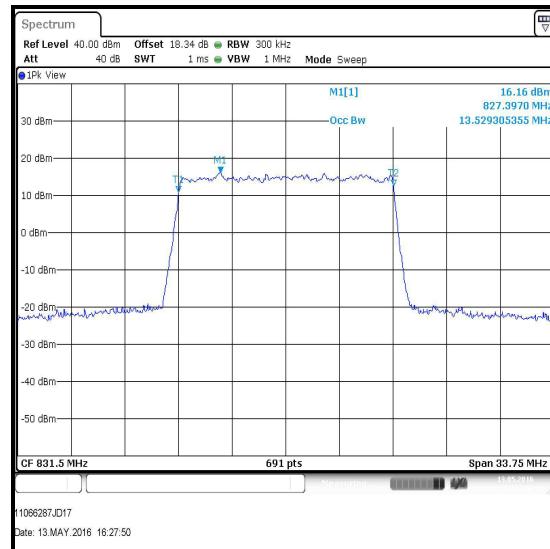
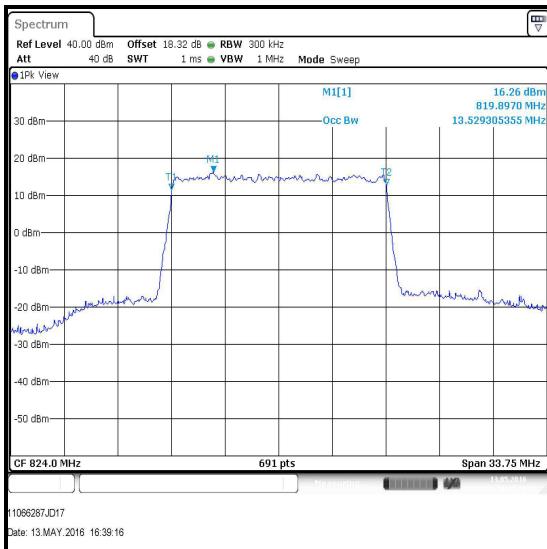
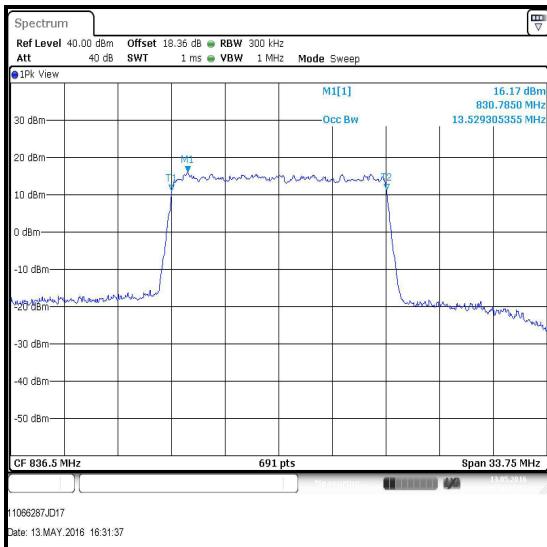
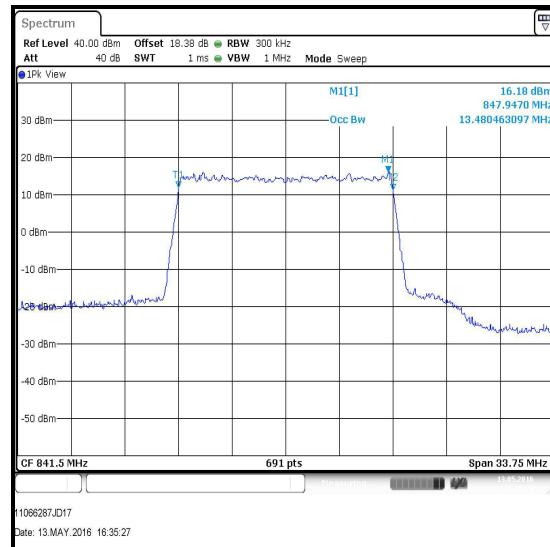


**Transmitter Occupied Bandwidth (continued)****Results: 15 MHz Channel Bandwidth / 16QAM**

Channel	Resource Block(s)	Resource Block Offset	Resolution Bandwidth (kHz)	Video Bandwidth (kHz)	Occupied Bandwidth (MHz)
Boundary	75	0	300	1000	13.529
Bottom	75	0	300	1000	13.529
Middle	75	0	300	1000	13.529
Top	75	0	300	1000	13.480

**Boundary Channel / 16QAM****Bottom Channel / 16QAM****Middle Channel / 16QAM****Top Channel / 16QAM**

**Transmitter Occupied Bandwidth (continued)****Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M2002	Thermohygrometer	Testo	608-H1	45041825	02 Apr 2017	12
M1869	Wideband Radio Comms Tester	Rohde & Schwarz	CMW500	145923	05 Apr 2017	12
A2845	Attenuator	Radiall	R411.806.121	24325927	Calibrated before use	-
A2844	Attenuator	Radiall	R411.803.121	23404066	Calibrated before use	-
A2504	Directional Coupler	AtlanTecRF	CDC-003060-10	13122501839	Calibrated before use	-
S0577	Power Supply	TTi	CPX400S	436670	Calibrated before use	-
M1269	Multimeter	Fluke	179	90250210	26 May 2016	12
M1835	Signal Analyser	Rohde & Schwarz	FSV30	103050	26 Feb 2017	12

### **5.2.3. Transmitter Frequency Stability (Temperature Variation)**

#### **Test Summary:**

<b>Test Engineer:</b>	Stefan Ho	<b>Test Date:</b>	05 May 2016
<b>Test Sample IMEI:</b>	357232070003189		

<b>FCC Reference:</b>	Parts 22.355 and 2.1055
<b>Test Method Used:</b>	KDB 971168 Section 9.0 referencing ANSI TIA-603-D-2010 Section 2.2.2 and FCC Part 2.1055

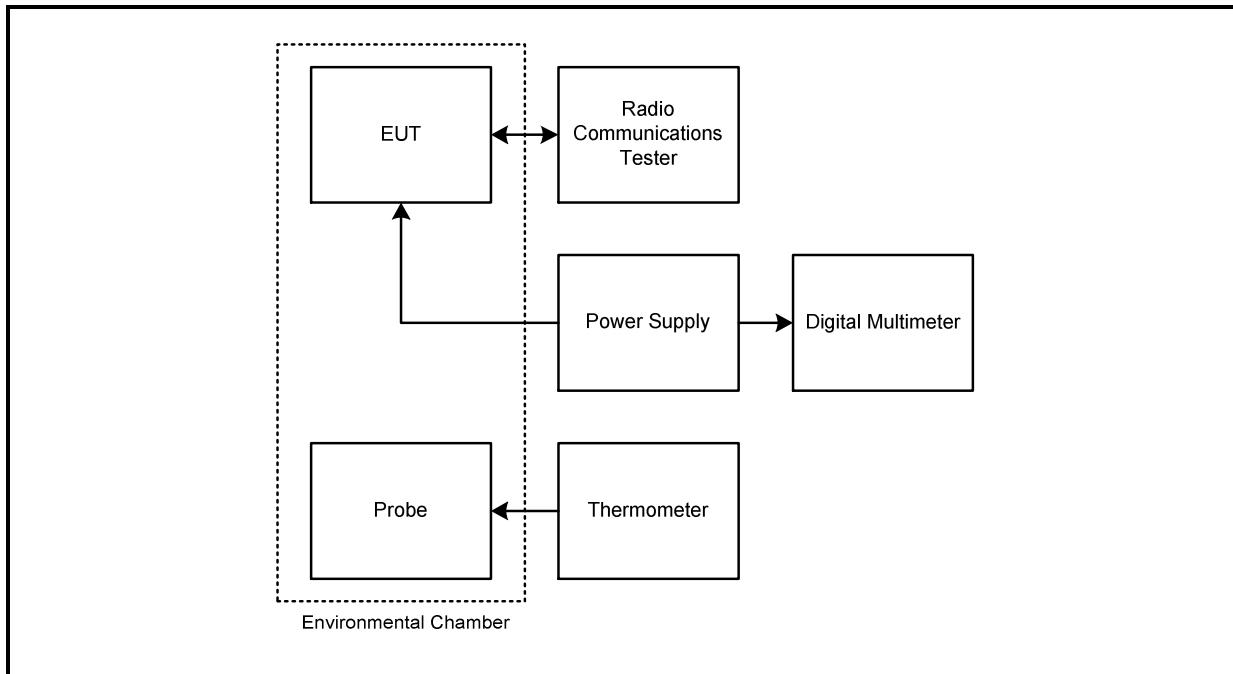
#### **Environmental Conditions:**

<b>Ambient Temperature (°C):</b>	23
<b>Ambient Relative Humidity (%):</b>	40

#### **Note(s):**

1. Flying leads were connected internally to the EUT in place of the battery. These leads extended and connected to a bench power supply at the nominal voltage of 3.9 V.
2. Frequency error was measured using a calibrated Rohde & Schwarz CMW 500 Universal Radio Communications Tester in accordance with current Rohde & Schwarz application notes. The EUT was connected by suitable RF cables to the CMW 500. A bi-directional communications link was established between the EUT and CMW 500. The frequency meter value was recorded.
3. Temperature was monitored throughout the test with a calibrated digital thermometer.

#### **Test setup:**



**Transmitter Frequency Stability (Temperature Variation) (continued)****Results: Middle Channel (836.5 MHz)**

Temperature (°C)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Margin (ppm)	Result
-30	836.499995	5	0.0060	2.5	2.4940	Complied
-20	836.499995	5	0.0060	2.5	2.4940	Complied
-10	836.500005	5	0.0060	2.5	2.4940	Complied
0	836.500005	5	0.0060	2.5	2.4940	Complied
10	836.500006	6	0.0072	2.5	2.4928	Complied
20	836.500005	5	0.0060	2.5	2.4940	Complied
30	836.499996	4	0.0048	2.5	2.4952	Complied
40	836.500005	5	0.0060	2.5	2.4940	Complied
50	836.499996	4	0.0048	2.5	2.4952	Complied

**Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1659	Thermohygrometer	JM Handelpunkt	30.5015.13	None stated	02 Apr 2017	12
M1869	Wideband Radio Comms Tester	Rohde & Schwarz	CMW 500	145923	05 Apr 2017	12
M1674	Environmental Chamber	Espec Corporation	SU-241	90213139	Calibrated before use	-
M1249	Thermometer	Fluke	52II	88800049	27 May 2016	12
S021	DC power supply	TTI	CPX200	061034	Calibrated before use	-
M1251	Multimeter	Fluke	175	89170179	13 May 2017	12

**5.2.4. Transmitter Frequency Stability (Voltage Variation)****Test Summary:**

Test Engineer:	Stefan Ho	Test Date:	05 May 2016
Test Sample IMEI:	357232070003189		

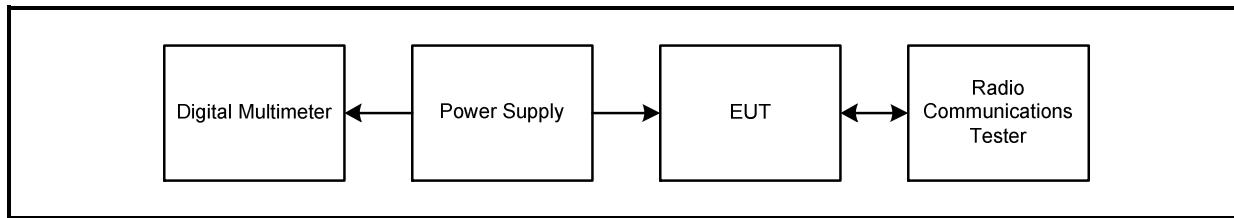
FCC Reference:	Parts 22.355 and 2.1055
Test Method Used:	KDB 971168 Section 9.0 referencing ANSI/TIA-603-D-2010 Section 2.2.2 and FCC Part 2.1055

**Environmental Conditions:**

Temperature (°C):	23
Relative Humidity (%):	40

**Note(s):**

1. Flying leads were connected internally to the EUT in place of the battery. These leads extended and connected to a bench power supply.
2. Frequency error was measured using a calibrated Rohde & Schwarz CMW 500 Universal Radio Communications Tester in accordance with current Rohde & Schwarz application notes. The EUT was connected by suitable RF cables to the CMW 500. A bi-directional communications link was established between the EUT and CMW 500. The frequency meter value was recorded.
3. Voltage was monitored throughout the test with a calibrated digital voltmeter.

**Test setup:**

**Transmitter Frequency Stability (Voltage Variation) (continued)****Results: Middle Channel (836.5 MHz)**

Supply Voltage (V)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Margin (ppm)	Result
3.5	836.500004	4	0.0048	2.5	2.4952	Complied
4.4	836.500005	5	0.0060	2.5	2.4940	Complied

**Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1659	Thermohygrometer	JM Handelpunkt	30.5015.13	None stated	02 Apr 2017	12
M1869	Wideband Radio Comms Tester	Rohde & Schwarz	CMW 500	145923	05 Apr 2017	12
S021	DC power supply	TTI	CPX200	061034	Calibrated before use	-
M1251	Multimeter	Fluke	175	89170179	13 May 2017	12

## **6. Measurement Uncertainty**

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document "approximately" is interpreted as meaning "effectively" or "for most practical purposes".

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
Conducted Carrier Output Power	824 MHz to 849 MHz	95%	±1.36 dB
Occupied Bandwidth	824 MHz to 849 MHz	95%	±3.92 %
Frequency Stability	824 MHz to 849 MHz	95%	±23 Hz

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

## **7. Report Revision History**

Version Number	Revision Details		
	Page No(s)	Clause	Details
1.0	-	-	Initial Version

--- END OF REPORT ---