

	 TESTING CERT # 2786.01																								
MOTOROLA PENANG ADV. COMM. LABORATORY Motorola Solutions Malaysia Sdn Bhd, Plot 2A, Bayan Lepas Industrial Park, Mukim 12 S.W.D, 11900 Bayan Lepas, Penang, Malaysia.	FCC / IC TEST REPORT Report Revision : Rev.B																								
<table><tr><td>Date/s Tested</td><td>: 01-August-2016 to 03-August-2016</td></tr><tr><td>Manufacturer/Location</td><td>: Others - Vertex Standard LMR, Inc.</td></tr><tr><td>Requestor</td><td>: TOSHIYUKI OWAKI</td></tr><tr><td>Product Type</td><td>: Portable</td></tr><tr><td>Model Number</td><td>: EVX-261-D0-5</td></tr><tr><td>Frequency Band</td><td>: 136MHz - 174MHz</td></tr><tr><td>Rated / Max RF Output Power</td><td>: 1-5 Watts / 5.5 Watts</td></tr><tr><td>Applicant Name</td><td>: Vertex Standard USA, Inc</td></tr><tr><td>Applicant Address</td><td>: 8000 West Sunrise Blvd, Plantation Florida, 33322</td></tr><tr><td>FCC Registrations</td><td>: 772092</td></tr><tr><td>IC Registrations</td><td>: 109AK</td></tr></table> The equipment was tested accordance to the requirement listed below: <table><tr><td>(LMR) FCC 47 CFR Part 15</td><td>PASS</td></tr></table>		Date/s Tested	: 01-August-2016 to 03-August-2016	Manufacturer/Location	: Others - Vertex Standard LMR, Inc.	Requestor	: TOSHIYUKI OWAKI	Product Type	: Portable	Model Number	: EVX-261-D0-5	Frequency Band	: 136MHz - 174MHz	Rated / Max RF Output Power	: 1-5 Watts / 5.5 Watts	Applicant Name	: Vertex Standard USA, Inc	Applicant Address	: 8000 West Sunrise Blvd, Plantation Florida, 33322	FCC Registrations	: 772092	IC Registrations	: 109AK	(LMR) FCC 47 CFR Part 15	PASS
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Prepared By: Azil Ezzaddin Khalil Technician	Approved By: Soon Oi May Responsible Engineer																								

Table of Contents

1.0. General Information.....	3
2.0. Summary of Test Results	3
3.0. Measurement Uncertainty	3
4.0. Equipment List.....	4
5.0. Test Condition.....	5
5.1 Receiver Test Conditions.....	5
6.0. Receiver Test Parameters.....	6
6.1. Conducted Spurious Output Power.....	6
6.1.1. Test Setup	6
6.1.2. Test Results.....	6
6.1.3. Test Limits	6
6.2. Radiated Spurious Output Power.....	7
6.2.1. Test Setup	7
6.2.2. Test Data.....	8
6.2.3. Test Limits	11
7.0. Appendix: Test Setup Photo	12
7.1. Conducted Spur Emission ATE Station Setup	12
7.2. Radiated Spur Emission Station Setup	13

REVISION HISTORY

Revision History	Description	Date	Originator
Rev. A	Initial Report	8-August-2016	Azil Ezzaddin Khalil
Rev. B	Update EUT Description	1-September-2016	Azil Ezzaddin Khalil

1.0. General Information

EUT Description:

Technologies	LMR
Modulation Type	Analog, C4FM, 4FSK, TDMA

The EUT contains following accessory devices and data cable:

Item	Brand	Model or P/N
HI-CAP 2,300mAh battery	MOTOROLA	FNB-V142LI
WHIP ANTENNA 134-151MHz	MOTOROLA	ATV-8A
WHIP ANTENNA 150-163MHz	MOTOROLA	ATV-8B
WHIP ANTENNA 161-174MHz	MOTOROLA	ATV-8C
Belt Clip	MOTOROLA	CLIP-27
Micro USB Programming cable	N/A	CB000262A01

General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, the EUT is to comply with the requirements of the following standards:

ANSI/TIA/-603-D
ANSI C63.4.2014

2.0. Summary of Test Results

FCC General Rules Part (47CFR)	IC General Rules Part	Test Item	Result
15.109 (a)	RSS-Gen	Conducted Spurious Output Power	N/A
15.111 (a)	RSS-Gen	Radiated Spurious Output Power	Pass

3.0. Measurement Uncertainty

Measurement	Frequency	Expanded Uncertainty (k=1.96) (±)
AC Power Line Conducted Spurious Emission	150KHz ~ 30MHz	3.43
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	5.01
	200MHz ~ 1000MHz	5.01
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.01
	18GHz ~ 25GHz	5.01

4.0. Equipment List

Radiated Emission Station

Description	Model	Serial Number	Calibration Date	Calibration Due Date
DRG HORN FREQ.	SAS-571	566	2-Aug-15	8-Aug-16
BILOG ANTENNA	CBL6112B	2964	23-Jan-15	23-Jan-17
POWER SUPPLY	6031A	3121A02341	24-Feb-15	24-Feb-17
MICROWAVE SIGNAL GENERATOR	SMP04	100131	04-Jul-16	04-Jul-17
EMI TEST RECEIVER	ESIB26	827769/009	28-Jun-16	28-Jun-17
SIGNAL ANALYZER	FSV40	101103	25-Jun-16	25-Jun-17
5m Semi-anechoic Chamber	S800-HX	J2308	29-Jul-16	29-Jul-17
BILOG ANTENNA	CBL6112D	25516	23-Jan-16	23-Jan-17
BROAD-BAND HORN ANTENNA	BBHA9170	BBHA9170143	24-Nov-15	24-Nov-16
DATA LOGGER	TM320	12249289	27-Apr-16	27-Apr-17
POWER SUPPLY	6032A	3232A08417	20-Apr-15	20-Apr-17
SYSTEM CONTROLLER	SC104V	050806-1	No Cal. Req'd	No Cal. Req'd
TURNTABLE FLUSH MOUNT 2M	FM2011	NA	No Cal. Req'd	No Cal. Req'd
ANTENNA POSITIONING TOWER	TLT2	NA	No Cal. Req'd	No Cal. Req'd
18 - 40GHz PREAMPLIFIER	BBV9721	9721-007	No Cal. Req'd	No Cal. Req'd
PREAMPLIFIER	PAM-0118	427	No Cal. Req'd	No Cal. Req'd

5.0. Test Condition

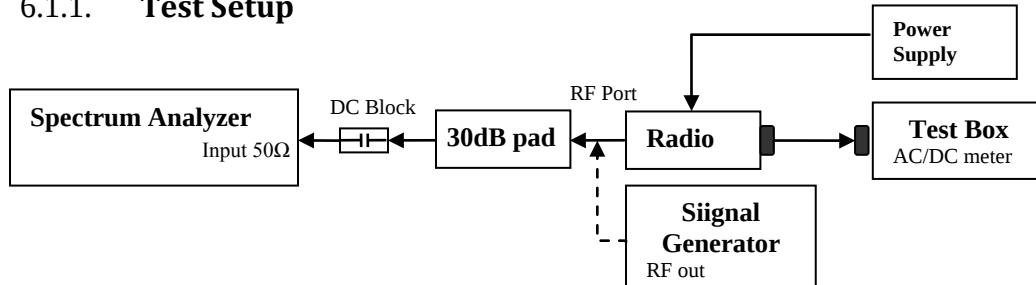
5.1 Receiver Test Conditions

Test Item, (Channel Spacing)	Temperature (°C)	Voltage Supply (V)	Power (W)	Modulation	Test Frequency (MHz)
Conducted Spurious Output Power (12.5kHz / 25kHz)	25°C	Nominal	Max	Analog	L, M, H
Radiated Spurious Output Power (12.5kHz / 25kHz)	25°C	Nominal	Max	Analog	L, M, H

6.0. Receiver Test Parameters

6.1. Conducted Spurious Output Power

6.1.1. Test Setup



- 1) Identify the radio is high side ($LO = F_c + IF$) or low side injection ($LO = F_c - IF$).
- 2) To get the reference point, set sigen to 1st LO frequency with amplitude level 0dBm.
- 3) Set the LO frequency into PSA. Adjust the PSA RBW = 100 kHz and record the Reference level offset.
- 4) Replace the UUT with the Sigen.
- 5) At PSA, set the frequency step size to LO frequency to test from 2LO to 10LO.
- 6) Record or screen captures the data in dBm value.

6.1.2. Test Results

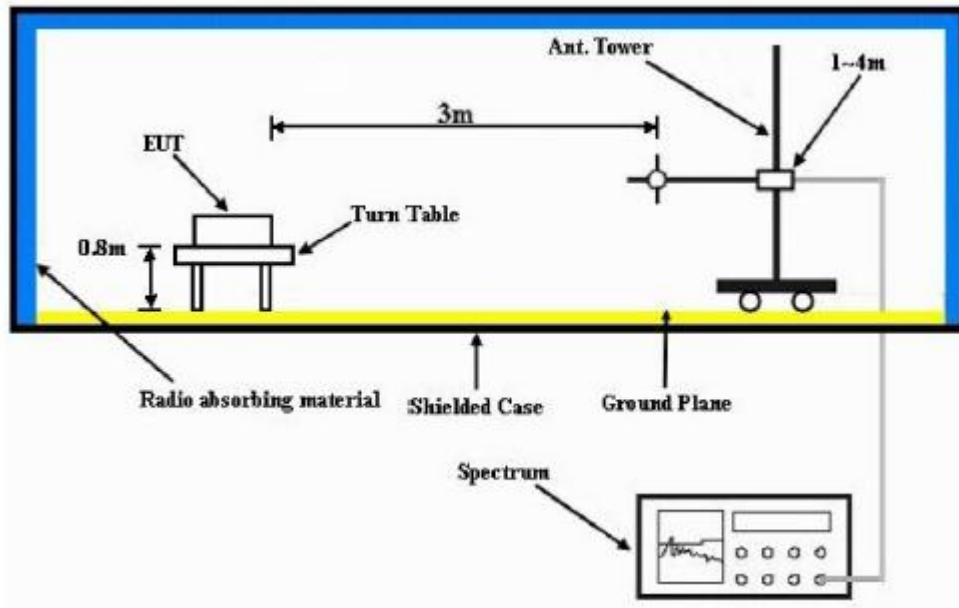
N/A

6.1.3. Test Limits

No spurious output appearing at the antenna terminals shall exceed -57dBm across 50Ω.

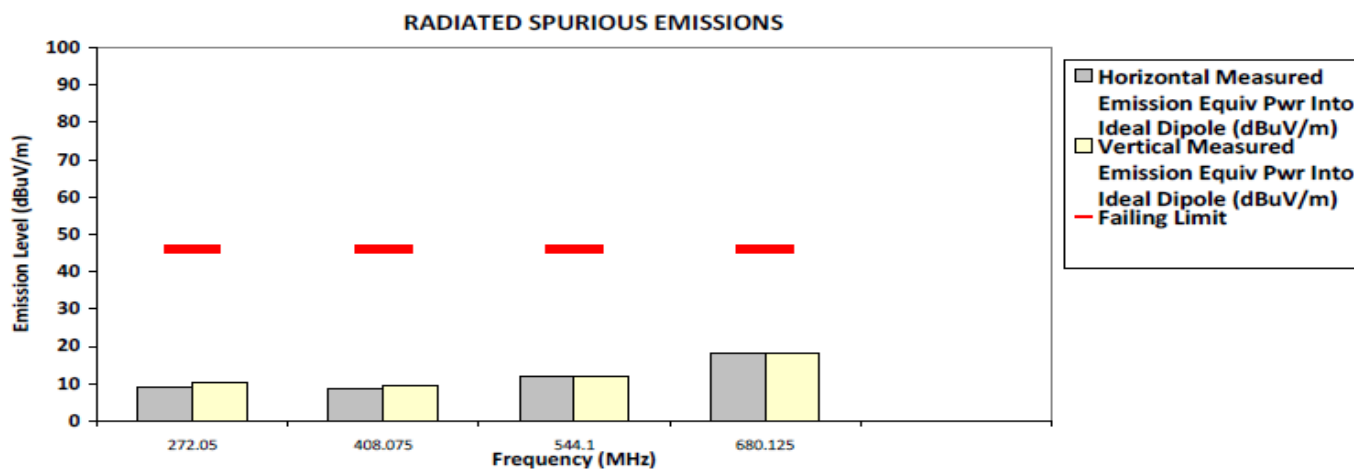
6.2. Radiated Spurious Output Power

6.2.1. Test Setup



- 1) The spectrum setting for scanning Radiated Emission below 1 GHz is RBW = 100 kHz, VBW = 300 kHz and above 1 GHz is RBW = 1MHz, VBW = 3MHz. Detector mode is positive peak.
- 2) In the semi-anechoic chamber, setup as illustrated above the EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- 3) The substitution antenna is substituted for EUT at the same position and signals generator (S.G) export the CW signal to the substitution antenna via a TX cable. The receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum radiation power. Record the power level of maximum radiation power from spectrum. So, the measured substitution value = Ref level of S.G + TX cables loss – Substituted Antenna Gain.
- 4) Final Radiated Spurious Emission = "Read Value" + Measured substitution value.

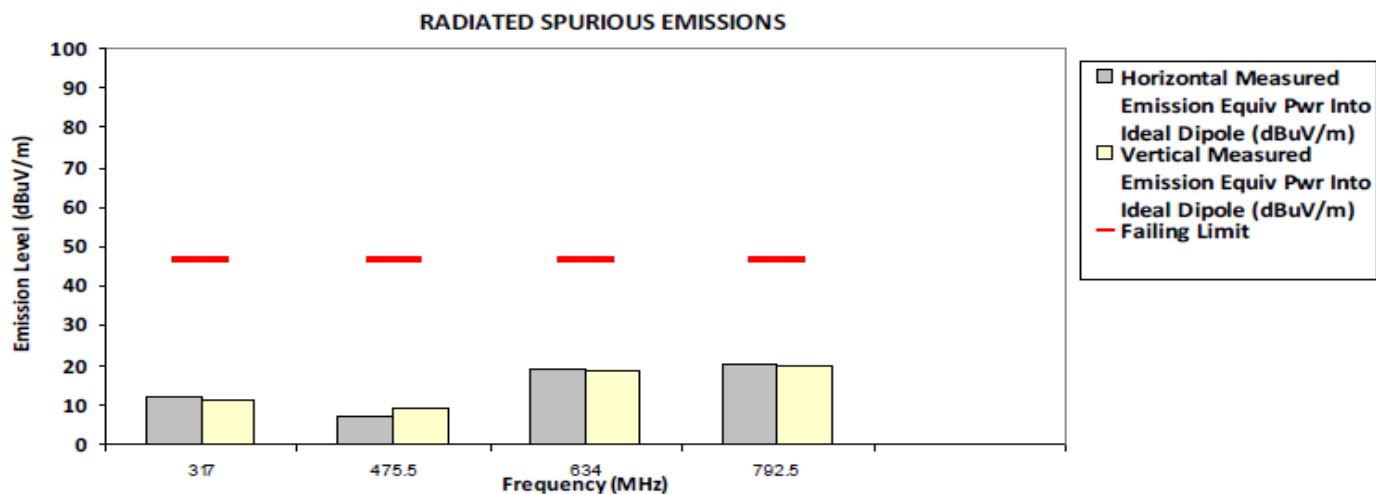
SAC Receiver Radiated Emission: EVX-261-D0-5 136-174MHZ 5W
Model #: EVX-261-D0-5 S/N: 2A6I030005 SR:05129-EMC-00002
Battery Part No: FNB-V134LI-UNI Accy Part No: NA
Test Mode: RX Analog
0 MHz 12.5 kHz 5.500 Watt(s) /Max Power

[illegible]

Failed Results

SAC Receiver Radiated Emission: EVX-261-D0-5 136-174MHz 5W
Model #: EVX-261-D0-5 S/N: 2A6I030005 SR:05129-EMC-00002
Battery Part No: FNB-V134LI-UNI Accy Part No: NA
Test Mode: RX Analog
158.500000 MHz 25 kHz 5.500 Watt(s) /Max Power

Frequency (MHz)	Failing Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBuV/m)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBuV/m)
317.0000	46.0000	11.6022 **	11.2489 **
475.5000	46.0000	6.9426 **	8.8117 **
634.0000	46.0000	19.0501 **	18.1694 **
792.5000	46.0000	20.2068 **	19.7738 **



The data presented here was taken using the substitution method as found in the ANSI C63.4 (2014) document.

Motorola Penang EMC Lab - Test Performed by: Nazrin&Qawiman

Wed, Aug 03, 2016

FCC Registration: 772092

Industry Canada: 109AK

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

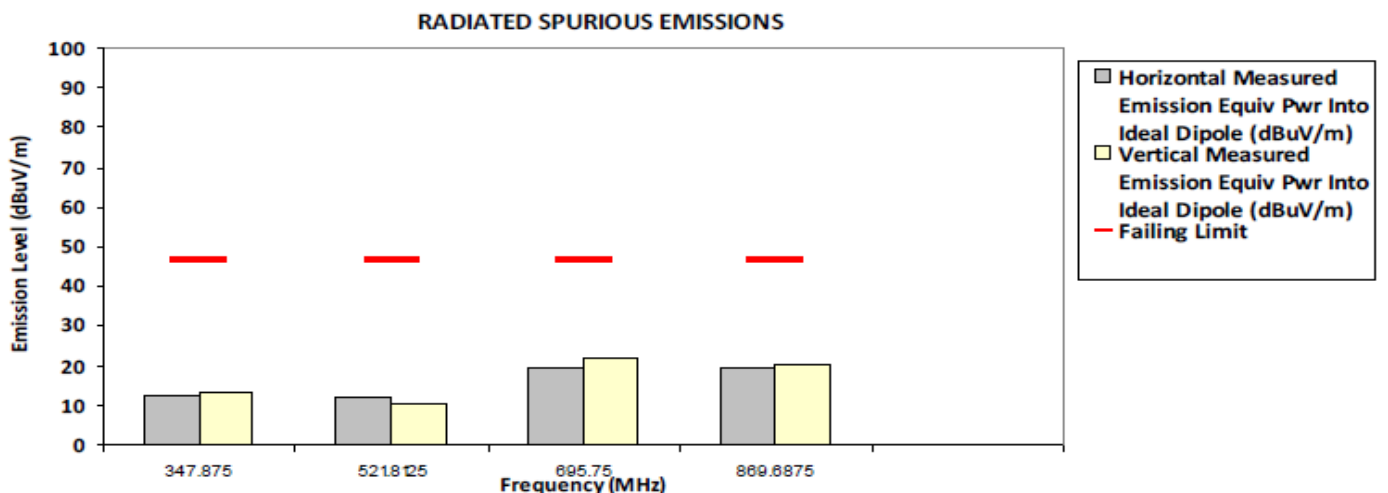
*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
 Temp(Deg): 24.1 Hum(%RH): 65.8

System MU: 5.01 dB

Remarks:

Passed Results	Marginal Results	Failed Results
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173.937500 MHz 25 kHz 5.500 Watt(s) /Max Power

[illegible]

The data presented here was taken using the substitution method as found in the ANSI C63.4 (2014) document.

Motorola Penang EMC Lab - Test Performed by: Nazrin&Qawiman

Wed, Aug 03, 2016

FCC Registration: 772092

Industry Canada: 109AK

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported
Temp(Deg): 24.1 Hum(%RH): 65.8

System MU: 5.01 dB

Remarks:

Passed Results	Marginal Results	Failed Results
----------------	------------------	----------------

6.2.3. Test Limits

(a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of emission (MHz)	Field strength (microvolts/meter)
30-88	100
88-216	150
216-960	200
Above 960	500

(b) The field strength of radiated emissions from a Class A digital device, as determined at a distance of 10 meters, shall not exceed the following:

Frequency of emission (MHz)	Field strength (microvolts/meter)
30-88	90
88-216	150
216-960	210
Above 960	300

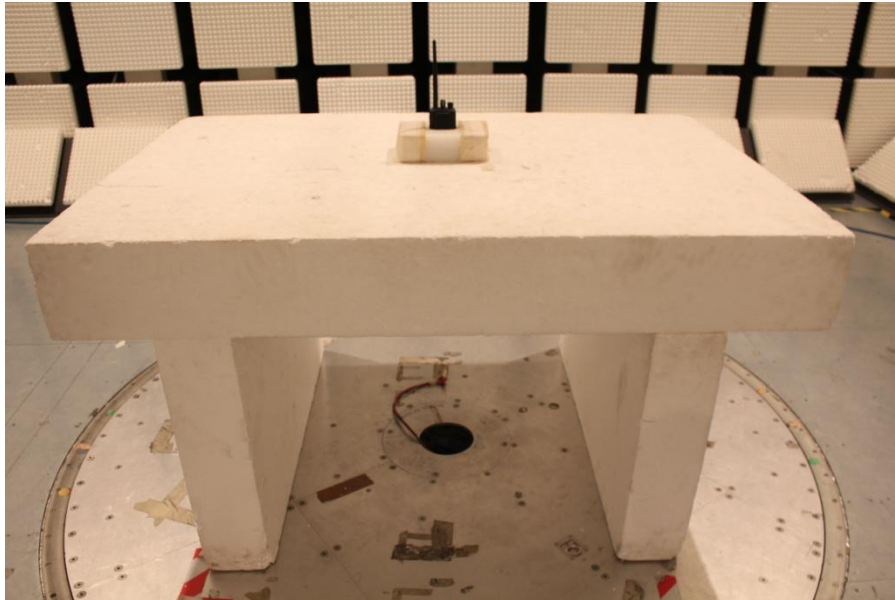
7.0. Appendix: Test Setup Photo

7.1. Conducted Spur Emission ATE Station Setup

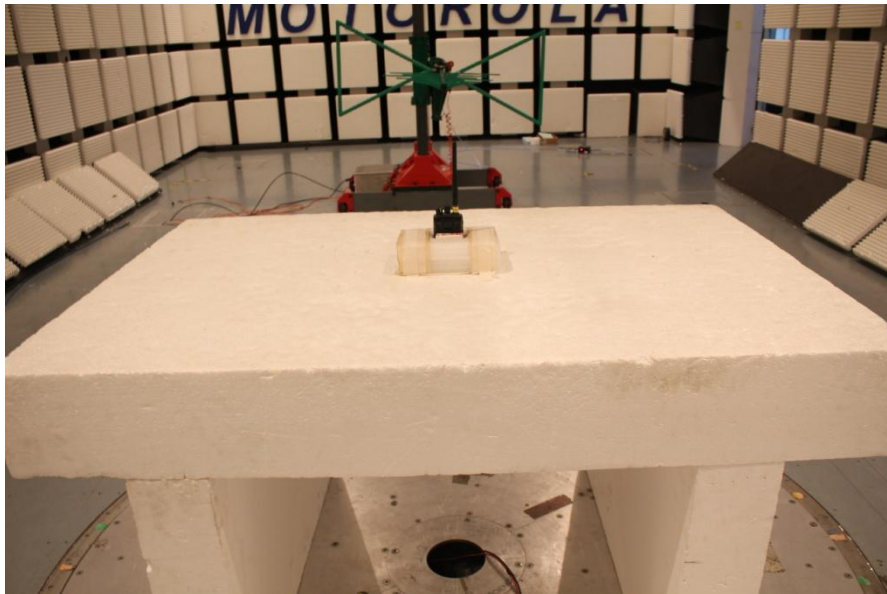
N/A

7.2. Radiated Spur Emission Station Setup

7.2.1. Radiated Emission - Photo Front View



7.2.2. Radiated Emission - Photo Rear View



End of Report