TEST REPORT

Applicant Name:	Kirisun Communication Co.,Ltd.
Address:	3rd Floor, Building A, Tongfang Information Habour, No.11 Langshan Road Nanshan District, Shenzhen 518057 China
Report Number:	2504Y26988E-RF-00F
FCC ID:	Q5ETD60

Test Standard (s)

FCC PART 90

Sample Description

Product Name:	Dual-mode Portable Radio
Model No.:	TD60, TD66
Trade Mark:	KIRISUN , iCallX
Date Received:	2025-10-16
Report Date:	2026-02-07

Test Result:	The EUT complied with the standards above.

Prepared and Checked By:

Roger Ling

EMC Engineer

Approved By:

Bob.Liao

EMC Engineer

TABLE OF CONTENTS

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
Rev.00	2504Y26988E-RF-00F	Original Report	2026-02-07

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product Name	Dual-mode Portable Radio
Tested Model	TD60
Multiple Model	TD66
Voltage Range#	DC 12V from adapter DC 8.7V from desktop charger DC 7.6V from rechargeable battery
Desktop Charger Information#	Model:KBC-TD60-1Q Input: 12.0V ⎓ 1000mA Output: 8.7V ⎓ 1000mA
Adapter Information# (For Desktop Charger)	Model:TPQ-236A120100UW01 Input:100-240 V~ 50/60Hz 0.4A Output:12.0V ⎓ 1.0A
Model Difference#: The differences between the two models are: model name and keyboard. Please refer to DOS letter# and EUT External Photos for details. Note: The two models have different casings. The applicant provided model TD60 for all tests and model TD66 for some evaluation tests.	

Frequency Range	400-470MHz
Rated Output Power#	High Power: 4Watts Low Power: 1Watt
Modulation Technique	FM/4FSK
Channel Separation	For Analog: 12.5kHz, 25kHz For Digital: 12.5kHz
Antenna Specification#	Dipole Antenna, Gain: 0dBi (It is provided by the manufacturer.)
Sample Serial Number	Model TD60: 3BA3-1(RSE Test & RF Conducted Test) Model TD66: 3BA2-2 (RSE Test) (Assigned by ATC, Shenzhen)
Sample/EUT Status	Good condition

Objective

This test report is in accordance with Part 2, and Part 90 of the Federal Communication Commissions rules.

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of federal Regulations Title 47 Part 2, Sub-part J as well as the following individual parts:

Part 90 – Private Land Mobile Radio Service

Applicable Standards:
ANSI C63.26-2015: American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

Unless otherwise stated there are no any additions to, deviations, or exclusions from the method.

Test Facility

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the Floor 1, KuMaKe Building, Dongzhou Community, Guangming Street, Guangming District, Shenzhen, Guangdong, China.

Accredited by American Association for Laboratory Accreditation (A2LA).The Certificate Number is 4297.01.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		5%
RF Frequency		$0.064*10^{-7}$
RF output power, conducted		0.3 dB
Unwanted Emission, conducted		1.2 dB
AC Power Lines Conducted Emissions		2.7 dB
Audio Frequency Response		0.1 dB
Low Pass Filter Response		1.2 dB
Modulation Limiting		1.5 %
Emissions, Radiated	30MHz - 1GHz	4.3 dB
	1GHz - 18GHz	4.9 dB
	18GHz - 26.5GHz	5.2 dB
	26.5GHz - 40GHz	4.6 dB
Temperature		1℃
Humidity		7%
Supply voltages		0.4%

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured to testing mode which is provided by the manufacturer.

Test Frequency#: 400.0125 MHz, 450.0125 MHz, 469.9875 MHz

Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

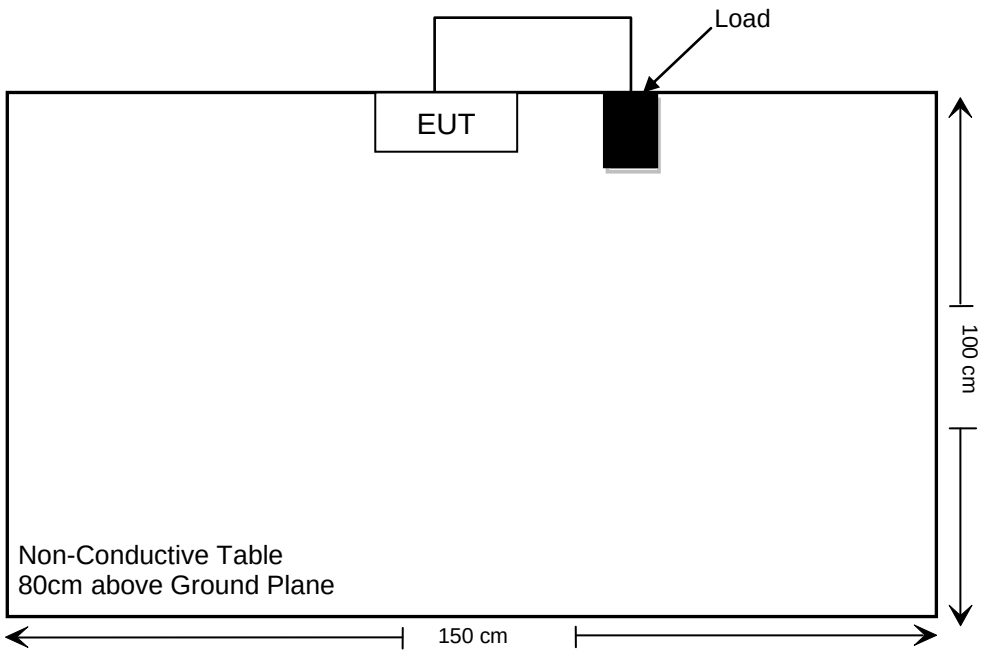
Manufacturer	Description	Model	Serial Number
Unknown	Load	Unknown	Unknown

External I/O Cable

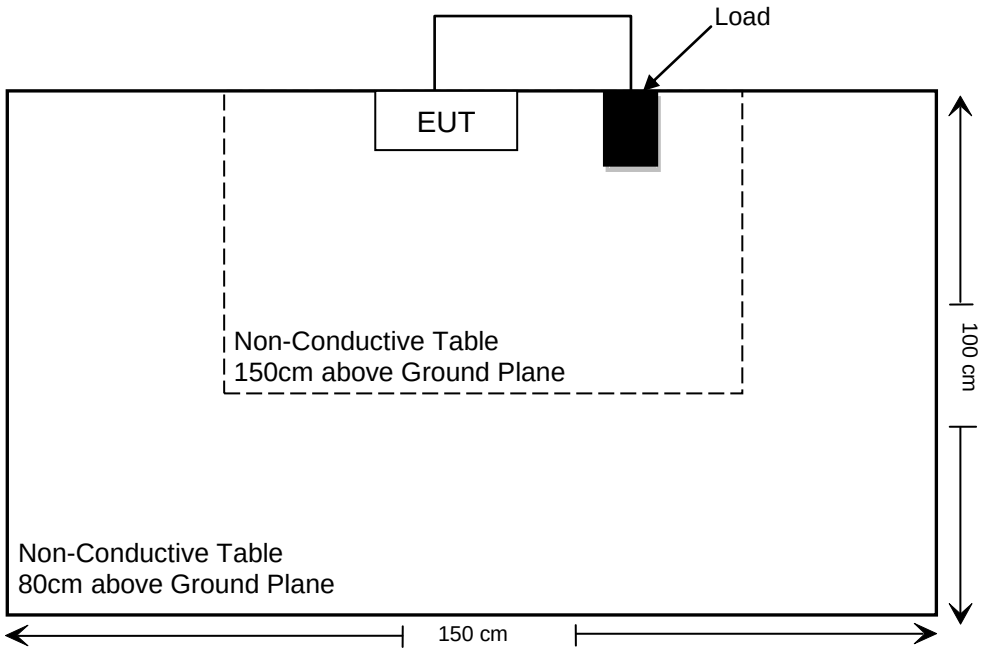
Cable Description	Length (m)	From Port	To
/	/	/	/

Block Diagram of Test Setup

Below 1GHz:



Above 1GHz:


Load
EUT
Non-Conductive Table
150cm above Ground Plane
100 cm
Non-Conductive Table
80cm above Ground Plane
150 cm

SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§2.1093	RF Exposure (SAR)	Compliance
§2.1046; §90.205	RF Output Power	Compliance
§2.1047; §90.207	Modulation Characteristic	Compliance
§2.1049; §90.209; §90.210	Occupied Bandwidth & Emission Mask	Compliance
§2.1051;§90.210	Spurious Emission at Antenna Terminal	Compliance
§2.1053;§90.210	Spurious Radiated Emissions	Compliance
§2.1055;§90.213	Frequency Stability	Compliance
§90.214	Transient Frequency Behavior	Compliance

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Spurious Emission Test (Below 1GHz)					
Rohde & Schwarz	Test Receiver	ESR	102725	2025/09/18	2026/09/17
SONOMA INSTRUMENT	Amplifier	310N	186131	2025/03/26	2026/03/25
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2024/08/08	2027/08/07
Unknown	RF Coaxial Cable	No.12	N040	2025/05/30	2026/05/29
Unknown	RF Coaxial Cable	No.13	N300	2025/05/30	2026/05/29
Unknown	RF Coaxial Cable	No.14	N800	2025/05/30	2026/05/29
Agilent	Signal Generator	N5183A	MY47420360	2025/08/29	2026/08/28
Schwarzbeck	Bilog Antenna	VULB9163	9163-194	2024/01/16	2027/01/15
Test Software: e3 191218 (V9)					
Radiated Spurious Emission Test (Above 1GHz)					
Rohde & Schwarz	Spectrum Analyzer	FSV40	101949	2025/09/17	2026/09/16
A.H. Systems, inc.	Preamplifier	PAM-0118	226	2025/03/20	2026/03/19
Schwarzbeck	Horn Antenna	BBHA9120D	837	2023/02/22	2026/02/21
Unknown	RF Coaxial Cable	No.10	N050	2025/05/30	2026/05/29
Unknown	RF Coaxial Cable	No.11	N1000	2025/05/30	2026/05/29
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-655	2022/12/26	2025/12/25
Agilent	Signal Generator	N5183A	MY47420360	2025/08/29	2026/08/28
Unknown	RF Coaxial Cable	No.16	N200	2025/09/18	2026/09/17
Test Software: e3 191218 (V9)					
RF Conducted Test					
Rohde & Schwarz	Spectrum Analyzer	FSV-40	101495	2025/09/17	2026/09/16
AGILENT	Vector Signal Generator	N5182A	MY50143401	2025/09/17	2026/09/16
Rohde & Schwarz	Signal Analyzer	FSIQ26	837405/023	2025/12/03	2026/12/02
Aeroflex/Weinschel	30dB Attenuator (Input 250W/ Output 50W)	58-30-33	PS467	2025/03/26	2026/03/25
Mini-Circuits	High Pass Filter	NHP-600+	15542	2025/09/18	2026/09/17
BACL	Temp. & Humid. Chamber	BTH-150-40	30192	2025/09/18	2026/09/17
HP Agilent	RF Communication test set	8920A	3325U00859	2025/05/23	2026/05/22
Rohde & Schwarz	Audio Analyzer	UPV	101782	2025/12/03	2026/12/02
WEINSCHEL	10dB Attenuator	5324	AU 3842	2025/03/26	2026/03/25
UNI-T	DC Power Supply	UTP1306S	2109D0903324	2025/03/26	2026/03/25

* Statement of Traceability: Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

RF EXPOSURE

Applicable Standard

FCC§1.1310 and §2.1093.

Measurement Result: Compliance. Please refer to SAR Report[#]: 2502Y05440E-20A.

RF OUTPUT POWER

Applicable Standard

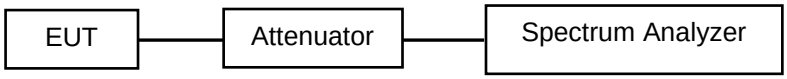
FCC §2.1046 and §90.205

Test Procedure

Test Method: ANSI C63.26-2015, Clause 5.2.3.3

This procedure can be used to measure the peak power in either a CW-like or noise-like narrowband RF signal. The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW ≥ 3 × RBW.

a) Set the RBW ≥ OBW.
b) Set VBW ≥ 3 × RBW.
c) Set span ≥ 2 × OBW.
d) Sweep time ≥ 10 × (number of points in sweep) × (transmission symbol period).
e) Detector = peak.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use the peak marker function to determine the peak amplitude level



Note: offset=Cable Loss(1dB#)+Attenuator(30dBi)

Test Data

Test Result: Please refer to the Appendix.

MODULATION CHARACTERISTIC

Applicable Standard

FCC§2.1047 and §90.207:

(a) Equipment which utilizes voice modulated communication shall show the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz. for equipment which is required to have a low pass filter, the frequency response of the filter, or all of the circuitry installed between the modulation limited and the modulated stage shall be supplied.
(b) Equipment which employs modulation limiting, a curve showing the percentage of modulation versus the modulation input voltage shall be supplied.

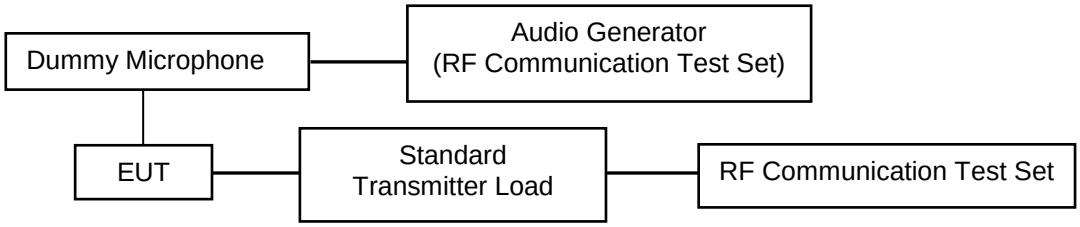
Test Procedure

Test Method: ANSI C63.26-2015 Section 5.3.2 & 5.3.3, ANSI/TIA 603-E-2016 Section 2.2.15

5.3.2 Modulation limiting test methodology

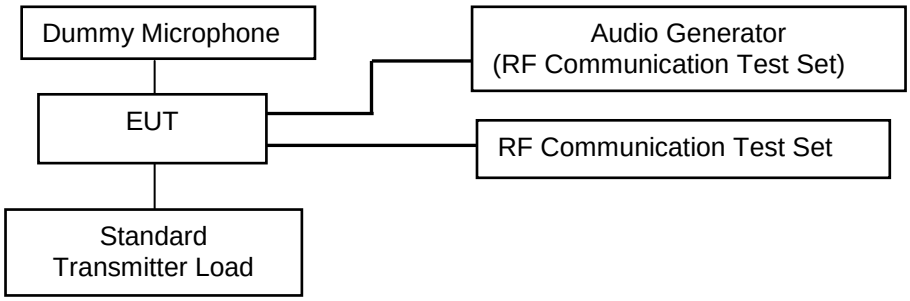
Modulation limiting is the ability of a transmitter circuit to limit the transmitter from producing deviations in excess of a rated system deviation.

a) Connect the equipment as illustrated in Figure 1.
b) Adjust the transmitter per the manufacturer's procedure for full rated system deviation.
c) Set the test RF Communications Test Set to measure peak positive deviation. Set the audio bandwidth for ≤0.25 Hz to ≥15000 Hz. Turn the de-emphasis function off.
d) Apply a 1000 Hz modulating signal to the transmitter from the RF Communications Test Set, and adjust the level to obtain 60% of full rated system deviation. This is the 0 dB reference level.
e) Increase the level from the audio generator by 20 dB in 5 dB increments recording the deviation as measured from the RF Communications Test Set in each step. Verify that the audio level used to make the OBW measurement is included in the sweep.
f) Repeat for step e) at 300 Hz, 2500 Hz and 3000 Hz at a minimum using the 0 dB reference level obtained in step d).
g) Set the RF Communications Test Set to measure peak negative deviation and repeat step d) through step f).
h) The values recorded in step f) and step g) are the modulation limiting. i) Plot the data set as a percentage of deviation relative to the 0 dB reference point versus input voltage.



5.3.3.2 Audio frequency response test methodology—Constant Input

a) Connect the equipment as illustrated in Figure.
b) Set the test receiver to measure peak positive deviation. Set the audio bandwidth for ≤50 Hz to ≥15 000 Hz. Turn the de-emphasis function off.
c) Adjust the transmitter per the manufacturer's procedure for full rated system deviation.
d) Apply a 1000 Hz tone and adjust the audio frequency generator to produce 20% of the rated system deviation.
e) Set the test receiver to measure rms deviation and record the deviation reading as DEVREF.
f) Set the audio frequency generator to the desired test frequency between 300 Hz and 3000 Hz.



Test Data

Test Result: Please refer to the Appendix.

OCCUPIED BANDWIDTH & EMISSION MASK

Applicable Standard

FCC §2.1049, §90.209 and §90.210

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.

Emission Mask D - 12.5 kHz channel bandwidth equipment. For transmitters designed to operate with a 12.5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

1) For any frequency removed from the center of the authorized bandwidth f_0 to 5.625 kHz removed from f_0, 0dB.

2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 5.626 kHz but no more than 12.5 kHz, at least 7.27 (f_d –2.88 kHz) dB.

3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 12.5 kHz at least: At least 50 + 10 log (P) dB or 70 dB, whichever is the lesser attenuation.

4) The reference level for showing compliance with the emission mask shall be established using a resolution bandwidth sufficiently wide (usually two or three times the channel bandwidth) to capture the true peak emission of the equipment under test. In order to show compliance with the emission mask up to and including 50 kHz removed from the edge of the authorized bandwidth, adjust the resolution bandwidth to 100 Hz with the measuring instrument in a peak hold mode. A sufficient number of sweeps must be measured to insure that the emission profile is developed. If video filtering is used, its bandwidth must not be less than the instrument resolution bandwidth. For emissions beyond 50 kHz from the edge of the authorized bandwidth, see paragraph (o) of this section. If it can be shown that use of the above instrumentation settings do not accurately represent the true interference potential of the equipment under test, an alternate procedure may be used provided prior Commission approval is obtained.

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The resolution bandwidth of the spectrum analyzer was set at 100 Hz and the spectrum was recorded in the frequency band ±50 kHz from the carrier frequency.

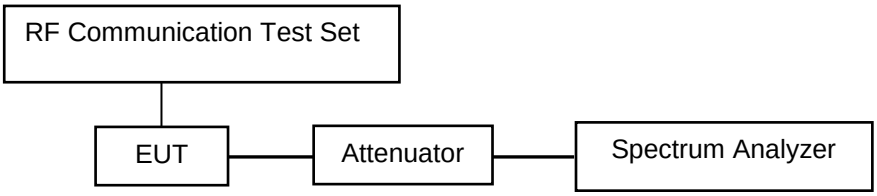
According to ANSI C63.26-2015 Section 5.4.4:

The OBW is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission.

The following procedure shall be used for measuring (99%) power bandwidth:

a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (typically a span of 1.5 × OBW is sufficient).
b) The nominal IF filter 3 dB bandwidth (RBW) shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set ≥ 3 × RBW.
c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.
NOTE—Step a), step b), and step c) may require iteration to adjust within the specified tolerances.

d) Set the detection mode to peak, and the trace mode to max-hold.
e) If the instrument does not have a 99% OBW function, recover the trace data points and sum directly in linear power terms. Place the recovered amplitude data points, beginning at the lowest frequency, in a running sum until 0.5% of the total is reached. Record that frequency as the lower OBW frequency. Repeat the process until 99.5% of the total is reached and record that frequency as the upper OBW frequency. The 99% power OBW can be determined by computing the difference these two frequencies.
f) The OBW shall be reported and plot(s) of the measuring instrument display shall be provided with the test report. The frequency and amplitude axis and scale shall be clearly labeled. Tabular data can be reported in addition to the plot(s).



Note: offset=Cable Loss(1dB#)+Attenuator(30dBi)

Test Data

Test Result: Please refer to the Appendix.

Note:
Emission bandwidth was based on calculation method instead of measurement.
Emission Designator: Per CFR 47 §2.201& §2.202, BW = 2M + 2D

For FM Mode (Channel Spacing: 12.5 kHz)
Emission Designator 11K0F3E
- In this case, the maximum modulating frequency is 3.0 kHz with a 2.5 kHz deviation.
  BW = 2(M+D) = 2*(3.0 kHz + 2.5 kHz) = 11 kHz = 11K0
- F3E portion of the designator represents an FM voice transmission

Therefore, the entire designator for 12.5 kHz channel spacing FM mode is 11K0F3E.

For FM Mode (Channel Spacing: 25 kHz)
Emission Designator 16K0F3E
- In this case, the maximum modulating frequency is 3.0 kHz with a 5.0 kHz deviation.
  BW = 2(M+D) = 2*(3.0 kHz + 5.0 kHz) = 16kHz = 16K0
- F3E portion of the designator represents an FM voice transmission

Therefore, the entire designator for 25 kHz channel spacing FM mode is 16K0F3E.

For Digital Mode (Channel Spacing: 12.5 kHz)
Emission Designator 7K60F1D and 7K60F1E
The 99% energy rule (title 47CFR 2.1049) was used for digital mode. It basically states that 99% of the modulation energy falls within X kHz, in this case, 7.60 kHz. The emission mask was obtained from 47CFR 90.210(d).
F1D and F1E portion of the designator indicates digital information.
Therefore, the entire designator for 12.5 kHz channel spacing digital mode is 7K60F1D and 7K60F1E.

SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standard

FCC §2.1051and §90.210

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.

Emission Mask D—12.5 kHz channel bandwidth equipment. For transmitters designed to operate with a 12.5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

1) For any frequency removed from the center of the authorized bandwidth f_0 to 5.625 kHz removed from f_0, 0 dB.

2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 5.626 kHz but no more than 12.5 kHz, at least 7.27 (f_d –2.88 kHz) dB.

3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 12.5 kHz: At least 50 + 10 log (P) dB or 70 dB, whichever is the lesser attenuation.

4) The reference level for showing compliance with the emission mask shall be established using a resolution bandwidth sufficiently wide (usually two or three times the channel bandwidth) to capture the true peak emission of the equipment under test. In order to show compliance with the emission mask up to and including 50 kHz removed from the edge of the authorized bandwidth, adjust the resolution bandwidth to 100 Hz with the measuring instrument in a peak hold mode. A sufficient number of sweeps must be measured to insure that the emission profile is developed. If video filtering is used, its bandwidth must not be less than the instrument resolution bandwidth. For emissions beyond 50 kHz from the edge of the authorized bandwidth, see paragraph (o) of this section. If it can be shown that use of the above instrumentation settings do not accurately represent the true interference potential of the equipment under test, an alternate procedure may be used provided prior Commission approval is obtained.

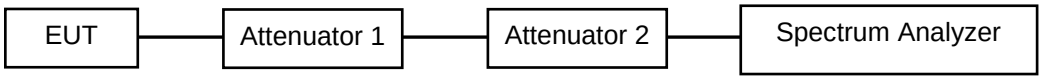
Test Procedure

The RF output of the EUT was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 100kHz for below 1GHz, and 1MHz for above 1GHz. Sufficient scans were taken to show any out of band emissions up to 10^{th} harmonic.

Test Method: ANSI C63.26-2015 Section 5.7.4:

a) Set the spectrum analyzer start frequency to the lowest frequency generated by the EUT, without going below 9 kHz, and the stop frequency to the lower frequency covered by the measurements previously performed in 5.7.3. As an alternative, the stop frequency can be set to the value specified in 5.1.1, depending on the EUT operating range, if the resulting plot can clearly demonstrate compliance for all frequencies not addressed by the out-of-band emissions measurements performed as per 5.7.3.
b) When using an average power (rms) detector, ensure that the number of points in the sweep $\geqslant 2 \times$ (span / RBW). This may require that the measurement range defined by the start and stop frequencies be subdivided, depending on the spectrum analyzer capabilities. This requirement does not apply to peak-detected power measurements. When average power is specified by the applicable regulation, a peak-detector can be utilized for preliminary measurements to accommodate wider frequency spans. Any emissions found in the preliminary measurement to exceed the applicable limit(s) shall be further examined using a power averaging (rms) detector with the minimum number of measurement points as defined above.

c) The sweep time should be set to auto-couple for performing peak-detector measurements. For measurements that use a power averaging (rms) detector, the sweep time shall be set as described for out-of-band emissions measurements in item d) of 5.7.3.
d) Identify and measure the highest spurious emission levels in each frequency range. It is not necessary to re-measure the out-of-band emissions as a part of this test. Record the frequencies and amplitudes corresponding to the measured emissions and capture the data plots.
e) Repeat step b) through step d) for the upper spurious emission frequency range if not already captured by a wide span measurement performed as per the alternative provided in step a). The upper frequency for this measurement is defined in 5.1.1 as a function of the EUT operating range.
f) Compare the results with the corresponding limit in the applicable regulation.
g) The test report shall include the data plots of the measuring instrument display and the measured data.



Note: offset=Cable Loss(1dB#)+Attenuator 1(30dBi)+Attenuator 2(10dBi)

Test Data

Test Result: Please refer to the Appendix.

RADIATED SPURIOUS EMISSIONS

Applicable Standard

FCC §2.1053 and §90.210

Test Procedure

According to ANSI C63.26-2015 Section 5.5.3:

●**Test setup:**

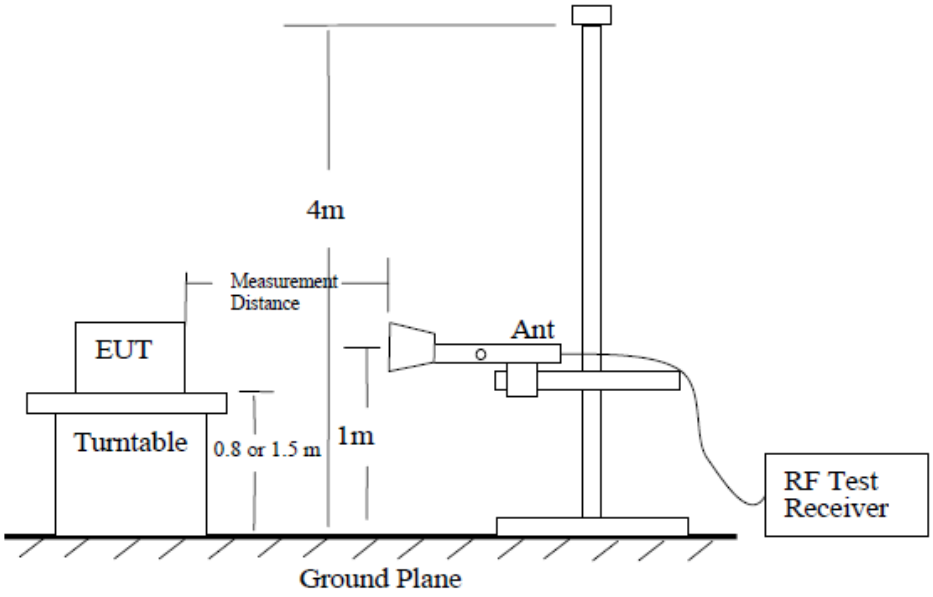


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

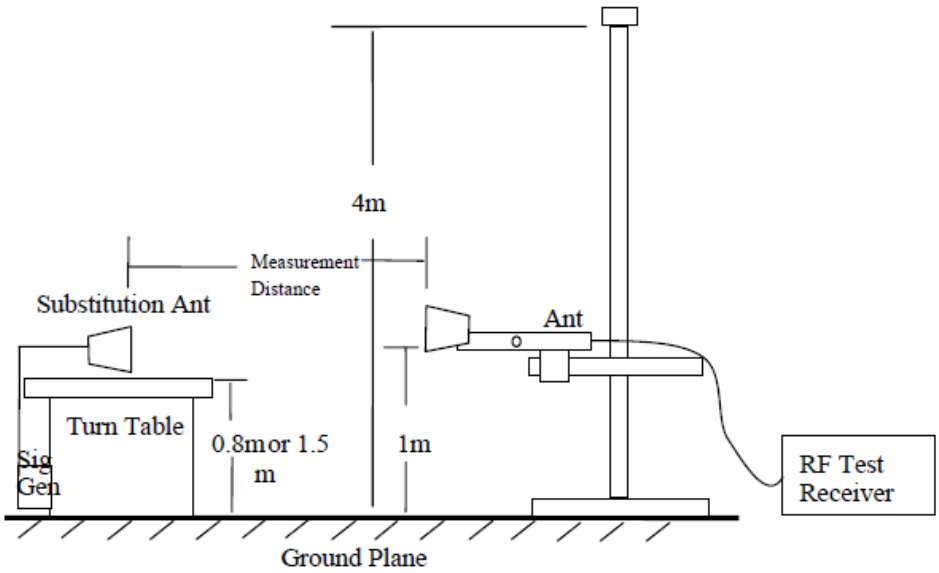


Figure 7—Substitution method set-up for radiated emission

● **Final radiated emissions testing**

a) Place the EUT in the center of the turntable. The EUT shall be configured to transmit into the standard non-radiating load (for measuring radiated spurious emissions), connected with cables of minimal length unless specified otherwise. If the EUT uses an adjustable antenna, the antenna shall be positioned to the length that produces the worst case emission at the fundamental operating frequency.

b) Each emission under consideration shall be evaluated:
   1) Raise and lower the measurement antenna in accordance 5.5.2, as necessary to enable detection of the maximum emission amplitude relative to measurement antenna height.
   2) Rotate the EUT through 360° to determine the maximum emission level relative to the axial position.
   3) Return the turntable to the azimuth where the highest emission amplitude level was observed.
   4) Vary the measurement antenna height again through 1 m to 4 m again to find the height associated with the maximum emission amplitude.
   5) Record the measured emission amplitude level and frequency using the appropriate RBW.

c) Repeat step b) for each emission frequency with the measurement antenna oriented in both the horizontal and vertical polarizations to determine the orientation that gives the maximum emissions amplitude.

d) Set-up the substitution measurement with the reference point of the substitution antenna located as near as possible to where the center of the EUT radiating element was located during the initial EUT measurement.

e) Maintain the previous measurement instrument settings and test set-up, with the exception that the EUT is removed and replaced by the substitution antenna.

f) Connect a signal generator to the substitution antenna; locate the signal generator so as to minimize any potential influences on the measurement results. Set the signal generator to the frequency where emissions are detected, and set an output power level such that the radiated signal can be detected by the measurement instrument, with sufficient dynamic range relative to the noise floor.

g) For each emission that was detected and measured in the initial test [i.e., in step b) and step c)]:
   1) Vary the measurement antenna height between 1 m to 4 m to maximize the received (measured) signal amplitude.
   2) Adjust the signal generator output power level until the amplitude detected by the measurement instrument equals the amplitude level of the emission previously measured directly in step b) and step c).
   3) Record the output power level of the signal generator when equivalence is achieved in step 2).

h) Repeat step e) through step g) with the measurement antenna oriented in the opposite polarization.

i) Calculate the emission power in dBm referenced to a half-wave dipole using the following equation:
   Pe = Ps(dBm) − cable loss (dB) + antenna gain (dBd)
   where
   Pe = equivalent emission power in dBm
   Ps = source (signal generator) power in dBm
   NOTE—dBd refers to the measured antenna gain in decibels relative to a half-wave dipole.

j) Correct the antenna gain of the substitution antenna if necessary to reference the emission power to a half-wave dipole. When using measurement antennas with the gain specified in dBi, the equivalent dipole-referenced gain can be determined from: gain (dBd) = gain (dBi) − 2.15 dB. If necessary, the antenna gain can be calculated from calibrated antenna factor information

k) Provide the complete measurement results as a part of the test report.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the receiving antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Test Data

Environmental Conditions

Test Item:	RSE Below 1GHz	RSE Above1GHz
Temperature:	24.8 °C	23.5 °C
Relative Humidity:	52 %	55 %
ATM Pressure:	101.1 kPa	101.1 kPa
Test Engineer:	Colin Lin	Angel Chen
Test Date:	2025-11-13	2025-11-11
EUT Operation Mode:	Transmitting(High Power)	Transmitting(High Power)

Test Result: Compliance, please refer to the below data.

Note: After pre-scan in the X, Y and Z axes of orientation, the worst case as setup photos was recorded.

For 3BA3-1

For Analog(12.5kHz):

Frequency (MHz)	Receiver	Rx Antenna	Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
	Reading (dBm)	Polar (H/V)				
400.0125 MHz						
800.025	-68.35	H	10.68	-57.67	-20	-37.67
800.025	-69.32	V	7.97	-61.35	-20	-41.35
2400.075	-53.1	H	1.65	-51.45	-20	-31.45
2400.075	-51.33	V	1.29	-50.04	-20	-30.04
2800.088	-49.9	H	1.89	-48.01	-20	-28.01
2800.088	-51.18	V	1.88	-49.3	-20	-29.3
3200.100	-51	H	2.59	-48.41	-20	-28.41
3200.100	-55.39	V	3.25	-52.14	-20	-32.14
450.0125 MHz						
900.025	-77.35	H	8.12	-69.23	-20	-49.23
900.025	-79.62	V	11.19	-68.43	-20	-48.43
2700.075	-52.97	H	1.21	-51.76	-20	-31.76
2700.075	-51.61	V	1.6	-50.01	-20	-30.01
3150.088	-50.04	H	2.97	-47.07	-20	-27.07
3150.088	-51.6	V	3.1	-48.5	-20	-28.5
3600.100	-51.21	H	3.01	-48.2	-20	-28.2
3600.100	-55.12	V	2.85	-52.27	-20	-32.27
469.9875 MHz						
939.975	-79.51	H	9.48	-70.03	-20	-50.03
939.975	-78.7	V	9.81	-68.89	-20	-48.89
2819.925	-54.37	H	2.11	-52.26	-20	-32.26
2819.925	-53.35	V	1.91	-51.44	-20	-31.44
3289.913	-50.81	H	2.15	-48.66	-20	-28.66
3289.913	-51.8	V	2.33	-49.47	-20	-29.47
3759.900	-51.83	H	3.32	-48.51	-20	-28.51
3759.900	-55.62	V	3.23	-52.39	-20	-32.39

For Analog(25kHz):

Frequency (MHz)	Receiver	Rx Antenna	Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
	Reading (dBm)	Polar (H/V)				
400.0125 MHz						
800.025	-69.13	H	10.68	-58.45	-13	-45.45
800.025	-68.46	V	7.97	-60.49	-13	-47.49
2400.075	-52.4	H	1.65	-50.75	-13	-37.75
2400.075	-52.43	V	1.29	-51.14	-13	-38.14
2800.088	-50.62	V	1.89	-48.73	-13	-35.73
2800.088	-51.24	V	1.88	-49.36	-13	-36.36
3200.100	-50.55	V	2.59	-47.96	-13	-34.96
3200.100	-56.33	V	3.25	-53.08	-13	-40.08
450.0125 MHz						
900.025	-75.03	H	8.12	-66.91	-13	-53.91
900.025	-77.25	V	11.19	-66.06	-13	-53.06
2700.075	-51.63	H	1.21	-50.42	-13	-37.42
2700.075	-51.66	V	1.6	-50.06	-13	-37.06
3150.088	-51.36	H	2.97	-48.39	-13	-35.39
3150.088	-51.51	V	3.1	-48.41	-13	-35.41
3600.100	-50.99	H	3.01	-47.98	-13	-34.98
3600.100	-55.06	V	2.85	-52.21	-13	-39.21
469.9875 MHz						
939.975	-78.05	H	9.48	-68.57	-13	-55.57
939.975	-78.07	V	9.81	-68.26	-13	-55.26
2819.925	-53.76	H	2.11	-51.65	-13	-38.65
2819.925	-52.53	V	1.91	-50.62	-13	-37.62
3289.913	-51.06	V	2.15	-48.91	-13	-35.91
3289.913	-51.89	V	2.33	-49.56	-13	-36.56
3759.900	-51.49	V	3.32	-48.17	-13	-35.17
3759.900	-56.27	V	3.23	-53.04	-13	-40.04

For Digital:

Frequency (MHz)	Receiver	Rx Antenna	Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
	Reading (dBm)	Polar (H/V)				
400.0125 MHz						
800.025	-68.8	H	10.68	-58.12	-20	-38.12
800.025	-69.21	V	7.97	-61.24	-20	-41.24
2400.075	-54.01	H	1.65	-52.36	-20	-32.36
2400.075	-52.07	V	1.29	-50.78	-20	-30.78
2800.088	-50.15	V	1.89	-48.26	-20	-28.26
2800.088	-51.22	V	1.88	-49.34	-20	-29.34
3200.100	-51.05	V	2.59	-48.46	-20	-28.46
3200.100	-55.87	V	3.25	-52.62	-20	-32.62
450.0125 MHz						
900.025	-76.45	H	8.12	-68.33	-20	-48.33
900.025	-79.1	V	11.19	-67.91	-20	-47.91
2700.075	-52.7	H	1.21	-51.49	-20	-31.49
2700.075	-51.65	V	1.6	-50.05	-20	-30.05
3150.088	-50.36	H	2.97	-47.39	-20	-27.39
3150.088	-51.55	V	3.1	-48.45	-20	-28.45
3600.100	-51.24	H	3.01	-48.23	-20	-28.23
3600.100	-55.09	V	2.85	-52.24	-20	-32.24
469.9875 MHz						
939.975	-79.33	H	9.48	-69.85	-20	-49.85
939.975	-78.13	V	9.81	-68.32	-20	-48.32
2819.925	-54.58	H	2.11	-52.47	-20	-32.47
2819.925	-53.49	V	1.91	-51.58	-20	-31.58
3289.913	-50.88	V	2.15	-48.73	-20	-28.73
3289.913	-51.84	V	2.33	-49.51	-20	-29.51
3759.900	-51.81	V	3.32	-48.49	-20	-28.49
3759.900	-56.05	V	3.23	-52.82	-20	-32.82

For 3BA2-2

For Analog(12.5kHz):

Frequency (MHz)	Receiver	Rx Antenna	Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
	Reading (dBm)	Polar (H/V)				
400.0125 MHz						
800.025	-69.26	H	10.68	-58.58	-20	-38.58
800.025	-65.6	V	7.97	-57.63	-20	-37.63
450.0125 MHz						
900.025	-75.51	H	8.12	-67.39	-20	-47.39
900.025	-78.52	V	11.19	-67.33	-20	-47.33
469.9875 MHz						
939.975	-77.26	H	9.48	-67.78	-20	-47.78
939.975	-78.43	V	9.81	-68.62	-20	-48.62

For Analog(25kHz):

Frequency (MHz)	Receiver	Rx Antenna	Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
	Reading (dBm)	Polar (H/V)				
400.0125 MHz						
800.025	-69.74	H	10.68	-59.06	-13	-46.06
800.025	-65.79	V	7.97	-57.82	-13	-44.82
450.0125 MHz						
900.025	-76.83	H	8.12	-68.71	-13	-55.71
900.025	-79.02	V	11.19	-67.83	-13	-54.83
469.9875 MHz						
939.975	-77.34	H	9.48	-67.86	-13	-54.86
939.975	-78.74	V	9.81	-68.93	-13	-55.93

For Digital:

Frequency (MHz)	Receiver	Rx Antenna	Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
	Reading (dBm)	Polar (H/V)				
400.0125 MHz						
800.025	-69.99	H	10.68	-59.31	-20	-39.31
800.025	-65.53	V	7.97	-57.56	-20	-37.56
450.0125 MHz						
900.025	-75.98	H	8.12	-67.86	-20	-47.86
900.025	-78.72	V	11.19	-67.53	-20	-47.53
469.9875 MHz						
939.975	-77.46	H	9.48	-67.98	-20	-47.98
939.975	-78.42	V	9.81	-68.61	-20	-48.61

Note 1: Factor = Antenna factor (RX) + Cable Loss - Amplifier Factor
Note 2: Absolute Level = Substituted Factor + Reading
Note 3: Margin = Absolute Level – Limit
Note 4: The data which below the 20 dB limit was not recorded.

FREQUENCY STABILITY

Applicable Standard

FCC §2.1055 and §90.213

Test Procedure

According to ANSI C63.26-2015 Section 5.6:

Frequency stability is a measure of the frequency drift due to temperature and supply voltage variations, with reference to the frequency measured at +20 °C and rated supply voltage.

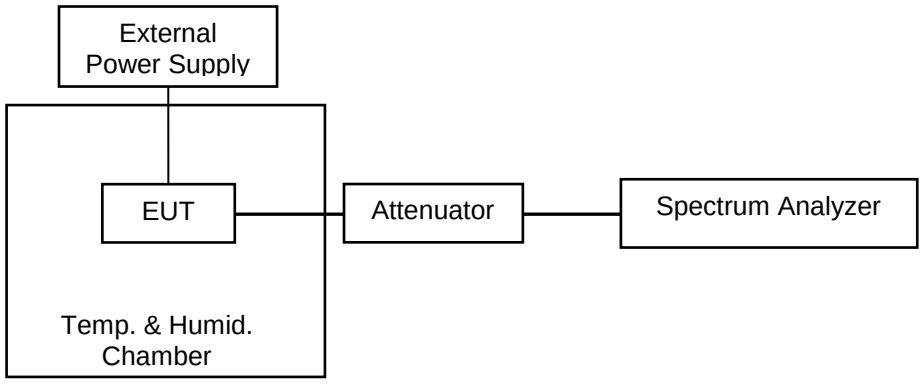
The operating carrier frequency shall be set up in accordance with the manufacturer's published operation and instruction manual prior to the commencement of these tests. No adjustment of any frequency determining circuit element shall be made subsequent to this initial set-up. Frequency stability is tested:

a) At 10 °C intervals of temperatures between −30 °C and +50 °C at the manufacturer's rated supply voltage, and

b) At +20 °C temperature and ±15% supply voltage variations. If a product is specified to operate over a range of input voltage then the −15% variation is applied to the lowermost voltage and the +15% is applied to the uppermost voltage.

During the test all necessary settings, adjustments and control of the EUT have to be performed without disturbing the test environment, i.e., without opening the environmental chamber. The frequency stabilities can be maintained to a lesser temperature range provided that the transmitter is automatically inhibited from operating outside the lesser temperature range. For handheld equipment that is only capable of operating from internal batteries and the supply voltage cannot be varied, the frequency stability tests shall be performed at the nominal battery voltage and the battery end point voltage specified by the manufacturer. An external supply voltage can be used and set at the internal battery nominal voltage, and again at the battery operating end point voltage which shall be specified by the equipment manufacturer.

If an unmodulated carrier is not available, the mean frequency of a modulated carrier can be obtained by using a frequency counter with gating time set to an appropriately large multiple of bit periods (gating time depending on the required accuracy). Full details on the choice of values shall be included in the test report.



Note: offset=Cable Loss(1dB#)+Attenuator(30dBi)

Test Data

Test Result: Please refer to the Appendix.

TRANSIENT FREQUENCY BEHAVIOR

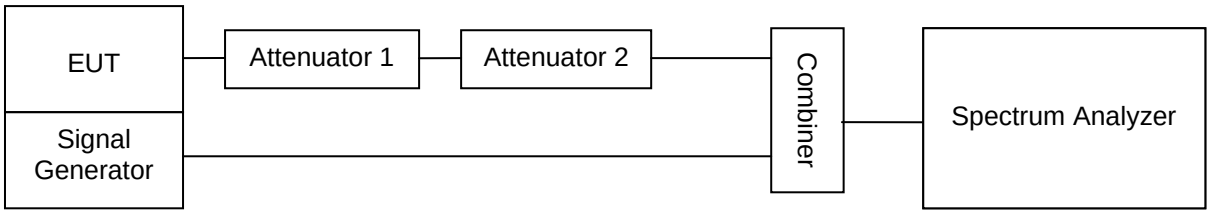
Applicable Standard

Regulations: FCC §90.214

Test Procedure

Test method: ANSI C63.26-2015, Section 6.5.2.2:

a) Connect the EUT and test equipment as shown on the following block diagram.
b) Set the Spectrum Analyzer to measure FM deviation, and tune the RF frequency to the transmitter assigned frequency.
c) Set the signal generator to the assigned transmitter frequency and modulate it with a 1 kHz tone at ±12.5 kHz deviation and set its output level to -100dBm.
d) Turn on the transmitter.
e) Supply sufficient attenuation via the RF attenuator to provide an input level to the Spectrum Analyzer that is 40 dB below the maximum allowed input power when the transmitter is operating at its rated power level. Note this power level on the Spectrum Analyzer as P_0.
f) Turn off the transmitter.
g) Adjust the RF level of the signal generator to provide RF power equal to P_0. This signal generator RF level shall be maintained throughout the rest of the measurement.
h) Remove the attenuation 1, so the input power to the Spectrum Analyzer is increased by 30 dB when the transmitter is turned on.
i) Adjust the vertical amplitude control of the spectrum analyzer to display the 1000 Hz at ±4 divisions vertically centered on the display. Set trigger mode of the Spectrum Analyzer to “Video”, and tune the “trigger level” on suitable level. Then set the “tiger offset” to -10ms for turn on and -15ms for turn off.
j) Turn on the transmitter and the transient wave will be captured on the screen of Spectrum Analyzer. Observe the stored display. The instant when the 1 kHz test signal is completely suppressed is considered to be t_{on}. The trace should be maintained within the allowed divisions during the period t_1 and t_2.
k) Then turn off the transmitter, and another transient wave will be captured on the screen of Spectrum Analyzer. The trace should be maintained within the allowed divisions during the period t_3.



Note: offset=Cable Loss(1dB#)+Attenuator 1(30dBi)+Attenuator 2(10dBi)

Test Data

Test Result: Please refer to the Appendix.