

4740 Discovery Drive | Lincoln, NE 68521 tel- 402.323.6233 | tel -888.657.6860 | fax - 402.323.6238 info@nceelabs.com | http://nceelabs.com

FCC/ISED Test Report

Prepared for:

Garmin International, Inc.

Address:

1200 E. 151st Street Olathe, Kansas, 66062, USA

Product:

R20211005-21-E12C

AB4308

Approved by:

Test Report No:

Nic Johnson, NCE Technical Manager iNARTE certified EMC engineer

DATE:

16 May 2022

Total Pages:

47

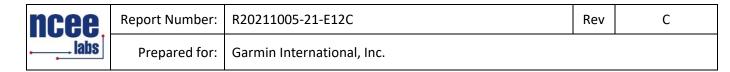
The Nebraska Center for Excellence in Electronics (NCEE) authorizes the above named company to reproduce this report provided it is reproduced in its entirety for use by the company's employees only. Any use that a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. NCEE accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.



ncee,	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

REVISION PAGE

Rev. No.	Date	Description
0	5 March 2022	Original – KVepuri
		Prepared by FLane, GLarsen
А	13 May 2022	Removed power and bandwidth sections, and conducted spurious
		Removed conducted spurious emissions data
		Added DCCF values to tabular data
		Updated delta to fundamental
В	13 May 2022	Added occupied OBW plots
С	16 May 2022	Corrected or RSS-210 references.



CONTENTS

Rev	ision Pa	ge	2
1.0	Sum	nmary of test results	4
2.0	EUT	Description	5
	2.1	Equipment under test	5
	2.2	Description of test modes	5
	2.3	Description of support units	5
3.0	Lab	oratory and General Test Description	6
	3.1	Laboratory description	6
	3.2	Test personnel	6
	3.3	Test equipment	7
	3.4	GENERAL TEST PROCEDURE AND SETUP FOR RADIO MEASUREMNTS	8
4.0	Res	ults	9
	4.1	Duty Cycle	11
	4.2	Radiated emissions	12
	4.3	Band edges	17
	4.4	Conducted AC Mains Emissions	
Арр	endix A	: Sample Calculation	21
Арр	endix B	– Measurement Uncertainty	23
Арр	endix C	– Graphs and Tables	24

1.0 SUMMARY OF TEST RESULTS

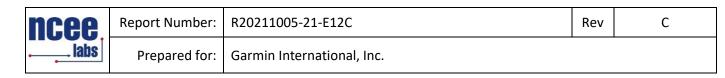
The worst-case measurements were reported in this report. Summary of test results presented in this report correspond to the following section:

FCC Part 15.249

The EUT has been tested according to the following specifications:

- (1) US Code of Federal Regulations, Title 47, Part 15
- (2) ISED RSS-Gen, Issue 5
- (3) ISED RSS-210, Issue 10

	SUMMARY							
Requirement	Test Type and Limit	Result	Remark					
FCC 15.203	Unique Antenna Requirement	Pass	PCB Antenna					
FCC 15.35 RSS-Gen, 6.10	Duty cycle of pulsed emissions	N/A	Informational Purpose Only					
NA	Maximum Peak Output Power	N/A	Informational Purpose Only					
NA	Minimum Bandwidth	N/A	Informational Purpose Only					
FCC 15.209 RSS-Gen, 7.1, 7.3	Receiver Radiated Emissions	Pass	Meets the requirement of the limit.					
FCC 15.209 RSS-Gen, 8.9 RSS-210 B.10 FCC 15.249(a)	Transmitter Radiated Emissions	Pass	Meets the requirement of the limit.					
FCC 15.209, 15.205, 15.249(d) RSS-Gen, 8.9 RSS-210`	Band Edge Measurement	Pass	Meets the requirement of the limit.					
FCC 15.207 RSS-Gen, 8.8	Conducted AC Emissions	Pass	Meets the requirement of the limit.					



2.0 EUT DESCRIPTION

2.1 EQUIPMENT UNDER TEST

Summary and Operating Condition:

EUT	AB4308
EUT Received	6 December 2021
EUT Tested	8 December 2021- 25 February 2022
Serial No.	3392435319 (Radiated Measurements) 3392435300 (Conducted Measurements)
Operating Band	2400 – 2483.5 MHz
Device Type	□ GMSK ⊠ GFSK □ BT BR □ BT EDR 2MB □ BT EDR 3MB □ 802.11x □ NFC
Power Supply / Voltage	Internal Battery/ 5VDC Charger: Garmin (Phi Hong) MN: PSAI10R-050Q (Representative Power Supply)

NOTE: For more detailed features description, please refer to the manufacturer's specifications or user's manual.

2.2 DESCRIPTION OF TEST MODES

The operating range of the EUT is dependent on the device type found in section 2.1:

For GFSK Transmissions:				
Channel	Frequency			
Low	2402 MHz			
Mid	2440 MHz			
High	2480 MHz			

These are the only representative channels tested in the frequency range according to FCC Part 15.31 and RSS-Gen Table A1. See the operational description for a list of all channel frequency and designations.

2.3 DESCRIPTION OF SUPPORT UNITS

None



3.0 LABORATORY AND GENERAL TEST DESCRIPTION

3.1 LABORATORY DESCRIPTION

All testing was performed at the following Facility:

The Nebraska Center for Excellence in Electronics (NCEE Labs) 4740 Discovery Drive Lincoln, NE 68521

A2LA Certificate Number:	1953.01
FCC Accredited Test Site Designation No:	US1060
Industry Canada Test Site Registration No:	4294A-1
NCC CAB Identification No:	US0177

Environmental conditions varied slightly throughout the tests: Relative humidity of 35 \pm 4%

Temperature of 22 \pm 3° Celsius

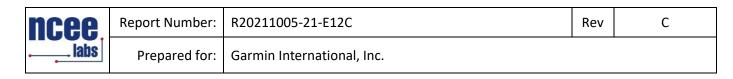


3.2 TEST PERSONNEL

No.	PERSONNEL	TITLE	ROLE
1	Fox Lane	Test Engineer	Testing and Report
2	Karthik Vepuri	Test Engineer	Review/Editing and Report
3	Blake Winter	Test Engineer	Testing
4	Grace Larsen	Test Technician	Testing and Report
5	Samuel Probst	Test Technician	Testing and Report
6	Matthew Emory	Test Technician	Testing

Notes:

All personnel are permanent staff members of NCEE Labs. No testing or review was sub-contracted or performed by sub-contracted personnel.



3.3 TEST EQUIPMENT

DESCRIPTION AND MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CALIBRATION DATE	CALIBRATION DUE DATE
Keysight MXE Signal Analyzer (44GHz)	N9038A	MY59050109	July 21, 2021	July 21, 2023
Keysight MXE Signal Analyzer (26.5GHz)	N9038A	MY56400083	May 5, 2020	May 5, 2022
Keysight EXA Signal Analyzer	N9010A	MY56070862	July 20, 2021	July 20, 2023
SunAR RF Motion	JB1	A091418	July 27, 2021	July 27, 2022
EMCO Horn Antenna	3115	6416	July 28, 2021	July 28, 2022
EMCO Horn Antenna	3116	2576	March 9, 2020	March 9, 2022
Com-Power LISN 50μΗ / 250μΗ - 50Ω	LI-220C	20070017	September 22, 2020	September 22, 2022
8447F POT H64 Preamplifier*	8447F POT H64	3113AD4667	February 1, 2021	February 1, 2023
Rohde & Schwarz Preamplifier*	TS-PR18	3545700803	April 14, 2020	April 14, 2022
Trilithic High Pass Filter*	6HC330	23042	April 14, 2020	April 14, 2022
ETS – Lindgren- VSWR on 10m Chamber	10m Semi- anechoic chamber- VSWR	4740 Discovery Drive	July 30, 2020	July 30, 2023
NCEE Labs-NSA on 10m Chamber	10m Semi- anechoic chamber-NSA	NCEE-001	October 25, 2019	October 25, 2022
TDK Emissions Lab Software	V11.25	700307	NA	NA
RF Cable (preamplifier to antenna)*	MFR-57500	01-07-002	April 14, 2020	April 14, 2022
RF Cable (antenna to 10m chamber bulkhead)*	FSCM 64639	01E3872	September 24, 2021	September 24, 2023
RF Cable (10m chamber bulkhead to control room bulkhead)*	FSCM 64639	01E3864	September 24, 2021	September 24, 2023
RF Cable (control room bulkhead to test receiver)*	FSCM 64639	01F1206	September 24, 2021	September 24, 2023
N connector bulkhead (10m chamber)**	PE9128	NCEEBH1	September 24, 2021	September 24, 2023
N connector bulkhead (control room)**	PE9128	NCEEBH2	September 24, 2021	September 24, 2023

*Internal Characterization

**2 Year Cal Cycle

Notes:

All equipment is owned by NCEE Labs and stored permanently at NCEE Labs facilities.



3.4 GENERAL TEST PROCEDURE AND SETUP FOR RADIO MEASUREMNTS

Measurement type presented in this report (Please see the checked box below):

Conducted \boxtimes

The conducted measurements were performed by connecting the output of the transmitter directly into a spectrum analyzer using an impedance matched cable and connector soldered to the EUT in place of the antenna. The information regarding resolution bandwidth, video bandwidth, span and the detector used can be found in the graphs provided in the Appendix C. All the radio measurements were performed using the sections from ANSI C63.10, details about the section used can be found in the spectrum analyzer titles on the graph.



Figure 1 - Bandwidth Measurements Test Setup

Radiated 🛛

All the radiated measurements were taken at a distance of 3m from the EUT. The information regarding resolution bandwidth, video bandwidth, span and the detector used can be found in the graphs provided in the Appendix C. All the radio measurements were performed using the sections from ANSI C63.10, details about the section used can be found in the spectrum analyzer titles on the graph.

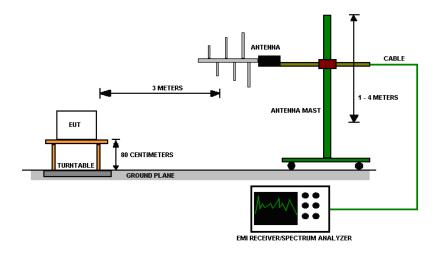


Figure 2 - Radiated Emissions Test Setup

ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

4.0 RESULTS

Unrestricted Band-Edge								
CHANNEL	Mode	Band edge /Measurement Frequency (MHz)	Relative Highest out of band level (dBuV)	Relative Fundamental (dBuV)	Delta (dB)	Min Delta (dB)	Result	
Low	GFSK PRBS9	2400.00	58.135	109.620	51.486	50.00	PASS	
Low	GFSK 0x00	2400.00	57.338	109.723	52.385	50.00	PASS	
Low	GFSK 0xFF	2400.00	57.120	109.723	52.603	50.00	PASS	
Low	GFSK 0xF0	2400.00	57.571	109.690	52.119	50.00	PASS	
Low	GFSK 0x55	2400.00	58.075	109.690	51.615	50.00	PASS	
High	GFSK PRBS9	2483.50	57.441	109.266	51.825	50.00	PASS	
High	GFSK 0x00	2483.50	56.397	109.303	52.906	50.00	PASS	
High	GFSK 0xFF	2483.50	57.145	109.319	52.174	50.00	PASS	
High	GFSK 0xF0	2483.50	56.524	109.254	52.730	50.00	PASS	
High	GFSK 0x55	2483.50	57.015	109.277	52.262	50.00	PASS	

Peak Restricted Band-Edge								
CHANNEL	Mode	Band edge /Measurement Frequency (MHz)	Highest out of band level (dBuV/m @ 3m)	Measurement Type	Limit (dBuV/m @ 3m)	Margin	Result	
Low	GFSK PRBS9	2390.00	57.783	Peak	73.98	16.197	PASS	
Low	GFSK 0x00	2390.00	53.771	Peak	73.98	20.209	PASS	
Low	GFSK 0xFF	2390.00	52.624	Peak	73.98	21.356	PASS	
Low	GFSK 0xF0	2390.00	54.047	Peak	73.98	19.933	PASS	
Low	GFSK 0x55	2390.00	53.733	Peak	73.98	20.247	PASS	
High	GFSK PRBS9	2483.50	62.388	Peak	73.98	11.592	PASS	
High	GFSK 0x00	2483.50	61.261	Peak	73.98	12.719	PASS	
High	GFSK 0xFF	2483.50	61.621	Peak	73.98	12.359	PASS	
High	GFSK 0xF0	2483.50	61.154	Peak	73.98	12.826	PASS	
High	GFSK 0x55	2483.50	61.528	Peak	73.98	12.452	PASS	
*Limit showr	*Limit shown is the peak limit taken from FCC Part 15.209							

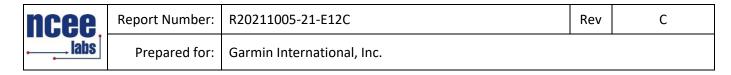


	Report Number:	R20211005-21-E12C	Rev	С
IS	Prepared for:	Garmin International, Inc.		

	Average Restricted Band-Edge										
СН	Mode	Band edge /Measurement Frequency (MHz)	Peak Highest out of band level (dBuV/m @ 3m)	DCCF (For Emissions)	Average Highest out of band level (dBuV/m @ 3m)**	Measurement Type	Limit (dBuV/m @ 3m)*	Margin	Result		
Low	GFSK PRBS9	2390.00	57.783	-17.211	40.572	Average	53.98	13.408	PASS		
Low	GFSK 0x00	2390.00	53.771	-17.211	36.56	Average	53.98	17.42	PASS		
Low	GFSK 0xFF	2390.00	52.624	-17.211	35.413	Average	53.98	18.567	PASS		
Low	GFSK 0xF0	2390.00	54.047	-17.211	36.836	Average	53.98	17.144	PASS		
Low	GFSK 0x55	2390.00	53.733	-17.211	36.522	Average	53.98	17.458	PASS		
High	GFSK PRBS9	2483.50	62.388	-17.211	45.177	Average	53.98	8.803	PASS		
High	GFSK 0x00	2483.50	61.261	-17.211	44.05	Average	53.98	9.93	PASS		
High	GFSK 0xFF	2483.50	61.621	-17.211	44.41	Average	53.98	9.57	PASS		
High	GFSK 0xF0	2483.50	61.154	-17.211	43.943	Average	53.98	10.037	PASS		
High	GFSK 0x55	2483.50	61.528	-17.211	44.317	Average	53.98	9.663	PASS		
		rage limit taken fro			sions) C63 1	0 Sec 11 12 2 5 3)				

**Average Highest out of band level = SA Peak Level + DCCF(For Emissions). C63.10 Sec. 11.12.2.5.2

See Sec 4.3 for more information on DCCF



4.1 DUTY CYCLE

Test Method:

Manufacturer declared that the maximum possible duty cycle is 13% so the duty cycle correction 20 log (0.13) = -17.7211 dB was used as the correction for emissions. DCCF For Emissions = -17.7211 dB

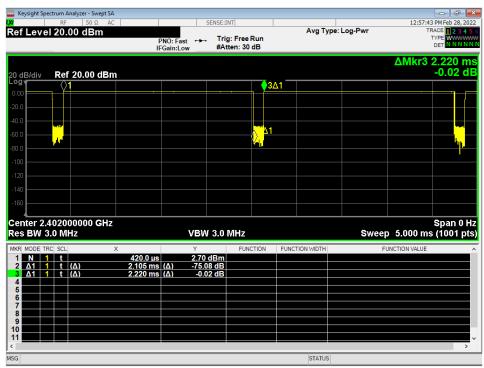


Figure 3 – Duty Cycle, ANT, Test Software

ANT Test Software, Duty Cycle DCCF For Power (Duty Cycle Correction Factor) = 20 * Log(Duty Cycle) -0.23 = 10 * Log(94.8 / 100)



4.2 RADIATED EMISSIONS

Test Method: ANSI C63.10-2013, Section 6.5, 6.6

Limits for radiated emissions measurements:

Emissions radiated outside of the specified bands shall be applied to the limits in 15.209 as followed:

FREQUENCIES (MHz)	FIELD STRENGTH (µV/m)	MEASUREMENT DISTANCE (m)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	3
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.

2. Emission level (dBuV/m) = 20 * log * Emission level (μ V/m).

3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits by more than 20dB under any condition of modulation.

4. The EUT was tested for spurious emissions while running off of battery power and external USB power. The worse-case emissions were produced while running off of USB power, so results from this mode are presented.



Rev

С

Prepared for: Garmin International, Inc.

Test procedures:

a. The EUT was placed on the top of a rotating table above the ground plane in a 10 meter semianechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. The table was 0.8m high for measurements from 30MHz-1Ghz and 1.5m for measurements from 1GHz and higher.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna was a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are used to make the measurement.

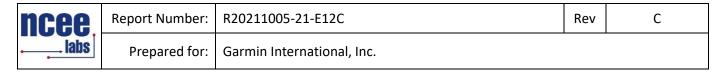
d. For each suspected emission, the EUT was arranged to maximize its emissions and then the antenna height was varied from 1 meter to 4 meters and the rotating table was turned from 0 degrees to 360 degrees to find the maximum emission reading.

e. The test-receiver system was set to use a peak detector with a specified resolution bandwidth. For spectrum analyzer measurements, the composite maximum of several analyzer sweeps was used for final measurements.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

g. The EUT was maximized in all 3 orthogonal positions. The results are presented for the axis that had the highest emissions.

Test setup:



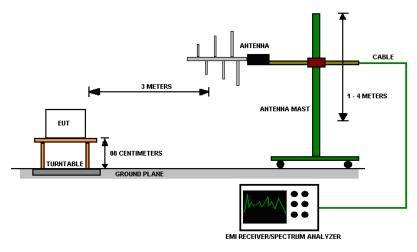


Figure 4 - Radiated Emissions Test Setup

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequencies below 1GHz.

2. The resolution bandwidth 1 MHz for all measurements and at frequencies above 1GHz, A peak detector was used for all measurements above 1GHz. Measurements were made with an EMI Receiver.

Deviations from test standard:

No deviation.

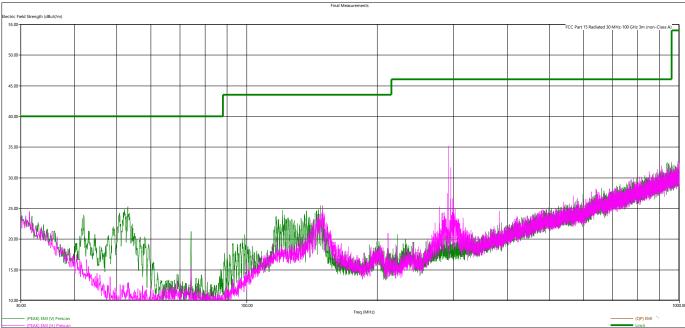
EUT operating conditions

Details can be found in section 2.1 of this report.

ncee,	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

Test results:

Intermodulation products were investigated and found to be below system sensitivity. Thus, were not reported.





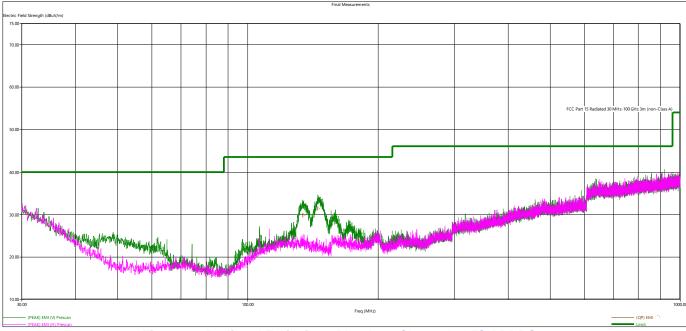


Figure 6 - Radiated Emissions Plot, Low Channel, GFSK PRBS9

REMARKS:

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB)
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Limit value Emission Level

The Nebraska Center for Excellence in Electronics4740 Discovery DriveLincoln, NE 68521Page 15 of 47

ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

The EUT was maximized in all 3 orthogonal axes and multiple data rates were investigated. The worst-case is shown in the plot and table above.

	Quasi-Peak Measurements, GFSK										
Frequency	Frequency Level Limit Margin Height Angle Pol Channel Modulation										
MHz	dBµV/m	dBµV/m	dB	cm.	deg.						
293.108880	20.22	46.02	25.80	126.00	3.00	Н	NA	RX			

	Peak Measurements, GFSK											
Frequency Level Limit Margin Height Angle Pol Channel Modulati							Modulation					
MHz	dBµV/m	dBµV/m	dB	cm.	deg.							
2402.214000	97.29	114.00	16.71	390.00	309.00	Н	Low	GFSK PRBS9				
2439.900000	98.30	114.00	15.70	283.00	306.00	н	Mid	GFSK PRBS9				
2480.012000	99.26	114.00	14.74	476.00	304.00	н	High	GFSK PRBS9				
All other emission	s found to be	at least 6dB b	pelow 15 209	9 limit line								

All other emissions found to be at least 6dB below 15.209 limit line

Average Measurements											
Frequency	Peak Level	DCCF	*AVG Level	Limit	Margin	Height	Angle	Pol	Channel	Modulation	
MHz	dBuV/m	dB	dBµV/m	dBµV/m	dB	cm.	deg.				
2401.784000	97.29	-17.211	80.079	94.00	13.921	454.00	112.00	Н	Low	GFSK PRBS9	
2439.776000	98.30	-17.211	81.089	94.00	12.911	127.00	115.00	Н	Mid	GFSK PRBS9	
2479.590000	99.26	-17.211	82.049	94.00	11.951	485.00	119.00	Н	High	GFSK PRBS9	

*Average Level = Peak level + DCCF (For Emissions),

See Sec 4.2 for more information on DCCF

All other emissions were found to be at least 6dB below 15.209 limit line



4.3 BAND EDGES

Test Method: All the radio measurements were performed using the sections from ANSI C63.10, details about the section used can be found in the spectrum analyzer titles on the graph.

Limits of band-edge measurements:

For FCC Part 15.249 Device:

For emissions outside of the allowed band of operation, the emission level needs to be 50dB under the maximum fundamental field strength. However, if the emissions fall within one of the restricted bands from 15.205 the field strength levels need to be under that of the limits in 15.209.

Test procedures:

The highest emissions level beyond the band-edge was measured and recorded. All band edge measurements were evaluated to the general limits in Part 15.209. More details can be found in section 3.4 of this report.

Deviations from test standard:

No deviation.

Test setup:

Test setup details can be found in section 3.4 of this report.

EUT operating conditions:

Details can be found in section 2.1 of this report.

Test results: Pass

Comments:

- 1. All the band edge plots can be found in the Appendix C.
- 2. All data is in the table in results section 4.0.
- 3. If the device falls under FCC Part 15.249 (Details can be found in summary of test results), compliance is shown in the unrestricted band edges by showing minimum delta of 50 dB between peak and the band edge or band edge was compared to FCC Part 209 limit.
- 4. The restricted band edge compliance is shown by comparing to the general limit defined in Part 15.209. The limit shown in the graph accounts for the antenna gain of the device.



4.4 CONDUCTED AC MAINS EMISSIONS

Test Method: ANSI C63.10-2013, Section(s) 6.2

Limits for conducted emissions measurements:

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBµV)		
	Quasi-peak	Average	
0.15-0.5	66 to 56	56 to 46	
0.5-5	56	46	
5-30	60	50	

Notes:

1. The lower limit shall apply at the transition frequencies.

The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz
 All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

Test Procedures:

- a. The EUT was placed 0.8m above a ground reference plane and 0.4 meters from the conducting wall of a shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). The LISN provides 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference as well as the ground.
- c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits are not reported.
- d. Results were compared to the 15.207 limits.

Deviation from the test standard:

No deviation

EUT operating conditions:

Details can be found in section 2.1 of this report.

Rev



Test Results:





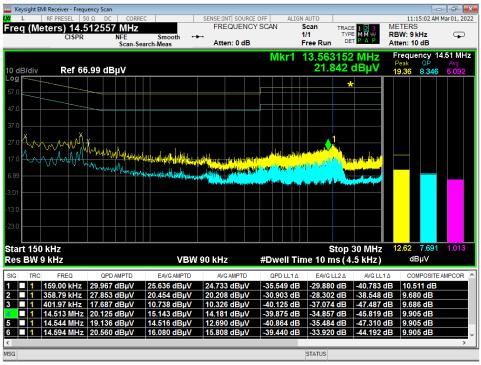


Figure 8 - Conducted Emissions Plot, TX, Neutral



Rev

С

Prepared for: Garmin International, Inc.

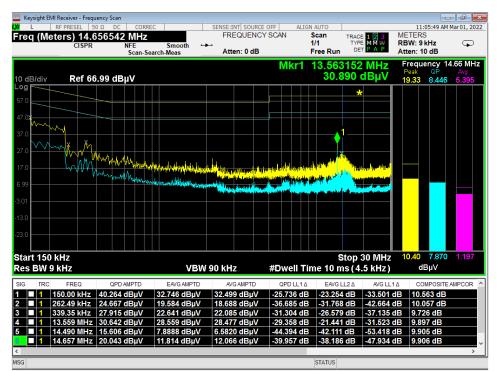


Figure 9 - Conducted Emissions Plot, Idle, Line

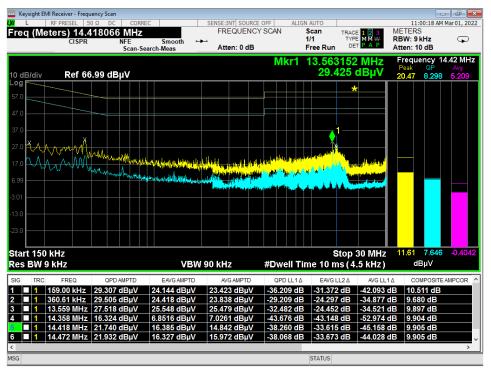


Figure 10 - Conducted Emissions Plot, Idle, Neutral

ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

APPENDIX A: SAMPLE CALCULATION

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows: FS = RA + AF - (-CF + AG) + AV

where FS = Field Strength

RA = Receiver Amplitude AF = Antenna Factor CF = Cable Attenuation Factor

AG = Amplifier Gain

AV = Averaging Factor (if applicable)

Assume a receiver reading of 55 dB μ V is obtained. The Antenna Factor of 12 and a Cable Factor of 1.1 is added. The Amplifier Gain of 20 dB is subtracted, giving a field strength of 48.1 dB μ V/m.

 $FS = 55 + 12 - (-1.1 + 20) + 0 = 48.1 \text{ dB}\mu\text{V/m}$

The 48.1 dB μ V/m value can be mathematically converted to its corresponding level in μ V/m.

Level in μ V/m = Common Antilogarithm [(48.1 dB μ V/m)/20]= 254.1 μ V/m

AV is calculated by the taking the $20*\log(T_{on}/100)$ where T_{on} is the maximum transmission time in any 100ms window.

ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

EIRP Calculations

In cases where direct antenna port measurement is not possible or would be inaccurate, output power is measured in EIRP. The maximum field strength is measured at a specified distance and the EIRP is calculated using the following equation;

EIRP (Watts) = [Field Strength (V/m) x antenna distance (m)]² / 30 Power (watts) = $10^{Power} (dBm)/10$] / 1000 Voltage (dBµV) = Power (dBm) + 107 (for 50Ω measurement systems) Field Strength (V/m) = 10^{Field} Strength (dBµV/m) / 20] / 10^{6} Gain = 1 (numeric gain for isotropic radiator) Conversion from 3m field strength to EIRP (d=3):

 $EIRP = [FS(V/m) \times d^2]/30 = FS[0.3]$ for d = 3

 $EIRP(dBm) = FS(dB\mu V/m) - 10(log 10^9) + 10log[0.3] = FS(dB\mu V/m) - 95.23$

10log(10^9) is the conversion from micro to milli



APPENDIX B - MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been for tests performed in this test report:

Test	Frequency Range	Uncertainty Value (dB)
Radiated Emissions, 3m	30MHz - 1GHz	3.82
Radiated Emissions, 3m	1GHz - 18GHz	4.44
Emissions limits, conducted	30MHz – 18GHz	±3.30 dB

Expanded uncertainty values are calculated to a confidence level of 95%.

ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

APPENDIX C – GRAPHS AND TABLES

Keysight S		tricted HBE C63.10 Sec 6.1							
Marker 2 PASS	RF 50 Ω 2 2.4837475 PREAMP	00000 GHz	NO: Fast 😱 Gain:High	Trig: Free F #Atten: 0 d		ALIGN OFF Avg Type: Avg Hold:>	RMS 1000/1000	TR	AM Feb 25, 2022 ACE 1 2 3 4 5 6 TYPE MA WWWWW DET P A N N N N
10 dB/div	Ref 114.99	dBµV					Mkr2	2.483 74 40.1	47 5 GHz 76 dBµV
Tra	ce 1 Pass ce 2 Pass								
85.0 75.0									
65.0 55.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		man for the	والمرابعة ومعاطيه	ر) مەرىمەر رام	and an and a second	part and and	والمدلعة مداله المدوا المساحية	angton and the da
45.0									
	83500 GHz V 1.0 MHz		VBW	50 MHz*			Sweep	Stop 2.50 1.000 ms	00000 GHz (1001 pts)
MKR MODE 1 N 2 N 3 4 5 6	TRC SCL 1 f 2 f	X 2.483 500 0 GHz 2.483 747 5 GHz	61.261 d 40.172 d		TION	FUNCTION WIDTH	FU	NCTION VALUE	
7 8 9 10 11									×
MSG						STATUS			

HBE Restricted, ANT 0x00

ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

RE	alyzer - Restricted HBE C63.10 S 50 Ω AC CORREC		SE:INT	ALIGN OFF		11:01:40 AM Feb 25, 20
rker 2 2.483	566000000 GHz	PNO: Fast	Trig: Free Run #Atten: 0 dB	Avg Type	: RMS >1000/1000	TRACE 1 2 3 4 TYPE MA WW DET P A NN
					Mkr2	2.483 830 0 GH 40.271 dBµ
dB/div Ref	114.99 dBµV		Ţ			40.211 0.00
Trace 2 Pa	SS S					
0						
0						
1						
C Constanting	-					
° ▲2		man and press and the second	مردور ورور ورور ورور ورور ارور ارور ارور	وروالاور المراسية والمقار والمواسط	1 Autor and	wellower and and
0					++	
0						
es BW 1.0 M		VBW 5	0 MHz*		Sweep	Stop 2.500000 G 1.000 ms (1001 p
MODE TRC SCL	х	Y	FUNCTION	FUNCTION WIDTH	FUN	ICTION VALUE
MODE THE SEL		Hz 61.528 dB	uV l			
N 1 1 N 2 f	2.483 516 5 G 2.483 830 0 G	Hz 40.267 dB				
N 1 f N 2 f	2.483 516 5 G 2.483 830 0 G	Hz 40.267 dB				
N 1 f N 2 f	2,483 516 5 G 2,483 830 0 G	Hz 40.267 dB				
NODE INC SCL N 1 f N 2 f	2.483 516 5 G 2.483 830 0 G	Hz 40.267 dB)				
NODE INC SCL N 1 f N 2 f	2.483 516 5 G 2.483 830 0 G	Hz 40.267 dBj				
NODE INC SCL N 1 f N 2 f	2.483 516 5 G 2.483 830 0 G	Hz 40.267 dB)				
NODE INC SCL N 1 f N 2 f	2.483 516 5 G 2.483 830 0 G	Hz 40.267 dBj				>

HBE Restricted, ANT 0x55

ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

						- 6
RF	50 Ω AC CORREC	SEN	NSE:INT	ALIGN OFF		11:11:03 AM Feb 25, 2
rker 2 2.48361 SS PREAM	15500000 GHz		Trig: Free Run #Atten: 0 dB	Avg Type Avg Hold:	>1000/1000	TRACE 2 3 4 TYPE MA WH DET P A NN
					Mkr2	2.483 615 5 GI
	4.99 dBµV					40.293 dB
Trace 1 Pass					\downarrow	
Trace 2 Pass						
1						
	and a second	- and	and the second s	- and the second second second	weet water and the	In the Character and a second
¢ ²						
0						
0						
rt 2.483500 GH		VBW A	50 MHz*		Sweep	Stop 2.500000 G 1.000 ms (1001 p
		4D44 J				
es BW 1.0 MHz	х	Y	FUNCTION	FUNCTION WIDTH		ICTION VALUE
MODE TRC SCL N 1 f	× 2.483 615 5 G	Y Hz 61.154 dB	FUNCTION	FUNCTION WDTH		ICTION VALUE
es BW 1.0 MHz	х	Y Hz 61.154 dB	FUNCTION	FUNCTION WIDTH		ICTION VALUE
es BW 1.0 MHz	× 2.483 615 5 G	Y Hz 61.154 dB	FUNCTION	FUNCTION WDTH		ICTION VALUE
es BW 1.0 MHz	× 2.483 615 5 G	Y Hz 61.154 dB	FUNCTION	FUNCTION WIDTH		NCTION VALUE
es BW 1.0 MHz	× 2.483 615 5 G	Y Hz 61.154 dB	FUNCTION	FUNCTION WIDTH		ICTION VALUE
es BW 1.0 MHz	× 2.483 615 5 G	Y Hz 61.154 dB	FUNCTION	FUNCTION WIDTH		ICTION VALUE
es BW 1.0 MHz	× 2.483 615 5 G	Y Hz 61.154 dB	FUNCTION	FUNCTION WIDTH		ICTION VALUE
es BW 1.0 MHz	× 2.483 615 5 G	Y Hz 61.154 dB	FUNCTION	FUNCTION WIDTH		ICTION VALUE

HBE Restricted, ANT 0xF0

ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

	zer - Restricted HBE C63.10 S					
RF	50 Ω AC CORREC	SE	NSE:INT	ALIGN OFF	0.000	10:50:19 AM Feb 25, 2
rker 1 2.4835 SS PRE/	516500000 GHz	PNO: Fast 😱 IFGain:High	Trig: Free Run #Atten: 0 dB	Avg Type: Avg Hold:>		TRACE 2 3 4 TYPE MA WW DET P A N N
					Mkr1	2.483 516 5 GI
	14.99 dBµV					61.621 dB
Trace 1 Pas	S					
Trace 2 Pas	S					
1						
· <u>}</u>						
)		- marine and a state of the sta		with the state of		www.
A2					and a state of the	and a starge star and a start of the
· · · · · · · · ·				· · ·		
rt 2.483500 G es BW 1.0 MH		VBW	50 MHz*		Sweep	Stop 2.500000 G 1.000 ms (1001 p
MODE TRC SCL	× 2.483 516 5 G	Hz 61.621 dE	FUNCTION	FUNCTION WIDTH	FUN	ICTION VALUE
	2.483 599 0 G	Hz 40.235 dE	RuV			
N 1 1 N 2 f	2.403 599 0 G	40.200 01				
N 1 1	2.483 599 0 G	40.200 01	уру			
N 1 1	2,463 599 0 G	40.200 dt				
N 1 1	2.463 599 0 G					
N 1 1	2,403 333 U G					
N 1 1	2,403 033 U G					
N 1 1	2,403 033 U G					
N 1 1	2,403 033 U G					,

HBE Restricted, ANT 0xFF

ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

Keysight Spe	ctrum Analyzer - Restricte RF 50 Ω A		SENSE	INT	ALIGN OFF		11:00:38 AM Dec 07, 202
larker 2 ASS	2.4835495000 PREAMP		Fast 😱 Tr	rig: Free Run Atten: 0 dB	Avg Type	: RMS >1000/1000	TRACE 1 2 3 4 5 TYPE MA WWW DET P A N N
0 dB/div	Ref Offset 34.77 Ref 86.76 dBj					Mkr2	2.483 549 5 GH 40.618 dBµ
	e 1 Pass e 2 Pass						
56.8	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		and a start of the s	and the second second	an she was a start and		*********
6.8							
6.8 16.8							
6.76 3.24							
tart 2.48 Res BW	3500 GHz 1.0 MHz		VBW 50	MHz*		Sweep	Stop 2.500000 GH 1.000 ms (1001 pts
KR MODE TR	1 2.4	× 83 582 5 GHz	Y 62.388 dBµV	FUNCTION	FUNCTION WIDTH	FUN	ICTION VALUE
2 N 2 3 4 5 5	f 2.4	83 549 5 GHz	40.618 dBµV				
6 7 8 9							
1							>
G					STATUS		

HBE Restricted, ANT PRBS9

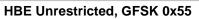
ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		





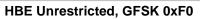
ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

Keysight Spectrum Analyzer - Unrestricted LBE using C RF 50 Ω AC arker 1 2.4799991000000 GHz	PNO: Wide	INT ig: Free Run tten: 20 dB	Avg Type: Avg Hold:>	1000/1000	01:25:42 PM Feb 28, 202 TRACE 1 2 3 4 5 TYPE 4 NNN
0 dB/div Ref 116.99 dBµV				Mkr1	2.479 991 0 GH 109.277 dBµ
og 107 17.0 17.					34
tart 2.478000 GHz Res BW 100 kHz	VBW 1.0	MHz		Sweep	Stop 2.483500 GH 1.000 ms (1001 pts
KR MODE TRC SCL X 1 N 1 f 2.479 991 0 6 2 N 1 f 2.483 500 0 G 3 Δ1 1 f (Δ) 2.483 736 5 G 4 5 6 6 6 6 6 6 7 <t< td=""><td>z 57.015 dBµV</td><td></td><td>FUNCTION WIDTH</td><td>FU</td><td>ICTION VALUE</td></t<>	z 57.015 dBµV		FUNCTION WIDTH	FU	ICTION VALUE
3		-	STATUS		>



ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

Keysight Spectrum Analyzer - Unrestricted LBE using C6			- 4 -
arker 1 2.479991000000 GHz	PNO: Wide IFGain:Low	Avg Type: Log-Pwr Avg Hold:>1000/1000	01:34:06 PM Feb 28, 202 TRACE 1 2 3 4 5 TYPE MAWWW DET P A N N N
) dB/div Ref 116.99 dBµV		Mkr1	2.479 991 0 GH 109.254 dBµ
Pg 107 17.0 1			361
tart 2.478000 GHz Res BW 100 kHz	VBW 1.0 MHz	Sweep	Stop 2.483500 GH 1.000 ms (1001 pts
KR MODE TRC SCL X 1 N 1 f 2,479 991 0 GH 2 N 1 f 2,483 500 0 GH 3 Δ1 1 f (Δ) 2,483 736 5 GH 4 -	z 56.524 dBuV	N FUNCTION WIDTH FU	NCTION VALUE
			,



ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		





ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		





ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

	RF 50 Ω A	C CORREC	Sec 6.10.5	ENSE:INT	ALIGN OFF		10:20:02 AM Feb 25, 20
rker 2 2. <mark>SS</mark>	3855000000	000 GHz	PNO: Fast 🗭 FGain:High	Trig: Free Run #Atten: 0 dB	Avg Ty	pe: RMS ld:>1000/1000	TRACE 1 2 3 4 TYPE MA WW DET P A N N
						M	kr2 2.385 92 GH
	Ref 115.55 dl	Βμν					39.306 dBµ
Trace 1 Trace 2	Pass Pass						
5							
5							
5		*****	-	w.maserlaw	2 -hangen and	www.www.wew.www	>
5					<u> </u>		
5 art 2.3800							Stop 2 200000 C
							Stop 2.390000 G
es BW 1.0			#VBV	V 50 MHz*		Sweep	1.000 ms (1001 pi
	0 MHz	X	Y	FUNCTION	FUNCTION WIDTH	· · ·	1.000 ms (1001 pt action value
MODE TRC S	0 MHz	× 2,389 80 GHz 2,385 92 GHz	Y 53.771 d		FUNCTION WIDTH	· · ·	
MODE TRC S	0 MHz	2.389 80 GHz	Y 53.771 d		FUNCTION WIDTH	· · ·	
MODE TRC S	0 MHz	2.389 80 GHz	Y 53.771 d		FUNCTION WIDTH	· · ·	
MODE TRC S	0 MHz	2.389 80 GHz	Y 53.771 d		FUNCTION WIDTH	· · ·	

LBE Restricted, ANT 0x00

ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

			Sec 6.10.5						e l
	RF 50 Ω A			SENSE:INT	🔥 AL	IGN OFF		10:55:58 AM Feb	25,20
rker 2 2.3 <mark>SS</mark>	2858800000 PREAMP		PNO: Fast 🗭 Gain:High	Trig: Free Ru #Atten: 0 dB	in	Avg Type: I Avg Hold:>		TRACE TYPE M DET P	
dB/div R	of 115 55 dE	2\/					М	kr2 2.386 15 39.319 c	
Trace 1	Pass	sμv		Ť					
⁶ Trace 2	Pass								
5									
5									
5									1
5		م مادا م		k barr matter	later on sort of	the distance of the sector of the	the second second second	en and the second second	باينداد
5		Constant and the second second second			er nor search of 2	ACCOUNT OF A DUAL	A CAR AN AREA LINES		1.000
5								· · · ·	-
5		· · · · ·			·····•				
5 5 art 2.38000			#VB	W 50 MHz*			Sweep	Stop 2.39000 1.000 ms (100	0 G
s 5 art 2.38000 es BW 1.0) MHz	×	Y	FUNCT	ON FUNCT	ION WIDTH	· · ·	Stop 2.39000 1.000 ms (100	0 G
art 2.38000 es BW 1.0) MHz	X 2.389 35 GHz 2.386 15 GHz	Y 53.733 (FUNCTI	ON FUNCT	ION WIDTH	· · ·	1.000 ms (100	0 Gi 01 pi
s 5 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7) MHz	2.389 35 GHz	Y 53.733 (FUNCTI	ON FUNCT	ION WIDTH	· · ·	1.000 ms (100	0 GI
art 2.38000 es BW 1.0) MHz	2.389 35 GHz	Y 53.733 (FUNCTI	ON FUNCT	ION WIDTH	· · ·	1.000 ms (100	0 GI 01 pi
art 2.38000 es BW 1.0) MHz	2.389 35 GHz	Y 53.733 (FUNCTI	ON FUNCT	ION WIDTH	· · ·	1.000 ms (100	0 GI
s 5 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7) MHz	2.389 35 GHz	Y 53.733 (FUNCTI	ON FUNCT		· · ·	1.000 ms (100	0 GI 01 pi
s BW 1.0) MHz	2.389 35 GHz	Y 53.733 (FUNCTI	ON FUNCT	ION WIDTH	· · ·	1.000 ms (100	0 GI 01 pt

LBE Restricted, ANT 0x55

ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

Keysight Spectrum Analyzer - F		c 6.10.5				
	Ω AC CORREC	SENSE:	INT	ALIGN OFF		11:06:11 AM Feb 25, 20
rker 2 2.385670	PN		ig: Free Run tten: 0 dB	Avg Type: RI Avg Hold:>10		TRACE 2 3 4 TYPE MA WW DET PANN
dB/div Ref 115.5	5 dBuV				MI	(r2 2.385 67 GF 39.308 dBp
Trace 1 Pass						
Trace 2 Pass						
5						
5						
5						۵ ¹
5	and an an and a second	and the second second second	mohodanite	wiz a will an uton	mannahan	wanter
5					·	
5						
art 2.380000 GHz						Stop 2.390000 G
es BW 1.0 MHz		#VBW 50) MHz*		Sweep	1.000 ms (1001 p
MODE TRC SCL	× 2.389 45 GHz	Y 54.047 dBuV	FUNCTION	FUNCTION WIDTH	FUN	CTION VALUE
	2.385 67 GHz	39.309 dBµV				
N 2 f				I I		
N 2 f						
				STATUS		>

LBE Restricted, ANT 0xF0

ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

		ted LBE using C63.10	Sec 6.10.5						
	RF 50 Ω			SENSE:INT		ALIGN OFF			M Feb 25, 20
arker 1 2. <mark>SS</mark>	388790000 PREAMP		PNO: Fast 🖵 Gain:High	Trig: Free #Atten: 0 d		Avg Typ Avg Holo	e: RMS d:>1000/1000		CE 1 2 3 4 (PE MA WW DET PANN
dB/div	Ref 115.55 d	Bull					N	Akr2 2.385 39.40	68 GI 00 dBp
g Trace 1	l Pass	Бру							
Trace 2	2 Pass								
.5									
5									
5									
5 en an	Hearing Marin	and all a second sub-second	مهدور ورور شعر _{الار} رور	www.weste		and a second state	and a state of the	hiped papers and	and the second
.5									
.5									
art 2.3800 es BW 1.0			#VB	W 50 MHz*			Swee	Stop 2.39 p 1.000 ms	0000 Gi (1001 pi
R MODE TRC S	SCL	X	Y 52.624		TION	FUNCTION WIDTH	F	UNCTION VALUE	
N 2	f	2.388 79 GHz 2.385 68 GHz	39.400						

LBE Restricted, ANT 0xFF

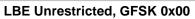
ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

RE	lyzer - Restricted LBE using C6 50 Ω AC		ENSE:INT	ALIGN OFF		10:56:48 AM Dec 07, 20
rker 2 2.385	810000000 GHz		Trig: Free Run #Atten: 0 dB	Avg Typ	be: RMS d:>1000/1000	TRACE 1 2 3 4 TYPE MAWW DET P A NN
	ffset 34.61 dB				М	kr2 2.385 99 GH 39.818 dBµ
	86.60 dBµV					39.010 UBH
Trace 1 Pas Trace 2 Pas	S	_				
6		_				
6	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	and a standay of a stand	an a	-		-
6 CALINA MANAGER	a Marina Andrew Starting and a second se			¢2		
6						
6						
6						
0						
0						
es BW 1.0 M		#VBV	/ 50 MHz*		Sweep	Stop 2.390000 G 1.000 ms (1001 p
i venet meet eest	х	Y	FUNCTION	FUNCTION WIDTH	FUI	CTION VALUE
MODE TRC SCL		Hz 57.783 d	BuV	1		
N 1 1 N 2 1	2.390 00 G					
N 1 1	2.390 00 G 2.385 99 G					
N 1 1						
N 1 1						
N 1 1						
N 1 1						
N 1 1						

LBE Restricted, ANT PRBS9

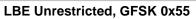
ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

Keysight Spectrum Analyzer - Unrestricted LBE using					
arker 2 Δ -2.280210384 MHz		g: Free Run ten: 20 dB	Avg Type: L Avg Hold:>1		01:06:48 PM Feb 28, 20: TRACE 2 3 4 TYPE MA WWW DET P A N N
dB/div Ref 116.99 dBµV				Δ	Mkr2 -2.280 MH -52.385 d
99 07 7.0				<u>م</u> مر م	
art 2.390000 GHz tes BW 100 kHz	VBW 1.0	MHz		Sweep	Stop 2.403767 G 1.000 ms (1001 pt
	Υ Hz 109.723 dBμV Hz (Δ) -52.385 dB Hz (Δ) 57.338 dBμV	FUNCTION	FUNCTION WIDTH	FUN	ICTION VALUE
					>

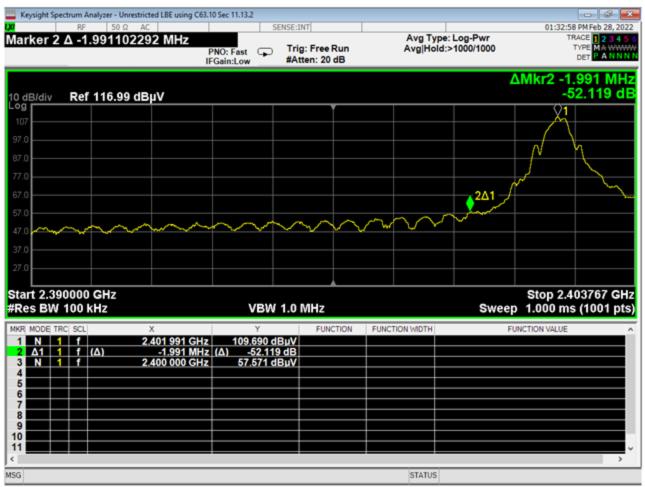


ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

Keysight Spectrum Analyzer - Unrestricted LBE using C	63.10 Sec 11.13.2				-
arker 2 Δ -1.877488847 MHz	PNO: Fast	SE:INT Trig: Free Run #Atten: 20 dB	Avg Type: Lo Avg Hold:>10		01:24:02 PM Feb 28, 20 TRACE 2 3 4 TYPE MAWW DET P A N N
dB/div Ref 116.99 dBµV				Δ	Mkr2 -1.877 MF -51.615 d
9 07 10 10 10 10 10 10 10 10 10 10				2∆1 ∫	
art 2.390000 GHz es BW 100 kHz	VBW 1	.0 MHz		Sweep	Stop 2.403767 G 1.000 ms (1001 pt
N 1 f 2.401 989 Gł Δ1 1 f (Δ) -1.877 Mł N 1 f (Δ) -1.877 Mł N 1 f 2.400 111 Gł	Hz (Δ) -51.615 d	B	FUNCTION WIDTH	FUN	ICTION VALUE
					>

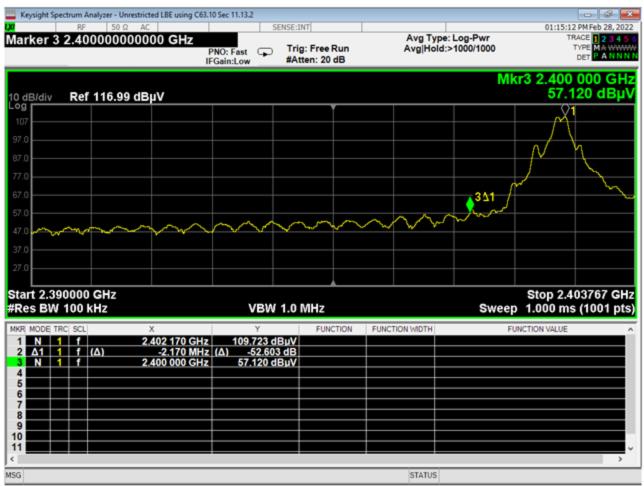


ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		



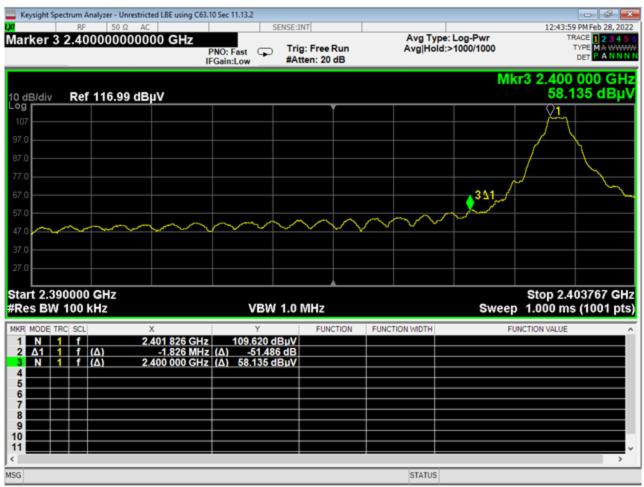


ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

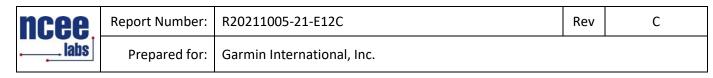




ncee.	Report Number:	R20211005-21-E12C	Rev	С
labs	Prepared for:	Garmin International, Inc.		

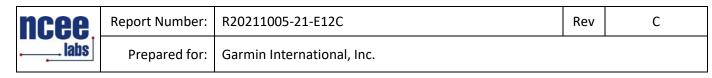






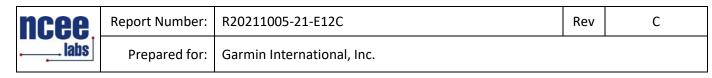
	.10 Sec 11.8.1			
α RF 50 Ω DC		SENSE:INT		01:21:23 PM Feb 28, 2022
Center Freq 2.40200000	GHz	Center Freg: 2.40200000) GHz	Radio Std: None
senter 1 req 2.40200000		Talas Fares Barro	Avg Hold:>10/10	
	#IFGain:Low	#Atten: 20 dB	-	Radio Device: BTS
10 dB/div Ref 20.00 dBm				
10.0				
0.00				
10.0				
20.0			hourse -	
30.0			- Marine -	
	(and the second		. when the second	~ .
40.0			· · ·	Mary Mary Downey Road
50.0	man			Conservation and a a
Mun mar				
60.0				
70.0				
70.0				
				Span 5 MHz
Center 2.402 GHz		VBW 1 MHz		Span 5 MHz Sween 1 ms
		VBW 1 MHz		Span 5 MHz Sweep 1 ms
Center 2.402 GHz #Res BW 100 kHz	h	VBW 1 MHz Total Power	6.53 dBm	
Center 2.402 GHz #Res BW 100 kHz Occupied Bandwidtl			6.53 dBm	
Center 2.402 GHz #Res BW 100 kHz Occupied Bandwidtl	h 0557 MHz		6.53 dBm	
Center 2.402 GHz #Res BW 100 kHz Occupied Bandwidtl 1.0	0557 MHz	Total Power		
Center 2.402 GHz #Res BW 100 kHz Occupied Bandwidtl				
Center 2.402 GHz #Res BW 100 kHz Occupied Bandwidtl 1.0 Transmit Freq Error	0557 MHz 11.825 kHz	Total Power % of OBW Power	99.00 %	
Center 2.402 GHz #Res BW 100 kHz Occupied Bandwidtl 1.0	0557 MHz	Total Power		
Center 2.402 GHz #Res BW 100 kHz Occupied Bandwidtl 1.0 Transmit Freq Error	0557 MHz 11.825 kHz	Total Power % of OBW Power	99.00 %	
Center 2.402 GHz #Res BW 100 kHz Occupied Bandwidtl 1.0 Transmit Freq Error	0557 MHz 11.825 kHz	Total Power % of OBW Power	99.00 %	
Center 2.402 GHz #Res BW 100 kHz Occupied Bandwidtl 1.0 Transmit Freq Error	0557 MHz 11.825 kHz	Total Power % of OBW Power	99.00 %	
Center 2.402 GHz #Res BW 100 kHz Occupied Bandwidtl 1.0 Transmit Freq Error	0557 MHz 11.825 kHz	Total Power % of OBW Power	99.00 %	
Center 2.402 GHz #Res BW 100 kHz Occupied Bandwidtl 1.0 Transmit Freq Error	0557 MHz 11.825 kHz 338.6 kHz	Total Power % of OBW Power x dB	99.00 %	

OBW, GFSK 0x55 (widest) Low Channel



 Keysight Spectrum Analyzer - BW using C63. 	.10 Sec 11.8.1			
RF 50 Ω DC		SENSE:INT		01:22:03 PM Feb 28, 202
enter Freq 2.440000000	GHz	Center Freq: 2.44000000		Radio Std: None
	#IFGain:Low	Trig: Free Run #Atten: 20 dB	Avg Hold:>10/10	Radio Device: BTS
0 dB/div Ref 20.00 dBm			-	
.~g 10.0				
0.00				
10.0				
20.0	/		<u> </u>	
30.0			Mary Charge	
	mon		1	
0.0				month and
0.0 mmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmm	~~~~			- mythey all and my
i0.0				
ro.o				
				Onen E Mill
enter 2.44 GHz				Span 5 Min
		VBW 1 MHz		Span 5 MH Sweep 1 m
Res BW 100 kHz	'n	VBW 1 MHz Total Power	6.40 dBm	
Res BW 100 kHz Occupied Bandwidth			6.40 dBm	
Res BW 100 kHz Occupied Bandwidth	ո 0465 MHz		6.40 dBm	
Res BW 100 kHz Occupied Bandwidth				
Res BW 100 kHz Occupied Bandwidth 1.(Transmit Freq Error	0465 MHz 7.343 kHz	Total Power % of OBW Power	99.00 %	
Res BW 100 kHz Occupied Bandwidth 1.(0465 MHz	Total Power		
Res BW 100 kHz Occupied Bandwidth 1.(Transmit Freq Error	0465 MHz 7.343 kHz	Total Power % of OBW Power	99.00 %	
Res BW 100 kHz Occupied Bandwidth 1.(Transmit Freq Error	0465 MHz 7.343 kHz	Total Power % of OBW Power	99.00 %	
Res BW 100 kHz Occupied Bandwidth 1.(Transmit Freq Error	0465 MHz 7.343 kHz	Total Power % of OBW Power	99.00 %	

OBW, GFSK 0x55 (widest) Low Channel



Keysight Spectrum Analyzer - BW using C63.	10 Sec 11.8.1				
X/ RF 50 Ω DC		SENSE:INT	01:22:52 PM Feb 28, 2022		
Center Freq 2.480000000	GHz	Center Freq: 2.48000000		Radio Std: None	
	G	Trig: Free Run	Avg Hold:>10/10		
#IFGain:Low		#Atten: 20 dB		Radio Device: BTS	
10 dB/div Ref 20.00 dBm					
10.0					
0.00					
10.0					
-20.0	/		<u>\</u>		
30.0			<u></u>		
	marrie		Munan		
40.0			سالي جيم ^ي ميدا ^{رد}	when the second	
50.0 and and a state of the sta	Jr., ru V			- www.	
60.0					
70.0					
-70.0					
Center 2.48 GHz			· · · ·	Span 5 MHz	
Res BW 100 kHz		VBW 1 MHz		Sweep 1 ms	
Occupied Bandwidth	1	Total Power	5.85 dBm		
1.()417 MHz				
Transmit Freq Error	4.888 kHz	% of OBW Power	99.00 %		
x dB Bandwidth	339.1 kHz	x dB	-6.00 dB		
	000111112				
SG			STATUS		

OBW, GFSK 0x55 (widest) Low Channel

	Report Number:	R20211005-21-E12C	Rev	С
	Prepared for:	Garmin International, Inc.		

REPORT END