Frequency Stability Measurements

For

Airspan Communications Ltd

Airsynergy 3.6 GHz TDD base station

FCC ID: O2J-365AS

SC_TR_40_A

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1 Revision History

Revision	Originator	Date	Comment
A	C Blackham	16 August 2011	First Issue

2 Associated Documents

[1]	47CFR2	Title 47 of FCC Rules Part 2
[2]	ANSI / TIA-603-C-2004	TIA Standard: Land Mobile FM or PM – Communications Equipment – Measurement and Performance Standards

3 Test Configuration

The unit shall be connected in a real-life representative manner as follows:

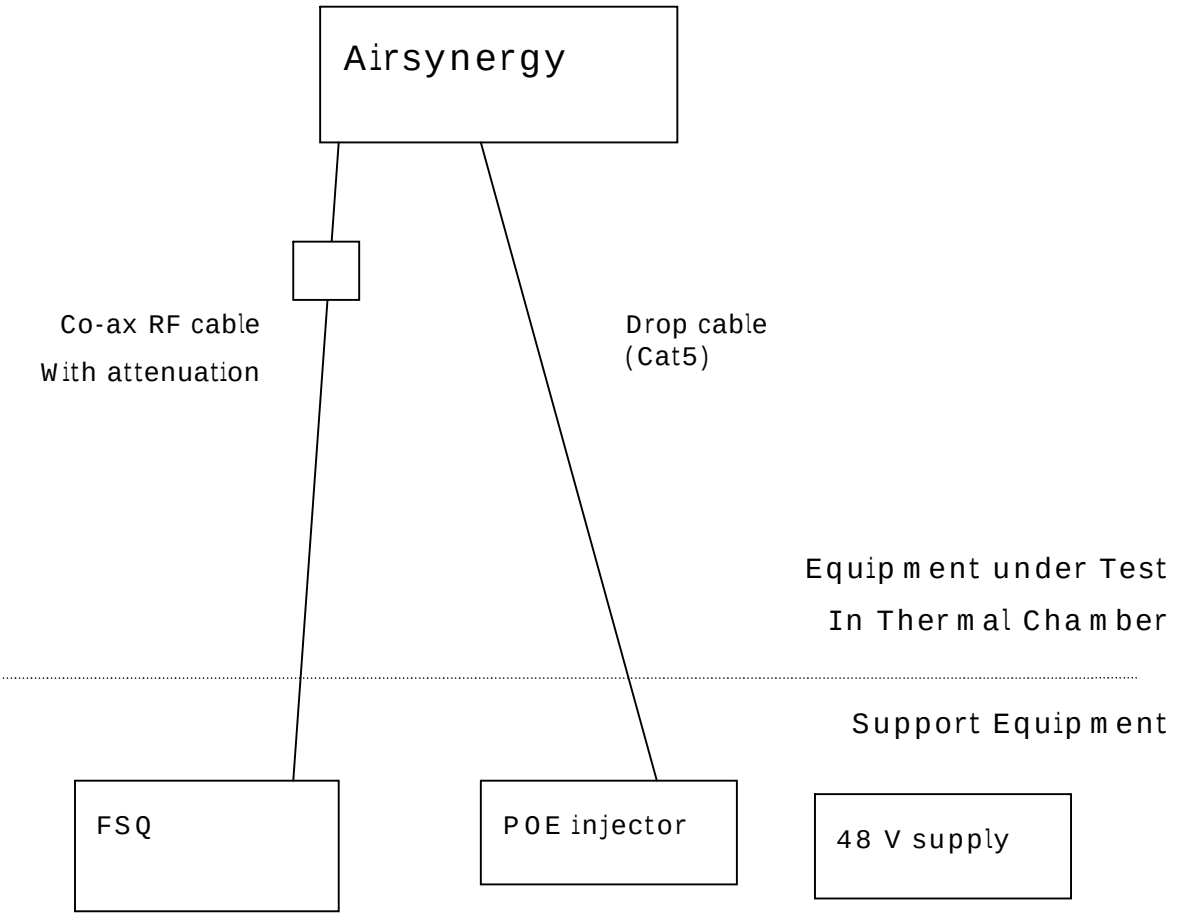


Figure 1: Test Configuration

Item	Part Number	Serial Number
Airsynergy	SYN2-CN-00-A36-000	9B23B3FFFF28 (baseband board)

Table 1: Equipment under test

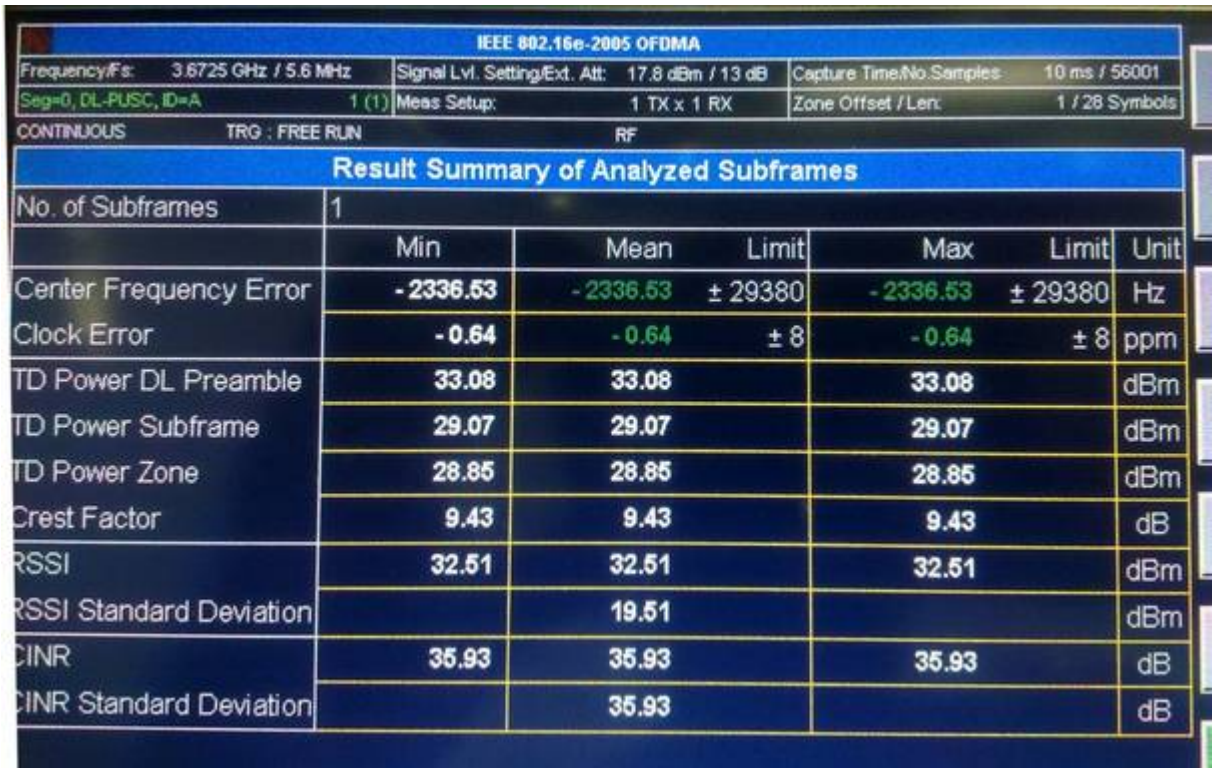
3.1 Measurement method

- The EUT was placed into the thermal chamber and connected to a DC supply and FSQ measuring receiver outside the chamber
- The EUT was placed into commissioning mode and set to transmit a test waveform at 3672.5 MHz.
- The FSQ is fitted with the WiMAX 802.16e option and was set to reported Frequency error in Hz relative to expected frequency of 3672.5 MHz
- The Temperature of the chamber was varied between -30°C and +50°C in 10°C steps and the EUT temperature allowed to stabilise for one hour at each. Supply voltage was also varied when chamber was at 20°C.
- Frequency error was measured by the FSQ and the results shown in section 4.

4 Test Results

Temp (°C)	Voltage (V dc)	Freq Err (Hz)		Freq Err (ppm)	
		Tx1	Tx2	Tx1	Tx2
-30	48	-5393	-5050	-1.5	-1.4
-20	48	-5600	-5558	-1.5	-1.5
-10	48	-4657	-4661	-1.3	-1.3
0	48	-3135	-3127	-0.9	-0.9
10	48	-1947	-1953	-0.5	-0.5
20	40.8	-2349	-2342	-0.6	-0.6
	48	-2350	-2336	-0.6	-0.6
	55.2	-2348	-2329	-0.6	-0.6
30	48	-3657	-3491	-1.0	-1.0
40	48	-4764	-4866	-1.3	-1.3
50	40.8	-3547	-3570	-1.0	-1.0

Table 2: Test results



IEEE 802.16e-2005 OFDMA

Frequency/Fs: 3.6725 GHz / 5.6 MHz	Signal Lvl. Setting/Ext. Att: 17.8 dBm / 13 dB	Capture Time/No.Samples: 10 ms / 56001
Seg=0, DL-PUSC, ID=A 1 (1)	Meas Setup: 1 TX x 1 RX	Zone Offset / Len: 1 / 28 Symbols
CONTINUOUS TRG : FREE RUN	RF	

Result Summary of Analyzed Subframes

No. of Subframes	1					
	Min	Mean	Limit	Max	Limit	Unit
Center Frequency Error	-2336.53	-2336.53	± 29380	-2336.53	± 29380	Hz
Clock Error	-0.64	-0.64	± 8	-0.64	± 8	ppm
TD Power DL Preamble	33.08	33.08		33.08		dBm
TD Power Subframe	29.07	29.07		29.07		dBm
TD Power Zone	28.85	28.85		28.85		dBm
Crest Factor	9.43	9.43		9.43		dB
RSSI	32.51	32.51		32.51		dBm
RSSI Standard Deviation		19.51				dBm
CINR	35.93	35.93		35.93		dB
CINR Standard Deviation		35.93				dB

Figure 2: Example FSQ data capture (48V at 20°C)

5 Test Equipment

Item	Serial Number	Calibration
R&S FSQ 26	Airspan No 005316 S/N 200022	Cal Date 2011-06-14 Cal Ref 1400-37051

Table 3: List of Test Equipment