

1.4.2 Justification

The system was configured for testing in a typical manner in accordance with ANSI C63.4 standard.

1.4.3 Mode(s) of operation

The EUT was operating at continuous transmitting mode.

1.5 Modifications required for compliance

No modifications were implemented by Intertek Testing Services.

2 TEST SUMMARY

FCC RULE	DESCRIPTION OF TEST	RESULT	PAGE
Transmitter Section			
2.1046 24.232(b)	RF Power Output (Effective Isotropic Radiated Power)	Pass	6
2.1047	Modulation Characteristics	N/A	N/A
2.1049	Occupied Bandwidth	N/A	N/A
2.1051	Spurious Emission at Antenna Terminal	Pass	9
2.1053 24.236	Field Strength of Spurious Radiation	Pass	
2.1055 24.235	Frequency Stability Vs. Temperature Frequency Stability Vs. Voltage	Test was not requested by client	10
15.107	Line Conducted Emissions	*	DoC
Digital Section			
15.109(a)	Radiated Emissions	*	DoC

*Refer to DoC Report

3 EFFECTIVE RADIATED POWER

3.1 Test Description

Parameter:	FCC § 2.1046
Requirement:	FCC § 24.232(b)
Equivalent Isotropic Radiated Power (EIRP):	< 2 watts peak

3.2 Test Procedure

The EUT was positioned on a non-conductive turntable, 0.8m above the ground plane on an open test site.

The radiated emission at the fundamental frequency was measured at 3m distance with a test antenna and spectrum analyzer. During the measurement, the resolution and video bandwidth of the spectrum analyzer were set to 1 MHz. To maximize emissions, the system was rotated through 360°, the antenna height was varied from 1m to 4m, and the antenna polarization was changed.

The ERP was calculated using equation:

$$E = \frac{\sqrt{30 \cdot P \cdot G}}{D}$$

Where E = Field Strength (V/m),
G = Numeric Gain of Antenna (1 for isotropic antenna),
EIRP = P for G = 1
D = Distance between two antennae (m)

3.3 Test Results

See attached.

3.4 Modifications made during testing

None

3.5 Test Instrumentation

☒ Hewlett Packard HP8566B Spectrum Analyzer (S.A.)

☒ EMCO 3115 Horn Antenna

☐ HP Pre-amp

4 MODULATION CHARACTERISTICS

4.1 Test Description

Parameter:	FCC § 2.1047
Requirement:	Not Applicable

5 OCCUPIED BANDWIDTH

5.1 Test description

Parameter:	FCC §2.1049
Requirement:	FCC § 24.238
Emission Bandwidth Limits:	Not Applicable

5.2 Test Procedure

The antenna was disconnected from the transmitter and the short cable was connected to the transmitter RF output.

The RF output was connected to the input of the spectrum analyzer through sufficient attenuation. The resolution bandwidth (RBW) of the spectrum analyzer was set up to at least 1 MHz inside the frequency block. In the 1 MHz bands immediately outside and adjacent to the frequency block, the RBW may be reduced to at least 1% of emission bandwidth of the fundamental emission.

5.3 Test Results

Not applicable

5.4 Modifications made during testing

None

5.5 Test instrumentation

- [] Leader LFG-1300S Function Generator
- [] HP 8566B Spectrum Analyzer
- [] HP 7470A Plotter

6 SPURIOUS EMISSION AT ANTENNA TERMINALS

6.1 Test description

Parameter:	FCC §2.1051
Requirement:	FCC § 24.238
Emission Limits:	43 + 10log (P) dB

6.2 Test Procedure

The antenna was disconnected from the transmitter and the short cable was connected to the transmitter RF output.

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

6.3 Test Results

See attached plots for the antenna conducted spurious emission :

Plot Number	Description
L.1-L.7	Low Channel, 1 MHz – 20 GHz
M.1-M.6	Middle Channel, 1 MHz – 20 GHz
H.1-H.8	High Channel, 1 MHz – 20 GHz

6.4 Modifications made during testing

None

6.5 Test instrumentation

[X] Leader LFG-1300S Function Generator

[X] HP 8566B Spectrum Analyzer

[X] HP 7470A Plotter

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