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FCC PART 15.249 and IC RSS-210 TEST REPORT

Applicant	TRISQUARE COMMUNICATIONS INC.
Address	1420 N.W. VIVION ROAD SUITE 113 KANSAS CITY MO. 64118-4555 USA
FCC ID	O9GWMIC
IC Certification	3823A-WMIC
Model Number	20/20 WMIC
Product Description	WIRELESS MICROPHONE SYSTEM
Date Sample Received	10/2/2007
Date Tested	10/4/2007
Tested By	Richard Block
Approved By	Richard Block
Report Number	T\Trisquare_O9G\3249AUT7\3249AUT7TestReport.doc
Total Pages	11
Test Results	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL

**THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL
 WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.**



Certificate # 0955-01



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GENERAL REMARKS

The attached report shall not be reproduced except in full without the written permission of Timco Engineering Inc.

Summary

The device under test does:

- fulfill the general approval requirements as identified in this test report
 not fulfill the general approval requirements as identified in this test report

Attestations

This equipment has been tested in accordance with the standards identified in this test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report.

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025 requirements.



Certificate # 0955-01

I attest that the necessary measurements were made, under my supervision, at:

Timco Engineering Inc.
849 NW State Road 45
Newberry, Fl 32669

Authorized Signatory Name:

Mario de Aranzeta C.E.T.
Compliance Engineer/ Lab. Supervisor

Date:

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GENERAL INFORMATION

DUT Specification

The test results relate only to the items tested.			
Applicable Standard	Part 15.249, RSS-210		
DUT Description	MIC Transceiver		
FCC ID	O9GWMIC		
IC Certification	3823A-WMIC		
Model Number	20/20 WMIC		
Operating Frequency	TX: 908 - 922 MHz	RX: Same	
DUT Power Source	<input type="checkbox"/> 110-120Vac/50- 60Hz		
	<input type="checkbox"/> DC Power		
	<input checked="" type="checkbox"/> Battery Operated Exclusively		
Test Item	<input type="checkbox"/> Prototype	<input checked="" type="checkbox"/> Pre-Production	<input type="checkbox"/> Production
Type of Equipment	<input type="checkbox"/> Fixed	<input type="checkbox"/> Mobile	<input checked="" type="checkbox"/> Portable
Antenna Connector	FCC Rules require that the antenna connector be unique.		
Test Facility	Timco Engineering Inc. located at 849 NW State Road 45 Newberry, FL 32669 USA.		
Test Conditions	Temperature: 26°C Relative humidity: 50%		
Test Exercise	The DUT was placed in continuous transmit mode of operation.		
Modifications	None		

Test Supporting Equipment

Supporting Device	Manufacturer	Model / FCC ID	Serial Number
N/A			

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EMC EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3/10-Meter OATS	TEI	N/A	N/A	Listed 3/20/07	3/19/10
3-Meter OATS	TEI	N/A	N/A	Listed 1/11/06	1/10/09
Antenna: Biconnical	Eaton	94455-1	1057	CAL 12/12/05	12/12/07
Antenna: Biconnical	Eaton	94455-1	1096	CAL 10/11/06	10/11/08
Analyzer Blue Tower Quasi-Peak Adapter	HP	85650A	2811A01279	CAL 5/17/07	5/17/09
Analyzer Blue Tower RF Preselector	HP	85685A	2926A00983	CAL 5/17/07	5/17/09
Analyzer Blue Tower Spectrum Analyzer	HP	8568B	2928A04729 2848A18049	CAL 5/17/07	5/17/09
LISN	Electro- Metrics	ANS-25/2	2604	CAL 10/5/06	10/5/08
Antenna: Log- Periodic	Electro- Metrics	LPA-25	1122	CAL 12/1/06	12/1/08

TEST PROCEDURES

Radiation Interference: ANSI C63.4-2003 using a spectrum analyzer, a preselector, a quasi-peak adapter, and an appropriate antenna. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100 kHz with an appropriate sweep speed and the video bandwidth was 300 kHz up to 1 GHz and 1 MHz with a video BW of 3 MHz above 1 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. The antenna was placed in both the horizontal and vertical planes and the worse case emissions were reported. The spectrum was searched to at least the tenth (10) harmonic of the fundamental.

Formula Of Conversion Factors: The field strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the preselector was accounted for in the spectrum analyzer meter reading.

Example:
 Freq (MHz) Meter Reading + ACF + CL = FS
 33 20 dBuV + 10.36 dB + 0.5 = 30.86 dBuV/m @ 3m

Power Line Conducted Interference: The procedure used was ANSI C63.4-2003 using a 50uH LISN. Both lines were observed. The bandwidth of the spectrum analyzer was 10kHz with an appropriate sweep speed. The spectrum was scanned from 0.15 to 30 MHz.

Occupied Bandwidth: A small sample of the transmitter output was fed into the spectrum analyzer and the attached plot was printed. The vertical scale is set to -10 dBm per division.

ANSI C63.4-2003 10.1 Measurement Procedures: The DUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The DUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.



RADIATION INTERFERENCE

Rules Part No.: 15.249, 15.209, RSS-210

Requirements:

Frequency	Limits
Part 15.209	
9 to 490 kHz	2400/F (kHz) μ V/m @ 300 meters
490 to 1705 kHz	24000/F (kHz) μ V/m @ 30 meters
1705 kHz to 30 MHz	29.54 dB μ V/m @ 30 meters
30 – 88	40.0 dB μ V/m @ 3 meters
80 – 216	43.5 dB μ V/m @ 3 meters
216 – 960	46.0 dB μ V/m @ 3 meters
Above 960	54.0 dB μ V/m @ 3 meters
Part 15.249	
Fundamental 902 – 928 MHz	94.0 dB μ V/m @ 3 meters
Fundamental 2.4 – 2.4835 MHz	94.0 dB μ V/m @ 3 meters
Harmonics	54.0 dB μ V/m @ 3 meters

Test Data:

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
908.0	908.00	56.5	H	1.96	23.38	81.84	12.16
908.0	908.00	62.0	V	1.96	22.62	86.58	7.42
908.0	1,816.00	9.6	H	2.75	30.02	42.37	11.63
908.0	1,816.00	10.6	V	2.75	30.02	43.37	10.63
908.0	2,724.00	9.3	H	3.41	32.54	45.25	8.75
908.0	2,724.00	9.7	V	3.41	32.54	45.65	8.35
908.0	3,632.00	8.2	H	4.17	33.01	45.38	8.62
908.0	3,632.00	8.4	V	4.17	33.01	45.58	8.42
915.0	915.00	56.3	H	1.97	23.35	81.62	12.38
915.0	915.00	63.5	V	1.97	22.60	88.07	5.93
915.0	1,830.00	9.7	H	2.76	30.11	42.57	11.43
915.0	1,830.00	12.1	V	2.76	30.11	44.97	9.03
915.0	2,745.00	9.3	V	3.42	32.55	45.27	8.73
915.0	2,745.00	9.5	H	3.42	32.55	45.47	8.53
915.0	3,660.00	7.1	V	4.19	33.06	44.35	9.65
915.0	3,660.00	7.7	H	4.19	33.06	44.95	9.05
922.0	922.00	56.9	H	1.98	23.34	82.22	11.78
922.0	922.00	65.0	V	1.98	22.62	89.60	4.40
922.0	1,844.00	9.9	H	2.78	30.20	42.88	11.12
922.0	1,844.00	11.3	V	2.78	30.20	44.28	9.72
922.0	2,766.00	8.9	V	3.44	32.55	44.89	9.11
922.0	2,766.00	9.1	H	3.44	32.55	45.09	8.91
922.0	3,688.00	8.8	V	4.22	33.10	46.12	7.88
922.0	3,688.00	8.9	H	4.22	33.10	46.22	7.78

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FIELD STRENGTH OF SPURIOUS EMISSIONS - RX

Rules Part No.: 15.109, - RSS-210, RSS-310

Requirements:

Frequency	Limits
30 – 88	40.0 dBμV/m measured @ 3 meters
80 – 216	43.5 dBμV/m measured @ 3 meters
216 – 960	46.0 dBμV/m measured @ 3 meters
Above 960	54.0 dBμV/m measured @ 3 meters

Test Procedure: The procedure used was ANSI C63.4-2003. The frequency was scanned from 30 MHz to 1.0 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. The DUT was measured in three (3) orthogonal planes.

Test Data:

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Pol	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
908.0	886.60	17.8	H	1.94	23.30	43.04	2.96
908.0	886.60	21.4	V	1.94	22.53	45.87	0.13
908.0	1,773.20	9.1	H	2.72	29.75	41.57	12.43
908.0	1,773.20	11.9	V	2.72	29.75	44.37	9.63
915.0	893.60	17.0	H	1.95	23.30	42.25	3.75
915.0	893.60	21.3	V	1.95	22.64	45.89	0.11
915.0	1,787.20	10.0	H	2.73	29.84	42.57	11.43
915.0	1,787.20	13.9	V	2.73	29.84	46.47	7.53
922.0	900.60	16.8	H	1.95	23.31	42.06	3.94
922.0	900.60	20.8	V	1.95	22.69	45.44	0.56
922.0	1,801.20	10.9	H	2.74	29.93	43.57	10.43
922.0	1,801.20	12.9	V	2.74	29.93	45.57	8.43

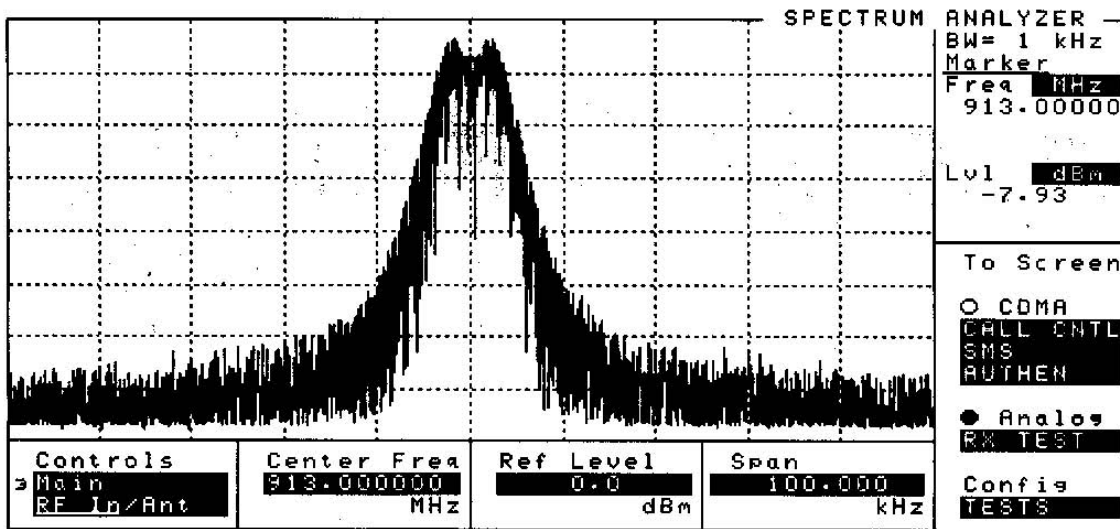
OCCUPIED BANDWIDTH

Rules Part No.: 15.249 (d), RSS-210, RSS-GEN

Requirements: The field strength of any emissions appearing outside the bandedges and up to 10 kHz above and below the band edges shall be attenuated at least 50 dB below the level of the carrier or to the general limits of 15.249.

Test Data:

HP 8924C CDMA Mobile Station Test Set: 10/04/07 07:00:00 pm

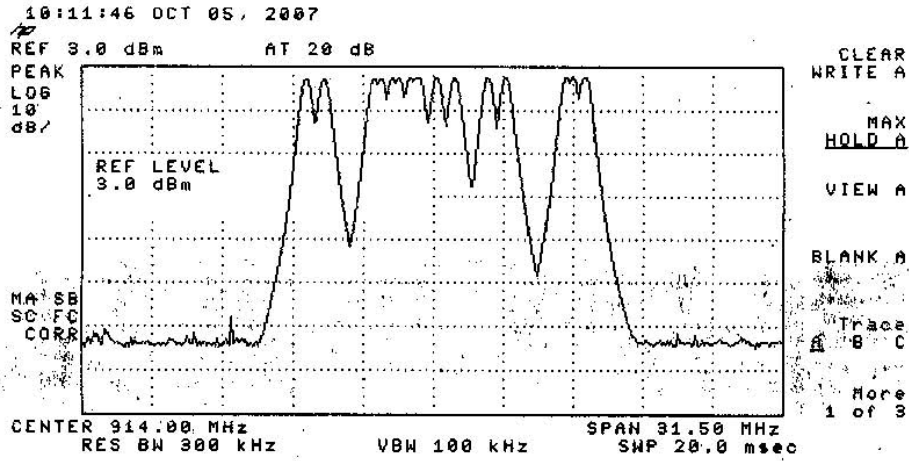


BAND EDGE COMPLIANCE

Rules Part No.: 15.249 (d), RSS-210, RSS-GEN

Requirements: 40 dBc or in the case of restricted bands 54 dBuV/m.

Test Data:





POWER LINE CONDUCTED INTERFERENCE

Rules Part No.: 15.207

Requirements:

Frequency (MHz)	Quasi Peak Limits (dBuV)	Average Limits (dBuV)
0.15 – 0.5	66 – 56	56 – 46
0.5 – 5.0	56	46
5.0 – 30	60	50

Test Data: N/A