



Compliance Certification Services (Kunshan) Inc.
Shenzhen Branch

Report No.: FYCR220400006202

Page: 1 of 69

TEST REPORT

Application No.: FYCR2204000062CR
Applicant: Uniden America Corporation
Address of Applicant: 6225 N. State Highway 161 Suite 300, Irving, Texas 75038 United States
Manufacturer: Uniden Holding Corporation
Address of Manufacturer: 2-12-7, Hacchobori, Chuo-ku, Tokyo, Japan, 104-8512
Factory: Uniden Vietnam Limited
Address of Factory: Lot 5. 1, Tan Truong Industrial Zone, Cam Giang District, Hai Duong Province, Vietnam
Equipment Under Test (EUT):
EUT Name: Handheld VHF Marine Radio
Model No.: MHS338BT
Trade mark: Uniden
FCC ID: AMWUT665
Standards: 47 CFR Part 80
Date of Receipt: 2022-04-09
Date of Test: 2022-04-14 to 2022-05-19
Date of Issue: 2022-05-20

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Winkey Wang
EMC Laboratory Manager



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Version	Chapter	Date	Modifier	Remark
01		2022-05-20		Original

Authorized for issue by:				
		Tree Zhan		
		Tree Zhan/Project Engineer		
		Winkey Wang		
		Winkey Wang/Reviewer		



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1 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 80	N/A	47 CFR Part 80.3(e),	Pass

Item	Standard	Method	Requirement	Result
Bandwidths	47 CFR Part 80	ANSI/TIA-603-E-2016 ANSI C63.26:2015	47 CFR Part 2.1049, 80.205(a)	Pass
Transmitter frequency tolerances	47 CFR Part 80		47 CFR Part 2.1055, 80.209(a)	Pass
Emission Mask	47 CFR Part 80		47 CFR Part 2.1047, 80.211(f)(1)(2)	Pass
Spurious Emissions at antenna Terminals	47 CFR Part 80		47 CFR Part 2.1047, 80.211(f)(3)	Pass
Modulation requirements	47 CFR Part 80		47 CFR Part 2.1047, 80.213	Pass
Transmitter frequency Deviation	47 CFR Part 80		47 CFR Part .1047, 80.213	Pass
Transmitter power	47 CFR Part 80		47 CFR Part 2.1046, 80.215	Pass
Transmitter Carrier Power Reduction	47 CFR Part 80		47 CFR Part 80.215(e)(f)	N/A
Suppression of interference aboard ships	47 CFR Part 80		47 CFR Part 80.217	Pass

Note:

N/A: Not Applicable, Hand-held portable transmitters are not required to comply with the automatic reduction of carrier power.



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3 General Information

3.1 Details of E.U.T.

Power supply:	Power Supply: Model: SAW12-120-1000UD Input: AC 100-240V, 50/60Hz, 0.3A Output: DC 12V, 1000mA Li-ion POLYMER RECHARGEABLE BATTERY Input: 7.4V, 1800mAh, 13.32Wh Model: BT335
Cable(s):	DC cable:177cm unshielded
Sample Type:	Portable device
Internal Source:	More than 108MHz
Transceiver frequency Range:	156.025MHz-161.60MHz(TX) 156.050MHz-163.275MHz(RX)
DSC Transmitter Frequency Range:	156.525MHz(CH70), Meets Global DSC Class D standards.
Modulation Type:	VHF:FM for Analog DSC:FSK
Frequency Spacing:	VHF: 25KHz
Emission Type:	16K0G3E for VHF 16K0G2B for DSC
Rated Output Power:	6W/2.5W/1W for VHF/DSC;
VHF/DSC Antenna Connectors:	External Antenna
VHF/DSC Antenna Gain:	3dBi
Type of Equipment:	Ship stations

3.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
DC power	NOISEKEN	BP-4610	9105713
Coaxial Attenuator	Provided by client	TS4	HYT168793



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3.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
99% Bandwidth	$\pm 0.3\%$
Conducted Band Edges Measurement	$\pm 2.7\text{dB}$
Conducted Emissions at AC Power Line (150kHz-30MHz)	$\pm 2.1\text{ dB (9kHz to 30MHz)}$
Maximum Conducted Output Power	$\pm 0.8\text{dB}$
Conducted Spurious Emissions	$\pm 2.7\text{dB}$
Minimum 6dB Bandwidth	$\pm 0.3\%$
Power Spectrum Density	$\pm 0.4\text{dB}$
Radiated Emissions below 1GHz	$\pm 3.1\text{dB (Below 1GHz)}$
Radiated Emissions which fall in the restricted bands	$\pm 4.4\text{dB (Above 1GHz)}$
Frequency Stability	$\pm 5.4 \times 10^{-8}$
Radiated Emissions Above 1GHz	$\pm 4.4\text{dB (Above 1GHz)}$



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3.4 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc. Shenzhen branch.

Fuyong lab. Xinlong TechnoPark, Fengtang Road, Fuyong Subdistrict, Bao'an, Shenzhen, China

Tel: +86 755 8866 3988 Fax: +86 755 2671 0594

No tests were sub-contracted.

3.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **A2LA (Certificate No. 6606.01)**

Compliance Certification Services (Kunshan) Inc. Shenzhen branch is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 6606.01.

• **FCC –Designation Number: CN1322**

Compliance Certification Services (Kunshan) Inc. Shenzhen branch has been recognized as an accredited testing laboratory.

Designation Number: CN1322. Test Firm Registration Number: 718073

• **Innovation, Science and Economic Development Canada**

Compliance Certification Services (Kunshan) Inc. Shenzhen branch has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0129.

IC#: 28189.

3.6 Deviation from Standards

None

3.7 Abnormalities from Standard Conditions

None



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4 Equipment List

RF Conducted Test					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2021/7/13	2022/7/12
MXA Signal Analyzer(10Hz-26.5GHz)	Agilent	N9020A	SEM004-20	2021/7/13	2022/7/12
Signal Generator(9kHz-40GHz)	Agilent	N5173B	SEM006-05	2021/7/13	2022/7/12
ESG Vector Signal Generator(250kHz-6GHz)	Agilent	E4438C	SEM006-15	2021/7/13	2022/7/12
Power Sensor	KEYSIGHT	U2021XA	SEM009-15	2021/7/13	2022/7/12
Power Sensor	KEYSIGHT	U2021XA	SEM009-16	2021/7/13	2022/7/12
Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-08	2021/7/13	2022/7/12
Programmable DC Source	Chroma	62024P-80-60	SEM011-09	2021/7/13	2022/7/12
Attenuator(18GHz, 20dB, 2W)	Huber+Suhner	6620_SMA-50-1	SEM021-09	2021/7/13	2022/7/12



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Radiated Spurious Emissions (Below 1GHz & Above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Anechoic Chamber	CRT	N/A	SEM001-13	2021/7/13	2022/7/12
Trilog-Broadband Antenna(25MHz-2GHz)	Schwarzbeck	VULB9168	SEM003-33	2021/9/25	2024/9/24
Biconical Antenna(150MHz-1GHz)	Schwarzbeck	VUBA9117	SEM003-35	2021/12/26	2024/12/25
Loop Antenna(9kHz-30MHz)	ETS-LINDGREN	6502	SEM003-36	2021/9/26	2024/9/25
MXE EMI receiver(20Hz-8.4GHz)	Agilent	N9038A	SEM004-05	2021/7/13	2022/7/12
Pre-amplifier (0.1-1.3GHz)	HP	8447D	SEM005-02	2021/7/13	2022/7/12
Broad-Band Horn Antenna (15-40GHz)	Schwarzbeck	BBHA 9170	SEM003-15	2021/7/11	2024/7/10
Broad-Band Horn Antenna (1-18GHz)	Schwarzbeck	BBHA 9120D	SEM003-32	2021/9/26	2024/9/25
Double-ridged waveguide horn (1-18GHz)	ETS-LINDGREN	3117	SEM003-34	2021/9/25	2024/9/24
Spectrum Analyzer(20Hz-43GHz)	Rohde & Schwarz	101288	SEM004-08	2021/7/13	2022/7/12
Low Noise Amplifier(100MHz-18GHz)	CLAVIIO	BDLNA-0118-352810	SEM005-05	2021/7/13	2022/7/12
Pre-amplifier(26GHz-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2021/7/13	2022/7/12
Pre-amplifier(18GHz-26GHz)	Rohde & Schwarz	CH14-H052	SEM005-17	2021/7/13	2022/7/12
Substitution Antenna	ETS-Lindgren	3142C	SEM003-01	2020-06-26	2023-06-25
Substitution Antenna	Schwarzbeck	VUSLP9111B	9111B-429	2021/10/17	2022/10/16
Signal Generator	R&S	SMA100A	102174	2022/3/22	2023/3/21



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General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Mingle	TH607	SEM002-22	2021-07-13	2022-07-12
Humidity/ Temperature Indicator	Mingle	TH607	SEM002-23	2021-07-13	2022-07-12
Barometer	DUMAI	DYM3	SEM002-24	2021-07-13	2022-07-12



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5 Radio Spectrum Technical Requirement

5.1 Antenna Requirement

5.1.1 Test Requirement:

47 CFR Part Part 80.81

5.1.2 Conclusion

80.81 Requirements:

All telephony emissions of a ship station or a marine utility station on board ship within the frequency band 30-200 MHz must be vertically polarized.

EUT Antenna:

Antenna location: Refer to Internal photos.



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6 Radio Spectrum Matter Test Results

6.1 Bandwidths

Test Requirement: 47 CFR FCC Part2.1049 & FCC Part 80.205(a)
Test Method: ANSI/TIA-603-E:2016
Limit:

Class of emission	Emission designator	Authorized bandwidth (kHz)
A1A	160HA1A	0.4
A1B ¹	160HA1B	0.4
A1D ¹²	16K0A1D	20.0
A2A	2K66A2A	2.8
A2B ¹	2K66A2B	2.8
A2D ¹²	16K0A2D	20.0
A3E	6K00A3E	8.0
A3N ²	2K66A3N	2.8
A3X ³	3K20A3X	25.0
F1B ⁴	280HF1B	0.3
F1B ⁵	300HF1B	0.5
F1B ⁶	16K0F1B	20.0
F1C	2K80F1C	3.0
F1D ¹²	16K0F1D	20.0
F2B ⁶	16K0F2B	20.0
F2C ⁷	16K0F2C	20.0
F2D ¹²	16K0F2D	20.0
F3C	2K80F3C	3.0
F3C ⁷	16K0F3C	20.0
F3E ⁸	16K0F3E	20.0

6.1.1 E.U.T. Operation

Operating Environment:

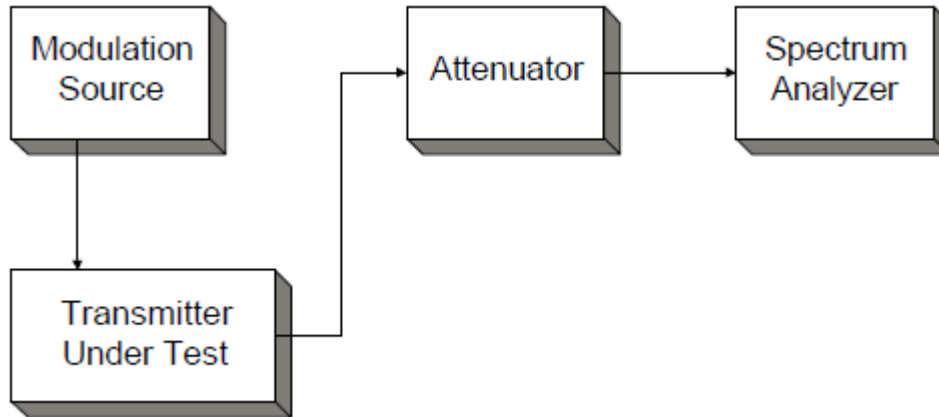
Temperature: 23.4 °C Humidity: 56.2 % RH Atmospheric Pressure: 1015 mbar
Test mode: 05: TX mode, Keep the EUT in transmitting mode.



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6.1.2 E.U.T. Operation



6.1.3 Measurement Data

The detailed test data see: Appendix FCC data.



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6.2 Transmitter Frequency Tolerances.

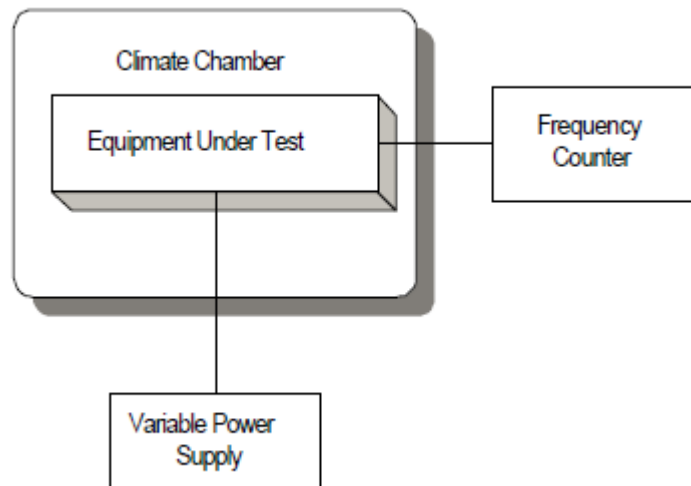
Test Requirement: 47 CFR FCC Part2.1055 & FCC Part 80.209(a)
Test Method: ANSI/TIA-603-E:2016
Limit: ± 10

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23.4 °C Humidity: 56.2 % RH Atmospheric Pressure: 1015 mbar
Test mode: 05: TX mode, Keep the EUT in transmitting mode.

6.2.2 E.U.T. Operation



6.2.3 Measurement Data

The detailed test data see: Appendix FCC data.

6.3 Emissions Mask

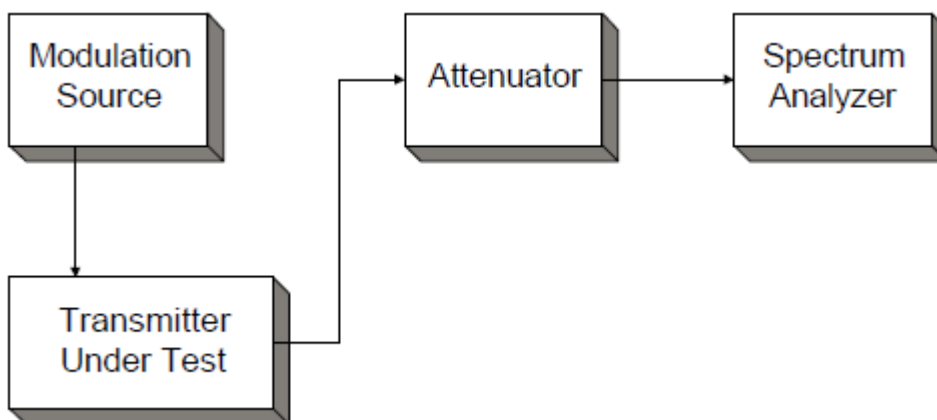
Test Requirement: 47 CFR FCC Part2.1047 & FCC Part 80.211(f) (1) (2)
Test Method: ANSI/TIA-603-E:2016
Limit: (f) The mean power when using emissions other than those in paragraphs (a), (b), (c) and (d) of this section:
(1) On any frequency removed from the assigned frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: At least 25 dB;
(2) On any frequency removed from the assigned frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: At least 35 dB;

Note: As required by FCC part 80.211(f), the limit value of the Emission Mask is calculated based on the measured maximum carrier power minus the corresponding value defined by the standard.

6.3.1 E.U.T. Operation

Operating Environment:
Temperature: 23.4 °C Humidity: 56.2 % RH Atmospheric Pressure: 1015 mbar
Test mode: 05: TX mode, Keep the EUT in transmitting mode.

6.3.2 E.U.T. Operation



6.3.3 Measurement Data

The detailed test data see: Appendix FCC data.



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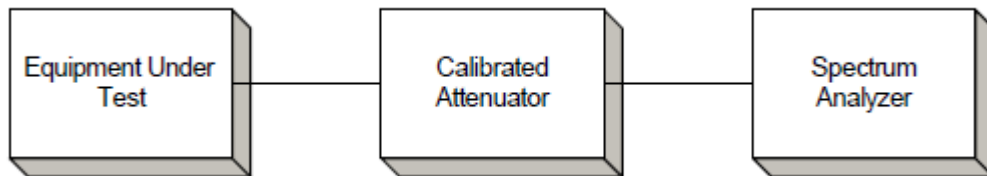
6.4 Spurious Emissions at Antenna Terminals

Test Requirement: 47 CFR FCC Part2.1047 & FCC Part 80.211(f) (3)
Test Method: ANSI/TIA-603-E:2016
Limit: (f) The mean power when using emissions other than those in paragraphs (a), (b), (c) and (d) of this section:
(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 plus 10log10 (mean power in watts) dB.

6.4.1 E.U.T. Operation

Operating Environment:
Temperature: 23.4 °C Humidity: 56.2 % RH Atmospheric Pressure: 1015 mbar
Test mode: 05: TX mode, Keep the EUT in transmitting mode.

6.4.2 E.U.T. Operation



6.4.3 Measurement Data

The detailed test data see: Appendix FCC data.



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6.5 Transmitter Unwanted Emissions(Radiated)

Test Requirement:	47 CFR FCC Part2.1047 & FCC Part 80.211(f)
Test Method:	ANSI/TIA-603-E:2016
Limit:	(f) The mean power when using emissions other than those in paragraphs (a), (b), (c) and (d) of this section: (1) On any frequency removed from the assigned frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: At least 25 dB; (2) On any frequency removed from the assigned frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: At least 35 dB; and (3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 plus 10log10 (mean power in watts) dB.

6.5.1 E.U.T. Operation

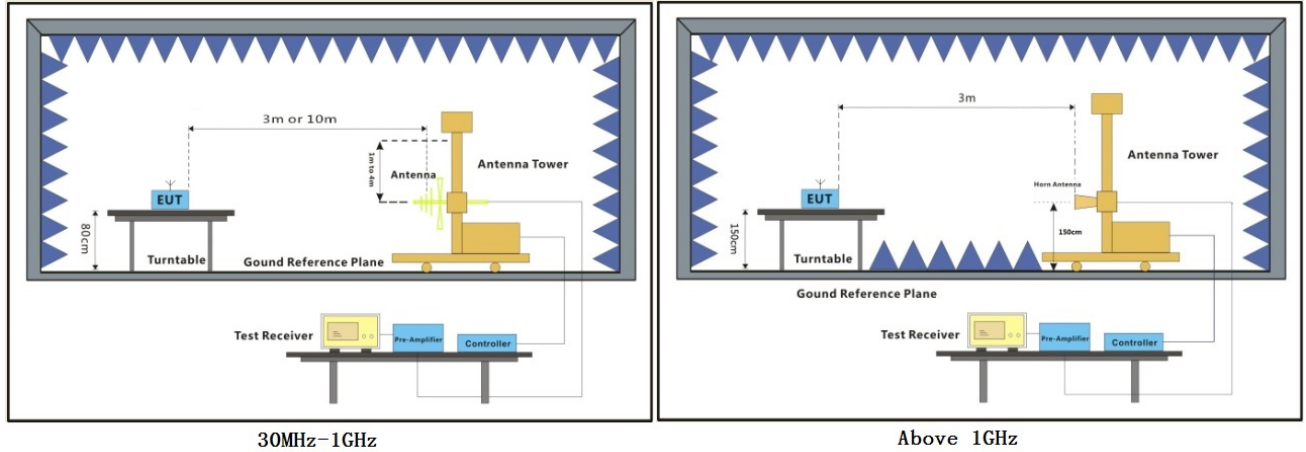
Operating Environment:					
Temperature:	23.4 °C	Humidity:	56.2 % RH	Atmospheric Pressure:	1015 mbar
Test mode:	05: TX mode, Keep the EUT in transmitting mode.				



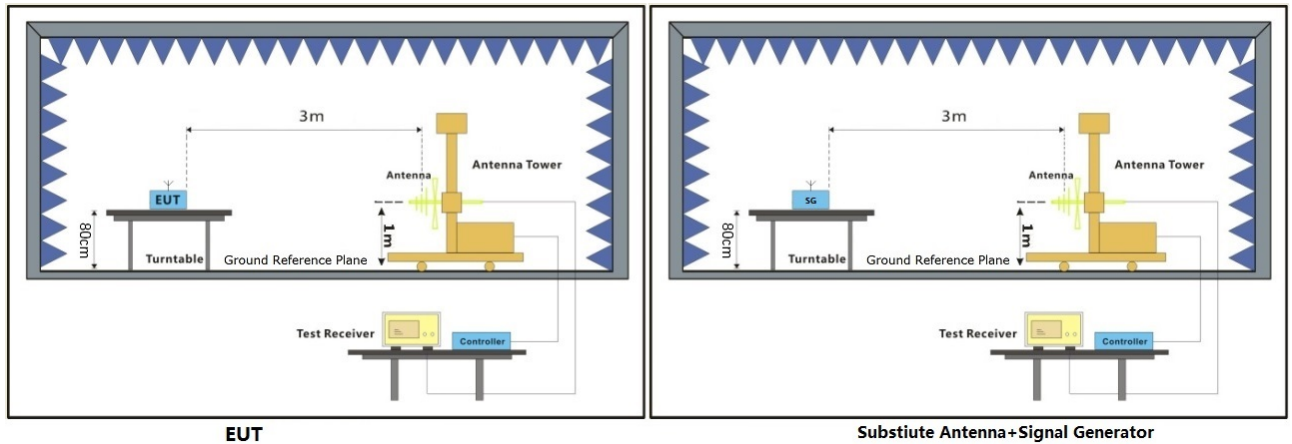
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6.5.2 E.U.T. Operation



Radiation Emission Test Setup



Substitution Test Setup

6.5.3 Measurement Data

Test Procedure:

- (1) On a test site, the EUT shall be placed on a turntable and in the position closest to the normal use as declared by the user.
- (2) The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.
- (3) The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
- (4) The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
- (5) The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.
- (6) The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- (7) The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.
- (8) The maximum signal level detected by the measuring receiver shall be noted.
- (9) The measurement shall be repeated with the test antenna set to horizontal polarization.
- (10) Replace the antenna with a proper Antenna (substitution antenna).
- (11) The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of transmitting.
- (12) The substitution antenna shall be connected to a calibrated signal generator.
- (13) If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- (14) The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
- (15) The input signal to substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.
- (16) The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
- (17) The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

The detailed test data see: Appendix FCC data.

Note: The disturbance below 1GHz was very low and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.



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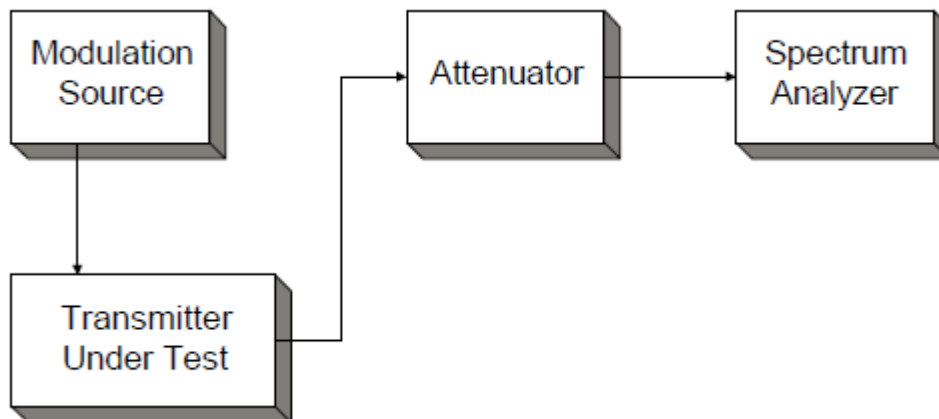
6.6 Modulation Requirements

Test Requirement: 47 CFR FCC Part2.1047 & FCC Part 80.213(a)
Test Method: ANSI/TIA-603-E:2016
Limit: (a) Transmitters must meet the following modulation requirements:
(1) When double sideband emission is used the peak modulation must be maintained between 75 and 100 percent;
(2) When phase or frequency modulation is used in the 156-162 MHz band the peak modulation must be maintained between 75 and 100 percent. A frequency deviation of ± 5 kHz is defined as 100 percent peak modulation; and
(3) In single sideband operation the upper sideband must be transmitted. Single sideband transmitters must automatically limit the peak envelope power to their authorized operating power and meet the requirements in § 80.207(c).

6.6.1 E.U.T. Operation

Operating Environment:
Temperature: 23.4 °C Humidity: 56.2 % RH Atmospheric Pressure: 1015 mbar
Test mode: 05: TX mode, Keep the EUT in transmitting mode.

6.6.2 Test Setup Diagram



6.6.3 Measurement Data

The detailed test data see: Appendix FCC data.



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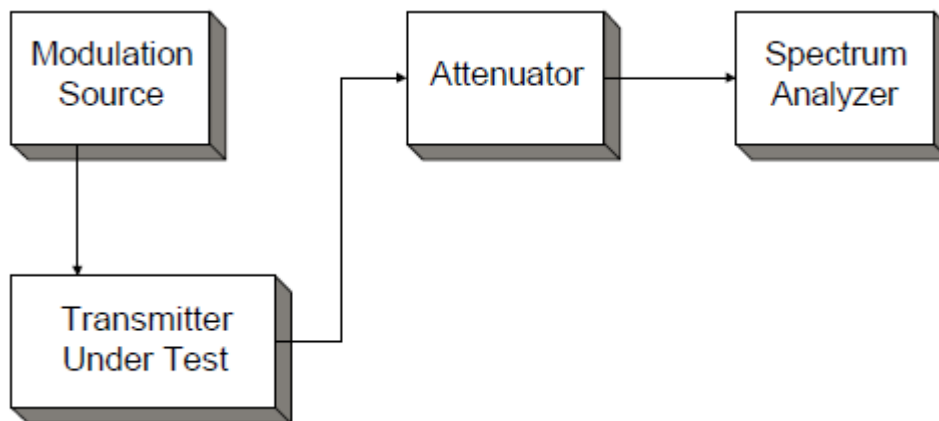
6.7 Transmitter Frequency Deviation

Test Requirement: 47 CFR FCC Part2.1047 & FCC Part 80.213(d)
Test Method: ANSI/TIA-603-E:2016
Limit: (d) Ship and coast station transmitters operating in the 156-162 MHz and 216-220 bands must be capable of proper operation with a frequency deviation that does not exceed ± 5 kHz when using any emission authorized by § 80.207.

6.7.1 E.U.T. Operation

Operating Environment:
Temperature: 23.4 °C Humidity: 56.2 % RH Atmospheric Pressure: 1015 mbar
Test mode: 05: TX mode, Keep the EUT in transmitting mode.

6.7.2 Test Setup Diagram



6.7.3 Measurement Data

The detailed test data see: Appendix FCC data.



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6.8 Transmitter Power

Test Requirement: 47 CFR FCC Part2.1046 & FCC Part 80.215
Test Method: ANSI/TIA-603-E:2016
Limit:

e) Ship stations frequencies above 27500 kHz. The maximum power must not exceed the values listed below.

(1) Ship stations 156-162 MHz—25W⁶

⁶Reducible to 1 watt or less, except for transmitters limited to public correspondence channels and used in an automated system.

(g) The carrier power of ship station radiotelephone transmitters, except portable transmitters, operating in the 156-162 MHz band must be at least 8 but not more than 25 watts. Transmitters that use 12 volt lead acid storage batteries as a primary power source must be measured with a primary voltage between 12.2 and 13.7 volts DC. Additionally, unless otherwise indicated, equipment in radiotelephone ship stations operating in the 156-162 MHz band must meet the following requirements:

(1) All transmitters and remote control units must be capable of reducing the carrier power to one watt or less;

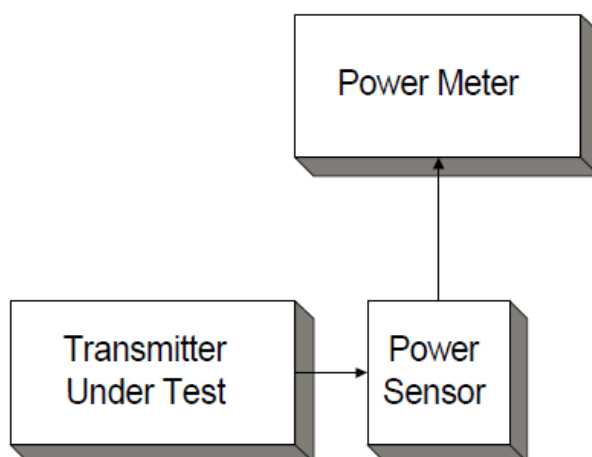
(2) Except as indicated in (g)(4) of this section, all transmitters manufactured after January 21, 1987, or in use after January 21, 1997, must automatically reduce the carrier power to one watt or less when the transmitter is tuned to 156.375 MHz or 156.650 MHz, and must be provided with a manual override switch which when held by an operator will permit full carrier power operation on 156.375 MHz and 156.650 MHz;

6.8.1 E.U.T. Operation

Operating Environment:

Temperature: 23.4 °C Humidity: 56.2 % RH Atmospheric Pressure: 1015 mbar
Test mode: 05: TX mode, Keep the EUT in transmitting mode.

6.8.2 Test Setup Diagram



6.8.3 Measurement Data

The detailed test data see: Appendix FCC data.



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6.9 Transmitter Carrier Power Reduction

Test Requirement 47 CFR FCC Part 80.215
Test Method: ANSI/TIA-603-E:2016
Limit:

e) Ship stations frequencies above 27500 kHz. The maximum power must not exceed the values listed below.

(1) Ship stations 156-162 MHz—25W6

6Reducible to 1 watt or less, except for transmitters limited to public correspondence channels and used in an automated system.

(g) The carrier power of ship station radiotelephone transmitters, except portable transmitters, operating in the 156-162 MHz band must be at least 8 but not more than 25 watts. Transmitters that use 12 volt lead acid storage batteries as a primary power source must be measured with a primary voltage between 12.2 and 13.7 volts DC. Additionally, unless otherwise indicated, equipment in radiotelephone ship stations operating in the 156-162 MHz band must meet the following requirements:

(1) All transmitters and remote control units must be capable of reducing the carrier power to one watt or less;

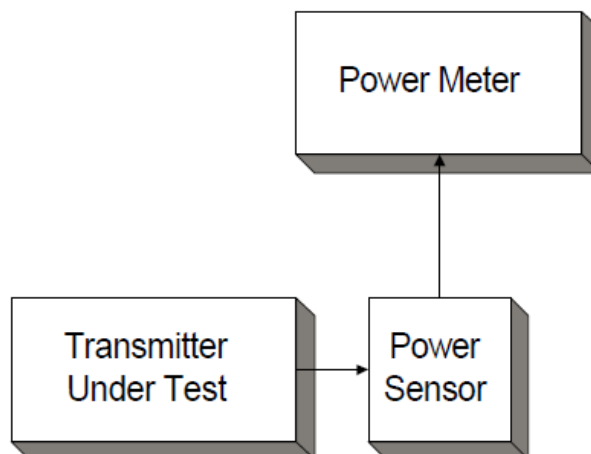
(2) Except as indicated in (g)(4) of this section, all transmitters manufactured after January 21, 1987, or in use after January 21, 1997, must automatically reduce the carrier power to one watt or less when the transmitter is tuned to 156.375 MHz or 156.650 MHz, and must be provided with a manual override switch which when held by an operator will permit full carrier power operation on 156.375 MHz and 156.650 MHz;

6.9.1 E.U.T. Operation

Operating Environment:

Temperature: 23.4 °C Humidity: 56.2 % RH Atmospheric Pressure: 1015 mbar
Test mode: 05: TX mode, Keep the EUT in transmitting mode.

6.9.2 Test Setup Diagram



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6.9.3 Measurement Data

The detailed test data see: Appendix FCC data.



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6.10 Suppression of interference aboard ships

Test Requirement 47 CFR FCC Part 80.217
Test Method: ANSI/TIA-603-E:2016
Limit:

- (a) A voluntarily equipped ship station receiver must not cause harmful interference to any receiver required by statute or treaty.
- (b) The electromagnetic field from receivers required by statute or treaty must not exceed the following value at a distance over sea water of one nautical mile from the receiver:

Frequency of interfering emissions	Field intensity in microvolts per meter
Below 30 MHz	0.1
30 to 100 MHz	0.3
100 to 300 MHz	1.0
Over 300 MHz	3.0

Or Deliver not more than the following amounts of power, to an artificial antenna having electrical characteristics equivalent to those of the average receiving antenna(s) use on shipboard:

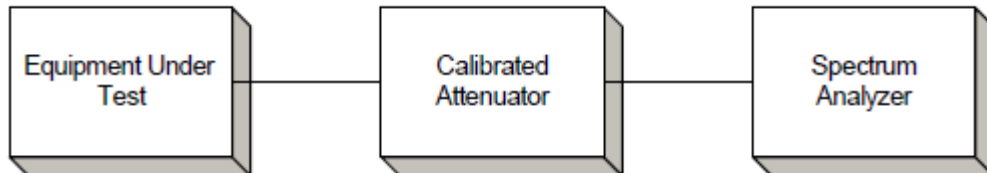
Frequency of interfering emissions	Power to artificial antenna in microwatts
Below 30 MHz	400(-3.98dBm)
30 to 100 MHz	4,000(6.02dBm)
100 to 300 MHz	40,000(16.02dBm)
Over 300 MHz	400,000(36.02dBm)

6.10.1 E.U.T. Operation

Operating Environment:

Temperature: 23.4 °C Humidity: 56.2 % RH Atmospheric Pressure: 1015 mbar
Test mode: 05: TX mode, Keep the EUT in transmitting mode.

6.10.2 E.U.T. Operation



6.10.3 Measurement Data

The detailed test data see: Appendix FCC data.



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7 Photographs

7.1 Test Setup

Please refer to setup photos.

7.2 EUT Constructional Details

Please Refer to external and internal photos for details.



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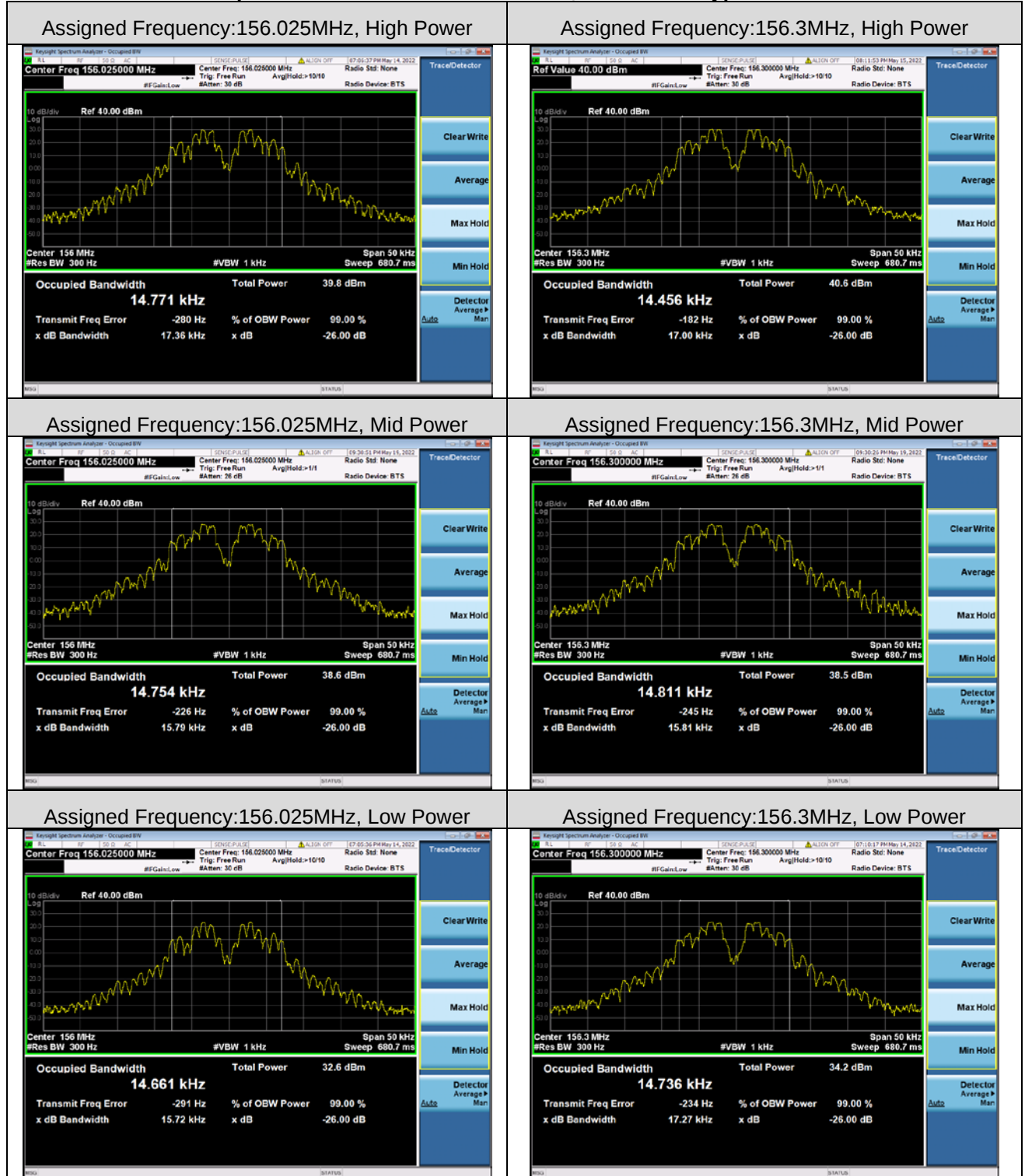
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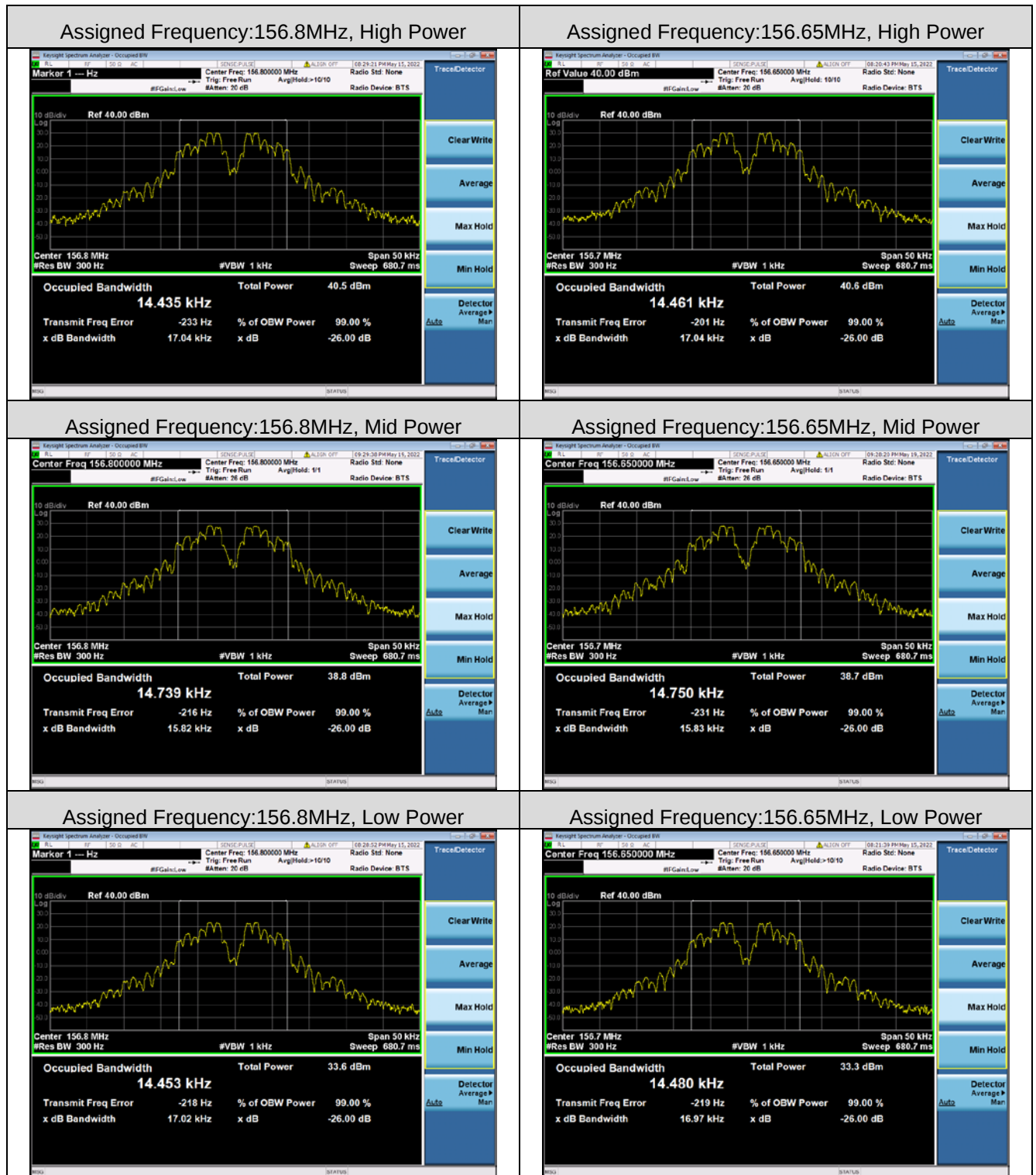
8 Appendix FCC data.

1.Occupied Bandwidth

Test Frequency (MHz)	Modulation Type	Power Level	99% Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Limit (kHz)
156.025	FM/G3E	Max	14.771	17.36	N/A
		Mid	14.754	15.79	N/A
		Low	14.661	15.72	N/A
156.3		Max	14.456	17.00	N/A
		Mid	14.811	15.81	N/A
		Low	14.736	17.27	N/A
156.8		Max	14.435	17.04	N/A
		Mid	14.739	15.82	N/A
		Low	14.453	17.02	N/A
156.65		Max	14.461	17.04	N/A
		Mid	14.750	15.83	N/A
		Low	14.480	16.97	N/A
157.425		Max	14.697	17.32	N/A
		Mid	14.561	15.83	N/A
		Low	14.691	17.16	N/A
161.6		Max	14.222	15.61	N/A
		Mid	14.573	15.69	N/A
		Low	14.241	15.58	N/A
156.525	FSK/G2B (dsc-1300Hz)	Max	8.018	10.64	N/A
		Mid	8.028	10.64	N/A
		Low	8.012	10.64	N/A
	FSK/G2B dsc-2100Hz	Max	12.780	16.95	N/A
		Mid	12.779	16.97	N/A
		Low	12.786	16.96	N/A

Test data for 99% Occupied Bandwidth / 26dB Bandwidth, Modulation Type: FM





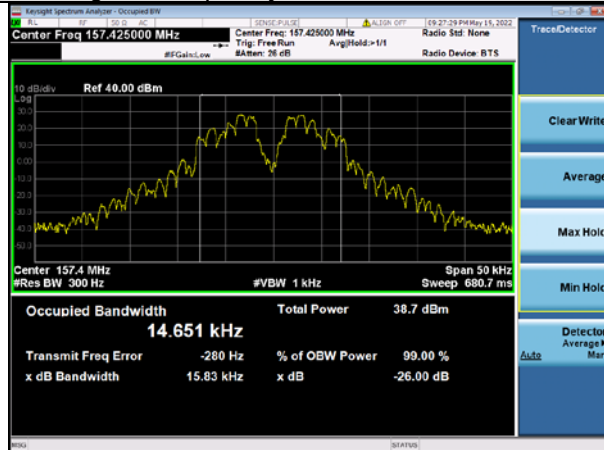
Assigned Frequency:157.425MHz, High Power



Assigned Frequency:161.6MHz, High Power



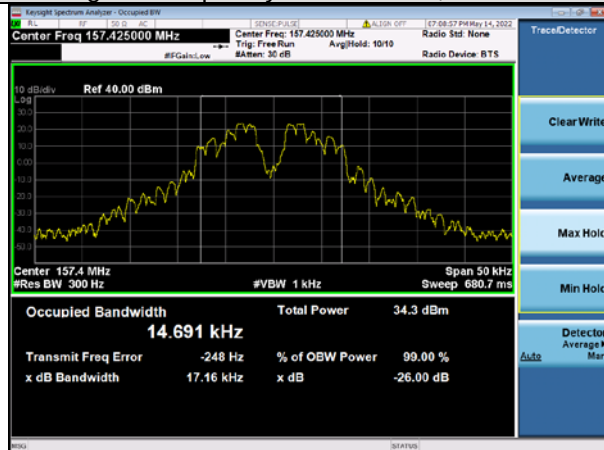
Assigned Frequency:157.425MHz, Mid Power



Assigned Frequency:161.6MHz, Mid Power



Assigned Frequency:157.425MHz, Low Power



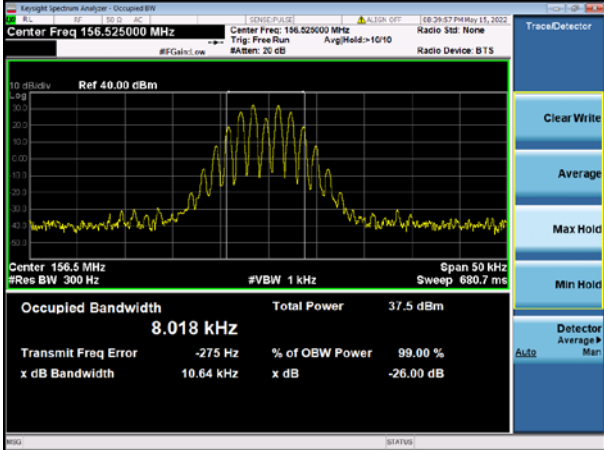
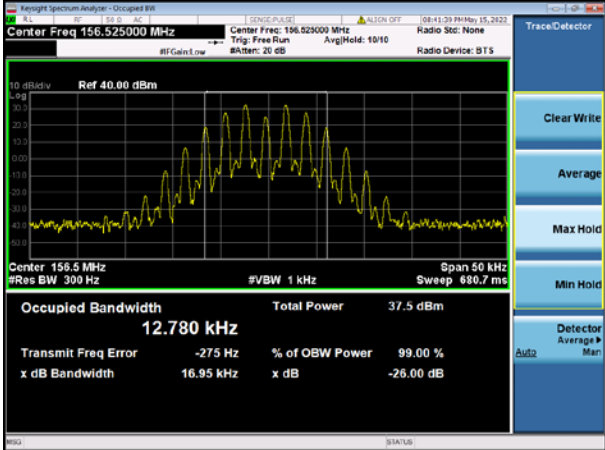
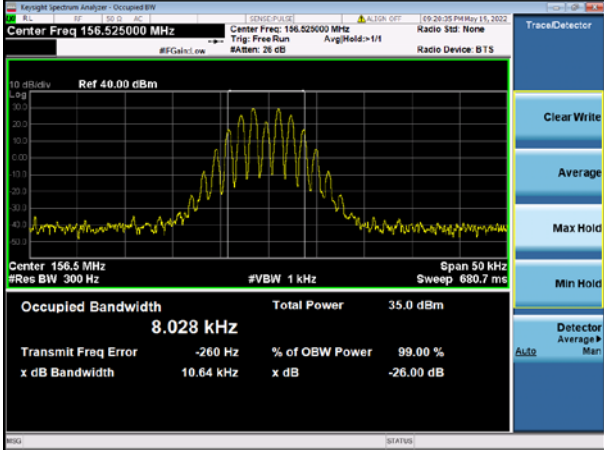
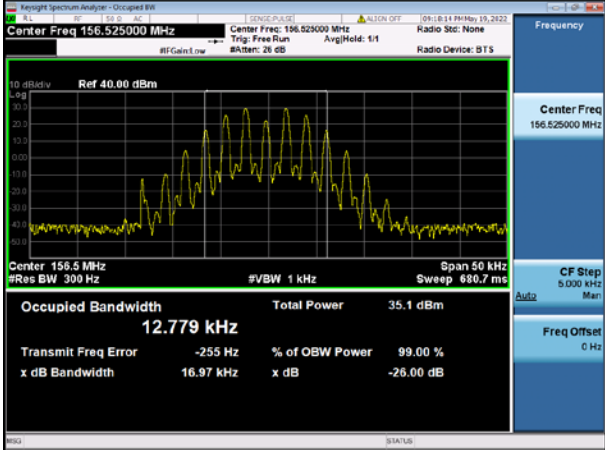
Assigned Frequency:161.6MHz, Low Power

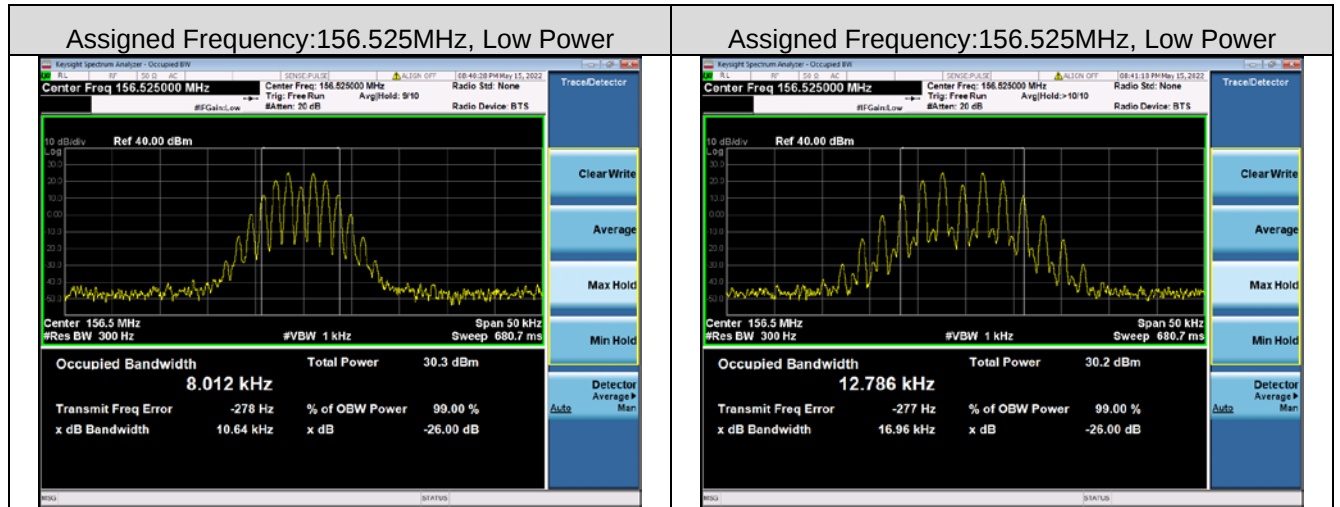


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Test data for 99% Occupied Bandwidth / 26dB Bandwidth, Modulation Type: FSK

dsc-1300Hz	dsc-2100Hz
Assigned Frequency:156.525MHz, High Power	Assigned Frequency:156.525MHz, High Power
 Center Freq 156.525000 MHz #Res BW 300 Hz #VBW 1 kHz Sweep 680.7 ms Span 50 kHz Occupied Bandwidth 8.018 kHz Total Power 37.5 dBm Transmit Freq Error -275 Hz % of OBW Power 99.00 % x dB Bandwidth 10.64 kHz x dB -26.00 dB	 Center Freq 156.525000 MHz #Res BW 300 Hz #VBW 1 kHz Sweep 680.7 ms Span 50 kHz Occupied Bandwidth 12.780 kHz Total Power 37.5 dBm Transmit Freq Error -275 Hz % of OBW Power 99.00 % x dB Bandwidth 16.95 kHz x dB -26.00 dB
Assigned Frequency:156.525MHz, Mid Power	Assigned Frequency:156.525MHz, Mid Power
 Center Freq 156.525000 MHz #Res BW 300 Hz #VBW 1 kHz Sweep 680.7 ms Span 50 kHz Occupied Bandwidth 8.028 kHz Total Power 35.0 dBm Transmit Freq Error -260 Hz % of OBW Power 99.00 % x dB Bandwidth 10.64 kHz x dB -26.00 dB	 Center Freq 156.525000 MHz #Res BW 300 Hz #VBW 1 kHz Sweep 680.7 ms Span 50 kHz Occupied Bandwidth 12.779 kHz Total Power 35.1 dBm Transmit Freq Error -255 Hz % of OBW Power 99.00 % x dB Bandwidth 16.97 kHz x dB -26.00 dB



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2. Transmitter Frequency Tolerances.

Unmodulated, Assigned Frequency:156.025MHz					
Voltage(V)	Temperature (°C)	Measured Frequency(MHz)	Frequency Error(ppm)	FCC Limit (ppm)	Result
7.4	-20	156.025034	-0.2179	±10	Pass
	-15	156.025015	-0.0961		
	-10	156.024889	0.7114		
	0	156.02494	0.3846		
	10	156.025025	-0.1602		
	20	156.025032	-0.2051		
	30	156.02501	-0.0641		
	40	156.02490	0.6409		
	50	156.02499	0.0641		
	55	156.025036	-0.2307		
6.29	25	156.025042	-0.2692		
8.51	25	156.024916	0.5384		

Unmodulated, Assigned Frequency:156.525MHz					
Voltage(V)	Temperature (°C)	Measured Frequency(MHz)	Frequency Error(ppm)	FCC Limit (ppm)	Result
7.4	-20	156.525051	-0.3258	±10	Pass
	-15	156.524999	0.0064		
	-10	156.524918	0.5239		
	0	156.52487	0.8305		
	10	156.525061	-0.3897		
	20	156.525076	-0.4855		
	30	156.52485	0.9583		
	40	156.52498	0.1278		
	50	156.52491	0.5750		
	55	156.525067	-0.4280		
6.29	25	156.525051	-0.3258		
8.51	25	156.524905	0.6069		



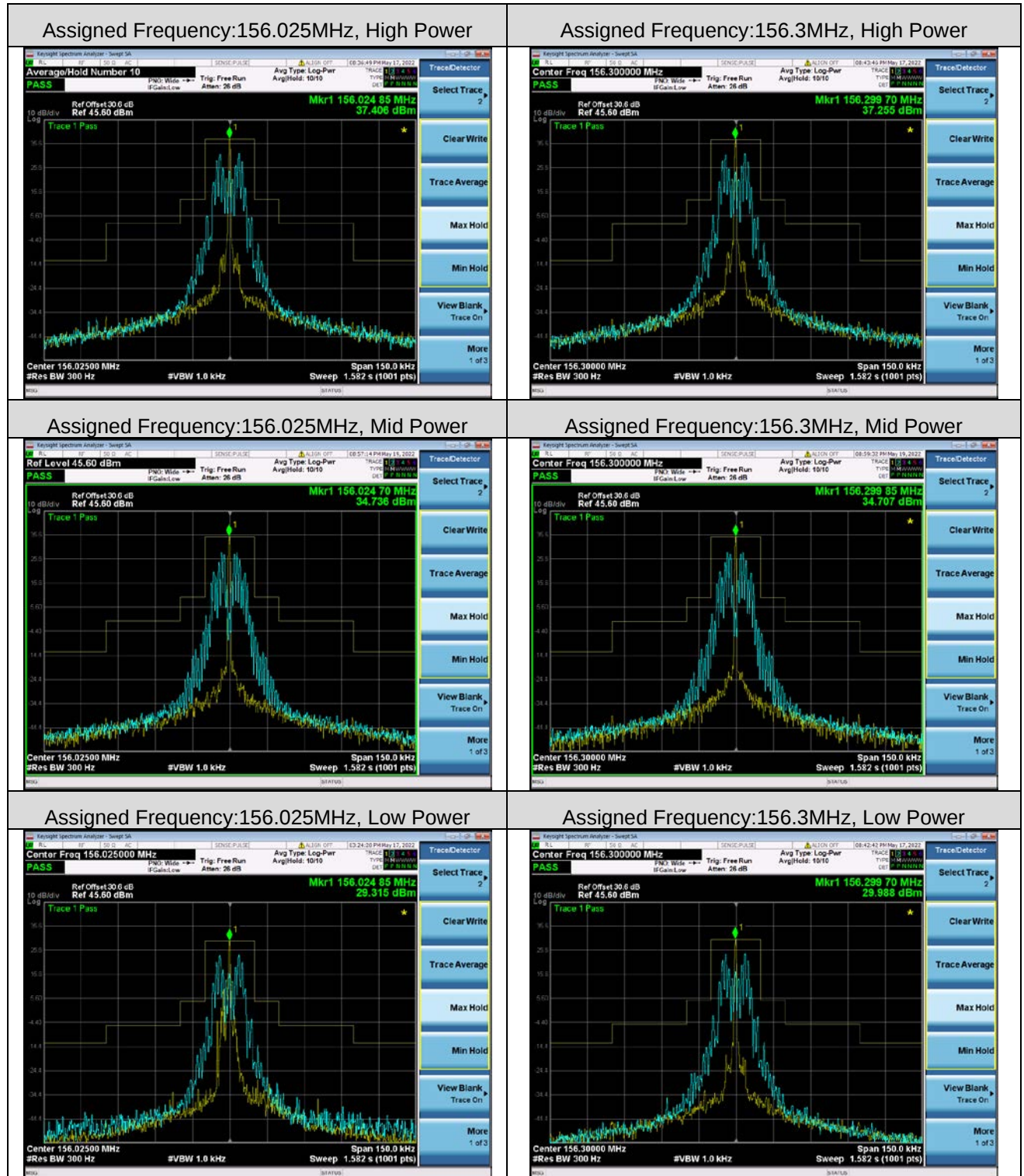
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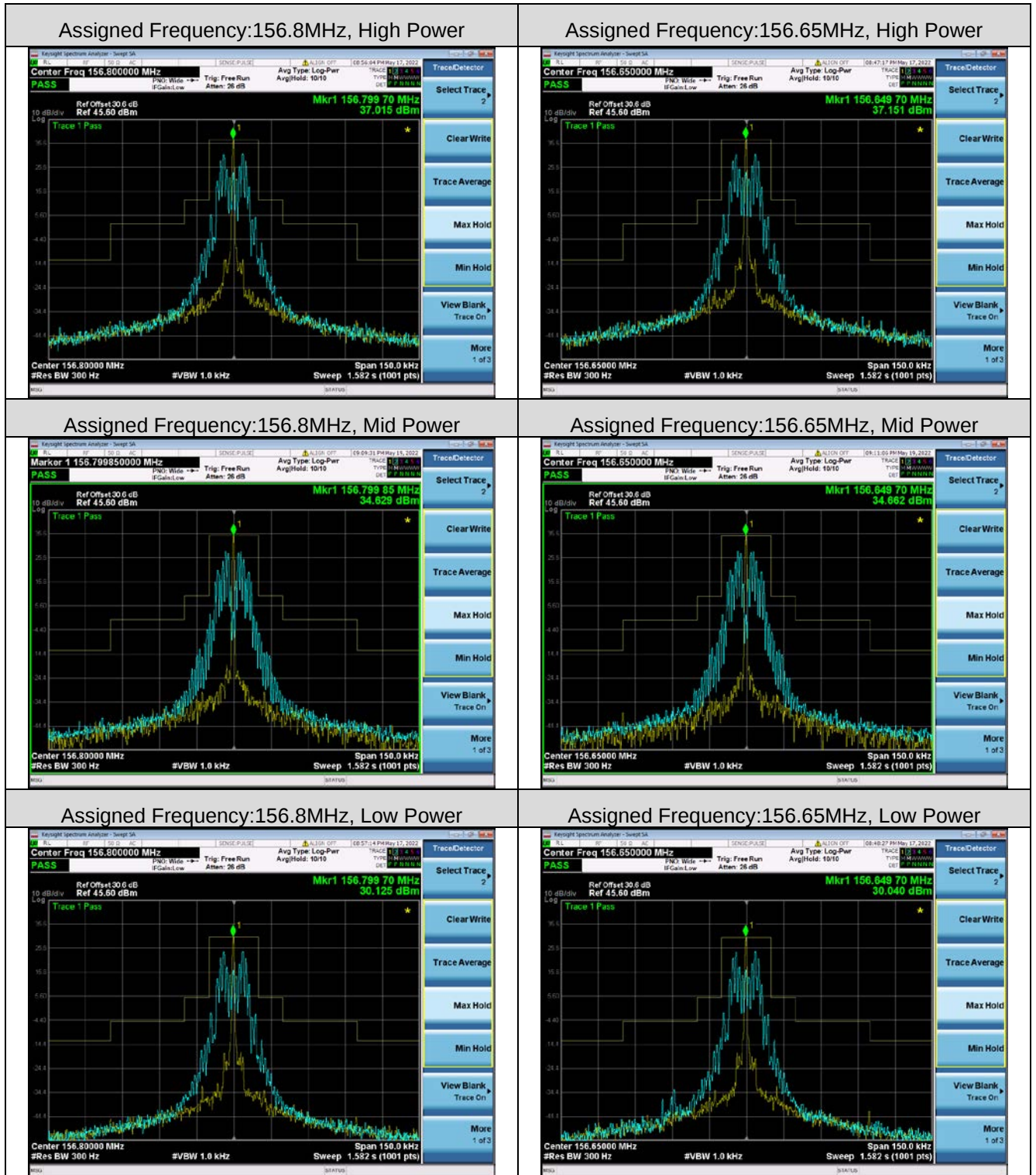
3. Emission Mask



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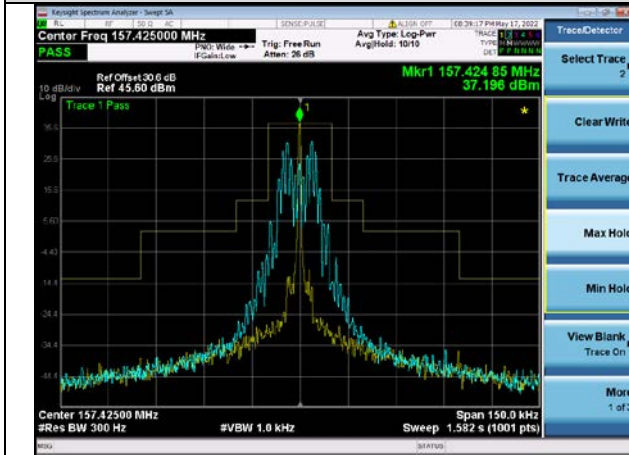


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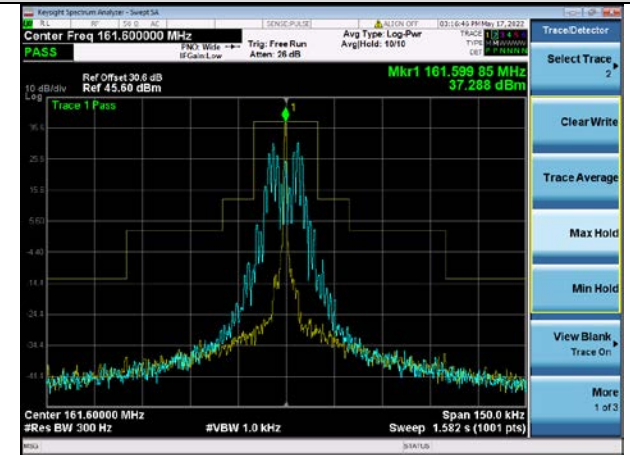
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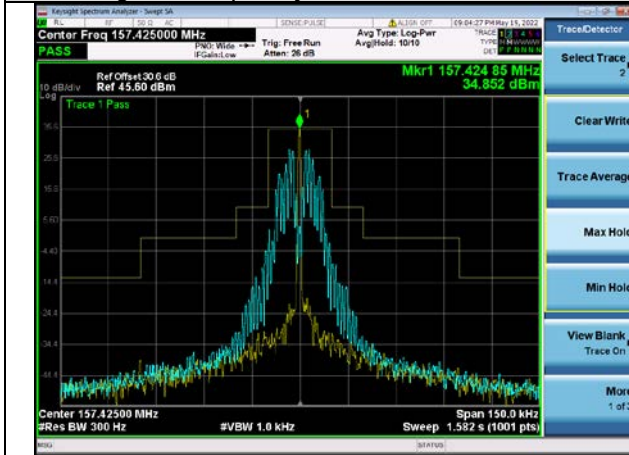
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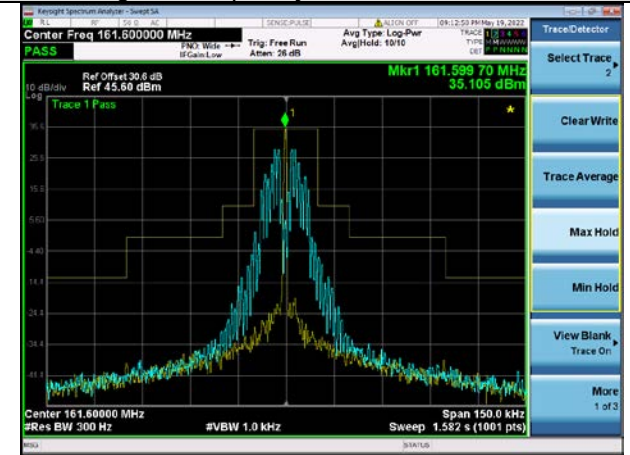
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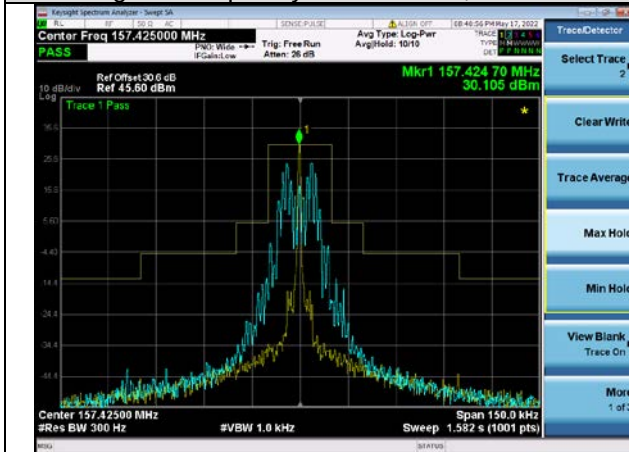
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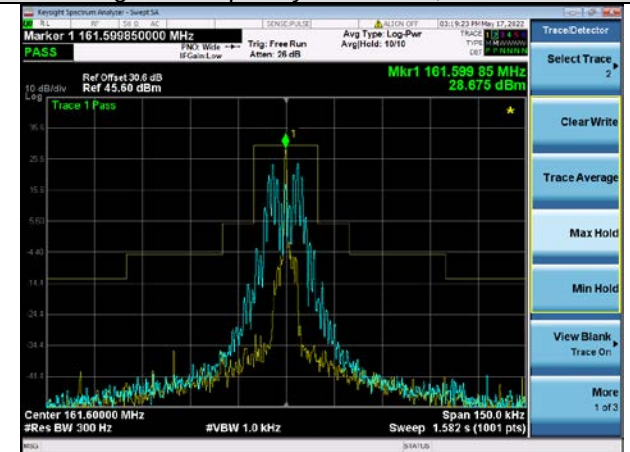
Assigned Frequency:161.6MHz, Mid Power



Assigned Frequency:157.425MHz, Low Power



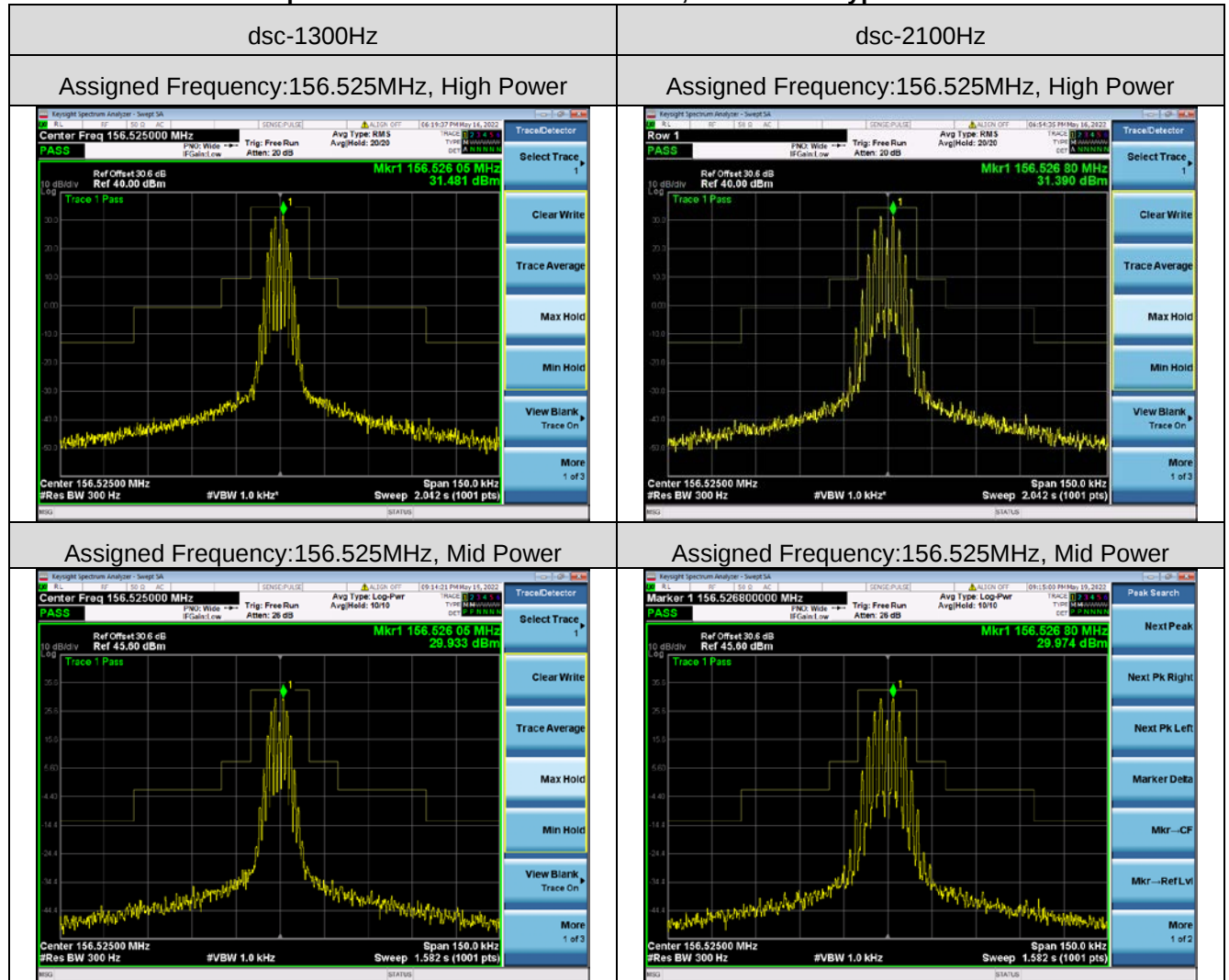
Assigned Frequency:161.6MHz, Low Power

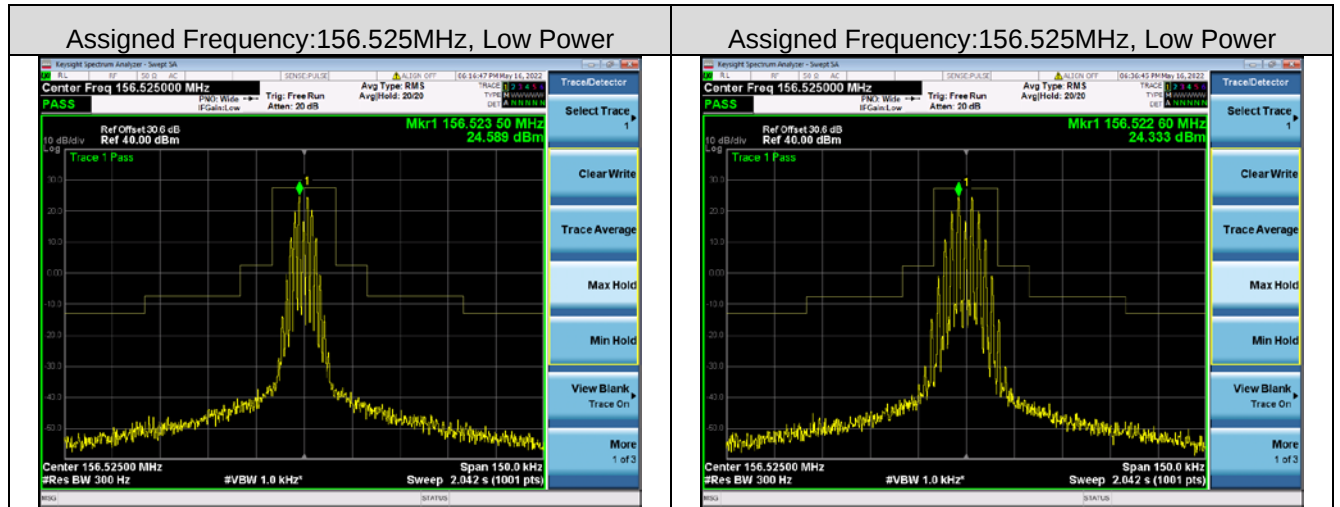


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Test data for 99% Occupied Bandwidth / 26dB Bandwidth, Modulation Type: FSK





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