

Reutech Radar Systems

RF TEST REPORT

Report Type:

FCC Part 90 RF report

Model:

5840-GD-0000V1.00

REPORT NUMBER:

250800011SHA-001

ISSUE DATE:

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Applicant: Reutech Radar Systems
35 Elektron Avenue, Techno Park, Stellenbosch 7600, South Africa

Manufacturer: Reutech Radar Systems
35 Elektron Avenue, Techno Park, Stellenbosch 7600, South Africa

Manufacturing site: Reutech Radar Systems
35 Elektron Avenue, Techno Park, Stellenbosch 7600, South Africa

Product Name: Ground Deformation Synthetic Aperture Radar (SAR)

Type/Model: 5840-GD-0000V1.00

FCC ID: YSD-5840-GD-0000

SUMMARY:

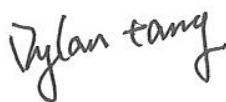
The equipment complies with the requirements according to the following standard(s) or Specification:

47CFR Part 90 (2025): FCC - Title 47 Telecommunication Chapter I - Federal Communications Commission Part 90 – Private Land Mobile Radio Services

ANSI C63.26 (2015): American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

47CFR Part 2 (2021): Frequency allocations and radio treaty matters; general rules and regulations.

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TEST REPORT

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Revision History

Report No.	Version	Description	Issued Date
250800011SHA-001	Rev. 01	Initial issue of report	September 24, 2025

Measurement result summary

TEST ITEM	FCC REFERENCE	RESULT
RF power output	§2.1046; §90.205(r)	Pass
Occupied Bandwidth	§ 2.1049; §90.209	Pass
Emission mask	§2.1051; §90.210(b)	Pass
Spurious emissions at antenna terminals	§2.1051; §90.210(b)	Pass
Field strength of spurious radiation	§2.1051; §90.210(b)	Pass
Frequency Stability	§90.213; §21055	Pass

Notes: 1: NA =Not Applicable

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	Ground Deformation Synthetic Aperture Radar (SAR)
Type/Model:	5840-GD-0000V1.00
Description of EUT:	The EUT is a Ground Deformation Synthetic Aperture Radar (SAR), it has only one model.
Rating:	DC 24V Adapter: AC 100-230V 50/60Hz
Highest operating frequency:	<18GHz
Category of EUT:	Class A
EUT type:	☐ Table top ☒ Floor standing
Software Version:	Monitoring and Early Warning Platform V3.0
Hardware Version:	5840-GD-0000V1.00
Sample received date:	August 1, 2025
Date of test:	August 10, 2025 ~ September 15, 2025

1.2 Technical Specification

Frequency Range:	16780MHz ~ 17280MHz
Type of Modulation:	FMCW
Channel Number:	1
Antenna Information:	Horn antenna (1TX), there are two antennas, one transmitting and one receiving.

1.3 Description of Test Facility

Name:	Intertek Testing Services (Shanghai FTZ) Co., Ltd.
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L21189
	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab CAB identifier.: CN0014
	VCCI Registration Lab Registration No.: R-4243, G-845, C-4723, T-2252
	NVLAP Accreditation Lab NVLAP LAB CODE: 200849-0
	A2LA Accreditation Lab Certificate Number: 3309.02

2 TEST SPECIFICATIONS

2.1 Standards or specification

47CFR Part 90 (2025)
47CFR Part 2 (2021)
ANSI C63.26 (2015)

2.2 Mode of operation during the test

The channel was tested as representatives.

Frequency Band (MHz)				16780MHz ~ 17280MHz			
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	17030	-	-	-	-	-	-

2.3 Test software list

Test Items	Software	Manufacturer	Version
Conducted emission	ESxS-K1	R&S	V2.1.0
Radiated emission	ES-K1	R&S	V1.71

2.4 Test peripherals list

Item No.	Name	Band and Model	Description
-	-	-	-

2.5 Test environment condition:

Test items	Temperature	Humidity
RF power output	23°C	52% RH
Occupied Bandwidth		
Emission mask		

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Spurious emissions at antenna terminals		
Field strength of spurious radiation		
Frequency Stability	22°C	55% RH

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2.6 Instrument list

Conducted Emission					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Test Receiver	R&S	ESR7	EC 6194	2026-02-17
☒	A.M.N.	R&S2025-07-23	ESH2-Z5	EC 3119	2025-07-23
☐	A.M.N.	R&S	ENV4200	EC 3558	2025-06-05
☒	Attenuator	Hua Xiang	Ts5-10db-6g	EC 6194-1	2025-12-06
☒	Shielded room	Zhongyu	-	EC 2838	2026-01-09
Radiated Emission					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Test Receiver	R&S	ESIB 26	EC 3045	2026-08-18
☒	Test Receiver	R&S	ESR	EC6501	2025-09-10
☒	Bilog Antenna	TESEQ	CBL 6112B	EC 6411	2025-09-11
☐	Pre-amplifier	R&S	AFS42-00101800-25-S-42	EC 5262	2025-11-06
☒	Pre-amplifier	Tonscend	tap01018050	EC 6432-1	2025-12-03
☒	Horn antenna	Tonscend	bha9120d	EC 6432-2	2026-04-10
☒	Horn antenna	ETS	3116c	EC 5955	2026-08-14
☒	WW wave antenna (40-60G)	VDi	HD-500SGAH25	EC 6529-1	2026-03-09
☒	Mixer (40-60G)		M19RH	EC 6529	2026-03-24
☒	WW wave antenna (60-90G)	VDi	HD-620SGAH25	EC 6382-1	2026-03-12
☒	Mixer (60-90G)		M12RH	EC 6382	2026-03-24
☐	WW wave antenna (90-140G)	VDi	HD-900SGAH25	EC 6383-1	2026-03-12
☐	Mixer (90-140G)		M15RH	EC 6383	2026-03-24
☒	Semi-anechoic chamber	Albatross project	-	EC 3048	2026-07-11
Additional instrument					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Therom-Hygrograph	Testo	175h1	EC 6640	2026-08-29
☒	Pressure meter	YM3	Shanghai Mengde	EC 3320	2026-08-16

2.7 Measurement uncertainty

The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	Measurement uncertainty
Maximum peak output power	$\pm 0.74\text{dB}$
Radiated Emissions in restricted frequency bands below 1GHz	$\pm 4.90\text{dB}$
Radiated Emissions in restricted frequency bands above 1GHz	$\pm 5.02\text{dB}$
Emission outside the frequency band	$\pm 2.89\text{dB}$

3 RF power output

Test result: Pass

3.1 Limit

FCC 47 CFR § 90.205 (r)

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:

(r) All other frequency bands. Requested transmitter power will be considered and authorized on a case by case basis.

3.2 Measurement Procedure

For Radiated emission below 30MHz:

- a) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c) Both X and Y axes of the antenna are set to make the measurement.
- d) For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e) The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

NOTE:

- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz:

- a) The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b) The EUT was set 3 or 1 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c) The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are

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set to make the measurement.

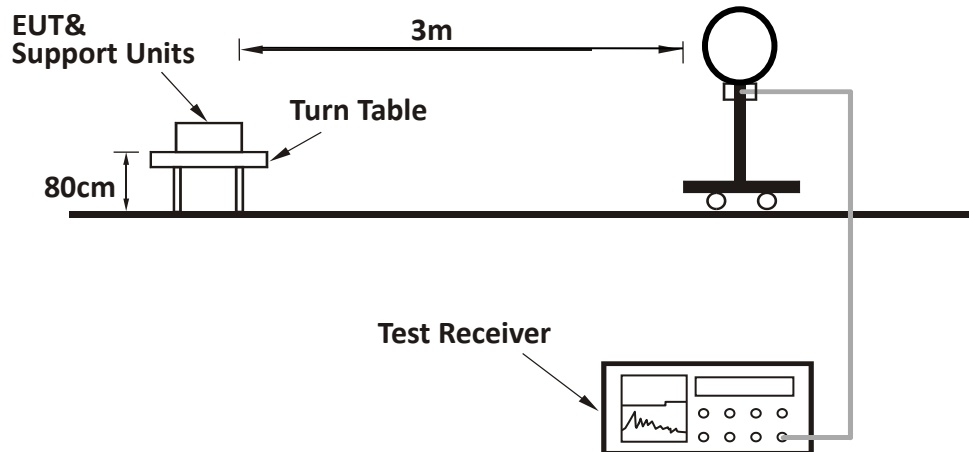
- d) For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e) The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f) The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

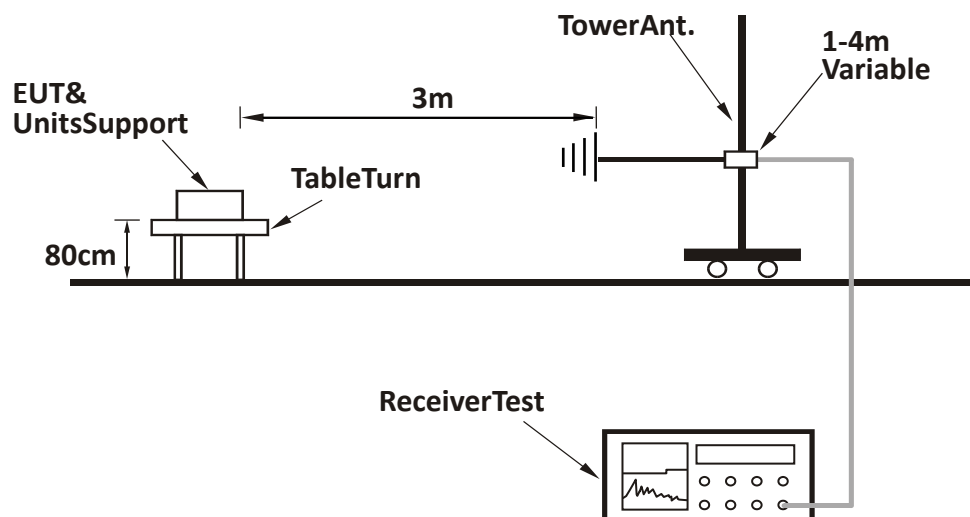
- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
- 2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or $3 \times \text{RBW}$ (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
- 4. All modes of operation were investigated and the worst-case emissions are reported

3.3 Test Configuration

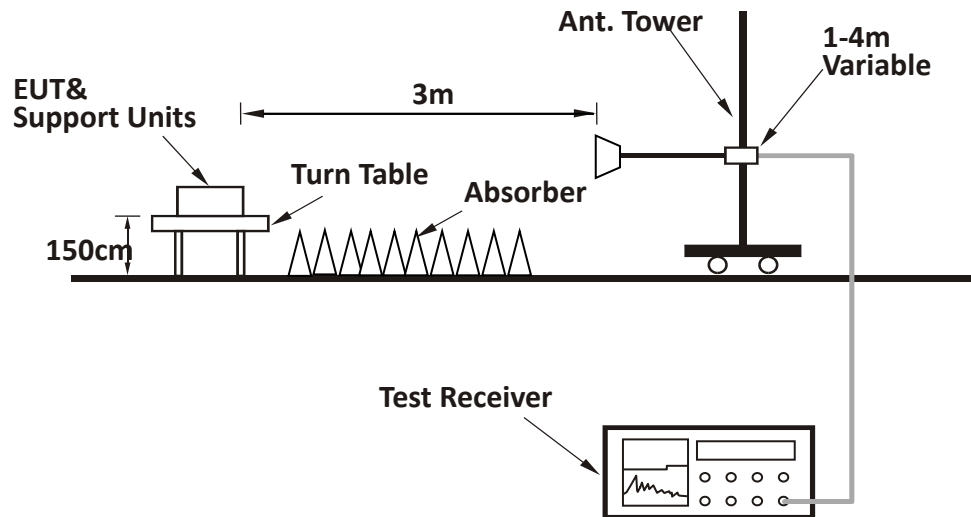
For Radiated emission below 30MHz:



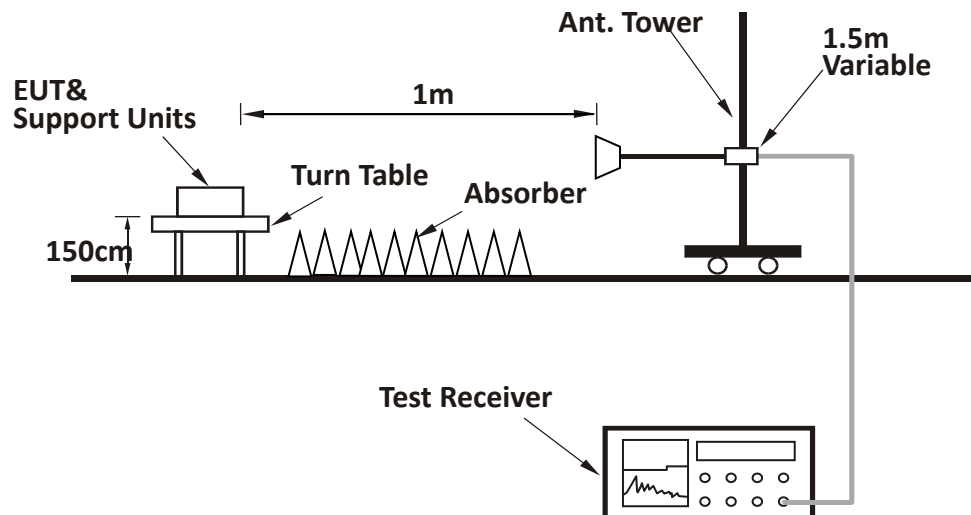
For Radiated emission 30MHz to 1GHz:



For Radiated emission 1GHz to 40GHz:



For Radiated emission above 40GHz:



3.4 Test Results of Radiated Emissions

Frequencies (GHz)	Radiated Peak Power (ERIP) [dBm]	Verdict
16.78 ~ 17.28	18.5 dBm	Pass

4 Field Strength of spurious radiation

Test result: Pass

4.1 Limit

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 (o) 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 under this part.:

(b) **Emission Mask B.** For transmitters that are equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:

- (1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.
- (2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.
- (3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least $43 + 10 \log (P)$ dB.

(c) **Emission Mask C.** For transmitters that are not equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier output power (P) as follows:

- (1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 5 kHz, but not more than 10 kHz: At least $83 \log (f_d/5)$ dB;
- (2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 10 kHz, but not more than 250 percent of the authorized bandwidth: At least $29 \log (f_d^2/11)$ dB or 50 dB, whichever is the lesser attenuation;
- (3) On any frequency removed from the center of the authorized bandwidth by more than 250 percent of the authorized bandwidth: At least $43 + 10 \log (P)$ dB.
- (4) In the 1427-1432 MHz band, licensees are encouraged to take all reasonable steps to ensure that unwanted emissions power does not exceed the following levels in the 1400-1427 MHz band:
 - (i) For stations of point-to-point systems in the fixed service: -45 dBW/27 MHz.
 - (ii) For stations in the mobile service: -60 dBW/27 MHz.

TABLE 1 TO § 90.210—APPLICABLE EMISSION MASKS

Frequency band (MHz)	Mask for equipment with audio low pass filter	Mask for equipment without audio low pass filter
Below 25 ¹	A or B	A or C
25-50	B	C
72-76	B	C
150-174 ²	B, D, or E	C, D or E
150 paging only	B	C
220-222	F	F
421-512 ^{2 5}	B, D, or E	C, D, or E
450 paging only	B	G
806-809/851-854 ⁶	B	H
809-824/854-869 ^{3 5}	B, D	D, G.
896-901/935-940	I	J
902-928	K	K
929-930	B	G
4940-4990 MHz	L or M	L or M
5895-5925 ⁴		
All other bands	B	C

4.2 Measurement Procedure

For Radiated emission below 30MHz:

- f) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- g) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- h) Both X and Y axes of the antenna are set to make the measurement.
- i) For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- j) The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

NOTE:

2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

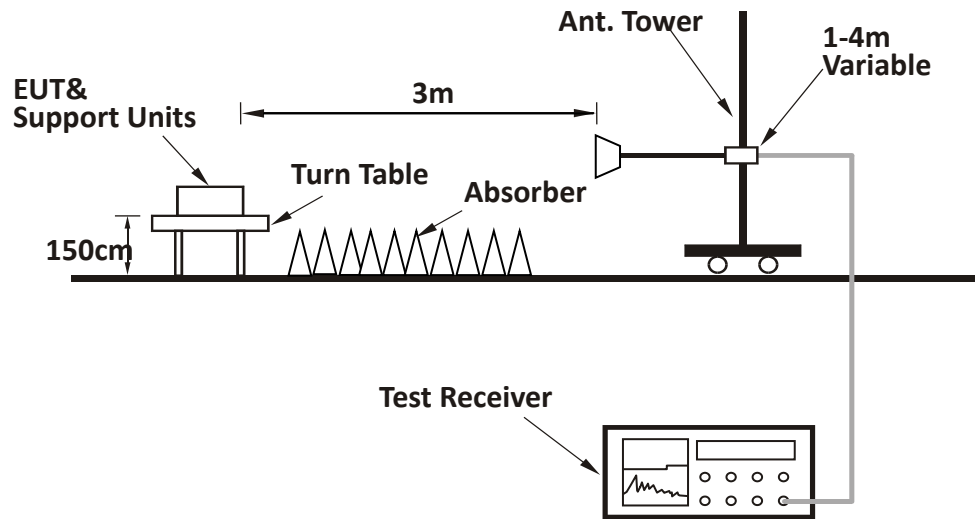
TEST REPORT**For Radiated emission above 30MHz:**

- g) The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- h) The EUT was set 3 or 1 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- i) The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- j) For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- k) The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- l) The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

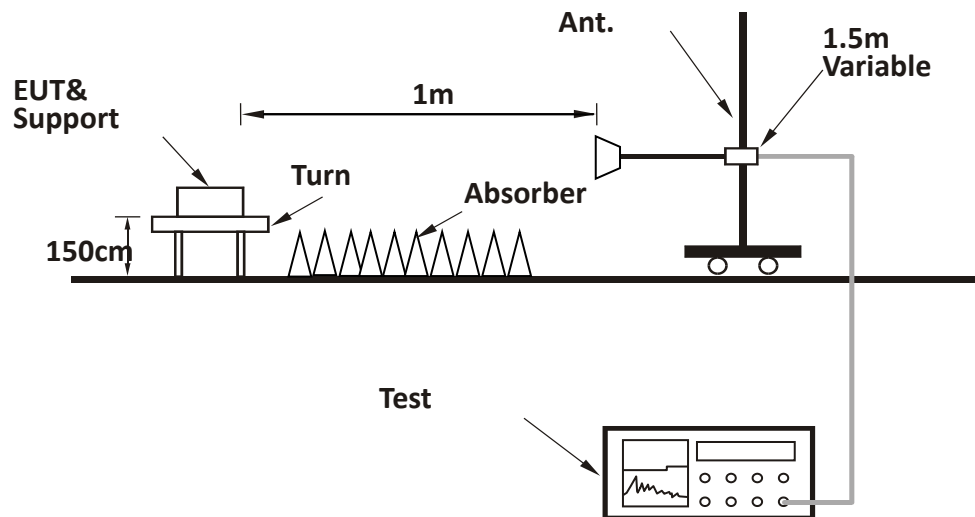
Note:

- 5. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
- 6. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
- 7. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 3 x RBW (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
- 8. All modes of operation were investigated and the worst-case emissions are reported

4.3 Test Configuration



For Radiated emission above 40GHz:

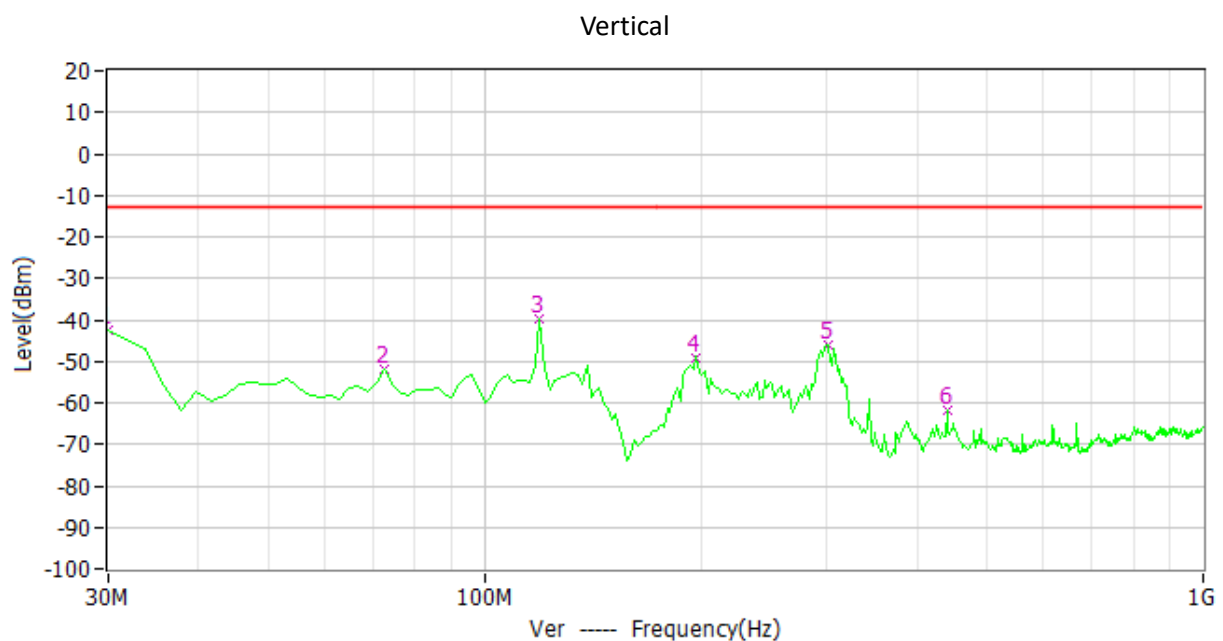
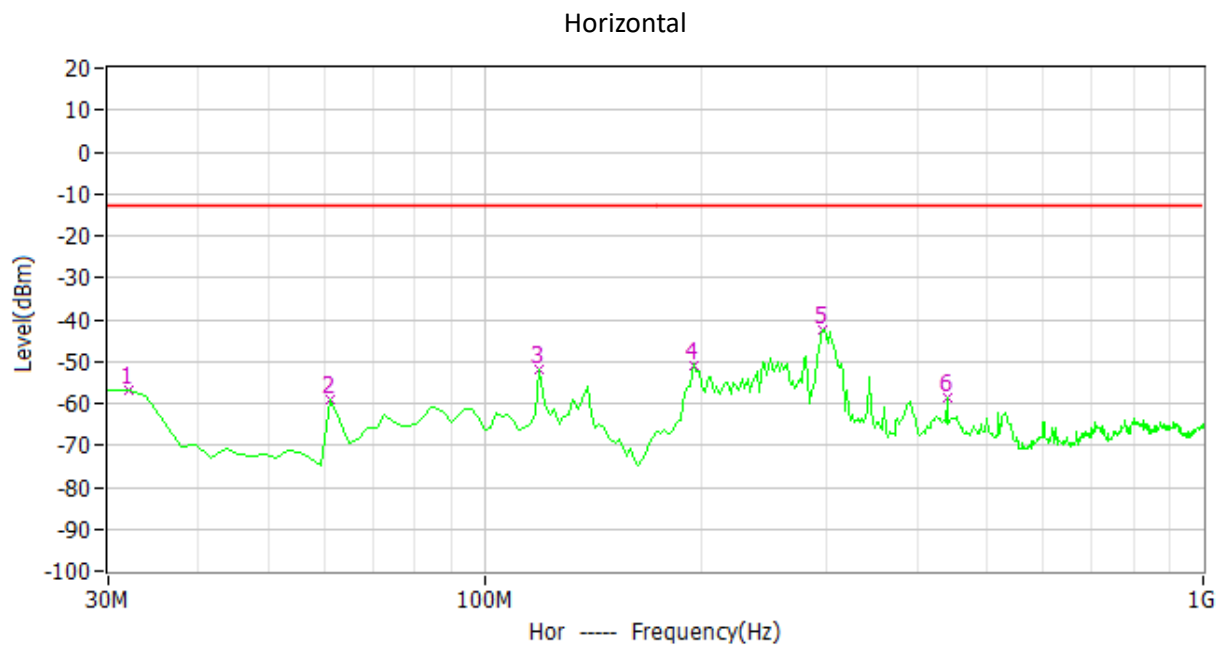


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4.4 Test Results of Radiated Emissions

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

The worst waveform from 30MHz to 1000MHz is listed as below:



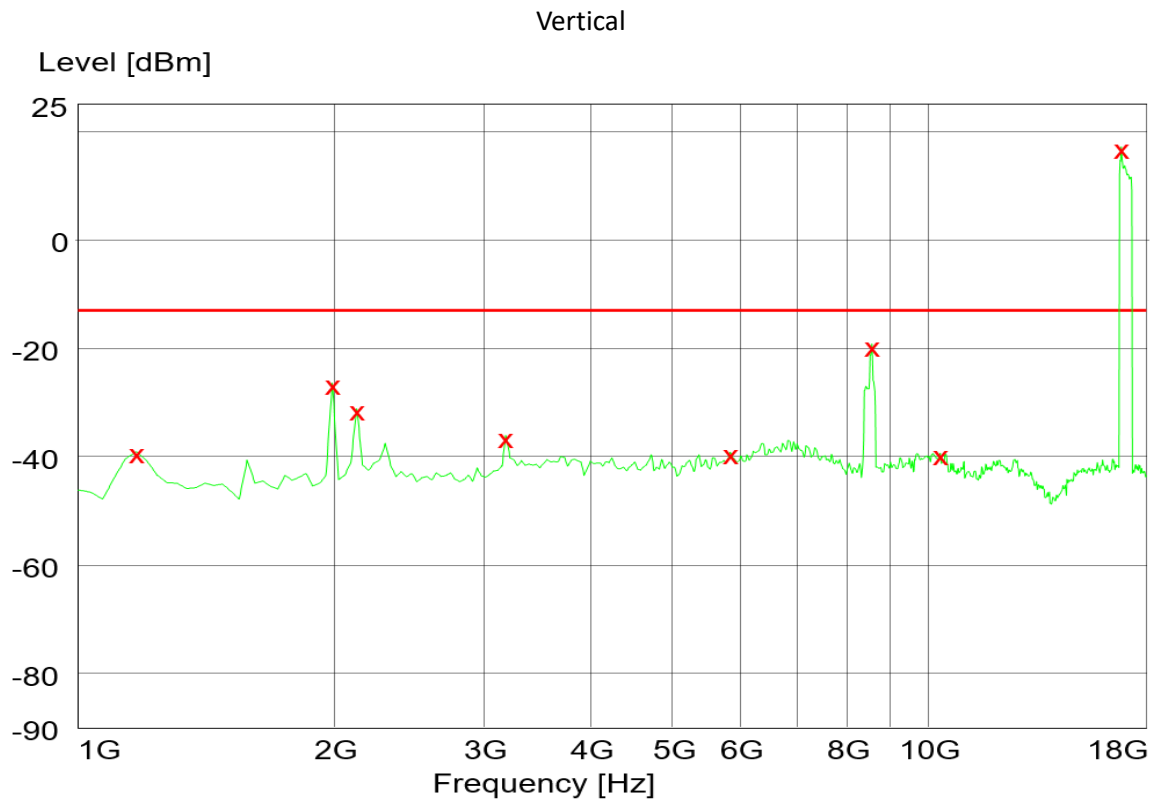
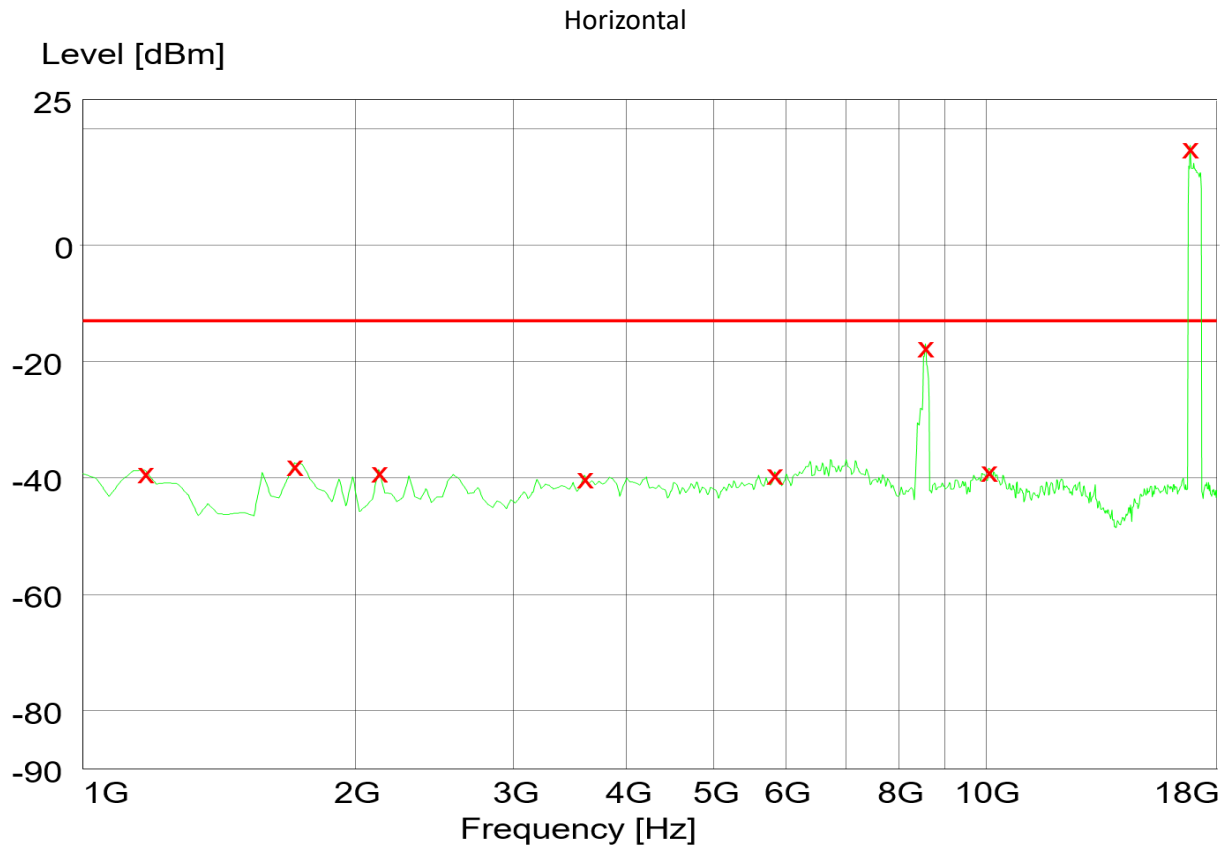
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Test data below 1GHz

Antenna	Frequency (MHz)	Measured Level (dBm)	Limit (dBm)	Margin (dB)	Pass/Fail
H	31.944	-56.7	-13.0	-43.7	Pass
H	61.102	-58.9	-13.0	-45.9	Pass
H	119.419	-52.0	-13.0	-39.0	Pass
H	195.230	-50.8	-13.0	-37.8	Pass
H	296.313	-42.3	-13.0	-29.3	Pass
H	440.160	-58.8	-13.0	-45.8	Pass
V	30.000	-42.4	-13.0	-29.4	Pass
V	72.766	-52.0	-13.0	-39.0	Pass
V	119.419	-39.8	-13.0	-26.8	Pass
V	197.174	-49.0	-13.0	-36.0	Pass
V	300.200	-46.0	-13.0	-33.0	Pass
V	440.160	-61.6	-13.0	-48.6	Pass

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The worst waveform from 1GHz to 18GHz is listed as below:



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Test data 1GHz-18GHz

Antenna	Frequency (MHz)	Measured Level (dBm)	Limit (dBm)	Margin (dB)	Pass/Fail
H	1715.43	-37.40	-13.0	24.4	Pass
H	8563.13	-16.90	-13.0	3.9	Pass
H	10062.12	-38.30	-13.0	25.3	Pass
V	1987.98	-26.40	-13.0	13.4	Pass
V	8563.13	-19.20	-13.0	6.2	Pass
V	10300.60	-39.30	-13.0	26.3	Pass

Test data (18GHz ~ 90GHz):

Antenna	Frequency (MHz)	Measured Level (dBm)	Limit (dBm)	Margin (dB)	Pass/Fail
H	33560	-15.96	-13.0	2.96	Pass
H	50340	-26.15	-13.0	13.15	Pass
H	69120	-23.17	-13.0	10.17	Pass
V	33560	-14.36	-13.0	1.36	Pass
V	50340	-27.28	-13.0	14.28	Pass
V	84840	-23.65	-13.0	10.65	Pass

Remark: 1. Correct Factor = Antenna Factor + Cable Loss (+ Amplifier, for higher than 1GHz), the value was added to Original Receiver Reading by the software automatically.

2. Corrected Reading = Original Receiver Reading + Correct Factor

3. Margin = Limit - Corrected Reading

4. If the PK Corrected Reading is lower than AV limit, the AV test can be elided.

Example: Assuming Antenna Factor = 30.20dB/m, Cable Loss = 2.00dB,

Gain of Preamplifier = 32.00dB, Original Receiver Reading = 10.00dBuV,
Limit = 40.00dBuV/m.

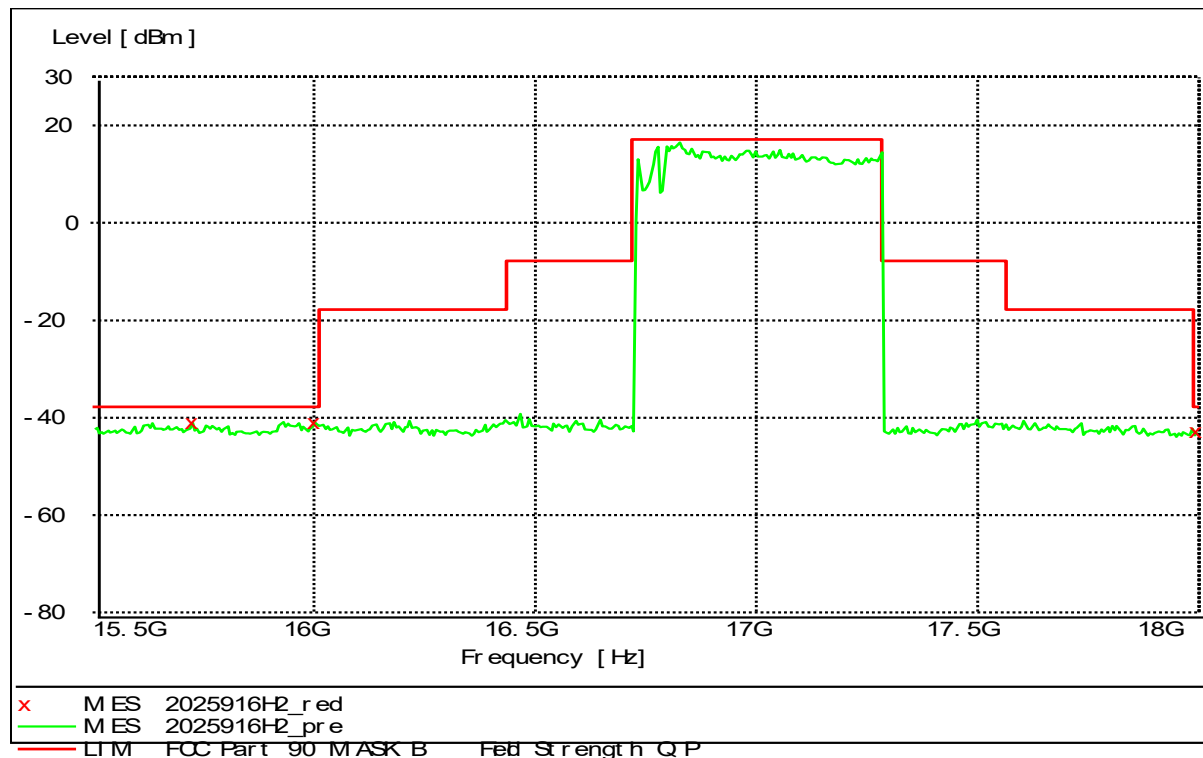
Then Correct Factor = 30.20 + 2.00 – 32.00 = 0.20dB/m;

Corrected Reading = 10dBuV + 0.20dB/m = 10.20dBuV/m;

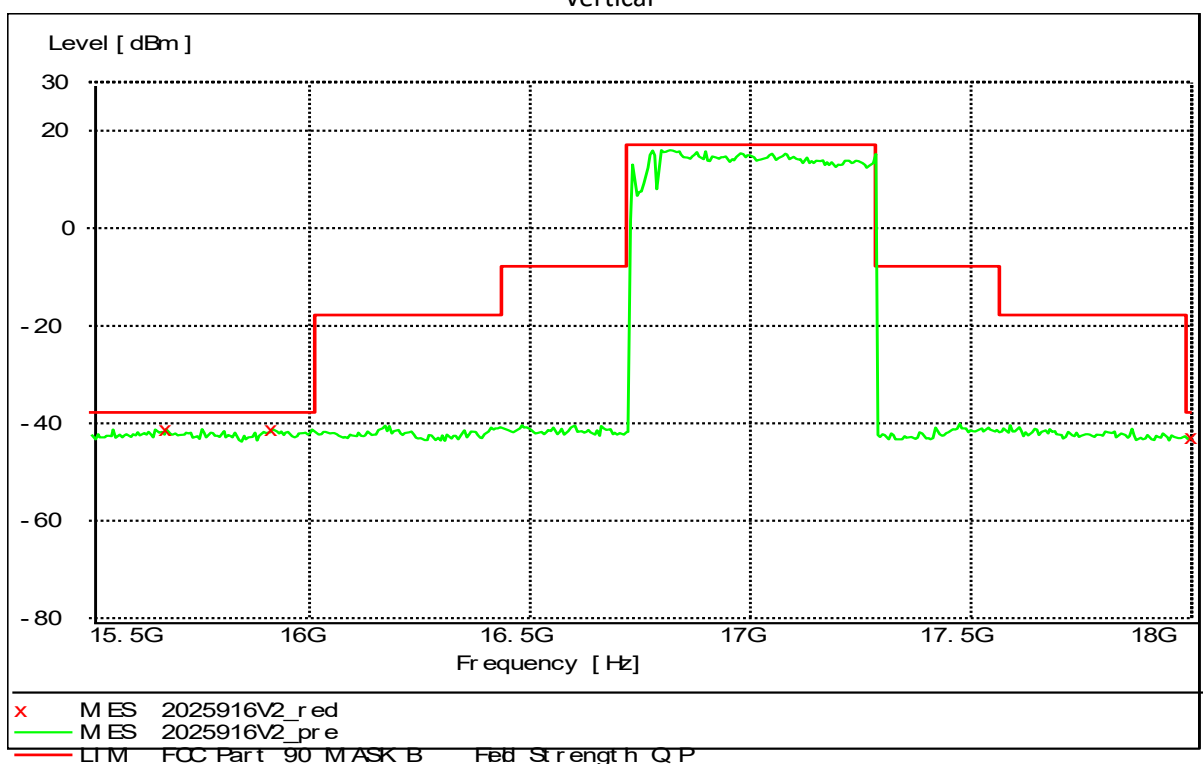
Margin = 40.00dBuV/m - 10.20dBuV/m = 29.80d

Emission Mask B

Horizontal



Vertical



5 Frequency stability

Test result: Pass

5.1 Limit

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

**TABLE 1 TO § 90.213(a)—MINIMUM FREQUENCY STABILITY
[PARTS PER MILLION (PPM)]**

Frequency range (MHz)	Fixed and base stations	Mobile stations	
		Over 2 watts output power	2 watts or less output power
Below 25	^{1 2 3} 100	100	200
25-50	20	20	50
72-76	5		50
150-174	^{5 11} 5	⁶ 5	^{4 6} 50
216-220	1.0		1.0
220-222 ¹²	0.1	1.5	1.5
421-512	^{7 11 14} 2.5	⁸ 5	⁸ 5
806-809	¹⁴ 1.0	1.5	1.5
809-824	¹⁴ 1.5	2.5	2.5
851-854	1.0	1.5	1.5
854-869	1.5	2.5	2.5
896-901	¹⁴ 0.1	1.5	1.5
902-928	2.5	2.5	2.5
902-928 ¹³	2.5	2.5	2.5
929-930	1.5		
935-940	0.1	1.5	1.5
1427-1435	⁹ 300	300	300
Above 2450 ¹⁰			

¹ Fixed and base stations with over 200 watts transmitter power must have a frequency stability of 50 ppm except for equipment used in the Public Safety Pool where the frequency stability is 100 ppm.

² For single sideband operations below 25 MHz, the carrier frequency must be maintained within 50 Hz of the authorized carrier frequency.

³ Travelers information station transmitters operating from 530-1700 kHz and transmitters exceeding 200 watts peak envelope power used for disaster communications and long distance circuit operations pursuant to §§ 90.242 and 90.264 must maintain the carrier frequency to within 20 Hz of the authorized frequency.

⁴ Stations operating in the 154.45 to 154.49 MHz or the 173.2 to 173.4 MHz bands must have a frequency stability of 5 ppm.

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⁵ In the 150-174 MHz band, fixed and base stations with a 12.5 kHz channel bandwidth must have a frequency stability of 2.5 ppm. Fixed and base stations with a 6.25 kHz channel bandwidth must have a frequency stability of 1.0 ppm.

⁶ In the 150-174 MHz band, mobile stations designed to operate with a 12.5 kHz channel bandwidth or designed to operate on a frequency specifically designated for itinerant use or designed for low-power operation of two watts or less, must have a frequency stability of 5.0 ppm. Mobile stations designed to operate with a 6.25 kHz channel bandwidth must have a frequency stability of 2.0 ppm.

7 In the 421-512 MHz band, fixed and base stations with a 12.5 kHz channel bandwidth must have a frequency stability of 1.5 ppm. Fixed and base stations with a 6.25 kHz channel bandwidth must have a frequency stability of 0.5 ppm.

8 In the 421-512 MHz band, mobile stations designed to operate with a 12.5 kHz channel bandwidth must have a frequency stability of 2.5 ppm. Mobile stations designed to operate with a 6.25 kHz channel bandwidth must have a frequency stability of 1.0 ppm.

9 Fixed stations with output powers above 120 watts and necessary bandwidth less than 3 kHz must operate with a frequency stability of 100 ppm. Fixed stations with output powers less than 120 watts and using time-division multiplex, must operate with a frequency stability of 500 ppm.

10 Frequency stability for DSRC equipment in the 5895-5925 MHz band is specified in subpart M of this part. For all other equipment, frequency stability is to be specified in the station authorization.

11 Paging transmitters operating on paging-only frequencies must operate with frequency stability of 5 ppm in the 150-174 MHz band and 2.5 ppm in the 421-512 MHz band.

12 Mobile units may utilize synchronizing signals from associated base stations to achieve the specified carrier stability.

13 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.

14 Control stations may operate with the frequency tolerance specified for associated mobile frequencies.

(b) For the purpose of determining the frequency stability limits, the power of a transmitter is considered to be the maximum rated output power as specified by the manufacturer.

Test Result

VOLTAGE (%)	POWER (V AC)	TEMP (°C)	Measured frequency (Hz)	Drift (ppm)
100%	120	-20	16999999652	12.48
100%		-10	16999964582	10.41
100%		0	16999911528	7.29
100%		+10	16999901098	6.68
100%		+20	16999787567	Reference
100%		+30	16999770155	-1.02
100%		+40	16999692887	-5.57
100%		+50	16999555158	-13.67
115%	138	+20	16999787567	0
85%	102	+20	16999787567	0

Note: Fundamental emissions were contained within the frequency bands

6 Occupied Bandwidth

Test result: Pass

6.1 Limit

(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 1 TO § 90.209(b)(5)—STANDARD CHANNEL SPACING/BANDWIDTH

Frequency band (MHz)	Channel spacing (kHz)	Authorized bandwidth (kHz)
Below 25 ²		
25-50	20	20
72-76	20	20
150-174	¹ 7.5	^{1 3} 20/11.25/6
216-220 ⁵	6.25	20/11.25/6
220-222	5	4
406-512 ²	¹ 6.25	^{1 3 6} 20/11.25/6
806-809/851-854	12.5	20
809-817/854-862	12.5	⁶ 20/11.25
817-824/862-869	25	⁶ 20
896-901/935-940	12.5	13.6
902-928 ⁴		
929-930	25	20
1427-1432 ⁵	12.5	12.5

²Bandwidths 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.

³Operations 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).

⁴The 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; 2MHz 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.

⁵See § 90.259.

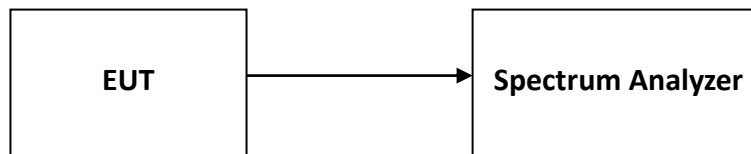
⁶Operations using equipment designed to operate with a 25 kilohertz channel bandwidth may be authorized up to a 20 kilohertz bandwidth unless the equipment meets the Adjacent Channel Power limits of § 90.221 in which case operations may be authorized up to a 22 kilohertz bandwidth. Operations using equipment designed to operate with a 12.5 kilohertz channel bandwidth may be authorized up to an 11.25 kilohertz bandwidth.

TEST REPORT**6.2 Measurement Procedure**

The OBW Bandwidth is measured using the Spectrum Analyzer.

Set Span = 2 to 3 times the OBW bandwidth, RBW = approximately 1% of the OBW bandwidth, VBW>RBW, Sweep = auto, Detector = peak, Trace = max hold.

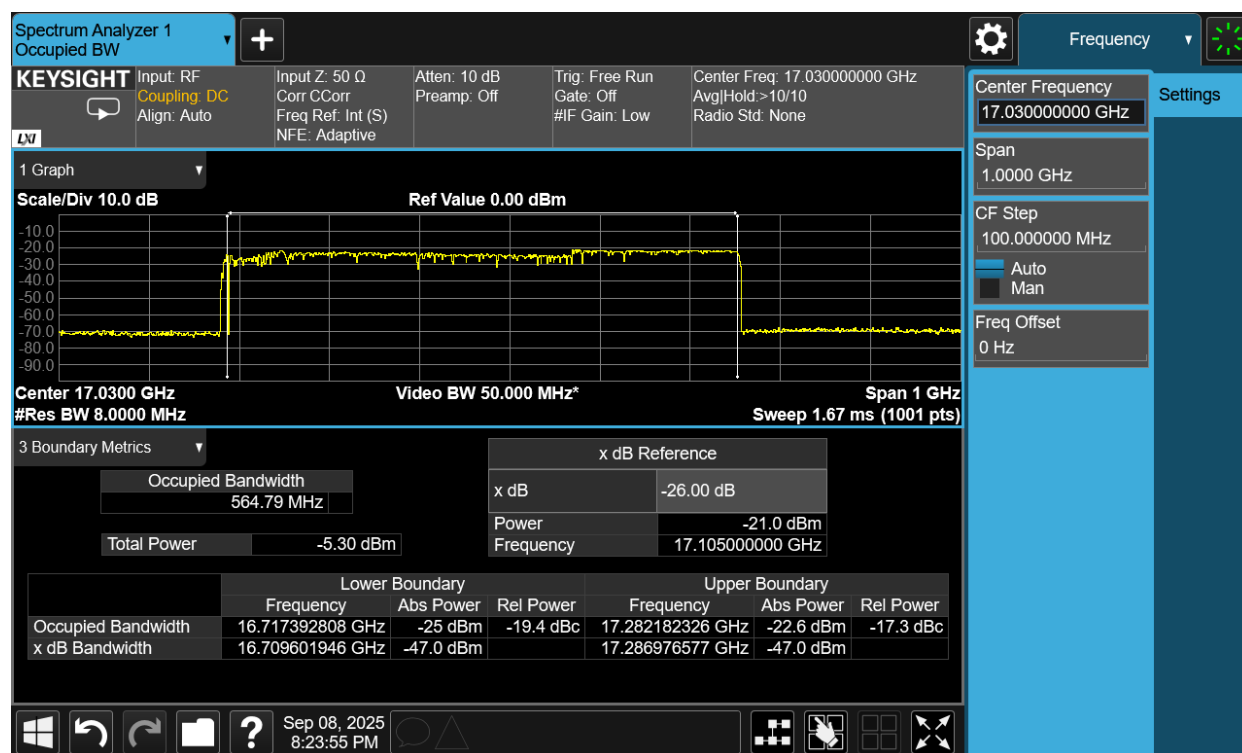
The test was performed at 1 channels.

6.3 Test Configuration

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The results

Frequency band (MHz)	99% Bandwidth (MHz)	F _L at 99% OBW (MHz)	F _H at 99% OBW (MHz)
16780 ~ 17280	564.79	16717.39	17282.18
Limit	N/A	F _L > 15700	F _H < 17300
Result	Complied		



***** END *****