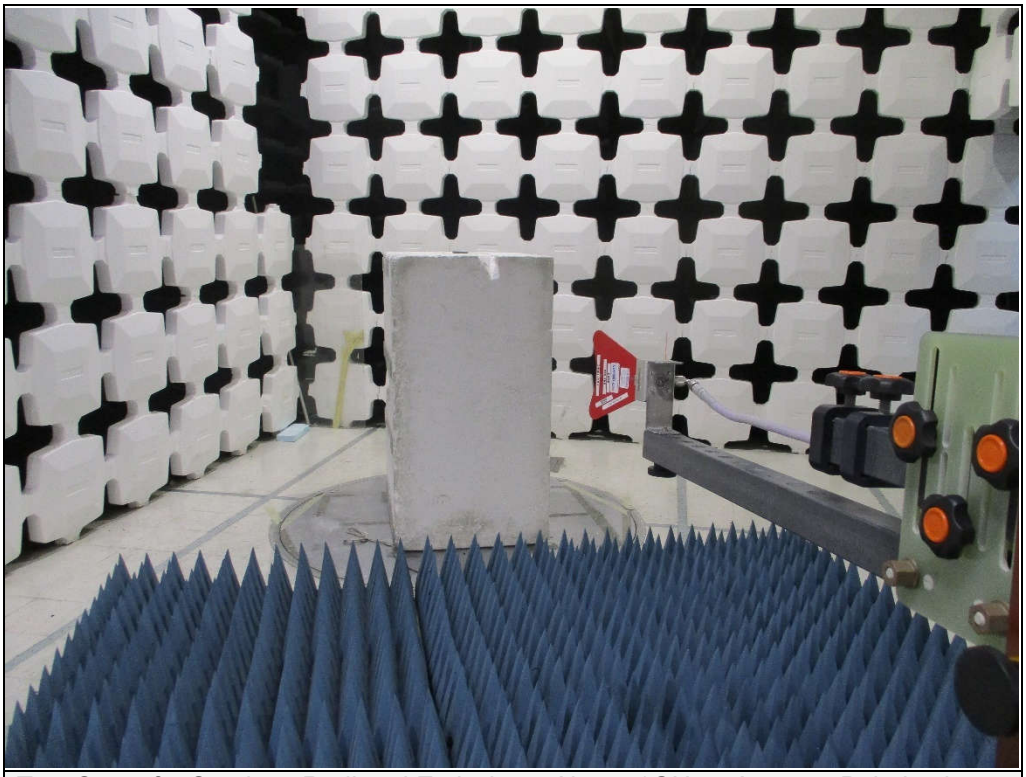
Procedures
All tests were performed in a 32ft. x 20ft. x 18ft. hybrid ferrite-tile/anechoic absorber lined test chamber. The walls and ceiling of the shielded chamber are lined with ferrite tiles. Anechoic absorber material is installed over the ferrite tile. The floor of the chamber is used as the ground plane. The chamber complies with ANSI C63.4-2014 for site attenuation. The shielded enclosure prevents emissions from other sources, such as radio and TV stations from interfering with the measurements. All powerlines and signal lines entering the enclosure pass through filters on the enclosure wall. The powerline filters prevent extraneous signals from entering the enclosure on these leads. A preliminary radiated emissions test was performed to determine the emission characteristics of the EUT. For the preliminary test, a broadband measuring antenna was positioned at a 3 meter distance from the EUT. The entire frequency range from 30MHz to 4GHz was investigated using a peak detector function. The data was then processed by the computer to calculate equivalent field intensity. The final emission tests were then manually performed over the frequency range of 30MHz to 4GHz. Between 30MHz and 1000MHz, a bi-log antenna was used as the pick-up device. The EUT was placed on an 80cm high non-conductive stand. A peak detector with a resolution bandwidth of 100 kHz was used on the spectrum analyzer. Above 1GHz, a broadband double ridged waveguide antenna was used as the pick-up device. The EUT was placed on an 150cm high non-conductive stand. A peak detector with a resolution bandwidth of 1 MHz was used on the spectrum analyzer. The peak detected levels were converted to average levels using a duty cycle factor which was computed from the pulse train. To ensure that maximum or worst case, emission levels were measured, the following steps were taken: 1) The EUT was rotated so that all of its sides were exposed to the receiving antenna. 2) Since the measuring antenna is linearly polarized, both horizontal and vertical field components were measured. 3) The measuring antenna was raised and lowered from 1 to 4 meters for each antenna polarization to maximize the readings. 4) For hand-held or body-worn devices, the EUT was rotated through three orthogonal axes to determine which orientation produces the highest emission relative to the limit. In instances where it was necessary to use a shortened cable between the measuring antenna and the spectrum analyzer and the antenna cannot be raised to 4 meters. The measuring antenna is raised or lowered as much as the cable will allow and the EUT is rotated through all axis to ensure the maximum readings are recorded.



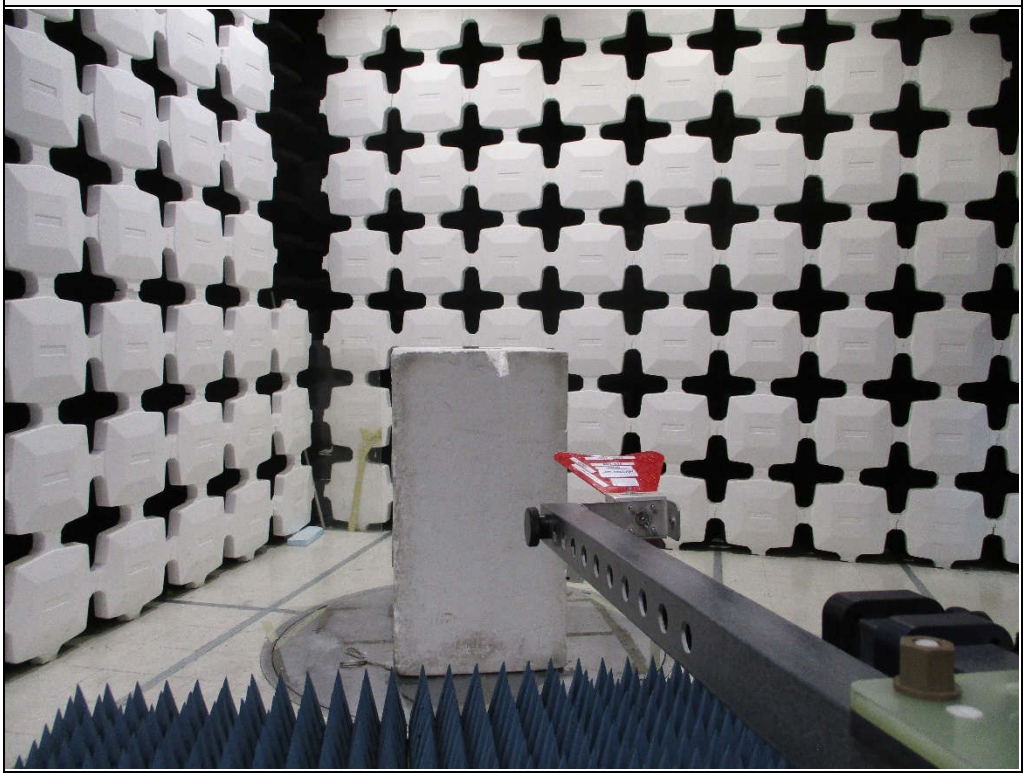
Test Setup for Spurious Radiated Emissions, 30-1000MHz – Antenna Polarization Horizontal



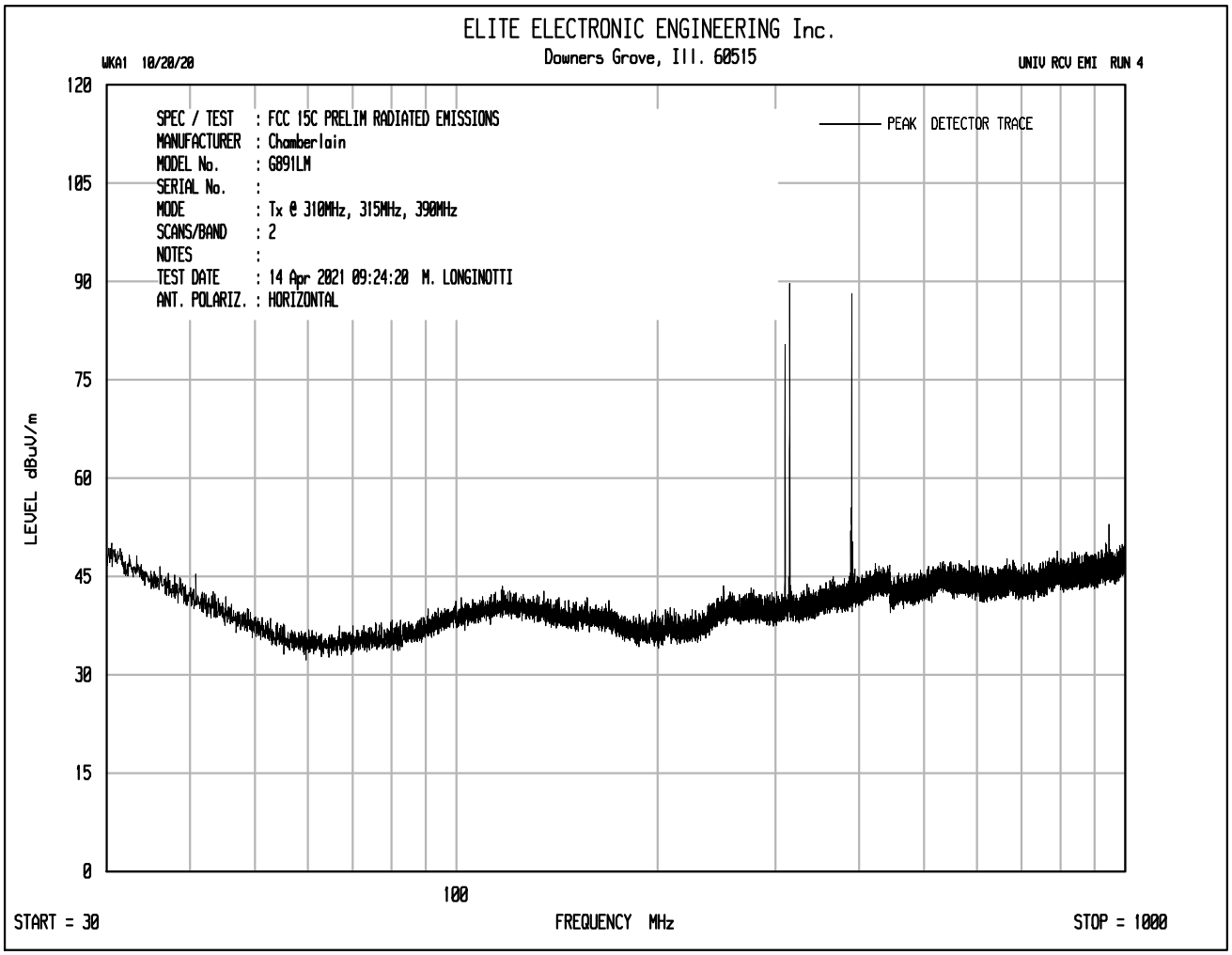
Test Setup for Spurious Radiated Emissions, 30-1000MHz – Antenna Polarization Vertical

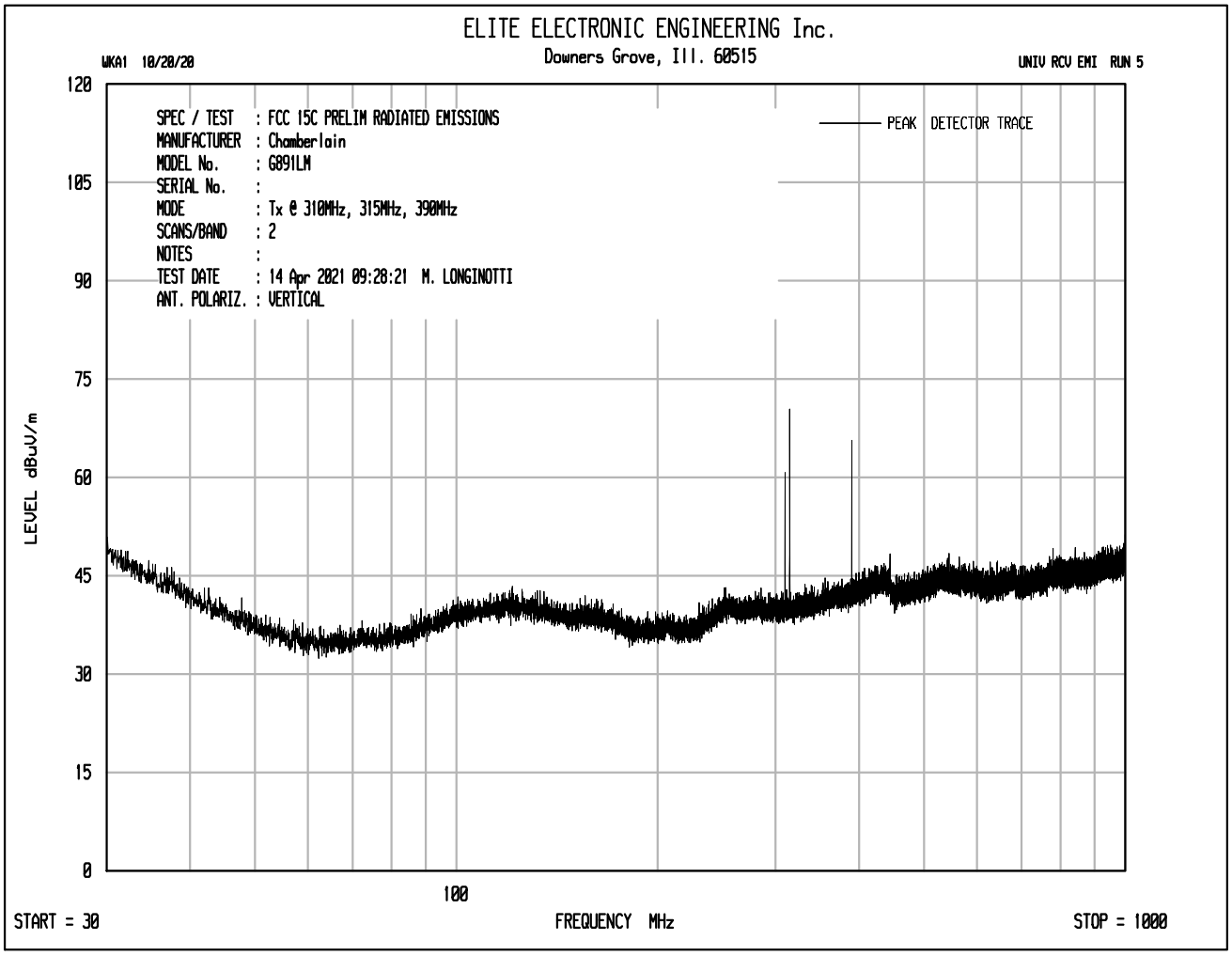


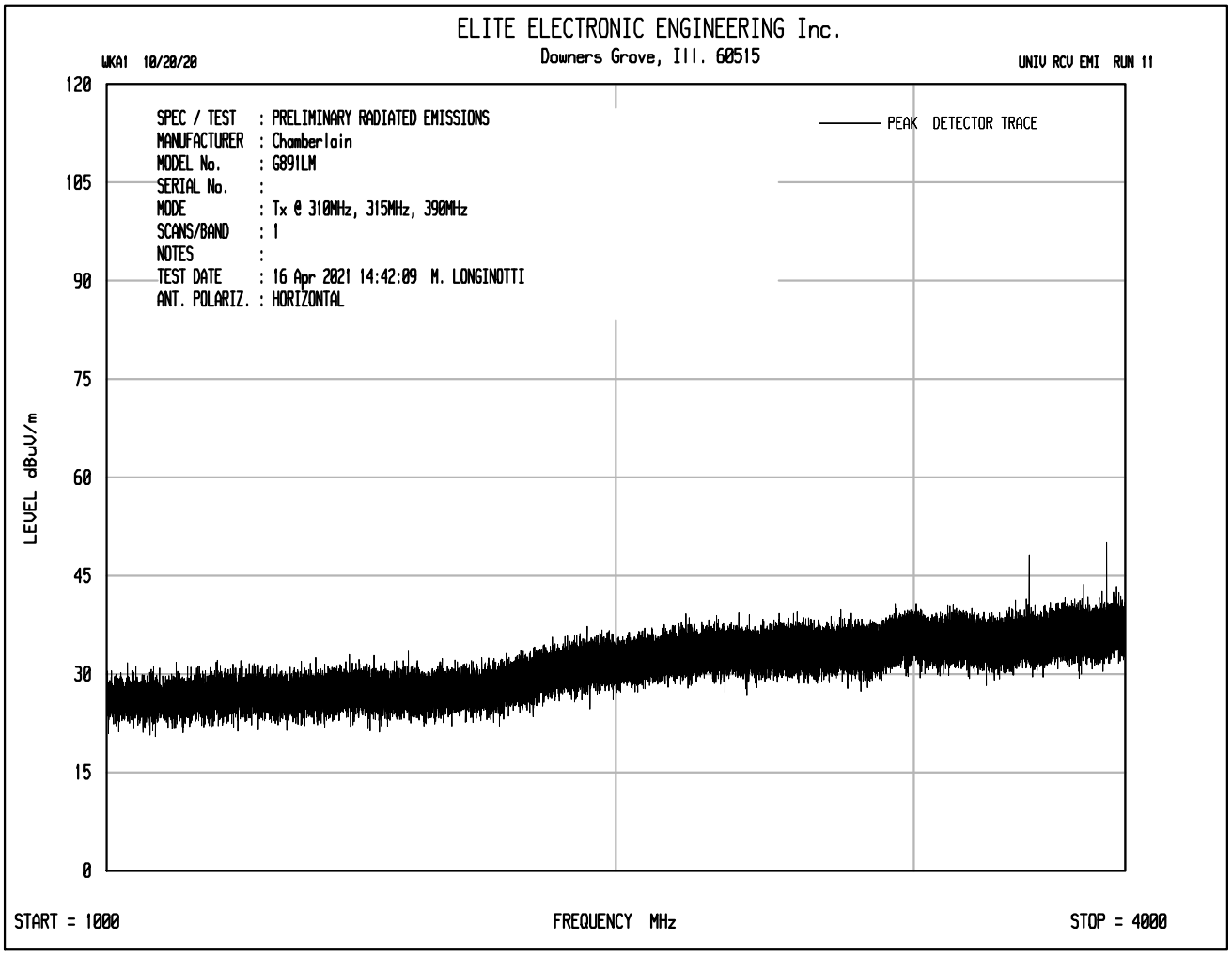
Test Setup for Spurious Radiated Emissions, Above 1GHz – Antenna Polarization Horizontal

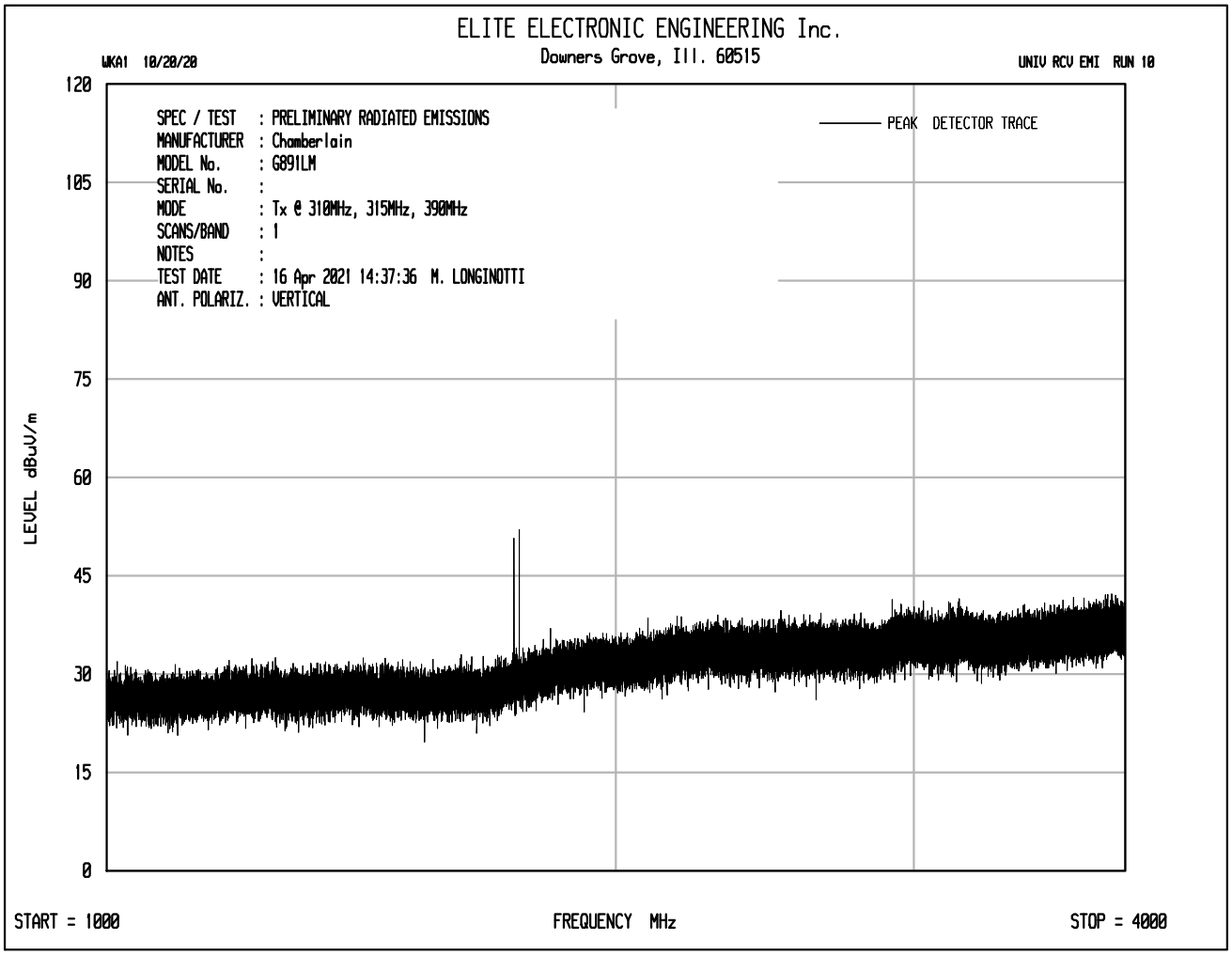


Test Setup for Spurious Radiated Emissions, Above 1GHz – Antenna Polarization Vertical


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 4
SPEC / TEST : FCC 15C PRELIM RADIATED EMISSIONS
MANUFACTURER : Chamberlain
MODEL No. : G891LM
SERIAL No. :
MODE : Tx @ 310MHz, 315MHz, 390MHz
SCANS/BAND : 2
NOTES :
TEST DATE : 14 Apr 2021 09:24:20 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 5
SPEC / TEST : FCC 15C PRELIM RADIATED EMISSIONS
MANUFACTURER : Chamberlain
MODEL No. : G891LM
SERIAL No. :
MODE : Tx @ 310MHz, 315MHz, 390MHz
SCANS/BAND : 2
NOTES :
TEST DATE : 14 Apr 2021 09:28:21 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 11
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : Chamberlain
MODEL No. : G891LM
SERIAL No. :
MODE : Tx @ 310MHz, 315MHz, 390MHz
SCANS/BAND : 1
NOTES :
TEST DATE : 16 Apr 2021 14:42:09 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 10
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : Chamberlain
MODEL No. : G891LM
SERIAL No. :
MODE : Tx @ 310MHz, 315MHz, 390MHz
SCANS/BAND : 1
NOTES :
TEST DATE : 16 Apr 2021 14:37:36 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4000

Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G891LM
S/N	None Assigned
Mode	Continuous Transmission
Carrier Frequency	310MHz
Requirements	Field Strength of Carrier Limit = 5833.3µV/m
Notes	None

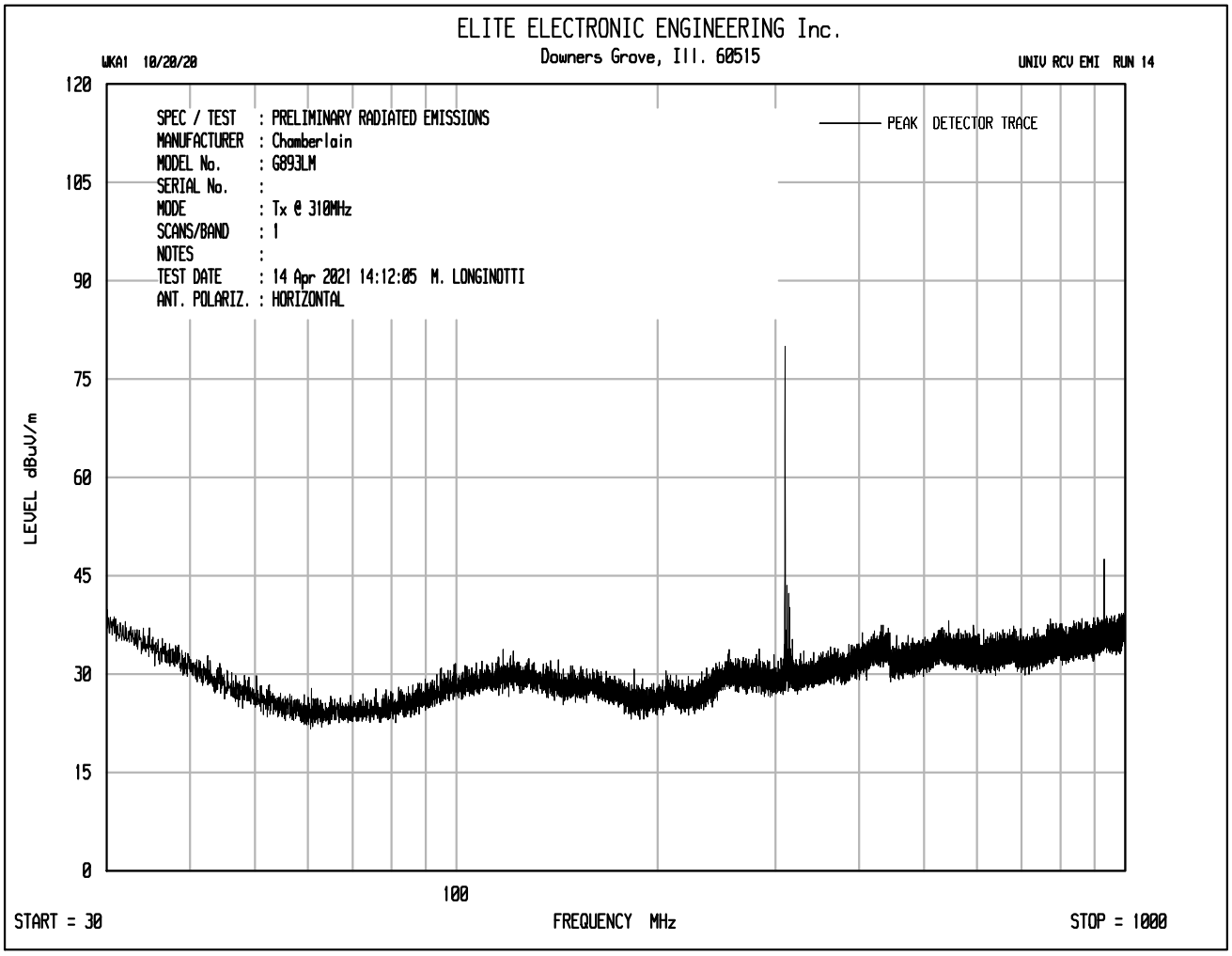
Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle (dB)	Total (dBuV/m)	Total (uV/m)	Limit (uV/m)	Margin (dB)
310.000	H	60.7		0.9	19.3	0.0	-15.9	65.0	1785.6	5833.3	-10.3
310.000	V	41.8		0.9	19.3	0.0	-15.9	46.1	202.7	5833.3	-29.2
620.000	H	15.9		1.3	24.9	0.0	-15.9	26.1	20.3	583.3	-29.2
620.000	V	11.1		1.3	24.9	0.0	-15.9	21.3	11.7	583.3	-34.0
930.000	H	18.9		1.6	26.9	0.0	-15.9	31.4	37.3	583.3	-23.9
930.000	V	15.6		1.6	26.9	0.0	-15.9	28.1	25.5	583.3	-27.2

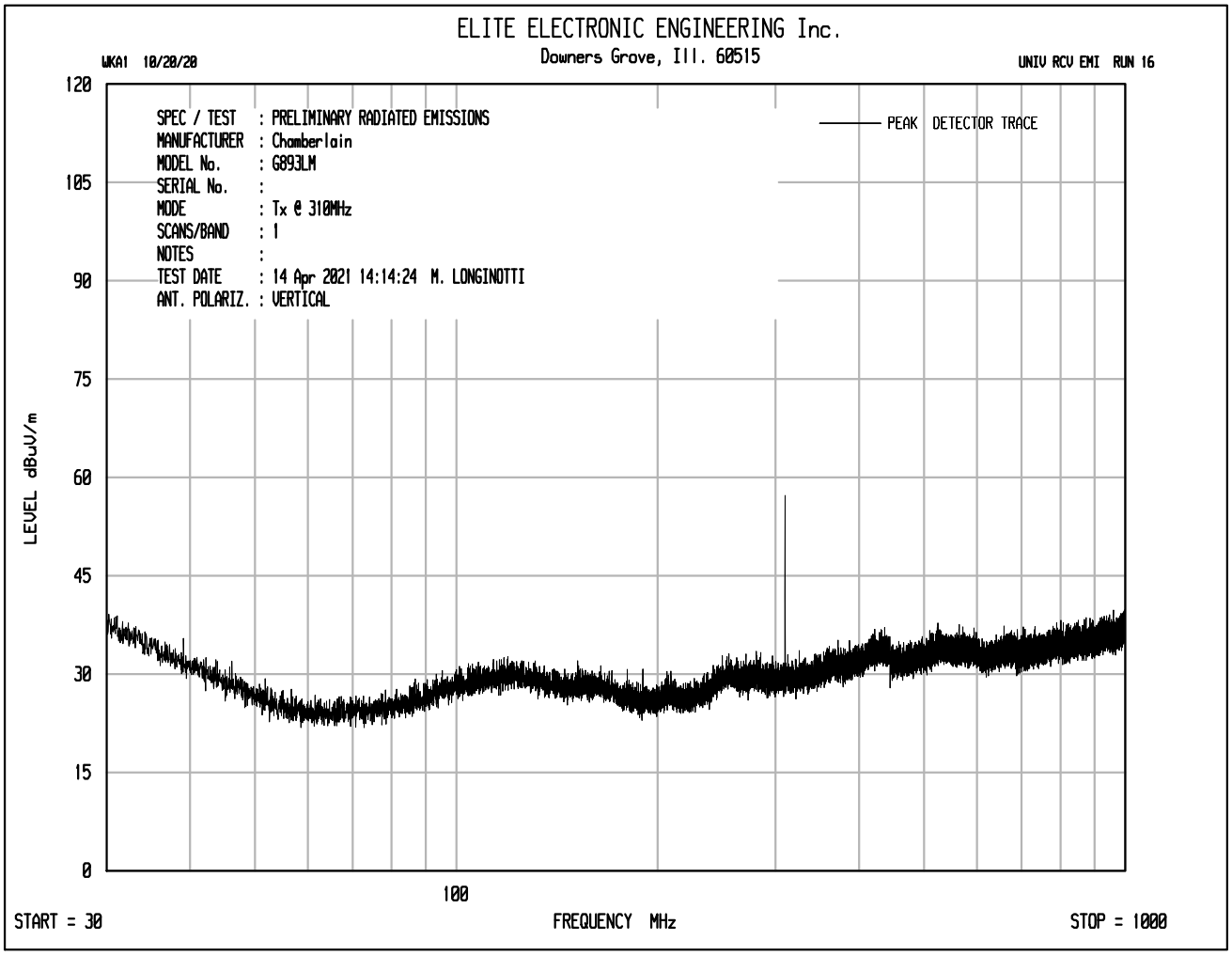
Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G891LM
S/N	None Assigned
Mode	Continuous Transmission
Carrier Frequency	315MHz
Requirements	Field Strength of Carrier Limit = 6041.7µV/m
Notes	None

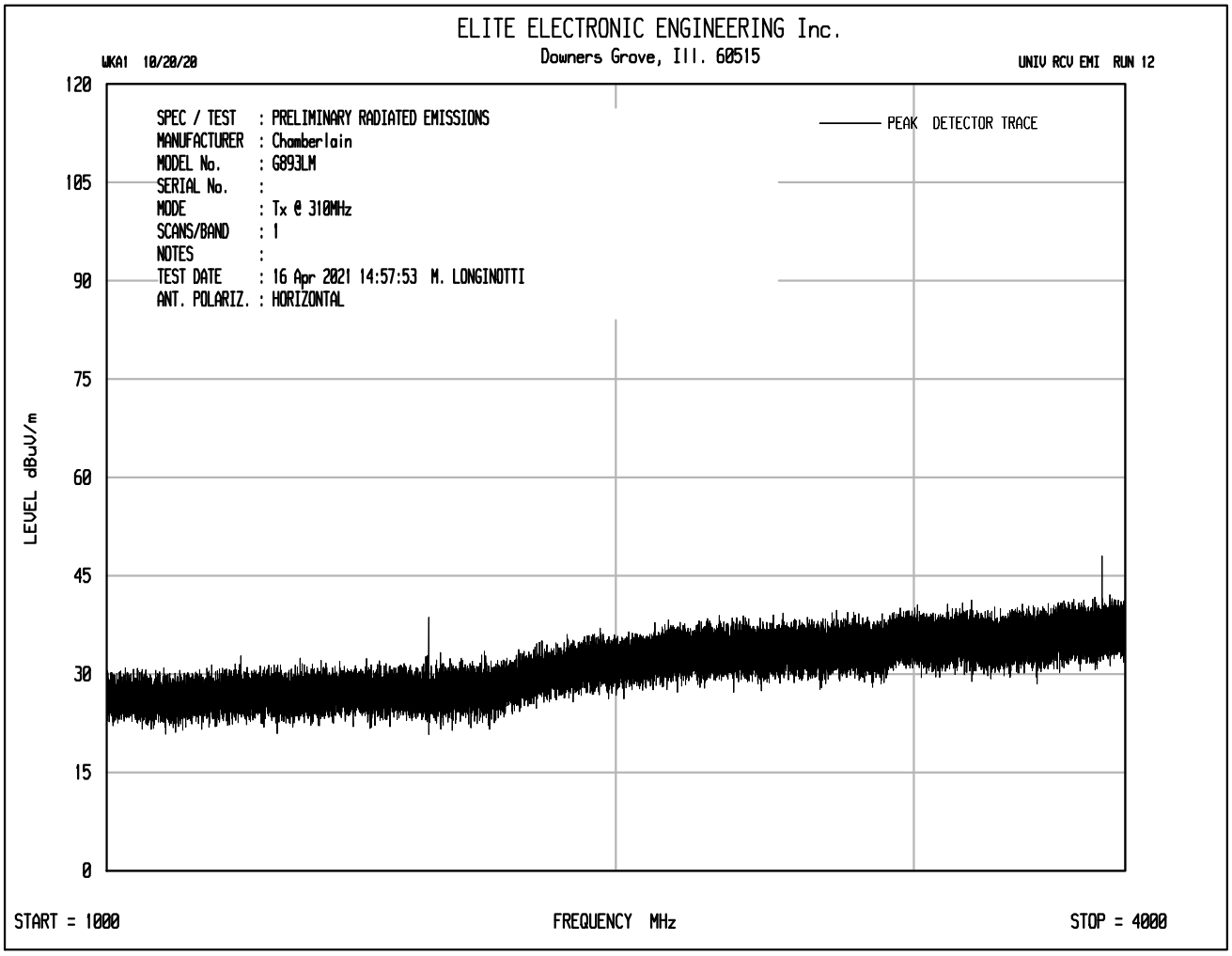
Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle (dB)	Total (dBuV/m)	Total (uV/m)	Limit (uV/m)	Margin (dB)
315.000	H	70.0		0.9	19.4	0.0	-16.2	74.2	5100.3	6041.7	-1.5
315.000	V	51.3		0.9	19.4	0.0	-16.2	55.5	592.4	6041.7	-20.2
630.000	H	17.0		1.3	24.9	0.0	-16.2	27.0	22.5	604.2	-28.6
630.000	V	11.2		1.3	24.9	0.0	-16.2	21.2	11.5	604.2	-34.4
945.000	H	19.8		1.6	27.0	0.0	-16.2	32.2	40.6	604.2	-23.4
945.000	V	15.8		1.6	27.0	0.0	-16.2	28.2	25.6	604.2	-27.4

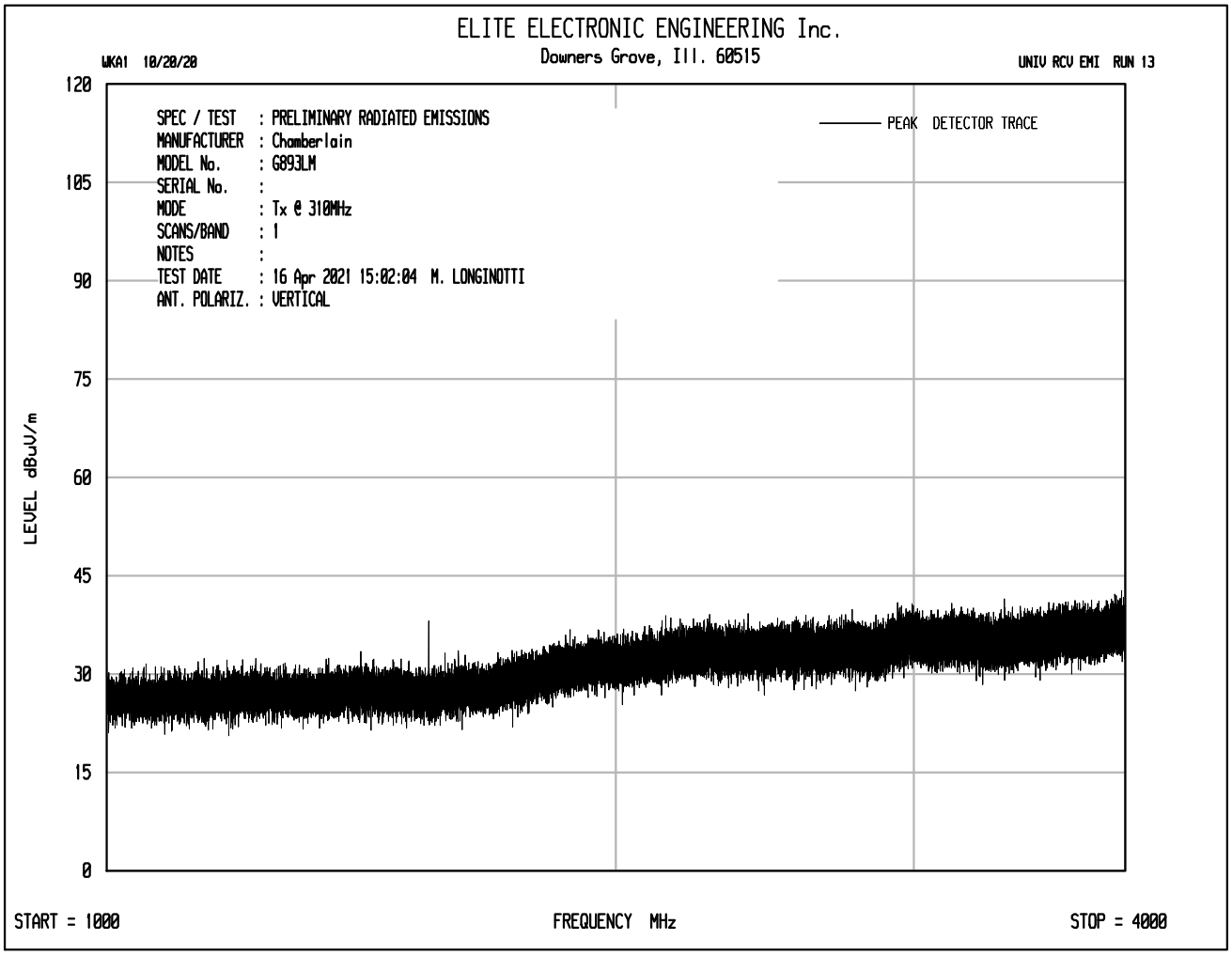
Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G891LM
S/N	Continuous
Mode	None Assigned
Carrier Frequency	390MHz
Requirements	Field Strength of Carrier Limit = 9166.7µV/m
Notes	None

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle (dB)	Total (dBuV/m)	Total (uV/m)	Limit (uV/m)	Margin (dB)
390.000	H	66.0		1.0	21.6	0.0	-15.9	72.7	4327.6	9166.7	-6.5
390.000	V	44.7		1.0	21.6	0.0	-15.9	51.4	372.6	9166.7	-27.8
780.000	H	33.0		1.4	25.8	0.0	-15.9	44.3	164.6	916.7	-14.9
780.000	V	23.6		1.4	25.8	0.0	-15.9	34.9	55.8	916.7	-24.3


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 14
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : Chamberlain
MODEL No. : G893LM
SERIAL No. :
MODE : Tx @ 310MHz
SCANS/BAND : 1
NOTES :
TEST DATE : 14 Apr 2021 14:12:05 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

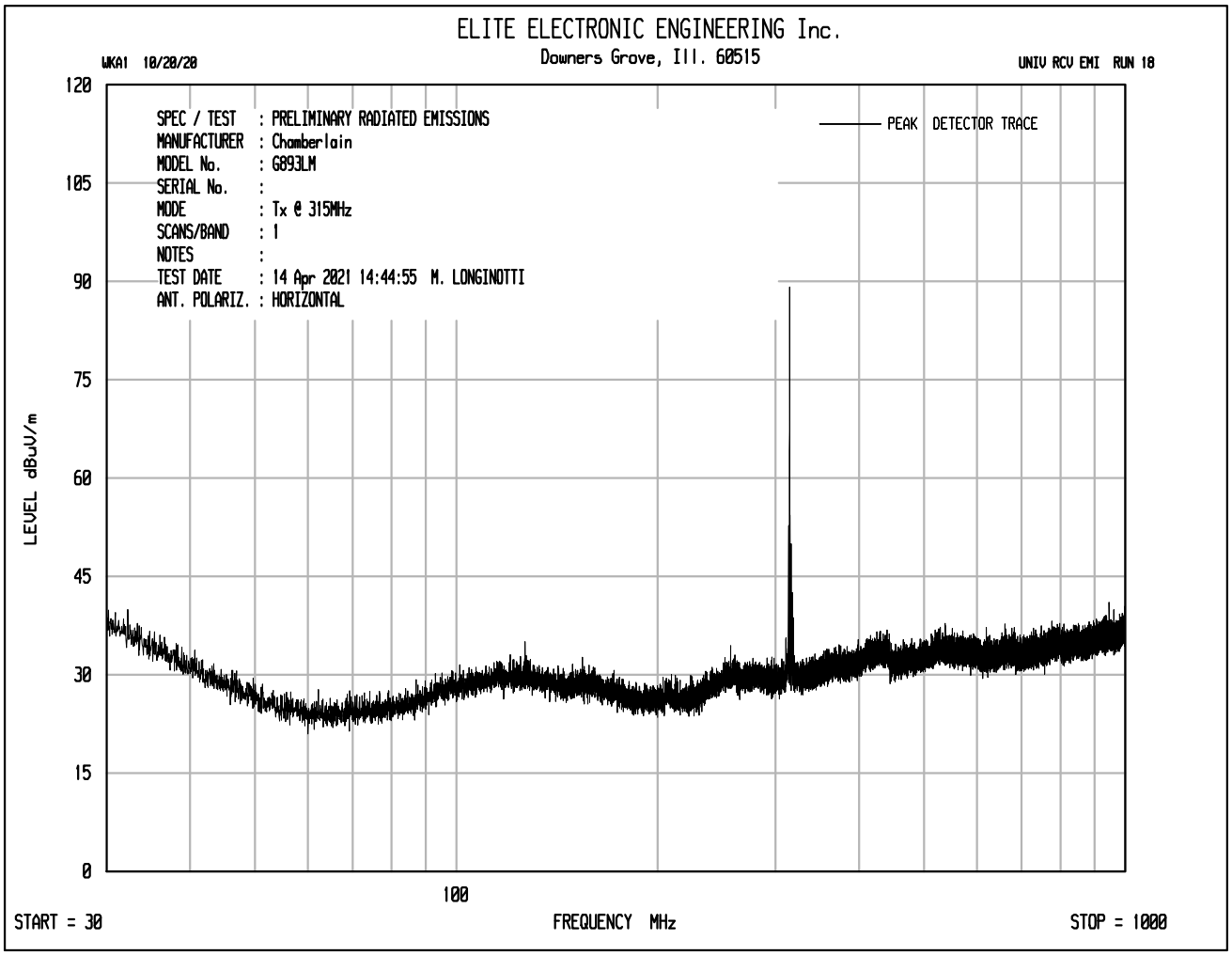

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 16
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : Chamberlain
MODEL No. : G893LM
SERIAL No. :
MODE : Tx @ 310MHz
SCANS/BAND : 1
NOTES :
TEST DATE : 14 Apr 2021 14:14:24 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

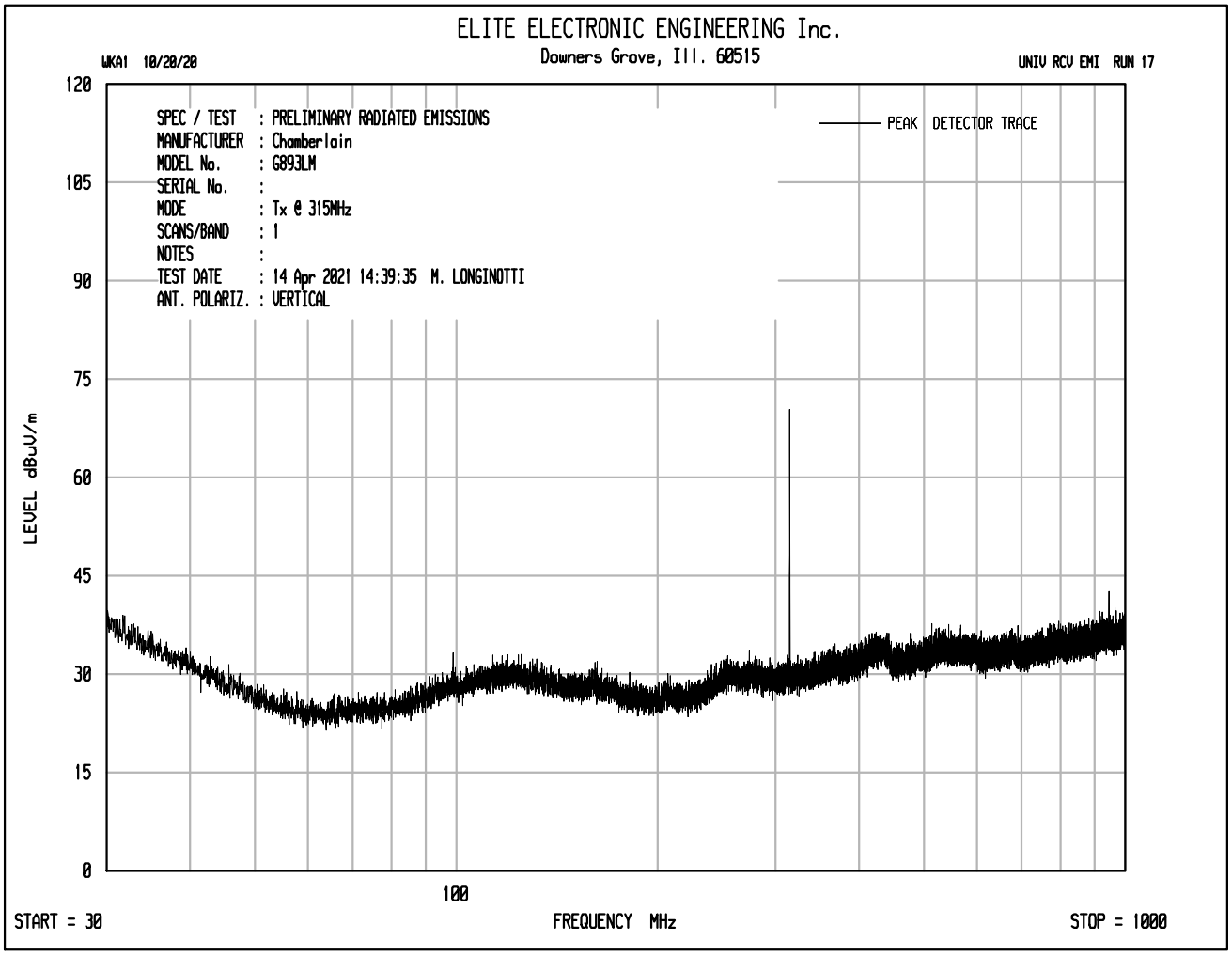

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 12
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : Chamberlain
MODEL No. : G893LM
SERIAL No. :
MODE : Tx @ 310MHz
SCANS/BAND : 1
NOTES :
TEST DATE : 16 Apr 2021 14:57:53 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4000

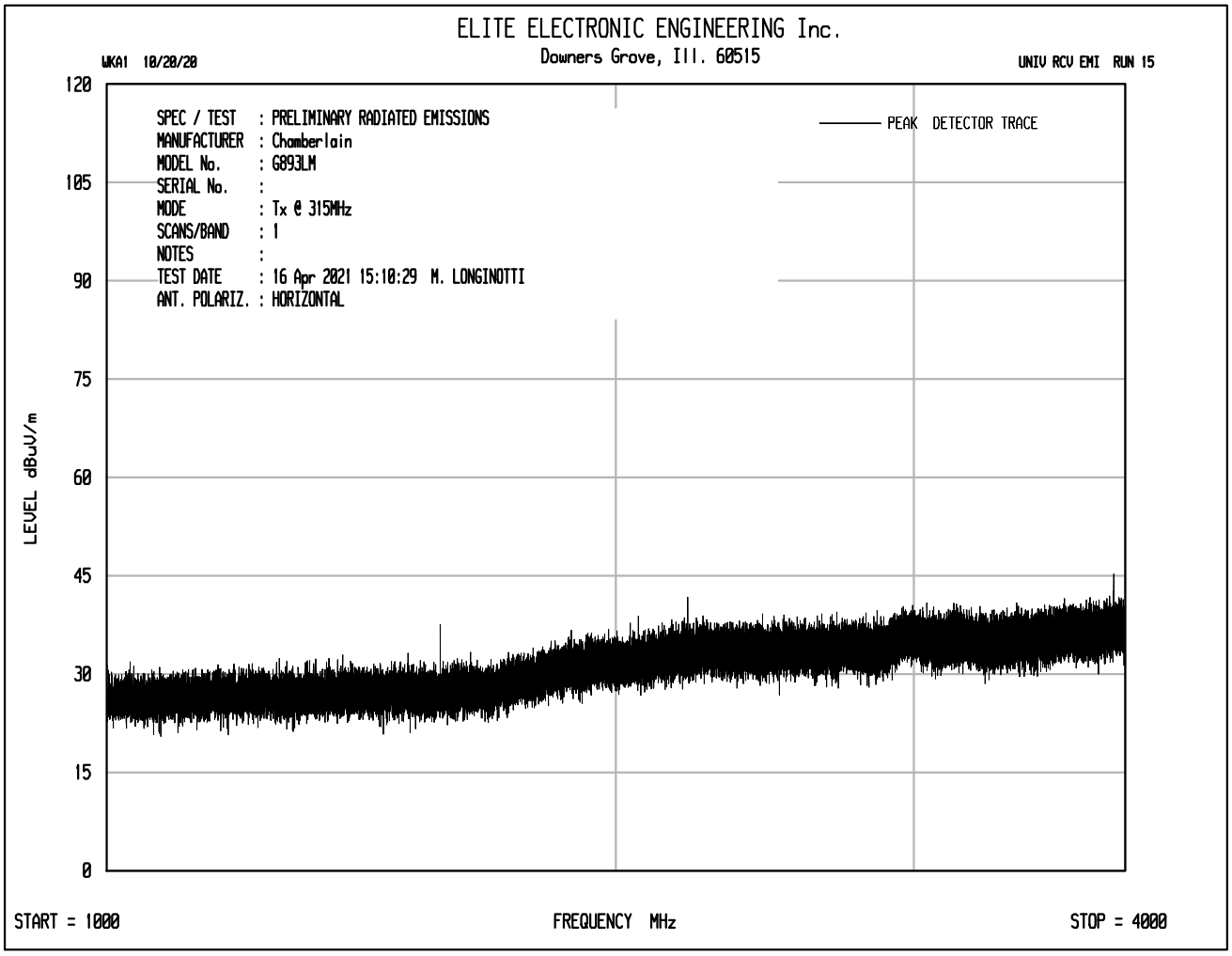

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 13
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : Chamberlain
MODEL No. : G893LM
SERIAL No. :
MODE : Tx @ 310MHz
SCANS/BAND : 1
NOTES :
TEST DATE : 16 Apr 2021 15:02:04 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4000

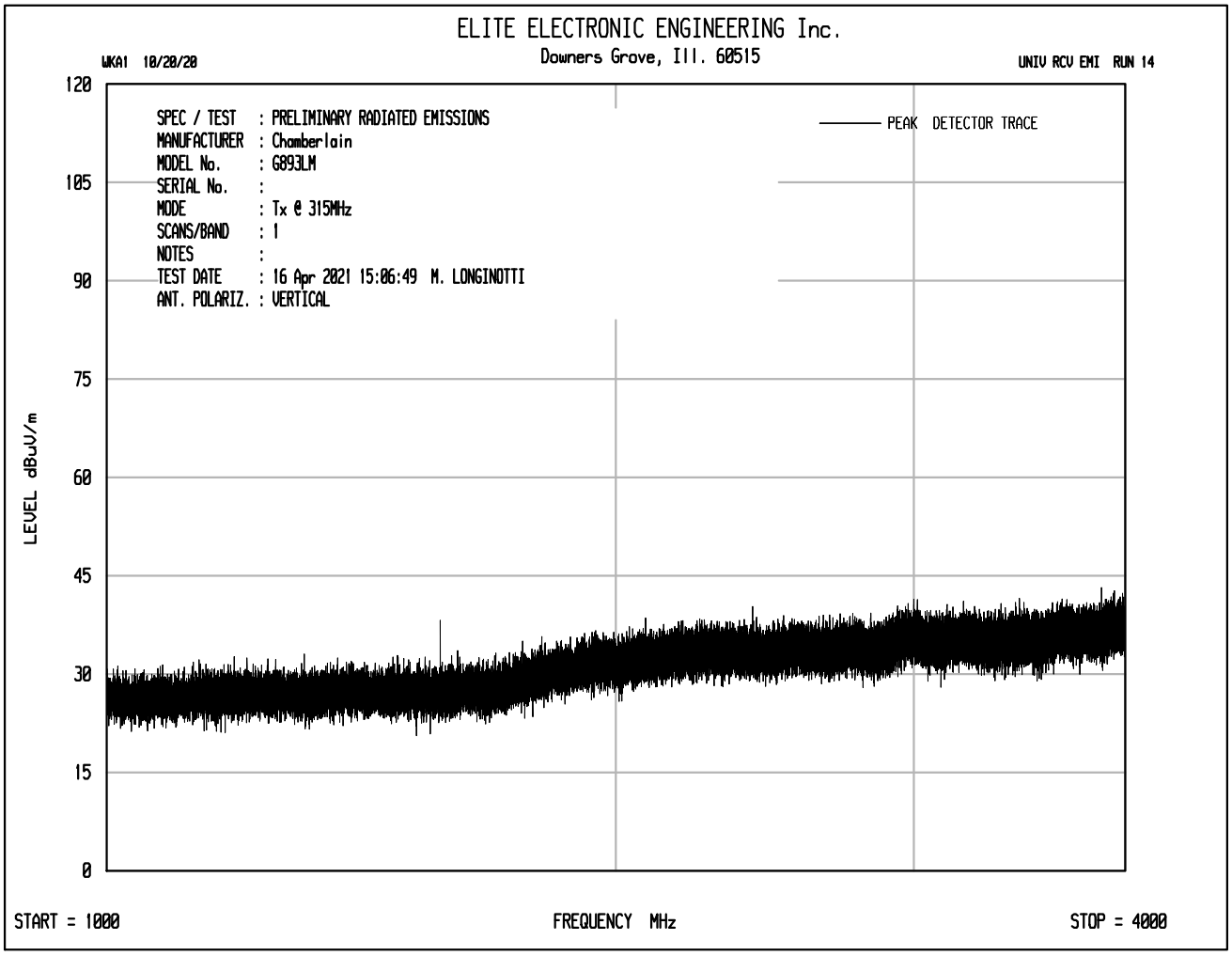
Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G893LM
S/N	None Assigned
Mode	Continuous Transmission
Carrier Frequency	310MHz
Requirements	Field Strength of Carrier Limit = 5833.3µV/m
Notes	None

Freq. (MHz)	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle (dB)	Total (dBuV/m)	Total (uV/m)	Limit (uV/m)	Margin (dB)
310.000	H	60.7		0.9	19.3	0.0	-15.9	65.0	1785.6	5833.3	-10.3
310.000	V	41.4		0.9	19.3	0.0	-15.9	45.7	193.5	5833.3	-29.6
620.000	H	15.1		1.3	24.9	0.0	-15.9	25.3	18.5	583.3	-30.0
620.000	V	13.1		1.3	24.9	0.0	-15.9	23.3	14.7	583.3	-32.0
930.000	H	20.6		1.6	26.9	0.0	-15.9	33.1	45.4	583.3	-22.2
930.000	V	17.6		1.6	26.9	0.0	-15.9	30.1	32.1	583.3	-25.2
1240.000	H	14.9	Ambient	1.8	29.8	0.0	-15.9	30.6	33.9	500.0	-23.4
1240.000	V	14.4	Ambient	1.8	29.8	0.0	-15.9	30.1	32.1	500.0	-23.8
1550.000	H	17.4	Ambient	2.1	29.1	0.0	-15.9	32.7	43.0	500.0	-21.3
1550.000	V	16.7	Ambient	2.1	29.1	0.0	-15.9	32.0	39.8	500.0	-22.0
1860.000	H	16.4	Ambient	2.3	31.9	0.0	-15.9	34.6	53.9	583.3	-20.7
1860.000	V	17.0	Ambient	2.3	31.9	0.0	-15.9	35.3	58.3	583.3	-20.0
2170.000	H	16.6	Ambient	2.5	32.5	0.0	-15.9	35.7	61.0	583.3	-19.6
2170.000	V	16.9	Ambient	2.5	32.5	0.0	-15.9	36.0	62.9	583.3	-19.3
2480.000	H	17.0	Ambient	2.7	33.2	0.0	-15.9	37.0	70.9	583.3	-18.3
2480.000	V	17.3	Ambient	2.7	33.2	0.0	-15.9	37.3	73.2	583.3	-18.0
2790.000	H	17.3	Ambient	2.8	33.6	0.0	-15.9	37.8	78.0	500.0	-16.1
2790.000	V	17.4	Ambient	2.8	33.6	0.0	-15.9	37.9	78.8	500.0	-16.0
3100.000	H	18.3	Ambient	3.0	33.4	0.0	-15.9	38.7	86.2	583.3	-16.6
3100.000	V	17.5	Ambient	3.0	33.4	0.0	-15.9	38.0	79.4	583.3	-17.3


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 18
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : Chamberlain
MODEL No. : G893LM
SERIAL No. :
MODE : Tx @ 315MHz
SCANS/BAND : 1
NOTES :
TEST DATE : 14 Apr 2021 14:44:55 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

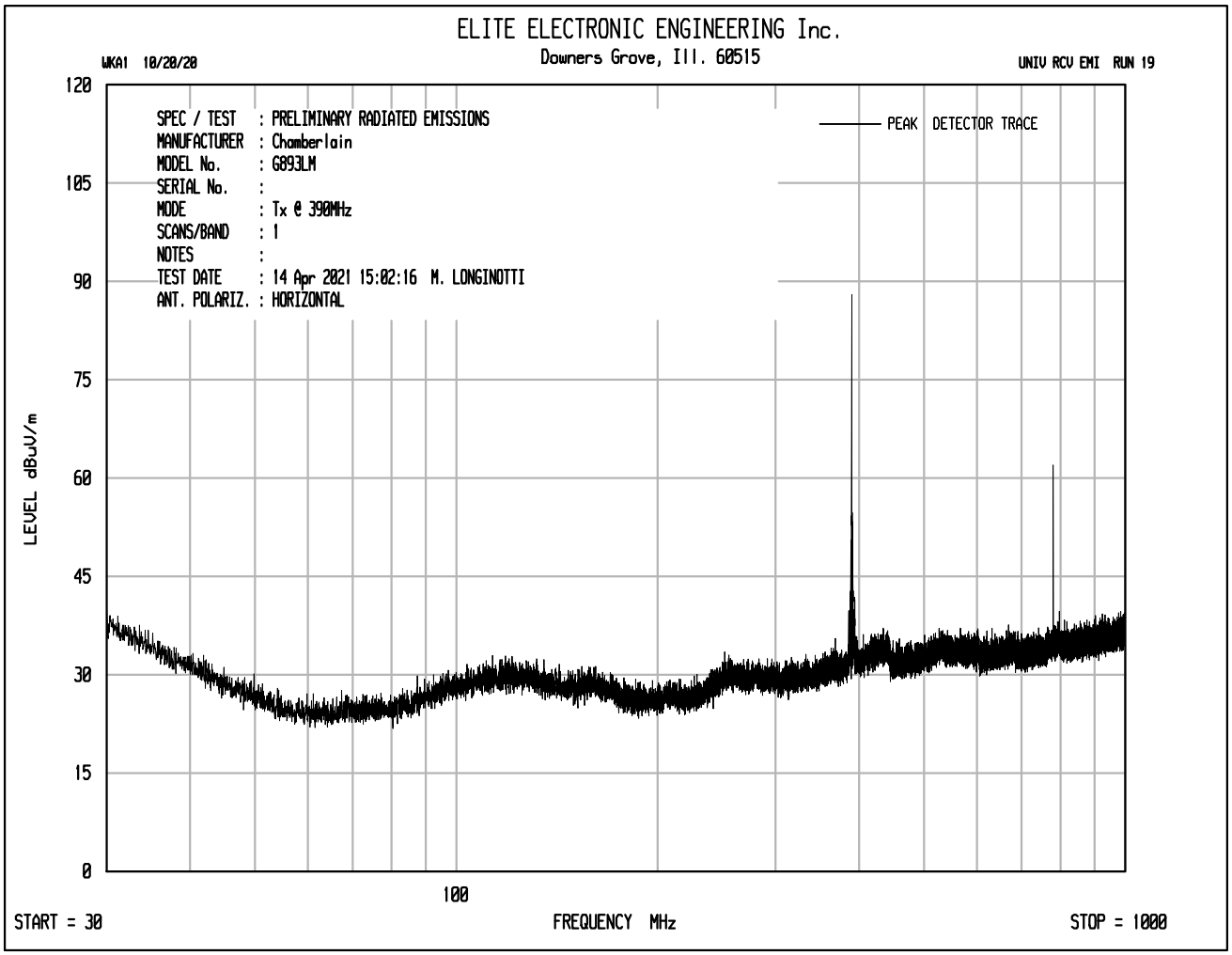

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 17
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : Chamberlain
MODEL No. : G893LM
SERIAL No. :
MODE : Tx @ 315MHz
SCANS/BAND : 1
NOTES :
TEST DATE : 14 Apr 2021 14:39:35 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

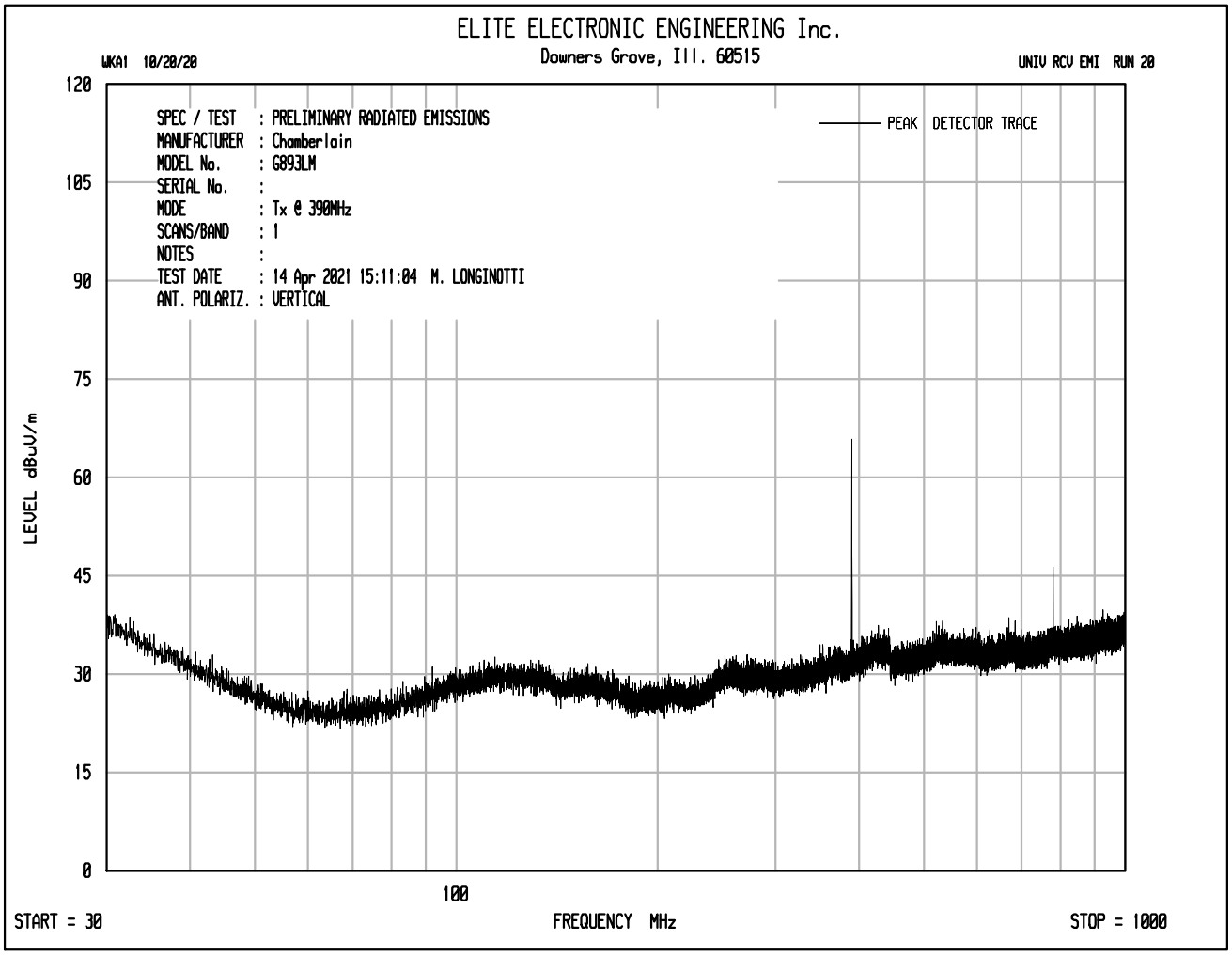

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 15
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : Chamberlain
MODEL No. : G893LM
SERIAL No. :
MODE : Tx @ 315MHz
SCANS/BAND : 1
NOTES :
TEST DATE : 16 Apr 2021 15:10:29 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4000

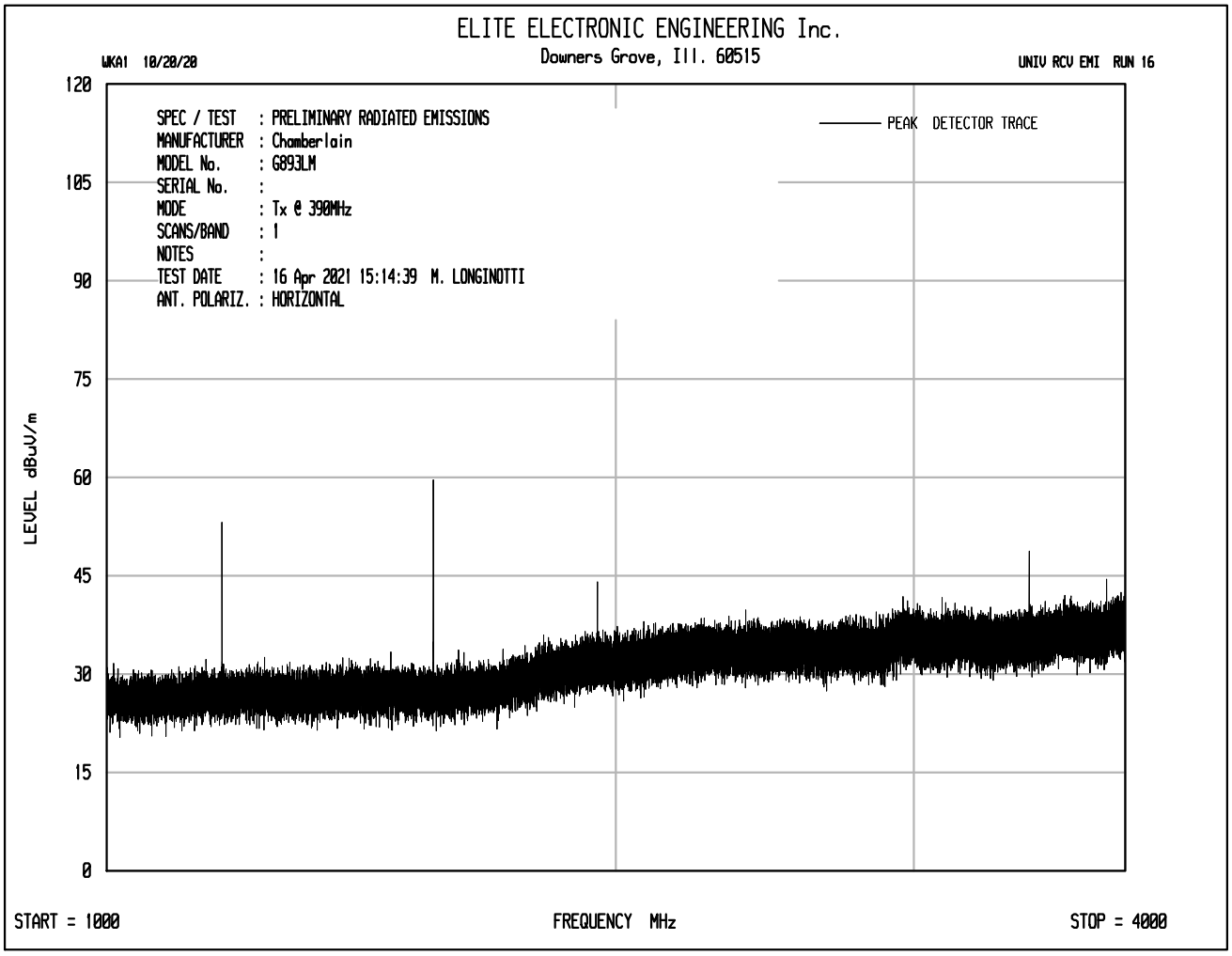

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 14
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : Chamberlain
MODEL No. : G893LM
SERIAL No. :
MODE : Tx @ 315MHz
SCANS/BAND : 1
NOTES :
TEST DATE : 16 Apr 2021 15:06:49 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4000

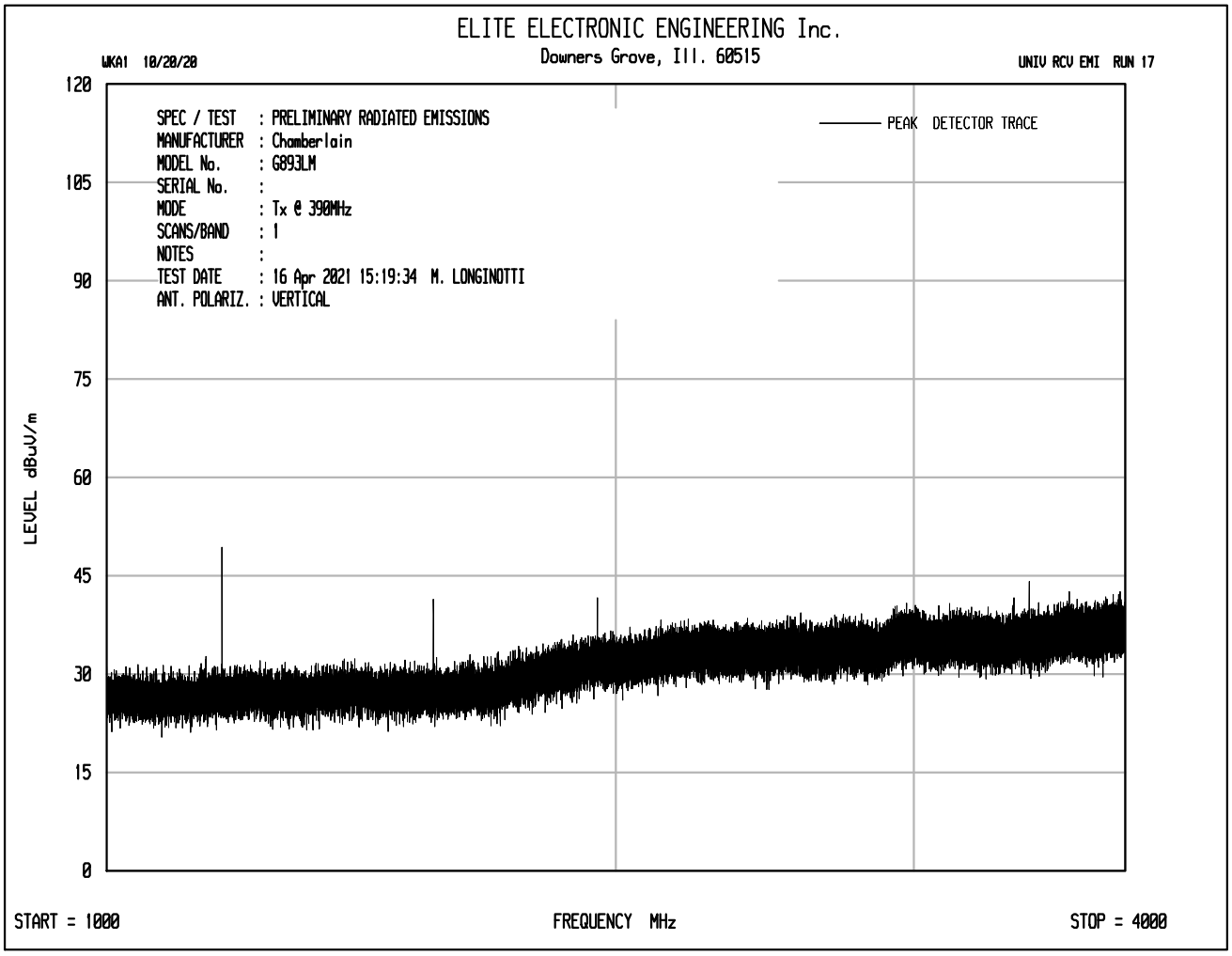
Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G893LM
S/N	None Assigned
Mode	Continuous Transmission
Carrier Frequency	315MHz
Requirements	Field Strength of Carrier Limit = 6041.7µV/m
Notes	None

Freq. (MHz)	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle (dB)	Total (dBuV/m)	Total (uV/m)	Limit (uV/m)	Margin (dB)
315.000	H	69.5		0.9	19.4	0.0	-16.2	73.7	4815.0	6041.7	-2.0
315.000	V	50.5		0.9	19.4	0.0	-16.2	54.7	540.2	6041.7	-21.0
630.000	H	15.1		1.3	24.9	0.0	-16.2	25.1	18.1	604.2	-30.5
630.000	V	11.5		1.3	24.9	0.0	-16.2	21.5	11.9	604.2	-34.1
945.000	H	21.5		1.6	27.0	0.0	-16.2	33.9	49.4	604.2	-21.7
945.000	V	18.9		1.6	27.0	0.0	-16.2	31.3	36.6	604.2	-24.3
1260.000	H	15.0	Ambient	1.9	29.8	0.0	-16.2	30.5	33.3	604.2	-25.2
1260.000	V	14.6	Ambient	1.9	29.8	0.0	-16.2	30.1	32.0	604.2	-25.5
1575.000	H	16.3	Ambient	2.1	29.3	0.0	-16.2	31.5	37.4	500.0	-22.5
1575.000	V	16.1	Ambient	2.1	29.3	0.0	-16.2	31.3	36.9	500.0	-22.6
1890.000	H	16.5	Ambient	2.3	32.3	0.0	-16.2	34.8	55.0	604.2	-20.8
1890.000	V	15.7	Ambient	2.3	32.3	0.0	-16.2	34.0	50.2	604.2	-21.6
2205.000	H	16.5	Ambient	2.5	32.5	0.0	-16.2	35.3	58.1	500.0	-18.7
2205.000	V	16.2	Ambient	2.5	32.5	0.0	-16.2	35.0	56.2	500.0	-19.0
2520.000	H	17.2	Ambient	2.7	33.6	0.0	-16.2	37.2	72.8	604.2	-18.4
2520.000	V	17.0	Ambient	2.7	33.6	0.0	-16.2	37.1	71.5	604.2	-18.5
2835.000	H	17.3	Ambient	2.9	33.2	0.0	-16.2	37.2	72.6	500.0	-16.8
2835.000	V	16.8	Ambient	2.9	33.2	0.0	-16.2	36.7	68.5	500.0	-17.3
3150.000	H	18.5	Ambient	3.0	33.7	0.0	-16.2	39.0	89.4	604.2	-16.6
3150.000	V	17.7	Ambient	3.0	33.7	0.0	-16.2	38.1	80.7	604.2	-17.5


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 19
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : Chamberlain
MODEL No. : G893LM
SERIAL No. :
MODE : Tx @ 390MHz
SCANS/BAND : 1
NOTES :
TEST DATE : 14 Apr 2021 15:02:16 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 20
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : Chamberlain
MODEL No. : G893LM
SERIAL No. :
MODE : Tx @ 390MHz
SCANS/BAND : 1
NOTES :
TEST DATE : 14 Apr 2021 15:11:04 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 16
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : Chamberlain
MODEL No. : G893LM
SERIAL No. :
MODE : Tx @ 390MHz
SCANS/BAND : 1
NOTES :
TEST DATE : 16 Apr 2021 15:14:39 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 17
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : Chamberlain
MODEL No. : G893LM
SERIAL No. :
MODE : Tx @ 390MHz
SCANS/BAND : 1
NOTES :
TEST DATE : 16 Apr 2021 15:19:34 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4000

Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G893LM
S/N	Continuous
Mode	None Assigned
Carrier Frequency	390MHz
Requirements	Field Strength of Carrier Limit = 9166.7µV/m
Notes	None

Freq. (MHz)	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle (dB)	Total (dBuV/m)	Total (uV/m)	Limit (uV/m)	Margin (dB)
390.000	H	65.7		1.0	21.6	0.0	-15.9	72.4	4180.6	9166.7	-6.8
390.000	V	43.7		1.0	21.6	0.0	-15.9	50.4	332.1	9166.7	-28.8
780.000	H	30.9		1.4	25.8	0.0	-15.9	42.2	129.2	916.7	-17.0
780.000	V	35.2		1.4	25.8	0.0	-15.9	46.5	212.0	916.7	-12.7
1170.000	H	29.9		1.8	29.3	0.0	-15.9	45.0	178.7	500.0	-8.9
1170.000	V	26.1		1.8	29.3	0.0	-15.9	41.3	116.0	500.0	-12.7
1560.000	H	31.6		2.1	29.2	0.0	-15.9	47.0	222.8	500.0	-7.0
1560.000	V	28.1		2.1	29.2	0.0	-15.9	43.5	149.9	500.0	-10.5
1950.000	H	18.6		2.3	33.1	0.0	-15.9	38.1	80.1	916.7	-21.2
1950.000	V	18.5		2.3	33.1	0.0	-15.9	38.0	79.2	916.7	-21.3
2340.000	H	16.6	Ambient	2.6	32.5	0.0	-15.9	35.7	61.3	500.0	-18.2
2340.000	V	16.8	Ambient	2.6	32.5	0.0	-15.9	36.0	63.2	500.0	-18.0
2730.000	H	17.1	Ambient	2.8	33.7	0.0	-15.9	37.8	77.2	500.0	-16.2
2730.000	V	16.8	Ambient	2.8	33.7	0.0	-15.9	37.4	74.2	500.0	-16.6
3120.000	H	18.6	Ambient	3.0	33.5	0.0	-15.9	39.2	91.4	916.7	-20.0
3120.000	V	18.9	Ambient	3.0	33.5	0.0	-15.9	39.5	94.0	916.7	-19.8
3510.000	H	22.2		3.2	34.1	0.0	-15.9	43.6	150.6	916.7	-15.7
3510.000	V	19.8		3.2	34.1	0.0	-15.9	41.2	114.4	916.7	-18.1
3900.000	H	21.3		3.4	34.3	0.0	-15.9	43.0	142.1	500.0	-10.9
3900.000	V	18.8	Ambient	3.4	34.3	0.0	-15.9	40.6	106.8	500.0	-13.4

23. Occupied Bandwidth Measurements

Test Information	
Manufacturer	Chamberlain Group, Inc.
Product	Door and Gate Operator
Model	G891LM and G893LM
Serial No	None Assigned
Mode	Continuous Transmission
Test Date	March 23, 2021 to May 18, 2021

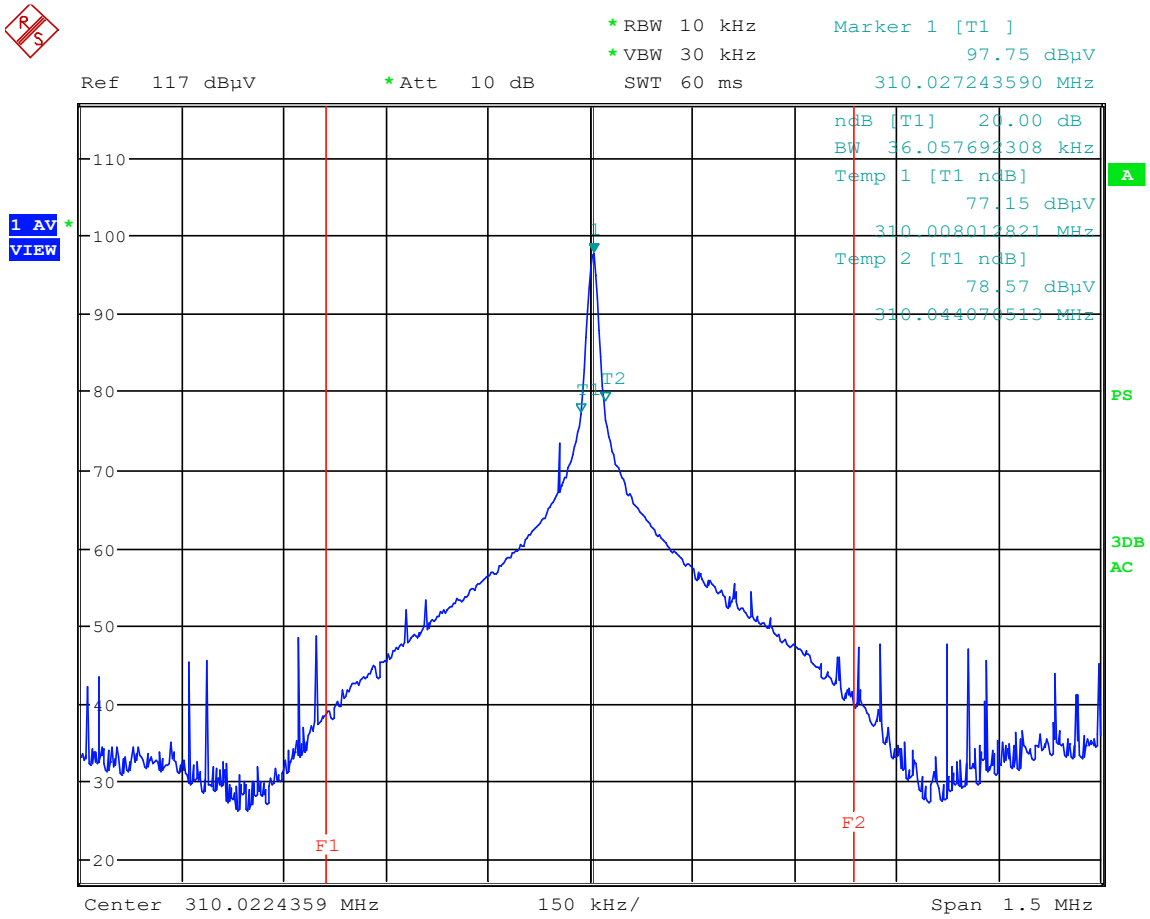
Test Setup Details	
Setup Format	Tabletop
Height of Support	NA
Type of Test Site	Shielded Enclosure
Notes	None

Measurement Uncertainty	
Measurement Type	Expanded Measurement Uncertainty
Radiated disturbance (electric field strength on an open area test site or alternative test site) (30 MHz – 1000 MHz)	4.3
Radiated disturbance (electric field strength on an open area test site or alternative test site) (1 GHz – 6 GHz)	3.1
Radiated disturbance (electric field strength on an open area test site or alternative test site) (6 GHz – 18 GHz)	3.2
Radiated disturbance (electric field strength on an open area test site or alternative test site) (18 GHz – 26.5 GHz)	3.3
Radiated disturbance (electric field strength on an open area test site or alternative test site) (26.5 GHz – 40 GHz)	3.4

Requirements
FCC 15.231(c): The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier. Additionally, 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 70 MHz and 900 MHz. For devices operating above 900 MHz, the occupied bandwidth shall be less than or equal to 0.5% of the center frequency.

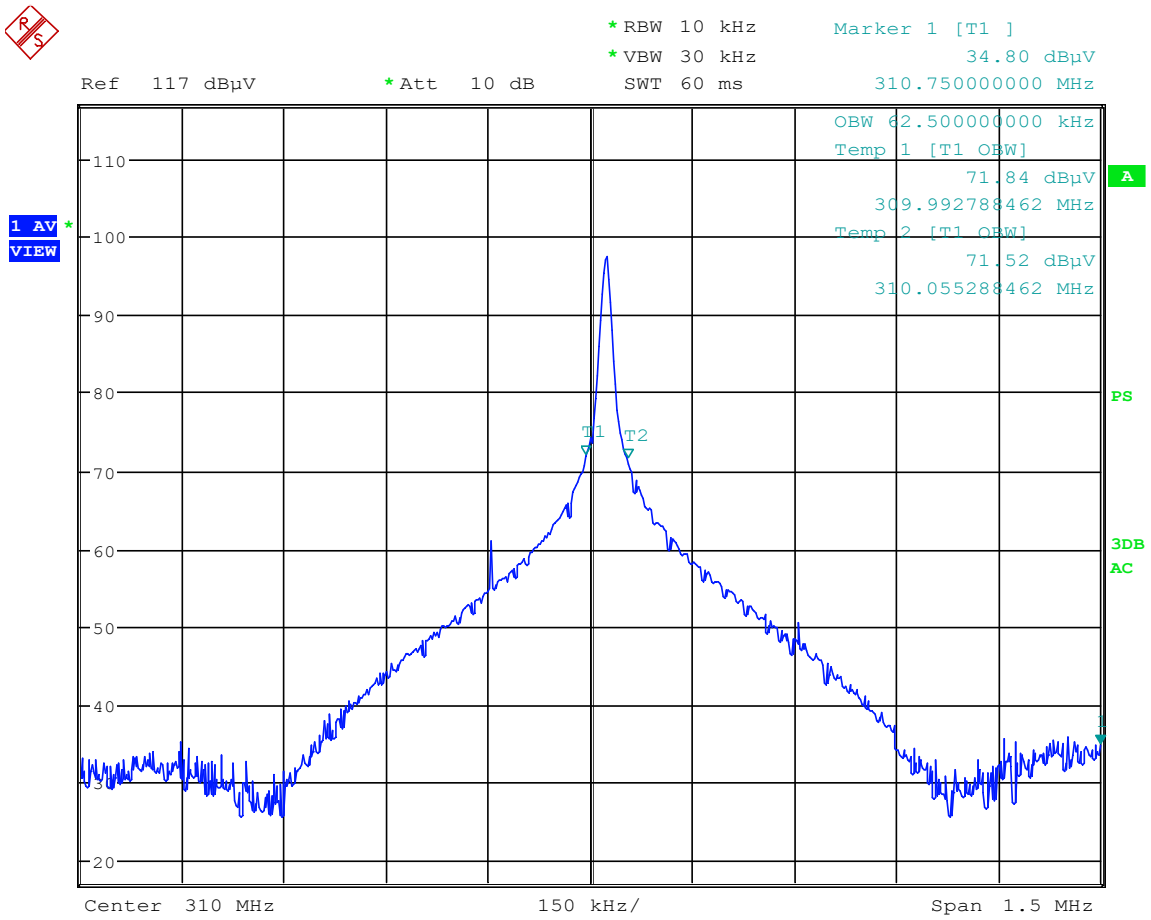
Procedures
The EUT was placed on an 80cm high non-conductive stand. The unit was set to transmit continuously. With an antenna positioned nearby, occupied bandwidth emissions were displayed on the spectrum analyzer. The resolution bandwidth was set to 10kHz and span was set to 1.5MHz. A screen capture was taken of the frequency spectrum near the carrier using a screen dump function on the spectrum analyzer.

Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G891LM
S/N	None Assigned
Mode	Periodic Transmission
Carrier Frequency	310MHz
Parameters	20dB BW = 36.06kHz
Notes	None



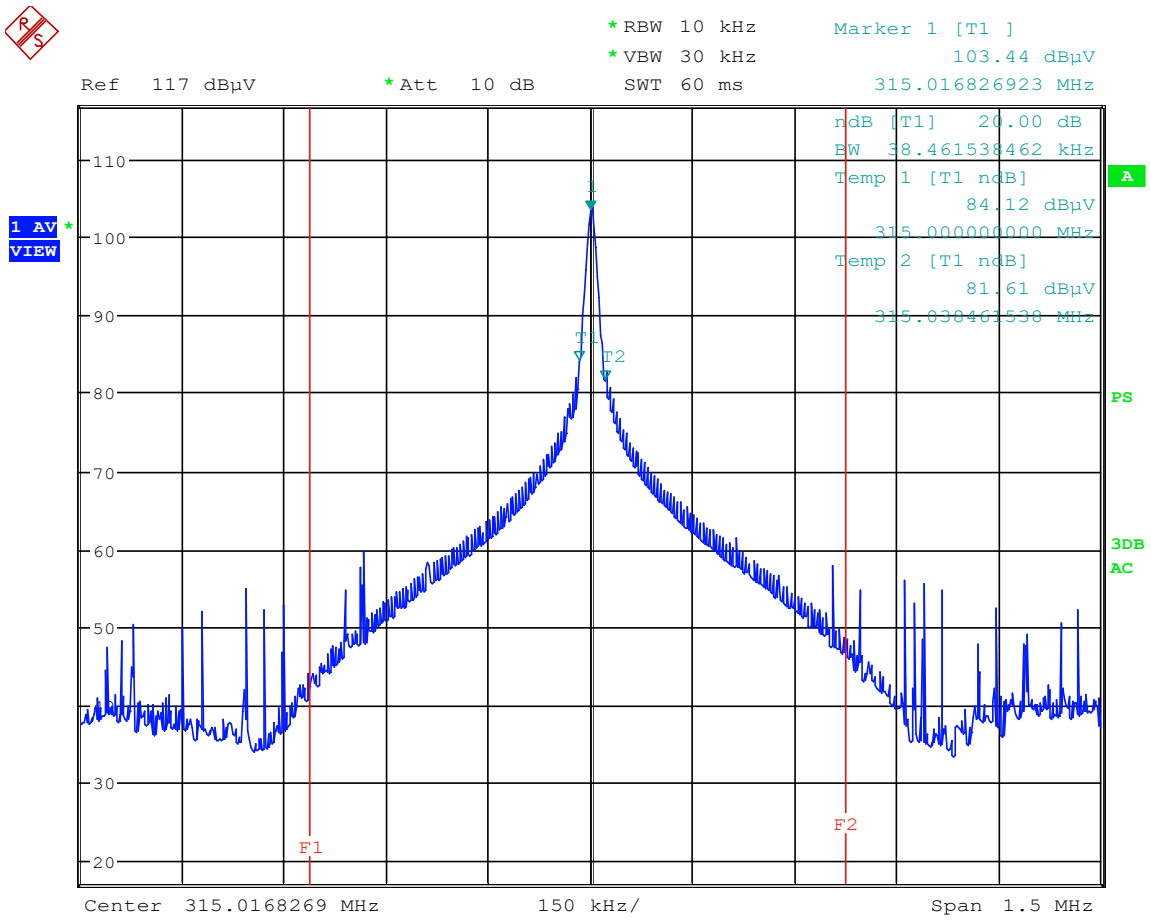
Date: 18.MAY.2021 08:03:35

Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G891LM
S/N	None Assigned
Mode	Periodic Transmission
Carrier Frequency	310MHz
Parameters	99% BW = 62.5kHz
Notes	None



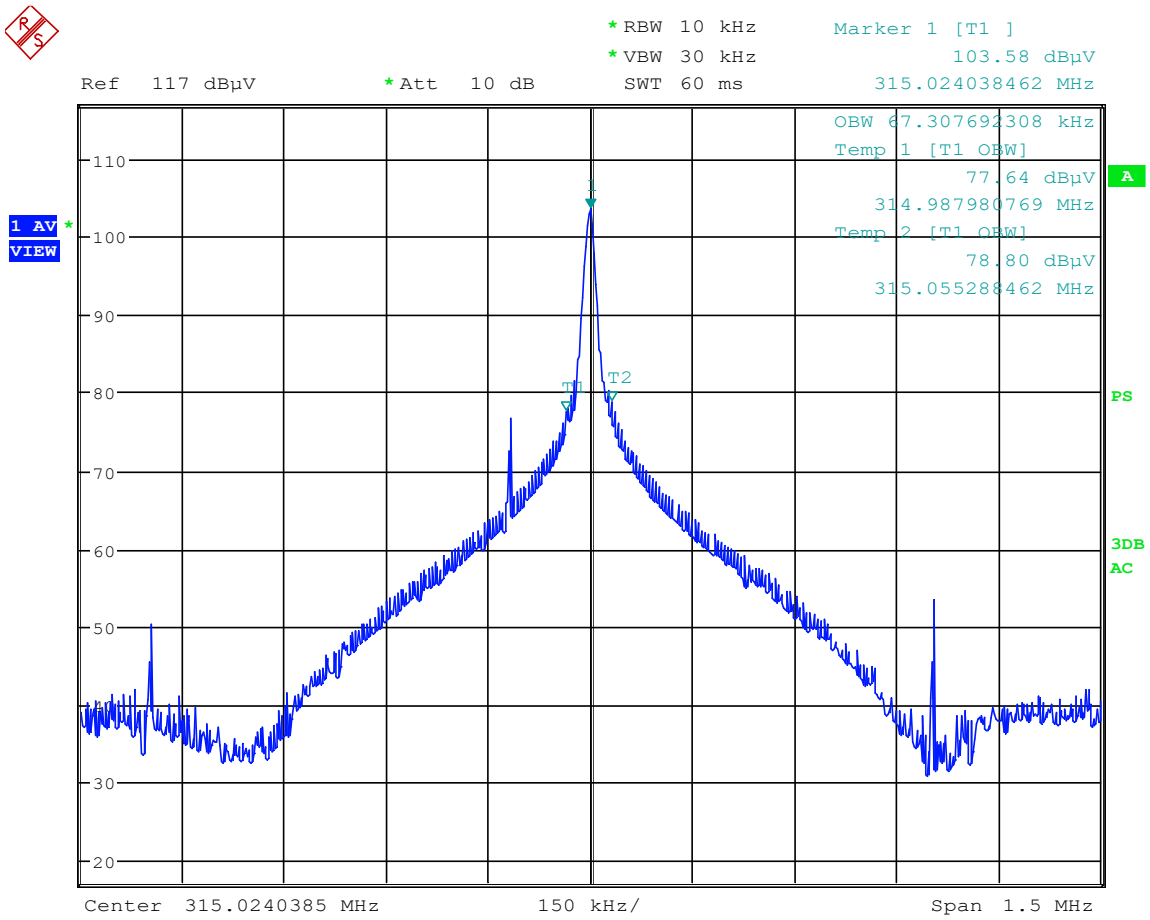
Date: 18.MAY.2021 08:33:07

Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G891LM
S/N	Normal
Mode	Periodic Transmission
Carrier Frequency	315MHz
Parameters	20dB BW = 38.46kHz
Notes	None



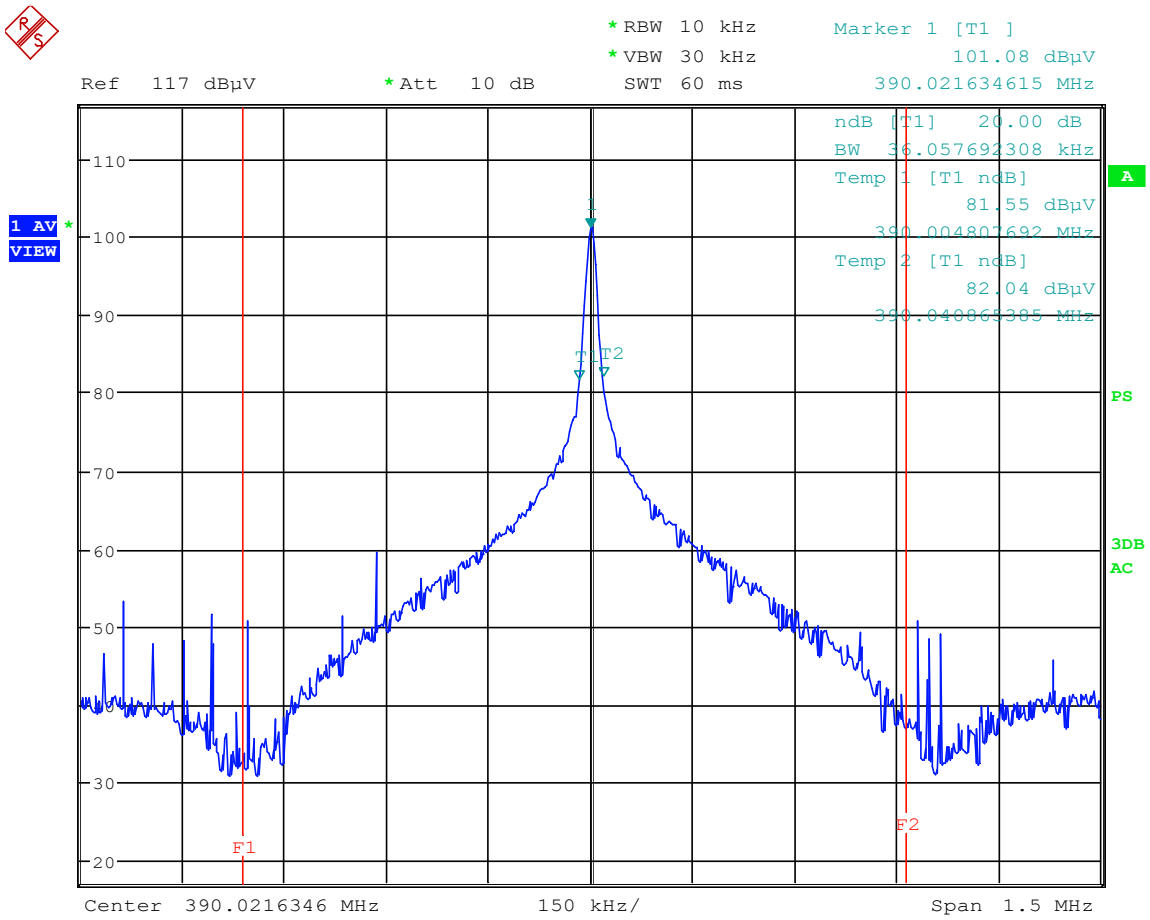
Date: 18.MAY.2021 08:14:06

Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G891LM
S/N	Normal
Mode	Periodic Transmission
Carrier Frequency	315MHz
Parameters	99% BW = 67.31kHz
Notes	None



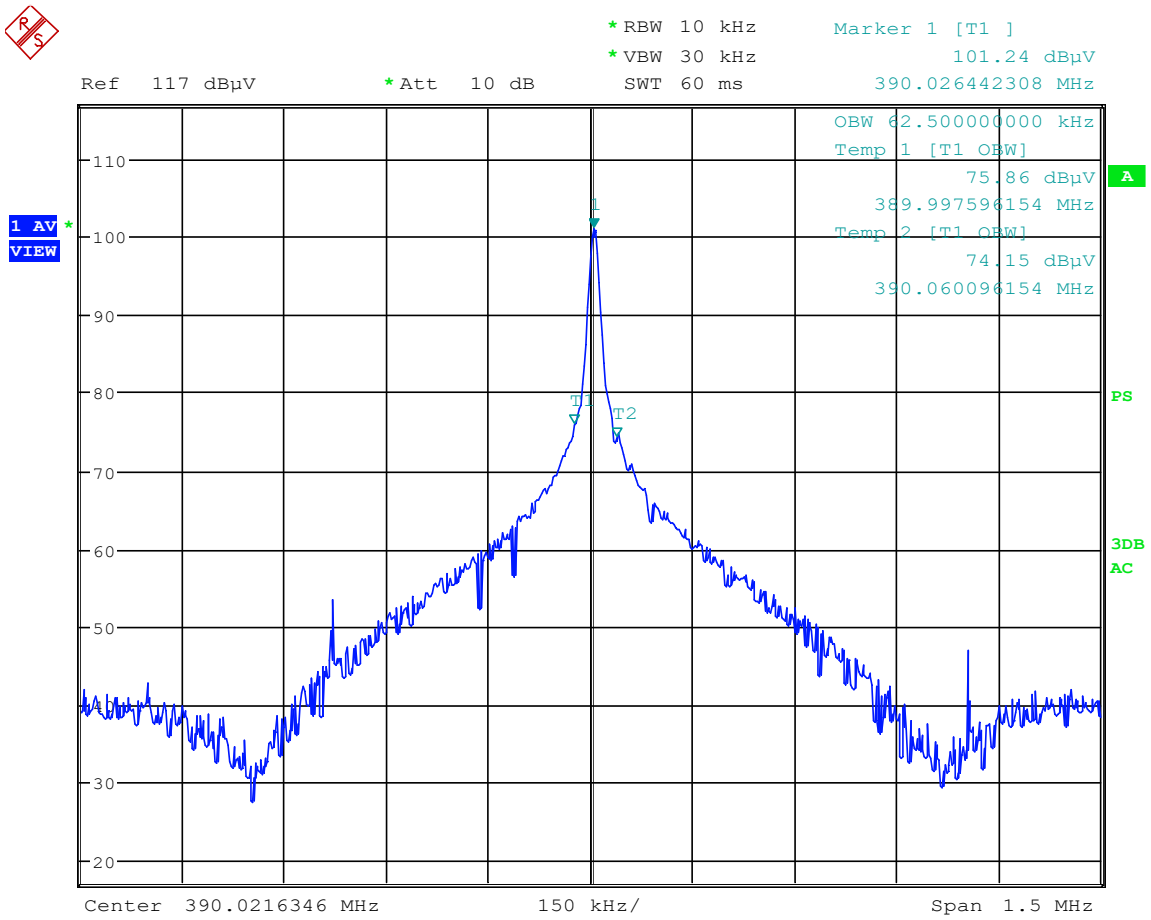
Date: 18.MAY.2021 08:34:13

Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G891LM
S/N	Normal
Mode	Periodic Transmission
Carrier Frequency	390MHz
Parameters	20dB BW = 36.06kHz
Notes	None



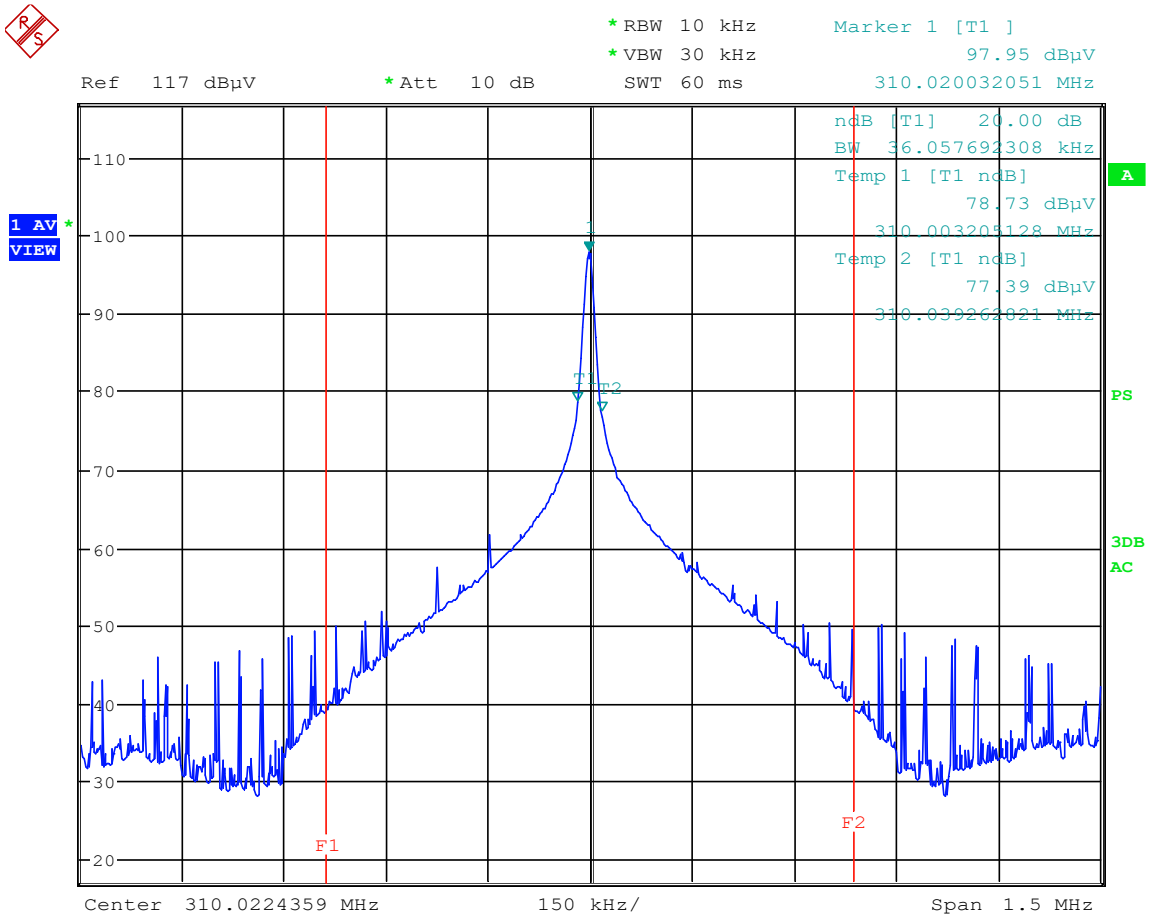
Date: 18.MAY.2021 08:21:45

Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G891LM
S/N	Normal
Mode	Periodic Transmission
Carrier Frequency	390MHz
Parameters	99% BW = 62.5kHz
Notes	None



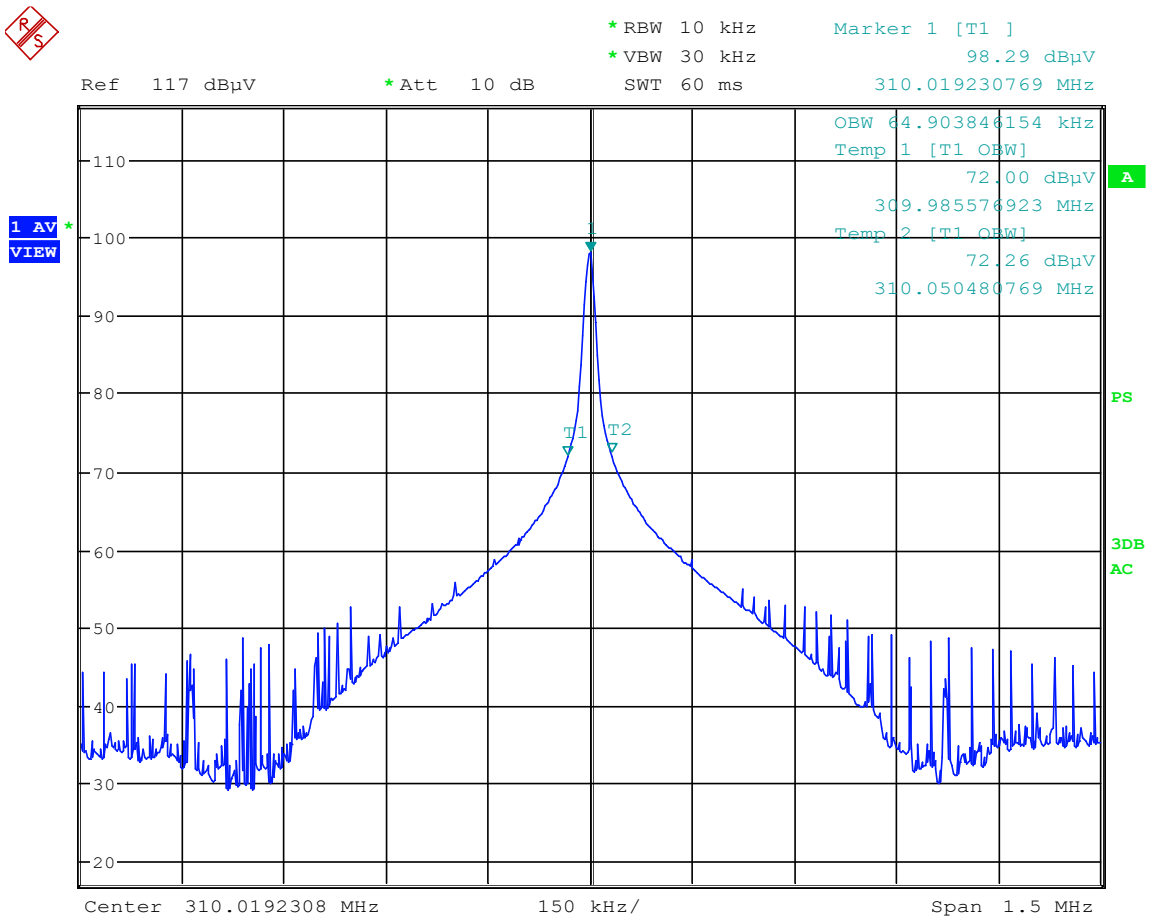
Date: 18.MAY.2021 08:32:25

Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G893LM
S/N	Normal
Mode	Periodic Transmission
Carrier Frequency	310MHz
Parameters	20dB BW = 36.06kHz
Notes	None



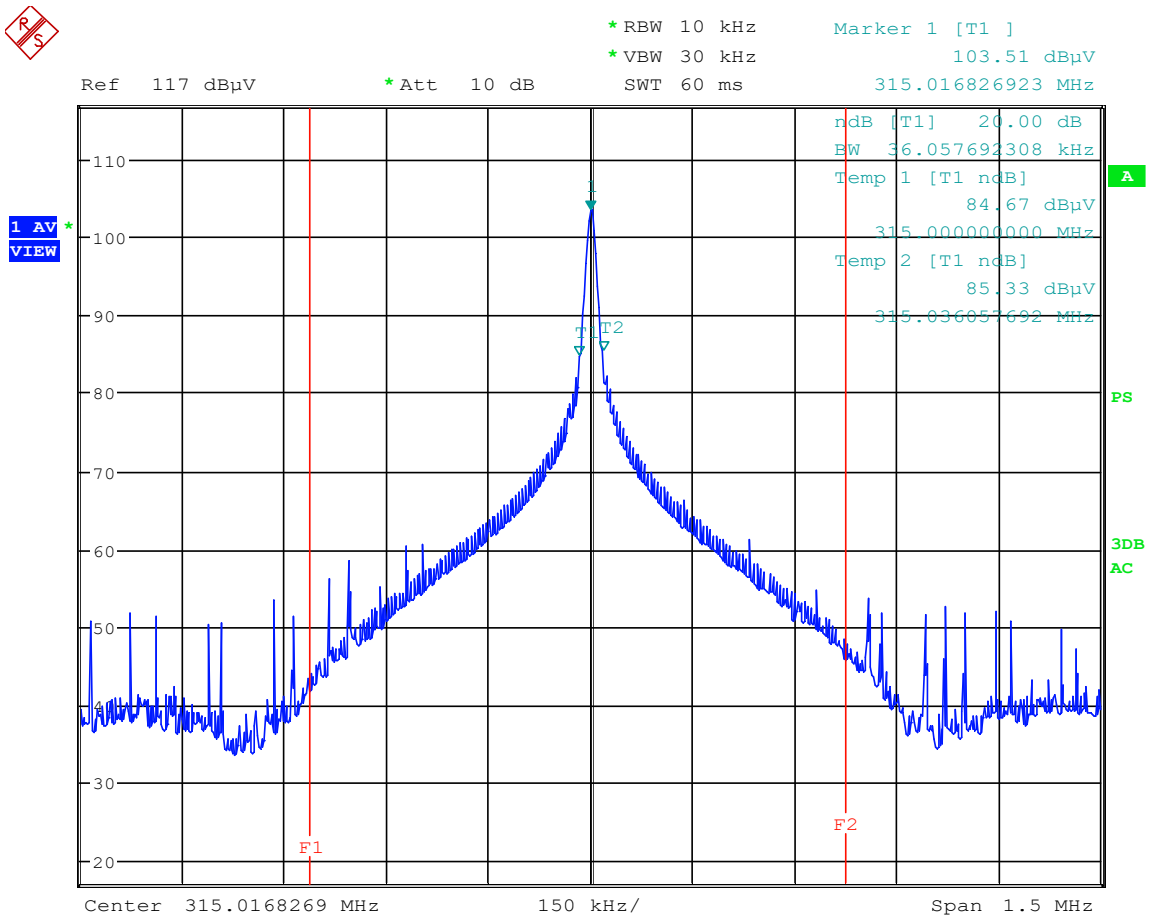
Date: 18.MAY.2021 08:06:13

Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G893LM
S/N	Normal
Mode	Periodic Transmission
Carrier Frequency	310MHz
Parameters	99% BW = 64.90kHz
Notes	None



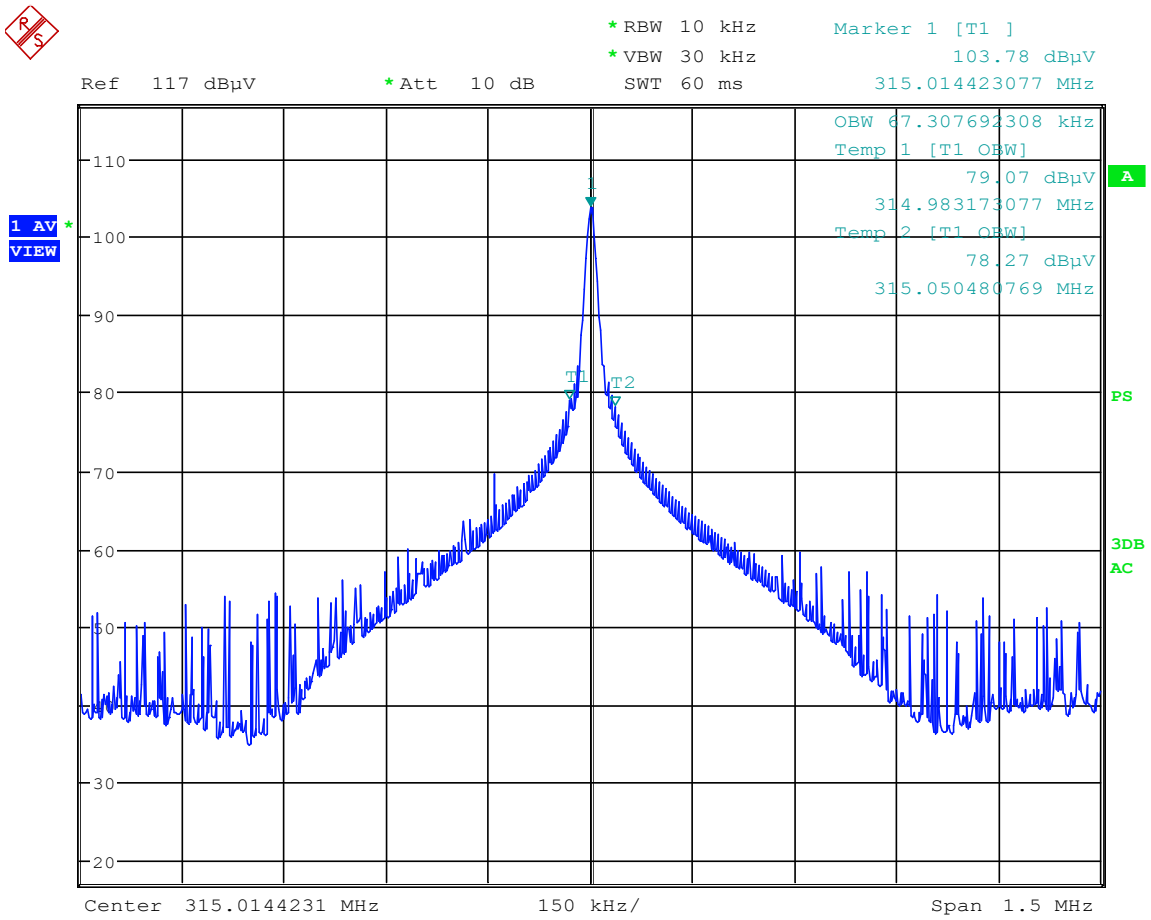
Date: 18.MAY.2021 08:35:27

Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G893LM
S/N	Normal
Mode	Periodic Transmission
Carrier Frequency	315MHz
Parameters	20dB BW = 36.06kHz
Notes	None



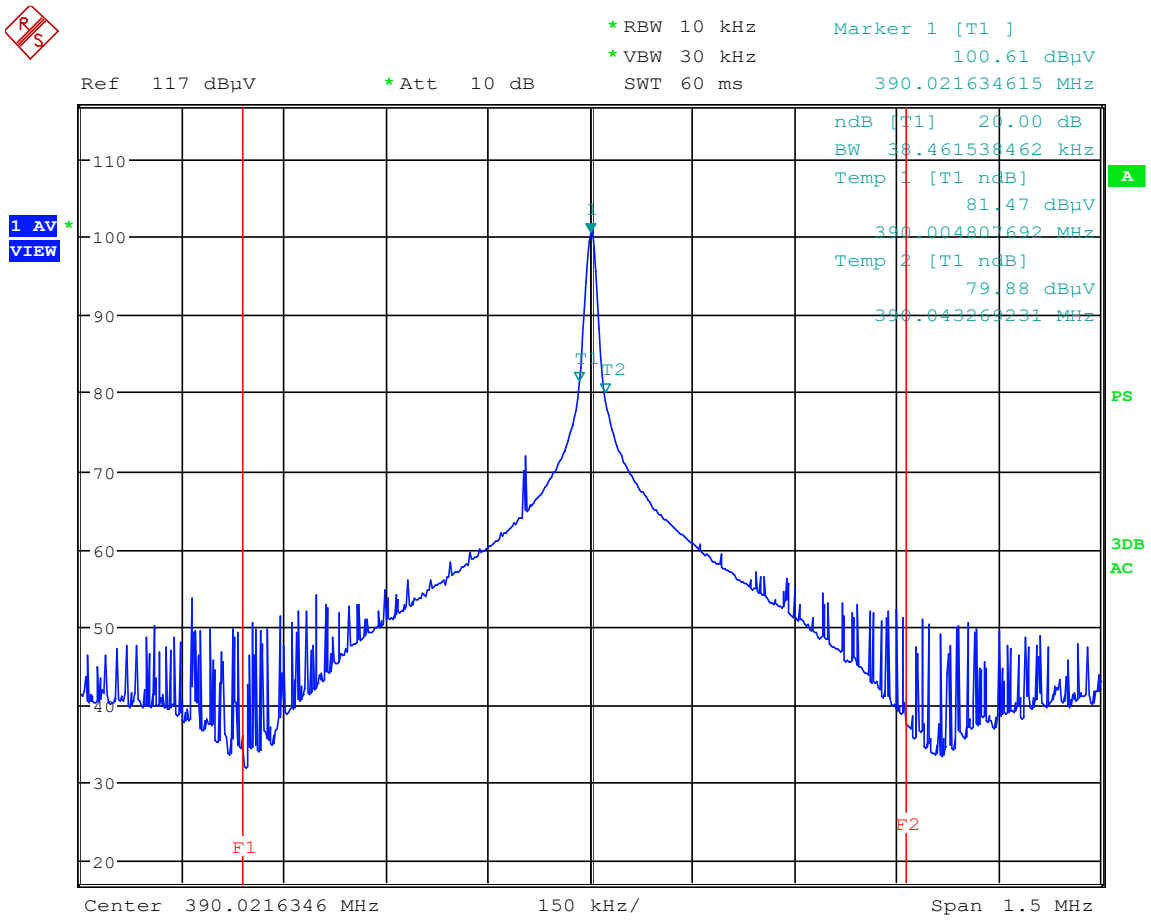
Date: 18.MAY.2021 08:16:04

Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G893LM
S/N	Normal
Mode	Periodic Transmission
Carrier Frequency	315MHz
Parameters	99% BW = 67.31kHz
Notes	None



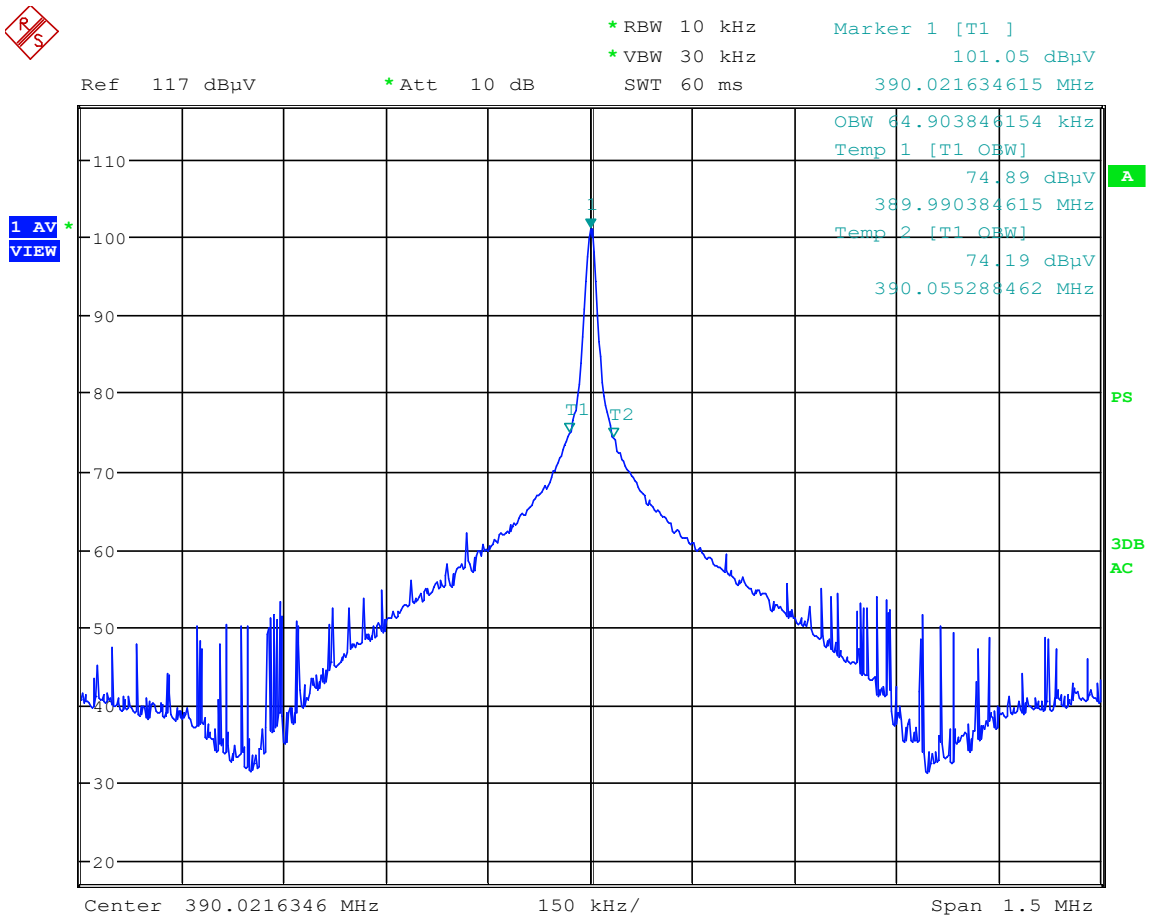
Date: 18.MAY.2021 08:37:21

Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G893LM
S/N	Normal
Mode	Periodic Transmission
Carrier Frequency	390MHz
Parameters	20dB BW = 38.46kHz
Notes	None



Date: 18.MAY.2021 08:20:36

Test Details	
Manufacturer	Chamberlain Group, Inc.
Model	G893LM
S/N	Normal
Mode	Periodic Transmission
Carrier Frequency	390MHz
Parameters	99% BW = 64.90kHz
Notes	None



Date: 18.MAY.2021 08:38:18

24. Scope of Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELITE ELECTRONIC ENGINEERING, INC.
1516 Centre Circle
Downers Grove, IL 60515
Robert Bugielski (QA Manager) Phone: 630 495 9770 ext. 168
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Brandon Lugo (Automotive Team Leader) Phone: 630 495 9770 ext. 163
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Richard King (FCC/Commercial Team Leader) Phone: 630 495 9770 ext. 123
Email: reking@elitetest.com
Website: www.elitetest.com

ELECTRICAL

Valid to: June 30, 2021 Certificate Number: 1786.01

In recognition of the successful completion of the A2LA Accreditation Program evaluation process, accreditation is granted to this laboratory to perform the following automotive electromagnetic compatibility and other electrical tests:

Test Technology:	Test Method(s) [1]:
Transient Immunity	ISO 7637-2 (including emissions); ISO 7637-3; ISO 16750-2:2012, Sections 4.6.3 and 4.6.4; CS-11979, Section 6.4; CS.00054, Section 5.9; EMC-CS-2009.1 (CI220); FMC1278 (CI220, CI221, CI222); GMW 3097, Section 3.5; SAE J1113-11; SAE J1113-12; ECE Regulation 10.06 Annex 10
Electrostatic Discharge (ESD)	ISO 10605 (2001, 2008); CS-11979 Section 7.0; CS.00054, Section 5.10; EMC-CS-2009.1 (CI 280); FMC1278 (CI280); SAE J1113-13; GMW 3097 Section 3.6
Conducted Emissions	CISPR 25 (2002, 2008), Sections 6.2 and 6.3; CISPR 25 (2016), Sections 6.3 and 6.4; CS-11979, Section 5.1; CS.00054, Sections 5.6.1 and 5.6.2; GMW 3097, Section 3.3.2; EMC-CS-2009.1 (CE 420); FMC1278 (CE420, CE421)

Test Technology:	Test Method(s) [1]:
Radiated Emissions Anechoic	CISPR 25 (2002, 2008), Section 6.4; CISPR 25 (2016), Section 6.5; CS-11979, Section 5.3; CS.00054, Section 5.6.3; GMW 3097, Section 3.3.1; EMC-CS-2009.1 (RE 310); FMC1278 (RE310); ECE Regulation 10.06 Annex 7 (Broadband) ECE Regulation 10.06 Annex 8 (Narrowband)
Vehicle Radiated Emissions	CISPR 12; ICES-002; ECE Regulation 10.06 Annex 5
Bulk Current Injection (BCI)	ISO 11452-4; CS-11979, Section 6.1; CS.00054, Section 5.8.1; GMW 3097, Section 3.4.1; SAE J1113-4; EMC-CS-2009.1 (RI112); FMC1278 (RI112); ECE Regulation 10.06 Annex 9
Bulk Current Injections (BCI) *(Closed Loop Method)*	ISO 11452-4; SAE J1113-4
Radiated Immunity Anechoic *(Including Radar Pulse)*	ISO 11452-2; ISO 11452-5; CS-11979, Section 6.2; CS.00054, Section 5.8.2; GMW 3097, Section 3.4.2; EMC-CS-2009.1 (RI114); FMC1278 (RI114); SAE J1113-21; ECE Regulation 10.06 Annex 9
Radiated Immunity Magnetic Field	ISO 11452-8
Radiated Immunity Reverb	ISO/IEC 61000-4-21; GMW 3097, Section 3.4.3; EMC-CS-2009.1 (RI114); FMC1278 (RI114); ISO 11452-11
Radiated Immunity *(Portable Transmitters)*	ISO 11452-9; EMC-CS-2009.1 (RI115); FMC1278 (RI115)
Vehicle Radiated Immunity (ALSE)	ISO 11451-2; ECE Regulation 10.06 Annex 6
Electrical Loads	ISO 16750-2, Sections 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 4.11, and 4.12
Dielectric Withstand Voltage	MIL-STD-202, Method 301; EIA-364-20D
Insulation Resistance	MIL-STD-202, Method 302; SAE/USCAR-2, Revision 6, Section 5.5.1; EIA-364-21D
Contact Resistance	MIL-STD-202, Method 307; SAE/USCAR-2, Revision 6, Section 5.3.1; EIA-364-23C; USCAR21-3 Section 4.5.3

Test Technology:	Test Method(s) [1]:
DC Resistance	MIL-STD-202, Method 303
Contact Chatter	MIL-STD-202, Method 310; SAE/USCAR-2, Revision 6, Section 5.1.9
Voltage Drop	SAE/USCAR-2, Revision 6, Section 5.3.2; USCAR21-3 Section 4.5.6
Emissions	
Radiated and Conducted (3m Semi-anechoic chamber, up to 40 GHz)	47 CFR, FCC Part 15 B (using ANSI C63.4:2014); 47 CFR, FCC Part 18 (using FCC MP-5:1986); ICES-001; ICES-003; ICES-005; IEC/CISPR 11, Ed. 4.1 (2004-06); AS/NZS CISPR 11 (2004); IEC/CISPR 11 Ed 5 (2009-05) + A1 (2010); KN 11 (2008-5) with RRL Notice No. 2008-3 (May 20, 2008); CISPR 11; EN 55011; KN 11; CNS 13803 (1997, 2003); CISPR 14-1; EN 55014-1; AS/NZS CISPR 14.1; KN 14-1; IEC/CISPR 22 (1997); EN 55022 (1998) + A1(2000); EN 55022 (1998) + A1(2000) + A2(2003); EN 55022 (2006); IEC/CISPR 22 (2008-09); AS/NZS CISPR 22 (2004); AS/NZS CISPR 22, 3rd Edition (2006); KN 22 (up to 6 GHz); CNS 13438 (up to 6 GHz); VCCI V-3 (up to 6 GHz); CISPR 32; EN 55032; KN 32; ECE Regulation 10.06 Annex 14
Current Harmonics	IEC 61000-3-2; EN 61000-3-2; KN 61000-3-2; ECE Regulation 10.06 Annex 11
Flicker and Fluctuations	IEC 61000-3-3; EN 61000-3-3; KN 61000-3-3; ECE Regulation 10.06 Annex 12
Immunity	
Electrostatic Discharge	IEC 61000-4-2, Ed. 1.2 (2001); IEC 61000-4-2 (1995) + A1(1998) + A2(2000); EN 61000-4-2 (1995); EN 61000-4-2 (2009-05); KN 61000-4-2 (2008-5); RRL Notice No. 2008-4 (May 20, 2008); IEC 61000-4-2; EN 61000-4-2; KN 61000-4-2; IEEE C37.90.3 2001
Radiated Immunity	IEC 61000-4-3 (1995) + A1(1998) + A2(2000); IEC 61000-4-3, Ed. 3.0 (2006-02); IEC 61000-4-3, Ed. 3.2 (2010); KN 61000-4-3 (2008-5); RRL Notice No. 2008-4 (May 20, 2008); IEC 61000-4-3; EN 61000-4-3; KN 61000-4-3; IEEE C37.90.2 2004
Electrical Fast Transient/Burst	IEC 61000-4-4, Ed. 2.0 (2004-07); IEC 61000-4-4, Ed. 2.1 (2011); IEC 61000-4-4 (1995) + A1(2000) + A2(2001); KN 61000-4-4 (2008-5); RRL Notice No. 2008-5 (May 20, 2008); IEC 61000-4-4; EN 61000-4-4; KN 61000-4-4; ECE Regulation 10.06 Annex 15

Test Technology:	Test Method(s) [1]:
Immunity (cont'd)	
Surge	IEC 61000-4-5 (1995) + A1(2000); IEC 61000-4-5, Ed 1.1 (2005-11); EN 61000-4-5 (1995) + A1(2001); KN 61000-4-5 (2008-5); RRL Notice No. 2008-4 (May 20, 2008); IEC 61000-4-5; EN 61000-4-5; KN 61000-4-5; IEEE C37.90.1 2012; IEEE STD C62.41.2 2002; ECE Regulation 10.06 Annex 16
Conducted Immunity	IEC 61000-4-6 (1996) + A1(2000); IEC 61000-4-6, Ed 2.0 (2006-05); IEC 61000-4-6 Ed. 3.0 (2008); KN 61000-4-6 (2008-5); RRL Notice No. 2008-4 (May 20, 2008); EN 61000-4-6 (1996) + A1(2001); IEC 61000-4-6; EN 61000-4-6; KN 61000-4-6
Power Frequency Magnetic Field Immunity	IEC 61000-4-8 (1993) + A1(2000); IEC 61000-4-8 (2009); EN 61000-4-8 (1994) + A1(2000); KN 61000-4-8 (2008-5); RRL Notice No. 2008-4 (May 20, 2008); IEC 61000-4-8; EN 61000-4-8; KN 61000-4-8
Voltage Dips, Short Interrupts, and Line Voltage Variations	IEC 61000-4-11, Ed. 2 (2004-03); KN 61000-4-11 (2008-5); RRL Notice No. 2008-4 (May 20, 2008); IEC 61000-4-11; EN 61000-4-11; KN 61000-4-11
Ring Wave	IEC 61000-4-12, Ed. 2 (2006-09); EN 61000-4-12:2006; IEC 61000-4-12; EN 61000-4-12; KN 61000-4-12; IEEE STD C62.41.2 2002
Generic and Product Specific EMC Standards	IEC/EN 61000-6-1; AS/NZS 61000-6-1; KN 61000-6-1; IEC/EN 61000-6-2; AS/NZS 61000-6-2; KN 61000-6-2; IEC/EN 61000-6-3; AS/NZS 61000-6-3; KN 61000-6-3; IEC/EN 61000-6-4; AS/NZS 61000-6-4; KN 61000-6-4; EN 50130-4; EN 61326-1; IEC/CISPR 14-2; EN 55014-2; AS/NZS CISPR 14.2; KN 14-2; IEC/CISPR 24; AS/NZS CISPR 24; EN 55024; KN 24; IEC 60601-1-2; JIS T0601-1-2
TxRx EMC Requirements	EN 301 489-1; EN 301 489-3; EN 301 489-9; EN 301 489-17; EN 301 489-19
European Radio Test Standards	ETSI EN 300 086-1; ETSI EN 300 086-2; ETSI EN 300 113-1; ETSI EN 300 113-2; ETSI EN 300 220-1; ETSI EN 300 220-2; ETSI EN 300 330-1; ETSI EN 300 330-2; ETSI EN 300 440-1; ETSI EN 300 440-2; ETSI EN 300 422-1; ETSI EN 300 422-2;

Test Technology:	Test Method(s) [1]:
European Radio Test Standards (cont'd)	ETSI EN 300 328; ETSI EN 301 893; ETSI EN 301 511; ETSI EN 301 908-1; ETSI EN 908-2; ETSI EN 908-13; ETSI EN 303 413; ETSI EN 302 502
Canadian Radio Tests	RSS-102 (RF Exposure Evaluation only); RSS-111; RSS-112; RSS-117; RSS-119; RSS-123; RSS-125; RSS-127; RSS-130; RSS-131; RSS-132; RSS-133; RSS-134; RSS-135; RSS-137; RSS-139; RSS-140; RSS-141; RSS-142; RSS-170; RSS-181; RSS-182; RSS-191; RSS-192; RSS-194; RSS-195; RSS-196; RSS-197; RSS-199; RSS-210; RSS-211; RSS-213; RSS-215; RSS-216; RSS-220; RSS-222; RSS-236; RSS-238; RSS-243; RSS-244; RSS-247; RSS-251; RSS-252; RSS-287; RSS-288; RSS-310; RSS-GEN
Mexico Radio Tests	IFT-008-2015; NOM-208-SCFI-2016
Japan Radio Tests	Radio Law No. 131, Ordinance of MPT No. 37, 1981, MIC Notification No. 88:2004, Table No. 22-11; ARIB STD-T66, Regulation 18
Taiwan Radio Tests	LP-0002
Australia/New Zealand Radio Tests	AS/NZS 4268; Radiocommunications (Short Range Devices) Standard (2014)
Hong Kong Radio Tests	HKCA 1039 Issue 6; HKCA 1042; HKCA 1033 Issue 7; HKCA 1061; HKCA 1008; HKCA 1043; HKCA 1057; HKCA 1073
Korean Radio Test Standards	KN 301 489-1; KN 301 489-3; KN 301 489-9; KN 301 489-17; KN 301 489-52
Unlicensed Radio Frequency Devices *(3 Meter Semi-Anechoic Room)*	47 CFR FCC Part 15C, 15D, 15E, 15F, 15G, 15H (using ANSI C63.10:2013, ANSI C63.17:2013 and FCC KDB 905462 D02 (v02))
Licensed Radio Service Equipment	47 CFR FCC Parts 20, 22, 24, 25, 27, 30, 73, 74, 80, 87, 90, 95, 96, 97, 101; ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015;
OTA (Over the Air) Performance GSM, GPRS, EGPRS UMTS (W-CDMA) LTE including CAT M1 A-GPS for UMTS/GSM LTS A-GPS, A-GLONASS, SIB8/SIB16 Large Device/Laptop/Tablet Testing Integrated Device Testing WiFi 802.11 a/b/g/n/a	CTIA Test Plan for Wireless Device Over-the-Air Performance (Method for Measurement for Radiated Power and Receiver Performance) V3.8.2; CTIA Test Plan for RF Performance Evaluation of WiFi Mobile Converged Devices V2.1.0

Test Technology:	Test Method(s) [1]:
Electrical Measurements and Simulation	
AC Voltage / Current	FAA AC 150/5345-10H
(1mV to 5kV) 60 Hz	FAA AC 150/5345-43J
(0.1V to 250V) up to 500 MHz	FAA AC 150/5345-44K
(1µA to 150A) 60 Hz	FAA AC 150/5345-46E
DC Voltage / Current	FAA AC 150/5345-47C
(1mV to 15kV) / (1µA to 10A)	FAA EB 67D
Power Factor / Efficiency / Crest Factor	
(Power to 30kW)	
Resistance	
(1mΩ to 4000MΩ)	
Surge	
(Up to 10 kV / 5 kA) (Combination Wave and Ring Wave)	

On the following products and materials:
Telecommunications Terminal Equipment (TTE), Radio Equipment, Network Equipment, Information Technology Equipment (ITE), Automotive Electronic Equipment, Automotive Hybrid Electronic Devices, Maritime Navigation and Radio Communication Equipment and Systems, Vehicles, Boats and Internal Combustion Engine Driven Devices, Automotive, Aviation, and General Lighting Products, Medical Electrical Equipment, Motors, Industrial, Scientific and Medical (ISM) Radio-Frequency Equipment, Household Appliances, Electric Tools, Low-voltage Switchgear and Control gear, Programmable Controllers, Electrical Equipment for Measurement, Control and Laboratory Use, Base Materials, Power and Data Transmission Cables and Connectors

[1] When the date, revision or edition of a test method standard is not identified on the scope of accreditation, the laboratory is expected to be using the current version within one year of the date of publication, per part C., Section 1 of A2LA *R101 - General Requirements - Accreditation of ISO-IEC 17025 Laboratories*.

Testing Activities Performed in Support of FCC Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1[2]

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
Unintentional Radiators Part 15B	ANSI C63.4:2014	40000
Industrial, Scientific, and Medical Equipment Part 18	FCC MP-5 (February 1986)	40000
Intentional Radiators Part 15C	ANSI C63.10:2013	40000
Unlicensed Personal Communication Systems Devices Part 15D	ANSI C63.17:2013	40000

Testing Activities Performed in Support of FCC Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1[2]

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
U-NII without DFS Intentional Radiators Part 15E	ANSI C63.10:2013	40000
U-NII with DFS Intentional Radiators Part 15E	FCC KDB 905462 D02 (v02)	40000
UWB Intentional Radiators Part 15F	ANSI C63.10:2013	40000
BPL Intentional Radiators Part 15G	ANSI C63.10:2013	40000
White Space Device Intentional Radiators Part 15H	ANSI C63.10:2013	40000
Commercial Mobile Services (FCC Licensed Radio Service Equipment) Parts 22 (cellular), 24, 25 (below 3 GHz), and 27	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	40000
General Mobile Radio Services (FCC Licensed Radio Service Equipment) Parts 22 (non-cellular), 90 (below 3 GHz), 95, 97, and 101 (below 3 GHz)	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	40000
Citizens Broadband Radio Services (FCC Licensed Radio Service Equipment) Part 96	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	40000
Maritime and Aviation Radio Services Parts 80 and 87	ANSI/TIA-603-E; ANSI C63.26:2015	40000
Microwave and Millimeter Bands Radio Services Parts 25, 30, 74, 90 (above 3 GHz), 97 (above 3 GHz), and 101	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	40000
Broadcast Radio Services Parts 73 and 74 (below 3 GHz)	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	40000

Testing Activities Performed in Support of FCC Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1[2]

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
Signal Boosters Part 20 (Wideband Consumer Signal Boosters, Provider-specific signal boosters, and Industrial Signal Boosters) Section 90.219	ANSI C63.26:2015	40000

[2]Accreditation does not imply acceptance to the FCC equipment authorization program. Please see the FCC website (https://apps.fcc.gov/oetcf/eas/) for a listing of FCC approved laboratories.

Accredited Laboratory

A2LA has accredited

ELITE ELECTRONIC ENGINEERING INC.

Downers Grove, IL

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories.* This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 8th day of August 2019.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 1786.01
Valid to June 30, 2021

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.