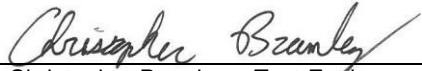
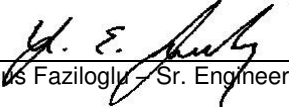




Test Report

BUREAU VERITAS Curtis-Straus LLC, a wholly owned subsidiary of BV CPS

Report No	ES0195-1
Client	Escort Inc.
Address	5440 West Chester Road West Chester, OH 45069
Phone	(513) 870 - 8517
Items tested FCC ID FRN	iX Ci Platform QKLM4R2 0007508732
Equipment Type Equipment Code	CRD Radar Detector
FCC Rule Parts	CFR Title 47 FCC Part 15.109(h)
Test Dates	March 2, 2018
Results	As detailed within this report
Prepared by	 Christopher Bramley – Test Engineer
Authorized by	 Yunus Faziloglu – Sr. Engineer
Issue Date	<u>3/8/2018</u>
Conditions of Issue	This Test Report is issued subject to the conditions stated in the 'Conditions of Testing' section on page 8 of this report.

Curtis-Straus LLC is accredited by the American Association for Laboratory Accreditation for the specific scope of accreditation under Certificate Number 1627-01. This report may contain data which is not covered by the A2LA accreditation.



Curtis-Straus LLC, a wholly owned subsidiary of BV CPS
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REV 06-FEB-15 (SC)



Summary

This report is an application for Certification of a radar detector operating pursuant to:
CFR Title 47 FCC Part 15.109(h)

We found that the device met the above requirements with modifications. The test sample was received in good condition.

Modifications Required for Compliance

Schematics 050061-9C Rev: C to Rev: D under and 050090-9F: Rev: B to Rev: C:

- 1) EMI interfering signal in the 11.7 – 12.2 GHz were removed by changing the X-band LO2 from 3909.0MHz to 3861.0 MHz in the frequency table, which removes the 11721MHz EMI signal. The start-up LO2 VCO condition was moved to a higher frequency larger than 12.26GHz under all conditions by changing C119 on 050061-9C M4Plus front end to 3p9, removing the interfering 12005MHz signal.
- 2) 3rd mixer bias was stabilized by changing R918 to 5K62 and R927 to 3k92, on 050090-9F Main board. Additional to changing R110 to 330R and R151 to 390R on 050061-9F M4Plus Front end to reduce the LNA gain. All these changes did not affect EMI situations, but were done for low temperature system stabilization.
- 3) Please refer to attached schematics for component changes.

The final sample tested was performed on Rev D.

Test Methodology

Radiated emissions testing was performed in accordance with the procedures in ANSI C63.4-2014. Testing was performed at a distance of 1 meter. Emissions from the device were measured in the 11.7-12.2GHz frequency range. The device was powered by a 12Vdc Supply.

Issue No.	Reason for change	Date Issued
1	Original Release	August 18, 2015



Product Tested

Configuration Documentation

EUT Configuration										
Work Order:	S0195									
Company:	Escort Inc.									
Company Address:	5440 West Chester Road West Chester, OH, 45069									
Contact:	Wanda Densford									
EUT:	MN ESCORT iX Ci Platform					SN Sample 1				
FCC ID:	QKLM4R2									
EUT Description:	Intelligent Long Range Radar Detection System									
EUT Components	MN					SN				
Front Receiver	--					--				
Rear Receiver	--					--				
Display Module	--					--				
Control Module	--					--				
GPS Antenna	--					--				
Concealed Alert LED	--					--				
Interface	--					--				
Support Equipment	MN					SN				
DC Supply	--					--				
Port Label	Port Type	# ports	# populated	cable type	shielded	ferrites	length (m)	in/out	under test	comment
DC Mains	Power DC	1	1	Power DC	No	No	3	in	yes	
Shifters	other	1	0					in	no	Not used in this config
Front Receiver	other	1	1	other	No	No	3	in	yes	RJ11 Interface to Front Receiver
Rear Receiver	other	1	1	other	No	No	5	in	yes	RJ11 Interface to Rear Receiver
UART Serial	other	1	0					in	no	Not used in this config
Display Module	other	1	1	other	No	No	1.5	in	yes	RJ11 Interface to Module
Control Module	other	1	1	other	No	No	2	in	yes	RJ11 Interface to Module
Expansion Port	other	1	0					in	no	Not used in this config
GPS	other	1	1	other	No	No	5	in	yes	RJ11 Interface to Antenna
Radio Mute	other	1	1	other	No	No	2	in	yes	RJ11
Concealed Alert LED	other	1	1	other	No	No	2	in	yes	RJ11 Interface to LED
USB Update	USB	1	1	USB	Yes	No	2	in	yes	
Software Operating Mode Description:										
EUT is continuously scanning for radar										

Issue No. Reason for change Date Issued
 1 Original Release August 18, 2015



Statement of Conformity

47 CFR 15.109(h) states that

“Radar detectors shall comply with the emission limits in paragraph (a) of this section over the frequency range of 11.7-12.2GHz.”

The applicable limit being 500 μ V/m measured at a distance of 3m.

Device complied with this requirement as shown in the next section.

Test Results

Radiated Emissions

Radiated Emissions Table															
Date: 02-Mar-18				Company: Escort Inc.				Work Order: S0195							
Engineer: Chris Bramley				EUT Desc: Intelligent Long Range Radar Detection System - iX Ci Platform				EUT Operating Voltage/Frequency: 12Vdc							
Temp: 23.1°C				Humidity: 21%				Pressure: 992mBar							
Frequency Range: 11.7-12.2GHz							Measurement Distance: 1 m								
Notes: No emissions found Noise floor readings taken															
Antenna Polarization (H/V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	47 CFR §15.109(h)- High Frequency - Peak			47 CFR §15.109(h) High Frequency - Average			
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	
v	11700.0	45.509	33.0	34.1	39.3	8.9	59.6	47.1	83.5	-23.9	Pass	63.5	-16.4	Pass	
v	11800.0	45.399	32.9	33.7	39.3	8.3	59.3	46.8	83.5	-24.2	Pass	63.5	-16.7	Pass	
v	11900.0	46.163	33.4	34.0	39.3	8.7	60.2	47.4	83.5	-23.3	Pass	63.5	-16.1	Pass	
h	12000.0	45.92	32.9	33.9	39.2	8.1	59.3	46.3	83.5	-24.2	Pass	63.5	-17.2	Pass	
h	12100.0	46.134	33.4	34.2	39.1	9.0	60.0	47.3	83.5	-23.5	Pass	63.5	-16.2	Pass	
v	12200.0	45.458	32.5	33.4	38.9	8.5	59.5	46.5	83.5	-24.0	Pass	63.5	-17.0	Pass	
Table Result: Pass by -16.1 dB Worst Freq: 11900.0 MHz															
Test Site: EMI Chamber 1				Cable 1: Asset #2051				Cable 2: Asset #2456				Cable 3: Asset #2465			
Analyzer: MXE 2093				Preamp: Asset #2111				Antenna: Black Horn							
CSsoft Radiated Emissions Calculator v 1.017.200 Copyright Curtis-Straus LLC 2000															
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor															

Rev. 2/20/2018

Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
2093 MXE EMI Receiver	20Hz-26.5GHz	N9038A	Agilent	MY51210181	2093	I	11/16/2018	11/16/2017
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Asset	Cat	Calibration Due	Calibrated on
EMI Chamber 1	719150	2762A-6	A-0015	1-18GHz	1685	I	12/21/2018	12/21/2016
Preamps / Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
2111 HF Preamp	0.5-18GHz	PAM-118A	COM-POWER	551063	2111	II	11/19/2018	11/19/2017
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Black Horn	1-18GHz	3115	EMCO	9703-5148	56	I	8/29/2018	8/29/2016
Meteorological Meters/Chambers	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on	
Weather Clock (Pressure Only)	BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016	
TH A#2084	HTC-1	HDE		2084	II	3/23/2018	3/23/2017	
Cables	Range	Mfr	Cat	Calibration Due	Calibrated on			
Asset #2051	9kHz - 18GHz	Florida RF	II	3/5/2018	3/5/2017			
Asset #2456	9kHz-18GHz	MegaPhase	II	10/29/2018	10/29/2017			
Asset #2465	9kHz-18GHz	MegaPhase	II	10/29/2018	10/29/2017			

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



Measurement Uncertainty

Measurement	Expanded Uncertainty k=2	Maximum allowable uncertainty
Radiated Emissions (30-1000MHz)	5.6dB	N/A
NIST	4.6dB	5.2dB (Ucisprr)
CISPR		
Radiated Emissions (1-26.5GHz)	4.6dB	N/A
Radiated Emissions (above 26.5GHz)	4.9dB	N/A
Magnetic Radiated Emissions	5.6dB	N/A
Conducted Emissions		
NIST	3.9dB	N/A
CISPR	3.6dB	3.6dB (Ucisprr)
Telco Conducted Emissions (Current)	2.9dB	N/A
Telco Conducted Emissions (Voltage)	4.4dB	N/A
Electrostatic Discharge	11.5%	N/A
Radiated RF Immunity (Uniform Field)	1.6dB	N/A
Electrical Fast Transients	23.1%	N/A
Surge	23.1%	N/A
Conducted RF Immunity	3dB	N/A
Magnetic Immunity	12.8%	N/A
Dips and Interrupts	2.3V	N/A
Harmonics	3.5%	N/A
Flicker	3.5%	N/A
Radio frequency (@ 2.4GHz)	3.23×10^{-8}	1×10^{-7}
RF power, conducted	0.40dB	0.75dB
Maximum frequency deviation:		
• Within 300Hz and 6kHz of audio frequency / Within 6kHz and 25kHz of audio frequency	3.4%	5%
Adjacent channel power	0.3dB	3dB
Conducted spurious emission of transmitter, valid up to 12.75GHz	1.9dB	3dB
Conducted emission of receivers	2.39dB	3dB
Radiated emission of transmitter, valid up to 26.5GHz	1.3dB	3dB
Radiated emission of transmitter, valid up to 80GHz	3.9dB	6dB
Radiated emission of receiver, valid up to 26.5GHz	3.3dB	6dB
Radiated emission of receiver, valid up to 80GHz	3.9dB	6dB
Humidity	3.3dB	6dB
Temperature	2.37%	5%
Time	0.7°C	1.0°C
RF Power Density, Conducted	4.1%	10%
DC and low frequency voltages	0.4dB	3dB
Voltage (AC, <10kHz)	1.3%	3%
Voltage (DC)	1.3%	2%
	0.62%	1%
The above reflects a 95% confidence level		



Conditions Of Testing

[Bureau Veritas Consumer Products Services, Inc., a Massachusetts corporation], and/or its affiliates (collectively, the "Company") will conduct, at the request of the Submitter ("Client"), the tests specified on the submitted Test Request Form or equivalent in accordance with, and subject to, the following terms and conditions (collectively, "Conditions"):

1. All orders for tests are subject to acceptance by the Company, and no order will constitute a binding commitment of the Company unless and until such order is accepted by it, as evidenced by the issuance of a written report ("Test Report") by the Company. The Test Report is issued solely by the Company, is intended for the exclusive use of Client and shall not be published, used for advertising purposes, copied or replicated for distribution to any other person or entity or otherwise publicly disclosed without the prior written consent of the Company. By submitting a request for services to the Company, Client consents to the disclosure to accreditation bodies of those records of Client relevant to the accreditation body's assessment of the Company's competence and compliance with relevant accreditation criteria. The Company shall not be liable for any loss or damage whatsoever resulting from the failure of the Company to provide its services within any time period for completion estimated by the Company. If Client anticipates using the Test Report in any legal proceeding, arbitration, dispute resolution forum or other proceeding, it shall so notify the Company prior to submitting the Test Report in such proceeding. The Company has no obligation to provide a fact or expert witness at such proceeding unless the Company agrees in advance to do so for a separate and additional fee.
2. The Test Report will set forth the findings of the Company solely with respect to the test samples identified therein. Unless specifically and expressly indicated in the Test Report, the results set forth in such Test Report are not intended to be indicative or representative of the quality or characteristics of the lot from which a test sample is taken, and Client shall not rely upon the Test Report as being so indicative or representative of the lot or of the tested product in general. The Test Report will reflect the findings of the Company at the time of testing only, and the Company shall have no obligation to update the Test Report after its issuance. The Test Report will set forth the results of the tests performed by the Company based upon the written information provided to the Company. The Test Report will be based solely on the samples and written information submitted to the Company by Client, and the Company shall not be obligated to conduct any independent investigation or inquiry with respect thereto.
3. The Company may, in its sole discretion, destroy samples which have been furnished to the Company for testing and which have not been destroyed in the course of testing. The Company may delegate the performance of all or a portion of the services contemplated hereunder to an affiliate, agent or subcontractor of the Company, and Client consents to such delegation.
4. These Conditions and the Test Report represent the entire understanding of the parties hereto with respect to the subject matter hereof and of the Test Report, and no modification, variance or extrapolation with respect thereto shall be permitted without the prior written consent of the Company.
5. The names, service marks, trademarks and copyrights of the Company and its affiliates, including the names "**BUREAU VERITAS**," "**BUREAU VERITAS CONSUMER PRODUCTS SERVICES**," "**BVCPS**," "**MTL**," "**ACTS**," "**MTL-ACTS**" and "**CURTIS-STRAUS**" (collectively, the "Marks") are and shall remain the sole property of the Company or its affiliates and shall not be used by Client except solely to the extent that Client obtains the prior written approval of the Company and then only in the manner prescribed by the Company. Client shall not contest the validity of the Marks or take any action that might impair the value or goodwill associated with the Marks or the image or reputation of the Company or its affiliates.
6. Payment in full shall be due 30 days after the date of invoice. Interest shall be due on overdue amounts from the due date until paid at an interest rate of 1.5% per month or, if less, the maximum rate permitted by law. The Company reserves the right, at any time and from time to time, to revoke any credit extended to Client. Client shall reimburse the Company for any costs it incurs in collecting past due amounts, including court costs and fees and expenses of attorneys and collection agencies. The Test Report may not be used or relied upon by Client if and for so long as Client fails to pay when due any invoice issued by the Company or any affiliate of it to Client or any affiliate or subsidiary of Client together with interest and penalties, if any, accrued thereon.
7. The Company disclaims any and all responsibility or liability arising out of or in connection with e-mail transmissions of such information.
8. Client understands and agrees that the Company is neither an insurer nor a guarantor, that the Company does not take the place of Client or any designer, manufacturer, agent, buyer, distributor or transportation or shipping company, and that the Company disclaims all liability in such capacities. Client further understands that if it seeks assurance against loss or damage, it should obtain appropriate insurance.
9. Client agrees that the Company, by providing the services, does not take the place of Client nor any third party, nor does the Company release them from any of their obligations, nor does the Company otherwise assume, abridge, abrogate or undertake to discharge any duty of any third party to Client or any duty of Client or any third party to any other third party, and Client will not release any third party from its obligations and duties with respect to the tested goods.
10. Client shall, on a timely basis, (a) provide adequate instructions to the Company in order to enable the Company to perform properly its services, (b) provide, or cause Client's suppliers and contractors to provide, the Company with all documents necessary to enable the Company to perform its services, (c) furnish the Company with all relevant information regarding Client's intended use and purposes of the tested goods, (d) advise the Company of essential dates and deadlines relevant to the tested goods and (e) fully exercise all rights and remedies available to Client against third parties in respect of the tested goods.
11. The Company shall undertake due care and ordinary skill in the performance of its services to Client, and the Company shall accept responsibility only where such skill has not been exercised and, even in such event, only to the extent of the limitation of liability set forth herein.
12. If Client desires to assert a claim arising from or relating to (i) the performance, purported performance or non-performance of any services by the Company or (ii) the sale, resale, manufacture, distribution or use of any tested goods, it must submit that claim to the Company in a writing that sets forth with particularity the basis for such claim within 60 days from discovery of the potential claim and not more than six months after the date of issuance of the Test Report to Client. Client waives any and all such claims including, without limitation, claims that the Test Report is inaccurate, incomplete or misleading or that additional or different testing is required, unless and then only to the extent that Client submits a written claim to the Company within both such time periods.
13. CLIENT SHALL, EXCEPT TO THE EXTENT OF COMPANY'S LIABILITY TO CLIENT HEREUNDER (WHICH IN NO EVENT SHALL EXCEED THE LIMITATION OF LIABILITY HEREIN), HOLD HARMLESS AND INDEMNIFY THE COMPANY, ITS AFFILIATES AND THEIR RESPECTIVE DIRECTORS, OFFICERS, EMPLOYEES, AGENTS AND SUBCONTRACTORS AGAINST ALL ACTUAL OR ALLEGED THIRD PARTY CLAIMS FOR LOSS, DAMAGE OR EXPENSE OF WHATSOEVER NATURE AND HOWSOEVER ARISING FROM OR RELATING TO (i) THE PERFORMANCE, PURPORTED PERFORMANCE OR NON-PERFORMANCE OF ANY SERVICES BY THE COMPANY OR (ii) THE SALE, RESALE, MANUFACTURE, DISTRIBUTION OR USE OF ANY TESTED GOODS.
14. EXCEPT AS MAY OTHERWISE BE EXPRESSLY AGREED TO IN WRITING BY THE COMPANY AND NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN OR IN ANY TEST REPORT, NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, IS MADE.



15. (A) IN NO EVENT WHATSOEVER SHALL THE COMPANY BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL, INCIDENTAL, EXEMPLARY OR PUNITIVE DAMAGES IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE TEST REPORT OR THE SERVICES PROVIDED BY THE COMPANY HEREUNDER, INCLUDING WITHOUT LIMITATION LOSS OF OR DAMAGE TO PROPERTY; LOSS OF INCOME, PROFIT OR USE; OR ANY CLAIMS OR DEMANDS MADE AGAINST CLIENT OR ANY OTHER PERSON BY ANY THIRD PARTY IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE SERVICES PROVIDED BY THE COMPANY HEREUNDER.

(B) NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN, AND IN RECOGNITION OF THE RELATIVE RISKS AND BENEFITS TO CLIENT AND THE COMPANY ASSOCIATED WITH THE TESTING SERVICES CONTEMPLATED HEREBY, THE RISKS HAVE BEEN ALLOCATED SUCH THAT UNDER NO CIRCUMSTANCES WHATSOEVER SHALL THE LIABILITY OF THE COMPANY TO CLIENT OR ANY THIRD PARTY IN RESPECT OF ANY CLAIM FOR LOSS, DAMAGE OR EXPENSE, OF WHATSOEVER NATURE OR MAGNITUDE, AND HOWSOEVER ARISING, EXCEED AN AMOUNT EQUAL TO FIVE (5) TIMES THE AMOUNT OF THE FEES PAID TO THE COMPANY FOR THE SPECIFIC SERVICES WHICH GAVE RISE TO SUCH CLAIM OR U.S.\$10,000, WHICHEVER IS THE LESSER AMOUNT.

16. The Company shall not be liable for any loss or damage resulting from any delay or failure in performance of its obligations hereunder resulting directly or indirectly from any event of force majeure or any event outside the control of the Company. If any such event occurs, the Company may immediately cancel or suspend its performance hereunder without incurring any liability whatsoever to Client.

17. Company's services, including these Conditions, shall be governed by, and construed in accordance with, the local laws of the country where the Company performs the tests or, in the case of tests performed in the United States of America, the laws of Massachusetts without regard to conflicts of laws principles. If any aspect(s) of these Conditions is found to be illegal or unenforceable, the validity, legality and enforceability of all remaining aspects of these Conditions shall not in any way be affected or impaired thereby. Any proceeding related to the subject matter hereof shall be brought, if at all, in the courts of the country where the Company performs the tests or, in the case of tests performed in the United States of America, in the courts of Massachusetts. Client waives the right to interpose any counterclaim or setoffs of any nature in any litigation arising hereunder.

The complete list of the Approved Subcontractors Curtis-Straus may use to delegate the performance of work can be provided upon request.
Rev.160009121(2)_#684340 v14CS

