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Compliance test report

180888-1TRFWL

Date of issue
August 9, 2011

FCC Part 90, Subpart M, Section 90.353
LMS operations in the 902–928 MHz band

Applicant	Kapsch TrafficCom IVHS Corp.
Product	JANUS™ Interior OBU
Model	801660A-TAB
Model variants	801970A-TAB, 801990A-TAB, 802001A-TAB
FCC ID	JQU801660A

Nemko Canada Inc., a testing laboratory, is accredited by the Standards Council of Canada. The tests included in this report are within the scope of this accreditation

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LAB Accrédité CCN

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Reviewed by

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August 9, 2011
Date:

Limits of responsibility

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contain in this report are within Nemko Canada's ISO/IEC 17025 accreditation.

Copyright notification

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Section 1: Report summary

1.1 Applicant

Kapsch TrafficCom IVHS Corp.
6020 Ambler Drive
Mississauga, ON, Canada
L4W 2P1

1.2 Manufacturer

Kapsch TrafficCom IVHS Corp.
6020 Ambler Drive
Mississauga, ON, Canada
L4W 2P1

1.3 Test specification

FCC Part 90, Subpart M, Section 90.353: LMS operations in the 902–928 MHz band

1.4 Statement of compliance

In the configuration tested the EUT was found compliant.

This report contains an assessment of apparatus against specifications based upon tests carried out on samples submitted at Nemko Canada Inc. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 90, Subpart M.

1.5 Exclusions

None

1.6 Site registration number

Test site FCC ID number 176392 (3 m Semi anechoic chamber)

1.7 Test report revision history

None

Section 2: Summary of test results

2.1 FCC Part 90, Subpart I tests result summary

Part	Test description	Verdict
§90.205(l)	Power and antenna height limits	Pass
§90.209	Bandwidth limitations	Pass
§90.210(k)	Emission masks	Pass
§90.210(k)	Spurious emissions	Pass
§90.213	Frequency stability	Tested*
* - The EUT is a mobile transponder therefore it is exempt from this requirement.		

2.2 FCC Part 90, Subpart M tests result summary

Part	Test description	Verdict
§90.353(h)	Authorized bands	Pass
§90.357(b)	Frequencies for LMS systems in the 902–928 MHz band	Pass

Section 3: Equipment under test (EUT) details

3.1 Product details

Product name	JANUS™ Interior OBU
Model number	801660A-TAB
Model variants	801970A-TAB, 801990A-TAB, 802001A-TAB
FCC ID number	JQU801660A
Class of product	LMS

3.2 Product description

801660A-TAB: has no micro-controller or peripherals
801970A-TAB: has the micro-controller with LEDs and buzzer peripherals. The case is translucent
801990A-TAB: has no micro-controller or peripherals. Has a different configuration on protected bits in the ASIC
802001A-TAB: has the micro-controller with tamper-proof peripheral. The dual-lock attachments are replaced with stronger, permanent adhesive strips

The EUT is a Transponder that operates within 902–928 MHz ISM band at frequency 915 ±0.6 MHz, which is mounted on a vehicle at a location that is visible to the Reader Antenna when the vehicle passes through the RF capture zone, which is dictated by the directional pattern of the Reader Antenna. This Transponder is designed for interior mounting in a passenger vehicle, specifically on the windshield near the top and near the vehicle centreline.
The Transponder responds to and emits with horizontal polarization when correctly oriented for normal operation with the flat surface of the Transponder against the vehicle windshield. In this location the boresite will point towards the Reader antenna when the vehicle approaches the Reader antenna. Outside the RF Capture Zone of the Reader, the unit does not transmit but continuously receives.

3.3 Sample information

Receipt date	July 18, 2011
Nemko sample ID number	1, 2

3.4 EUT technical specifications

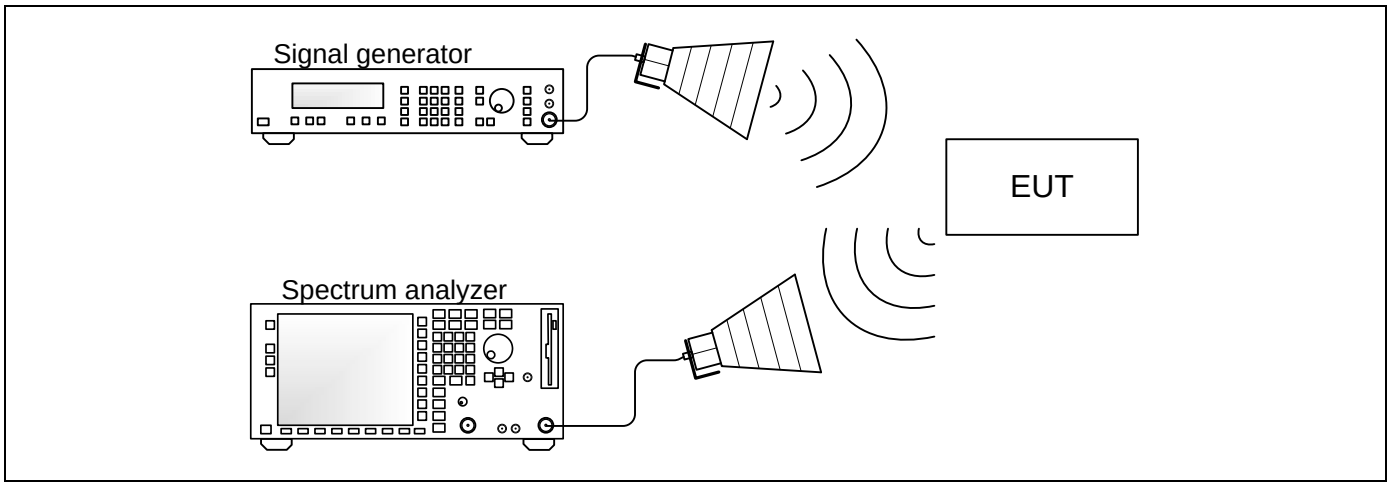
Operating band	902–928 MHz
Operating frequency	915 ±0.6 MHz
Modulation type	Fixed OOK, Manchester encoded 500 kbps
Occupied bandwidth	6.22 MHz (99 % OBW)
Emission designator	6M22P1D
Antenna type	Printed 0 dBi (−2.15 dBd) antenna
Power source	3.6 V_{DC} internal Lithium battery

3.5 Operation of the EUT during testing

The units are internally battery powered and are continuously in the Receive mode. They require an external RF trigger to stimulate a response. Each RF trigger will produce one burst of transmission from a unit.

The trigger pulse can be generated by using a signal generator gated by a function generator, or by using a signal generator that has the internal pulse modulation function.

3.6 EUT setup diagram



Section 4: Engineering considerations

4.1 Modifications incorporated in the EUT

There were no modifications performed to the EUT during this assessment

4.2 Deviations from laboratory tests procedures

No deviations were made from laboratory test procedures

4.3 Technical judgment

The EUT comes at 4 model variants (see section 3.2 for details). The most populated model (801970A-TAB) was deemed as a representative model and was used for all the tests. Additionally, one specially modified sample of the EUT with SMA connector instead of integral antenna was supplied for conducted measurements.

Section 5: Test conditions

5.1 Atmospheric conditions

Temperature: 15–30 °C
Relative humidity: 20–75 %
Air pressure: 86–106 kPa

When it is impracticable to carry out tests under these conditions, a note to this effect stating the ambient temperature and relative humidity during the tests shall be recorded and stated.

5.2 Power supply range

The normal test voltage for equipment to be connected to the mains shall be the nominal mains voltage. For the purpose of the present document, the nominal voltage shall be the declared voltage, or any of the declared voltages ±5 %, for which the equipment was designed.

Section 6: Measurement uncertainty

6.1 Measurement uncertainty

Nemko Canada Inc. has calculated measurement uncertainty and is documented in EMC/MUC/001 “Uncertainty in EMC measurements.” Measurement uncertainty was calculated using the methods described in CISPR 16-4 Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC measurements; as well as described in UKAS LAB34: The expression of Uncertainty in EMC Testing. Measurement uncertainty calculations assume a coverage factor of K=2 with 95 % certainty.

Section 7: Test equipment

7.1 Test equipment list

Equipment	Manufacturer	Model No.	Asset/Serial No.	Next cal.
3 m EMI Test Chamber	TDK	SAC-3	FA002047	Mar. 09/12
Flush Mount Turntable	Sunol	FM2022	FA002082	NCR
Controller	Sunol	SC104V	FA002060	NCR
Antenna Mast	Sunol	TLT2	FA002061	NCR
Receiver/Spectrum Analyzer	Rohde & Schwarz	ESU 26	FA002043	Jan. 14/12
Bilog Antenna	Sunol	JB3	FA002108	Jan. 18/12
Horn Antenna #2	EMCO	3115	FA000825	Jan. 18/12
1–18 GHz Amplifier	JCA	JCA118-503	FA002091	Oct. 07/11
Temperature chamber	Thermotron	SM-16C	FA001030	NCR
Multimeter	Fluke	16	FA001831	Jan. 26/12
International power supply	California inst.	3001I	FA001021	COU
Receiver/spectrum analyzer	Rohde & Schwarz	ESU 40	FA002071	Jan. 04/12
Horn antenna #1	Emco	3115	FA000649	Mar. 08/12
Signal generator	Rhode & Schwarz	SMB100A	FA002174	Jan. 26/12
Note: NCR = No calibration required, COU = Calibrate on use				

Section 8: Testing data

8.1 Clause 90.205 Effective radiated power of carrier

Applicants for licenses must request and use no more power than the actual power necessary for satisfactory operation. Except where otherwise specifically provided for, the maximum power that will be authorized to applicants whose license applications for new stations are filed after August 18, 1995 is as follows:

(l) 902–928 MHz.

LMS systems operating pursuant to subpart M of this part in the 902–927.25 MHz band will be authorized a maximum of 30 watts ERP. LMS equipment operating in the 927.25–928 MHz band will be authorized a maximum of 300 watts ERP. ERP must be measured as peak envelope power. Antenna heights will be as specified in §90.353(h).

Table 8.1-1: ERP limits

Assigned frequency band (MHz)	ERP	
	(W)	(dBm)
902.00–927.25	30	44.8
927.25–928.00	300	54.8

8.1.1 Test summary

Test date: July 19, 2011
Temperature: 22 °C

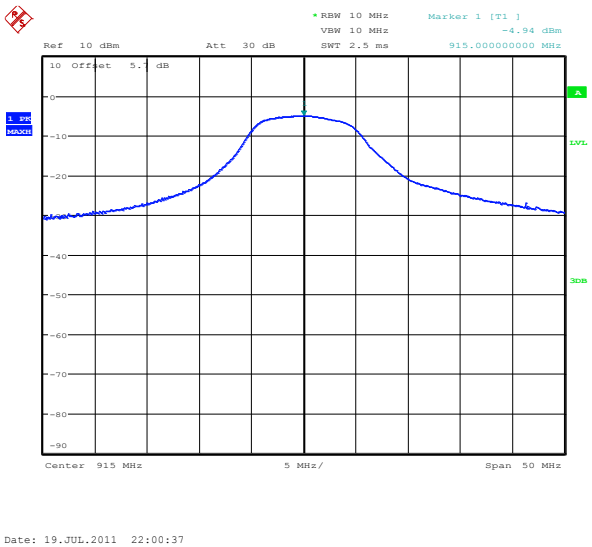
Test engineer: Andrey Adlberg
Air pressure: 1003 mbar

Verdict: Pass
Relative humidity: 30 %

8.1.2 Special notes

The test was performed using peak detector of the spectrum analyzer with RBW and VBW of 10 MHz.
The test was performed conducted on the specially modified sample for that matter. The antenna gain declared by the manufacturer is 0 dBi.

8.1.3 Test data



Plot 8.1-1: Peak power measurement

Table 8.1-2: ERP calculation

Frequency (MHz)	Peak output power (dBm)	Antenna gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)
915	-4.94	-2.15	-7.09	44.80	51.89

8.2 Clause 90.209 Occupied bandwidth

(a) Each authorization issued to a station licensed under this part will show an emission designator representing the class of emission authorized. The designator will be prefixed by a specified necessary bandwidth. This number does not necessarily indicate the bandwidth occupied by the emission at any instant. In those cases where §2.202 of this chapter does not provide a formula for the computation of necessary bandwidth, the occupied bandwidth, as defined in part 2 of this chapter, may be used in lieu of the necessary bandwidth.
(b) The maximum authorized single channel bandwidth of emission corresponding to the type of emission specified in §90.207 is as follows:
(1) For A1A or A1B emissions, the maximum authorized bandwidth is 0.25 kHz. The maximum authorized bandwidth for type A3E emission is 8 kHz.
(2) For operations below 25 MHz utilizing J3E emission, the bandwidth occupied by the emission shall not exceed 3000 Hz. The assigned frequency will be specified in the authorization. The authorized carrier frequency will be 1400 Hz lower in frequency than the assigned frequency. Only upper sideband emission may be used. In the case of regularly available double sideband radiotelephone channels, an assigned frequency for J3E emissions is available either 1600 Hz below or 1400 Hz above the double sideband radiotelephone assigned frequency.
(3) For all other types of emissions, the maximum authorized bandwidth shall not be more than that normally authorized for voice operations.
(4) Where a frequency is assigned exclusively to a single licensee, more than a single emission may be used within the authorized bandwidth. In such cases, the frequency stability requirements of §90.213 must be met for each emission.
(5) Unless specified elsewhere, channel spacings and bandwidths that will be authorized in the following frequency bands are given in the following table:

Table 8.2-1: Occupied bandwidth requirements

Frequency band (MHz)	Channel spacing (kHz)	Authorized bandwidth (kHz)
Below 25*		
25–50	20	20
72–76	20	20
150–174	7.5	**20/11.25/6
216–220****	6.25	20/11.25/6
220–222	5	4
406–512*	6.25	**20/11.25/6
806–809/851–854	12.5	20
809–824/854–869	25	20
896–901/935–940	12.5	13.6
902–928***		
929–930	25	20
1427–1432****	12.5	12.5
2450–2483.5*		
Above 2500*		

* Bandwidths for radiolocation stations in the 420–450 MHz band and for stations operating in bands subject to this footnote will be reviewed and authorized on a case-by-case basis.

** Operations using equipment designed to operate with a 25 kHz channel bandwidth will be authorized a 20 kHz bandwidth. Operations using equipment designed to operate with a 12.5 kHz channel bandwidth will be authorized a 11.25 kHz bandwidth. Operations using equipment designed to operate with a 6.25 kHz channel bandwidth will be authorized a 6 kHz bandwidth. All stations must operate on channels with a bandwidth of 12.5 kHz or less beginning January 1, 2013, unless the operations meet the efficiency standard of §90.203(j)(3).

*** The maximum authorized bandwidth shall be 12 MHz for non-multilateration LMS operations in the band 909.75–921.75 MHz and 2 MHz in the band 902.00–904.00 MHz. The maximum authorized bandwidth for multilateration LMS operations shall be 5.75 MHz in the 904.00–909.75 MHz band; 2 MHz in the 919.75–921.75 MHz band; 5.75 MHz in the 921.75–927.25 MHz band and its associated 927.25–927.50 MHz narrowband forward link; and 8.00 MHz if the 919.75–921.75 MHz and 921.75–927.25 MHz bands and their associated 927.25–927.50 MHz and 927.50–927.75 MHz narrowband forward links are aggregated.

****See §90.259.

8.2.1 Test summary

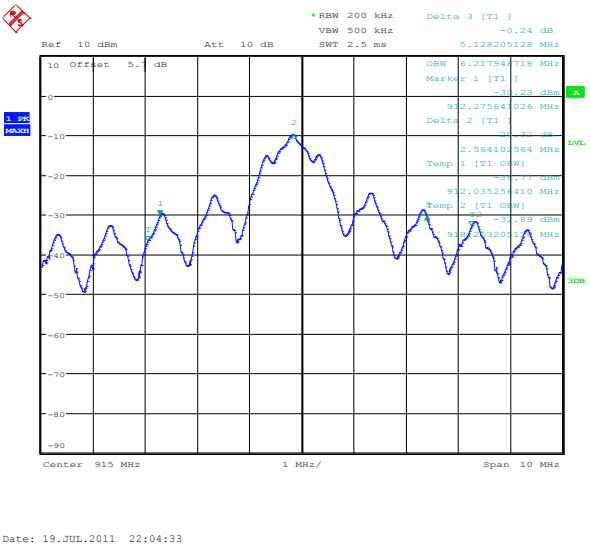
Test date: July 19, 2011 | **Test engineer:** Andrey Adlberg | **Verdict:** Pass
Temperature: 22 °C | **Air pressure:** 1003 mbar | **Relative humidity:** 30 %

8.2.2 Special notes

The RBW was set to ≥1 % of occupied bandwidth. VBW was set wider than RBW.
The test was performed conducted, using a peak detector of spectrum analyzer, on specially modified sample for that purpose.

8.2.3 Test data

99 % and 20 dB occupied bandwidth:



Plot 8.2-1: Occupied bandwidth

Table 8.2-2: 20 dB Bandwidth measurements

Frequency (MHz)	20 dB occupied bandwidth (MHz)	Limit (MHz)	Margin (MHz)
915	5.13	12.00	6.87

Table 8.2-3: 99 % occupied bandwidth measurements

Frequency (MHz)	99 % occupied bandwidth (MHz)
915	6.22

8.3 Clause 90.210 Emission mask

Except as indicated elsewhere in this part, transmitters used in the radio services governed by this part must comply with the emission masks outlined in this section. Unless otherwise stated, per paragraphs (d)(4), (e)(4), and (m) of this section, measurements of emission power can be expressed in either peak or average values provided that emission powers are expressed with the same parameters used to specify the unmodulated transmitter carrier power. For transmitters that do not produce a full power unmodulated carrier, reference to the unmodulated transmitter carrier power refers to the total power contained in the channel bandwidth. Unless indicated elsewhere in this part, the table in this section specifies the emission masks for equipment operating in the frequency bands governed under this part.

Table 8.3-1: Emission mask requirements

Frequency band, (MHz)	Mask for equipment with Audio low pass filter	Mask for equipment without Audio low pass filter
Below 25	A or B	A or C
25–50	B	C
72–76	B	C
150–174	B, D, or E	C, D, or E
150 Paging only	B	C
220–222	F	F
421–512	B, D, or E	C, D, or E
450 Paging only	B	G
806–809/851–854	B	H
809–824/854–869	B	G
896–901/935–940	I	J
902–928	K	K
929–930	B	G
4940–4990	L or M	L or M
5850–5925		
All other bands	B	C

(k)(3) *Other transmitters*. For all other transmitters authorized under subpart M that operate in the 902–928 MHz band, the peak power of any emission shall be attenuated below the power of the highest emission contained within the licensee's sub-band in accordance with the following schedule:

(i) On any frequency within the authorized bandwidth: Zero dB.

(ii) On any frequency outside the licensee's sub-band edges: 55 + 10×log(P) dB, where (P) is the highest emission (watts) of the transmitter inside the licensee's sub-band.

(4) In the 902–928 MHz band, the resolution bandwidth of the instrumentation used to measure the emission power shall be 100 kHz, except that, in regard to paragraph (2) of this section, a minimum spectrum analyzer resolution bandwidth of 300 Hz shall be used for measurement center frequencies with 1 MHz of the edge of the authorized subband. The video filter bandwidth shall not be less than the resolution bandwidth.

(5) Emission power shall be measured in peak values.

(6) The LMS sub-band edges for non-multilateration systems for which emissions must be attenuated are 902.00, 904.00, 909.75 and 921.75 MHz.

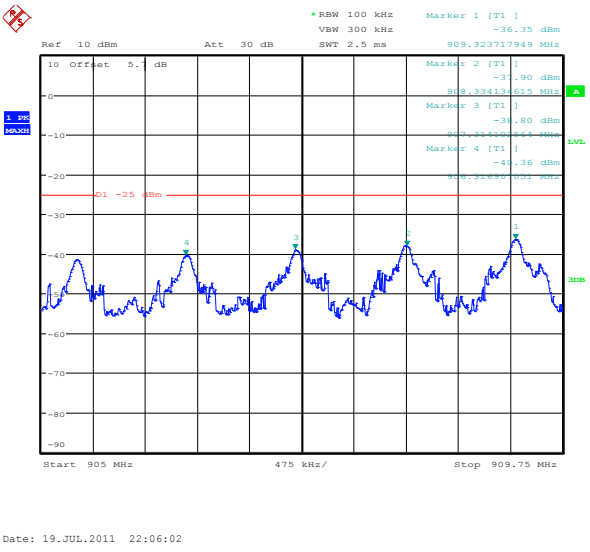
8.3.1 Test summary

Test date: July 19, 2011 | **Test engineer:** Andrey Adlberg | **Verdict:** Pass
Temperature: 22 °C | **Air pressure:** 1003 mbar | **Relative humidity:** 30 %

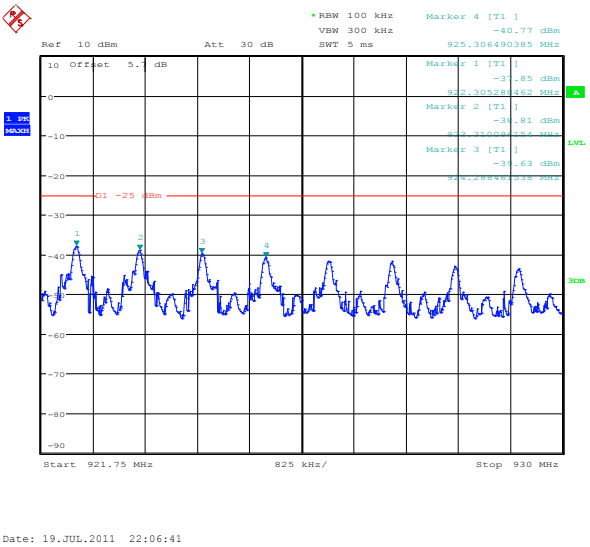
8.3.2 Special notes

The test was performed conducted on the specially modified unit for conducted measurements. The test was done using spectrum analyzer with peak detector and RBW was set to 100 kHz.

8.3.3 Test data



Plot 8.3-1: Lower band edge at 909.75 MHz



Plot 8.3-2: Upper band edge at 921.75 MHz

Table 8.3-2: Conducted spurious emissions measurements

Frequency (MHz)	Measured power (dBm)	EUT antenna gain (dBd)	ERP* (dBm)	Limit (dBm)	Margin (dB)
906.32	-40.36	-2.15	-42.51	-25.00	17.51
907.31	-38.80	-2.15	-40.95	-25.00	15.95
908.33	-37.90	-2.15	-40.05	-25.00	15.05
909.32	-36.35	-2.15	-38.50	-25.00	13.50
922.31	-37.85	-2.15	-40.00	-25.00	15.00
923.31	-38.81	-2.15	-40.96	-25.00	15.96
924.29	-39.63	-2.15	-41.78	-25.00	16.78
925.31	-40.77	-2.15	-42.92	-25.00	17.92
* - ERP = Measured power at antenna connector + EUT antenna gain.					

8.4 Clause 90.210 Spurious emissions

(k)(3)(ii) On any frequency outside the licensee's sub-band edges: 55 + 10 log(P) dB, where (P) is the highest emission (watts) of the transmitter inside the licensee's sub-band.

Table 8.4-1: Spurious emissions limit

Frequency range (MHz)	Attenuation below carrier (dBc)	ERP of spurious emissions (dBm)
30–10th harmonic	55 + 10×Log (P)	-25

8.4.1 Test summary

Test date: July 19, 2011 **Test engineer:** Andrey Adlberg **Verdict:** Pass
Temperature: 22 °C **Air pressure:** 1003 mbar **Relative humidity:** 30 %

8.4.2 Special notes

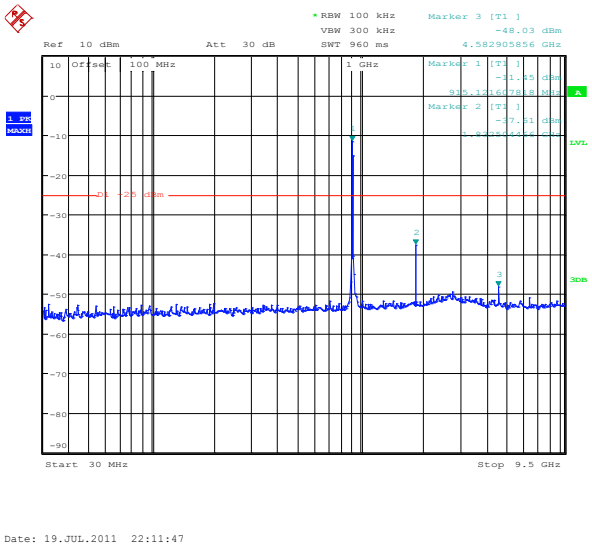
For radiated measurements at the frequencies below 1 GHz the RBW was set to 100 kHz and for frequencies above 1 GHz the RBW was set to 1 MHz. VBW was wider than RBW at any time
Radiated emissions were tested using substitution method for field strength at 3 m to ERP conversion.
Two EUT possible positions were assessed; only worst-case emissions are reported.
Conducted measurements were performed on the sample especially modified for that matter.

8.4.3 Test data

Table 8.4-2: Radiated spurious emissions measurements

Frequency (MHz)	Field strength (dBµV/m)	Substitution method				
		SG-CL (dBm)	Tx antenna gain (dBd)	ERP* (dBm)	Limit (dBm)	Margin (dB)
1830.000	65.14	-41.40	6.23	-35.17	-25.00	10.17
2745.000	58.35	-52.56	7.57	-44.99	-25.00	19.99
* - ERP = SG-CL (Signal generator level – cable loss) + antenna gain.						

Conducted spurious emissions



Plot 8.4-1: Spurious emissions within 30–9200 MHz

8.4.3 Test data, continued

Table 8.4-2: Conducted spurious emissions measurements

Frequency (MHz)	Measured power (dBm)	EUT antenna gain (dBd)	ERP* (dBm)	Limit (dBm)	Margin (dB)
1832.05	-37.61	-2.15	-39.76	-25	14.76
4582.91	-48.03	-2.15	-50.18	-25	25.18
* - ERP = Measured power at antenna connector + EUT antenna gain.					

8.5 Clause 90.213 Frequency stability

a) Unless noted elsewhere, transmitters used in the services governed by this part must have minimum frequency stability as specified in the following table.

Table 8.5-1: Frequency stability limits

Frequency range (MHz)	Fixed and base stations (ppm)	Mobile stations (ppm)	
		Over 2 W output power	Over 2 W output power
Below 25	100	100	200
25–50	20	20	50
72–76	5		50
150–174	5	5	50
216–220	1		1
220–222	0.1	1.5	1.5
421–512	2.5	5	5*
806–809	1	1.5	1.5
809–824	1.5	2.5	2.5
851–854	1	1.5	1.5
854–869	1.5	2.5	2.5
896–901	0.1	1.5	1.5
902–928	2.5	2.5	2.5
902–928*	2.5	2.5	2.5
929–930	1.5		
935–940	0.1	1.5	1.5
1427–1432	300	300	300
Above 2450			

* - Fixed non-multilateration transmitters with an authorized bandwidth that is more than 40 kHz from the band edge, intermittently operated hand-held readers, and mobile transponders are not subject to frequency tolerance restrictions.

8.5.1 Test summary

Test date: July 20, 2011 **Test engineer:** Andrey Adlberg **Verdict:** Pass
Temperature: 22 °C **Air pressure:** 1003 mbar **Relative humidity:** 30 %

8.5.2 Special notes

Since the EUT is a mobile transponder it is exempt from this requirement.

8.5.3 Test data

Table 8.5-2: Frequency stability measurements

Test conditions	Frequency (MHz)							Offset* (ppm)
	Power up	1 min	2 min	3 min	4 min	5 min	10 min	
+50 °C, Nominal	914.809550	914.809350	914.809750	914.809750	914.809550	914.809350	914.809750	17.06
+40 °C, Nominal	914.807350	914.807150	914.806949	914.806949	914.807150	914.807350	914.807150	14.22
+30 °C, Nominal	914.803545	914.803745	914.803745	914.803946	914.803745	914.803954	914.803945	10.71
+20 °C, +15 %	914.801004	914.800804	914.800796	914.801205	914.800827	914.800996	914.801597	8.15
+20 °C, Nominal	914.793553	914.793352	914.793344	914.793753	914.793375	914.793545	914.794146	Reference
+20 °C, -15 %	914.783697	914.783497	914.783488	914.783897	914.783520	914.783689	914.784290	-10.77
+10 °C, Nominal	914.777952	914.777952	914.777751	914.778152	914.778152	914.777743	914.777952	-17.70
0 °C, Nominal	914.760953	914.760945	914.761146	914.760946	914.761146	914.761159	914.761346	-35.85
-10 °C, Nominal	914.738972	914.738155	914.738556	914.738972	914.738748	914.738556	914.739157	-60.11
-20 °C, Nominal	914.709956	914.709756	914.709956	914.709764	914.709756	914.709740	914.710147	-91.82
-30 °C, Nominal	914.679551	914.679359	914.678750	914.679511	914.678758	914.679167	914.678357	-126.57

* Note: Offset calculation: $\frac{F_{Measured} - F_{reference}}{F_{reference}} \times 1 \cdot 10^{6}$

8.6 Clause 90.353 LMS operations in the 902–928 MHz band

LMS systems may be authorized within the 902–928 MHz band, subject to the conditions in this section. LMS licensees are required to maintain whatever records are necessary to demonstrate compliance with these provisions and must make these records available to the Commission upon request:

(h) Non-multilateration stations are authorized to operate on a shared, non-exclusive basis in the 902–904 MHz and 909.75–921.75 MHz sub-bands. Non-multilateration systems and multilateration systems will share the 919.75–921.75 MHz band on a co-equal basis. Non-multilateration LMS systems may not provide non-vehicular location services. The maximum antenna height above ground for non-multilateration LMS systems is 15 meters.

(i) Non-multilateration LMS licenses will be issued on a site-by-site basis, except that municipalities or other governmental operatives may file jointly for a non-multilateration license covering a given U.S. Department of Commerce Bureau of Economic Analysis Economic Area (EA). Such an application must identify all planned sites. After receiving the license, the non-multilateration EA licensee must notify the Commission if sites are deleted or if new sites are added, before those sites may be put into operation.

8.6.1 Test summary

Test date: July 21, 2011 **Test engineer:** Andrey Adlberg **Verdict:** Pass

8.6.2 Special notes

The EUT operates within 909.75–921.75 MHz band. The only operational frequency is 915 ±0.6 MHz.

8.7 Clause 90.357 Frequencies for LMS systems in the 902–928 MHz band

(b) Non-multilateriation LMS systems will be authorized in the frequency bands stated in the Table 1 below.

Table 8.7-1: LMS frequency bands

LMS sub-band*
902.00–904.00 MHz
909.75–921.75 MHz
*- Applicants for non-multilateration LMS systems should request only the minimum amount of bandwidth necessary to meet their operational needs.

8.7.1 Test summary

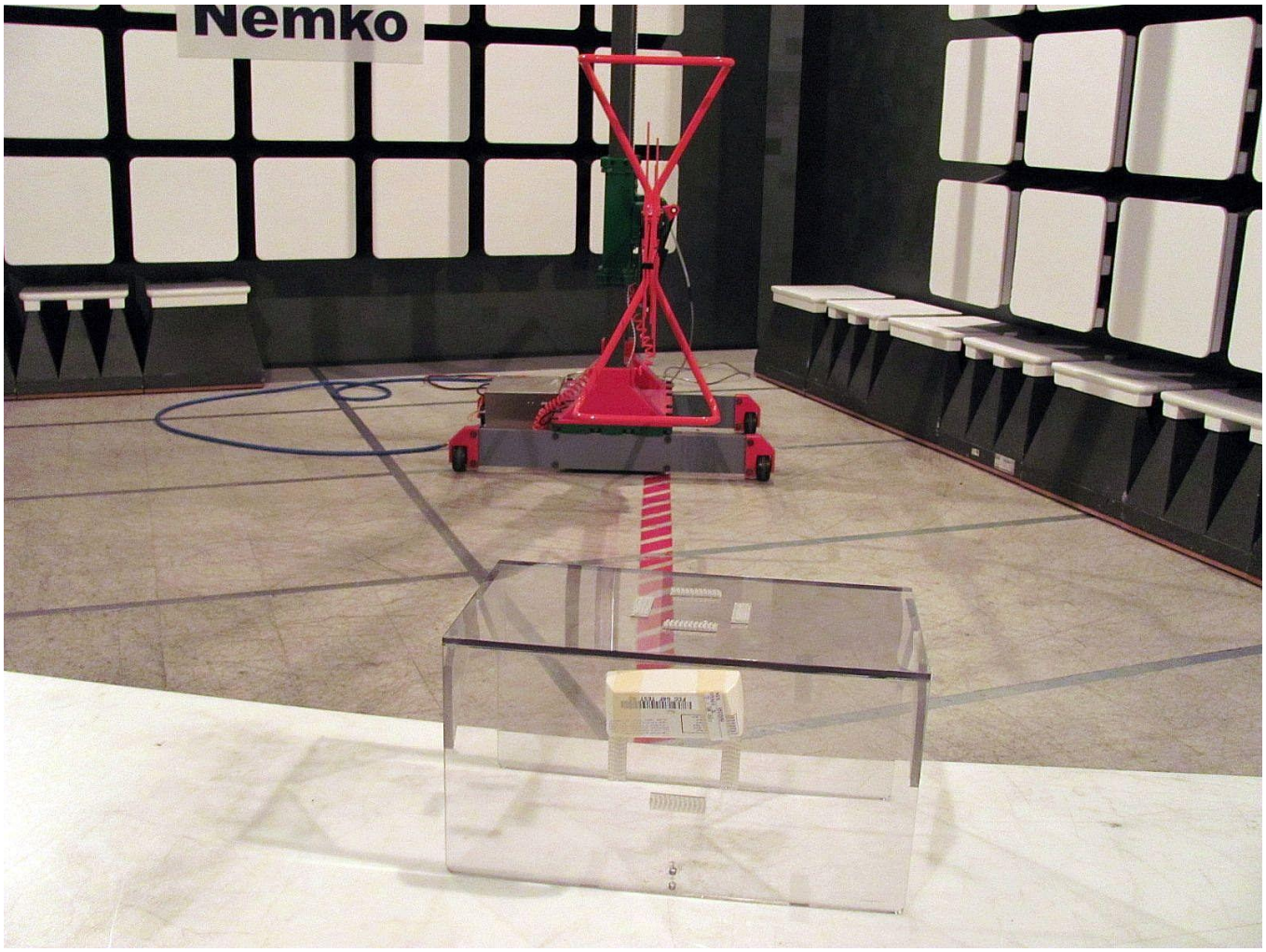
Test date: July 21, 2011 **Test engineer:** Andrey Adlberg **Verdict:** Pass

8.7.2 Special notes

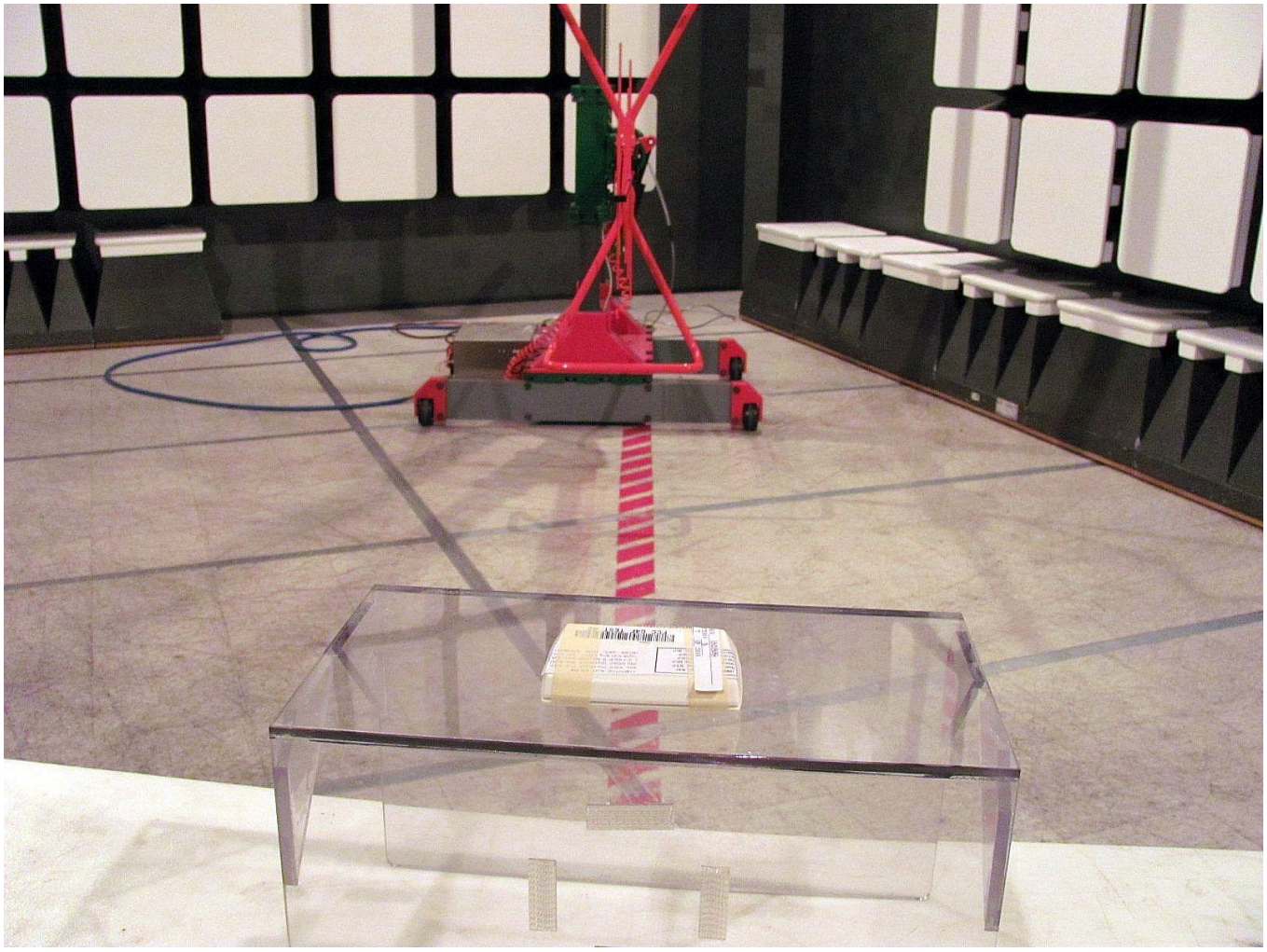
The EUT operates within 909.75–921.75 MHz band. The only operational frequency is 915 ±0.6 MHz.

Section 9: EUT and setup photos

9.1 Setup with EUT on the front surface

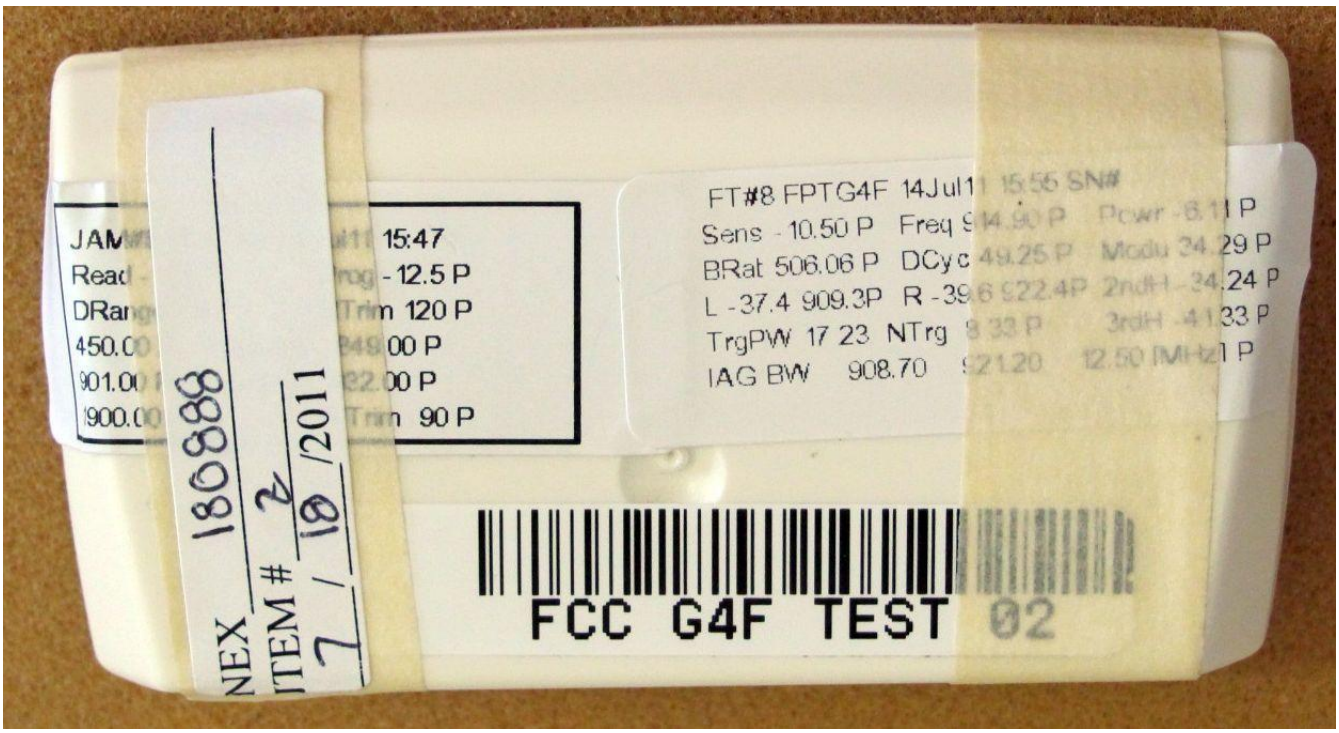


9.1 Setup with EUT on top of the surface



9.2 EUT photo


MARK IV
MODEL: 80
FCC ID: JQU80
This device complies with part 15 of the FCC rules.
does not cause harmful interference.
IC: 2G65A-80
UNITED STATES PATENT Nos.
6,219,613; 7,233,260; 7,385,525;
7,479,896; 7,342,500
CANADA PATENT No.
2,344,013


FT#8 FPTG4F 14Jul
Sens -10.50 P
BRat 506.06 P
L -37.4 909.3P R -39
TrgPW 17 23 NTrg
IAG BW 908.70
12.50 MHz
FCC G4F TEST 02

9.2 EUT photo, continued