

	 MS ISO/IEC 17025 TESTING SAMM No. 0825																										
MOTOROLA PENANG ADV. COMM. LABORATORY Motorola Solutions Malaysia SDN BHD, Innoplex, Plot 2A, Medan Bayan Lepas, Mukim 12 S.W.D, 11900 Bayan Lepas, Penang, Malaysia.	FCC / ISED TEST REPORT Report Revision : Rev.B																										
<table><tr><td>Date/s Tested</td><td>: 31-May-2019 - 1-June-2019</td></tr><tr><td>Manufacturer</td><td>: Motorola Solutions Penang</td></tr><tr><td>Manufacturer Address</td><td>: Motorola Solutions Malaysia SDN BHD Innoplex, Plot 2A, Medan Bayan Lepas, Mukim 12 S.W.D, 11900 Bayan Lepas, Penang, Malaysia</td></tr><tr><td>Requestor</td><td>: Teik Hang Lee</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>: 136 to 174 MHz</td></tr><tr><td>Firmware Version</td><td>: CPU/DSP: 1.13 / 1.18</td></tr><tr><td>Rated / Max RF Output Power</td><td>: 5 Watts / 5.5 Watts</td></tr><tr><td>Applicant Name</td><td>: Motorola Solution Inc</td></tr><tr><td>ISED Registrations</td><td>: MY0001</td></tr><tr><td>FCC Registrations</td><td>: 461337</td></tr></table> The equipment was tested accordance to the requirement listed below: <table><tr><td>(LMR) FCC 47 CFR (Part 90 / IC RSS 119)</td><td>PASS</td></tr></table>		Date/s Tested	: 31-May-2019 - 1-June-2019	Manufacturer	: Motorola Solutions Penang	Manufacturer Address	: Motorola Solutions Malaysia SDN BHD Innoplex, Plot 2A, Medan Bayan Lepas, Mukim 12 S.W.D, 11900 Bayan Lepas, Penang, Malaysia	Requestor	: Teik Hang Lee	Product Type	: Portable	Model Number	: EVX-261-D0-5	Frequency Band	: 136 to 174 MHz	Firmware Version	: CPU/DSP: 1.13 / 1.18	Rated / Max RF Output Power	: 5 Watts / 5.5 Watts	Applicant Name	: Motorola Solution Inc	ISED Registrations	: MY0001	FCC Registrations	: 461337	(LMR) FCC 47 CFR (Part 90 / IC RSS 119)	PASS
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Prepared By: Mohd Helmy Shamsuddin Technician	Approved By: Ho Sze Khian Responsible Engineer																										

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1.0. General Information

EUT Description:

Technologies	LMR
Modulation Type	Analog (FM) and Digital (TDMA)

The EUT contains following accessory devices and data cable:

Item	Brand	Model or P/N
MSI EVX-261-D0-5 136-174MHZ	MOTOROLA	AC137N501
HI-CAP 2300 mAh Li-ion Battery	MOTOROLA	FNB-V134LI-UNI

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 C63.26.2015

ANSI C63.4.2014

2.0. Summary of Test Results

FCC General Rules Part (47CFR)	IC General Rules Part	Test Item	Result	Remark
90.210	RSS-Gen, RSS-119	Conducted Spurious Emissions	NA	NA
90.210	RSS-Gen, RSS-119	Radiated Spurious Emission	Pass	NA

NA → Not Applicable

3.0. Measurement Uncertainty

Measurement	Frequency	Expended 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
Conducted Spurious Emissions	9kHz ~ 12.75GHz	2.82

4.0. Equipment List

Conducted Spur Emission Ate # 1

NOT APPLICABLE

Radiated Emission Station

EMC Chamber 1

DESCRIPTION	MODEL	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
DRG HORN FREQ.	SAS-571	719	18-Jul-17	18-Jul-19
DRG HORN FREQ.	SAS-571	1143	14-Feb-19	14-Feb-21
POWER SUPPLY	6032A	2615A-01178	13-Jun-18	13-Jun-19
SIGNAL GENERATOR	SMB 100A	181117	8-Nov-18	8-Nov-21
EMI TEST RECEIVER	ESW44	101750	25-Jun-18	25-Jun-19
5m Semi-anechoic Chamber	S800-HX	J2308	No Cal. Req'd	No Cal. Req'd
BILOG ANTENNA	CBL6112D	30991	23-Apr-18	23-Jul-19
BILOG ANTENNA	CBL6112B	2964	16-Feb-18	16-Feb-20
DATA LOGGER	SDL500	A.016800	19-Mar-19	18-Mar-20
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
BROAD-BAND HORN ANTENNA	BBHA9170	BBHA9170255	21-Dec-18	21-Dec-19
18 - 40GHz PREAMPLIFIER	Miteq Hi Gain Sucoflex	001	No Cal. Req'd	No Cal. Req'd
PREAMPLIFIER	PAM-0118P	361	No Cal. Req'd	No Cal. Req'd
LOOP ANTENNA	6502	00208416	17-Aug-18	17-Aug-19
Test Software	EMC_FCC_IC_Bluetooth_RE_Test			
Version	EMC_FCC_RE_v1.5.2			

AC Power Line Conducted Spurious Emission

NOT APPLICABLE

4.1. Test Condition

4.1 Transmitter Test Conditions

Test Item, (Channel Spacing)	Temperature (°C)	Voltage Supply (V)	Power (W)	Modulation	Test Frequency (MHz)
Conducted Spurious Output Power (12.5kHz and 25.0kHz)	25°C	Nominal	Max	Analog	NA
Radiated Spurious Output Power (12.5kHz and 25.0kHz)	25°C	Nominal	Max	Analog	L, M, H
AC Power Line Conducted Spurious Emissions (12.5kHz and 25.0kHz)	25°C	Nominal	Max	Analog	NA

NA → Not Applicable

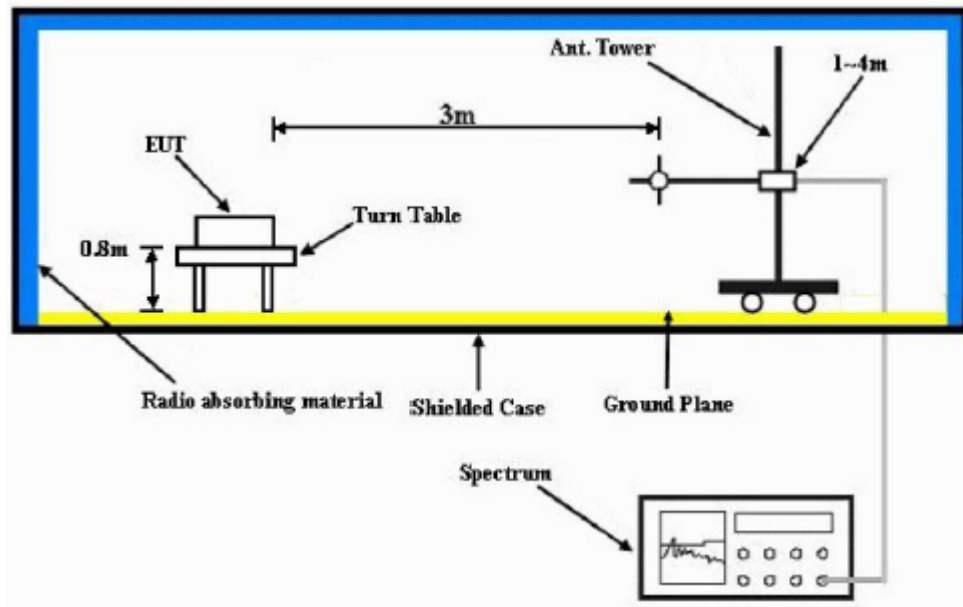
5.0. Receiver Test Parameters

5.1. Conducted Spurious Output Power

NOT APPLICABLE

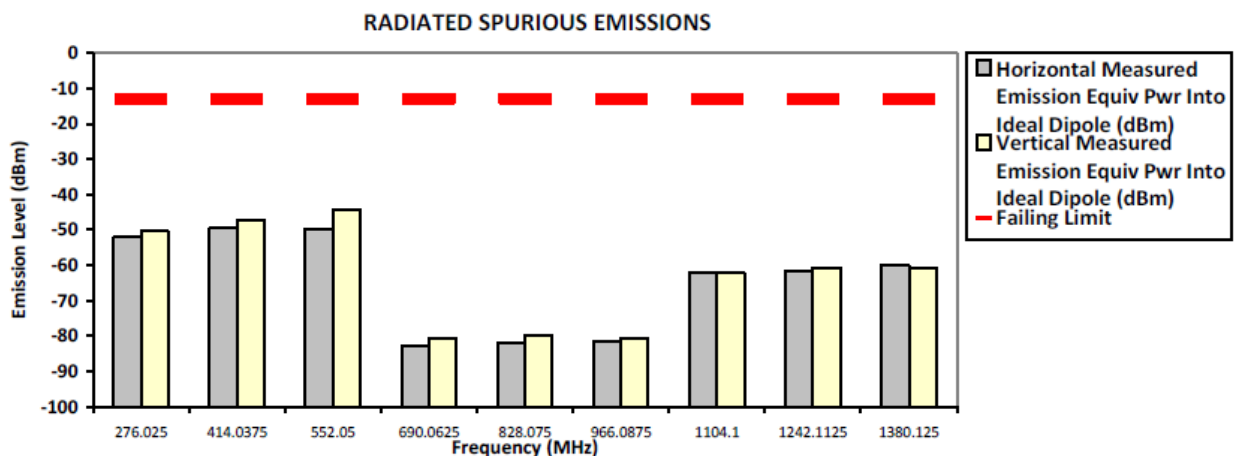
5.2. Radiated Spurious Output Power

5.2.1. 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.

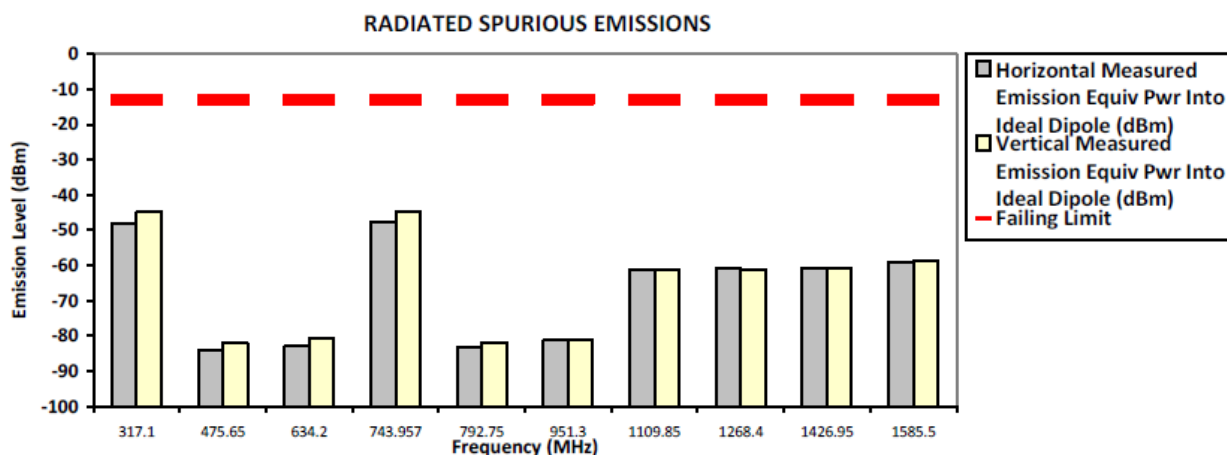
SAC Transmitter Radiated Emission:		
Model Number: EVX-261-D0-5	S/N: 2A9E275017	SR: 10880-EMC-00007
Battery Part No: FNB-V134LI-UNI	Accy Part No: NA	
Test Mode: TX Analog		
138.012500 MHz	25 kHz	5.500 Watt(s) /Max Power

[illegible]

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): 23.5 Hum(%RH): 69.4

Remarks:	Passed Results	Marginal Results	Failed Results
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SAC Transmitter Radiated Emission:		
Model Number: EVX-261-D0-5	S/N: 2A9E275017	SR:10880-EMC-00007
Battery Part No: FNB-V134LI-UNI	Accy Part No: NA	
Test Mode: TX Analog		
158.550000 MHz	25 kHz	1.000 Watt(s) /Low Power

[illegible]

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): 23.5 Hum(%RH): 69.4

Remarks:

Passed Results	Marginal Results	Failed Results
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Motorola Solutions.

FCC ID: AXI11373020
 IC ID: 109U-89FT3839

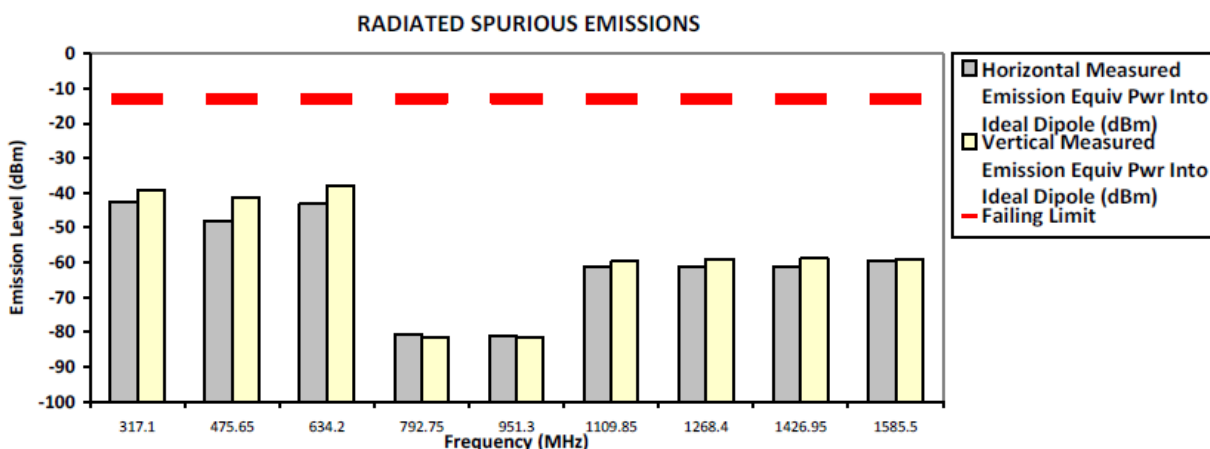
SAC Transmitter Radiated Emission:

Model Number: EVX-261-D0-5 **S/N:** 2A9E275017 **SR:**10880-EMC-00007

Battery Part No: FNB-V134LI-UNI **Accy Part No:** NA

Test Mode: TX Analog **158.550000 MHz** **25 kHz** **5.500 Watt(s) /Max Power**

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
317.1000	-13.0000	-42.6300 *	-39.1200 *
475.6500	-13.0000	-48.0100 *	-41.1400 *
634.2000	-13.0000	-43.1900 *	-37.9200 *
792.7500	-13.0000	-80.6396 **	-81.3294 **
951.3000	-13.0000	-81.0460 **	-81.5576 **
1109.8500	-13.0000	-61.3148 **	-59.7048 **
1268.4000	-13.0000	-61.0699 **	-59.0857 **
1426.9500	-13.0000	-61.3475 **	-58.8603 **
1585.5000	-13.0000	-59.6889 **	-58.9965 **



The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.
 Qawiman&Azil Fri, May 31, 2019

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): 23.5 Hum(%RH): 69.4

System MU: 5.01 dB

Remarks: Passed Results Marginal Results Failed Results

Motorola Solutions.

SAC Transmitter Radiated Emission:

Model Number: EVX-261-D0-5

S/N: 2A9E275017

SR:10880-EMC-00007

Battery Part No: FNB-V134LI-UNI

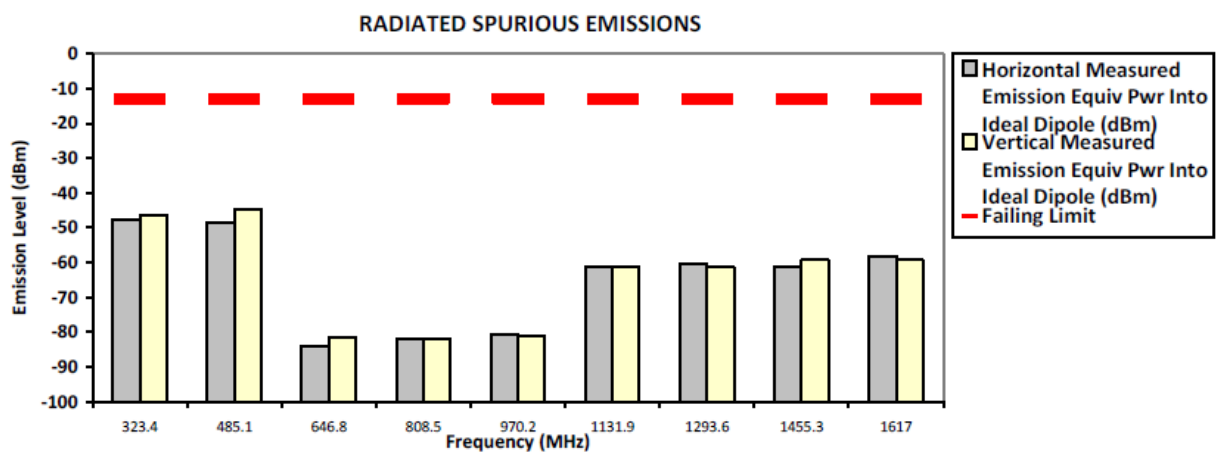
Accy Part No: NA

Test Mode: TX Analog

161.700000 MHz

25 kHz

1.000 Watt(s) /Low Power

[illegible]

The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.

Qawiman&Azil

Fri, May 31, 2019

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): 23.5 Hum(%RH): 69.4

System MU: 5.01 dB

Remarks:

Passed Results

Marginal Results

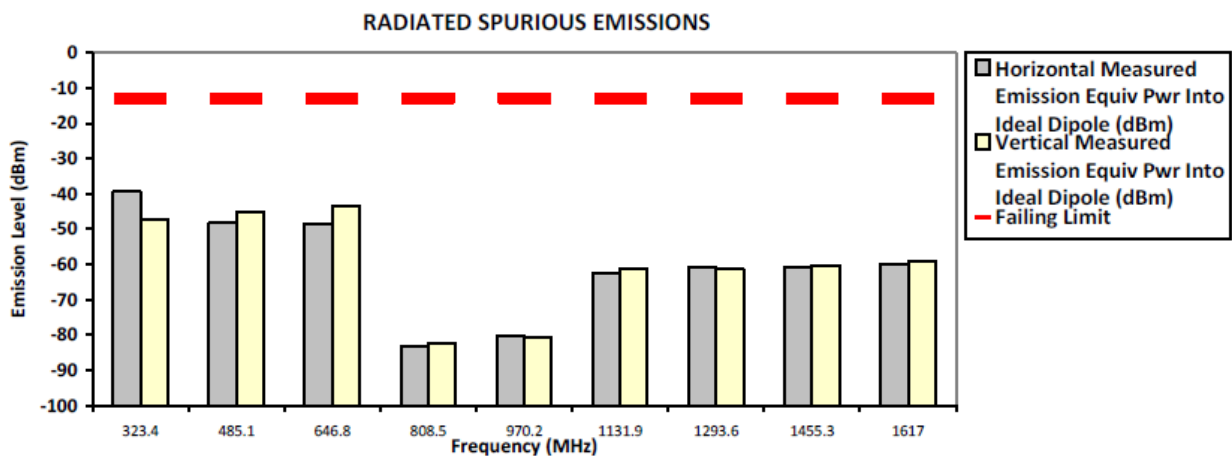
Failed Results

Motorola Solutions.

SAC Transmitter Radiated Emission:

Model Number: EVX-261-D0-5	S/N: 2A9E275017	SR:10880-EMC-00007
Battery Part No: FNB-V134LI-UNI	Accy Part No: NA	
161.700000 MHz	Test Mode: TX Analog	5.500 Watt(s) /Max Power
	25 kHz	

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
323.4000	-13.0000	-39.4200 *	-47.3800 *
485.1000	-13.0000	-48.2400 *	-45.1500 *
646.8000	-13.0000	-48.3800 *	-43.6700 *
808.5000	-13.0000	-83.0778 **	-82.3895 **
970.2000	-13.0000	-80.0692 **	-80.7104 **
1131.9000	-13.0000	-62.5381 **	-61.3040 **
1293.6000	-13.0000	-60.8781 **	-61.2795 **
1455.3000	-13.0000	-60.7579 **	-60.2631 **
1617.0000	-13.0000	-59.7383 **	-59.1118 **



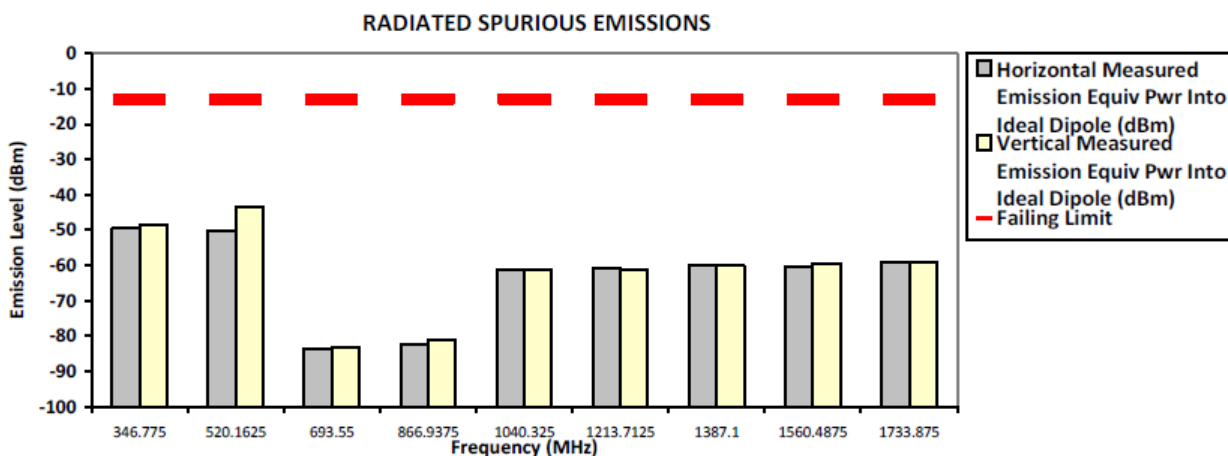
The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.
 Qawiman&Azil Fri, May 31, 2019

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): 23.5 Hum(%RH): 69.4

System MU: 5.01 dB

Remarks: Passed Results Marginal Results Failed Results

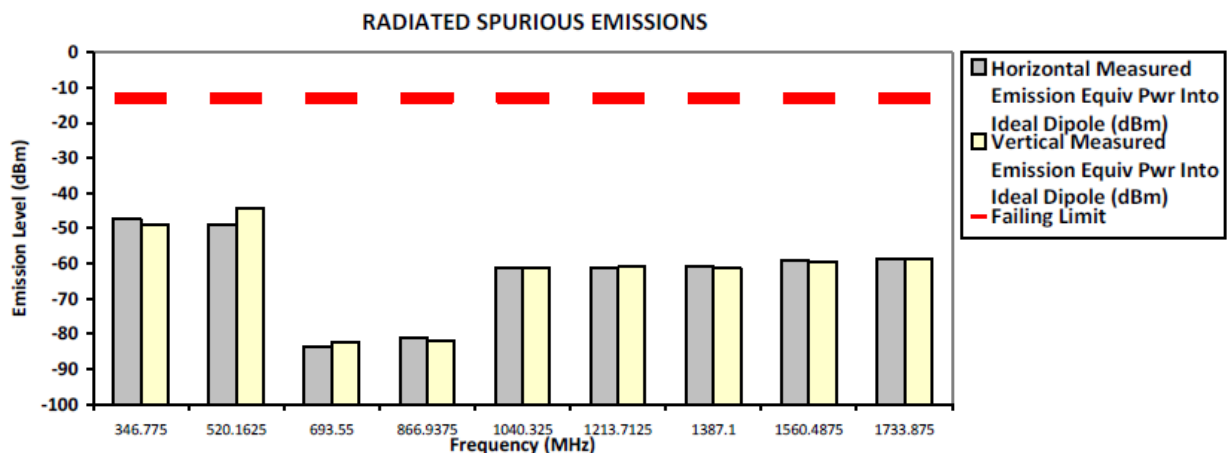
SAC Transmitter Radiated Emission:		
Model Number: EVX-261-D0-5	S/N: 2A9E275017	SR:10880-EMC-00007
Battery Part No: FNB-V134LI-UNI	Accy Part No: NA	
Test Mode: TX Analog		
173.387500 MHz	25 kHz	1.000 Watt(s) /Low Power

[illegible]

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): 23.5 Hum(%RH): 69.4

Remarks:	Passed Results	Marginal Results	Failed Results
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SAC Transmitter Radiated Emission:		
Model Number: EVX-261-D0-5	S/N: 2A9E275017	SR:10880-EMC-00007
Battery Part No: FNB-V134LI-UNI	Accy Part No: NA	
Test Mode: TX Analog		
173.387500 MHz	25 kHz	5.500 Watt(s) /Max Power

[illegible]

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): 23.5 Hum(%RH): 69.4

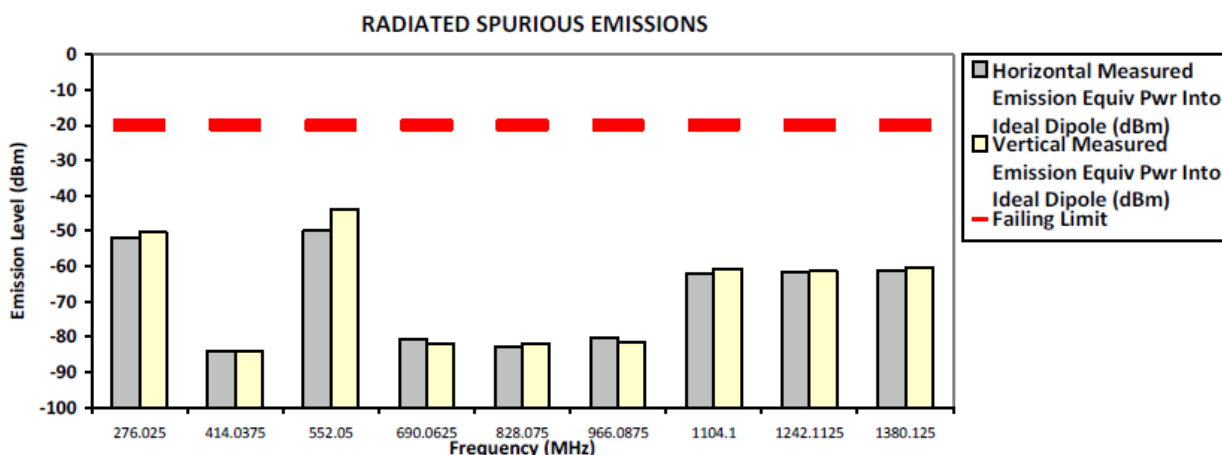
Remarks:	Passed Results	Marginal Results	Failed Results
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Motorola Solutions.

SAC Transmitter Radiated Emission:

Model Number: EVX-261-D0-5 S/N: 2A9E275017 SR:10880-EMC-00007
 Battery Part No: FNB-V134LI-UNI Accy Part No: NA
 Test Mode: TX Digital
 138.012500 MHz 12.5 kHz 1.000 Watt(s) /Low Power

Frequency (MHz)	Limit	Horizontal Measured Emission Equiv Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into ideal Dipole (dBm)
276.0250	-20.0000	-51.7800 *	-50.4600 *
414.0375	-20.0000	-84.0556 **	-84.0617 **
552.0500	-20.0000	-49.9000 *	-43.8100 *
690.0625	-20.0000	-80.6984 **	-81.7482 **
828.0750	-20.0000	-82.5721 **	-81.9081 **
966.0875	-20.0000	-80.0963 **	-81.4798 **
1104.1000	-20.0000	-61.9634 **	-60.6866 **
1242.1125	-20.0000	-61.7653 **	-61.4137 **
1380.1250	-20.0000	-61.0580 **	-60.4054 **



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 Qawiman&Azil Fri, May 31, 2019

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): 23.5 Hum(%RH): 69.4

System MU: 5.01 dB

Remarks: Passed Results Marginal Results Failed Results

5.500 Watt(s) /Max Power

Motorola Solutions.

SAC Transmitter Radiated Emission:

Model Number: EVX-261-D0-5

S/N: 2A9E275017

SR:10880-EMC-00007

Battery Part No: FNB-V134LI-UNI

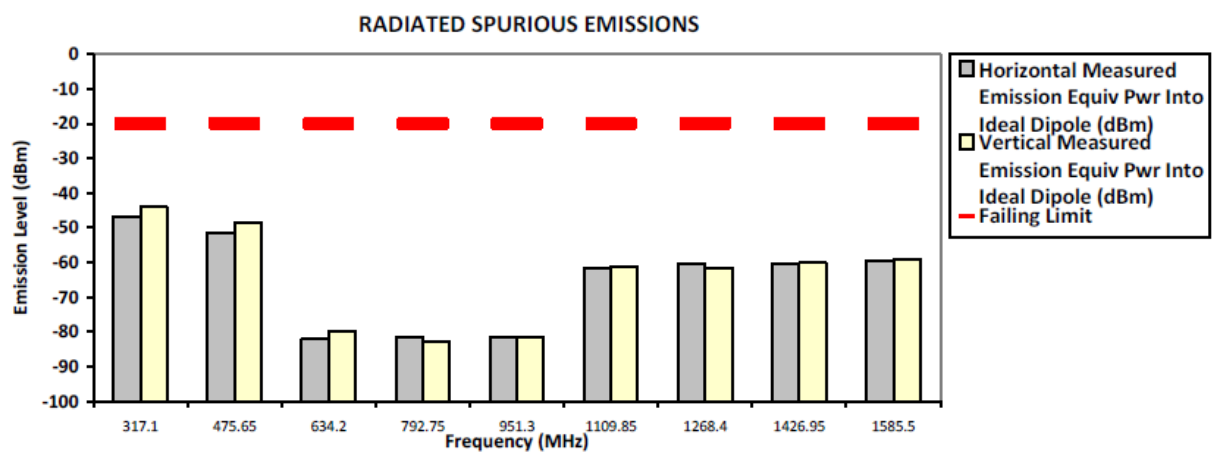
Accy Part No: NA

Test Mode: TX Digital

158.550000 MHz

12.5 kHz

1.000 Watt(s) /Low Power

[illegible]

The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.

Qawiman&Azil

Fri, May 31, 2019

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): 23.5 Hum(%RH): 69.4

System MU: 5.01 dB

Remarks:

Passed Results

Marginal Results

Failed Results

Motorola Solutions.

SAC Transmitter Radiated Emission:

Model Number: EVX-261-D0-5

S/N: 2A9E275017

SR:10880-EMC-00007

Battery Part No: FNB-V134LI-UNI

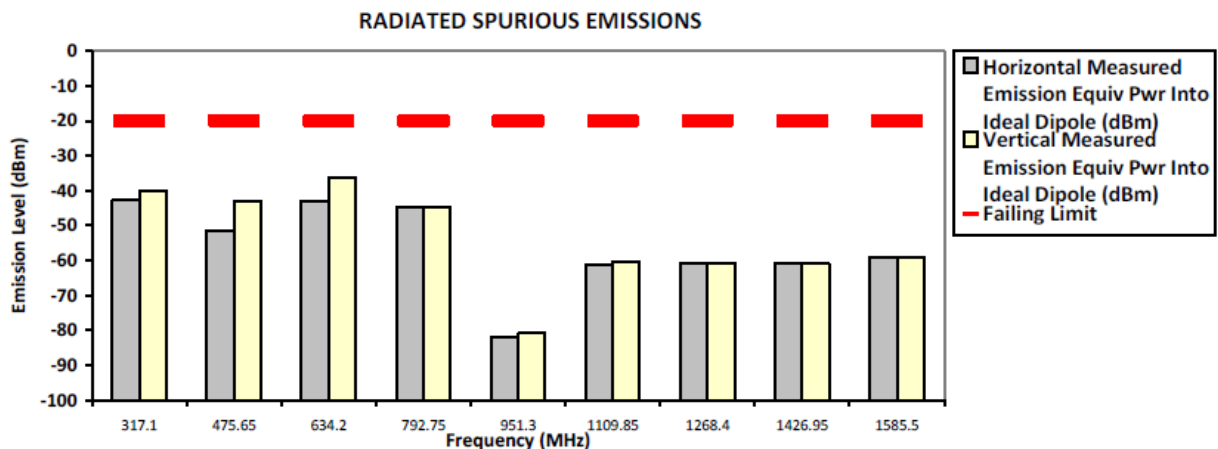
Accy Part No: NA

Test Mode: TX Digital

158.550000 MHz

12.5 kHz

5.500 Watt(s) /Max Power

[illegible]

The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.

Qawiman&Azil

Fri, May 31, 2019

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): 23.5 Hum(%RH): 69.4

System MU: 5.01 dB

Remarks:

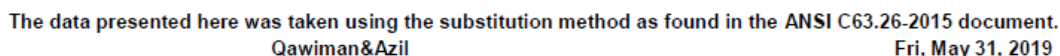
Passed Results

Marginal Results

Failed Results

[illegible]

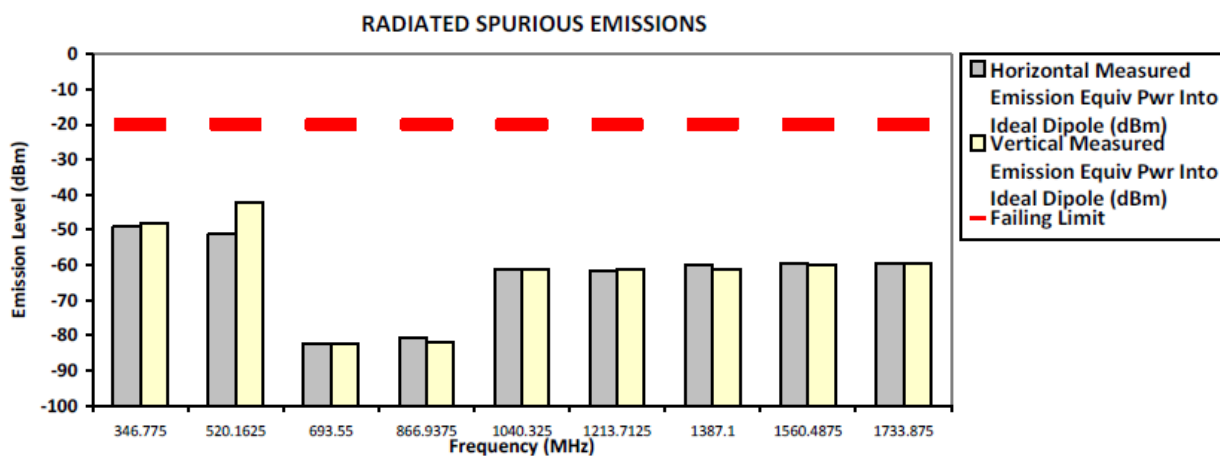
Failed Results

[illegible]

System MU: 5.01 dB

Remarks:	Passed Results	Marginal Results	Failed Results
----------	----------------	------------------	----------------

SAC Transmitter Radiated Emission:

[illegible]

The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.

System MU: 5.01 dB

Failed Results

Motorola Solutions.

SAC Transmitter Radiated Emission:

Model Number: EVX-261-D0-5

S/N: 2A9E275017

SR:10880-EMC-00007

Battery Part No: FNB-V134LI-UNI

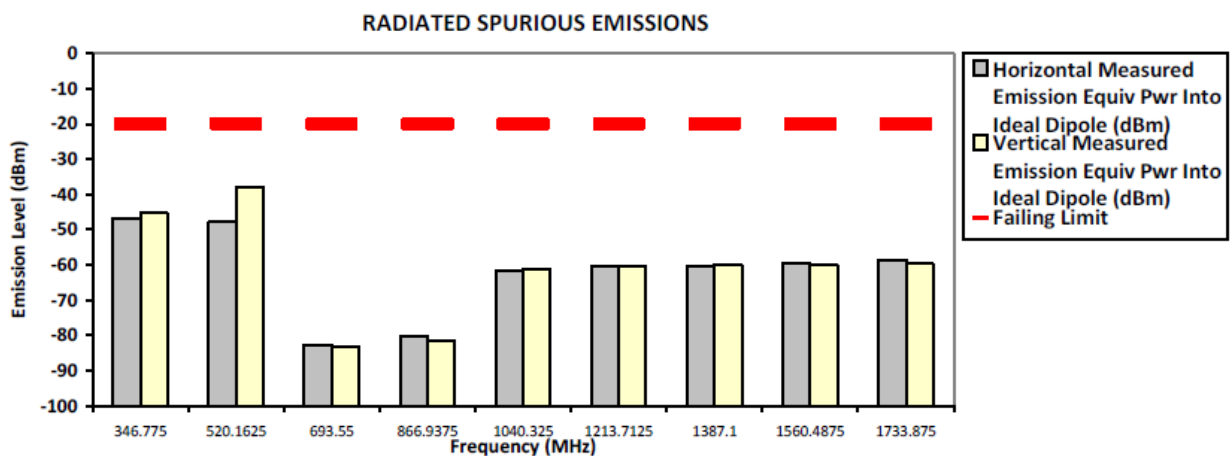
Accy Part No: NA

Test Mode: TX Digital

173.387500 MHz

12.5 kHz

5.500 Watt(s) /Max Power

[illegible]

The data presented here was taken using the substitution method as found in the ANSI C63.26-2015 document.

Qawiman&Azil

Fri, May 31, 2019

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): 23.5 Hum(%RH): 69.4

System MU: 5.01 dB

Remarks:

Passed Results

Marginal Results

Failed Results

5.2.2. Test Limit

(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

5.3. AC Power Line Conducted Spur Emissions

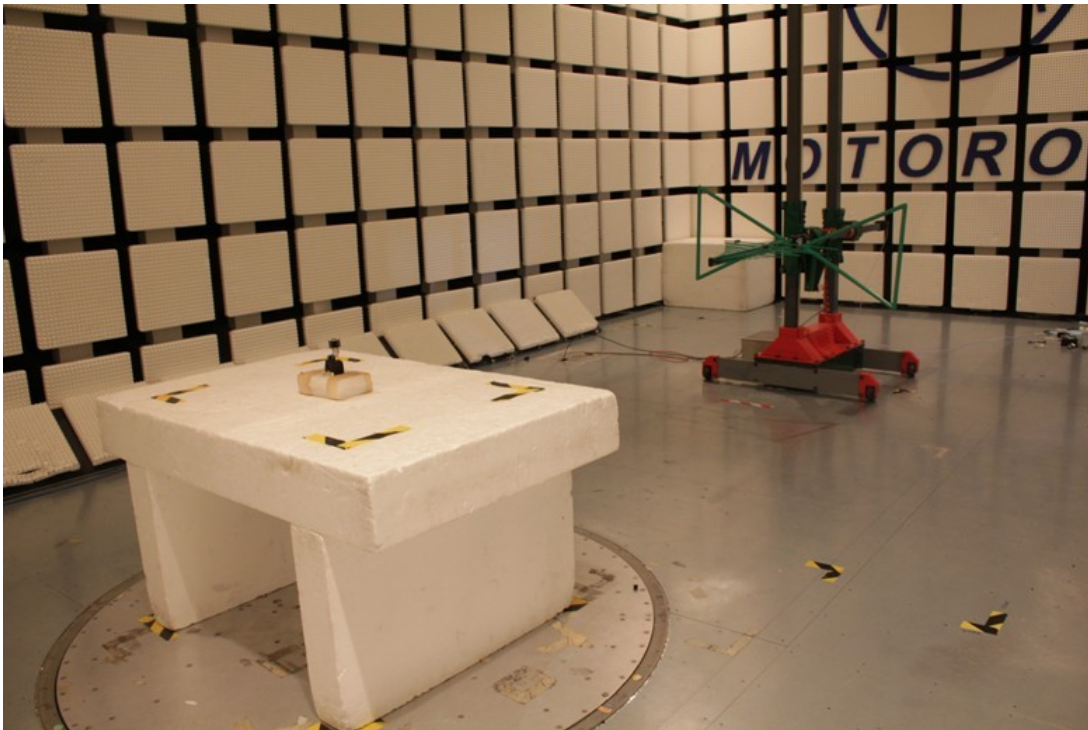
NOT APPLICABLE

6.0. Appendix: Test Setup Photo

6.1. Conducted Spur Emission ATE Station Setup

NOT APPLICABLE

6.2. Radiated Spur Emission Station Setup



6.3. AC Power Line Conducted Emission Station Setup

NOT APPLICABLE

6.4. Photographs - EUT



Front View



Back View (With Battery)

~ End of Test Report ~