

## PCN – Product Change Notification

Change:	Active Patch Modules modified to include Front End SAW Filter
Date:	14 <sup>th</sup> October 2011
Author	AD

### Affected Products

Internal GPS - Active Patch Modules	Model# (Old)	Model# (New)	Part Number(Old) Standard part	Part Number (New) Standard part	Estimated Transition Date
Internal GPS	AP.10A	AP.10E	AP.10A.07.0050B	AP.10E.07.0039B	Dec 01 2011
Internal GPS	AP.10B	AP.10F	AP.10B.07.0050B	AP.10F.07.0039B	Dec 01 2011
Internal GPS	AP.10C	AP.10G	AP.10C.01	AP.10G.01	Dec 01 2011
Internal GPS	AP.10D	AP.10H	AP.10D.01	AP.10H.01	Dec 01 2011
Internal GPS	AP.12B	AP.12F	AP.12B.07.0057A	AP.12F.07.0045A	Dec 01 2011
Internal GPS	AP.17A	AP.17E	AP.17A.07.0040A	AP.17E.07.0033A	Dec 01 2011
Internal GPS	AP.17B	AP.17F	AP.17B.07.0040A	AP.17F.07.0029A	Dec 01 2011

### Type of Change

- Hardware Modification  
 Others

### Description of Change

A Front-end SAW Filter has been added to the Active Patch Modules. The reasons are:

1. With more compact wireless devices, the cellular module and antenna are in closer proximity to the GPS module. GSM for example uses power levels up to 2W (+33dBm). The absolute maximum power input at the GPS receiver is typically -5dBm. In such devices an additional input filter is needed on the GPS side to prevent the high energy being radiated from the cellular system getting into the GPS. It also helps protect the LNA in the GPS antenna from burnout.
2. Assists in preventing in-band jamming. In band jamming occurs if there is another signal whose frequency is very close to the GPS frequency of 1575MHz. Such jamming signals are typically caused by harmonics from displays, micro-controller, bus systems, etc.
3. Assists in preventing out of band jamming. Out of band jamming is typically caused by signal frequencies that are different from the GPS carrier. The sources are usually wireless communication systems such as GSM, CDMA, WCDMA, Wi-Fi, BT, etc. These filters limit disruptive emissions below the noise floor near the GPS frequency.

### Schedule

The Estimated Transition Date is the forecast date at which customers should be prepared to receive the changed product with the New Type Number. The exact date depends on Taoglas stock depletion and may be affected by fluctuations in supply and demand. Taoglas will continue to ship the Old Type Number until inventory has been depleted. This may result in product with the Old Type Number being shipped to customers beyond the forecast Estimated Transition Date.

All non-standard modules will also change over to the new model types.