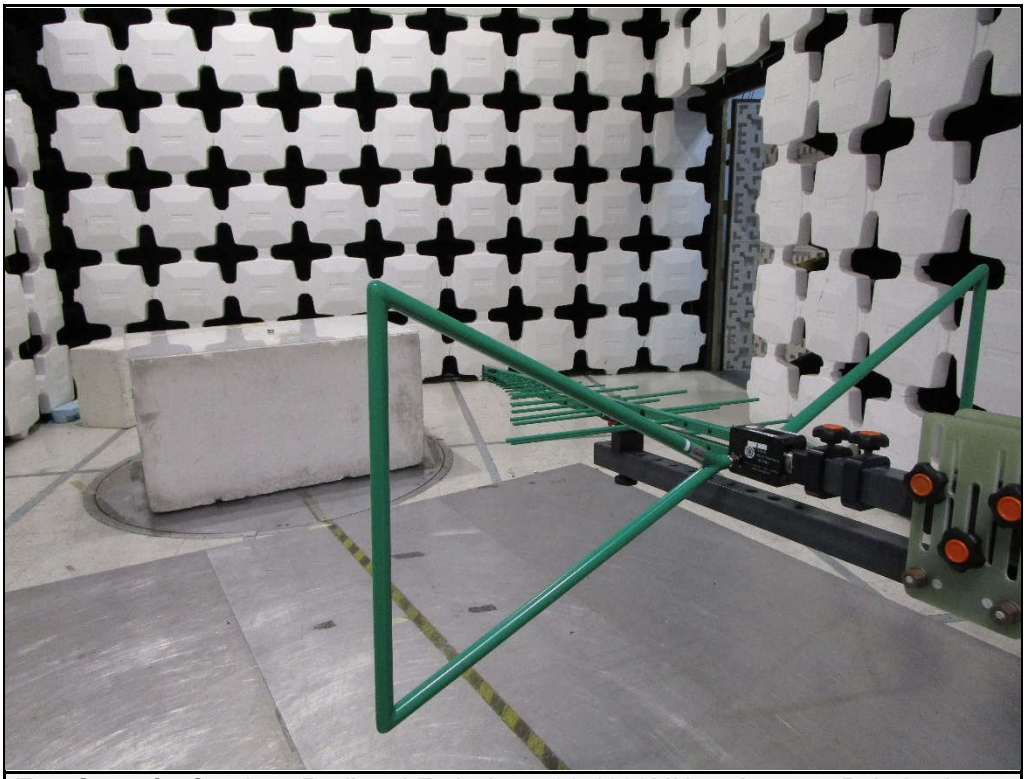
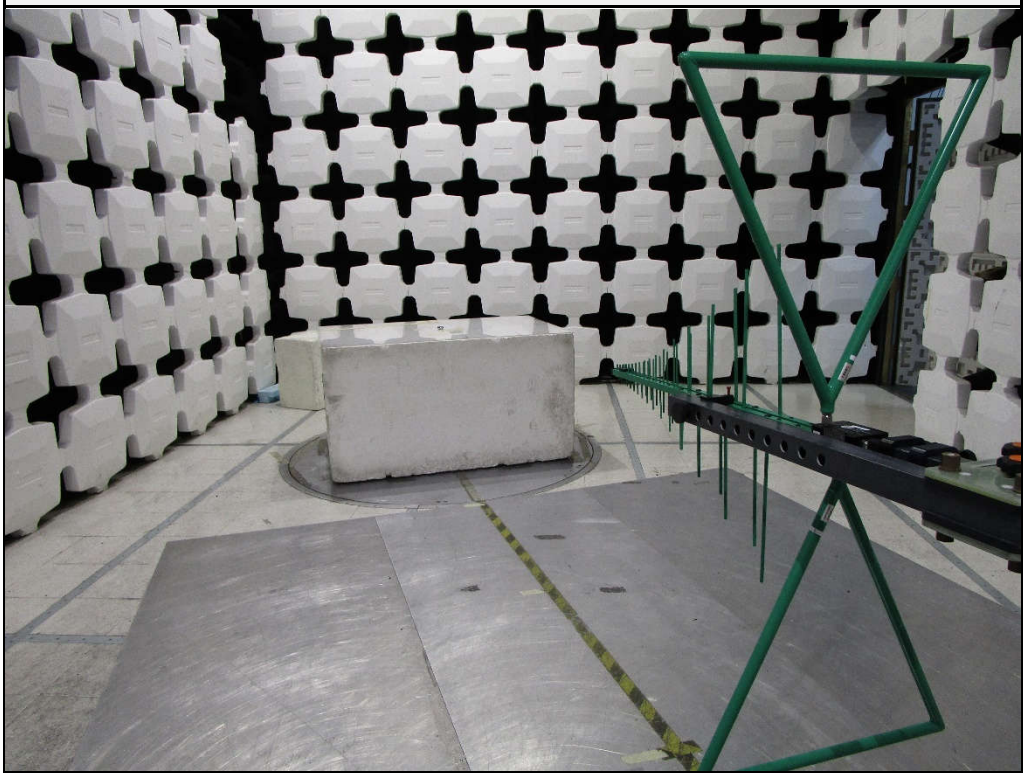
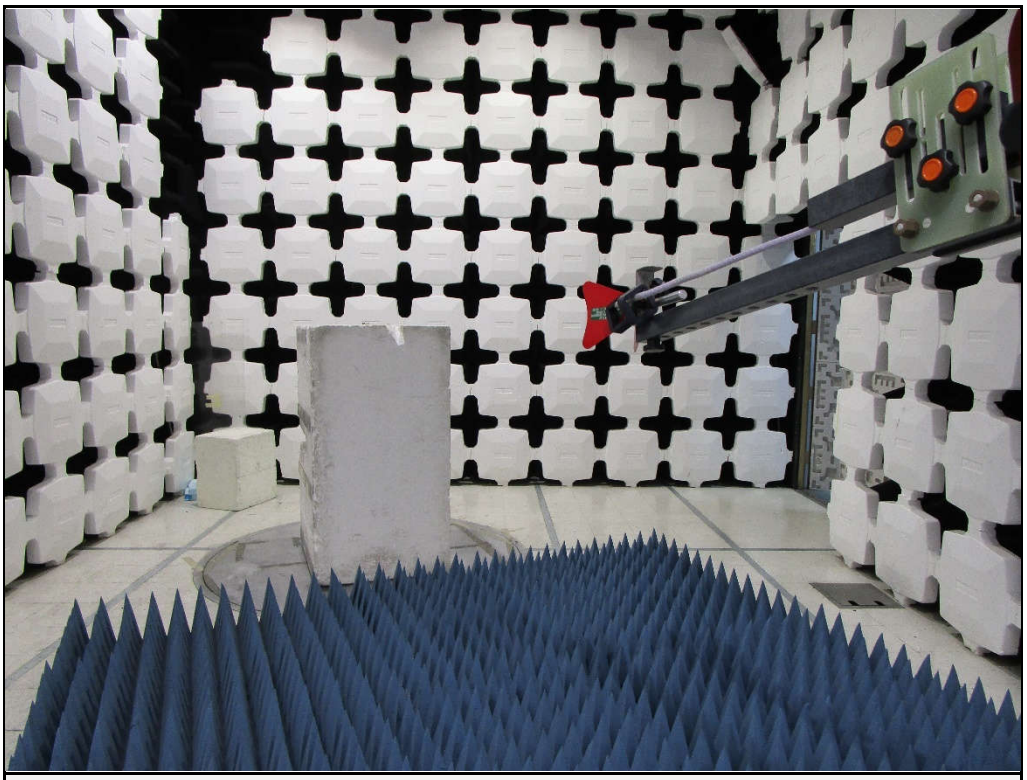


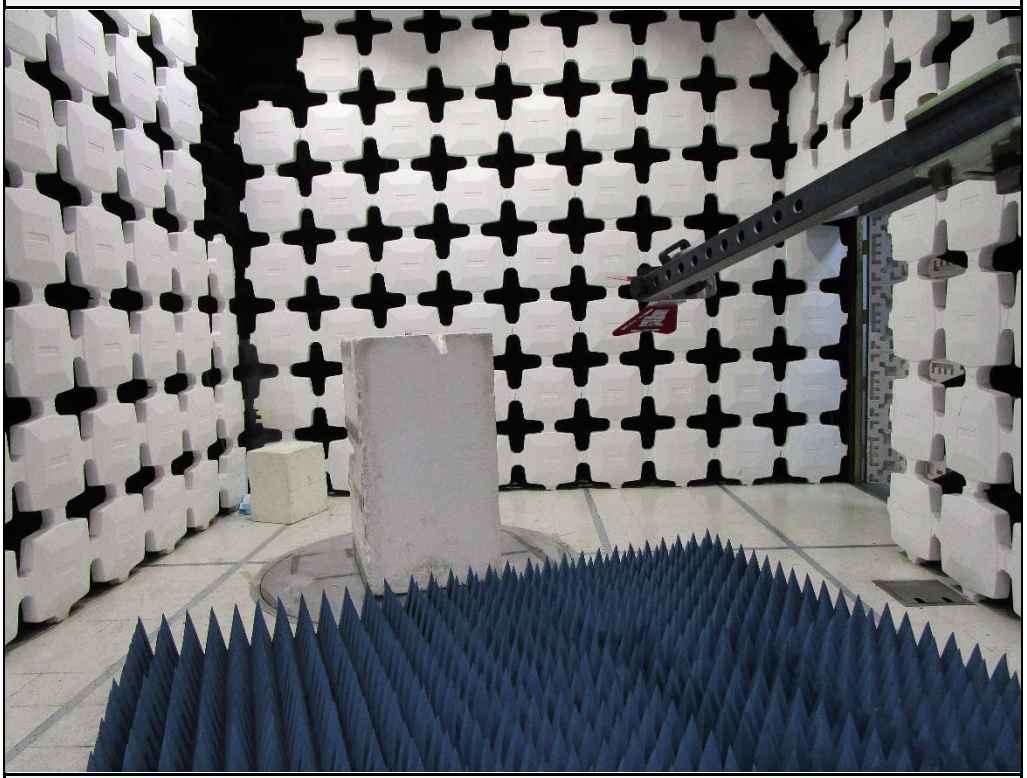
Test Setup for Spurious Radiated Emissions, 30-1000MHz – Antenna Polarization Horizontal



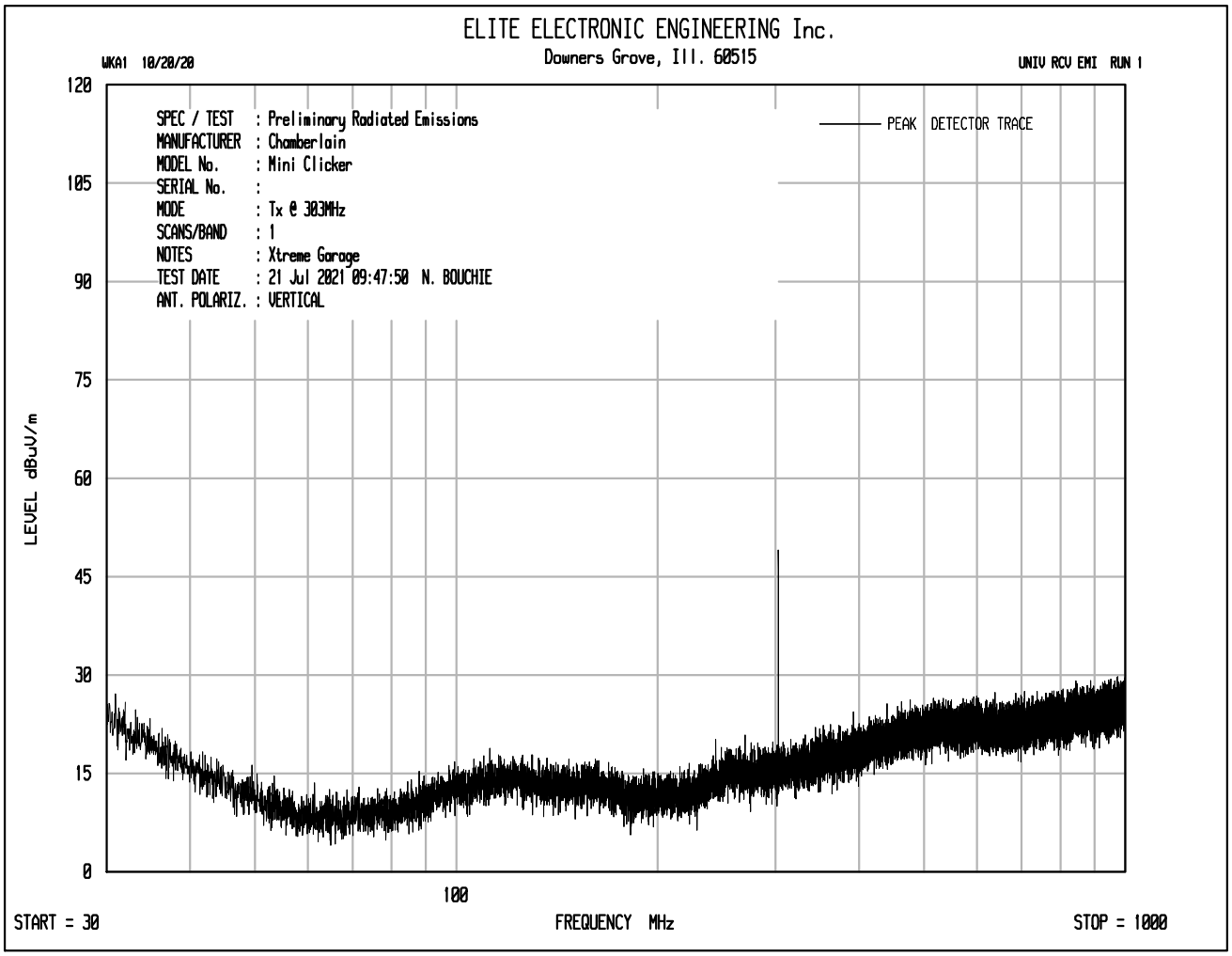
Test Setup for Spurious Radiated Emissions, 30-1000MHz – Antenna Polarization Vertical

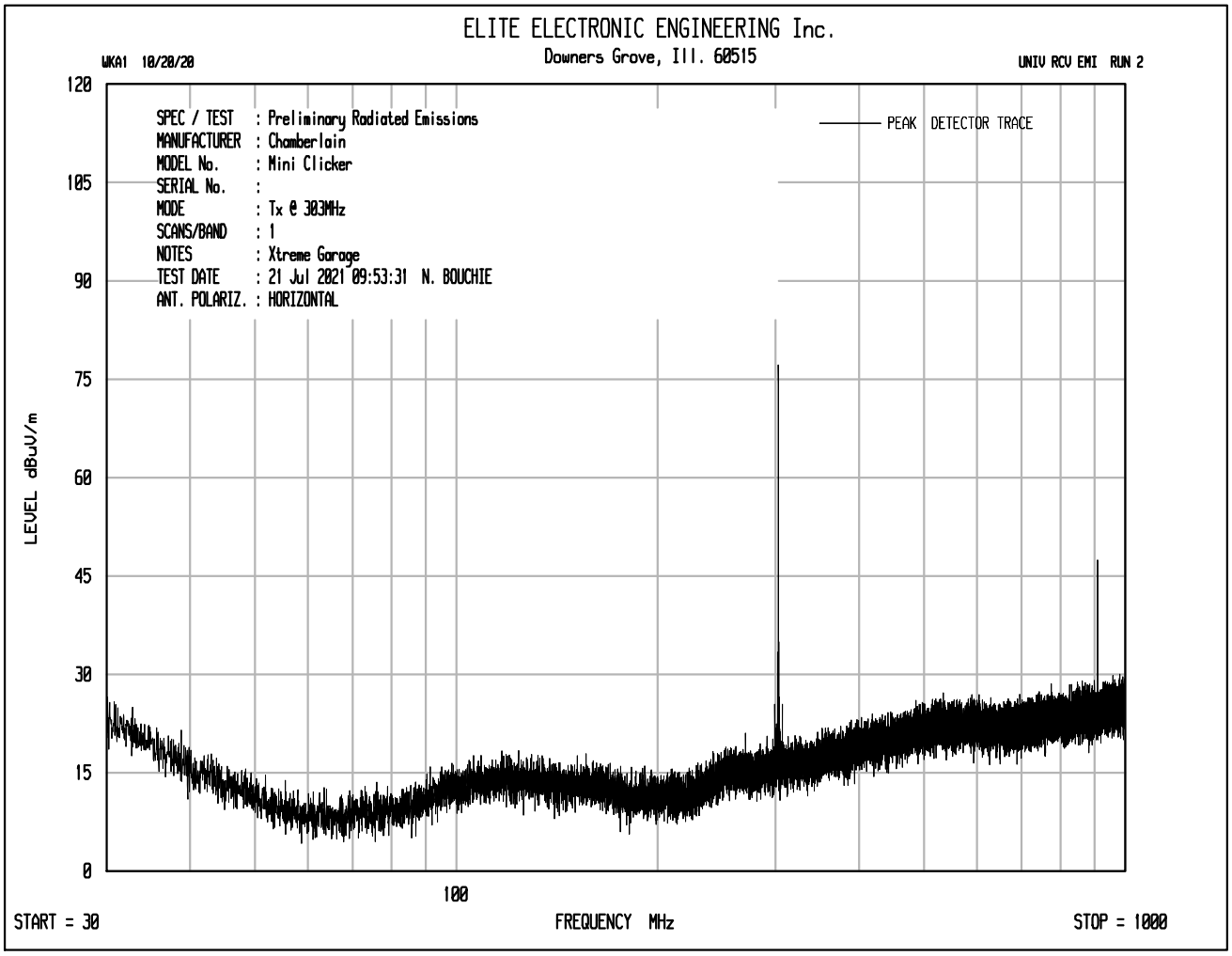


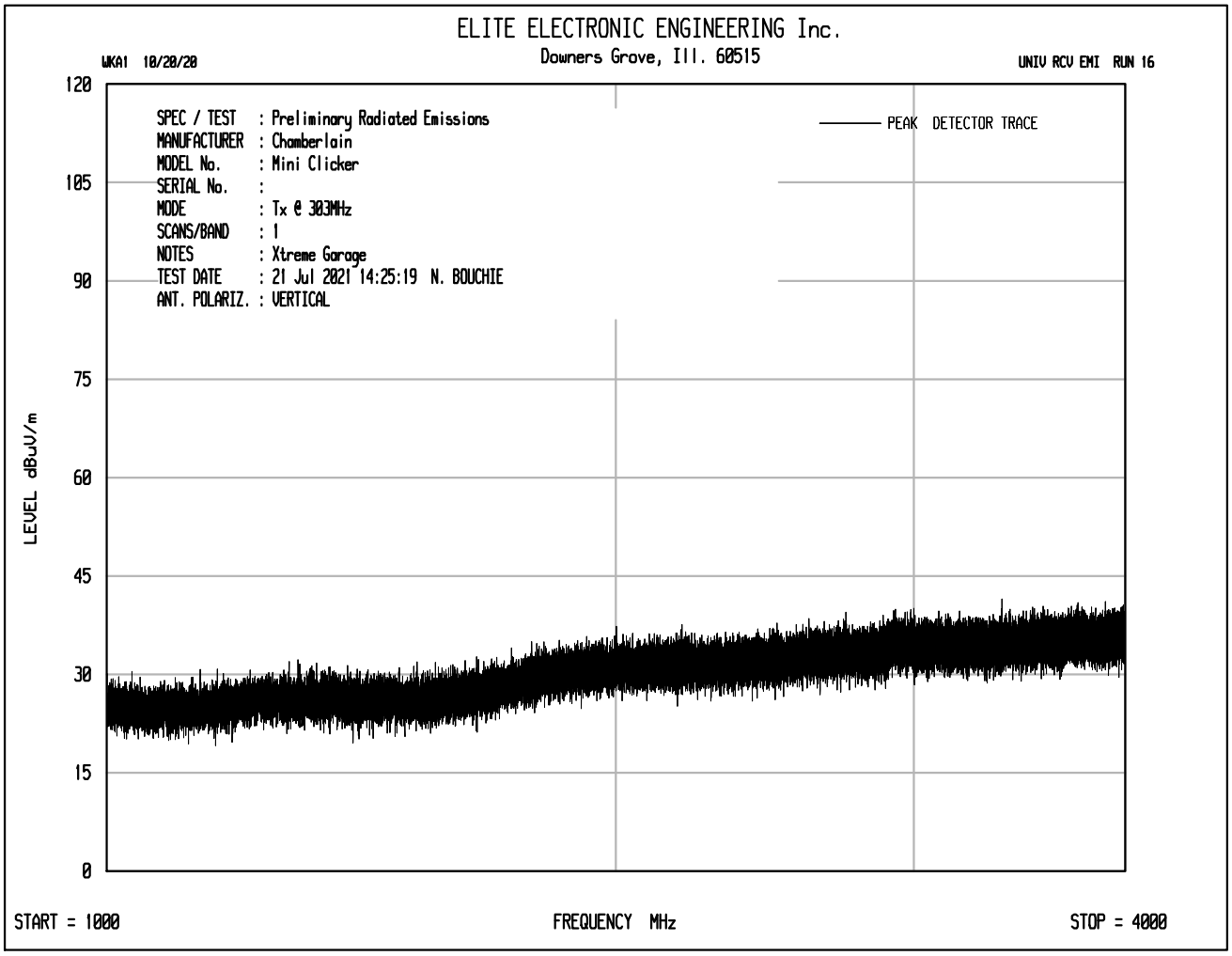
Test Setup for Spurious Radiated Emissions, Above 1GHz – Antenna Polarization Horizontal

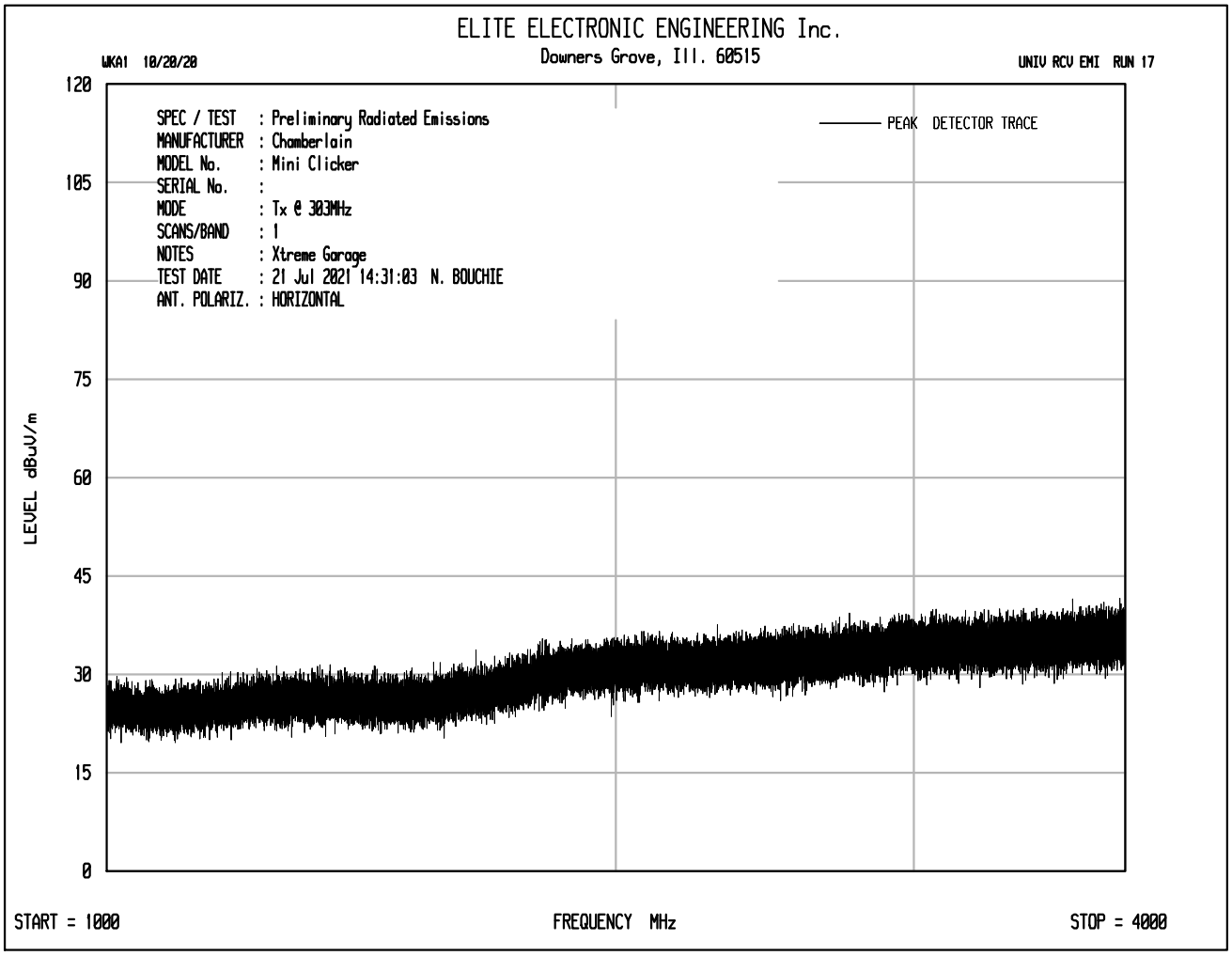


Test Setup for Spurious Radiated Emissions, Above 1GHz – Antenna Polarization Vertical


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 1
SPEC / TEST : Preliminary Radiated Emissions
MANUFACTURER : Chamberlain
MODEL No. : Mini Clicker
SERIAL No. :
MODE : Tx @ 303MHz
SCANS/BAND : 1
NOTES : Xtreme Garage
TEST DATE : 21 Jul 2021 09:47:50 N. BOUCHIE
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

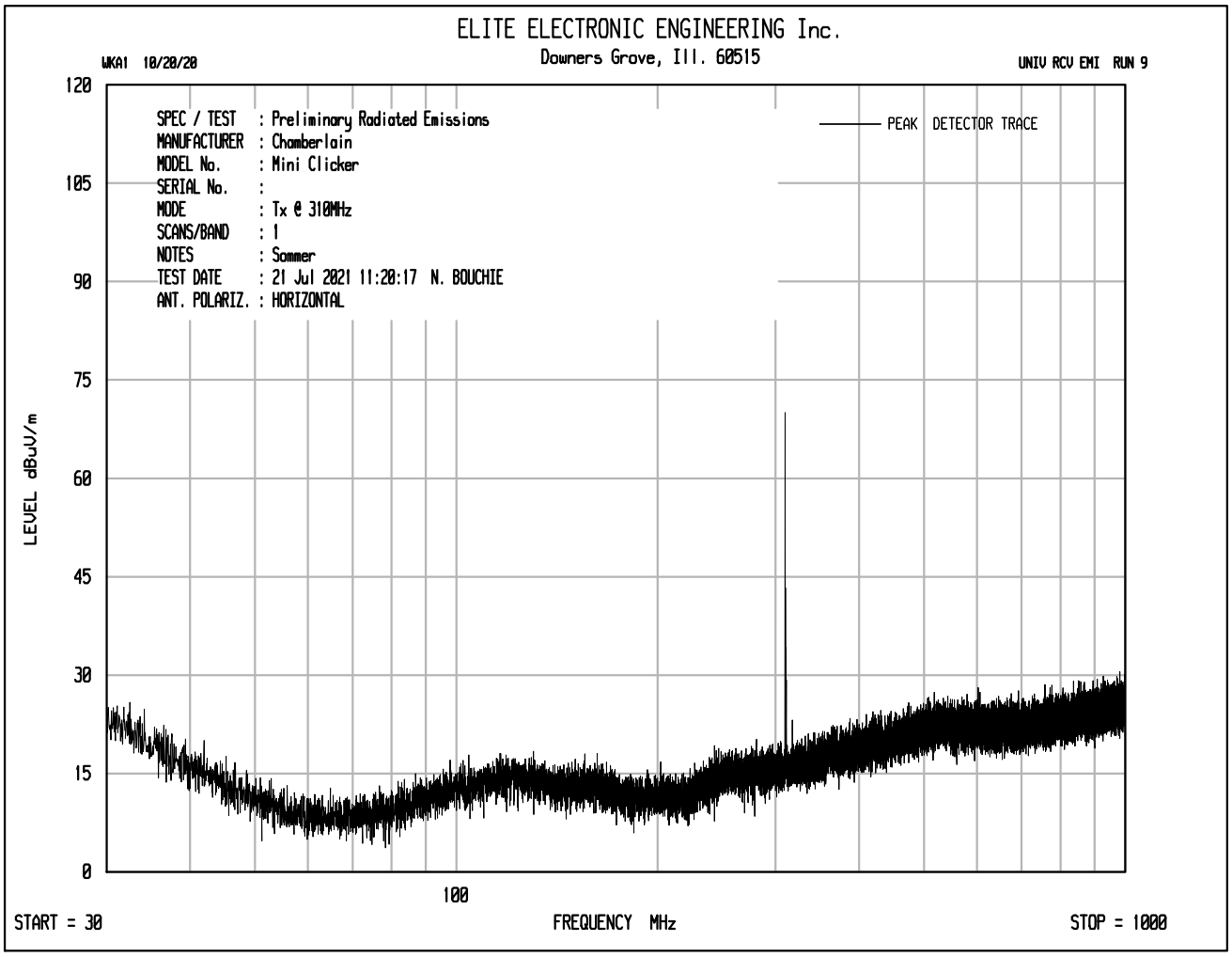

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 2
SPEC / TEST : Preliminary Radiated Emissions
MANUFACTURER : Chamberlain
MODEL No. : Mini Clicker
SERIAL No. :
MODE : Tx @ 303MHz
SCANS/BAND : 1
NOTES : Xtreme Garage
TEST DATE : 21 Jul 2021 09:53:31 N. BOUCHIE
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

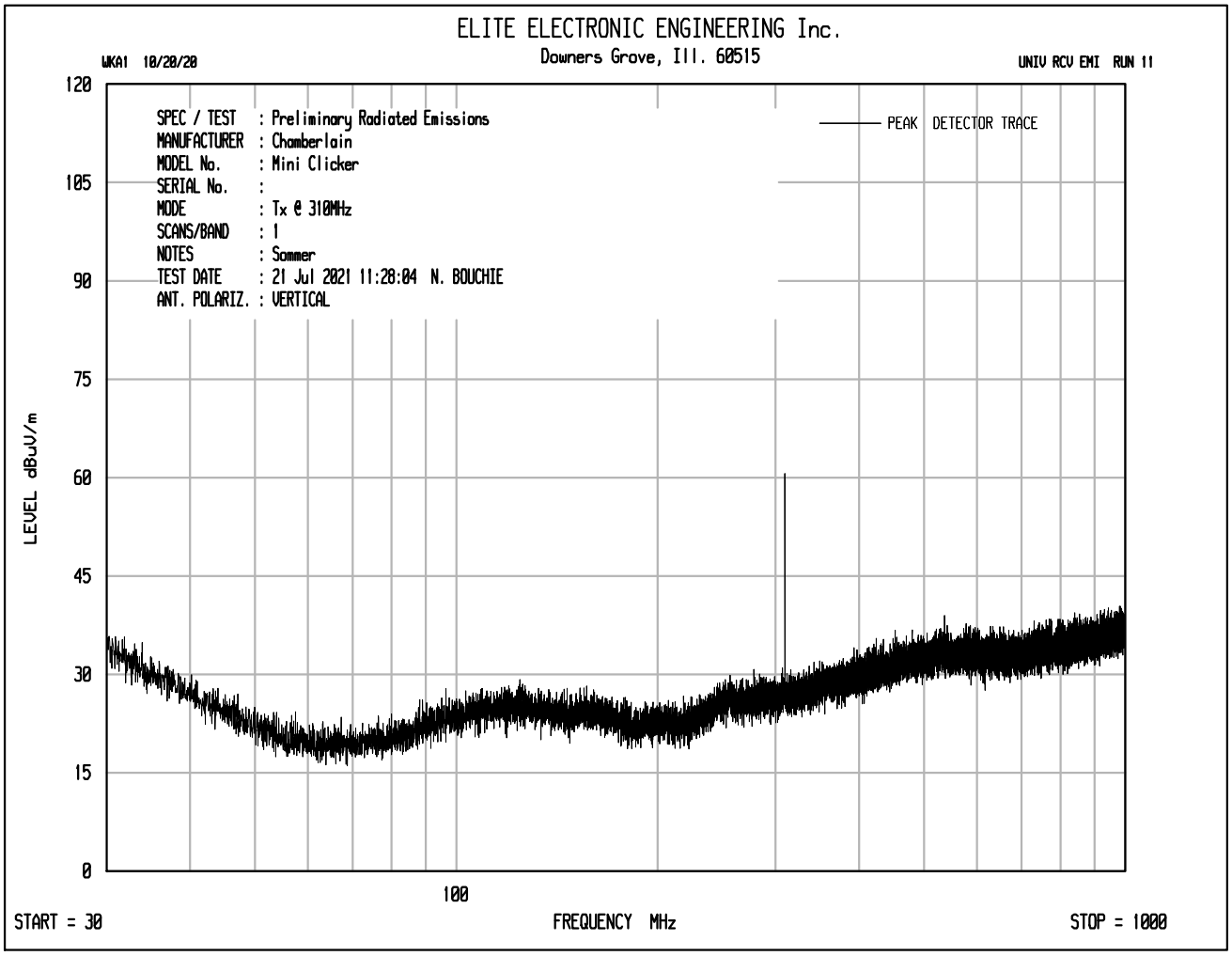

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 16
SPEC / TEST : Preliminary Radiated Emissions
MANUFACTURER : Chamberlain
MODEL No. : Mini Clicker
SERIAL No. :
MODE : Tx @ 303MHz
SCANS/BAND : 1
NOTES : Xtreme Garage
TEST DATE : 21 Jul 2021 14:25:19 N. BOUCHIE
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4000

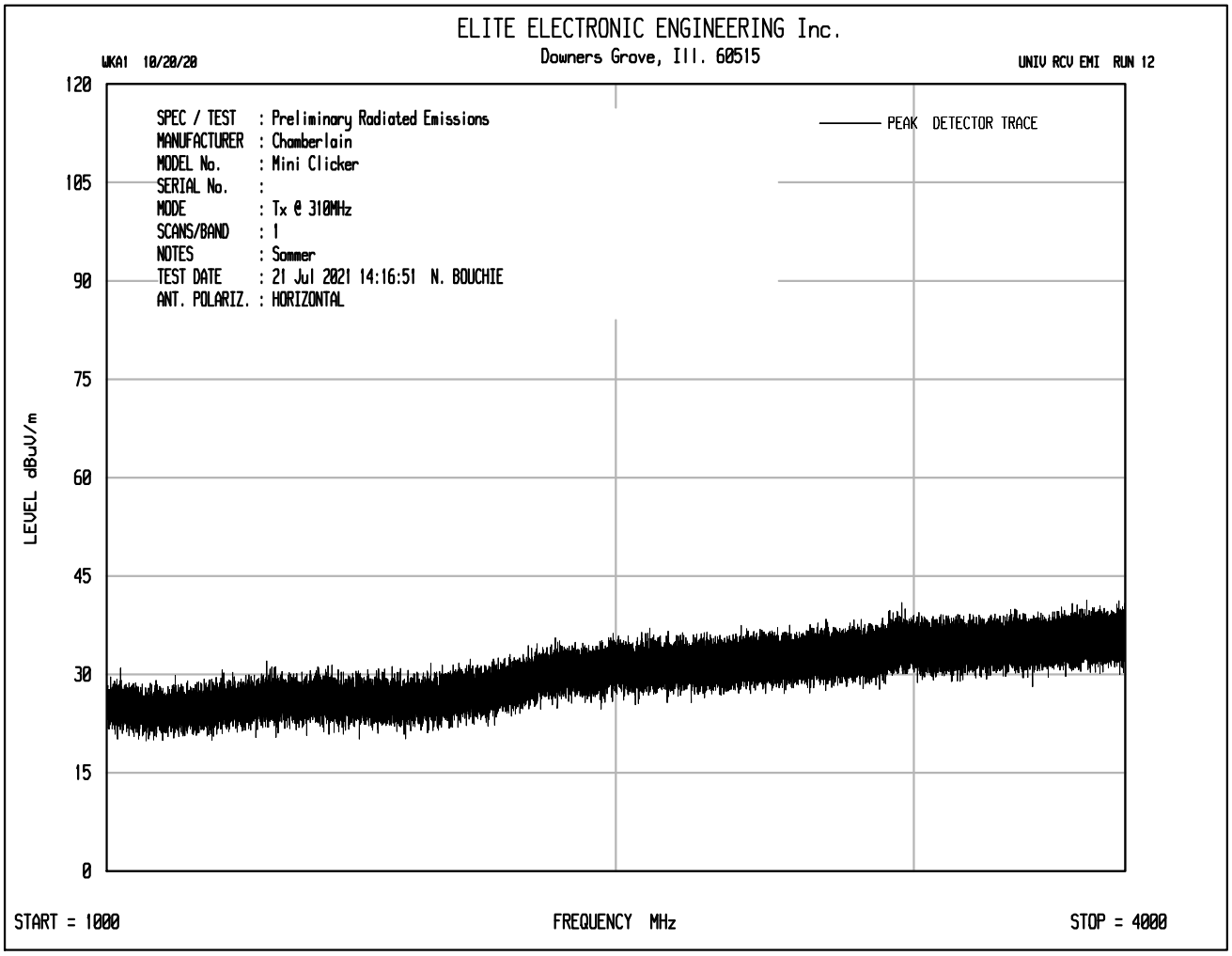

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 17
SPEC / TEST : Preliminary Radiated Emissions
MANUFACTURER : Chamberlain
MODEL No. : Mini Clicker
SERIAL No. :
MODE : Tx @ 303MHz
SCANS/BAND : 1
NOTES : Xtreme Garage
TEST DATE : 21 Jul 2021 14:31:03 N. BOUCHIE
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4000

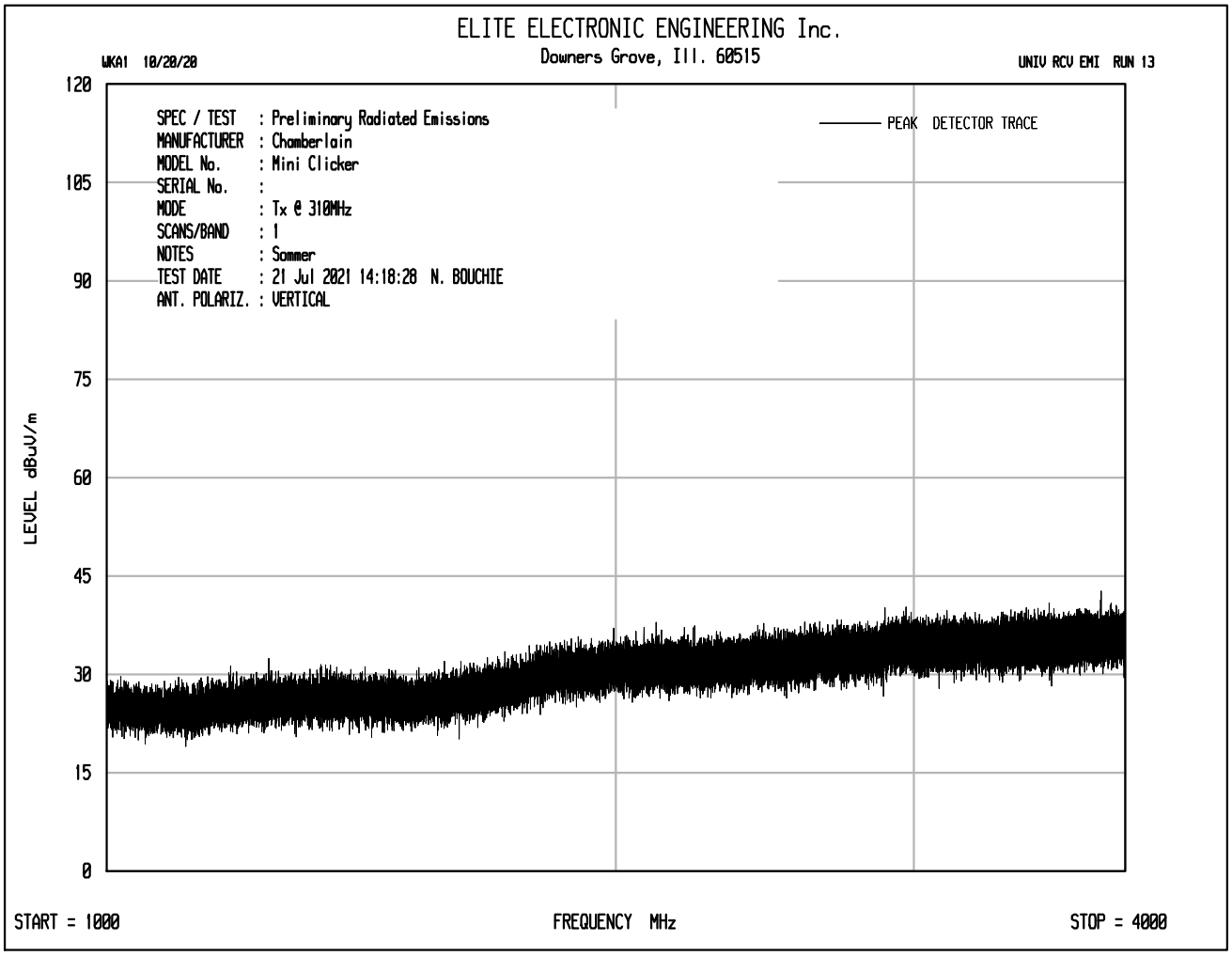
Test Details	
Manufacturer	Chamberlain
Product	Mini-clicker
Mode	Tx On
S/N	10
Carrier Frequency	303 MHz, Xtreme Garage
Requirements	Field Strength of Carrier Limit = 5541.7 µV/m
Notes	None

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)
303.000	H	57.5		0.9	19.2	0.0	-8.2	69.3	2932.2	5541.7	-5.5
303.000	V	35.8		0.9	19.2	0.0	-8.2	47.7	241.4	5541.7	-27.2
606.000	H	6.2	*	1.3	24.8	0.0	-8.2	24.1	16.0	554.2	-30.8
606.000	V	5.2	*	1.3	24.8	0.0	-8.2	23.0	14.2	554.2	-31.8
909.000	H	23.6		1.6	26.4	0.0	-8.2	43.4	147.1	554.2	-11.5
909.000	V	17.2		1.6	26.4	0.0	-8.2	36.9	70.3	554.2	-17.9
1212.000	H	15.1	*	1.8	29.6	0.0	-8.2	38.3	82.3	500.0	-15.7
1212.000	V	14.7	*	1.8	29.6	0.0	-8.2	37.9	78.3	500.0	-16.1
1515.000	H	15.0	*	2.0	29.2	0.0	-8.2	38.0	79.3	500.0	-16.0
1515.000	V	15.1	*	2.0	29.2	0.0	-8.2	38.1	80.4	500.0	-15.9
1818.000	H	16.2	*	2.2	31.6	0.0	-8.2	41.8	122.8	554.2	-13.1
1818.000	V	16.1	*	2.2	31.6	0.0	-8.2	41.8	122.5	554.2	-13.1
2121.000	H	16.5	*	2.4	32.5	0.0	-8.2	43.3	146.0	554.2	-11.6
2121.000	V	16.6	*	2.4	32.5	0.0	-8.2	43.3	146.5	554.2	-11.6
2424.000	H	16.6	*	2.6	32.8	0.0	-8.2	43.8	154.8	554.2	-11.1
2424.000	V	17.0	*	2.6	32.8	0.0	-8.2	44.2	161.6	554.2	-10.7
2727.000	H	17.1	*	2.8	33.3	0.0	-8.2	45.0	177.6	500.0	-9.0
2727.000	V	17.5	*	2.8	33.3	0.0	-8.2	45.4	187.2	500.0	-8.5
3030.000	H	18.2	*	3.0	33.5	0.0	-8.2	46.5	210.6	554.2	-8.4
3030.000	V	17.9	*	3.0	33.5	0.0	-8.2	46.2	203.2	554.2	-8.7


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 9
SPEC / TEST : Preliminary Radiated Emissions
MANUFACTURER : Chamberlain
MODEL No. : Mini Clicker
SERIAL No. :
MODE : Tx @ 310MHz
SCANS/BAND : 1
NOTES : Sommer
TEST DATE : 21 Jul 2021 11:20:17 N. BOUCHIE
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

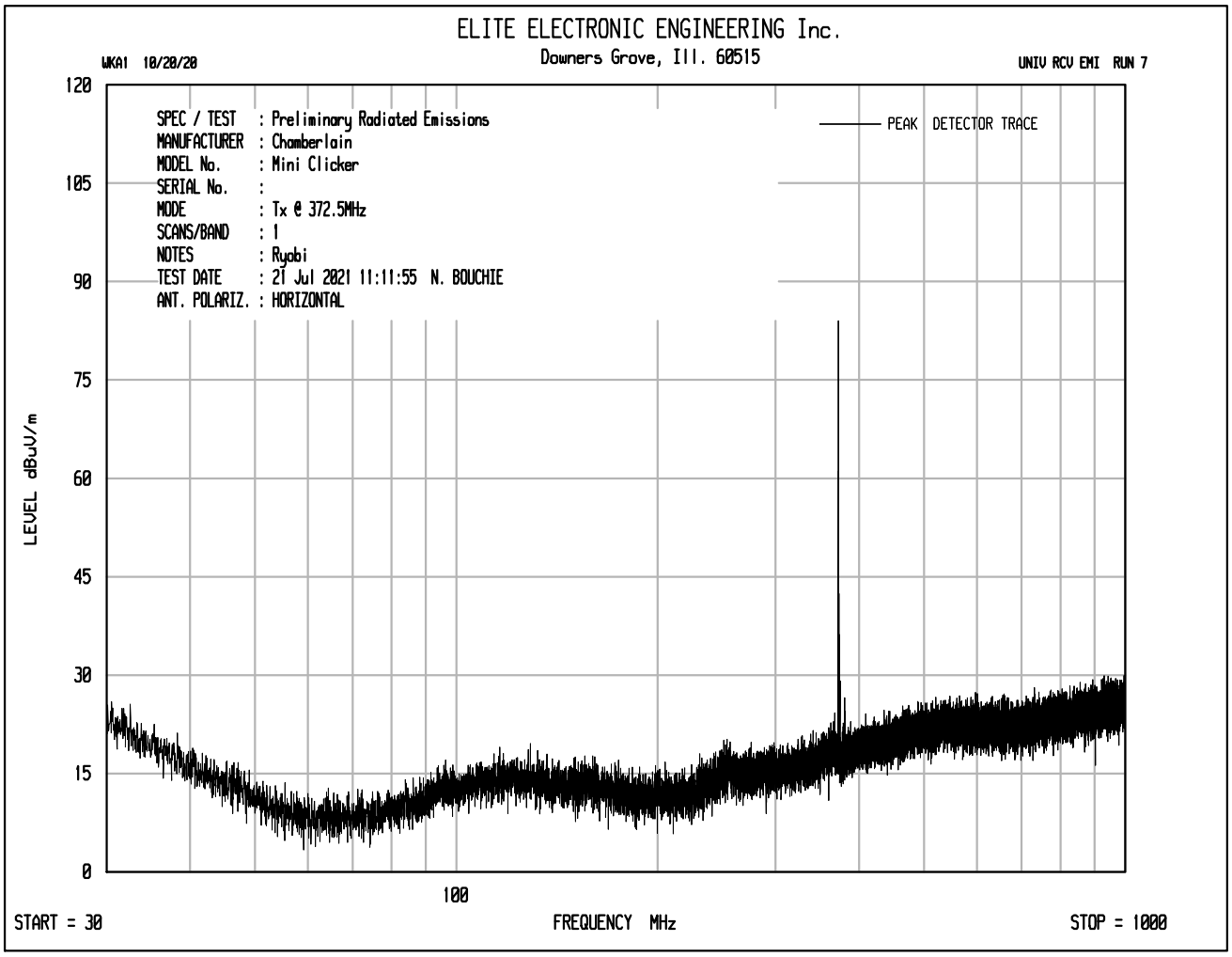

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 11
SPEC / TEST : Preliminary Radiated Emissions
MANUFACTURER : Chamberlain
MODEL No. : Mini Clicker
SERIAL No. :
MODE : Tx @ 310MHz
SCANS/BAND : 1
NOTES : Sommer
TEST DATE : 21 Jul 2021 11:28:04 N. BOUCHIE
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

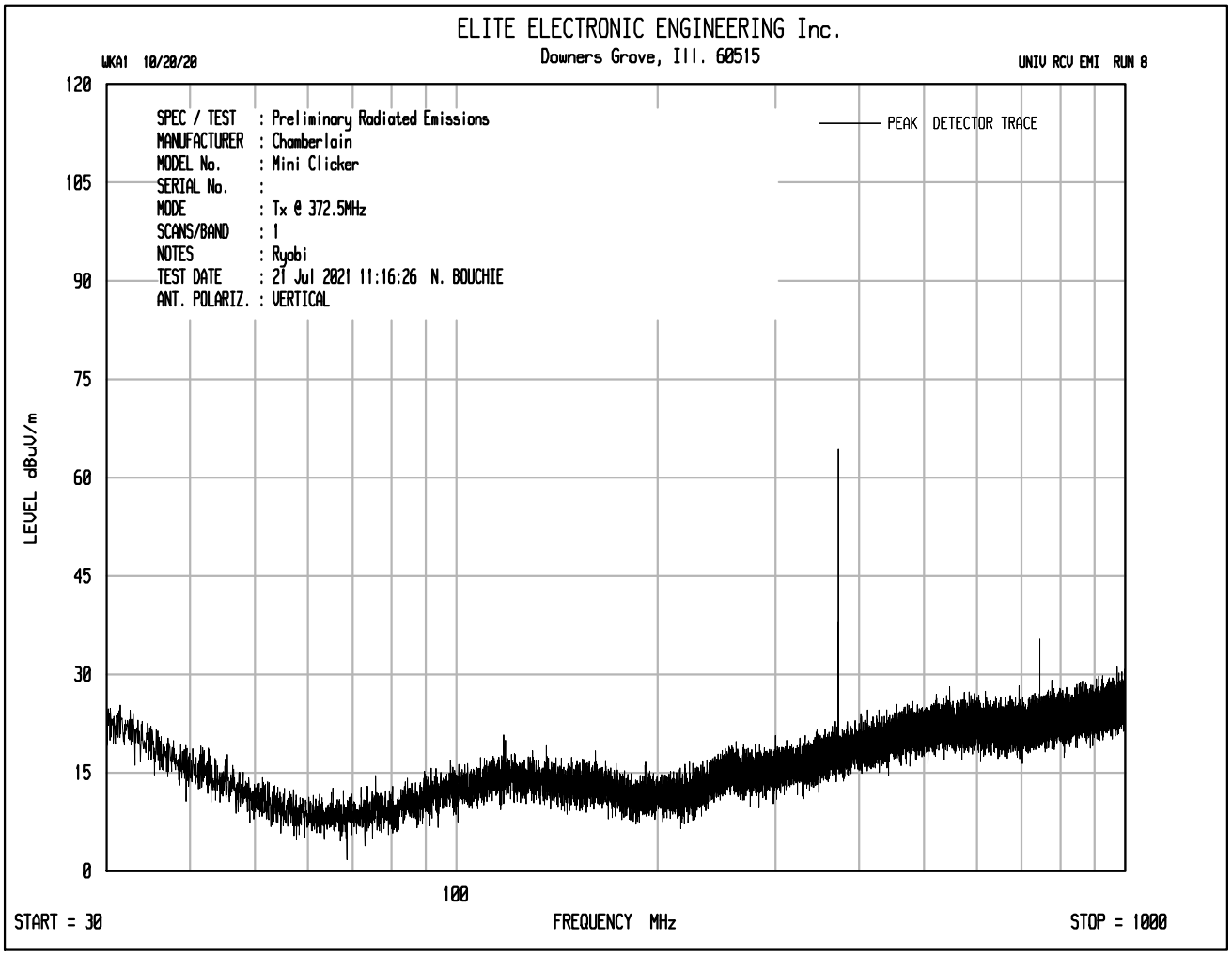

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 12
SPEC / TEST : Preliminary Radiated Emissions
MANUFACTURER : Chamberlain
MODEL No. : Mini Clicker
SERIAL No. :
MODE : Tx @ 310MHz
SCANS/BAND : 1
NOTES : Sommer
TEST DATE : 21 Jul 2021 14:16:51 N. BOUCHIE
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4000

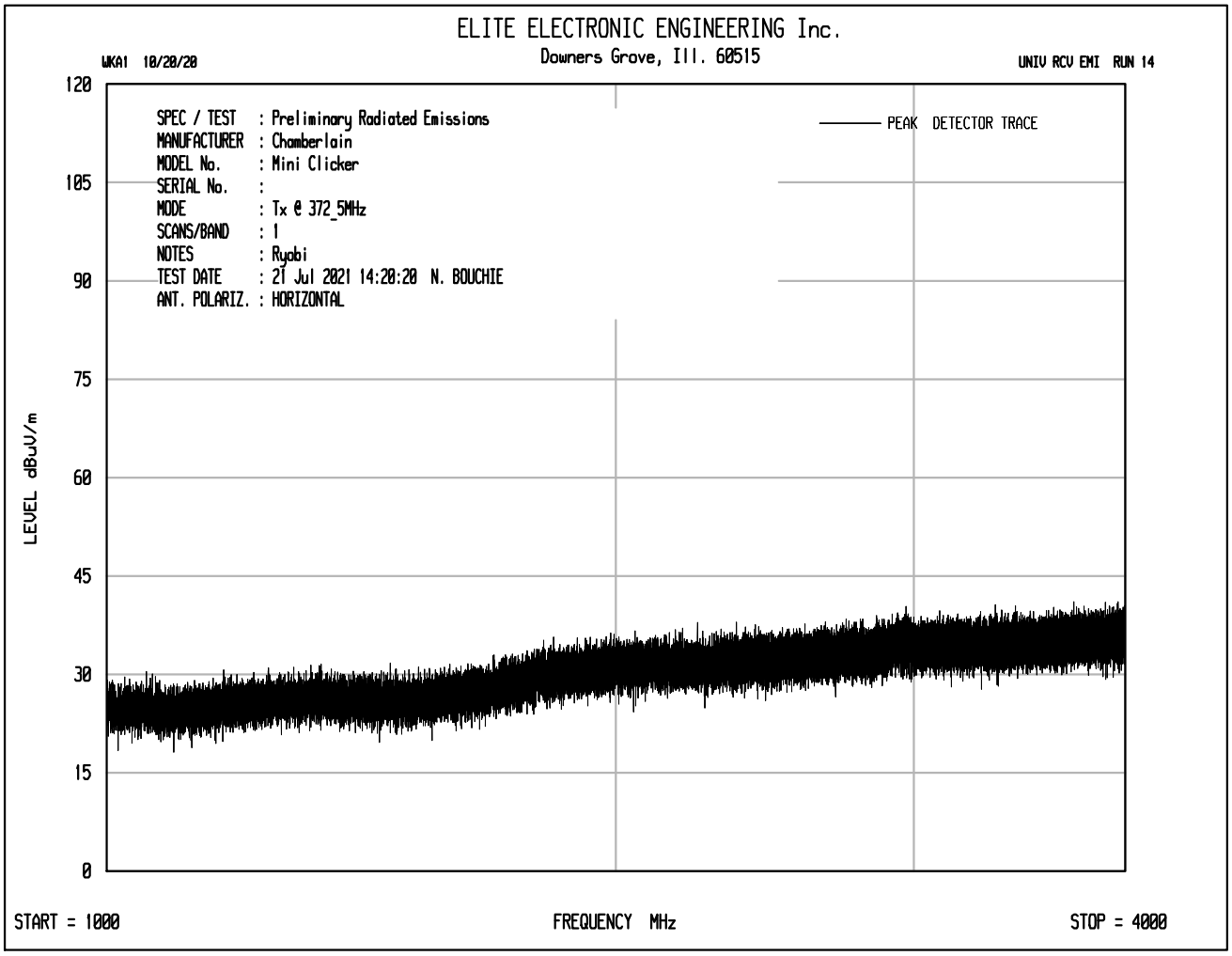

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 13
SPEC / TEST : Preliminary Radiated Emissions
MANUFACTURER : Chamberlain
MODEL No. : Mini Clicker
SERIAL No. :
MODE : Tx @ 310MHz
SCANS/BAND : 1
NOTES : Sommer
TEST DATE : 21 Jul 2021 14:18:28 N. BOUCHIE
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4000

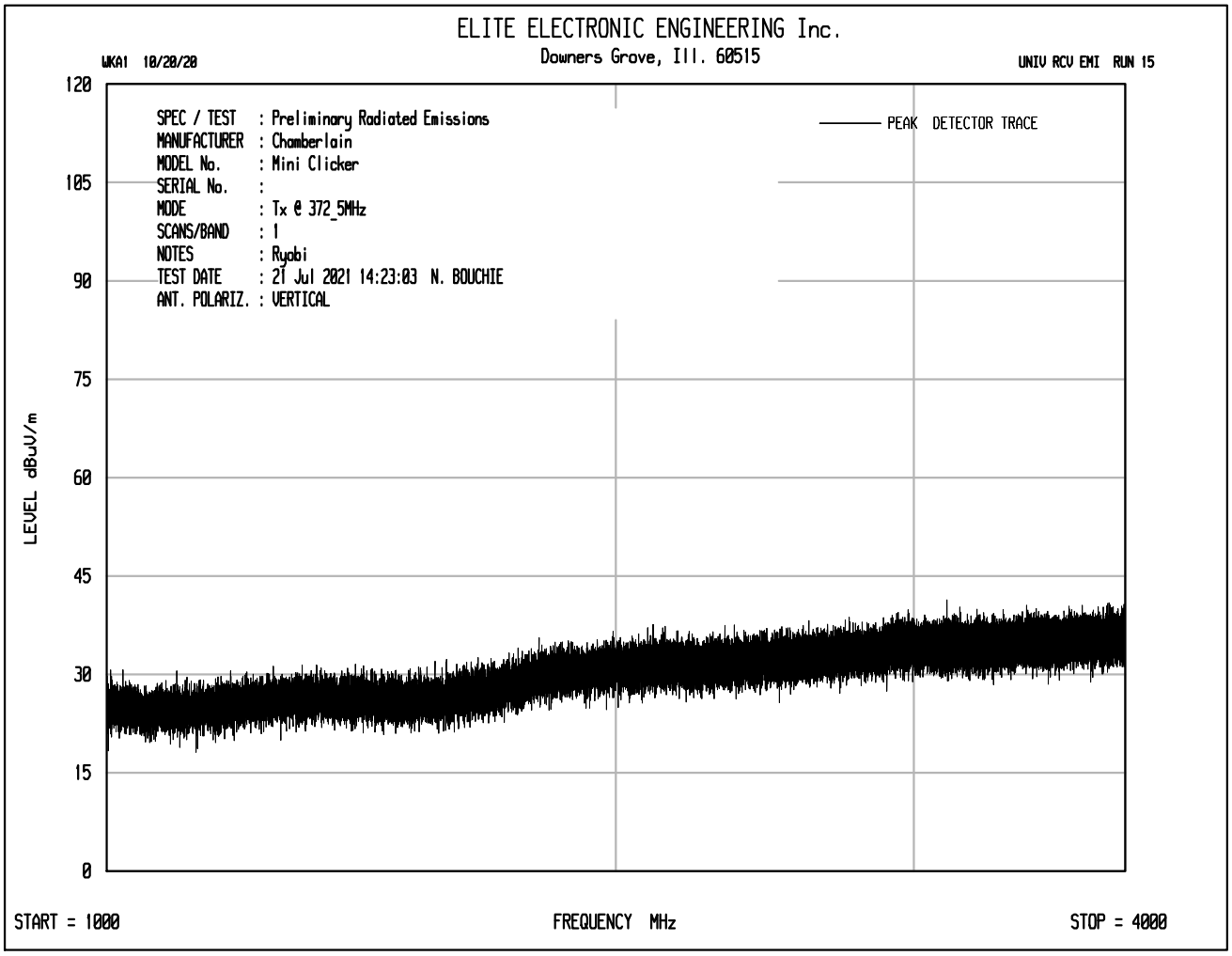
Test Details	
Manufacturer	Chamberlain
Product	Mini-clicker
S/N	11
Mode	Tx On
Carrier Frequency	310 MHz, Sommer Code
Requirements	Field Strength of Carrier Limit = 5833.3 µV/m
Notes	None

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	60.2		0.9	19.3	0.0	-18.1	62.4	1313.0	5833.3	-13.0
310.000	V	41.2		0.9	19.3	0.0	-18.1	43.4	147.7	5833.3	-31.9
620.000	H	18.3		1.3	24.9	0.0	-18.1	26.4	20.9	583.3	-28.9
620.000	V	14.3		1.3	24.9	0.0	-18.1	22.4	13.1	583.3	-32.9
930.000	H	26.8		1.6	26.9	0.0	-18.1	37.2	72.3	583.3	-18.1
930.000	V	19.2		1.6	26.9	0.0	-18.1	29.6	30.1	583.3	-25.7
1240.000	H	14.6	*	1.8	29.8	0.0	-18.1	28.1	25.4	500.0	-25.9
1240.000	V	14.5	*	1.8	29.8	0.0	-18.1	28.1	25.3	500.0	-25.9
1550.000	H	15.7	*	2.1	29.0	0.0	-18.1	28.7	27.2	500.0	-25.3
1550.000	V	14.9	*	2.1	29.0	0.0	-18.1	27.9	24.9	500.0	-26.1
1860.000	H	15.8	*	2.3	32.0	0.0	-18.1	32.0	40.0	583.3	-23.3
1860.000	V	15.8	*	2.3	32.0	0.0	-18.1	32.0	39.9	583.3	-23.3
2170.000	H	16.6	*	2.5	32.6	0.0	-18.1	33.6	47.8	583.3	-21.7
2170.000	V	16.4	*	2.5	32.6	0.0	-18.1	33.3	46.3	583.3	-22.0
2480.000	H	17.2	*	2.7	33.1	0.0	-18.1	34.9	55.4	583.3	-20.4
2480.000	V	16.4	*	2.7	33.1	0.0	-18.1	34.1	50.6	583.3	-21.2
2790.000	H	17.1	*	2.8	32.9	0.0	-18.1	34.7	54.4	500.0	-19.3
2790.000	V	16.8	*	2.8	32.9	0.0	-18.1	34.5	53.0	500.0	-19.5
3100.000	H	18.0	*	3.0	33.5	0.0	-18.1	36.4	65.9	583.3	-18.9
3100.000	V	17.5	*	3.0	33.5	0.0	-18.1	35.9	62.3	583.3	-19.4


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 10/20/20
UNIV RCV EMI RUN 7
SPEC / TEST : Preliminary Radiated Emissions
MANUFACTURER : Chamberlain
MODEL No. : Mini Clicker
SERIAL No. :
MODE : Tx @ 372.5MHz
SCANS/BAND : 1
NOTES : Ryobi
TEST DATE : 21 Jul 2021 11:11:55 N. BOUCHIE
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 8
SPEC / TEST : Preliminary Radiated Emissions
MANUFACTURER : Chamberlain
MODEL No. : Mini Clicker
SERIAL No. :
MODE : Tx @ 372.5MHz
SCANS/BAND : 1
NOTES : Ryobi
TEST DATE : 27 Jul 2021 11:16:26 N. BOUCHIE
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 14
SPEC / TEST : Preliminary Radiated Emissions
MANUFACTURER : Chamberlain
MODEL No. : Mini Clicker
SERIAL No. :
MODE : Tx @ 372.5MHz
SCANS/BAND : 1
NOTES : Ryobi
TEST DATE : 27 Jul 2021 14:20:20 N. BOUCHIE
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 15
SPEC / TEST : Preliminary Radiated Emissions
MANUFACTURER : Chamberlain
MODEL No. : Mini Clicker
SERIAL No. :
MODE : Tx @ 372_5MHz
SCANS/BAND : 1
NOTES : Ryobi
TEST DATE : 27 Jul 2021 14:23:03 N. BOUCHIE
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
Product	Mini-clicker
S/N	12
Mode	Tx On
Carrier Frequency	372.5 MHz, Ryobi code
Requirements	Field Strength of Carrier Limit = 8437.5 µV/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)
372.500	H	65.5		1.0	20.8	0.0	-12.5	74.9	5546.0	8437.5	-3.6
372.500	V	45.9		1.0	20.8	0.0	-12.5	55.2	578.7	8437.5	-23.3
745.000	H	16.4		1.4	25.8	0.0	-12.5	31.2	36.2	843.7	-27.4
745.000	V	12.4		1.4	25.8	0.0	-12.5	27.2	22.8	843.7	-31.4
1117.500	H	15.0	*	1.7	28.7	0.0	-12.5	32.9	44.4	500.0	-21.0
1117.500	V	14.7	*	1.7	28.7	0.0	-12.5	32.7	43.3	500.0	-21.2
1490.000	H	15.1	*	2.0	29.3	0.0	-12.5	33.9	49.6	500.0	-20.1
1490.000	V	14.9	*	2.0	29.3	0.0	-12.5	33.7	48.3	500.0	-20.3
1862.500	H	16.2	*	2.3	32.1	0.0	-12.5	38.1	80.1	843.7	-20.5
1862.500	V	16.2	*	2.3	32.1	0.0	-12.5	38.0	79.7	843.7	-20.5
2235.000	H	16.7	*	2.5	32.7	0.0	-12.5	39.5	94.0	500.0	-14.5
2235.000	V	16.2	*	2.5	32.7	0.0	-12.5	38.9	88.3	500.0	-15.1
2607.500	H	17.1	*	2.7	32.9	0.0	-12.5	40.3	102.9	843.7	-18.3
2607.500	V	16.9	*	2.7	32.9	0.0	-12.5	40.0	100.5	843.7	-18.5
2980.000	H	18.6	*	2.9	34.0	0.0	-12.5	43.0	141.9	843.7	-15.5
2980.000	V	17.8	*	2.9	34.0	0.0	-12.5	42.3	130.0	843.7	-16.2
3352.500	H	17.9	*	3.1	33.6	0.0	-12.5	42.2	128.5	500.0	-11.8
3352.500	V	17.4	*	3.1	33.6	0.0	-12.5	41.7	122.2	500.0	-12.2
3725.000	H	18.0	*	3.3	34.5	0.0	-12.5	43.3	146.9	500.0	-10.6
3725.000	V	17.2	*	3.3	34.5	0.0	-12.5	42.5	133.1	500.0	-11.5

23. Occupied Bandwidth Measurements

Test Information	
Manufacturer	Chamberlain
Product	Mini-clicker
Mode	Tx On
Test Date	07/20/2021

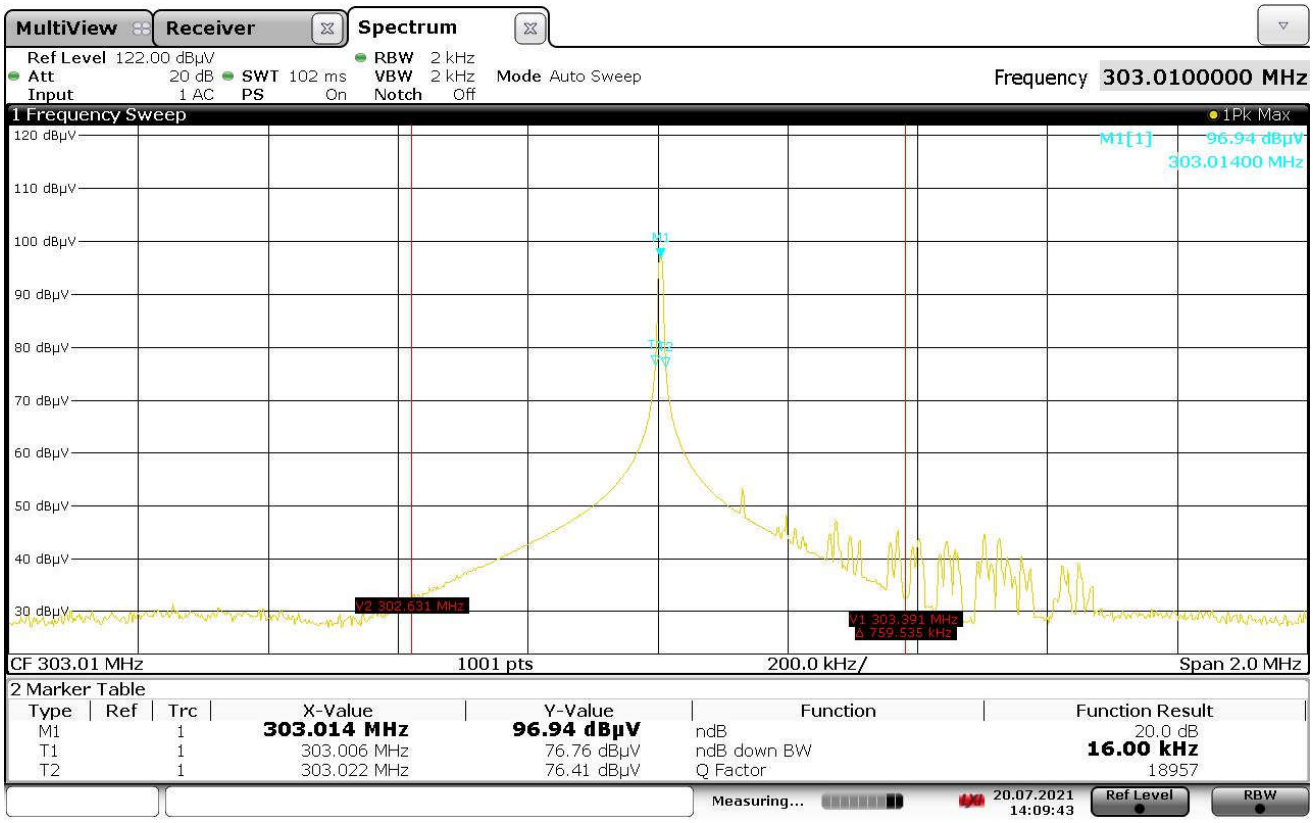
Test Setup Details	
Setup Format	Tabletop
Height of Support	N/A
Type of Test Site	N/A
Test site used	N/A
Notes	None

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 900MHz. 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.

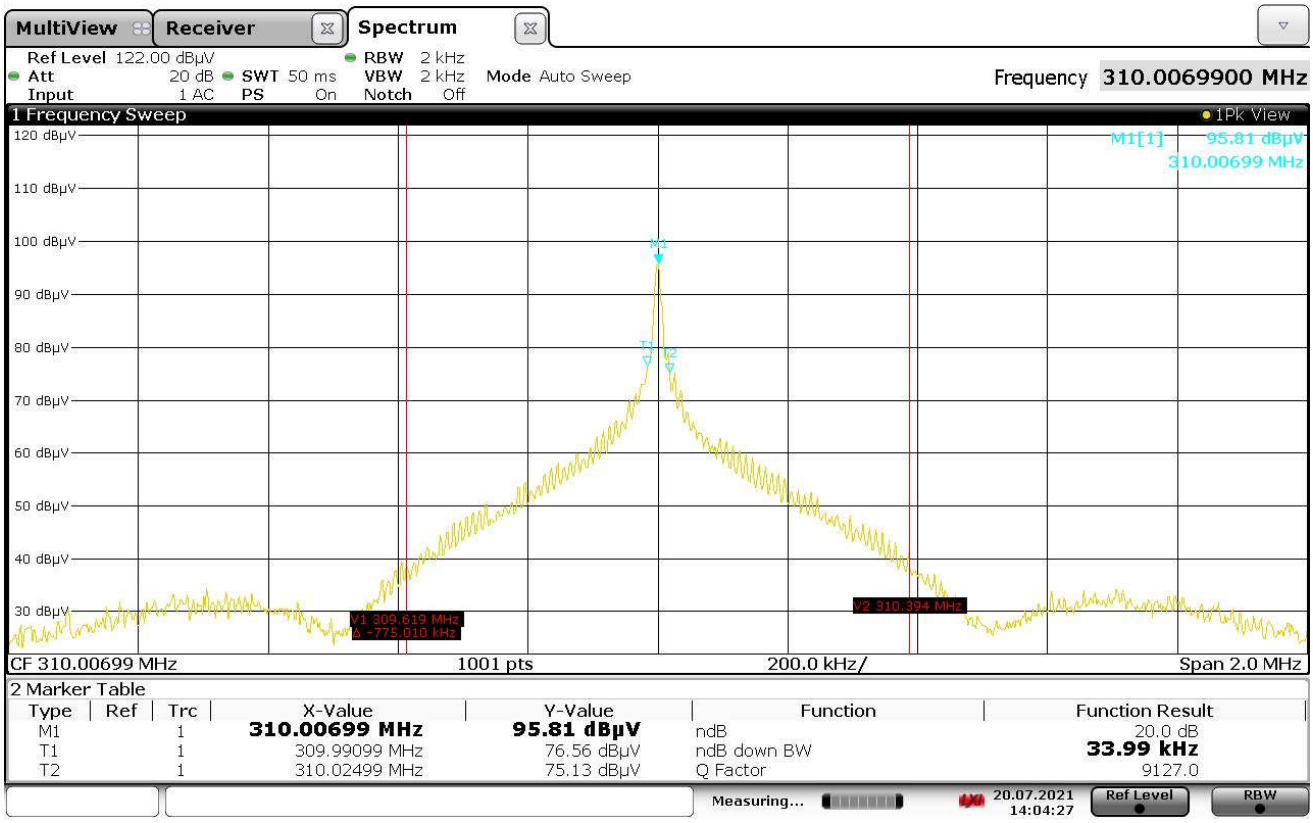
Procedures
The EUT was placed on an 80cm high non-conductive stand. The unit was set to transmit continuously. With an antenna positioned nearby, occupied bandwidth emissions were displayed on the spectrum analyzer. The resolution bandwidth was set to 30kHz and span was set to 2MHz. A screen capture was taken of the frequency spectrum near the carrier using a screen dump function on the spectrum analyzer.

Test Details	
Manufacturer	Chamberlain
Model	Mini-clicker
S/N	10
Mode	Tx On
Carrier Frequency	303 MHz, Xtreme Garage Code
Parameters	20dB BW = 16.0 kHz
Notes	None



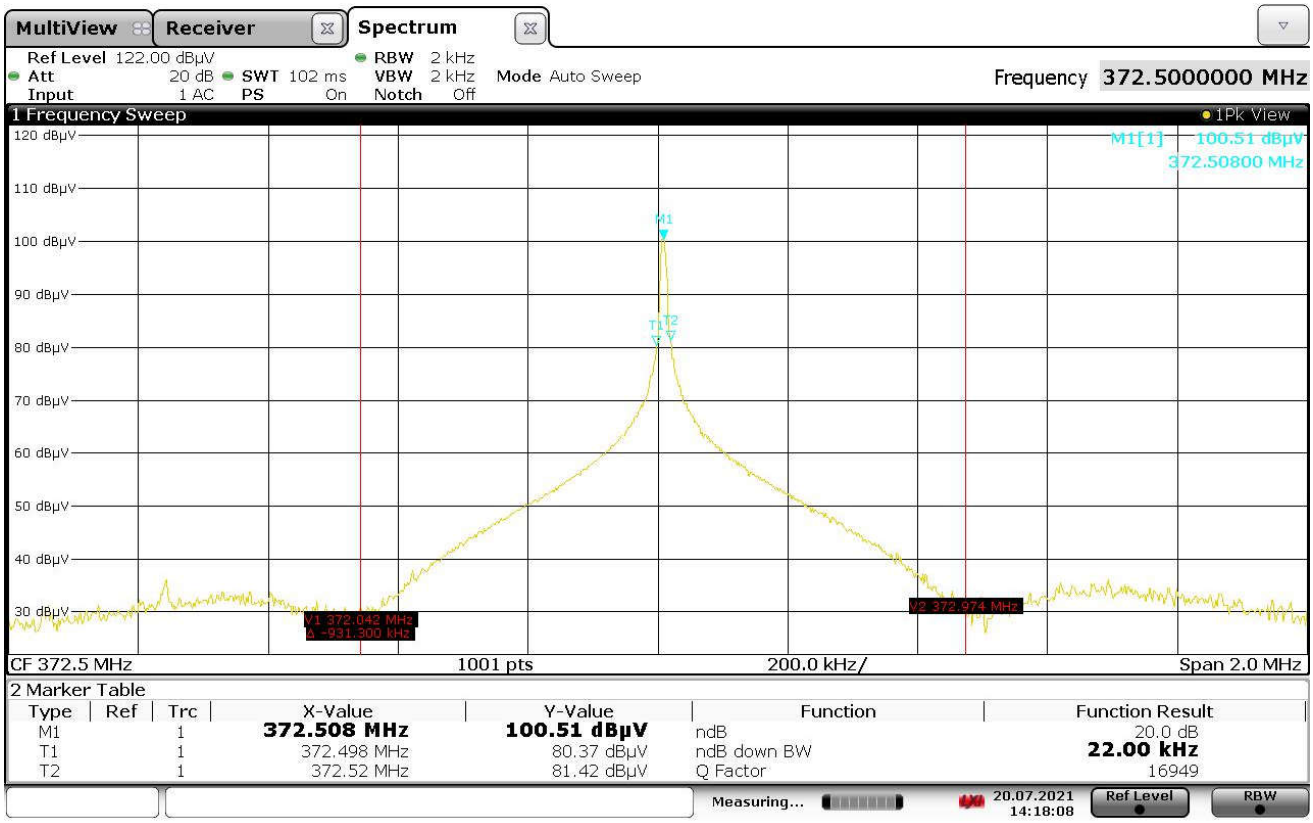
14:09:43 20.07.2021

Test Details	
Manufacturer	Chamberlain
Model	Mini-clicker
S/N	11
Mode	Tx On
Carrier Frequency	310 MHz, Sommer Code
Parameters	20dB BW = 33.99kHz
Notes	None



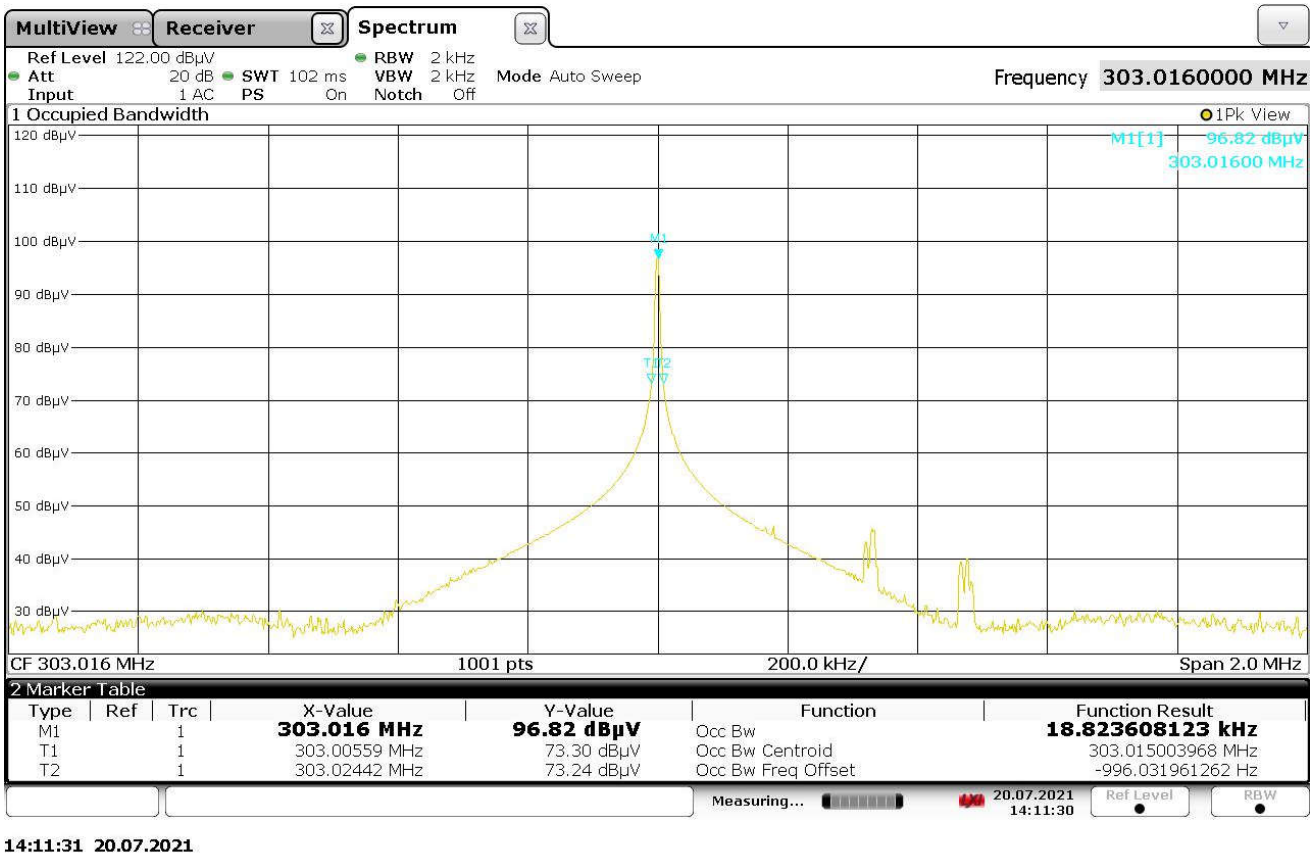
14:04:27 20.07.2021

Test Details	
Manufacturer	Chamberlain
Model	Mini-clicker
S/N	12
Mode	Tx On
Carrier Frequency	372.5 MHz, Ryobi code
Parameters	20dB BW = 22kHz
Notes	None



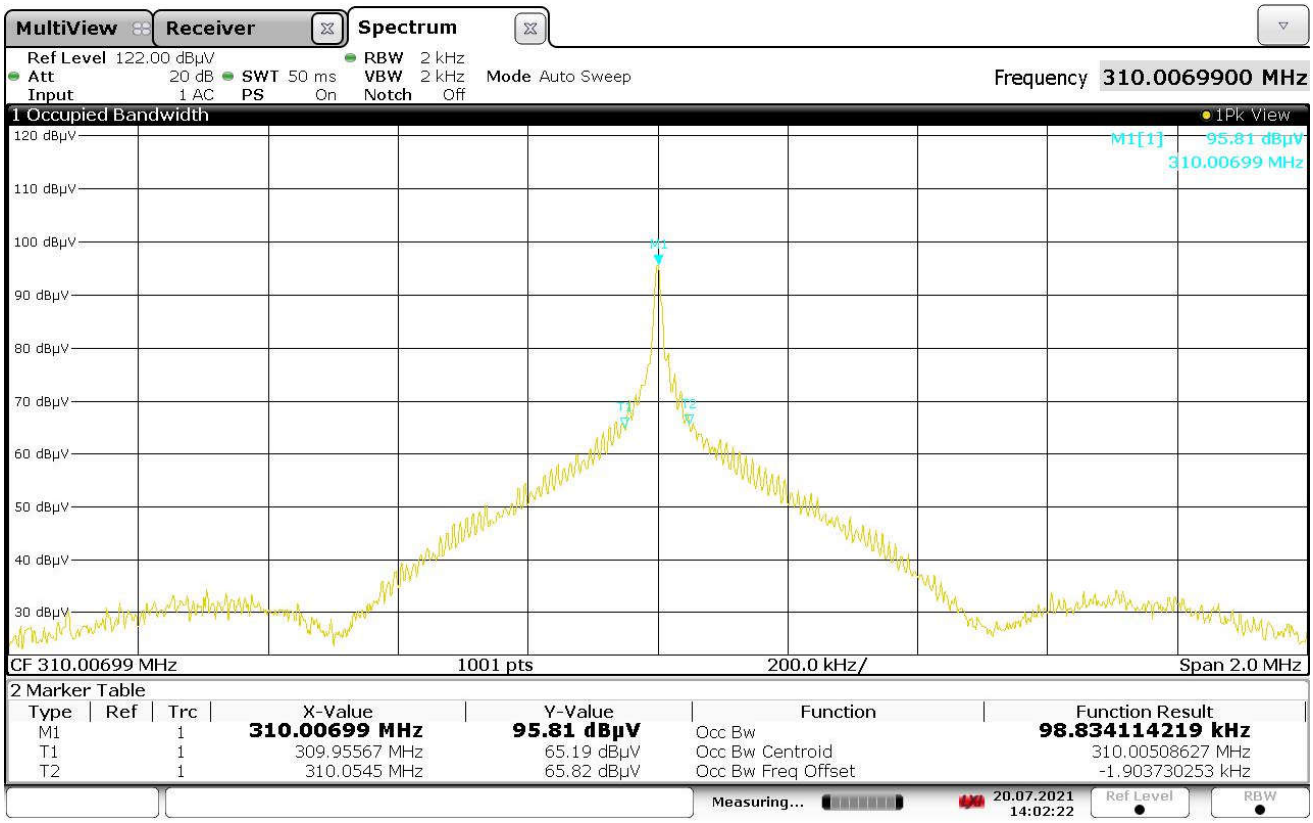
14:18:09 20.07.2021

Test Details	
Manufacturer	Chamberlain
Model	Mini-clicker
S/N	10
Mode	Tx On
Carrier Frequency	303 MHz, Xtreme Garage code
Parameters	99% BW = 18.8 kHz
Notes	None



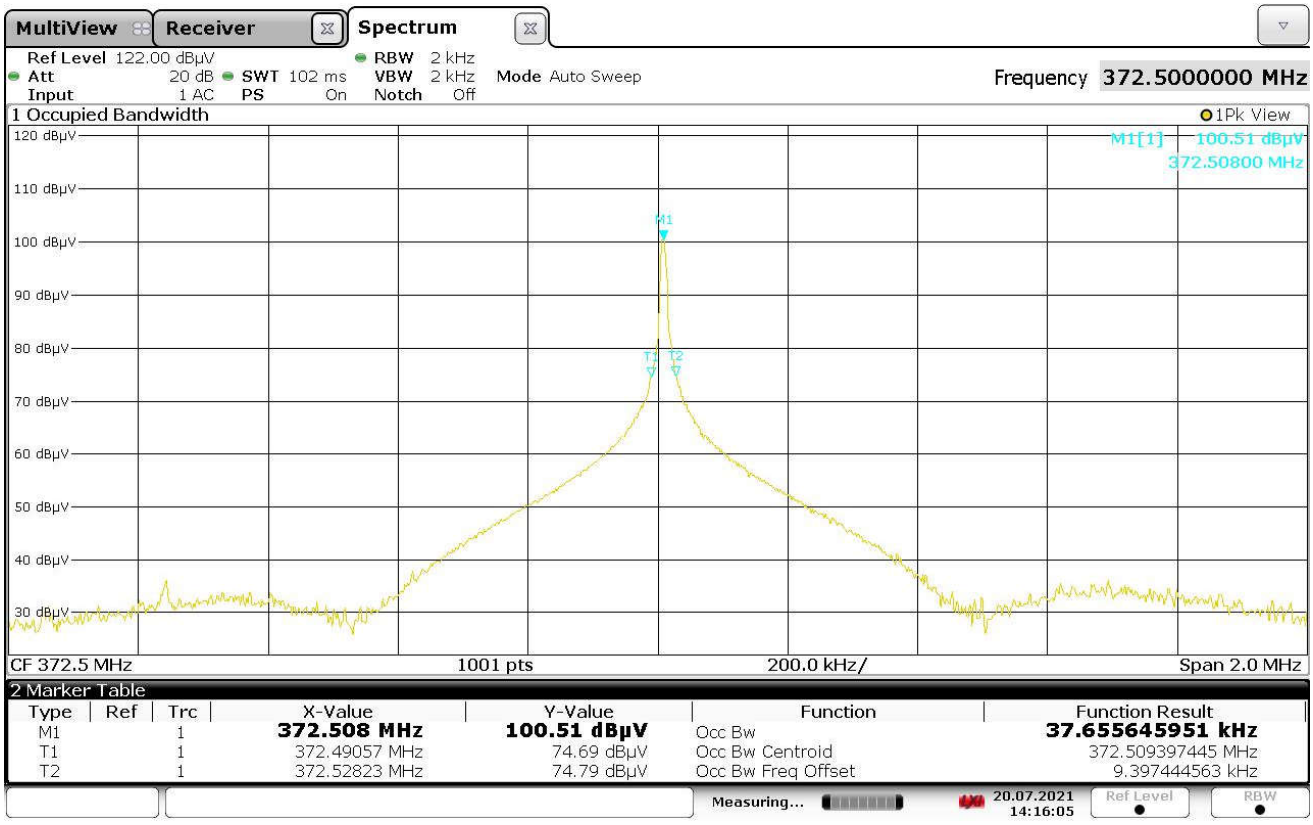
14:11:31 20.07.2021

Test Details	
Manufacturer	Chamberlain
Model	Mini-clicker
S/N	11
Carrier Frequency	310 MHz, Sommer code
Parameters	99% BW = 98.8 kHz
Notes	None



14:02:23 20.07.2021

Test Details	
Manufacturer	Chamberlain
Model	Mini-clicker
S/N	12
Mode	Tx On
Carrier Frequency	372.5 MHz, Ryobi Code
Parameters	99% BW = 37.66 kHz
Notes	None



14:16:06 20.07.2021

24. Spurious Radiated Emissions (Spot Checks)

Manufacturer	Chamberlain
Product	Mini-clicker
Model	????
Serial No	??
Mode	Tx On

Information	
Setup Format	Tabletop
Height of Support	n/a
Type of Test Site	Semi-Anechoic Chamber
Type of Antennas Used	Below 1GHz: Bilog (or equivalent) Above 1GHz: Double-ridged waveguide (or equivalent)
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

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. 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. A broadband double ridged waveguide antenna was used as the pick-up device for all frequencies above 1GHz. All significant broadband and narrowband signals were measured and recorded. 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 Details	
Manufacturer	Chamberlain
Model	Mini-clicker
S/N	SMP-81251
Mode	Tx On
Carrier Frequency	310 MHz, CGI NEW Rolling Code (E)
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	68.5		0.9	19.3	0.0	-15.2	73.6	4761.9	5833.3	-1.8
310.000	V	46.9		0.9	19.3	0.0	-15.2	52.0	396.1	5833.3	-23.4
620.000	H	25.3		1.3	24.9	0.0	-15.2	36.3	65.0	583.3	-19.1
620.000	V	22.1		1.3	24.9	0.0	-15.2	33.1	45.0	583.3	-22.3
930.000	H	23.1		1.6	26.9	0.0	-15.2	36.4	65.7	583.3	-19.0
930.000	V	14.8		1.6	26.9	0.0	-15.2	28.1	25.3	583.3	-27.3

* - Duty cycle correction factor data was taken from the original UL test report (see UL EMC Report 2012-87-EM-F0042)

Test Details	
Manufacturer	Chamberlain
Model	Mini-clicker
S/N	SMP-81251
Mode	Tx On
Carrier Frequency	315 MHz, CGI NEW Rolling Code (E)
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	63.0		0.9	19.4	0.0	-16.0	67.4	2344.7	6041.7	-8.2
315.000	V	41.9		0.9	19.4	0.0	-16.0	46.3	206.6	6041.7	-29.3
630.000	H	17.7		1.3	24.9	0.0	-16.0	28.0	25.1	604.2	-27.6
630.000	V	14.3		1.3	24.9	0.0	-16.0	24.6	17.0	604.2	-31.0
945.000	H	20.6		1.6	27.0	0.0	-16.0	33.2	45.9	604.2	-22.4
945.000	V	16.7		1.6	27.0	0.0	-16.0	29.3	29.3	604.2	-26.3

* - Duty cycle correction factor data was taken from the original UL test report (see UL EMC Report 2012-87-EM-F0042)

Test Details	
Manufacturer	Chamberlain
Model	Mini-clicker
S/N	SMP-81251
Mode	Tx On
Carrier Frequency	390 MHz, CGI NEW Rolling Code (E)
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	67.7		1.0	21.6	0.0	-15.9	74.4	5269.2	9166.7	-4.8
390.000	V	46.1		1.0	21.6	0.0	-15.9	52.8	438.3	9166.7	-26.4
780.000	H	37.9		1.4	25.8	0.0	-15.9	49.2	289.6	916.7	-10.0
780.000	V	31.4		1.4	25.8	0.0	-15.9	42.7	137.0	916.7	-16.5

* - Duty cycle correction factor data was taken from the original UL test report (see UL EMC Report 2012-87-EM-F0042)

Test Details	
Manufacturer	Chamberlain
Model	Mini-clicker
S/N	SMP-81252
Mode	Tx On
Carrier Frequency	372.5MHz, Wayne-Dalton NEW, Rolling Code (Keeloq based)
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)
372.500	H	68.7		1.0	20.8	0.0	-12.3	78.3	8184.2	8437.5	-0.3
372.500	V	49.5		1.0	20.8	0.0	-12.3	59.1	897.4	8437.5	-19.5
745.000	H	26.4		1.4	25.8	0.0	-12.3	41.4	117.4	843.7	-17.1
745.000	V	21.3		1.4	25.8	0.0	-12.3	36.3	65.3	843.7	-22.2

* - Duty cycle correction factor data was taken from the original UL test report (see UL EMC Report 2012-87-EM-F0042)

Test Details	
Manufacturer	Chamberlain
Model	Mini-clicker
S/N	SMP-81254
Mode	Tx On
Carrier Frequency	390MHz, Genie NEW, IntelliCode (Keeloq based)
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	65.3		1.0	21.6	0.0	-12.4	75.6	6008.2	9166.7	-3.7
390.000	V	43.9		1.0	21.6	0.0	-12.4	54.2	511.4	9166.7	-25.1

* - Duty cycle correction factor data was taken from the original UL test report (see UL EMC Report 2012-87-EM-F0042)

25. Scope of Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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ELECTRICAL

Valid To: June 30, 2023 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)
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)

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Test Technology:	Test Method(s) [1]:
Vehicle Radiated Emissions	CISPR 12; CISPR 36; 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
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
Vehicle Product Specific EMC Standards	EN 14982; EN ISO 13309, ISO 13766; EN 50498; EC Regulation No. 2015/208; EN 55012
Electrical Loads	ISO 16750-2
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; KS C 9811; CNS 13803 (1997, 2003); CISPR 14-1; EN 55014-1; AS/NZS CISPR 14.1; KS C 9814-1; 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; KS C 9832; KN 32; ECE Regulation 10.06 Annex 14
Cellular Radiated Spurious Emissions	ETSI TS 151 010-1 GSM; 3GPP TS 51.010-1, Sec 12; ETSI TS 134 124 UMTS; 3GPP TS 34.124; ETSI TS 136 124 LTE; E-UTRA; 3GPP TS 36.124

Test Technology:	Test Method(s) [1]:
Emissions (cont'd)	
Current Harmonics	IEC 61000-3-2; EN 61000-3-2; KN 61000-3-2; KS C 9610-3-2; ECE Regulation 10.06 Annex 11
Flicker and Fluctuations	IEC 61000-3-3; EN 61000-3-3; KN 61000-3-3; KS C 9610-3-3; 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; KS C 9610-4-2; 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; KS C 9610-4-3; 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; KS C 9610-4-4; ECE Regulation 10.06 Annex 15
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; KS C 9610-4-5; 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; KS C 9610-4-6

Test Technology:	Test Method(s) [1]:
Immunity (cont'd)	
Power Frequency Magnetic Field Immunity (*Down to 3 A/m*)	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; KS C 9610-4-8
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; KS C 9610-4-11
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; KS C 9610-6-1; IEC/EN 61000-6-2; AS/NZS 61000-6-2; KN 61000-6-2; KS C 9610-6-2; IEC/EN 61000-6-3; AS/NZS 61000-6-3; KN 61000-6-3; KS C 9610-6-3; IEC/EN 61000-6-4; AS/NZS 61000-6-4; KN 61000-6-4; KS C 9610-6-4; EN 50130-4; EN 61326-1; EN 50121-3-2; EN 12895; EN 50270; EN 50491-1; EN 50491-2; EN 50491-3; EN 55015; EN 60730-1; EN 60945; IEC 60533; EN 61326-2-6; EN 61800-3; IEC/CISPR 14-2; EN 55014-2; AS/NZS CISPR 14.2; KN 14-2; KS C 9814-2; IEC/CISPR 24; AS/NZS CISPR 24; EN 55024; KN 24; IEC/CISPR 35; AS/NZS CISPR 35; EN 55035; KN 35; KS C 9835; 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; EN 301 489-20
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 300 220-3-1; ETSI EN 300 220-3-2; 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; 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; EN 303 340; EN 303 345-2; EN 303 345-3; EN 303 345-4

Test Technology:	Test Method(s) [1]:
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 (July 15, 2020)
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; KS X 3124; KS X 3125; KS X 3130; KS X 3126; KS X 3129
Vietnam Radio Test Standards	QCVN 47:2015/BTTTT; QCVN 54:2020/BTTTT; QCVN 55:2011/BTTTT; QCVN 65:2013/BTTTT; QCVN 73:2013/BTTTT; QCVN 74:2020/BTTTT; QCVN 112:2017/BTTTT; QCVN 117:2020//BTTTT
Vietnam EMC Test Standards	QCVN 18:2014/BTTTT; QCVN 86:2019/BTTTT; QCVN 96:2015/BTTTT; QCVN 118:2018/BTTTT
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 (using ANSI/TIA-603-E, TIA-102.CAAA-E, ANSI C63.26:2015)

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

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, edition, version, etc. is not identified in the scope of accreditation, laboratories may use the version that immediately precedes the current version for a period of one year from the date of publication of the standard measurement method, 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

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)
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
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

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)
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
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 19th day of May 2021.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 1786.01
Valid to June 30, 2023

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