

Frequency Stability Measurements
For
Airspan Communications Ltd
Airsynergy 2.3 GHz TDD base station
FCC ID: O2J-235AS

SC_TR_39_B

05 September 2011

Contents

1	Revision History	3
2	Associated Documents.....	3
3	Test Configuration	4
3.1	Measurement method.....	5
4	Test Results.....	5
5	Test Equipment	6

Tables

Table 1:	Equipment under test.....	4
Table 2:	Test results	5
Table 3:	List of Test Equipment.....	6

Figures

Figure 1:	Test Configuration.....	4
Figure 2:	Example FSQ data capture (48V at 20°C).....	6

1 Revision History

Revision	Originator	Date	Comment
A	C Blackham	16 August 2011	First Issue
B	C Blackham	05 September 2011	Typo corrected in table 2

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:

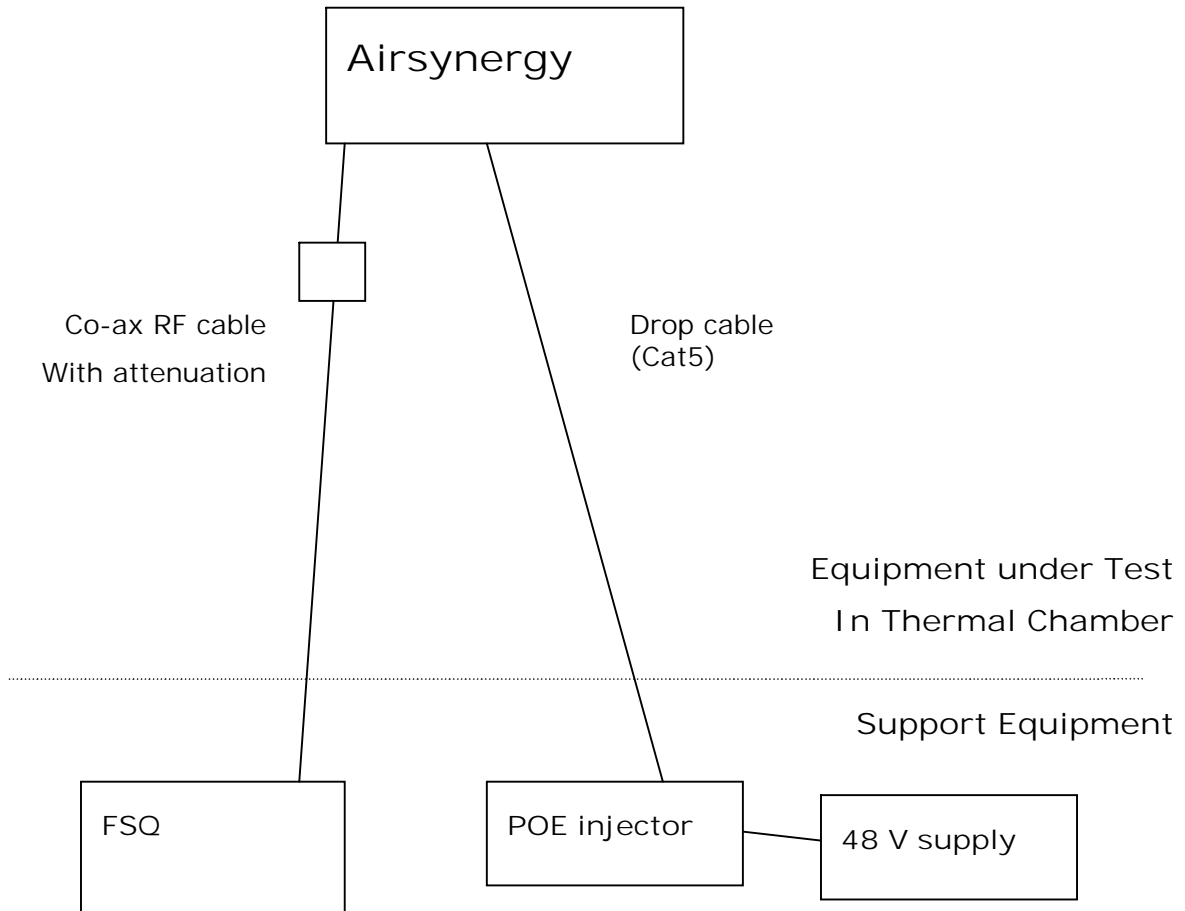


Figure 1: Test Configuration

Item	Part Number	Serial Number
Airsynergy	SYN2-CN-00-U40-000	9B2312FFFF23 (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 2347.9 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 2347.9 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 Error (ppm)	
		Tx1	Tx2	Tx1	Tx2
-30	48	-3176	-3194	-1.4	-1.4
-20	48	-2936	-2925	-1.3	-1.2
-10	48	-2995	-2988	-1.3	-1.3
0	48	-3049	-3046	-1.3	-1.3
10	48	-2418	-2408	-1.0	-1.0
20	40.8	-900	-902	-0.4	-0.4
	48	-904	903	-0.4	0.4
	55.2	-891	-896	-0.4	-0.4
30	48	-2038	-2045	-0.9	-0.9
40	48	-2617	-2593	-1.1	-1.1
50	48	-3239	-3237	-1.4	-1.4

Table 2: Test results

IEEE 802.16e-2005 OFDMA						
Frequency/Fs:	2.3479 GHz / 4 MHz	Signal Lvl. Setting/Ext. At-	-13.3 dBm / 41 dB	Capture Time/No.Samples:	15 ms / 60001	
Seg=0, DL-PUSC, ID=A	3 (3)	Meas Setup:	1 TX x 1 RX	Zone Offset / Len:	1 / 20 Symbols	
CONTINUOUS	TRG : ..	RF				
Result Summary of Analyzed Subframes						
No. of Subframes	3					
	Min	Mean	Limit	Max	Limit	Unit
Center Frequency Error	- 904.24	- 904.54	± 18783	- 904.76	± 18783	Hz
Clock Error	- 0.43	- 0.48	± 8	- 0.55	± 8	ppm
TD Power DL Preamble	28.36	28.36		28.36		dBm
TD Power Subframe	25.03	25.03		25.03		dBm
TD Power Zone	24.79	24.80		24.80		dBm
Crest Factor	9.65	9.66		9.66		dB
RSSI	27.78	27.78		27.78		dBm
RSSI Standard Deviation		- 13.22				dBm
CINR	25.26	25.27		25.27		dB
CINR Standard Deviation		25.26				dB

Running ...

Date: 21.JUL.2011 08:57:13

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